Engineering Connection Assessment

P1828 Alderson Solar Power Project Connection

hep Canada SPV 1 Ltd

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The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

NOTE:

The conclusions and recommendations in this report are based on the results presented in *Attachment A: Engineering Connection Assessment: Study Results*, which was prepared by a third party consultant in accordance with the AESO Connection Process.

The AESO has reviewed the *Engineering Connection Assessment: Study Results* and finds it acceptable for the purpose of assessing the potential impacts of the proposed connection on the performance of the Alberta interconnected electric system.

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Attachments

Attachment A: Engineering Connection Assessment Results

1 Introduction

This AESO Engineering Connection Assessment describes the engineering studies that were completed to assess the impact of the Project (as defined below) on the performance of the Alberta interconnected electric system (AIES). This report also provides the AESO's conclusions and recommendations based on the results of the engineering studies.

Attached to this Engineering Connection Assessment are the results of the engineering studies (see Attachment A) and the scope and methodology used to perform the studies (see Attachment A1 to Attachment A). These attachments provide details regarding the technical criteria, assumptions, and methods for performing these engineering studies, and the results of the engineering studies.

1.1 Project Overview

Hep Canada SPV 1 Ltd. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its proposed Alderson Solar Power Project (Facility) to the AIES. The Facility includes a proposed collector substation, to be designated the Alderson Park 1061S substation.

The Market Participant's request includes: a request for a new system access service in the area, with a Rate STS, *Supply Transmission Service*, contract capacity of 100 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 0.5 MW; and a request for transmission development (collectively, the Project).

The scheduled in-service date (ISD) for the Project is Dec. 2, 2024.

2 Assessment Scope

2.1 Objectives

The objectives of the AESO Engineering Connection Assessment are as follows:

- Assess the impact of the Project on the performance of the AIES.
- Evaluate Project connection alternatives and identify the AESO's preferred alternative.
- Recommend mitigation measures, if required, to reliably connect the Project to the AIES.
- Identify Project dependencies, including any TFO projects or AESO plans to expand or enhance the transmission system that must be completed prior to connection.

2.2 Existing System

Geographically, the Project is located in the AESO planning area of Vauxhall (Area 52), which is part of the AESO South planning region. The Vauxhall area (Area 52) is electrically connected to the neighbouring planning areas of Medicine Hat (Area 4), Brooks (Area 47), and Lethbridge (Area 54).

From a transmission system perspective, the Vauxhall Area (Area 52) consists primarily of 138 kV transmission systems. The Vauxhall Area (Area 52) is connected to the Medicine Hat Area (Area 4) with one 138 kV transmission line, the Brooks Area (Area 47) with two 138 kV transmission lines, and the Lethbridge Area (Area 54) with one 138 kV transmission line.

Existing constraints in the South planning region are managed in accordance with the procedures set out in Section 302.1 of the ISO rules, *Real Time Transmission Constraint Management* (TCM Rule).

2.3 Study Area

The Study Area for the Project consists of the AESO Planning areas of Empress (Area 48), Medicine Hat (Area 4), Brooks (Area 47), and Vauxhall (Area 52), including the tie lines connecting these planning areas to the rest of the AIES. All transmission facilities within the Study Area will be studied and monitored for violations of the Reliability Criteria (defined in Section 3.1 of Attachment A1).

3 Connection Alternatives

3.1 Overview

The AESO, in consultation with the TFO in the Study Area and the Market Participant, examined five transmission alternatives to meet the Market Participant's request for system access service, as detailed in Section 3.2.

3.2 Connection Alternatives Examined

Below is a description of the developments associated with the transmission alternatives that were examined for the Project.

Alternative 1 – In-and-out connection to 240 kV transmission line 1034L

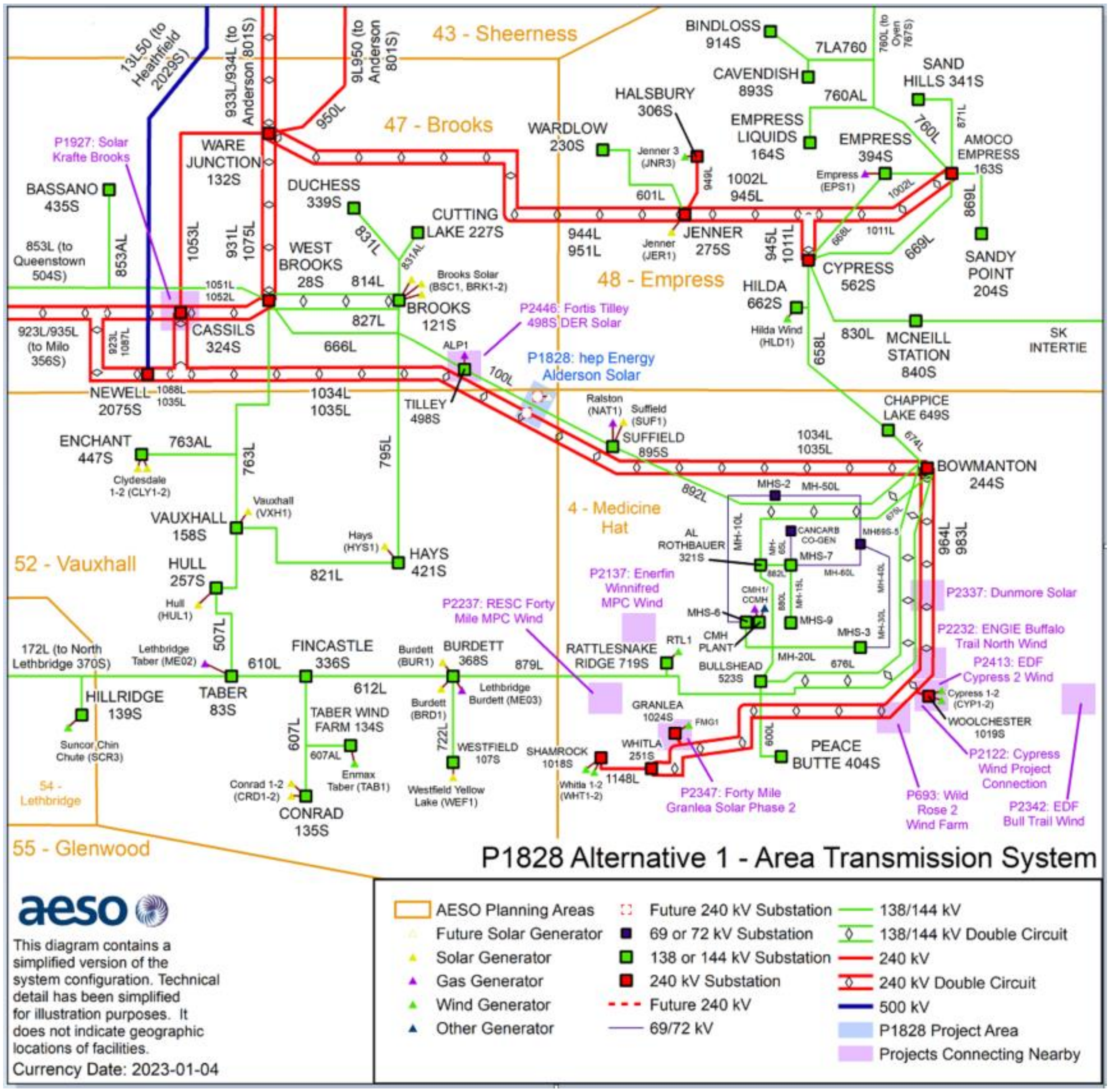
This alternative includes the following developments:

- Add a substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 1034L (between the Bowmanton 244S and Cassils 324S substations) using an in-and-out configuration;
- Add one 240 kV circuit, approximately 3 km[1] in length, to connect the Facility to the proposed substation; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-1.

[1] Exact line length for all connection alternatives listed are to be determined by the TFO and Market Participant, as applicable.

Figure 3-1: Connection Alternative 1



Alternative 2 – In-and-out connection to 240 kV transmission line 1035L

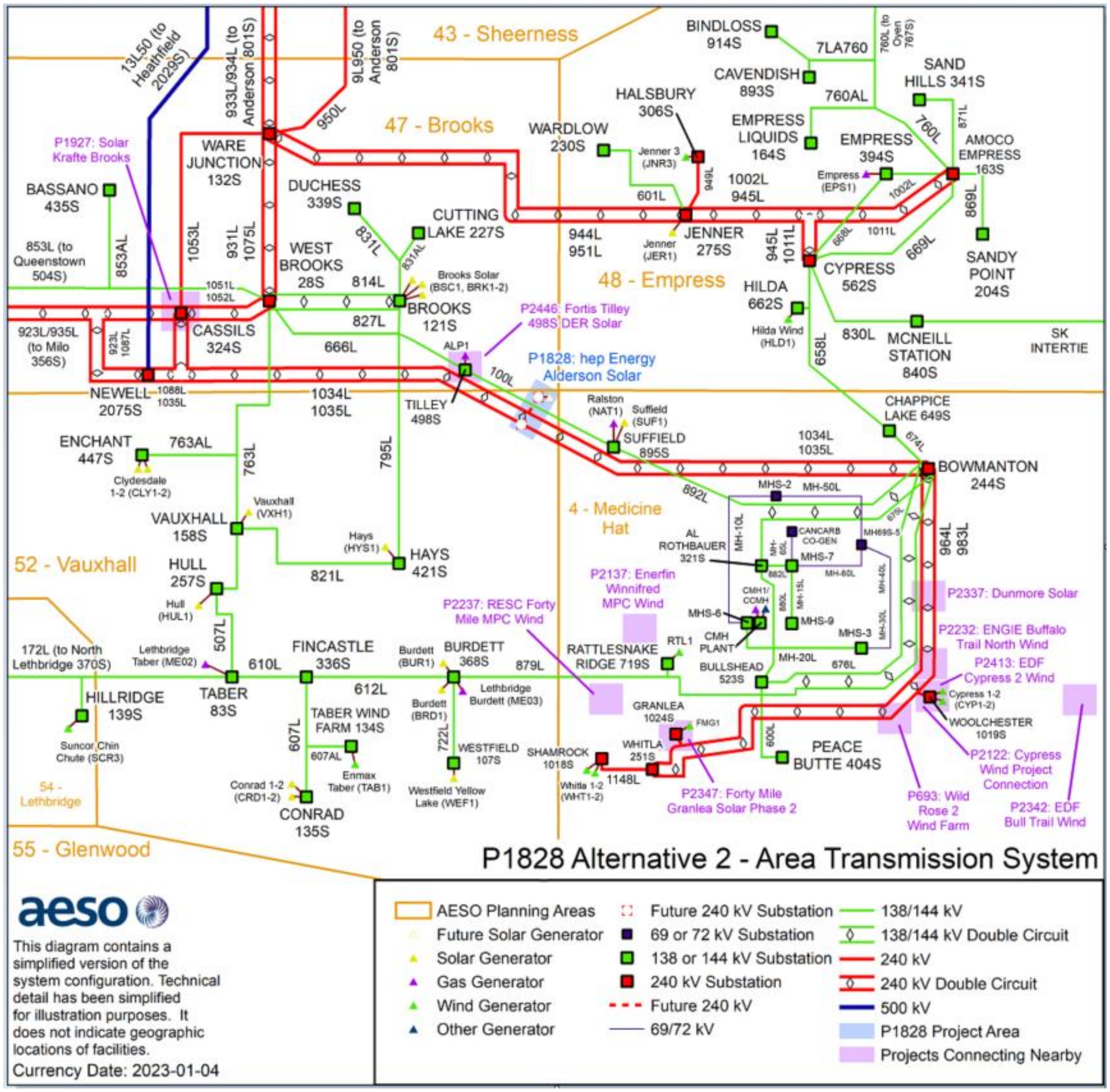
This alternative includes the following developments:

- Add a substation, including three 240 kV circuit breakers, connected to the existing 240 kV transmission line 1035L (between the Bowmanton 244S and Newell 2075S substations) using an in-and-out configuration;
- Add one 240 kV circuit, approximately 3 km[2] in length, to connect the Facility to the proposed substation, which would require crossing the 240 kV transmission line 1034L; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-2.

[2] Exact line length for all connection alternatives listed are to be determined by the TFO and Market Participant, as applicable.

Figure 3-2: Connection Alternative 2



Alternative 3 – T-tap connection to 138 kV transmission line 100L

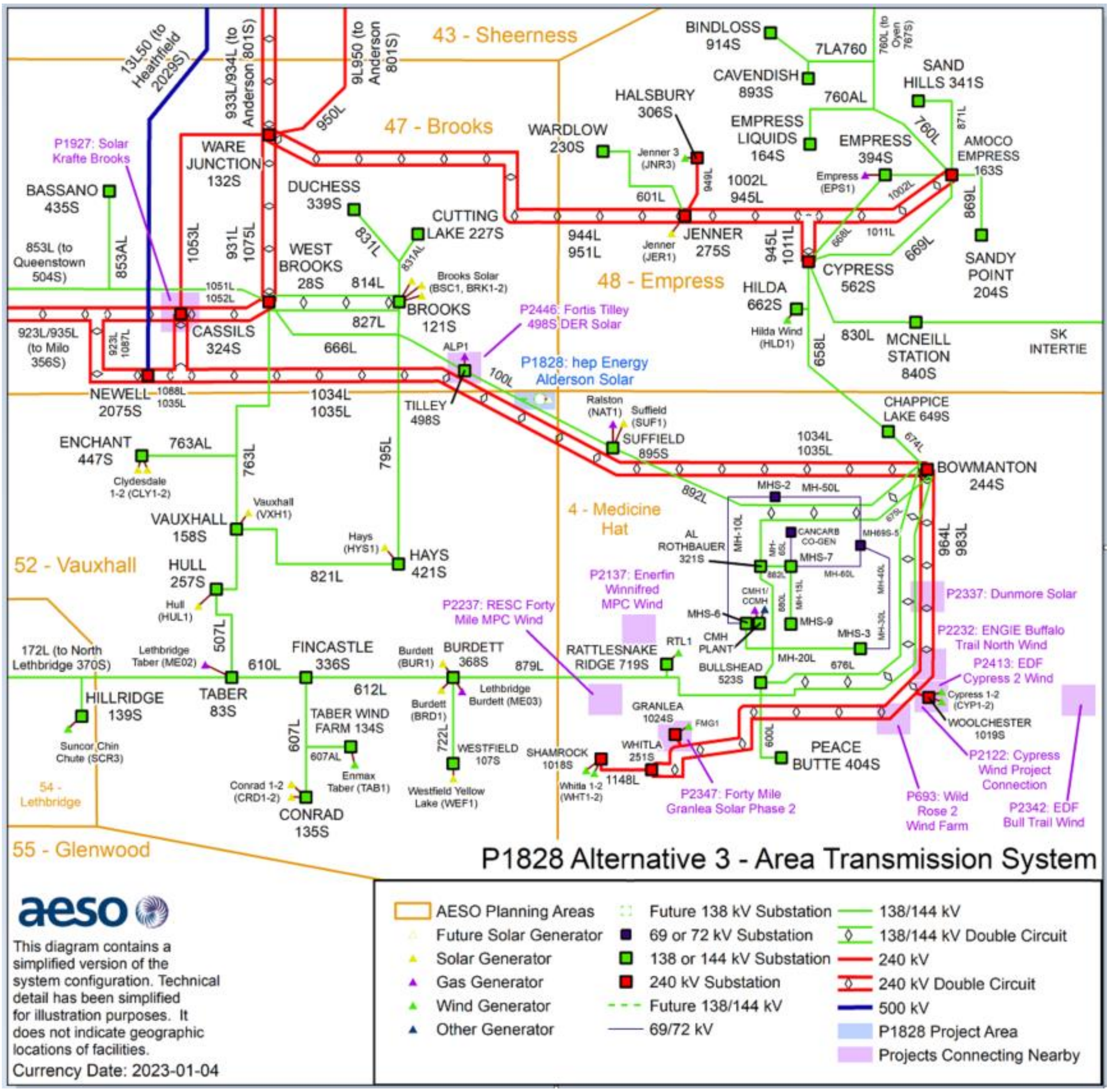
This alternative includes the following developments:

- Add one 138 kV circuit, approximately 3.5 km[3] in length, to connect the Facility to the existing 138 kV transmission line 100L using a T-tap configuration; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-3.

[3] Exact line length for all connection alternatives listed are to be determined by the TFO and Market Participant, as applicable.

Figure 3-3: Connection Alternative 3



Alternative 4 – T-tap connection to 240 kV transmission line 1034L

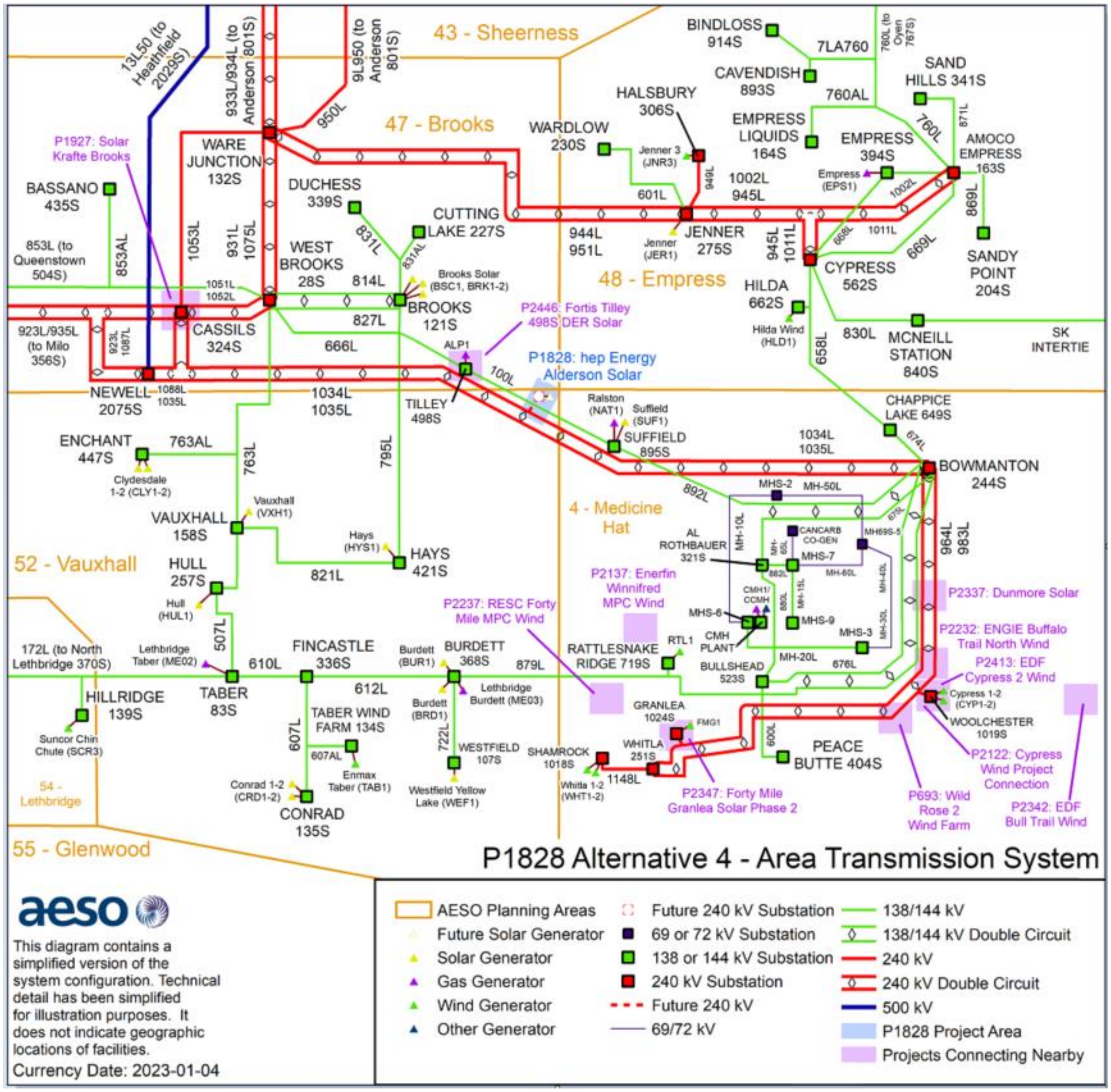
This alternative includes the following developments:

- Add one 240 kV circuit, approximately 3 km[4] in length, to connect the Facility to the existing 240 kV transmission line 1034L using a T-tap configuration; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-4.

[4] Exact line length for all connection alternatives listed are to be determined by the TFO and Market Participant, as applicable.

Figure 3-4: Connection Alternative 4



Alternative 5 – T-tap connection to 240 kV transmission line 1035L

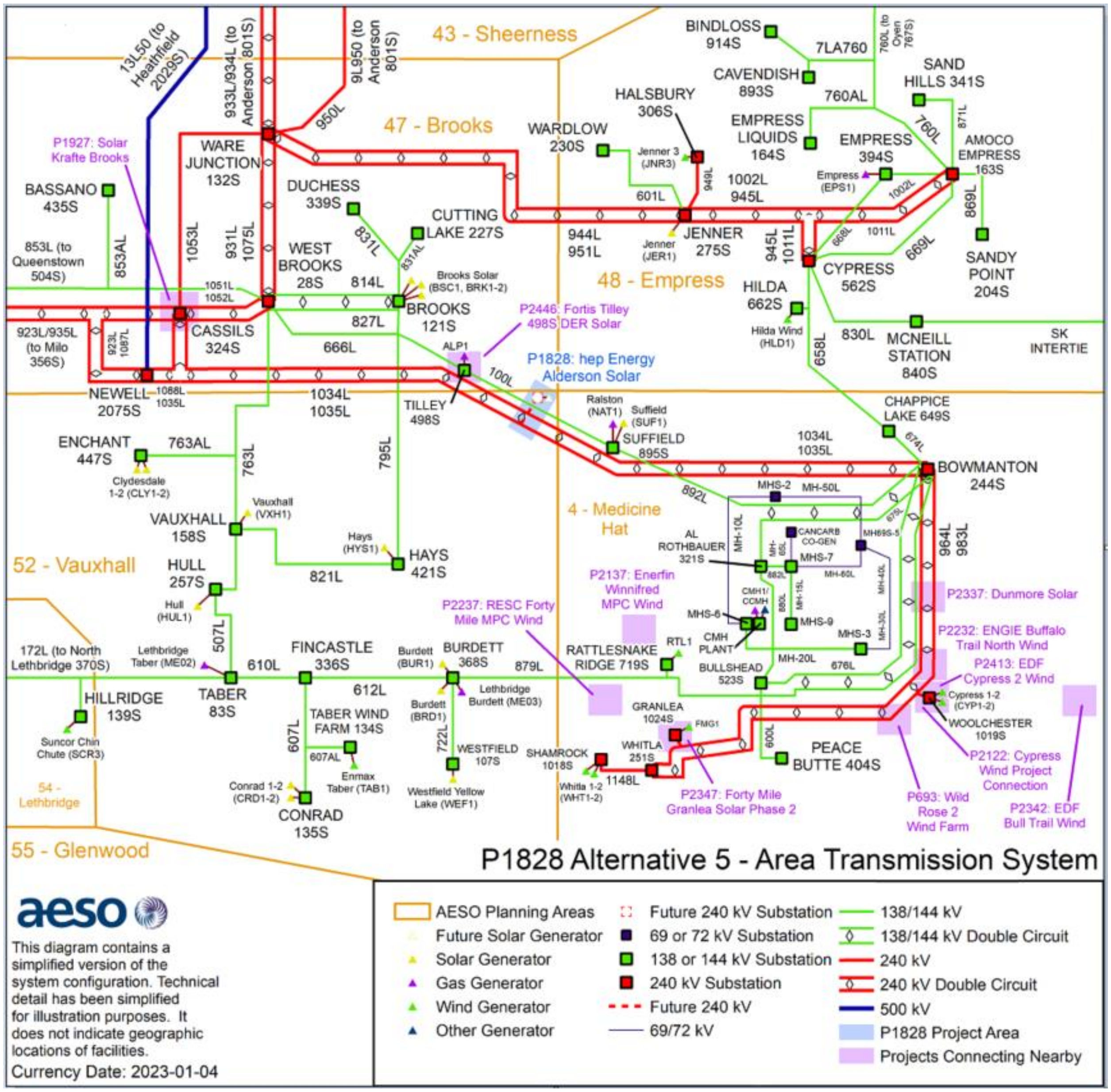
This alternative includes the following developments:

- Add one 240 kV circuit, approximately 3 km[5] in length, to connect the Facility to the existing 240 kV transmission line 1035L using a T-tap configuration, which would require crossing the 240 kV transmission line 1034L; and
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 3-5.

[5] Exact line length for all connection alternatives listed are to be determined by the TFO and Market Participant, as applicable.

Figure 3-5: Connection Alternative 5



3.3 Connection Alternatives Selected for Further Study

Alternative 3 is considered technically feasible and was selected for further study.

3.4 Connection Alternatives Not Selected for Further Study

Alternatives 1, 2, 4, and 5 would involve increased transmission development and hence, increased cost, compared with Alternative 3. Therefore, Alternatives 1, 2, 4 and 5 were ruled out.

4 Assessment Approach

4.1 Standards, Criteria and Assumptions

A detailed description of the standards, criteria, and assumptions that were used for the connection assessment is provided in Attachment A (see Attachment A1).

4.2 Studies Performed

The scheduled ISD for the Project is Dec. 2, 2024; therefore, studies were performed using scenarios for 2025 Summer Light and Summer Peak.

Short-circuit studies were performed using the 2031 Winter Peak scenario.

Table 4-1 lists the study scenarios. Post-Project scenarios reflect the requested Rate STS contract capacity of 100 MW at the Alderson Park 1061S substation.

Table 4-1: Connection Study Scenarios

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
Pre-Project					
1	2025 Summer Peak (2025 SP)	High South generation, high solar generation	2025 SP Pre-Project-HG	0	0
2	2025 Summer Light (2025 SL)		2025 SL Pre-Project-HG	0	0
Post-Project					
3	2025 SP	High South generation, high solar generation	2025 SP Post -Project- HG	0	100
4	2025 SL		2025 SL Post -Project- HG	0	100
5	2031 WP	All study area generation in-service	2031 WP Post-Project- HG	0	100

The AESO Planning Region load forecasts used for the connection studies were based on the *AESO's 2021 Long-term Outlook* (2021 LTO).

4.2.1 Power Flow Studies

The purpose of the power flow studies is to identify and quantify any thermal and voltage criteria violations in the Study Area.

In addition, power flow studies are also used to identify point of delivery (POD) low voltage bus voltage deviations beyond the limits listed in Table 3-1 of Attachment A1.[6]

Power flow studies were performed for the 2025 Summer Light and 2025 Summer Peak pre-Project scenarios, and for 2025 Summer Light and 2025 Summer Peak post-Project scenarios.

4.2.2 Transient Stability Studies

The purpose of the transient stability studies is to assess the post-Project stability of the transmission system after three-phase to ground faults are applied on select transmission lines in the Study Area.

Transient stability studies were performed for the 2025 Summer Light and 2025 Summer Peak post-Project scenarios.

4.2.3 Short-Circuit Current Level Studies

The purpose of short-circuit current level studies is to determine the expected system short-circuit current levels in the vicinity of the Project.

Short circuit studies were performed for the 2025 Summer Peak pre-Project scenario and for the 2025 Summer Peak and 2031 Winter Peak post-Project scenarios.

4.3 Mitigation Measure Development and Evaluation

As explained in Section 6 of Attachment A1, mitigation measures were developed to address system performance issues that were identified in the post-Project scenarios. Studies performed to assess the effectiveness of mitigation measures are briefly outlined below.

4.3.1 Post-Mitigation Studies

Power flow, transient stability, and short-circuit current level studies were performed to assess the impact of the Project on the performance of the AIES following implementation of the AESO's proposed mitigation measures.

4.3.2 Constraint Effective Factor Studies

Constraint effective factor studies were used to determine the generator and load constraint effective factors and to identify the most effective generators or loads to manage thermal criteria violations that were observed under Category B conditions.

[6] The AESO's desired post-contingency voltage deviations for low voltage busses represent guidelines rather than criteria. A POD bus voltage deviation that exceeds the desired limits shown in Table 3-1 of Attachment A1 does not represent a Reliability Criteria violation. Mitigation measures would not be developed to specifically address POD bus voltage deviations that exceed the desired values in Table 3-1 of Attachment A1.

5 Interpretation of Results

5.1 Results Overview

This section provides an assessment of the impact of the Project on the performance of the AIES. The Reliability Criteria violations observed during the connection assessment studies, and the proposed mitigation measures are summarized in Table 5-1.

- Section 5.2 includes an overview of the pre-Project studies results.
- Section 5.3 includes an overview of the post-Project studies results.
- Section 5.4 includes a description of the proposed mitigation measures to address observed Reliability Criteria violations.

Detailed study results are provided in Attachment A.

Table 5-1: Summary of Reliability Criteria Violations, Project Impact and Mitigation Measures

Scenario	Type of Reliability Criteria Violation		Contingency (System Element Lost)	Details of Violation	Project Impact	Pre-Project Mitigation Measures	Post-Project Mitigation Measures
	Pre-Project	Post-Project					
2025 Summer Peak	Thermal - above emergency rating	Thermal - above emergency rating	System Normal	Line 610L (Fincastle 336S to Taber 83S)	Materially increased violation	Real-time operational practices and system project P7075	Real-time operational practices and system project P7075
	Thermal - above normal rating	Thermal - above emergency rating		Line 612L (Fincastle 336S to Suffield 895S)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above emergency rating	Thermal - above emergency rating		Line 172L (Taber 83S to 172EL Tap)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above normal rating	Thermal - above normal rating		Line 760L (Oyen 394S to P2421 Tap)	Materially increased violation	Real-time operational practices	Real-time operational practices
	None	Thermal - above emergency rating		Line 100L (P1828 Tap to Tilley 498S)	New violation	None	Increase the thermal rating of 100L (P1828 tap point – Tilley 498S)
	Thermal - above emergency rating	Thermal - above emergency rating		Line 924L (Milo 356s to Langdon 102s)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above emergency rating	Thermal - above emergency rating		Line 927L (Milo 356s to Langdon 102s)	Materially increased violation	Real-time operational practices	Real-time operational practices
	None	Thermal - above normal rating	612L (Burdett 368S to Fincastle 336S)	Line 100L (P1828 Tap to Tilley 498S)	New violation	None	Real-time operational practices
	None	Thermal - above normal rating	610L (Taber 83S to Fincastle 336S)	Line 100L (P1828 Tap to Tilley 498S)	New violation	None	Real-time operational practices
	None	Thermal - above normal rating	871L (Amoco Empress 163S to Sand Hills 341S)	Line 924L (Milo 356s to Langdon 102s)	New violation	None	Real-time operational practices
	None	Thermal - above normal rating	763L (Vauxhall 158S to Hull 257S)	Line 610L (Fincastle 336S to Taber 83S)	New violation	None	Real-time operational practices
	None	Thermal - above emergency rating	666L (Tilley 498S to West Brooks 28S)	Line 610L (Fincastle 336S to Taber 83S)	New violation	None	Existing RAS 181
	Thermal - above normal rating	Thermal - above normal rating	1051L (West Brooks 28S to Cassils 324S)	Line 1052L (West Brooks 28S to Cassils 324S)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above normal rating	Thermal - above normal rating	1052L (West Brooks 28S to Cassils 324S)	Line 1051L (West Brooks 28S to Cassils 324S)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above normal rating	Thermal - above normal rating	935L (Milo 356S to Cassils 324S)	Line 1087L (Cassils 324S to Newwell 2075S)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above normal rating	Thermal - above normal rating		Line 923L (Milo 356s to Newell 2075s)	Materially increased violation	Real-time operational practices	Real-time operational practices
	None	Thermal - above normal rating	923L (Milo 356S to Newell 2075S)	Line 935L (Milo 356s to Cassils 324s)	New violation	None	Real-time operational practices
	Thermal - above emergency rating	Thermal - above emergency rating	924L (Langdon 102S to Milo 356S)	Line 927L (Milo 356s to Langdon 102s)	Materially increased violation	Existing RAS 175	Existing RAS 175
	Thermal - above emergency rating	Thermal - above emergency rating	927L (Langdon 102S to Milo 356S)	Line 924L (Milo 356s to Langdon 102s)	Materially increased violation	Existing RAS 175	Existing RAS 175
	None	Thermal - above normal rating	831L (Brooks 121S to Duchess 339S)	Line 924L (Milo 356s to Langdon 102s)	New violation	None	Real-time operational practices
	None	Thermal - above normal rating	498ST1T2 (Tilley 498S Transformer T1/T2)	Line 612L (Fincastle 336S to Suffield 895S)	New violation	None	New RAS 209
	None	Thermal - above emergency rating		Line 610L (Fincastle 336S to Taber 83S)	New violation	None	
	None	Thermal - above emergency rating		Line 892L (Suffield 895S to Bowmanton 244S)	New violation	None	
	None	Thermal - above emergency rating		Line 100L (Suffield 895S to P1828 Tap)	New violation	None	
	None	Thermal - above normal rating	163ST5 (Amoco Empress 163S Transformer T5)	Line 924L (Milo 356s to Langdon 102s)	Materially increased violation	None	Real-time operational practices
	None	Thermal - above normal rating		Line 760L (Oyen 394S to P2421 Tap)	No impact	Real-time operational practices	
	Thermal - above emergency rating	Thermal - above emergency rating	1088L (Cassils 324S to Newell 2075S)	Line 1087L (Cassils 324S to Newwell 2075S)	Materially increased violation	Planned RAS 197 and real time operational practices	Planned RAS 197 and real time operational practices
	Thermal - above normal rating	Thermal - above emergency rating	1035L (Bowmanton 244S to Newell 2075S)	Line 1087L (Cassils 324S to Newwell 2075S)	Marginally increased violation	Real-time operational practices	Existing RAS 164
	Thermal - above normal rating	Thermal - above normal rating	EATL	Line 935L (Milo 356s to Cassils 324s)	Materially increased violation	Real-time operational practices	Real-time operational practices
	Thermal - above emergency rating	Thermal - above emergency rating		Line 924L (Milo 356s to Langdon 102s)	Materially increased violation		
	Thermal - above emergency rating	Thermal - above emergency rating		Line 927L (Milo 356s to Langdon 102s)	Materially increased violation		
	Thermal - above normal rating	Thermal - above normal rating		Line 923L (Milo 356s to Newell 2075s)	Materially increased violation		
	Thermal - above normal rating	Thermal - above normal rating		Line 760L (Oyen 394S to P2421 Tap)	Materially increased violation		
2025 Summer Light	None	Thermal - above normal rating	System Normal	Line 610L (Fincastle 336S to Taber 83S)	New violation	None	Real-time operational practices and system project P7075
	None	Thermal - above emergency rating		Line 100L (P1828 Tap to Tilley 498S)	New violation	None	Increase the thermal rating of 100L (P1828 tap point – Tilley 498S)
	None	Thermal - above normal rating	610L (Taber 83S to Fincastle 336S)	Line 100L (P1828 Tap to Tilley 498S)	New violation	None	Real-time operational practices
	None	Thermal - above emergency rating	666L (Tilley 498S to West Brooks 28S)	Line 610L (Fincastle 336S to Taber 83S)	New violation	None	New RAS 209
	None	Thermal - above normal rating		Line 892L (Suffield 895S to Bowmanton 244S)	New violation	None	
	None	Thermal - above normal rating		Line 100L (Suffield 895S to P1828 Tap)	New violation	None	
	None	Thermal - above emergency rating	498ST1T2 (Tilley 498S Transformer T1/T2)	Line 610L (Fincastle 336S to Taber 83S)	New violation	None	New RAS 209
	None	Thermal - above emergency rating		Line 892L (Suffield 895S to Bowmanton 244S)	New violation	None	
	None	Thermal - above emergency rating		Line 100L (Suffield 895S to P1828 Tap)	New violation	None	
	Thermal - above emergency rating	Thermal - above emergency rating	1088L (Cassils 324S to Newell 2075S)	Line 1087L (Cassils 324S to Newwell 2075S)	Materially increased violation	Planned RAS 197 and real time operational practices	Planned RAS 197 and real time operational practices
	None	Thermal - above normal rating	1035L (Bowmanton 244S to Newell 2075S)	Line 1087L (Cassils 324S to Newwell 2075S)	New violation	None	Real-time operational practices

Notes:

- Marginally increased (or marginally decreased) refers to a percent loading difference (post-Project percent loading minus pre-Project percent loading) between 0% and 3% (or -3%).

- Materially increased (or materially decreased) refers to a percent loading difference (post-Project percent loading minus pre-Project percent loading) above or equal to 3% (or below or equal to -3%).
- RAS 197 was proposed for the approved P1927 Solar Krafte Utilities Inc project in the *Brooks Solar Farm Connection NID* . This RAS is referred to herein as “Planned RAS 197.”
- RAS 209 is a new proposed RAS for P1828 to mitigate overload on 100L and 892L.

5.2 Pre-Project Study Results

5.2.1 Category A Conditions

The pre-Project power flow studies identified a number of thermal criteria violations under the Category A condition (i.e. all elements in service). As study assumptions did not account for the Vauxhall Area Transmission Development,[7] pre-Project Category A thermal criteria violations were observed on the 138 kV transmission line 610L. Category A thermal criterial violations were also observed on 612L, 172L, and 760L, and 240 kV transmission lines 924L and 927L prior to connection of the project. These Category A thermal criteria violations are predicted to arise following the connection of additional generation projects in the Study Area, with the exception of 610L, where congestion is presently occurring in real time.[8] The short-circuit fault levels were found to be within the typical capabilities of the nearby facilities.

5.2.2 Category B Conditions

The pre-Project power flow studies identified a number of thermal violations under Category B conditions (i.e., loss of a single system element).

5.3 Post-Project Study Results

5.3.1 Category A Conditions

With the addition of the Project, power flow studies identified a number of thermal criteria violations under the Category A condition (i.e. all elements in service). Category A thermal criteria violations were observed on the 138 kV transmission lines 610L, 612L, 172L, 760L, and 100L, and 240 kV transmission lines 924L and 927L. The short-circuit fault levels were found to be within the typical capabilities of the nearby facilities.

A summary of thermal criteria violations observed under N-0 system conditions in the Summer Peak scenarios are shown in Table 5-2.

Table 5-2: Thermal Criteria Category A violations in the SP post-Project scenarios

Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
			Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
612L (Fincastle 336S to Suffield 895S)	85.10	94.00	91.74	107.80	102.21	120.10	12.30

[7] Decision 27776-D01-2023, Alberta Electric System Operator, Needs Identification Document Application, Vauxhall Area Transmission Development and Section 15(2) Application, September 19, 2023. Approval 27776-D02-2023, Appendix 1 to Decision 27776-D01-2023.

[8] *ibid*

610L (Fincastle 336S to Taber 83S)	85.10	94.00	158.37	186.10	169.35	199.00 (after P7075, % loading = 97.89%)	12.90
172L (Taber 83S to 172EL Tap)	119.00	131.00	140.42	118.00	152.20	127.90	9.90
100L (Tilley 498S to P1828 Tap)	78.00	86.00	53.40	68.40	121.52	155.80	87.40
924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00	782.76	143.10	4.10
927L (Milo 356s to Langdon 102s)	576.00	691.00	763.20	132.50	785.66	136.40	3.90
760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.59	105.80	123.20	111.80	6.00

5.3.2 Category B Conditions

Post-Project studies identified a number of thermal criteria violations under Category B conditions.

Results did not indicate any transient stability concerns, and the system showed acceptable dynamic response to all Category B conditions studied.

5.4 Mitigation Measures

This section discusses the AESO's proposed mitigation measures to address the system performance issues that were identified in the pre-Project and post-Project scenarios.

5.4.1 Pre-Project

The thermal criteria violations observed under Category A conditions on the 240 kV transmission lines 924L and 927L and 138 kV transmission lines 612L, 172L, and 760L can be managed by applying the TCM Rule to curtail generation as required until such a time that system developments are in place to alleviate congestion. If necessary, the AESO will file an application for an "exception" under Section 15(2) of the *Transmission Regulation* (TReg).

The approved Vauxhall Area Transmission Development, will address congestion on transmission line 610L and is expected to be fully energized by Q3 2024. The Alberta Utilities Commission also approved, pursuant to Section 15(2) of the TReg, a specific and limited exception to the matters described in Section 15(1)(f) of the TReg, thereby allowing for congestion to occur on 610L, until the Vauxhall Area Transmission Development Project is energized.[9]

Prior to connection of the Project, most of the observed Category B thermal criteria violations can be managed using real-time operational practices (RTOPs). In some cases, this could include applying the TCM Rule to dispatch down effective generation, and re-dispatching HVDC power levels. The remaining thermal criteria violations can be mitigated by the existing RAS 175 and planned RAS 197.

[9] Commission Decision 27776-D01-2023, Alberta Electric System Operator, Needs Identification Document Application, Vauxhall Area Transmission Development and Section 15(2) Application, September 19, 2023. Approval 27776-D02-2023, Appendix 1 to Decision 27776-D01-2023.

5.4.2 Post-Project

The post-connection assessment identified the same system performance issues that were identified in the pre-connection assessment, under certain Category A conditions. These thermal criteria violations on the 240 kV transmission lines 924L and 927L and 138 kV transmission lines 612L, 172L, and 760L can be managed by applying the TCM Rule to curtail generation as required until such a time that system developments are in place to alleviate congestion. If necessary, the AESO will file an application for an "exception" under Section 15(2) of the TReg.

The Category A thermal criteria violations observed on 138 kV transmission line 610L can be mitigated in the near term by applying the TCM Rule to dispatch down effective generation. The approved Vauxhall Area Transmission Development, will address congestion on transmission line 610L and is expected to be fully energized by Q3 2024. The Alberta Utilities Commission also approved, pursuant to Section 15(2) of the TReg, a specific and limited exception to the matters described in Section 15(1)(f) of the TReg, thereby allowing for congestion to occur on 610L, until the Vauxhall Area Transmission Development Project is energized.

The post-connection assessment identified an additional Category A violation on the 138 kV transmission line 100L. This violation will be mitigated by increasing the line rating on a section of the transmission line 100L from the Project T-tap point to the existing Tilley 498S substation to a minimum rating of 120 MVA or higher. This line rating increase will be completed as part of the Alderson Solar Power Project connection.

After connection of the Project, some the thermal criteria violations observed under Category B conditions can be mitigated by using RTOPs, existing RAS 164, existing RAS 175, existing RAS 181, and Planned RAS 197. A new RAS is required to mitigate the observed new thermal criteria violations under Category B conditions. A new RAS, hereafter referred to as RAS 209, is required to mitigate thermal criteria violations on the 138 kV transmission lines 100L and 892L under certain Category B conditions with the Project included in the RAS logic.

6 Project Dependencies

The Project does not require the completion of any other AESO plans to expand or enhance the transmission system prior to connection.

7 Conclusions and Recommendations

Based on the study results, Alternative 3 (including the 100L rating increase) is technically viable. The connection assessment identified pre-Project and post-Project system performance issues.

The connection assessment uses credible worst-case conditions to assess the impact of the Facility connection on the Alberta interconnected electric system. Category A thermal criteria violations were observed (exacerbating pre project violations on 138 kV transmission lines 610L,612L,172L,760L, 240 kV transmission lines 924L and 927L and new violation on 138 kV transmission line 100L) under these credible worst-case load and generation forecast conditions.

Study results identified a new Category A criteria violation on the 138 kV transmission line 100L and showed that the Project has a material impact on the existing Category A criteria violations. The Category A violation on 100L can be mitigated by increasing the line rating on a section of 100L to 120 MVA or higher. In addition, the observed Category A violation on the 138kV transmission line 610L can be mitigated by the approved Vauxhall Area Transmission Development, which will increase the rating of 610L once it is energized. The Alberta Utilities Commission also approved, pursuant to Section 15(2) of the TReg, a specific and limited exception to the matters described in Section 15(1)(f) of the TReg, thereby allowing for congestion to occur on 610L, until the Vauxhall Area Transmission Development Project is energized.

The remaining Category A violations will be mitigated through the use of real-time operational practices. The probability of Category A thermal criteria violations materializing is highly dependent upon the production profile of the Facility and other generation facilities in the area. The AESO will continue to monitor the pace of generation development and will notify Market Participants if it determines that it is necessary to obtain approval for a Section 15(2) exception for 924L, 927L, 612L, 172L and 760L.

The thermal criteria violations observed under Category B conditions can be mitigated through the use of existing RASs 164, 175, and 181, planned RAS 197, new RAS 209, and real-time operational practices, alone or in combination, as appropriate.

With implementation of these mitigation measures, connecting the project with the preferred alternative does not adversely affect the performance of the AIES.

The AESO recommends proceeding with the Project using Alternative 3 as the preferred alternative to respond to the Market Participant's request for system access service. Alternative 3 involves adding a 138 kV circuit to connect the Facility to the existing 138 kV transmission line 100L in a T-tap configuration, and increasing the line rating of 100L between the Project T-tap point and Tilley 498S.

The conductor used for the 138 kV circuit connecting the Facility to 100L should have a minimum capacity of 112 MVA to meet the Market Participant's requested STS contract capacity. The conductor used for the 100L line upgrade should have a minimum rating of 120 MVA.

Attachment A: Engineering Connection Assessment Results

Engineering Connection Assessment

P1828 HEP Alderson Solar Park

HEP Canada SPV 1 Ltd.

Date: September 25, 2023

Version: V1

Classification: Public

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The Association of Professional Engineers and Geoscientists of Alberta

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Attachment A: Engineering Connection Assessment: Study Scope

Attachment B: Pre-Project Power Flow Diagrams (Scenarios 1 to 2, 6 to 7, 10 to 11)

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Attachment I: Dynamic Data and Assumptions

1 Executive Summary

Project Overview

HEP Canada SPV 1 Ltd. has submitted a System Access Service Request (SASR) to the Alberta Electric System Operator for a connection of the proposed HEP Alderson Solar Park project. The Market Participant (MP) has requested for a Supply Transmission Service (STS) of 100MW and a Demand Transmission Service (DTS) of 0.5 MW connection to the 138kV transmission line south-east of Tilley.

The requested In-Service Date for the Project is December 02, 2024.

Study Area for the Project

The Study Area for the Project consists of the AESO Planning areas of Medicine Hat (Area 4), Vauxhall (Area 52), Empress (Area 48), and Brooks (Area 47), including the tie lines connecting these planning areas to the rest of the AIES. All transmission facilities within the Study Area were studied and monitored for violations of the Reliability Criteria.

Connection alternatives studied

Alternative 3 – T-tap connection onto 138kV line 100L.

Studies Performed for the Project

High south generation in combination with high solar were studied for mitigation as these were found to provide the most stressed scenarios for the studies.

Power flow analysis was performed for the 2025 summer light (SL) and summer peak (SP) pre-Project and post-Project scenarios, with the 2025 AIES topology in the South Planning Region, to determine the impact of the connection of the Project on the AIES.

Short-circuit analysis was performed for the 2025 SP pre-Project scenario and for the 2025 SP and 2031 WP post-Project scenarios to determine the short-circuit levels in the vicinity of the project.

A sensitivity analysis for system normal conditions was performed for the 2025 SL and 2025 SP pre-Project and post-Project scenarios for the condition when additional generation projects (P2418 or P2446) are online.

Transient stability analysis was performed for the 2025 SL and 2025 SP post-Project scenarios to identify violations, if any, of the transient stability criteria.

Results of the Pre-Project Studies

<u>Category A Conditions</u>

The power flow studies identified thermal violations under Category A conditions (i.e., no lost system element). The most effective generators were scaled down to mitigate the observed Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

<u>Category B Conditions</u>

Category A curtailments were performed prior to the Category B studies.

The pre-Project power flow studies identified a number of thermal violations under Category B conditions (i.e., loss of a single system element).

No Reliability Criteria violations or voltage deviations were observed that were beyond the limits listed in Table 3-1 of the AESO's Study Scope (hereafter referred to as point of delivery (POD) bus voltage deviations) under Category B conditions.

Results of the Post-Project Studies

Category A Conditions

The power flow studies identified thermal violations under Category A conditions (i.e., no lost system element). The most effective generators were scaled down to mitigate the observed Category A overloads.

The long-term short circuit levels were found to be within the designed capabilities of the nearby facilities.

Category B Conditions

Category A curtailments were conducted prior to the Category B studies.

Post-Project power flow studies and voltage stability studies identified a number of system performance issues under Category B conditions, namely: thermal criteria violations.

Results did not indicate any transient stability concerns, and the system showed acceptable dynamic response to all Category B conditions studied.

Mitigation Strategy and Sensitivity Analysis

Thermal violations, above normal ratings but below the emergency ratings, will be mitigated using real time operational practices.

The main study scenarios identified the requirement of a new Remedial Action Scheme (RAS), namely RAS 209, to mitigate the thermal violations observed under the 498ST1T2 (Tilley 498S Transformer T1/T2) and 666L (Tilley 498S to West Brooks 28S) contingencies.

The sensitivity study scenarios identified the requirement of three new Remedial Action Schemes (RASs), namely New RAS No. 1, New RAS No.2 and New RAS No. 3, to mitigate the thermal violations observed under certain contingencies.

The following Table shows the summary of RASs for the observed thermal violations in the main study cases and in the sensitivity studies for the mitigation of overloads under various contingencies:

RAS Number/Name	RAS Description
New RAS No.209	To mitigate overloads under 498ST1T2 and 666L contingency.
Planned RAS No.164	To mitigate 1087L overload under 498ST1T2 and 1035L contingency.
Existing RAS No.175	To mitigate overloads under 924L and 927L contingency.
Existing RAS No.181	To mitigate overloads under 763L and 666L contingency.
Existing RAS No.197	To mitigate 1087L overload under 1088L contingency.
Planned RAS No.607**	To mitigate overloads under 163ST5 and 760L contingency.
New RAS No.1*	To mitigate 100L, 760L, and 666L overloads under 610L, 612L, 879L or 368ST1 contingency.
New RAS No.2*	To mitigate 1051L and 1052L overloads under 1051L or 1052L contingency.
New RAS No.3*	To mitigate 610L, 923L, 935L, and 1087L overloads under 923L or 935L contingency.

Notes:

* New RAS considered for the sensitivity scenarios only.

** Planned RAS considered for the sensitivity scenarios only.

2 Introduction

This report presents the results of the engineering studies that were completed by Hardline Engineering Ltd. (the Studies Consultant) to assess the impact of the Project (as defined in the AESO's Study Scope) on the performance of the Alberta interconnected electric system (AIES). The studies were performed in accordance with the AESO's Connection Study Scope (CSS) titled "P1828 ECA Study Scope V2".

The power system network analysis tool that was used for the studies in this connection assessment was PSS/E version 33.

3 Connection Alternatives

3.1 Connection Alternatives Studied

One connection alternative was examined in this report. A description of the developments associated with the alternative is provided below.

Alternative 3:

- Add one 138 kV circuit, approximately 3km in length, to connect the Facility to the existing 138 kV transmission line 100L (Suffield 985S to Tilley 498S) in a T-tap configuration.
- Add or modify associated equipment as required for the above transmission developments.

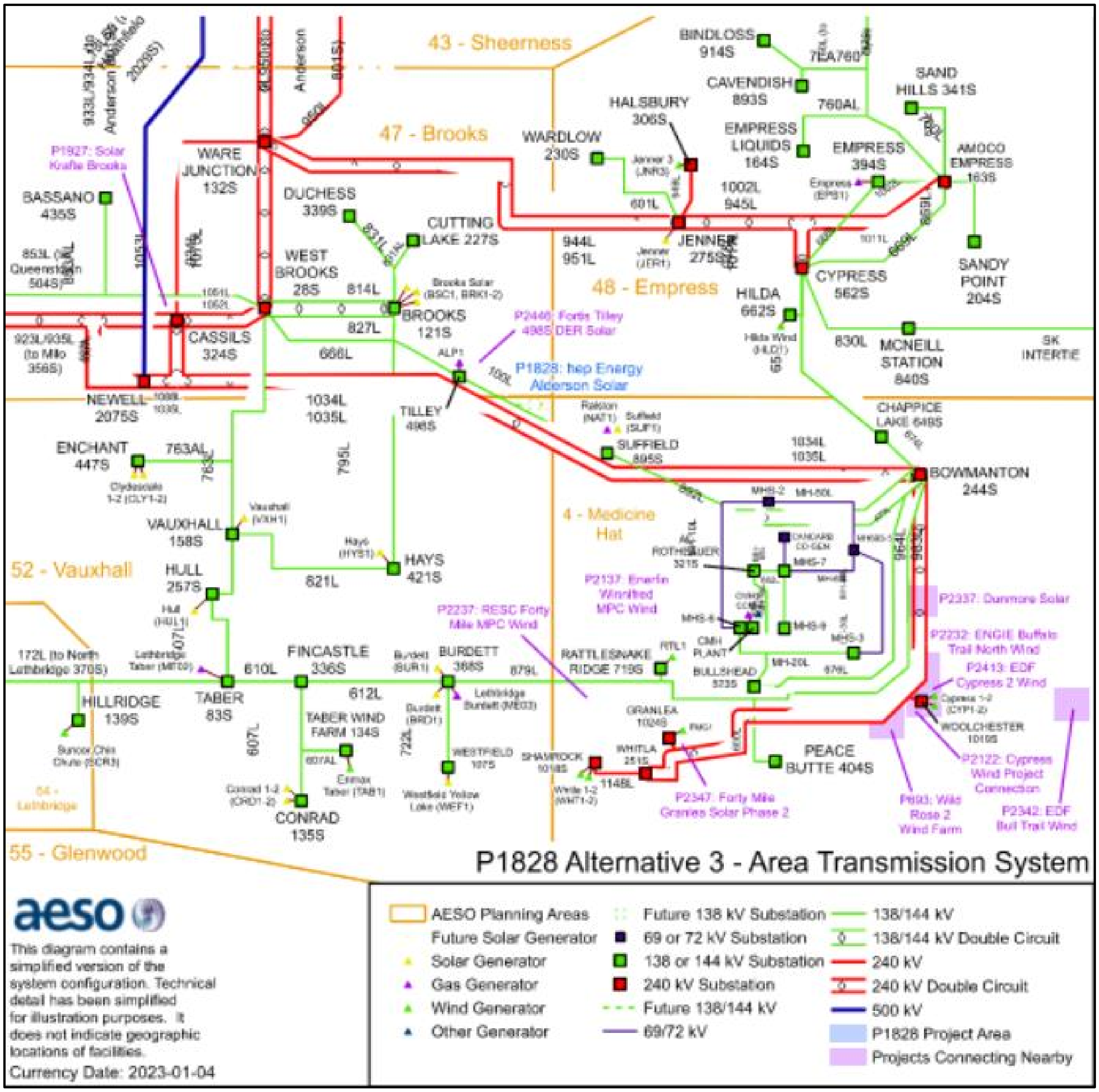

Figure 1 Alternative 3

4 Pre-Project Study Results

This section describes the results of the pre-Project power flow studies.

4.1 Power Flow Studies

Power flow diagrams illustrating the pre-Project power flow studies results for Category A and Category B conditions are provided in Attachment B.

4.1.1 Alternative 3

4.1.1.1 Scenario 1: 2025 Summer Peak Pre-Project

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 1 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)	
				Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	91.74	107.80
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	158.37	186.10
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	140.42	118.00
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	763.20	132.50
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.59	105.80

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to commencing Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments for this scenario were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 1 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1) -	60873	130.00	78.00	0.00
Enmax Taber (TAB1) - 15343, 16343	15343, 16343	81.00	48.60	0.00
P2247	560041, 560042	465.00	279.60	0.00
P1927	60434, 61434	360.00	342.00	0.00
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 1 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)		Pre-Project Results (Post-Curtailment)	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	91.74	107.80	48.57	57.07
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	158.37	186.10	67.33	79.12
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	140.42	118.00	54.16	45.51
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00	518.12	94.72
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	763.20	132.50	520.01	90.28
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.59	105.80	81.74	74.17

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-1.

Table 4-1: Thermal Criteria Violations under Category B Conditions for Scenario 1

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738	635.7032	103.4
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738	635.7032	103.4
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547	656	582.008	106.4
	923L (Milo 356s to Newell 2075s)	547	656	563.957	103.1
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547	656	572.709	104.7
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576	691	759.744	131.9
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547	656	757.595	138.5
163ST5 (Amoco Empress 163S Transformer T5)	760L (Oyen 394S to P2421 Tap)	110.2	131	116.0406	105.3
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	871.371	159.3
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	654.212	119.6
EATL	935L (Milo 356s to Cassils 324s)	547	656	600.059	109.7
	924L (Milo 356s to Langdon 102s)	547	656	740.091	135.3
	927L (Milo 356s to Langdon 102s)	576	691	742.464	128.9
	923L (Milo 356s to Newell 2075s)	547	656	626.862	114.6
	760L (Oyen 394S to P2421 Tap)	110.2	131	111.302	101

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No voltage deviations beyond the limits listed in Table 3-1 of the AESO's Study Scope (hereafter referred to as point of delivery (POD) bus voltage deviations) were observed.

4.1.1.2 Scenario 2: 2025 Summer Light Pre-Project

Category A Conditions

No Reliability Criteria (as defined in the AESO's Study Scope) violations were observed under Category A conditions.

Category B Conditions

Thermal criteria violations were observed under Category A conditions in the 2025 SL post-Project scenario. Hence, Category A curtailments were conducted prior to the Category B studies. The generation adjustments were performed based on the post-Project Category A violations and were applied to the pre-Project scenario accordingly. The most effective generators were scaled down to mitigate Category A overloads.

Updated generation dispatch values for Scenario 2 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1) -	60873	130.00	26.00	0.00

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-2.

Table 4-2: Thermal Criteria Violations under Category B Conditions for Scenario 2

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1088L (Cassils 324S to	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	790.415	144.5

Newell 2075S)					

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

4.1.1.3 Scenario 6: 2025 Summer Peak Pre-Project Sensitivity With P2418

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 6 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)	
				Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	102.72	120.70
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	169.43	199.10
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	155.41	130.60
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	802.45	146.70
Base Case	927L (Milo 356s to Langdon 102s)	547.00	656.00	764.71	139.80
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	150.86	136.90

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 6 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
P2421	560051	140.00	133.00	83.00
P2247	560041, 560042	465.00	279.60	0.00
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	78.00	0.00
Enmax Taber (TAB1)	15343, 16343	81.00	48.60	0.00
"Westfield Yellow Lake (WEF1)	557277	19.00	18.05	0.00
P1927	60434, 61434	360.00	342.00	0.00
Travers Solar	560026, 561026, 562026	465.00	441.75	260.75
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 6 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)		Pre-Project Results (Post-Curtailment)	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	102.72	120.70	49.96	58.71
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	169.43	199.10	71.62	84.16
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	155.41	130.60	56.23	47.25
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	802.45	146.70	509.15	93.08
Base Case	927L (Milo 356s to Langdon 102s)	547.00	656.00	764.71	139.80	485.30	88.72
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	150.86	136.90	83.07	75.38

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-3.

Table 4-3: Thermal Criteria Violations under Category B Conditions for Scenario 6

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
610L (Taber 83S to Fincastle 336S)	100L (Suffield 895S to P1828 Tap)	78	86	79.40	101.80
760L (Amoco Empress 163S to Empress 394S)	668L (Empress 394S to Cypress 562S)	121	133	166.62	137.70
892L (Suffield 895S to Bowmanton 244S)	610L (Fincastle 336S to Taber 83S)	85.1	94	86.46	101.60
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738	702.72	114.30
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738	702.72	114.30
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547	656	626.32	114.50
	923L (Milo 356s to Newell 2075s)	547	656	647.10	118.30
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547	656	656.40	120.00
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576	691	747.07	129.70
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547	656	745.01	136.20
498ST1T2 (Tilley 498S	610L (Fincastle 336S to Taber 83S)	85.1	94	87.14	102.40

Transformer T1/T2)					
100L (Suffield 895S to Tilley 498S)	610L (Fincastle 336S to Taber 83S)	85.1	94	87.40	102.70
163ST5 (Amoco Empress 163S Transformer T5)	668L (Empress 394S to Cypress 562S)	121	133	167.83	138.70
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	923.34	168.80
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	684.84	125.20
EATL	935L (Milo 356s to Cassils 324s)	547	656	650.93	119.00
	924L (Milo 356s to Langdon 102s)	547	656	731.34	133.70
	927L (Milo 356s to Langdon 102s)	576	691	734.40	127.50
	923L (Milo 356s to Newell 2075s)	547	656	678.28	124.00
	760L (Oyen 394S to P2421 Tap)	110.2	131	112.51	102.10

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

4.1.1.4 Scenario 7: 2025 Summer Light Pre-Project Sensitivity With P2418

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 7 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)	
				Power Flow (MVA)	% Loading
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	87.31	102.60

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 7 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	26.00	0.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 7 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)		Pre-Project Results (Post-Curtailment)	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	87.31	102.60	72.75	85.49

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-4.

Table 4-4: Thermal Criteria Violations under Category B Conditions for Scenario 7

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
562ST1 (Cypress 562S	760L (EMPRESS 394S to AMOCO EMPRESS 163S)	119	131	120.19	101.00

Transformer T1)					
562ST1 (Cypress 562S Transformer T2)	760L (EMPRESS 394S to AMOCO EMPRESS 163S)	119	131	120.07	100.90
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	822.14	150.30
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	554.11	101.30
EATL	924L (Milo 356s to Langdon 102s)	547	656	550.83	100.70
	760L (Oyen 394S to P2421 Tap)	110.2	131	121.77	110.50

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

4.1.1.5 Scenario 10: 2025 Summer Peak Pre-Project Sensitivity With P2446

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 10 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)	
				Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	93.01	109.30
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	162.54	191.00

Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	138.64	116.50
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00
Base Case	927L (Milo 356s to Langdon 102s)	547.00	656.00	724.78	132.50
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.04	105.30

Category B Condition

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 10 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
P2421	560051	140.00	133.00	83.00
P2247	560041, 560042	465.00	279.60	0.00
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	78.00	0.00
Enmax Taber (TAB1)	15343, 16343	81.00	48.60	0.00
"Westfield Yellow Lake (WEF1)	557277	19.00	18.05	0.00
P1927	60434, 61434	360.00	342.00	0.00
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 10 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Pre-Project Results (Pre-Curtailment)		Pre-Project Results (Post-Curtailment)	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	93.01	109.30	46.59	54.75

Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	162.54	191.00	67.88	79.77
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	138.64	116.50	46.52	39.09
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00	512.87	93.76
Base Case	927L (Milo 356s to Langdon 102s)	547.00	656.00	724.78	132.50	488.80	89.36
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.04	105.30	67.30	61.07

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-5.

Table 4-5: Thermal Criteria Violations under Category B Conditions for Scenario 10

Contingency (System Element Lost)	Violation Location Details	Thermal Ratings[a] (MVA)		Pre-Project Results	
		Normal Rating	Emergency Rating	Power Flow[b] (MVA)	% Loading[c]
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738	634.4736	103.2
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738	634.4736	103.2
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547	656	580.367	106.1
	923L (Milo 356s to Newell 2075s)	547	656	554.658	101.4
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547	656	563.41	103
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576	691	751.104	130.4
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547	656	748.843	136.9
1088L (Cassils	1087L (Cassils 324S to Newell 2075S)	547	656	873.012	159.6

324S to Newell 2075S)					
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	657.494	120.2
EATL	935L (Milo 356s to Cassils 324s)	547	656	593.495	108.5
	924L (Milo 356s to Langdon 102s)	547	656	735.715	134.5
	927L (Milo 356s to Langdon 102s)	576	691	738.432	128.2
	923L (Milo 356s to Newell 2075s)	547	656	620.845	113.5

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

4.1.1.6 Scenario 11: 2025 Summer Light Pre-Project Sensitivity With P2446

Category A Conditions

No Reliability Criteria violations were observed under Category A conditions.

Category B Conditions

Thermal criteria violations were observed under Category A conditions in the 2025 SL sensitivity scenario which included P2446. Category A curtailments were conducted prior to the Category B studies. The generation adjustments were performed based on the post-Project Category A violations and were applied to the pre-Project scenario accordingly. The most effective generators were scaled down to mitigate Category A overloads.

Updated generation dispatch values for Scenario 11 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	26.00	0.00

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 4-6.

Table 4-6: Thermal Criteria Violations under Category B Conditions for Scenario 11

Contingency (System Element Lost)	**Violation Location Details**	**Thermal Ratings[a] (MVA)**		**Pre-Project Results**	
		Normal Rating	**Emergency Rating**	**Power Flow[b] (MVA)**	**% Loading[c]**
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547	656	794.791	145.3

Notes:

[a] The facility ratings shown in the AESO's Study Scope have been adjusted from a [72/144] kV voltage base to a [69/138] kV voltage base, as is used by the power system network analysis tool.

[b] Power flow (MVA) is current expressed as MVA (i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$)

[c] Reported as a percentage of the power flow (in MVA, i.e., $S = \sqrt{3} \times V_{base} \times I_{actual}$) relative to the transmission line's Normal Rating (also in MVA), as shown in the AESO's Study Scope.

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5 Post-Project Study Results

This section describes the results of the post-Project power flow studies and transient stability studies.

As described in Section 2 of the AESO's Study Scope, the post-Project studies were performed using Alternative 3.

5.1 Power Flow Studies

Power flow diagrams illustrating the post-Project power flow studies results for Category A and Category B, conditions are included in Attachment D.

5.1.1 Alternative 3

5.1.1.1 Scenario 3: 2025 Summer Peak Post-Project

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 3 and it's corresponding pre-Project scenario (Scenario 1) are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results (Pre-curtailment)		Post-Project Results (Pre-curtailment)		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	91.74	107.80	102.21	120.10	12.30
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	158.37	186.10	169.35	199.00	12.90
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	140.42	118.00	152.20	127.90	9.90
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	53.4	68.4	121.52	155.80	87.4
Base Case	924L (Milo 356s to	547.00	656.00	760.33	139.00	782.76	143.10	4.10

	Langdon 102s)							
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	763.20	132.50	785.66	136.40	3.90
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.59	105.80	123.20	111.80	6.00

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 3 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1) -	60873	130.00	78.00	0.00
Enmax Taber (TAB1) - 15343, 16343	15343, 16343	81.00	48.60	0.00
P2247	560041, 560042	465.00	279.60	0.00
P1927	60434, 61434	360.00	342.00	0.00
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 3 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to	85.10	94.00	102.21	120.10	58.06	68.23

	Suffield 895S)						
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	169.35	199.00	76.53	89.93
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	152.20	127.90	66.60	55.97
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	121.52	155.80	66.46	85.21
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	782.76	143.10	541.26	98.95
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	785.66	136.40	543.23	94.31
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	123.20	111.80	86.08	78.11

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-1.

Table 5-1: Thermal Criteria Violations under Category B Conditions for Scenario 3

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	61.8	51.5	124.1	103.4	51.9
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	68.1	56.8	129.2	107.7	51.0
871L (Amoco Empress 163S to Sand Hills 341S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	525.4	96.0	548.6	100.3	4.3
763L (Vauxhall	610L (Fincastle	85.1	94.0	75.7	88.9	85.6	100.6	11.7

158S to Hull 257S)	336S to Taber 83S)							
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	70.6	83.0	100.4	118.0	35.0
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	635.7	103.4	691.0	112.4	9.0
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	635.7	103.4	691.0	112.4	9.0
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	582.0	106.4	606.6	110.9	4.5
	923L (Milo 356s to Newell 2075s)	547.0	656.0	564.0	103.1	610.5	111.6	8.5
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547.0	656.0	572.7	104.7	619.2	113.2	8.5
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	759.7	131.9	793.7	137.8	5.9
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	757.6	138.5	792.1	144.8	6.3
831L (Brooks 121S to Duchess 339S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	524.0	95.8	547.0	100.0	4.2
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	61.3	72.1	89.9	105.6	33.6
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	80.1	94.2	108.4	127.4	33.2
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	18.6	23.2	96.2	120.2	97.0
	100L (Suffield	78.0	86.0	1.1	1.4	92.8	119.0	117.6

	895S to P1828 Tap)							
163ST5 (Amoco Empress 163S Transformer T5)	924L (Milo 356s to Langdon 102s)	547.0	656.0	526.1	96.2	549.2	100.4	4.2
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	116.0	105.3	116.0	105.3	0.0
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	871.4	159.3	900.4	164.6	5.3
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	654.2	119.6	667.9	122.1	2.5
EATL	935L (Milo 356s to Cassils 324s)	547.0	656.0	600.1	109.7	628.0	114.8	5.1
	924L (Milo 356s to Langdon 102s)	547.0	656.0	740.1	135.3	765.3	139.9	4.6
	927L (Milo 356s to Langdon 102s)	576.0	691.0	742.5	128.9	767.8	133.3	4.4
	923L (Milo 356s to Newell 2075s)	547.0	656.0	626.9	114.6	654.8	119.7	5.1
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	111.3	101.0	116.2	105.4	4.4

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.1.1.2 Scenario 4: 2025 Summer Light Post-Project

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 4 and it’s corresponding pre-Project scenario (Scenario 2) are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results (Pre-curtailment)		Post-Project Results (Pre-curtailment)		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	81.2	95.4	90.89	106.80	11.4
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	32.4	41.5	101.32	129.90	88.4

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The generation adjustments were performed based on the post-project Category A violations. The most effective generators were scaled down to mitigate Category A overloads.

Updated generation dispatch values for Scenario 4 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1) -	60873	130.00	26.00	0.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 4 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	90.89	106.80	74.35	87.37
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	101.32	129.90	62.35	79.94

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-2.

Table 5-2: Thermal Criteria Violations under Category B Conditions for Scenario 4

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	51.7	66.3	124.6	103.8	37.5
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	67.1	78.9	95.7	112.4	33.6
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	28.0	35.0	85.8	107.2	72.2
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	24.9	31.9	80.7	103.4	71.5
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	74.1	87.1	101.8	119.6	32.5
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.2	106.6	133.3	116.2
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	0.0	0.0	102.3	131.2	131.2
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	790.4	144.5	815.0	149.0	4.5
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	537.0	98.2	550.3	100.6	2.4

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.1.1.3 Scenario 8: 2025 Summer Peak Post-Project Sensitivity With P2418

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 8 and it's corresponding pre-Project scenario (Scenario 6) are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results (Pre-curtailment)		Post-Project Results (Pre-curtailment)		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	102.72	120.7	112.67	132.40	11.70
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	169.43	199.1	180.58	212.20	13.10
Base Case	879L (Burdett 368S to 879AL_Tap)	85.00	94.00	75.6	89.0	85.51	100.60	11.6
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	155.41	130.6	163.51	137.40	6.80
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	66.7	85.6	133.85	171.60	86
Base Case	935L (Milo 356s to Cassils 324s)	547.00	656.00	545.9	99.8	568.33	103.90	4.1
Base Case	924L (Milo 356s to	547.00	656.00	802.45	146.7	826.52	151.10	4.40

	Langdon 102s)							
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	805.25	139.8	829.44	144.00	4.20
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	150.86	136.9	157.48	142.90	6.00

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 8 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
P2421	560051	140.00	133.00	83.00
P2247	560041, 560042	465.00	279.60	0.00
RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	78.00	0.00
Enmax Taber (TAB1)	15343, 16343	81.00	48.60	0.00
"Westfield Yellow Lake (WEF1)	557277	19.00	18.05	0.00
P1927	60434, 61434	360.00	342.00	0.00
Travers Solar	560026, 561026, 562026	465.00	441.75	260.75
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 8 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	112.67	132.40	60.17	70.71
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	180.58	212.20	81.42	95.68
Base Case	879L (Burdett 368S to 879AL_Tap)	85.00	94.00	85.51	100.60	49.86	58.66
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	163.51	137.40	69.17	58.13
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	133.85	171.60	77.60	99.49
Base Case	935L (Milo 356s to Cassils 324s)	547.00	656.00	568.33	103.90	419.33	76.66
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	826.52	151.10	529.88	96.87
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	829.44	144.00	531.82	92.33
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	157.48	142.90	89.48	81.20

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-3.

Table 5-3: Thermal Criteria Violations under Category B Conditions for Scenario 8

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	72.1	60.1	141.8	118.2	58.1
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	78.8	65.7	147.5	122.9	57.2

871L (Amoco Empress 163S to Sand Hills 341S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.4	46.2	121.3	101.1	54.9
931L (Ware Junction 132S to West Brooks 28S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	57.4	47.8	122.9	102.4	54.6
1075L (Ware Junction 132S to West Brooks 28S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	57.4	47.8	122.9	102.4	54.6
1053L (Ware Junction 132S to Cassils 324S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	56.7	47.2	122.3	101.9	54.7
1002L (Jenner 275S to Amoco Empress 163S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	57.2	47.6	123.5	102.9	55.3
945L (Jenner 275S to Cypress 562S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	57.7	48.1	124.1	103.4	55.3
163ST1 (Amoco Empress 163S Transformer T5)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.6	46.4	121.7	101.4	55.1
760L (Amoco Empress 163S to Empress 394S)	668L (Empress 394S to Cypress 562S)	121.0	133.0	166.6	137.7	167.5	138.4	0.7
722L (Burdett 368S to Westfield 107S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	79.8	93.8	90.0	105.7	11.9
	100L (Tilley 498S to P1828 Tap)	120.0	132.0	54.4	45.3	120.8	100.7	55.4
892L (Suffield 895S to Bowmanton 244S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	86.5	101.6	86.3	101.4	-0.2
507L (Taber 83S to Hull 257S)	610L (Fincastle	85.1	94.0	78.9	92.7	89.8	105.5	12.8

	336S to Taber 83S)							
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	83.9	98.5	94.6	111.2	12.7
666L (Tilley 498S to West Brooks 28S)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	56.2	66.1	87.2	102.5	36.4
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.8	91.5	108.2	127.1	35.6
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	702.7	114.3	756.8	123.1	8.8
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	702.7	114.3	756.8	123.1	8.8
1148L (Whitla 251S to Shamrock 1018S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	54.9	45.7	121.8	101.5	55.8
562ST1 (Cypress 562S Transformer T1)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.7	46.4	121.8	101.5	55.1
562ST1 (Cypress 562S Transformer T2)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.7	46.4	121.8	101.5	55.1
935L (Milo 356S to Cassils 324S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.0	91.7	88.2	103.7	12.0
	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	626.3	114.5	649.8	118.8	4.3
	923L (Milo 356s to Newell 2075s)	547.0	656.0	647.1	118.3	688.1	125.8	7.5
1087L (Cassils 324S to Newell 2075S)	1088L (Cassils 324S to Newell A2075S)	931.0	1024.0	923.5	99.2	952.4	102.3	3.1
923L (Milo 356S to	610L (Fincastle	85.1	94.0	77.4	91.0	87.7	103.1	12.1

Newell 2075S)	336S to Taber 83S)							
	935L (Milo 356s to Cassils 324s)	547.0	656.0	656.4	120.0	696.9	127.4	7.4
336ST1 (Fincastle 336S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.1	89.5	86.1	101.2	11.7
895ST2 (Suffield 895S Transformer T2)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	54.6	45.5	121.7	101.4	55.9
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	747.1	129.7	777.0	134.9	5.2
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	745.0	136.2	775.1	141.7	5.5
853L (Queenstown 504S to West Brooks 28S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.2	46.0	121.4	101.2	55.2
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	65.7	77.3	95.4	112.1	34.9
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	87.1	102.4	116.1	136.4	34.0
	879L (Burdett 368S to 879AL_Tap)	85.0	94.0	55.7	65.6	86.3	101.5	35.9
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	17.1	21.4	103.0	128.8	107.4
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	1.1	1.4	97.7	125.3	123.9
	879L (Bowmanton 244S to 879AL Tap)	85.0	94.0	61.1	71.9	91.1	107.2	35.3
100L (Suffield 895S to Tilley 498S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	87.4	102.7	87.9	103.3	0.6

760L/7L60 (Amoco Empress 163S to Oyen 767S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	54.3	45.2	120.7	100.6	55.4
163ST5 (Amoco Empress 163S Transformer T5)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.1	91.8	88.4	103.9	12.1
	668L (Empress 394S to Cypress 562S)	121.0	133.0	167.8	138.7	168.4	139.2	0.5
	100L (Tilley 498S to P1828 Tap)	120.0	132.0	61.8	51.5	126.8	105.7	54.2
944L (Jenner 275S to Ware Junction 132S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	56.7	47.3	124.0	103.3	56.1
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	923.3	168.8	951.8	174.0	5.2
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	684.8	125.2	701.3	128.2	3.0
964L (Bowmanton 244S to Whitla 251S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	55.5	46.3	122.9	102.4	56.1
676L (Bowmanton 244S to Bullshead 523S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	54.7	45.6	121.6	101.3	55.7
763L (West Brooks 28S to Vauxhall 158S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.3	88.5	85.6	100.6	12.1
368ST1 (Burdett 368S Transformer T1)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	68.4	57.0	138.6	115.5	58.5
257ST1 (Hull 257S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.9	92.7	89.8	105.5	12.8
158ST2 (Vauxhall 158S	610L (Fincastle 336S to Taber 83S)	85.1	94.0	81.5	95.7	92.2	108.4	12.7

Transformer T2)								
879L (Burdett 368S to Bullshead 523S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	69.9	58.3	138.8	115.7	57.4
172L (Taber 83S to Coaldale 254S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	57.5	47.9	124.4	103.7	55.8
EATL	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.8	91.4	87.8	103.2	11.8
	935L (Milo 356s to Cassils 324s)	547.0	656.0	650.9	119.0	676.6	123.7	4.7
	924L (Milo 356s to Langdon 102s)	547.0	656.0	731.3	133.7	754.3	137.9	4.2
	927L (Milo 356s to Langdon 102s)	576.0	691.0	734.4	127.5	757.4	131.5	4.0
	923L (Milo 356s to Newell 2075s)	547.0	656.0	678.3	124.0	704.5	128.8	4.8
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	112.5	102.1	119.8	108.7	6.6

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.1.1.4 Scenario 9: 2025 Summer Light Post-Project Sensitivity With P2418

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 9 and it’s corresponding pre-Project scenario (Scenario 7) are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results (Pre-curtailment)		Post-Project Results (Pre-curtailment)		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	87.31	102.6	99.57	117.00	14.40
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	40.6	52	110.68	141.90	89.9

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 9 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	26.00	0.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 9 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	99.57	117.00	82.72	97.20
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	110.68	141.90	68.52	87.84

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-4.

Table 5-4: Thermal Criteria Violations under Category B Conditions for Scenario 9

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	51.4	65.9	124.7	103.9	38.0
610L (Taber 83S to Fincastle 336S)	666L (Tilley 498S to West Brooks 28S)	120.0	108.0	49.7	41.4	120.2	100.2	58.8
	100L (Tilley 498S to P1828 Tap)	120.0	132.0	63.9	81.9	137.2	114.3	32.4
1002L (Jenner 275S to Amoco Empress 163S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.3	88.5	85.5	100.5	12.0
945L (Jenner 275S to Cypress 562S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.7	88.9	85.9	100.9	12.0
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	104.7	95.0	110.5	100.3	5.3
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.9	90.4	106.3	124.9	34.5
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	28.0	35.0	85.4	106.8	71.9
	100L (Suffield 895S to	78.0	86.0	24.9	31.9	80.5	103.2	71.3

	P1828 Tap)							
935L (Milo 356S to Cassils 324S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.1	89.5	86.5	101.6	12.1
923L (Milo 356S to Newell 2075S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.4	88.6	85.7	100.7	12.1
336ST1 (Fincastle 336S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.7	89.0	85.7	100.7	11.7
Burdett 368S Transformer T2	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.8	89.1	85.8	100.8	11.7
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	84.1	98.8	112.4	132.1	33.3
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.2	106.4	133.0	115.8
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	0.0	0.0	102.3	131.1	131.1
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	100.8	91.5	111.4	101.1	9.6
163ST5 (Amoco Empress 163S Transformer T5)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.4	92.1	89.0	104.6	12.5
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	822.1	150.3	844.6	154.4	4.1
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	554.1	101.3	566.7	103.6	2.3
EATL	610L (Fincastle	85.1	94.0	80.5	94.6	90.3	106.1	11.5

	336S to Taber 83S)							
	924L (Milo 356s to Langdon 102s)	547.0	656.0	550.8	100.7	568.9	104.0	3.3
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	121.8	110.5	127.3	115.5	5.0

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.1.1.5 Scenario 12: 2025 Summer Peak Post-Project Sensitivity With P2446

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 12 and it's corresponding pre-Project scenario (Scenario 10) are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results (Pre-curtailment)		Post-Project Results (Pre-curtailment)		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	93.01	109.30	103.82	122.00	12.70
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	162.54	191.00	172.58	202.80	11.80
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	138.64	116.50	150.06	126.10	9.60
Base Case	100L (Tilley 498S to	78.00	86.00	49.9	64	109.12	139.90	75.9

	P1828 Tap)							
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	760.33	139.00	782.21	143.00	4.00
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	763.20	132.50	785.09	136.30	3.80
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	116.04	105.30	121.88	110.60	5.30

Category B Conditions

Thermal criteria violations were observed under Category A conditions. Hence, Category A curtailments were conducted prior to the Category B studies. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 12 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
P2421	560051	140.00	133.00	103.00
P2247	560041, 560042	465.00	279.60	0.00
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	78.00	0.00
Enmax Taber (TAB1)	15343, 16343	81.00	48.60	0.00
"Westfield Yellow Lake (WEF1)	557277	19.00	18.05	0.00
P1927	60434, 61434	360.00	342.00	0.00
Area 4 Wind	60990, 61990, 61994, 62994, 65994, 560003, 561003, 3462, 3463, 60608, 61608, 560044, 567034		1075.64	800.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 12 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	103.82	122.00	54.86	64.47
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	172.58	202.80	76.09	89.41
Base Case	172L (Taber 83S to 172EL Tap)	119.00	131.00	150.06	126.10	57.94	48.69
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	109.12	139.90	62.53	80.17
Base Case	924L (Milo 356s to Langdon 102s)	547.00	656.00	782.21	143.00	532.61	97.37
Base Case	927L (Milo 356s to Langdon 102s)	576.00	691.00	785.09	136.30	534.59	92.81
Base Case	760L (Oyen 394S to P2421 Tap)	110.20	131.00	121.88	110.60	72.97	66.22

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-5.

Table 5-5: Thermal Criteria Violations under Category B Conditions for Scenario 12

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.6	91.2	86.8	102.0	10.8

666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.0	90.5	104.2	122.4	31.9
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	22.7	28.4	89.1	111.4	83.0
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	13.7	17.6	85.7	109.9	92.3
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	634.5	103.2	684.3	111.3	8.1
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	634.5	103.2	684.3	111.3	8.1
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	580.4	106.1	600.6	109.8	3.7
	923L (Milo 356s to Newell 2075s)	547.0	656.0	554.7	101.4	592.4	108.3	6.9
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547.0	656.0	563.4	103.0	601.7	110.0	7.0
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	751.1	130.4	779.9	135.4	5.0
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	748.8	136.9	777.8	142.2	5.3
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	57.7	67.8	85.7	100.7	32.9
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.8	92.6	106.3	124.9	32.3
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	17.0	21.2	95.9	119.9	98.7

	100L (Suffield 895S to P1828 Tap)	78.0	86.0	1.1	1.4	92.9	119.1	117.7
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	873.0	159.6	896.5	163.9	4.3
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	657.5	120.2	670.6	122.6	2.4
EATL	935L (Milo 356s to Cassils 324s)	547.0	656.0	593.5	108.5	617.6	112.9	4.4
	924L (Milo 356s to Langdon 102s)	547.0	656.0	735.7	134.5	759.2	138.8	4.3
	927L (Milo 356s to Langdon 102s)	576.0	691.0	738.4	128.2	762.0	132.3	4.1
	923L (Milo 356s to Newell 2075s)	547.0	656.0	620.8	113.5	644.4	117.8	4.3

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.1.1.6 Scenario 13: 2025 Summer Light Post-Project Sensitivity With P2446

Category A Conditions

Thermal criteria violations were observed under Category A conditions. Thermal criteria violations under Category A Conditions prior to generation curtailment for Scenario 13 and it’s corresponding pre-Project scenario (Scenario 11) are shown in the table below:

Contingency (System Element Lost)	**Details of Violation (Violation Observed On)**	**Normal Rating (MVA)**	**Emergency Rating (MVA)**	**Pre-Project Results (Pre-curtailment)**		**Post-Project Results (Pre-curtailment)**		**% Loading Difference (Post-Pre)**
				Observed Power Flow (MVA)	**% Loading**	**Observed Power Flow (MVA)**	**% Loading**	
Base Case	610L (Fincastle	85.10	94.00	80.5	54	85.70	100.70	46.70

	336S to Taber 83S)							
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	30	38.4	94.85	121.60	83.20

Category B Conditions

Category A curtailments were conducted prior to the Category B studies. Thermal criteria violations were observed under Category A conditions. The most effective generators were scaled down to mitigate Category A overloads. The generation adjustments were performed based on the post-project Category A violations.

Updated generation dispatch values for Scenario 13 are shown in the table below:

Generator Name	Bus Number	MC (MW)	CSS (MW)	Dispatch (MW)
"RESC Rattlesnake Ridge MPC Wind (RTL1)	60873	130.00	26.00	0.00

Thermal criteria violations under Category A Conditions prior to and after generation curtailment for Scenario 13 are shown in the table below:

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Post-Project Results (Pre-curtailment)		Post-Project Results (Post-curtailment)	
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading
Base Case	610L (Fincastle 336S to Taber 83S)	85.10	94.00	85.70	100.70	73.76	86.68
Base Case	100L (Tilley 498S to P1828 Tap)	78.00	86.00	94.85	121.60	60.57	77.66

Thermal Criteria Violations

Thermal criteria violations were observed under certain Category B conditions as shown in Table 5-6.

Table 5-6: Thermal Criteria Violations under Category B Conditions for Scenario 13

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Normal Rating (MVA)	Emergency Rating (MVA)	Pre-Project Results		Post-Project Results		% Loading Difference (Post-Pre)
				Observed Power Flow (MVA)	% Loading	Observed Power Flow (MVA)	% Loading	
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.0	132.0	49.0	62.8	121.9	101.6	38.8
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	68.2	80.1	98.0	115.1	35.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	20.5	25.6	99.0	123.8	98.2
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	11.8	15.1	94.5	121.2	106.1
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	70.7	83.1	100.2	117.8	34.7
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.1	106.7	133.4	116.3
	100L (Suffield 895S to P1828 Tap)	78.0	86.0	0.0	0.0	102.3	131.2	131.2
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	794.8	145.3	817.8	149.5	4.2
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	539.4	98.6	551.9	100.9	2.3
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	530.1	96.9	547.5	100.1	3.2

Voltage Criteria Violations

No voltage criteria violations were observed under Category B conditions.

POD Bus Voltage Deviations

No POD bus voltage deviations were observed.

5.2 Transient Stability Studies

5.2.1 Alternative 3

5.2.1.1 Scenario 3: 2025 SP Post-Project

Transient stability studies were completed for Scenario 3.

If there were no transient stability issues, use the following explanation. The results did not indicate any transient stability concerns, and the system showed acceptable dynamic response to all Category B conditions studied, as shown in Table 5-7. The post-Project transient stability plots are provided in Attachment E. The dynamic data and assumptions of all equipment proposed for the Facility are provided in Attachment I.

Table 5-7: Transient Stability Study Results under Category B Conditions for Scenario 3

Studied Contingency	Fault Description and Location	Results
666L (West Brooks 28S - Tilley 498S)	3-phase fault at Tilley 498S	Stable
	3-phase fault at West Brooks 28S	Stable
892L (Suffield 895S – Bowmanton 244S)	3-phase fault at Suffield 895S	Stable
	3-phase fault at Bowmanton 244S	Stable
763L (West Brooks 28S - Vauxhall 158S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Vauxhall 158S	Stable
853L (West Brooks 28S – Queenstown 504S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Queenstown 504S	Stable
814L (Brooks 121S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Brooks 121S	Stable
827L (Brooks 121S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Brooks 121S	Stable
1051L (West Brooks 28S – Cassils 324S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Cassils 324S	Stable
1052L (West Brooks 28S – Cassils 324S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Cassils 324S	Stable
931L (Ware Junction 132S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Ware Junction 132S	Stable
1075L (Ware Junction 132S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Ware Junction 132S	Stable
675L (Bowmanton 244S – Medicine Hat 41S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Medicine Hat 41S	Stable
674L (Bowmanton 244S- Chappice Lake 649S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Chappice Lake 649S	Stable

879L (Bowmanton 244S – Burdett 368S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Burdett 368S	Stable

5.2.1.2 Scenario 4: 2025 SL Post-Project

Transient stability studies were completed for Scenario 4.

If there were no transient stability issues, use the following explanation. The results did not indicate any transient stability concerns, and the system showed acceptable dynamic response to all Category B conditions studied, as shown in Table 5-8. The post-Project transient stability plots are provided in Attachment E. The dynamic data and assumptions of all equipment proposed for the Facility are provided in Attachment I.

Table 5-8: Transient Stability Study Results under Category B Conditions for Scenario 4

Studied Contingency	Fault Description and Location	Results
666L (West Brooks 28S - Tilley 498S)	3-phase fault at Tilley 498S	Stable
	3-phase fault at West Brooks 28S	Stable
892L (Suffield 895S – Bowmanton 244S)	3-phase fault at Suffield 895S	Stable
	3-phase fault at Bowmanton 244S	Stable
763L (West Brooks 28S - Vauxhall 158S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Vauxhall 158S	Stable
853L (West Brooks 28S – Queenstown 504S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Queenstown 504S	Stable
814L (Brooks 121S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Brooks 121S	Stable
827L (Brooks 121S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Brooks 121S	Stable
1051L (West Brooks 28S – Cassils 324S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Cassils 324S	Stable
1052L (West Brooks 28S – Cassils 324S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Cassils 324S	Stable
931L (Ware Junction 132S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Ware Junction 132S	Stable
1075L (Ware Junction 132S – West Brooks 28S)	3-phase fault at West Brooks 28S	Stable
	3-phase fault at Ware Junction 132S	Stable
675L (Bowmanton 244S – Medicine Hat 41S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Medicine Hat 41S	Stable
674L (Bowmanton 244S- Chappice Lake 649S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Chappice Lake 649S	Stable
879L (Bowmanton 244S – Burdett 368S)	3-phase fault at Bowmanton 244S	Stable
	3-phase fault at Burdett 368S	Stable

6 Short Circuit Studies

6.1 Pre-Project Results

Pre-Project short-circuit current levels are provided in Table 6-1[1].

Table 6-1: Pre-Project Short-Circuit Current Levels for Scenario 1

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
895S SUFFIELD	138	138.30	3.3731	0.057367+j0.130791	2.1309	0.108204+j0.377077
498S TILLEY	138	139.75	5.0661	0.037240+j0.090210	3.6613	0.048966+j0.203788
28S WEST BROOKS	138	139.93	15.5857	0.006342+j0.031440	17.1661	0.001822+j0.021792
649S CHAPPICE LAKE	138	140.43	4.1567	0.042554+j0.106308	2.6016	0.082919+j0.307309
28S WEST BROOKS	240	243.67	13.9687	0.004278+j0.020251	14.2325	0.002721+j0.018543
244S BOWMANTON (Bus 645)	138	140.43	4.155	0.042622+j0.106343	2.6032	0.082700+j0.306956
244S BOWMANTON (Bus 659)	138	140.61	9.3089	0.005551+j0.051562	8.9208	0.008372+j0.054496
244S BOWMANTON	240	247.32	7.3699	0.004606+j0.038596	7.3943	0.007619+j0.036227
562S CYPRESS	138	140.47	10.5576	0.005258+j0.044115	8.2996	0.011145+j0.077514
562S CYPRESS	240	257.30	6.92	0.005865+j0.040900	5.4666	0.010864+j0.070752
394S CASSILS	240	243.65	13.9981	0.004263+j0.020220	14.1402	0.002965+j0.019003
321S AL ROTHBAUER	138	139.28	7.8332	0.008299+j0.058831	7.5477	0.007917+j0.060067
840S MCNEILL STATION	138	141.56	7.0038	0.007583+j0.067062	4.8597	0.028738+j0.151917

Notes:

* *MEDICINE HAT 41S does not exist anymore, therefore AL ROTHBAUER 321S will be considered for the short circuit studies.*

[1] Short-circuit current studies were based on modeling information provided to the AESO by third parties. The authenticity of the modeling information has not been validated. Fault levels could change as a result of system developments, new customer connections, or additional generation in the area. It is recommended that these changes be monitored and fault levels reviewed to ensure that the fault levels are within equipment operating limits. The information provided in this study should not be used as the sole source of information for electrical equipment specifications or for the design of safety-grounding systems.

6.2 Post-Project Results

6.2.1 Scenario 3: 2025 SP Post-Project

Post-Project short-circuit current levels for Scenario 3 are provided in Table 6-2.

Table 6-2: Post-Project Short-Circuit Current Levels for Scenario 3

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
895S SUFFIELD	138	142.39	3.4782	0.057584+j0.131376	3.0092	0.064521+j0.199100
498S TILLEY	138	141.68	5.1568	0.037342+j0.090474,	4.3993	0.038237+j0.142499
28S WEST BROOKS	138	139.42	15.599	0.006351+j0.031452	17.2515	0.001895+j0.021416
649S CHAPPICE LAKE	138	142.17	4.2179	0.042594+j0.106425	2.8258	0.076538+j0.271703
28S WEST BROOKS	240	242.93	13.9781	0.004285+j0.020258	14.281	0.002727+j0.018375
244S BOWMANTON (Bus 645)	138	142.17	4.2165	0.042663+j0.106461	2.83	0.076176+j0.271006
244S BOWMANTON (Bus 659)	138	140.51	9.3214	0.005554+j0.051563	8.9348	0.008328+j0.054465
244S BOWMANTON	240	247.06	7.3808	0.004609+j0.038598	7.407	0.007597+j0.036203
562S CYPRESS	138	140.79	10.6205	0.005254+j0.044040	8.3845	0.011144+j0.076657
562S CYPRESS	240	258.62	6.9592	0.005881+j0.040956	5.5143	0.010877+j0.070365
394S CASSILS	240	242.88	14.0068	0.004270+j0.020226	14.1857	0.002971+j0.018842
321S AL ROTHBAUER	138	139.21	7.8421	0.008302+j0.058829	7.5557	0.007907+j0.060080,
840S MCNEILL STATION	138	141.86	7.0416	0.007598+j0.066980	4.897	0.028734+j0.151062
ALDRSNPK	138	143.53	3.7659	0.053193+j0.123595	4.1045	0.034139+j0.093612

Notes:

* *MEDICINE HAT 41S does not exist anymore, therefore AL ROTHBAUER 321S will be considered for the short circuit studies.*

6.2.2 Scenario 5: 2031 WP Post-Project

Post-Project short-circuit current levels for Scenario 5 are provided in Table 6-3.

Table 6-3: Post-Project Short-Circuit Current Levels for Scenario 5

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (kV)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance (R1+jX1) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance (R0+jX0) (pu)
895S SUFFIELD	138	144.56	3.1943	0.056336+j0.131482	2.7541	0.069002+j0.199334
498S TILLEY	138	140.18	4.7419	0.034469+j0.087465	4.0478	0.036894+j0.137292
28S WEST BROOKS	138	139.81	15.1794	0.004719+j0.028952	17.2494	0.001104+j0.018181
649S CHAPPICE LAKE	138	146.34	3.9059	0.044133+j0.108585	2.6352	0.079129+j0.274672
28S WEST BROOKS	240	251.40	14.5992	0.003136+j0.017886	15.9419	0.001526+j0.013470
244S BOWMANTON (Bus 645)	138	146.36	3.9055	0.044184+j0.108608	2.6386	0.078841+j0.274102
244S BOWMANTON (Bus 659)	138	138.83	8.1826	0.004796+j0.053151	8.3355	0.006523+j0.050018
244S BOWMANTON	240	249.17	6.5004	0.004118+j0.039879,	7.0646	0.005492+j0.030042
562S CYPRESS	138	142.93	9.8145	0.007097+j0.044706	8.4593	0.006728+j0.066383
562S CYPRESS	240	256.08	6.7814	0.006153+j0.038373	6.0503	0.005625+j0.052414
394S CASSILS	240	251.42	14.6323	0.003122+j0.017852	15.7898	0.001750+j0.014010
321S AL ROTHBAUER	138	137.78	7.0017	0.006762+j0.061023	6.902	0.007592+j0.063582
840S MCNEILL STATION	138	142.93	6.5712	0.012782+j0.066392	4.7813	0.024357+j0.141094
ALDRSNPK	138	142.83	3.4154	0.051332+j0.122365	3.6946	0.039960+j0.093549

Notes:

* *MEDICINE HAT 41S does not exist anymore, therefore AL ROTHBAUER 321S will be considered for the short circuit studies.*

7 Mitigation Measure Development and Evaluation

The Studies Consultant, in consultation with the AESO, developed mitigation measures to address the system performance issues that were identified in the post-Project scenarios. Existing remedial action schemes (RASs) are described in the AESO's Connection Study Scope. Further mitigation measures were considered to address system performance issues observed in the sensitivity studies.

As part of this Project, mitigation measures will not be specifically developed for the POD bus voltage deviations observed under certain Category B conditions during pre-Project and post-Project scenarios.[2]

7.1 Pre-Project

Pre-Project mitigation measures are summarized in Table 7-1.

Table 7-1: Pre-Project Mitigation Measures

Mitigation Measure	Location of Observed Violation	Contingency
Planned RAS No. 164	1087L (Cassils 324S to Newell 2075S)	1035L (Bowmanton 244S to Newell 2075S)
Existing RAS No.175	927L (Milo 356s to Langdon 102s)	924L (Langdon 102S to Milo 356S)
	924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)
Existing RAS No.197 and real time operational practices	1087L (Cassils 324S to Newell 2075S)	1088L (Cassils 324S to Newell 2075S)
Real time operational practices	1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)
	1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)
	1087L (Cassils 324S to Newell 2075S)	935L (Milo 356S to Cassils 324S)
	923L (Milo 356s to Newell 2075s)	
	935L (Milo 356s to Cassils 324s)	923L (Milo 356S to Newell 2075S)
	760L (Oyen 394S to P2421 Tap)	163ST5 (Amoco Empress 163S Transformer T5)
	610L (Fincastle 336S to Taber 83S)	892L (Suffield 895S to Bowmanton 244S)
		100L (Suffield 895S to Tilley 498S)
	935L (Milo 356s to Cassils 324s)	EATL
	924L (Milo 356s to Langdon 102s)	
	927L (Milo 356s to Langdon 102s)	
	923L (Milo 356s to Newell 2075s)	

	760L (Oyen 394S to P2421 Tap)	
	610L (Fincastle 336S to Taber 83S)	
	1087L (Cassils 324S to Newell 2075S)	1035L (Bowmanton 244S to Newell 2075S)
Planned RAS No. 607*	668L (Empress 394S to Cypress 562S)	760L (Amoco Empress 163S to Empress 394S)
		163ST5 (Amoco Empress 163S Transformer T5)

Notes:

* *Planned RAS considered for the sensitivity scenarios only.*

7.2 Post-Project

Post-Project mitigation measures are summarized in Table 7-2.

Table 7-2: Post-Project Mitigation Measures

Mitigation Measure	Location of Observed Violation	Contingency
New RAS No.209	612L (Fincastle 336S to Suffield 895S)	498ST1T2 (Tilley 498S Transformer T1/T2)
	610L (Fincastle 336S to Taber 83S)	
	892L (Suffield 895S to Bowmanton 244S)	
	100L (Suffield 895S to P1828 Tap)	
	879L (Burdett 368S to 879AL_Tap)	
	879L (Bowmanton 244S to 879AL Tap)	
	760L (Oyen 394S to P2421 Tap)	
	610L (Fincastle 336S to Taber 83S)	666L (Tilley 498S to West Brooks 28S)
	892L (Suffield 895S to Bowmanton 244S)	
	100L (Suffield 895S to P1828 Tap)	
Planned RAS No.164	1087L (Cassils 324S to Newell 2075S)	1035L (Bowmanton 244S to Newell 2075S)
Existing RAS No.175	927L (Milo 356s to Langdon 102s)	924L (Langdon 102S to Milo 356S)
	924L (Milo 356s to Langdon 102s)	927L (Langdon 102S to Milo 356S)
Existing RAS No.181	610L (Fincastle 336S to Taber 83S)	763L (Vauxhall 158S to Hull 257S)
	612L (Fincastle 336S to Suffield 895S)	666L (Tilley 498S to West Brooks 28S)
	610L (Fincastle 336S to Taber 83S)	

	892L (Suffield 895S to Bowmanton 244S)	
	100L (Suffield 895S to P1828 Tap)	
Existing RAS No.197 and real time operational practices	1087L (Cassils 324S to Newell 2075S)	1088L (Cassils 324S to Newell 2075S)
Real time operational practices	924L (Milo 356s to Langdon 102s)	871L (Amoco Empress 163S to Sand Hills 341S)
	924L (Milo 356s to Langdon 102s)	831L (Brooks 121S to Duchess 339S)
	924L (Milo 356s to Langdon 102s)	163ST5 (Amoco Empress 163S Transformer T5)
	760L (Oyen 394S to P2421 Tap)	
	100L (Tilley 498S to P1828 Tap)	871L (Amoco Empress 163S to Sand Hills 341S)
		931L (Ware Junction 132S to West Brooks 28S)
		1075L (Ware Junction 132S to West Brooks 28S)
		1053L (Ware Junction 132S to Cassils 324S)
		1002L (Jenner 275S to Amoco Empress 163S)
		945L (Jenner 275S to Cypress 562S)
		163ST1 (Amoco Empress 163S Transformer T5)
		1148L (Whitla 251S to Shamrock 1018S)
		562ST1 (Cypress 562S Transformer T1)
		562ST1 (Cypress 562S Transformer T2)
		895ST2 (Suffield 895S Transformer T2)
		853L (Queenstown 504S to West Brooks 28S)
		760L/7L60 (Amoco Empress 163S to Oyen 767S)
		944L (Jenner 275S to Ware Junction 132S)
		964L (Bowmanton 244S to Whitla 251S)
		676L (Bowmanton 244S to Bullshead 523S)
		172L (Taber 83S to Coaldale 254S)
	610L (Fincastle 336S to Taber 83S)	722L (Burdett 368S to Westfield 107S)
	100L (Tilley 498S to P1828 Tap)	

	1088L (Cassils 324S to Newell A2075S)	1087L (Cassils 324S to Newell 2075S)
	610L (Fincastle 336S to Taber 83S)	892L (Suffield 895S to Bowmanton 244S)
		507L (Taber 83S to Hull 257S)
		336ST1 (Fincastle 336S Transformer T1)
		100L (Suffield 895S to Tilley 498S)
		763L (West Brooks 28S to Vauxhall 158S)
		257ST1 (Hull 257S Transformer T1)
		158ST2 (Vauxhall 158S Transformer T2)
		1002L (Jenner 275S to Amoco Empress 163S)
		Burdett 368S Transformer T2
	610L (Fincastle 336S to Taber 83S)	945L (Jenner 275S to Cypress 562S)
	760L (Oyen 394S to P2421 Tap)	
		1011L (Amoco Empress 163S to Cypress 562S)
		669L (Cypress 562S to Amoco Empress 163S)
		562ST1 (Cypress 562S Transformer T1)
		562ST1 (Cypress 562S Transformer T2)
		EATL
	935L (Milo 356s to Cassils 324s)	
	924L (Milo 356s to Langdon 102s)	
	927L (Milo 356s to Langdon 102s)	
	923L (Milo 356s to Newell 2075s)	
	760L (Oyen 394S to P2421 Tap)	
	610L (Fincastle 336S to Taber 83S)	
New RAS No.1 *	100L (Tilley 498S to P1828 Tap)	612L (Burdett 368S to Fincastle 336S)
		610L (Taber 83S to Fincastle 336S)
		368ST1 (Burdett 368S Transformer T1)
		879L (Burdett 368S to Bullshead 523S)
		610L (Taber 83S to Fincastle 336S)
	666L (Tilley 498S to West Brooks 28S)	
New RAS No.2 *	1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)

	1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)
New RAS No.3 *	610L (Fincastle 336S to Taber 83S)	935L (Milo 356S to Cassils 324S)
	1087L (Cassils 324S to Newell 2075S)	
	923L (Milo 356s to Newell 2075s)	
	610L (Fincastle 336S to Taber 83S)	923L (Milo 356S to Newell 2075S)
	935L (Milo 356s to Cassils 324s)	
Planned RAS No.607 **	668L (Empress 394S to Cypress 562S)	760L (Amoco Empress 163S to Empress 394S)
	610L (Fincastle 336S to Taber 83S)	163ST5 (Amoco Empress 163S Transformer T5)
	668L (Empress 394S to Cypress 562S)	
	100L (Tilley 498S to P1828 Tap)	

Notes:

** New RAS considered for the sensitivity scenarios only.*

*** Planned RAS considered for sensitivity scenarios only.*

7.3 Evaluation of Mitigation Measures

This section describes the results of the power flow studies that were performed to assess the impact of the Project on the performance of the AIES following the implementation of proposed mitigation measures.

The post-mitigation measures studies were performed under Category B conditions for Scenario 3, Scenario 4, Scenario 8, Scenario 9, Scenario 12, and Scenario 13 using Alternative 3 and the RASs described in the previous section.

The post-mitigation power flow diagrams for selected Category B conditions are provided in Attachment H. Post-mitigation power flow diagrams present only those contingencies that result in thermal criteria violations that require RAS mitigation. Contingencies that result in thermal criteria violations that can be mitigated by real-time operational practices or TFO capital maintenance projects were not studied.

7.3.1 Scenario 3: 2025 SP

Category B Conditions

Thermal criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-3.

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 927L, 924L, and 1087L.

Table 7-3: Post-RAS Power Flow Study Results for Scenario 3

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	100.42	118.00	65.51	76.98
	612L (Burdett 368S to Fincastle 336S)	85.1	94.0	79	96.6	85	104.7 [a]
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.00	691.00	793.73	137.80	632.22	109.76[a]
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.00	656.00	792.06	144.80	630.80	115.32[a]
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	89.87	105.60	60.91	71.57
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	108.42	127.40	79.66	93.61
498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	96.16	120.20	12.74	15.93
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828)	78.00	86.00	92.82	119.00	4.15	5.32
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	900.36	164.60	648.20	118.50[a]
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	667.89	122.10	608.81	111.30[a]

Notes:

[a] Violation remained after RAS actions were complete and real-time operational practices will mitigate the overload.

7.3.2 Scenario 4: 2025 SL

Category B Conditions

The thermal criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-4.

Table 7-4: Post-RAS Power Flow Study Results for Scenario 4

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	95.65	112.40	65.61	77.10
666L (Tilley 498S to West Brooks 28S)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	85.76	107.20	27.39	34.24
666L (Tilley 498S to West Brooks 28S)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	80.65	103.40	23.64	30.31
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	101.78	119.60	72.45	85.13
498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	106.64	133.30	9.26	11.57
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	102.34	131.20	4.22	5.41
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	815.03	149.00	497.22	90.90

7.3.3 Scenario 8: 2025 SP - Sensitivity inlcuding P2418

Category B Conditions

The thermal and voltage criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-5.

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 610L, 612L, 924L, 927L, 1051L, 1052L, and 1087L.

Table 7-5: Post-RAS Power Flow Study Results for Scenario 8

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.00	132.00	141.84	118.20	70.91	59.09
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.00	132.00	147.48	122.90	77.52	64.60
760L (Amoco Empress 163S to Empress 394S)	668L (Empress 394S to Cypress 562S)	121.00	133.00	167.46	138.40	18.17	15.02
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	94.63	111.20	64.41	75.69
666L (Tilley 498S to West Brooks 28S)	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	87.23	102.50	94.00	110.46[a]
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	108.16	127.10	74.23	87.23
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.80	738.00	756.82	123.10	729.95	118.73[a]
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.80	738.00	756.82	123.10	729.95	118.73[a]
935L (Milo 356S to Cassils 324S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	88.25	103.70	82.33	96.74
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	649.84	118.80	620.46	113.43[a]
935L (Milo 356S to Cassils 324S)	923L (Milo 356s to Newell 2075s)	547.00	656.00	688.13	125.80	441.21	80.66
923L (Milo 356S to Newell 2075S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	87.74	103.10	81.55	95.83
923L (Milo 356S to	935L (Milo 356s to Cassils 324s)	547.00	656.00	696.88	127.40	454.06	83.01

Newell 2075S)							
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.00	691.00	777.02	134.90	685.15	118.95[a]
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.00	656.00	775.10	141.70	683.64	124.98[a]
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	95.40	112.10	65.88	77.42
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	116.08	136.40	87.52	102.84[a]
498ST1T2 (Tilley 498S Transformer T1/T2)	879L (Burdett 368S to 879AL_Tap)	85.00	94.00	86.28	101.50	55.47	65.26
498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	103.04	128.80	15.61	19.51
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	97.73	125.30	4.09	5.24
498ST1T2 (Tilley 498S Transformer T1/T2)	879L (Bowmanton 244S to 879AL Tap)	85.00	94.00	91.12	107.20	60.80	71.53
163ST5 (Amoco Empress 163S Transformer T5)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	88.42	103.90	73.72	86.63
163ST5 (Amoco Empress 163S Transformer T5)	668L (Empress 394S to Cypress 562S)	121.00	133.00	168.43	139.20	18.66	15.42
163ST5 (Amoco Empress 163S Transformer T5)	100L (Tilley 498S to P1828 Tap)	120.00	132.00	126.84	105.70	112.56	93.80
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	951.78	174.00	654.21	119.60[a]

1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	701.25	128.20	639.17	116.85[a]
368ST1 (Burdett 368S Transformer T1)	100L (Tilley 498S to P1828 Tap)	120.00	132.00	138.60	115.50	67.18	55.98
879L	100L (Tilley 498S to P1828 Tap)	120.00	132.00	138.84	115.70	68.59	57.16

Notes:

[a] Violation remained after RAS actions were complete and real-time operational practices will mitigate the overload.

7.3.4 Scenario 9: 2025 SL - Sensitivity inIcuding P2418

Category B Conditions

The thermal and voltage criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-6.

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 100L, 760L, and 892L.

Table 7-6: Post-RAS Power Flow Study Results for Scenario 9

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
610L (Taber 83S to Fincastle 336S)	666L (Tilley 498S to West Brooks 28S)	120.00	108.00	120.24	100.20	47.59	39.66
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to P1828 Tap)	120.00	132.00	137.16	114.30	61.90	51.58
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	106.29	124.90	81.93	96.27
666L (Tilley 498S to West Brooks 28S)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	85.44	106.80	85.27	106.59[a]
666L (Tilley 498S to West Brooks 28S)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	80.50	103.20	80.43	103.12[a]
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	112.42	132.10	83.68	98.33

498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	106.40	133.00	9.32	11.65
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	102.26	131.10	4.21	5.40
498ST1T2 (Tilley 498S Transformer T1/T2)	760L (Oyen 394S to P2421 Tap)	110.20	131.00	111.41	101.10	101.14	91.78
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	844.57	154.40	531.68	97.20

Notes:

[a] Violation remained after RAS actions were complete and real-time operational practices will mitigate the overload.

7.3.5 Scenario 12: 2025 SP - Sensitivity including P2446

Category B Conditions

The thermal and voltage criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-7.

After RAS actions were complete, real-time operational practices are required to fully alleviate certain thermal criteria violations observed on 924L, 927L, and 1087L.

Table 7-7: Post-RAS Power Flow Study Results for Scenario 12

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	104.16	122.40	76.62	90.03
666L (Tilley 498S to West Brooks 28S)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	89.12	111.40	17.51	21.89
666L (Tilley 498S to West Brooks 28S)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	85.72	109.90	11.22	14.38
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.00	691.00	779.90	135.40	619.83	107.61[a]
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.00	656.00	777.83	142.20	618.44	113.06[a]

498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.10	94.00	85.70	100.70	56.88	66.84
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	106.29	124.90	78.35	92.07
498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	95.92	119.90	11.33	14.16
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	92.90	119.10	3.99	5.11
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	896.53	163.90	642.73	117.50[a]
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	670.62	122.60	610.51	111.61[a]

Notes:

[a] Violation remained after RAS actions were complete and real-time operational practices will mitigate the overload.

7.3.6 Scenario 13: 2025 SL - Sensitivity including P2446

Category B Conditions

The thermal and voltage criteria violations observed under certain Category B conditions in the post-Project studies were mitigated by RASs as shown in Table 7-8.

Table 7-8: Post-RAS Power Flow Study Results for Scenario 13

Contingency (System Element Lost)	Details of Violation (Violation Observed On)	Seasonal Continuous Rating (MVA)	Short-term (Emergency) Rating (MVA)	Post-Project Results		Post-RAS Action Results	
				Power Flow (MVA)	% Loading	Power Flow (MVA)	% Loading
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	97.95	115.10	68.68	80.70
666L (Tilley 498S to West Brooks 28S)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	99.04	123.80	17.94	22.42
666L (Tilley 498S to West Brooks 28S)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	94.54	121.20	9.27	11.88

498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.10	94.00	100.25	117.80	71.08	83.52
498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	80.00	88.00	106.72	133.40	9.24	11.55
498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to P1828 Tap)	78.00	86.00	102.34	131.20	4.23	5.42
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.00	656.00	817.77	149.50	499.96	91.40

7.4 Constraint Effective Factor Studies

Constraint effective factor studies were conducted for all post-Project scenarios. The constraint effective factors were calculated for all Category B conditions when the loadings of the monitored transmission elements in the Study Area exceeded 100% (i.e., for all of the contingencies that resulted in thermal criteria violations). The results of the constraint effective factor studies are provided in Attachment G.

8 Project Interdependencies

The project is dependent on increasing the rating of the section of the 138 kV transmission line 100L from the Project T-tap point to Tilley 498S.

Attachment A: Engineering Connection Assessment: Study Scope

Study Scope

P1828 HEP Energy Alderson MPC Solar

hep Canada SPV 1 Ltd

Date: Aug. 25, 2023

Version: V2

Classification: Public

Company Name	Name and Credentials	Date	Signature
Hardline Engineering Ltd.	Rafae Malik, P.Eng., M.Eng.	2023-09-25	
AESO	Omid Ghoreishi, P. Eng.	2023-09-26	
hep Canada SPV 1 Ltd.	Pamela Pelletier	2023-09-25	

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Attachments

Attachment A: Transmission Planning Criteria – Basis and Assumptions

1 Introduction

This Study Scope provides an overview of the engineering studies to be completed by Hardline Engineering Ltd. (the Studies Consultant) to assess the impact of the Project (as defined in section 1.1) on the performance of the Alberta interconnected electric system (AIES). Technical criteria, assumptions and methods for performing these engineering studies are provided in this document.

1.1 Project Overview

Hep Canada SPV 1 Ltd. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its proposed Alderson Park 1061S (Facility) to the AIES.

The Market Participant's request includes: a request for a new system access service in the area, with a Rate STS, Supply Transmission Service, contract capacity of 100 MW and a Rate DTS, Demand Transmission Service, contract capacity of 0.5 MW; and a request for transmission development (collectively, the Project).

The Project in-service date (ISD) used for the purpose of the studies is Dec. 2, 2024.

Load and generation components of the Project are listed in Table 1-1.

Table 1-1: Project Load and Generation Details

Project Component		Description
Generation	Generation type	Solar
	Existing Rate STS, *Supply Transmission Service,* contract capacity	0 MW
	Requested Rate STS	100 MW
	Number and size of generating units	Not Available
	Maximum authorized real power (MARP)	100 MW
	Maximum capability (MC)	100 MW
	Reactive power capability	0.95 pf absorbing
		0.9 pf producing
	Future generation expansion plans	No
Load	Existing Rate DTS, *Demand Transmission Service,* contract capacity	0 MW
	Requested Rate DTS	0.5 MW
	Type	Station service
	Motors (number and size)	None
	Power factor	0.9 pf

Project Component		Description
	Future load expansion plans	No

Note:

MARP and MC are defined in the AESO's *Consolidated Authoritative Document Glossary*, which can be found on the AESO's website.

1.2 Existing System Overview

1.2.1 Study Area

Geographically, the Project is located in the AESO planning area of Vauxhall, Area 52.

The Study Area consists of the AESO planning areas of Empress (Area 48), Medicine Hat (Area 4), Brooks (Area 47), and Vauxhall (Area 52), including the tie lines connecting these planning areas to the rest of the AIES.

The existing transmission system in the Study Area is shown in Figure 1-1.

1.2.2 Existing Constraints

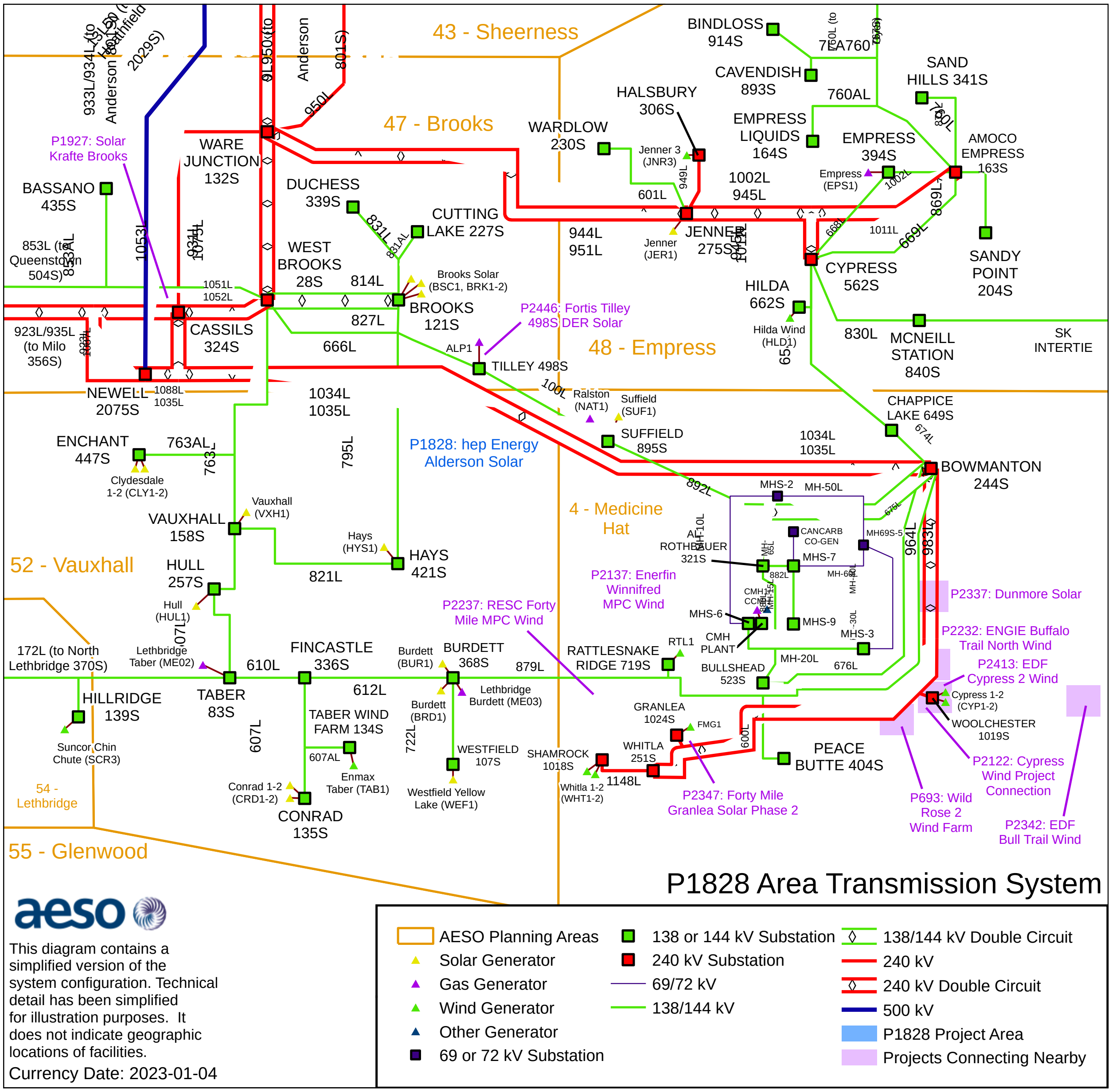
Existing constraints in the Study Area are managed in accordance with the procedures set out in Section 302.1 of the ISO rules, *Real Time Transmission Constraint Management* (TCM Rule).

There are a number of constraints in the Study Area that are mitigated by existing remedial action schemes (RASs) and/or other protection schemes.

The following existing RASs and/or other protection schemes are used to manage constraints in the area:

- RAS 27: 562S Cypress McNeil Power and Undervoltage Scheme
- RAS 28: 163S Amoco Empress Reverse Power and Undervoltage Scheme
- RAS 29: McNeil 840S Under Voltage Runback Scheme
- RAS 33: Cypress T562S Reverse Power and Undervoltage Scheme
- RAS 112: Cypress 562S - Power/Under & Over Frequency Scheme
- RAS 141: Tilley 498S voltage instability mitigation
- RAS 164: 1034L and 1035L Contingency Mitigation
- RAS 168: 172L-83S Overload Mitigation
- RAS 173: 880L-321S Overload Mitigation Scheme
- RAS 175: Milo 356S – 924L/927L Overload Mitigation Scheme
- RAS 197: 1087L Overload Mitigation
- RAS 181: 610L Overload Mitigation Scheme

Figure 1-1: Transmission System in the Study Area



2 Connection Alternative to be Studied

The following alternative is to be studied:

2.1 Alternative 3 – T-tap onto 138kV line 100L

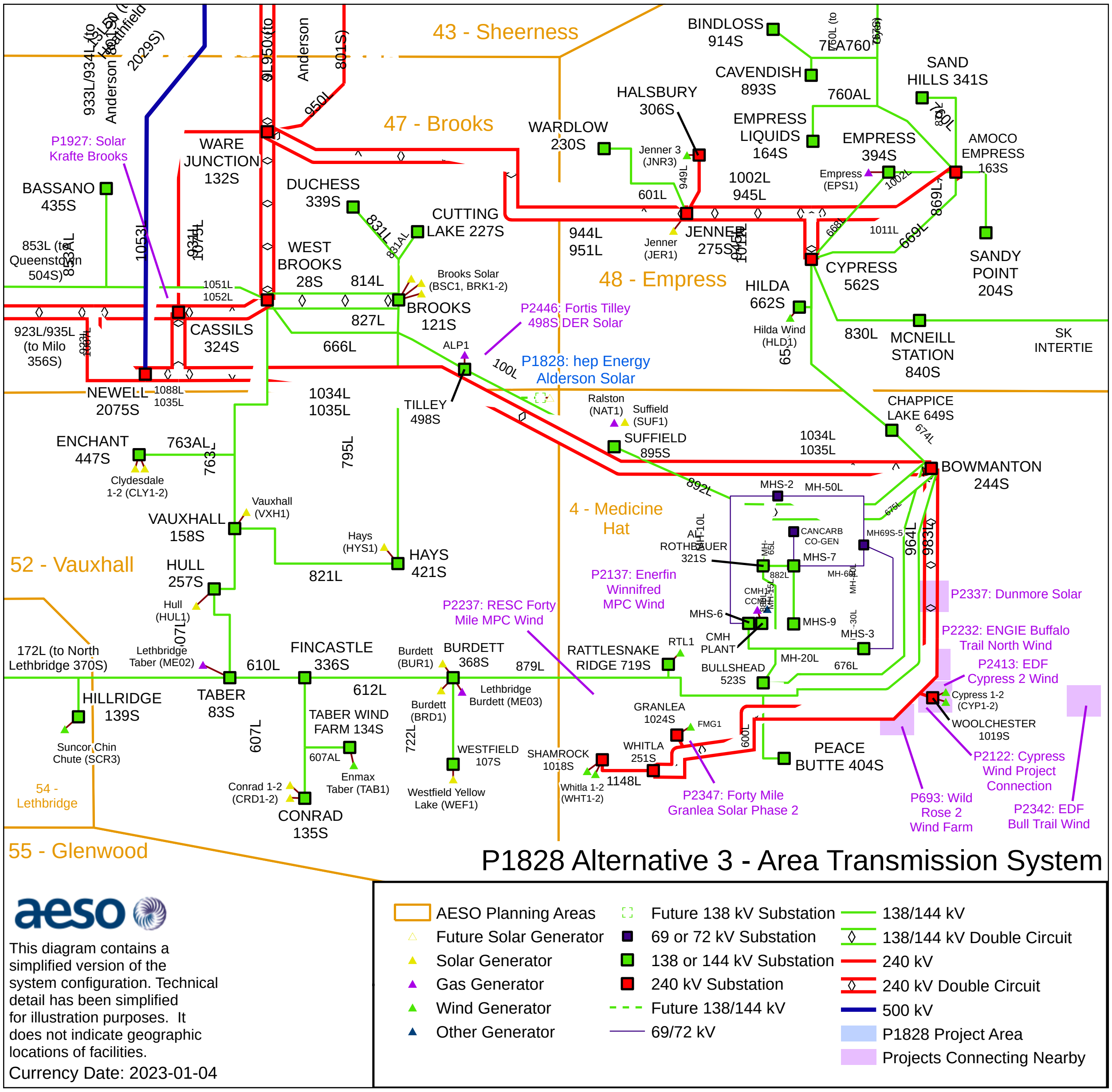
This alternative included the following developments:

- Add one 138 kV circuit, approximately 3 km in length[1], to connect the Facility to the existing 138 kV transmission line 100L (Suffield 895S to Tilley 498S) in a T-tap configuration;
- Add or modify associated equipment as required for the above transmission developments.

The proposed connection configuration is shown in Figure 2-1

[1] The exact line length to be determined by the MP.

Figure 2-1: Connection Alternative 1



3 Criteria, Standards and Requirements

3.1 AESO Reliability Criteria

The Transmission Planning (TPL) Standards, which are included in the Alberta Reliability Standards, and *Transmission Planning Criteria – Basis and Assumptions (see Attachment A),* (collectively, the Reliability Criteria) will be applied to evaluate system performance under Category A system conditions (i.e., all elements in-service) and following Category B contingencies (i.e., single element outage), prior to and following the studied alternatives. Below is a summary of Category A and Category B system conditions.

Category A, often referred to as the N-0 condition, represents a normal system with no contingencies and all facilities in service. Under this condition, the system must be able to supply all firm load and firm transfers to other areas. All equipment must operate within its applicable rating, voltages must be within their applicable range, and the system must be stable with no cascading outages.

Category B events, often referred to as an N-1 or N-G-1 with the most critical generator out of service, result in the loss of any single specified system element under specified fault conditions with normal clearing. These elements are a generator, a transmission circuit, a transformer, or a single pole of a DC transmission line. The acceptable impact on the system is the same as Category A. Planned or controlled interruptions of electric supply to radial customers or some local network customers, connected to or supplied by the faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted firm (non-recallable reserved) transmission service electric power transfers.

The TPL standards, TPL-001-AB-0 and TPL-002-AB1-0 have referenced Applicable Ratings when specifying the required system performance under Category A and Category B events. For the purpose of applying the TPL standards to the studies documented in this report, Applicable Ratings are defined as follows:

- Normal thermal rating of the line's loading limits for each season;
- The highest specified loading limits for transformers;
- For Category A conditions: Voltage range under normal operating condition per AESO Information Document #2010-007RS, *General Operating Practices – Voltage Control* (ID #2010-007RS). For the busses not listed in ID #2010-007RS, Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions* applies;
- For Category B and Category C5 conditions: The extreme voltage range values per Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions; and*
- Desired post-contingency voltage deviation limits for three defined post-event timeframes as provided in Table 3-1.

Table 3-1: Post-Contingency Voltage Deviation Guidelines for Low Voltage Busses

Parameter and reference point	Time Period		
	Post Transient (up to 30 sec)	Post Auto Control (30 sec to 5 min)	Post Manual Control (Steady State)
Voltage deviation from steady state at point of delivery (POD) low voltage bus.	±10%	±7%	±5%

3.2 ISO Rules and Information Documents

ID #2010-007RS will be used to establish system normal (i.e., pre-contingency) voltage profiles for the Study Area.

The TCM Rule will be followed to set up the study scenarios and assess the impact of the Project. In addition, due regard will be given to the following:

- The AESO's *Connection Study Requirements*;
- Section 502.1 of the ISO rules, *Aggregated Generating Facilities Technical Requirements*;
- Section 502.16 of the ISO rules, *Aggregated Generating Facilities Operating Requirements*;

4 Scenarios and Assumptions

4.1 Scenarios

The following section describes the scenarios to be studied and the assumptions to be used in the studies. Connection scenarios must be studied as outlined in Table 4-1.

Table 4-1: Connection Study Scenarios

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
Pre-Project					
1	2025 Summer Peak (2025 SP)	High South generation, high solar generation	2025 SP Pre-Project-HG	0	0
2	2025 Summer Light (2025 SL)		2025 SL Pre-Project-HG	0	0
Post-Project					
3	2025 SP	High South generation, high solar generation	2025 SP Post -Project- HG	0	100
4	2025 SL		2025 SL Post -Project- HG	0	100
5	2031 WP	All study area generation in-service	2031 WP Post-Project- HG	0	100
Pre-Project – Sensitivity Study including P2418					
6	2025 SP	High South generation, high solar generation	2025 SP Pre-Project-HG	0	0
7	2025 SL		2025 SL Pre-Project-HG	0	0
Post-Project – Sensitivity Study including P2418					
8	2025 SP	High South generation, high solar generation	2025 SP Post -Project- HG	0	100
9	2025 SL		2025 SL Post -Project- HG	0	100
Pre-Project – Sensitivity Study including P2446					
10	2025 SP	High South generation, high solar generation	2025 SP Pre-Project-HG	0	0
11	2025 SL		2025 SL Pre-Project-HG	0	0
Pre-Project – Sensitivity Study including P2446					
12	2025 SP	High South generation, high solar generation	2025 SP Post -Project- HG	0	100

Scenario No.	Year/Season	System Generation Dispatch Conditions	Scenario Name	Project Load (MW)	Project Generation (MW)
13	2025 SL		2025 SL Post -Project- HG	0	100

4.2 Assumptions

4.2.1 System Project Assumptions

The pre-Project and post-Project connection assessment will not include any system transmission projects because there are no planned system transmission developments in the Study Area that are expected to be in service before the scheduled Project ISD.

4.2.2 Connection Project Assumptions

Table 4-2 summarizes the connection projects in the Study Area that should be included in the sensitivity studies only.

Table 4-2: Planned Connection Projects Included in the Sensitivity Studies

AESO Project No.	AESO Project Name	AESO Planning Area No.	Generation (MW)	Load (MW)	Scheduled ISD	AUC NID Decision No.
P2418	Greencells Estuary Solar	48	200	2	3-Sep-24	N/A
P2446	Fortis Tilley 498S DER Solar	47	20	0	29-Feb-24	N/A

4.2.3 Load Assumptions

The load forecast to be used for the studies is shown in Table 4- and is a forecast for the AESO

South Planning Region peak based on the AESO *2021 Long-Term Outlook* (2021 LTO)[2] with modifications to incorporate the latest forecast intelligence. For the post-Project studies, when the Study Area loads are modified to align with the regional load forecast, the active power to reactive power ratio in the base case scenarios shall be maintained.

[2] The 2021 LTO is available on the AESO website.

Table 4-3: Forecast Load (at AESO Northeast Planning Region Peak)

AESO Planning Region Name	Forecast Peak Load by Year/Season (MW)	
	2025 SL	2025 SP
South Planning Region	891	1,614

Note:
[1] The South Region comprises the following AESO planning areas: 44, 46, 53, 45, 49, 54, 55, 43, 47, 52, 48, 4

IDEV files contain non-motor loads in zones 34, 36, and 351. These loads are not accounted for in the forecasted peak loads shown above and should not be considered when scaling load. The AESO engineer will provide guidance to load scaling procedures as required.

4.2.4 Generation Assumptions

The generation forecast to be used for the studies is based on the 2021 LTO with modifications to incorporate the latest forecast intelligence. The generation assumptions for the studies will assume high Northeast generation. Additional studies may be required in the event of changes to the AESO's corporate forecast.

The existing generation (excluding wind and solar) dispatch conditions for the study scenarios are described in Table 4-.

Table 4-4: Key Existing Generation (excluding Wind and Solar) Dispatch Conditions

Facility Name	Unit No.	Bus No.	MC (MW)	AESO Planning Area No.	Unit Net Generation[a] (MW) by Scenario	
					2025 SL	2025 SP
Chin Chute (CHIN)		407	15	54	10	9
Irrican Hydro (ICP1)		450	7	54	7	6
Parkland (ALP2)		4235	10	49	0	9
Lethbridge Taber (ME02)		3272	8	52	0	7
Lethbridge Burdett (ME03)		4269	7	52	0	7
Lethbridge Coaldale (ME04)		557690	6	54	0	6
Coaldale (COD1)		2690	5	54	4	5
Cavalier (EC01)		3247,4247	120	45	100	85
Carseland Cogen (TC01)		3251,4251	95	45	79	71
Oldman River (OMRH)		2230	32	53	31	26
Summerview (SUM1)		61336	10	53	-10	10

Notes:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

Using this value, the wind and solar generation facilities will be dispatched to yield the credible worst-case power flow conditions for the Study Area. Pre-Project dispatch levels for the existing and under-construction wind and solar generation facilities are shown in Table 4- and Table 4-.

Table 4-5: Dispatch Conditions for Existing and Under-Construction Wind Generation Projects

Facility Name and Code	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch[a] (MW)	
				2025 SL	2025 SP
Ardenville Wind (ARD1)	4735, 4740	53	68	13.6	40.8
Blue Trail Wind (BTR1)	66328, 67328	53	66	13.2	39.6
Castle River #1 (CR1)	2234, 3234	53	39	7.8	23.4
Castle Rock Wind Farm (CRR1)	67221	53	77	15.4	46.2
Cowley Ridge (CRE3)	4264	53	20	4.0	12.0
Enmax Taber (TAB1)	15343, 16343	52	81	16.2	48.6
Kettles Hill (KHW1)	2402, 3402	53	63	12.6	37.8
McBride Lake Windfarm (AKE1)	2901, 3901, 4901	53	73	14.6	43.8
Soderglen Wind (GWW1)	12358, 13358	53	71	14.2	42.6
Summerview 1 (IEW1)	2338, 3338	53	66	13.2	39.6
Summerview 2 (IEW2)	4339, 5337	53	66	13.2	39.6
Suncor Chin Chute (SCR3)	2389	54	30	6.0	18.0
Suncor Magrath (SCR2)	11002	53	30	6.0	18.0
Suncor Wintering Hills (SCR4)	60789, 60791, 60793, 60846, 60848, 60850	43	88	17.6	52.8
Old Man River(OWF1)	61543	53	46	9.2	27.6
Blackspring Ridge(BSR1)	61736, 61737	49	300	60.0	180.0
Castle Rock Ridge 2 (CRR2)	567221	53	30.6	6.1	18.4
Enel Riverview Wind Farm (RIV1)	69221	53	115	23.0	69.0
Capital Power Whitla Wind Power Facility (WHT1)	60990	4	201.6	40.3	121.0
Capital Power Whitla Wind Power Facility Phase 2	61990	4	97.2	19.4	58.3
Capital Power Whitla Wind Power Facility Phase 3	64990	4	54	10.8	32.4
TransAlta Windrise (WRW1)	567031	53	207	41.4	124.2

Rattlesnake Ridge Wind (RTL1)	60873	4	130	26.0	78.0
Ghost Pine (NEP1)	2621, 2622, 2623, 2624, 2625	42	82	16.4	49.2
Halkirk (HAL1)	66435, 67435	42	150	30.0	90.0
Fortis Bull Creek Phases 1 and 2(Bul1 & BUL2)	550003, 550004	37	29.5	5.9	17.7

Notes:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

Table 4-6: Dispatch Conditions for Existing and Under-Construction Solar Generation Projects

Facility Name and Code	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch[a] (MW)	
				2025 SL	2025 SP
Brooks Solar (BSC1)	553257	47	15	10.5	14.25
Hull DER Solar (HUL1)	2401	52	24.5	17.15	23.275
Vauxhall Solar (VXH1)	4274	52	22	15.4	20.9
Suffield Solar (SUF1)	3270	4	23	16.1	21.85
Claresholm Solar (CLR1)	60894	49	58	40.6	55.1
Claresholm Solar (CLR2)	61894	49	75	52.5	71.25
Burdett (BRD1)	2269	52	11	7.7	10.45
Westfield Yellow Lake (WEF1)	557277	52	19	13.3	18.05
Burdett (BUR1)	557269	52	20	14	19
Hays Solar (HYS1)	554401	52	24	16.8	22.8
Jenner Solar DER (JER1)	554986	48	23	16.1	21.85
Innisfail Solar (INF1)	557120	39	22	15.4	20.9
Brooks Solar 1 (BRK1)	553256	47	13	9.1	12.35
Brooks Solar 2 (BRK2)	554257	47	14	9.8	13.3
Coaldale Solar (COL1)	554691	54	22	15.4	20.9
Strathmore 1 (STR1)	557259	45	18	12.6	17.1
Strathmore 2 (STR2)	558259	45	23	16.1	21.85
Travers (TVS1)	560026, 561026, 562026	49	465	325.5	441.75

Notes:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

Pre-Project dispatch levels for the planned wind and solar generation facilities are shown in Table 4- and Table 4-.

Table 4-7: Dispatch Conditions for Planned Wind Generation Projects

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch[a] (MW)	
						2025 SL	2025 SP
P1892	Fortis Buffalo Atlee Cluster 3 WAGF	1-Dec-21	552260	47	17.3	3.5	10.4
P1853	Fortis Buffalo Atlee Cluster 1 WAGF	1-Dec-21	553260	47	17.3	3.5	10.4
P2199	Buffalo Atlee Wind Farm 2	1-Dec-21	557261	47	13.8	2.8	8.3
P1719	Stirling WAGF Project	1-Nov-22	61630	54	113	22.6	67.8
P2122	EDF Cypress Wind	1-Nov-22	560003	4	201.6	40.3	121.0
P1533	Joss MPC WAGF	30-Jun-22	60798, 60799	47	122	24.4	73.2
P1698	Joss Jenner WAGF - Phase 2	30-Jun-22	61798, 61799	47	71.4	14.3	42.8
P1812	Suncor Forty Mile Granlea WAGF	16-Nov-21	61994, 62994	4	200	40.0	120.0
P1718	Wheatland WAGF Project	30-Jun-22	60632, 61632	43	120	24.0	72.0
P1909	TransAlta Garden Plain Wind	1-Jul-22	565002	42	130	26.0	78.0
P2234	Jenner Wind Phase 3	30-Jun-22	61799	48	109.2	21.8	65.5
P1898	Pattern Lanfine North Wind	30-Sep-22	60996	42	145	29.0	87.0
P2263	BER Hand Hills MPC Wind	1-Sep-22	560045	42	151	30.2	90.6
P1800	Capital Power Whitla Wind Power Facility	15-Sep-21	60990, 61990	4	299	59.8	179.4
P2041	TransAlta Windrise MPC Wind	10-Jun-21	567031	53	207	41.4	124.2
P2247	Buffalo Plains MPC Wind	17-Apr-23	560041, 560042	47	466	93.2	279.6
P2254	RESC Hilda MPC Wind	7-Oct-22	567004	48	100	20.0	60.0
P2338	Capital Power Whitla Wind Phase 3	15-Sep-21	64990	4	54	10.8	32.4
P2412	Fortis Buffalo Atlee Cluster 4 DER Wind	4-Apr-23	990082	48	11	2.2	6.6
P2413	EDF Cypress 2 Wind	31-Aug-22	560003, 561003	4	46	9.2	27.6
P1250& P2065	Wild Run Grizzly Bear Wind & Phase 2	15-Nov-22	67308	13	154	30.8	92.4
P1567	EDPR Sharp Hills Wind Farm	16-Dec-22	60831, 60832	42	297	59.4	178.2
P1704	Paintearth Wind Power	28-Jul-23	61418	42	150	30.0	90.0

P2137	Enerfin Winnifred MPC Wind	17-Mar-23	567034	4	90	18.0	54.0
P2237	RESC Forty Mile MPC Wind	15-Sep-23	60608, 61608	4	266	53.2	159.6

Notes:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

Table 4-8: Dispatch Conditions for Planned Solar Generation Projects

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch[a] (MW)	
						2025 SL	2025 SP
P1831	Fortis 255S Vulcan Faribault Farms DG PV	24-May-21	4244	49	22	15.4	20.9
P1850	Fortis Coaldale 254S DER Solar 3	May. 24, 2021	554691	54	22	15.4	20.9
P1851	Fortis Monarch 492S DER Solar	May. 24, 2021	2005	54	23.6	16.52	22.42
P1862	Fortis Spring Coulee 385S Solar DG	Oct. 15, 2021	553246 554246	55	29.5	20.65	28.025
P1870	Fortis Stavely 349S DER Solar	1-Feb-22	2004	49	18.5	12.95	17.575
P1918	FortisAlberta Conrad DER Solar 1	21-Dec-21	554291	52	23.4	16.38	22.23
P1932	FortisAlberta Namaka DER Solar	3-Sep-21	552340	45	20.1	14.07	19.095
P1959	FortisAlberta Conrad DER Solar 2	21-Dec-21	553291	52	22.5	15.75	21.375
P2195	FortisAlberta Bassano 435S DER Solar	1-Feb-23	557399	47	9.25	6.475	8.7875
P2249	FortisAlberta Empress 394S DER Solar 1	1-Nov-21	558316	48	22	15.4	20.9
P2250	FortisAlberta Empress 394S DER Solar 2	1-Nov-21	558016	48	16	11.2	15.2
P2300	RESC Enterprise MPC Solar	31-Aug-22	563070	49	65	45.5	61.75
P2335	Fortis Vulcan 255S DER Solar	1-May-22	990092	49	13	9.1	12.35
P2337	Dunmore Solar	1-Apr-23	560044	4	216	151.2	205.2
P2362	Fortis Enchant 447S DER Solar	30-Nov-21	993287	52	23	16.1	21.85
P2363	Fortis Enchant 447S DER Solar	30-Nov-21	993289	52	17.9	12.53	17.005
P2364	Fortis Enchant 447S DER Solar	30-Nov-21	994287	52	10	7	9.5
P2365	Fortis Enchant 447S DER Solar	30-Nov-21	994289	52	24	16.8	22.8

P1838	Fortis 895S Suffield DG PV	30-Jun-20	3270	4	23	16.1	21.85
P1839	Fortis 421S Hays DG PV	24-Jun-21	554401	52	23	16.1	21.85
P1840	Fortis 275S Jenner Solar DER	23-Jun-21	554986	48	23	16.1	21.85
P1849	Fortis Burdett 368S DG P/V	18-Feb-21	2269	52	11	7.7	10.45
P1879	Claresholm Solar Connection	25-Jan-21	60894	49	150	105	142.5
P1927	Solar Krafte Brooks	1-Dec-23	60434, 61434	47	360	252	342
P2241	FortisAlberta 368S Burdett DER Solar	25-Feb-21	558269	52	20	14	19
P2347	Forty Mile Granlea Solar Phase 2	17-Nov-23	5994	4	220	154	209
P2216	FortisAlberta Chappice Lake 649S DER Solar	15-Dec-22	557320	4	11	7.7	10.45
P2059	ATCO Three Hills 770S DER Solar 1	1-May-22	552433	42	14	9.8	13.3
P2061	ATCO Michichi Creek 802S DER Solar	1-May-22	554448	42	11	7.7	10.45
P1978	ATCO Michichi DER Solar	1-Nov-22	552448, 553448, 552450	42	75	52.5	71.25
P2424	ATCO Oyen 767S DER Solar	14-Apr-23	88888	42	15	10.5	14.25
P1831	Fortis 255S Vulcan Faribault Farms DG PV	24-May-21	4244	49	22	15.4	20.9
P2334	TCE Saddlebrook Solar Storage	1-Jun-23	562240, 563240	46	109	76.3	103.55
P2348	BluEarth Wheatcrest MPC Solar	15-Mar-23	557051	52	50	35	47.5
P2361	ATCO Youngstown 772S DER Solar	1-Apr-23	990072	42	6	4.2	5.7
P2421	RESC Big Sky Solar	1-Jan-24	560051	48	140	98	133
P2411	Greengate Jurassic MPC Solar Battery	31-Dec-23	567072, 568072	48	300	210	285

Notes:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

Pre-Project dispatch levels for the planned generation facilities for the sensitivity study are shown in Table 4-9.

Table 4-9: Dispatch Conditions for Planned Generation Projects for Sensitivity Study

Project Number	Project Name	Planned ISD	Bus No.	AESO Planning Area No.	MC (MW)	Unit Net Generation Dispatch[a] (MW)	
						2025 SL	2025 SP
P2418	Greencells Estuary Solar	3-Sep-24	562418	48	200	140	190

2446	Fortis Tilley 498S DER Solar	29-Feb-24	994276	47	20	14	19

Note:
[a] "Unit Net Generation" refers to gross generating unit output (MW) less unit service load.

The post-Project scenario wind and solar generation dispatch levels were identical to the pre-Project scenario dispatch levels shown in Table 4-5 through Table 4-9.

4.2.5 Intertie Flow Assumptions

The intertie flow assumptions for the Alberta-British Columbia (AB-BC), Alberta-Saskatchewan (AB-SK), and Alberta-Montana (MATL) interties are shown in Table 4-2.

For the 2031 WP scenario, the intertie flow values should be set to the AESO planning base cases.

Table 4-2: Intertie Flows by Scenario

Scenario Number	Scenario Name	Import (-) / Export (+) (MW) by Intertie		
		AB-BC	AB-SK	MATL
1, 3, 6, 8, 10, 12	2025 SP HS Pre (Post)-Project	527	-150	0
2, 4, 7, 9, 11, 13	2025 SL HS Pre (Post)-Project	527	-150	0

4.2.6 HVDC Power Order Assumptions

The Western Alberta Transmission Line (WATL) and the Eastern Alberta Transmission Line (EATL) are high-voltage direct current (HVDC) transmission lines. The HVDC power order assumptions for the studies will be set to minimize losses for the pre-Project and post-Project study scenarios.

The reactive power limits of the MVAr exchanges between the HVDC terminals (WATL and EATL) and the connected alternating current (AC) transmission systems are shown in Table 4-. These limits must be maintained when performing the studies.

Table 4-3: HVDC to Adjacent AC System MVAr Exchange Limits

HVDC Facility	North Terminal Reactive Power Limit (MVAr)	South Terminal Reactive Power Limit (MVAr)
EATL	-85 to 75	-35 to 35
WATL	-75 to 75	-35 to 35

4.2.7 Transmission Facility Ratings

The legal owner of transmission facilities (TFO) provided the thermal ratings assumptions for the existing transmission lines in the Study Area. Table 4-12 shows the normal ratings and emergency ratings for the key transmission lines in the Study Area, which will be used to perform the engineering studies.

Table 4-12: Thermal Rating Assumptions for Key Transmission Lines in the Study Area

Line ID	Line Description	Voltage Class (kV)	Normal Summer Rating (MVA)	Emergency Summer Rating (MVA)
1002L	JENNER 275S – AMOCO EMPRESS 163S	240	333 CT	499 CT
945L	JENNER 275S – CYPRESS 562S	240	550	660
1011L	CYPRESS 562S – AMOCO EMPRESS 163S	240	333 CT	499 CT
964L	BOWMANTON 244S - WHITLA 251S	240	952 M	1047 M
983L	BOWMANTON 244S – WHITLA 251S	240	952 M	1047 M
1034L	BOWMANTON 244S – CASSILS 324S	240	931 M	1024 M
1035L	BOWMANTON 244S – NEWELL 2075S	240	952 M	1047 M
1087L	NEWELL 2075S - CASSILS 324S	240	547	656
1088L	NEWELL 2075S - CASSILS 324S	240	931 M	1024 M
760AL	EMPRESS LIQUIDS 164S – 760AL TAP POINT	138	86 LTD-L	95 LTD-L
760L/7L760	7LA760 TAP POINT – 760AL TAP POINT	138	120	132
760L	AMOCO EMPRESS 163S – 760AL TAP POINT	138	120	132
760L	EMPRESS 394S – AMOCO EMPRESS 163S	138	119	131
871L	SAND HILLS SUB 341S – AMOCO EMPRESS 163S	138	120 CT	179 CT
869L	AMOCO EMPRESS 163S – SANDY POINT 204S	138	48 CT	72 CT
669L	AMOCO EMPRESS 163S – CYPRESS 562S	138	177	195
668L	EMPRESS 394S – CYPRESS 562S	138	121	133
830L	CYPRESS 562S – MCNEILL STATION 840S	138	177	195
658L	CYPRESS 562S – CHAPPICE LAKE 649S	138	121	133
674L	CHAPPICE LAKE 649S – BOWMANTON 244S	138	121	133
892L	SUFFIELD 895S - BOWMANTON 244S	138	80	88
100L	SUFFIELD 895S - TILLEY 498S	138	78	86
666L	WEST BROOKS 28S - TILLEY 498S	138	120 CT	133
675L	BOWMANTON 244S – AL ROTHBAUER 321S	138	368	405
676L	BOWMANTON 244S – BULLSHEAD 523S	138	369	406
879L	BOWMANTON 244S – BURDETT 368S	138	85	94
612L	BURDETT 368S – FINCASTLE 336S	138	85	94
722L	BURDETT 368S – WESTFIELD 107S	138	85	94
880L	AL ROTHBAUER 321S - BULLSHEAD 523S	138	121	133
600L	BULLSHEAD 523S – PEACE BUTTE 404S	138	121	133

Line ID	Line Description	Voltage Class (kV)	Normal Summer Rating (MVA)	Emergency Summer Rating (MVA)
610L	FINCASTLE 336S – TABER 83S	138	85	94
507L	HULL 257S – TABER 83S	138	120	132
172L	COALDALE 254S – TABER 83S	138	119	131
9L20	Nevis 766S – Cordel 755S	240	429	501
9L46	Lanfine 959S – Pemukan 932S	240	755	831 CT
9L99	Sheerness 807S – Anderson 801S	240	470	499 GS
9L100	Sheerness 807S – Anderson 801S	240	470	499 GS
9L29	Oakland 946S - Coyote Lake 963S	240	740	831 GS
9L70	Anderson 801S – Oakland 946S	240	499 GS	499 GS
9L97	Anderson 801S – Oakland 946S	240	499 GS	499 GS
9L59	Anderson 801S – Tinchebray 972S	240	499 GS	499 GS
954L	Metiskow 648S - Hansman Lake 650S	240	333 CT	499 CT
7L127	Pemukan 932S – Monitor 774S	144	151 bus cond	194 bus cond
7l224	Hansman Lake 650S – ATCO Monitor 774S	138	287	376 M
7L110	Monitor 774S – Loyalist 903S	144	99 CT	99 CT
7L16	Nevis 766S – Heatburg 948S	144	112	125
7L116	Excel 910S – Lanfine 959S	144	99 CT	99 CT
7L25	Michichi Creek 802S – Rowley 768S	144	114	128
7L159	Heatburg 948S - tap	144	112	124
7L79	Pemukan 932S - Ribstone Creek 892S	144	114 L	129 L
7L137	Three Hills 770S – Rowley 768S	144	113	126
7L143	Nevis 766S – Stettler 769S	144	100 CT	100 CT
7L159	Three Hills 770S - tap	144	112	124
760L/7L760	Oyen 767S – Bindloss 914S tap point	144	115	128
6L09	Oyen 767S – tap	72	24 CT	24 CT
6L09	Hanna 763S - tap	72	24 CT	24 CT
6L02	Battle River 757S - Marion Lake 873S tap	72	59 L	67 L
6L02	Stettler 769S - Marion Lake 873S tap	72	59 L	66 CT
6L03	Battle River 757S - Castor tap	72	57 L	64 L
6L03	Sullivan Lake 775S – Castor tap	72	49 CT	49 CT
6L12	Monitor 774S – Coronation 773S tap	72	24 CT	24 CT
6L15	Hanna 763S - Sulivan Lake 775S	72	24 CT	24 CT
6L56	Hanna 763S - Michichi Creek 802S	72	37 L	37 CT

Line ID	Line Description	Voltage Class (kV)	Normal Summer Rating (MVA)	Emergency Summer Rating (MVA)
1047L	Nilrem 574S - Hansman Lake 650S	240	499 CT	680
6L12	Sulivan Lake 775S – Coronation 773S tap	72	24 CT	24 CT

Note:
"CT" indicates that the transmission line is limited by current transformer.

"L" indicates that the transmission line rating is limited by the line

"M" indicates that the transmission line rating is limited for reasons other than protection equipment, transformer, current transformer, line, ganged switch, circuit breaker, or regulator.

The TFO provided the details of the substation transformers in the Study Area. The key transformers in the Study Area are shown in Table 4-.

Table 4-13: Summary of Key Transformer Ratings in the Study Area

Substation Name and Number	Transformer ID	Transformer Voltages (kV)	Transformer Rating (MVA)
AMOCO EMPRESS 163S	T5	240/138	191.2
CYPRESS 562S	T1	240/138	200
	T2	240/138	200
BOWMANTON 244S	T1	240/138	200
	T2	240/138	200
WEST BROOKS 28S	T1	240/138	400
	T2	240/138	400

The TFO provided the details of the shunt elements in the Study Area. The key shunt elements in the Study Area are shown in Table 4-.

Table 4-14: Summary of Key Shunt Elements in the Study Area

Substation Name and Number	Voltage Class (kV)	Capacitors		Reactors	
		Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)	Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)
BULLSHEAD 523S	138	1	18.3	-	-
WHITLA 251S	240	-	-	2	150
MCNEILL 840S	138	2	49.6		
AMOCO EMPRESS 163S	138	2	48.7		
WEST BROOKS 28S	240	-	-	1	50
TILLEY 498S	138	1	27.17	-	-
BURDETT 368S	138	1	24.46	-	-

Substation Name and Number	Voltage Class (kV)	Capacitors		Reactors	
		Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)	Number of Switched Shunt Blocks	Total at Nominal Voltage (MVAr)
		1	22.96	-	-
HAYS 421S	138	1	22.96	-	-
TABER 83S	138	1	24.46	-	-
		1	27.20	-	-

4.2.8 Protection Fault Clearing Times

The transient stability studies will be performed using the actual fault clearing times for the selected contingencies, as provided by the TFO and as shown in Table 4-4. Only those contingencies shown in Table 4-4 will be studied for transient stability studies. If the TFO did not specify the fault clearing times (e.g. for new transmission lines) for a selected contingency, then the studies for that contingency will be performed using the standard fault clearing times that are specified in Table 2-3 of the AESO's *Transmission Planning Criteria – Basis and Assumptions*.

Table 4-4: Protection Fault Clearing Times

Contingency (System Element Lost)	Fault Location	Clearing Times (Cycles)	
		Near End	Far End
666L (West Brooks 28S - Tilley 498S)	Tilley 498S	6	27
	West Brooks 28S	6	27
892L (Suffield 895S – Bowmanton 244S)	Suffield 895S	6	27
	Bowmanton 244S	6	27
763L (West Brooks 28S - Vauxhall 158S)	West Brooks 28S	60	9
	Vauxhall 158S	9	60
853L (West Brooks 28S – Queenstown 504S)	West Brooks 28S	9	60
	Queenstown 504S	9	60
814L (Brooks 121S – West Brooks 28S)	West Brooks 28S	6	24
	Brooks 121S	6	24
827L (Brooks 121S – West Brooks 28S)	West Brooks 28S	6	24
	Brooks 121S	6	24
1051L (West Brooks 28S – Cassils 324S)	West Brooks 28S	6	6
	Cassils 324S	6	6
1052L (West Brooks 28S – Cassils 324S)	West Brooks 28S	6	6
	Cassils 324S	6	6
931L (Ware Junction 132S – West Brooks 28S)	West Brooks 28S	6.25	7.25
	Ware Junction 132S	7.25	6.25
1075L (Ware Junction 132S – West Brooks 28S)	West Brooks 28S	6.25	5
	Ware Junction 132S	5	6.25
675L (Bowmanton 244S – Medicine Hat 41S)	Bowmanton 244S	6	27
	Medicine Hat 41S	6	27
674L (Bowmanton 244S- Chappice Lake 649S)	Bowmanton 244S	6	27
	Chappice Lake 649S	6	27
879L (Bowmanton 244S – Burdett 368S)	Bowmanton 244S	30	9
	Burdett 368S	9	30

4.2.9 *Project Dynamic Data*

Dynamic data for the Project can be found in Attachment A7.

4.2.10 Voltage Profile Assumption

ID #2010-007RS will be used to establish system normal (i.e., pre-contingency) voltage profiles for key area busses prior to commencing any studies. Table 2-1 of the *Transmission Planning Criteria – Basis and Assumptions* applies for the busses not included in ID #2010-007RS. These voltages will be used to set the voltage profile for the study base cases prior to the power flow studies.

5 Study Methodology

The studies to be performed for this connection assessment are identified in Table 5-1.

Table 5-1: Summary of the Studies to be Performed

Scenario No. and Name		Power Flow		Voltage Stability		Transient Stability		Motor Starting		Short Circuit
		Category		Category		Category		Category		Category A
		A	B	A	B	A	B	A	B	
Pre-Project										
1	2025 SP	X	X			X*	X*			X
2	2025 SL	X	X			X*	X*			
Post-Project										
3	2025 SP	X	X			X	X			X
4	2025 SL	X	X			X	X			
5	2031 WP									X
Pre-Project – Sensitivity including P2418										
6	2025 SP	X	X							
7	2025 SL	X	X							
Post-Project – Sensitivity – Sensitivity including P2418										
8	2025 SP	X	X							
9	2025 SL	X	X							
Pre-Project – Sensitivity including P2446										
10	2025 SP	X	X							
11	2025 SL	X	X							
Post-Project – Sensitivity including P2446										
12	2025 SP	X	X							
13	2025 SL	X	X							

* Pre-project transient stability and voltage stability studies will be Only required if post-project studies identify potential performance issues.

For the engineering studies, all transmission facilities 69 kV and above, within the Study Area and the transmission lines connecting these planning areas to neighbouring planning areas will be studied and monitored to assess the impact of the Project on the performance of the AIES, including any violations of the Reliability Criteria (as defined in Section 3.1).

5.1 Study Case Validation

The study will be conducted on the AIES system model using the AESO's planning base cases. The seasonal light/peak scenarios will be studied as required. The base cases will be modified by the AESO to include the corresponding load and generation forecast information. The resulting cases, or seed cases, along with the project IDEVs, will be provided by the AESO to the Studies Consultant. These cases are provided in PSS/E v34 and/or v33 format. Upon request, the AESO can provide RAW and SEQ files. Software used by the Studies Consultant must be able to read and write these file types. Manual adjustments may be required to ensure full alignment with the details outlined in this Study Scope, as described in the process outlined below. The AESO will provide guidance to the Studies Consultant with regard to the setup of the study cases should any questions arise.

The expected process for the creation of acceptable study cases is as follows:

1. The AESO provides seed cases and the appropriate incremental IDEVs to use and any other applicable information required to the Studies Consultant.
2. The Studies Consultant applies the identified IDEVs to the seed cases to create the study cases. The Studies Consultant verifies and makes adjustments as required to ensure the study cases represent the assumptions outlined within the Study Scope.
3. Upon creating the study cases, all the study cases are forwarded to the AESO for approval.
4. The Studies Consultant proceeds with the required engineering studies only after the study cases are approved by the AESO.

5.2 Power Flow Studies

Power flow studies will be performed to identify thermal and voltage criteria violations as per the Reliability Criteria, and any deviations from the limits listed in Table 3-1.

For information purposes, the Studies Consultant must also provide, as a separate file, a list of any transmission elements where the thermal loading exceeds 95% of the element's normal rating under Category A and Category B conditions.

For the Category B power flow studies, the transformer taps and switched shunt reactive compensating devices such as shunt capacitors and reactors will be locked and continuous shunt devices will be enabled.

Voltage deviations at point-of-delivery (POD) low voltage busses will also be assessed for both the pre-Project and post-Project networks by first locking all tap changers and area shunt reactive compensating devices to identify any post-transient voltage deviations above 10%. Second, tap changers will be allowed to move while shunt reactive compensating devices remained locked to determine if any voltage deviations above 7% would occur in the area. Third, all the taps and shunt reactive compensating devices will be allowed to adjust, and voltage deviations above 5% will be reported.

The scenarios to be studied are shown in Table 5-1.

5.2.1 Contingencies to be Studied

Power flow studies will be performed for the Category A and all Category B conditions in the Study Area.

5.3 Transient Stability Studies

Genesee unit 3 in Wabamun (Area 40) will be used as the reference for the studies.

The report presenting the results of the transient stability studies must provide response plots for several variables, including rotor angle as applicable, and active and reactive power output for the generating units in the study area. The results report must also provide the 500 kV, 240 kV and 138 kV bus voltage levels for substations near the point of connection. Other busses will be monitored and will be reported as determined by the results. The results report must also provide the key branch active and reactive power flow surrounding the Facility.

Transient stability studies will be performed for the post-Project scenarios as shown in Table 5-1. If any transient stability issues are observed, transient stability analysis will be performed for the corresponding pre-Project scenarios.

5.3.1 Contingencies to be Studied

Transient stability studies will be performed for the contingencies shown in Table 4-4.

5.4 Short-Circuit Current Level Studies

A maximum fault level must be provided for the substations in the vicinity of the Project assuming normal system operation with all transmission elements in service and generation dispatched. Three-phase faults and single line-to-ground faults will be simulated. Polar coordinates and per-unit values will be used for reporting the results.

Winter peak scenarios will be used for the short-circuit studies because winter peak scenarios generally produce higher short-circuit current levels than summer peak scenarios.

Estimated maximum three-phase faults and single line-to-ground short-circuit current levels will be reported for the following substations:

- Tilley 498S
- Suffield 895S
- Cassils 324S
- West Brooks 28S
- Medicine Hat 41S
- Chappice Lake 649S
- Cypress 562S
- McNeil Station 840S
- Bowmanton 244S
- P1828 Facility

Further sensitivity studies, in consultation with the TFO, may be required if the primary short-circuit analysis indicates a potential to exceed or approach the existing fault rating of the transmission facilities.

The scenarios to be studied are as shown in Table 5-1.

6 Mitigation Measures

6.1 Development

Mitigation measures may be required if the post-Project study results identify system performance issues. Mitigation measures for the Project may involve modifying or adding real-time operational practices and/or remedial action schemes (RASs).

The Studies Consultant must notify the AESO of any system performance issues in a timely manner, following which the AESO Studies Engineer may instruct the Studies Consultant as follows:

- Develop tables showing the constraint effective factors[3] for generation or load based on thermal criteria violations that are observed.
- Collaborate with the AESO to propose changes, if any, to the connection alternatives that could remove the requirement for a RAS.
- Collaborate with the AESO to study modifications to existing and/or planned RASs, proposed by the AESO, to ensure the coordination of existing protection schemes with the addition of any proposed protection schemes.
- Collaborate with the AESO to identify and study new RASs, if any, that may be required to ensure system reliability is maintained after connecting the Project to the AIES.

The AESO Studies Engineer will work closely with the Studies Consultant and guide the development and/or modifications of the proposed mitigation measures to ensure system reliability, security and compliance with AESO ID #2018-018T, *Provision of System Access Service and the Connection Process*.

6.2 Evaluation

6.2.1 Post-Mitigation Studies

Studies to evaluate the effectiveness of mitigation measures, if required, will be performed in accordance with the technical criteria, assumptions, and methods provided in this Study Scope and in accordance with further instructions from the AESO.

6.2.2 Constraint Effective Factor Studies

Constraint effective factor analysis are used to determine the generator- and load- constraint effective factors and to identify the most effective generators or loads to manage the thermal criteria violations, if any, that are observed under Category B conditions.

[3] Constraint effective factor studies are performed to determine the generator- and load- constraint effective factors. Constraint effective factors are used to estimate the ability of generators and loads to manage transmission constraints. A generator's or load's constraint effective factor is defined as the change in power flow over a specific transmission line following a change in the generator's energy production or in the load's energy consumption. The greater the constraint effective factor, the more effective a generator or load can be in managing a thermal criteria violation on the specific transmission line.

7 Changes to Study Assumptions

This study will utilize the AESO's planning base cases, which are based on the AESO's current corporate forecast (2021 LTO) with modifications to incorporate the latest forecast intelligence. Sensitivity studies or restudy may be required in the event of revisions to the AESO's corporate forecast, forecast intelligence, or other study assumptions. Additional engineering studies may also be required to assess new connection alternatives, changes to project ISD, or delays in proposed system developments. Any additional or revised study requirements shall be captured in a signed Study Scope Amendment document.

Attachment A:
Transmission Planning Criteria – Basis and Assumptions

Transmission Planning Criteria – Basis and Assumptions

Date: July 9, 2019

Version: V1.2

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1. Introduction

This document presents the reliability standards, criteria, and assumptions to be used as the basis for planning the Alberta Transmission System. The criteria, standards and assumptions identified in this document supersede those previously established.

2. Transmission Reliability Standards and Criteria[1]

The AESO applies the following Alberta Reliability Standards to ensure that the transmission system is planned to meet applicable performance requirements under a defined set of system conditions and contingencies. A brief description of each of these standards is given below:

1. **TPL-001-AB-0: System Performance Under Normal Conditions**

   Category A represents a normal system condition with all elements in service (N-0). All equipment must be within its applicable rating, voltages must be within their applicable ratings and the system must be stable with no cascading outages. Under Category A, electric supply to load cannot be interrupted and generating units cannot be removed from service.

2. **TPL-002-AB1-0: System Performance Following Loss of a Single BES Element**

   Category B events result in the loss of any single element (N-1) under specified fault conditions with normal clearing. The specified elements are a generating unit, a transmission circuit, a transformer or a single pole of a direct current transmission line. The acceptable impact on the system is the same as Category A with the exception that radial customers or some local network customers, including loads or generating units, are allowed to be disconnected from the system if they are connected through the faulted element. The loss of opportunity load or opportunity interchanges is allowed. No cascading can occur.

3. **TPL-003-AB-0: System Performance Following Loss of Two or More BES Elements**

   Category C events result in the loss of two or more bulk electric system elements (sequential, N-1-1 or concurrent, N-2) under specified fault conditions and include both normal and delayed fault clearing. All of the system limits for Category A and B events apply with the exception that planned and controlled loss of firm load, firm transfers and/or generation is acceptable provided there is no cascading.

4. **TPL-004-AB-0: System Performance Following Extreme BES Events**

   Category D represents a wide variety of extreme, rare and unpredictable events, which may result in the loss of load and generation in widespread areas. The system may not be able to reach a new stable steady state, which means a blackout is a possible outcome. The AESO needs to evaluate these events, at its discretion, for risks and consequences prior to creating mitigation plans.

5. **FAC-014-AB1-2: Establishing and Communicating System Operating Limits**

   The AESO is required to establish system operating limits where a contingency is not mitigated through construction of transmission facilities

[1] A complete description of the *Alberta Reliability Standards* can be found on the AESO's website: https://www.aeso.ca/rules-standards-and-tariff/alberta-reliability-standards/

2.1 Thermal Loading Criteria

The AESO Thermal Loading Criteria require that the continuous thermal rating of any transmission element is not exceeded under normal and post-contingency operating conditions. Thermal limits are assumed to be 100% of the respective normal summer and winter ratings. Emergency limits are not considered in the planning evaluations.

2.2 Voltage Range and Voltage Stability Criteria

The normal minimum and maximum voltage limits as specified in the following table are used to identify Category A system voltage violations, while the extreme minimum and maximum limits are used to identify Category B and C system violations. Table 2-1 presents the acceptable steady state and contingency state voltage ranges for the AIES. Table 2-2 provides voltage stability criteria used to test the system performance.

Table 2-1: Acceptable Range of Steady State Voltage (kV)

Nominal Voltage	Extreme Minimum	Normal Minimum	Normal Maximum	Extreme Maximum
500	475	500	525	550
240	216	234	252	264
260 (Northeast & Northwest)*	234	247	266	275
144	130	137	151	155
138	124	135	145	150
72	65	68.5	75.5	79
69	62	65.5	72.5	76

Table 2-2: Voltage Stability Criteria

Performance Level	Disturbance (1)(2)(3)(4) Initiated by: Fault of No Fault DC Disturbance	MW Margin (P-V method) (5)(6)(7)	MVAr Margin (V-Q method) (6)(7)
A	Any element such as: One Generator One Circuit One Transformer One Reactive Power Source One DC Monopole	≥5%	Worst Case Scenario(8)
B	Bus Section	≥5%	50% of Margin Requirement in Level A
C	Any combination of two elements such as: A Line and a Generator A Line and a Reactive Power Source Two Generators Two Circuits Two Transformers Two Reactive Power Sources DC Bipole	≥2.5%	50% of Margin Requirement in Level A
D	Any combination of three or more elements such as: Three or More Circuits on ROW Entire Substation Entire Plant Including Switchyard	> 0	> 0

2.3 Transient Stability Analysis Assumptions

Standard fault clearing times as shown in Table 2-3 are used for the new facilities or when the actual clearing times are not available for the existing facilities. Double line-to-ground faults are applied for the Category C5 events with normal clearing times. Single line-to-ground faults are applied for Category C6 to C9 events with delayed clearing times as depicted in Table 2-4 and Table 2-5.

Table 2-3: Fault Clearing Times

Nominal (kV)	Near End (Cycles)	Far End (Cycles)
500	4	5
240	5	6
144/138 with telecommunications	6	8
144/138 without telecommunications	6	30

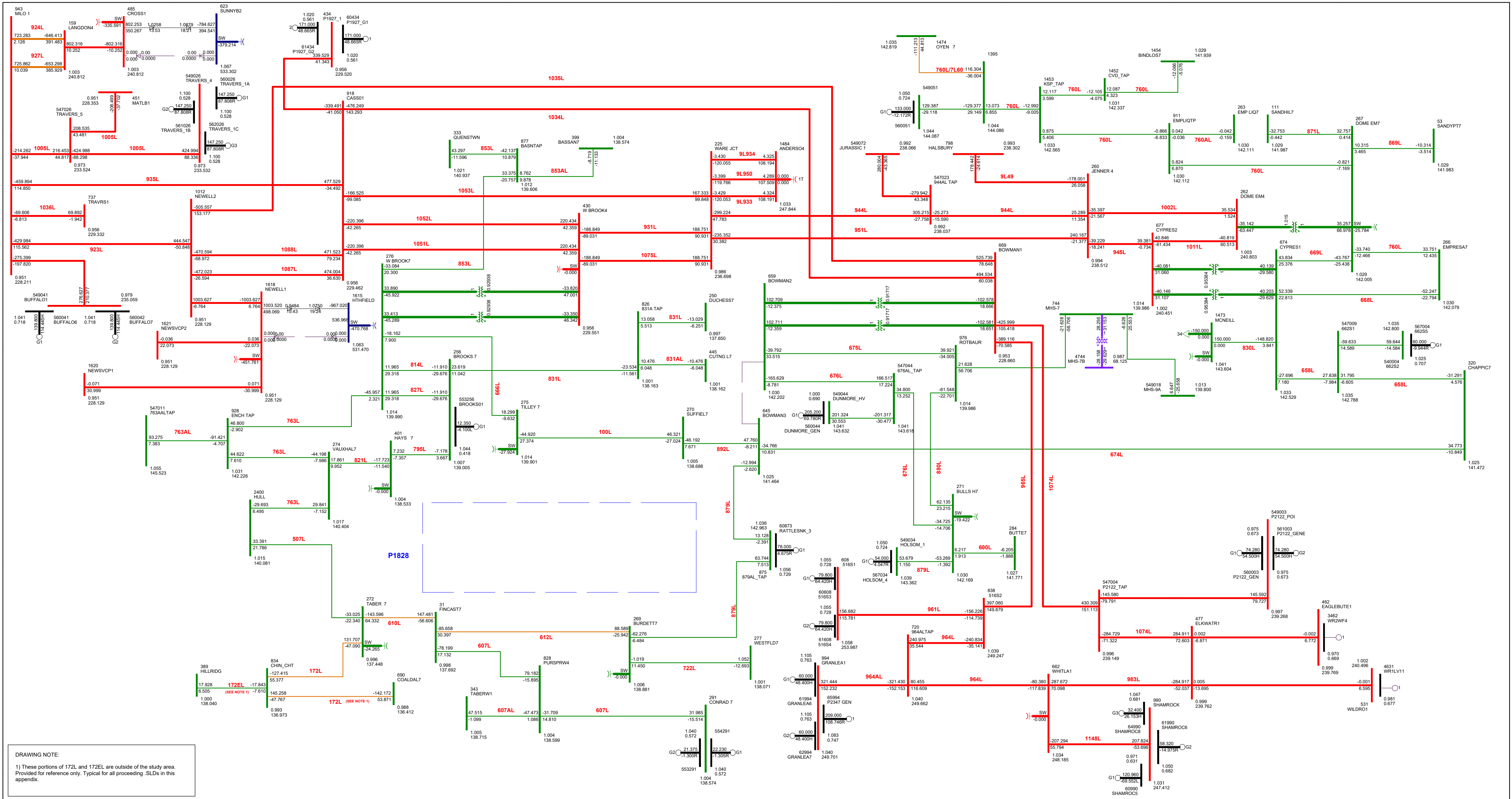
Table 2-4: Stuck Breaker Clearing Times for Lines

Voltage (kV)	Fault Clearing Times (Cycles)		
	Near End	Far End	2nd Ckt (C5 and C7 only)
138/144	15	24	24
240	12	6	14
500	9	5	11

Table 2-5: Stuck Breaker Clearing Times for Transformers

Voltage (kV)	Fault Location	Fault Clearing Times (Cycles)		
		High Side	Low Side	2nd Ckt (breaker fail)
240/138	240 kV side	12	6	14
	138 kV side	5	15	24
500/240	500 kV side	9	5	11
	240 kV side	4	12	14

Attachment B: Pre-Project Power Flow Diagrams (Scenarios 1 to 2, 6 to 7, 10 to 11)



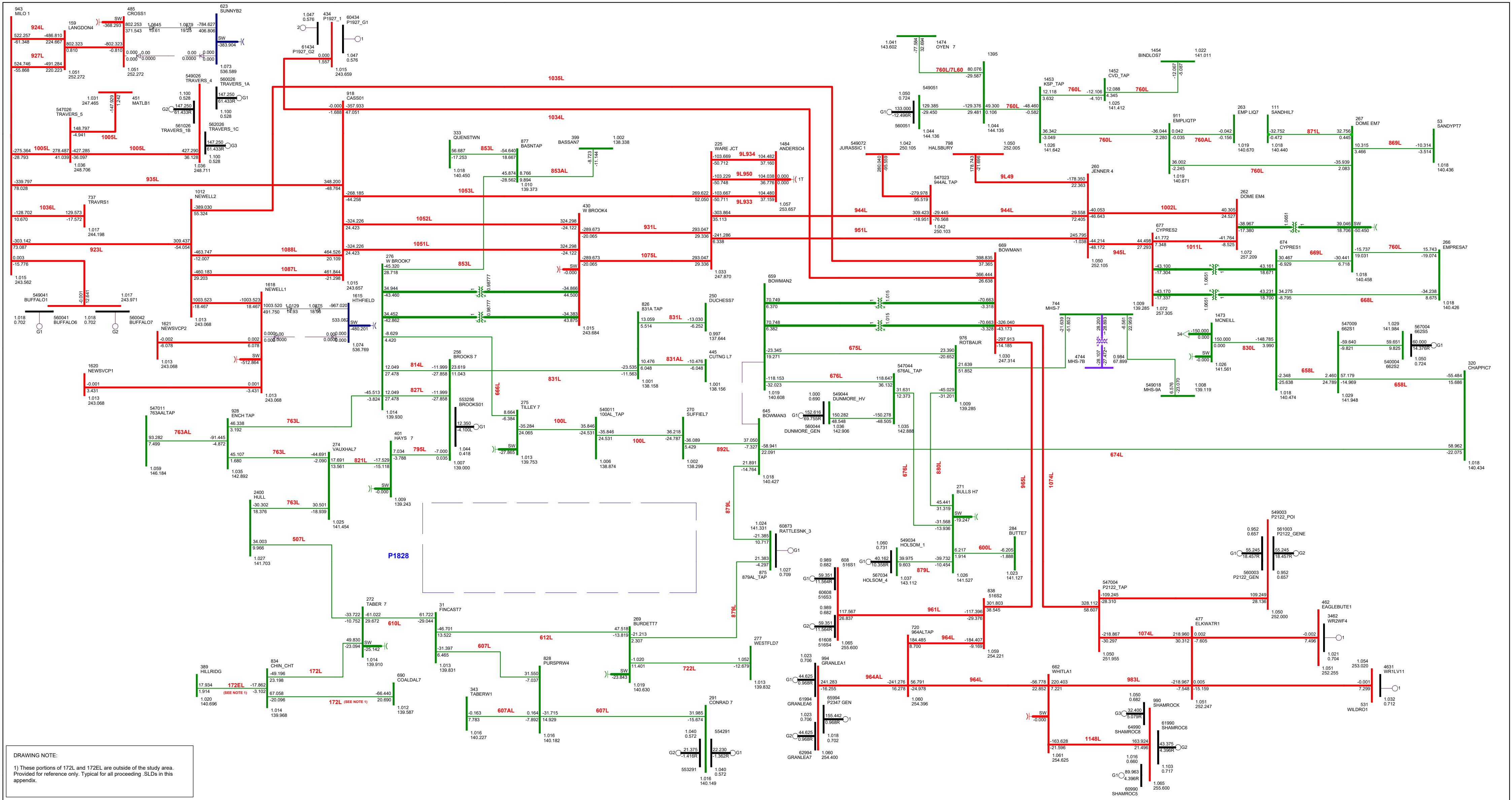
P1828 HEP Alderson Solar Project

BC Import: -516.689 MW
Sask Import: -150.000 MW
EATL: -1000.000 MW
WATL: -800.000 MW

FIGURE A0-1-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
FRI, SEP 08 2023 09:17

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



DRAWING NOTE:

1) These portions of 172L and 172EL are outside of the study area. Provided for reference only. Typical for all proceeding .SLDs in this appendix.

P1828 HEP Alderson Solar Project

BC Import: -521.312 MW

Sask Import: -150.000 MW

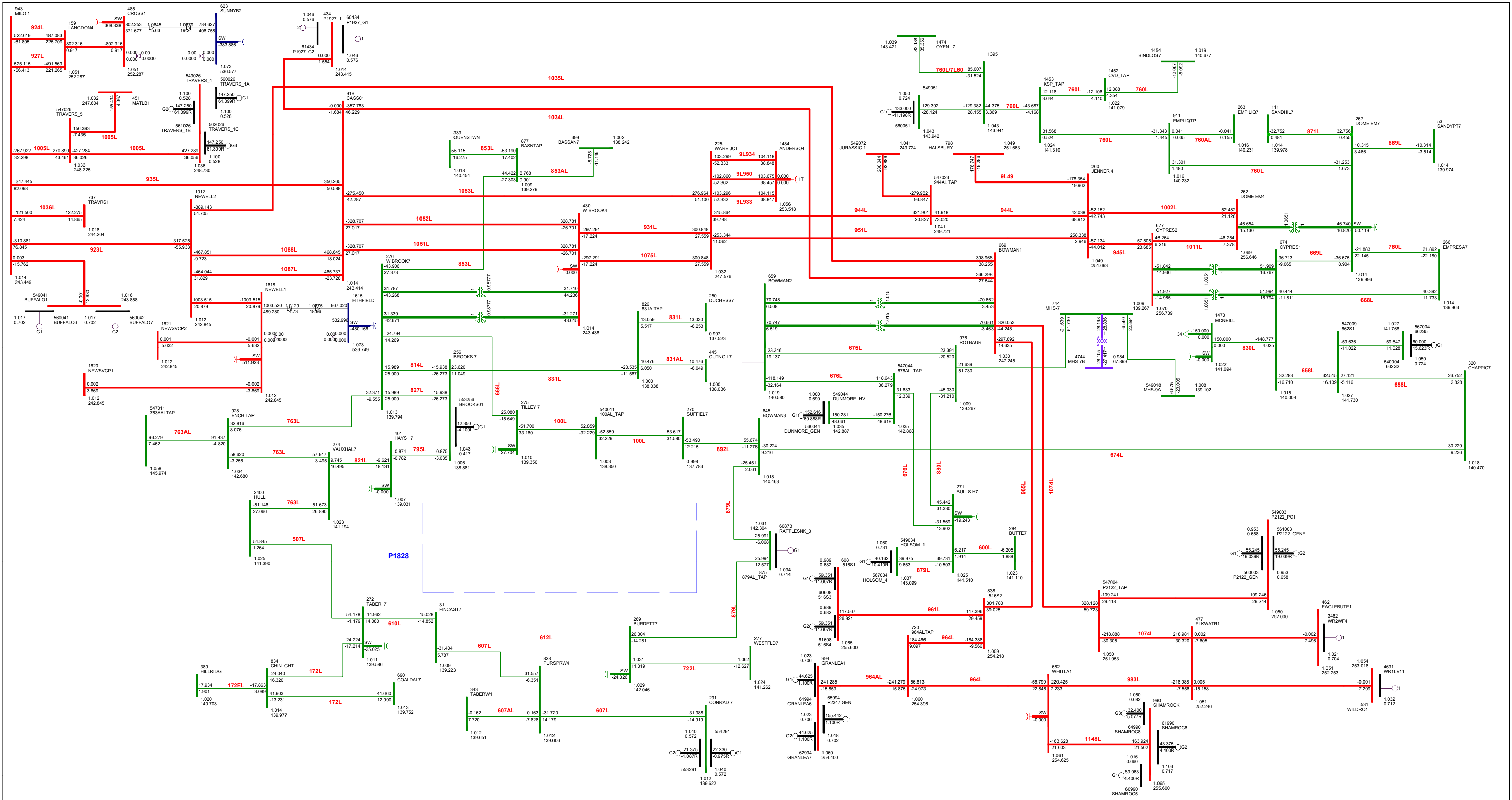
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.002 MW

Sask Import: -150.000 MW

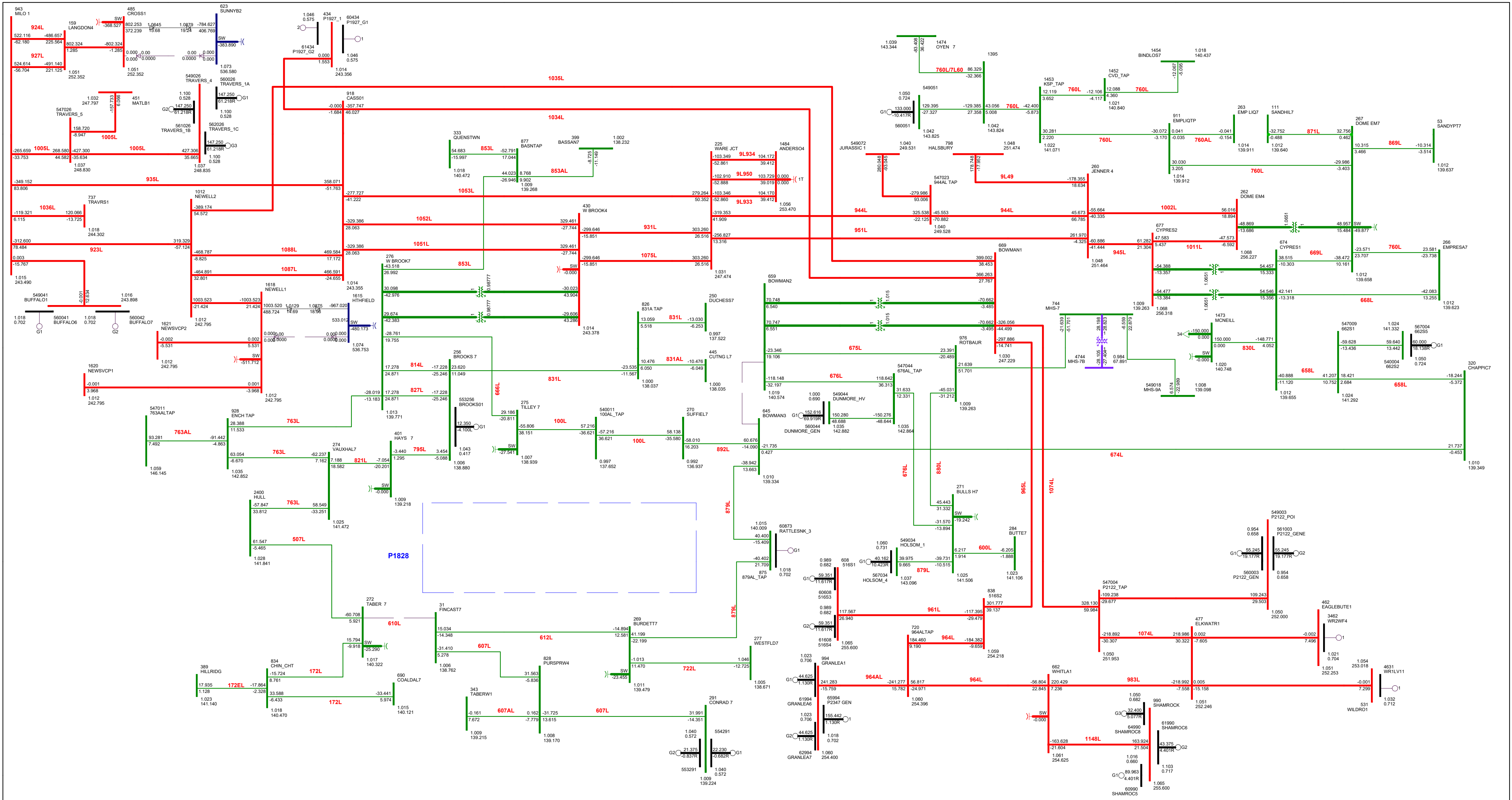
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A12-2-N-1: 612L (BURDETT 368S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.133 MW

Sask Import: -150.000 MW

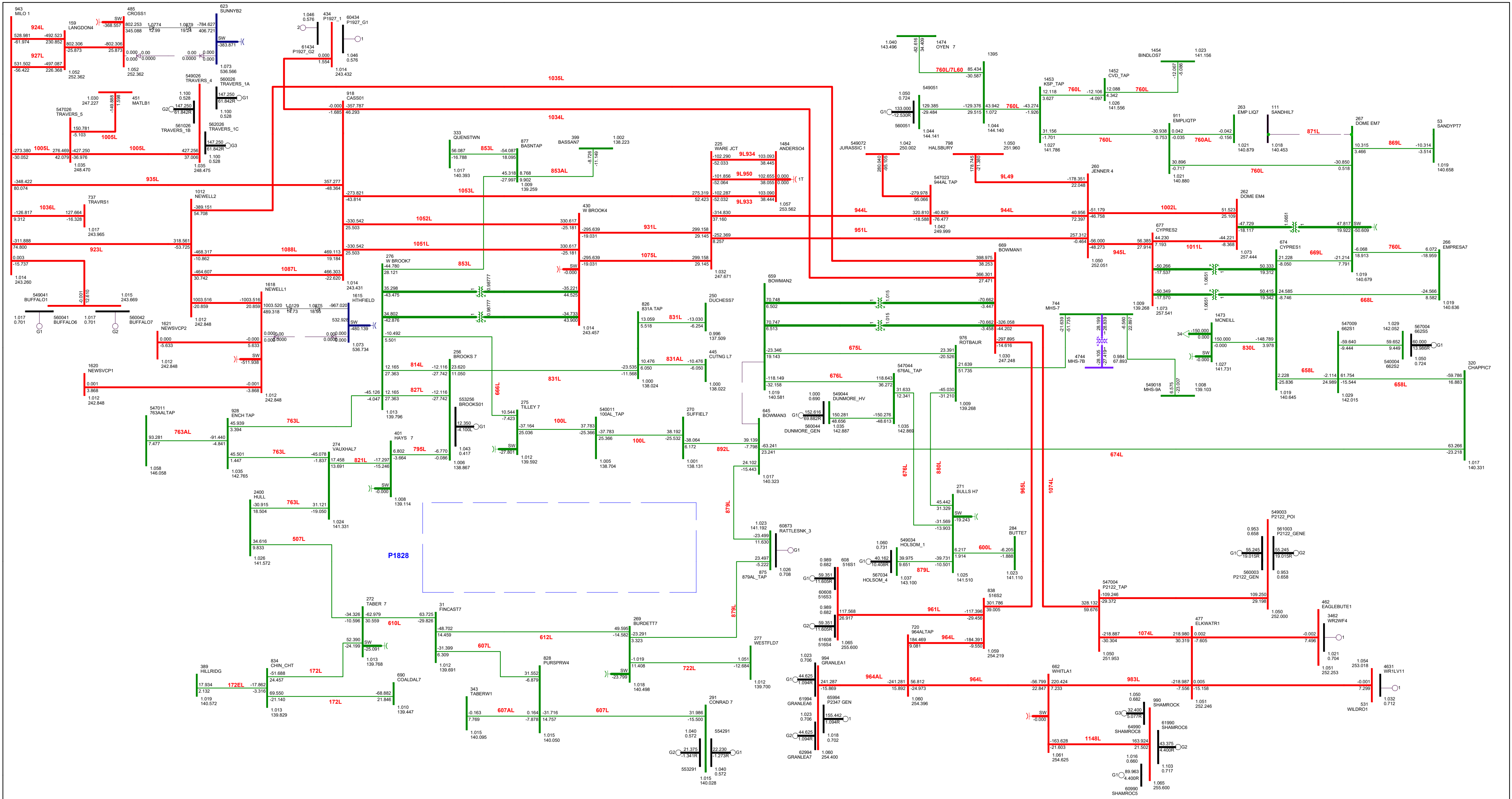
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

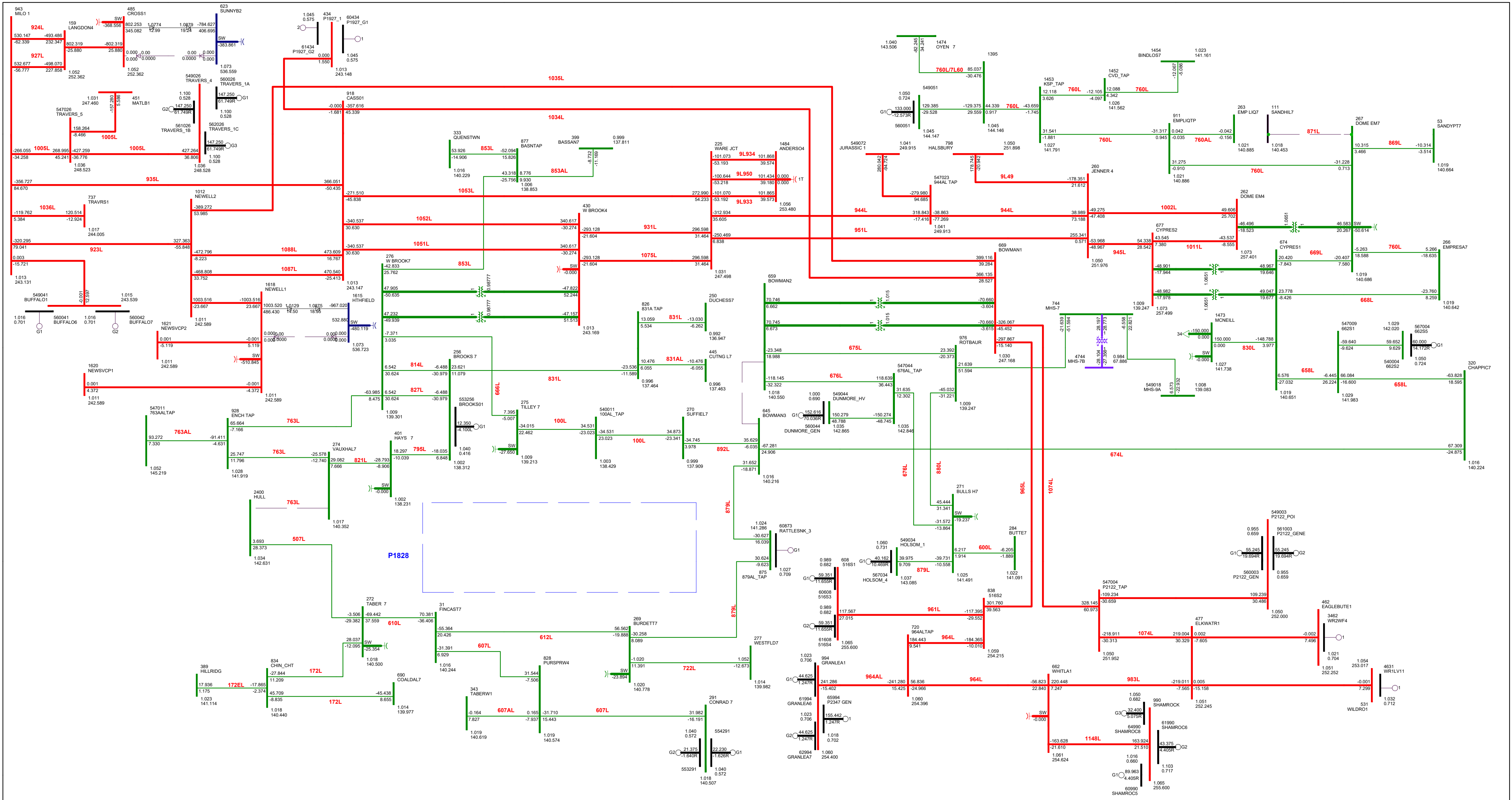
BC Import: -545.101 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE A1-4-N-1: 871L (AMOCO EMPRESS 163S TO SAND HILLS 341S
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -543.799 MW

Sask Import: -150.000 MW

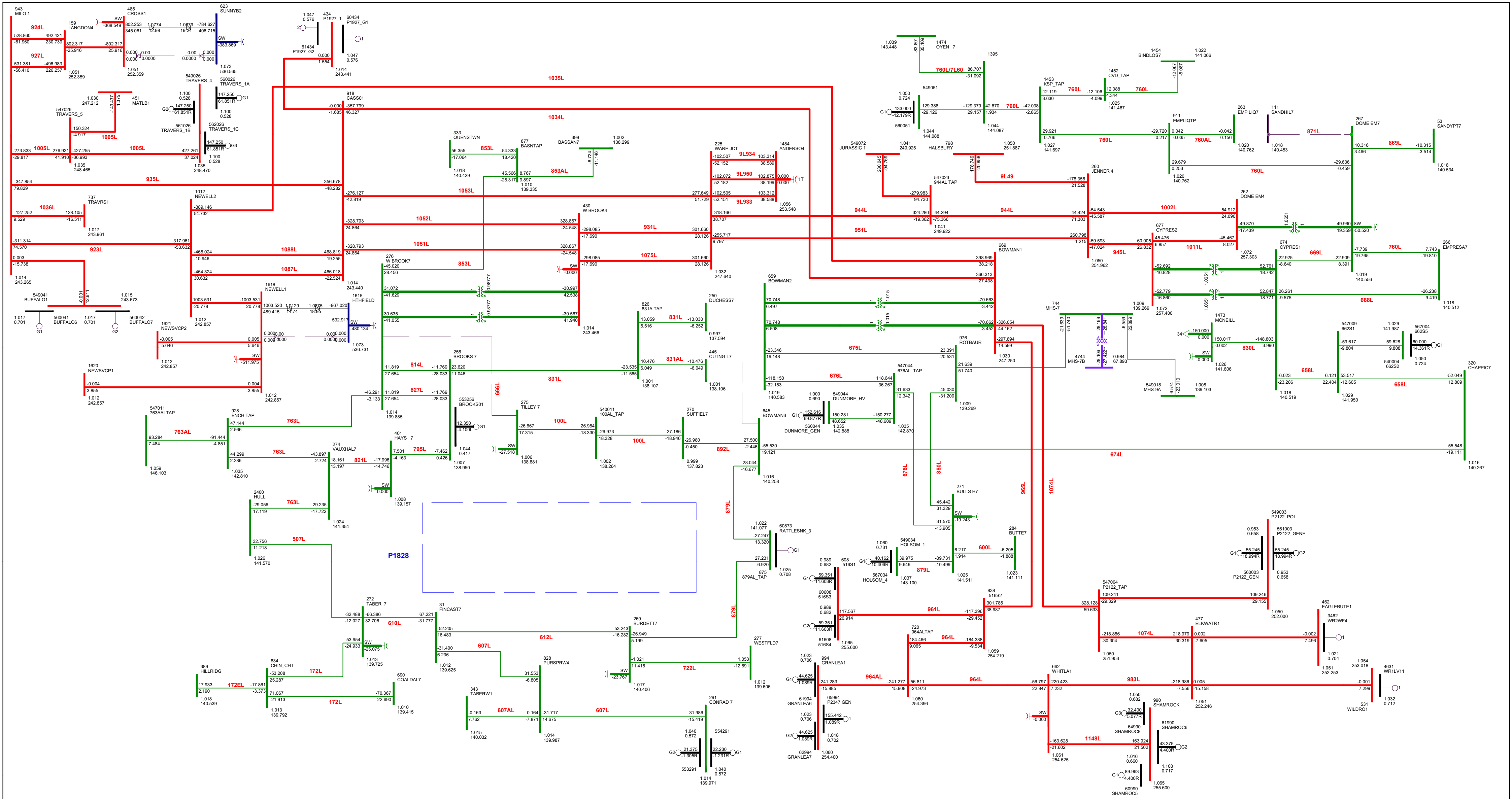
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-5-N-1: 763L(VAUXHALL 158S TO HULL 257S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -545.462 MW

Sask Import: -150.000 MW

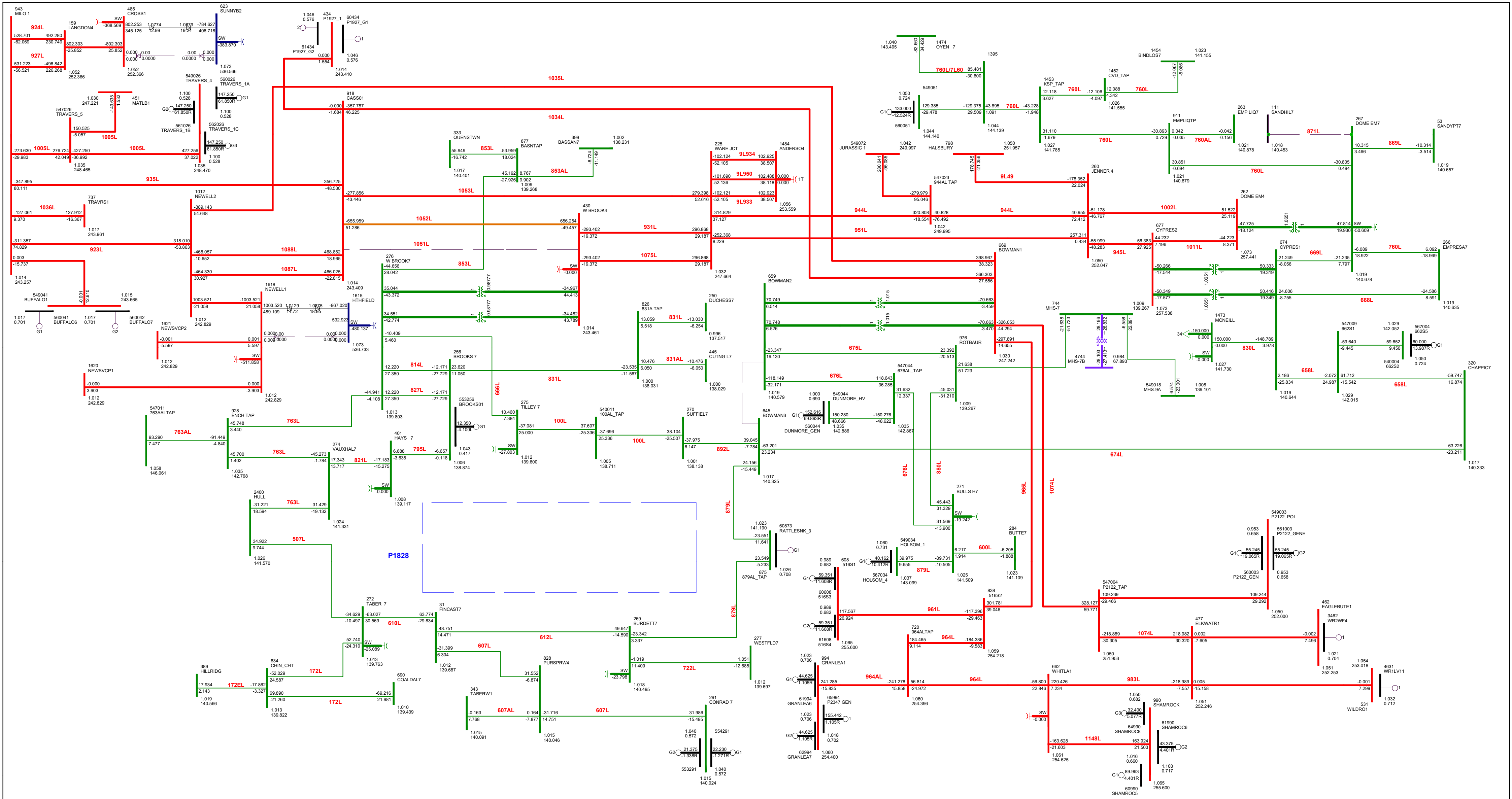
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-6-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:55

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -544.841 MW

Sask Import: -150.000 MW

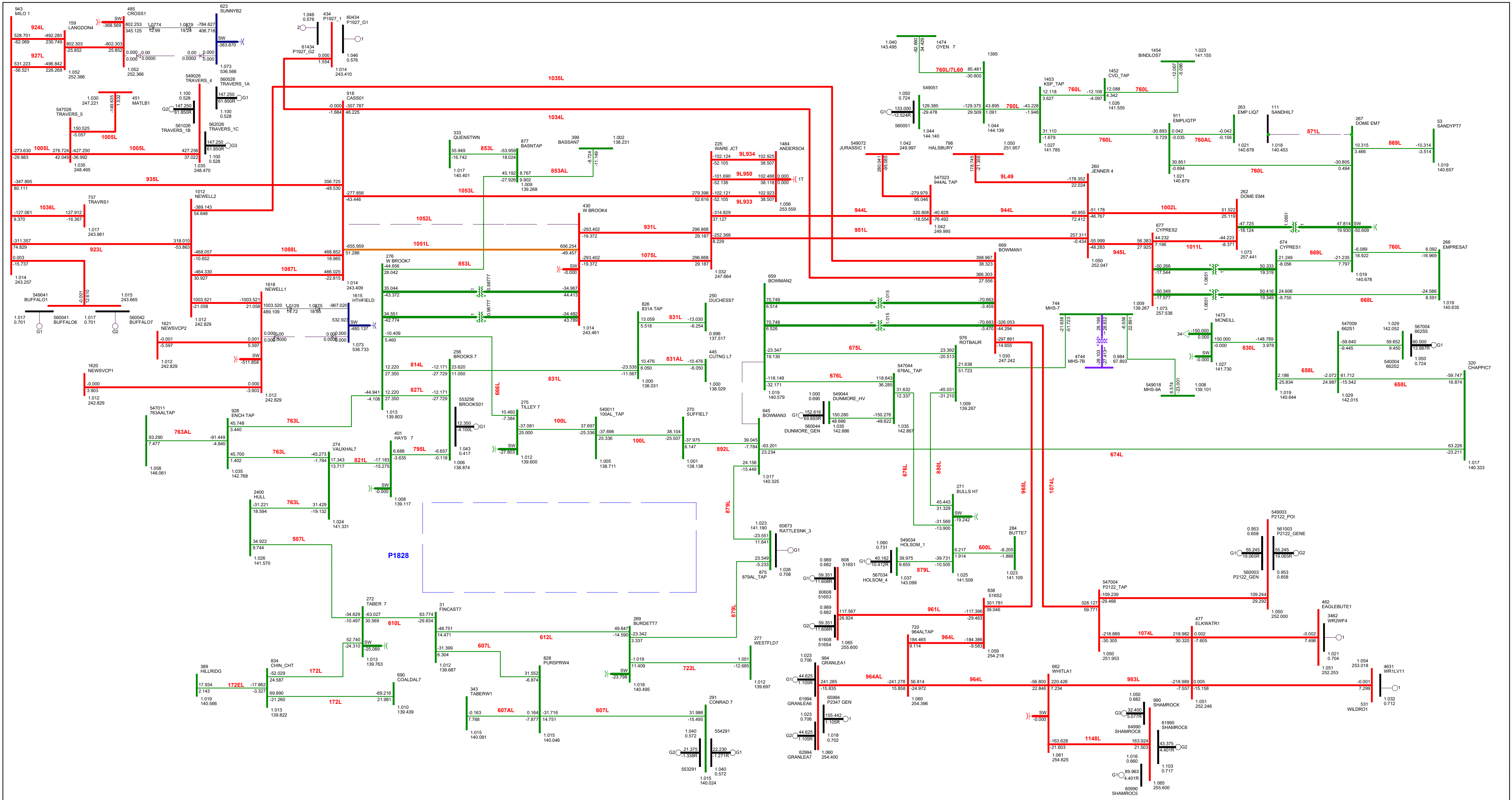
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-7-N-1: 1051L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -544.841 MW

Sask Import: -150.000 MW

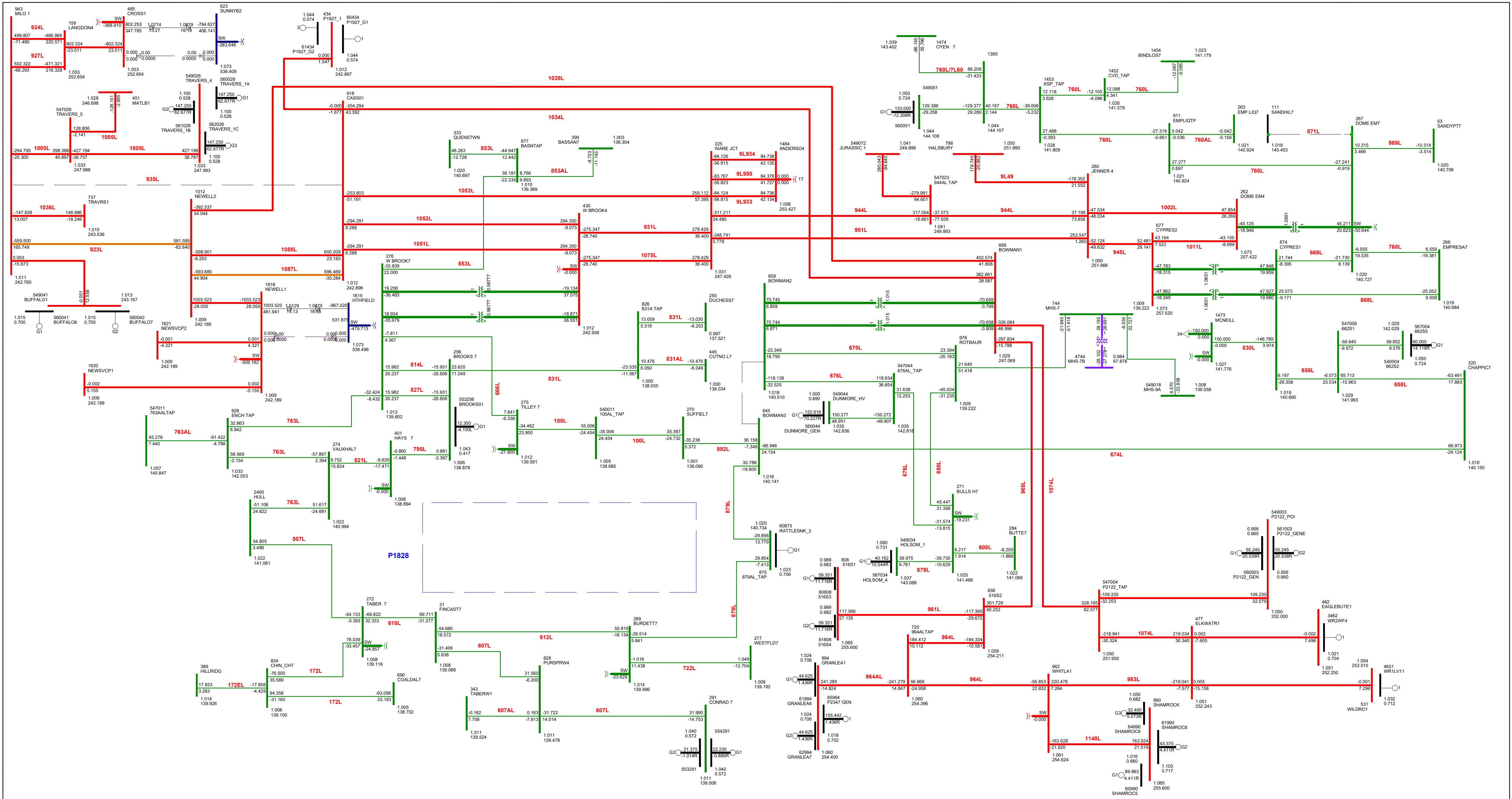
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-8-N-1: 1052L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

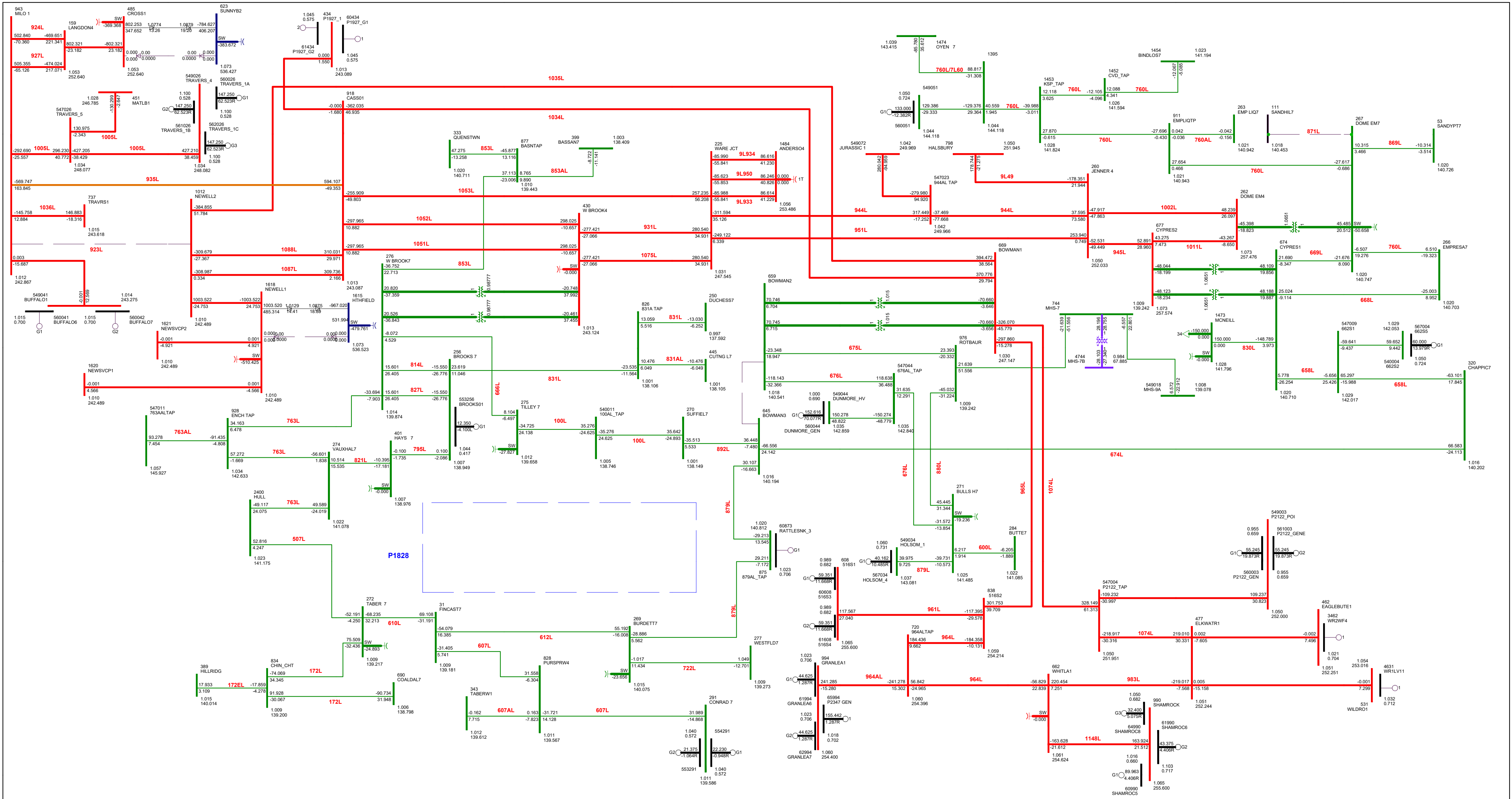
BC Import: -525.152 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE A1-9-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -527.409 MW

Sask Import: -150.000 MW

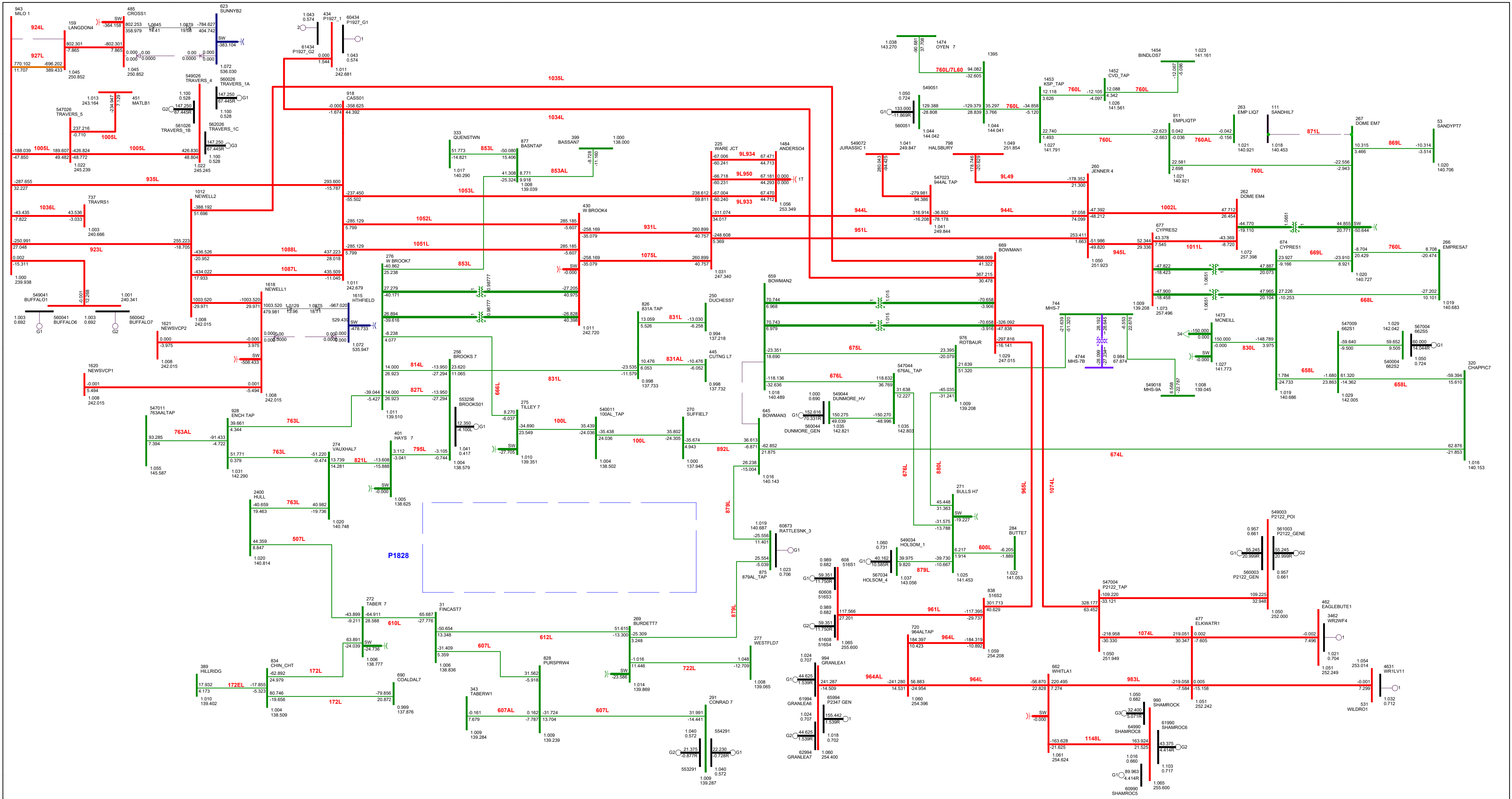
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-10-N-1: 923L(MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -493.410 MW

Sask Import: -150.000 MW

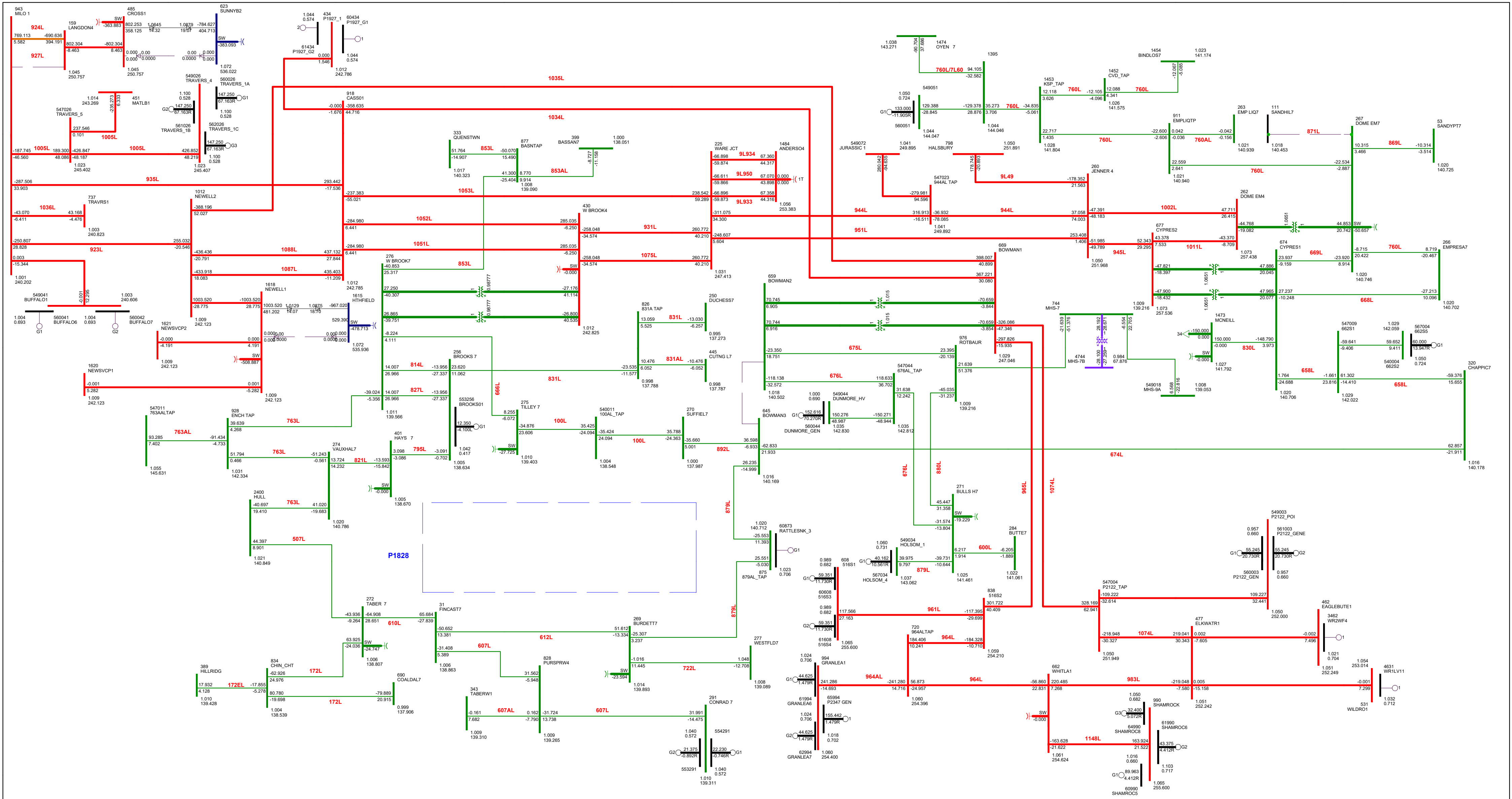
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-11-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -488.797 MW

Sask Import: -150.000 MW

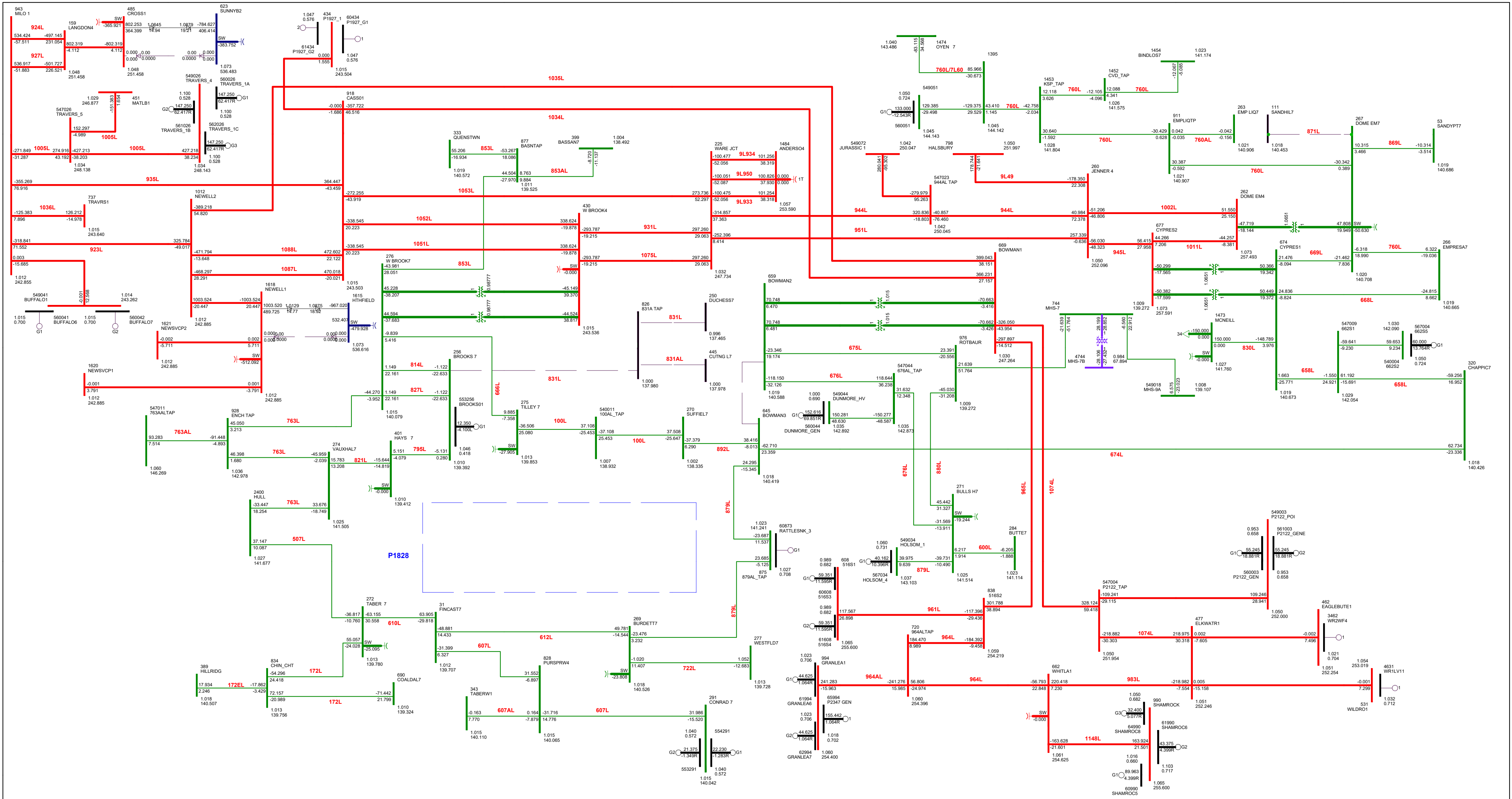
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-12-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -563.514 MW

Sask Import: -150.000 MW

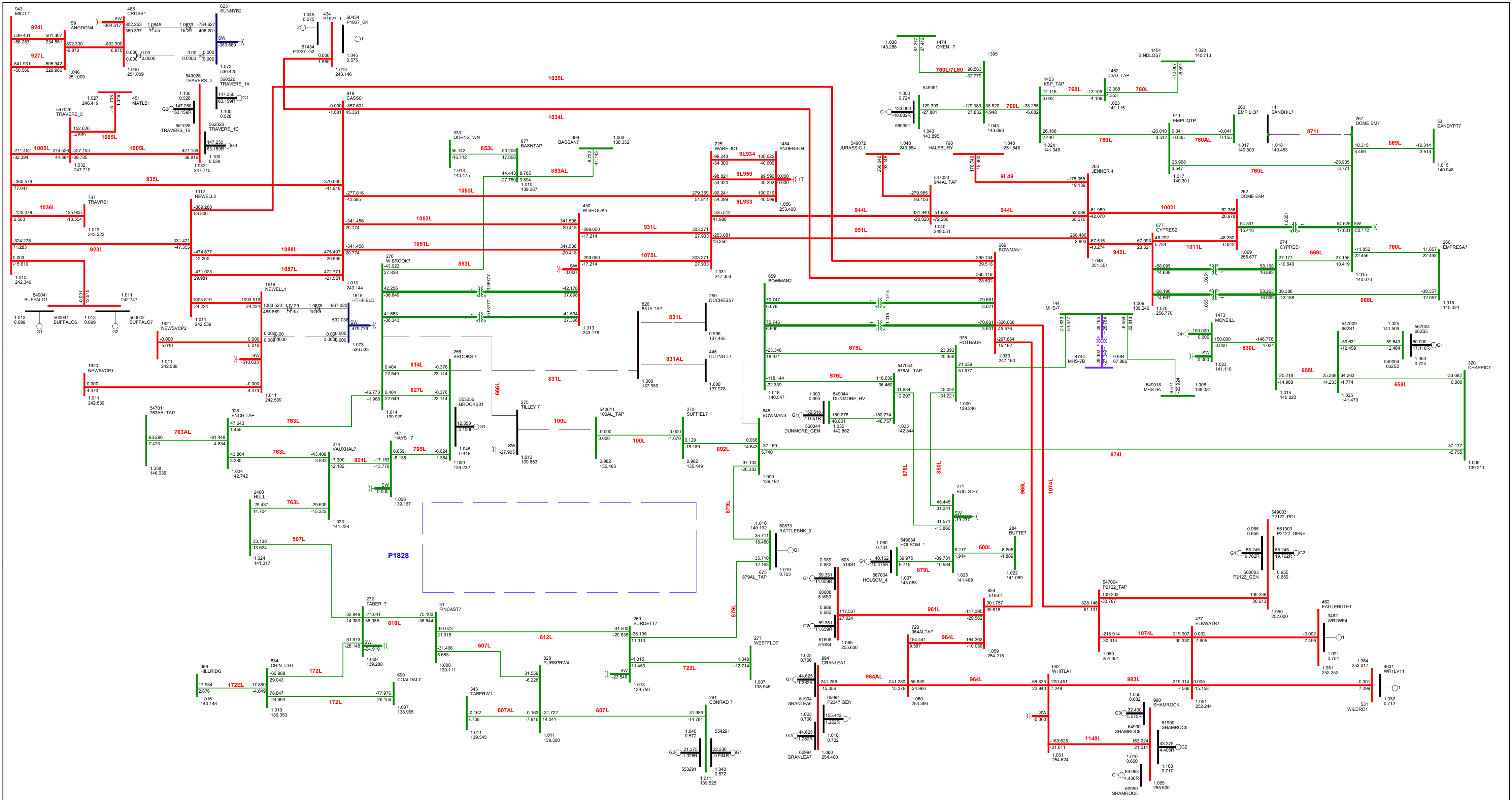
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-13-N-1: 831L(BROOKS 121S TO DUCHESS 339S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -583.174 MW

Sask Import: -150.000 MW

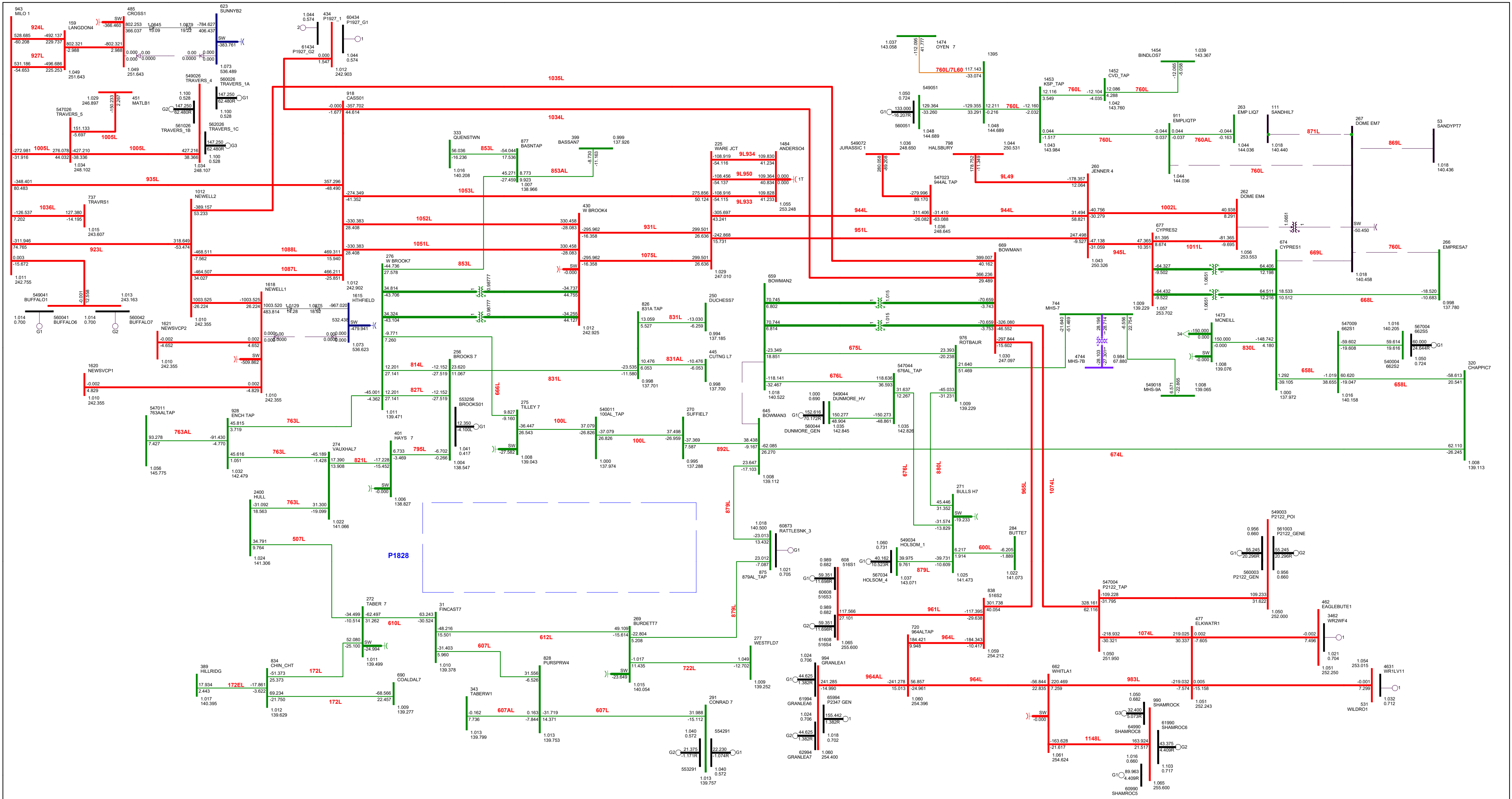
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-14-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -550.577 MW

Sask Import: -150.000 MW

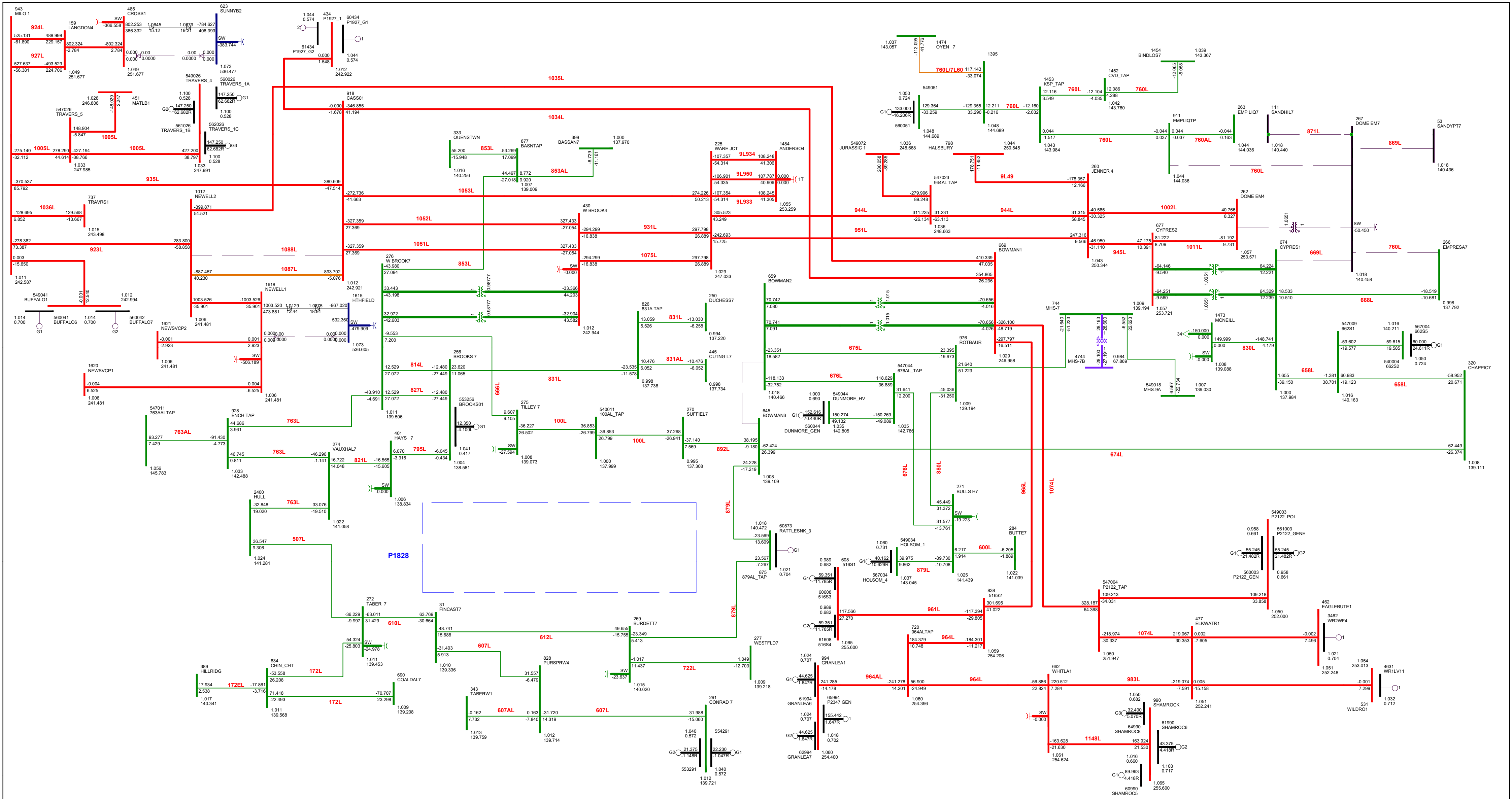
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-15-N-1: 163ST5(AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -546.318 MW

Sask Import: -150.000 MW

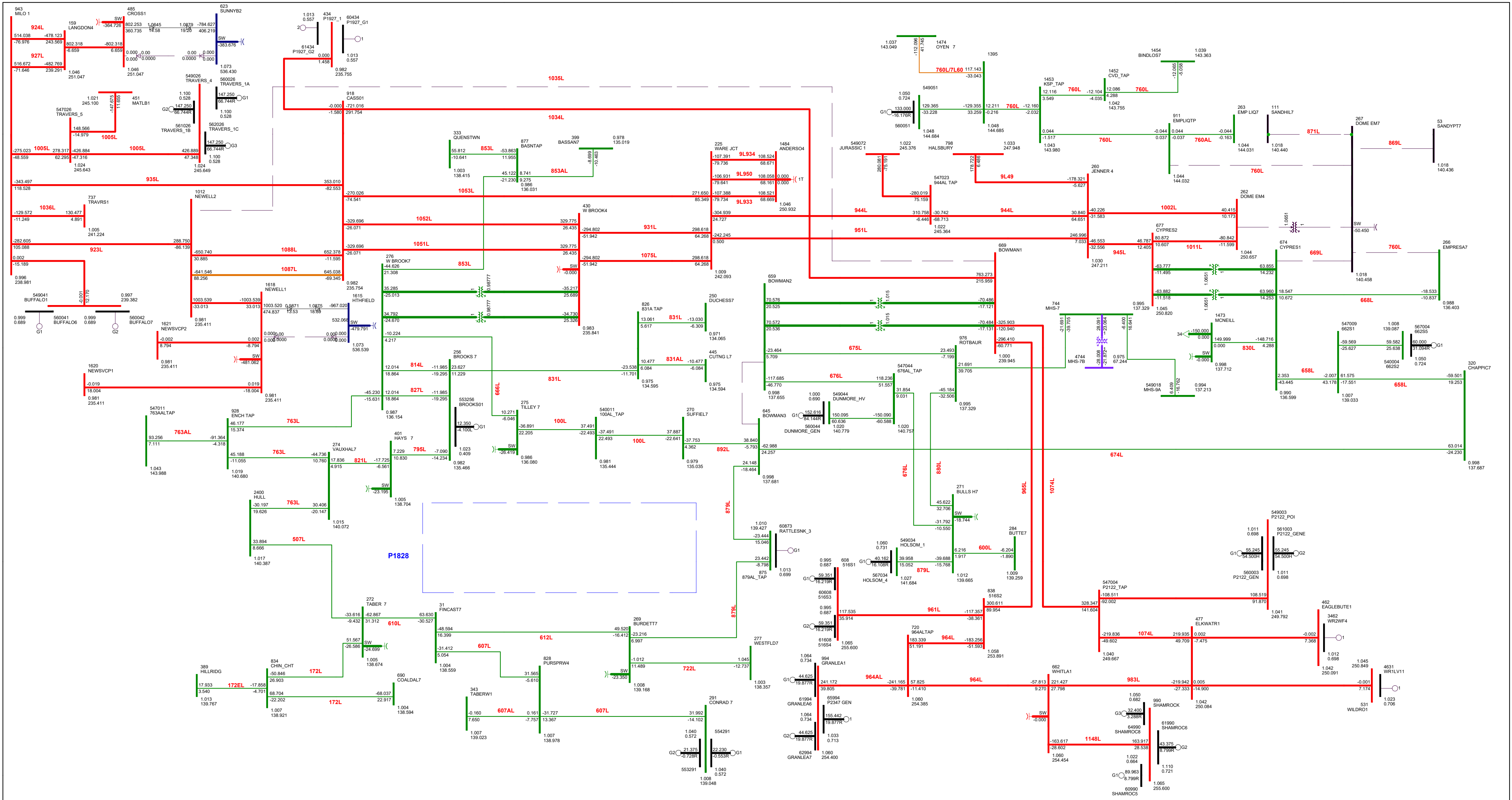
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-16-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.292 MW

Sask Import: -150.000 MW

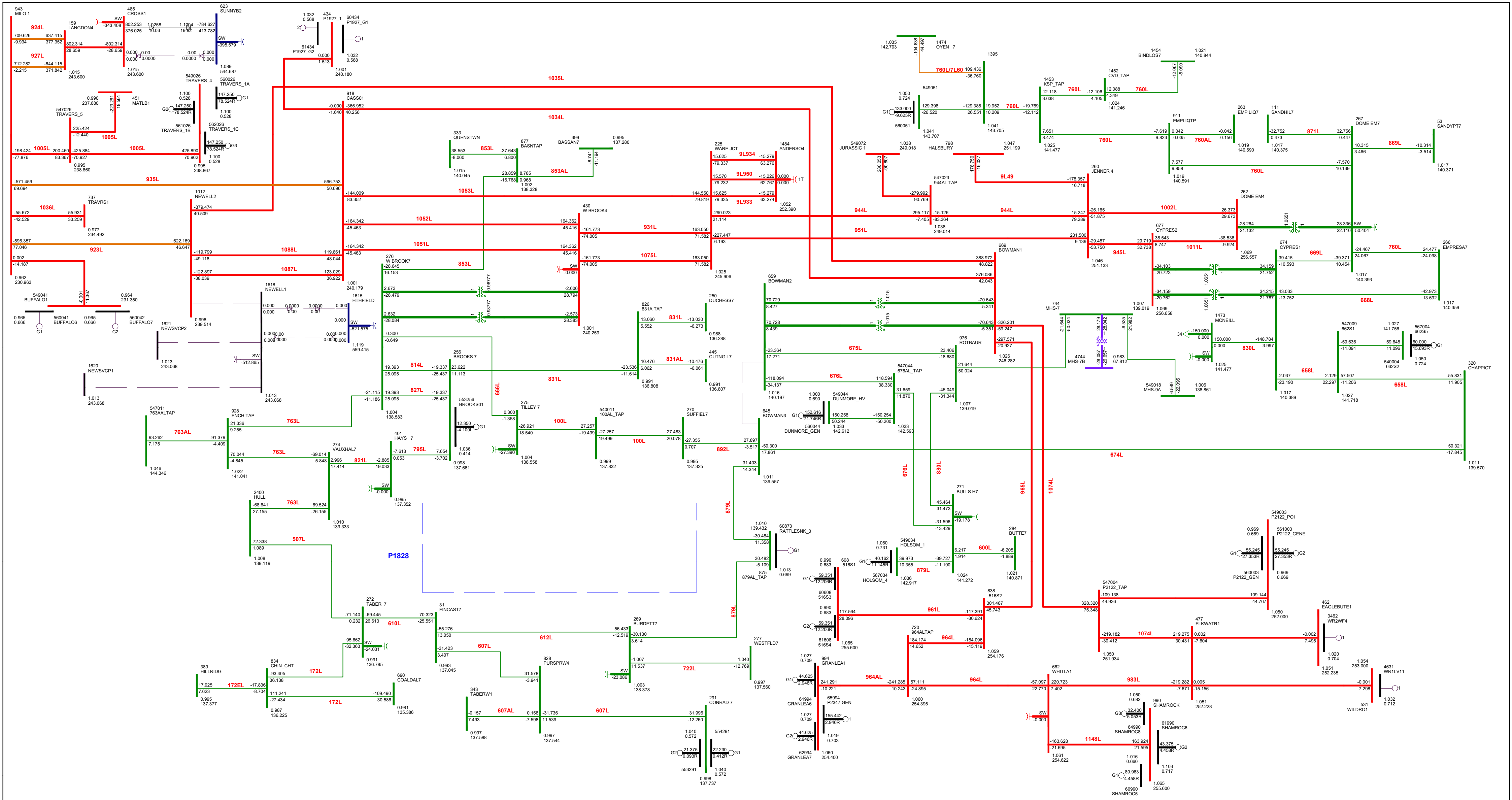
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A1-17-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 10:58

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -239.093 MW

Sask Import: -150.000 MW

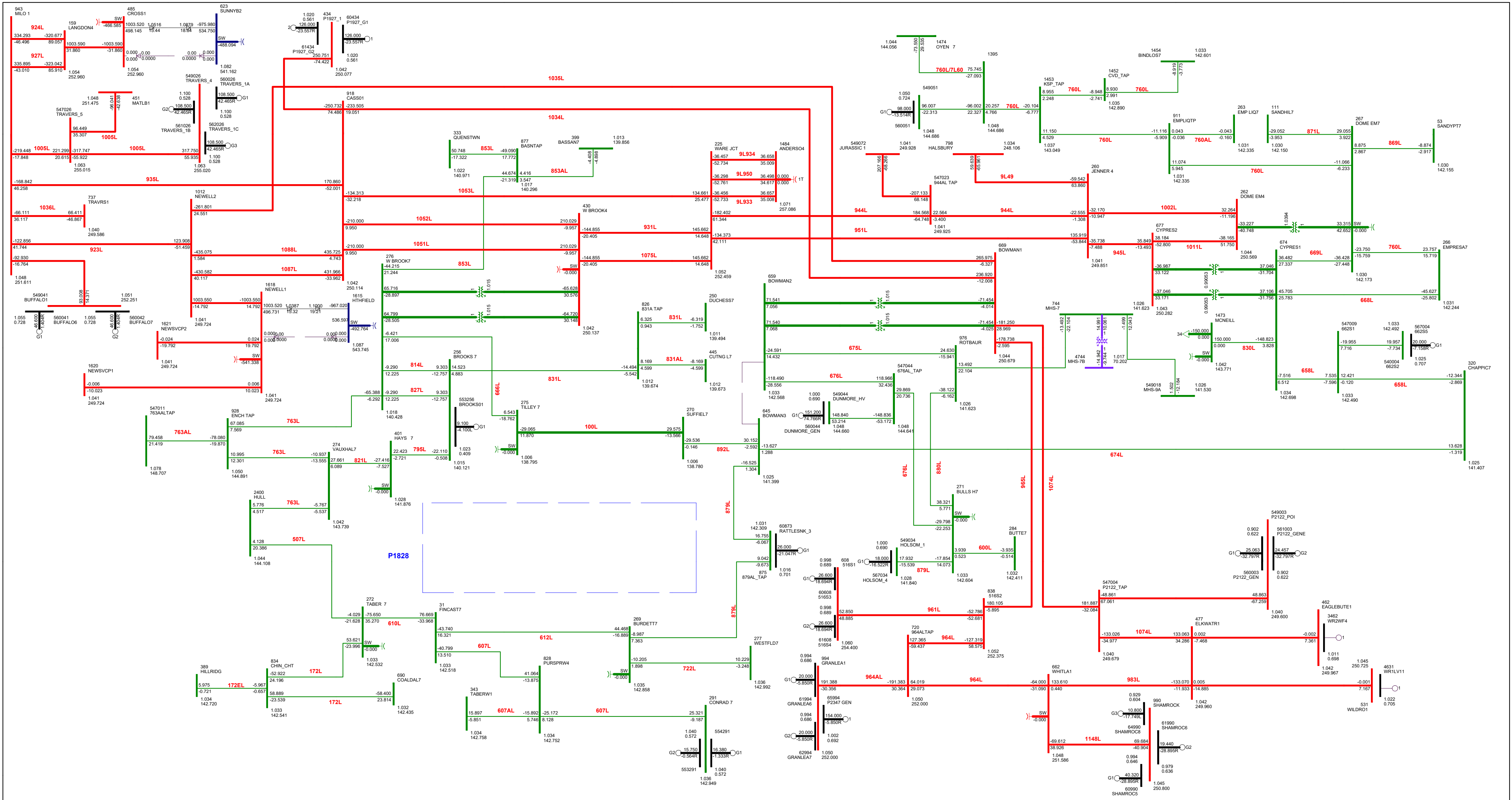
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE A1-18-N-1: EATL
2025 SUMMER PEAK - SCN 1 (PRE PROJECT)
TUE, AUG 22 2023 12:00

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

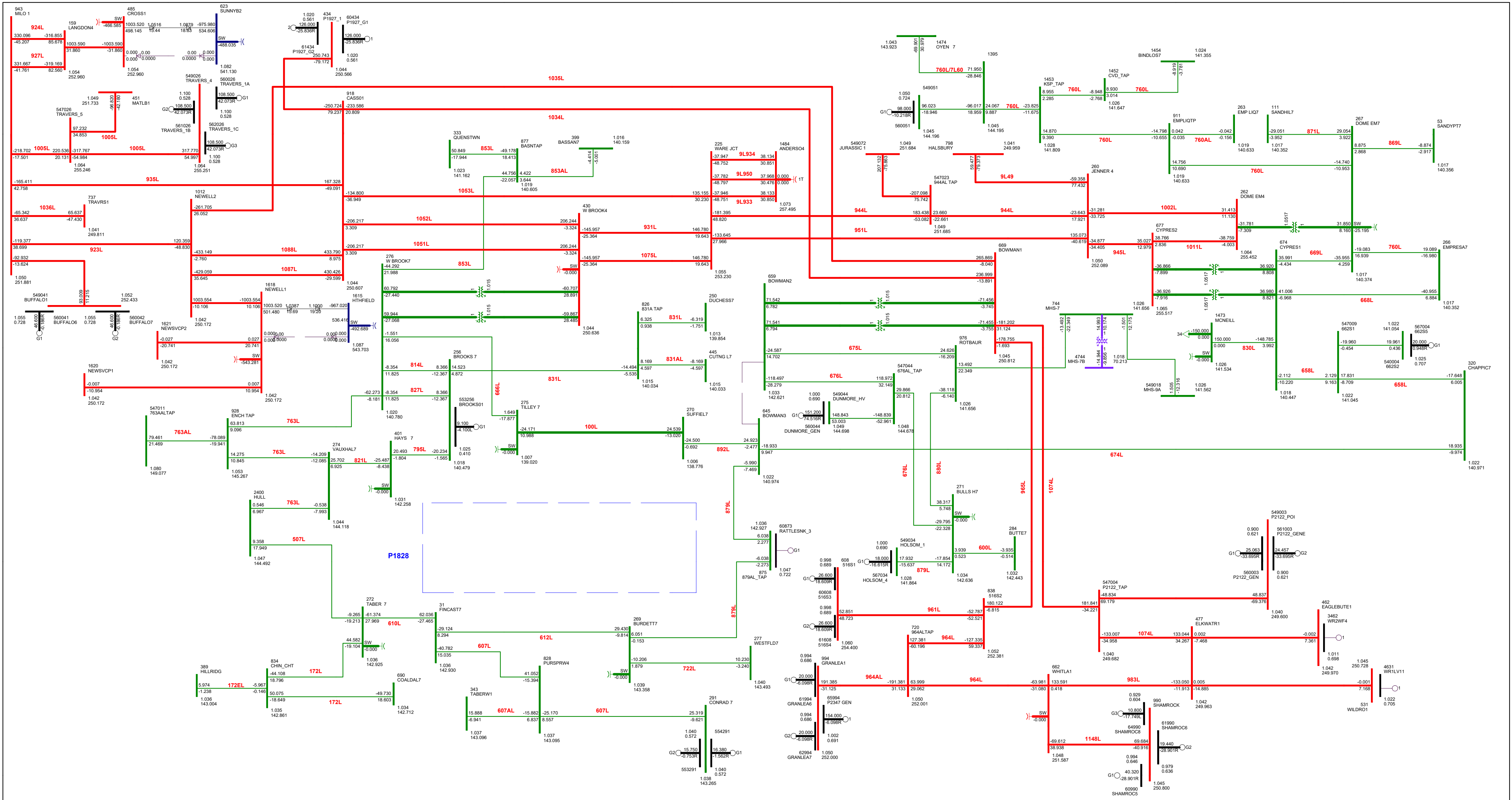
BC Import: -521.080 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE A0-2-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
FRI, SEP 08 2023   9:18

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.053 MW

Sask Import: -150.000 MW

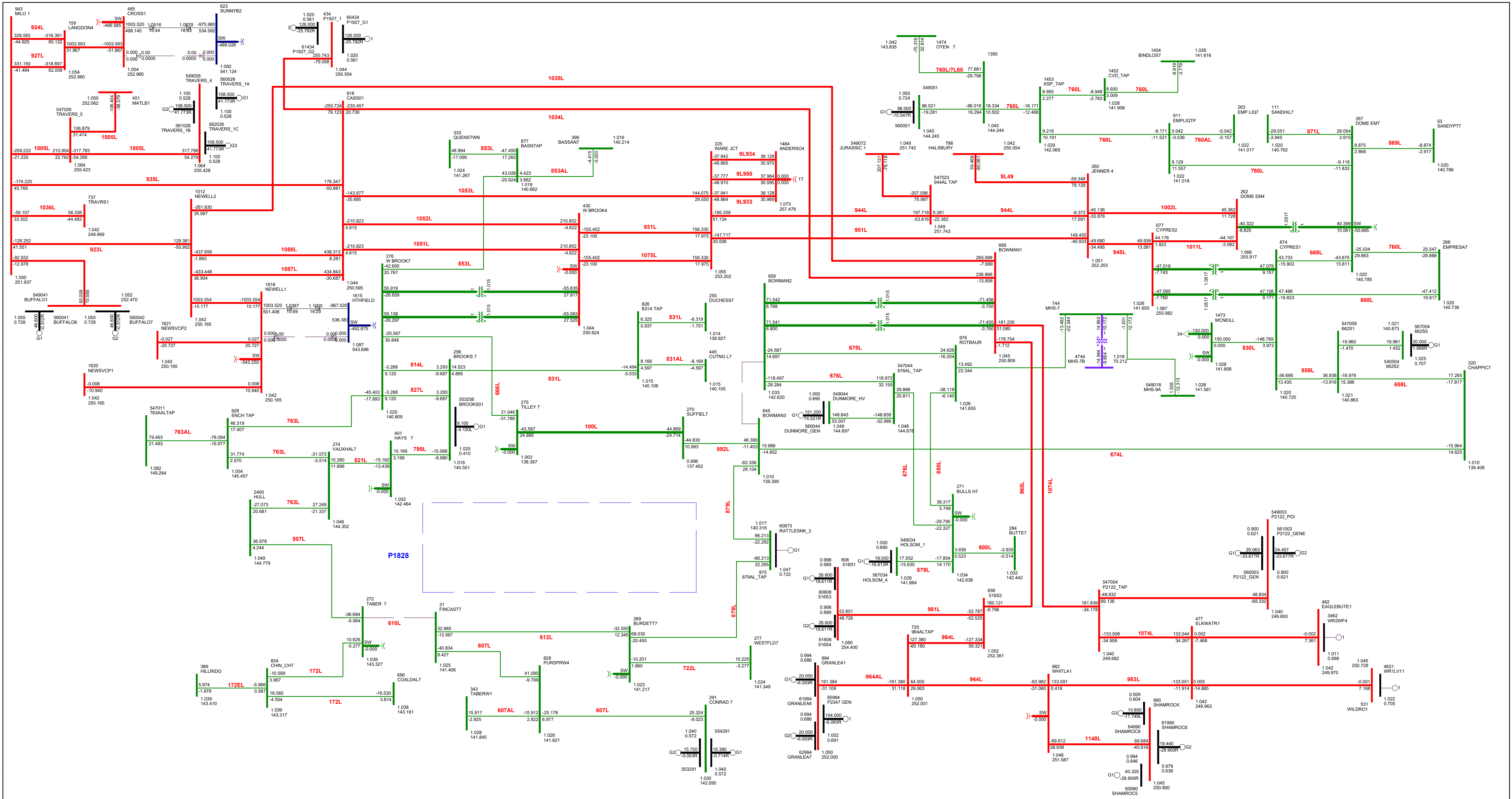
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -513.839 MW

Sask Import: -150.000 MW

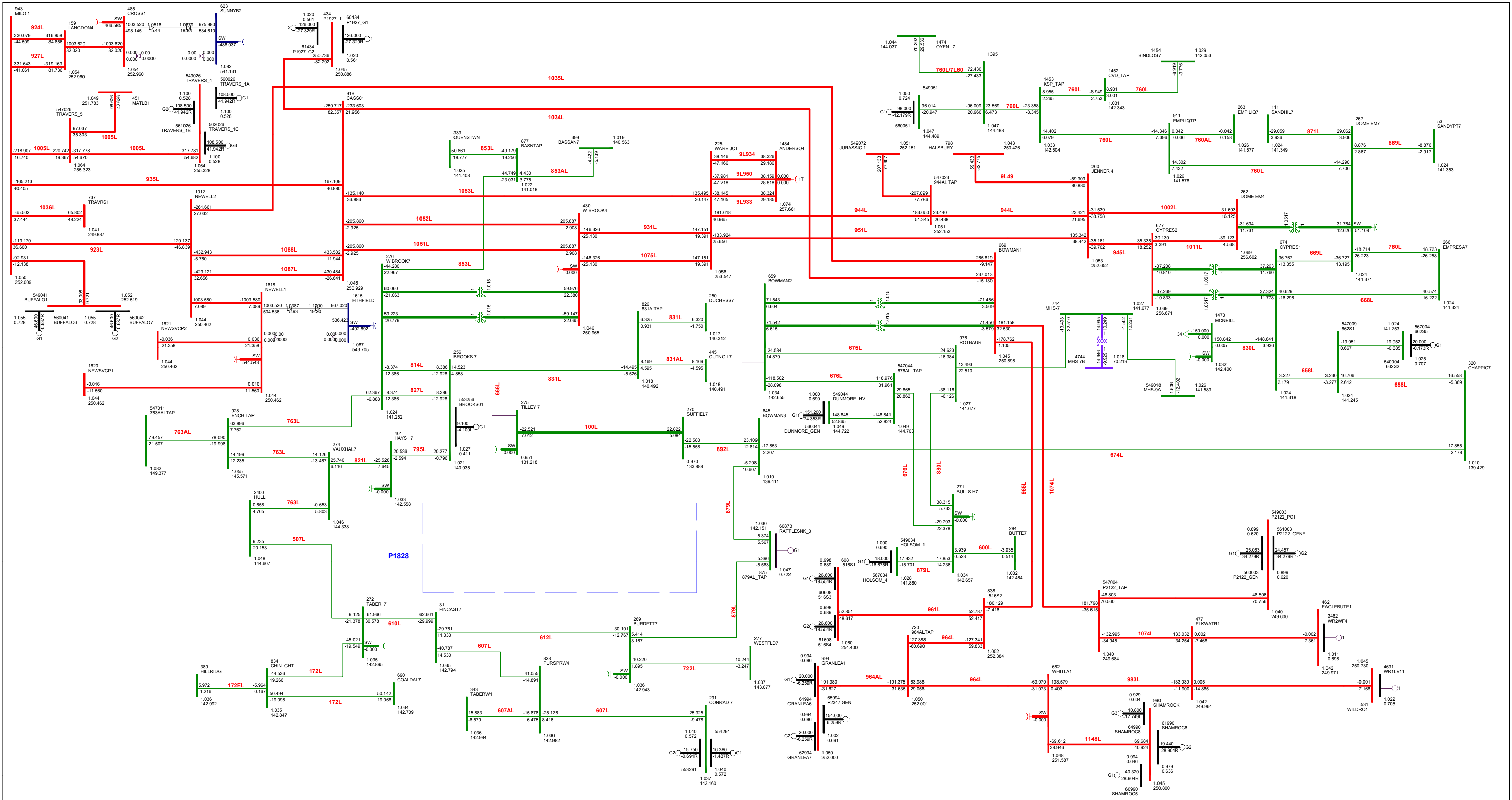
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-2-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.857 MW

Sask Import: -150.000 MW

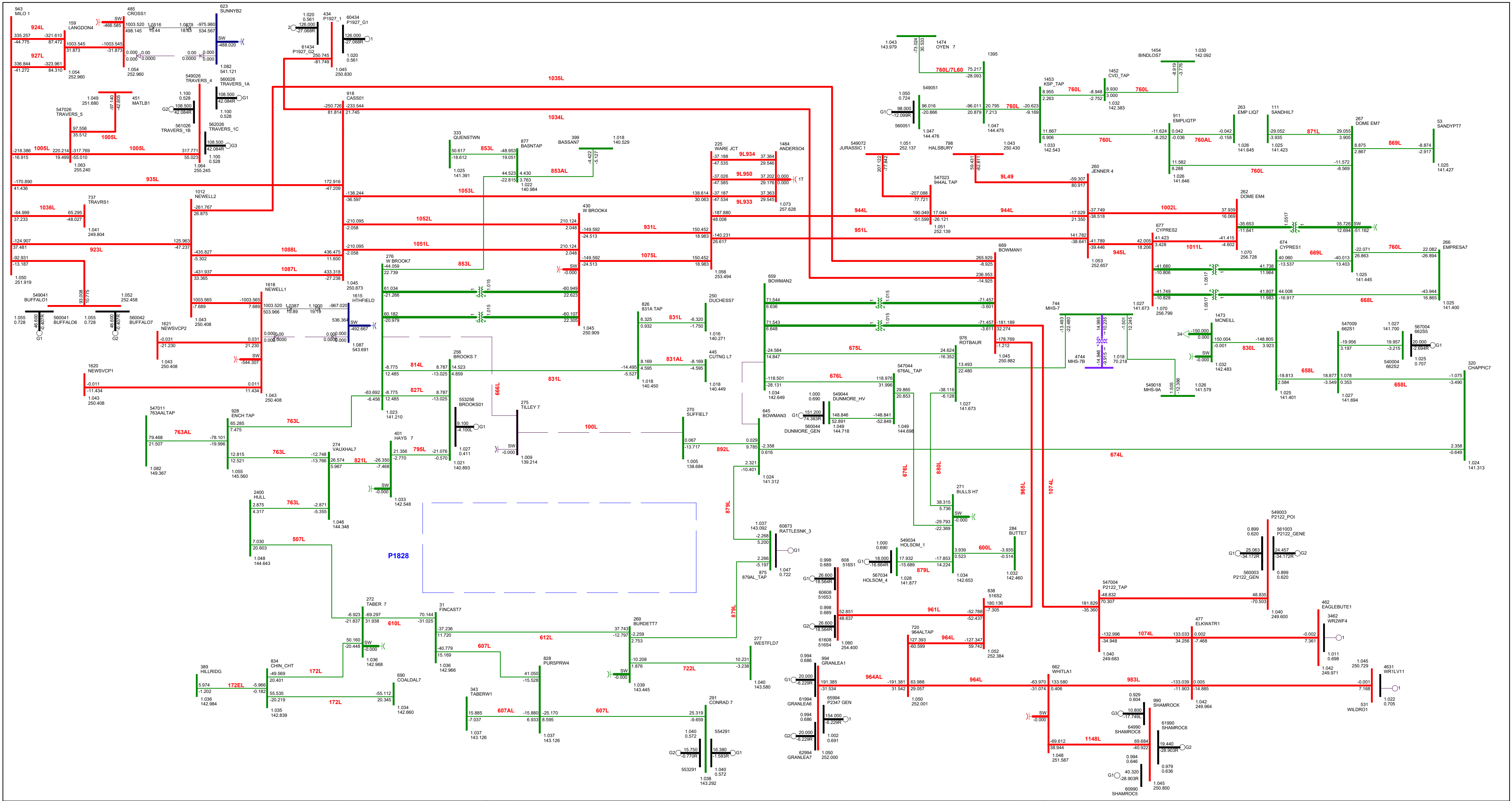
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -540.609 MW

Sask Import: -150.000 MW

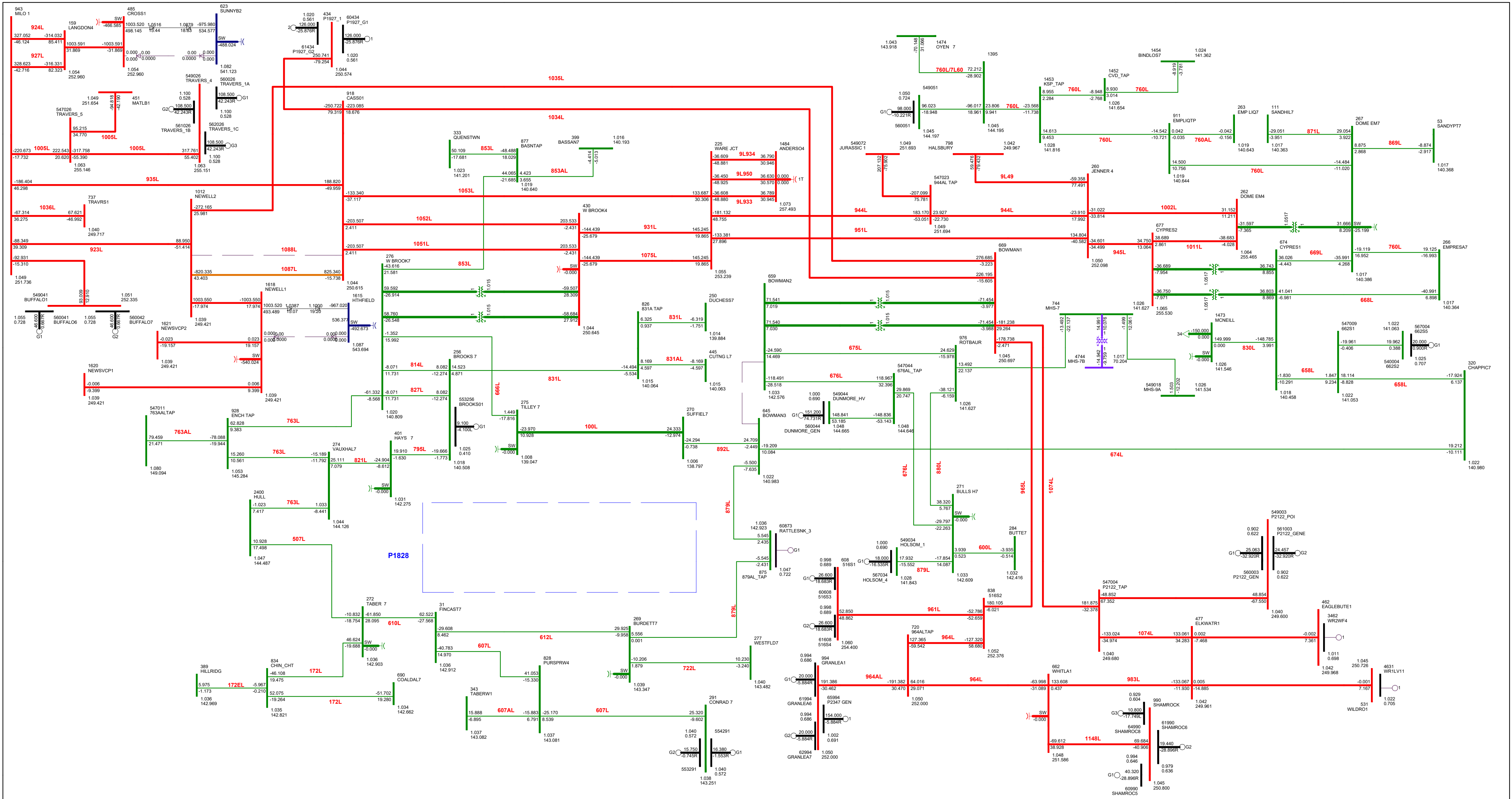
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-4-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.928 MW

Sask Import: -150.000 MW

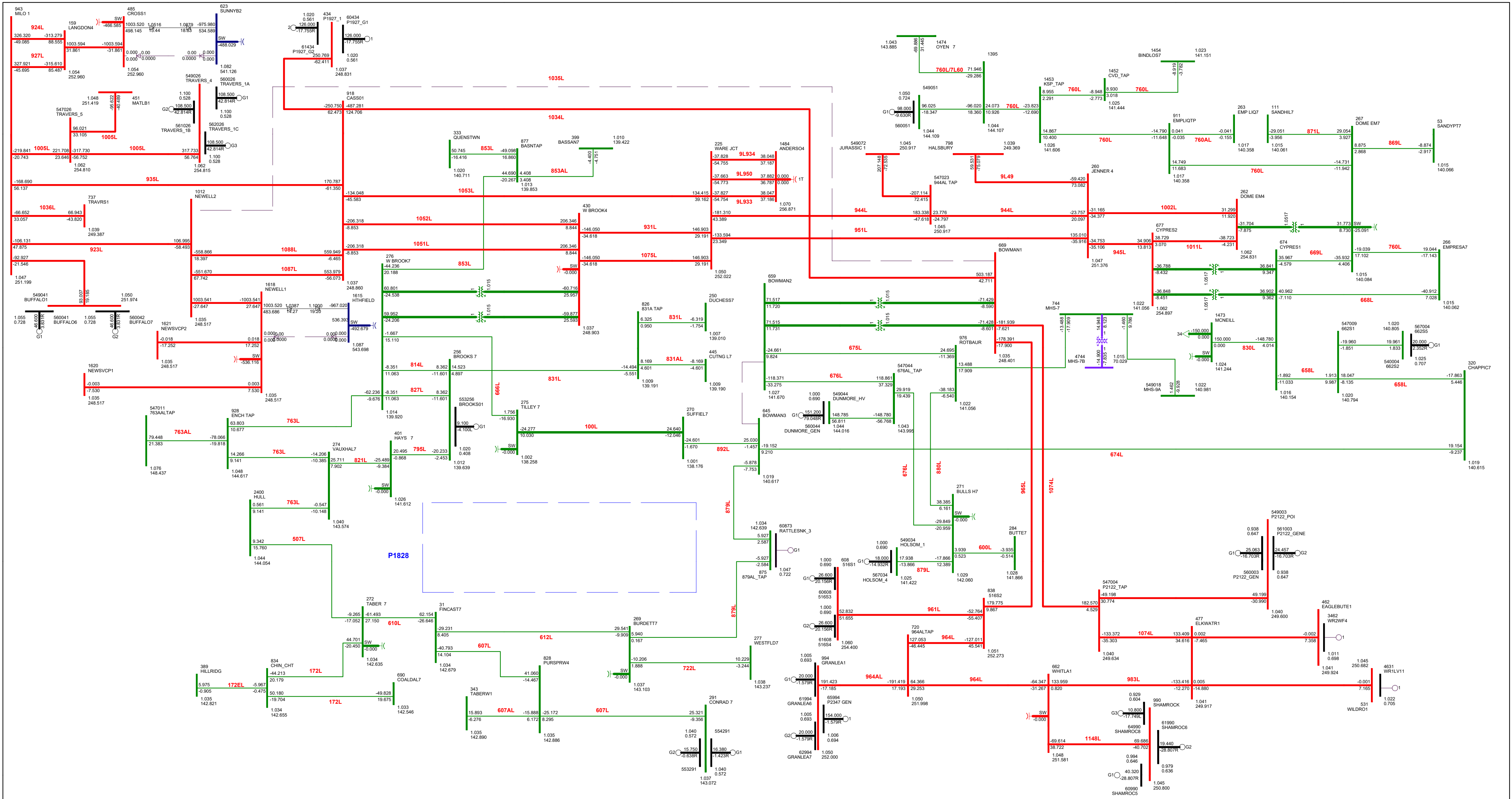
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-5-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -512.136 MW

Sask Import: -150.000 MW

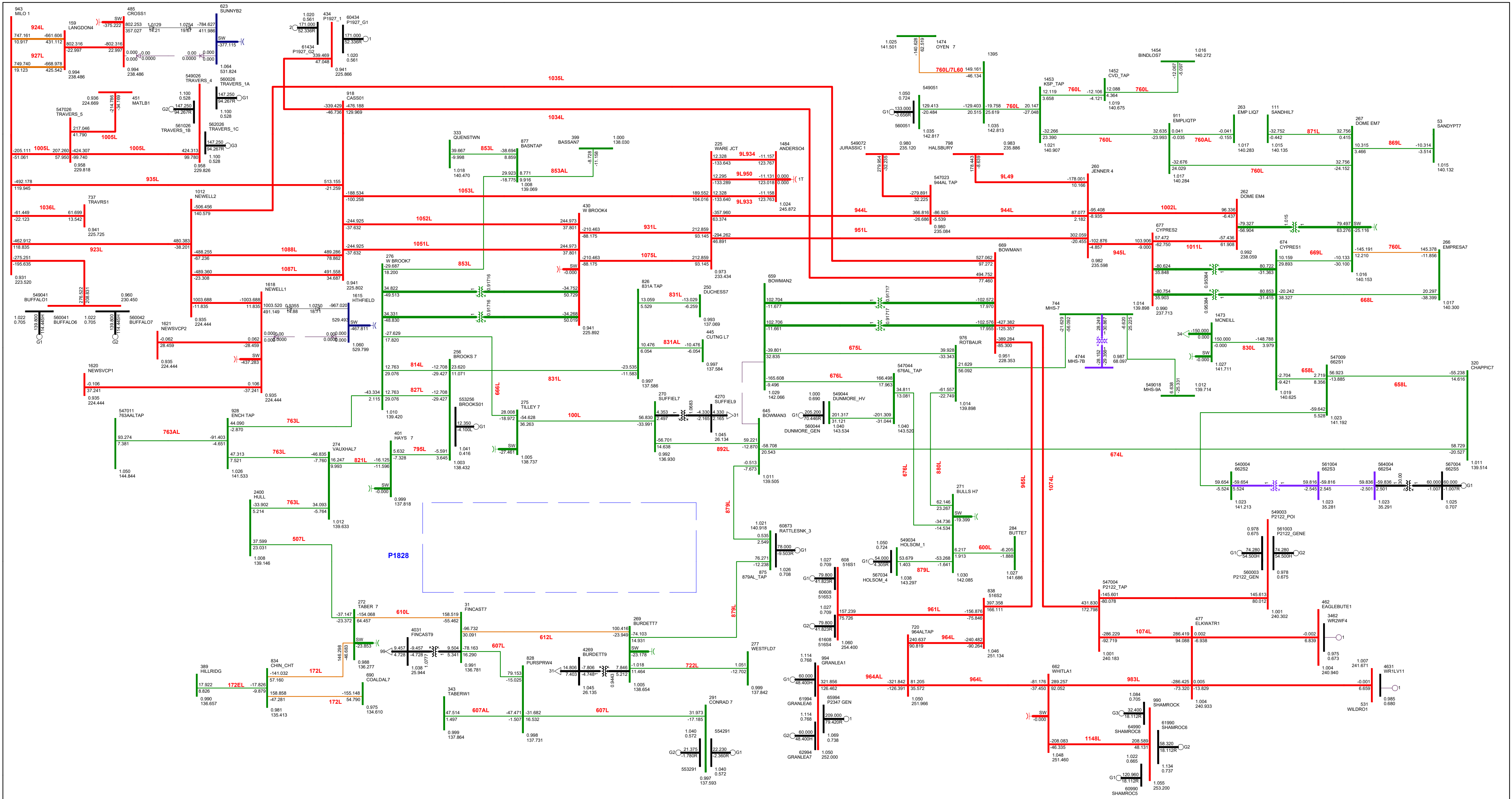
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A2-6-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 2 (PRE PROJECT)
TUE, AUG 22 2023 11:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

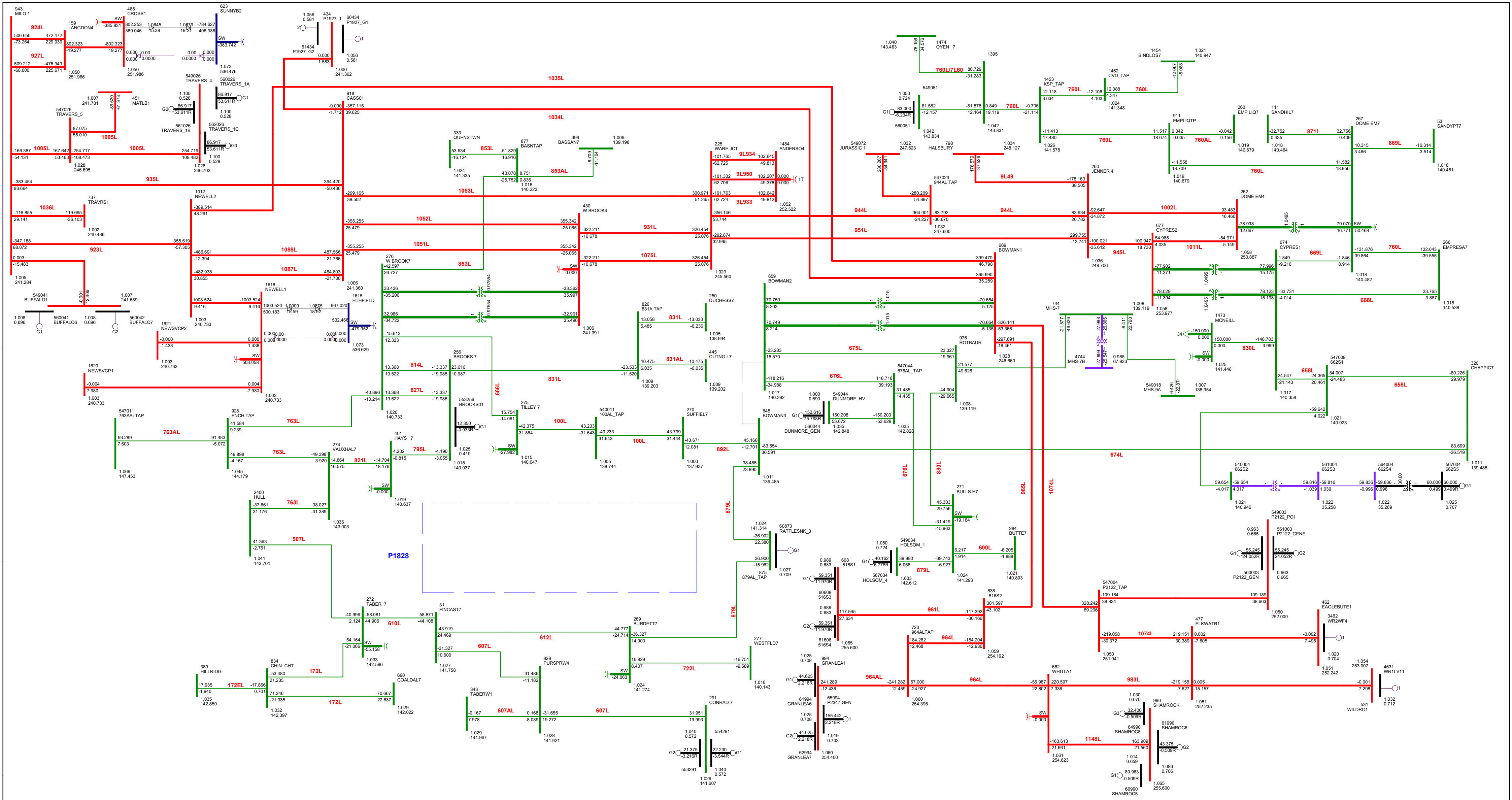
BC Import: -516.145 MW　　Sask Import: -150.000 MW

EATL: -1000.000 MW　　WATL: -800.000 MW

FIGURE A0-3-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
FRI, SEP 08 2023 9:31

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.825 MW

Sask Import: -150.000 MW

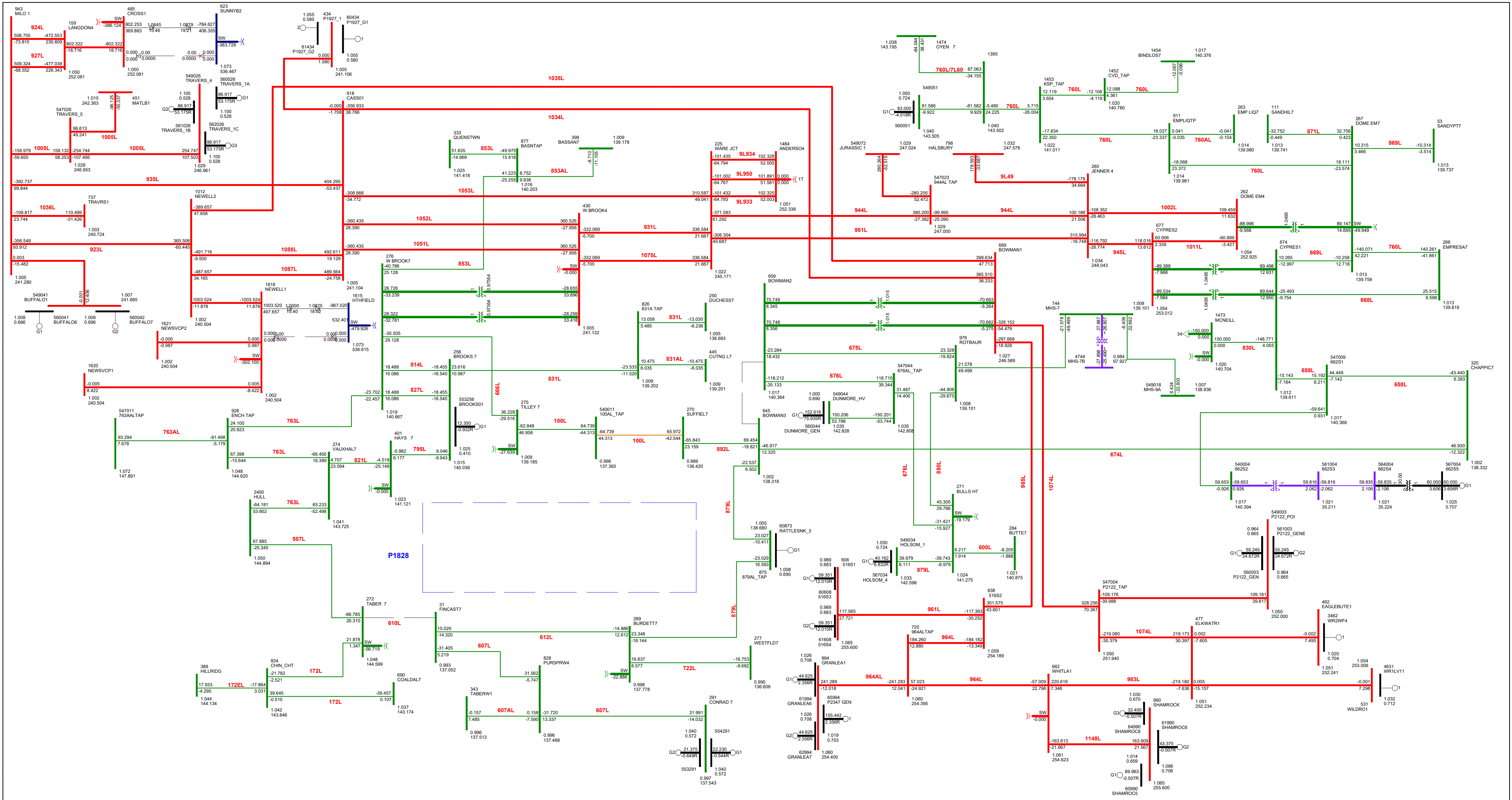
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:14

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.158 MW

Sask Import: -150.000 MW

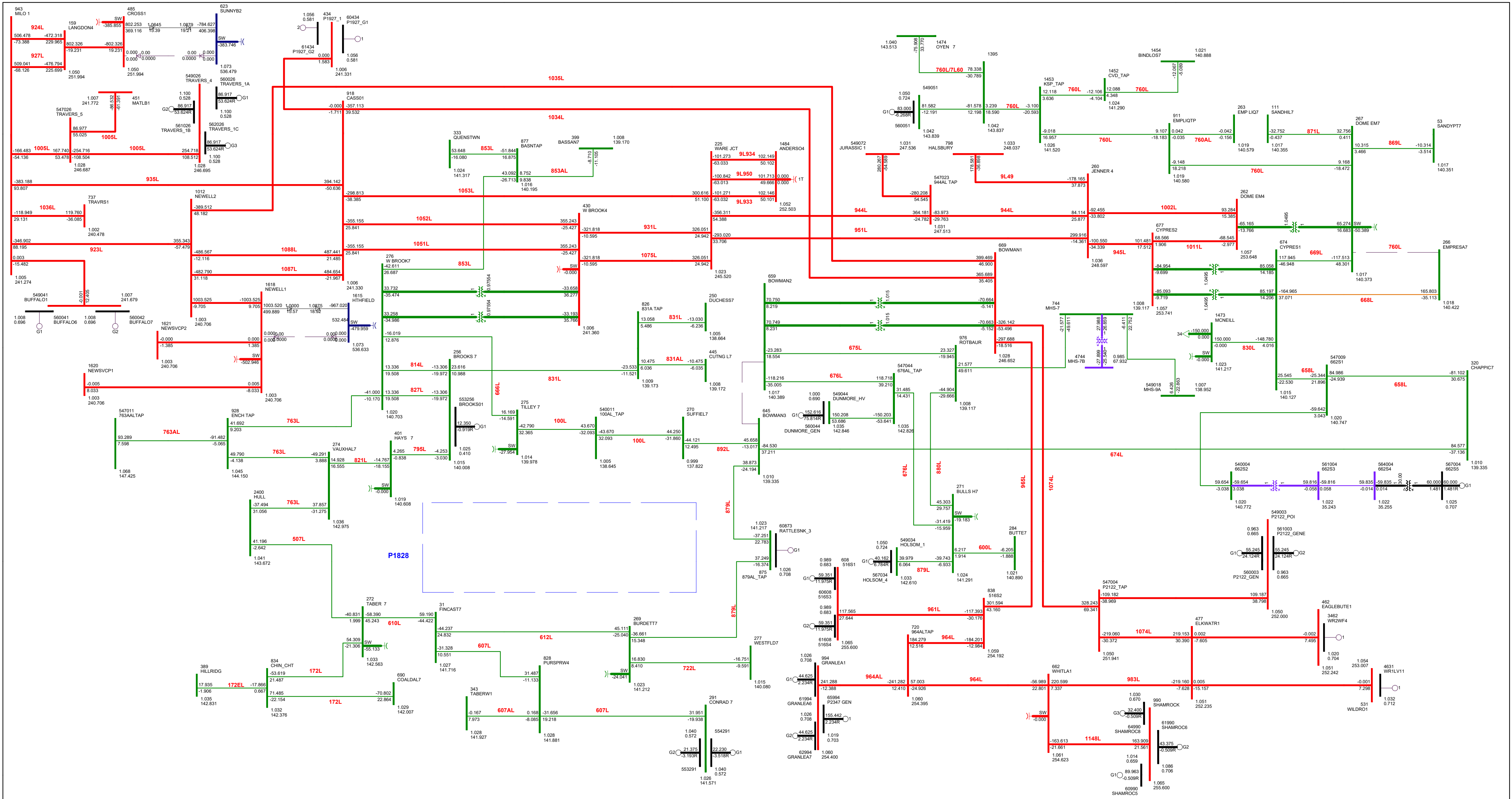
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-2-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:03

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.926 MW

Sask Import: -150.000 MW

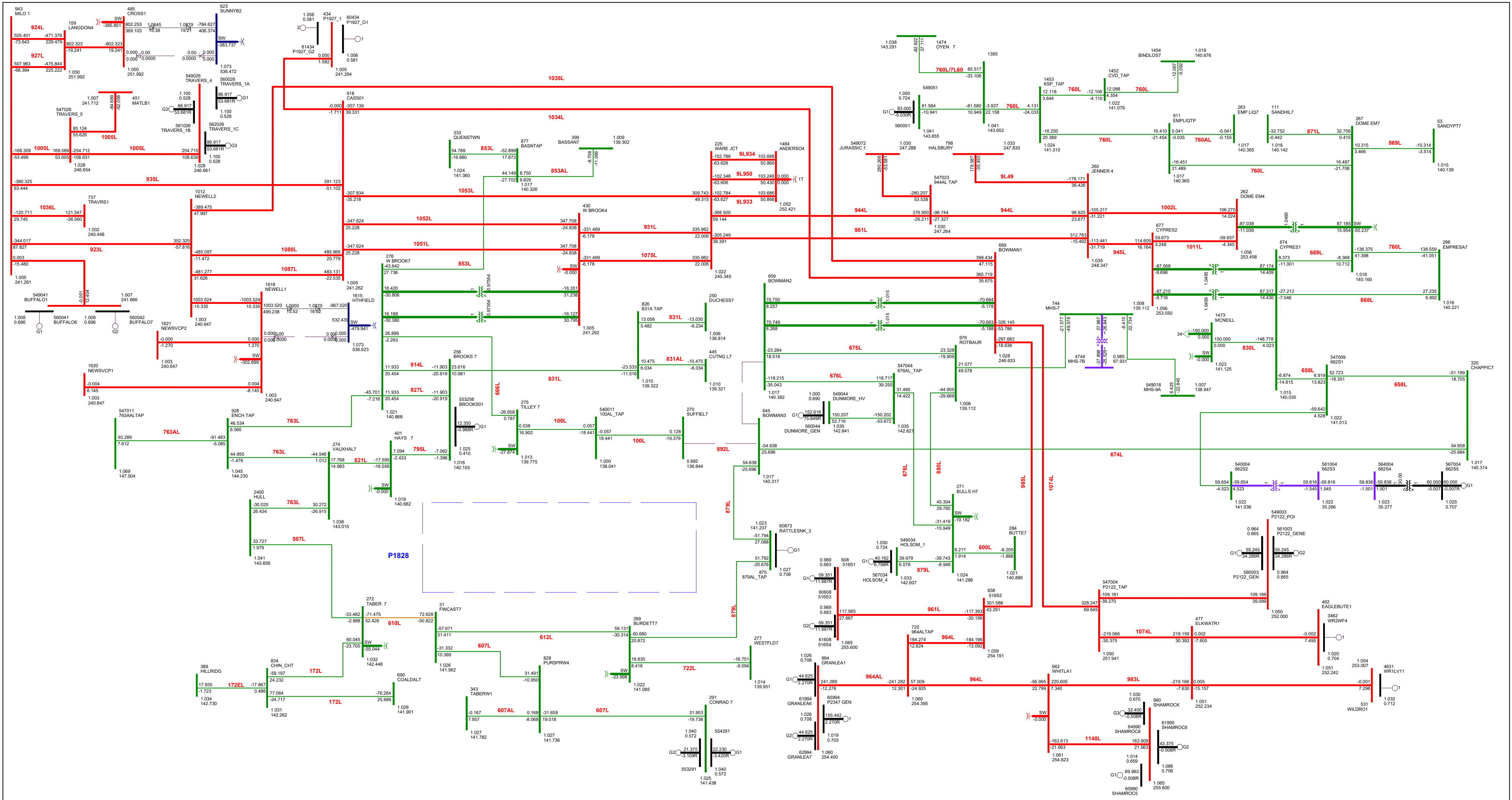
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-3-N-1: 760L (AMOCO EMPRESS 163S TO EMPRESS 394S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:04

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.083 MW

Sask Import: -150.000 MW

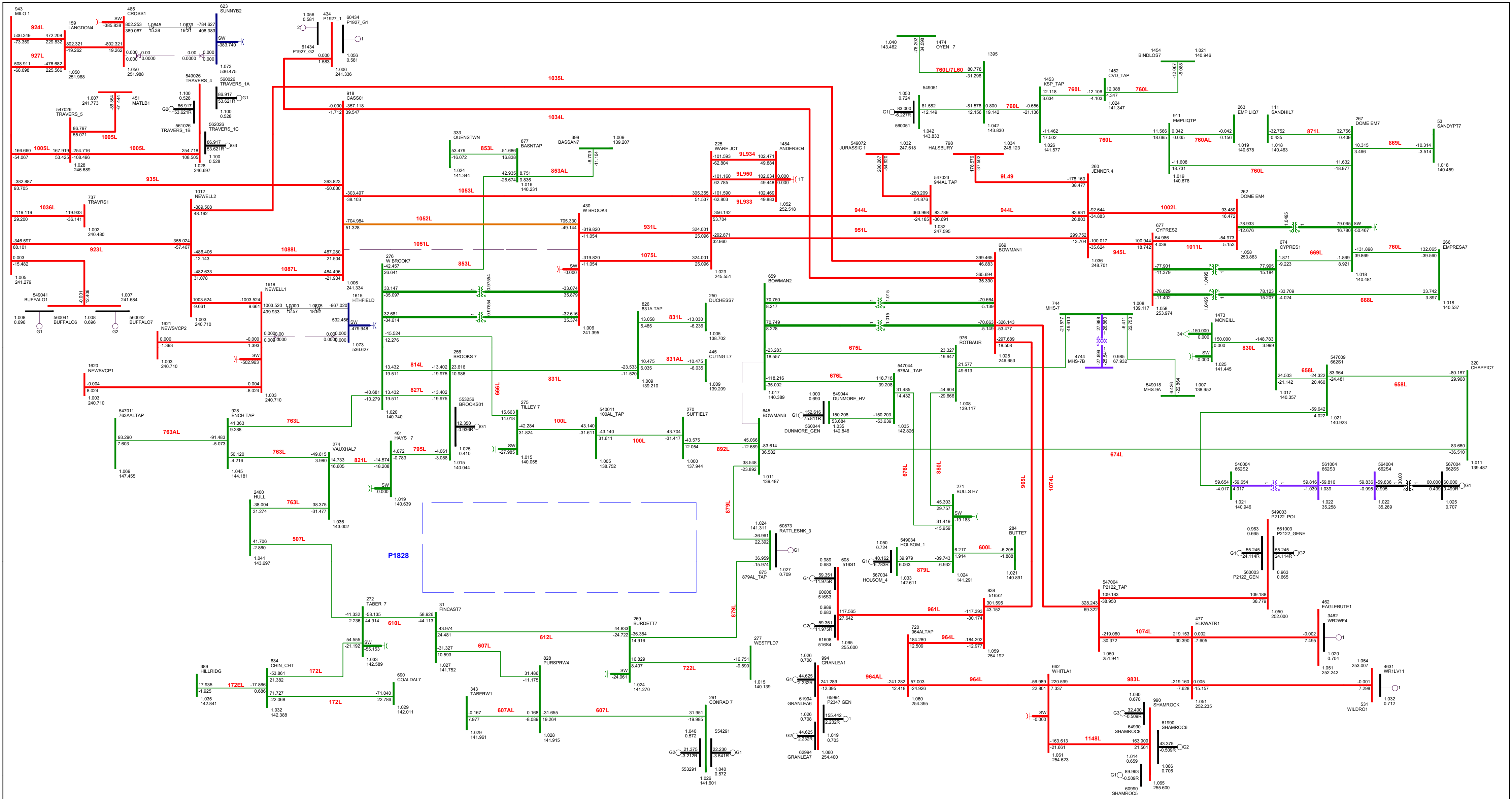
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-4-N-1: 892L (SUFFIELD 895S TO BOWMANTON 244S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.658 MW

Sask Import: -150.000 MW

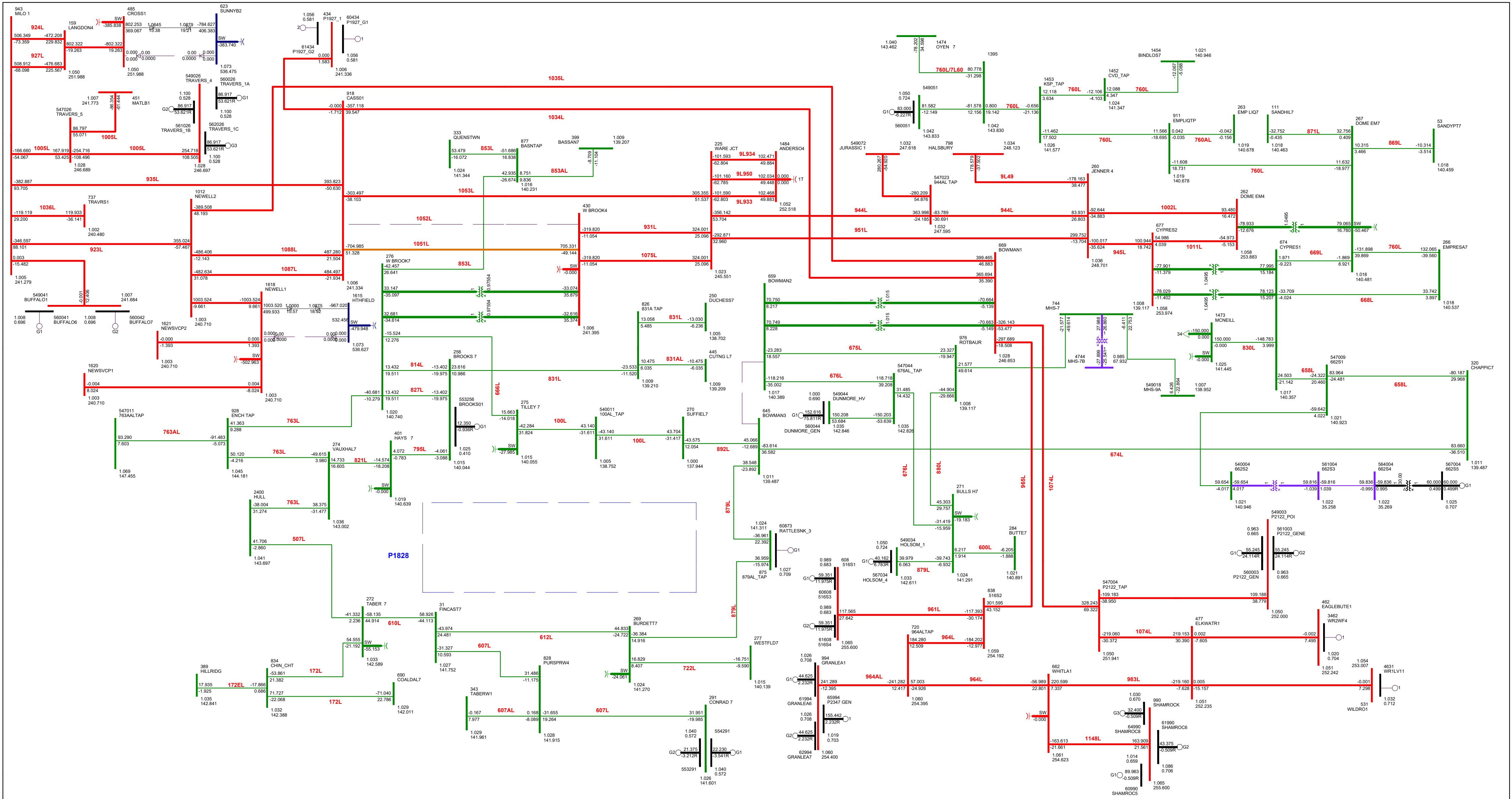
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-5-N-1: 1051L (WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.658 MW

Sask Import: -150.000 MW

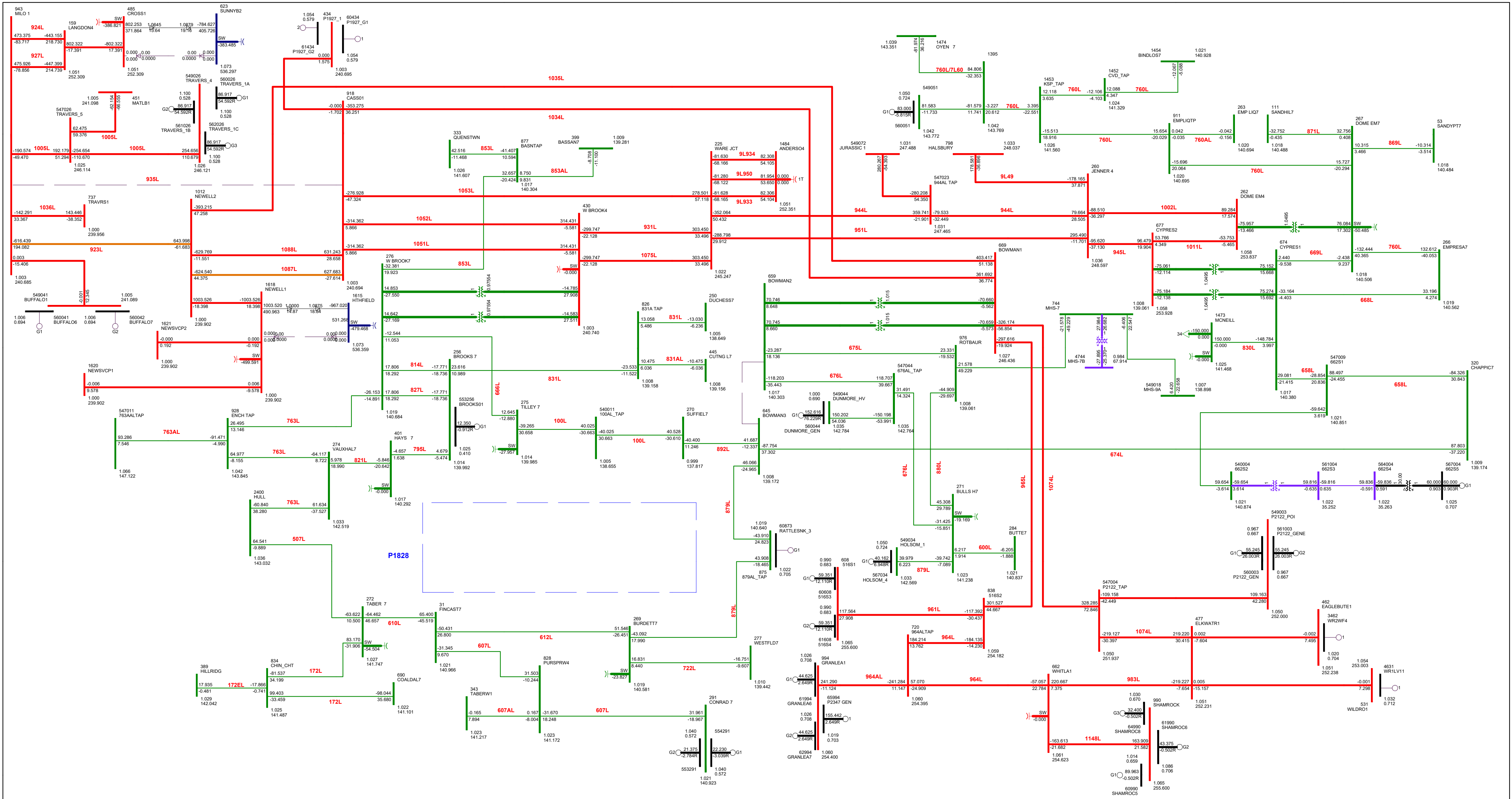
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-6-N-1: 1052L (WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

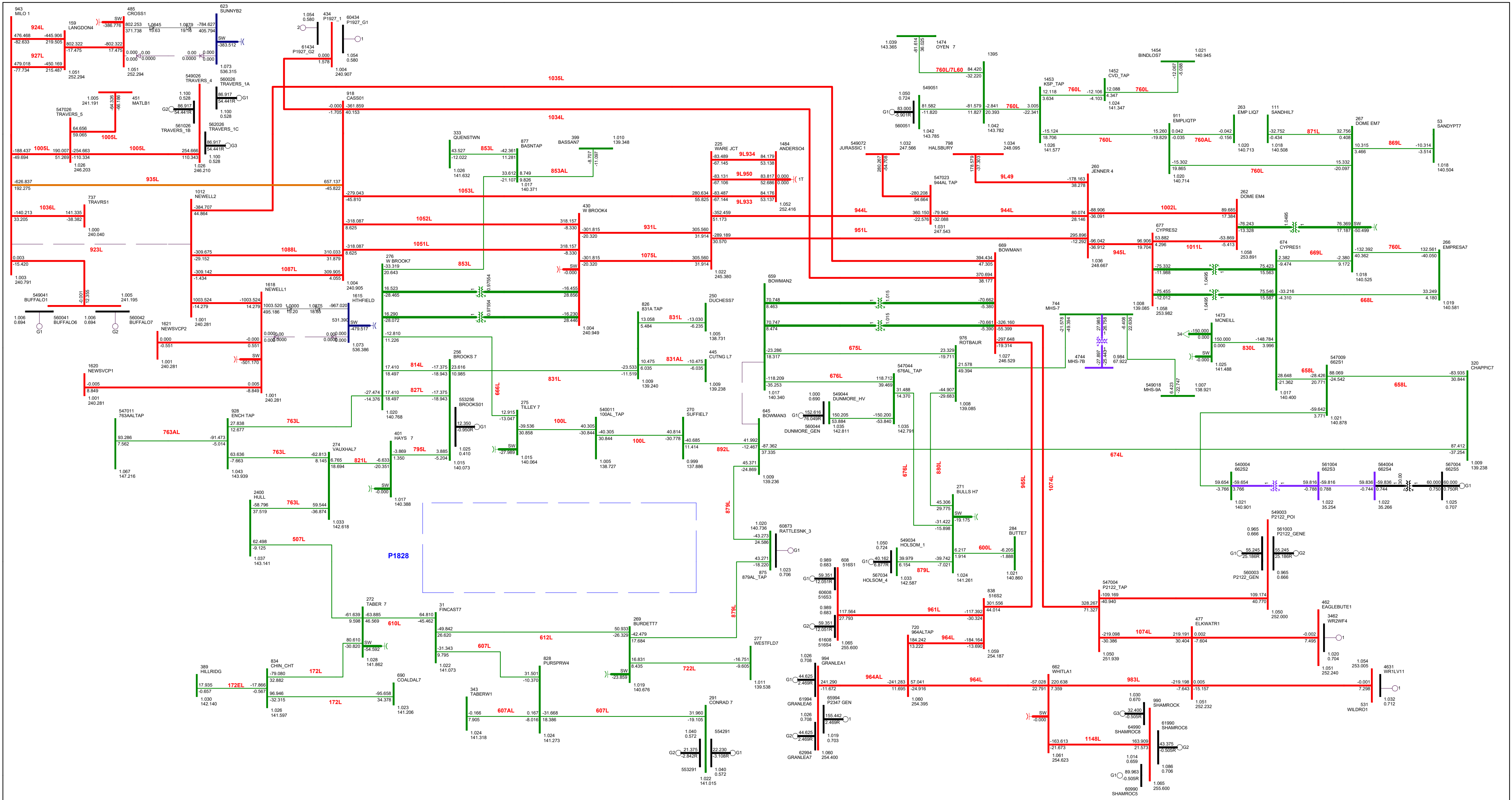
BC Import: -495.554 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE C1-7-N-1: 935L (MILO 365S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -497.965 MW

Sask Import: -150.000 MW

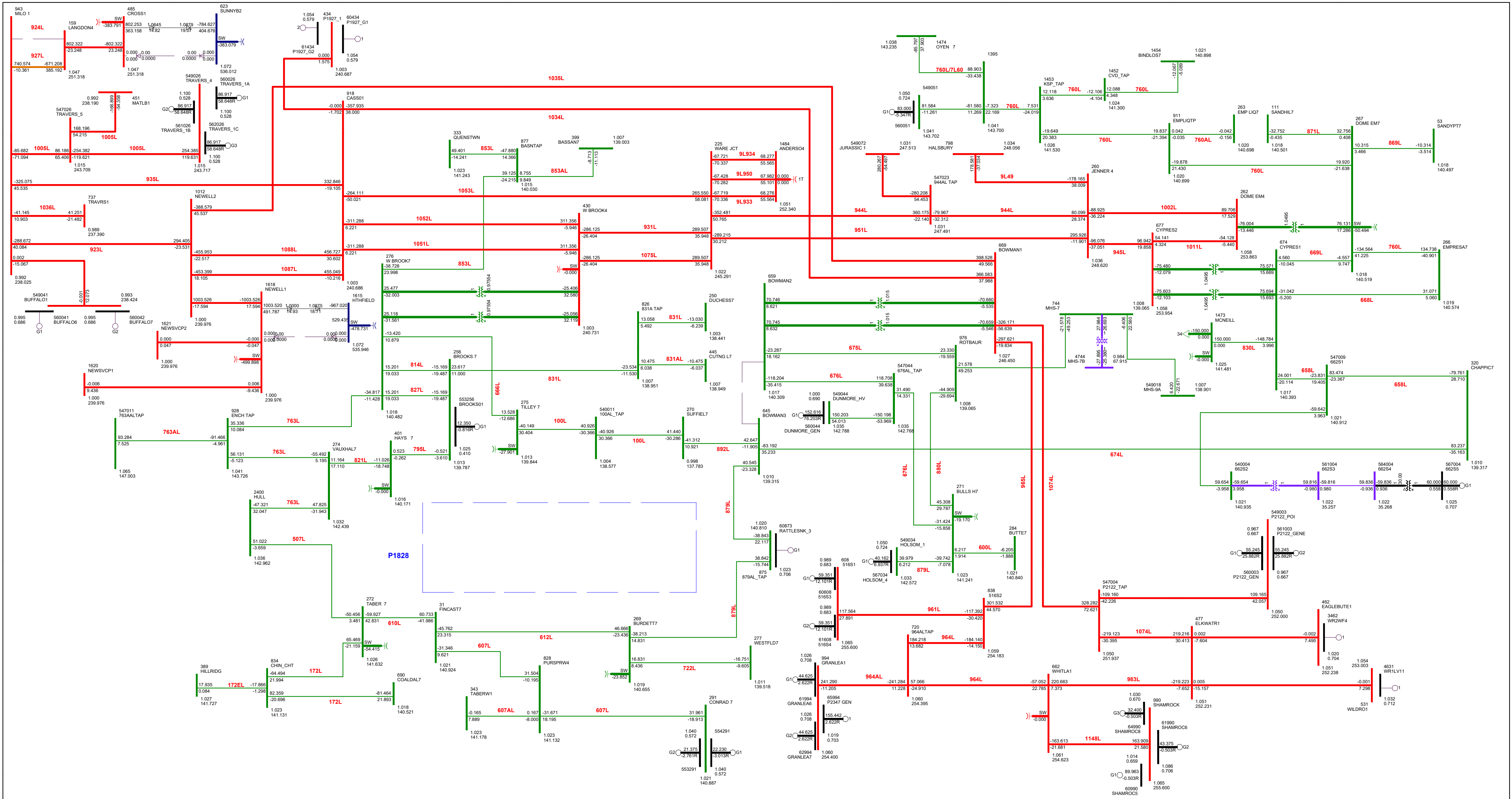
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-8-N-1: 923L (MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -472.170 MW

Sask Import: -150.000 MW

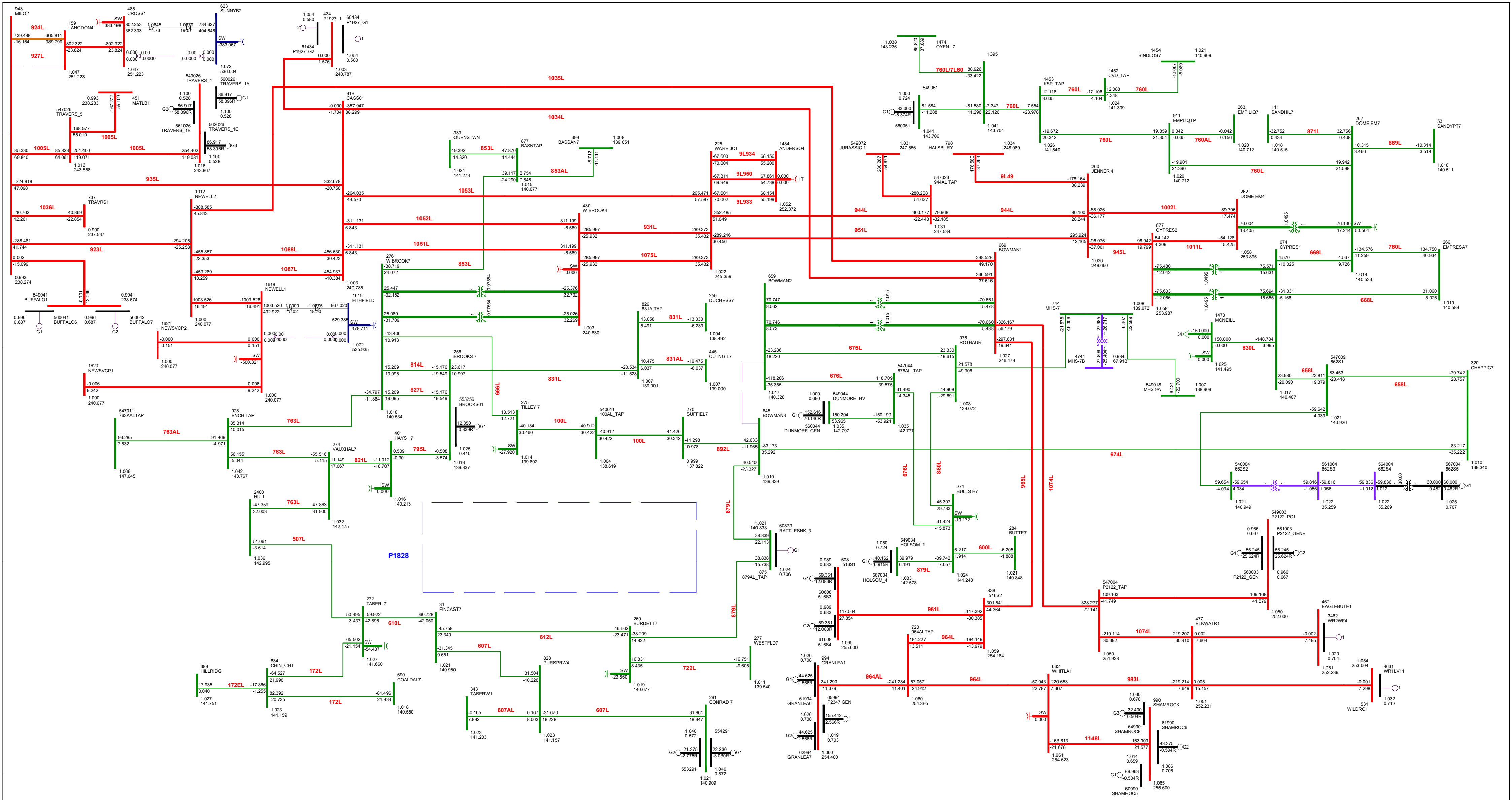
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-9-N-1: 924L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -467.811 MW

Sask Import: -150.000 MW

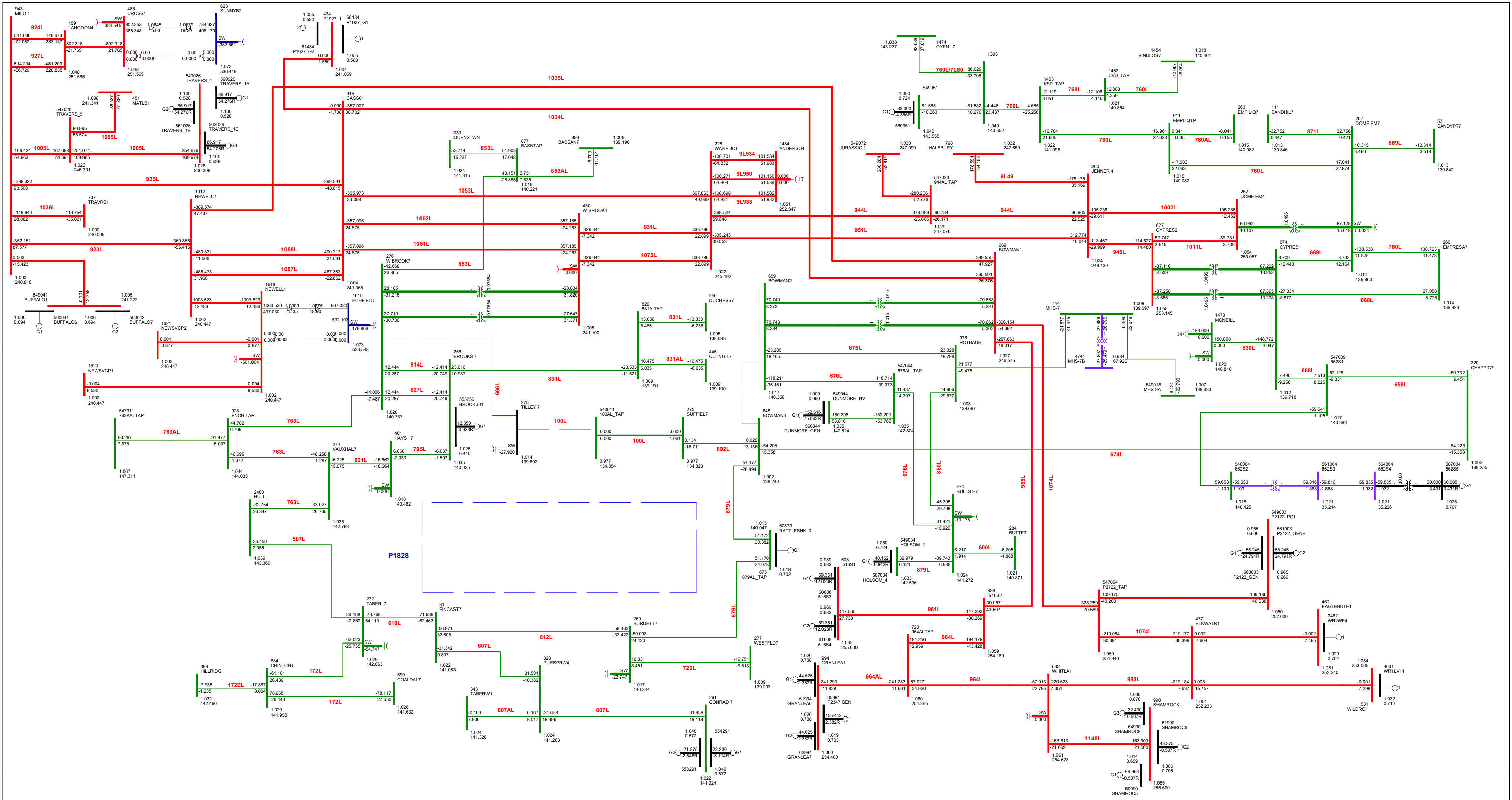
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-10-N-1: 927L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -539.776 MW

Sask Import: -150.000 MW

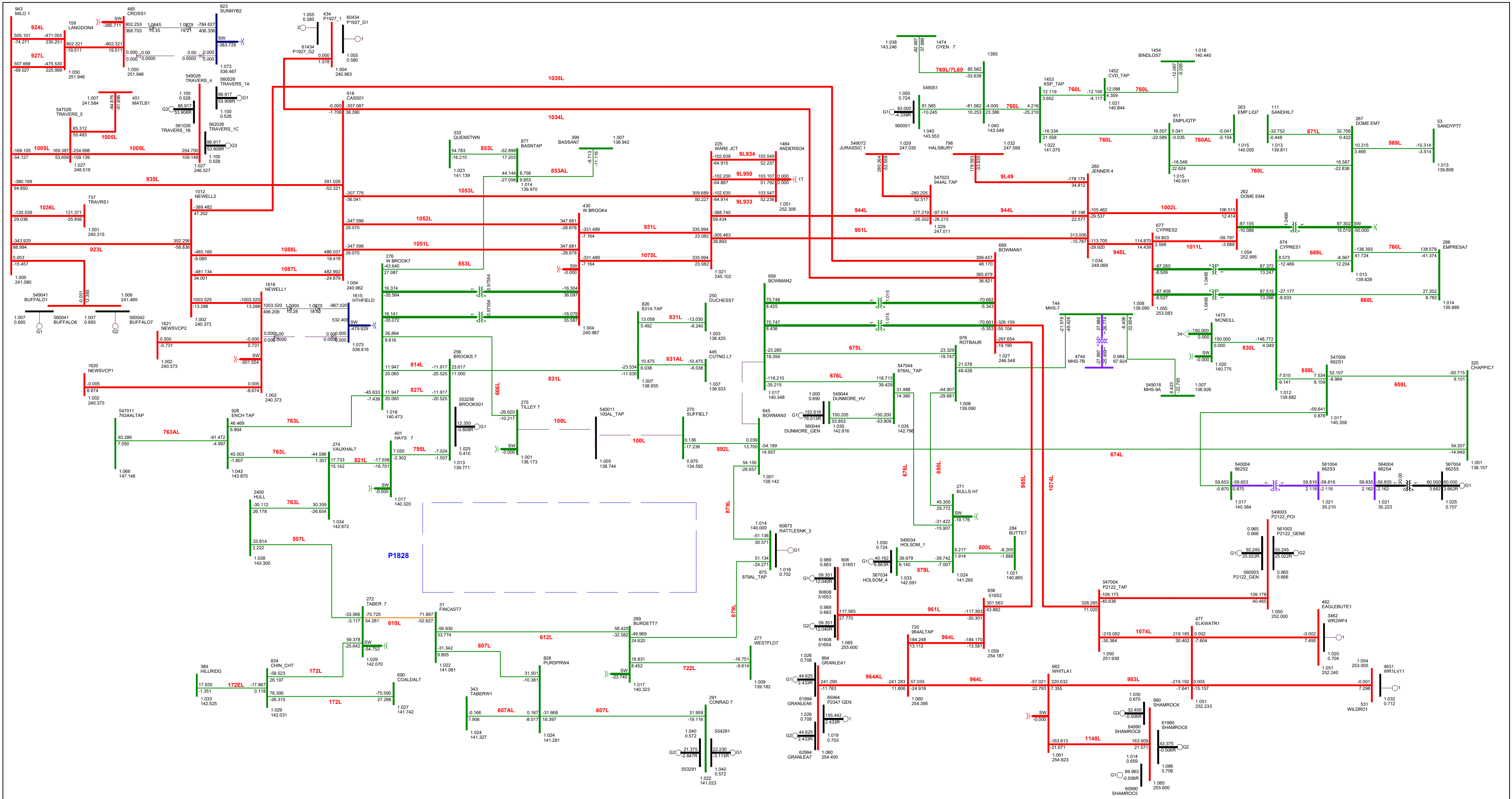
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-11-N-1: 498ST1T2 (TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:12

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.528 MW

Sask Import: -150.000 MW

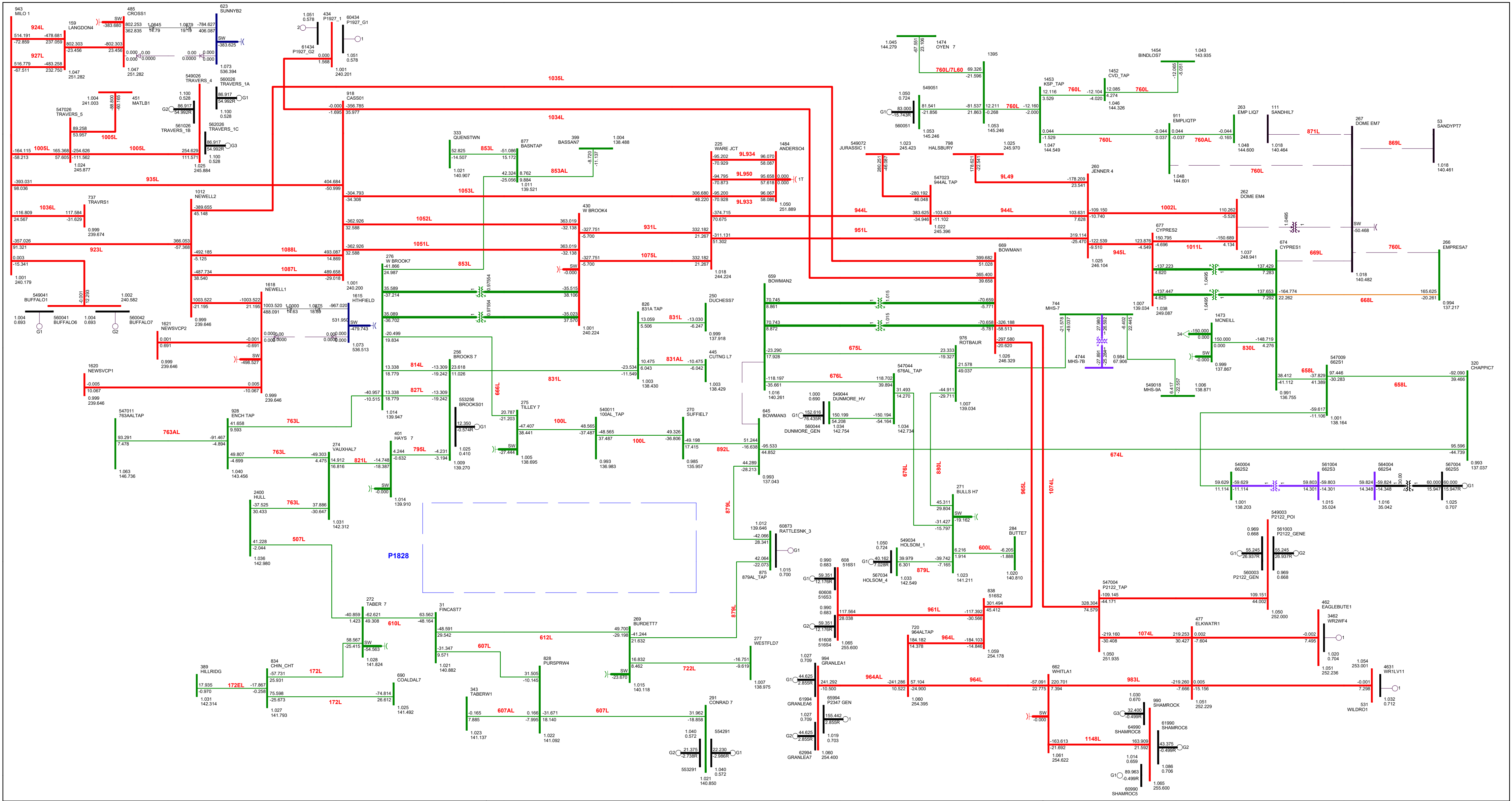
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-12-N-1: 100L (SUFFIELD 895S TO TILLEY 498S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -546.305 MW

Sask Import: -150.000 MW

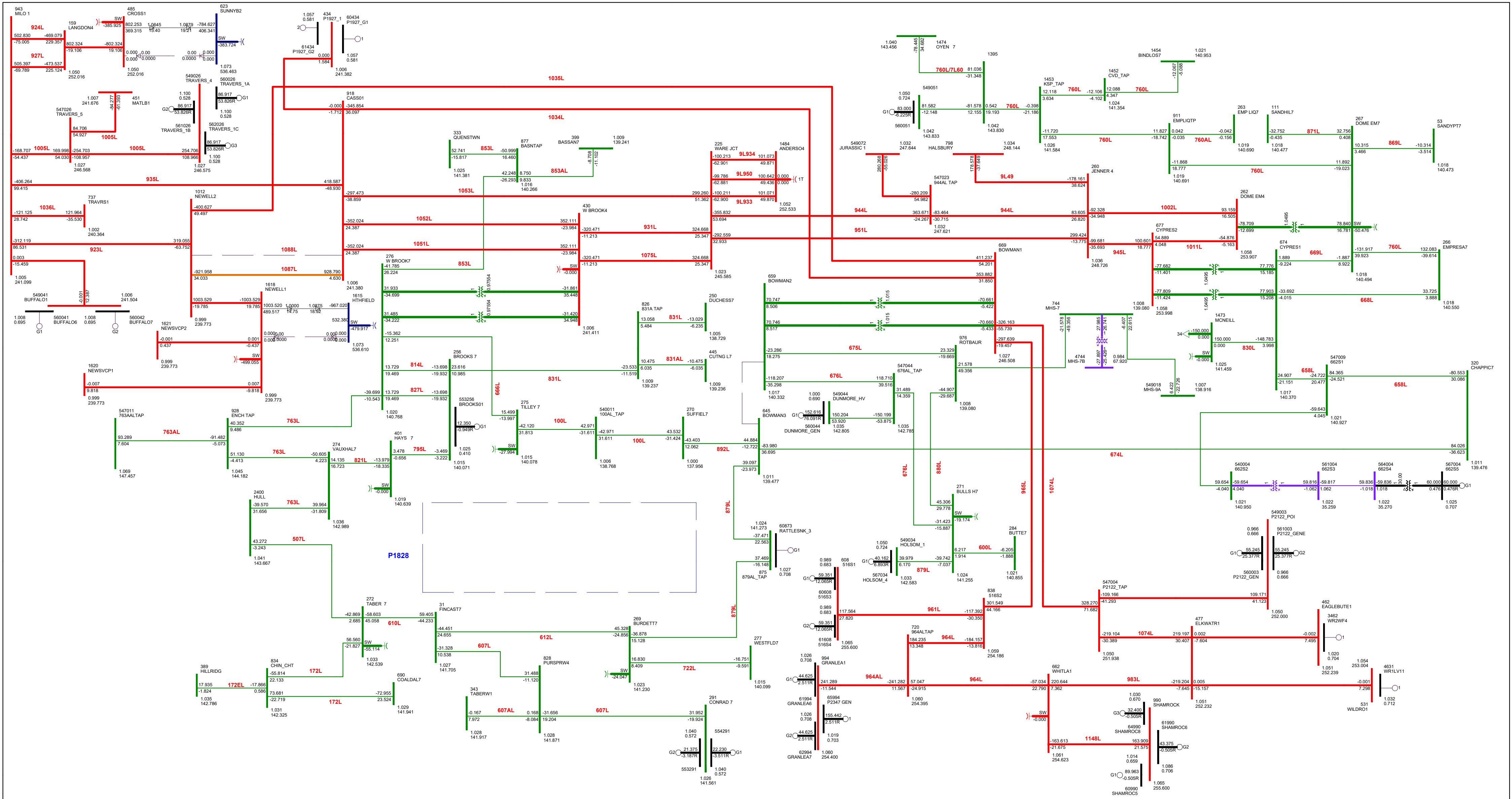
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-13-N-1: 163ST5(AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:14

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -515.167 MW

Sask Import: -150.000 MW

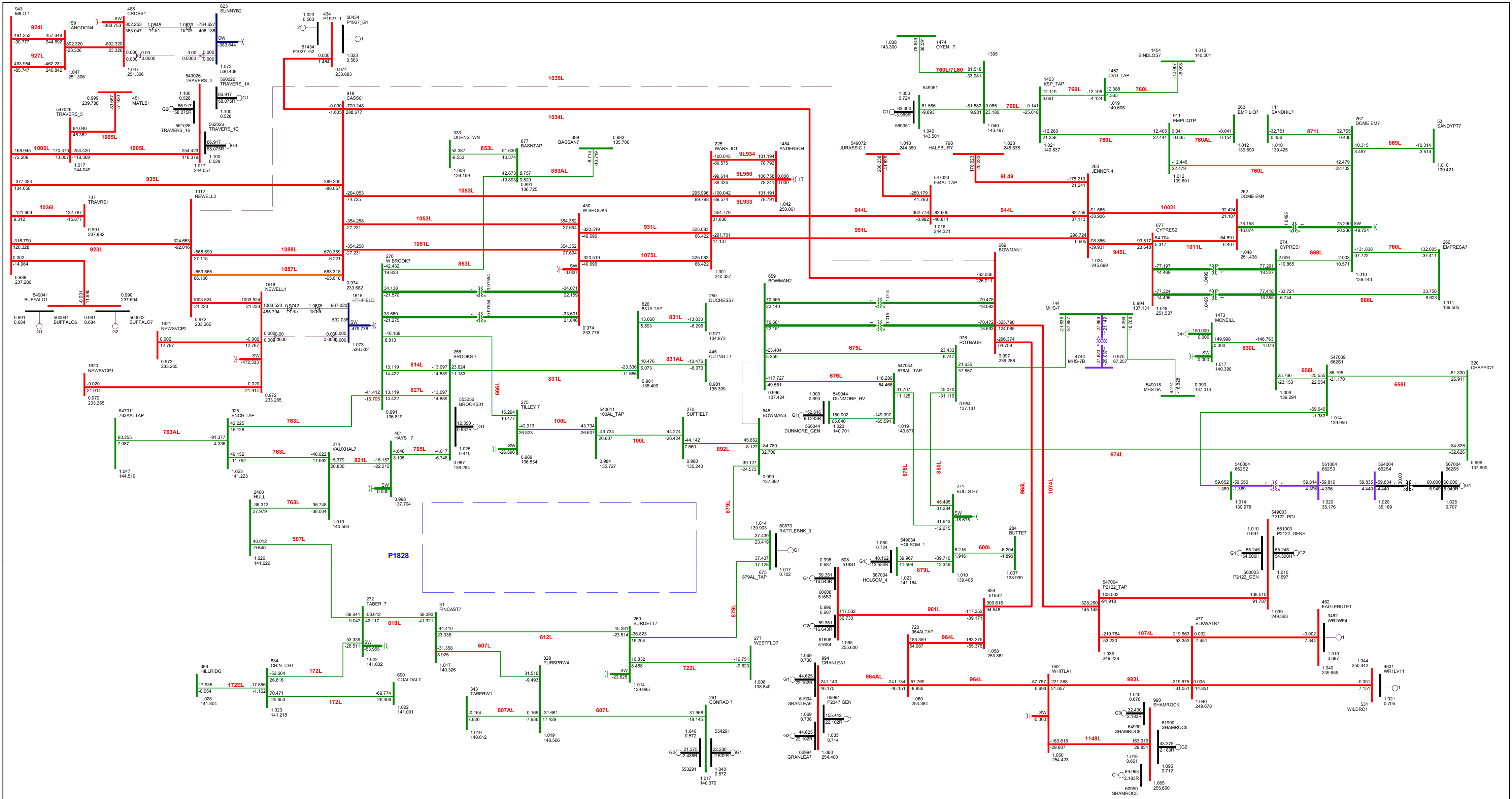
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-14-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -488.047 MW

Sask Import: -150.000 MW

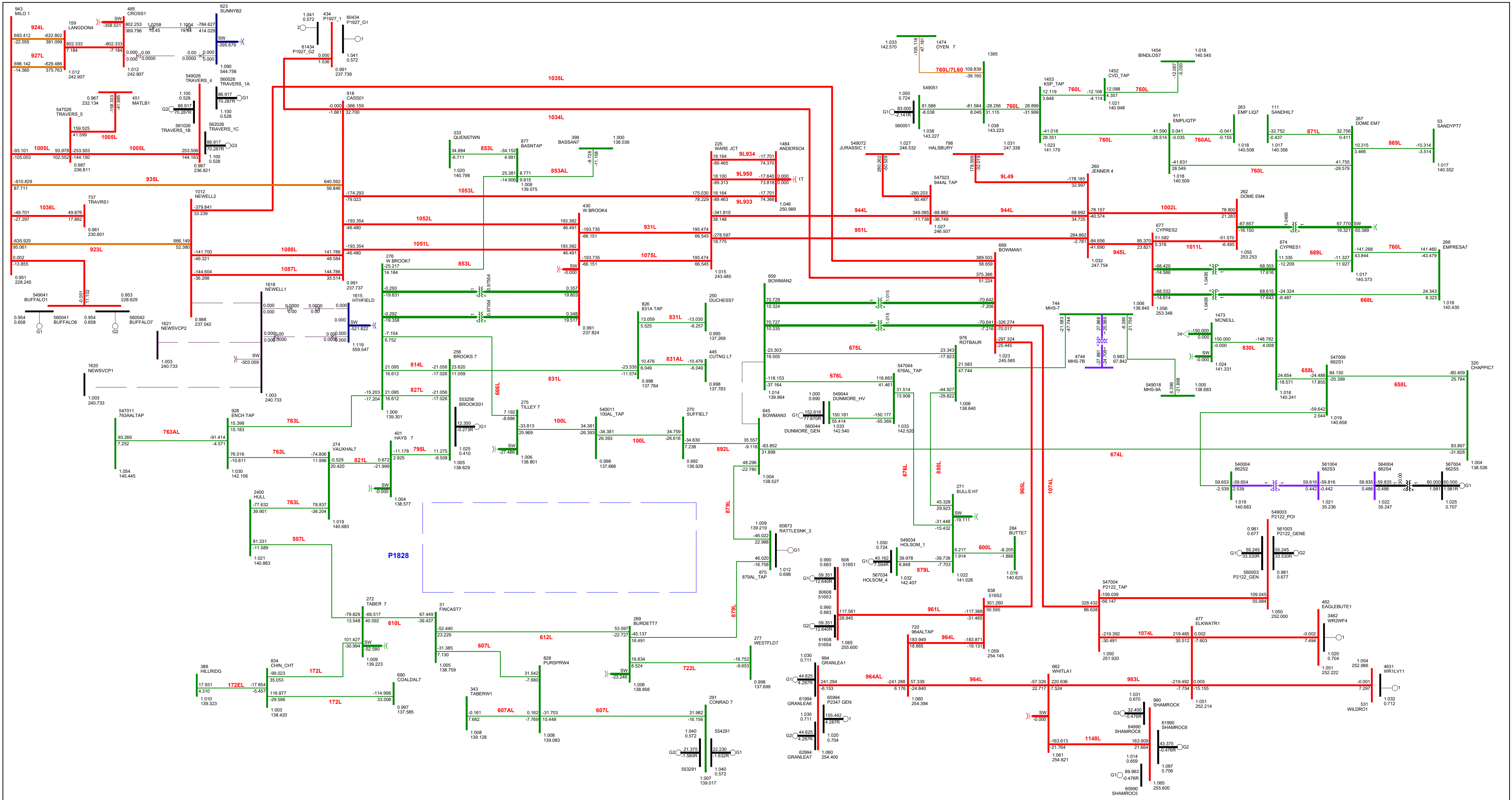
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C1-15-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -239.508 MW

Sask Import: -150.000 MW

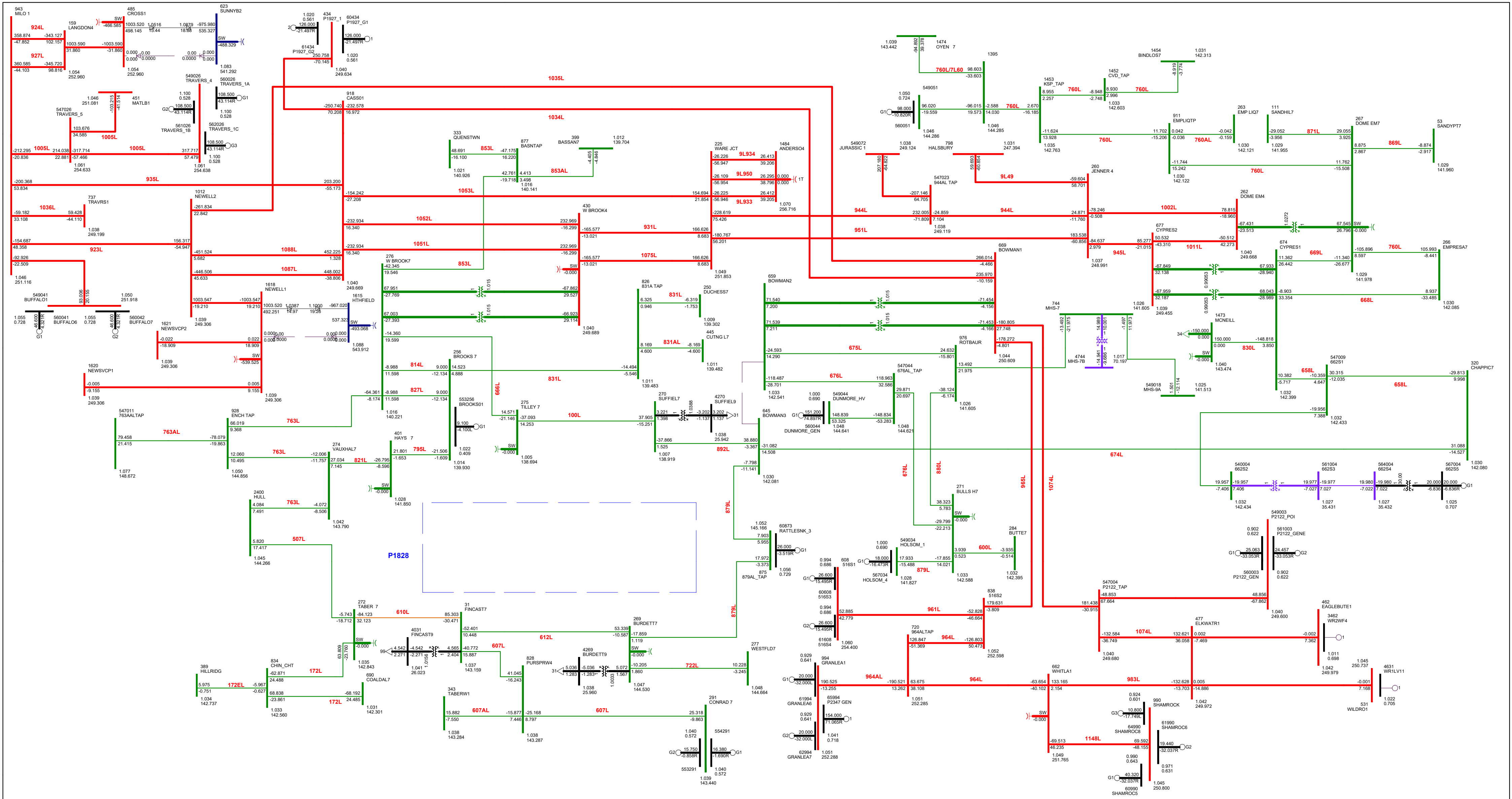
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE C1-16-N-1: EATL
2025 SUMMER PEAK - SCN 6 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 12:02

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.984 MW

Sask Import: -150.000 MW

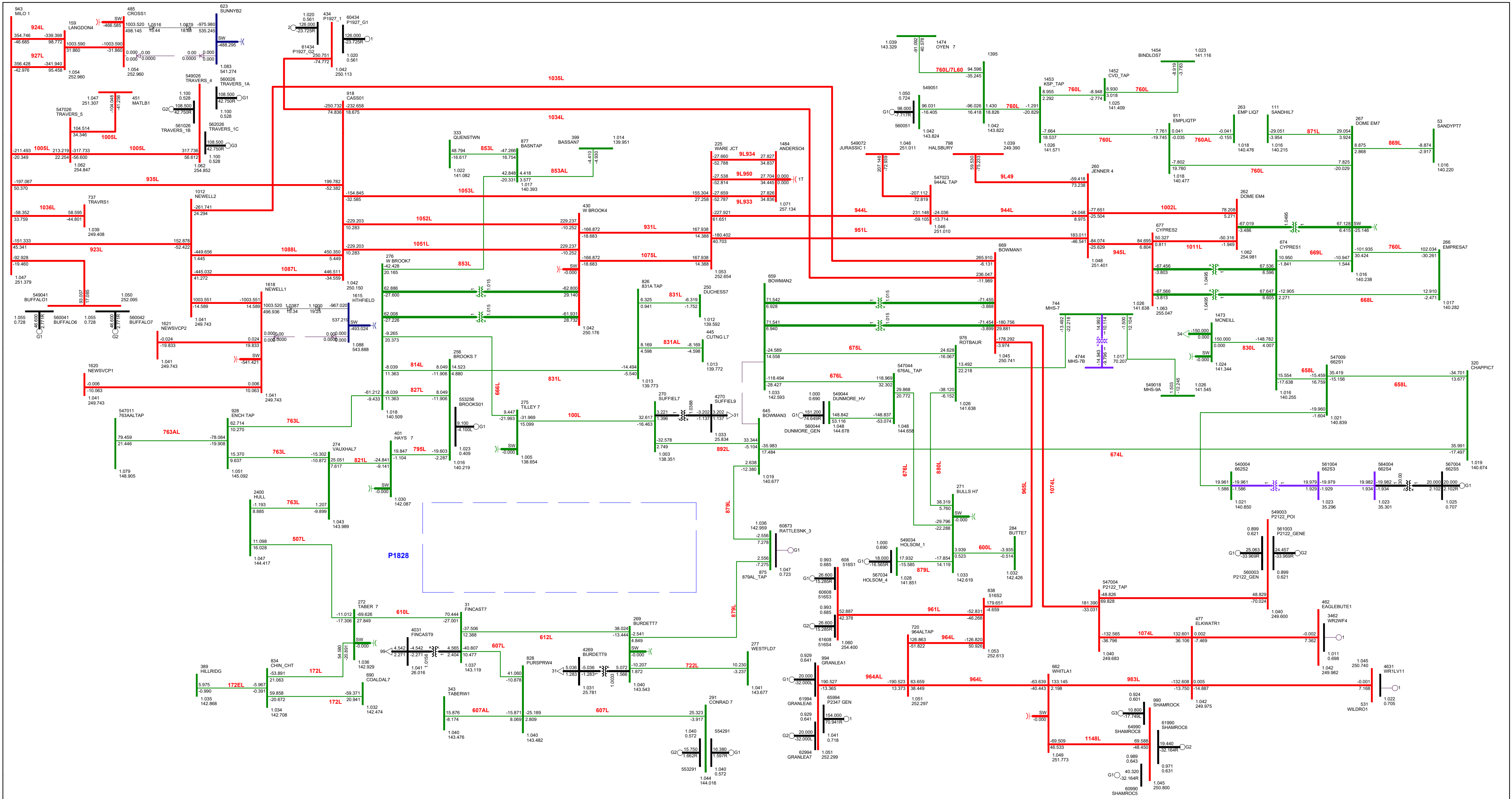
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A0-4-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
FRI, SEP 08 2023 9:41

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.146 MW

Sask Import: -150.000 MW

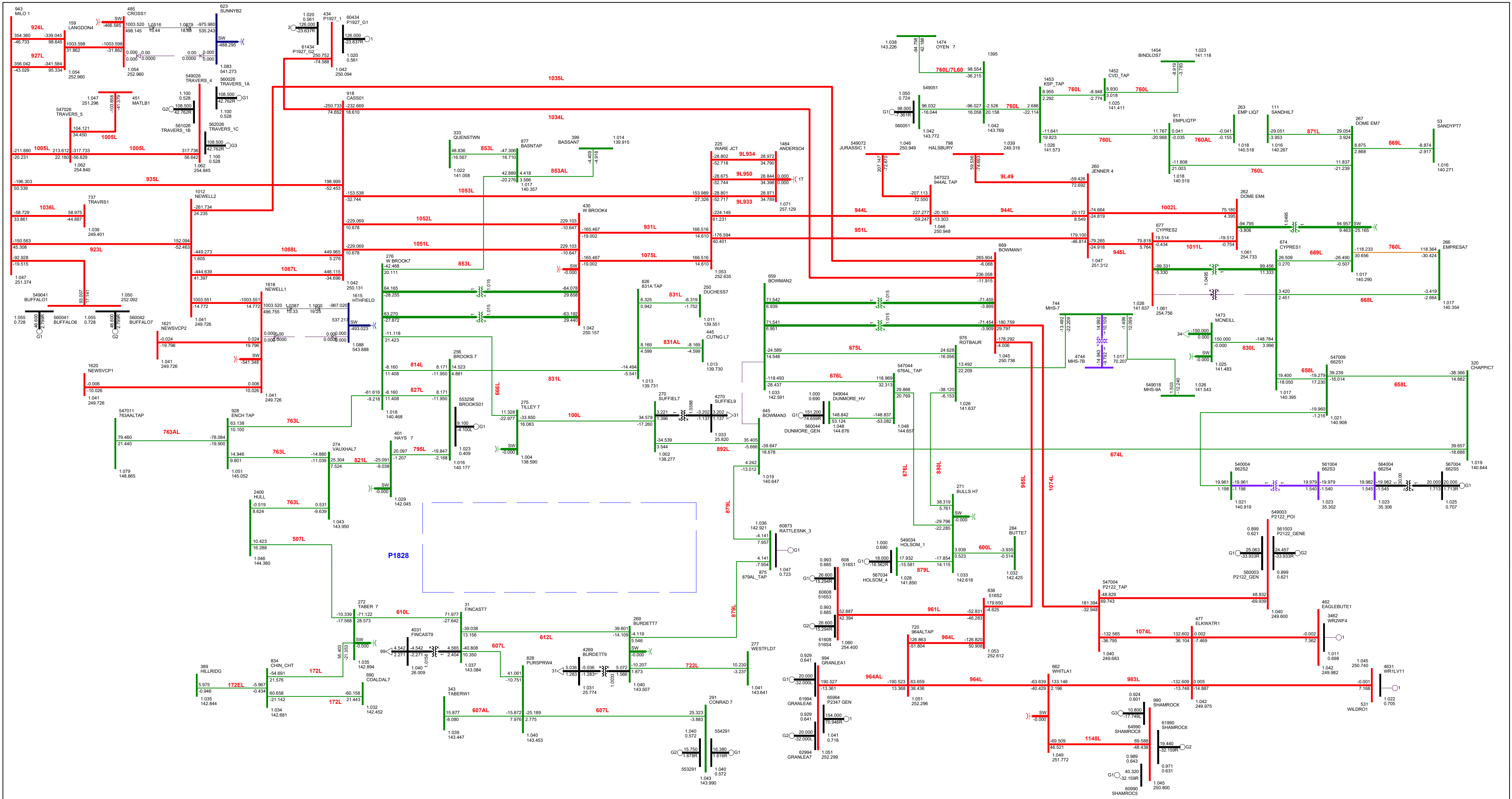
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C2-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.565 MW

Sask Import: -150.000 MW

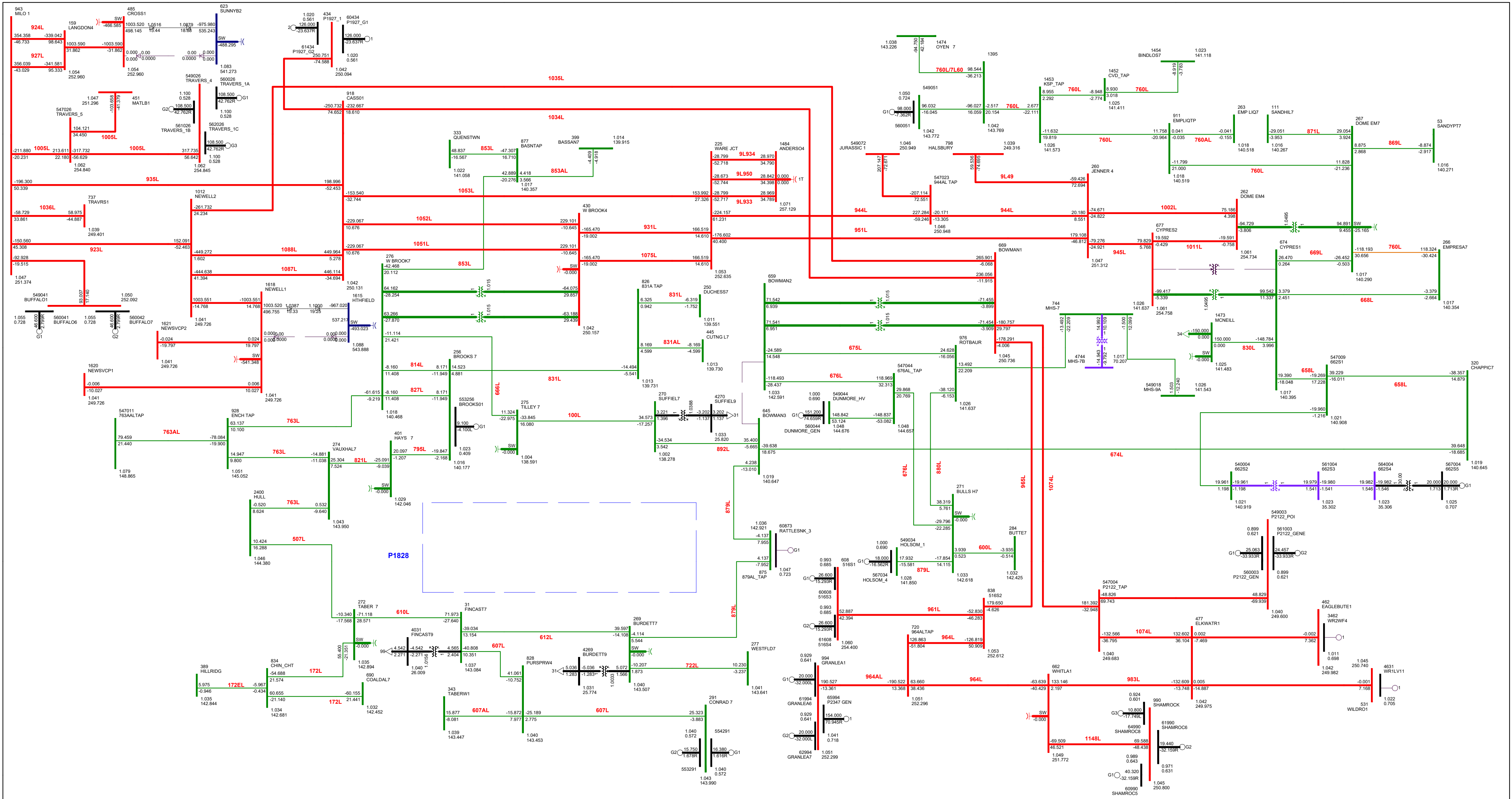
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C2-2-N-1: 562ST1 (CYPRESS 562S TRANSFORMER T1)
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.562 MW

Sask Import: -150.000 MW

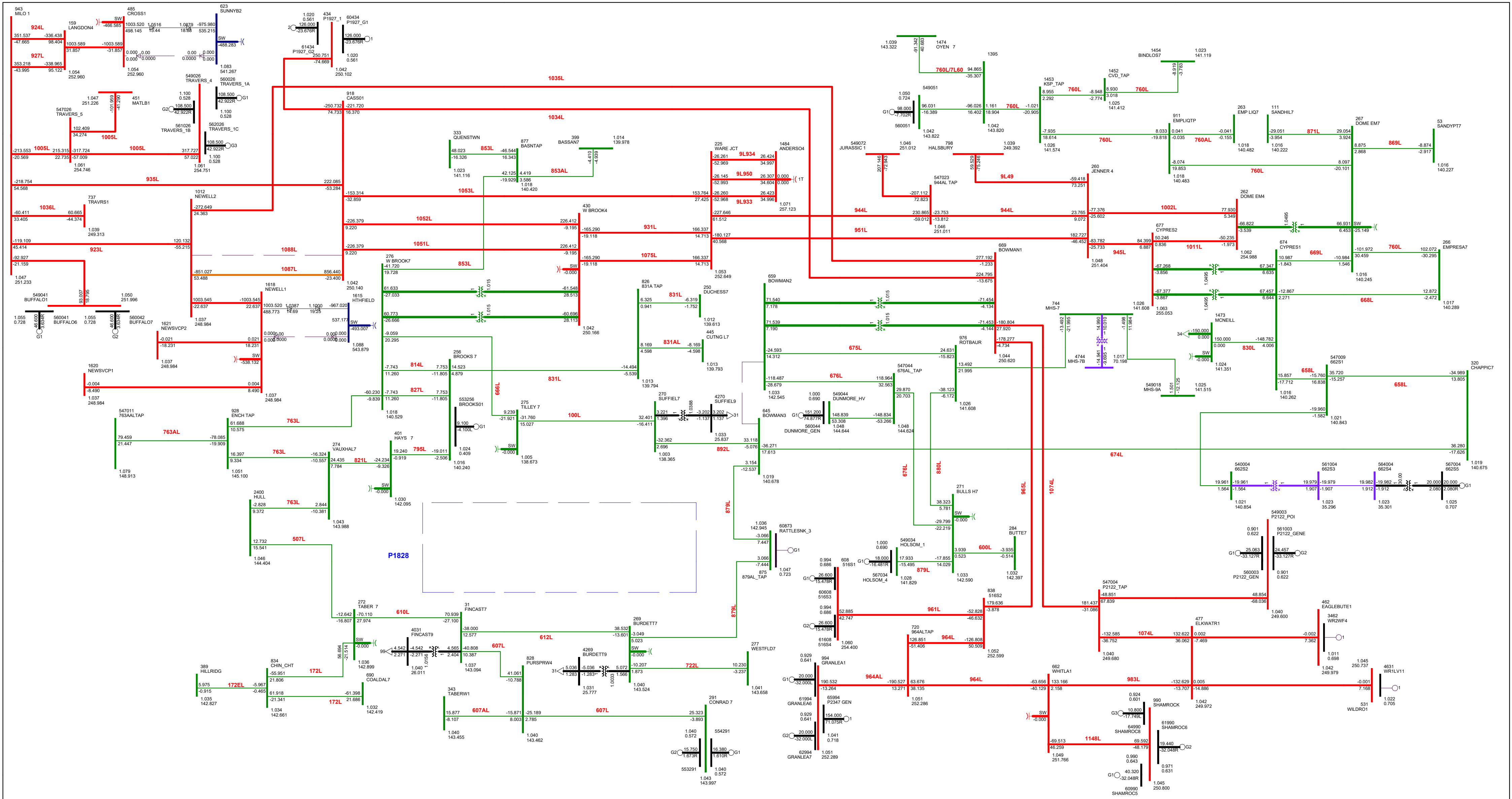
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C2-3-N-1: 562ST1 (CYPRESS 562S TRANSFORMER T2)
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.761 MW

Sask Import: -150.000 MW

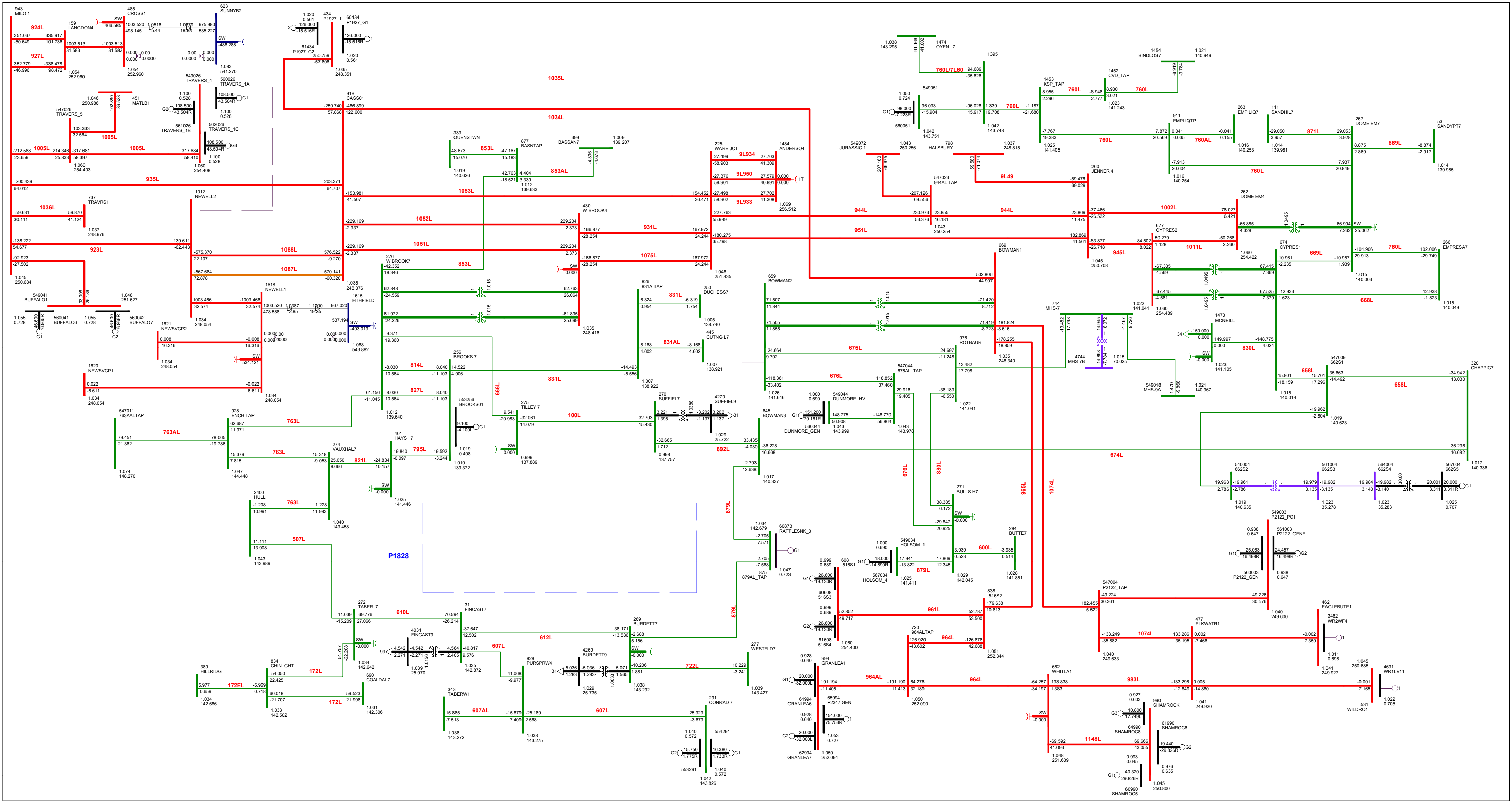
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C2-4-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -512.917 MW

Sask Import: -150.000 MW

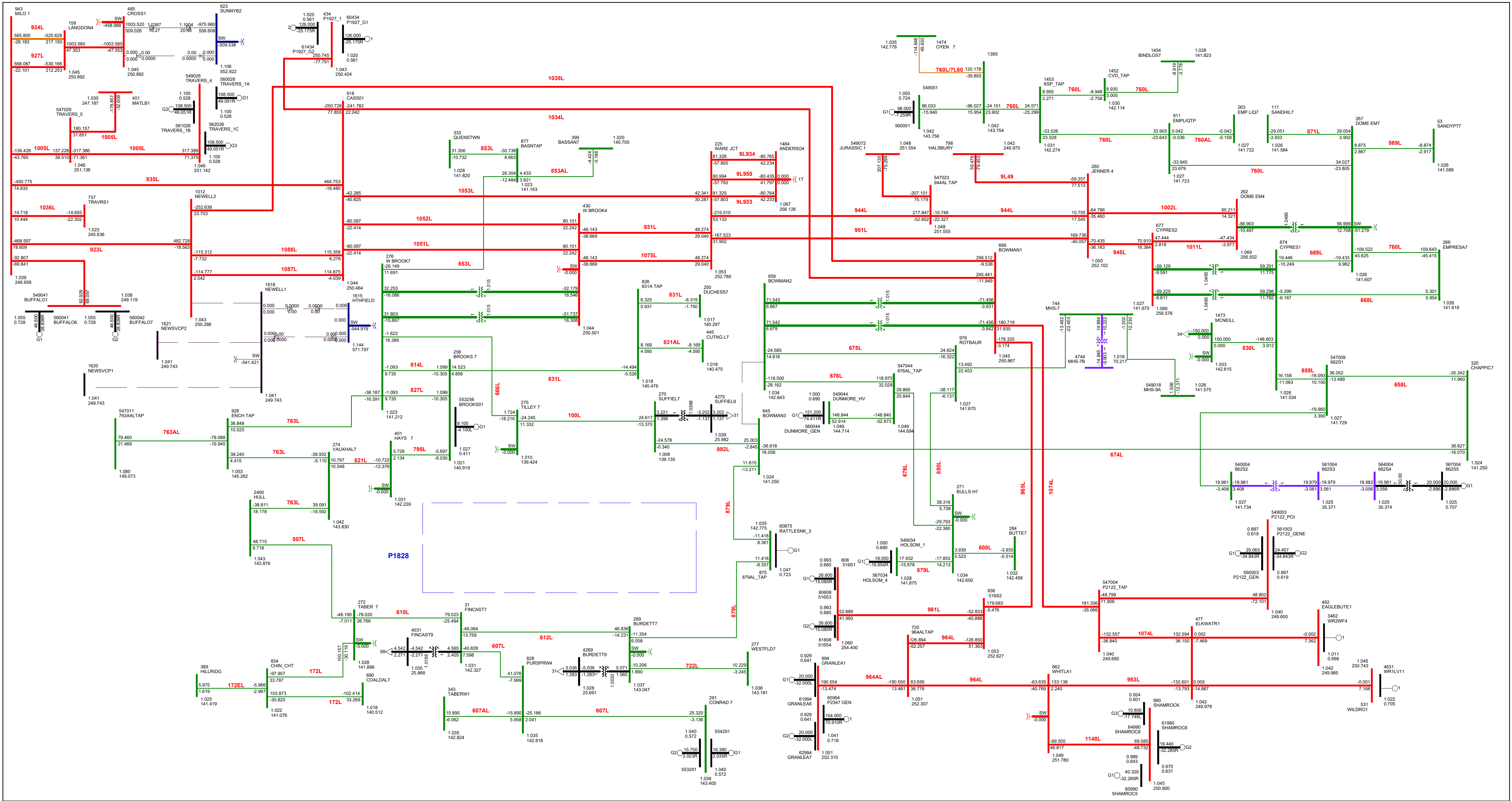
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C2-5-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -408.405 MW

Sask Import: -150.000 MW

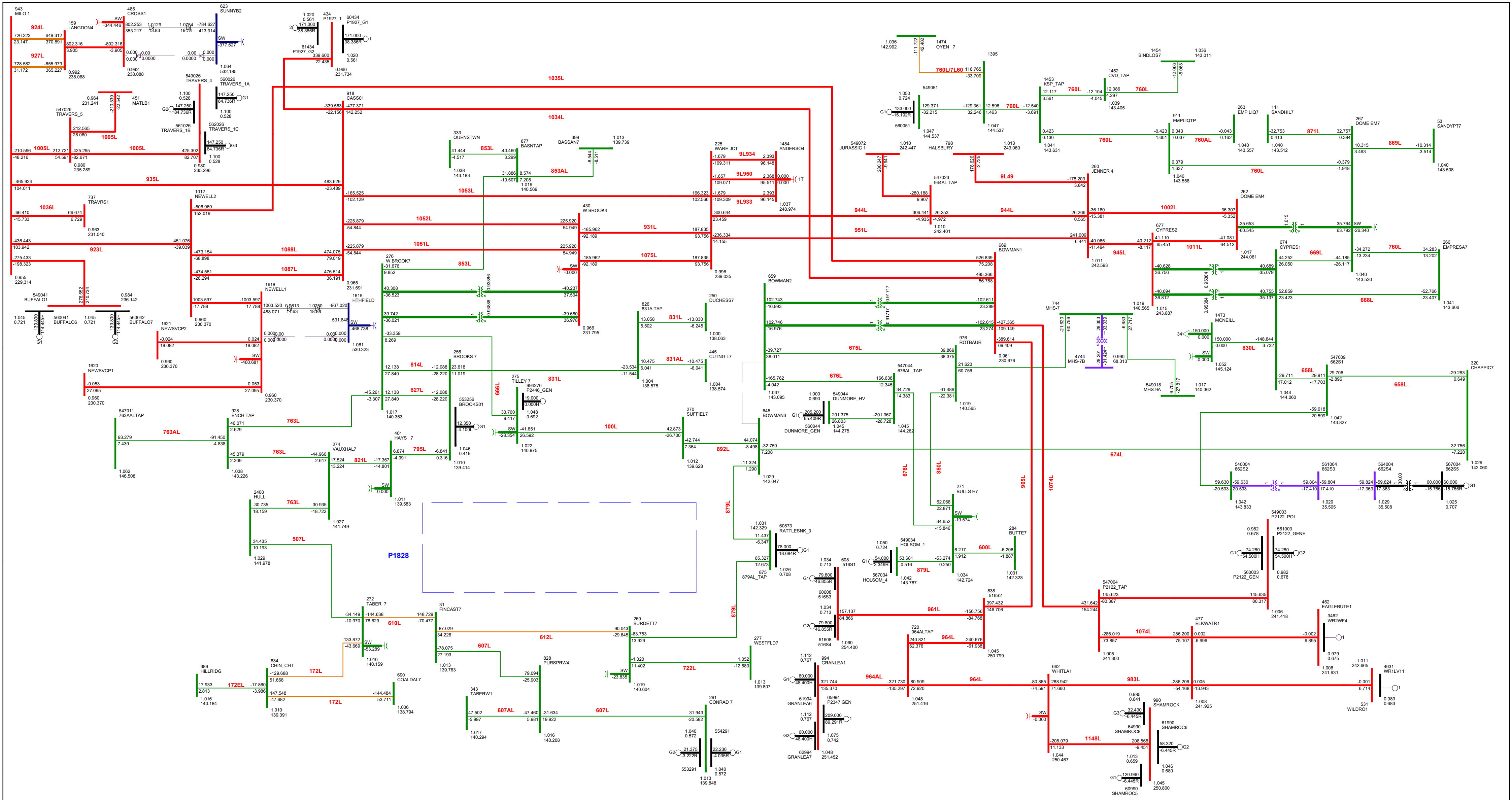
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE C2-6-N-1: EATL
2025 SUMMER LIGHT - SCN 7 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 12:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

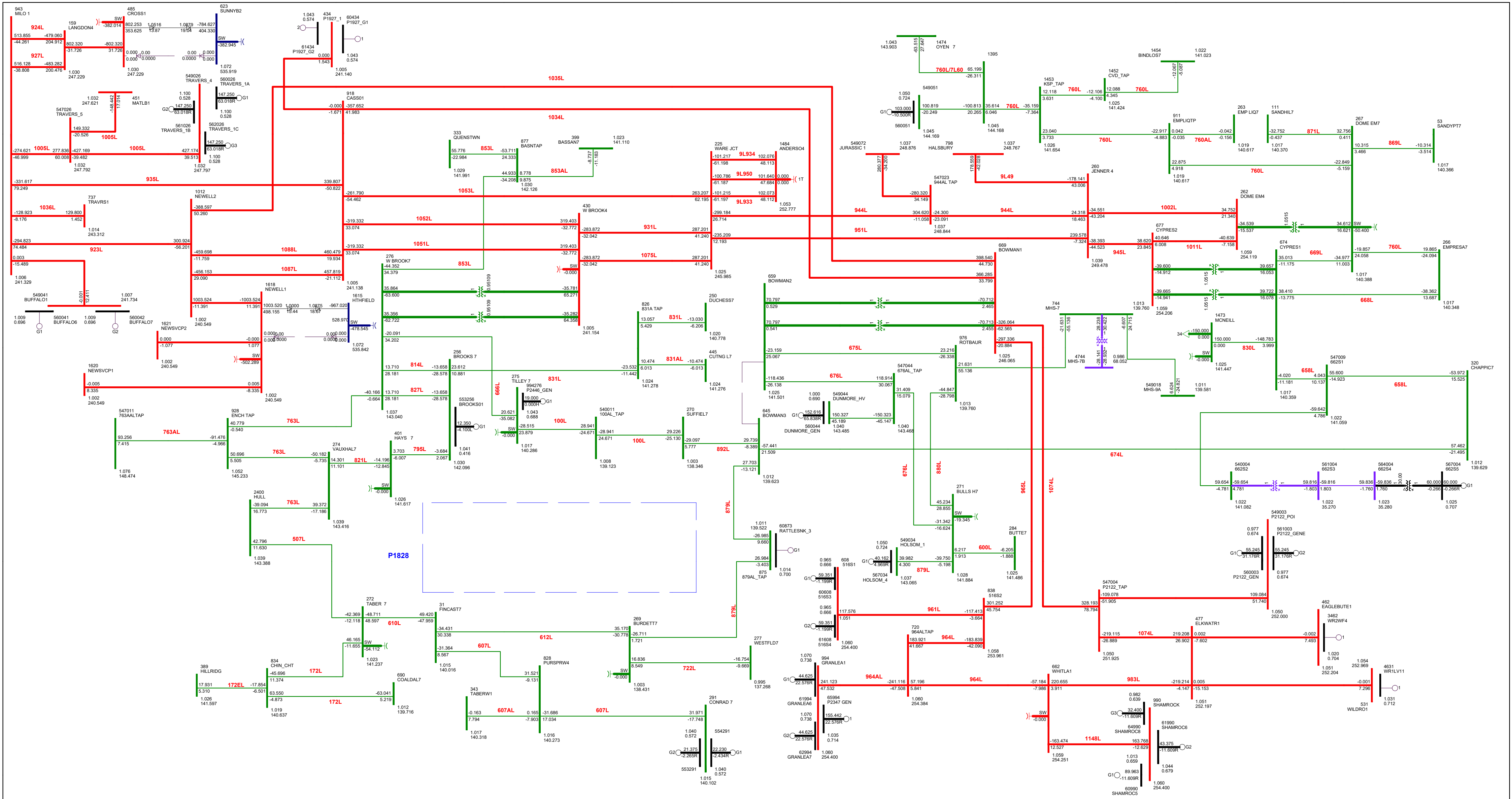
BC Import: -516.568 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE A0-5-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
FRI, SEP 08 2023 9:54

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

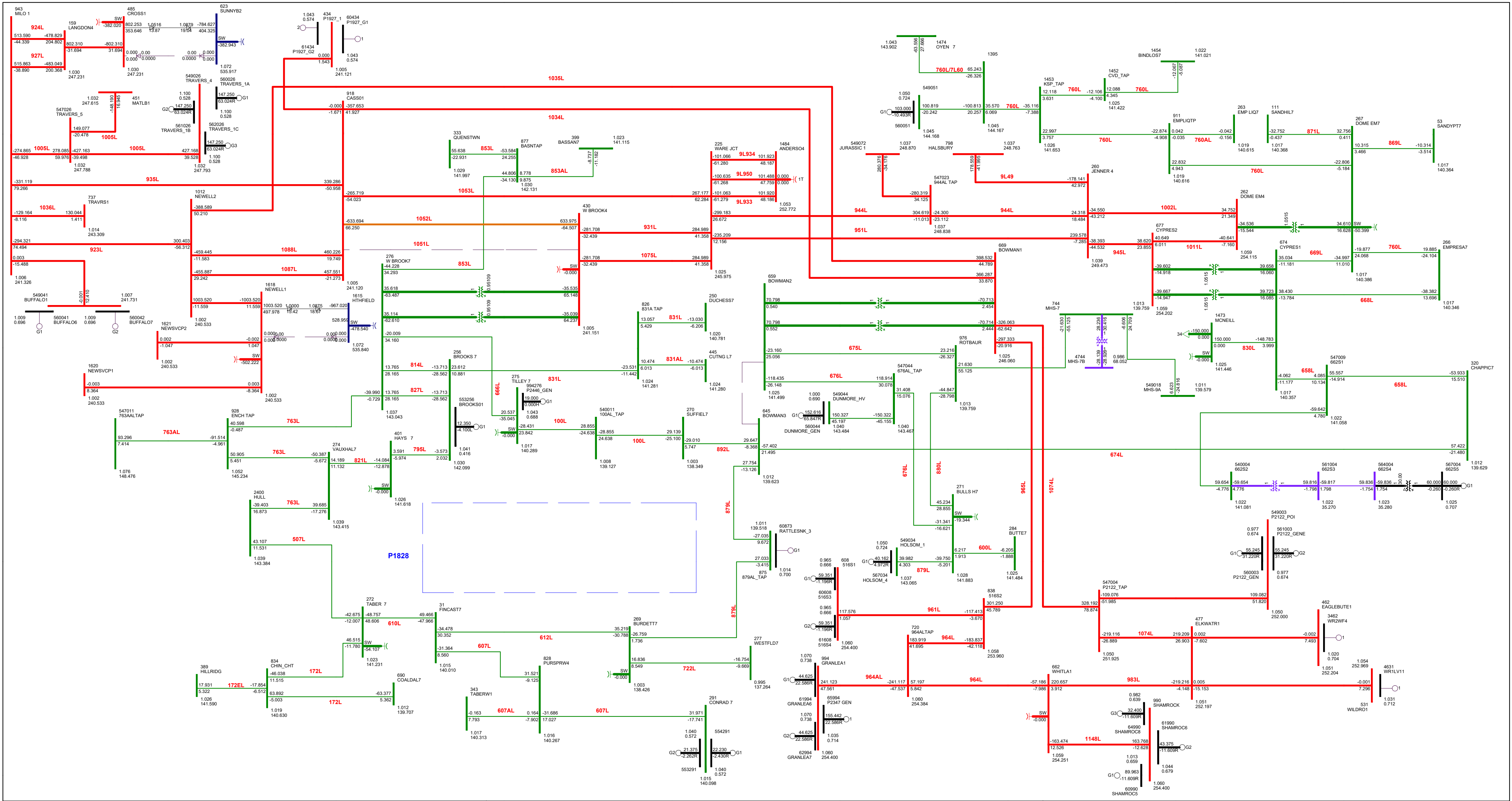
BC Import: -518.879 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE C3-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:29

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.770 MW

Sask Import: -150.000 MW

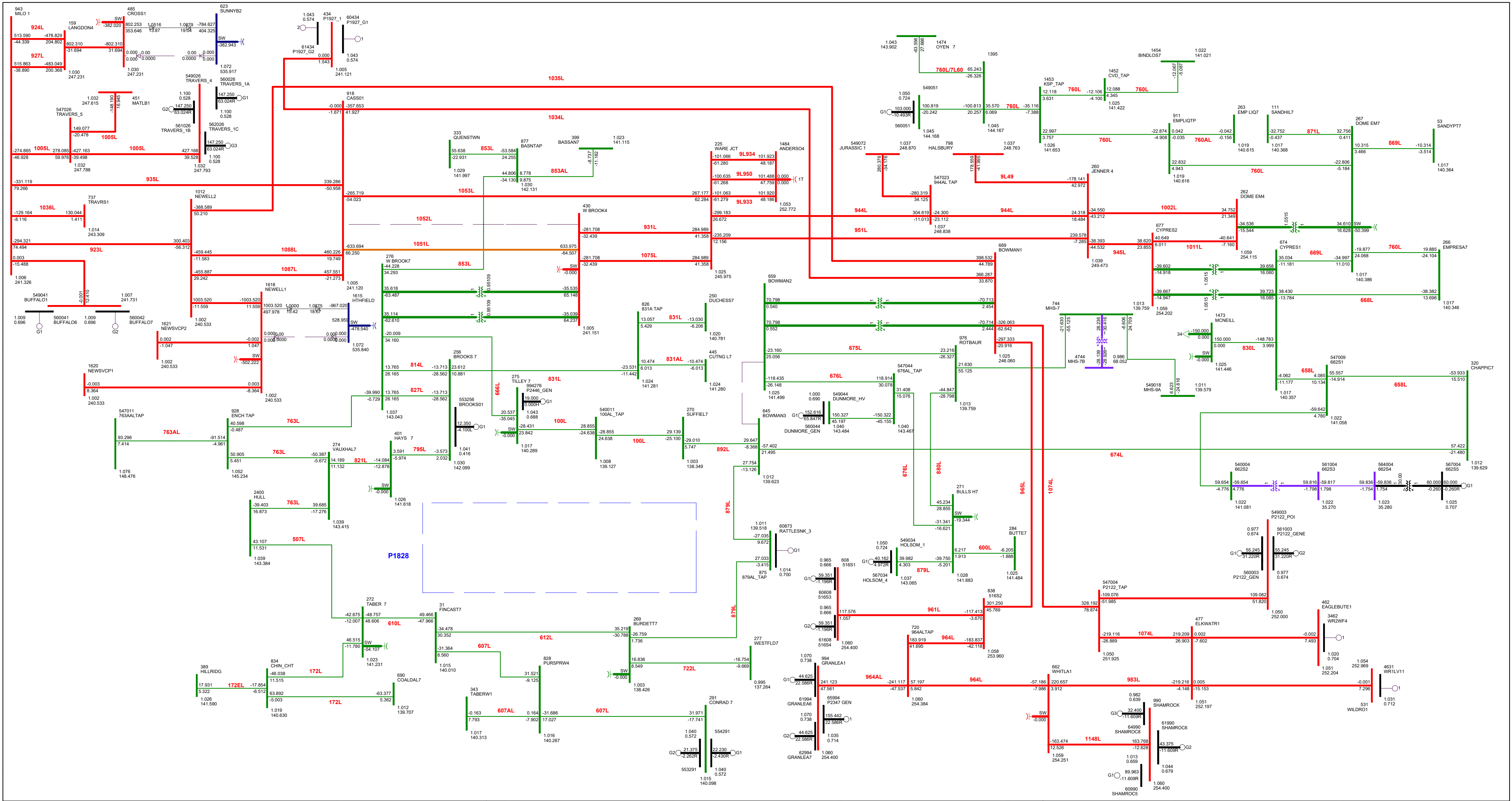
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-2-N-1: 1051L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:29

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.770 MW

Sask Import: -150.000 MW

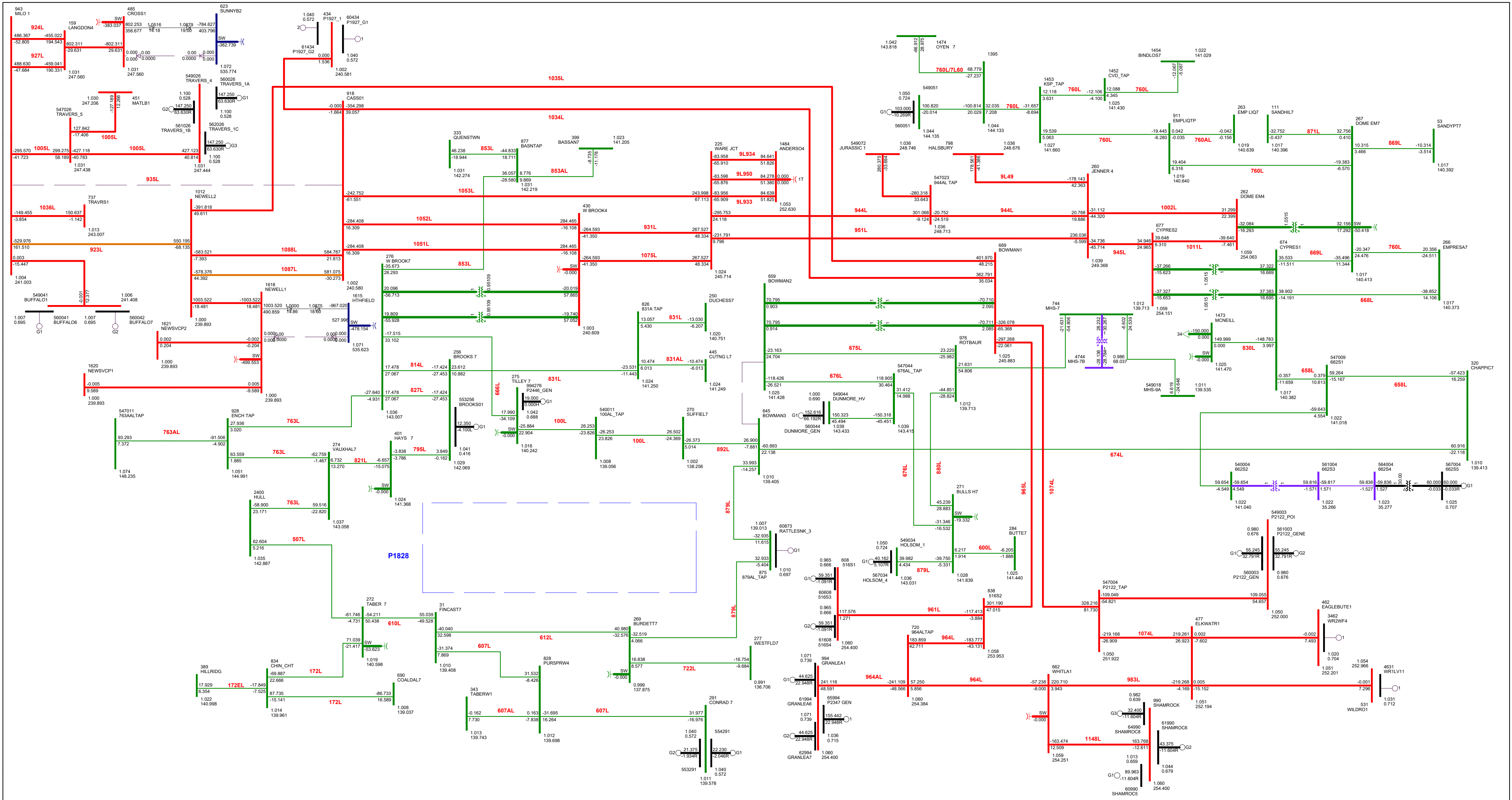
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-3-N-1: 1052L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:29

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -500.673 MW

Sask Import: -150.000 MW

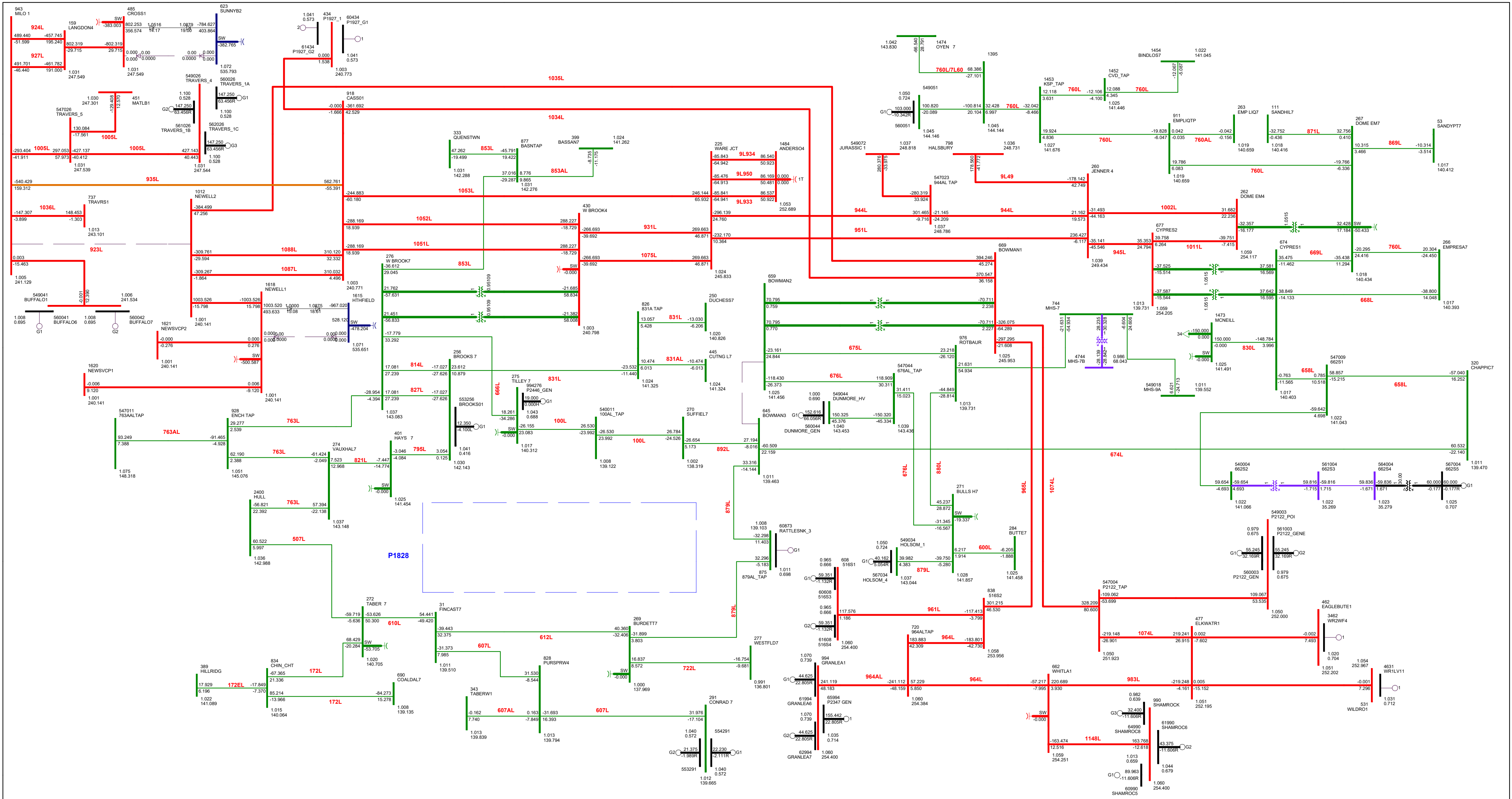
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-4-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:29

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -502.882 MW

Sask Import: -150.000 MW

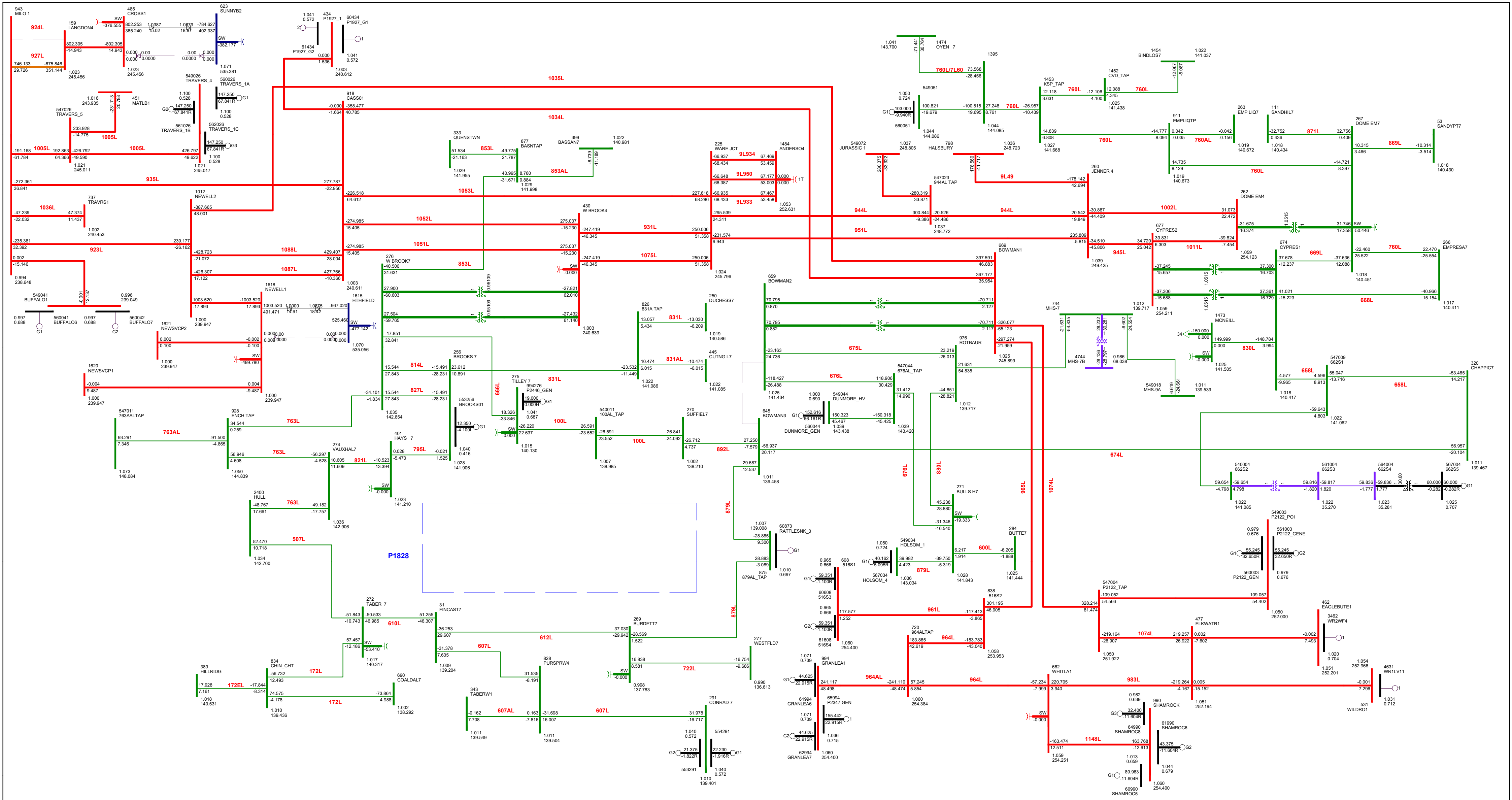
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-5-N-1: 923L(MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:29

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -469.009 MW

Sask Import: -150.000 MW

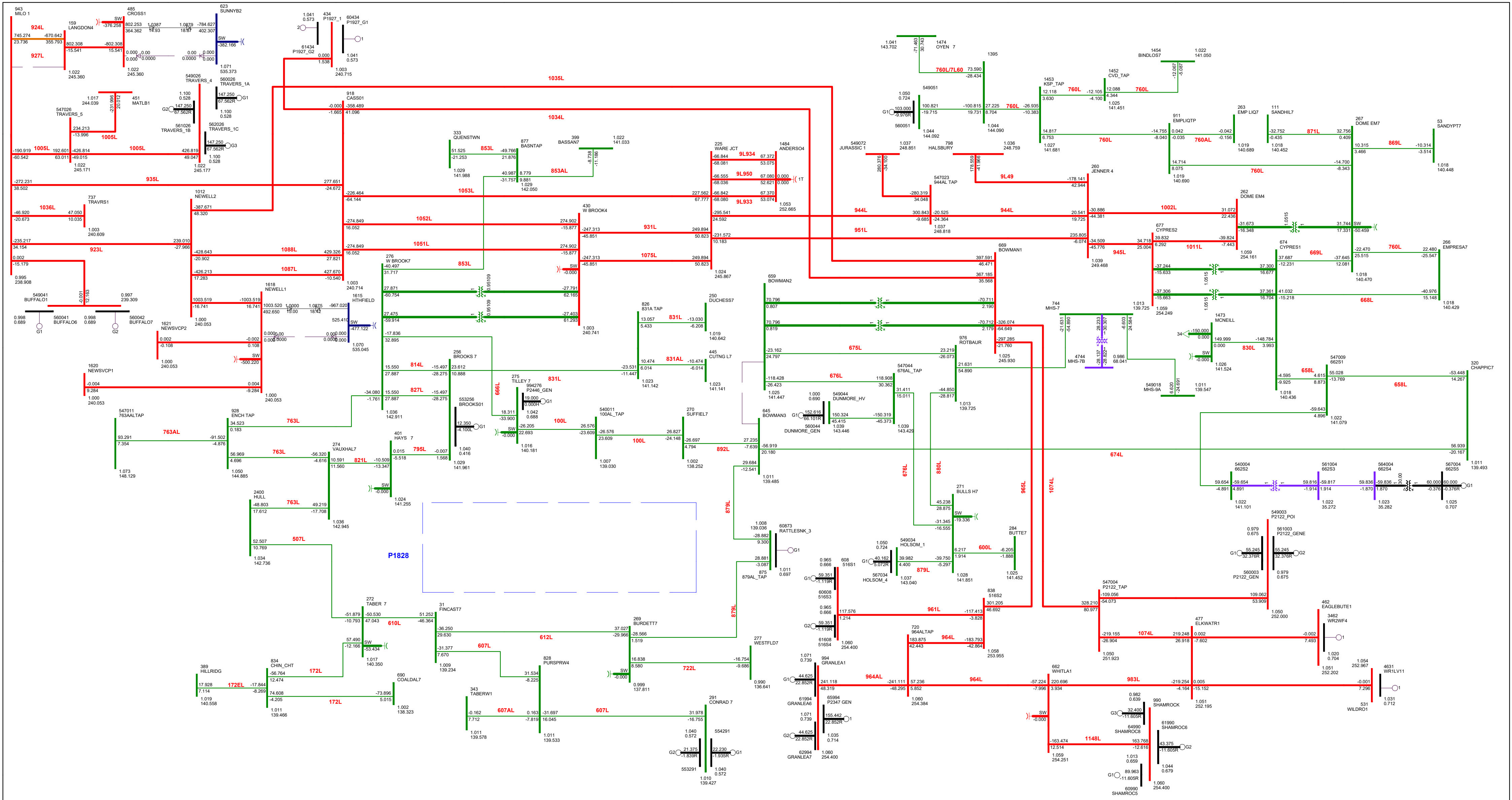
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-6-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -464.635 MW

Sask Import: -150.000 MW

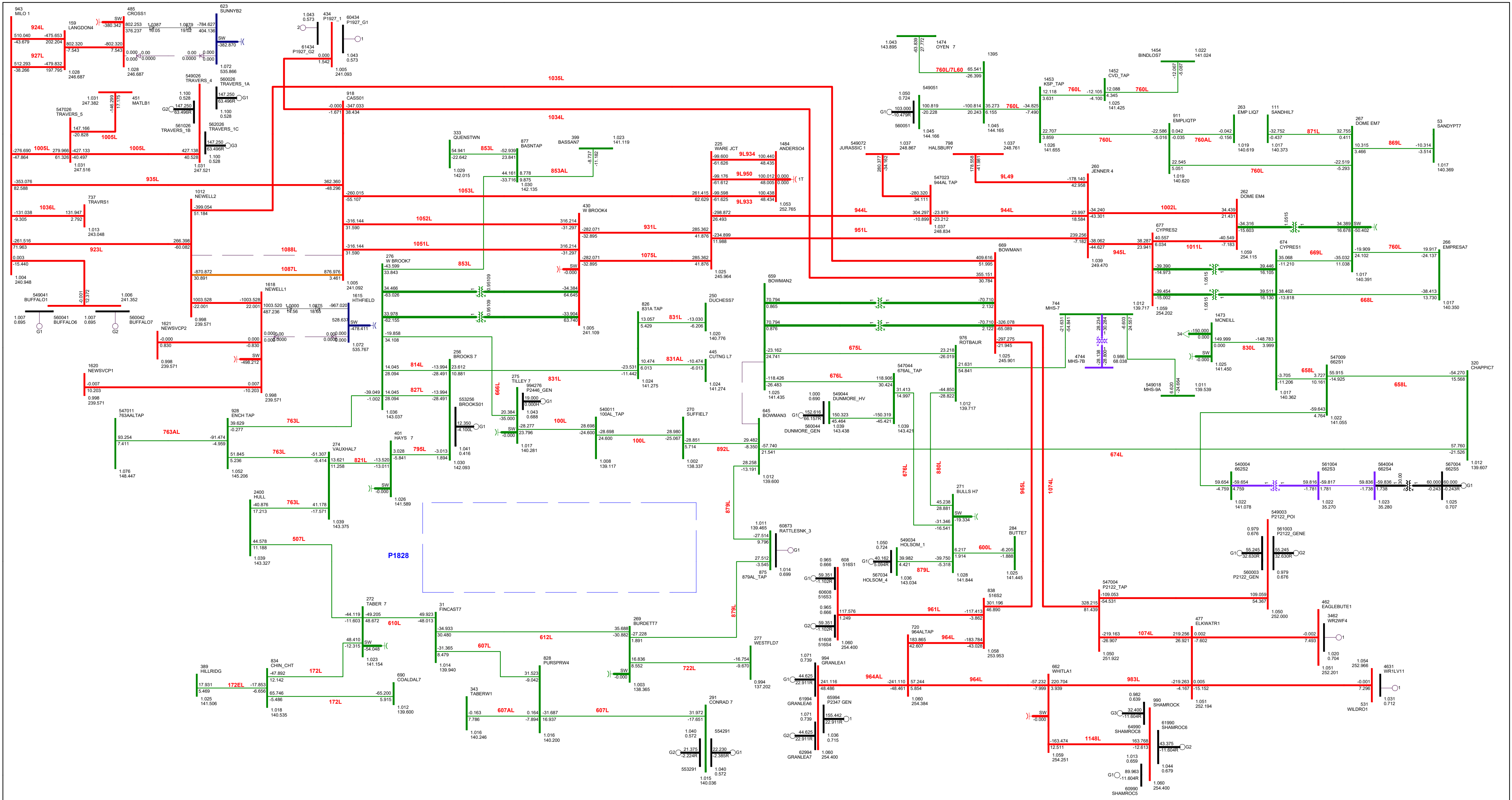
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-7-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -514.360 MW

Sask Import: -150.000 MW

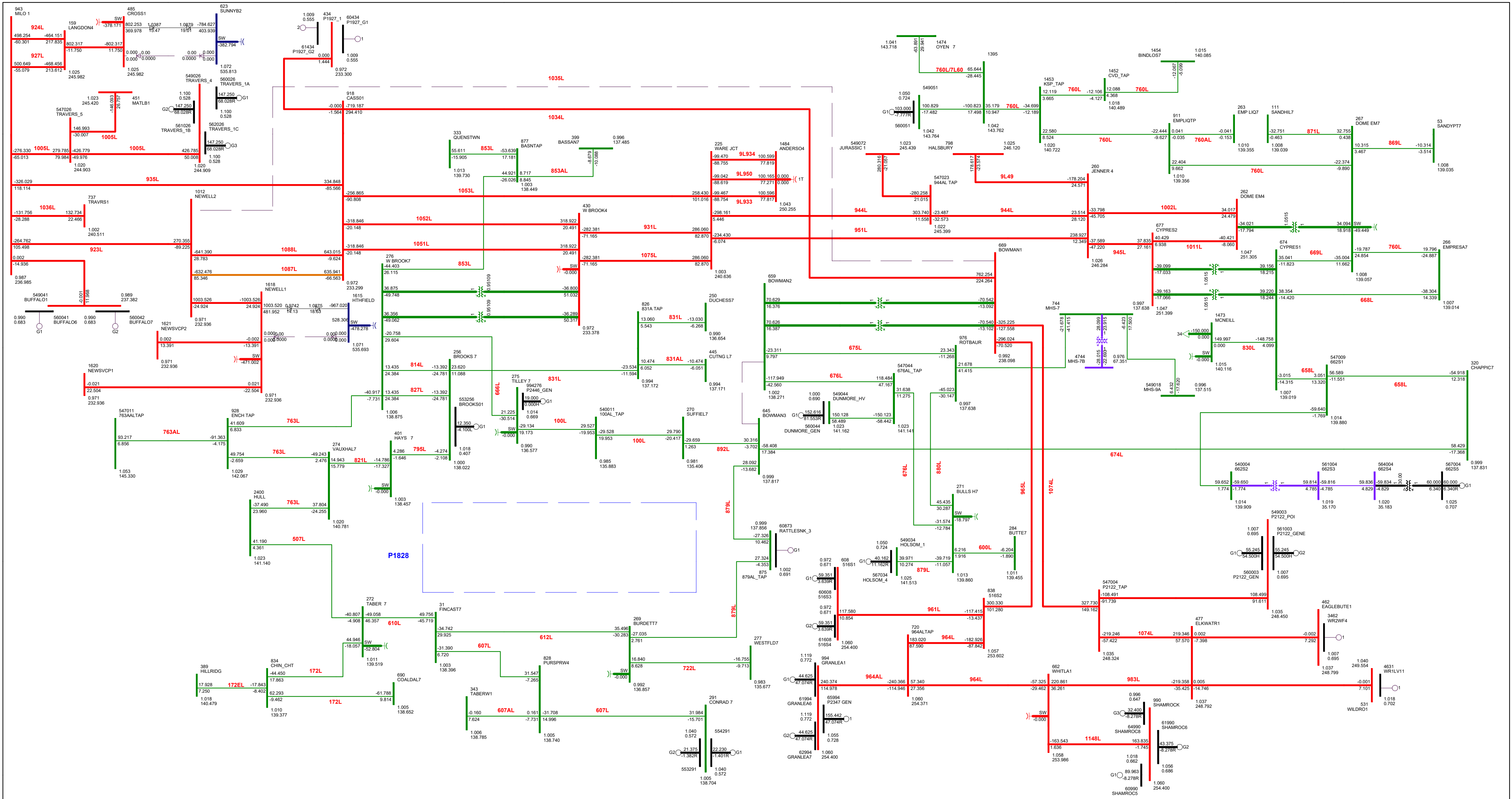
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-8-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -486.695 MW

Sask Import: -150.000 MW

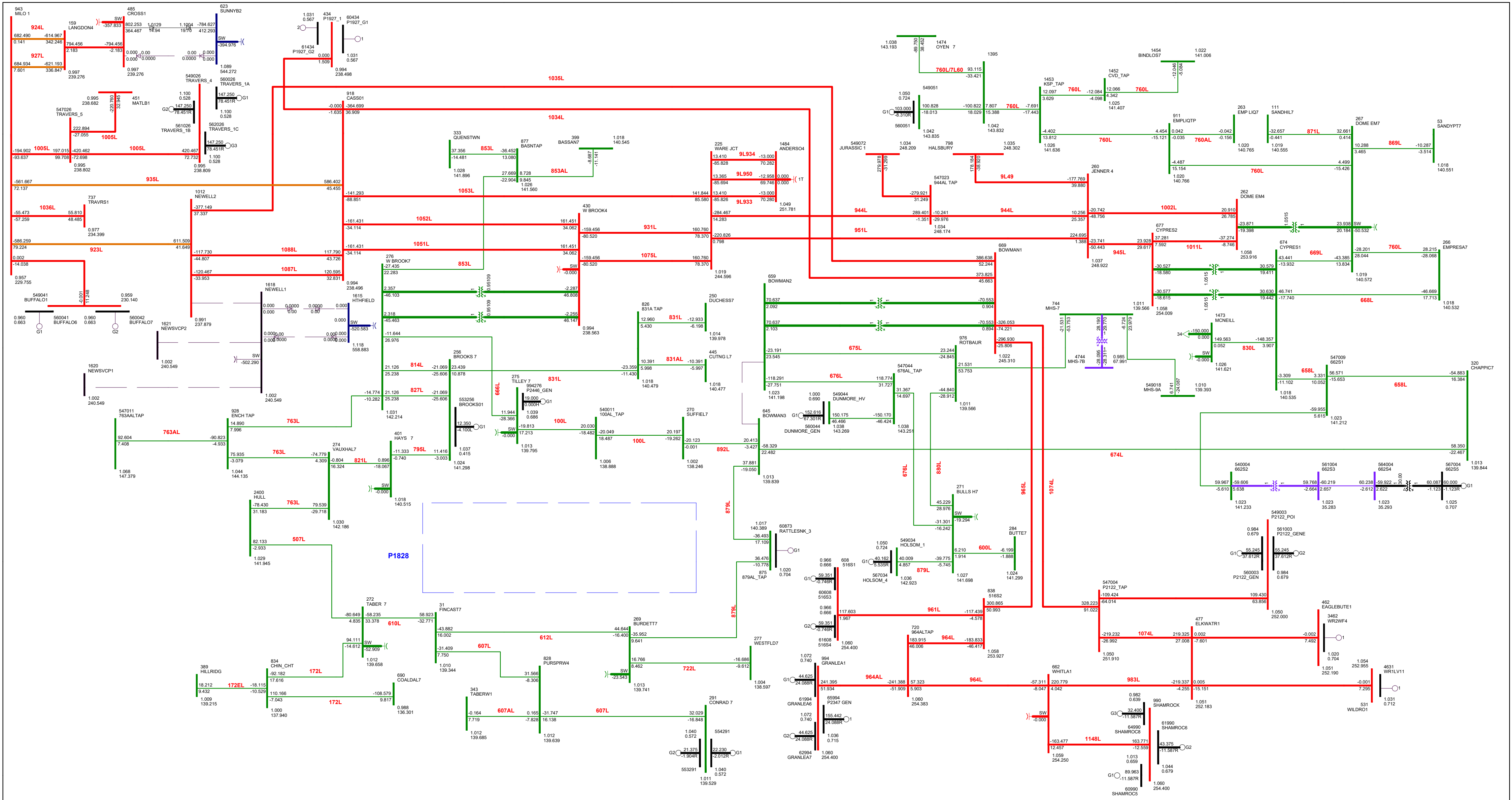
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C3-9-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -241.778 MW

Sask Import: -150.000 MW

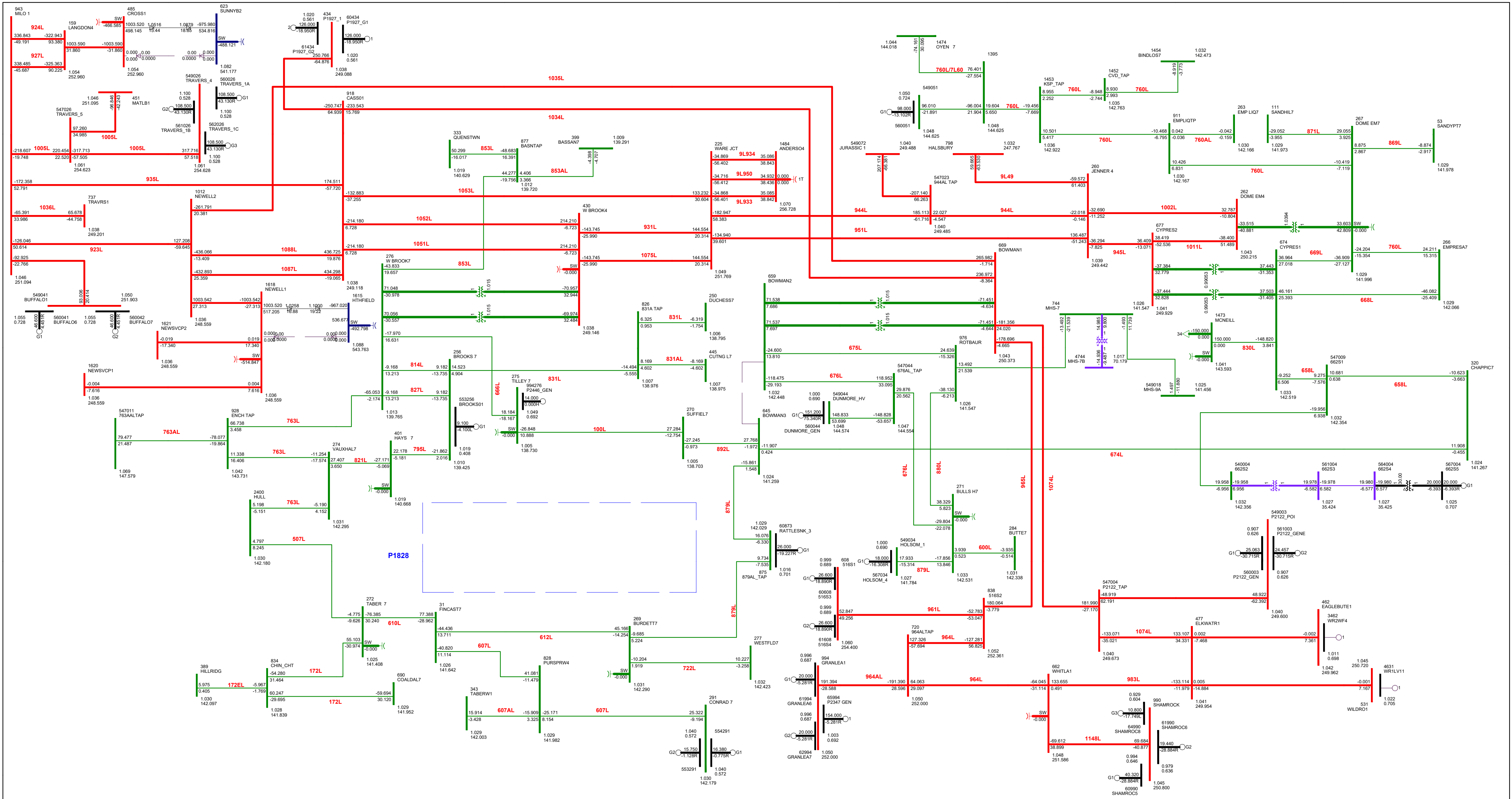
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE C3-10-N-1: EATL
2025 SUMMER PEAK - SCN 10 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 12:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.065 MW

Sask Import: -150.000 MW

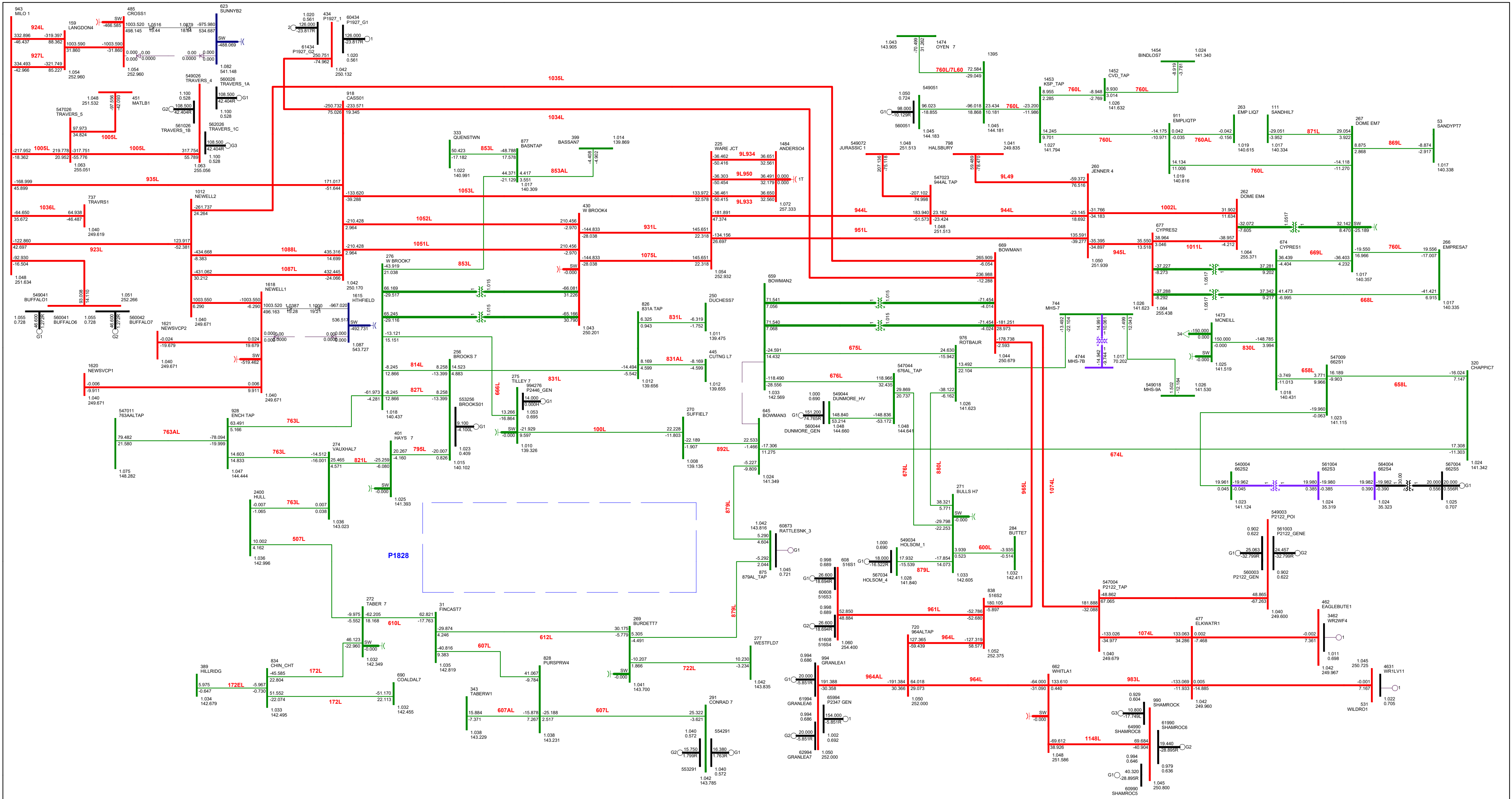
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE A0-6-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 11 (PRE SENSITIVITY PROJECT)
FRI, SEP 08 2023 09:56

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.224 MW

Sask Import: -150.000 MW

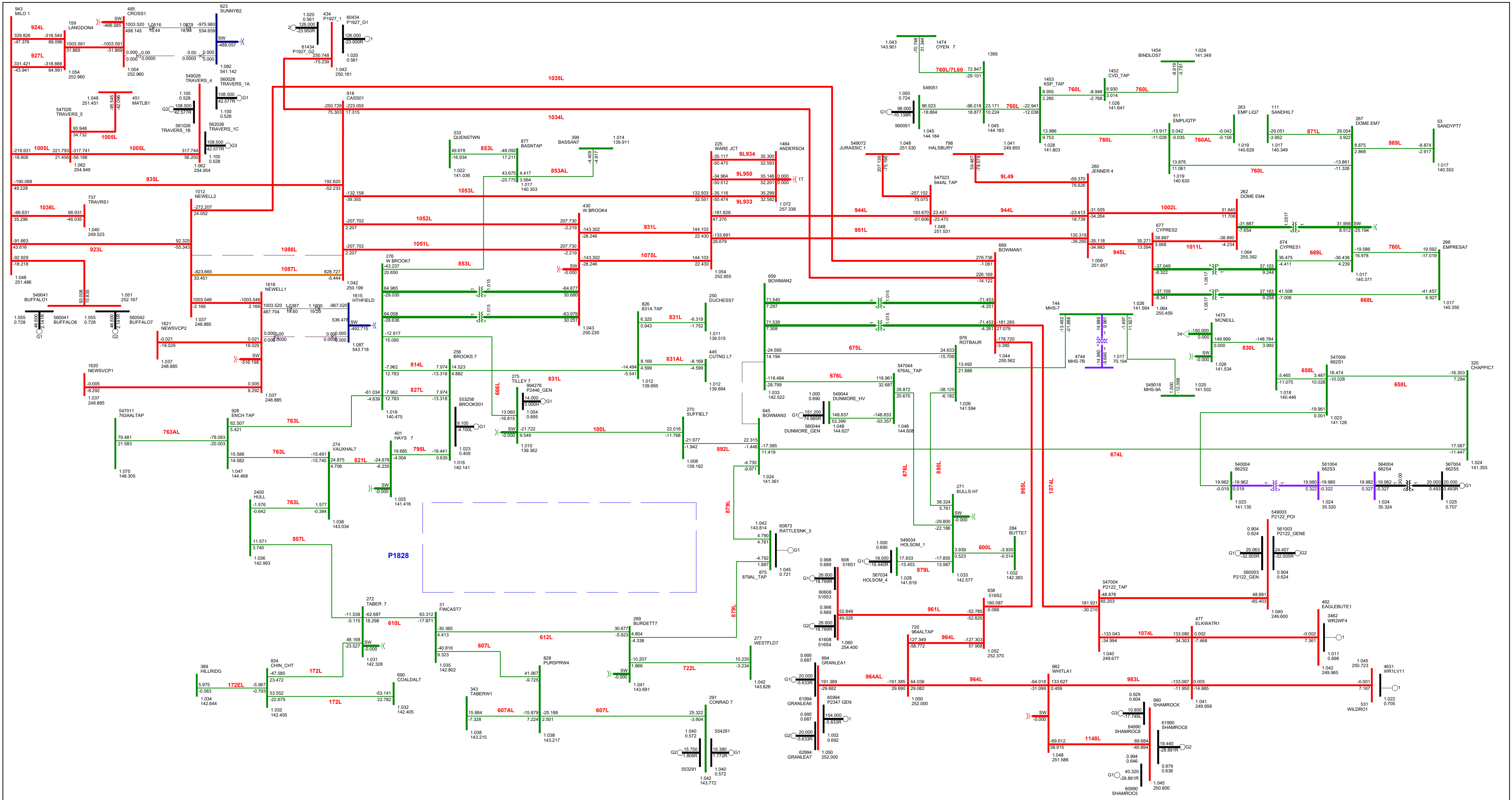
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE C4-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 11 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:35

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.054 MW

Sask Import: -150.000 MW

EATL: -1000.000 MW

WATL: -800.000 MW

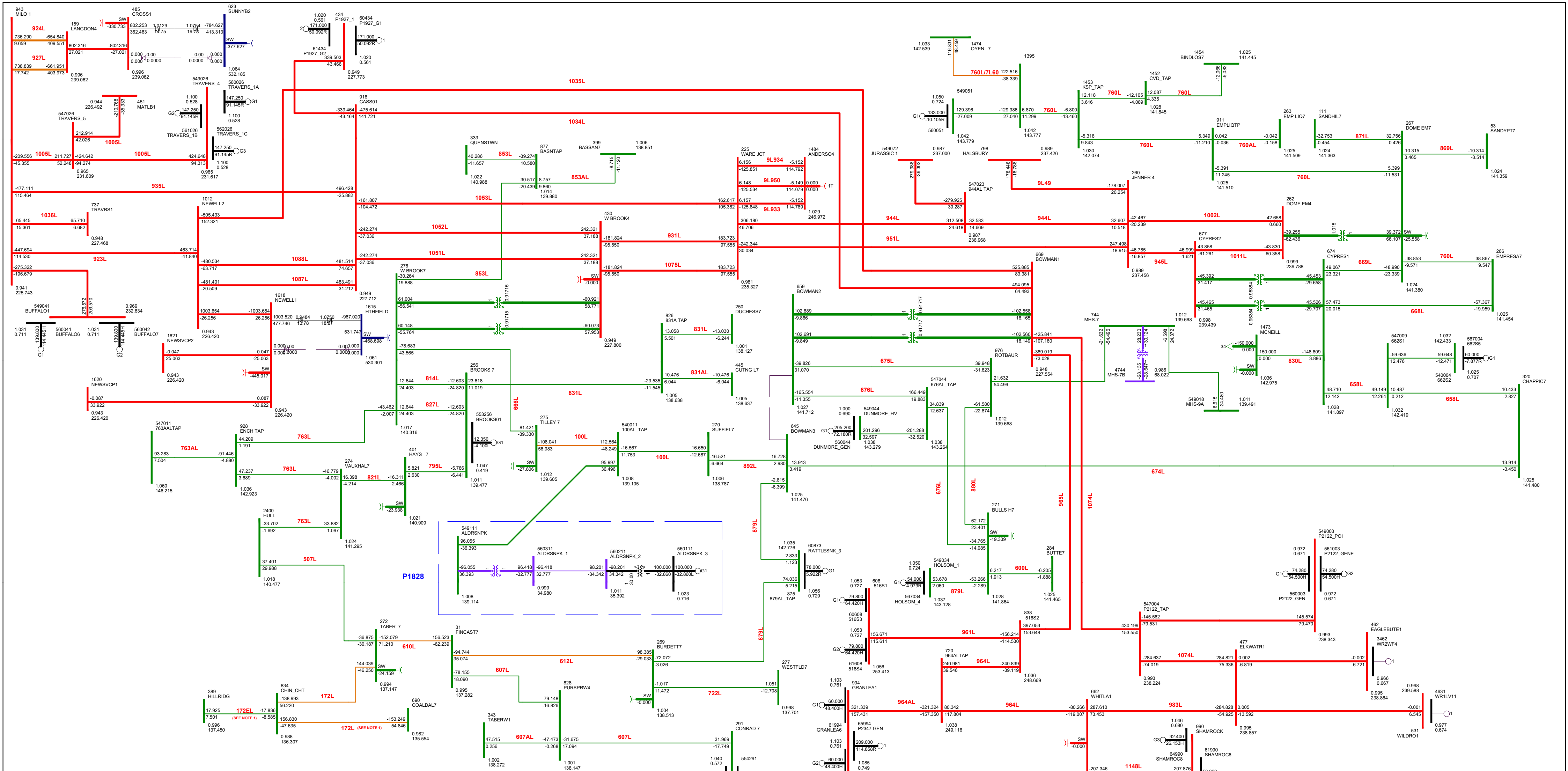
FIGURE C4-2-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 11 (PRE SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:35

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000

Attachment C: Pre-Project Transient Stability Diagrams (Scenarios 1 to 2)- Not Required

Attachment D: Post-Project Power Flow Diagrams (Scenarios 3 to 4, 8 to 9, 12 to 13)



DRAWING NOTE:

1) These portions of 172L and 172EL are outside of the study area. Provided for reference only. Typical for all proceeding .SLDs in this appendix.

P1828 HEP Alderson Solar Project

BC Import: -516.398 MW

Sask Import: -150.000 MW

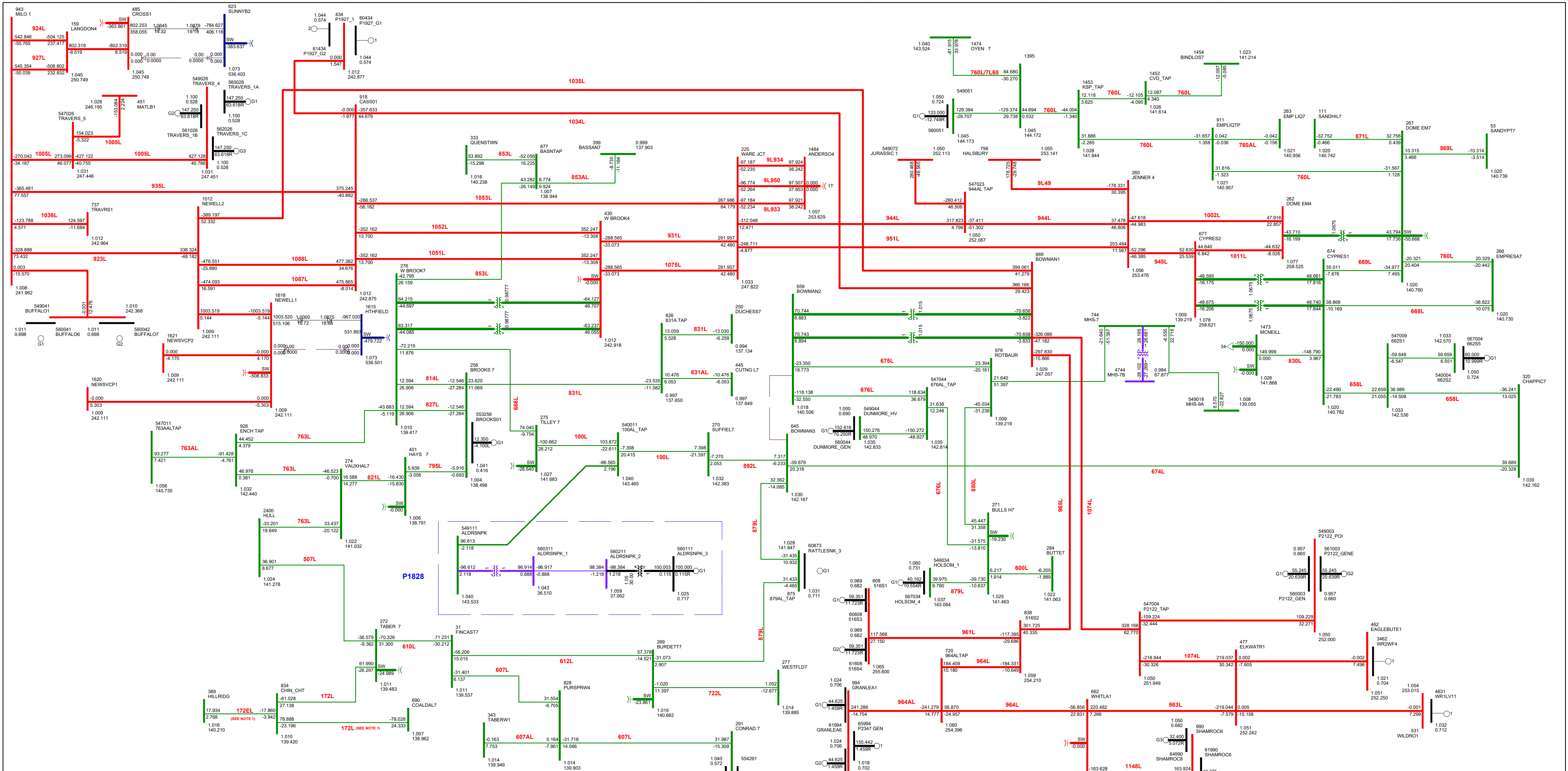
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B0-1-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
FRI, SEP 08 2023 10:28

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



DRAWING NOTE:

1) These portions of 172L and 172EL are outside of the study area. Provided for reference only. Typical for all proceeding .SLDs in this appendix.

P1828 HEP Alderson Solar Project

BC Import: -592.579 MW

Sask Import: -150.000 MW

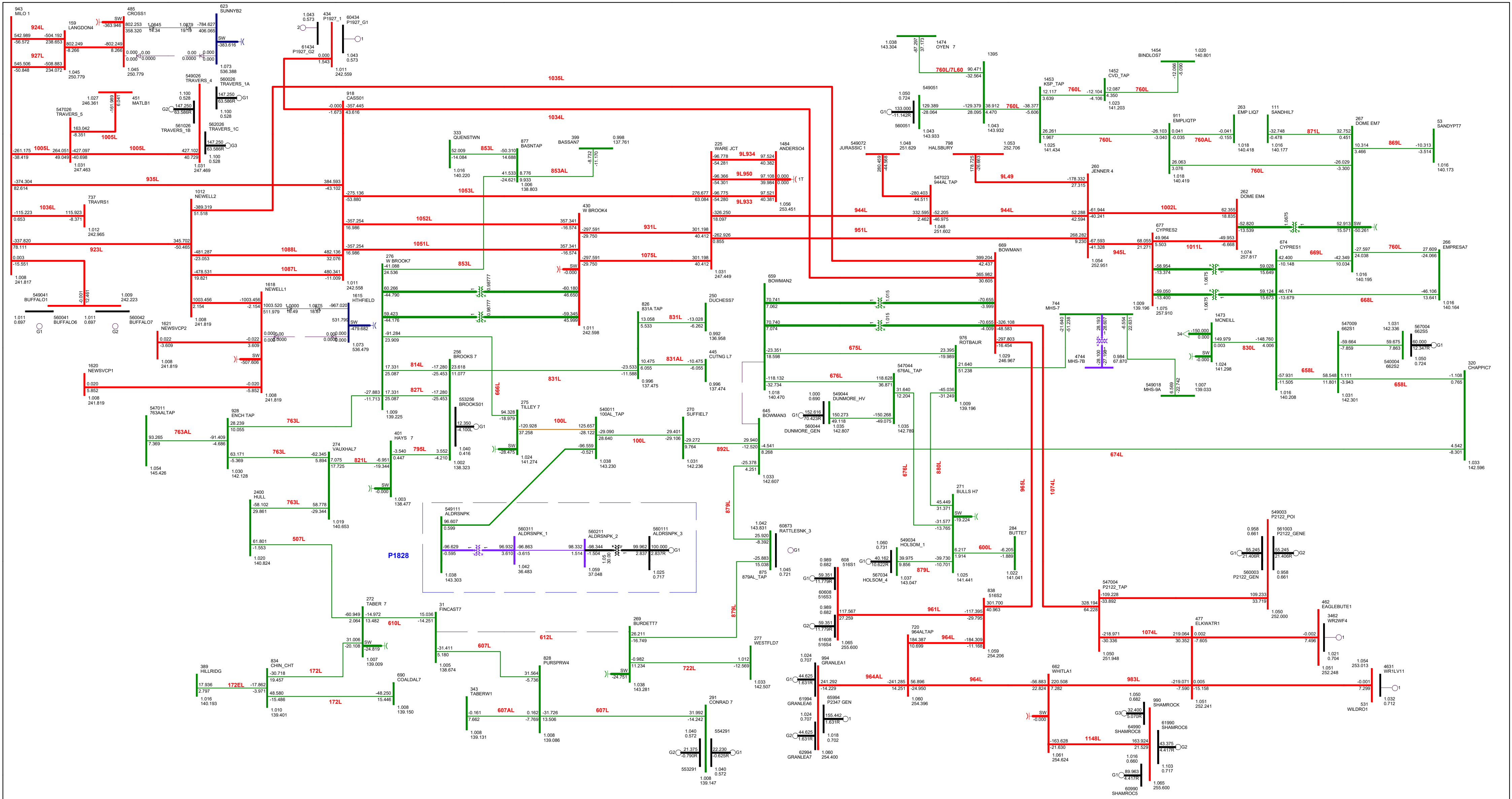
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -589.173 MW

Sask Import: -150.000 MW

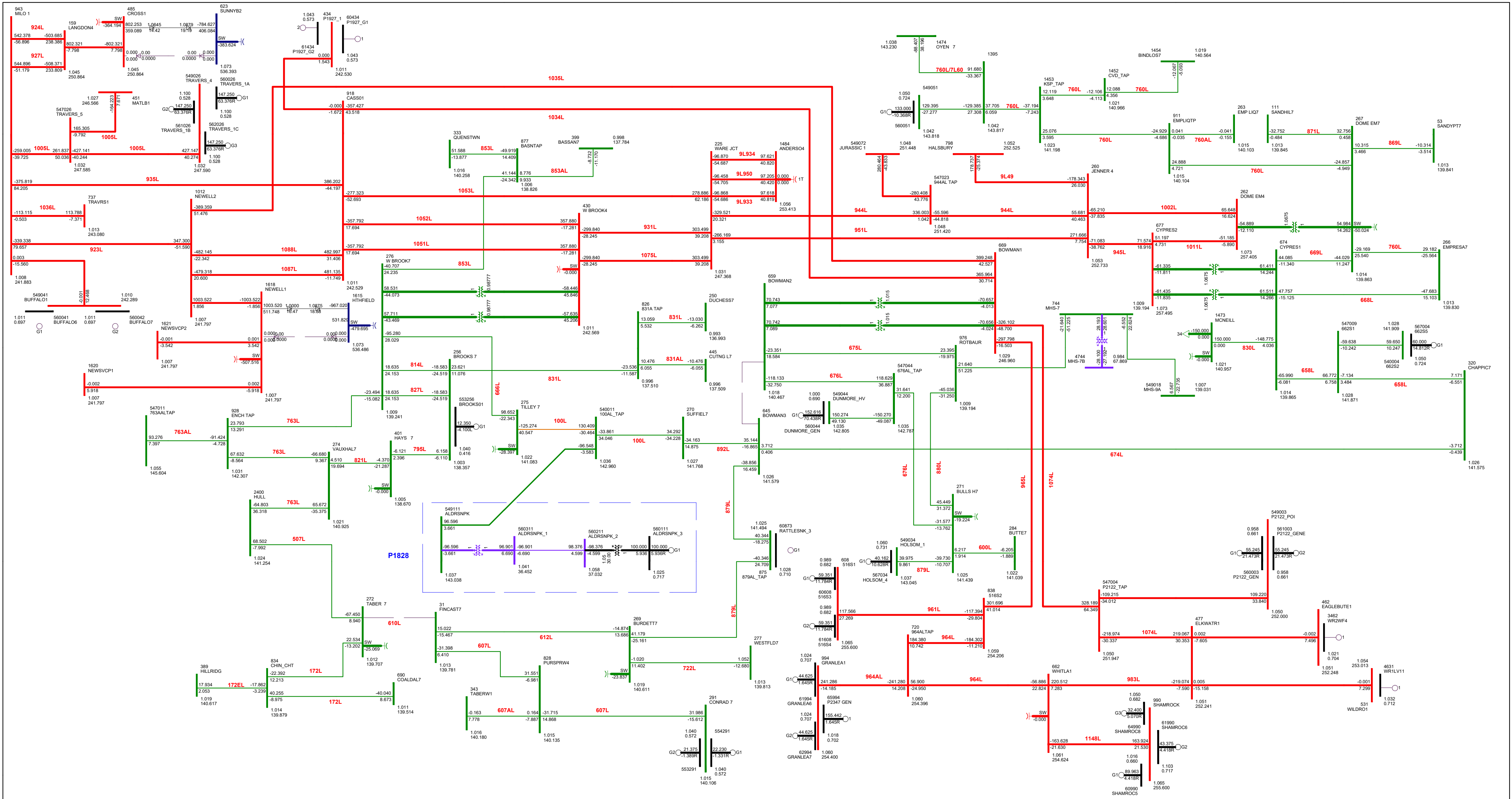
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-2-N-1: 612L (BURDETT 368S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -585.693 MW

Sask Import: -150.000 MW

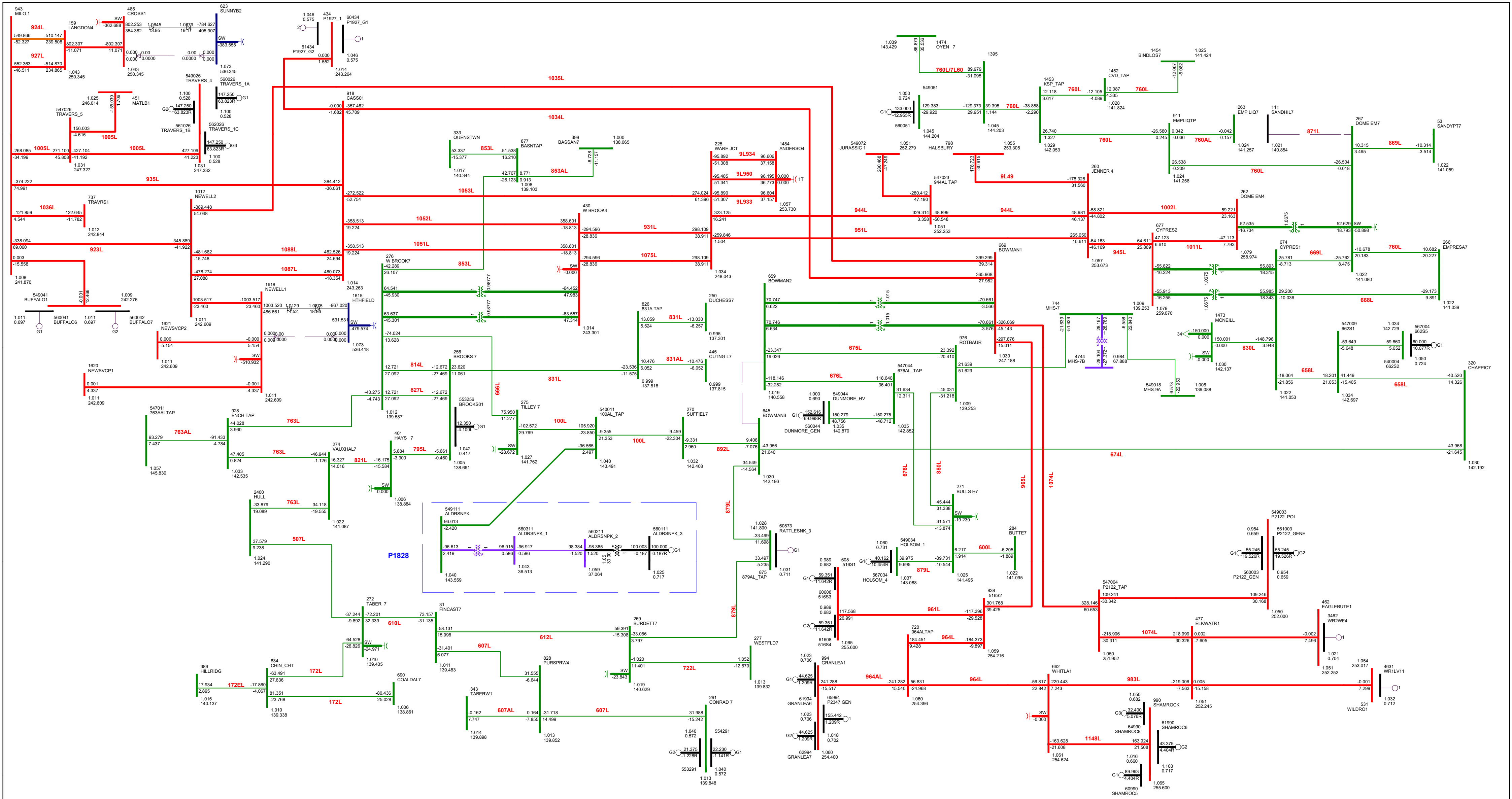
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

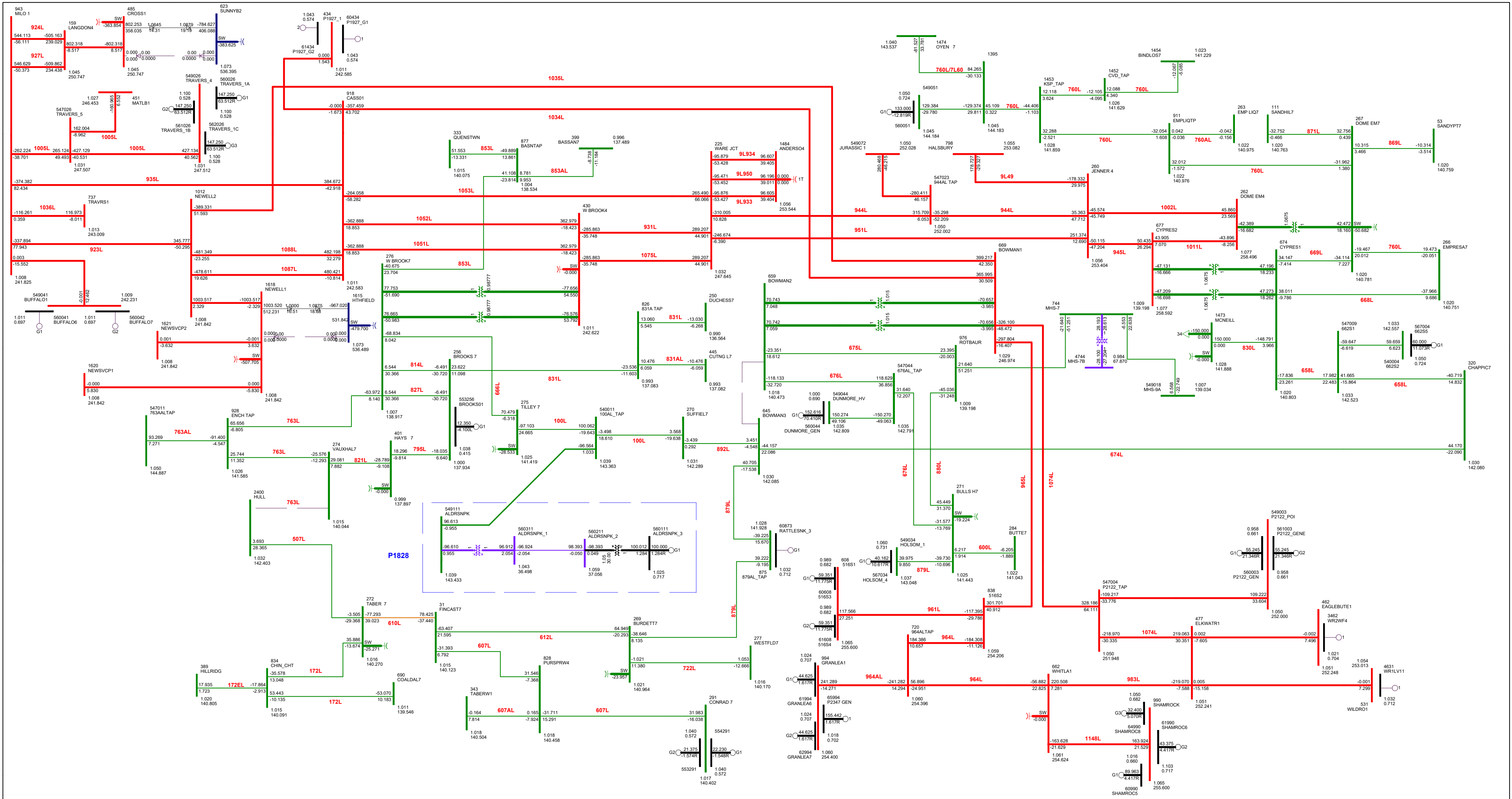
BC Import: -616.334 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE B1-4-N-1: 871L (AMOCO EMPRESS 163S TO SAND HILLS 341S
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -591.427 MW

Sask Import: -150.000 MW

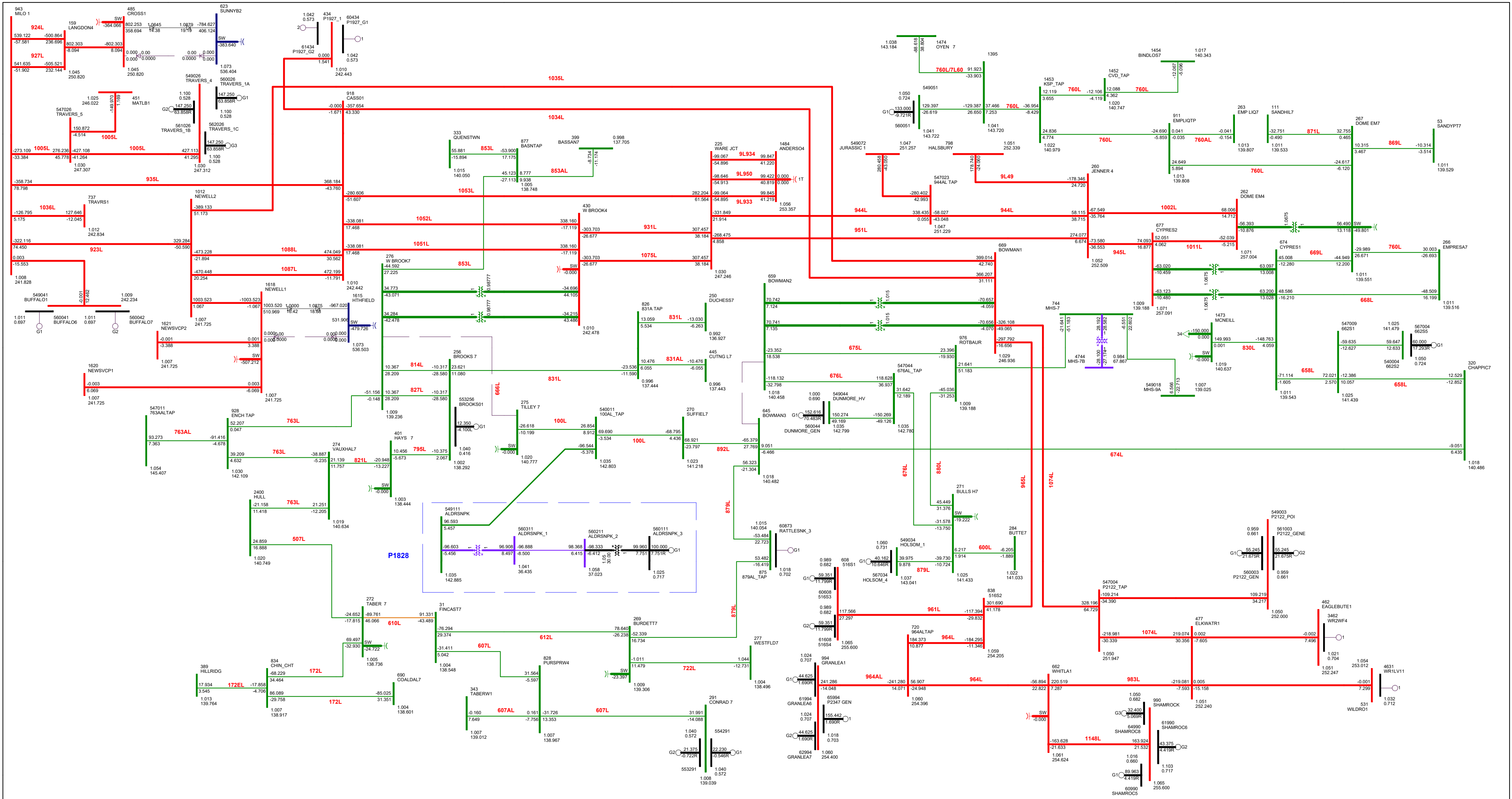
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-5-N-1: 763L(VAUXHALL 158S TO HULL 257S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -585.832 MW

Sask Import: -150.000 MW

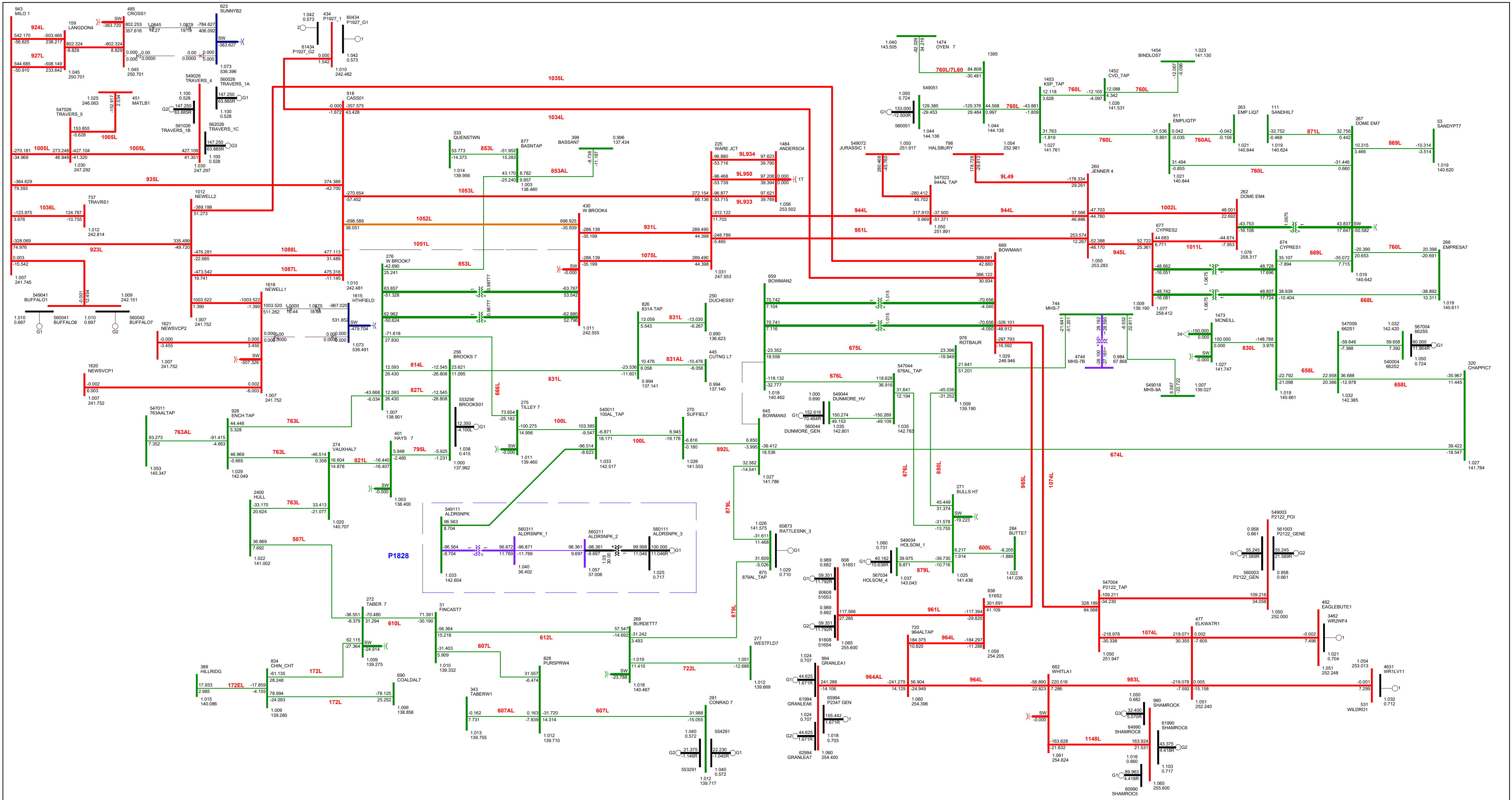
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-6-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -591.805 MW

Sask Import: -150.000 MW

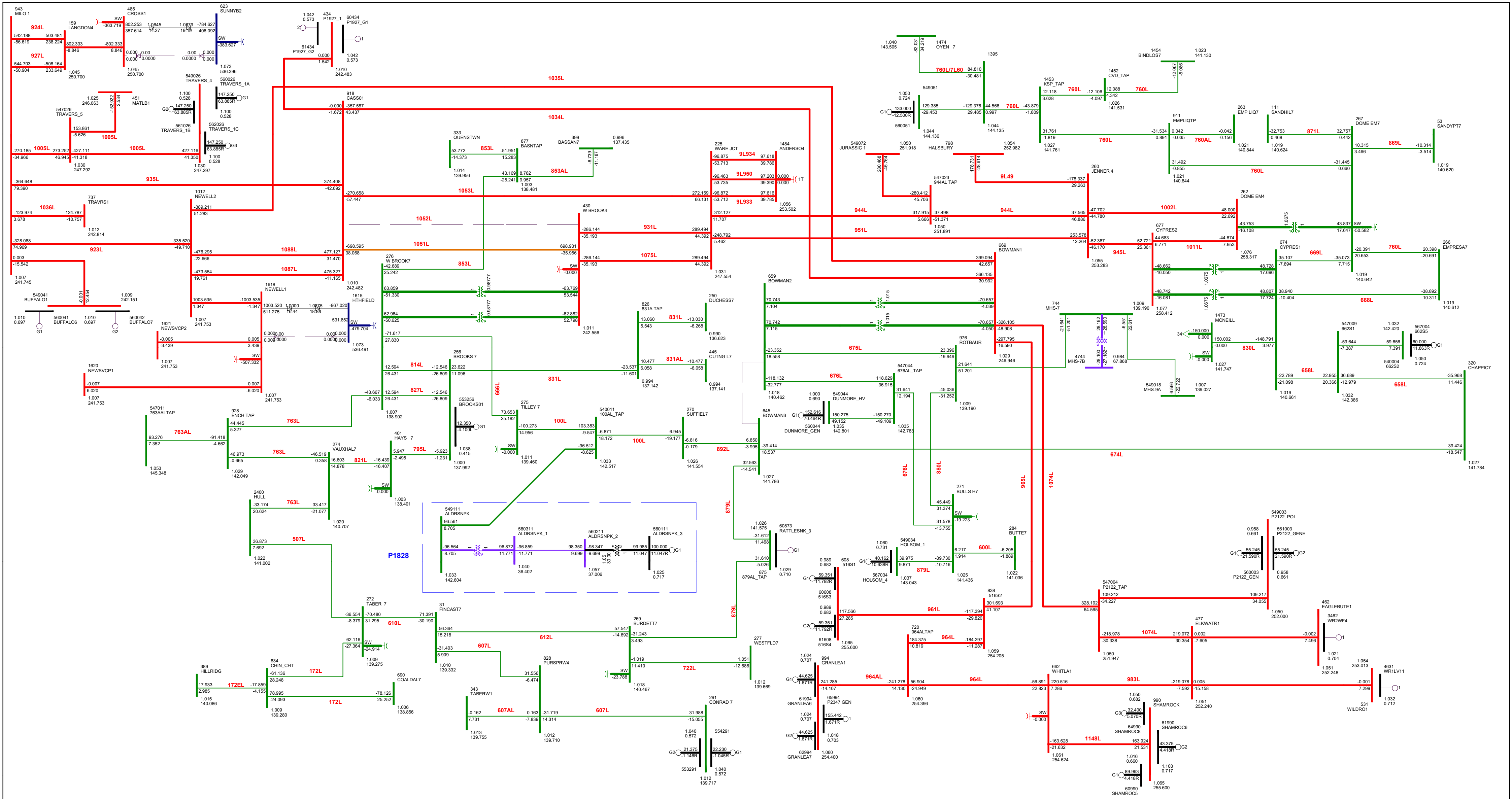
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-7-N-1: 1051L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -591.841 MW

Sask Import: -150.000 MW

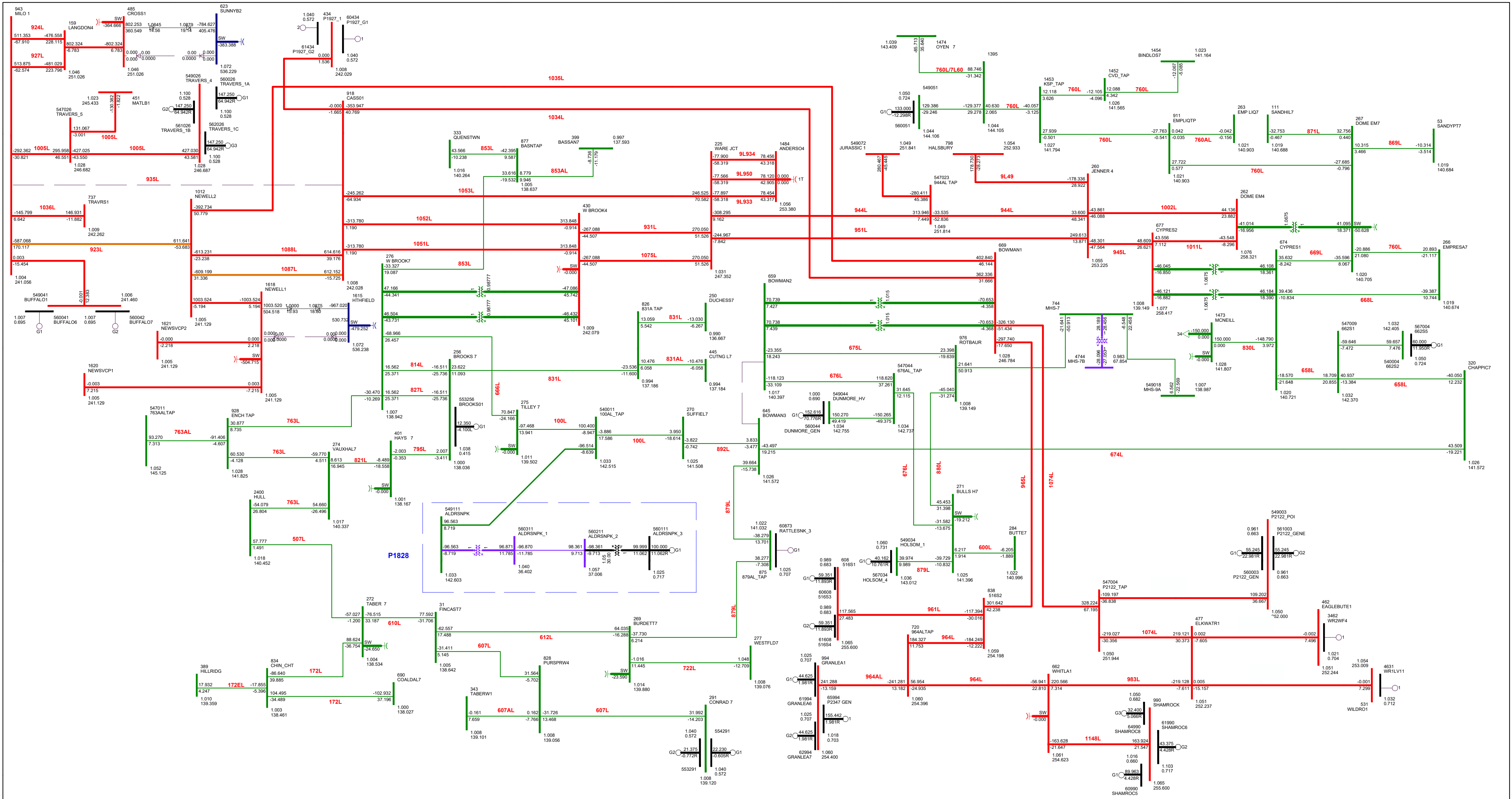
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-8-N-1: 1052L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -569.915 MW

Sask Import: -150.000 MW

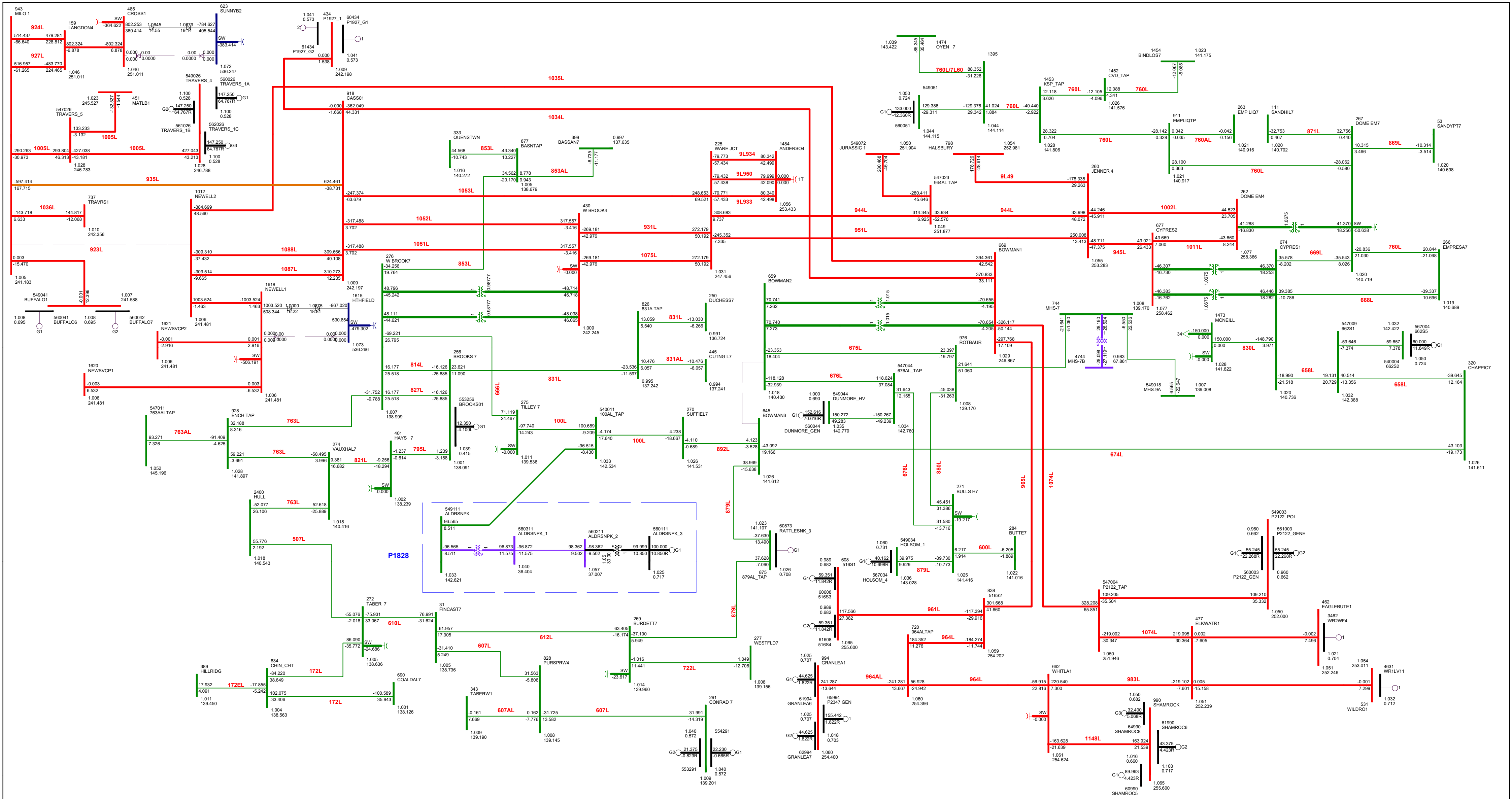
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-9-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -572.280 MW

Sask Import: -150.000 MW

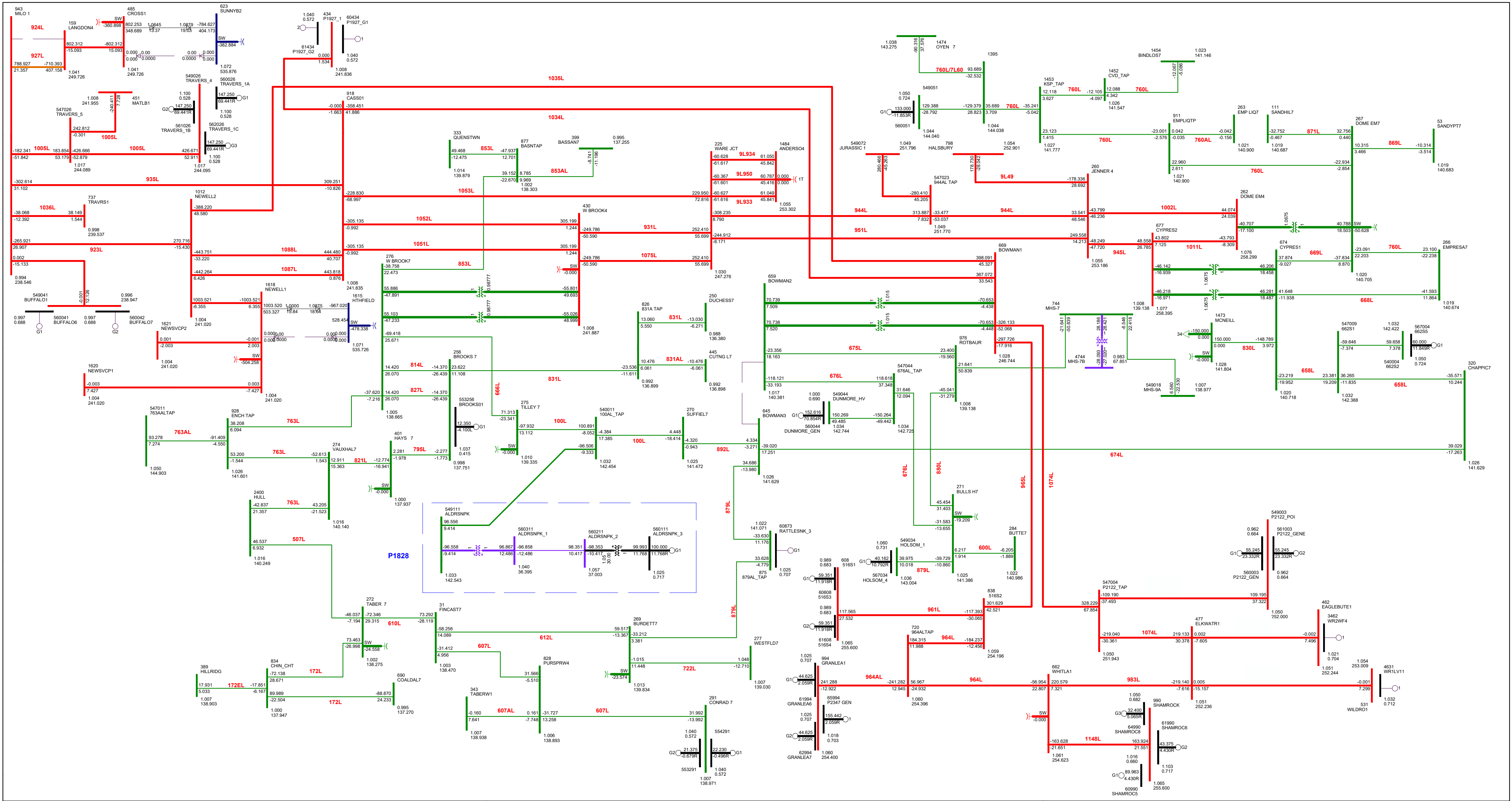
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-10-N-1: 923L(MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

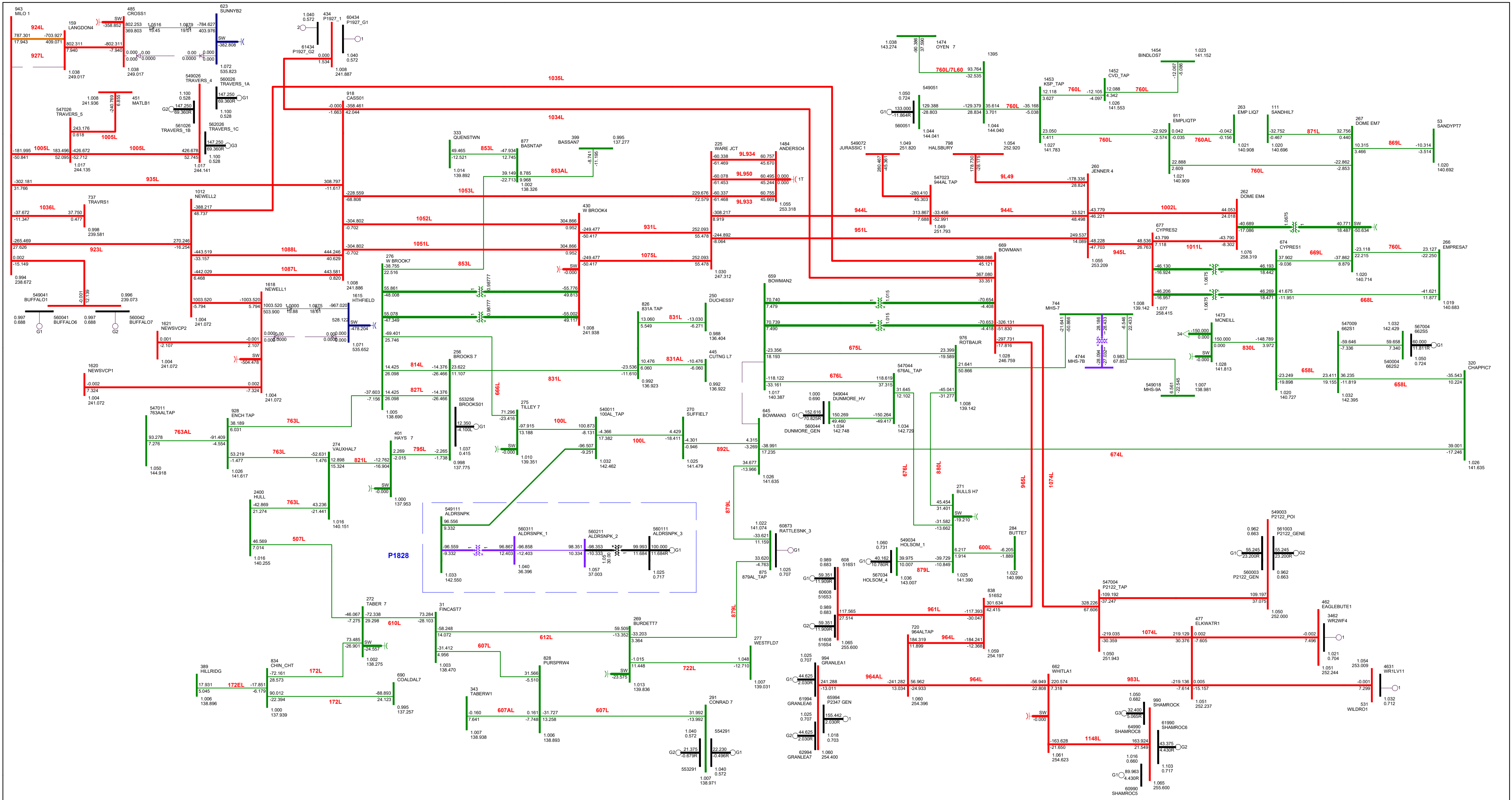
BC Import: -536.952 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE B1-11-N-1: 924L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -531.660 MW

Sask Import: -150.000 MW

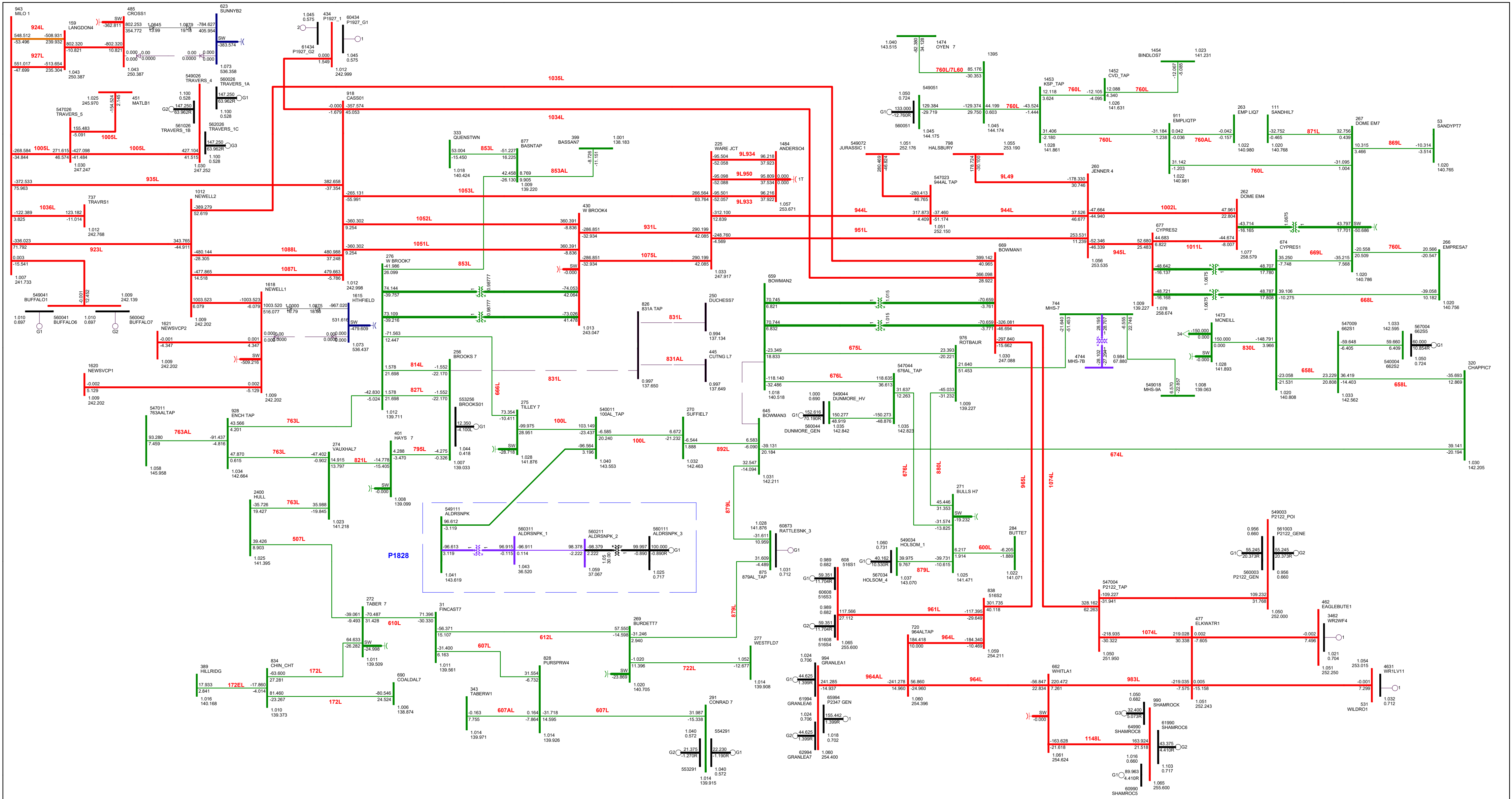
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-12-N-1: 927L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -611.017 MW

Sask Import: -150.000 MW

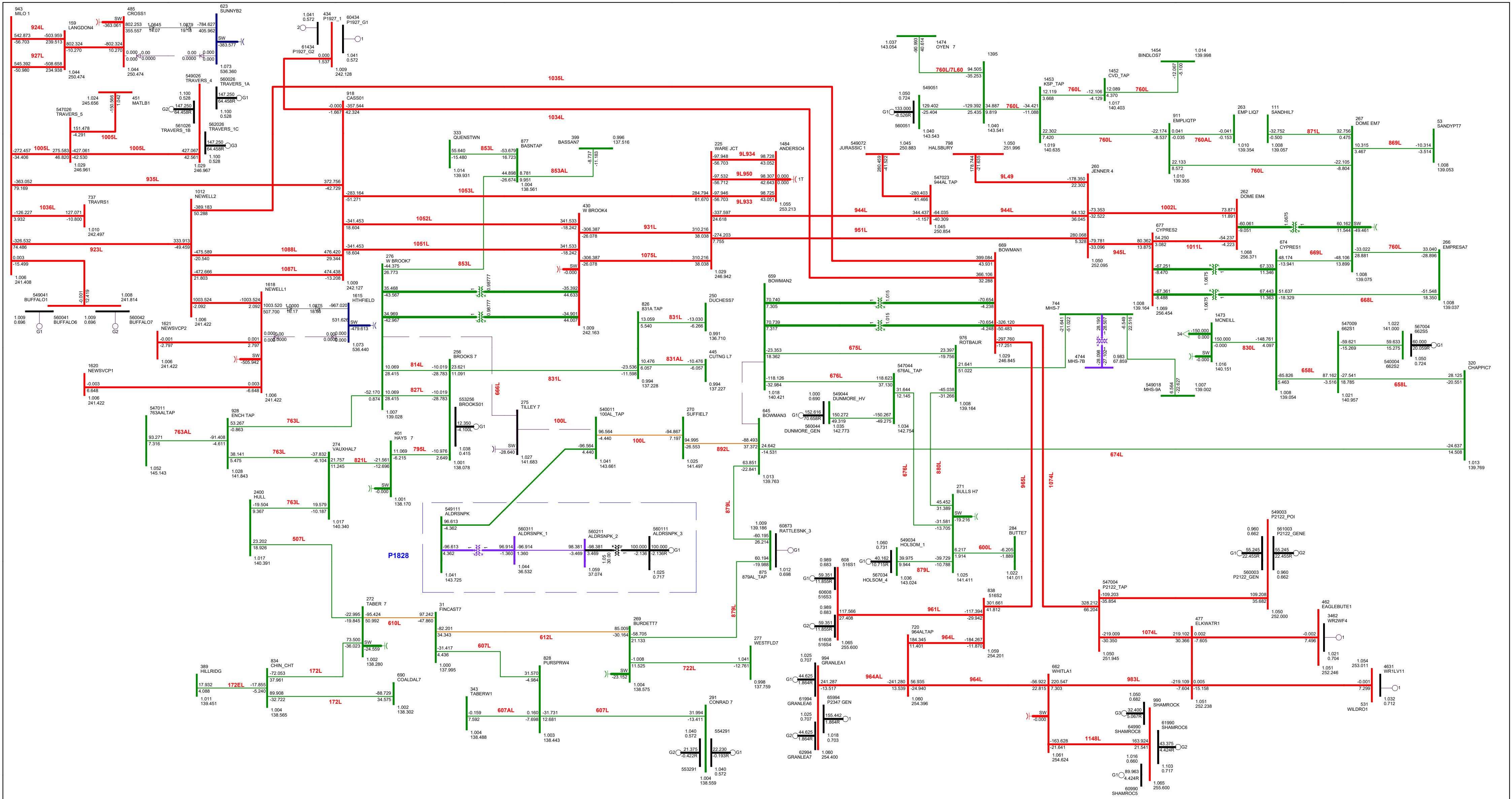
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-13-N-1: 831L (BROOKS 121S TO DUCHESS 339S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -599.951 MW

Sask Import: -150.000 MW

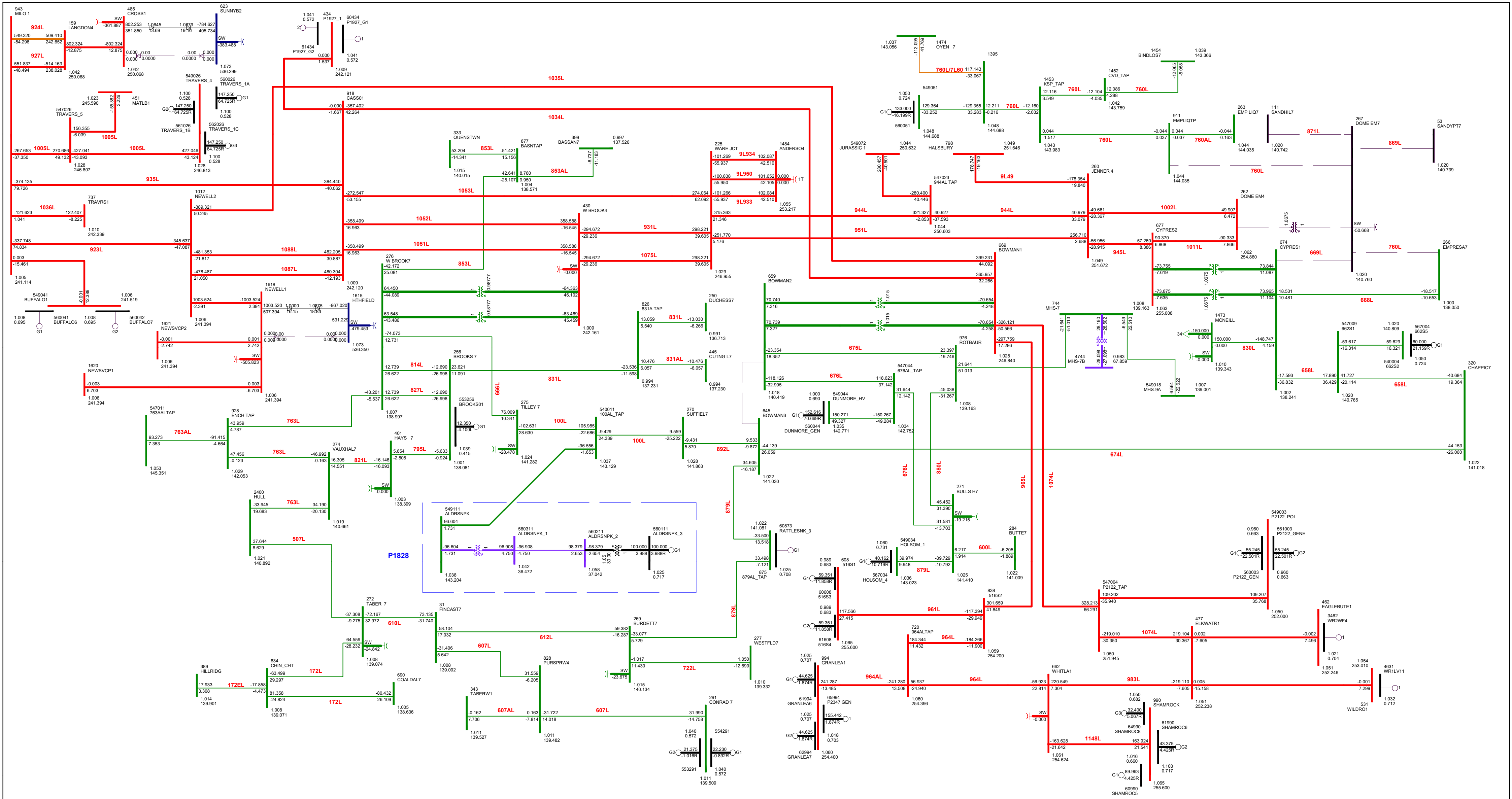
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-14-N-1: 498ST1T2 (TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -621.102 MW

Sask Import: -150.000 MW

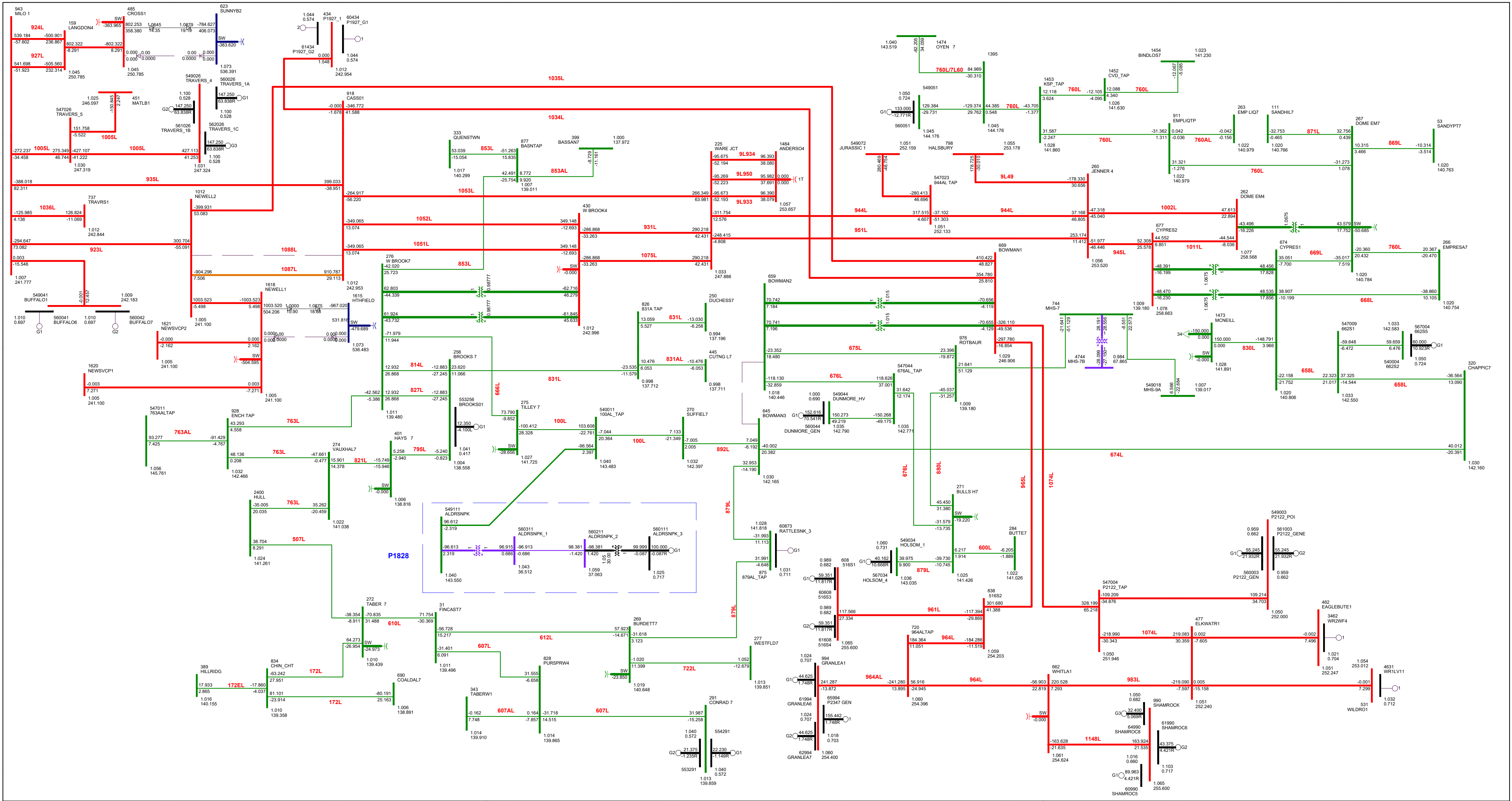
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-15-N-1: 163ST5 (AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -588.179 MW

Sask Import: -150.000 MW

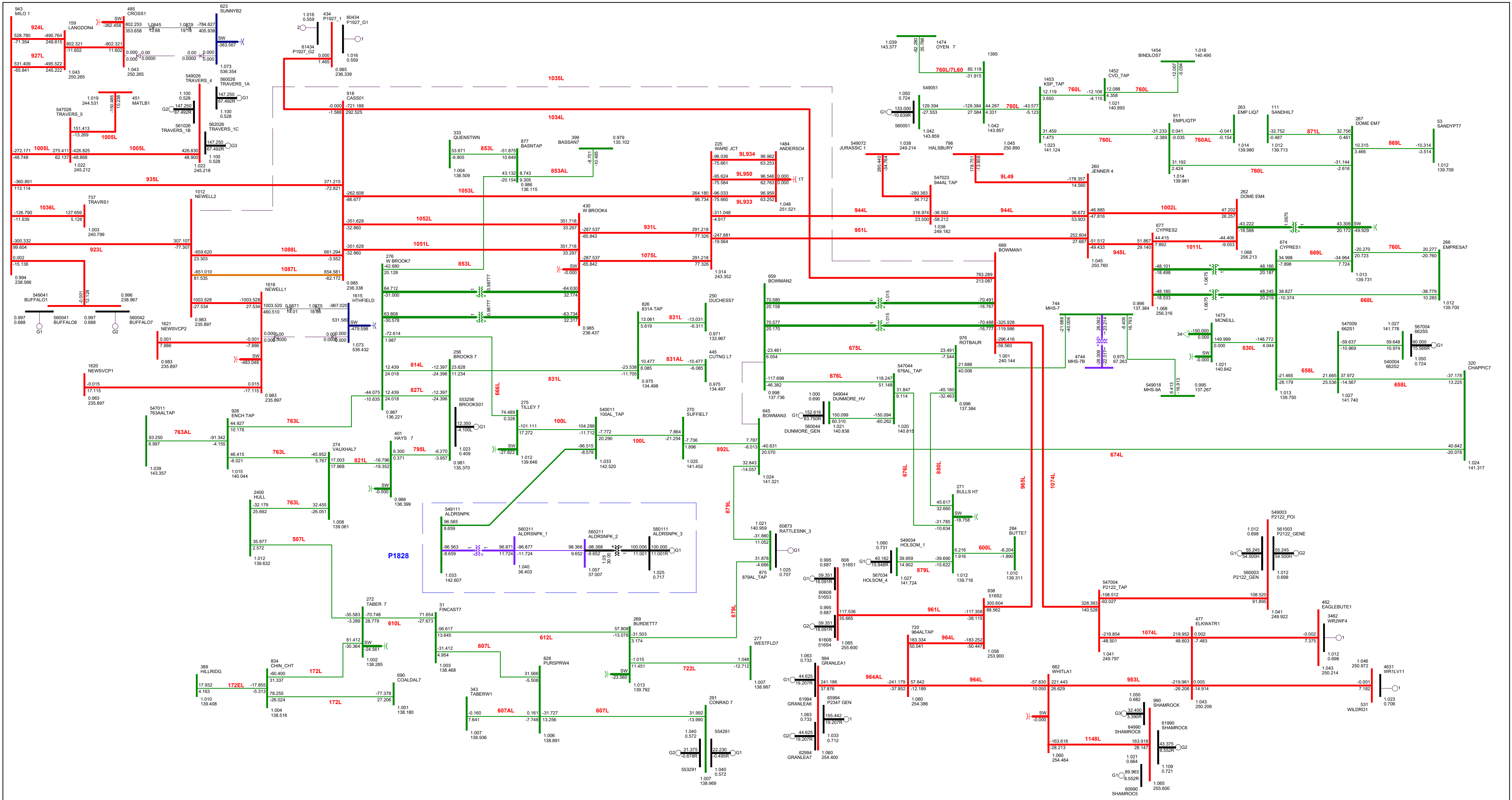
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-16-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -563.016 MW

Sask Import: -150.000 MW

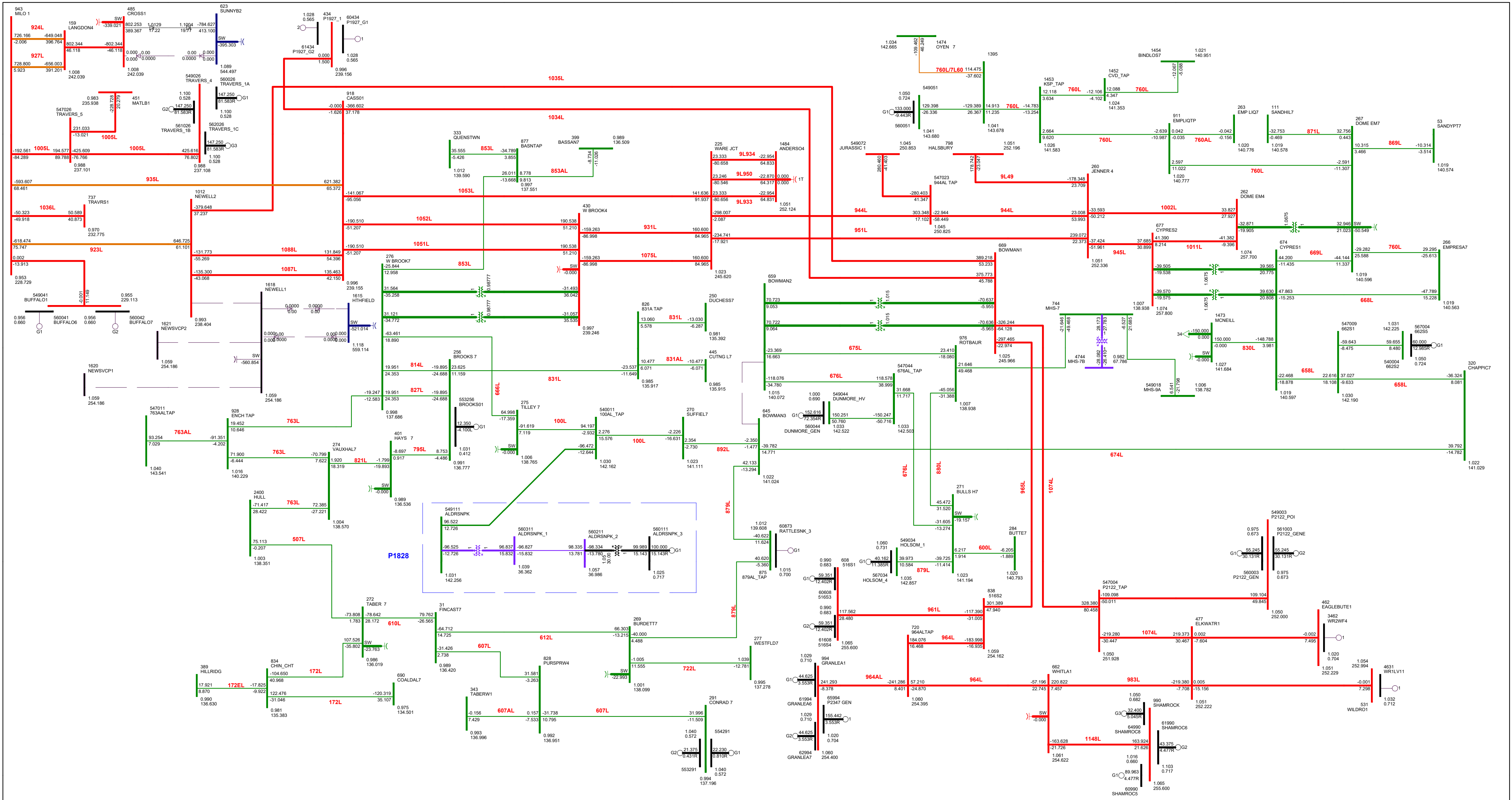
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-17-N-1: 1035L (BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 9:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -295.754 MW

Sask Import: -150.000 MW

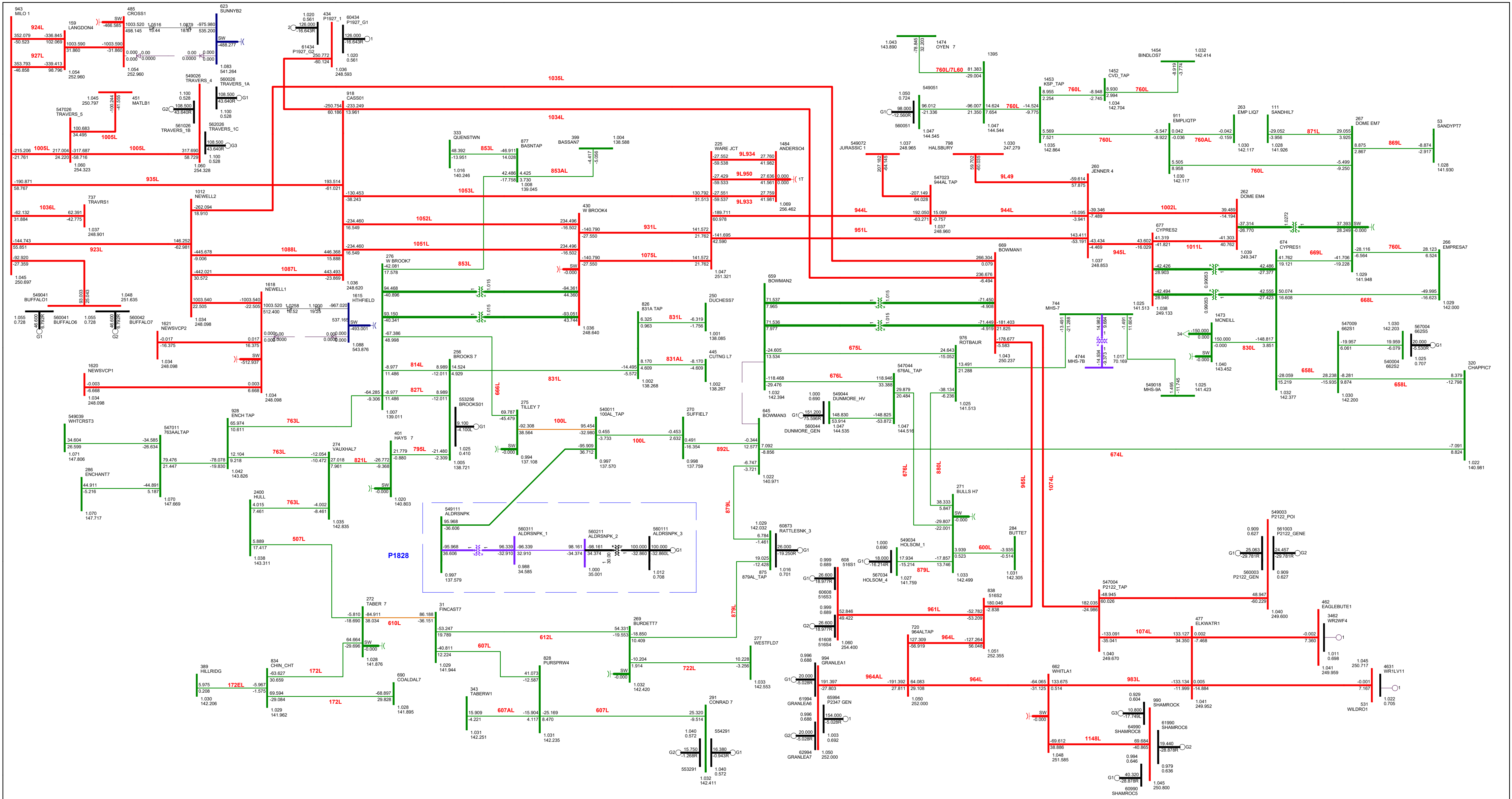
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE B1-18-N-1: EATL
2025 SUMMER PEAK - SCN 3 (POST PROJECT)
TUE, AUG 22 2023 11:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

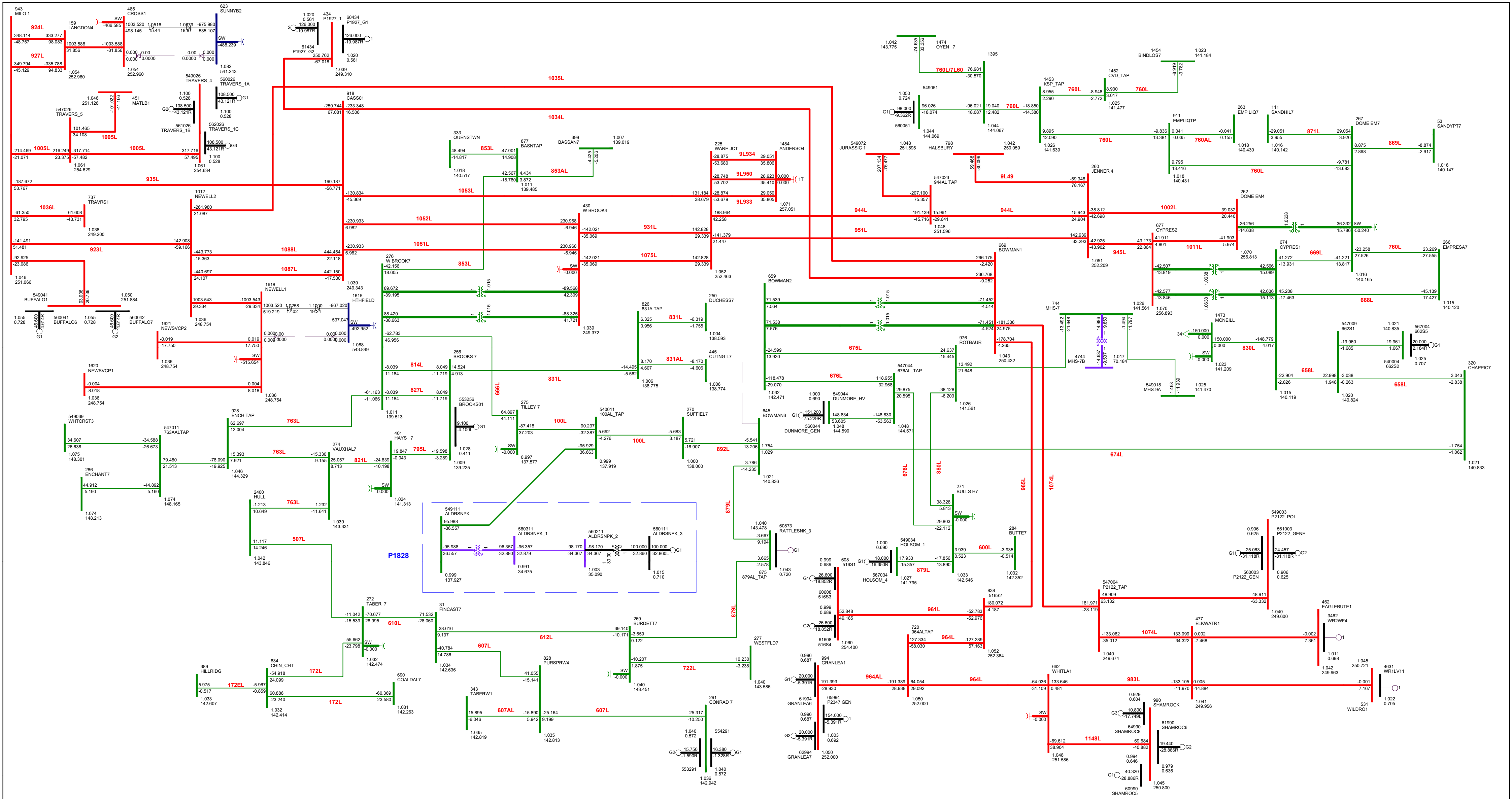
BC Import: -521.002 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE B0-2-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
FRI, SEP 08 2023 10:31

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.977 MW

Sask Import: -150.000 MW

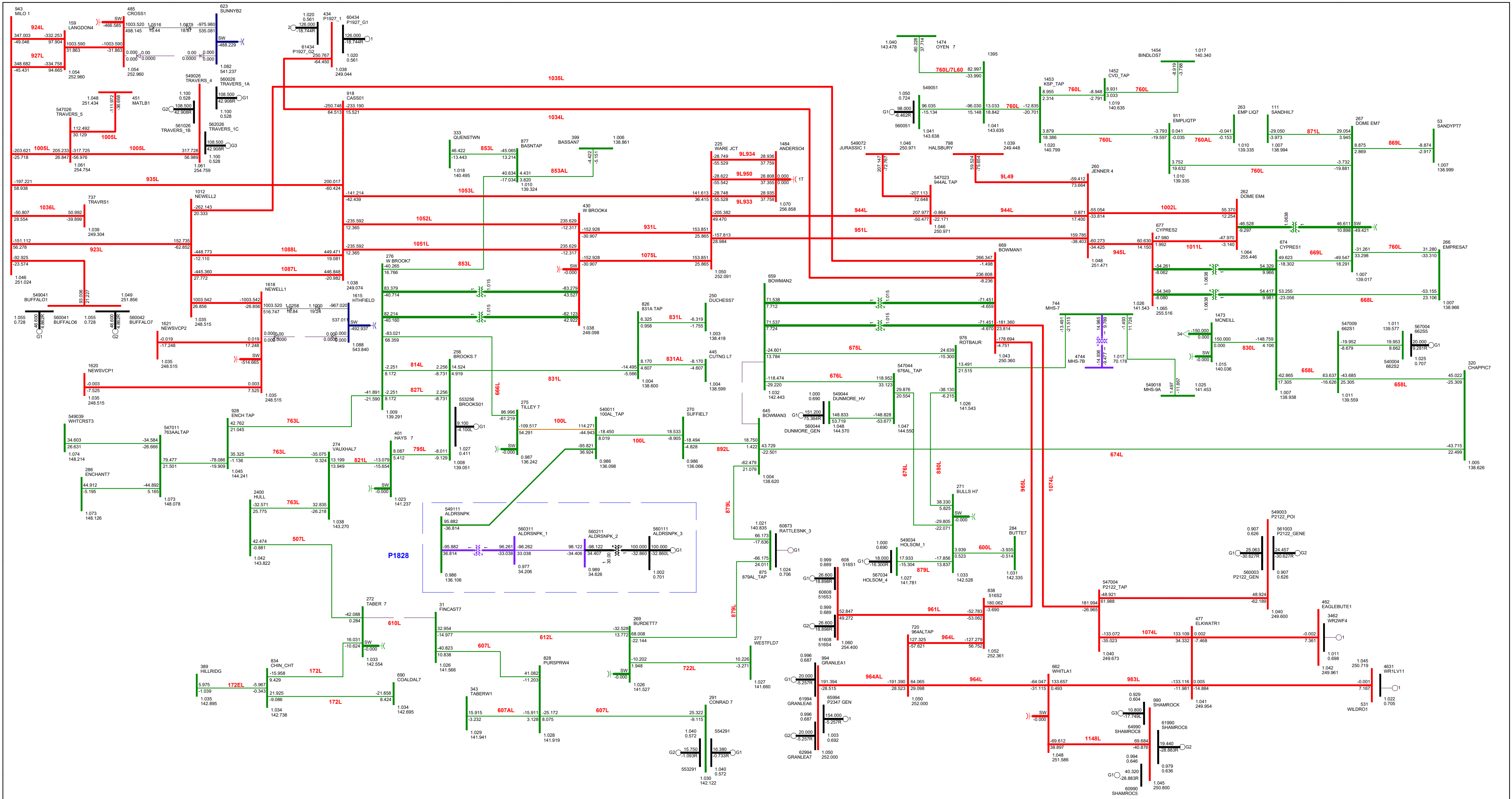
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -511.029 MW

Sask Import: -150.000 MW

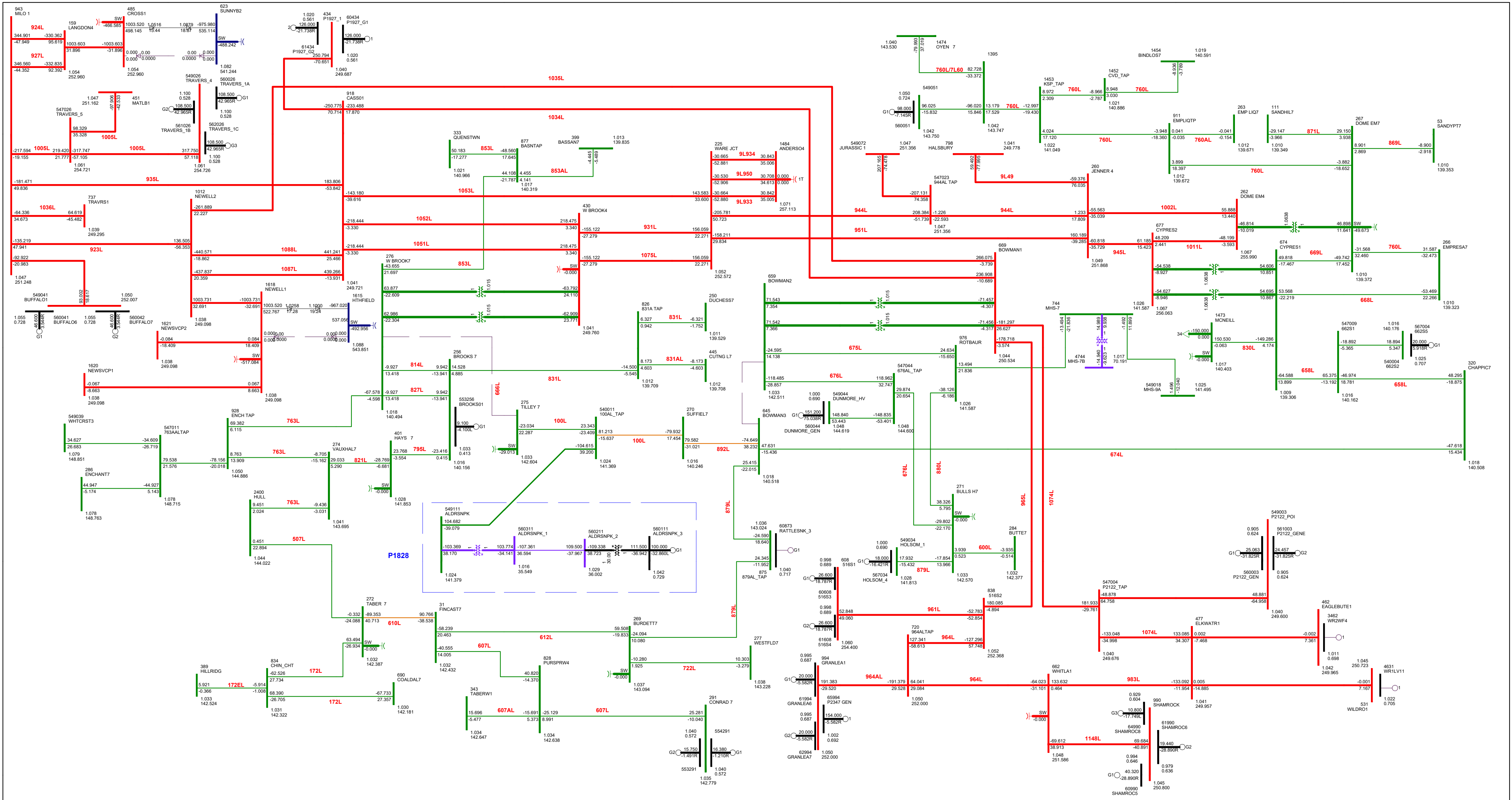
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-2-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

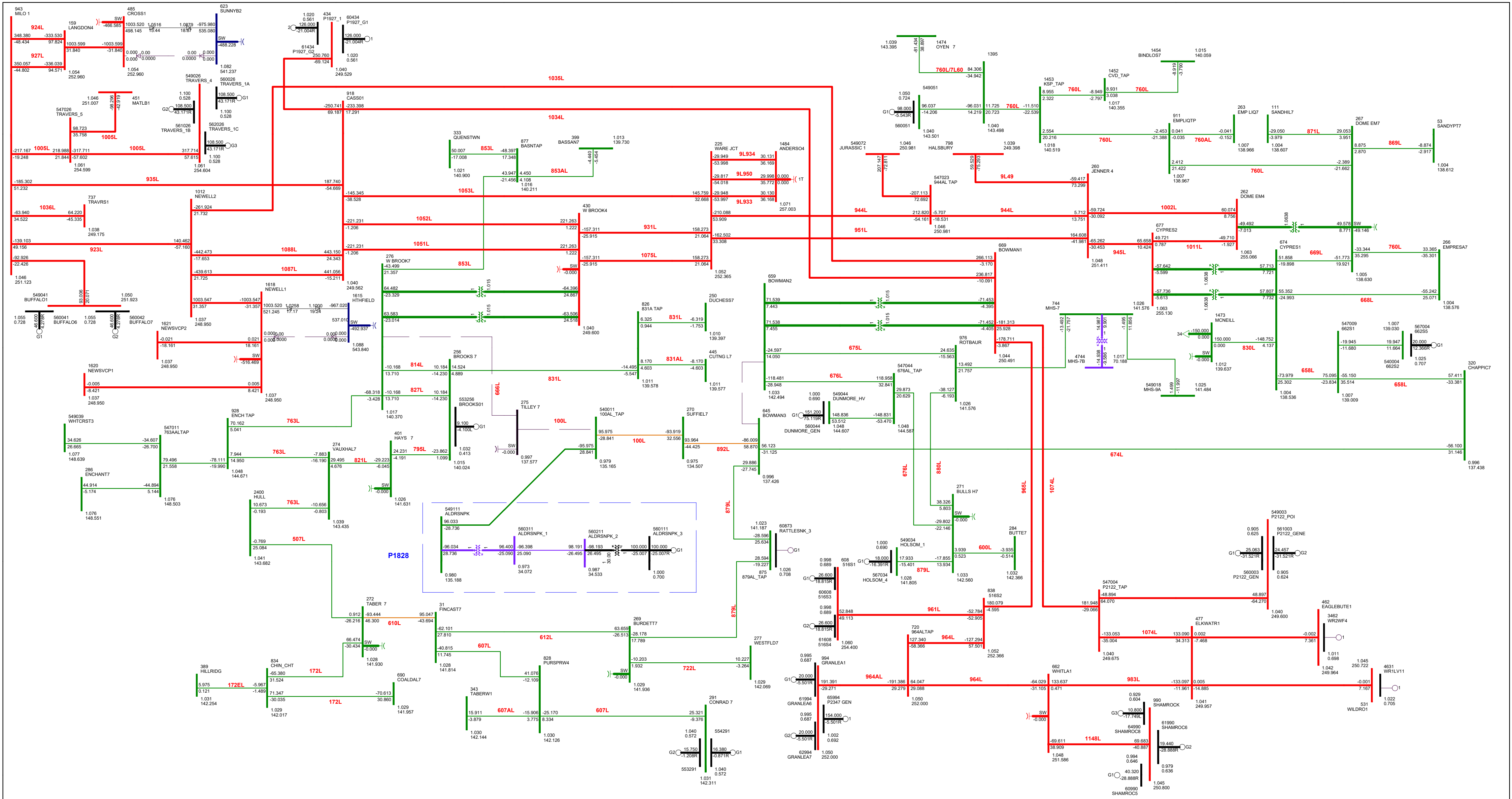
BC Import: -514.126 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE B2-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -527.343 MW

Sask Import: -150.000 MW

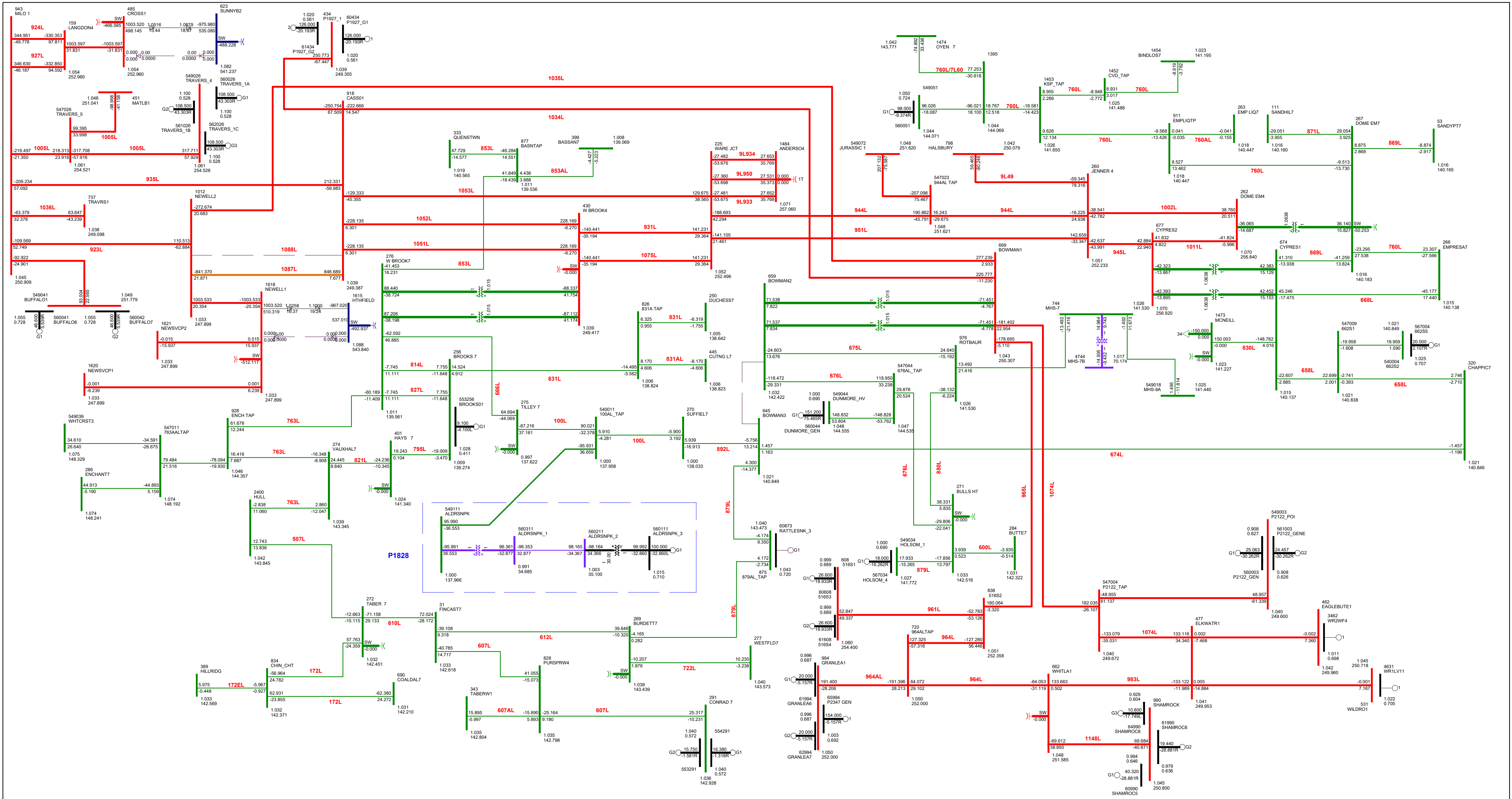
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-4-N-1: 498ST1T2 (TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:35

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.704 MW

Sask Import: -150.000 MW

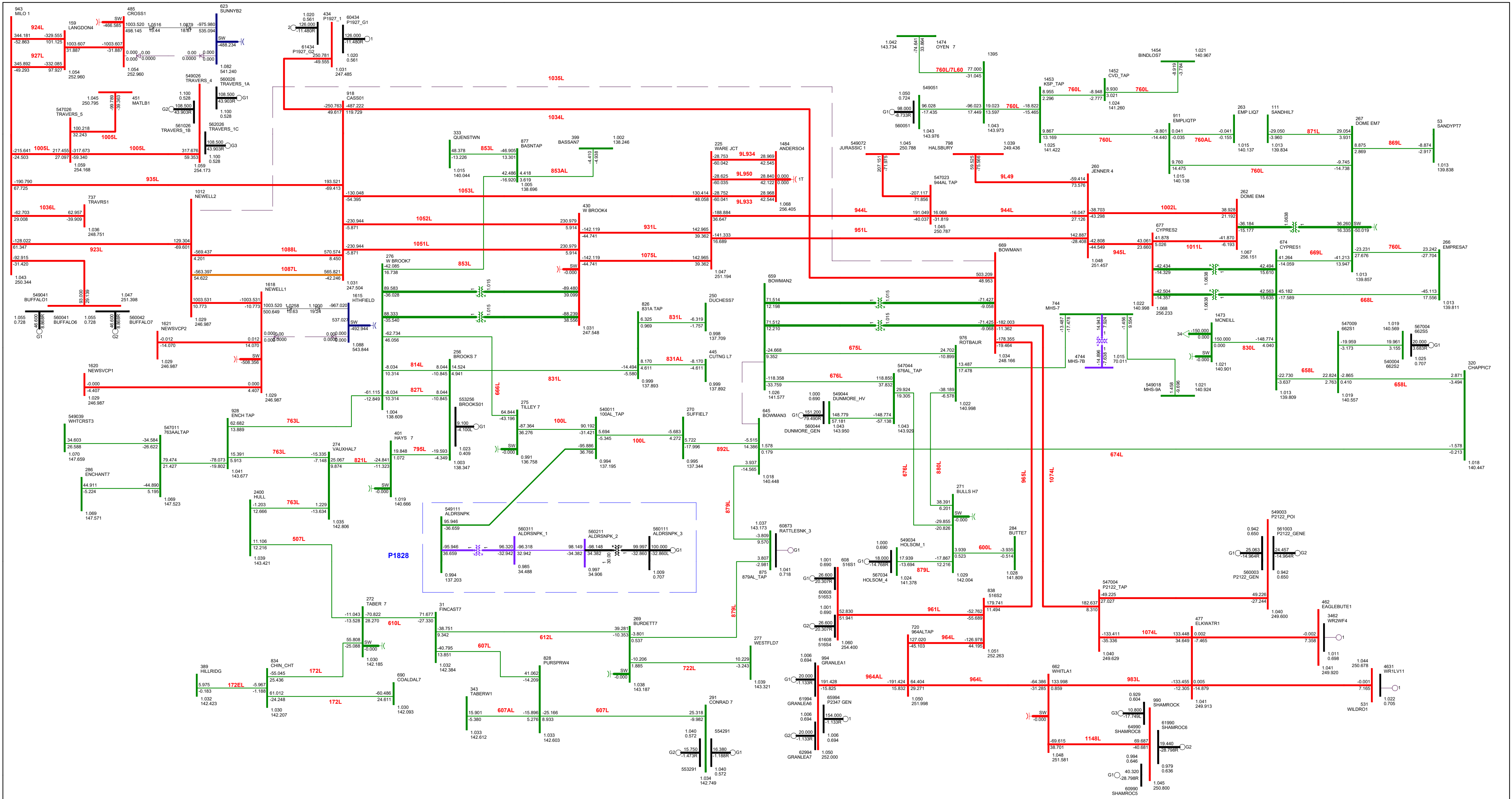
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-5-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:12

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -511.720 MW

Sask Import: -150.000 MW

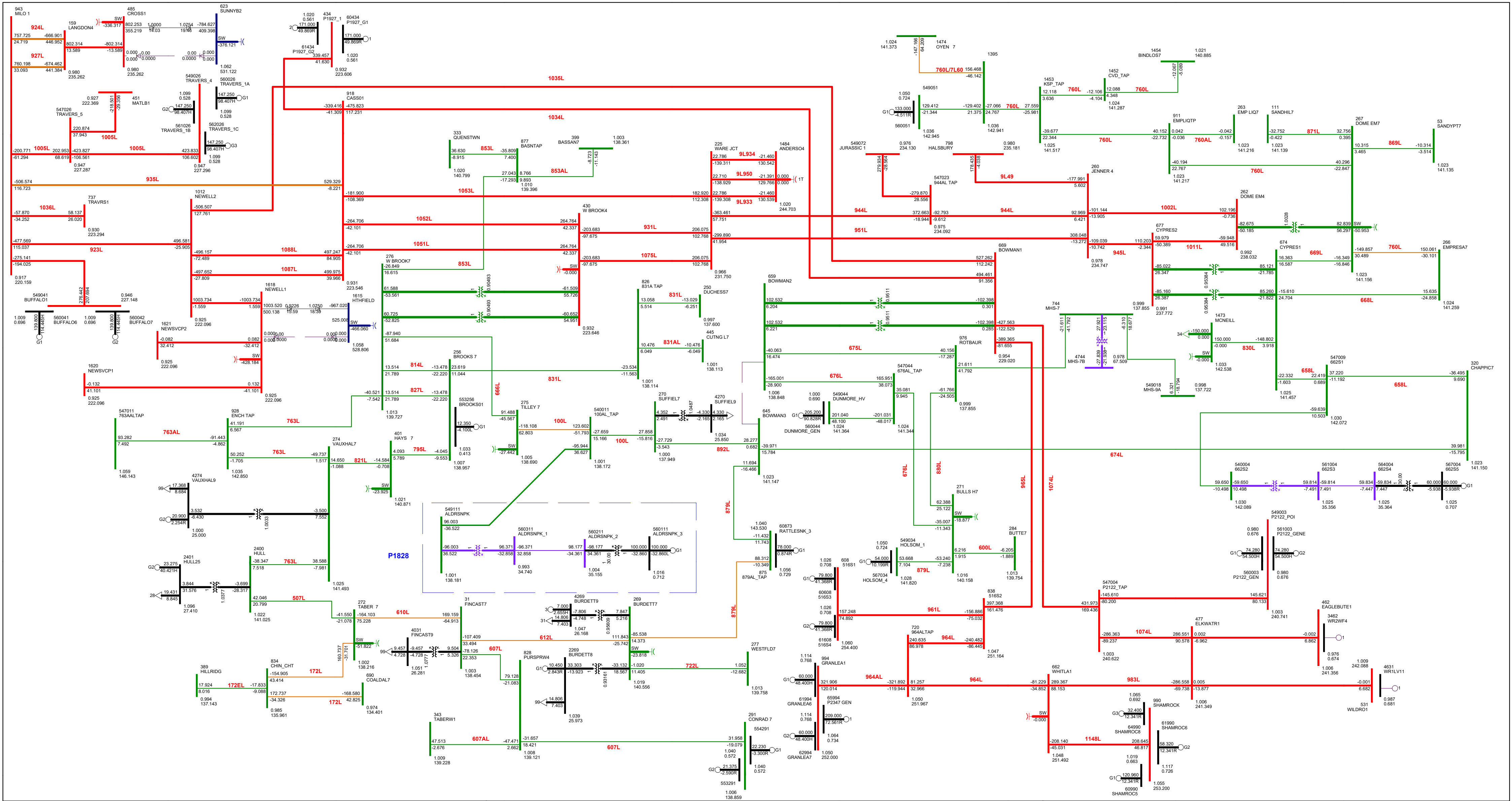
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-6-N-1: 1035L (BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)
TUE, AUG 22 2023 9:12

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -515.643 MW

Sask Import: -150.000 MW

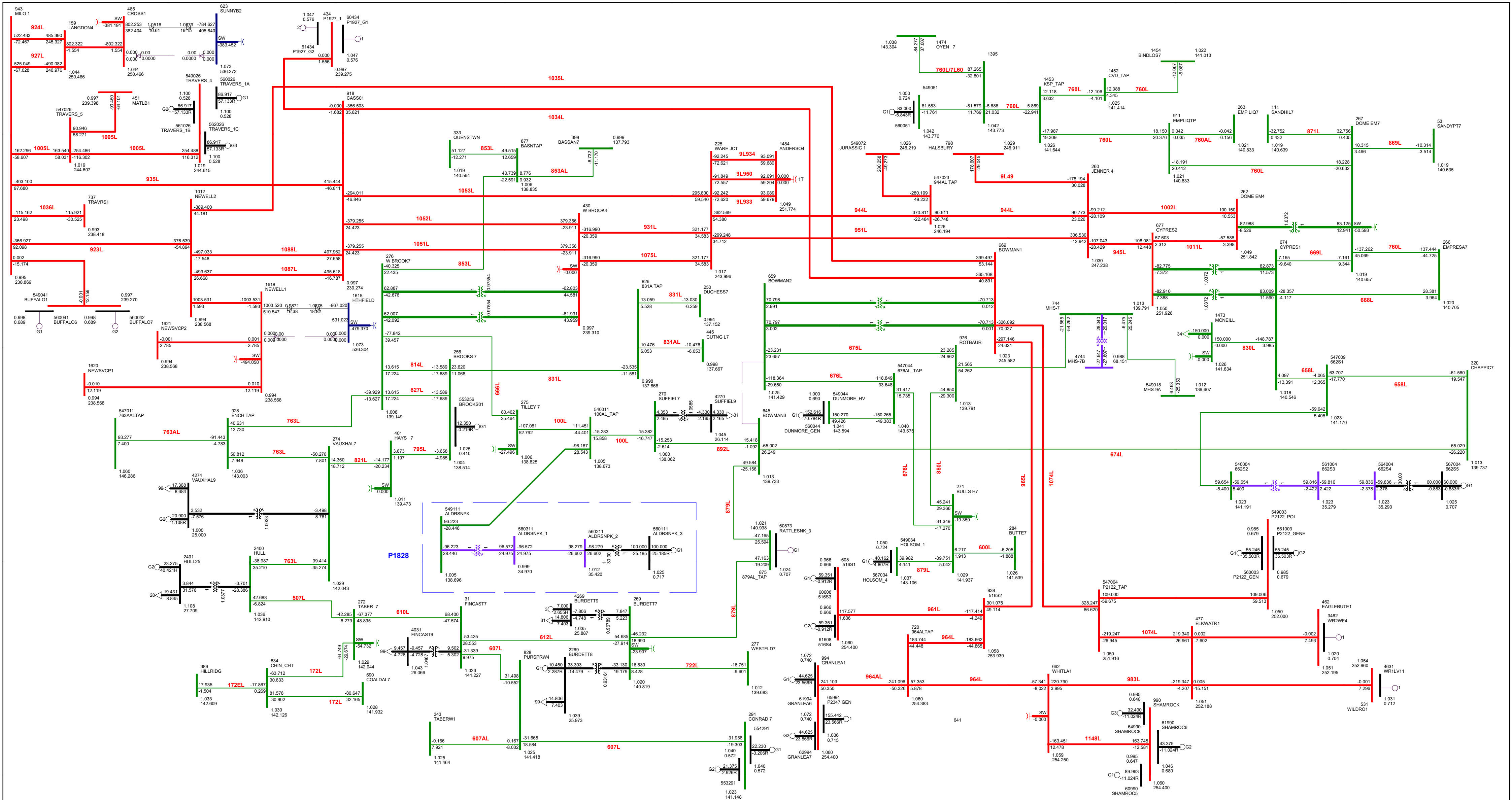
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B0-3-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
FRI, SEP 08 2023 10:45

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.403 MW

Sask Import: -150.000 MW

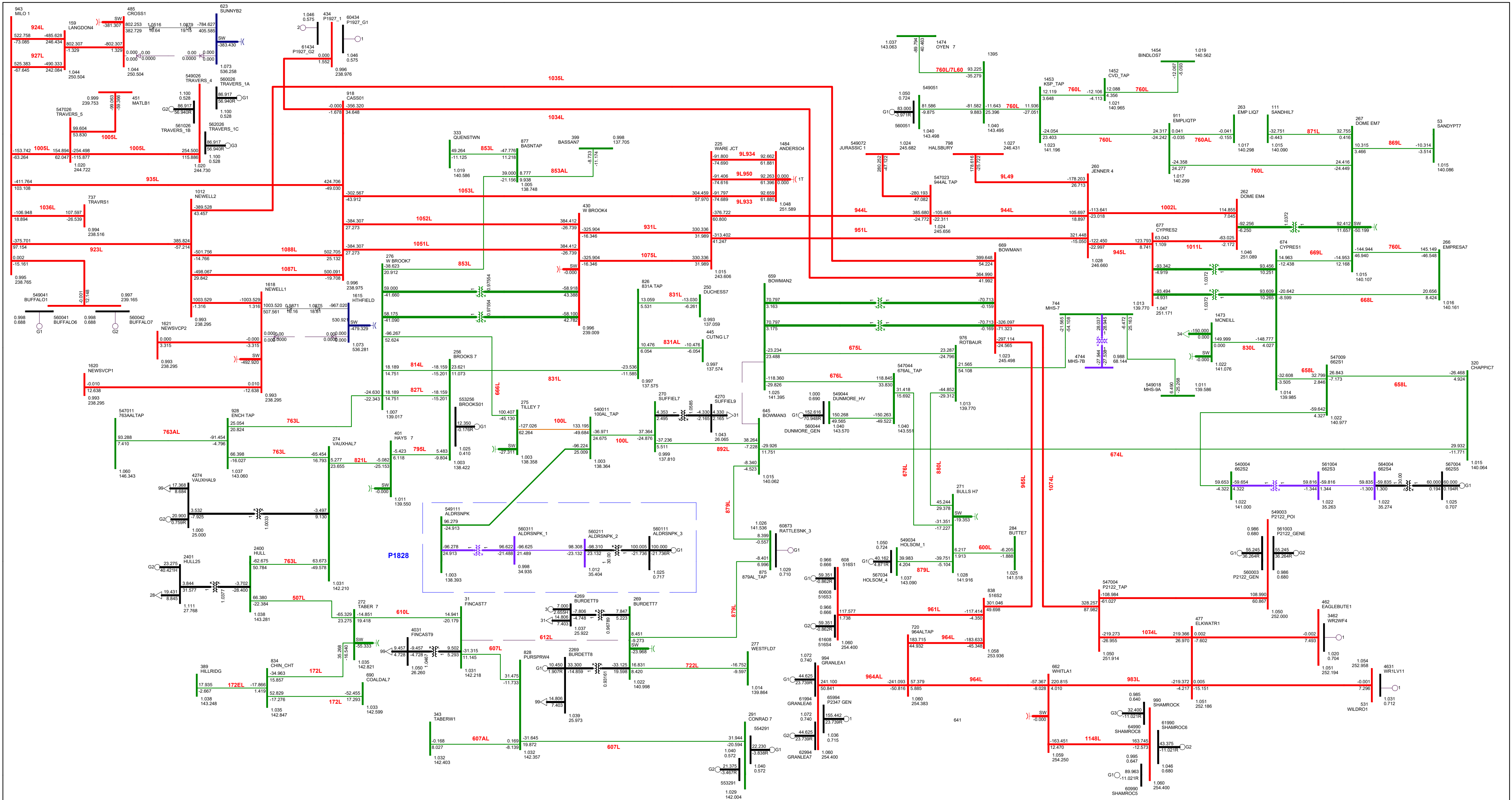
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.963 MW

Sask Import: -150.000 MW

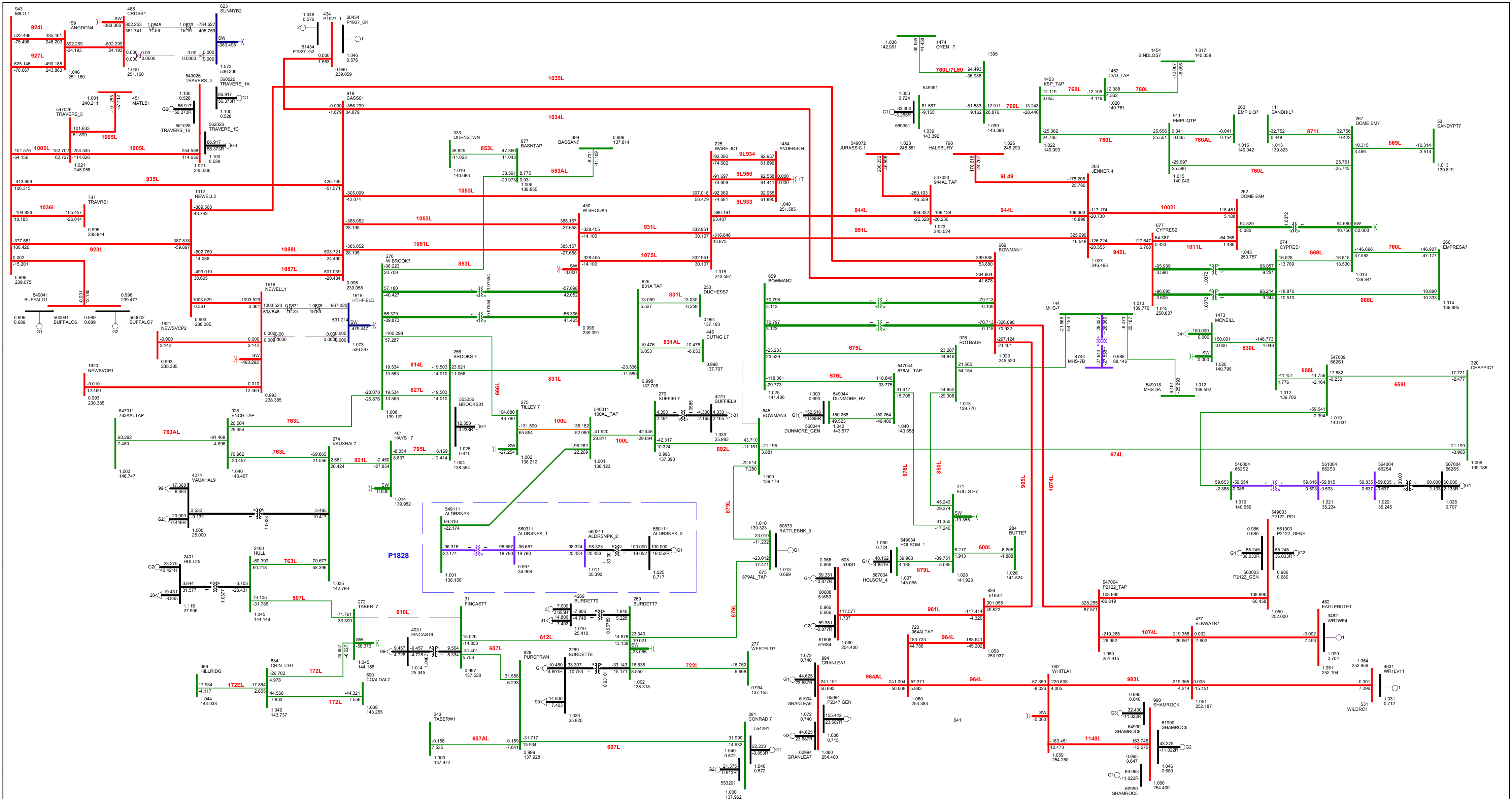
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-2-N-1: 612L (BURDETT 368S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -514.272 MW

Sask Import: -150.000 MW

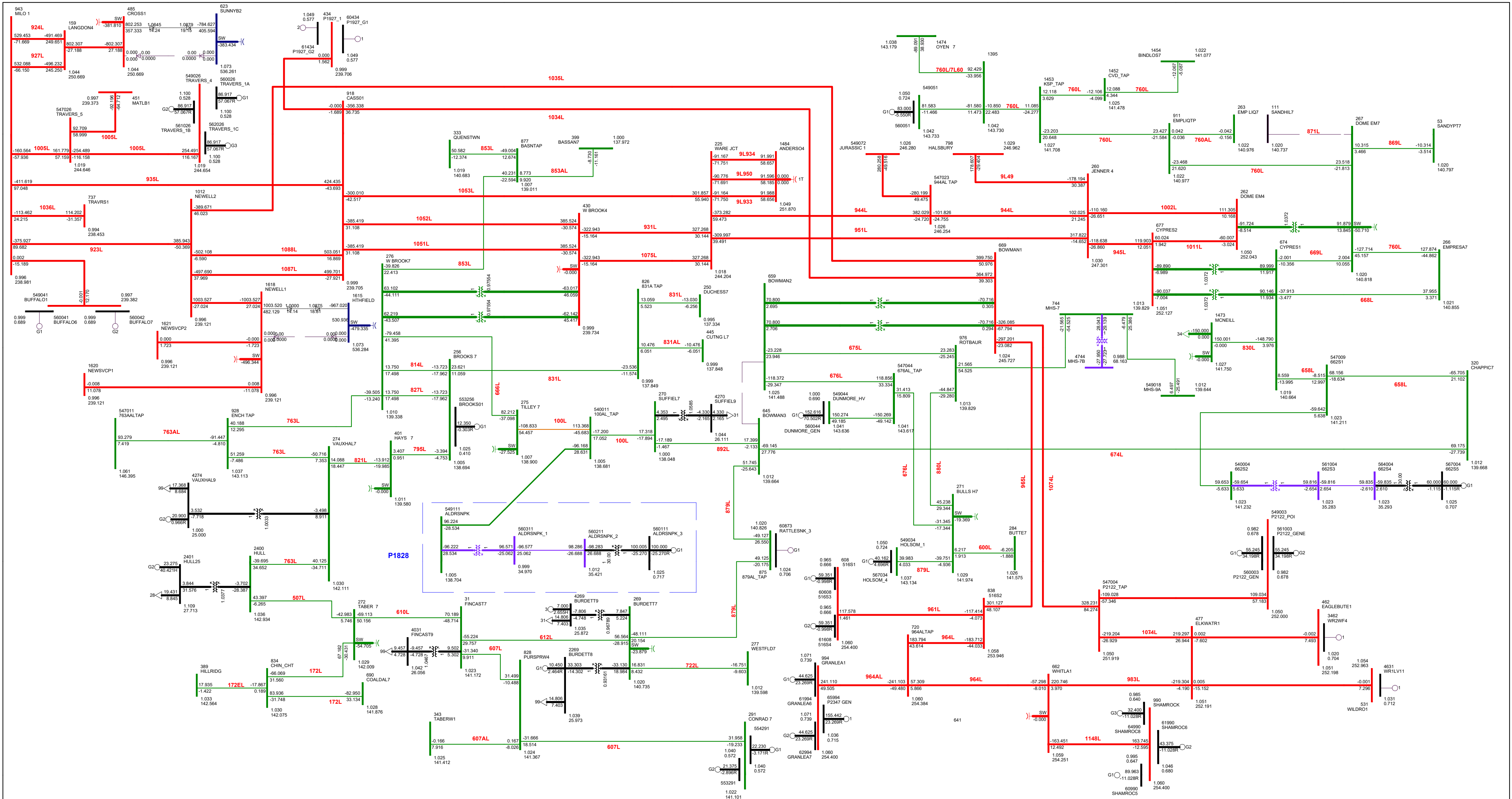
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -542.450 MW

Sask Import: -150.000 MW

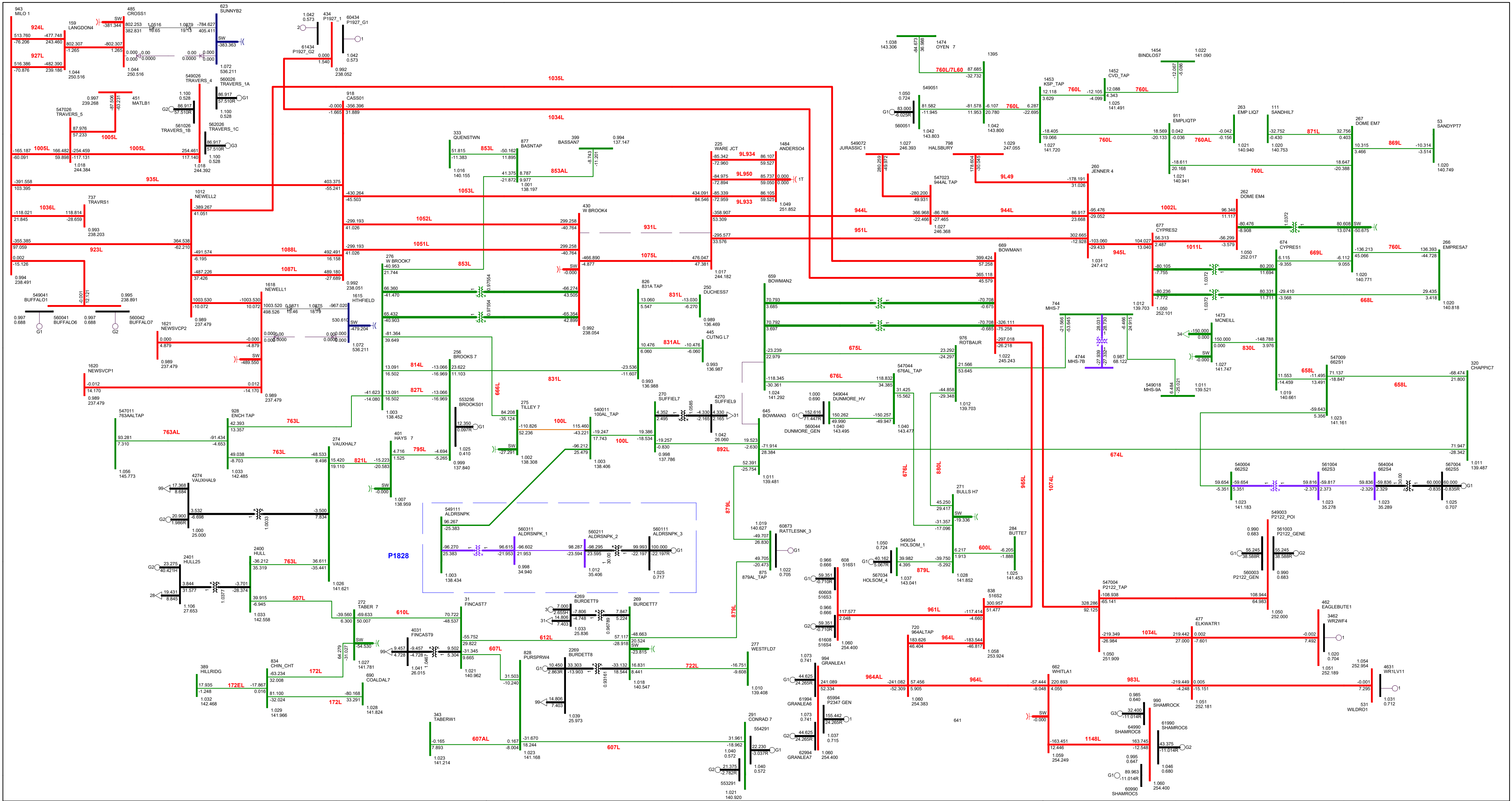
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-4-N-1: 871L (AMOCO EMPRESS 163S TO SAND HILLS 341S
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -513.251 MW

Sask Import: -150.000 MW

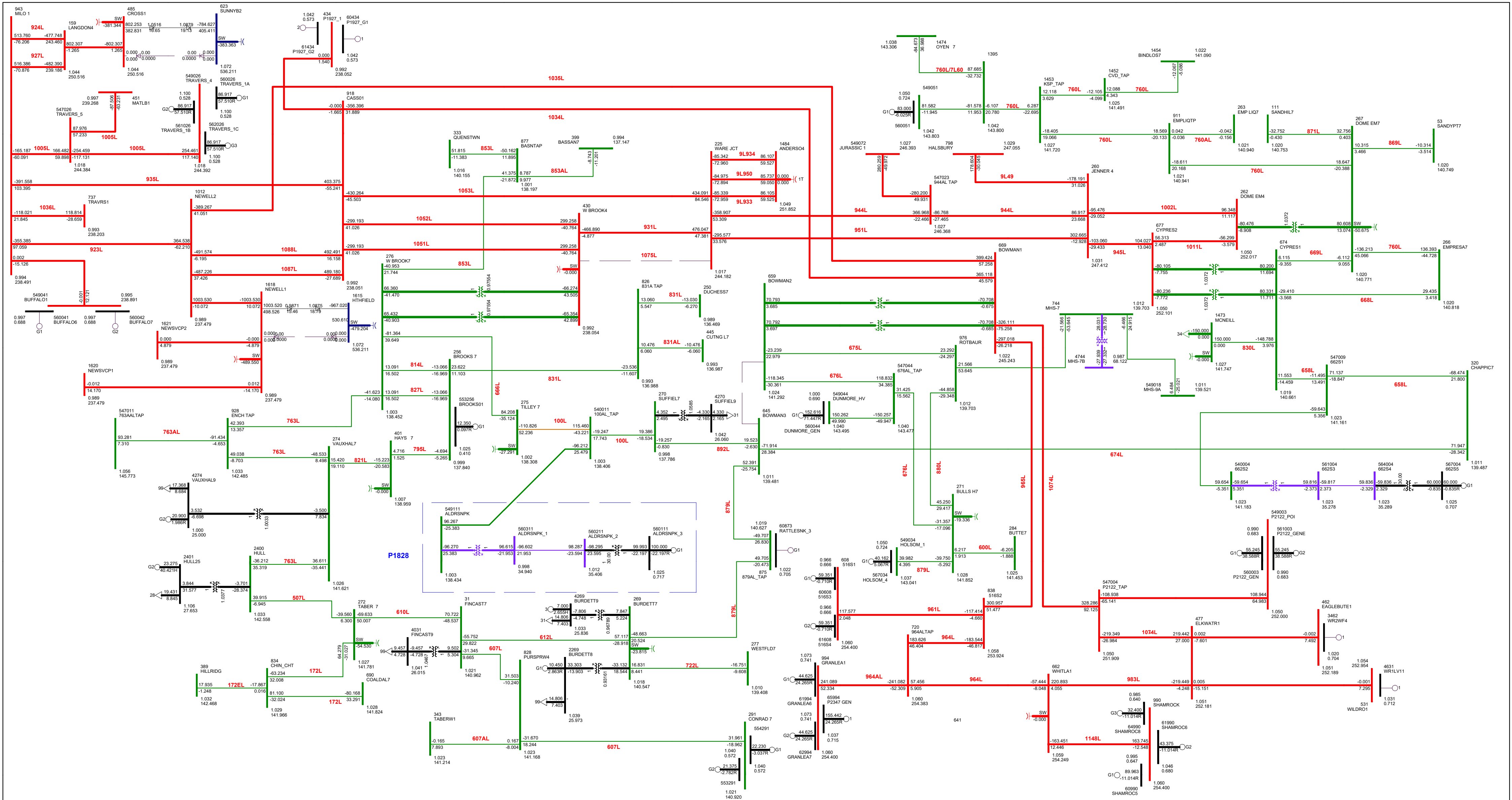
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-5-N-1: 931L (WARE JUNCTION 132S TO WEST BROOKS 28S
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -513.251 MW

Sask Import: -150.000 MW

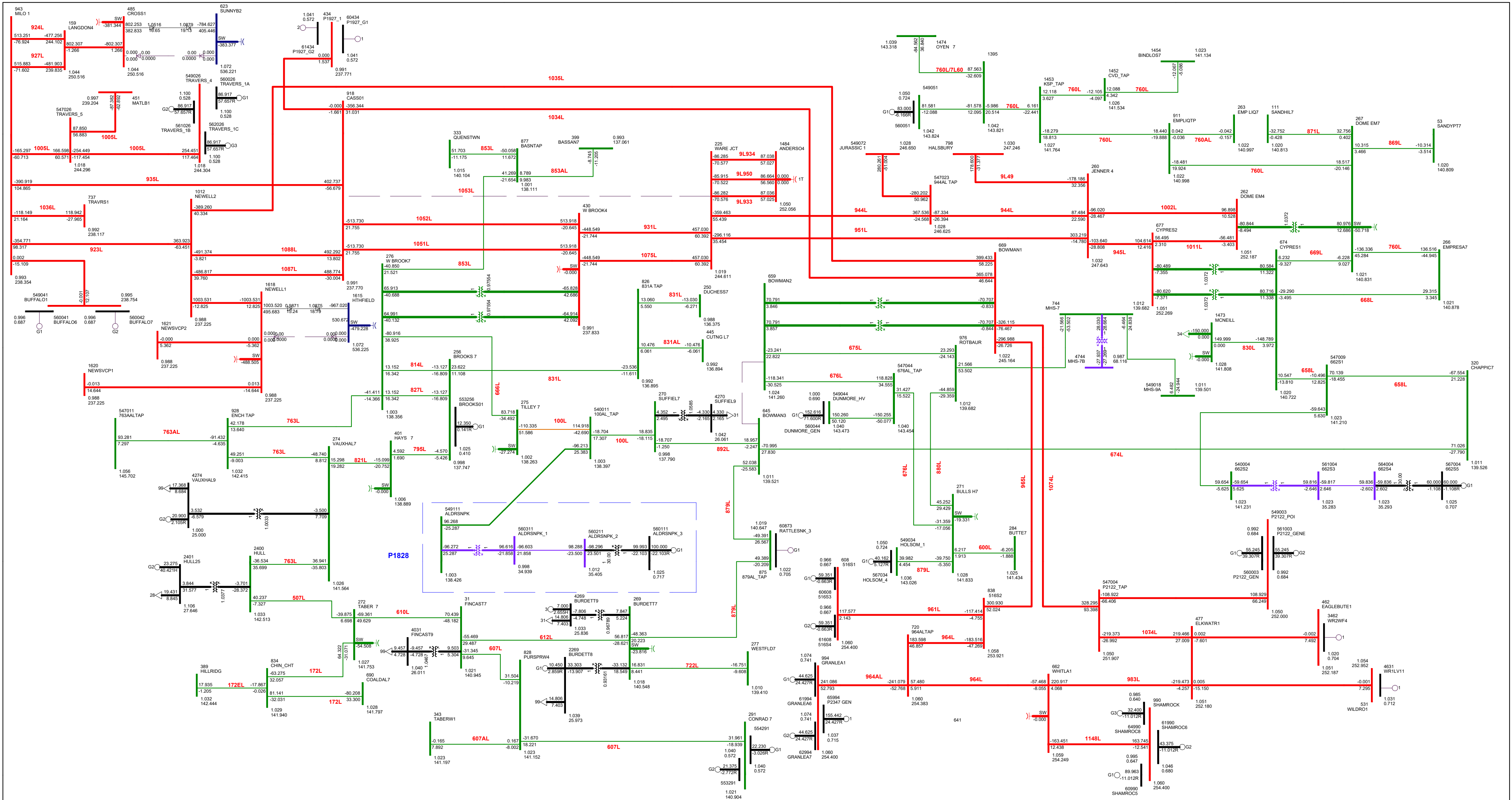
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-6-N-1: 1075L (WARE JUNCTION 132S TO WEST BROOKS 28
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

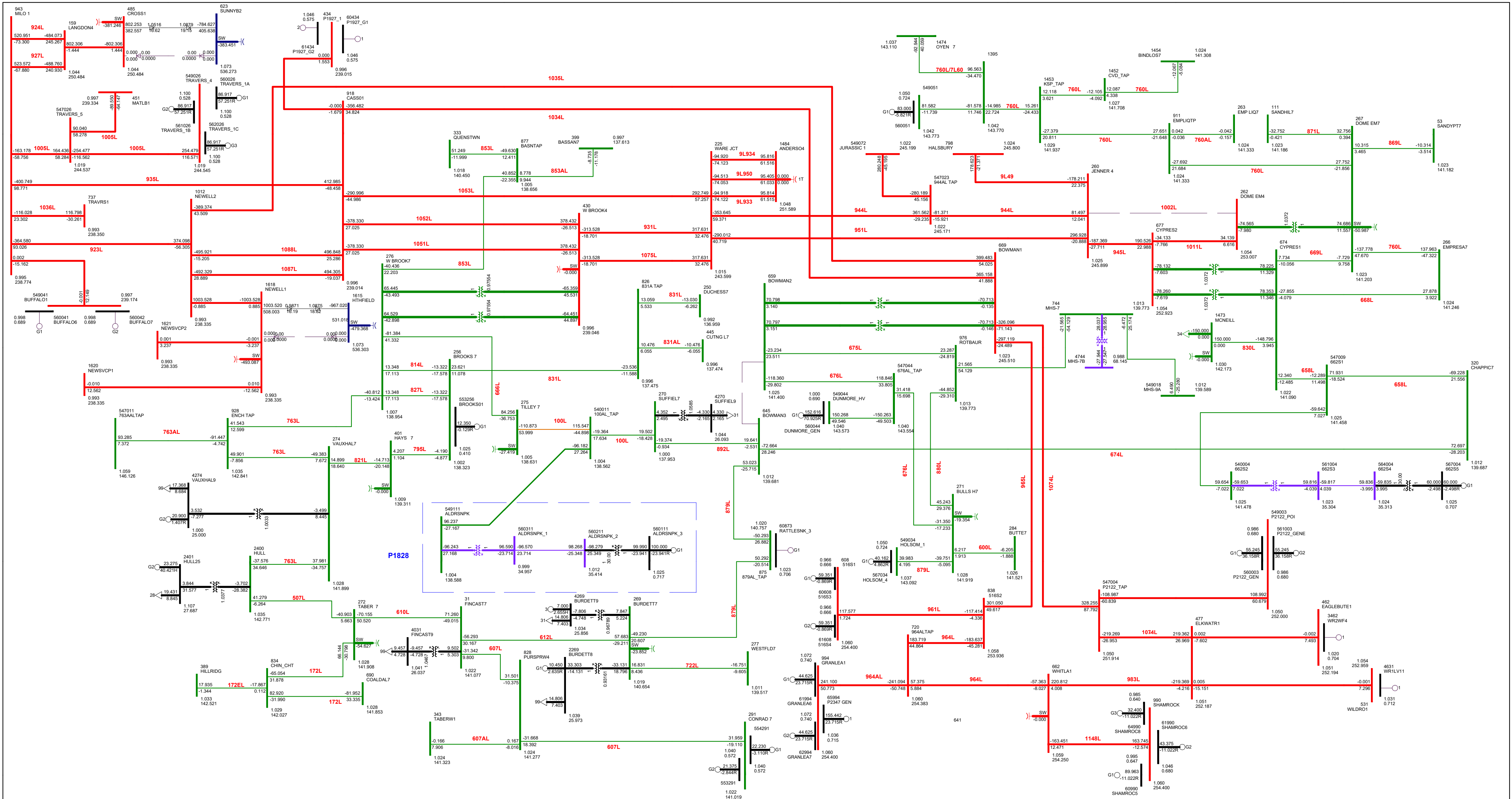
BC Import: -510.167 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE D1-7-N-1: 1053L (WARE JUNCTION 132S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:15

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.481 MW

Sask Import: -150.000 MW

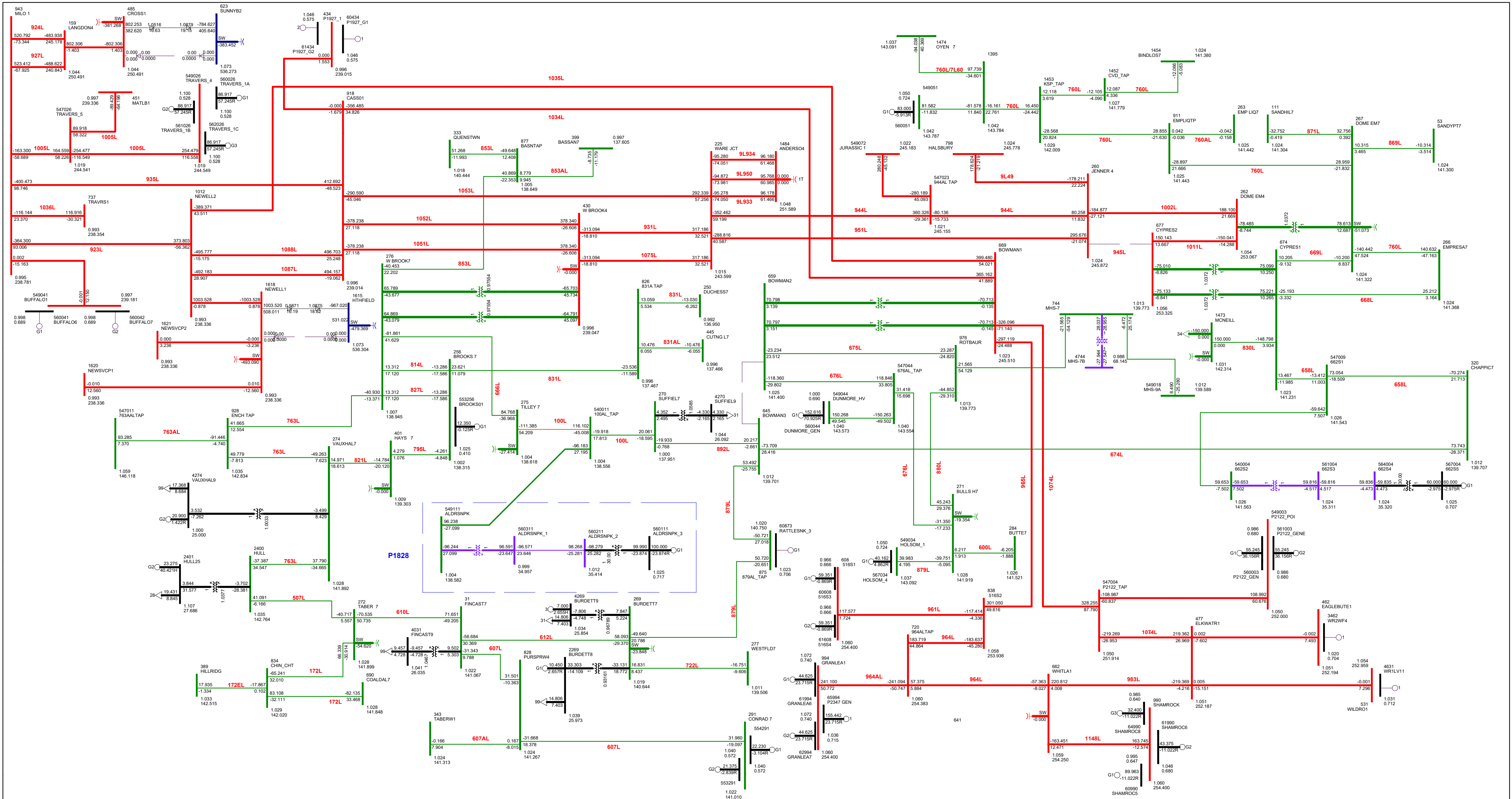
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-8-N-1: 1002L (JENNER 275S TO AMOCO EMPRESS 163S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:16

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.133 MW

Sask Import: -150.000 MW

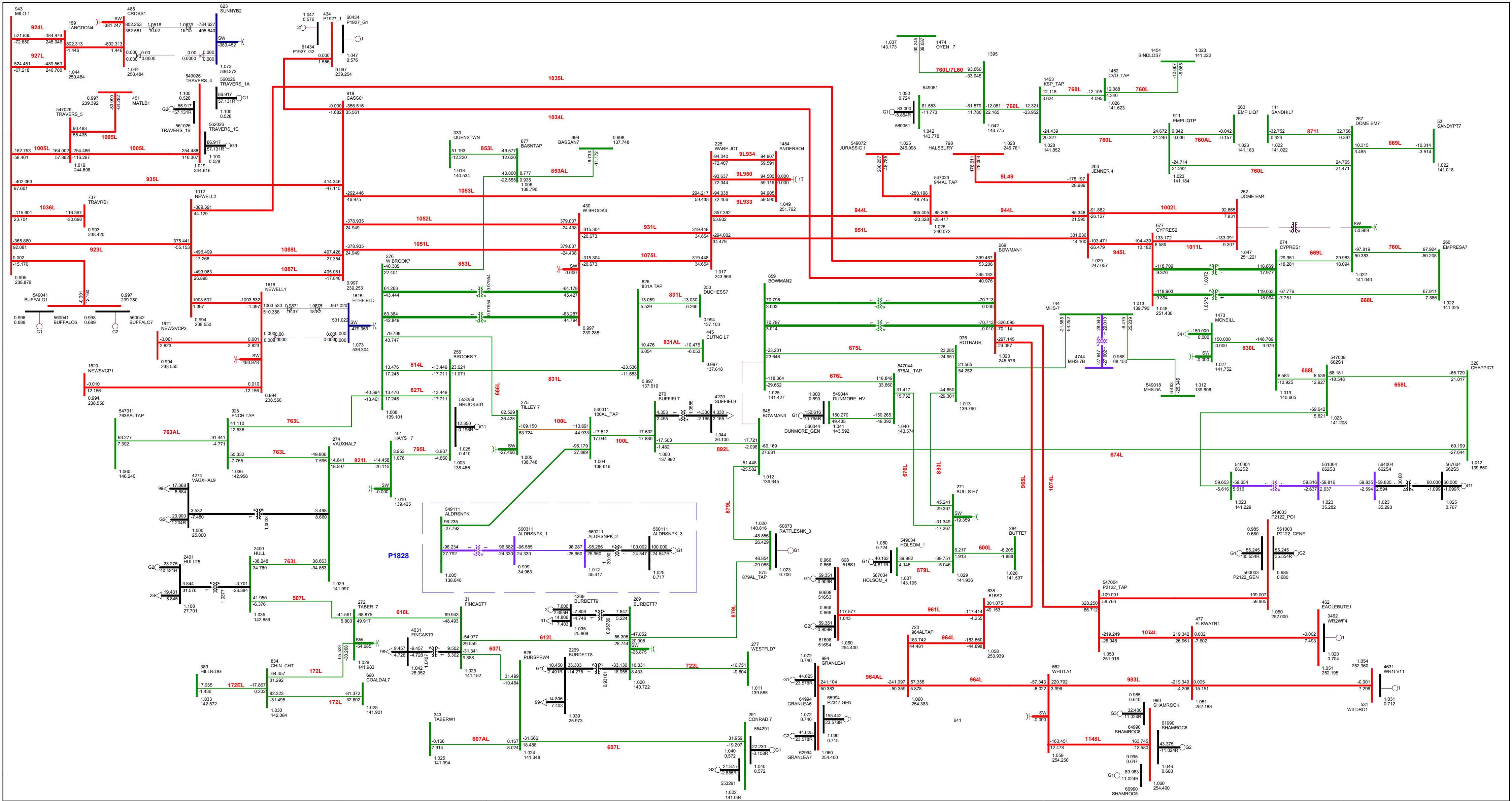
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-9-N-1: 945L (JENNER 275S TO CYPRESS 562S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 13:16

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.479 MW

Sask Import: -150.000 MW

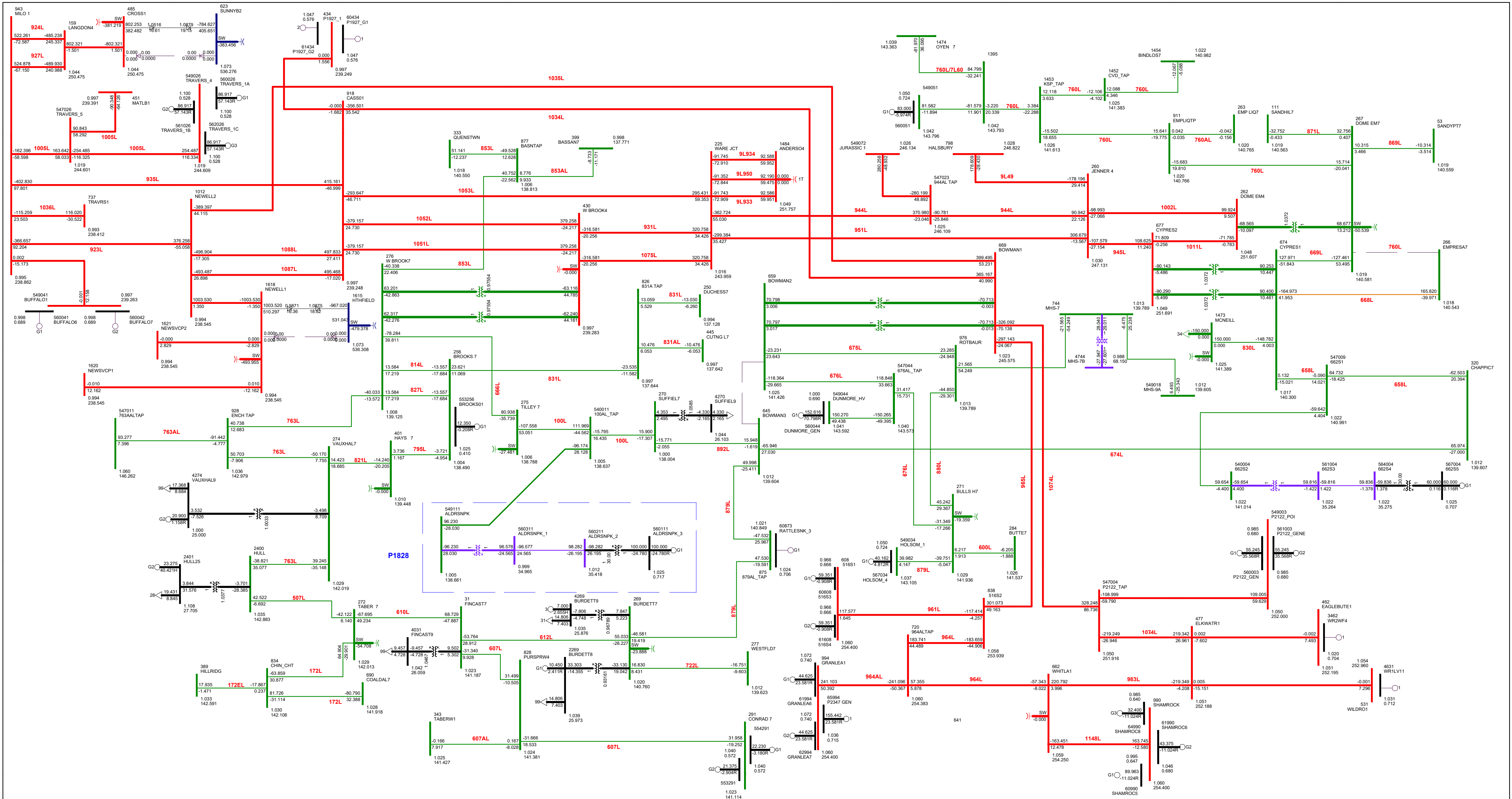
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-10-N-1: 163ST1 (AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:50

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

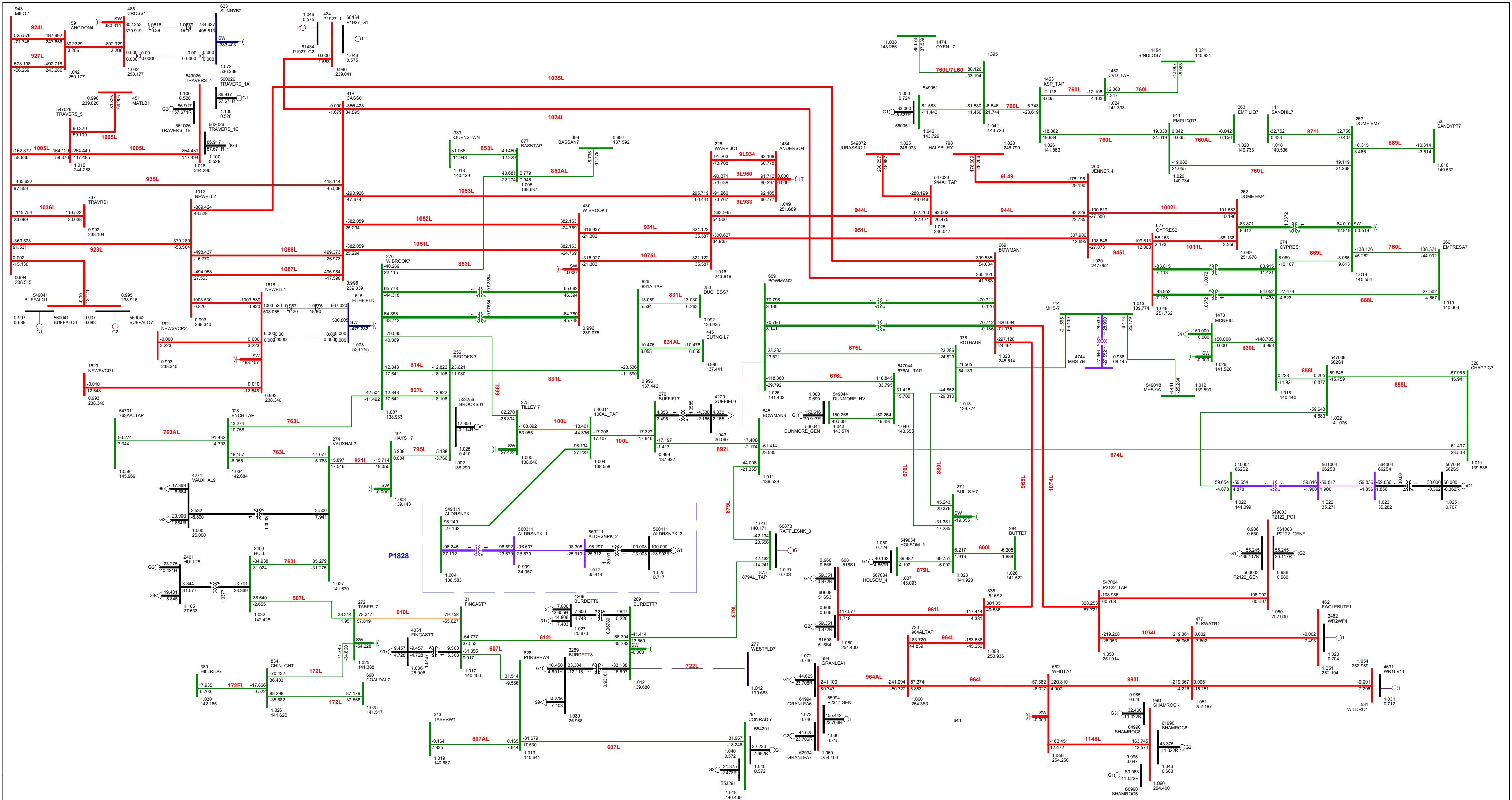
BC Import: -518.503 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-11-N-1: 760L (AMOCO EMPRESS 163S TO EMPRESS 394S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -531.429 MW

Sask Import: -150.000 MW

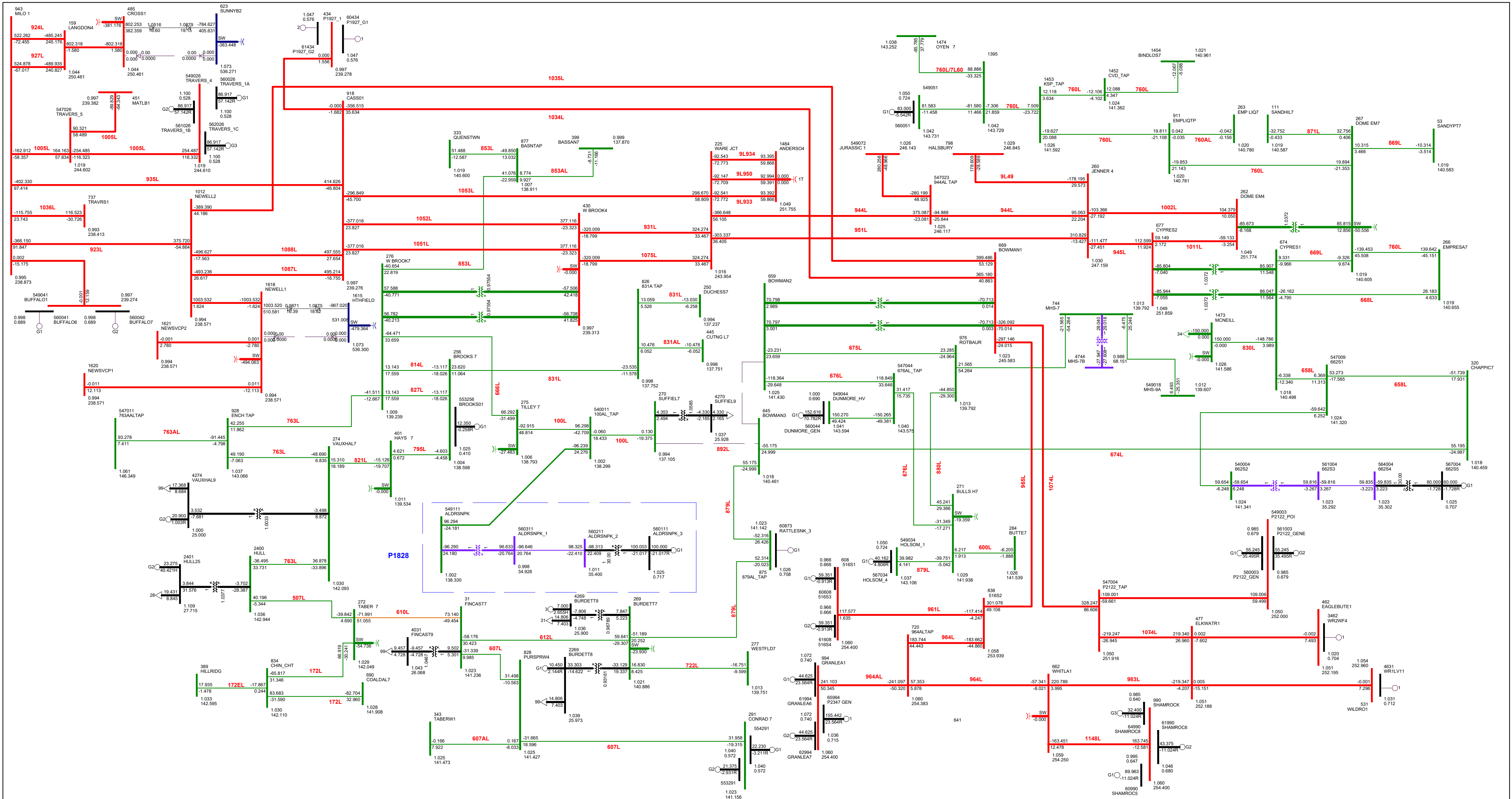
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-12-N-1: 722L (BURDETT 368S TO WESTFIELD 107S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

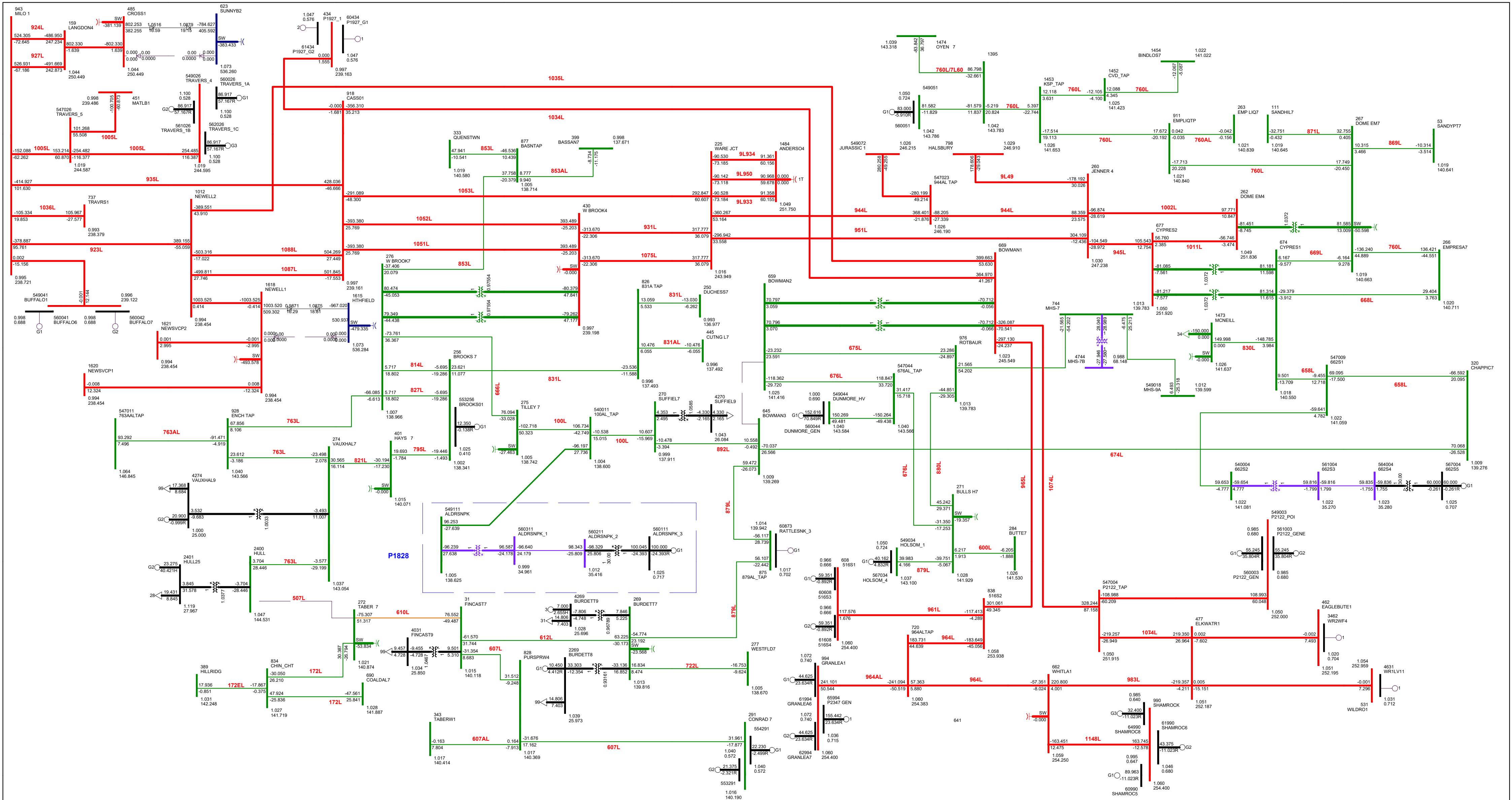
BC Import: -519.937 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE D1-13-N-1: 892L (SUFFIELD 895S TO BOWMANTON 244S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

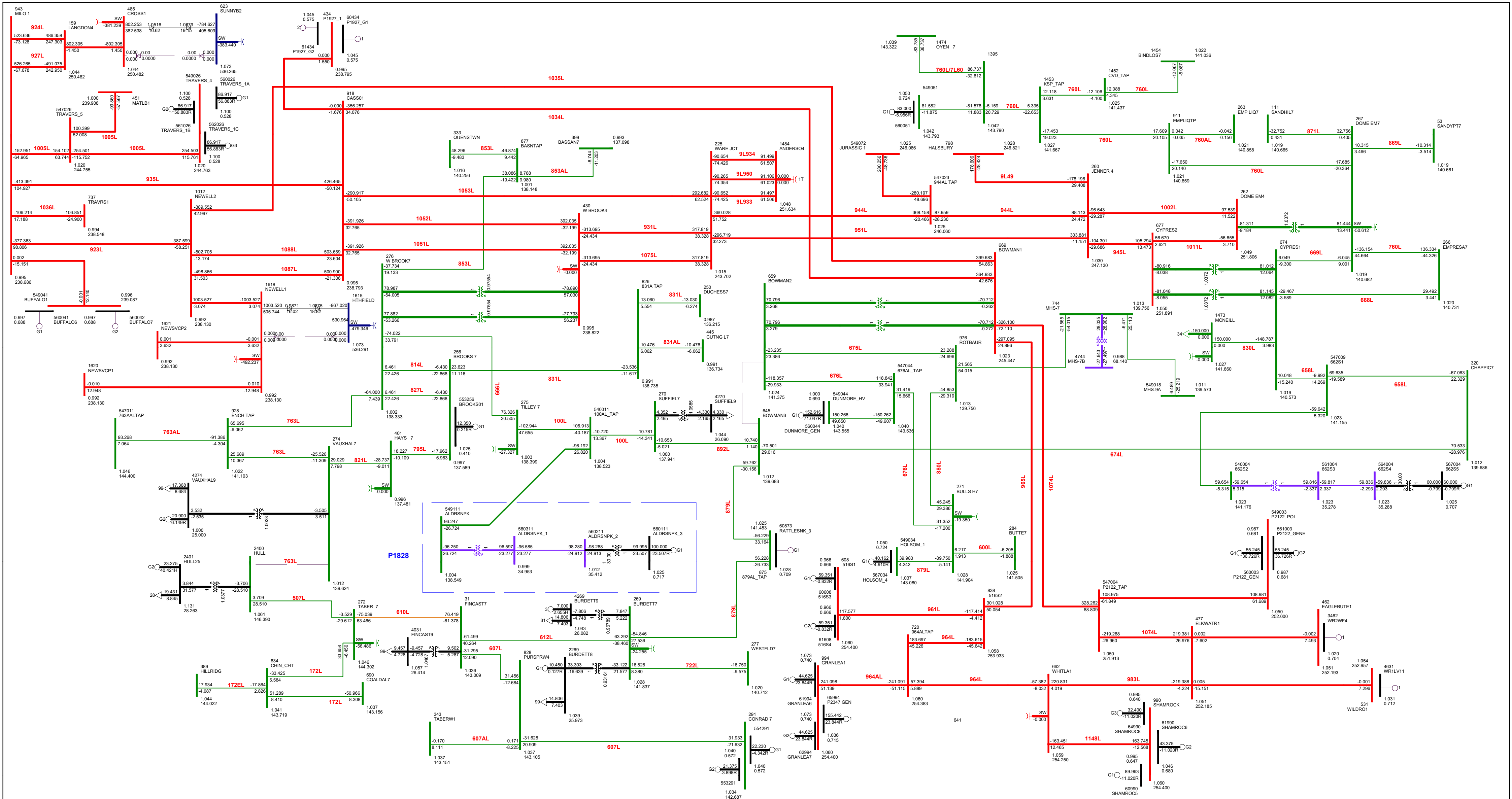
BC Import: -517.680 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-14-N-1: 507L (TABER 83S TO HULL 257S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.563 MW

Sask Import: -150.000 MW

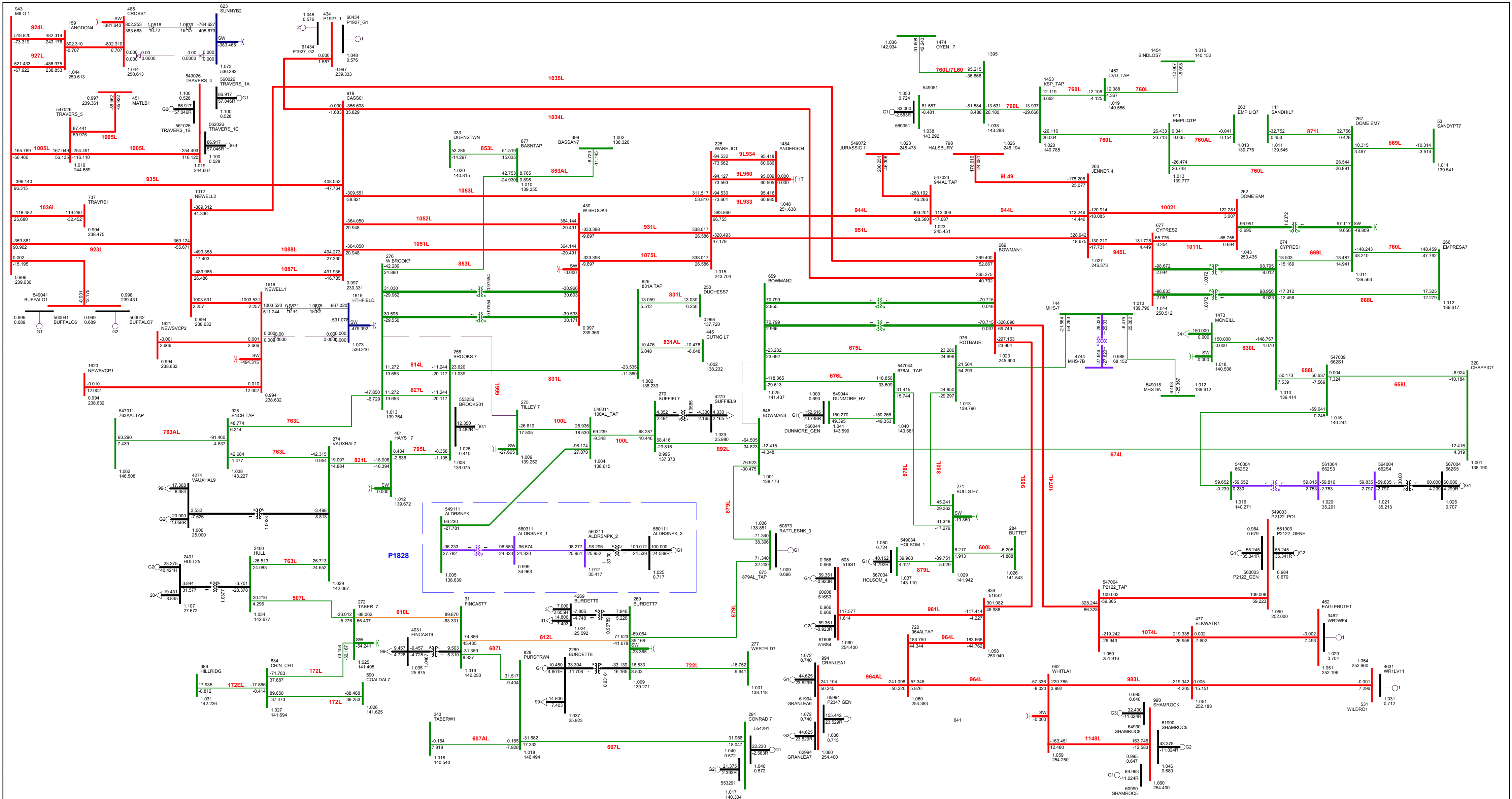
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-15-N-1: 763L (VAUXHALL 158S TO HULL 257S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

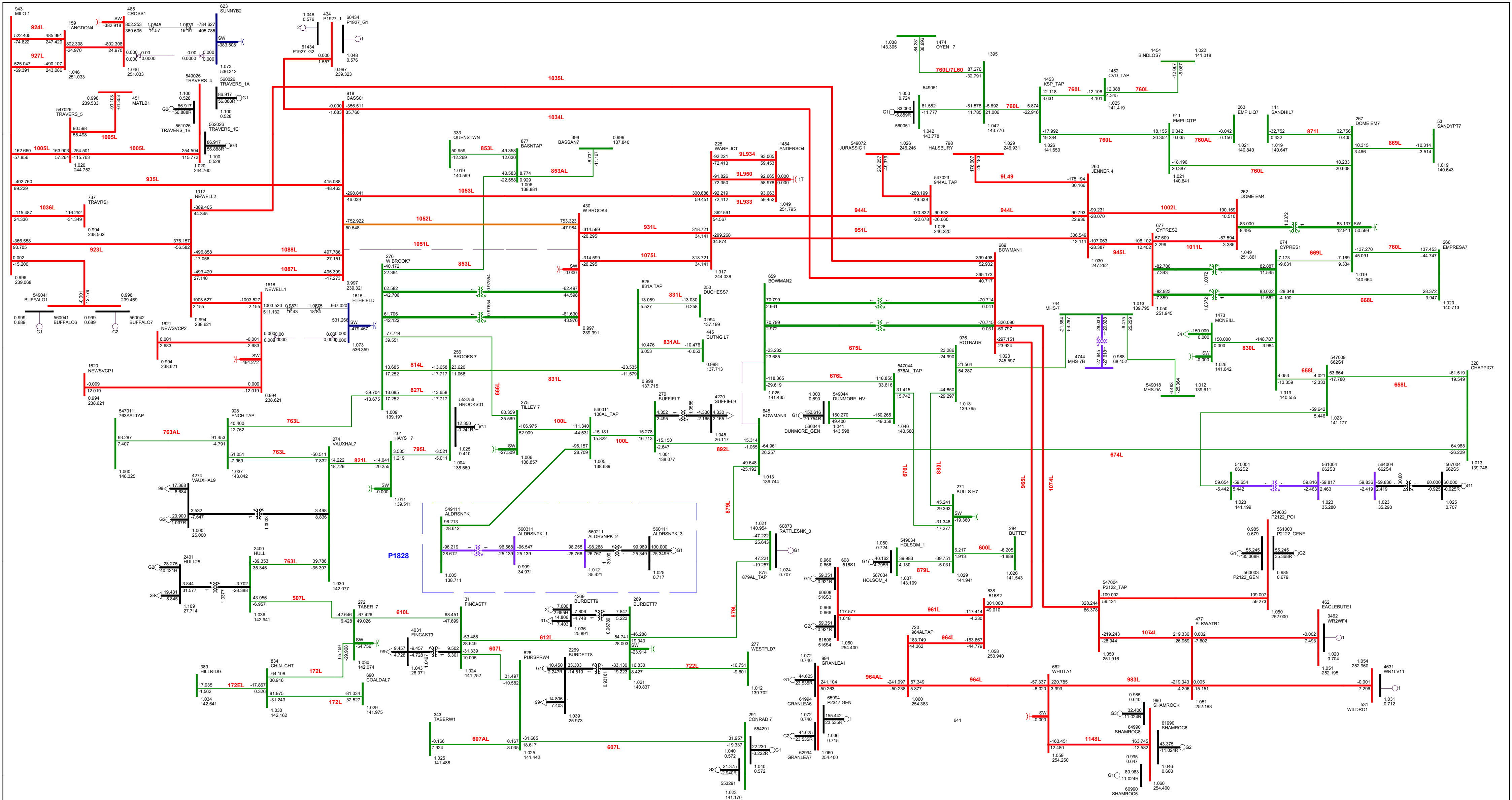
BC Import: -512.496 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-16-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:42

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.436 MW

Sask Import: -150.000 MW

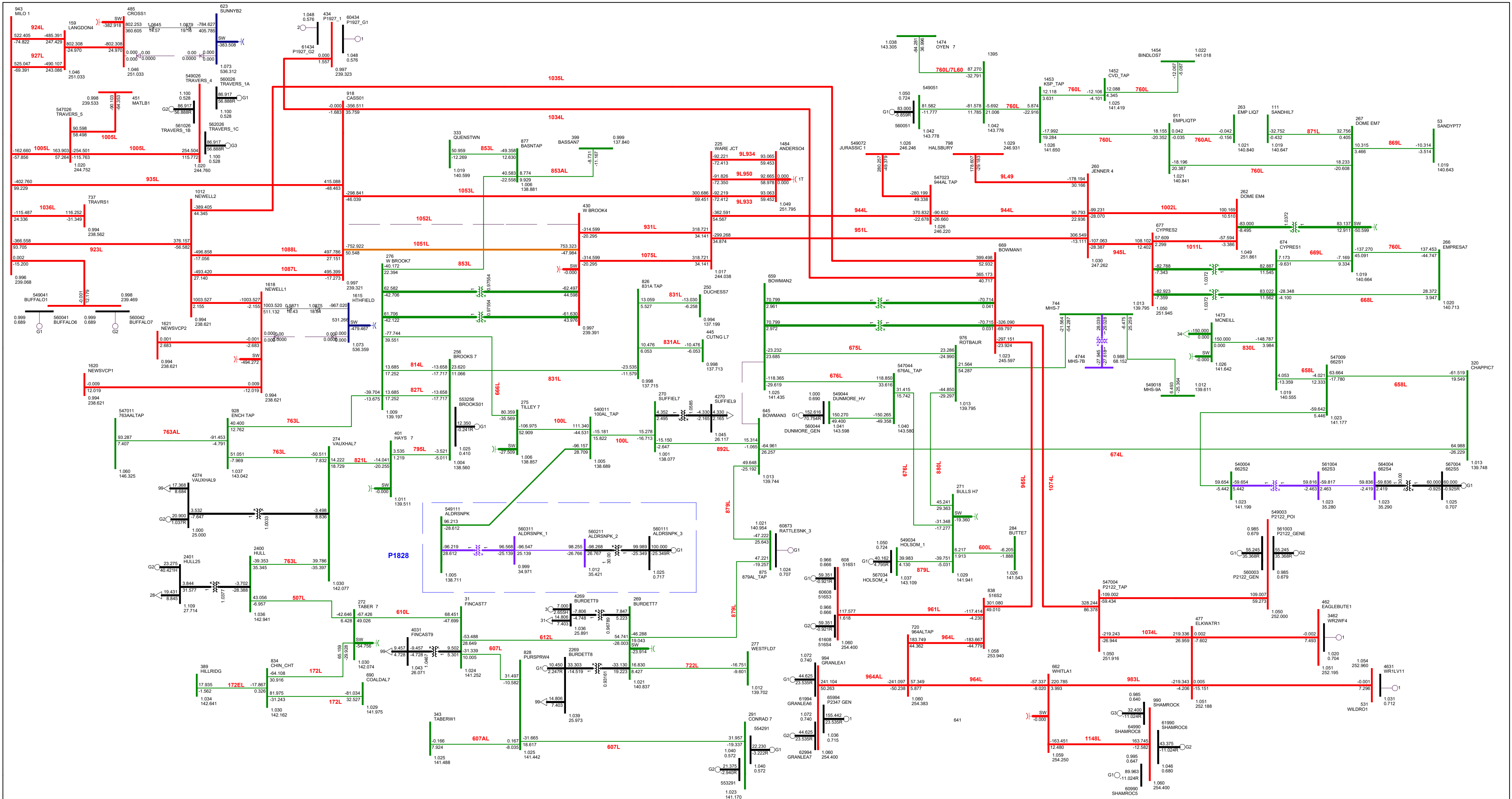
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-17-N-1: 1051L(WEST BROOKS 228S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -519.436 MW

Sask Import: -150.000 MW

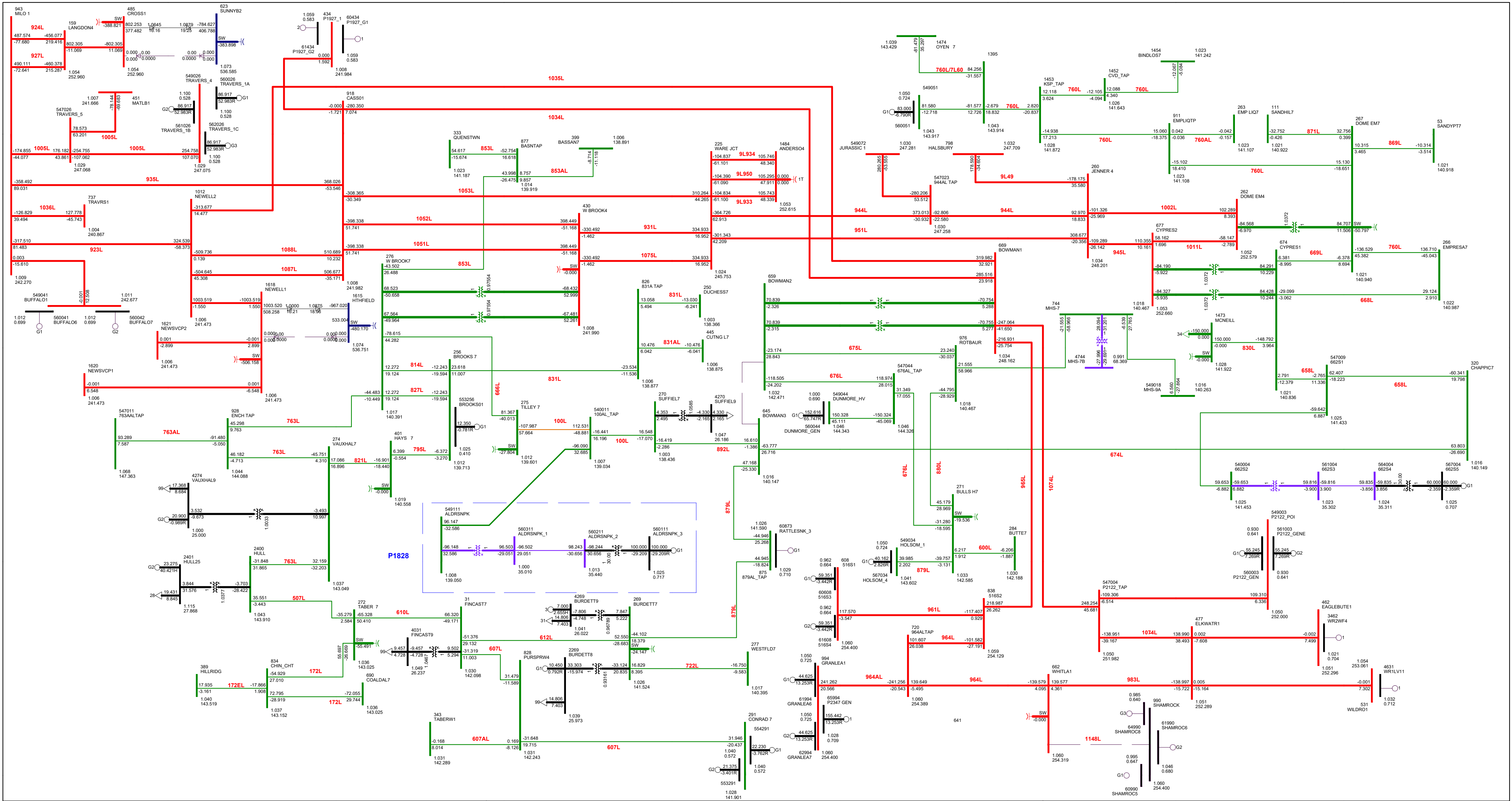
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-18-N-1: 1052L(WEST BROOKS 228S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -402.229 MW

Sask Import: -150.000 MW

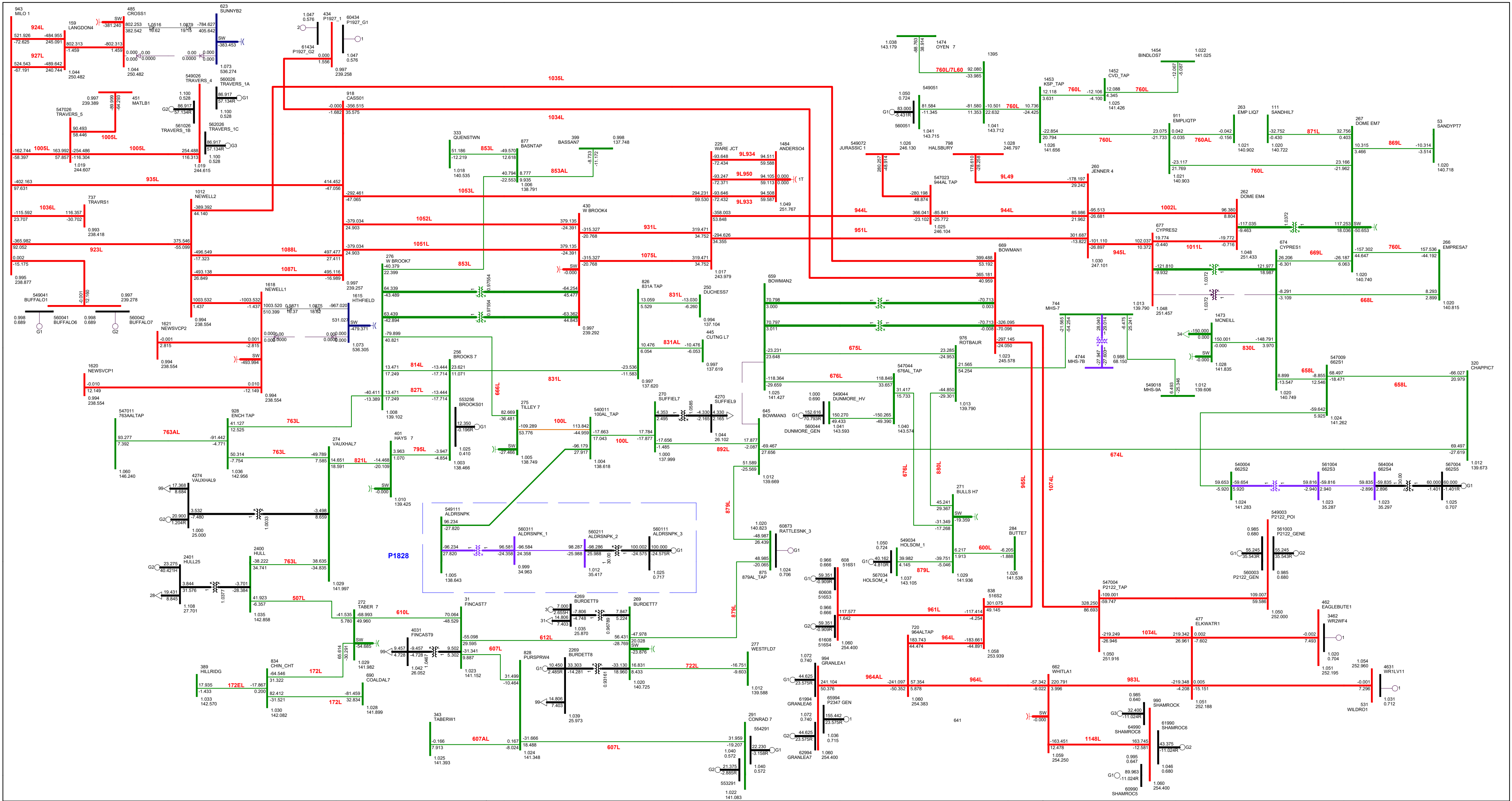
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-19-N-1: 1148L(WHITLA 251S TO SHAMROCK 1018S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

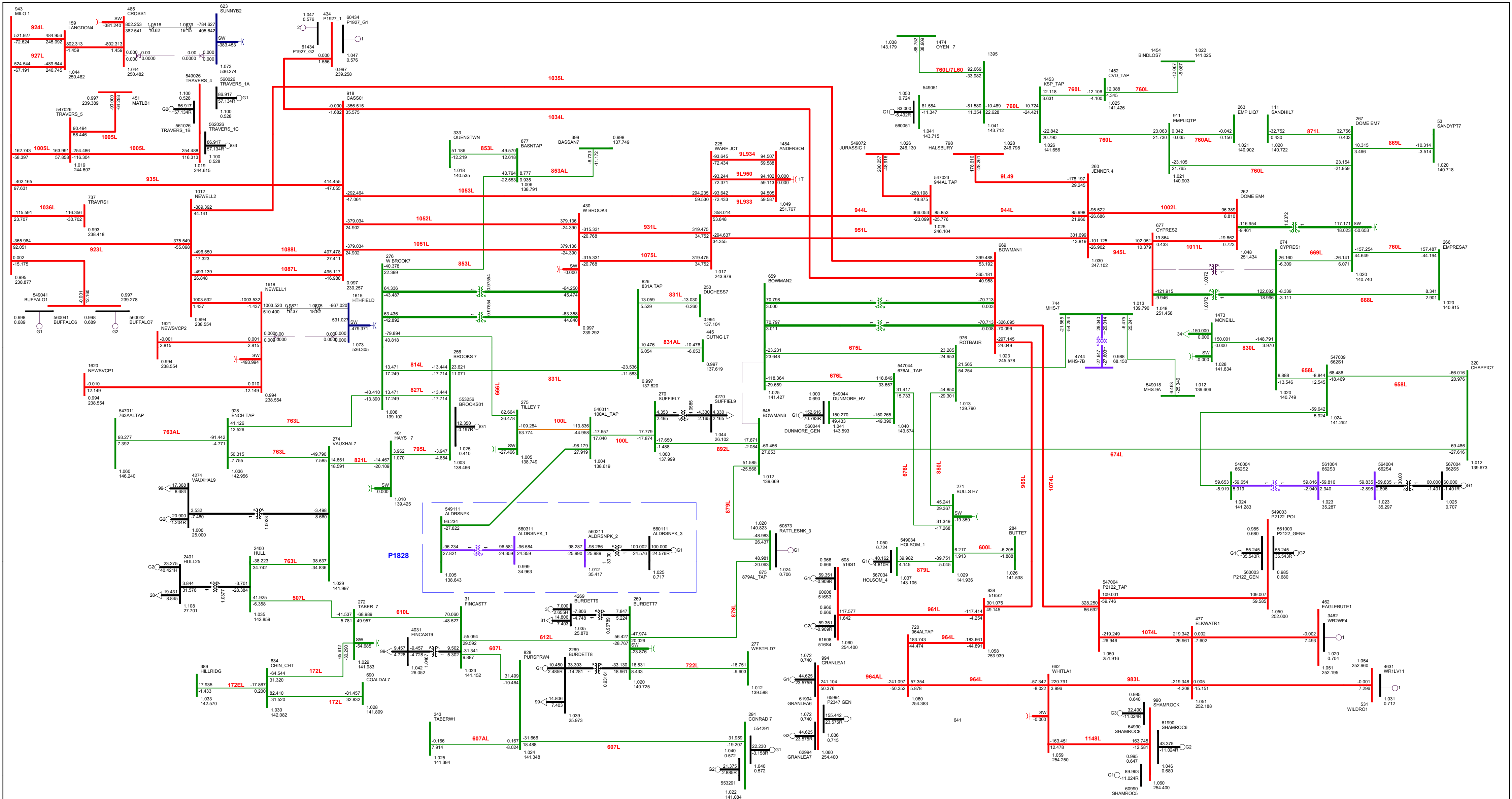
BC Import: -518.538 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE D1-20-N-1: 562ST1(CYPRESS 562S TRANSFORMER T1)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.541 MW

Sask Import: -150.000 MW

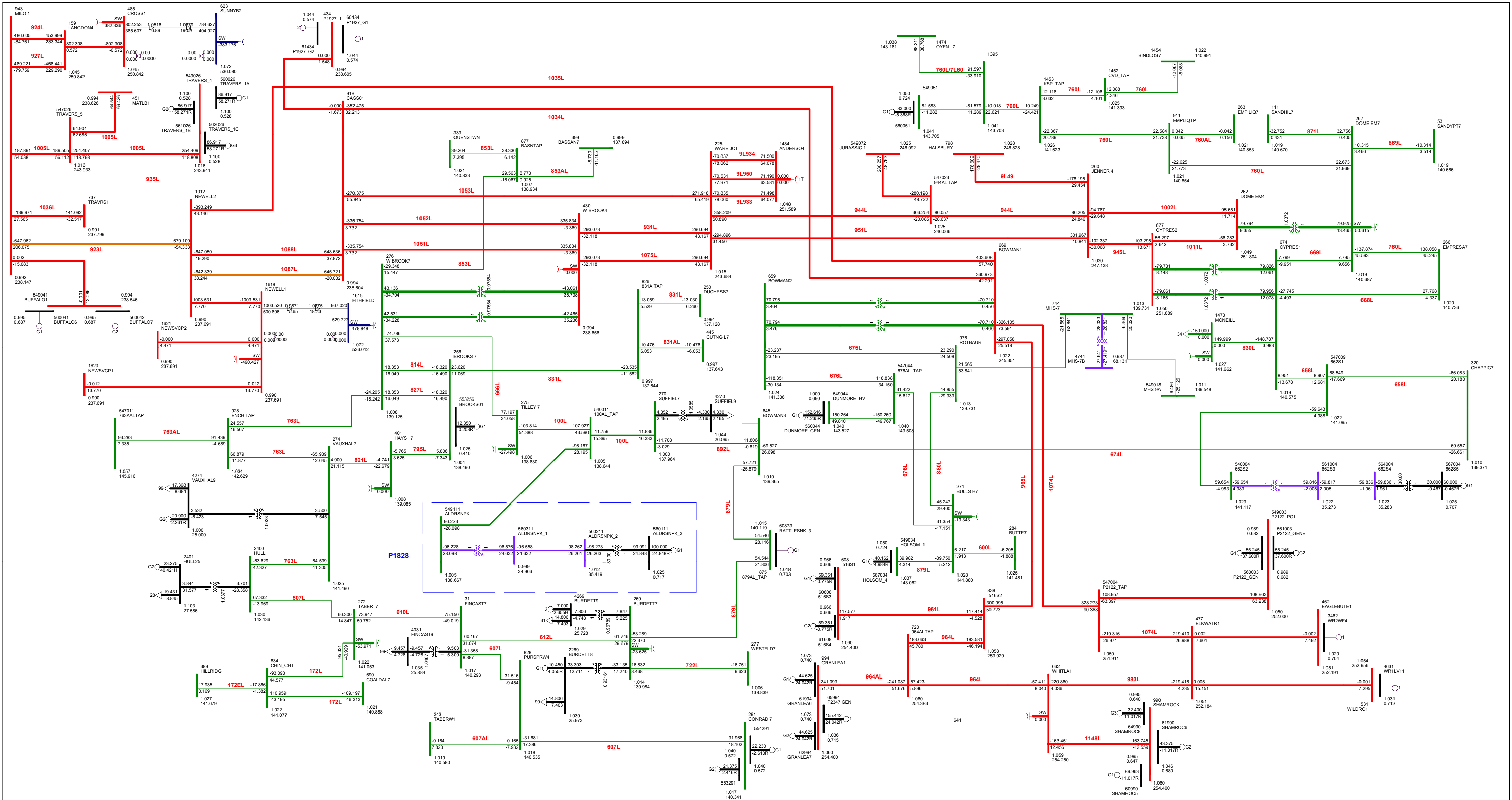
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-21-N-1: 562ST1(CYPRESS 562S TRANSFORMER T2)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:43

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -491.730 MW

Sask Import: -150.000 MW

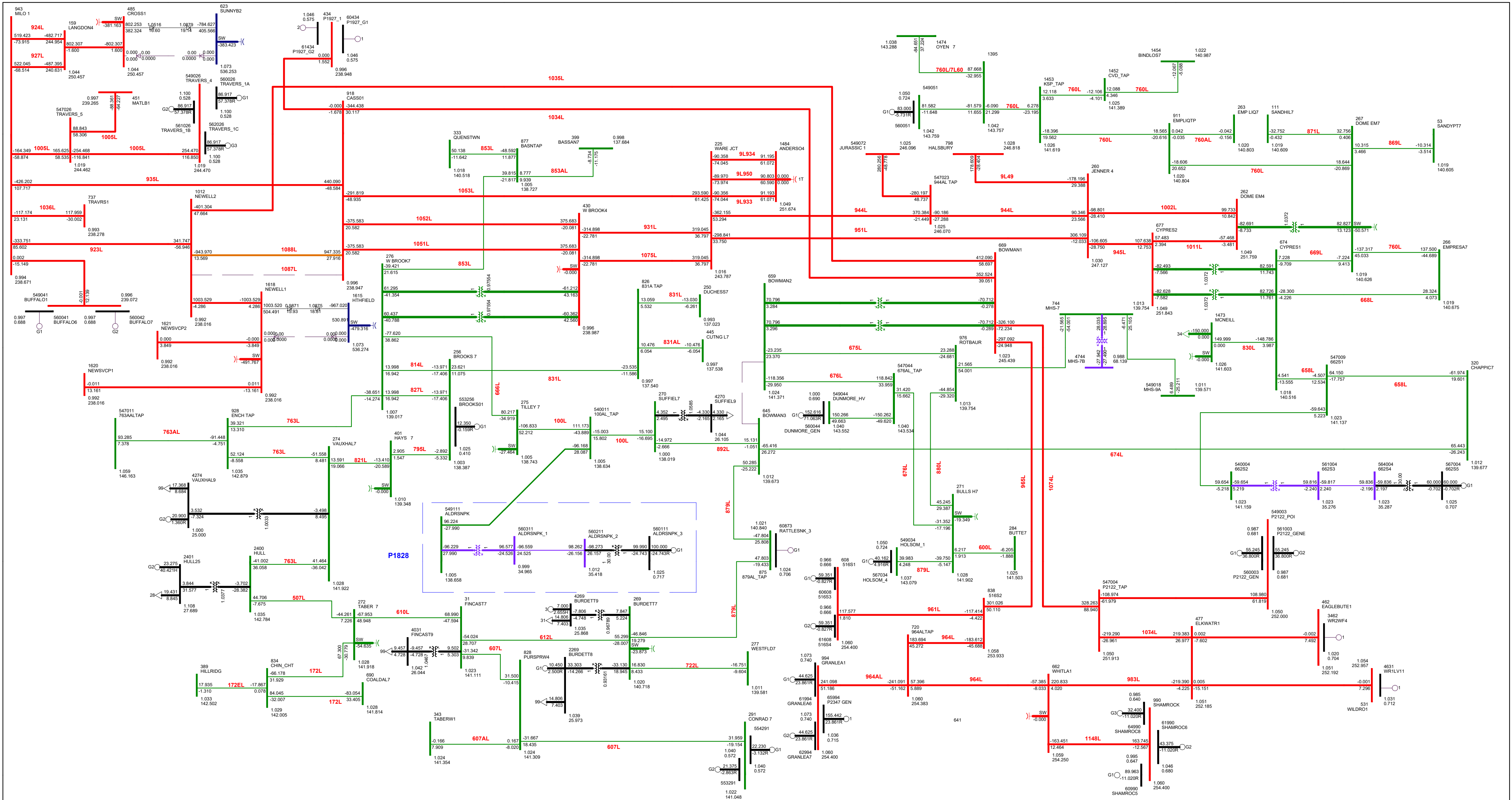
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-22-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 14:44

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.438 MW

Sask Import: -150.000 MW

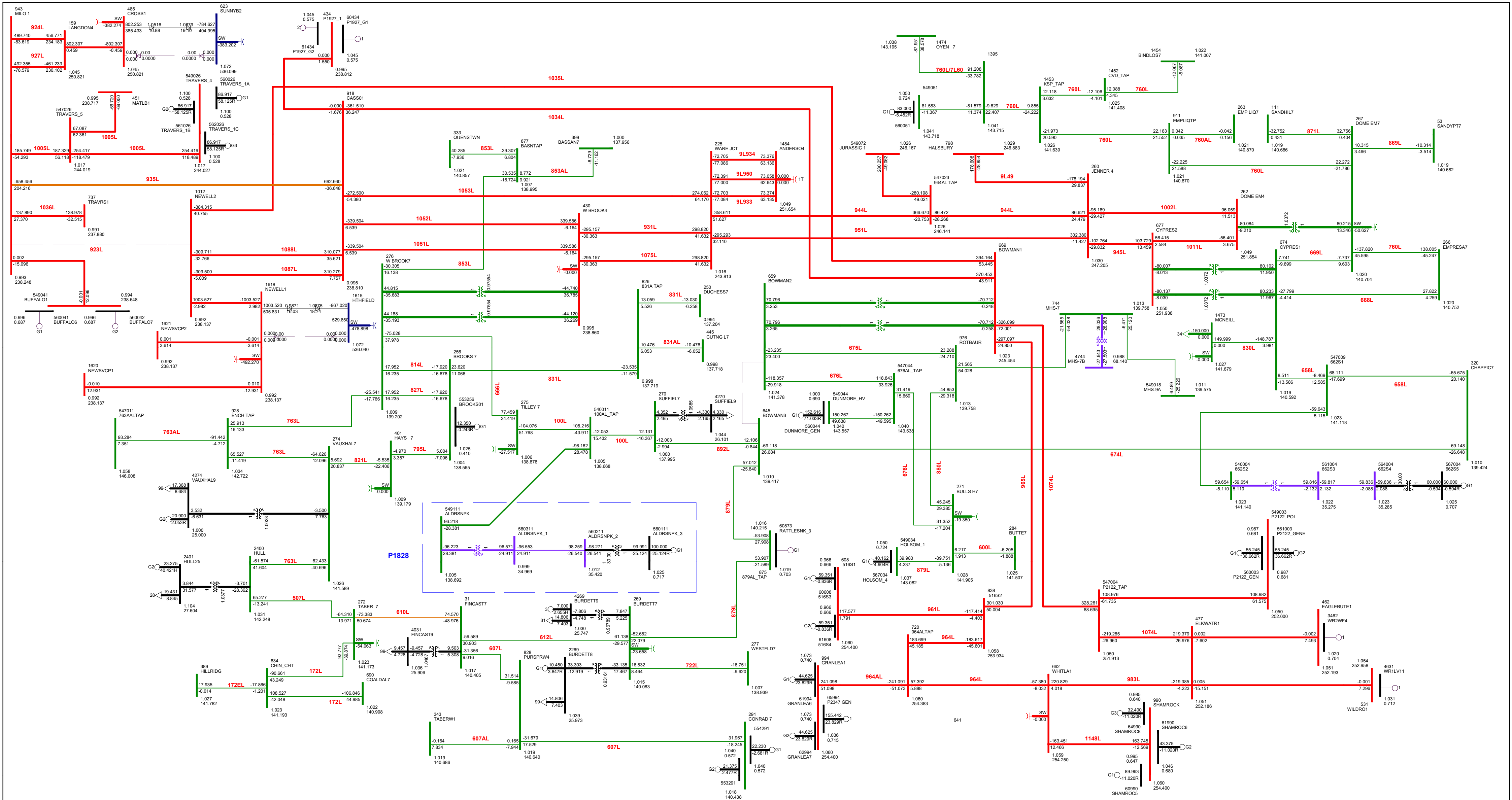
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-23-N-1: 1087(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -494.332 MW

Sask Import: -150.000 MW

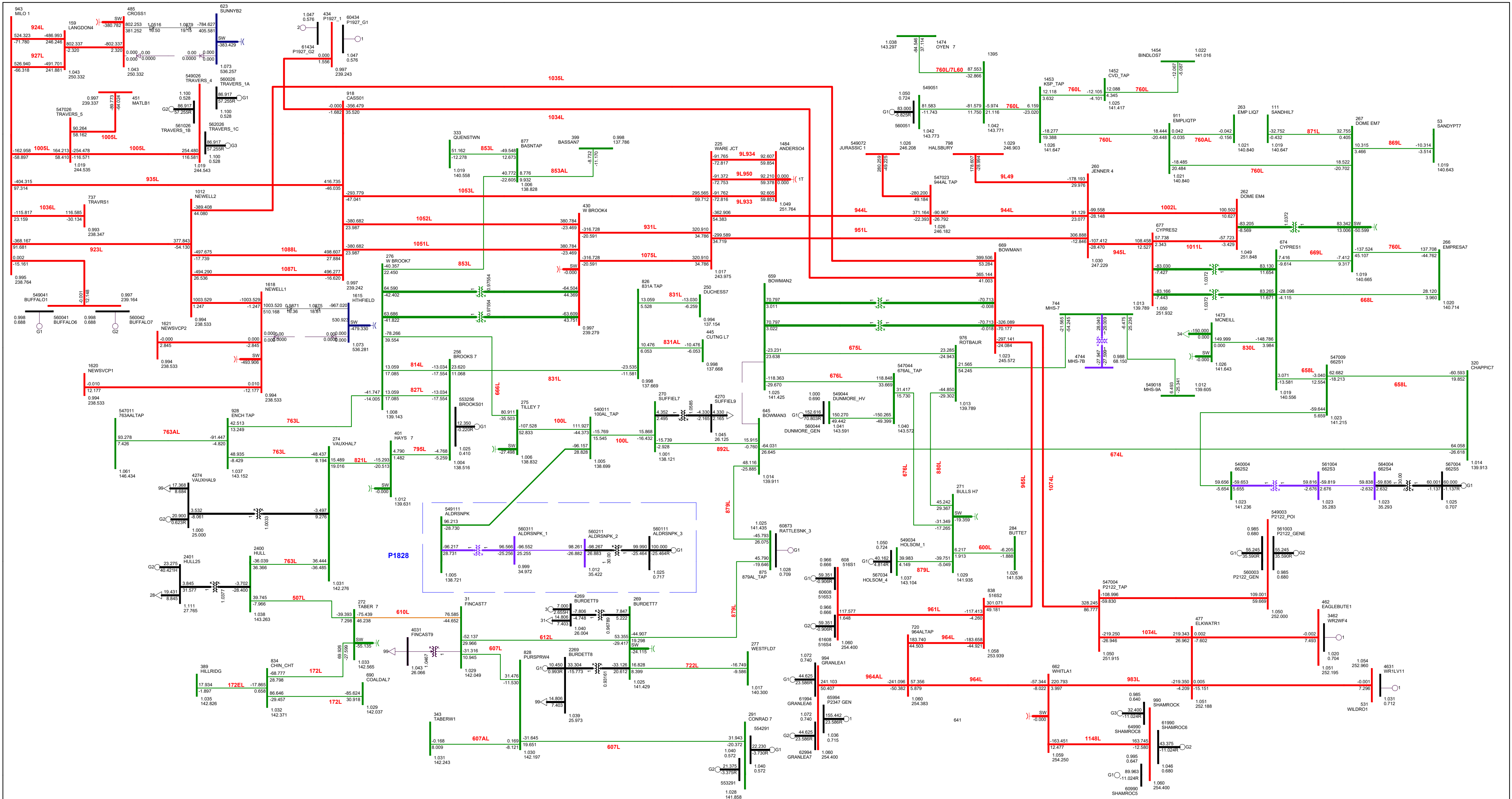
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-24-N-1: 923L(MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -526.707 MW

Sask Import: -150.000 MW

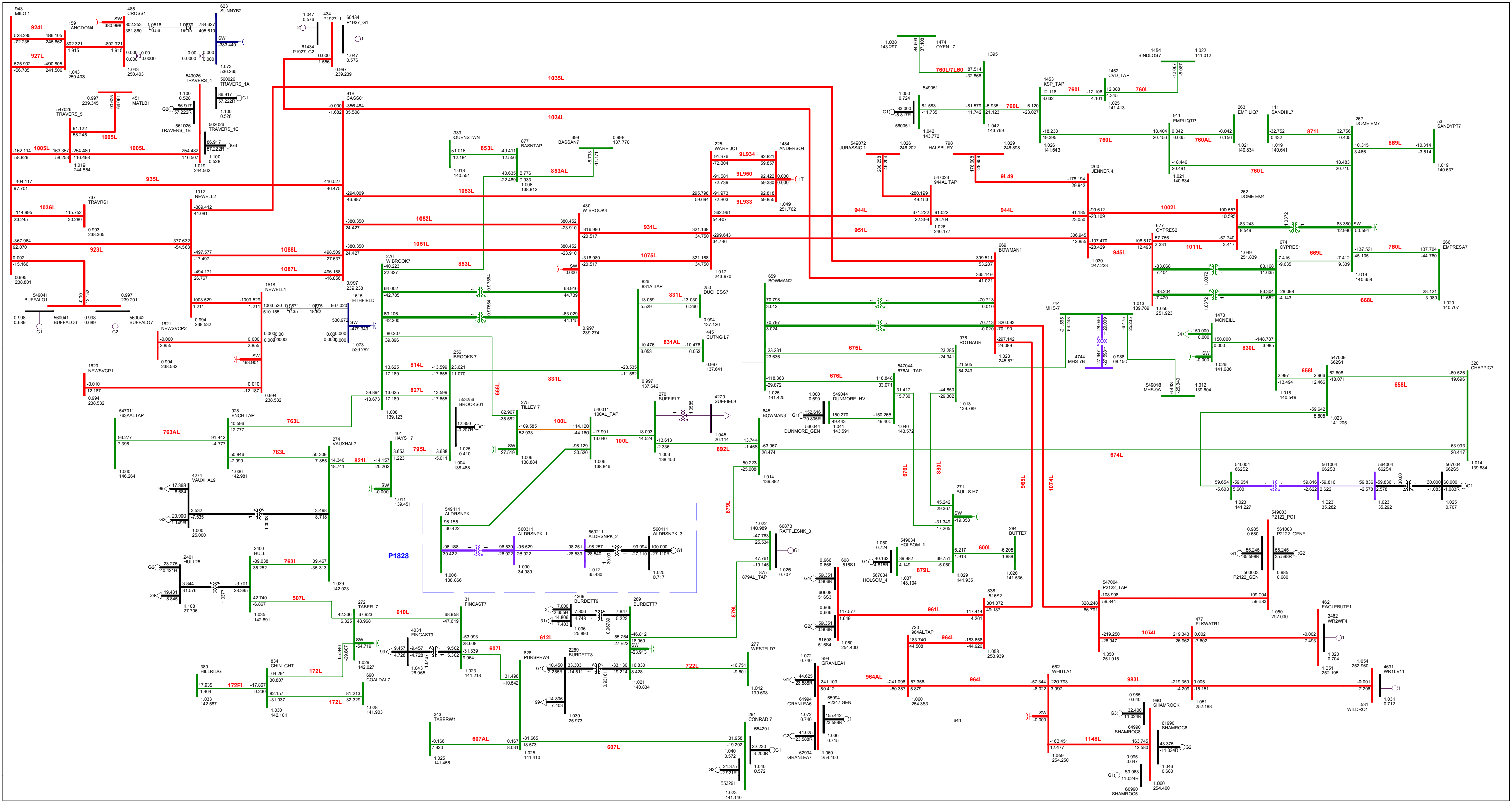
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-25-N-1: 336ST1(FINCASTLE 336S TRANSFORMER T1)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

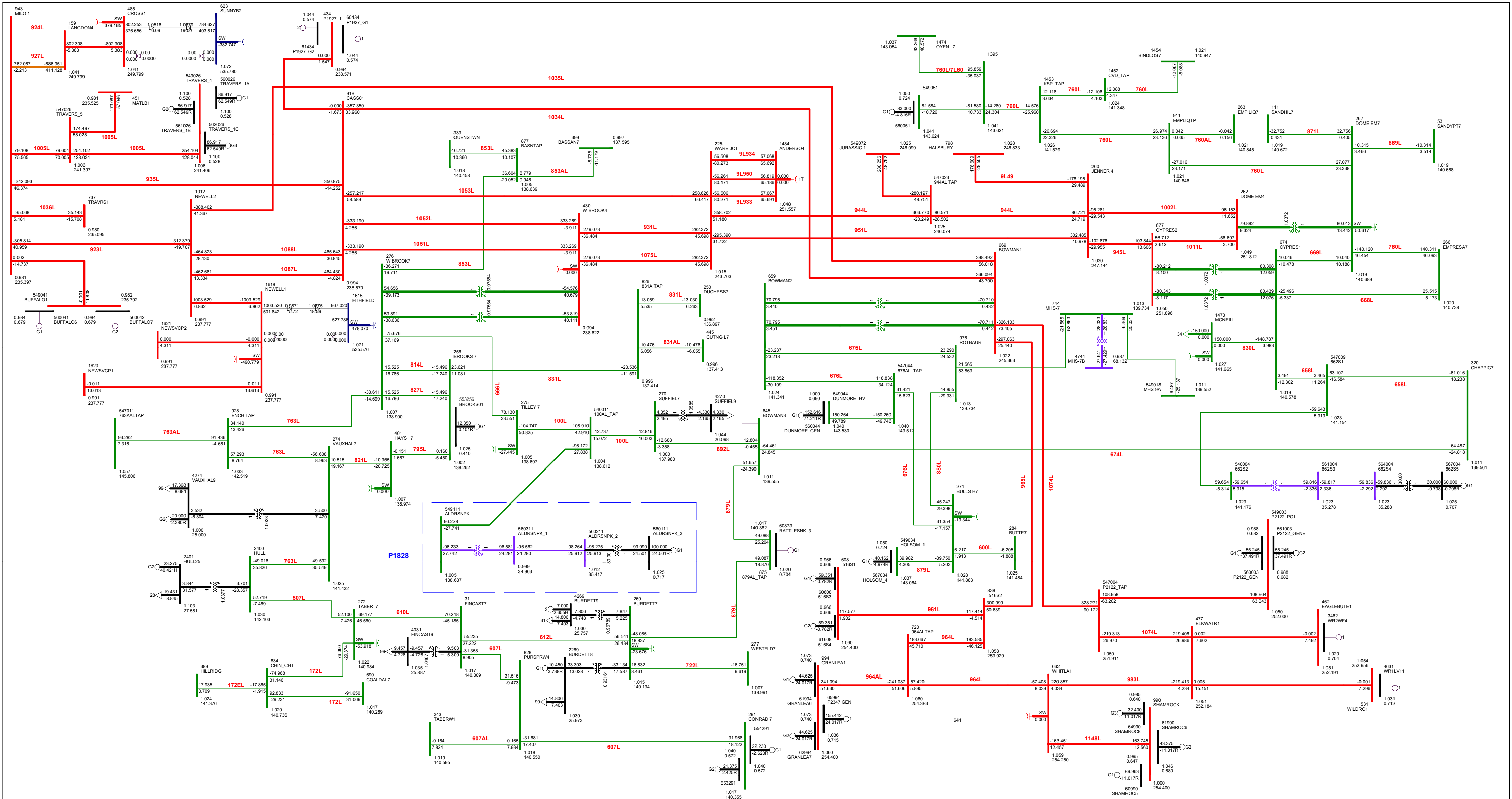
BC Import: -522.382 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-26-N-1: 895ST2(SUFFIELD 895S TRANSFORMER T2)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -466.822 MW

Sask Import: -150.000 MW

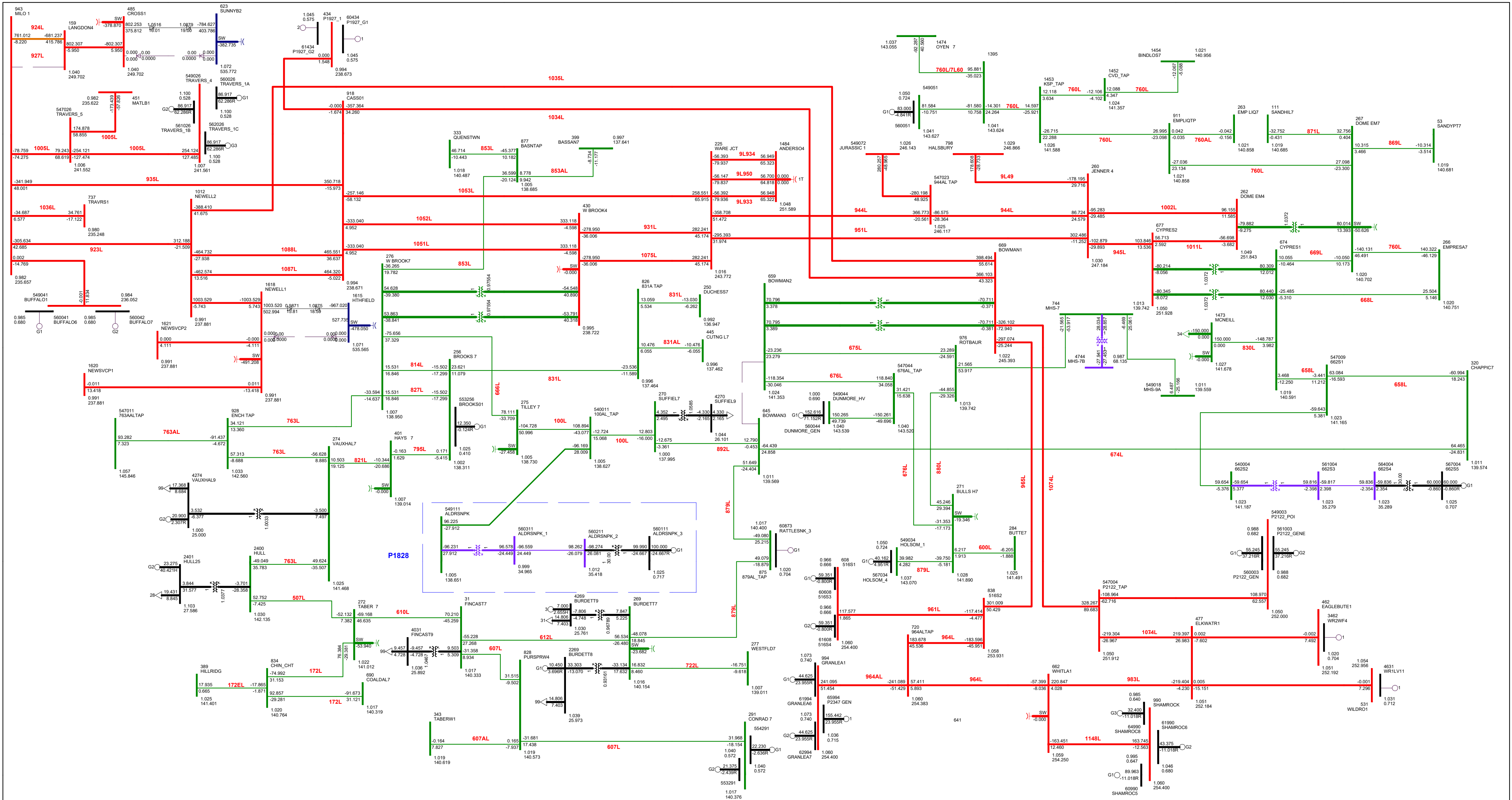
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-27-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -462.111 MW

Sask Import: -150.000 MW

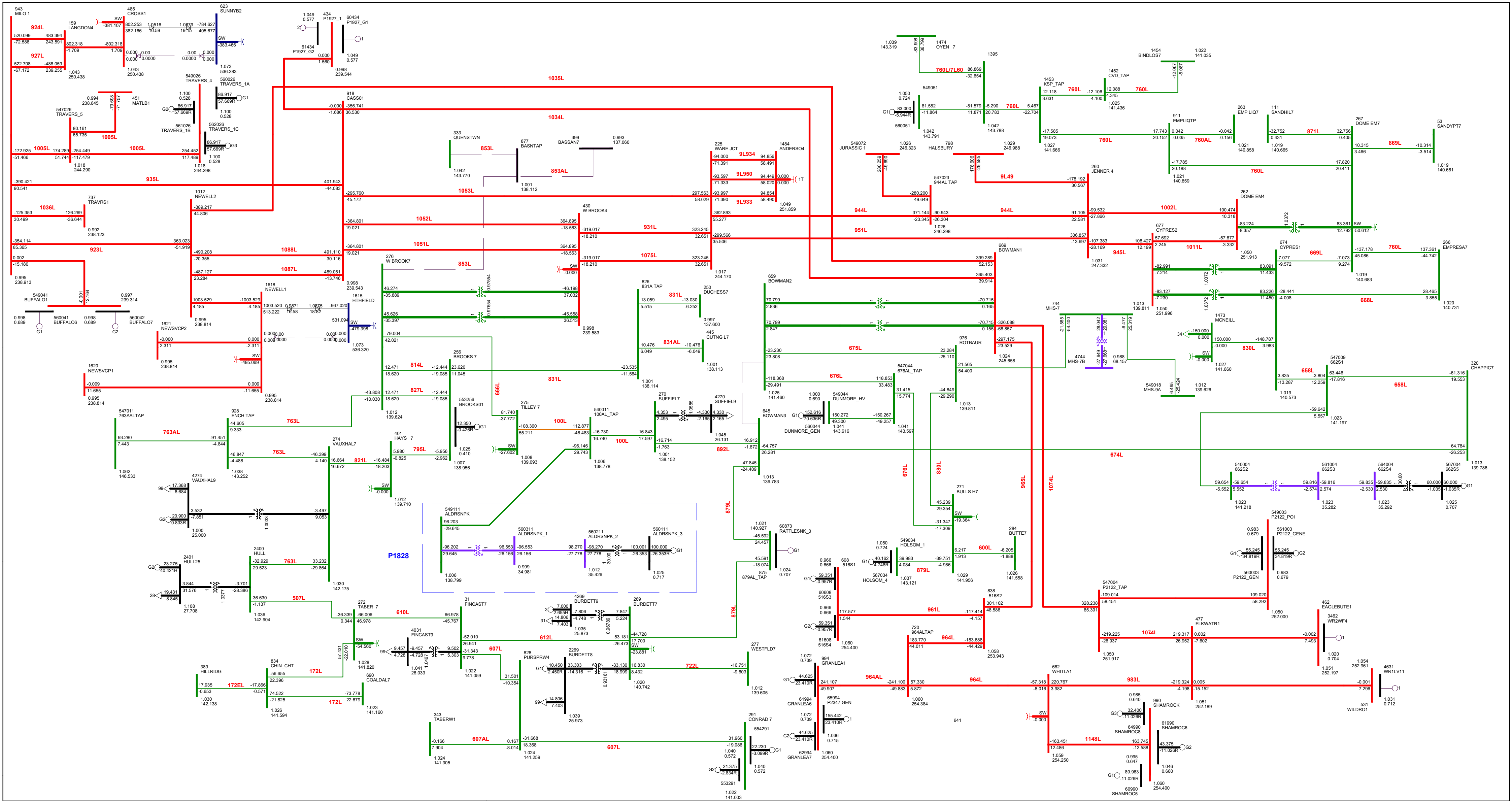
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-28-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.304 MW

Sask Import: -150.000 MW

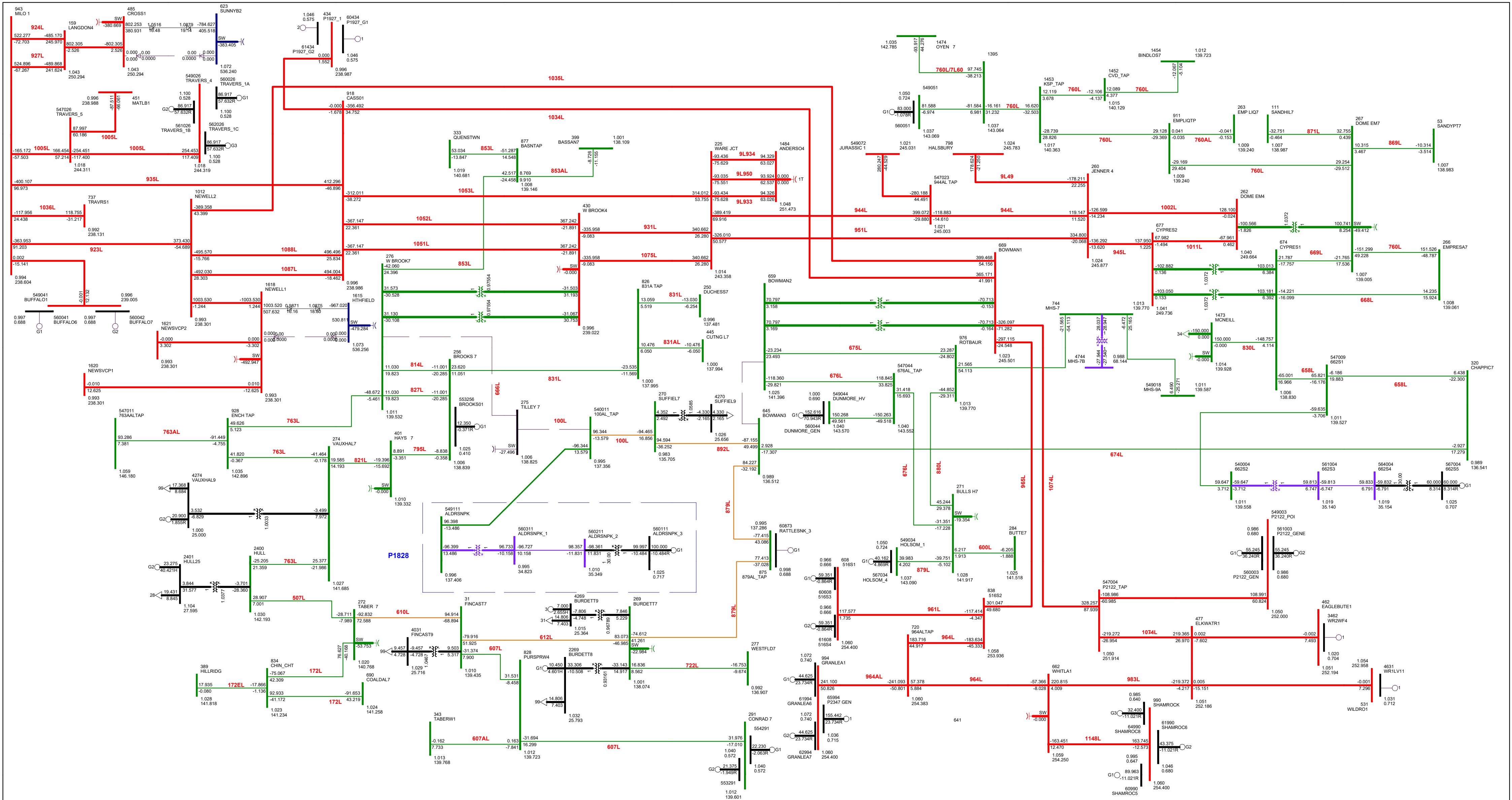
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-29-N-1: 853L(QUEENSTOWN 504S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

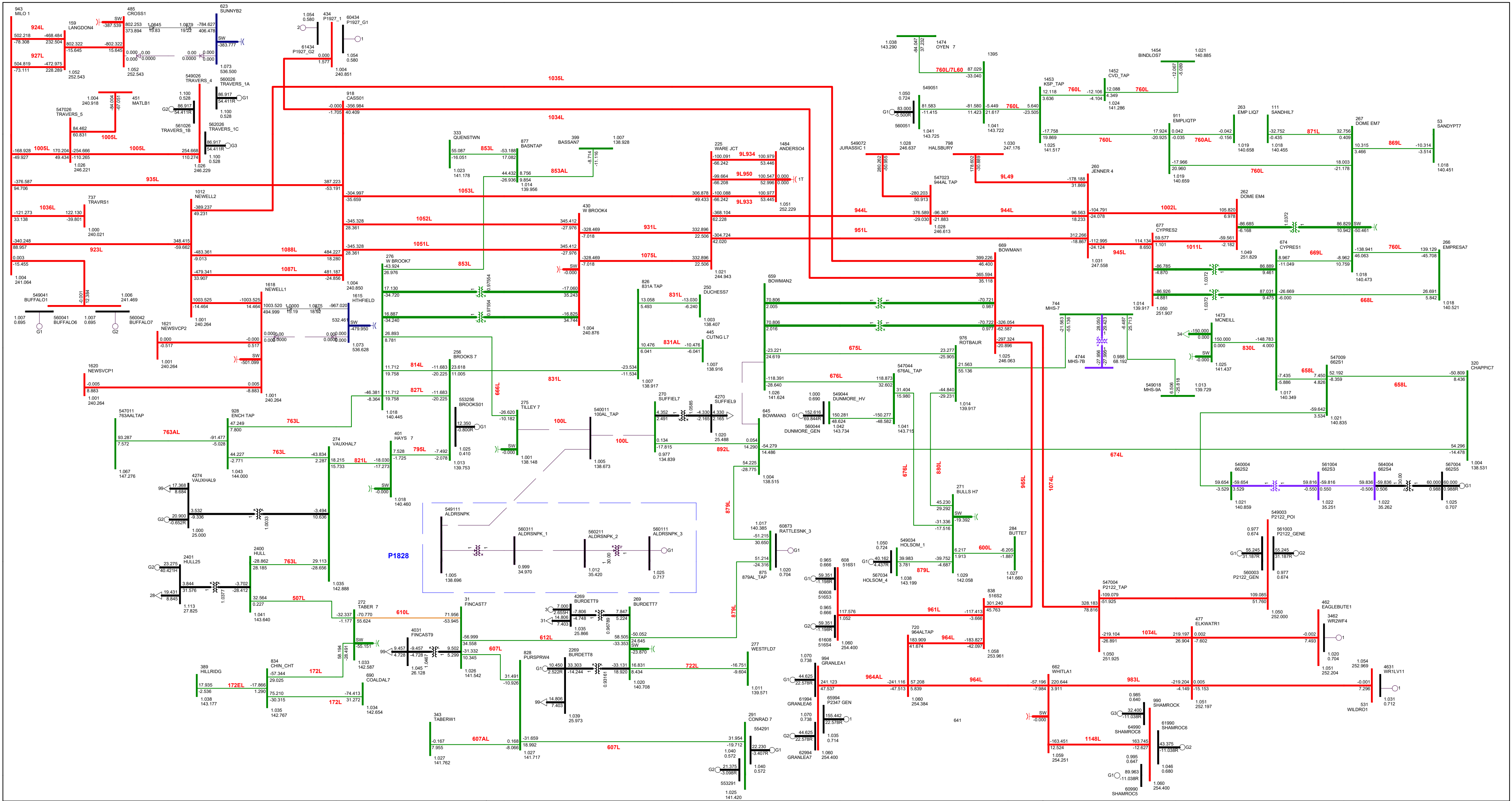
BC Import: -525.635 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE D1-30-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -450.338 MW

Sask Import: -150.000 MW

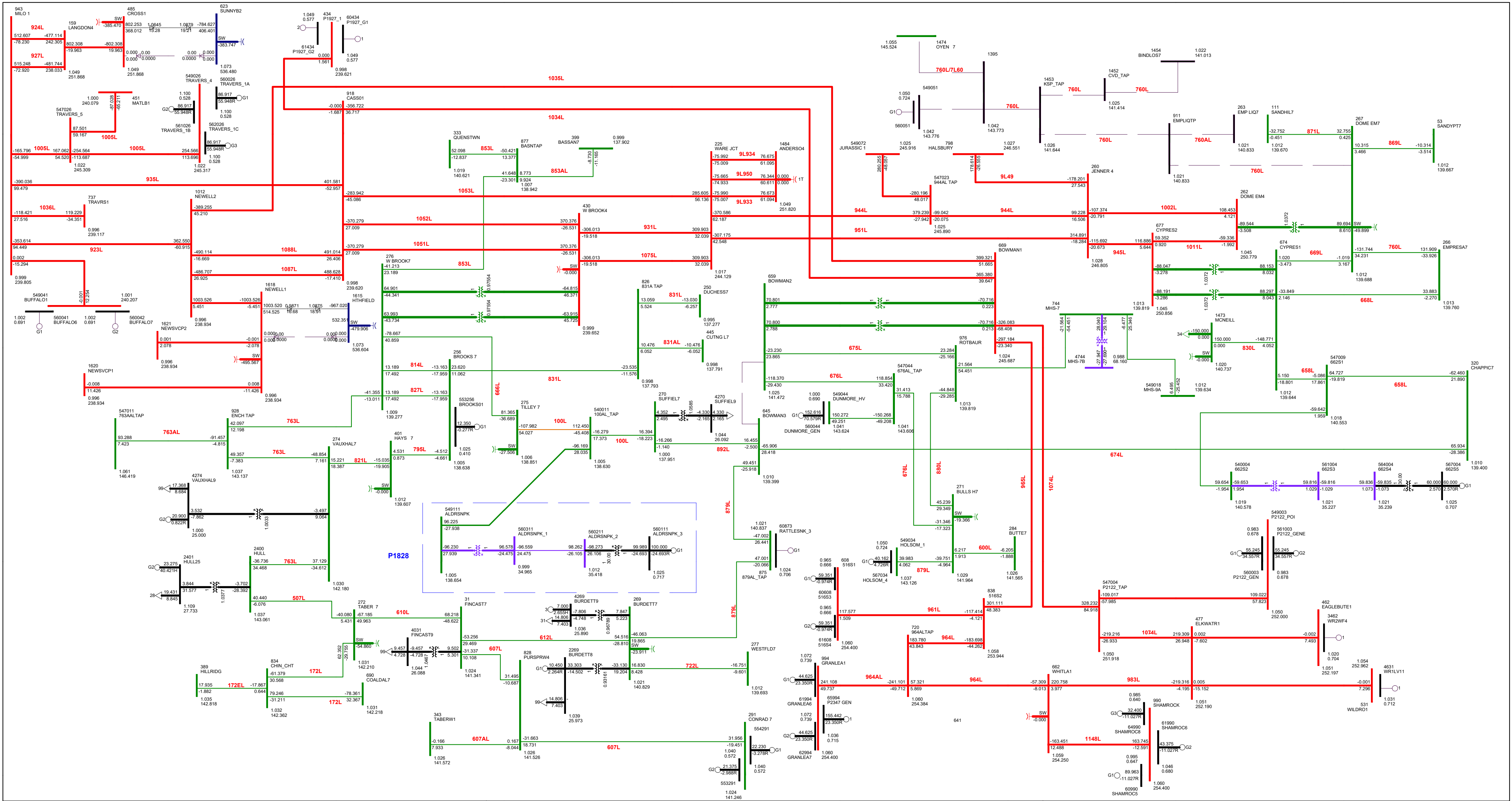
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-31-N-1: 100L(SUFFIELD 895S TO TILLEY 498S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -470.310 MW

Sask Import: -150.000 MW

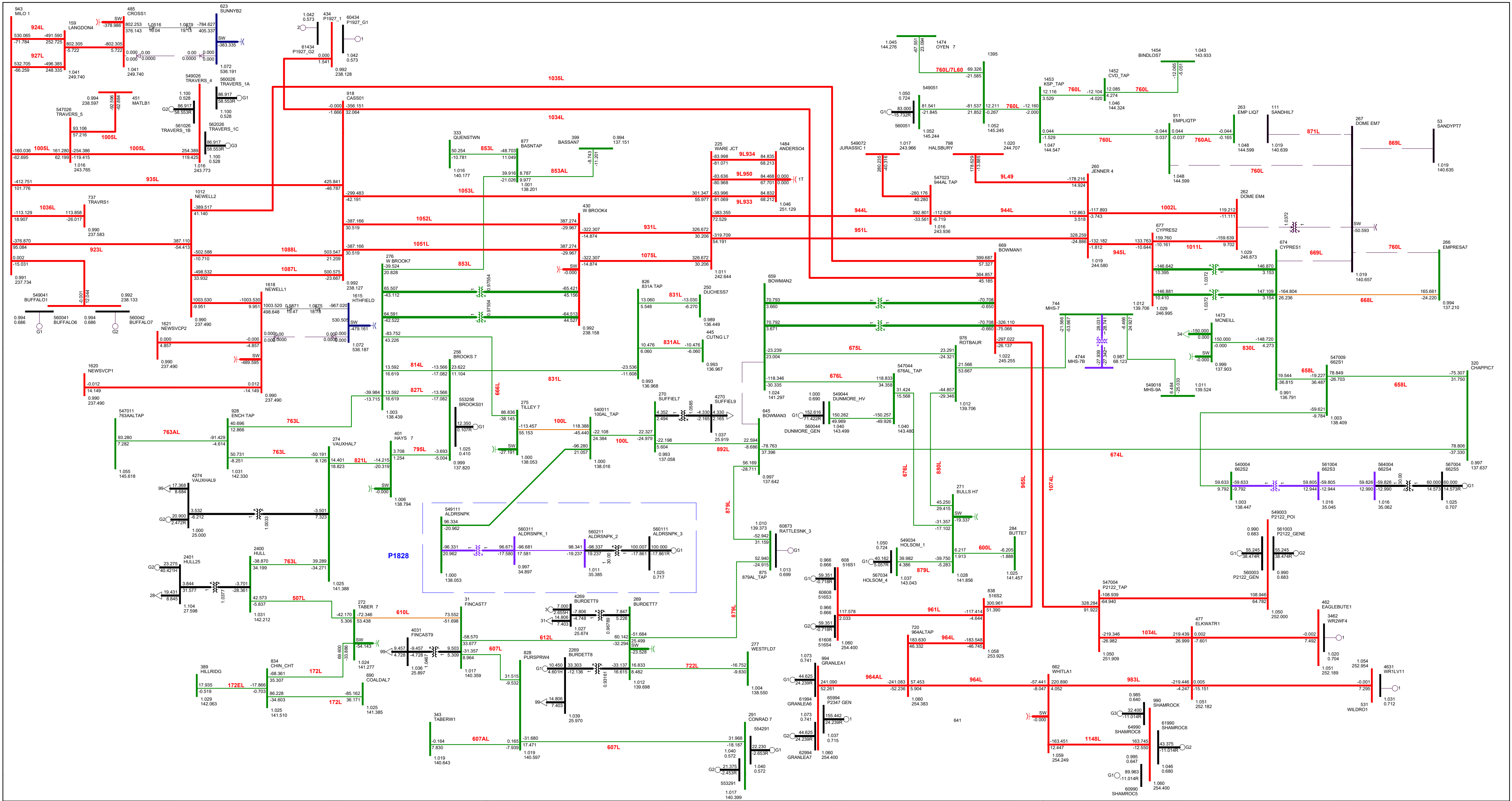
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-32-N-1: 7L60 (AMOCO EMPRESS 163S TO OYEN 767S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:00

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

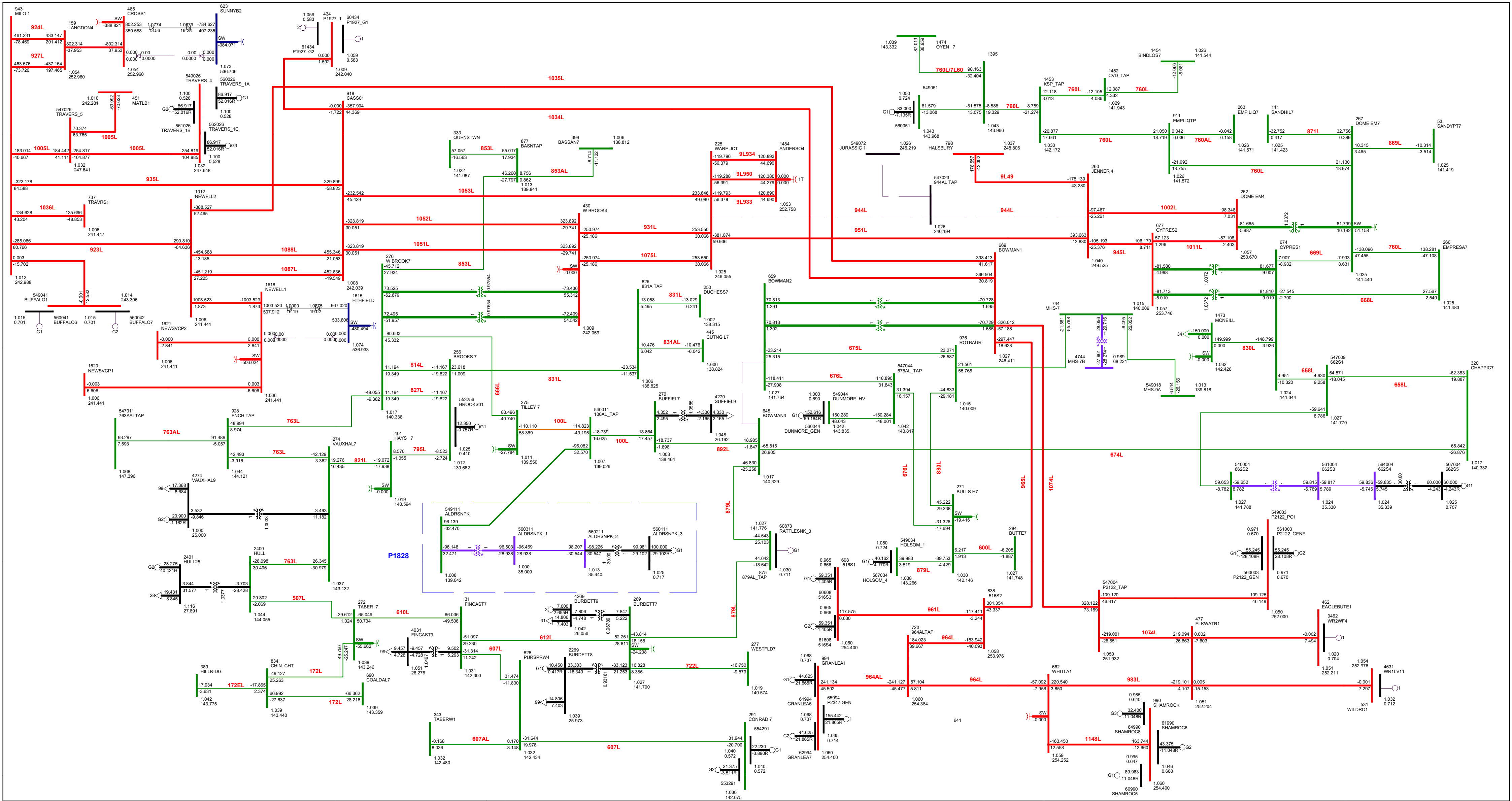
BC Import: -545.222 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-33-N-1: 163ST5(AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 15:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -307.145 MW

Sask Import: -150.000 MW

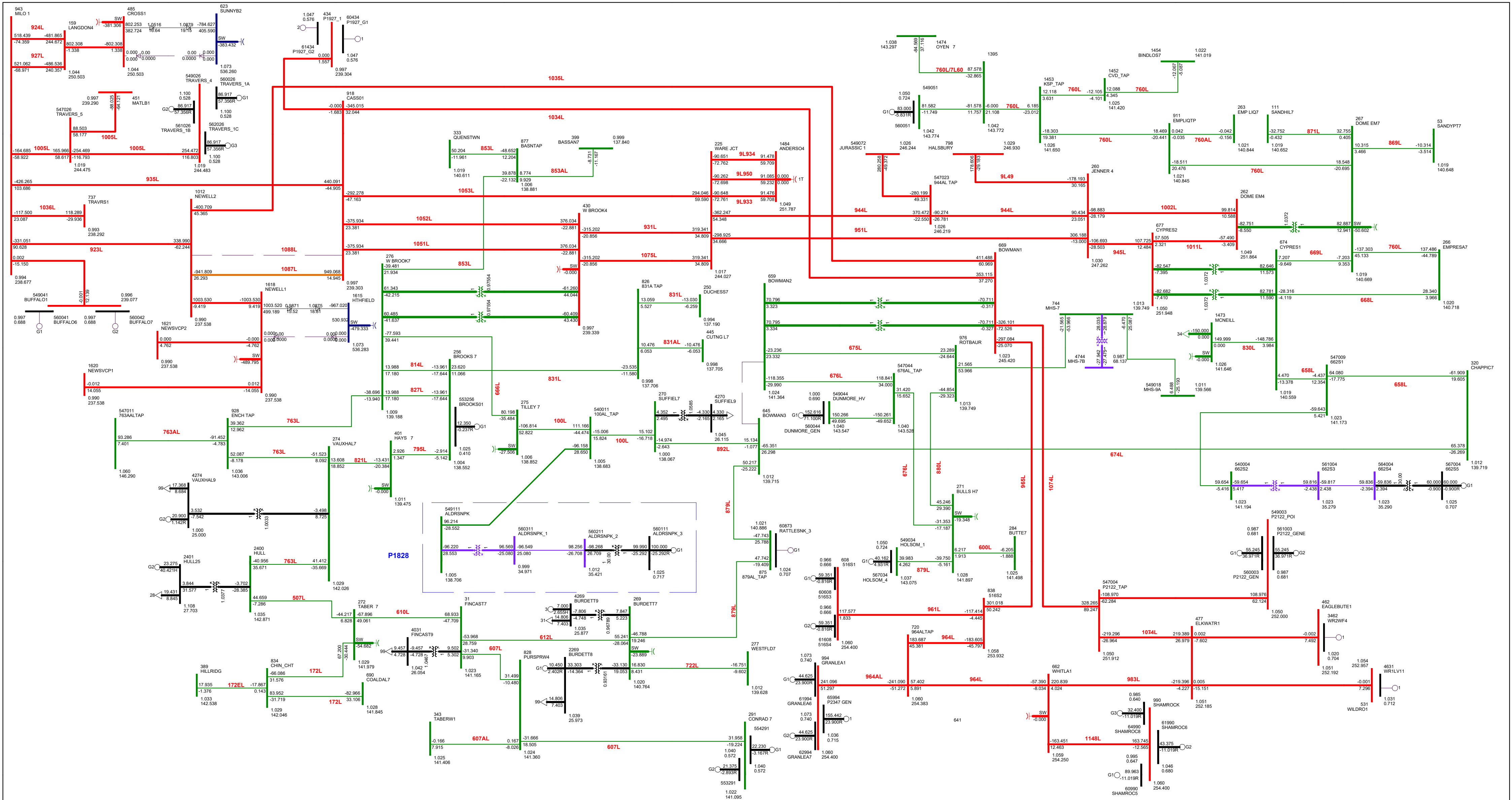
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-34-N-1: 944L(JENNER 275S TO WARE JUNCTION 132S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:13

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -514.421 MW

Sask Import: -150.000 MW

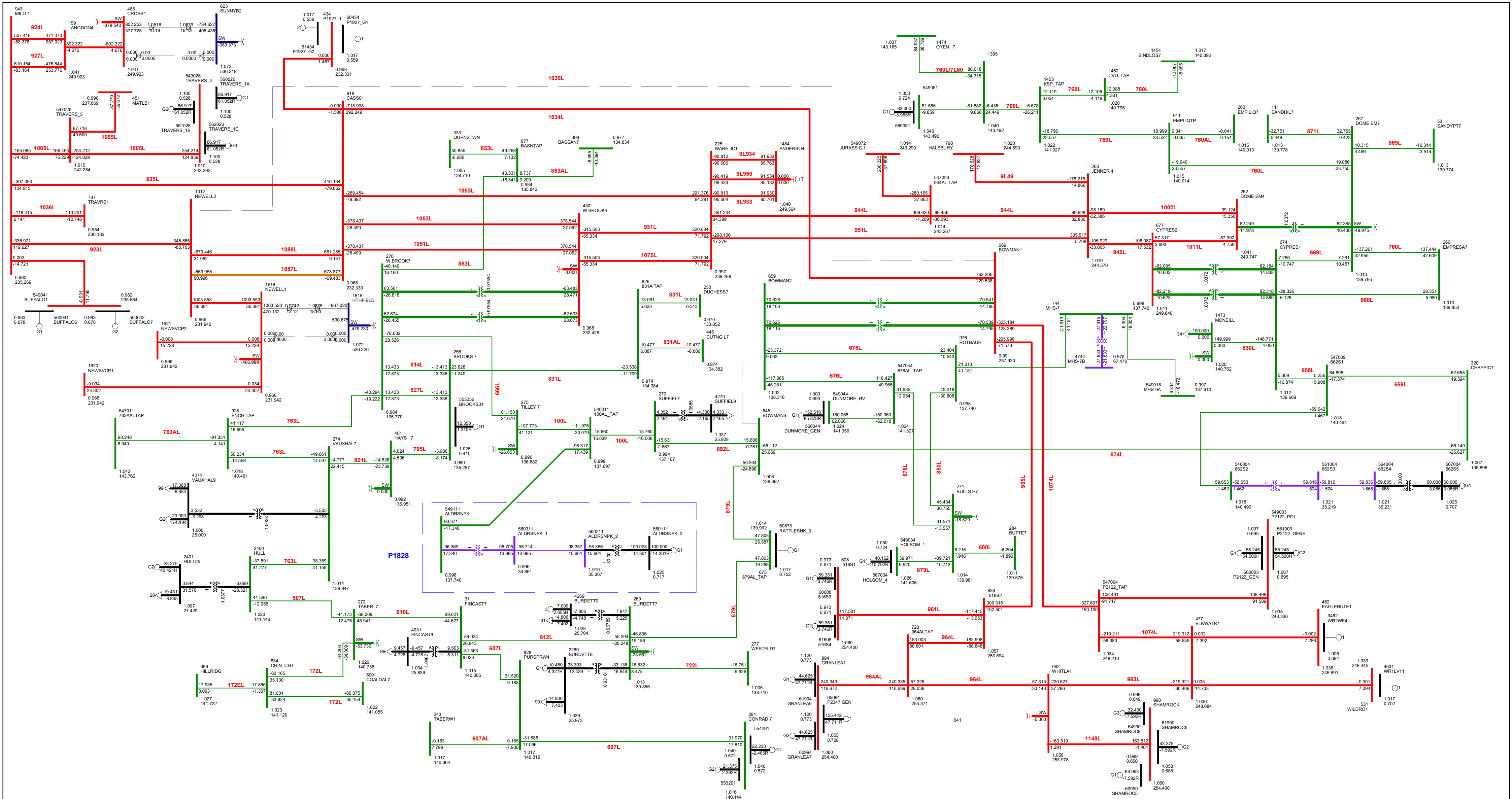
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-35-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:21

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

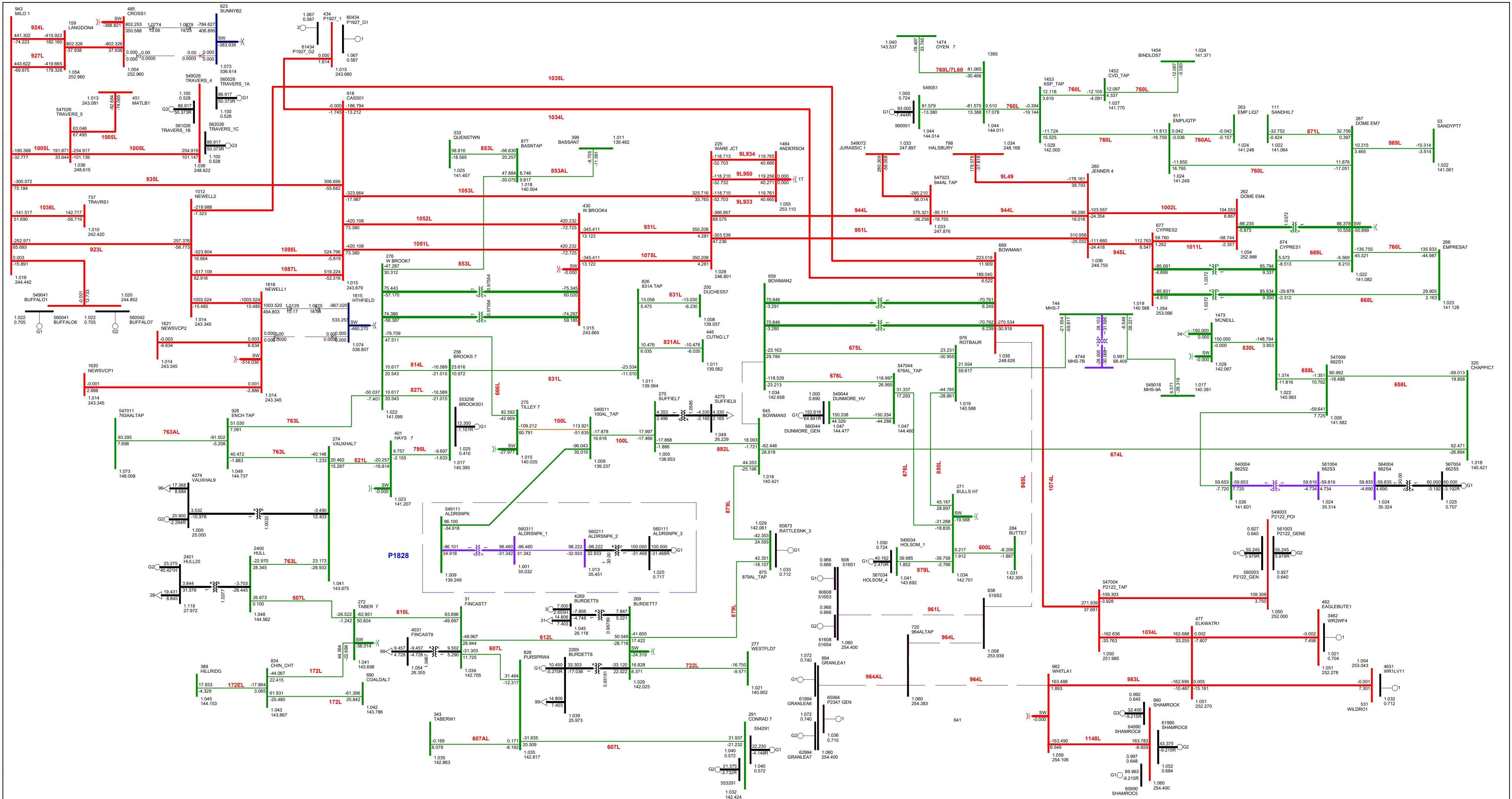
BC Import: -487.788 MW
Sask Import: -150.000 MW

EATL: -1000.000 MW
WATL: -800.000 MW

FIGURE D1-36-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
THU, AUG 24 2023 17:58

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -250.070 MW

Sask Import: -150.000 MW

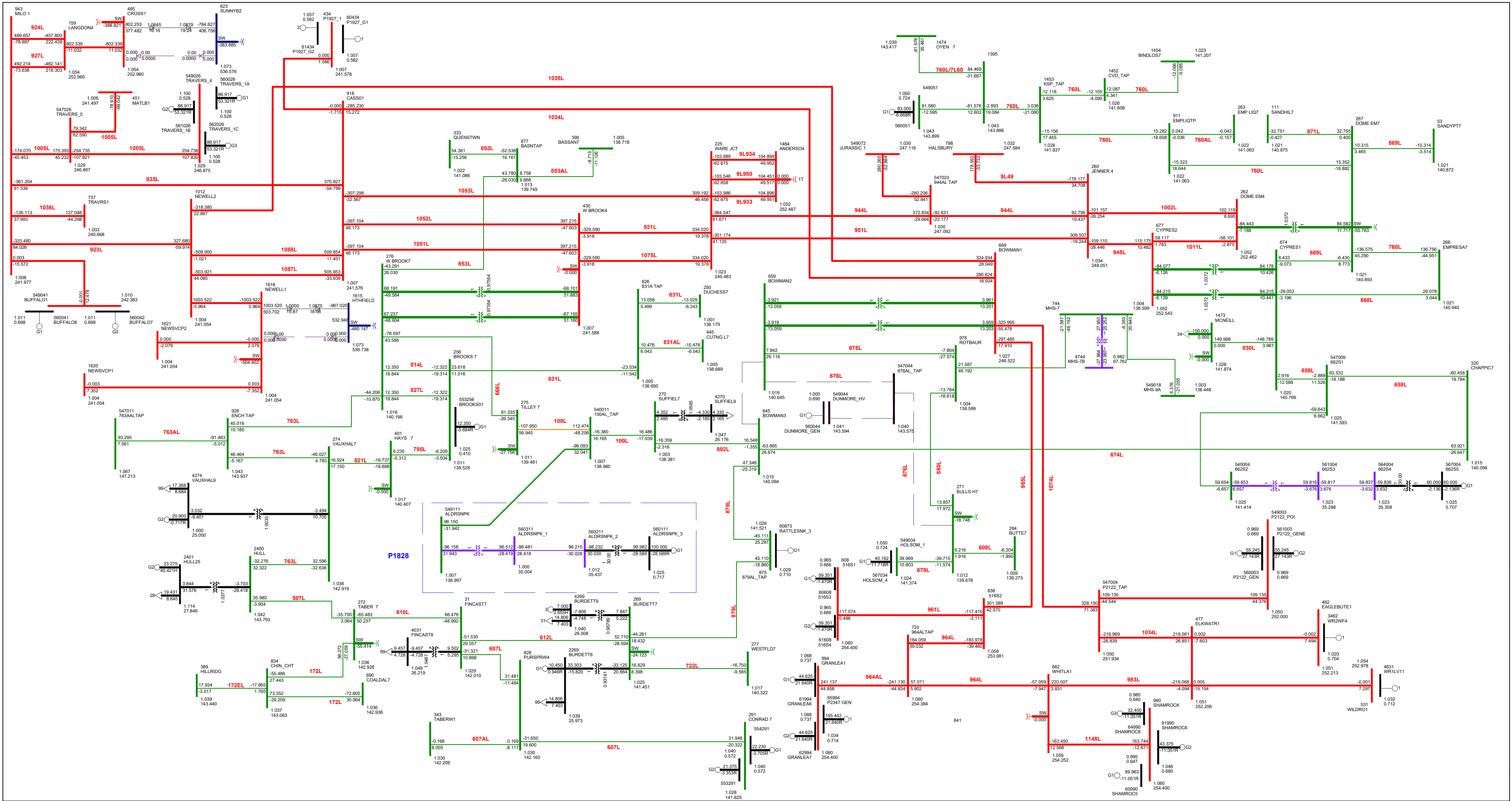
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-37-N-1: 964L(BOWMANTON 244S TO WHITLA 251S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -409.265 MW

Sask Import: -150.000 MW

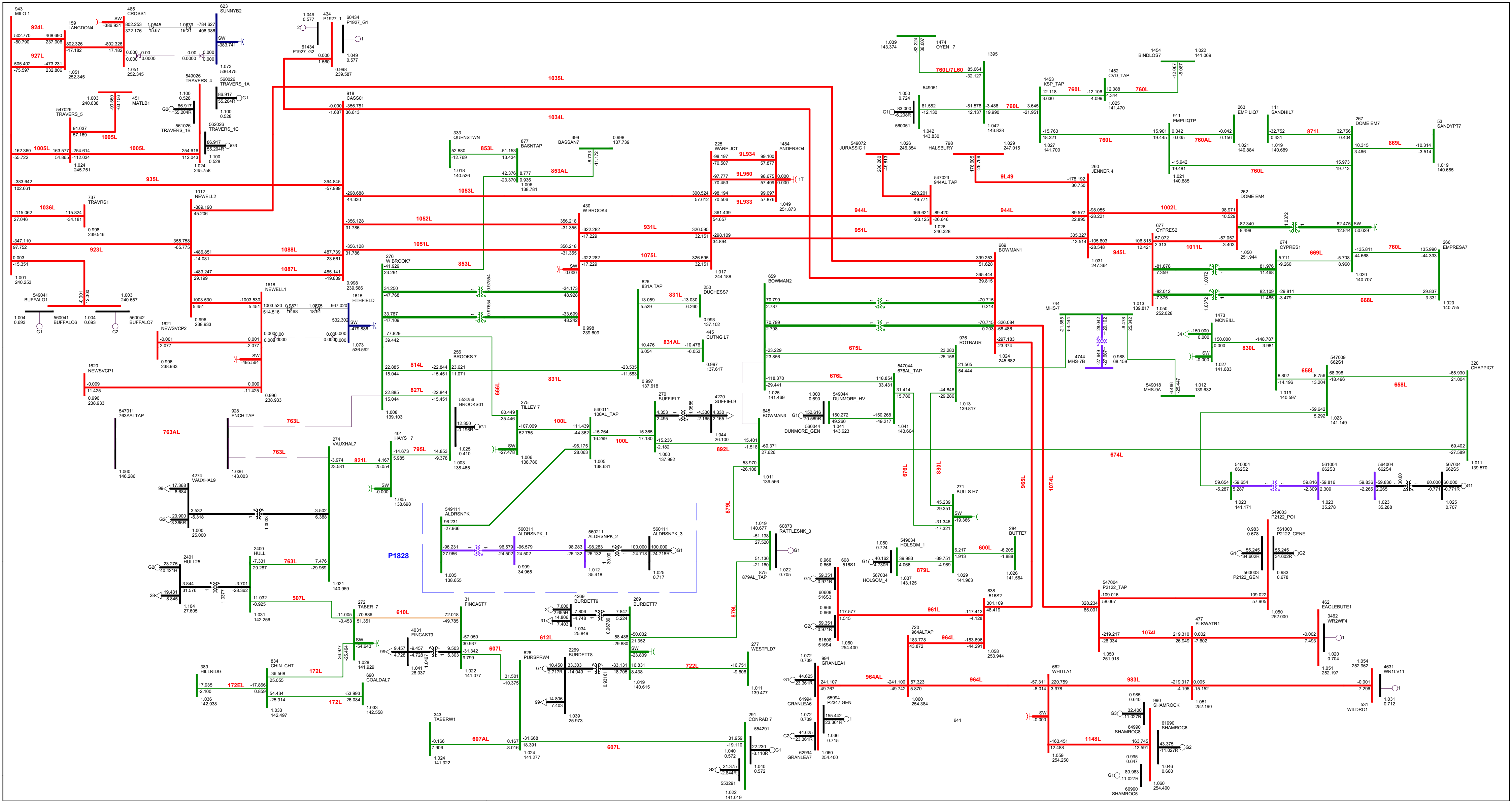
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-38-N-1: 676L(BOWMANTON 244S TO BULLSHEAD 523S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -448.962 MW

Sask Import: -150.000 MW

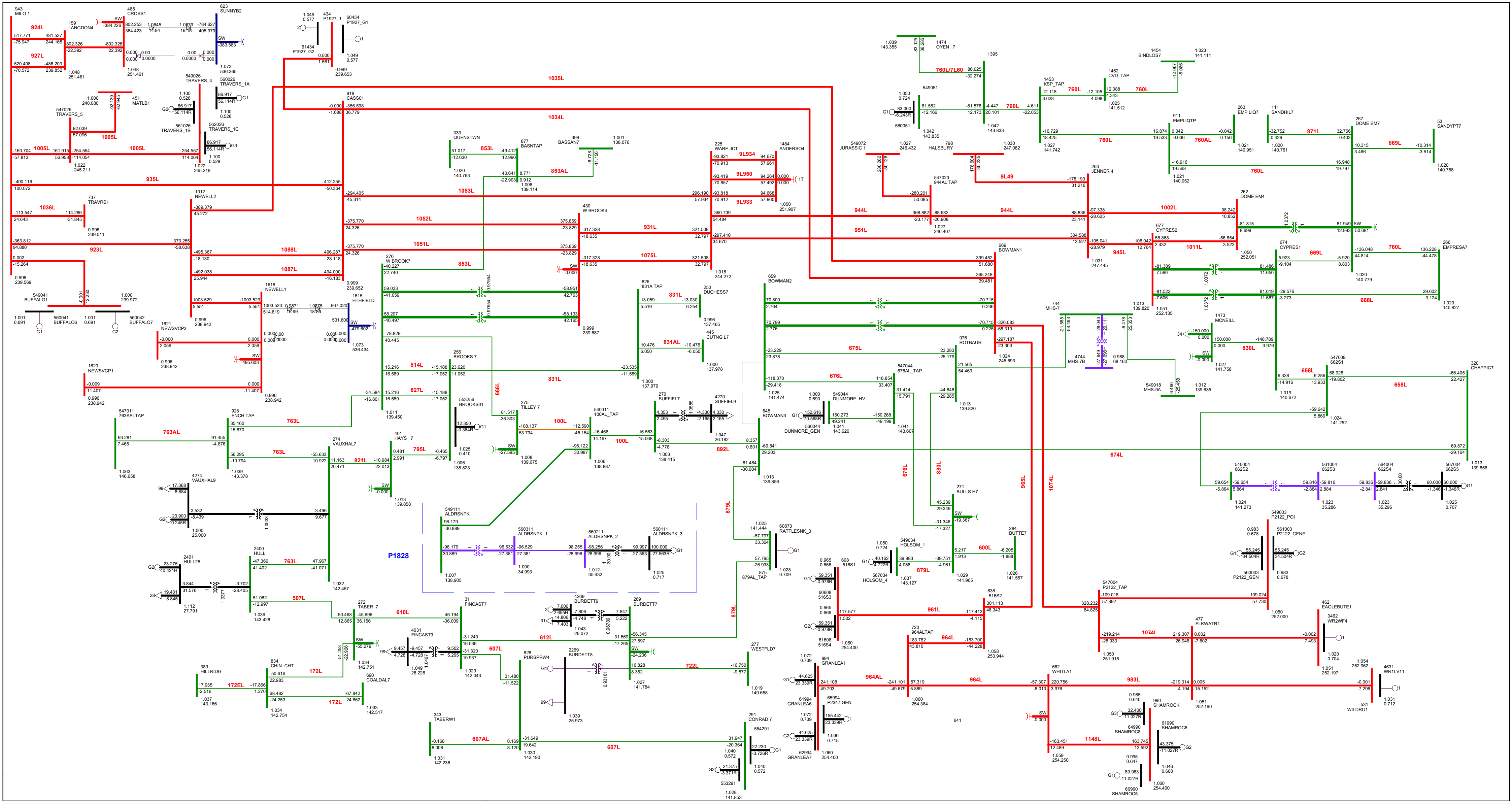
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-39-N-1: 763L(WEST BROOKS 28S TO VAUXHALL 158S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

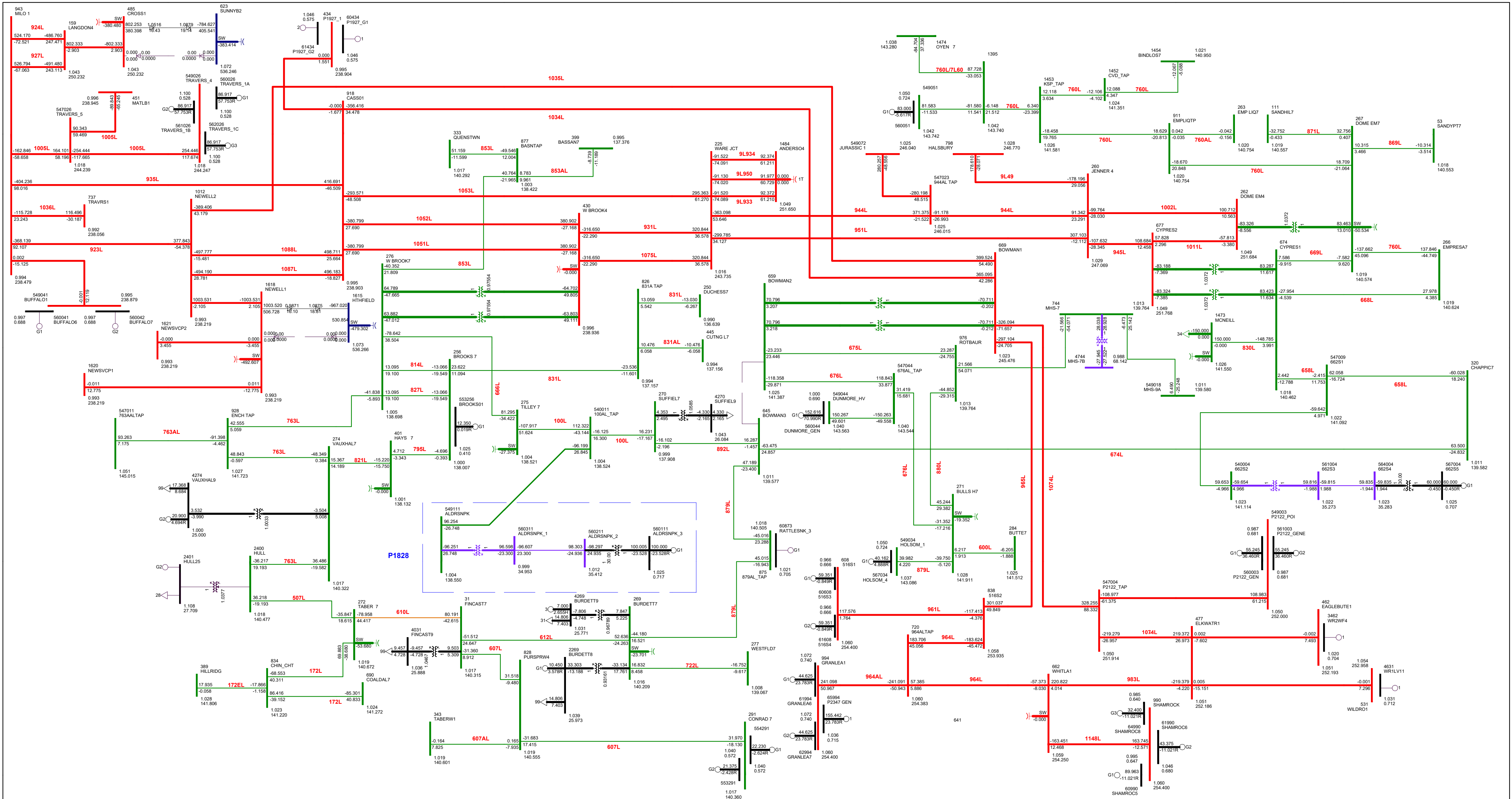
BC Import: -500.152 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D1-40-N-1: 368ST1(BURDETT 368S TRANSFORMER T1)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 18:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -526.526 MW

Sask Import: -150.000 MW

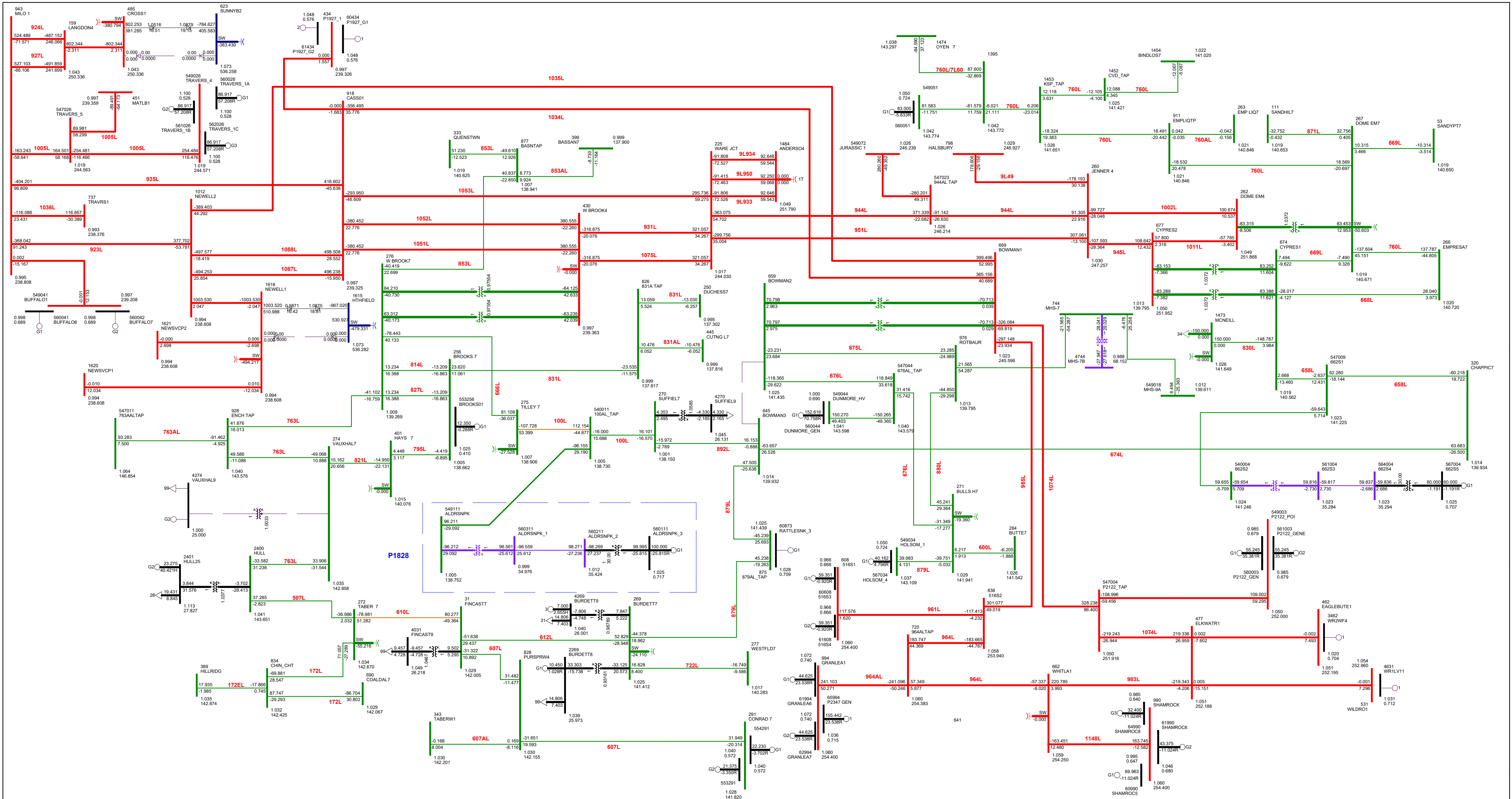
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-41-N-1: 257ST1(HULL 257S TRANSFORMER)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 18:16

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -527.329 MW

Sask Import: -150.000 MW

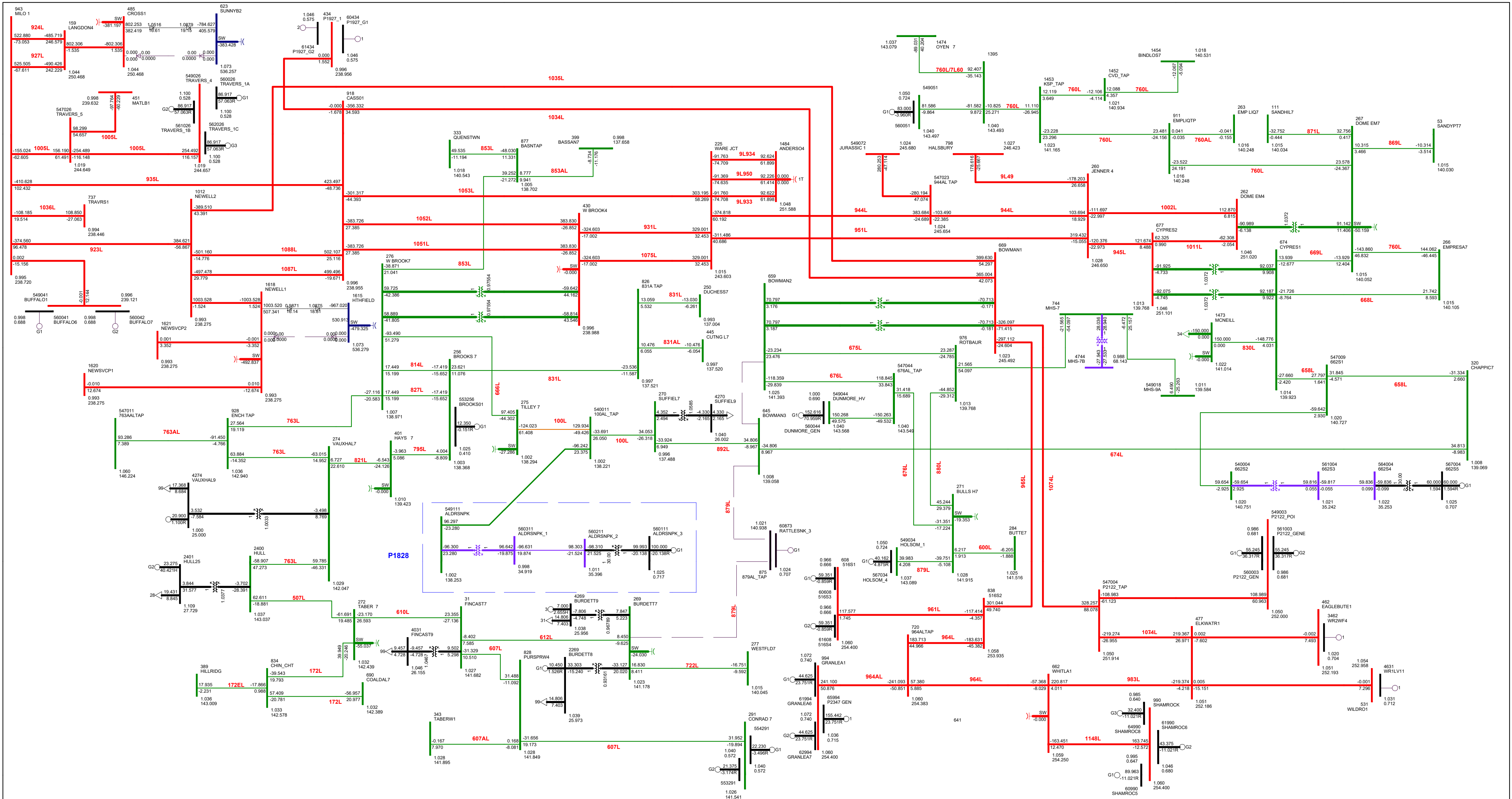
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-42-N-1: 158ST2(VAUXHALL 158S TRANSFORMER T2)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 18:19

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



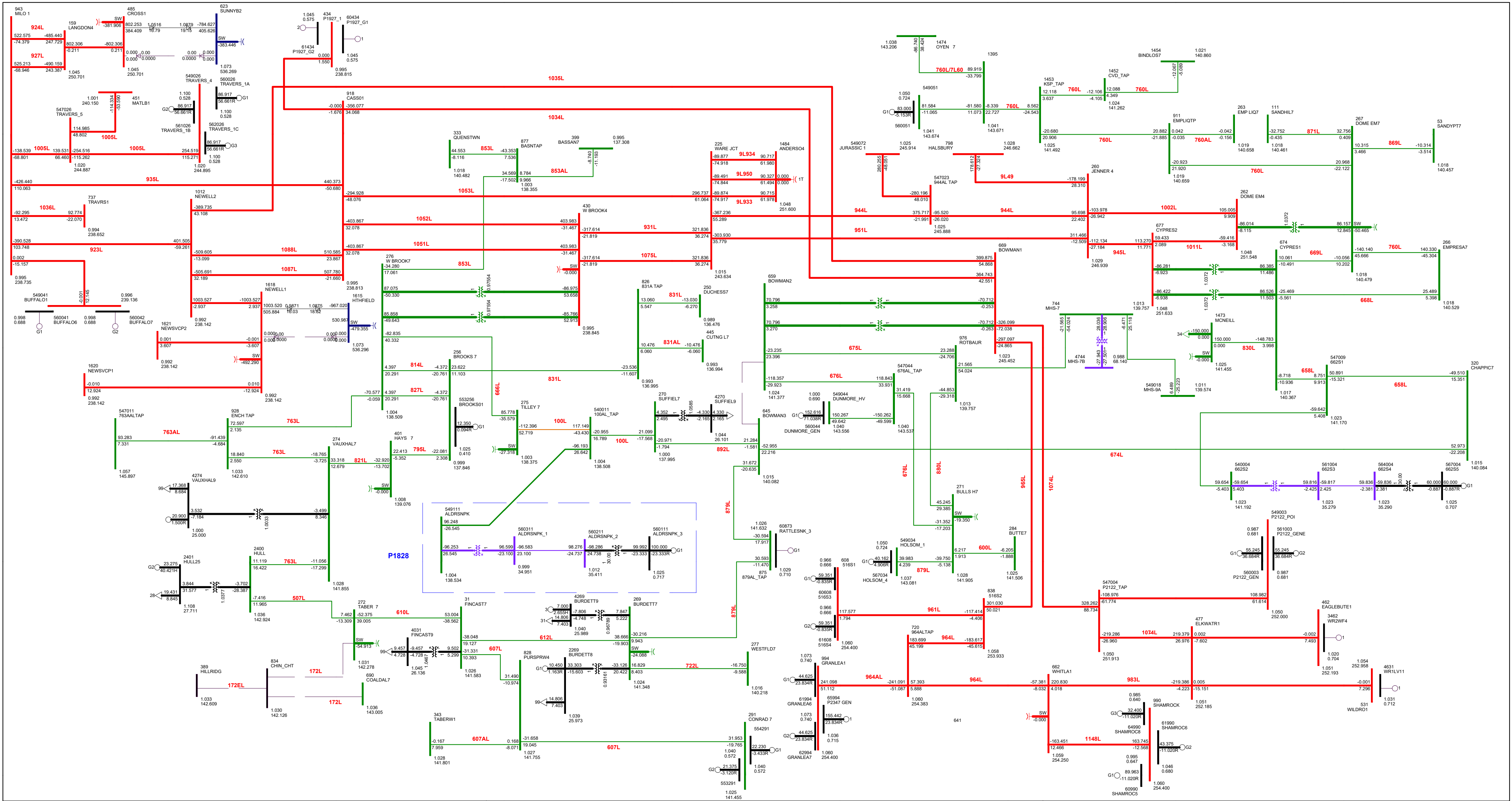
P1828 HEP Alderson Solar Project

BC Import: -518.057 MW
Sask Import: -150.000 MW
EATL: -1000.000 MW
WATL: -800.000 MW

FIGURE D1-43-N-1: 879L
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:40

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -503.185 MW

Sask Import: -150.000 MW

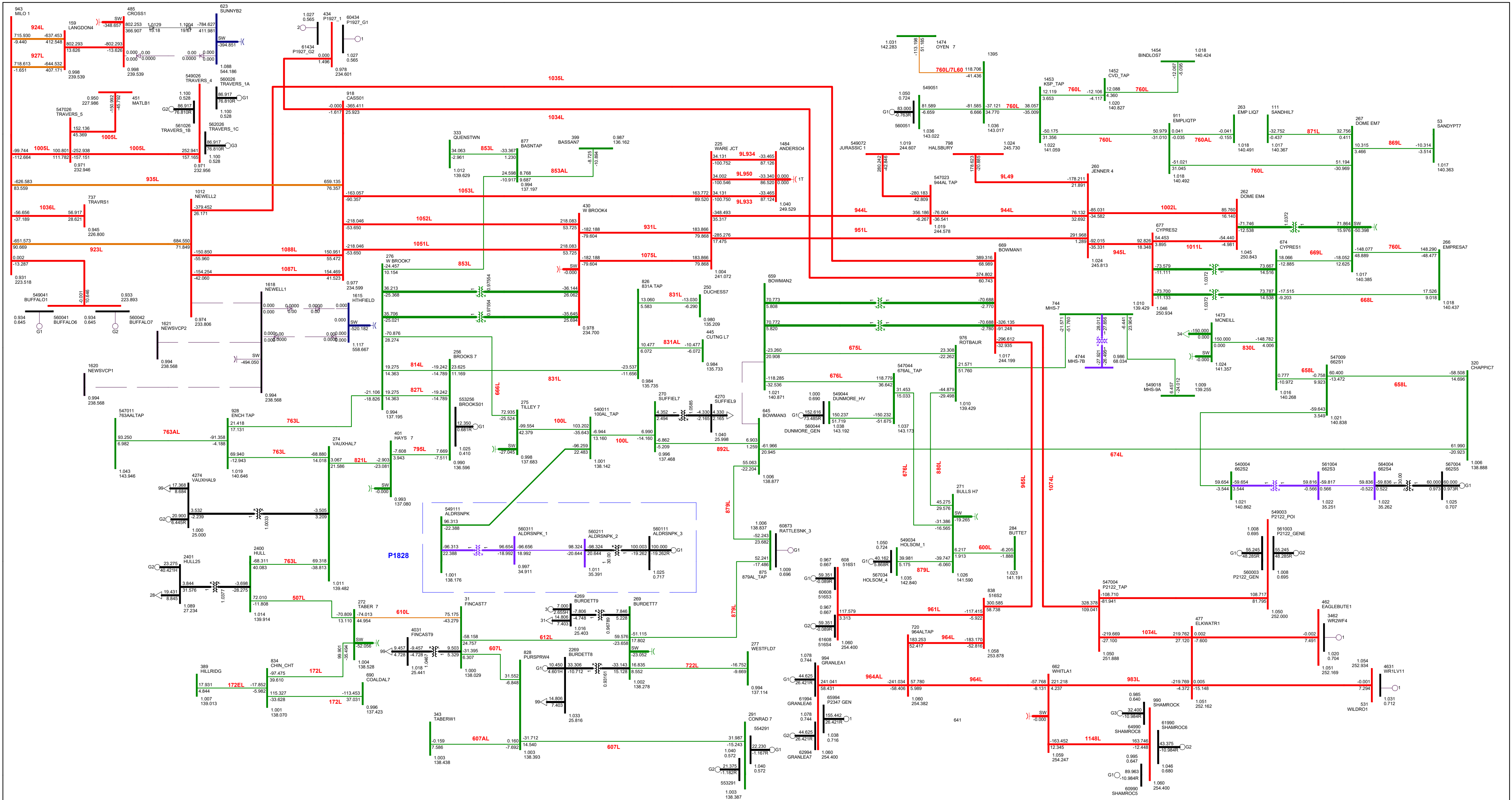
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-44-N-1: 172L(TABER 83S TO COALDALE 254S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:41

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -263.915 MW

Sask Import: -150.000 MW

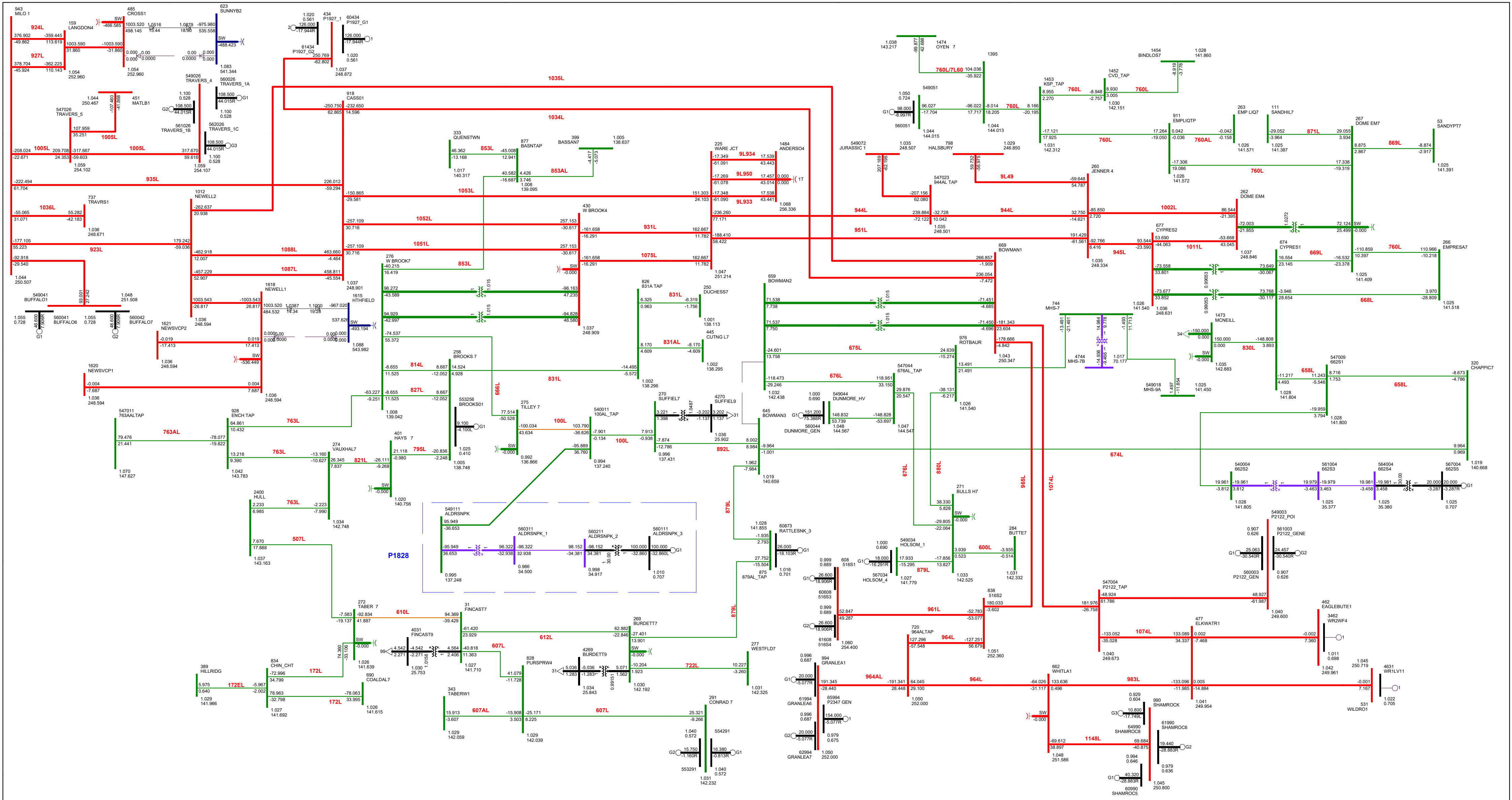
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE D1-45-N-1: EATL
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 17:41

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.908 MW

Sask Import: -150.000 MW

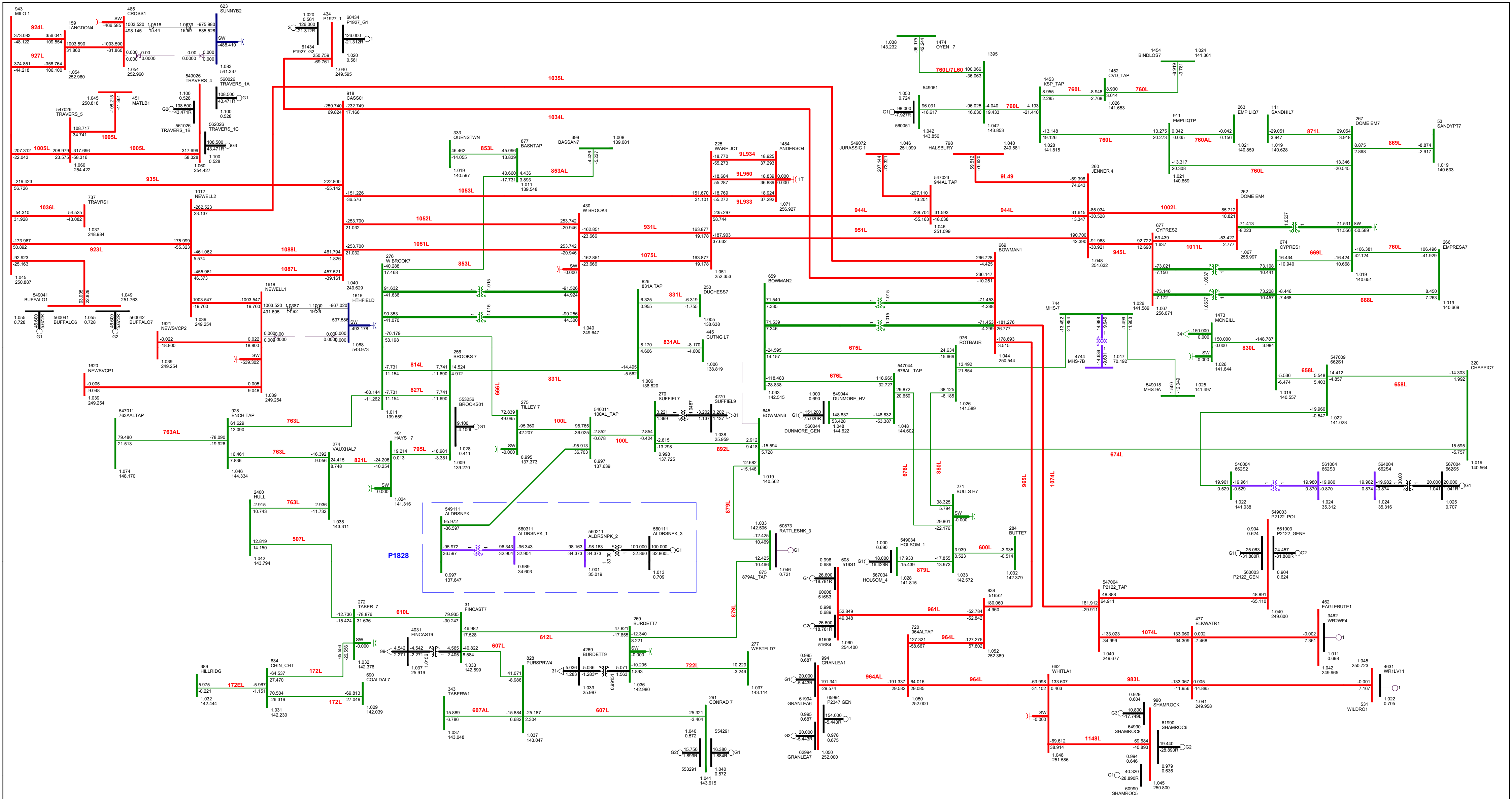
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B0-4-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
FRI, SEP 08 2023 10:44

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.280 MW

Sask Import: -150.000 MW

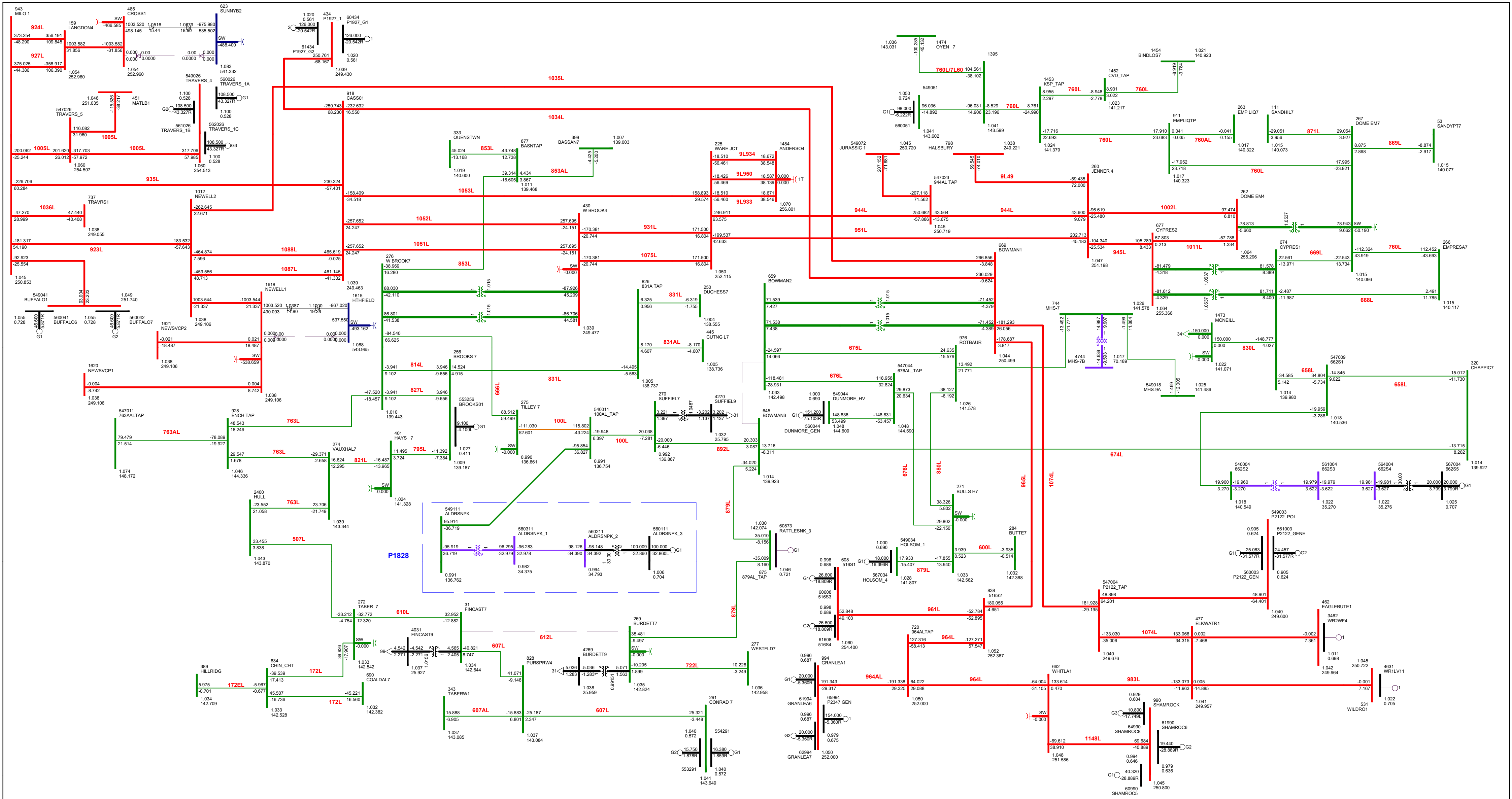
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

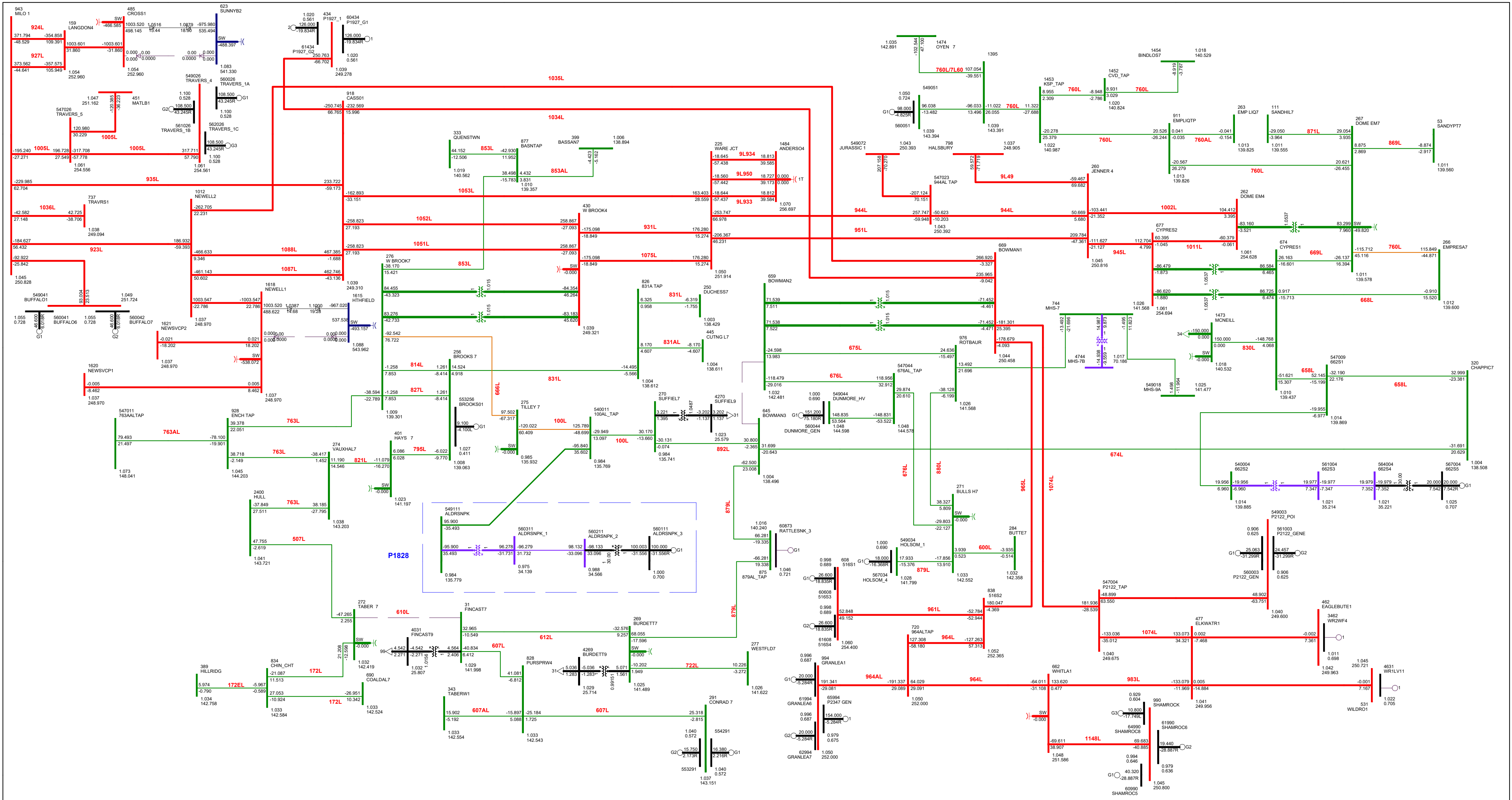
BC Import: -518.140 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D2-2-N-1: 612L (BURDETT 368S TO FINCASTLE 336S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -510.187 MW

Sask Import: -150.000 MW

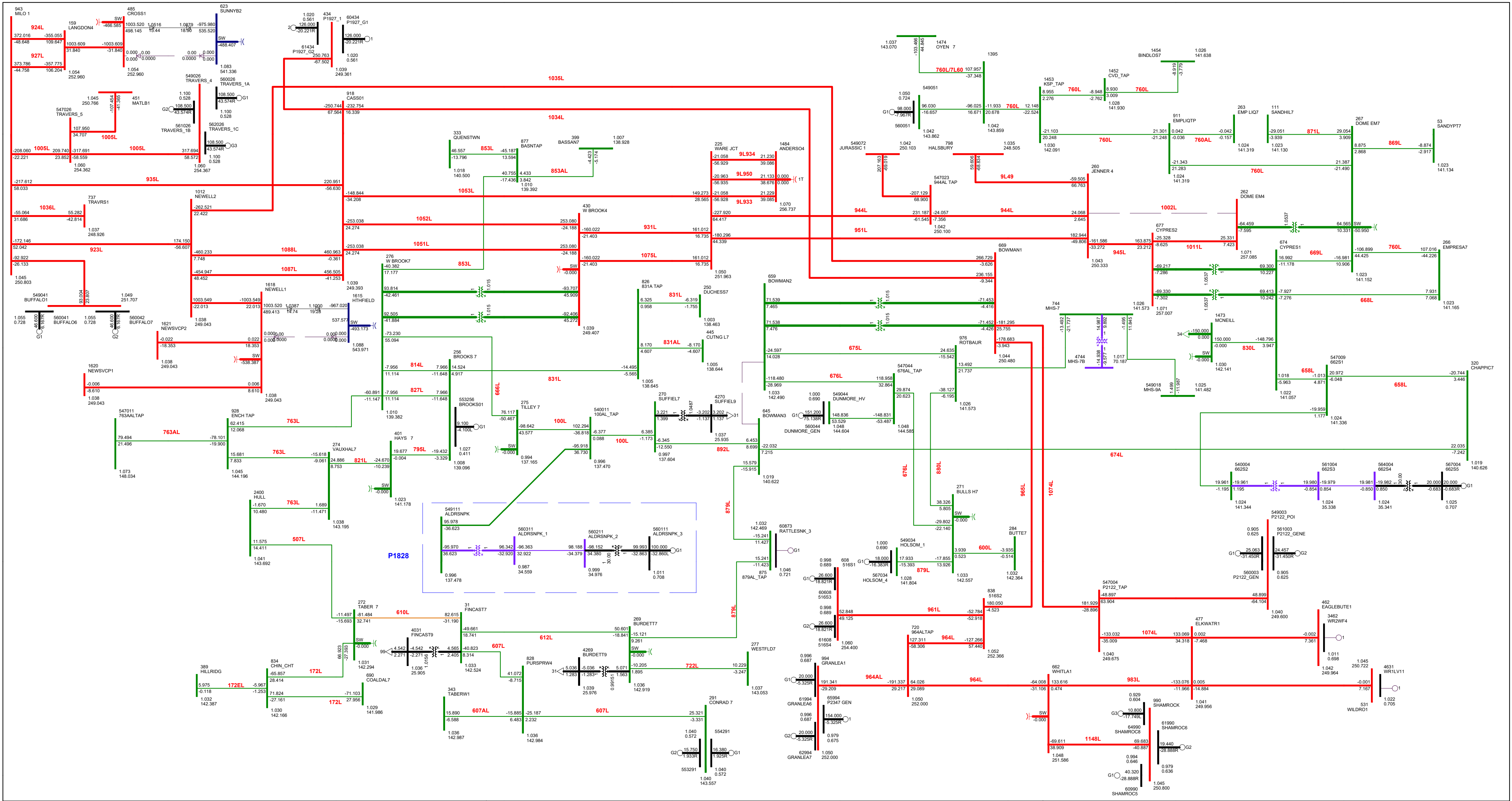
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:05

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

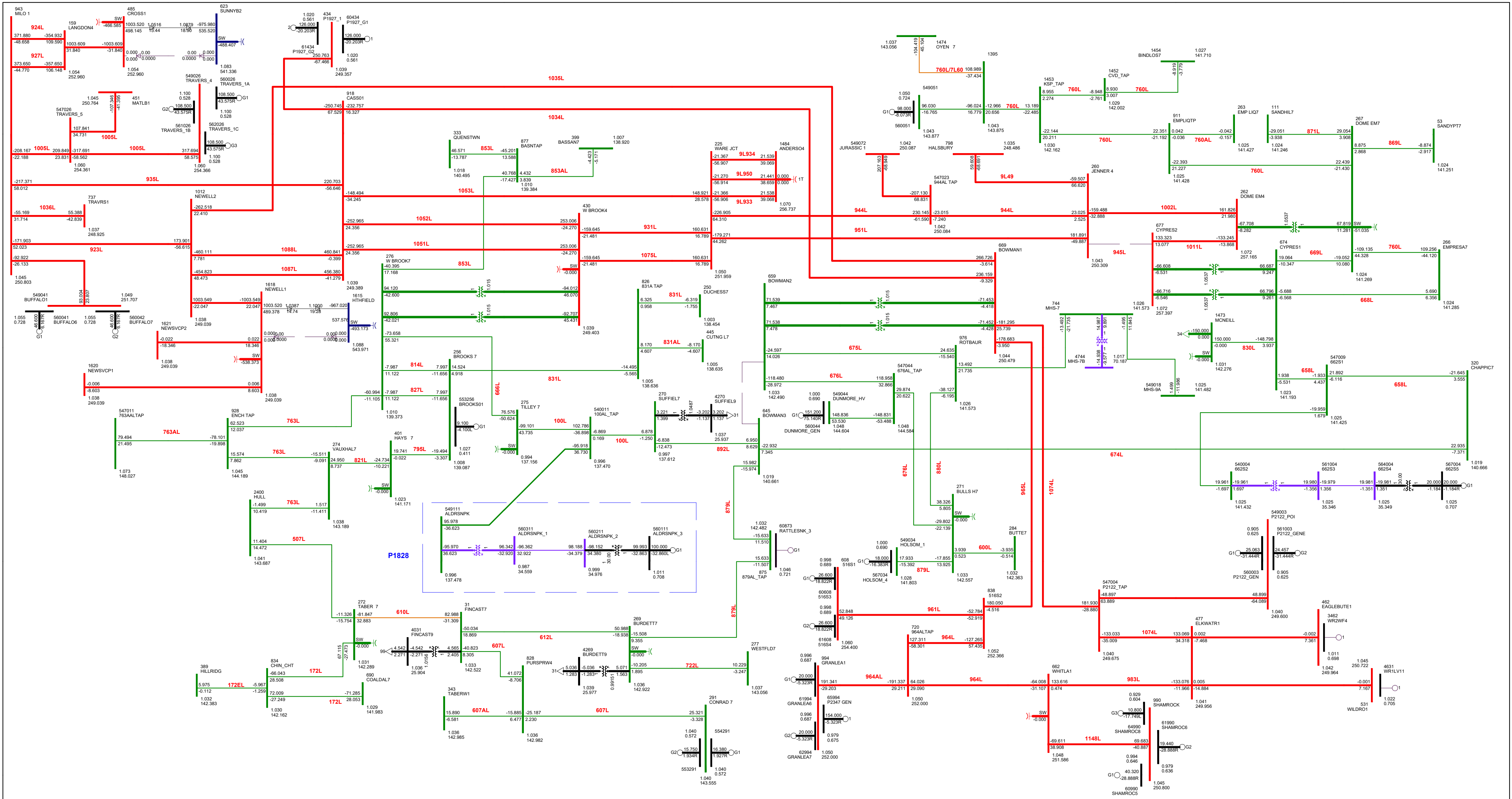
BC Import: -519.238 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D2-4-N-1: 1002L (JENNER 275S TO AMOCO EMPRESS 163S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.963 MW

Sask Import: -150.000 MW

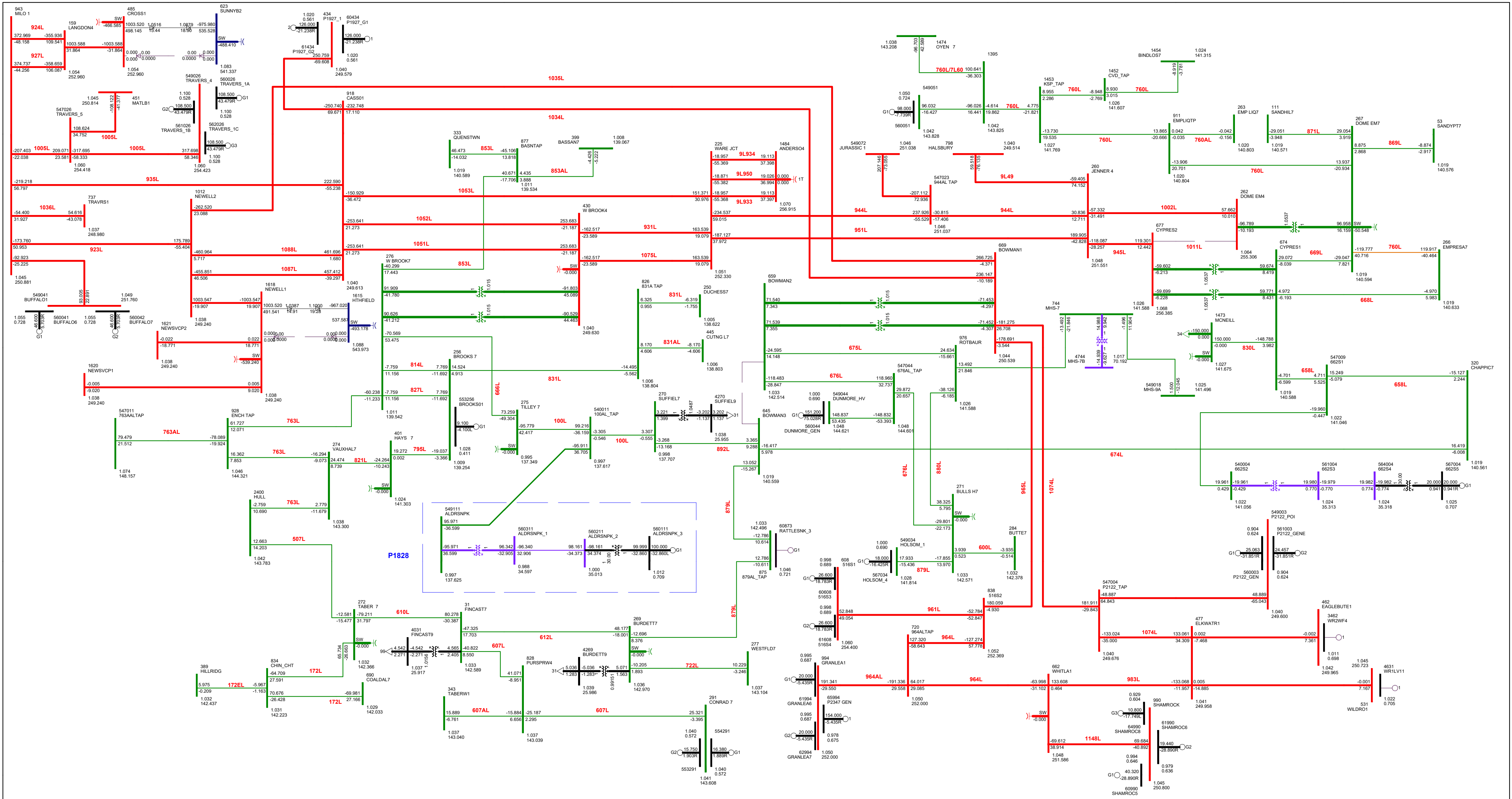
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-5-N-1: 945L (JENNER 275S TO CYPRESS 562S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.009 MW

Sask Import: -150.000 MW

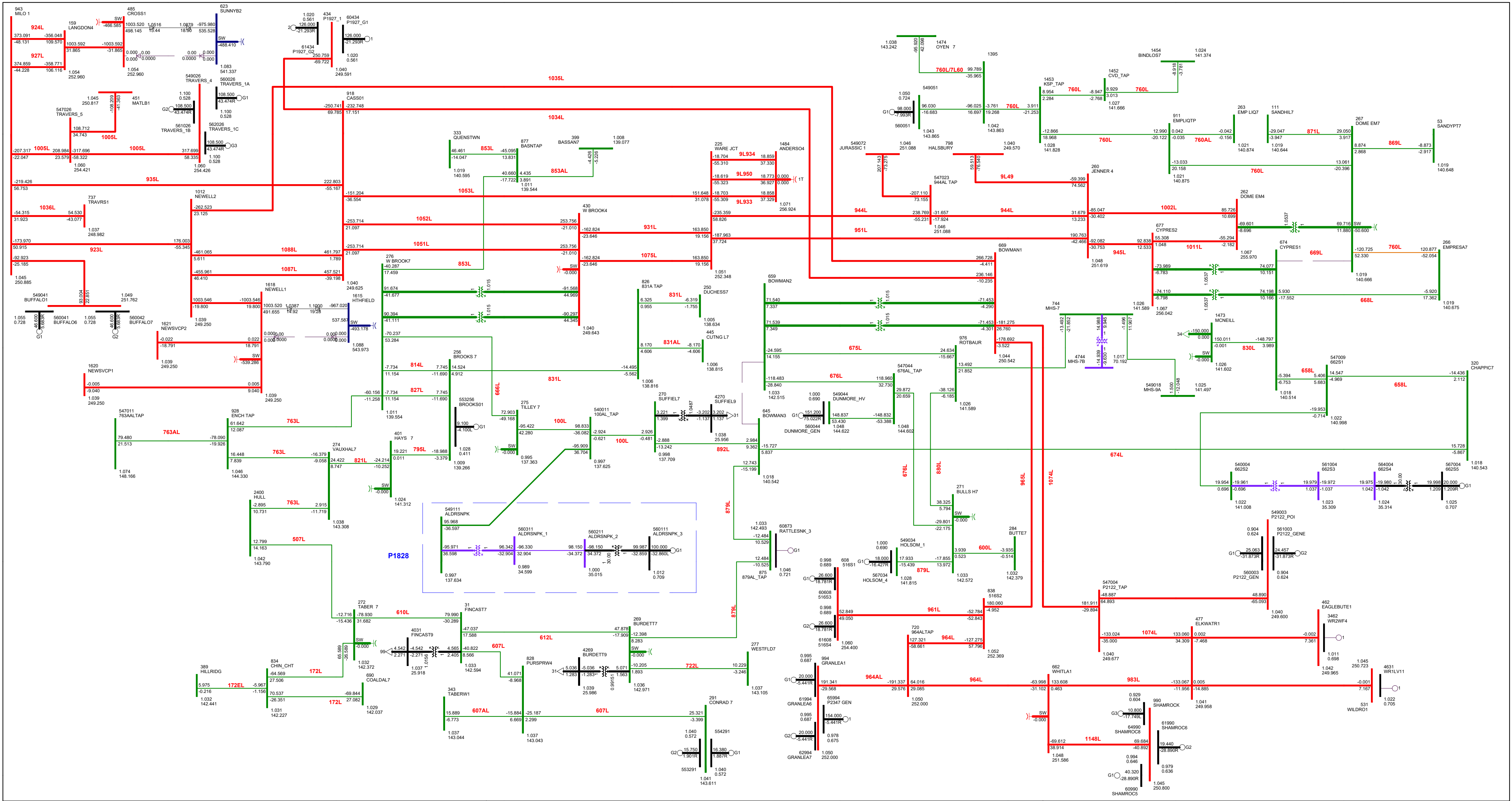
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-6-N-1: 1011L(AMOCO EMPRESS 163S TO CYPRESS 562S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.264 MW

Sask Import: -150.000 MW

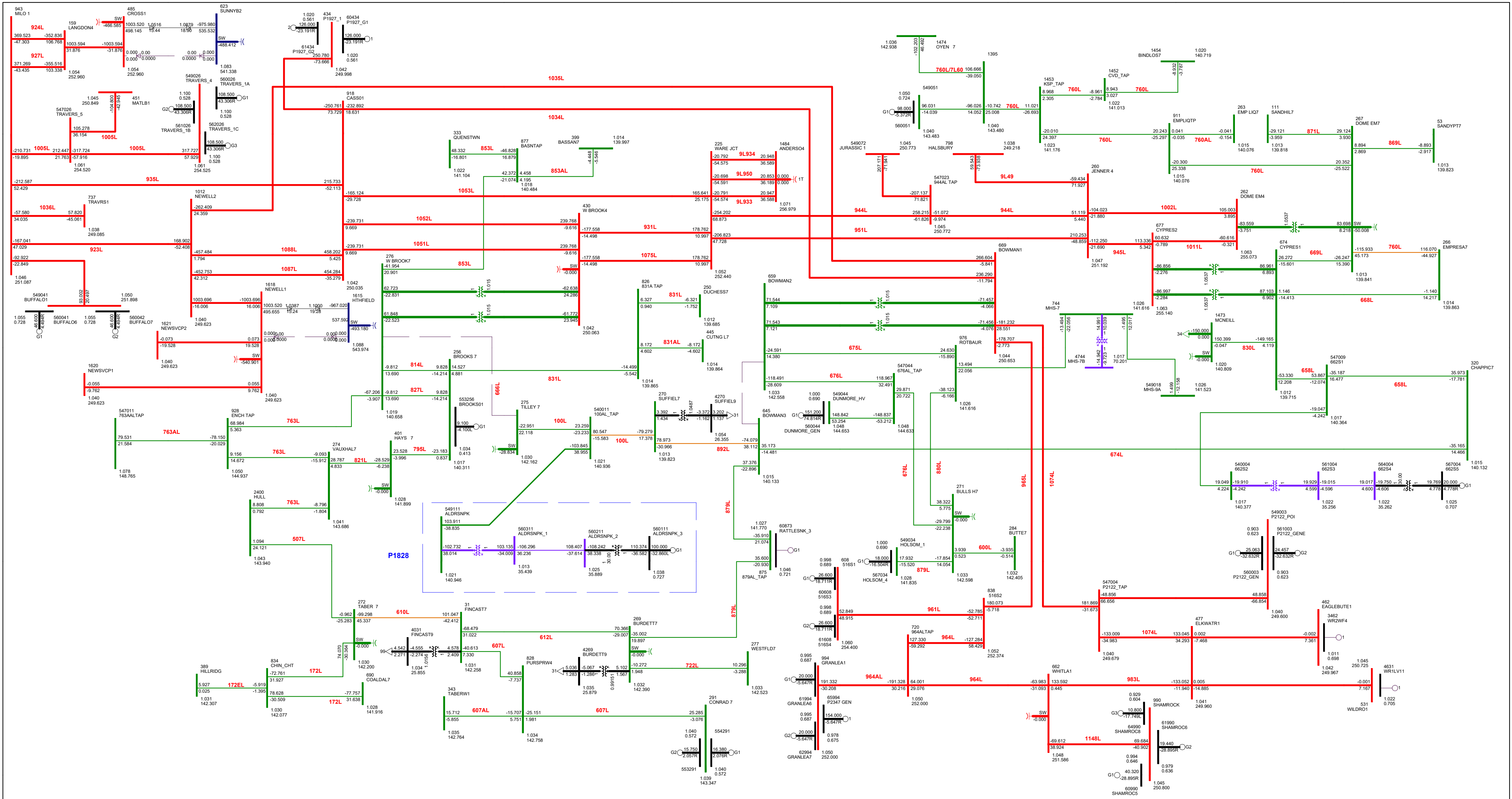
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-7-N-1: 669L(CYPRESS 562S TO AMOCO EMPRESS 163S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -513.753 MW

Sask Import: -150.000 MW

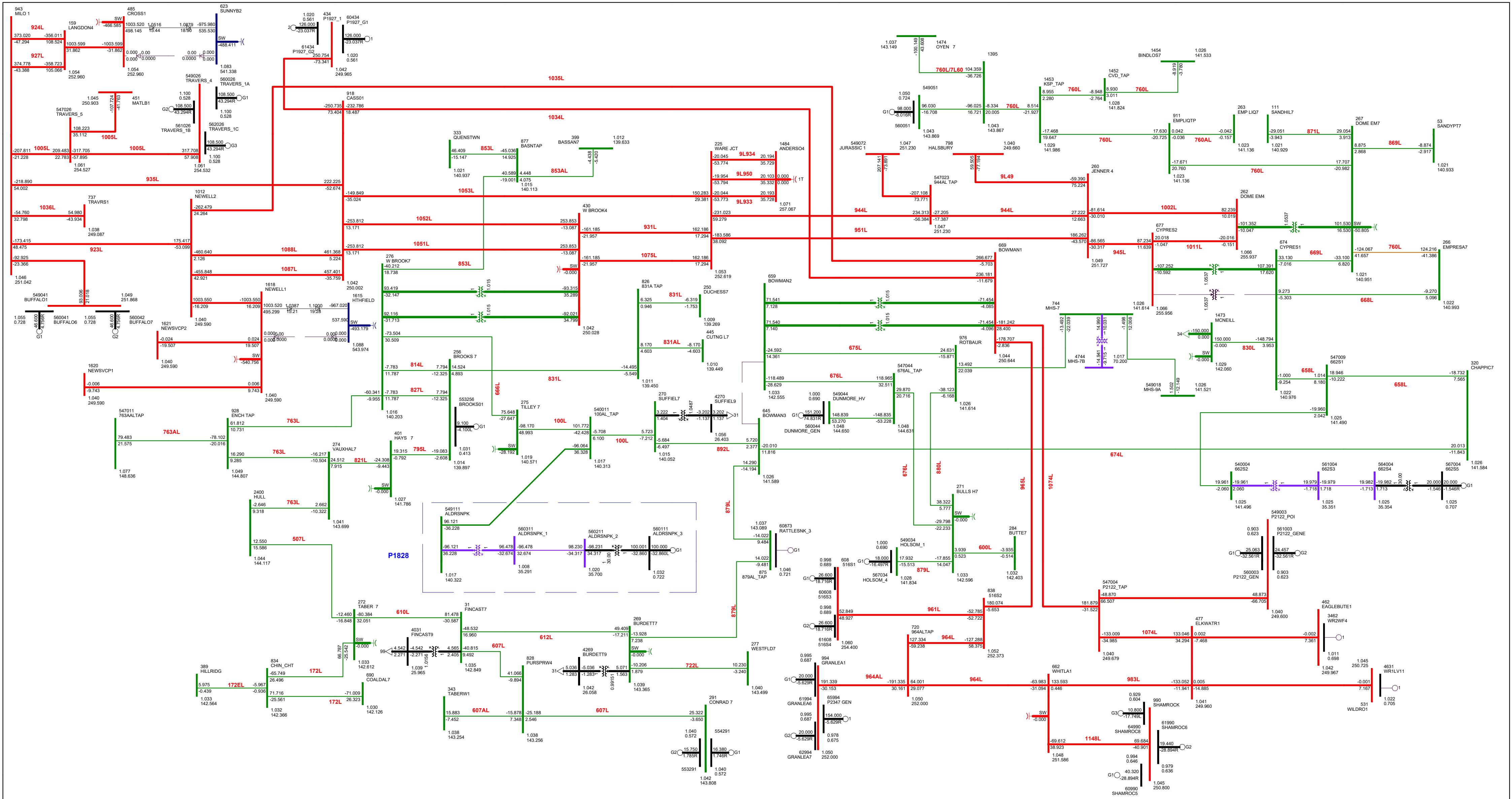
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-8-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:06

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.551 MW

Sask Import: -150.000 MW

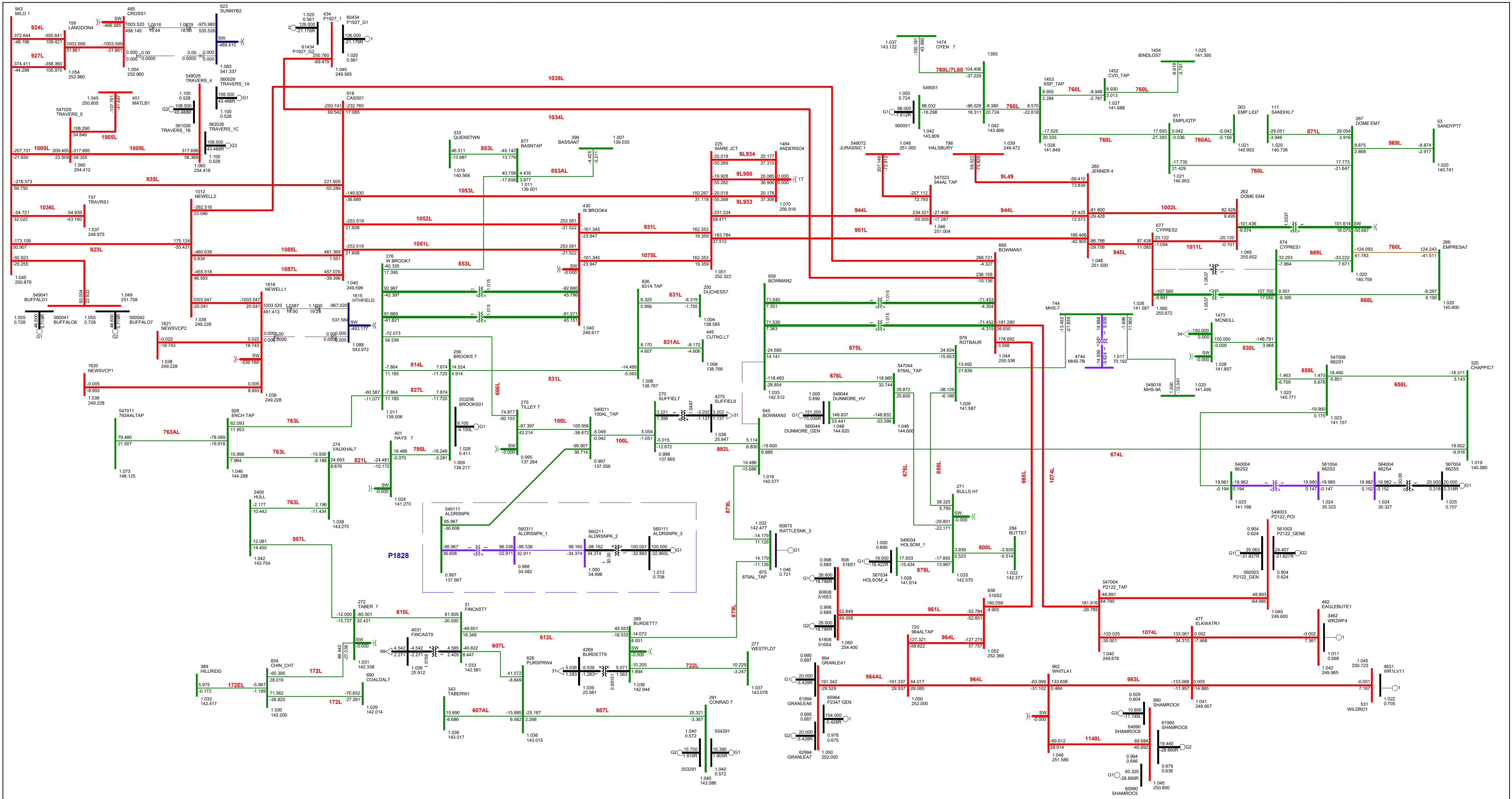
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-9-N-1: 562ST1(CYPRESS 562S TRANSFROMER T1)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.596 MW

Sask Import: -150.000 MW

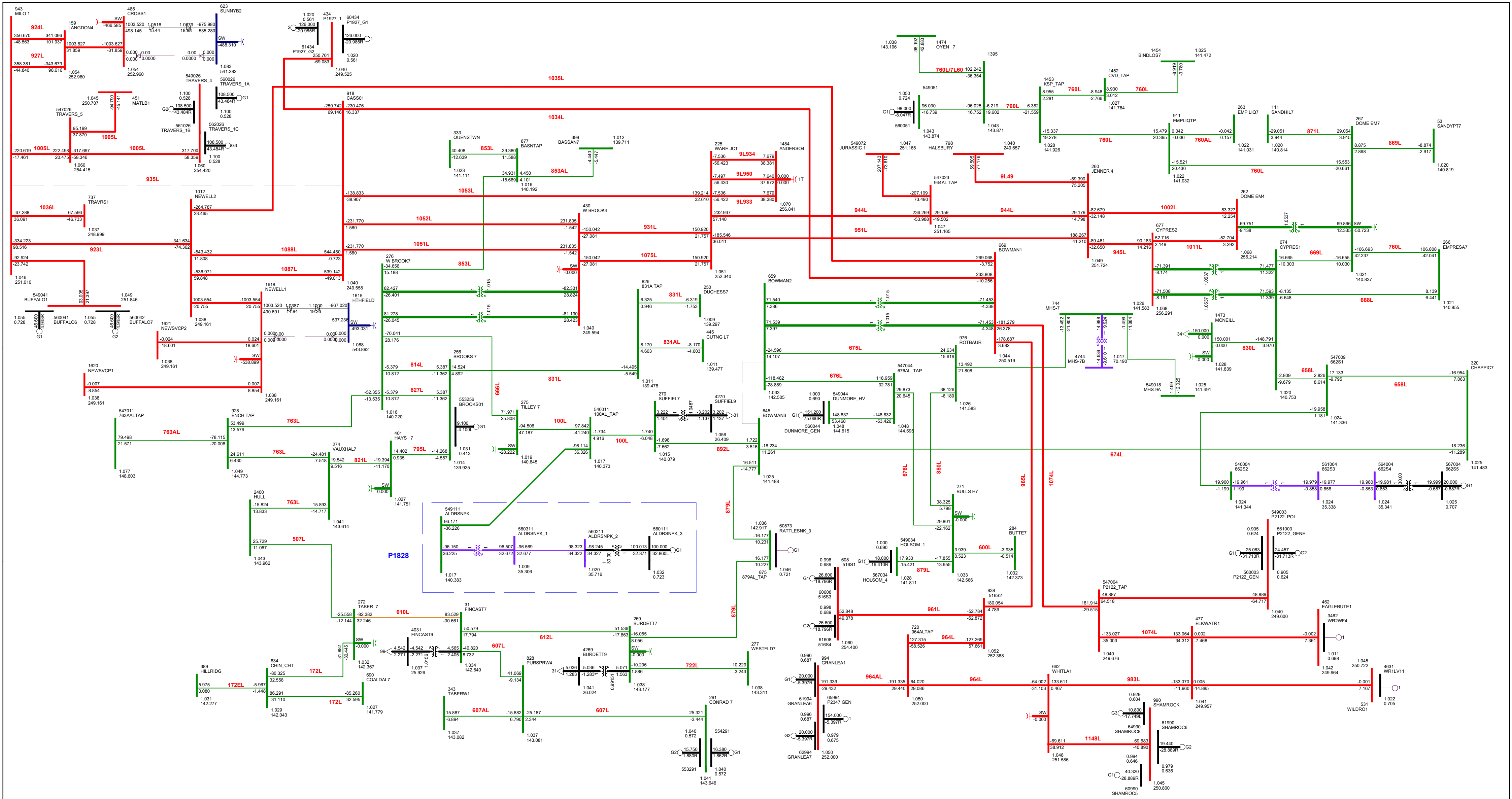
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-10-N-1: 562ST1(CYPRESS 562S TRANSFROMER T2)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:17

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -515.986 MW

Sask Import: -150.000 MW

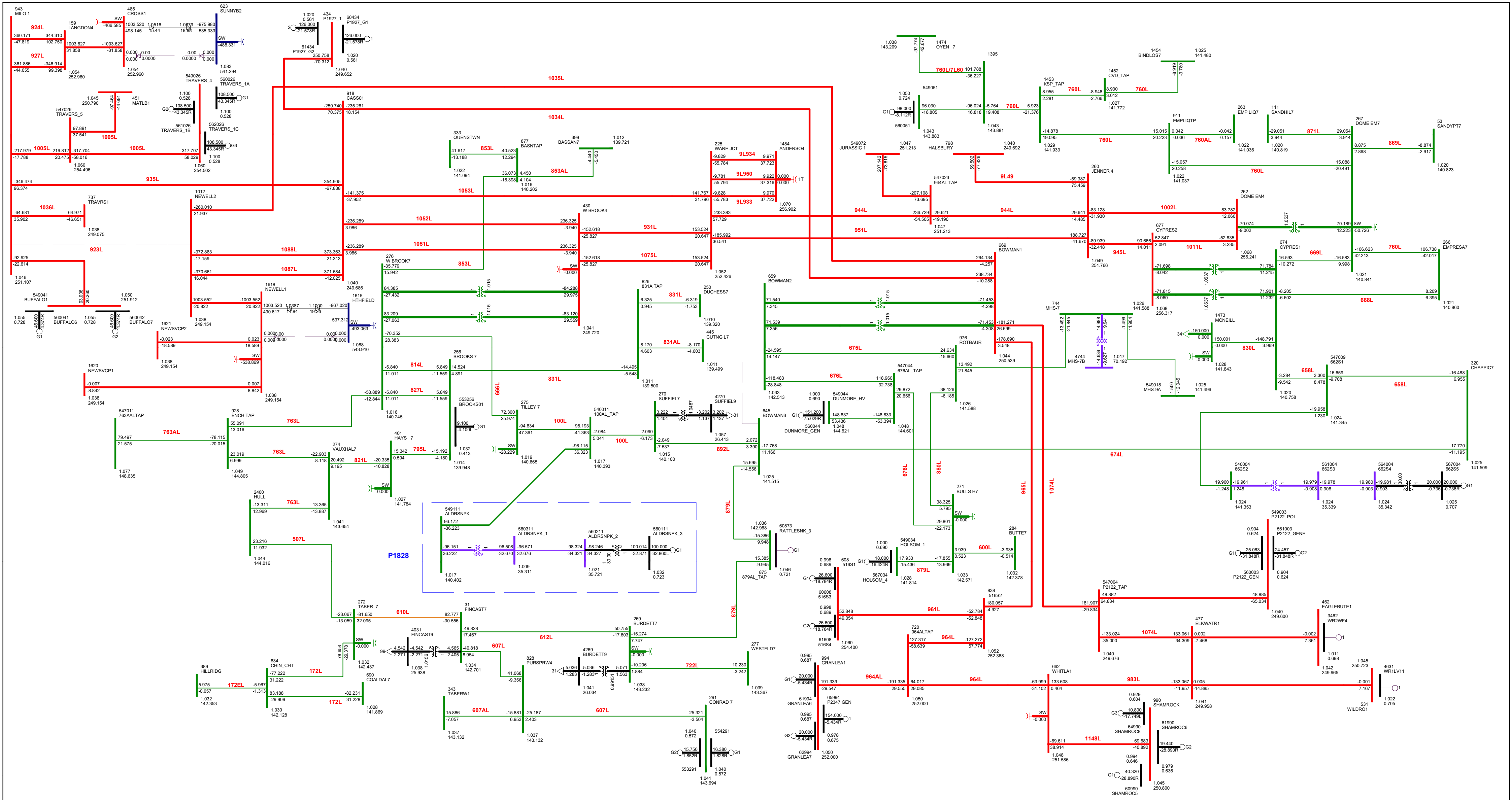
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-11-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.478 MW

Sask Import: -150.000 MW

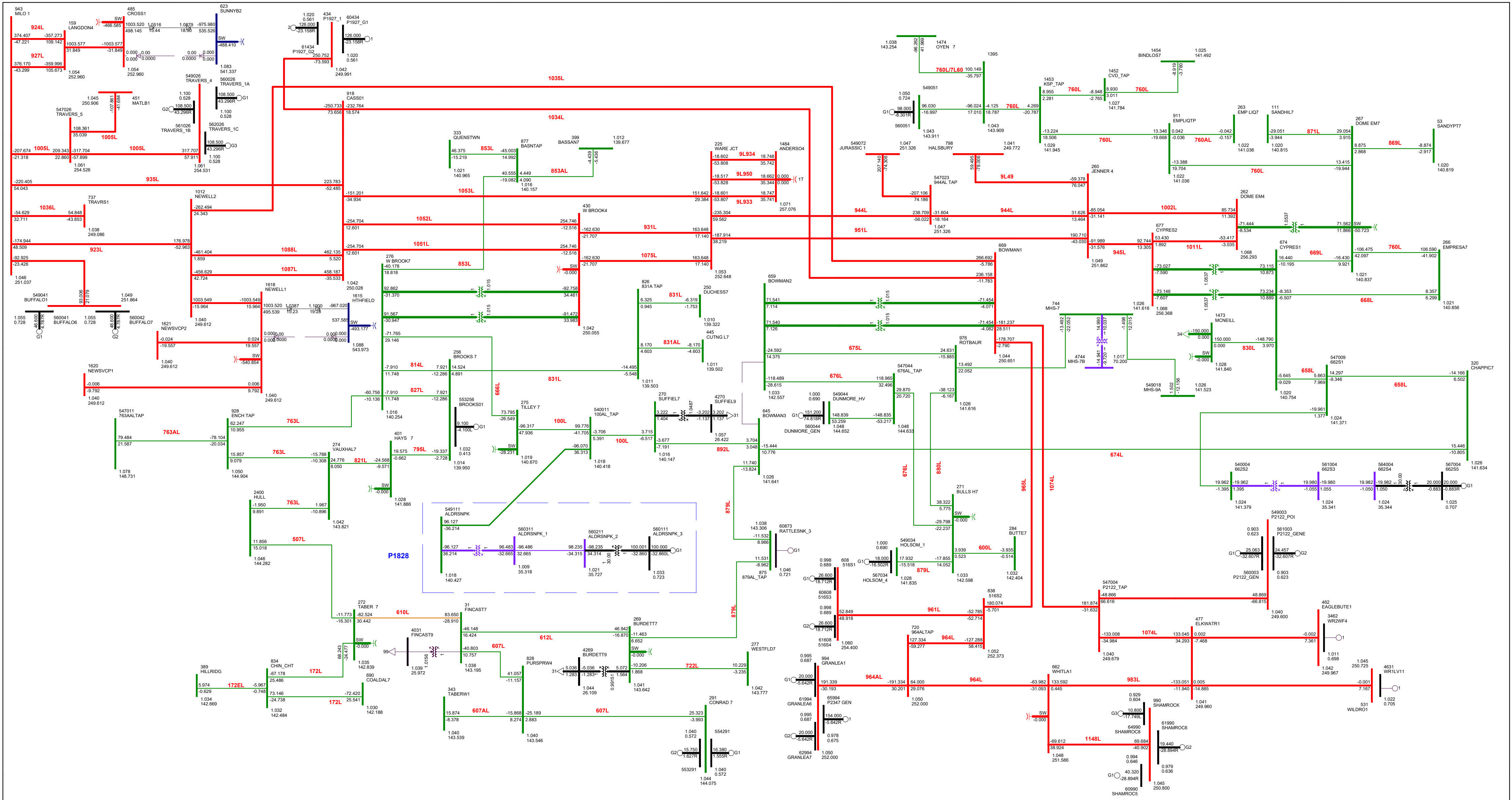
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-12-N-1: 923L(MILO 356S TO NEWELL2075S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -525.969 MW

Sask Import: -150.000 MW

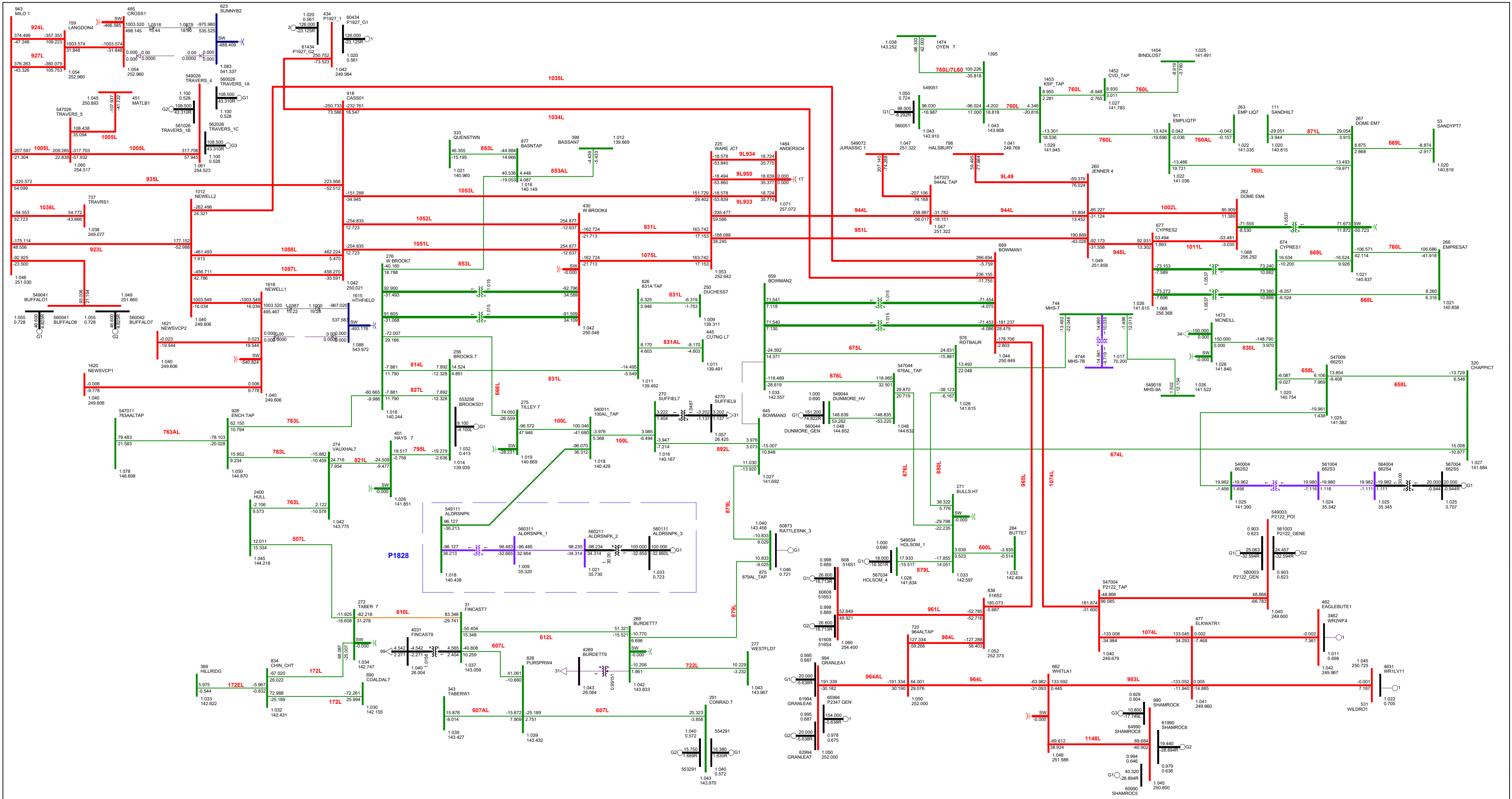
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-13-N-1: 336ST1(FINCASTLE 336S TRANSFORMER T1)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:07

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

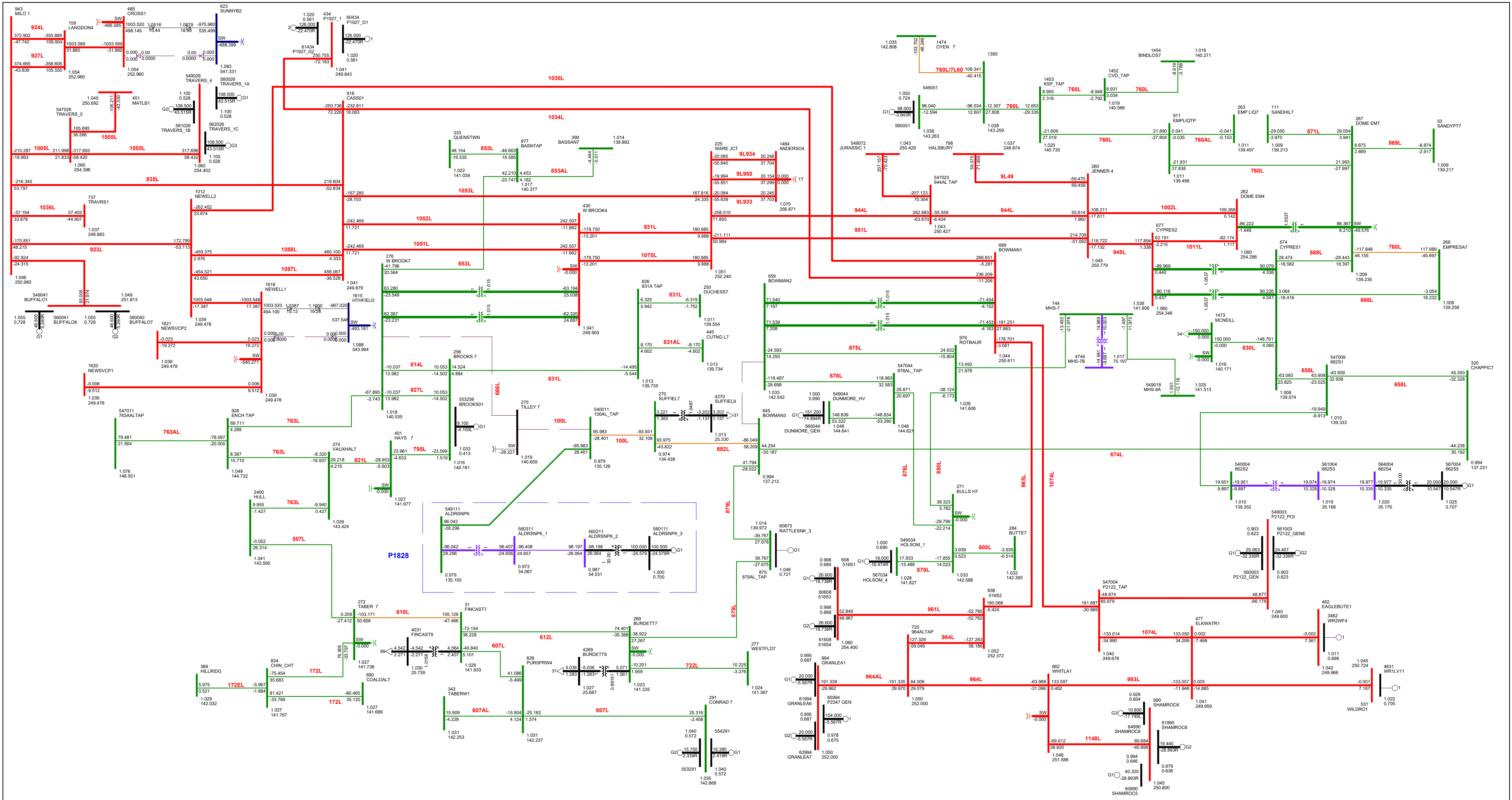
BC Import: -526.266 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D2-14-N-1: BURDETT 368S TRANSFORMER T2
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -526.495 MW

Sask Import: -150.000 MW

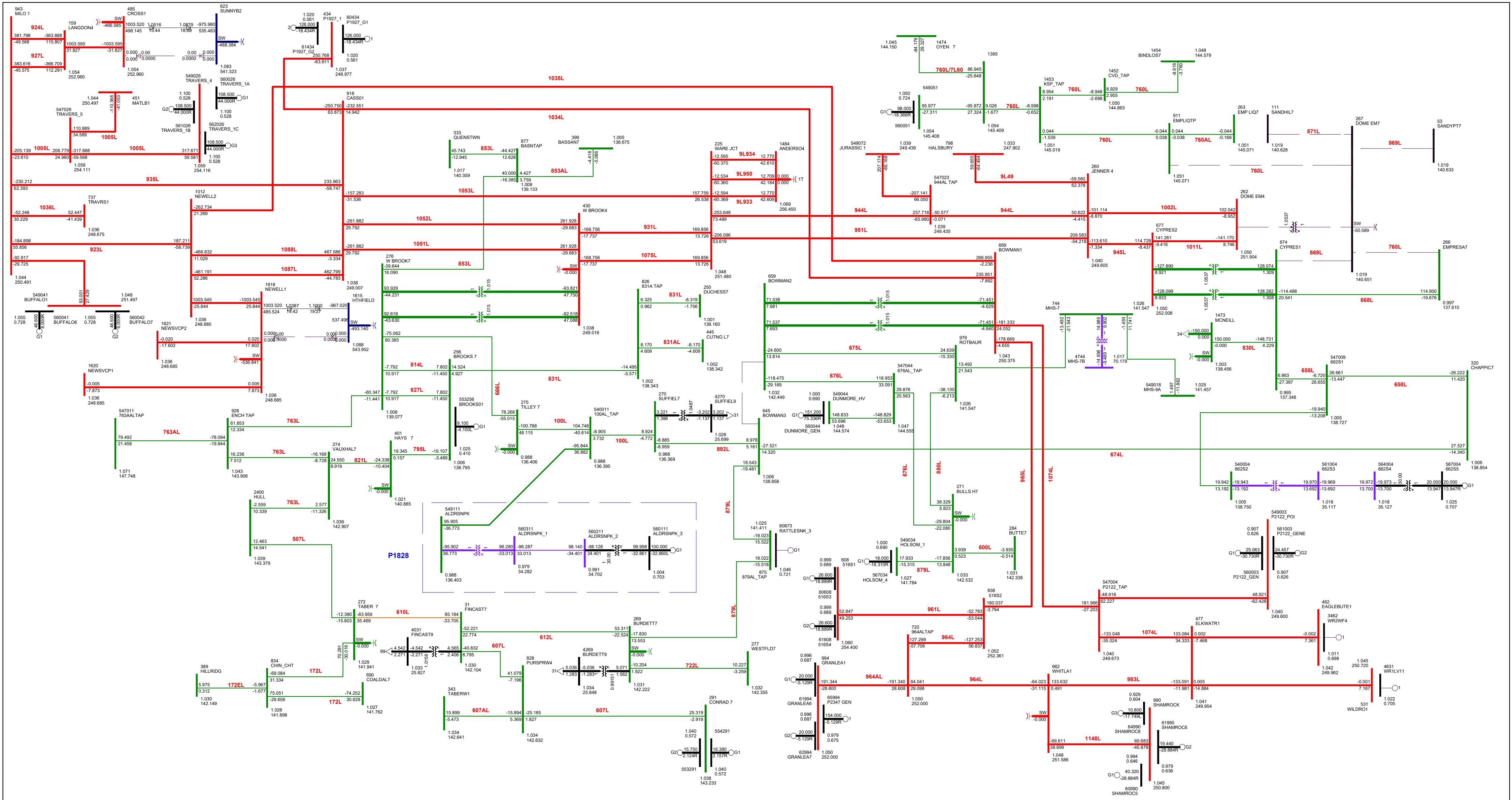
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-15-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -550.359 MW

Sask Import: -150.000 MW

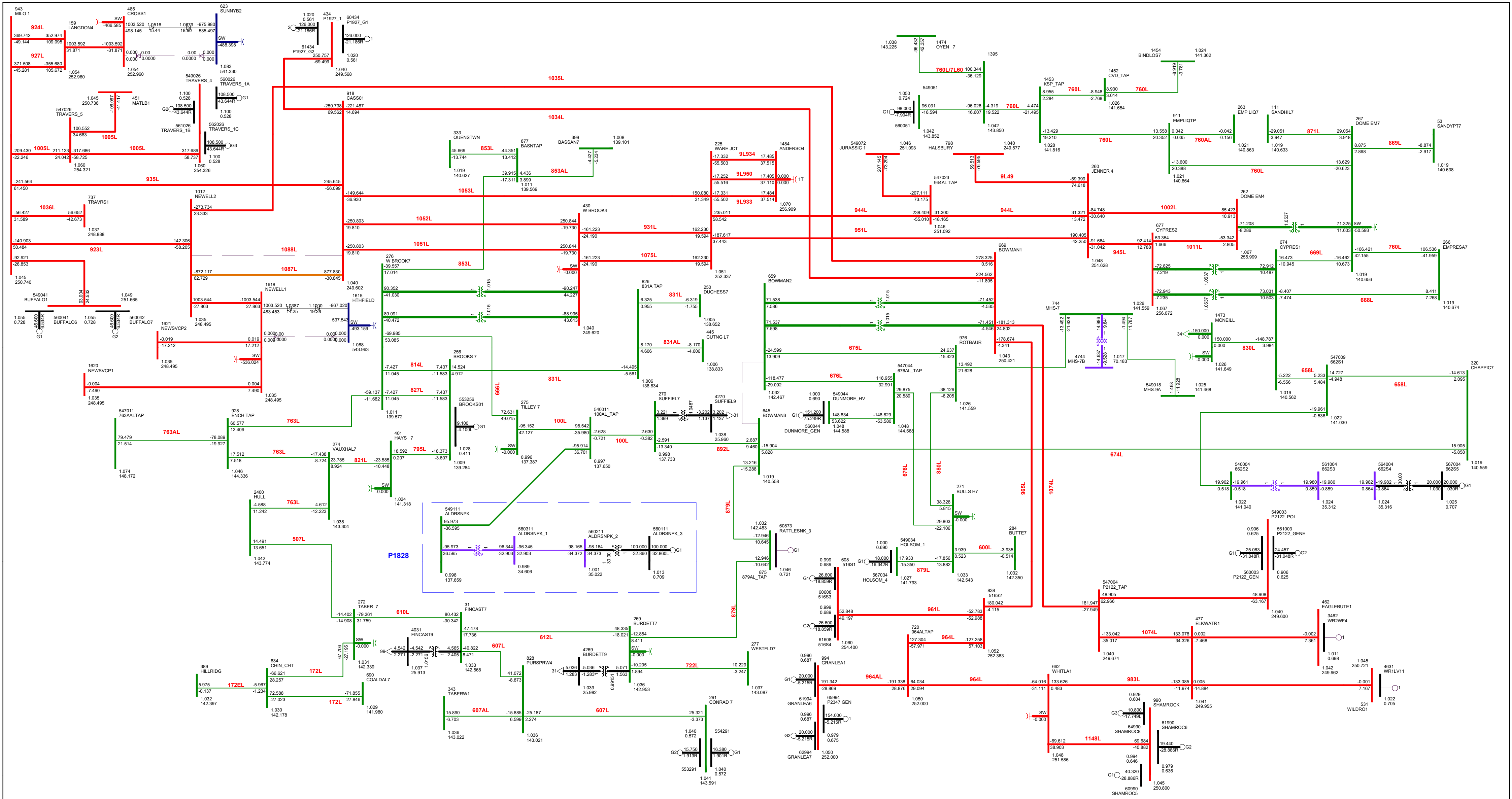
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-16-N-1: 163ST5(AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

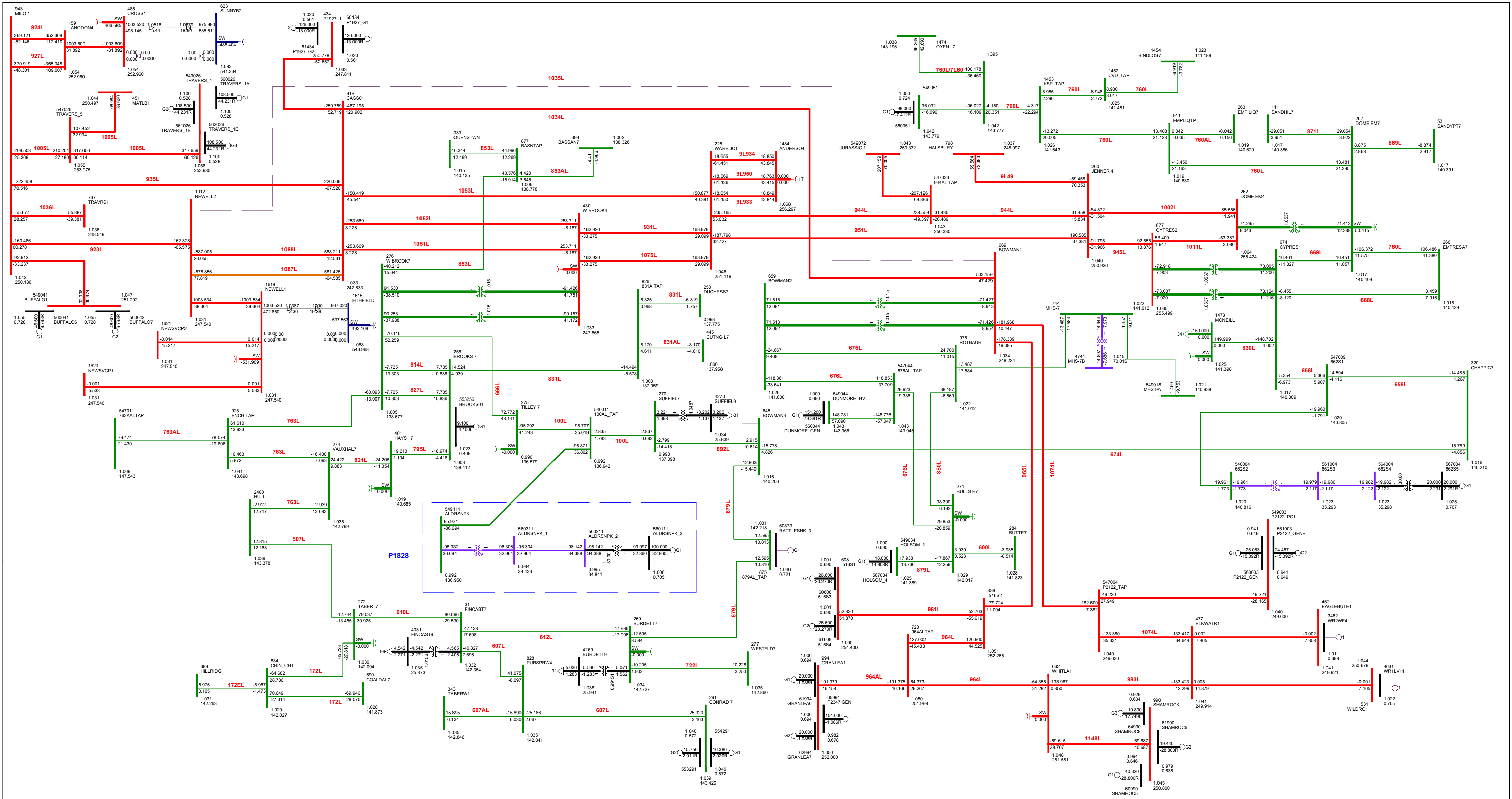
BC Import: -517.658 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D2-17-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -512.029 MW

Sask Import: -150.000 MW

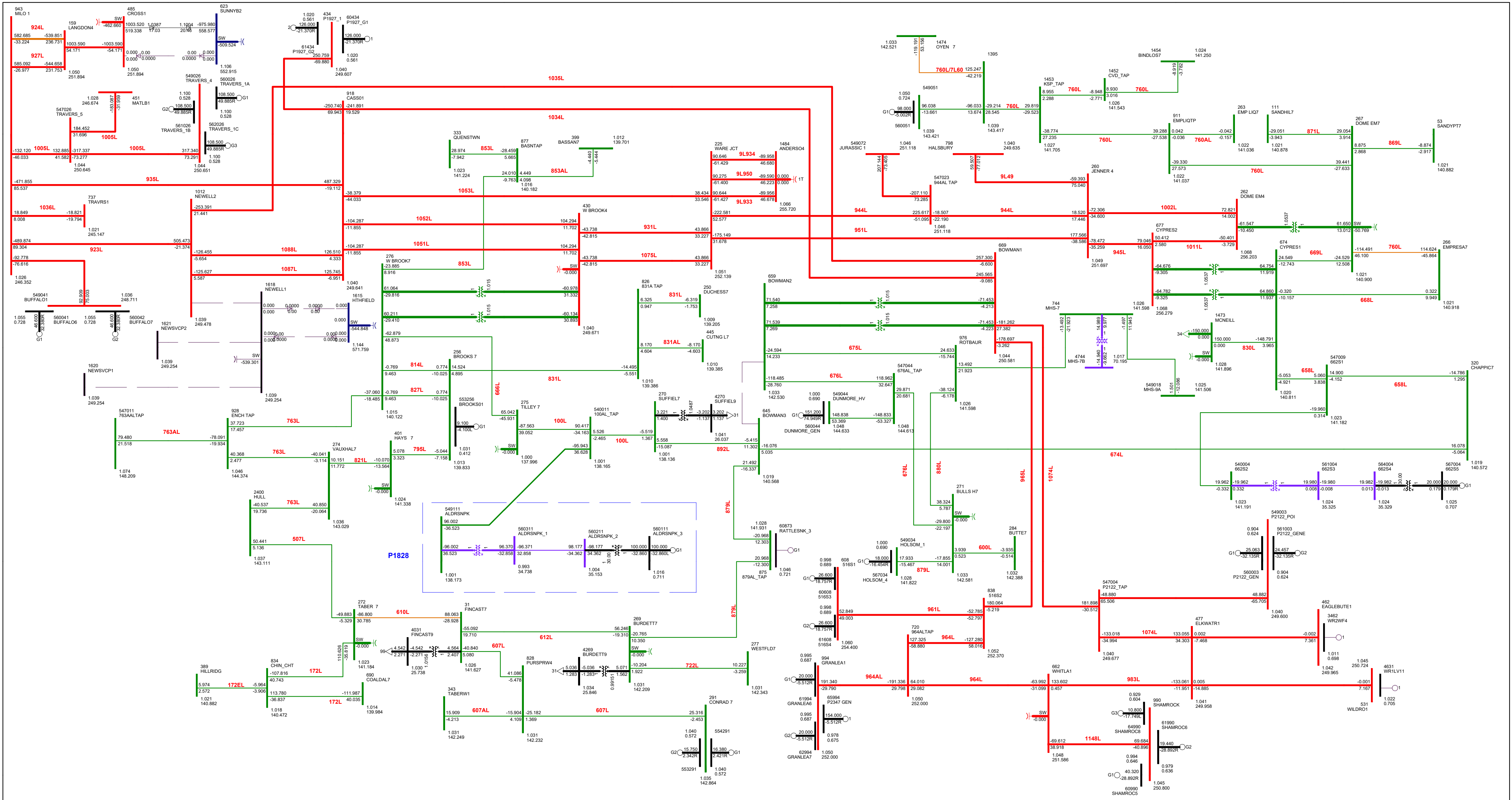
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-18-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -392.602 MW

Sask Import: -150.000 MW

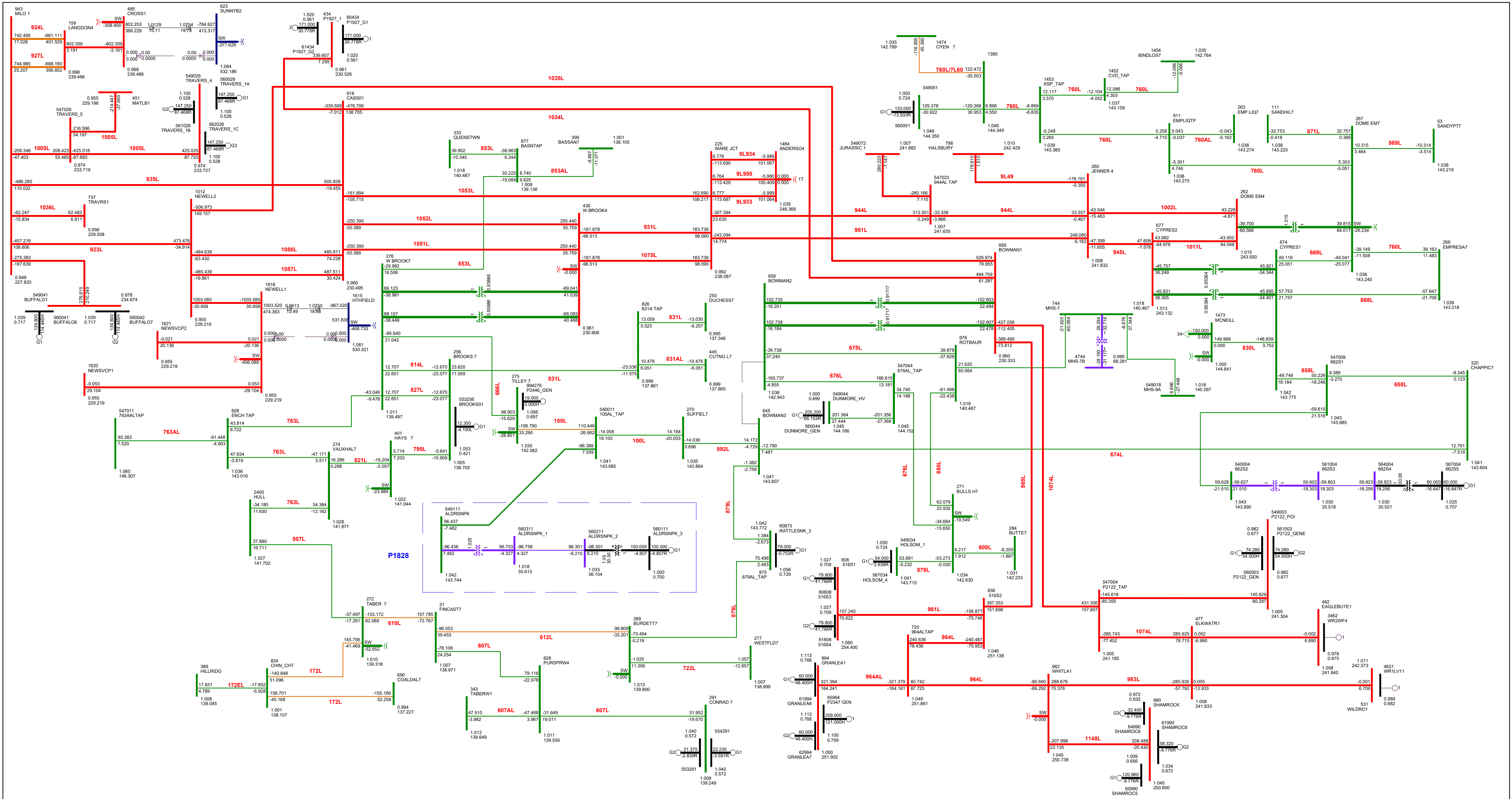
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE D2-19-N-1: EATL
2025 SUMMER LIGHT - SCN 9 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:49

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -516.496 MW

Sask Import: -150.000 MW

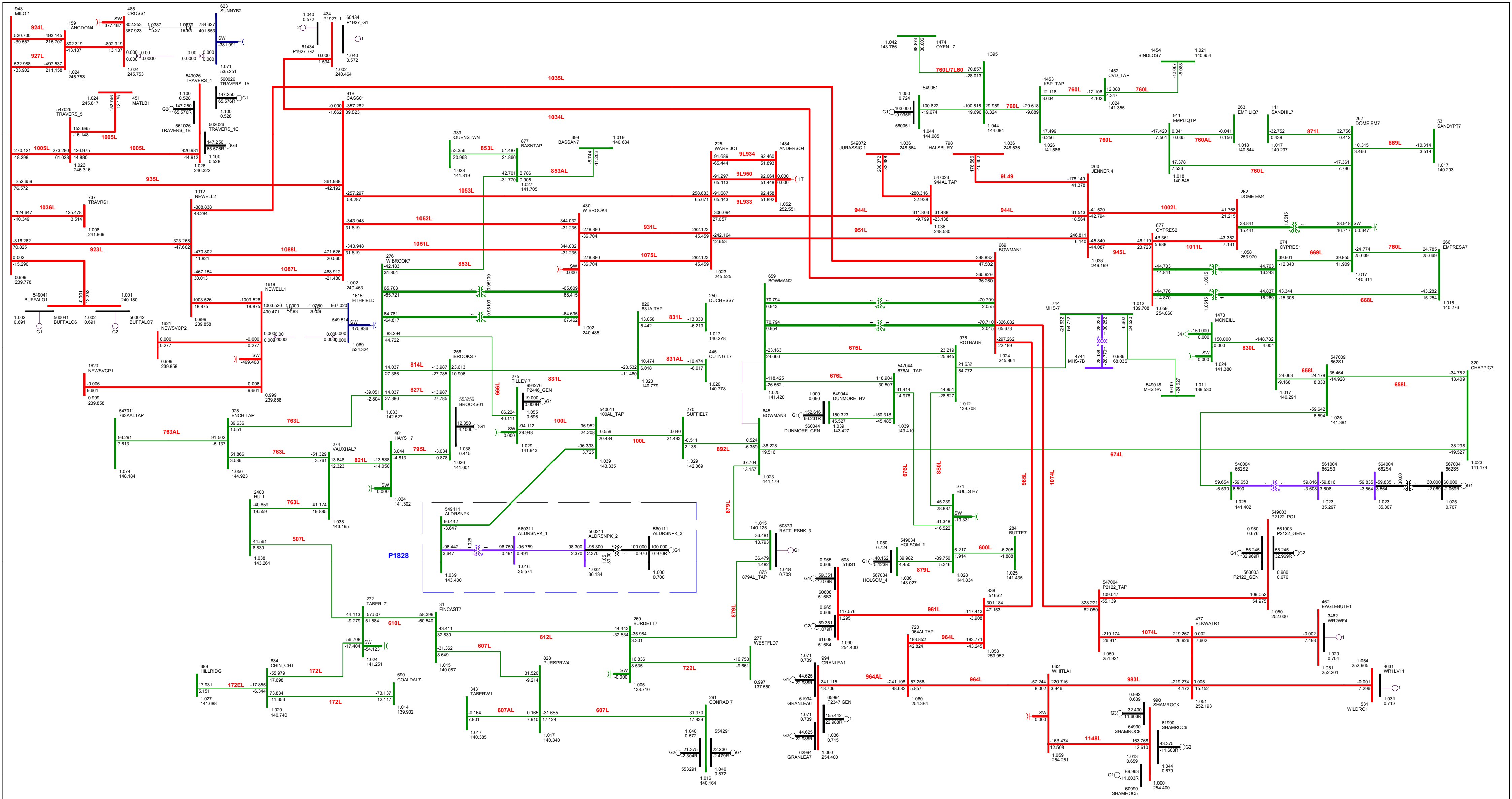
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B0-5-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
FRI, SEP 08 2023 10:49

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.757 MW

Sask Import: -150.000 MW

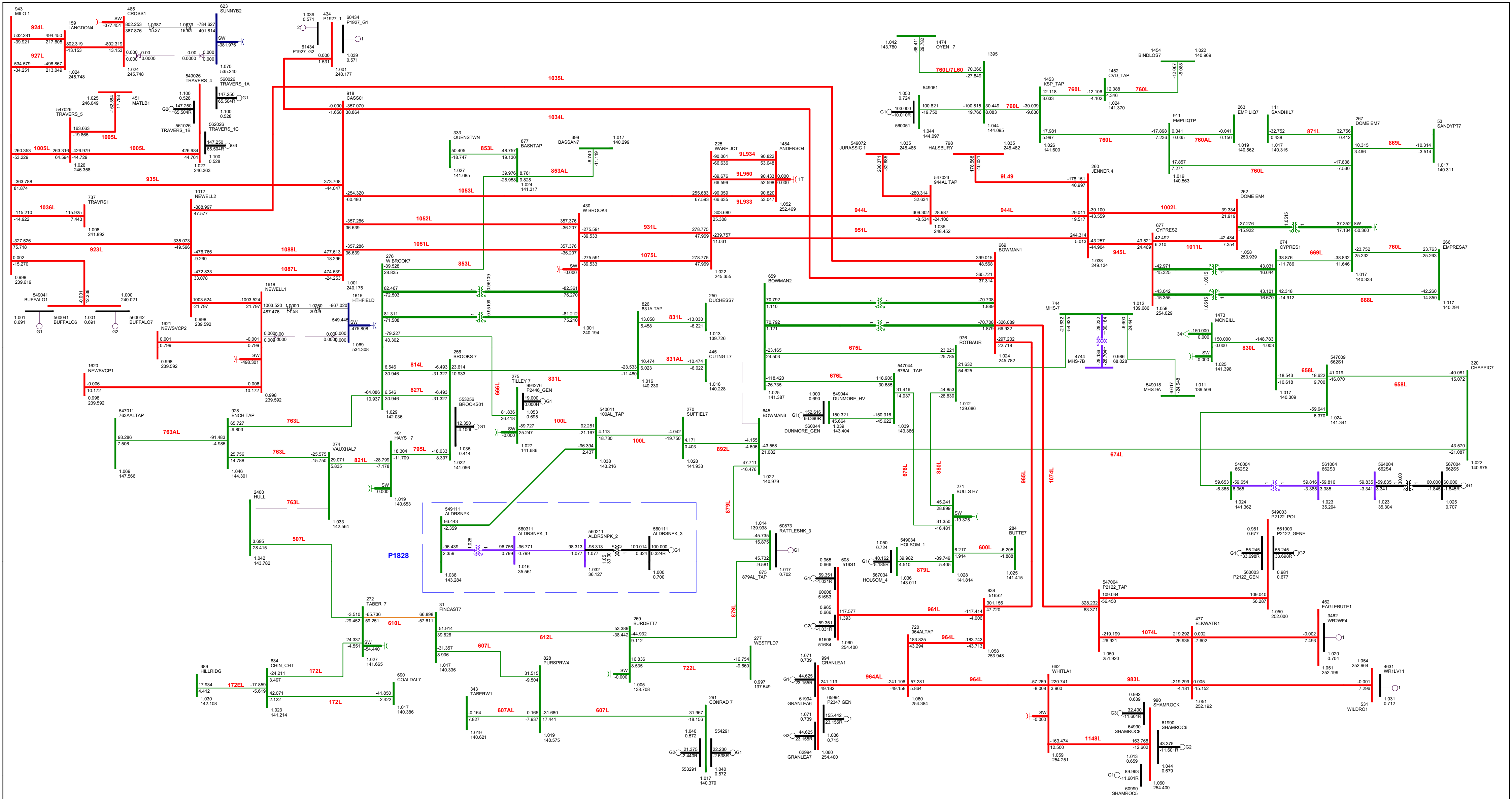
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-1-N-0: NORMAL OPERATION
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

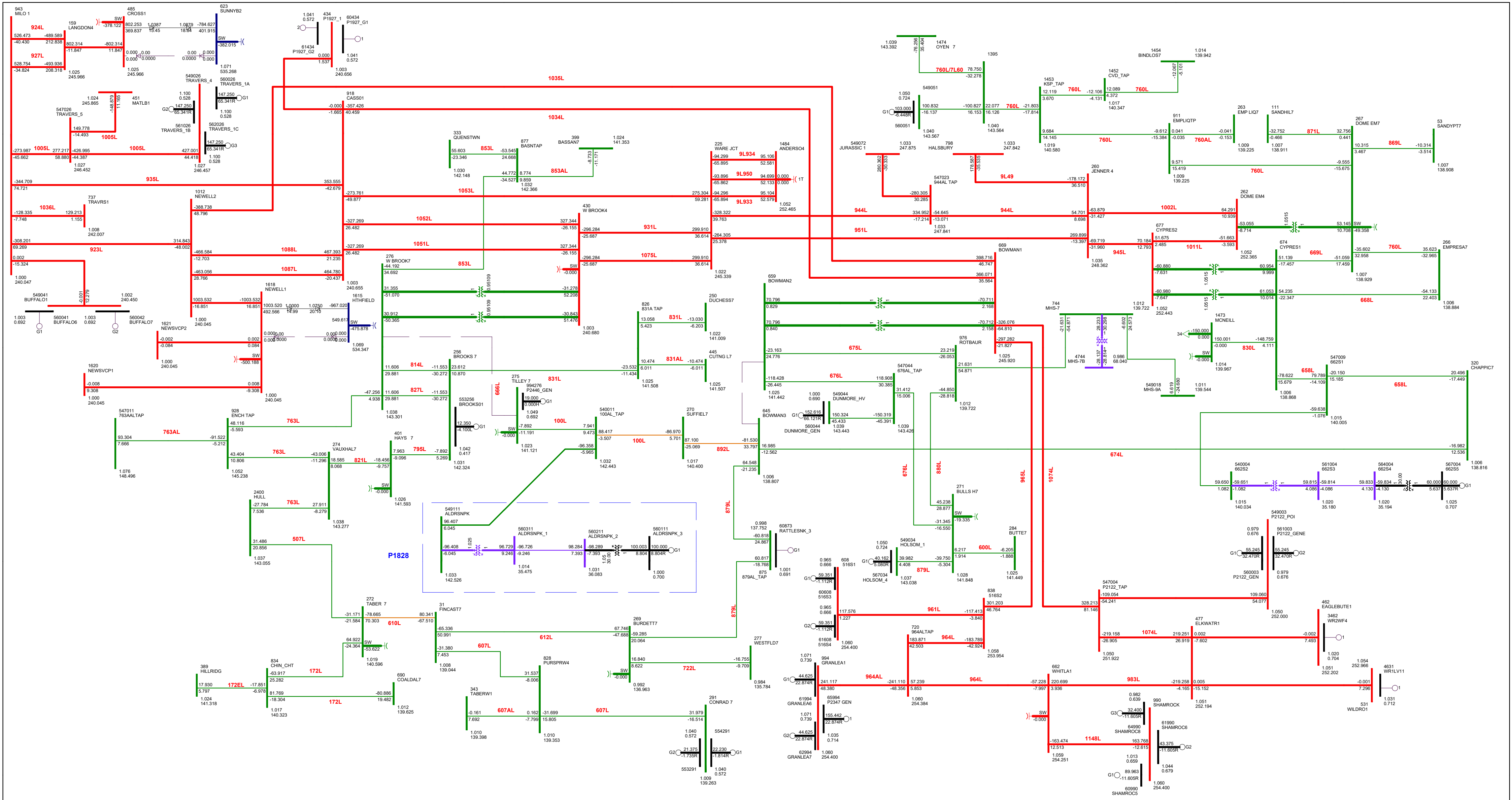
BC Import: -517.074 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D3-2-N-1: 763L(VAUXHALL 158S TO HULL 257S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -509.591 MW

Sask Import: -150.000 MW

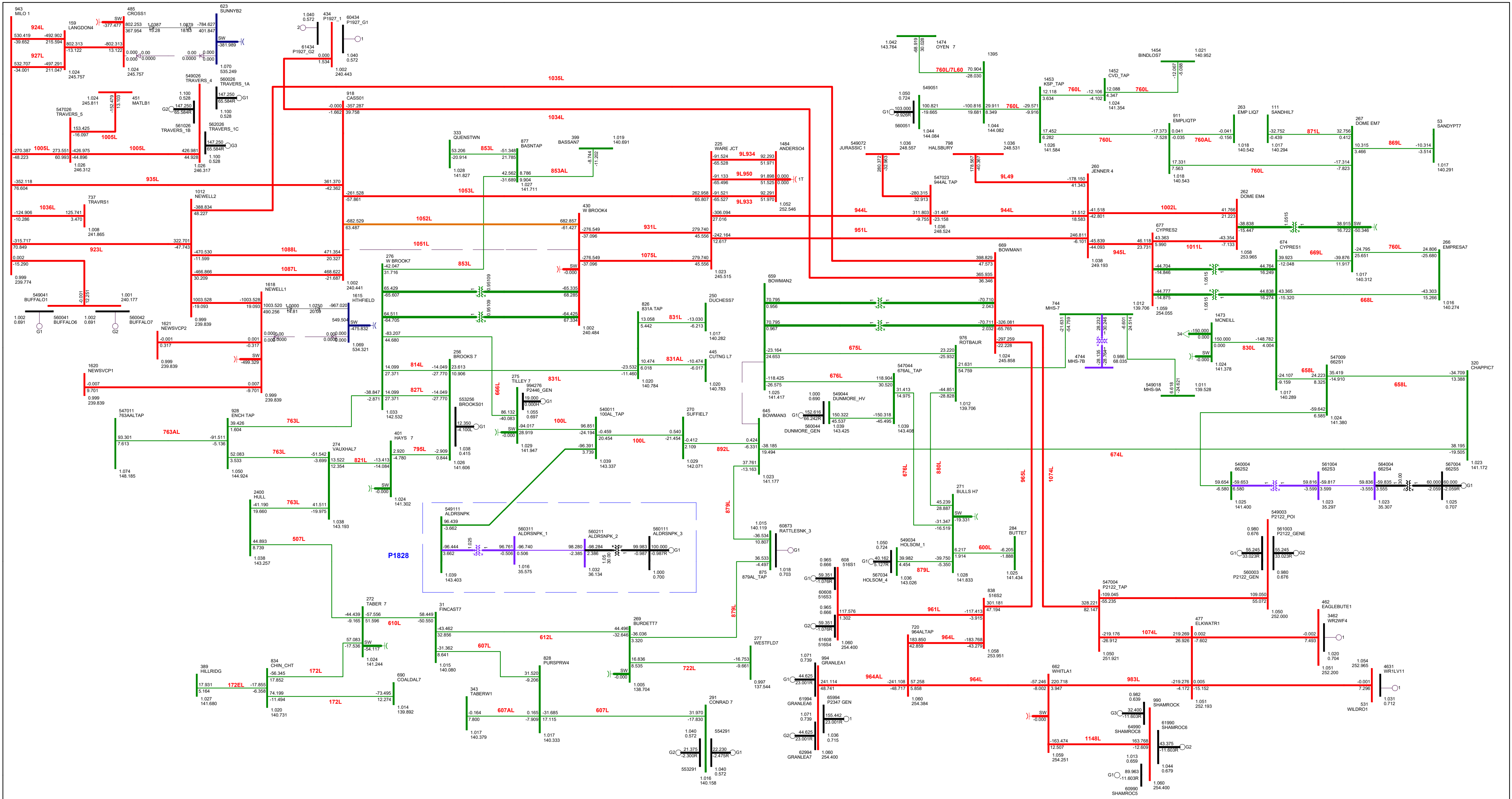
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:25

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -518.614 MW

Sask Import: -150.000 MW

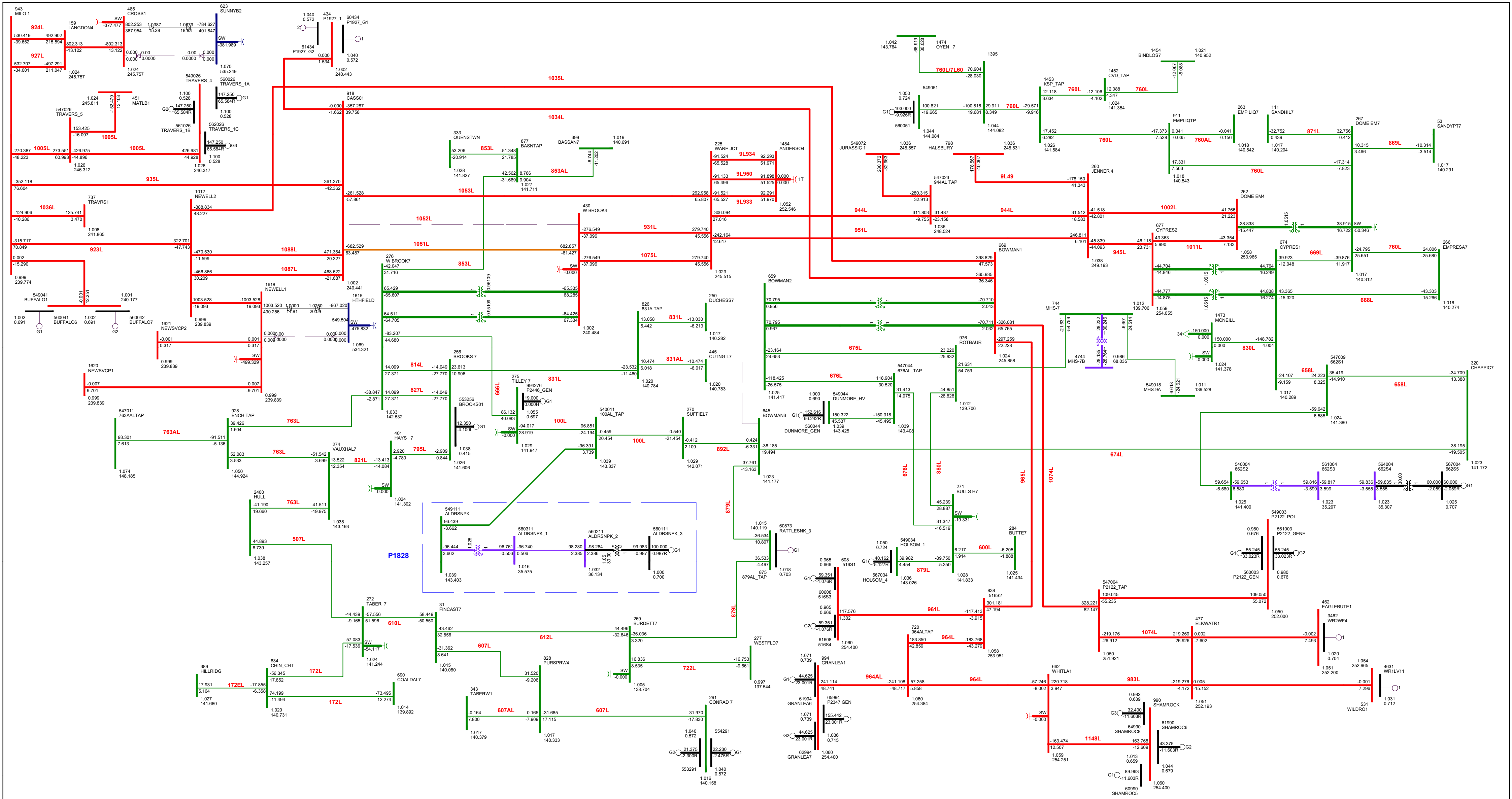
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-4-N-1: 1051L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

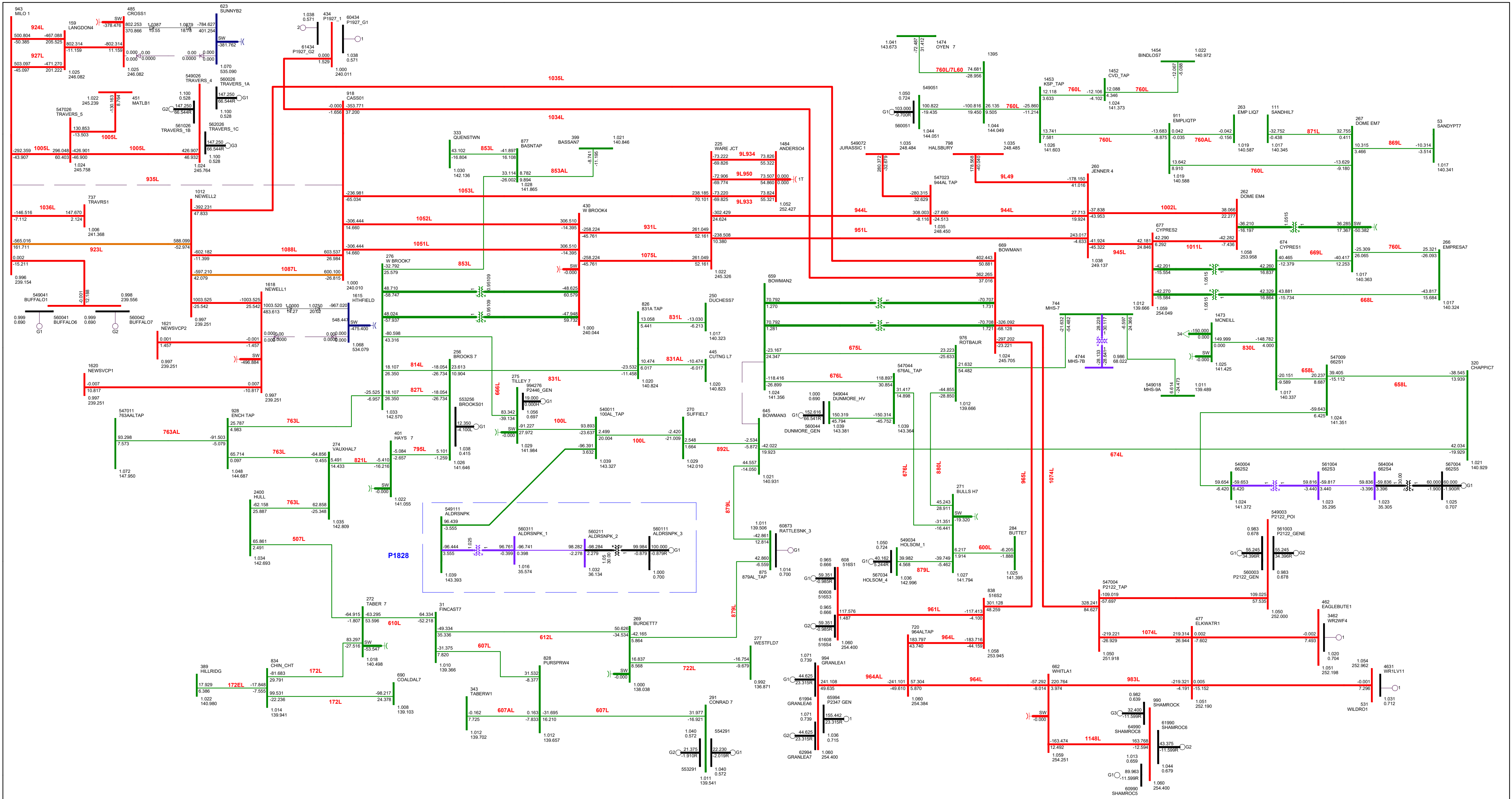
BC Import: -518.614 MW Sask Import: -150.000 MW

EATL: -1000.000 MW WATL: -800.000 MW

FIGURE D3-5-N-1: 1052L(WEST BROOKS 28S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

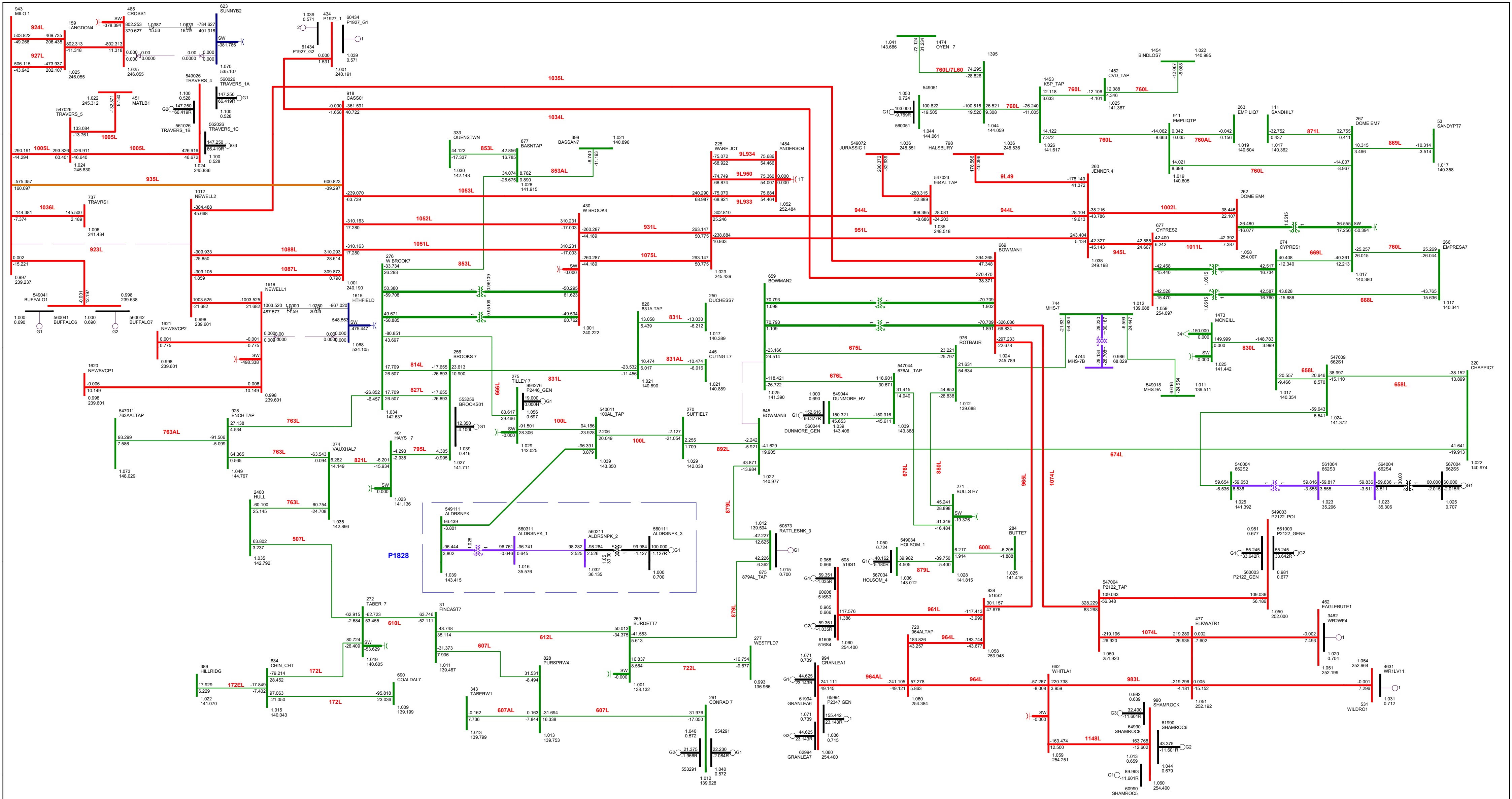
BC Import: -497.675 MW
Sask Import: -150.000 MW

EATL: -1000.000 MW
WATL: -800.000 MW

FIGURE D3-6-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -499.992 MW

Sask Import: -150.000 MW

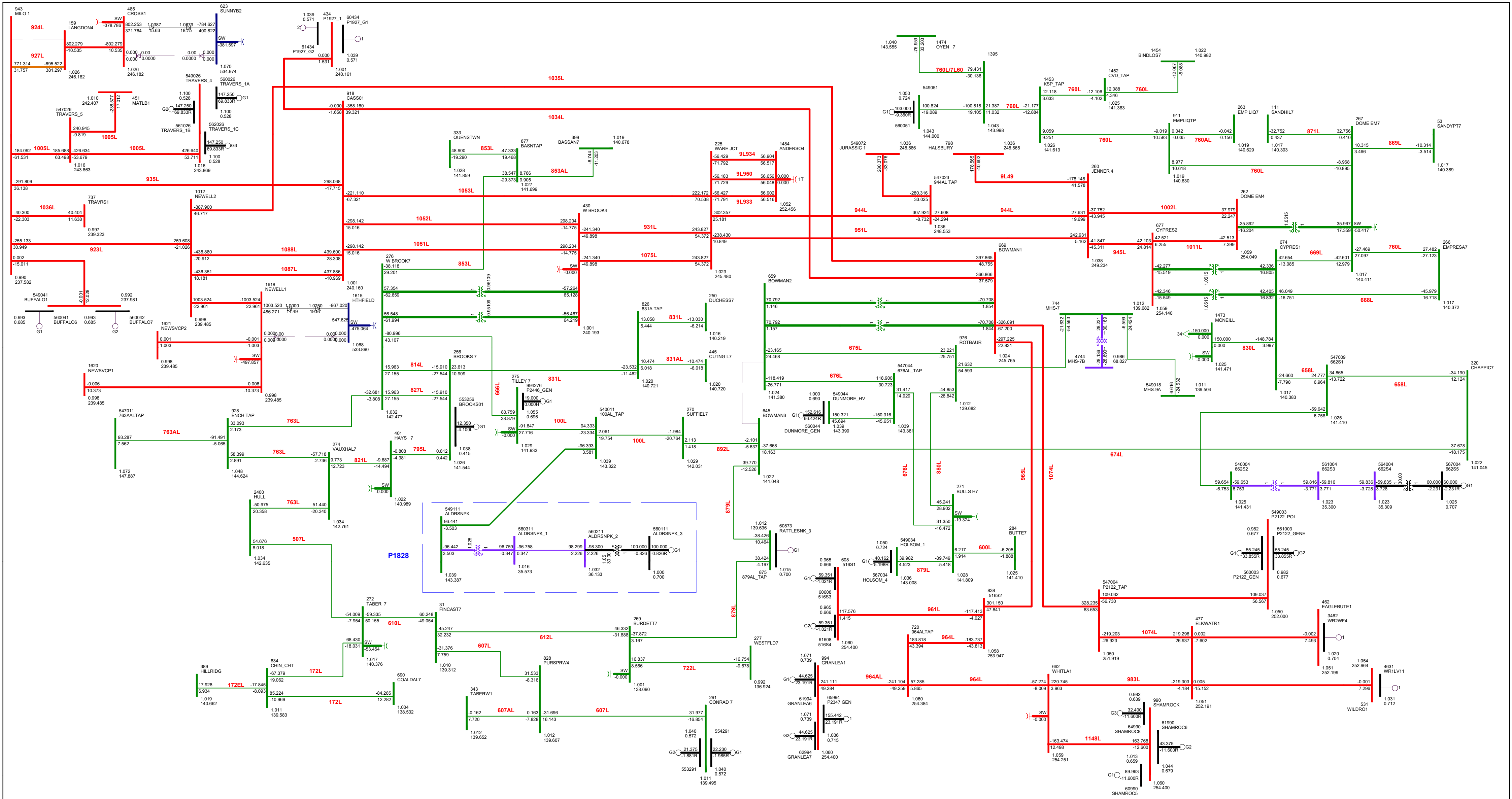
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-7-N-1: 923L(MILO 356S TO NEWELL2075S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -466.070 MW

Sask Import: -150.000 MW

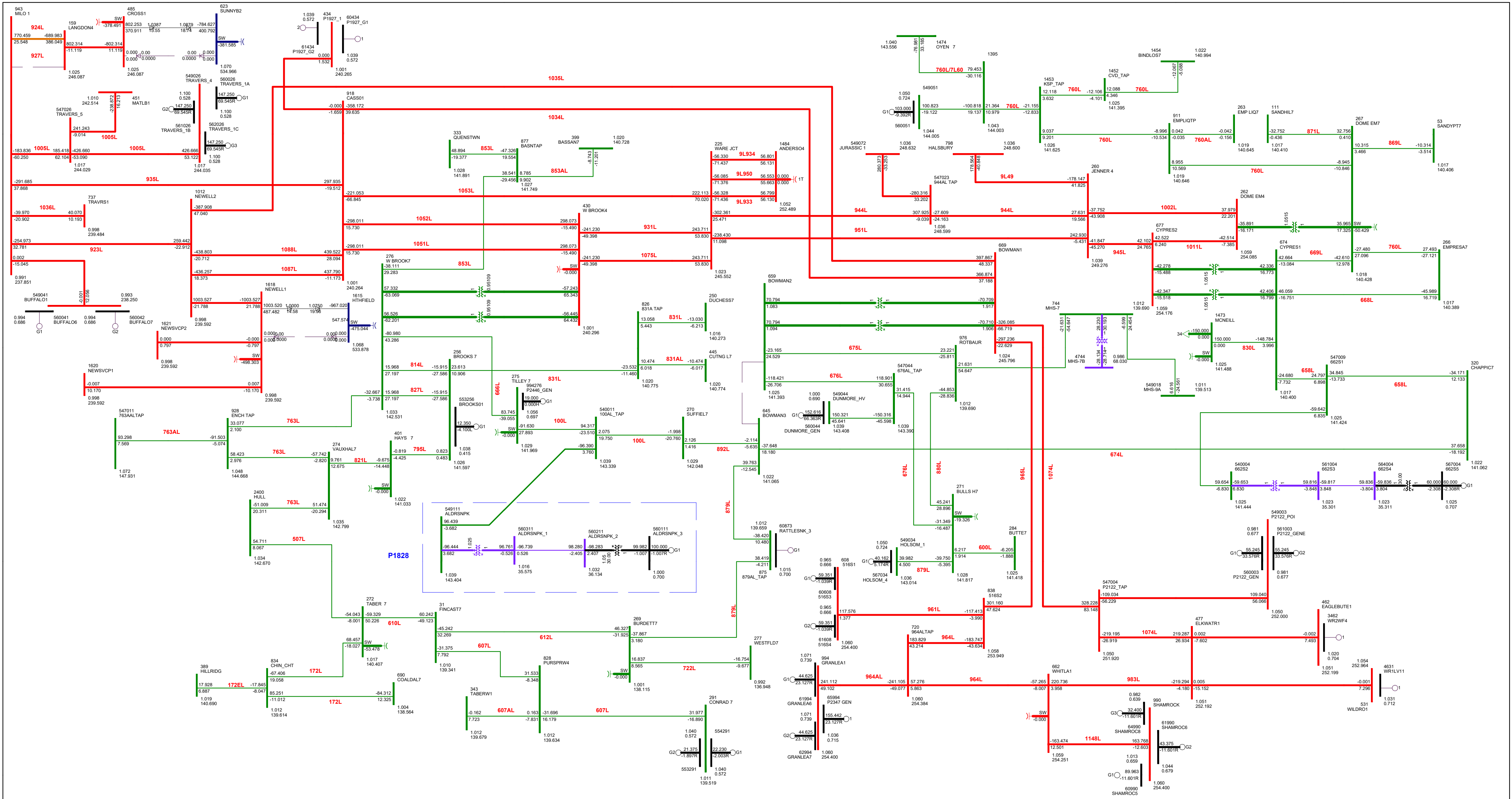
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-8-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -461.312 MW

Sask Import: -150.000 MW

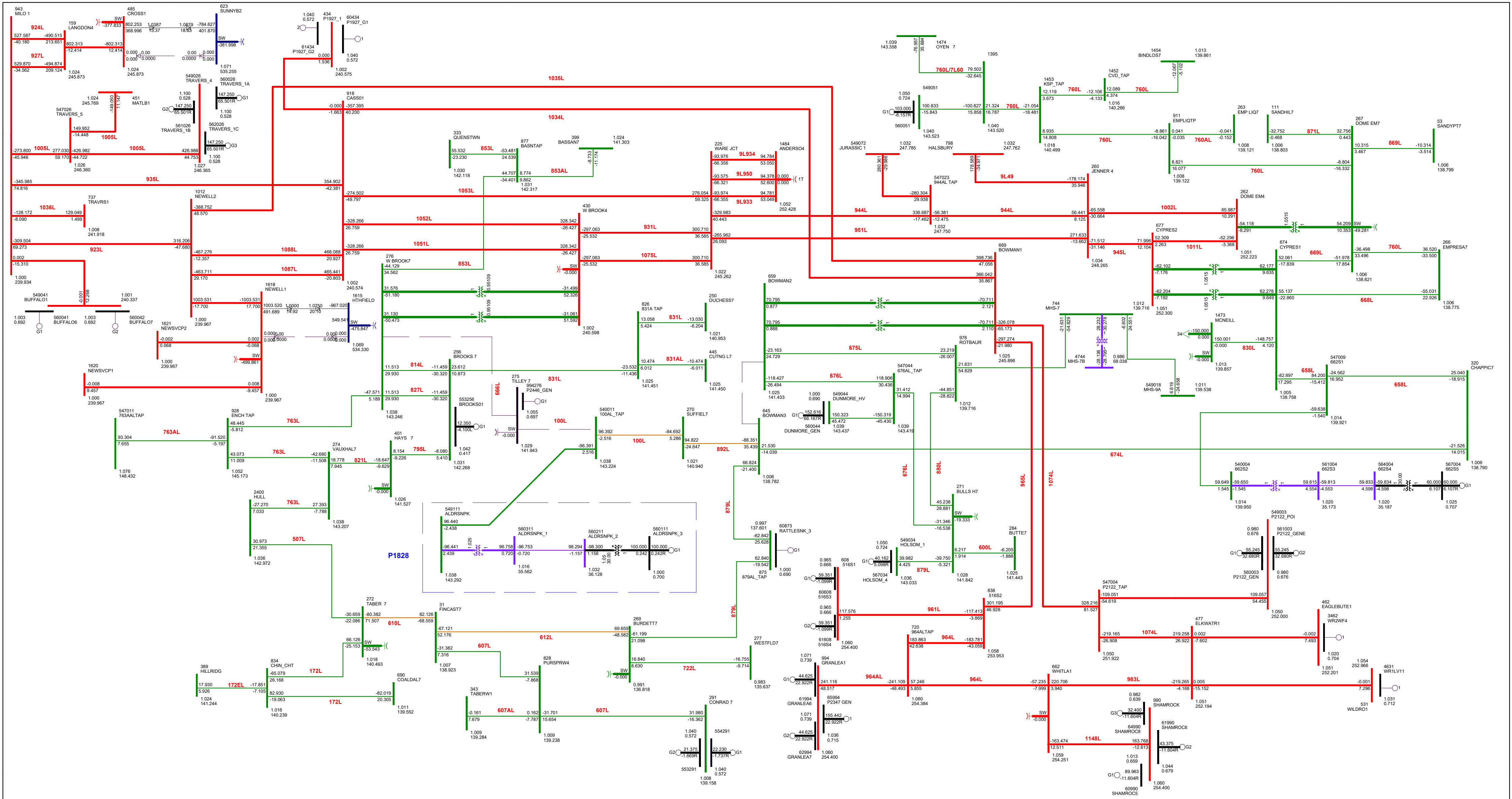
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-9-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -513.832 MW

Sask Import: -150.000 MW

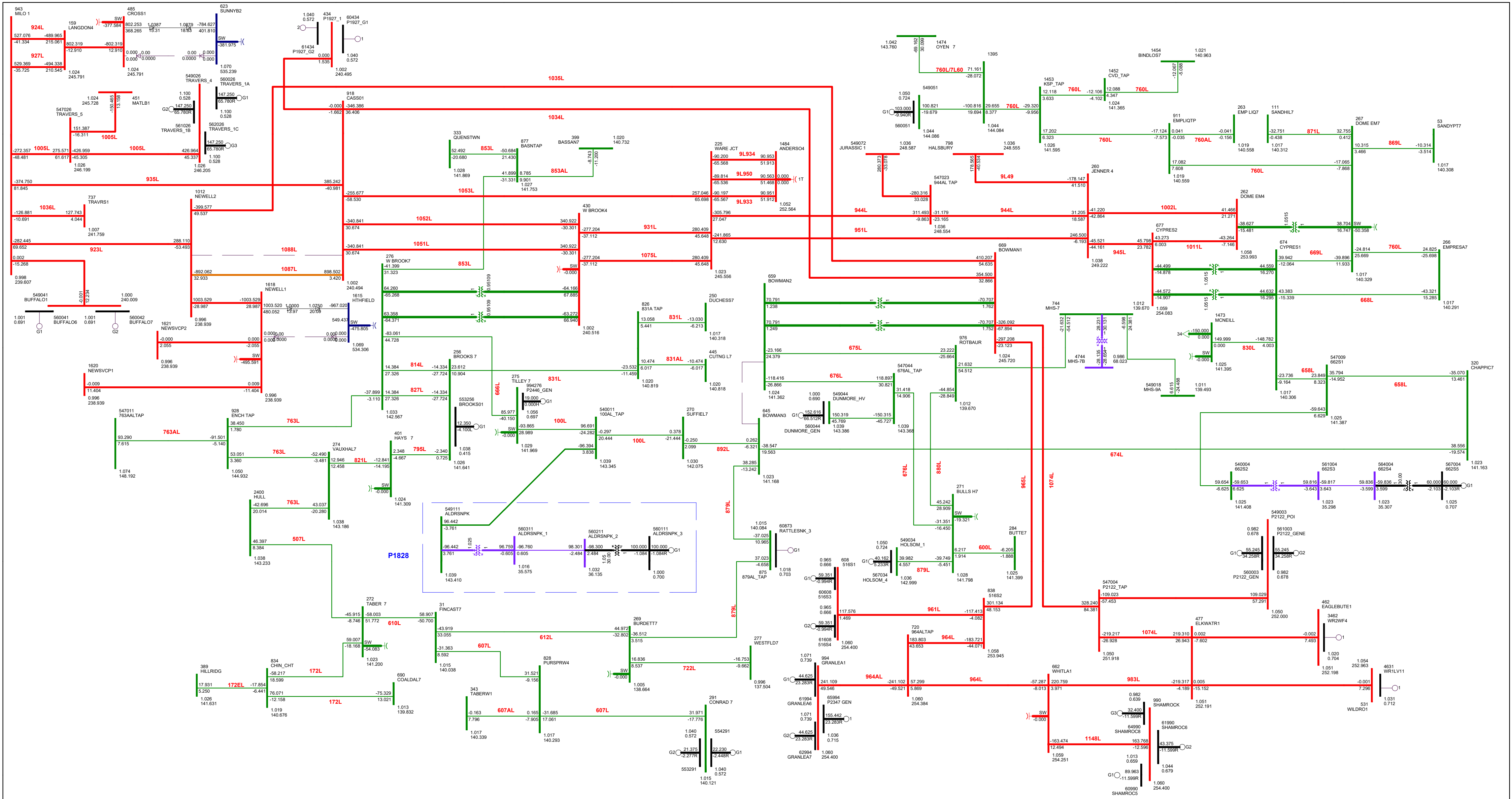
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-10-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:30

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -514.375 MW

Sask Import: -150.000 MW

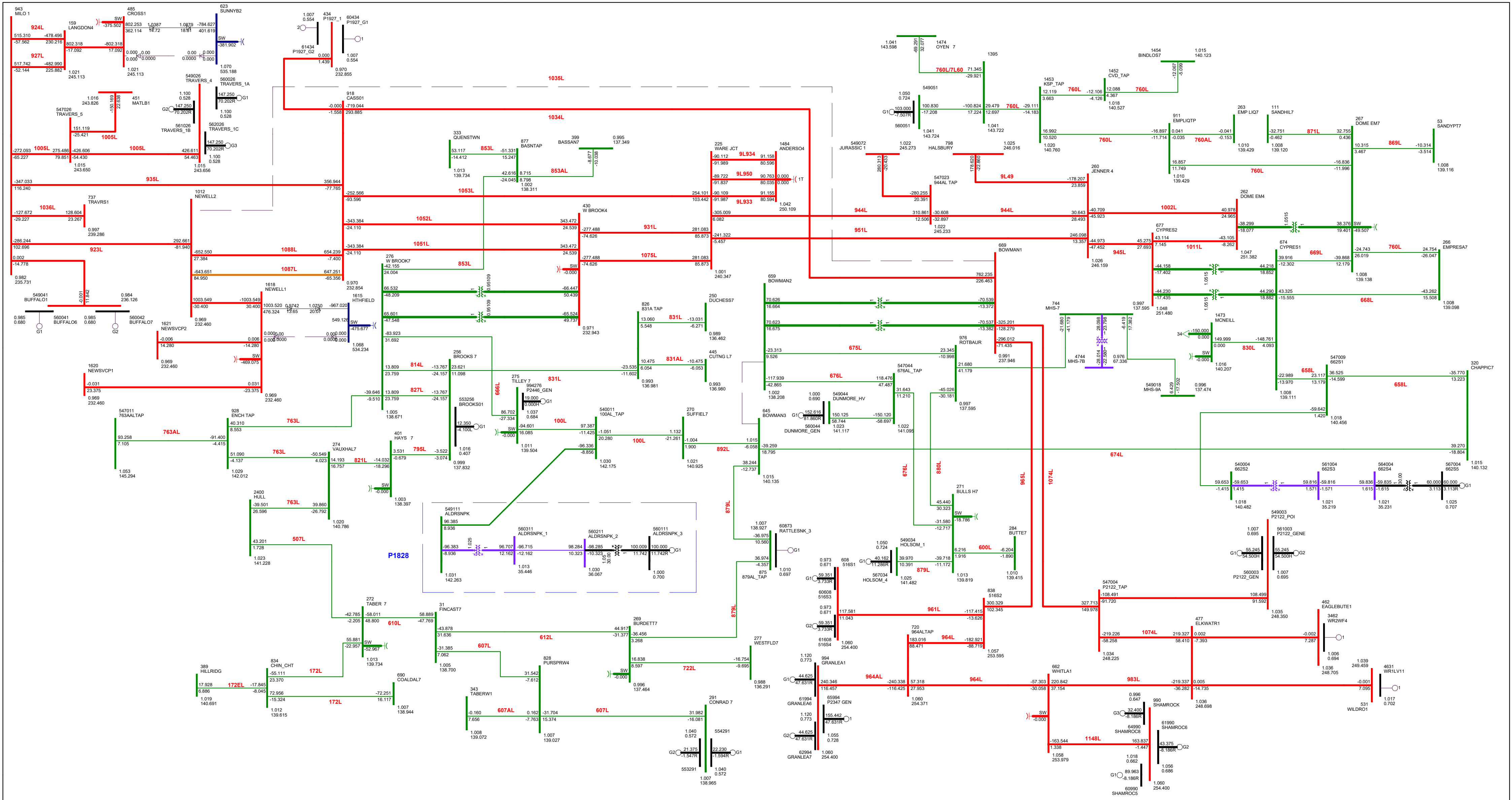
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-11-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:27

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -486.793 MW

Sask Import: -150.000 MW

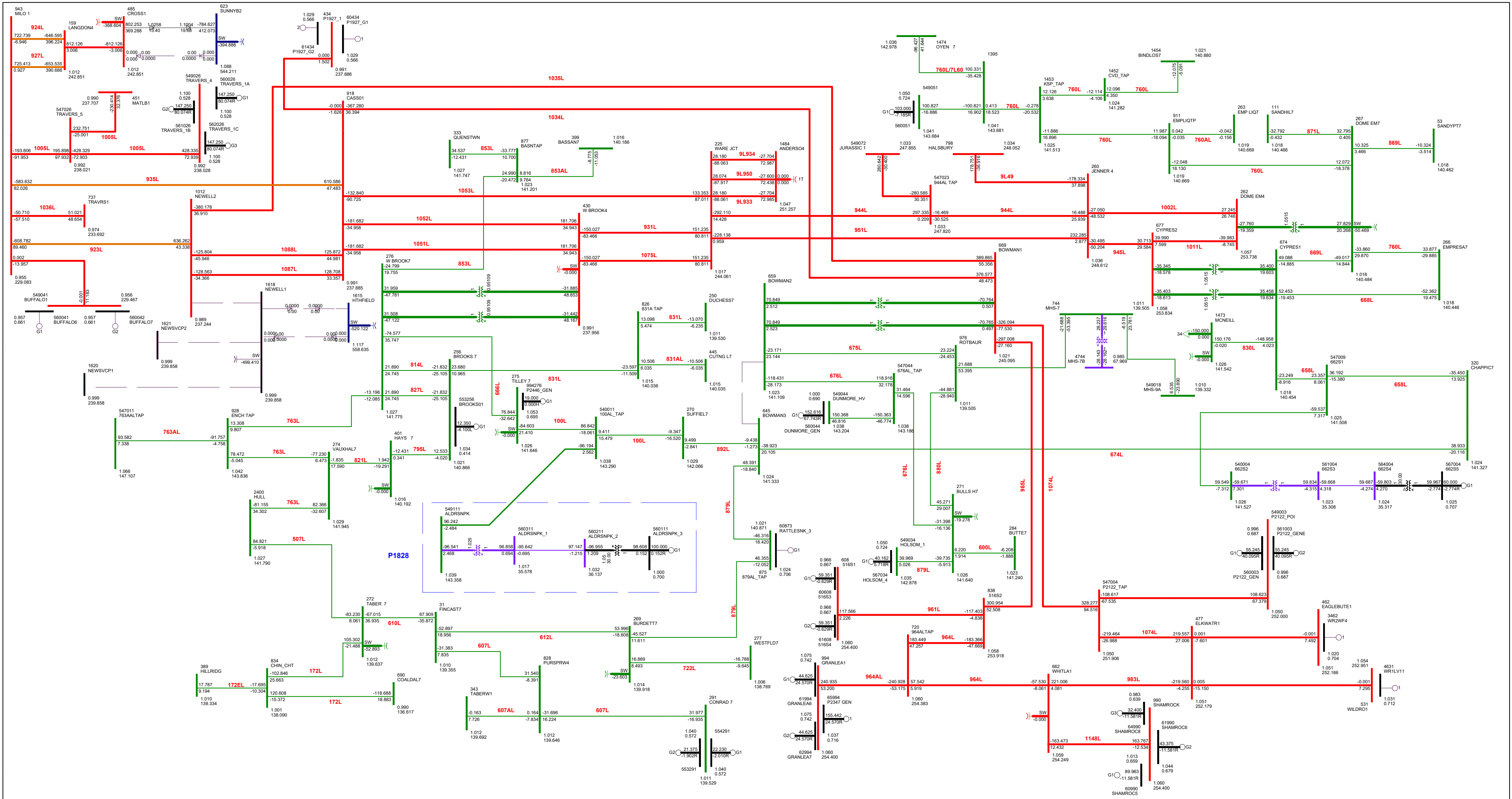
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-12-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:27

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -193.010 MW

Sask Import: -150.000 MW

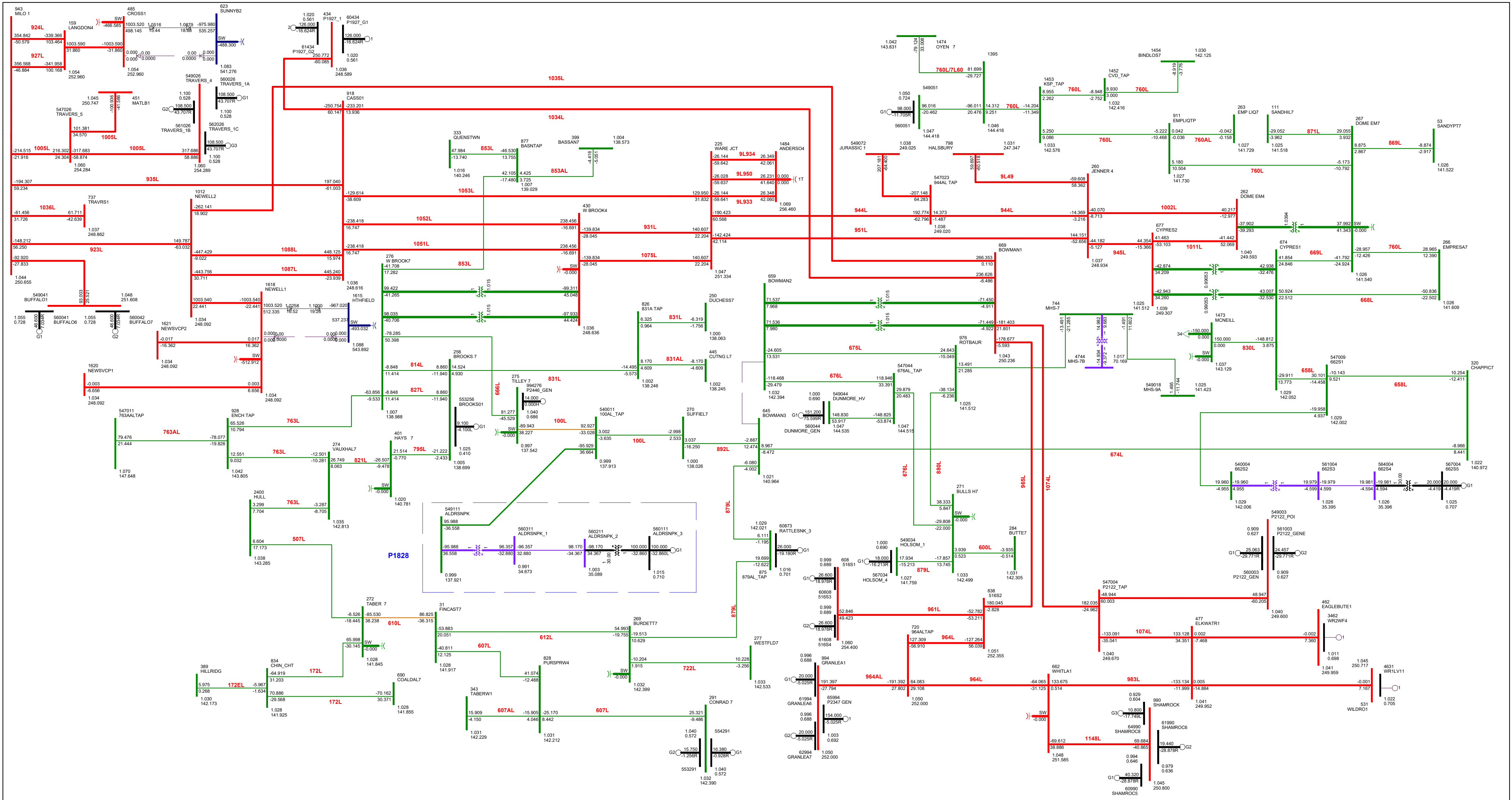
EATL: 0.000 MW

WATL: -800.000 MW

FIGURE D3-13-N-1: EATL
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:27

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -520.992 MW

Sask Import: -150.000 MW

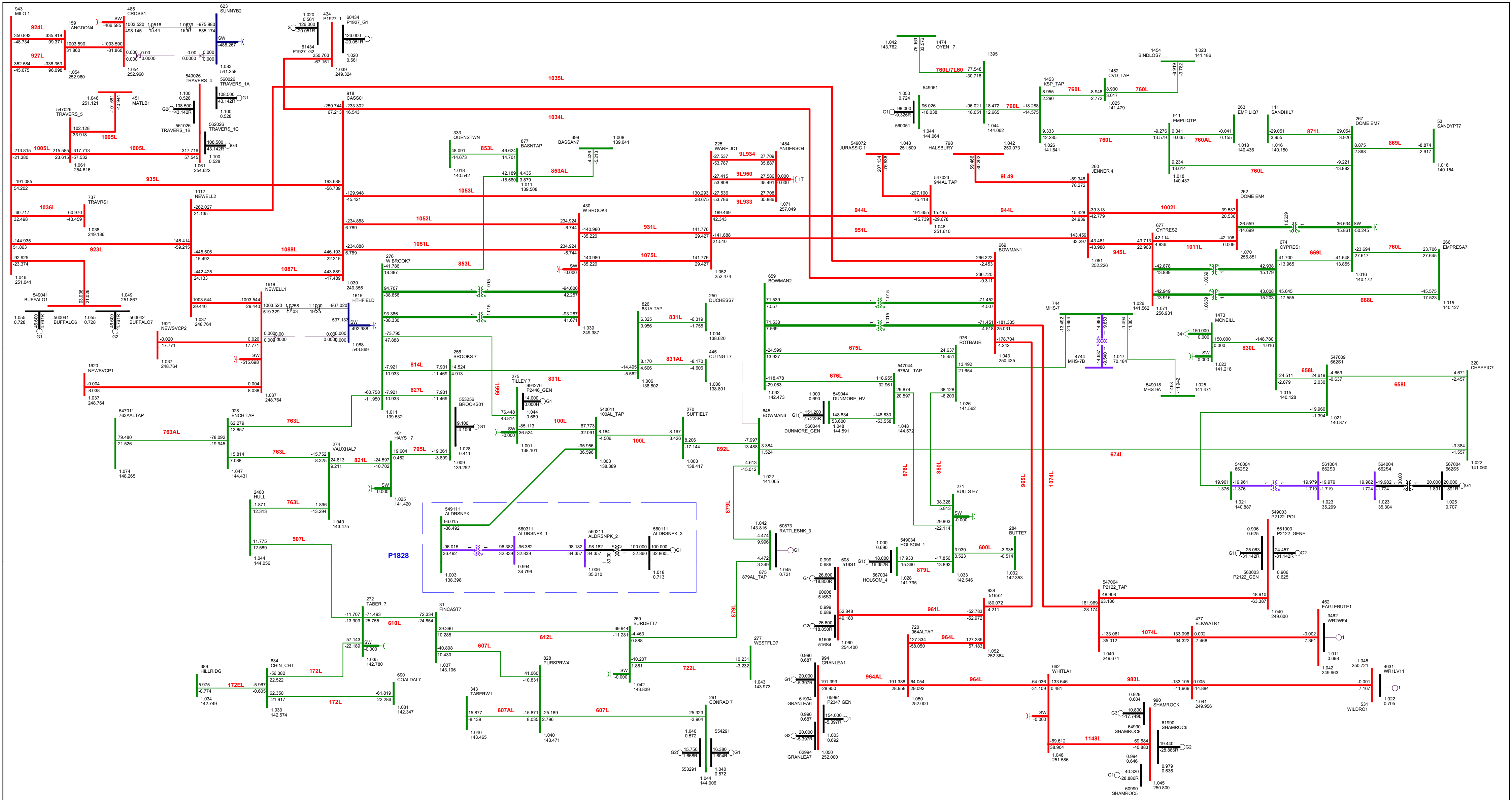
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B0-6-N-0: NORMAL OPERATION (PRE-CURTAILMENT)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
FRI, SEP 08 2023 10:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -521.009 MW

Sask Import: -150.000 MW

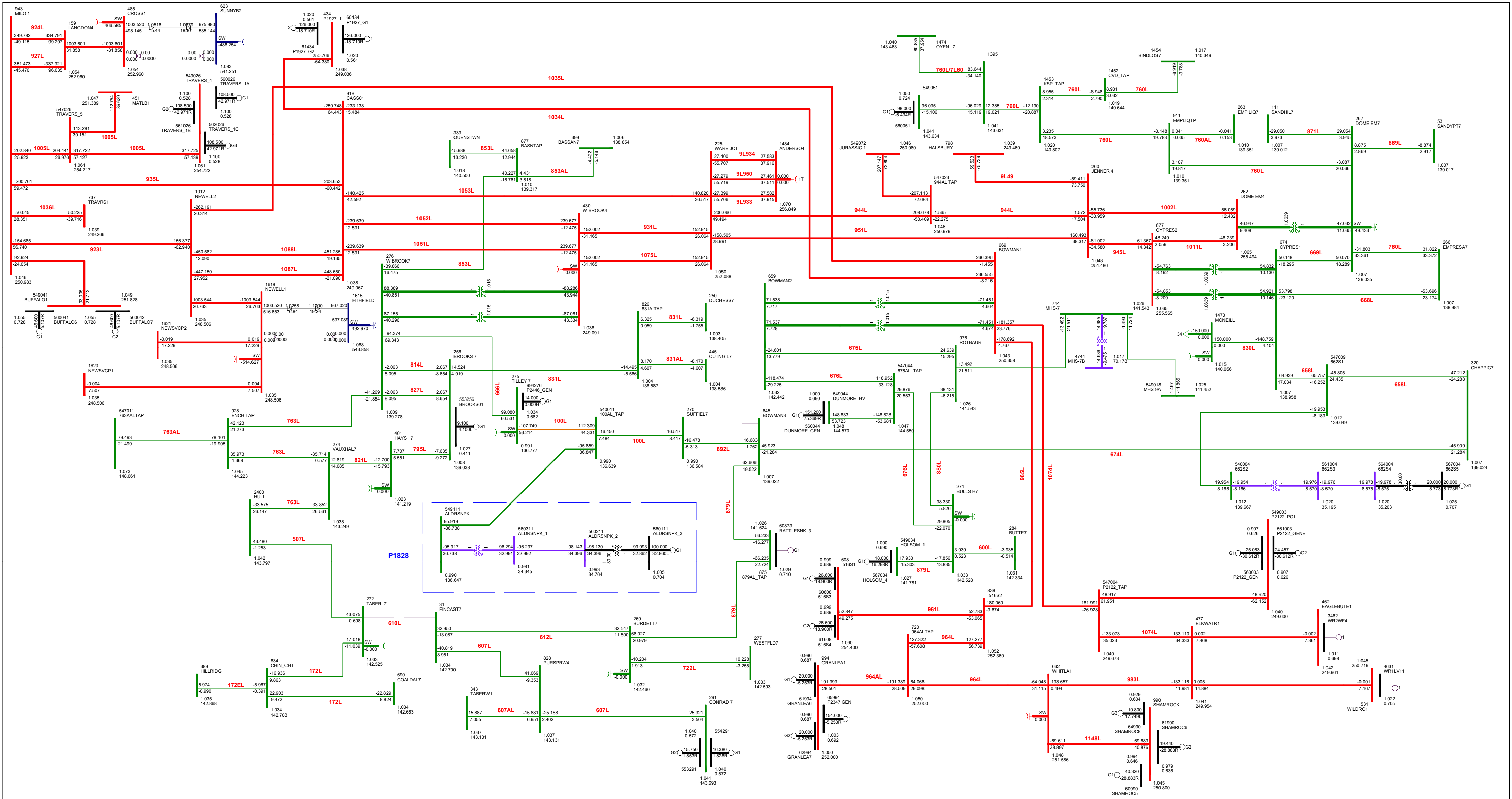
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-1-N-0: NORMAL OPERATION
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:37

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

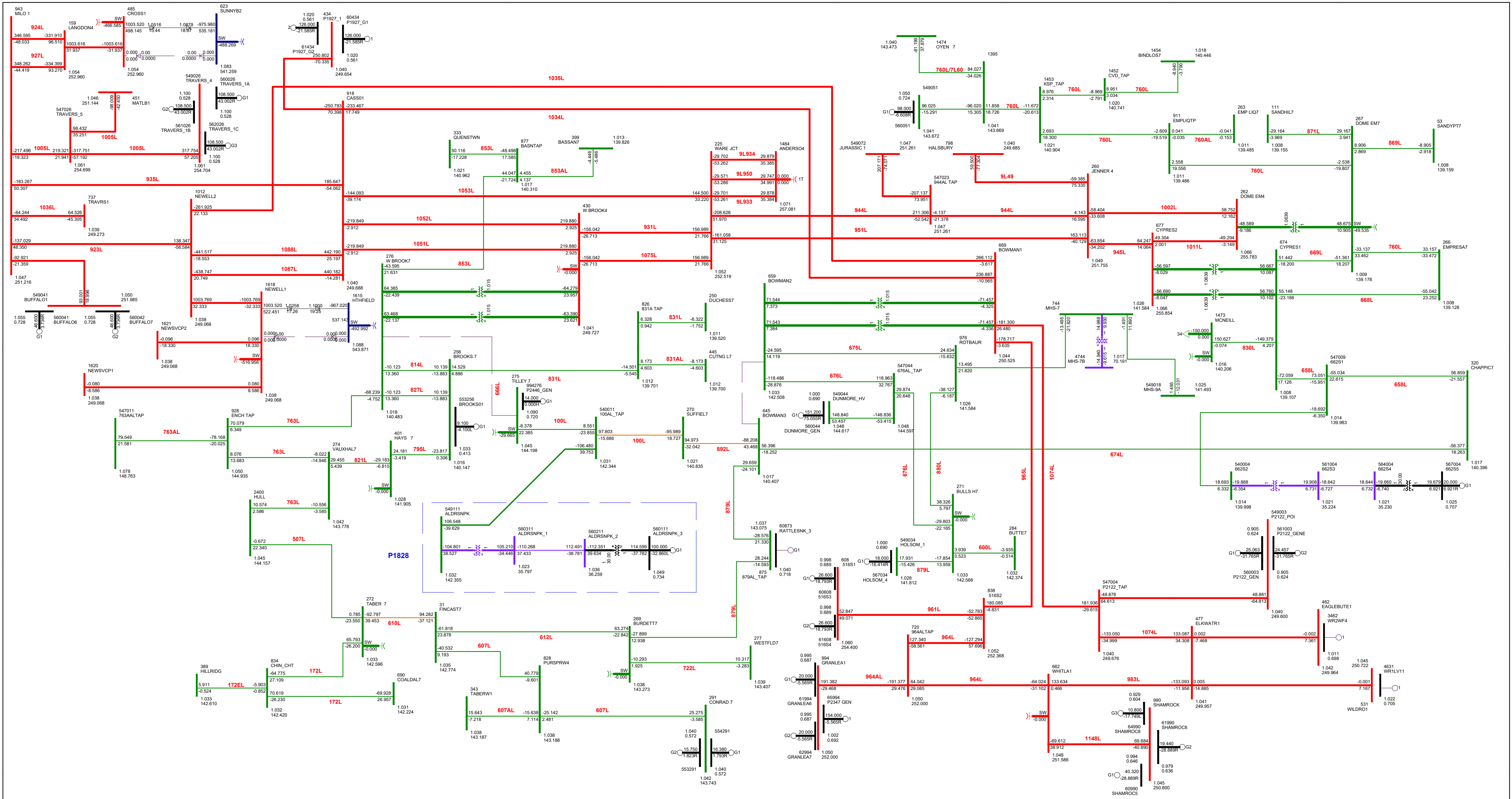
BC Import: -510.983 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D4-2-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:37

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -511.050 MW

Sask Import: -150.000 MW

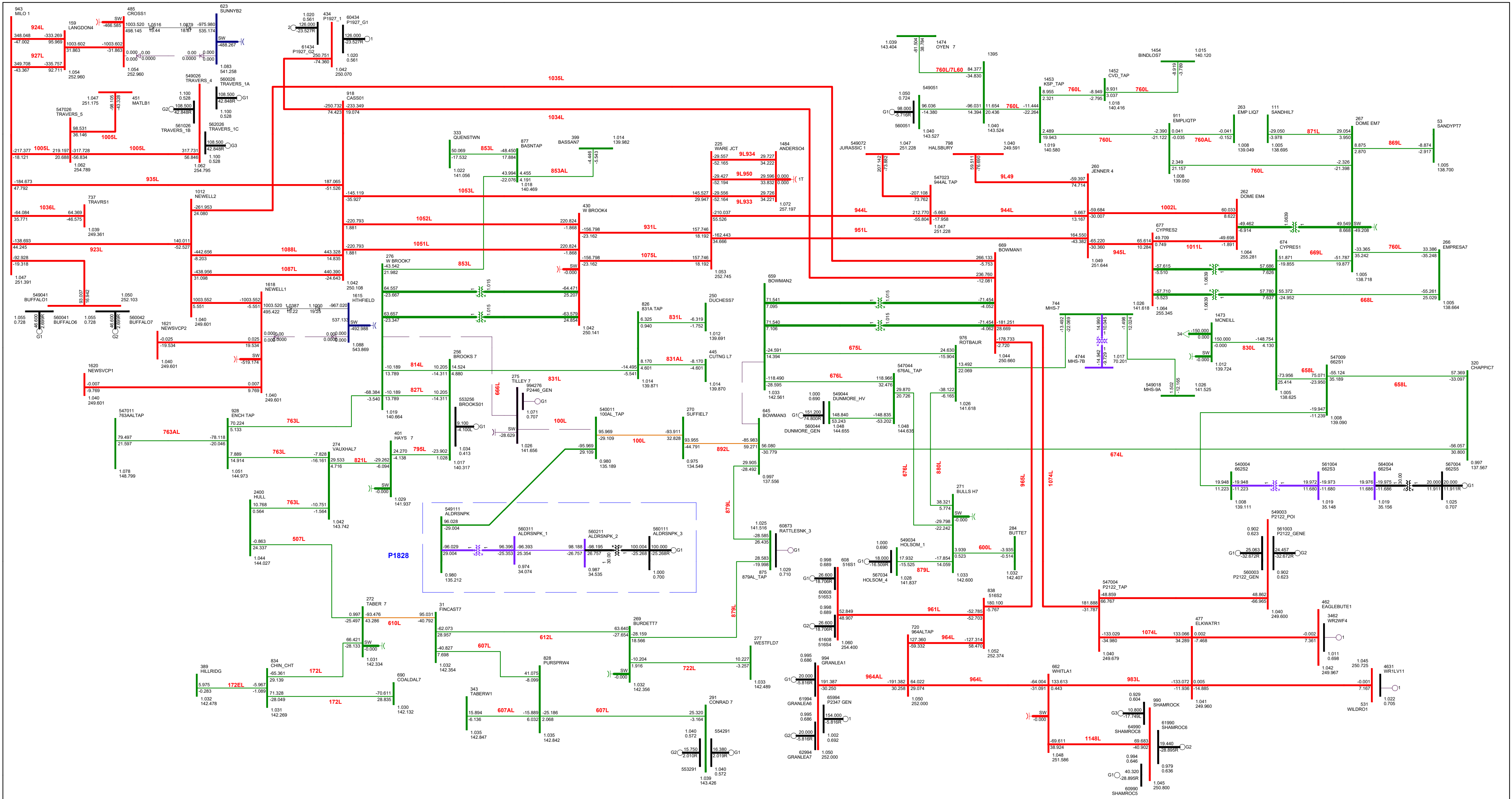
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:37

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

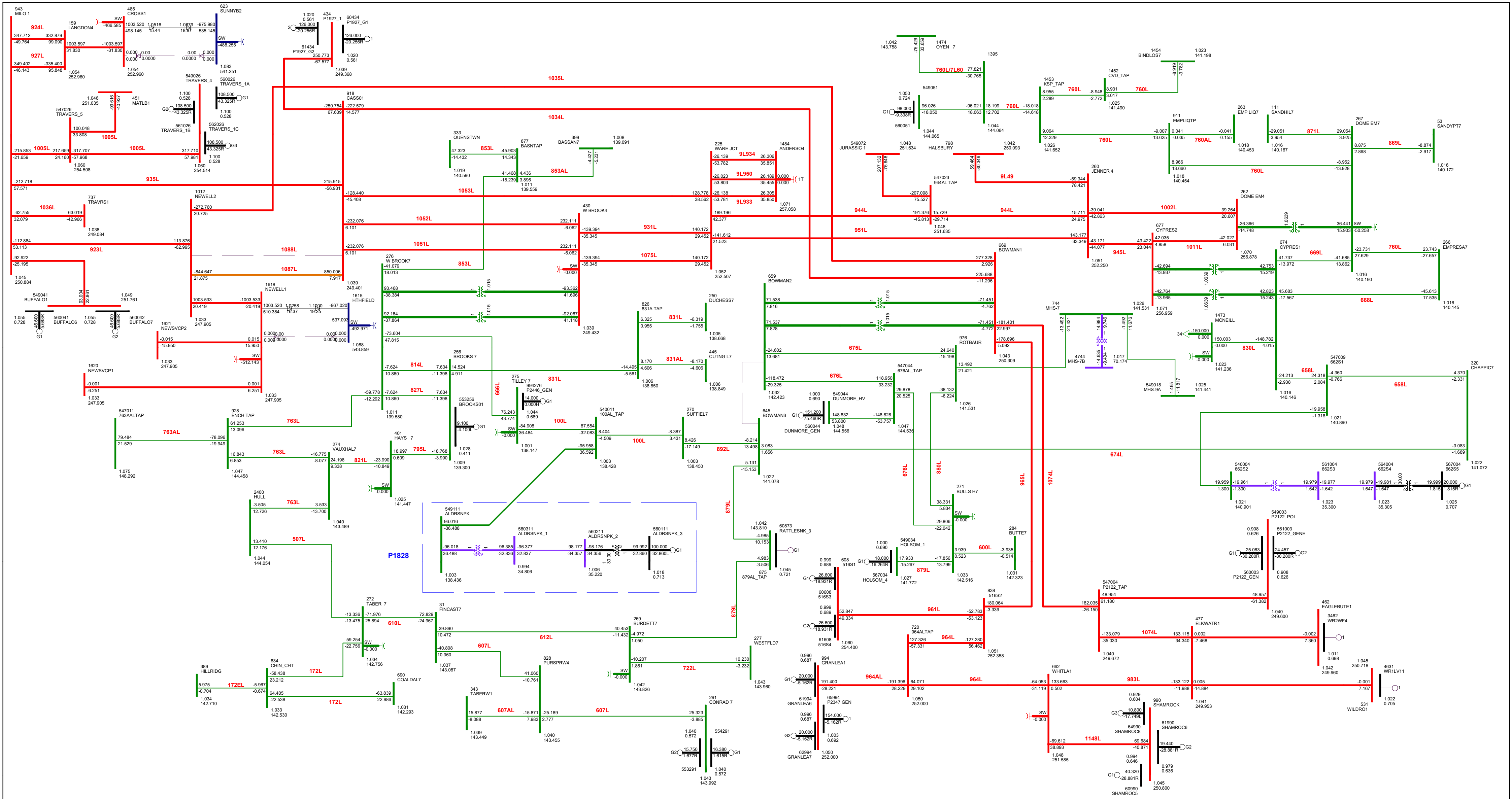
BC Import: -515.993 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D4-4-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:38

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -517.710 MW

Sask Import: -150.000 MW

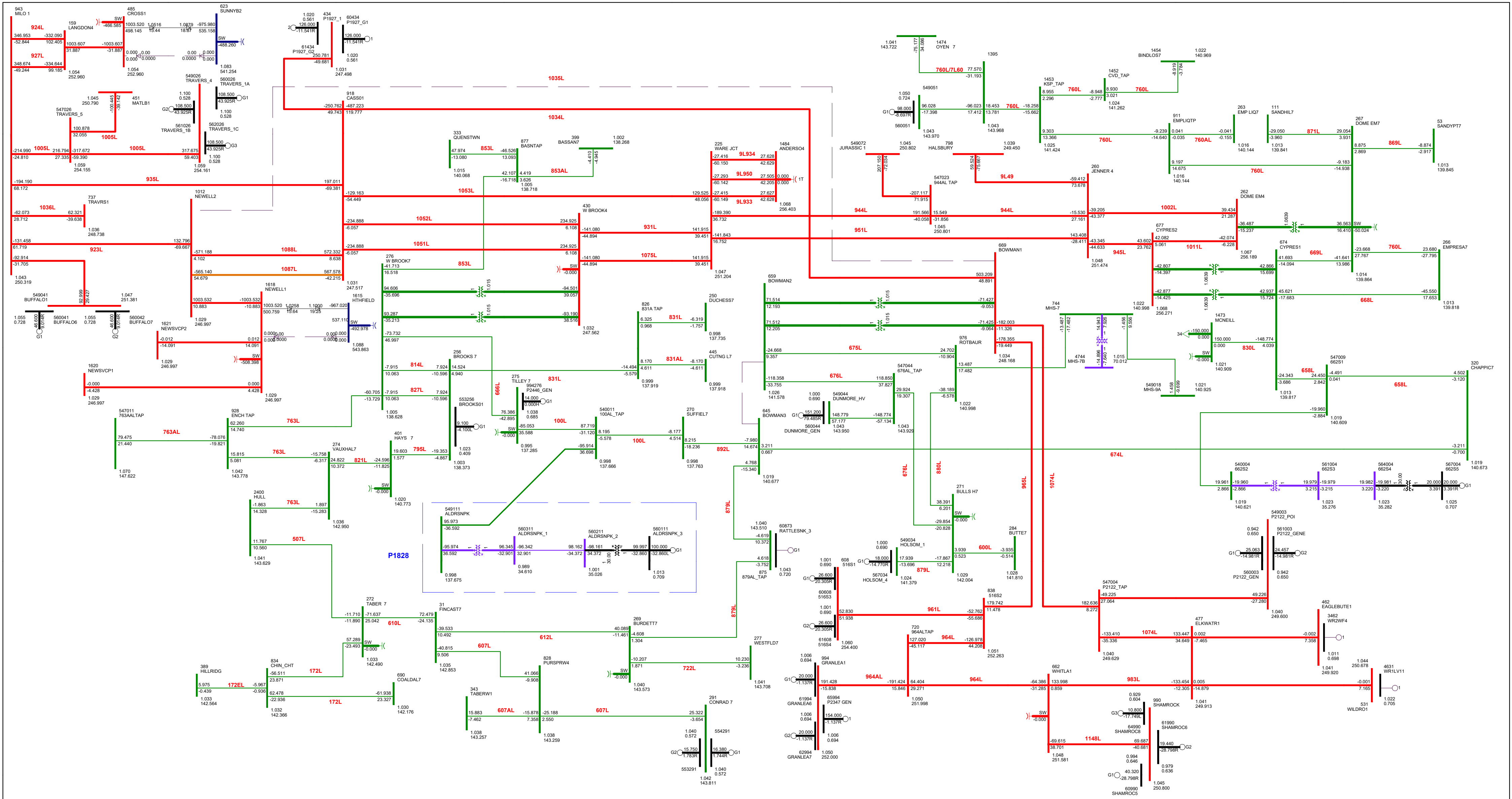
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-5-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:38

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -511.740 MW

Sask Import: -150.000 MW

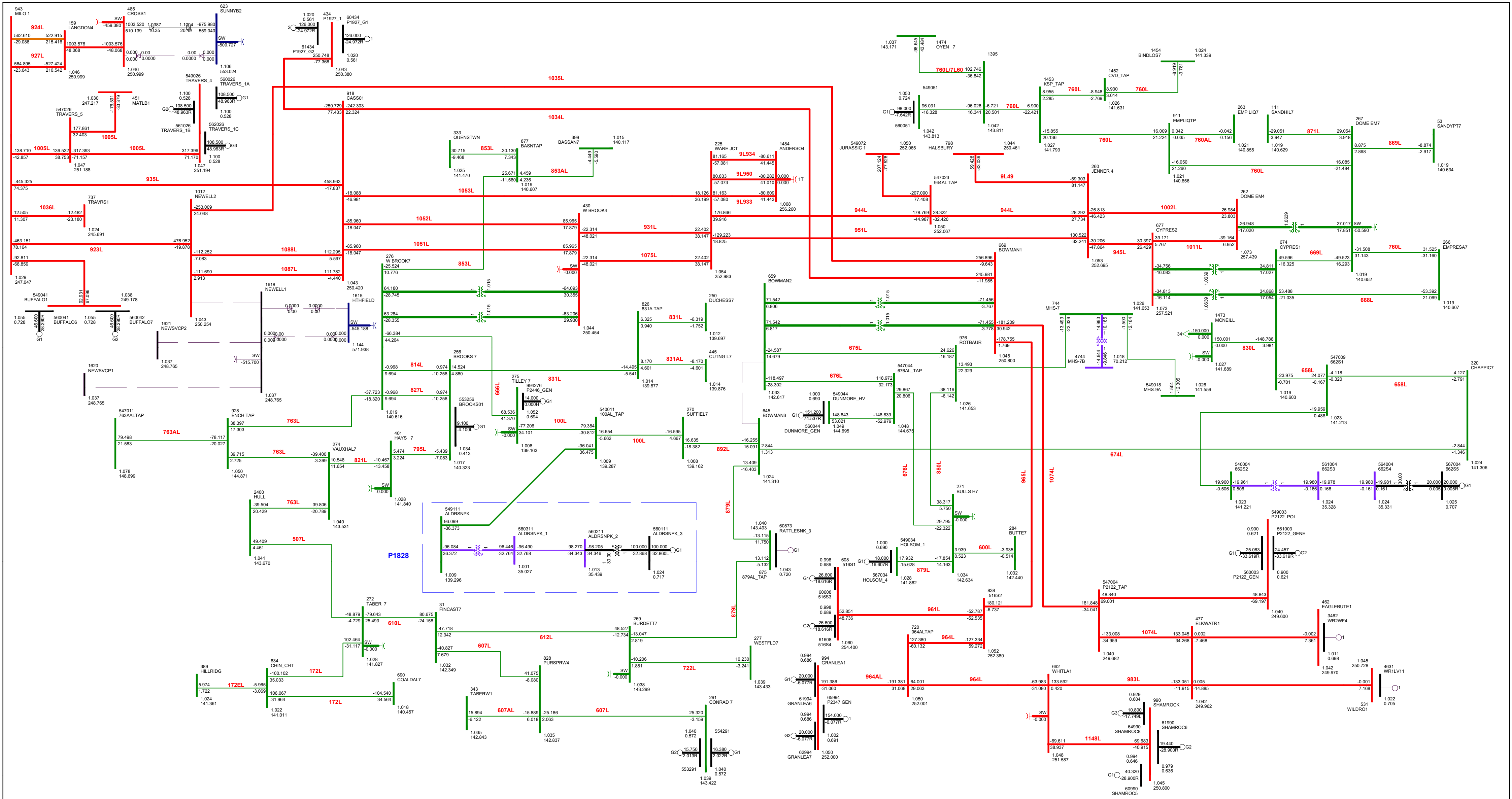
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-6-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 10:38

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -412.634 MW

Sask Import: -150.000 MW

EATL: 0.000 MW

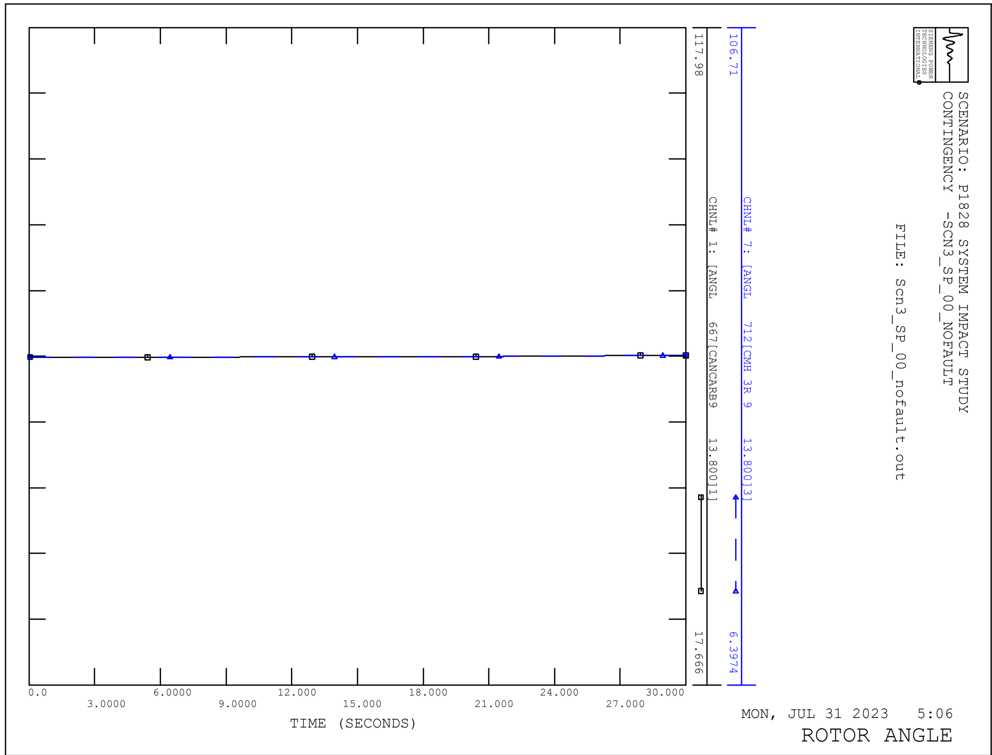
WATL: -800.000 MW

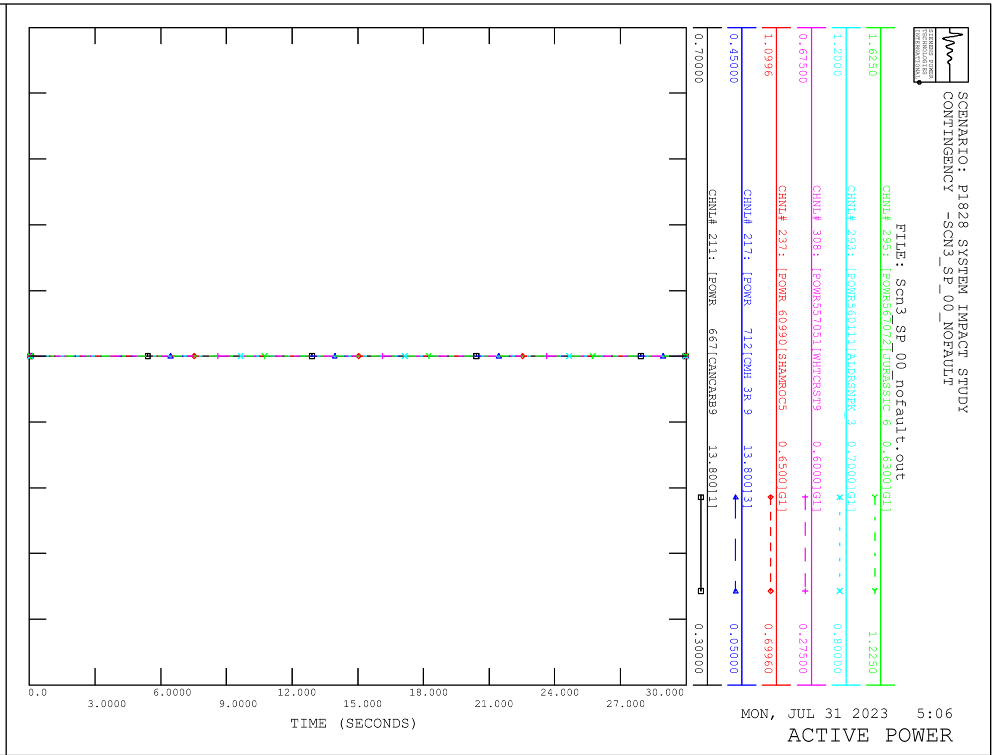
FIGURE D4-7-N-1: EATL
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)
TUE, AUG 22 2023 11:56

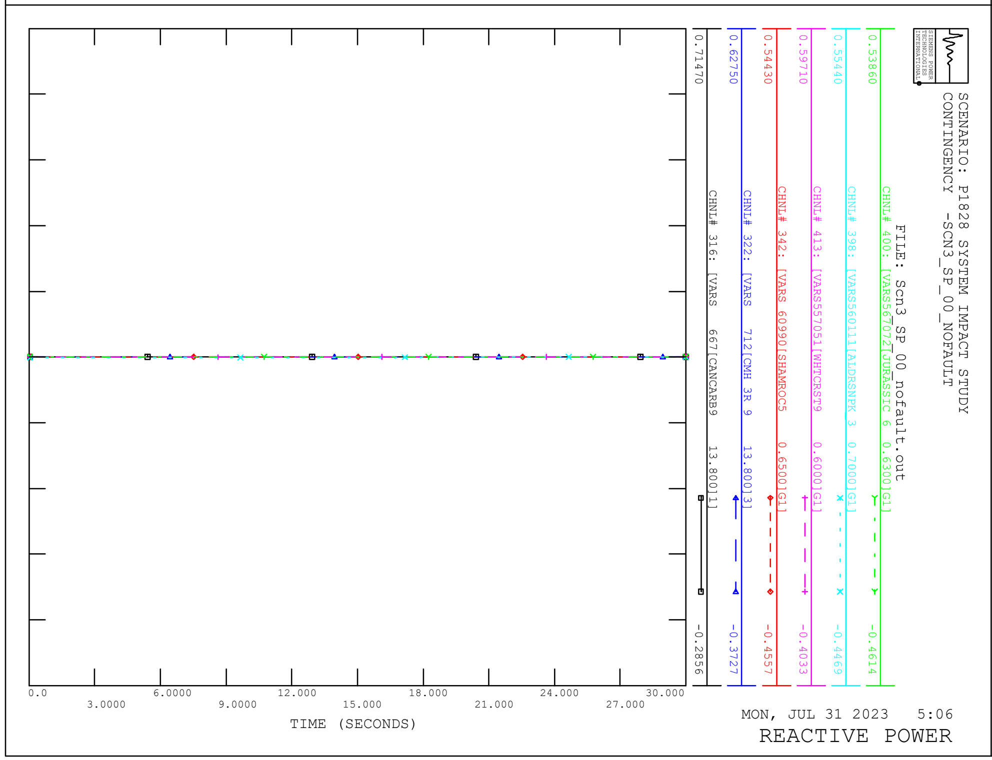
Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

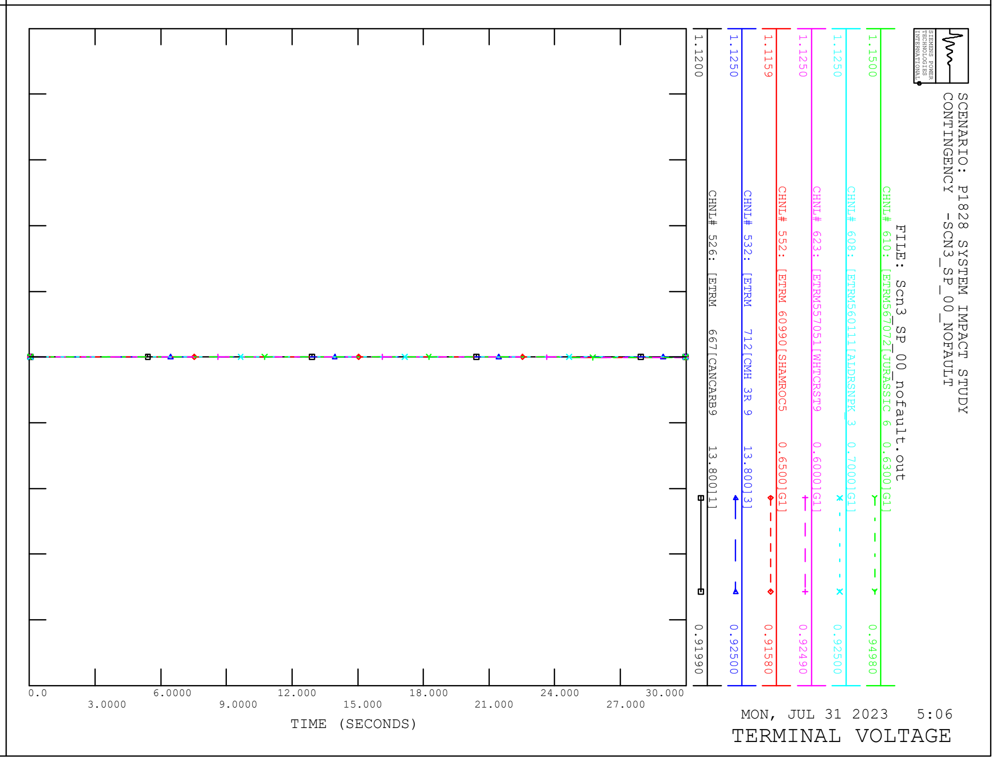
kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000

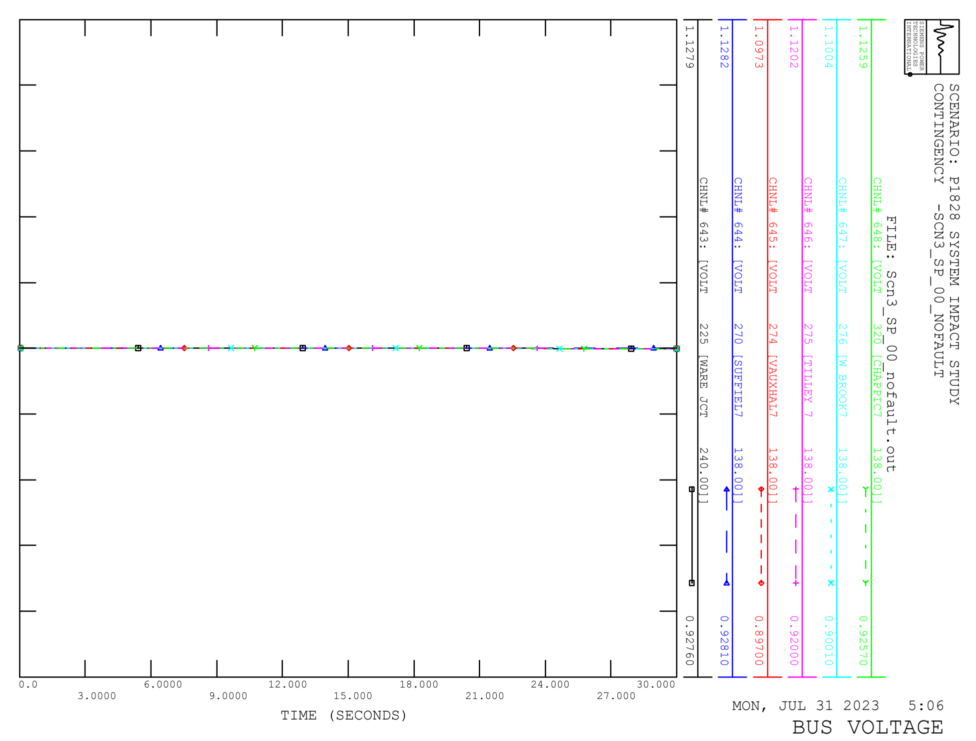
Attachment E: Post-Project Transient Stability Diagrams (Scenarios 3 to 4)

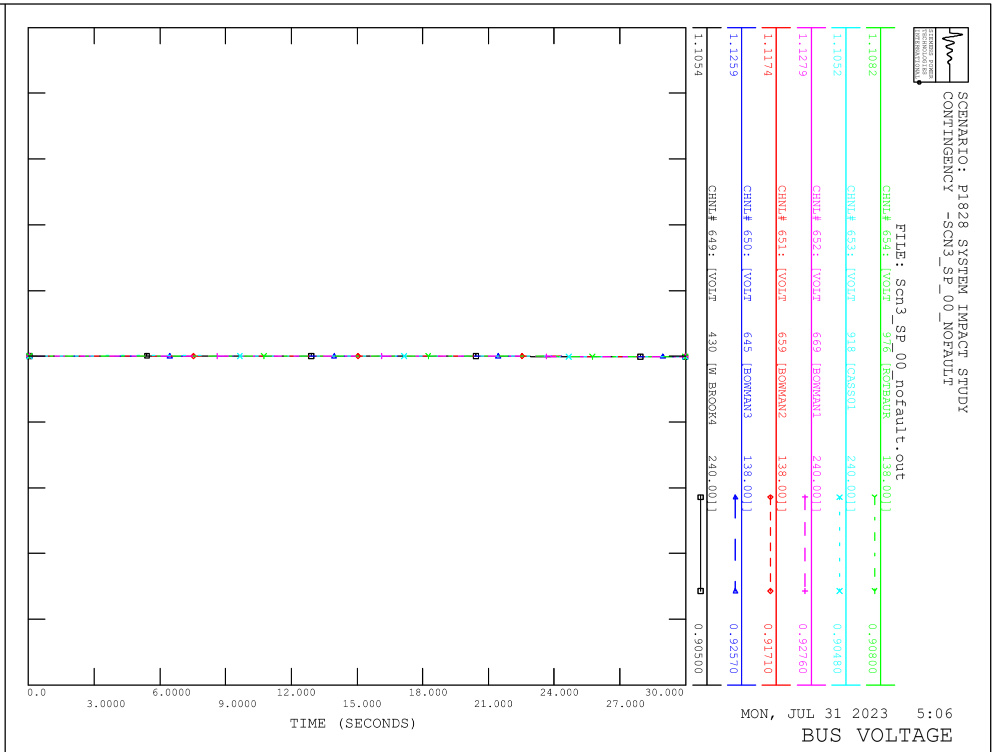

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 1: [ANGL 667[CANCARB9 13.800]1]
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
117.98
17.666
106.71
6.3974
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE

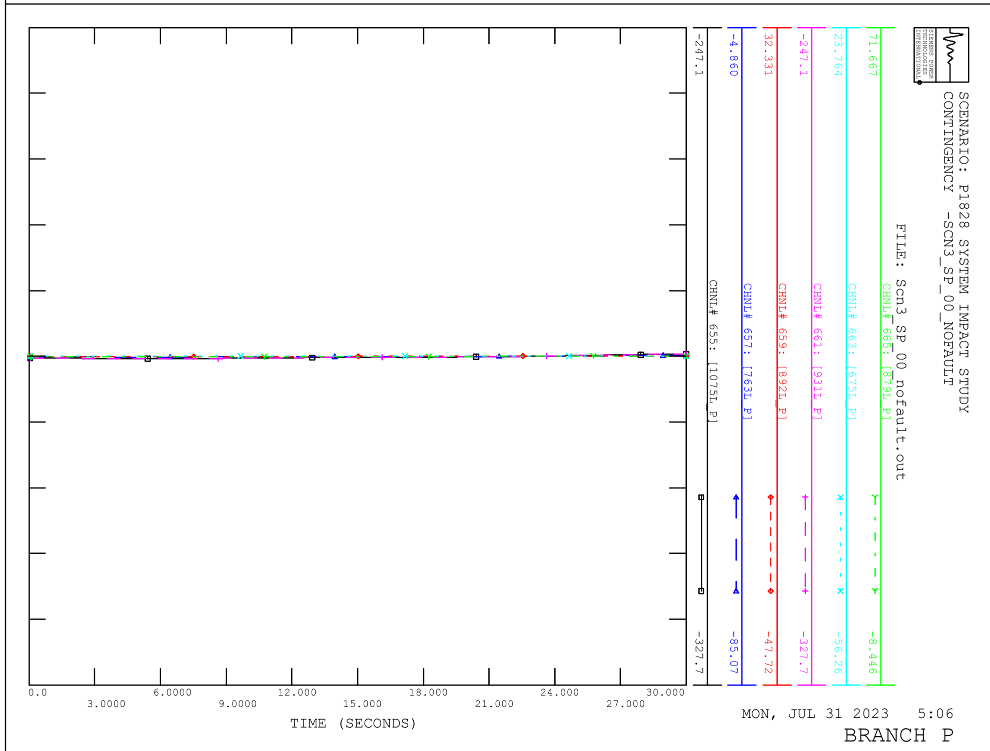

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
0.70000
0.30000
0.45000
0.05000
1.0996
0.69960
0.67500
0.27500
1.2000
0.80000
1.6250
1.2250
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 316: [VARS 667[CANCARB9 13.800]1]
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
0.71470
-0.2856
0.62750
-0.3727
0.54430
-0.4557
0.59710
-0.4033
0.55440
-0.4469
0.53860
-0.4614
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 526: [ETRM 667[CANCARB9 13.800]1]
CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
1.1200
0.91990
1.1250
0.92500
1.1159
0.91580
1.1250
0.92490
1.1250
0.92500
1.1500
0.94980
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.1279 0.92760
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.1282 0.92810
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.0973 0.89700
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.1202 0.92000
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1004 0.90010
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.1259 0.92570
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.1054 0.90500
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1259 0.92570
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1174 0.91710
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1279 0.92760
CHNL# 653: [VOLT 918 [CASSOI 240.00]] 1.1052 0.90480
CHNL# 654: [VOLT 976 [ROTHAOR 138.00]] 1.1082 0.90800
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 655: [1075L P] -247.1 -327.7
CHNL# 657: [763L P] -4.860 -85.07
CHNL# 659: [892L P] 32.331 -47.72
CHNL# 661: [931L P] -247.1 -327.7
CHNL# 663: [675L P] 23.764 -56.26
CHNL# 665: [879L P] 71.667 -8.446
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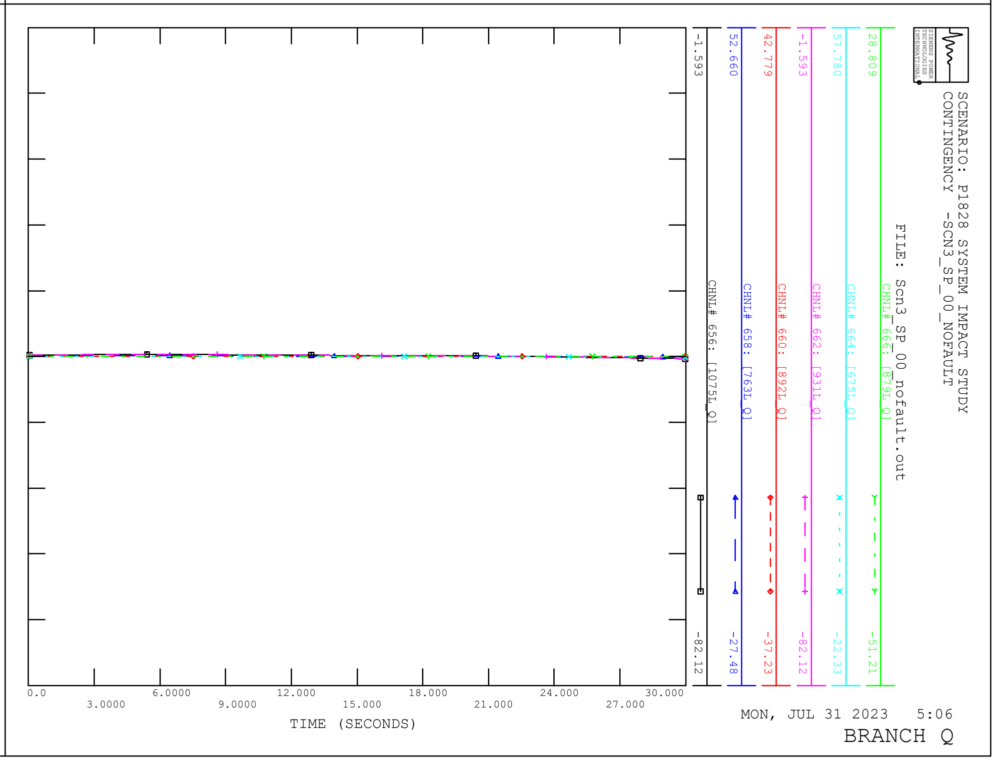
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 656: [1075L Q] -1.593 -82.12
CHNL# 658: [763L Q] 52.660 -27.48
CHNL# 660: [892L Q] 42.779 -37.23
CHNL# 662: [931L Q] -1.593 -82.12
CHNL# 664: [675L Q] 57.780 -22.33
CHNL# 666: [879L Q] 28.809 -51.21
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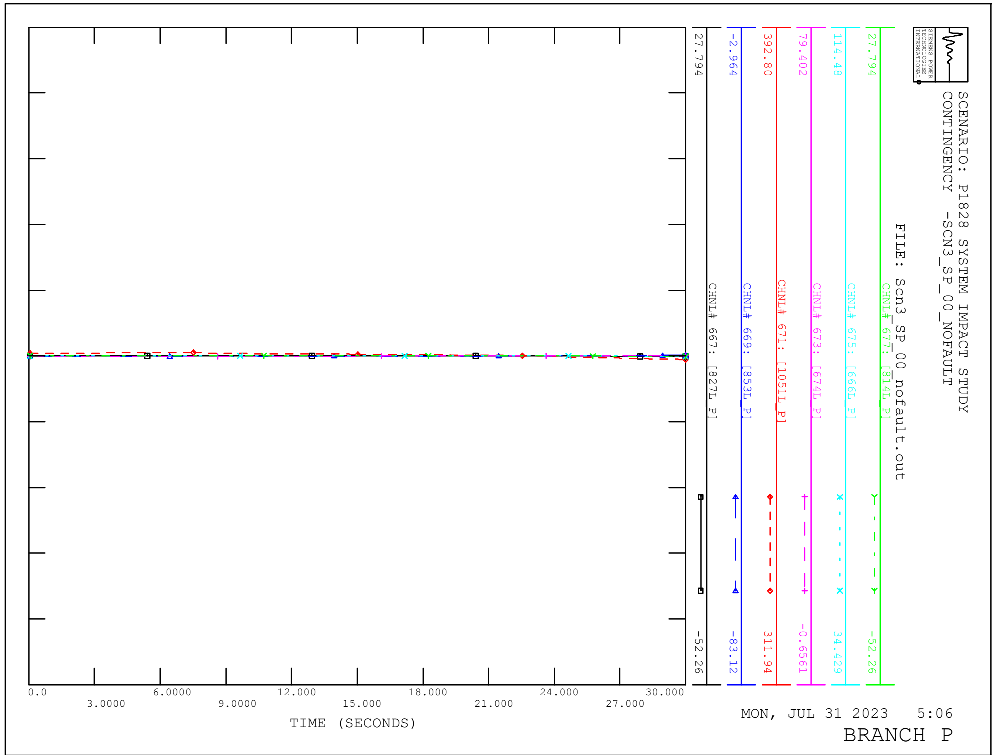
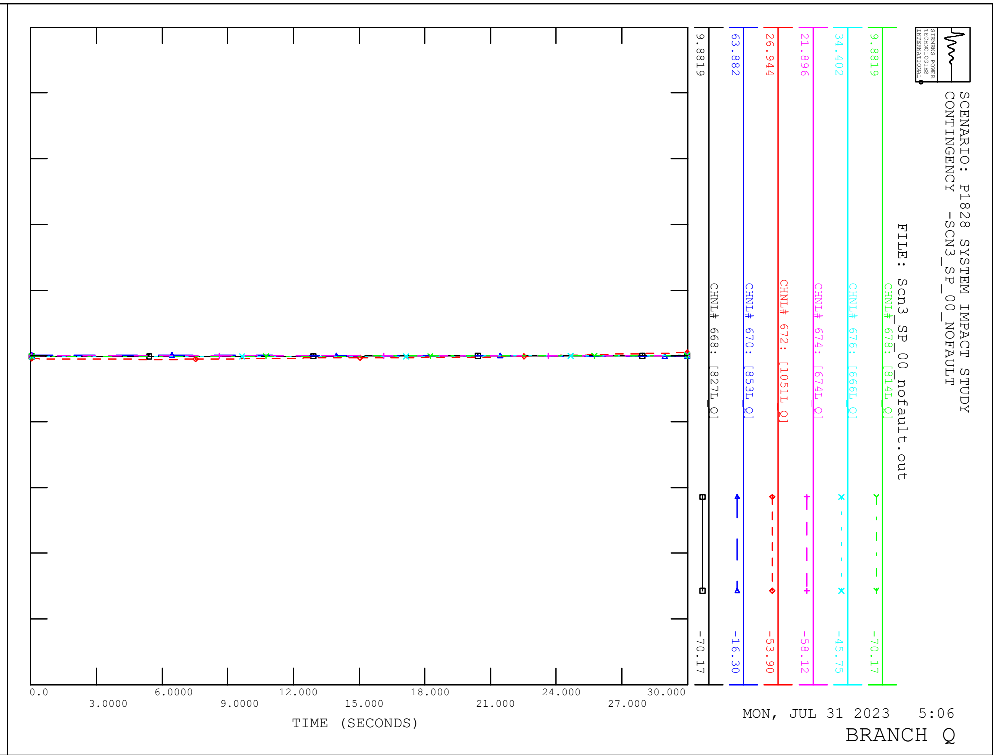
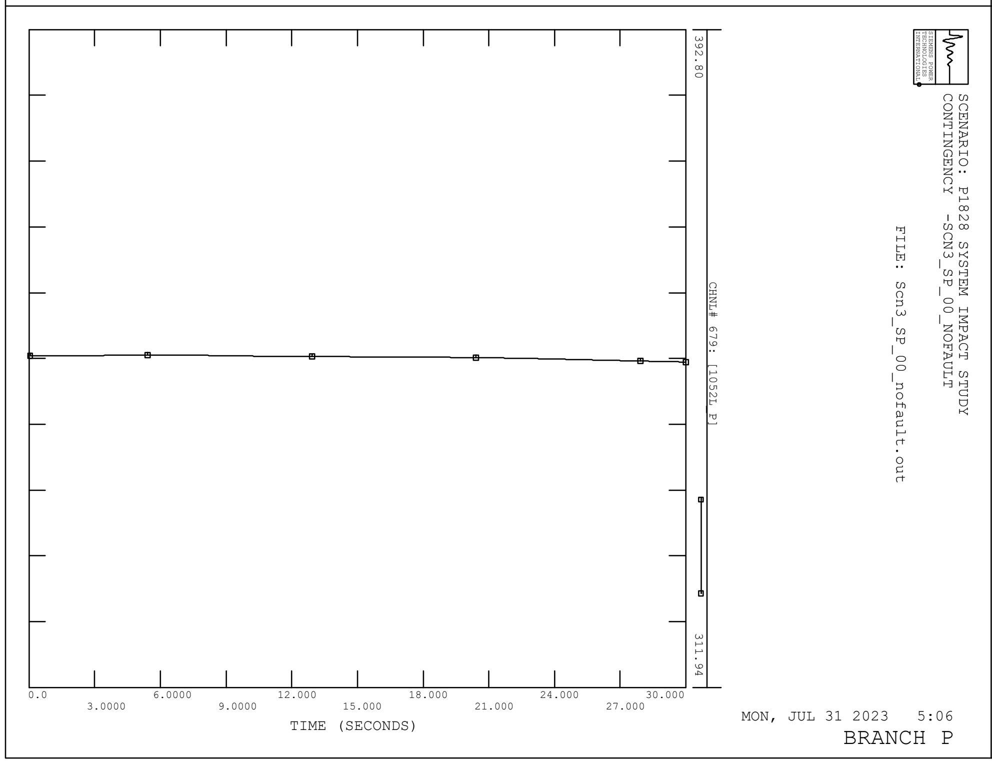
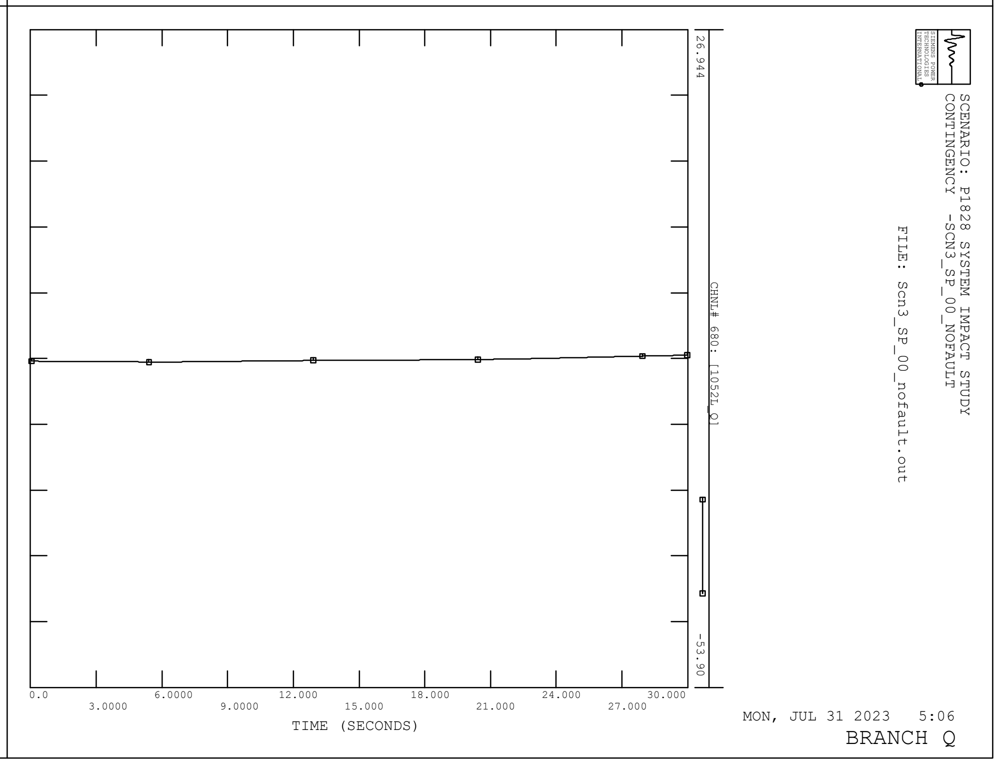
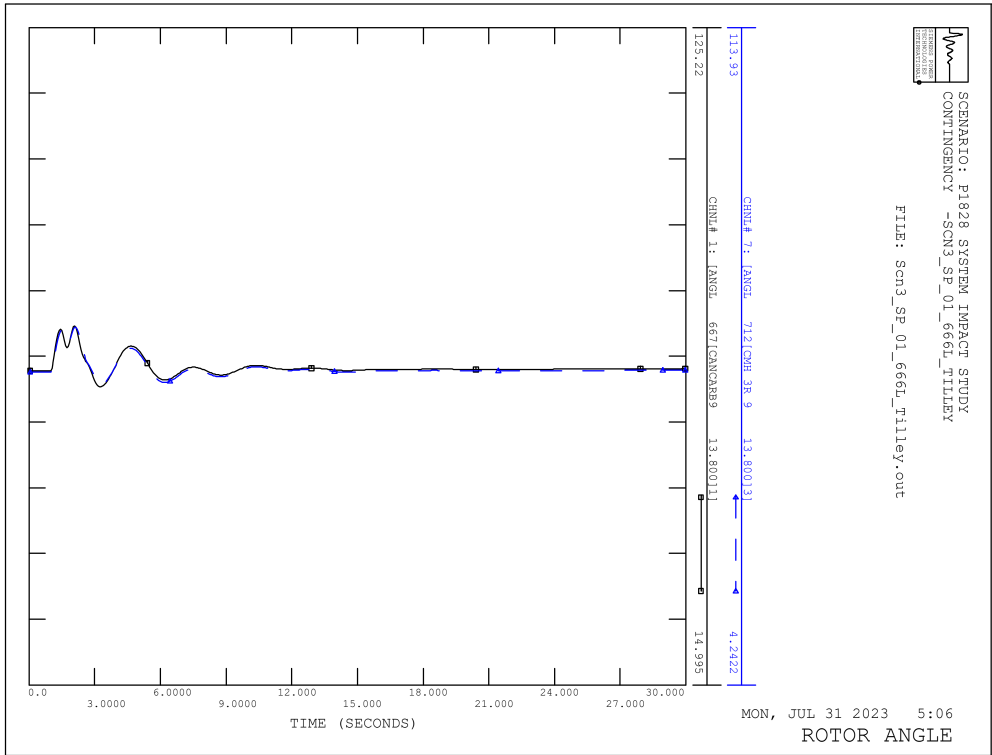
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 667: [827L_P] 27.794 -52.26
CHNL# 669: [853L_P] -2.964 -83.12
CHNL# 671: [1051L_P] 392.80 311.94
CHNL# 673: [674L_P] 79.402 -0.6561
CHNL# 675: [666L_P] 114.48 34.429
CHNL# 677: [814L_P] 27.794 -52.26
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P

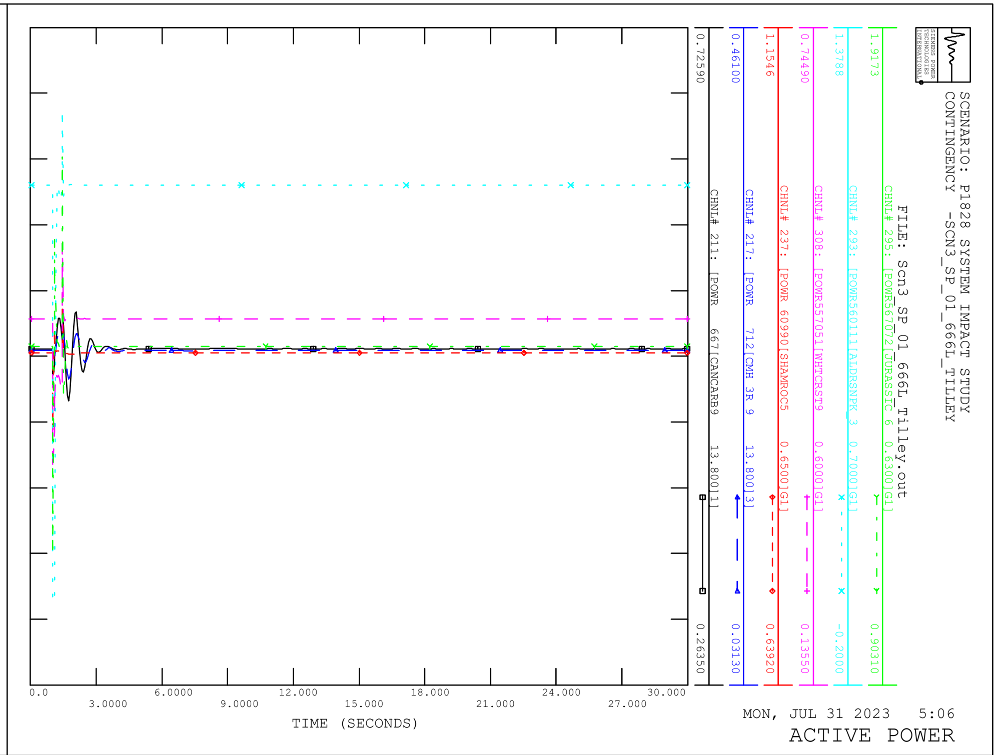

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 668: [827L_Q] 9.8819 -70.17
CHNL# 670: [853L_Q] 63.882 -16.30
CHNL# 672: [1051L_Q] 26.944 -53.90
CHNL# 674: [674L_Q] 21.896 -58.12
CHNL# 676: [666L_Q] 34.402 -45.75
CHNL# 678: [814L_Q] 9.8819 -70.17
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 679: [1052L_P] 392.80 311.94
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P

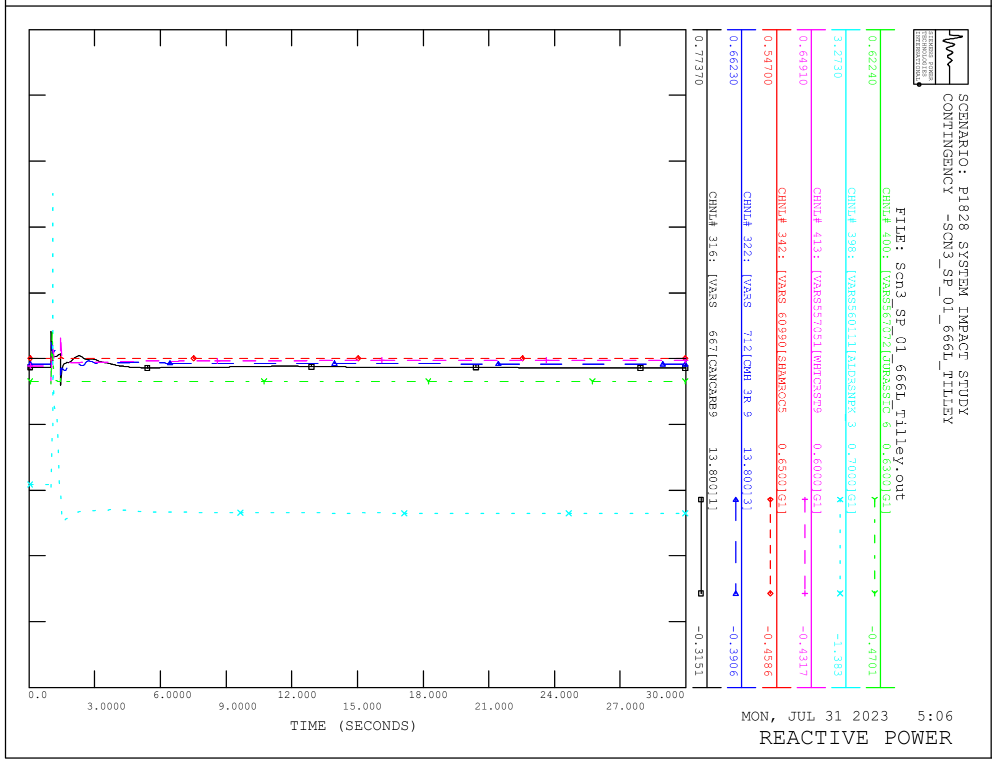

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_00_NOFAULT
FILE: Scn3_SP_00_nofault.out
CHNL# 680: [1052L_Q] 26.944 -53.90
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



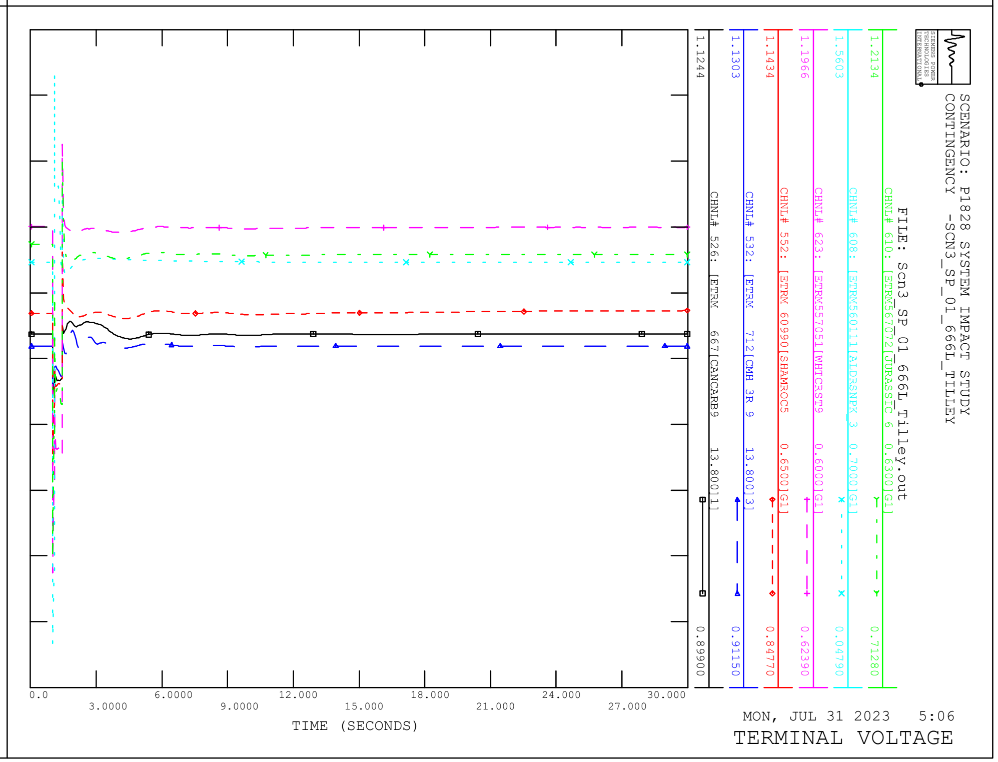
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_01_666L_TILLEY
FILE: Scn3_SP_01_666L_Tilley.out
CHNL# 1: [ANGL 667[CANCARB9 13.800]1]
125.22
14.995
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
113.93
4.2422
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_01_666L_TILLEY
FILE: Scn3_SP_01_666L_Tilley.out
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
0.72590
0.26350
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.46100
0.03130
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
1.1546
0.63920
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
0.74490
0.13550
CHNL# 293: [POWR56011[AAIDRSNFK 3 0.7000]G1]
1.3788
-0.2000
CHNL# 295: [POWR56707[JURASSIC 6 0.6300]G1]
1.9173
0.90310
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_01_666L_TILLEY
FILE: Scn3_SP_01_666L_Tilley.out
CHNL# 316: [VARS 667[CANCARB9 13.800]1]
0.77370
-0.3151
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
0.66230
-0.3906
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.54700
-0.4586
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.64910
-0.4317
CHNL# 398: [VARS56011[AAIDRSNFK 3 0.7000]G1]
3.2730
-1.383
CHNL# 400: [VARS56707[JURASSIC 6 0.6300]G1]
0.62240
-0.4701
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER



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CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
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CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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CHNL# 608: [ETRM56011[AAIDRSNFK 3 0.7000]G1]
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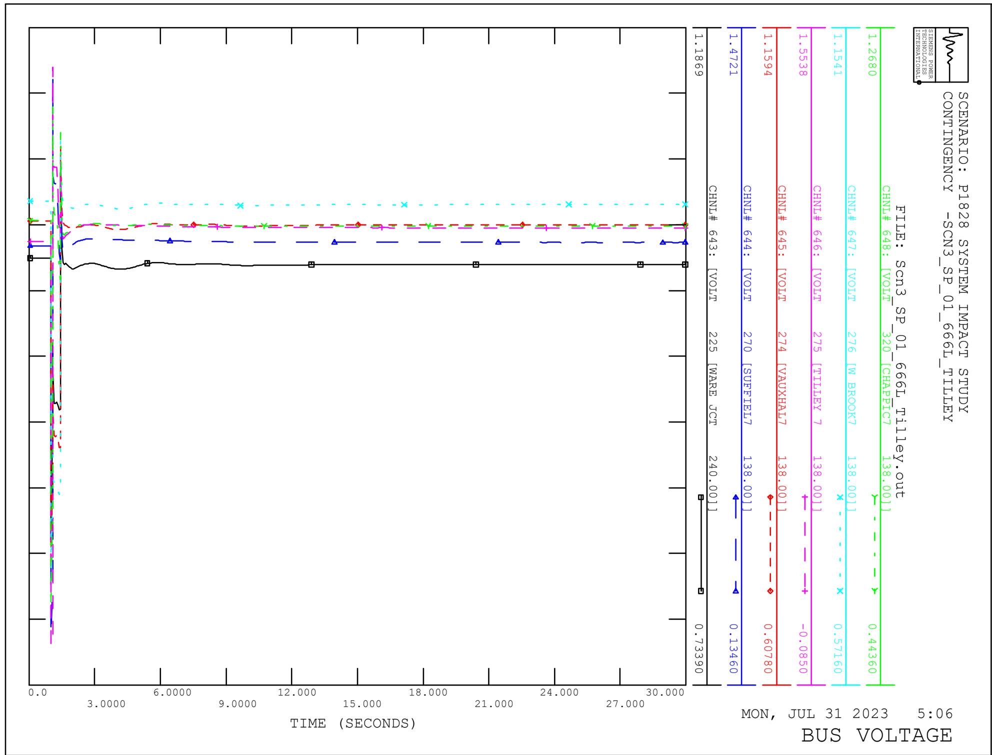
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.4721 0.13460
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1594 0.60780
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.5538 -0.0850
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1541 0.57160
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.2680 0.44360
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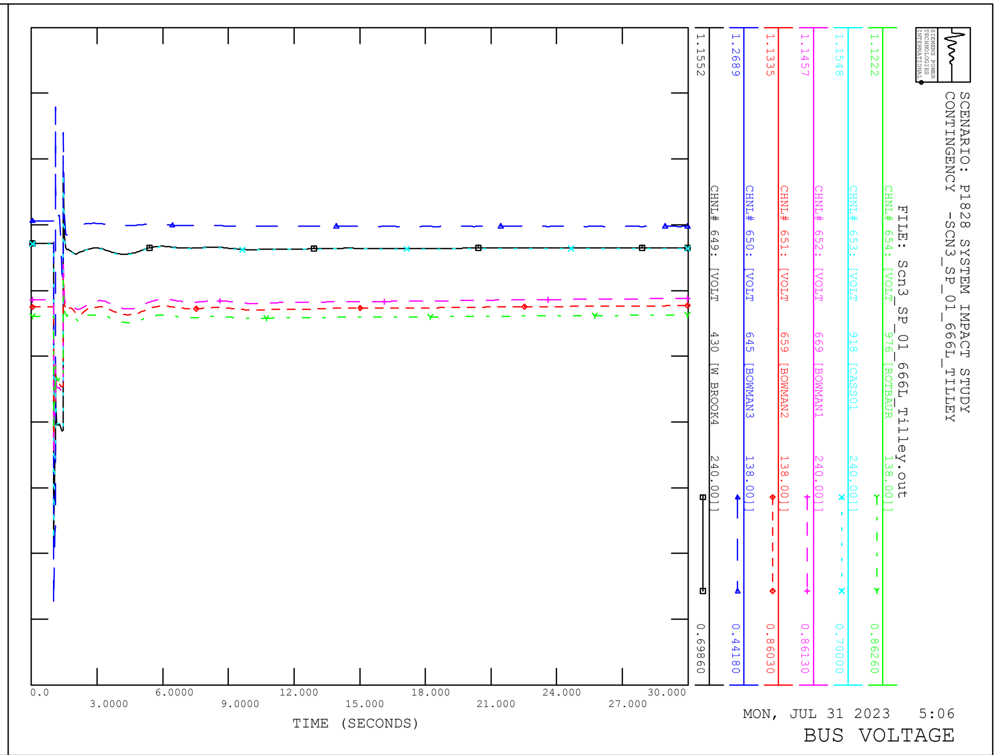
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.2689 0.44180
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1335 0.86030
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1457 0.86130
CHNL# 653: [VOLT 918 [CASSO1 240.00]] 1.1548 0.70000
CHNL# 654: [VOLT 976 [ROTHRM 138.00]] 1.1222 0.86260
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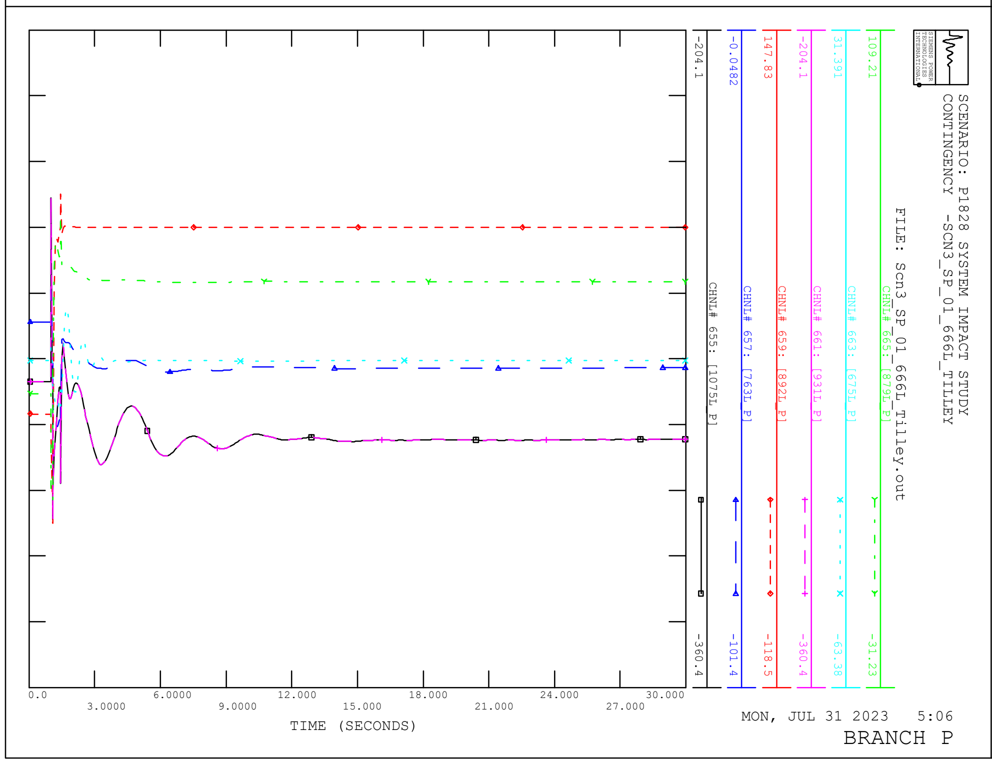
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L P] -0.0482 -101.4
CHNL# 659: [892L P] 147.83 -118.5
CHNL# 661: [931L P] -204.1 -360.4
CHNL# 663: [675L P] 31.391 -63.38
CHNL# 665: [679L P] 109.21 -31.23
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MON, JUL 31 2023 5:06
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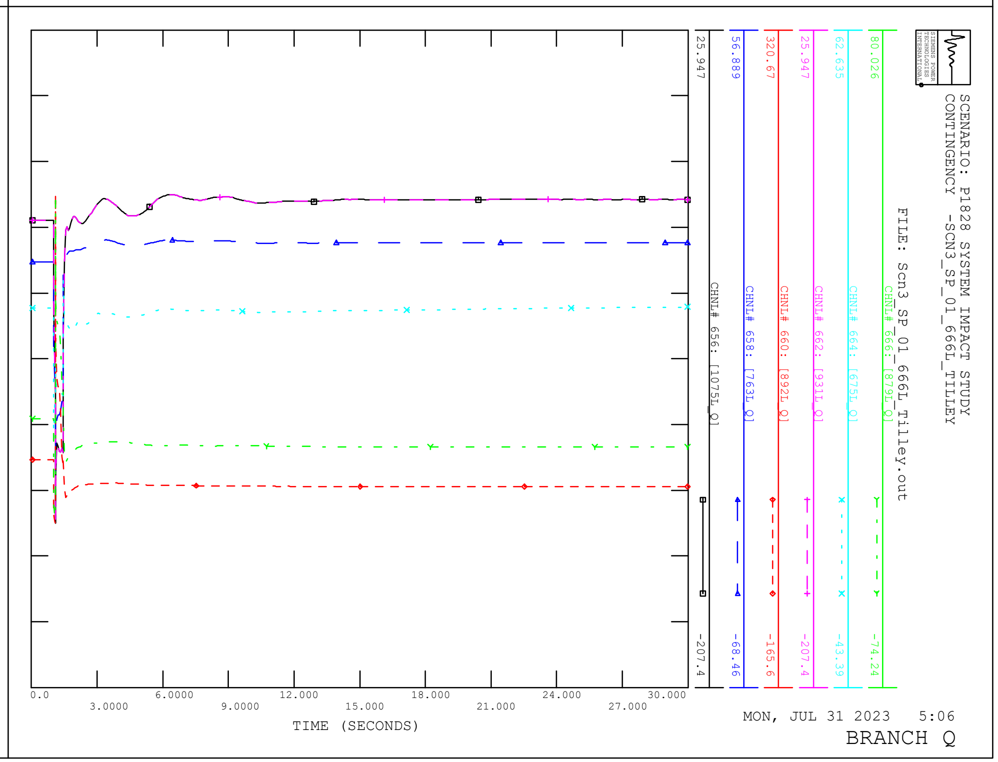
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CHNL# 660: [892L Q] 320.67 -165.6
CHNL# 662: [931L Q] 25.947 -207.4
CHNL# 664: [675L Q] 62.635 -43.39
CHNL# 666: [679L Q] 80.026 -74.24
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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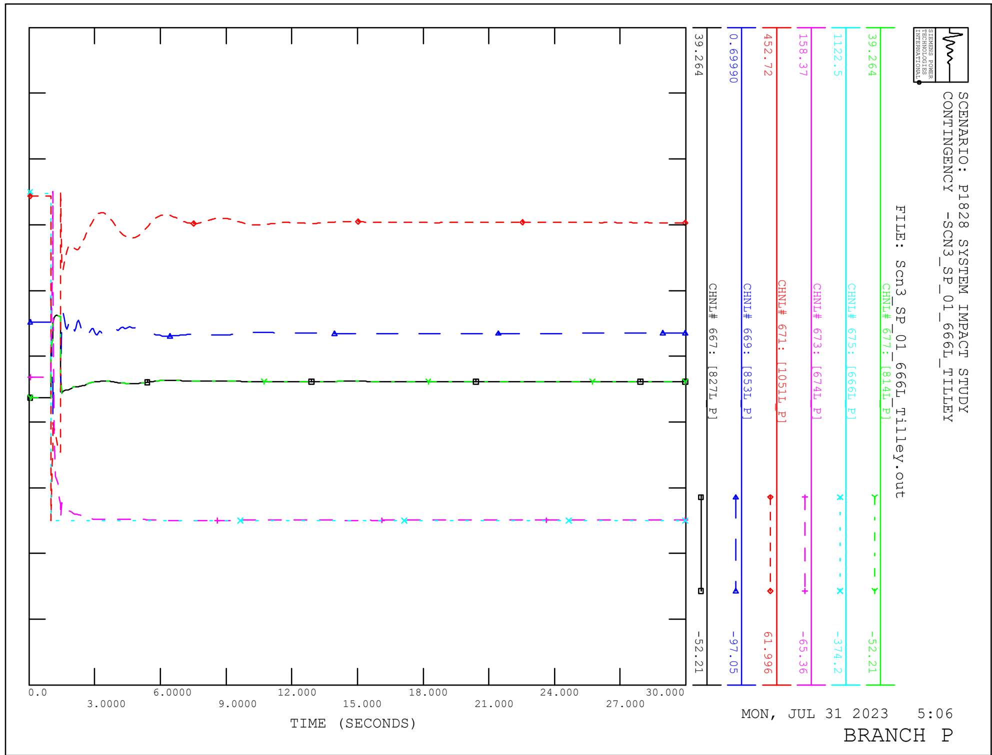

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CHNL# 669: [853L P]
452.72
61.996
CHNL# 671: [1051L P]
158.37
-65.36
CHNL# 673: [674L P]
1122.5
-374.2
CHNL# 675: [666L P]
39.264
-52.21
CHNL# 677: [814L P]
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3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
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TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
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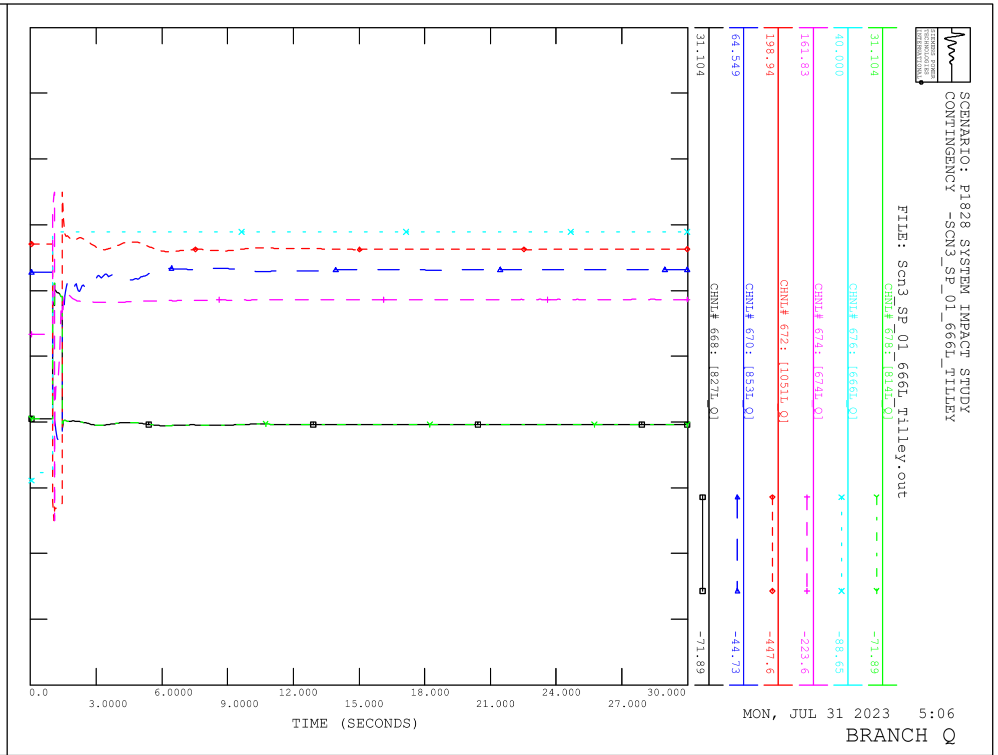
MON, JUL 31 2023 5:06
BRANCH P



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-71.89
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-44.73
CHNL# 670: [853L Q]
198.94
-447.6
CHNL# 672: [1051L Q]
161.83
-223.6
CHNL# 674: [674L Q]
40.000
-88.65
CHNL# 676: [666L Q]
31.104
-71.89
CHNL# 678: [814L Q]
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3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
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TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
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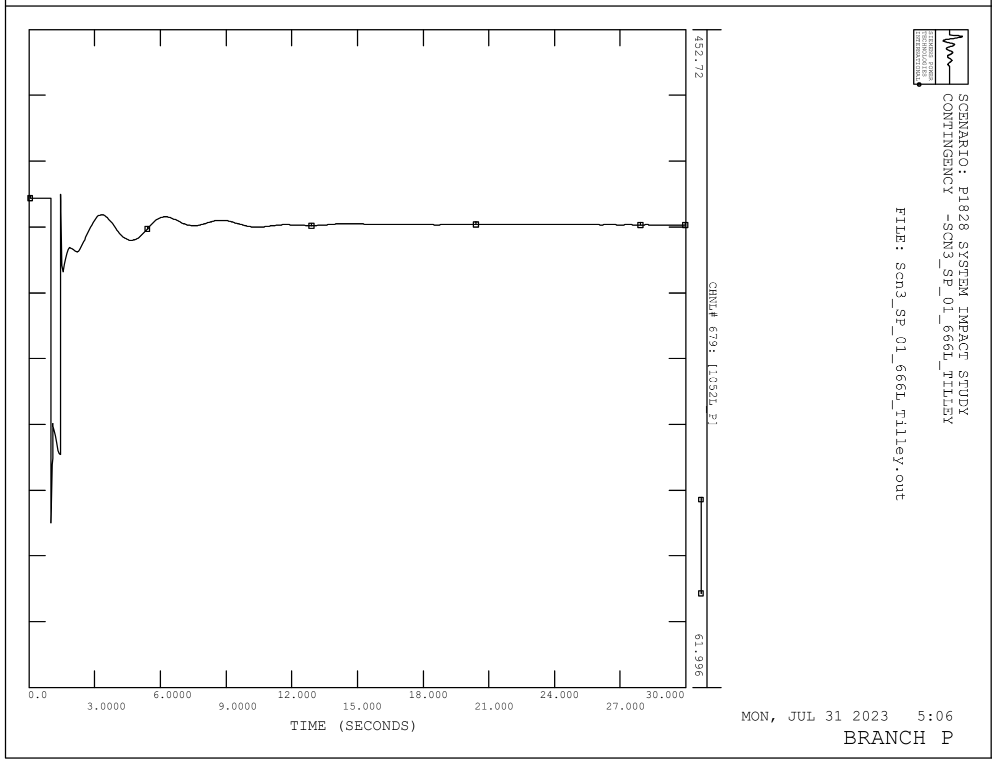
BRANCH Q



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12.000
15.000
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21.000
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TIME (SECONDS)
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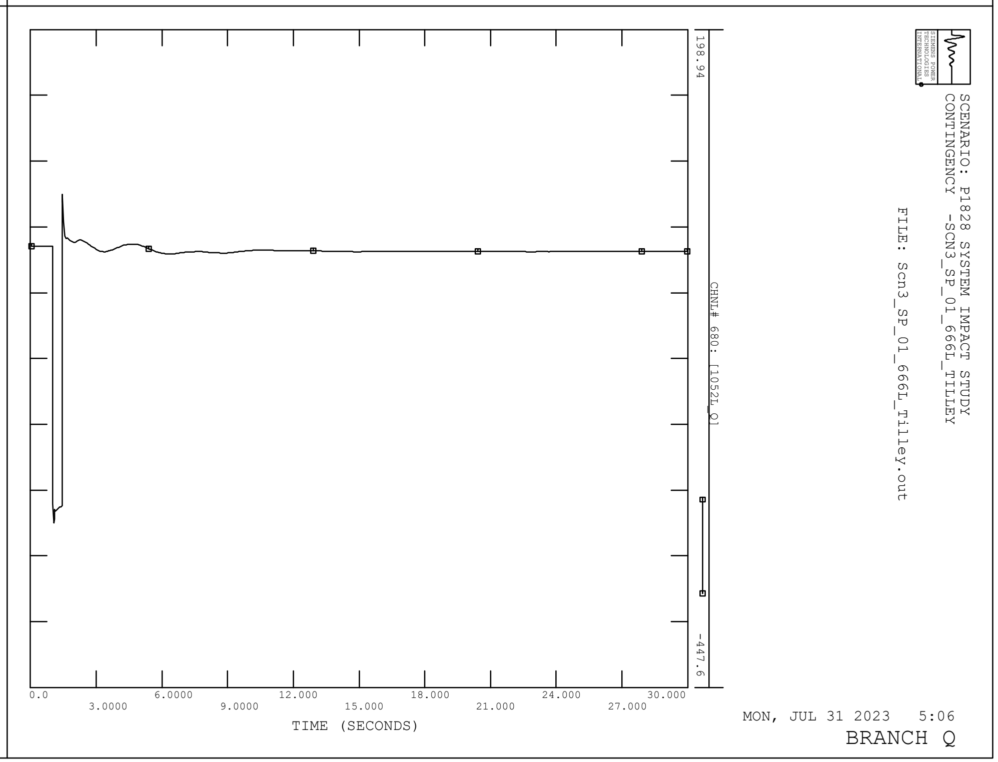
FILE: Scn3_SP_01_666L_Tilley.out
MON, JUL 31 2023 5:06
BRANCH P



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-447.6
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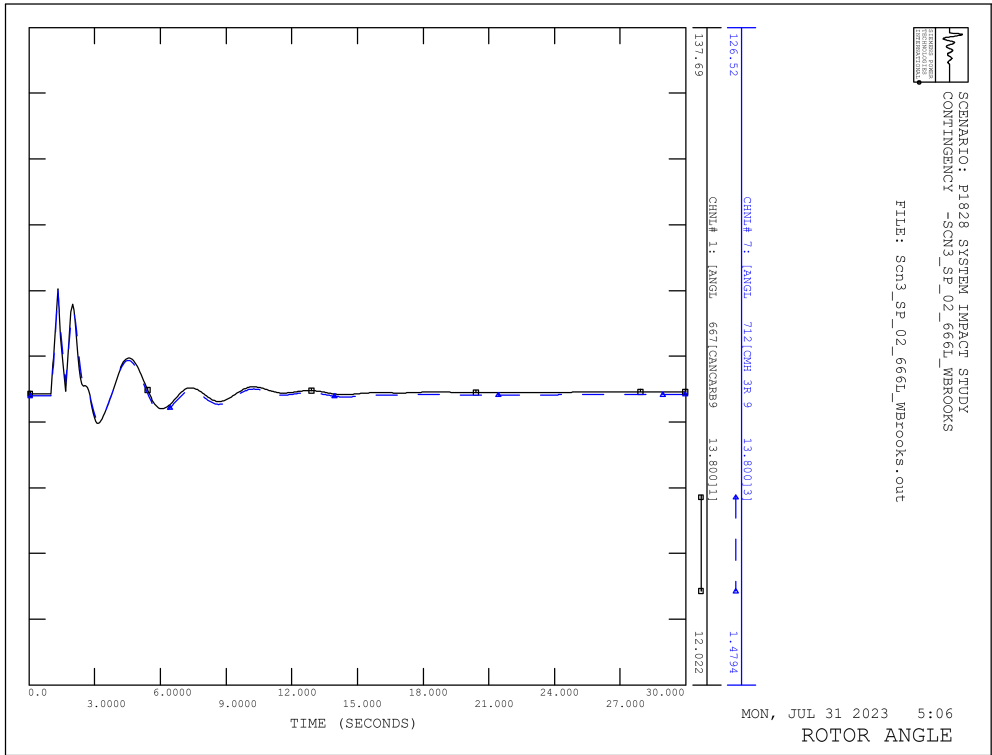
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_01_666L_TILLEY
FILE: Scn3_SP_01_666L_Tilley.out
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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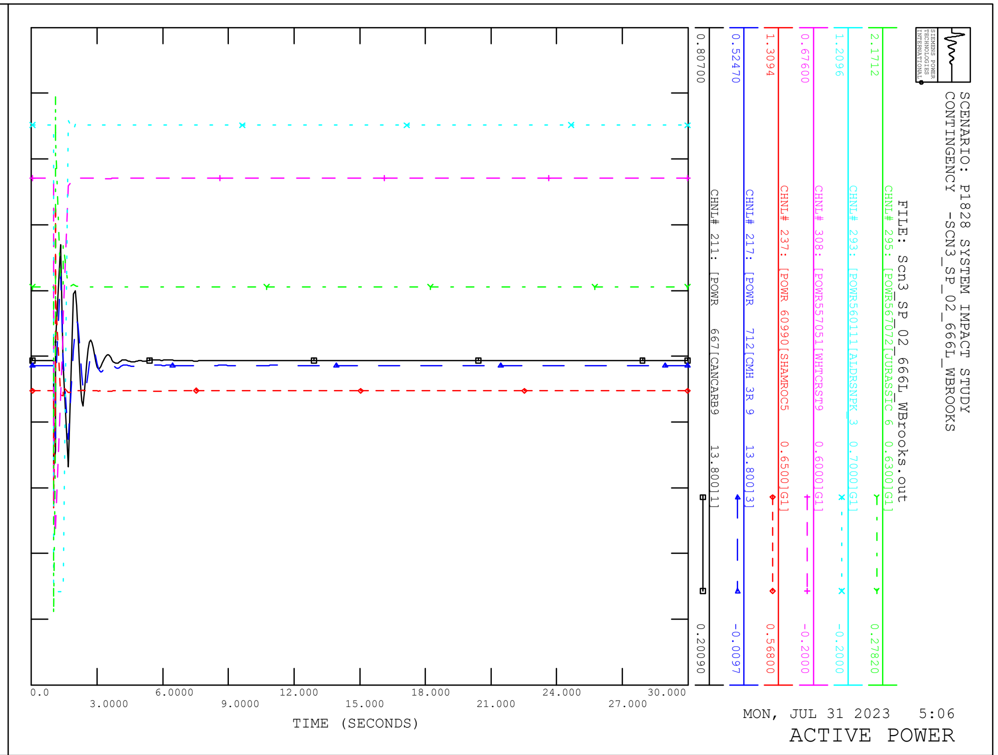
MON, JUL 31 2023 5:06
ROTOR ANGLE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CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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0.56800
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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-0.2000
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
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-0.2000
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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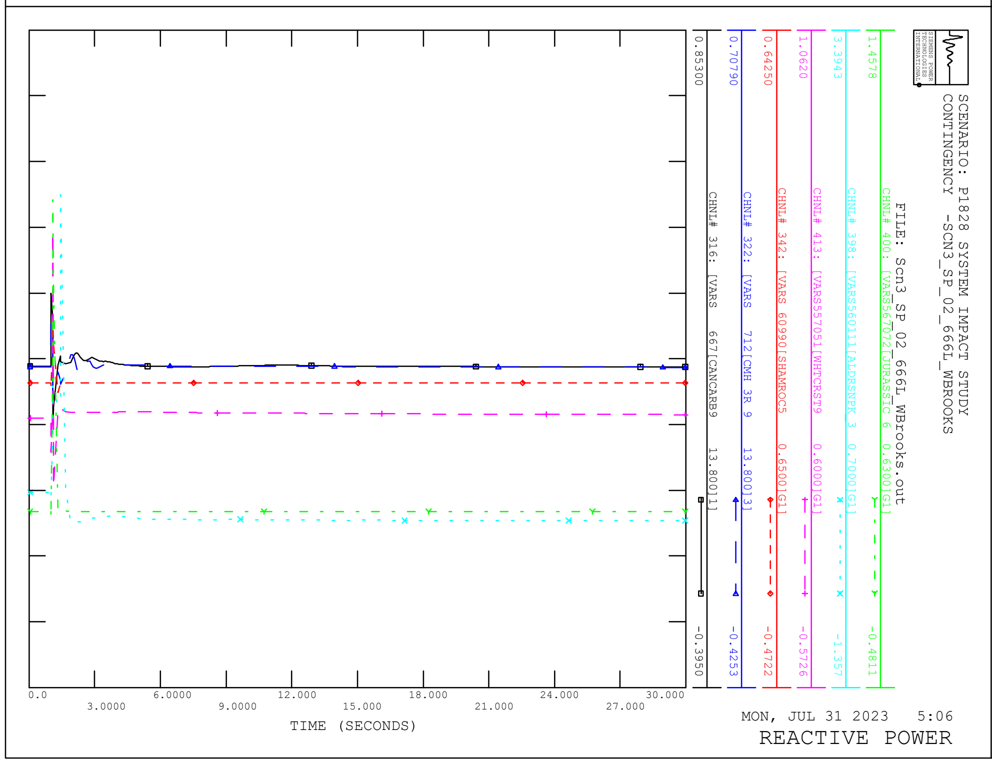
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.4253
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
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-0.4722
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
1.0620
-0.5726
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
3.3943
-1.357
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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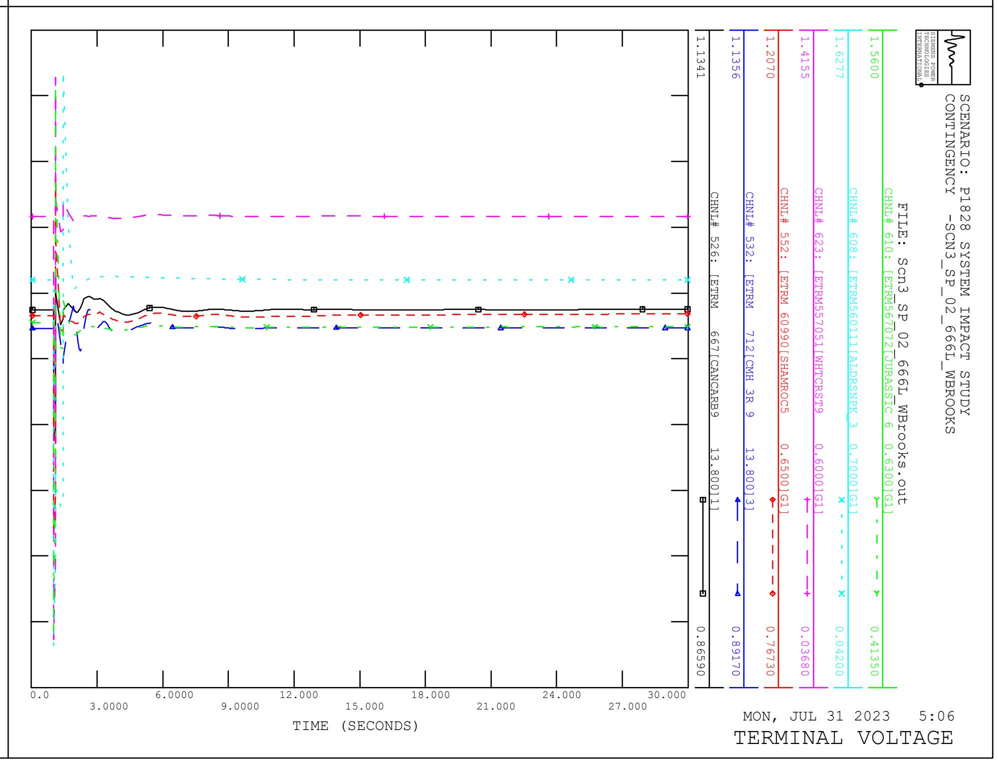
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0.89170
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.2070
0.76730
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
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CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
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MON, JUL 31 2023 5:06
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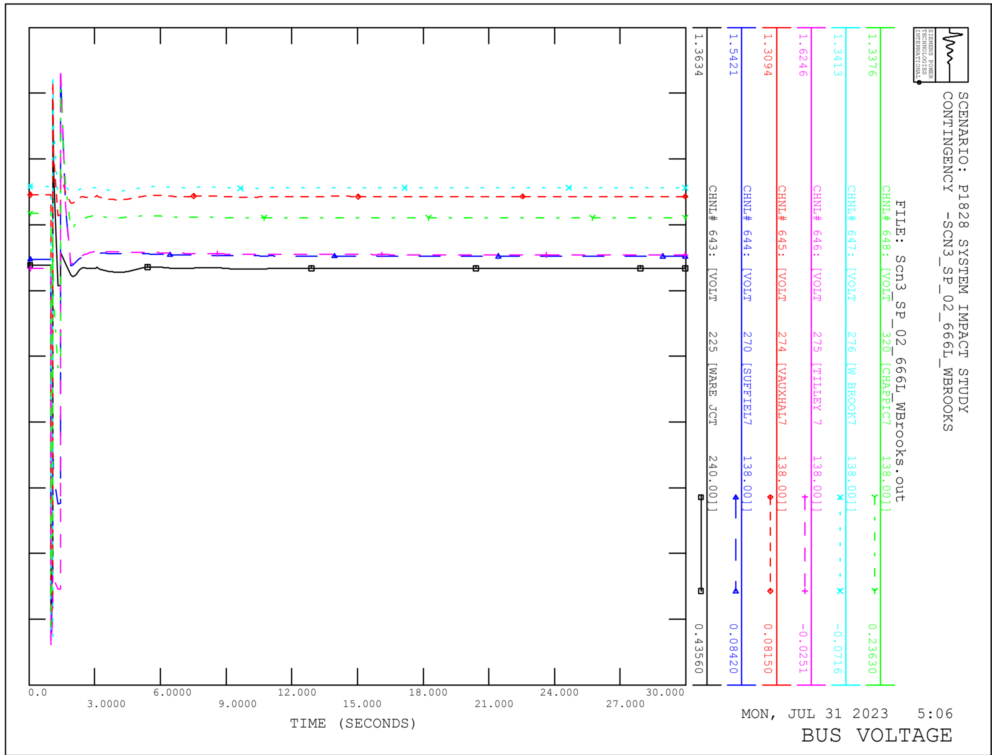

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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.5421 0.08420
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.3094 0.08150
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.6246 -0.0251
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3413 -0.0716
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.3376 0.23630
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MON, JUL 31 2023 5:06
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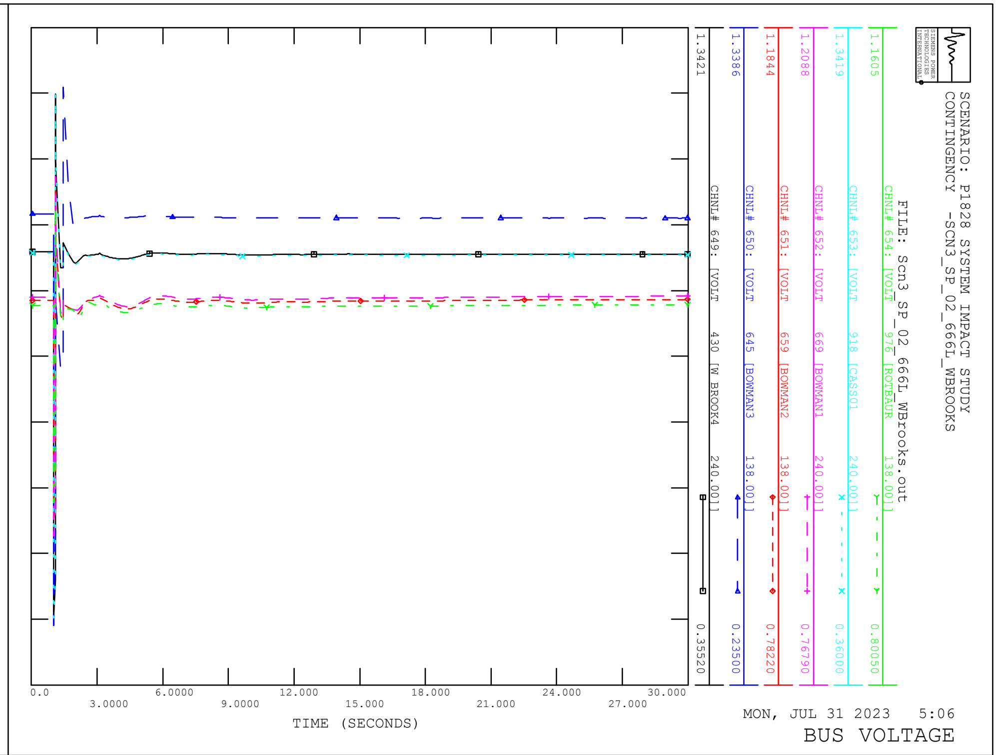

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CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.3419 0.36000
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1605 0.80050
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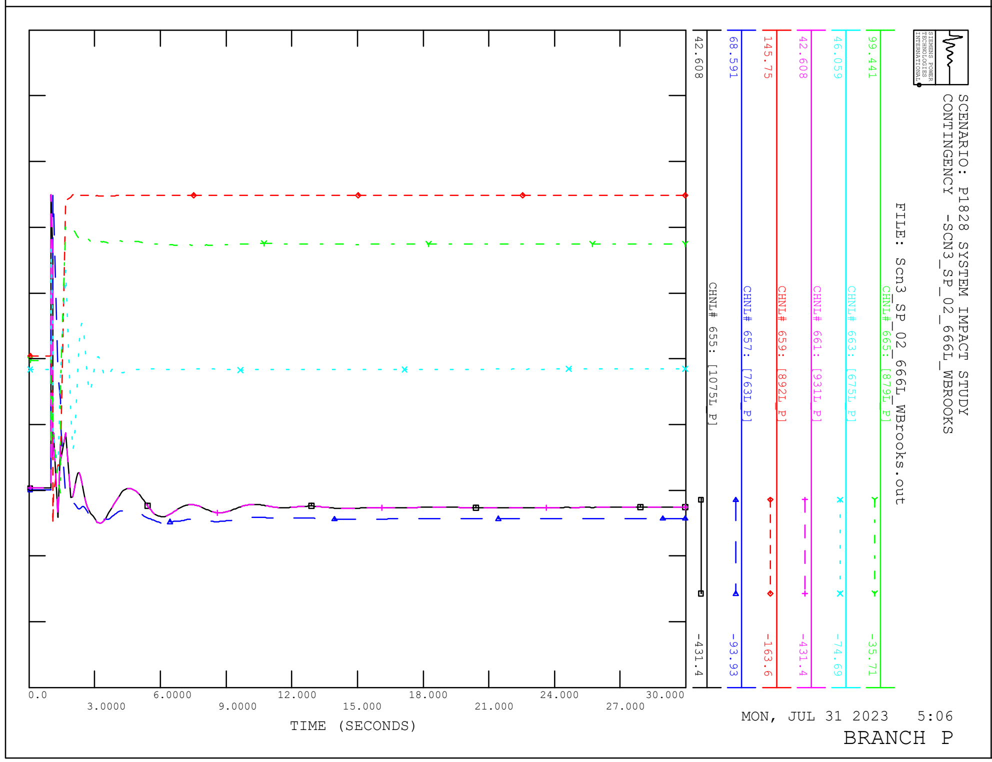

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CONTINGENCY -SCN3_SP_02_666L_WBROOKS
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CHNL# 657: [763L_P] 68.591 -93.93
CHNL# 659: [892L_P] 145.75 -163.6
CHNL# 661: [931L_P] 42.608 -431.4
CHNL# 663: [675L_P] 46.059 -74.69
CHNL# 665: [679L_P] 99.441 -35.71
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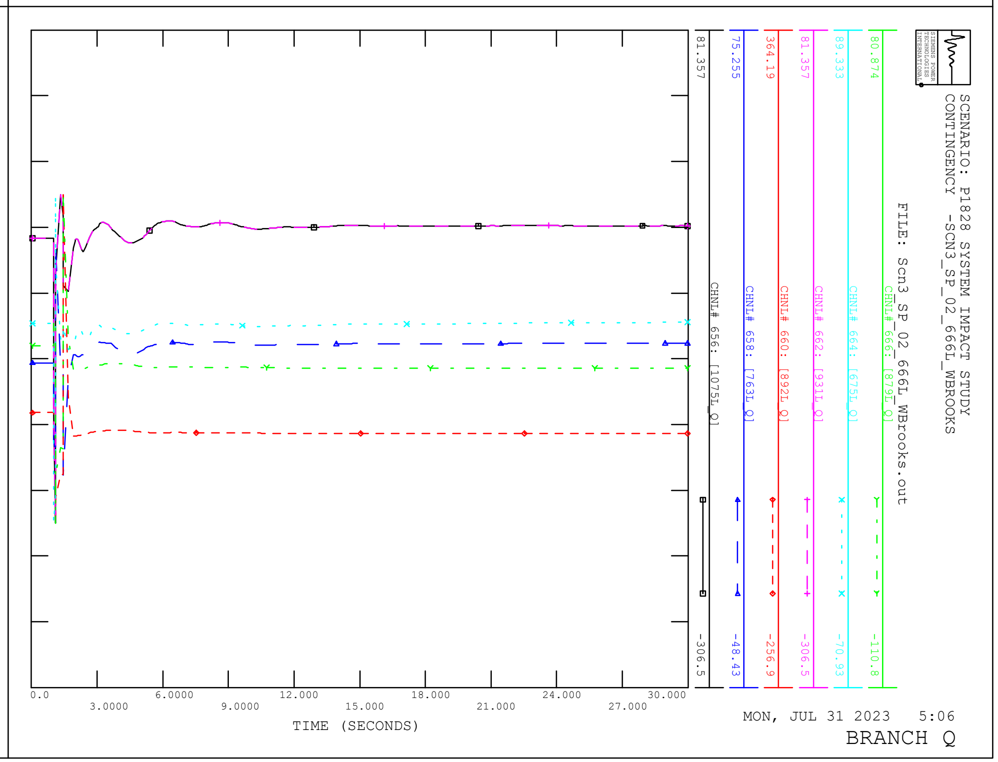
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 664: [675L_Q] 89.333 -70.93
CHNL# 666: [679L_Q] 80.874 -110.8
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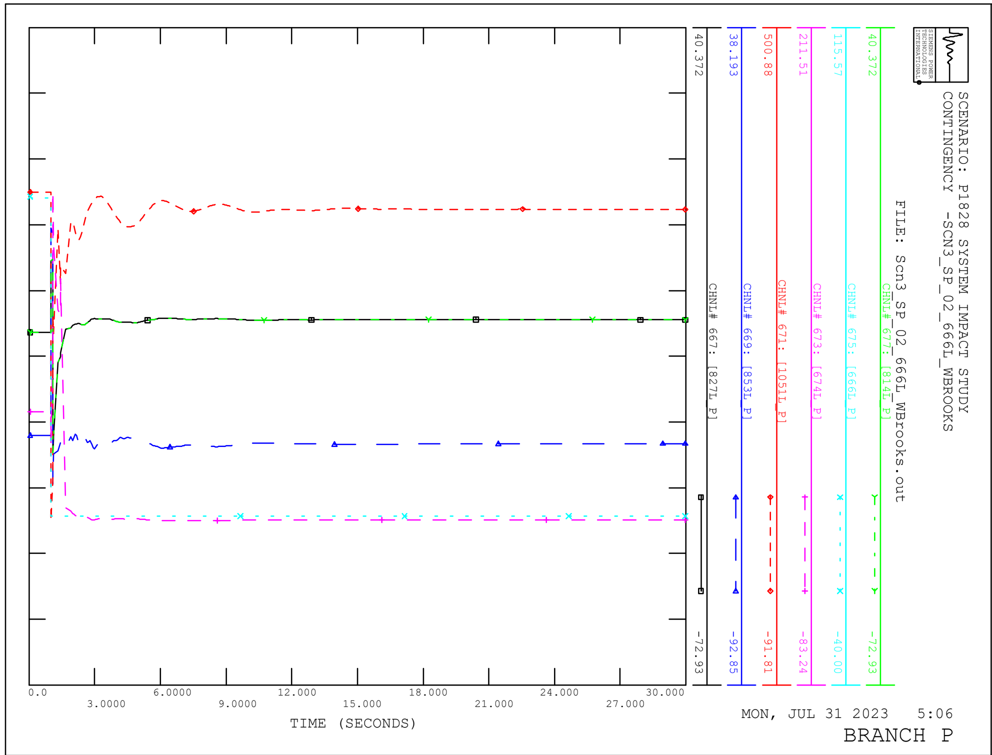
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 671: [1051L_P] 500.88 -91.81
CHNL# 673: [674L_P] 211.51 -83.24
CHNL# 675: [666L_P] 115.57 -40.00
CHNL# 677: [814L_P] 40.372 -72.93
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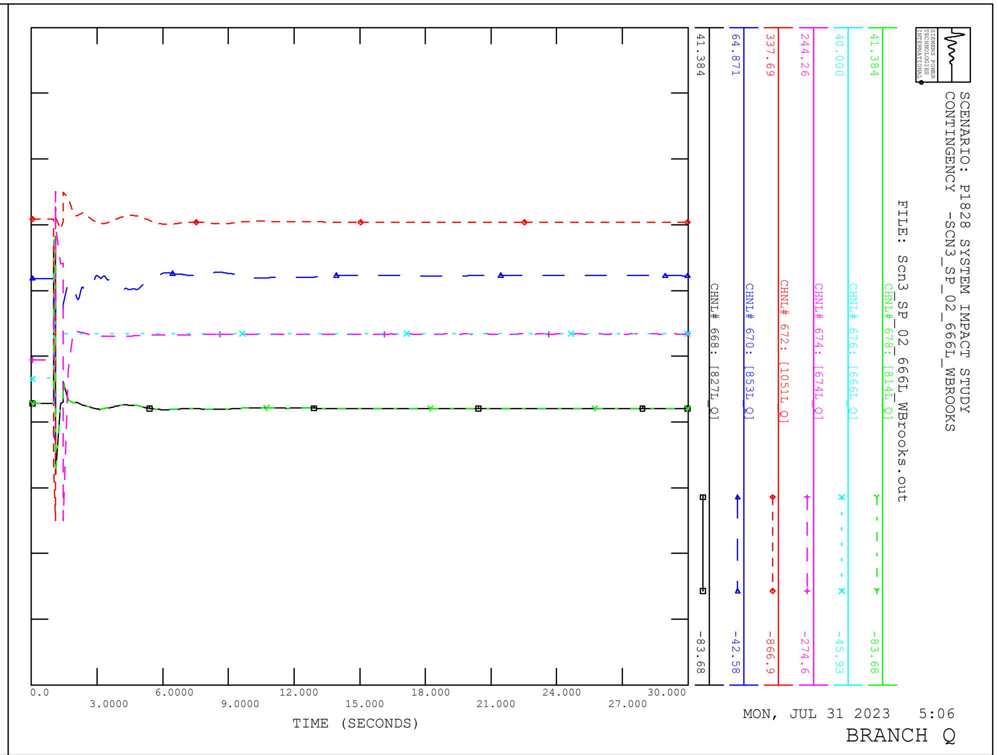
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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MON, JUL 31 2023 5:06
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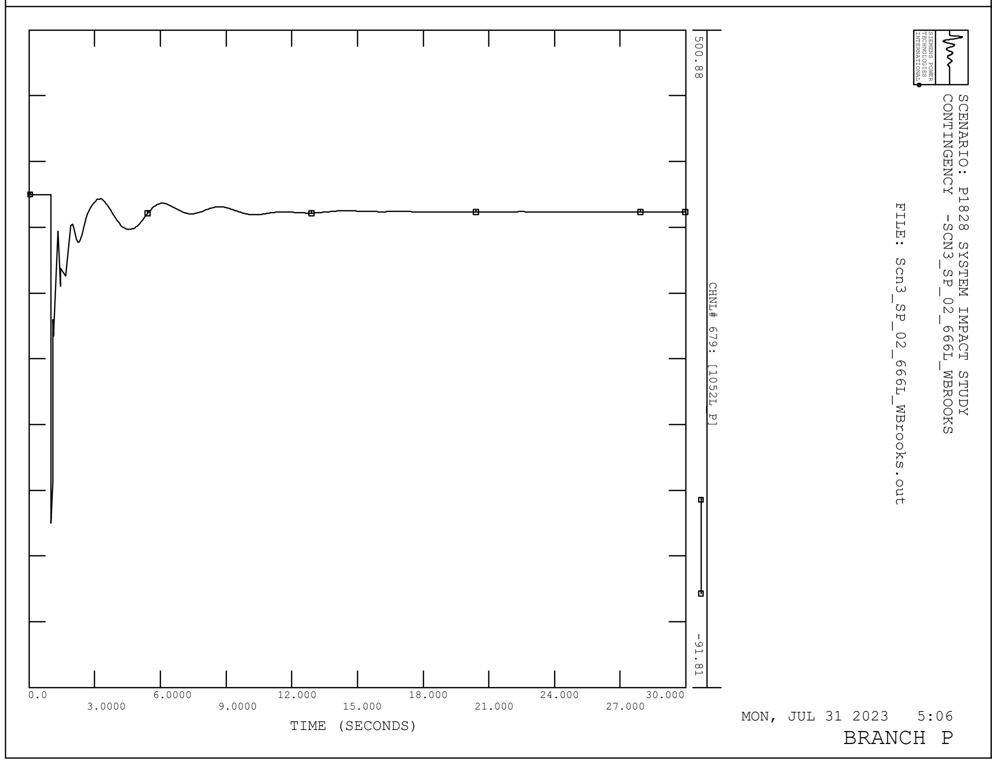
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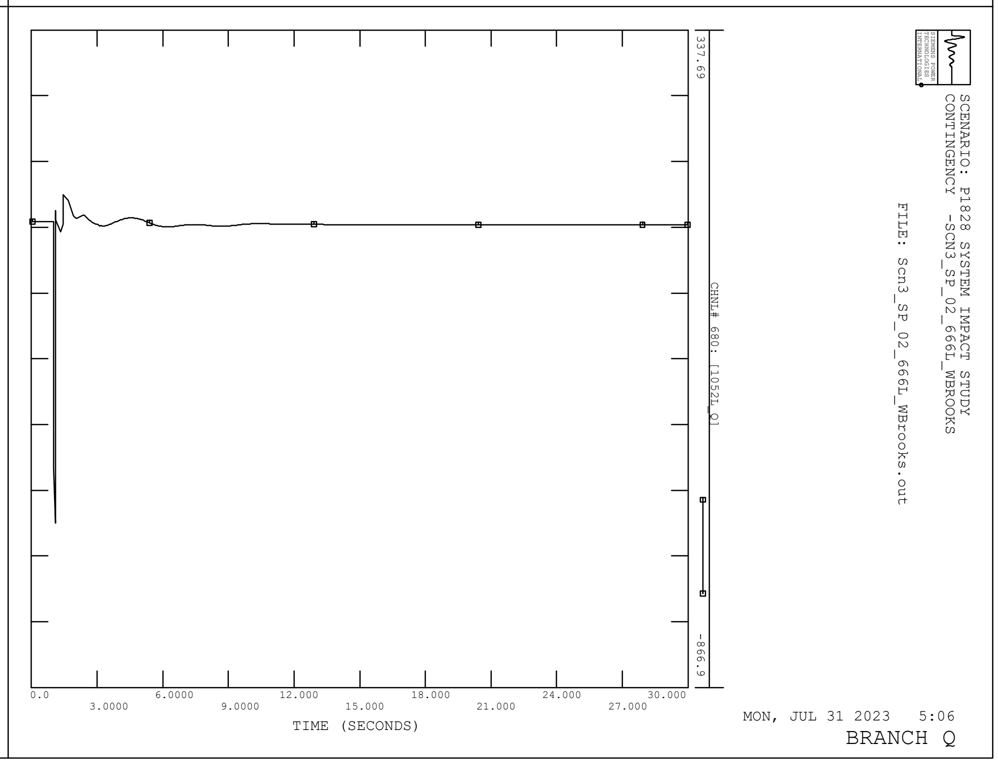
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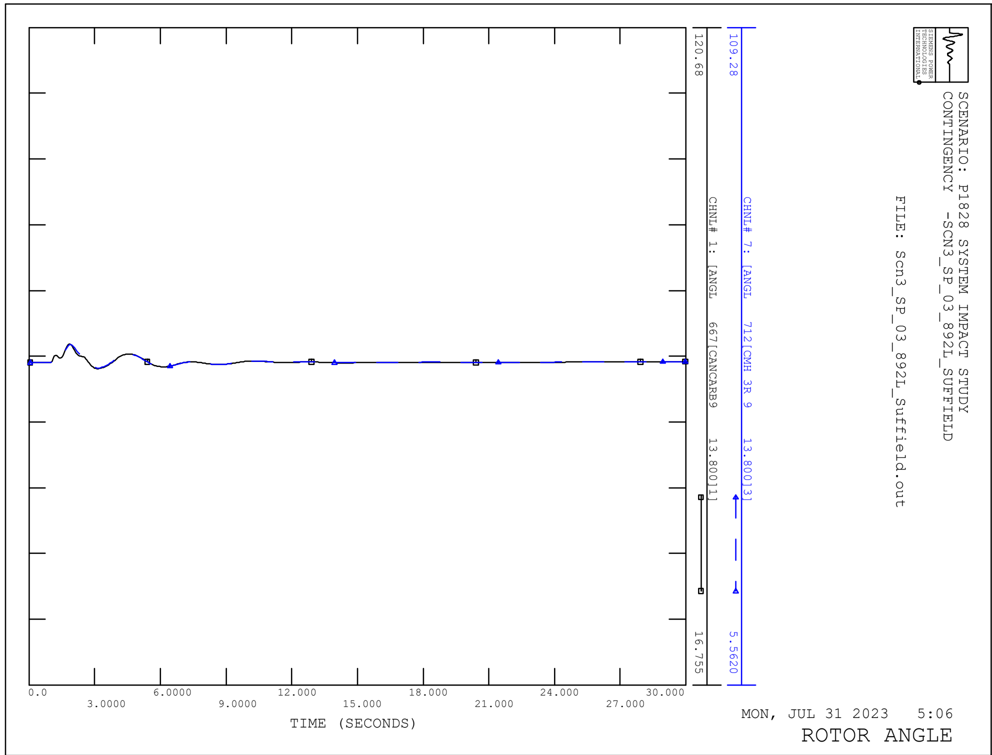
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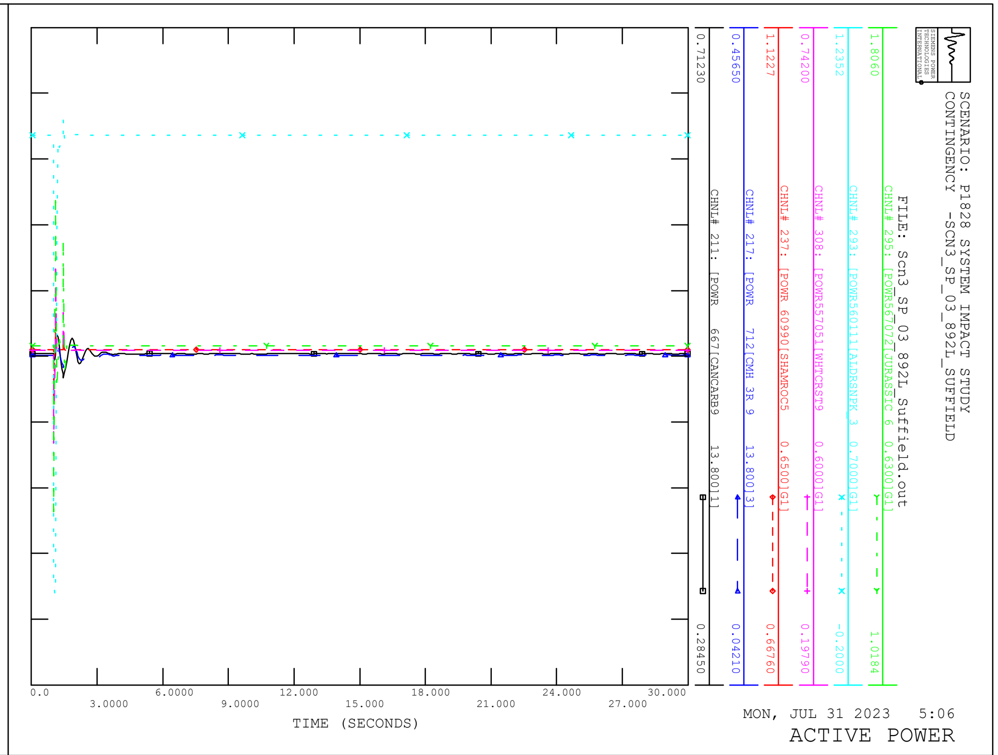
ROTOR ANGLE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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3] 0.45650 0.04210
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 1.1227 0.66760
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] 0.74200 0.19790
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1] 1.2352 -0.2000
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1] 1.8060 1.0184
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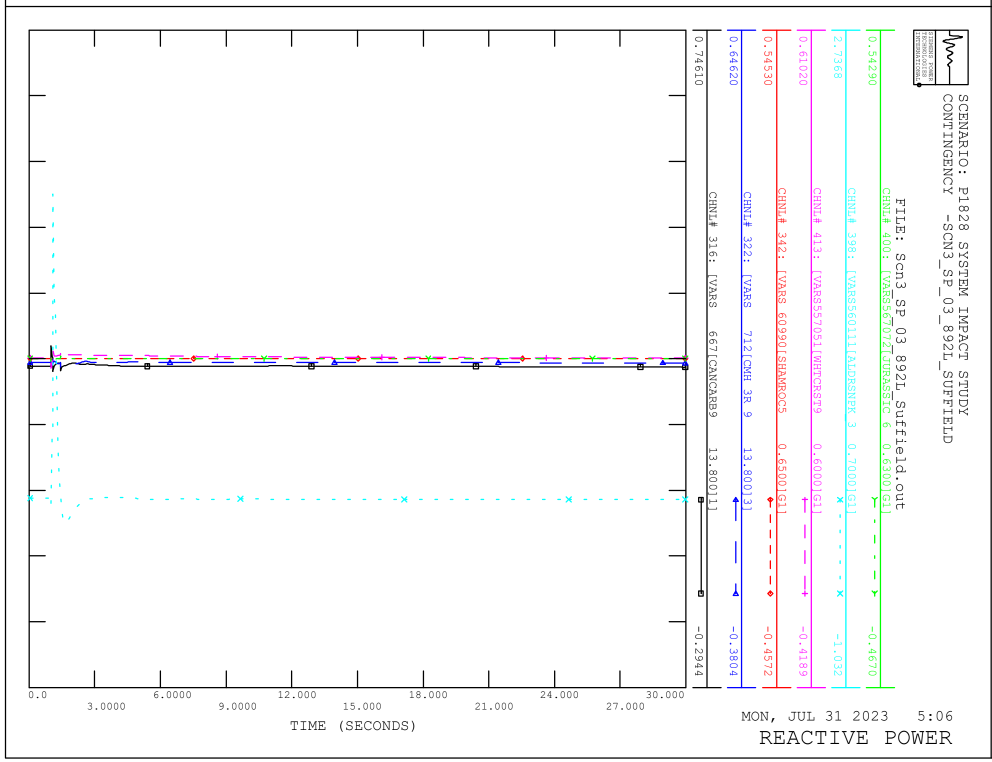
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3] 0.64620 -0.3804
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] 0.54530 -0.4572
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] 0.61020 -0.4189
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1] 2.7368 -1.032
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1] 0.54290 -0.4670
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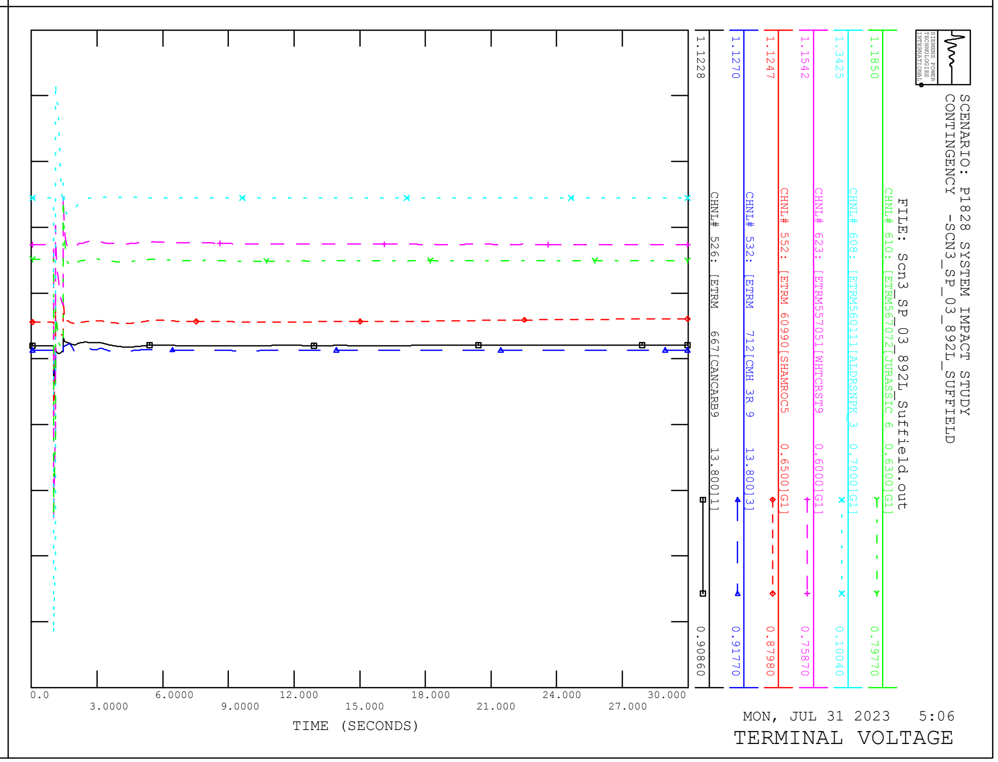
REACTIVE POWER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CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1] 1.1247 0.87980
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] 1.1542 0.75870
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1] 1.3425 0.10040
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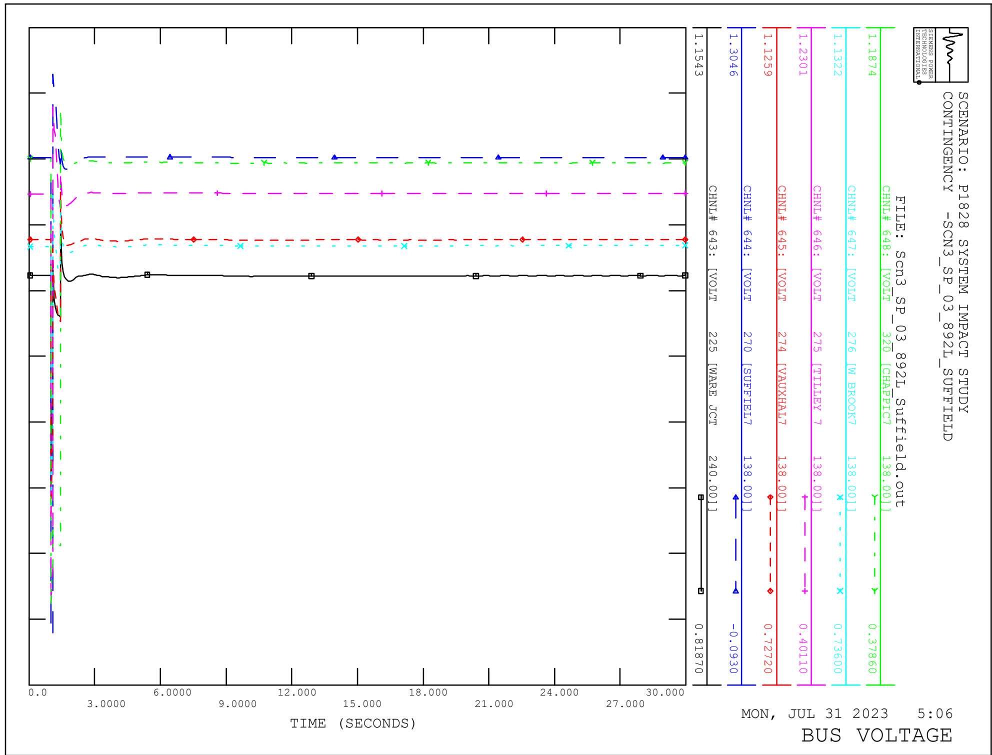
TERMINAL VOLTAGE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1.1259 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.72720
1.2301 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 0.40110
1.1322 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 0.73600
1.1874 CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 0.37860
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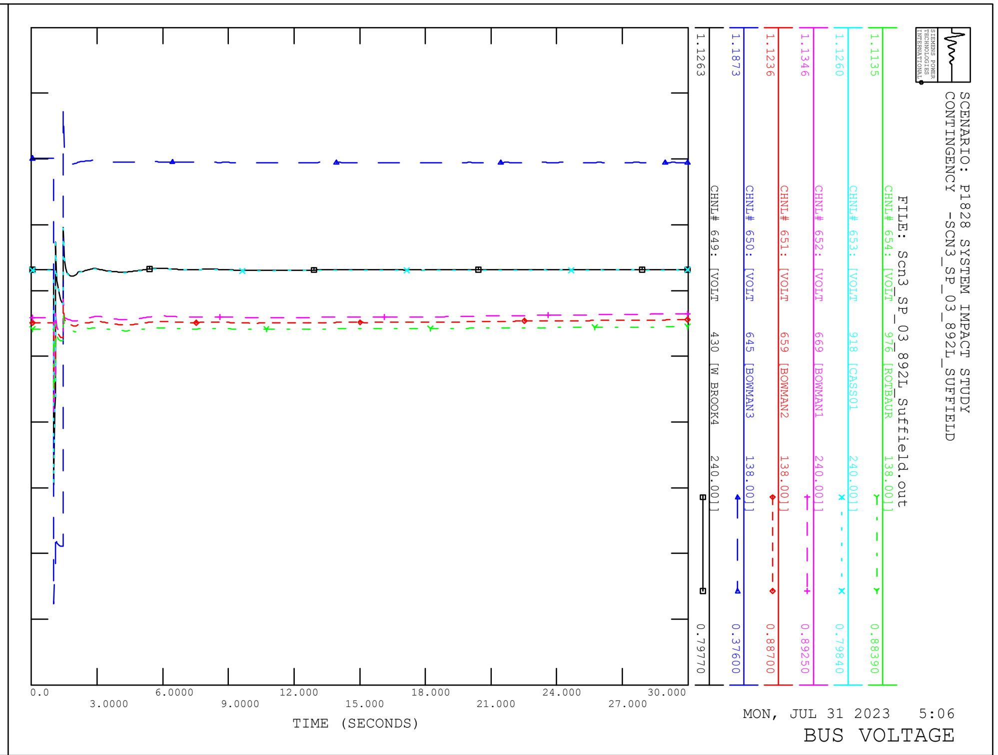
MON, JUL 31 2023 5:06
BUS VOLTAGE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1.1236 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 0.88700
1.1346 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.89250
1.1260 CHNL# 653: [VOLT 918 [CASS01 240.00]] 0.79840
1.1135 CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 0.88390
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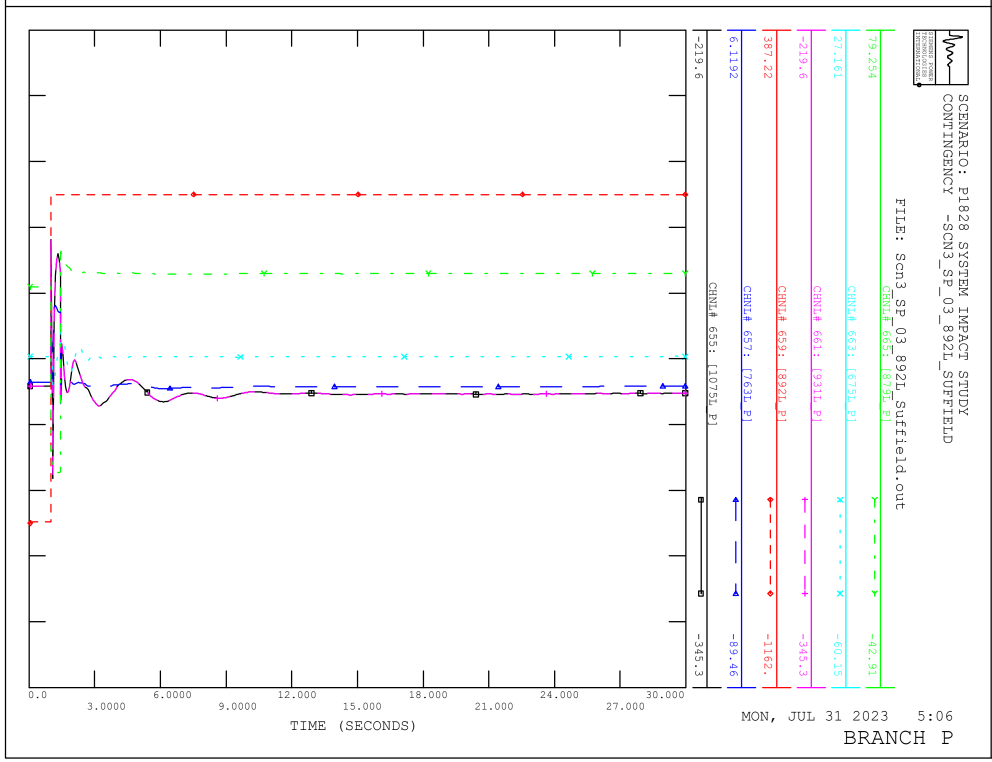
BUS VOLTAGE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FILE: Scn3_SP_03_892L_Suffield.out
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6.1192 CHNL# 657: [763L P] -89.46
387.22 CHNL# 659: [892L P] -1162.
-219.6 CHNL# 661: [931L P] -345.3
27.161 CHNL# 663: [675L P] -60.15
79.254 CHNL# 665: [679L P] -42.91
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3.0000
6.0000
9.0000
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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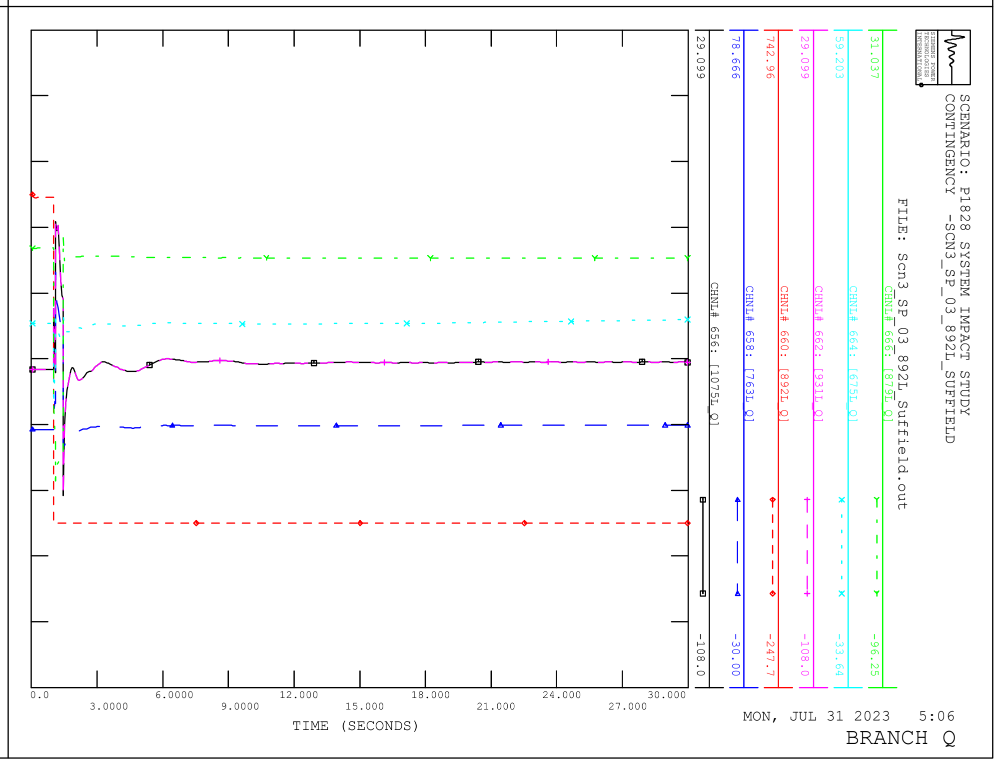
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78.666 CHNL# 658: [763L Q] -30.00
742.96 CHNL# 660: [892L Q] -247.7
29.099 CHNL# 662: [931L Q] -108.0
59.203 CHNL# 664: [675L Q] -33.64
31.037 CHNL# 666: [679L Q] -96.25
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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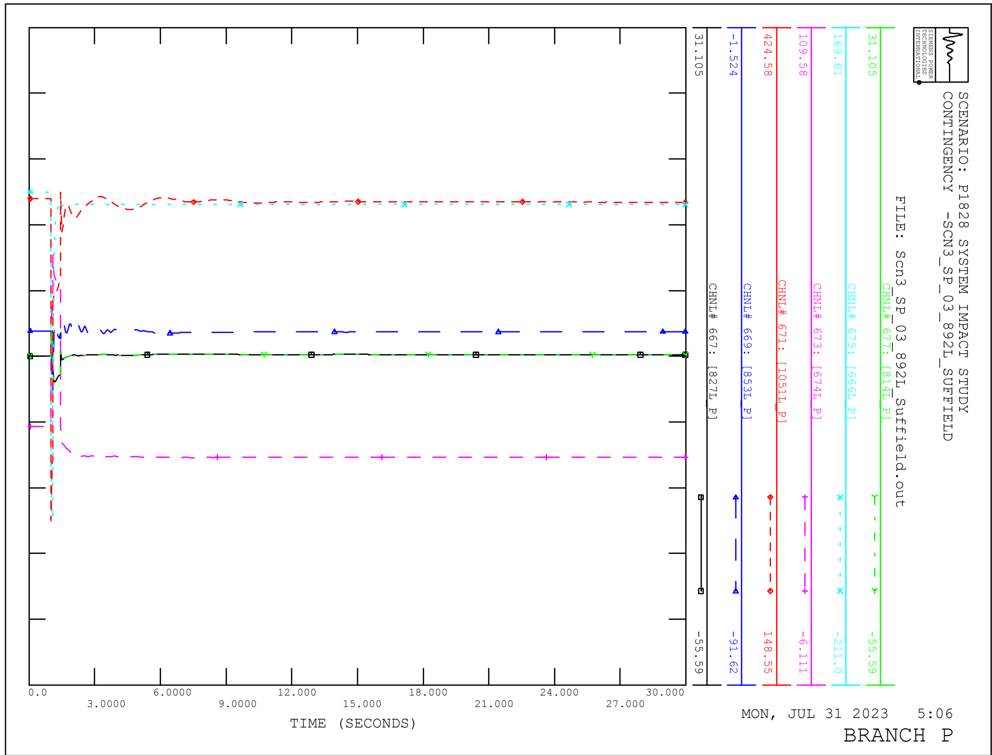

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CHNL# 669: [853L_P] -1.524 -91.62
CHNL# 671: [1051L_P] 424.58 148.55
CHNL# 673: [674L_P] 109.58 -6.111
CHNL# 675: [666L_P] 169.61 -211.0
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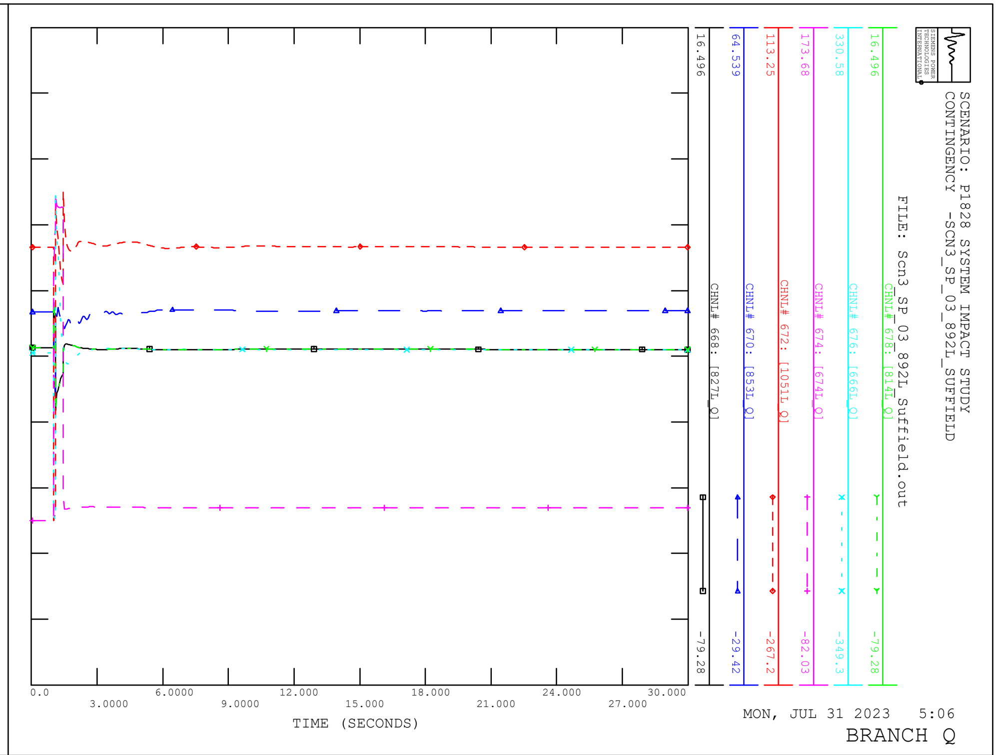
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 670: [853L_Q] 64.539 -29.42
CHNL# 672: [1051L_Q] 113.25 -267.2
CHNL# 674: [674L_Q] 173.68 -82.03
CHNL# 676: [666L_Q] 330.58 -349.3
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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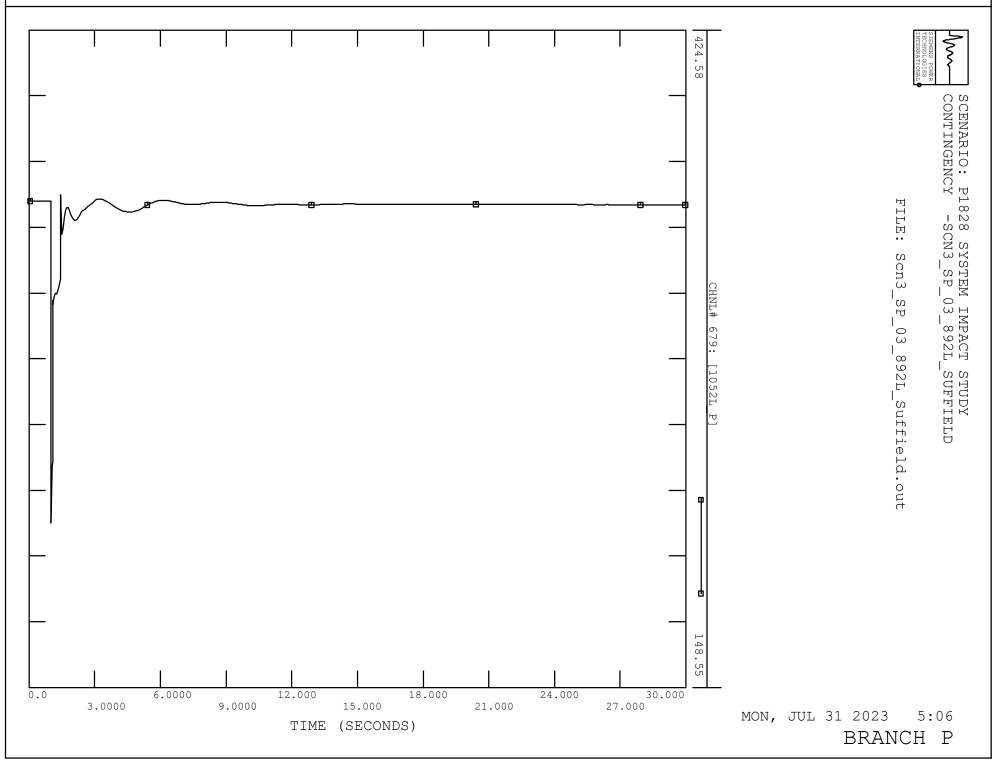

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MON, JUL 31 2023 5:06
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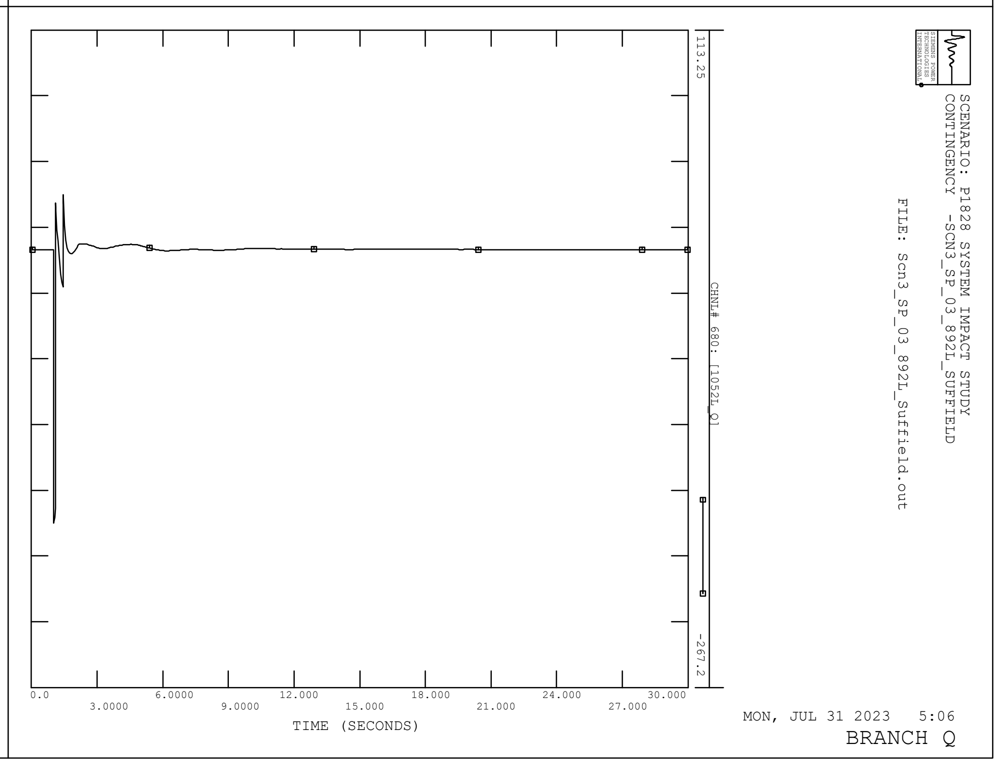

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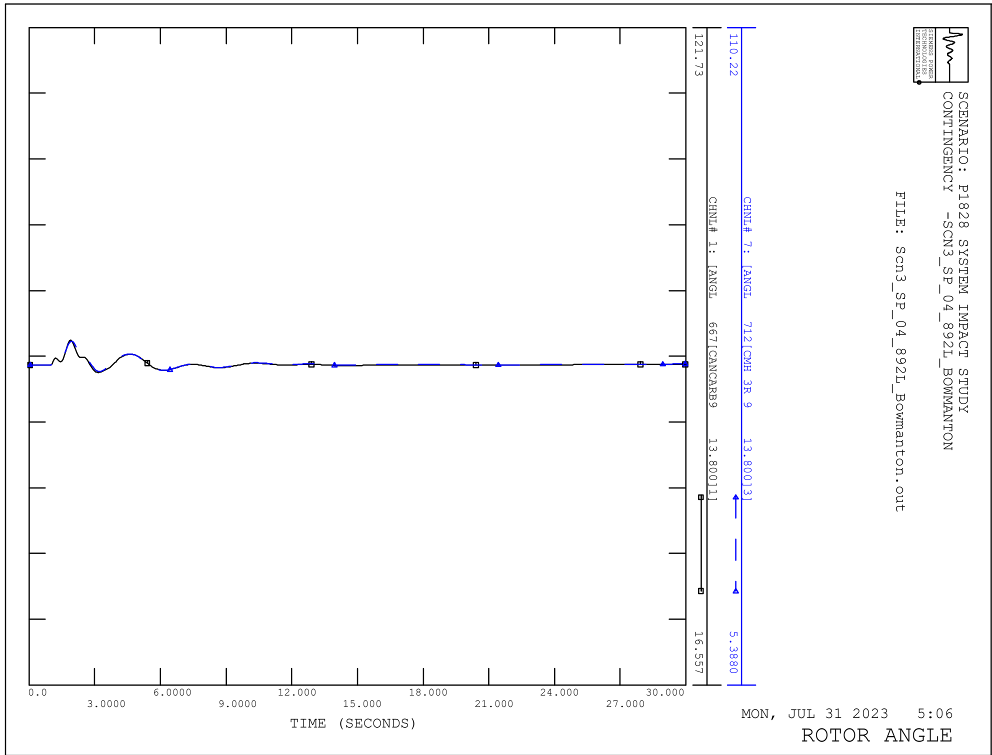
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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110.22
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
FILE: Scn3_SP_04_892L_Bowmanton.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
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6.0000
9.0000
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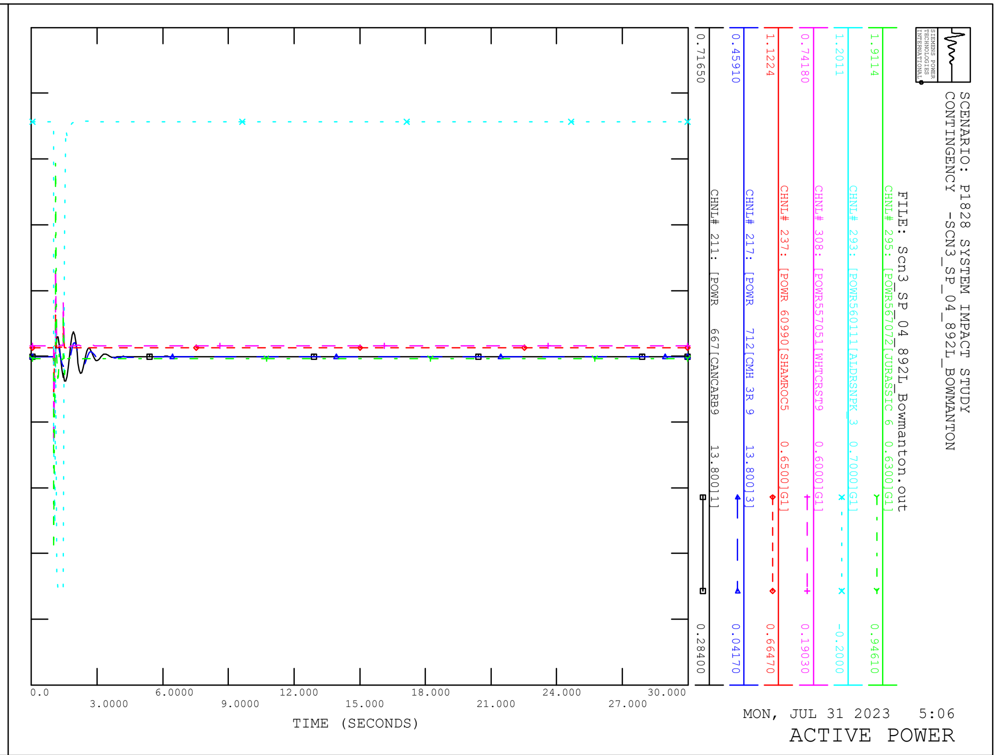
MON, JUL 31 2023 5:06
ROTOR ANGLE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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
1.1224
0.66470
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.74180
0.19030
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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-0.2000
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
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0.94610
CHNL# 295: [POWR587072[JURASSIC 6 0.6300]G1]
FILE: Scn3_SP_04_892L_Bowmanton.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
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6.0000
9.0000
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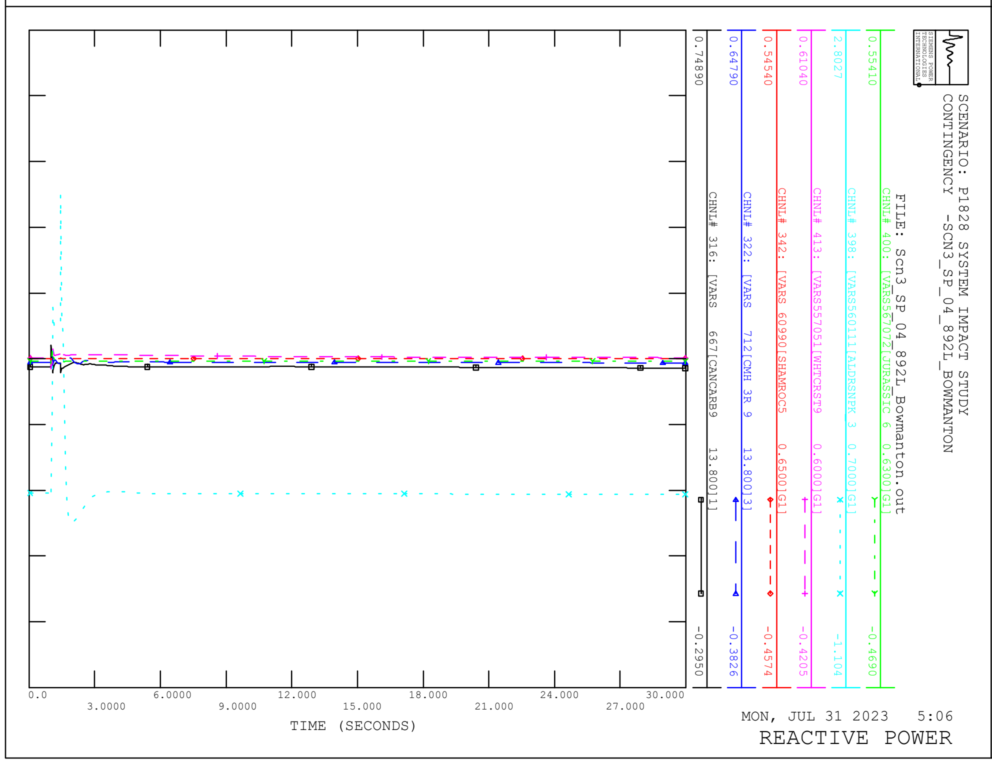
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.3826
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
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-0.4574
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.61040
-0.4205
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
2.8027
-1.104
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
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CHNL# 400: [VARS587072[JURASSIC 6 0.6300]G1]
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CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
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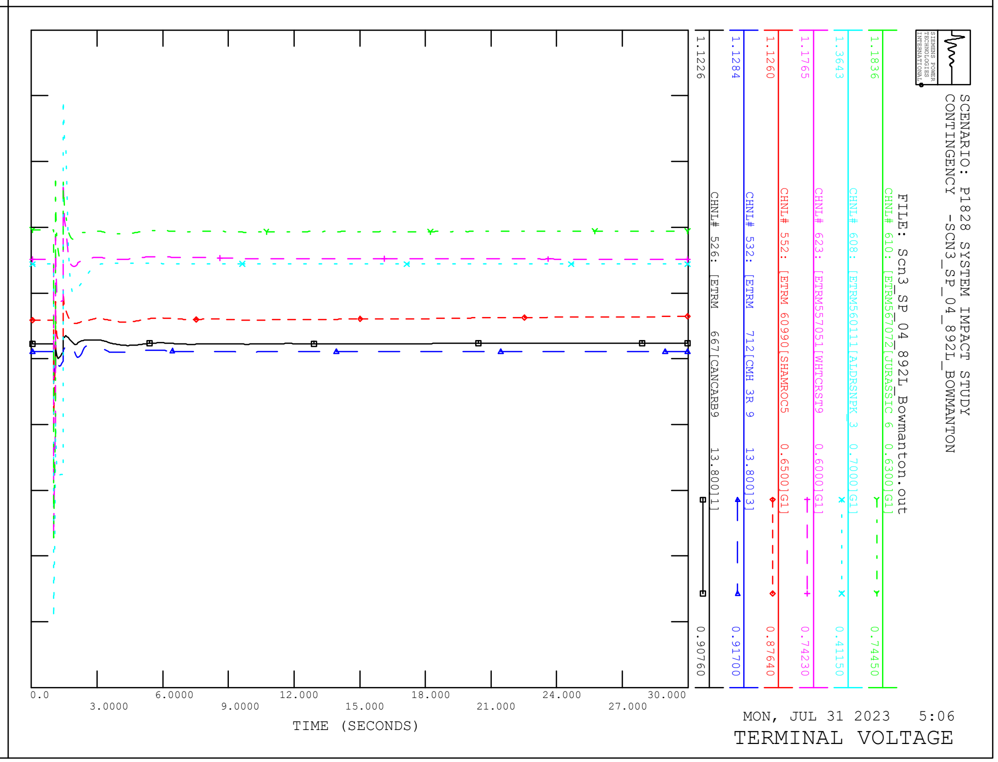
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1260
0.87640
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
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CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
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CHNL# 610: [ETRM587072[JURASSIC 6 0.6300]G1]
FILE: Scn3_SP_04_892L_Bowmanton.out
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CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
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6.0000
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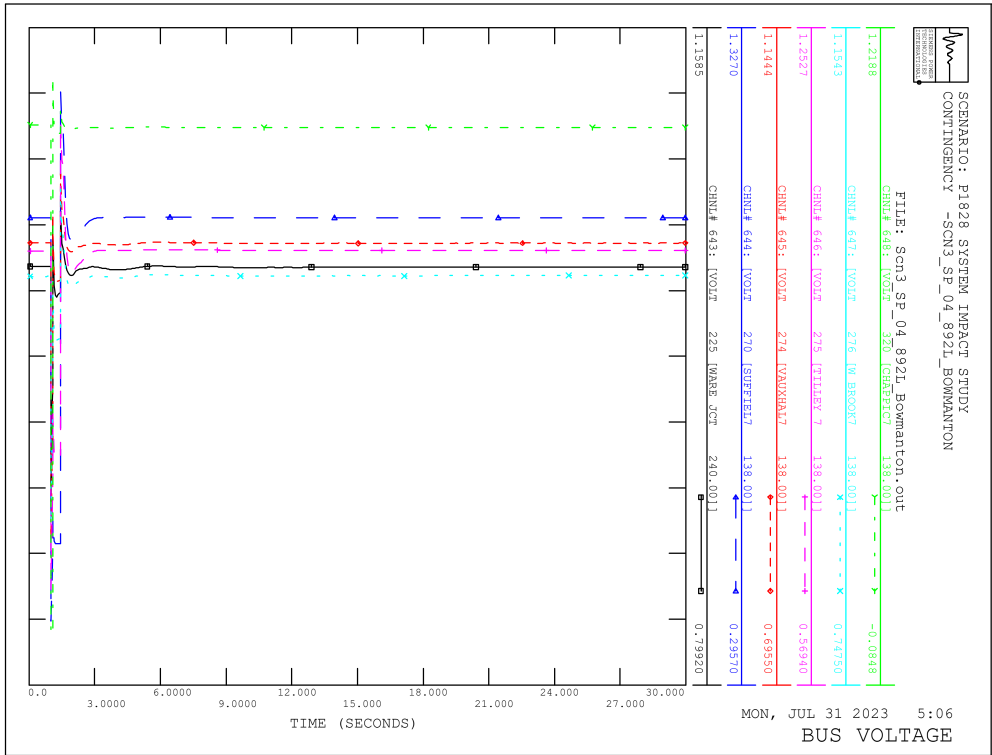
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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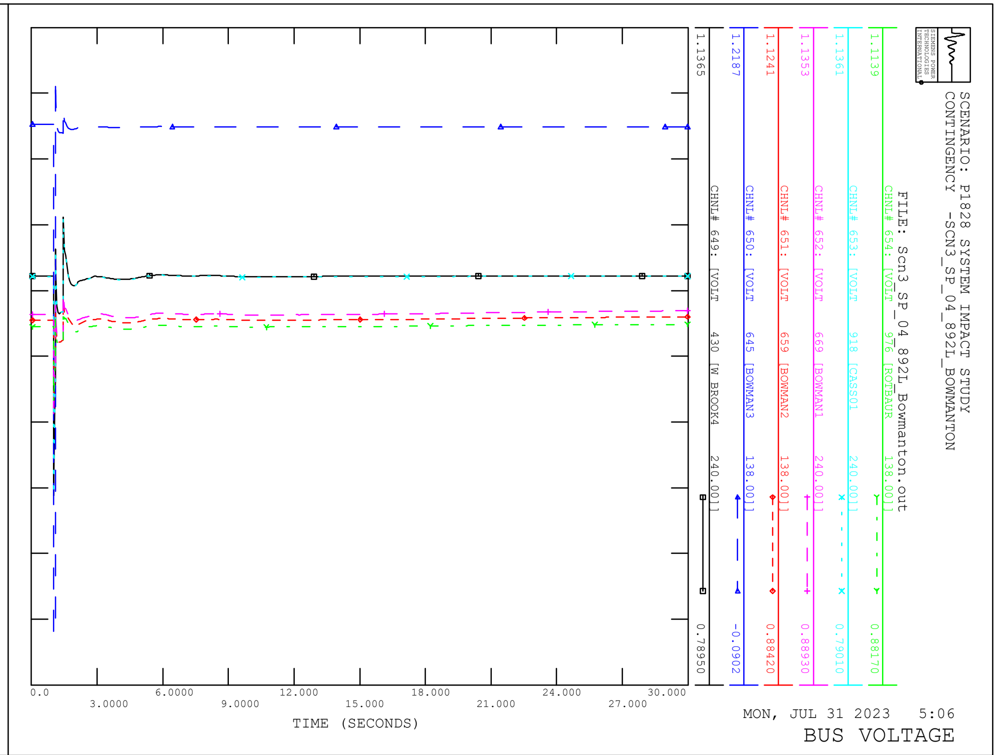
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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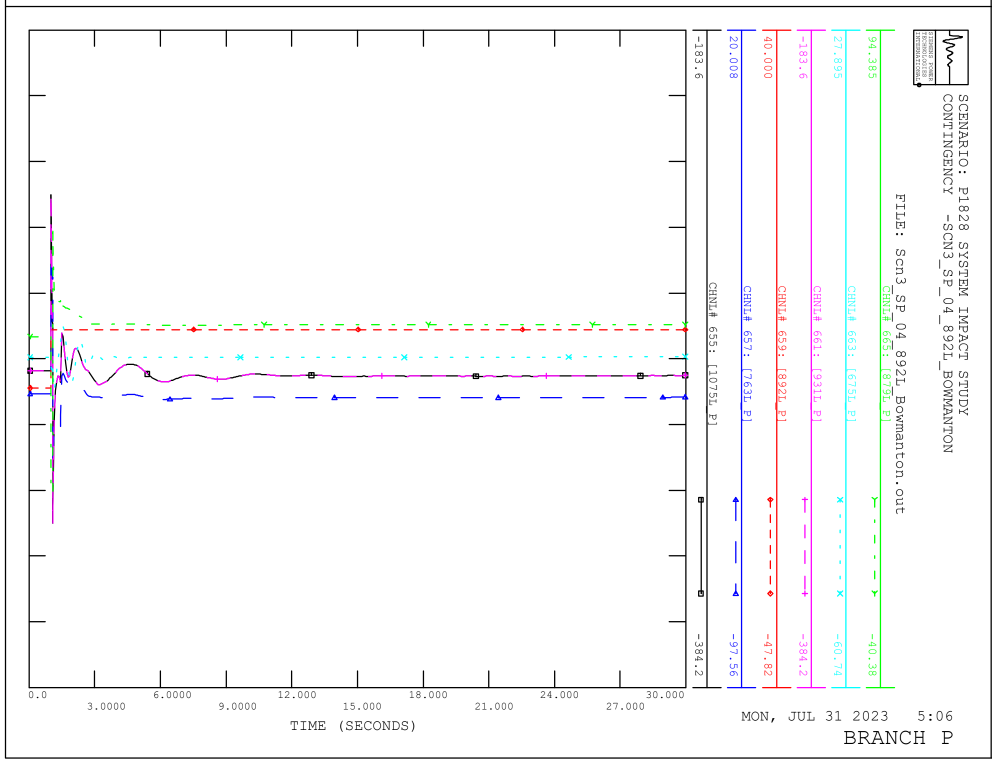
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSO1 240.00]]
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
FILE: Scn3_SP_04_892L_Bowmanton.out
CHNL# 655: [1075L P]
CHNL# 657: [763L P]
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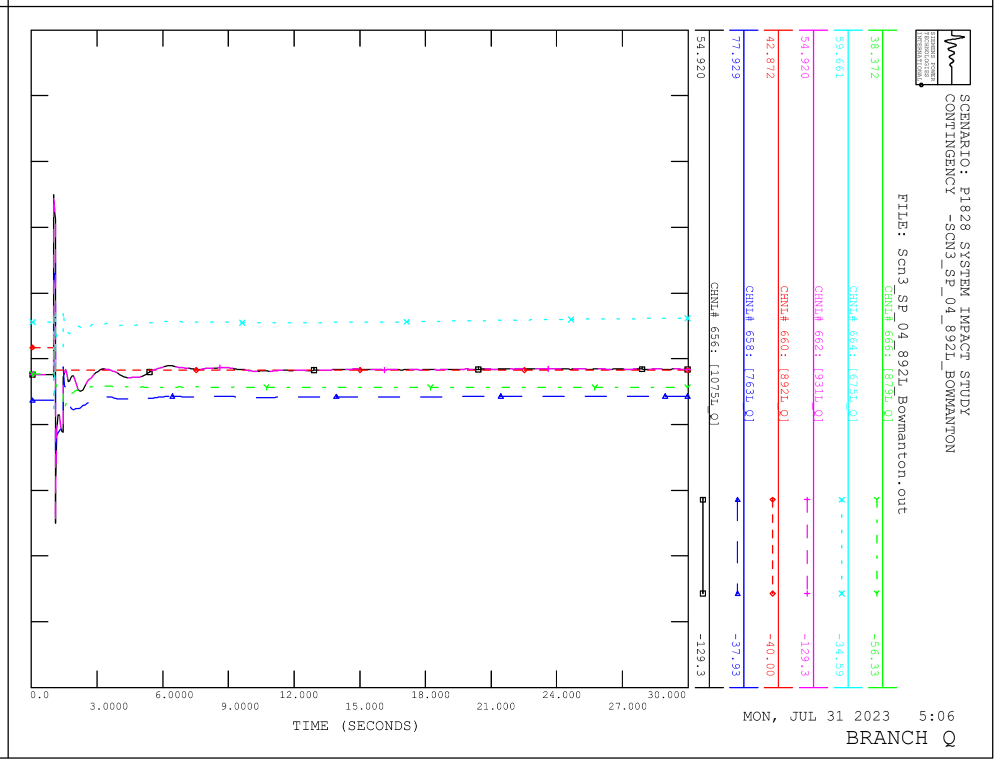
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q]
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CHNL# 662: [931L Q]
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CHNL# 666: [679L Q]
TIME (SECONDS)
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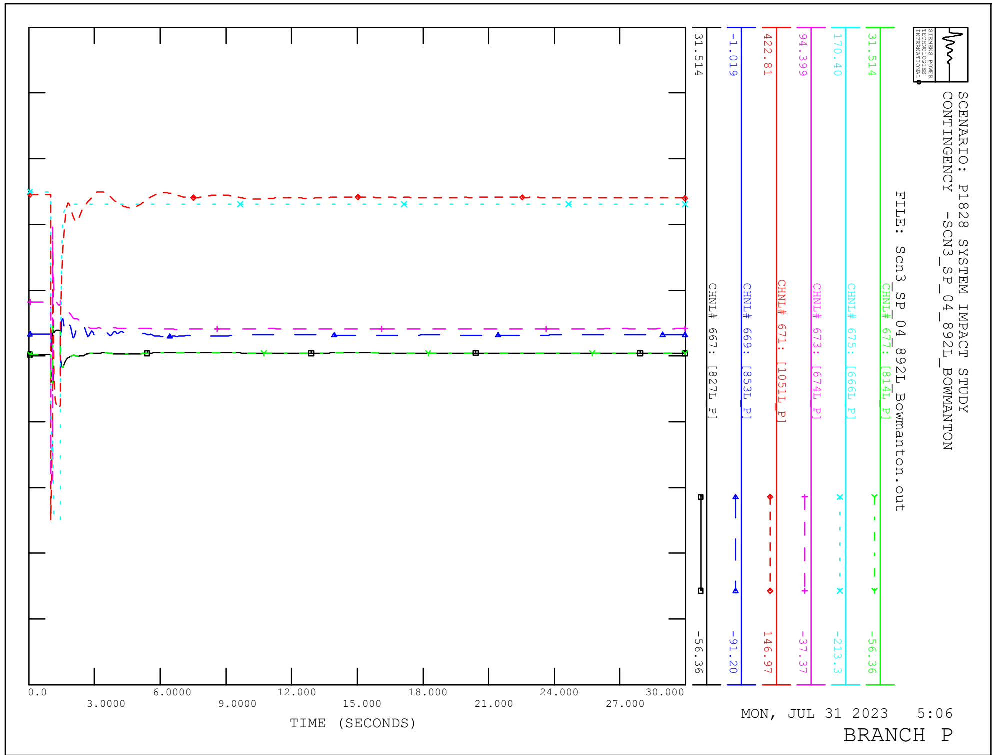
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CHNL# 669: [853L_P] -1.019 -91.20
CHNL# 671: [1051L_P] 422.81 146.97
CHNL# 673: [674L_P] 94.399 -37.37
CHNL# 675: [666L_P] 170.40 -213.3
CHNL# 677: [819L_P] 31.514 -56.36
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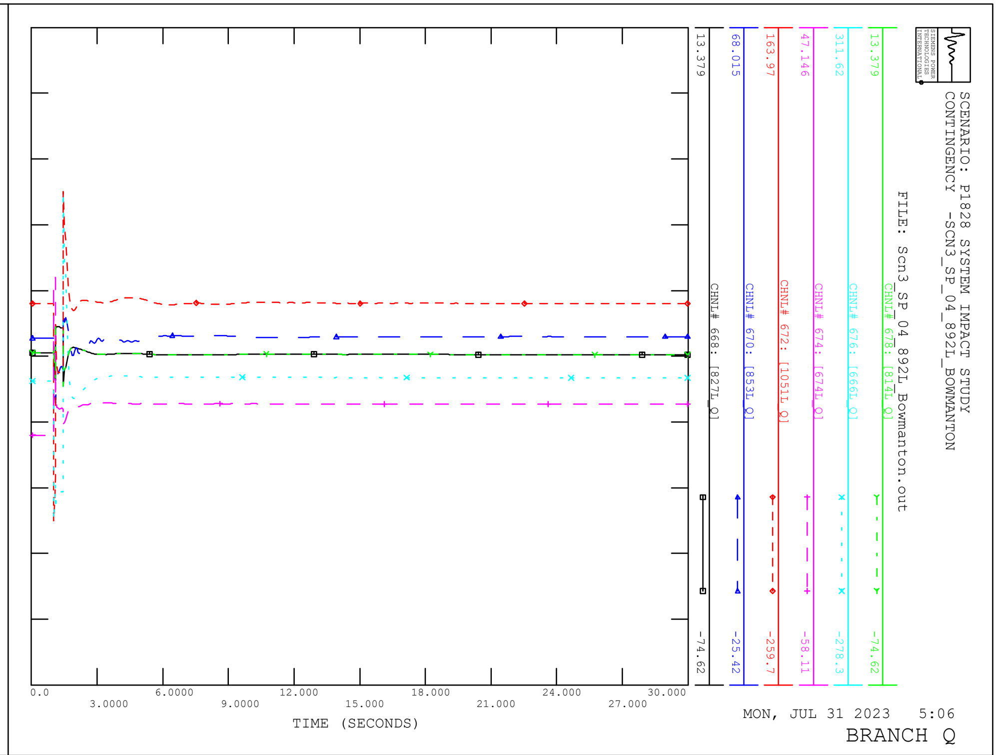
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
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CHNL# 670: [853L_Q] 68.015 -25.42
CHNL# 672: [1051L_Q] 163.97 -259.7
CHNL# 674: [674L_Q] 47.146 -58.11
CHNL# 676: [666L_Q] 311.62 -278.3
CHNL# 678: [819L_Q] 13.379 -74.62
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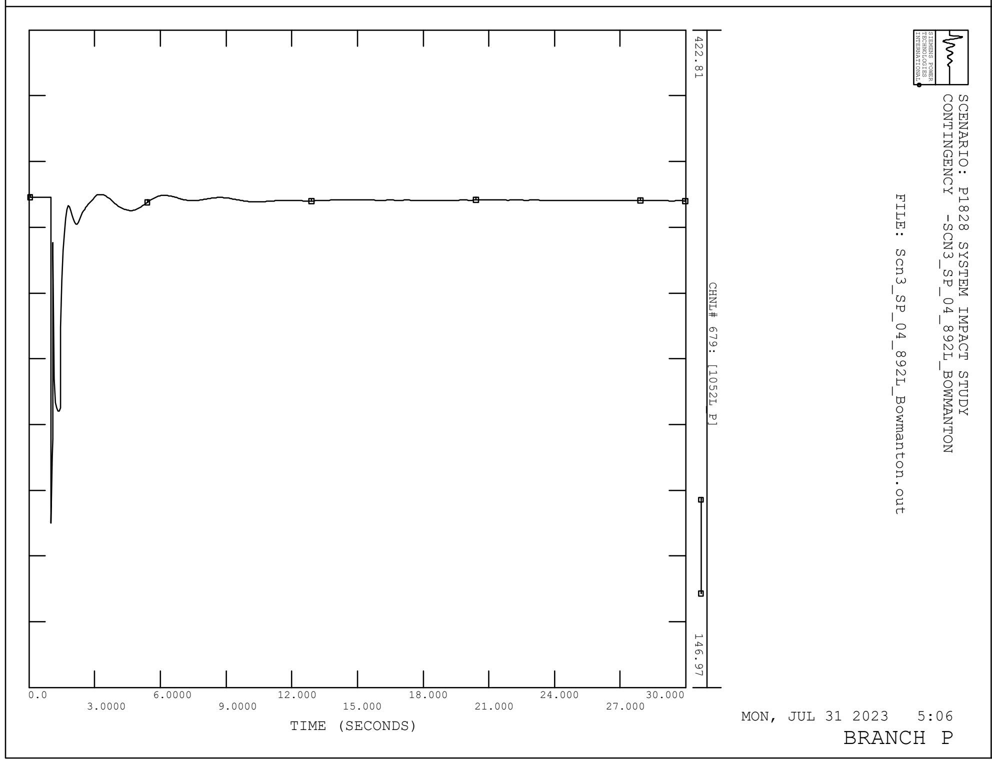
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN3_SP_04_892L_BOWMANTON
FILE: Scn3_SP_04_892L_Bowmanton.out
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TIME (SECONDS)
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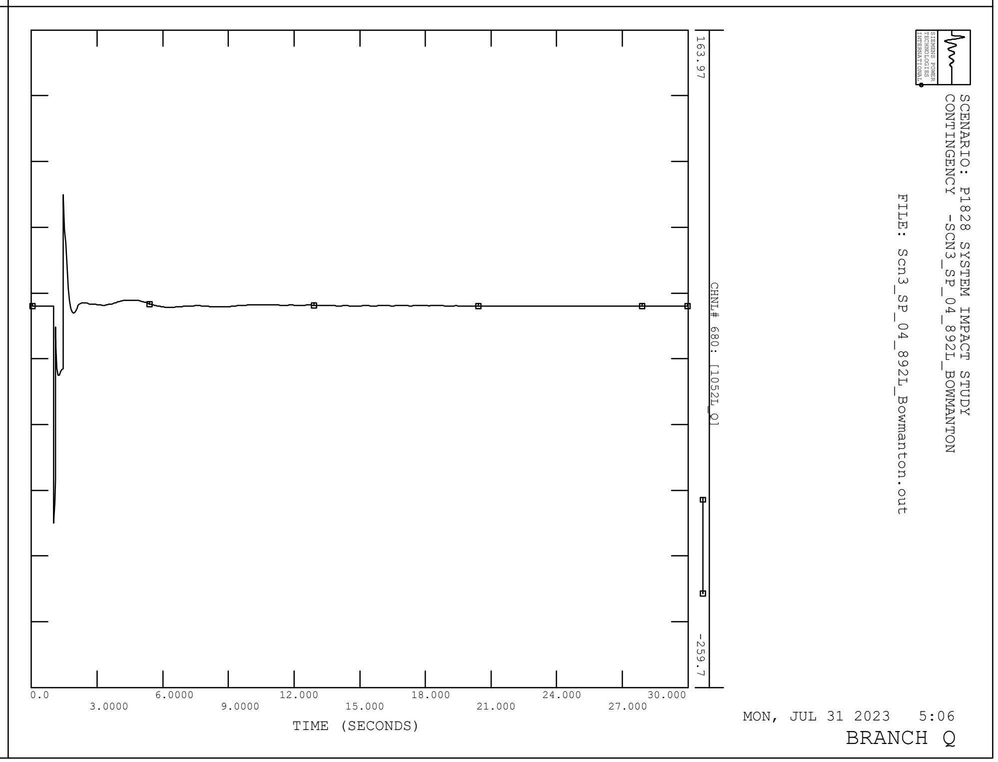
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
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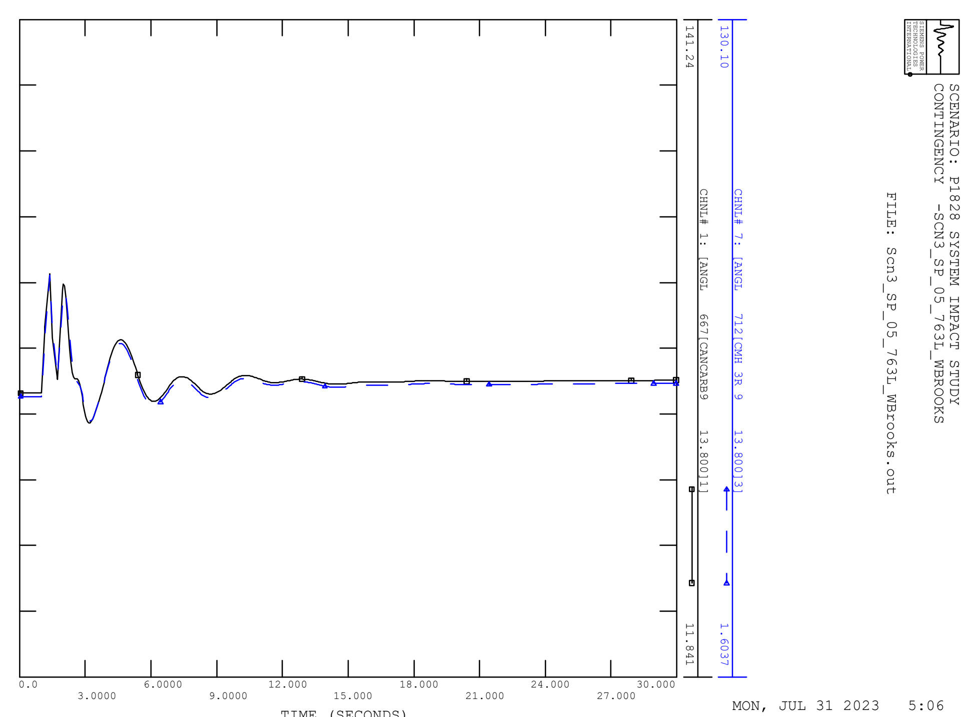
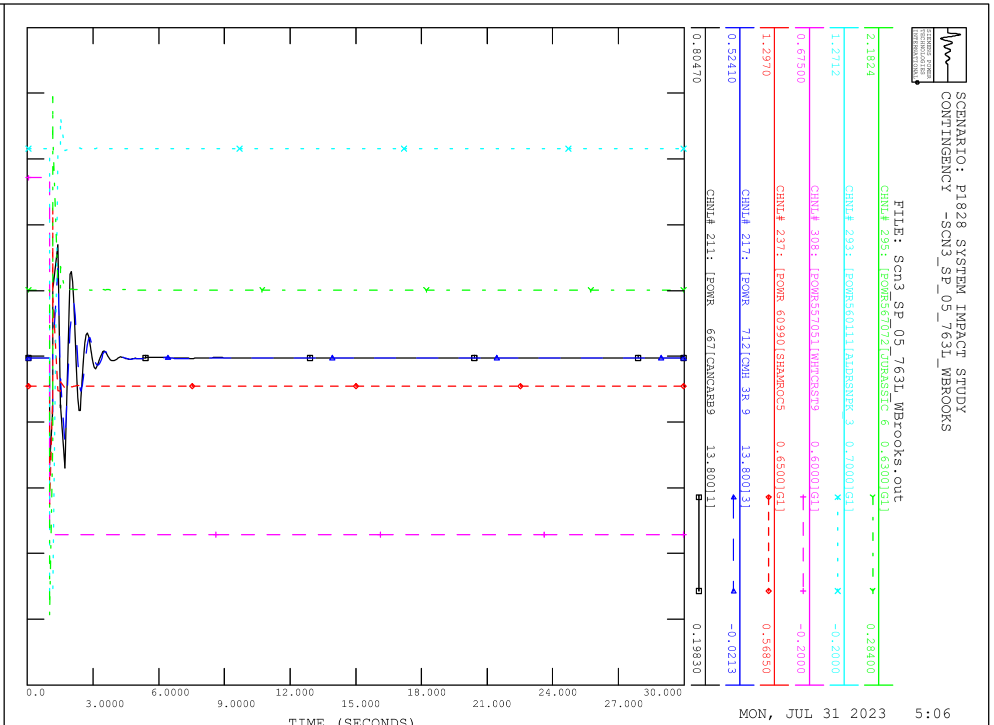
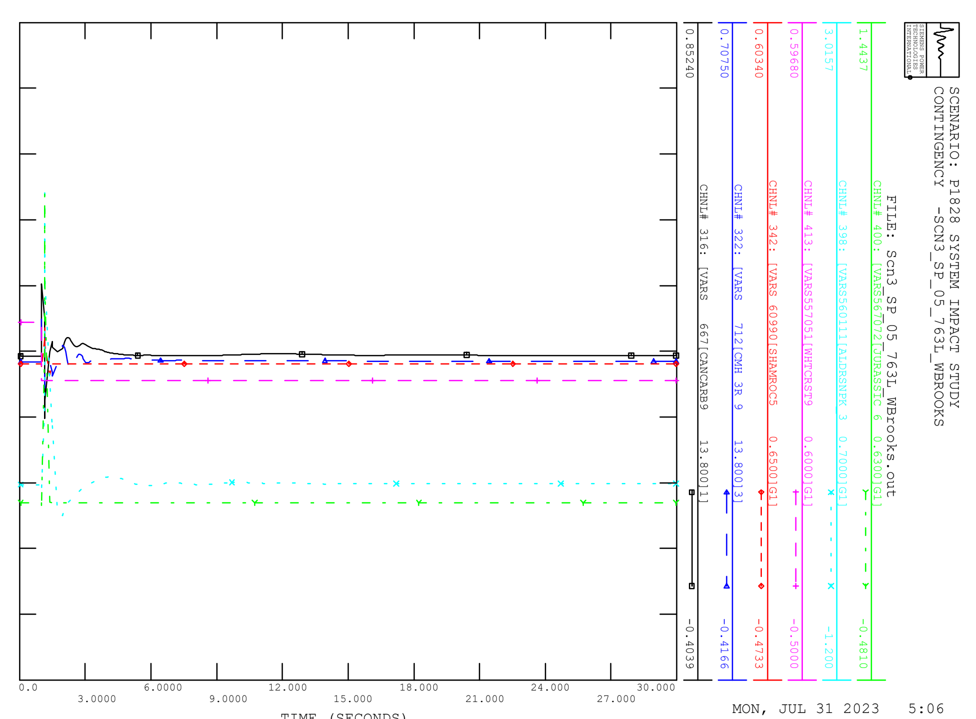


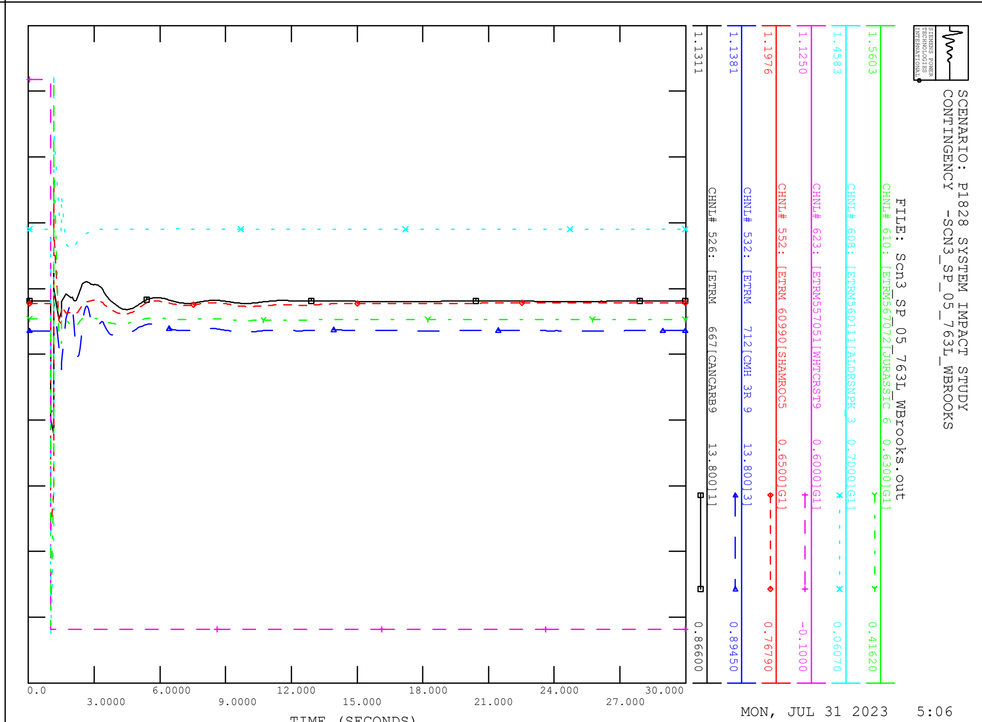
ROTOR ANGLE



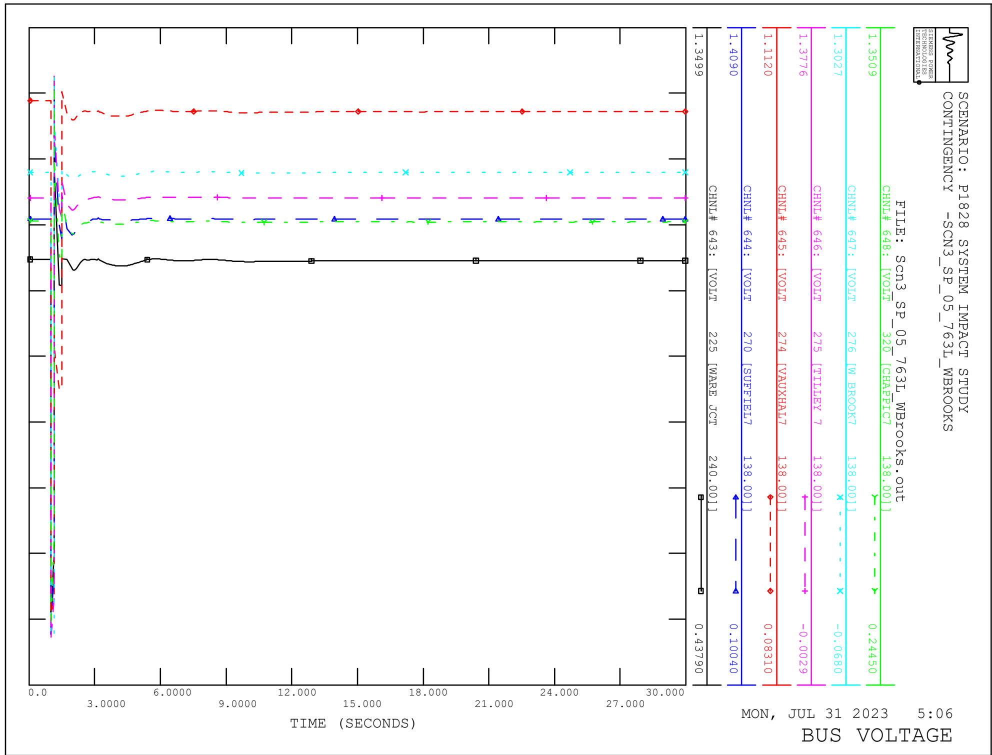
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE



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1.4090
0.10040
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
1.1120
0.08310
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
1.3776
-0.0029
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
1.3027
-0.0680
CHNL# 647: [VOLT 276 [N BROOK7 138.00]]
1.3509
0.24450
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]]
FILE: Scn3_SP_05_763L_WBrooks.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_05_763L_WBROOKS
0.0
3.0000
6.0000
9.0000
12.000
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21.000
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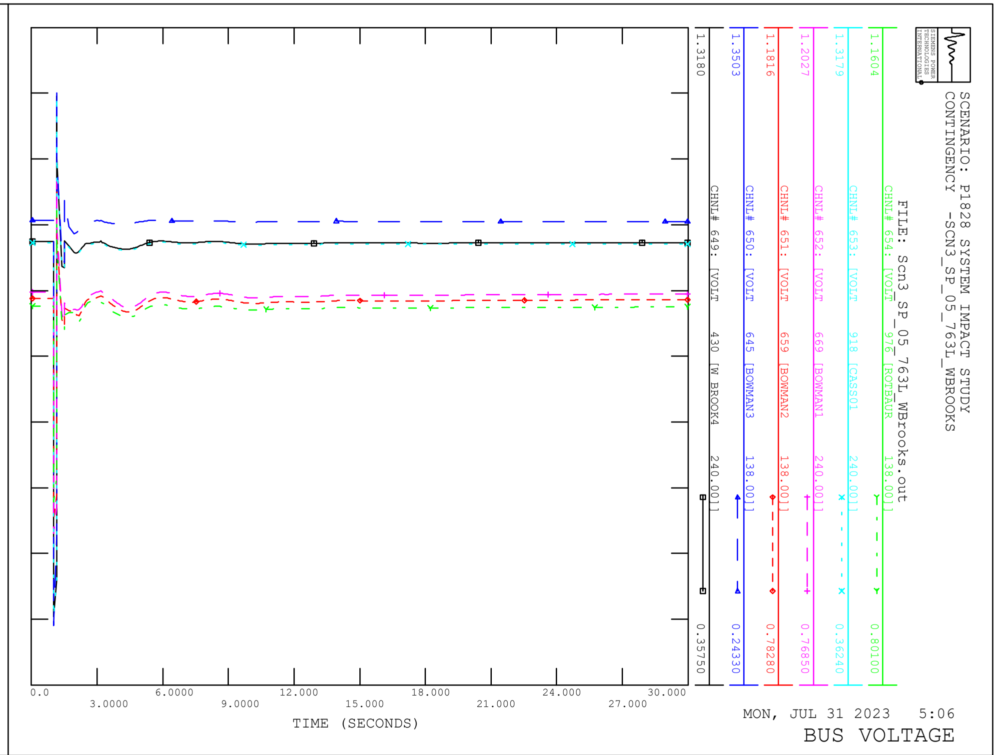
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 649: [VOLT 430 [N BROOK4 240.00]]
1.3503
0.24330
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
1.1816
0.78280
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
1.2027
0.76850
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
1.3179
0.36240
CHNL# 653: [VOLT 918 [CASSO1 240.00]]
1.1604
0.80100
CHNL# 654: [VOLT 976 [ROTHSAY 138.00]]
FILE: Scn3_SP_05_763L_WBrooks.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_05_763L_WBROOKS
0.0
3.0000
6.0000
9.0000
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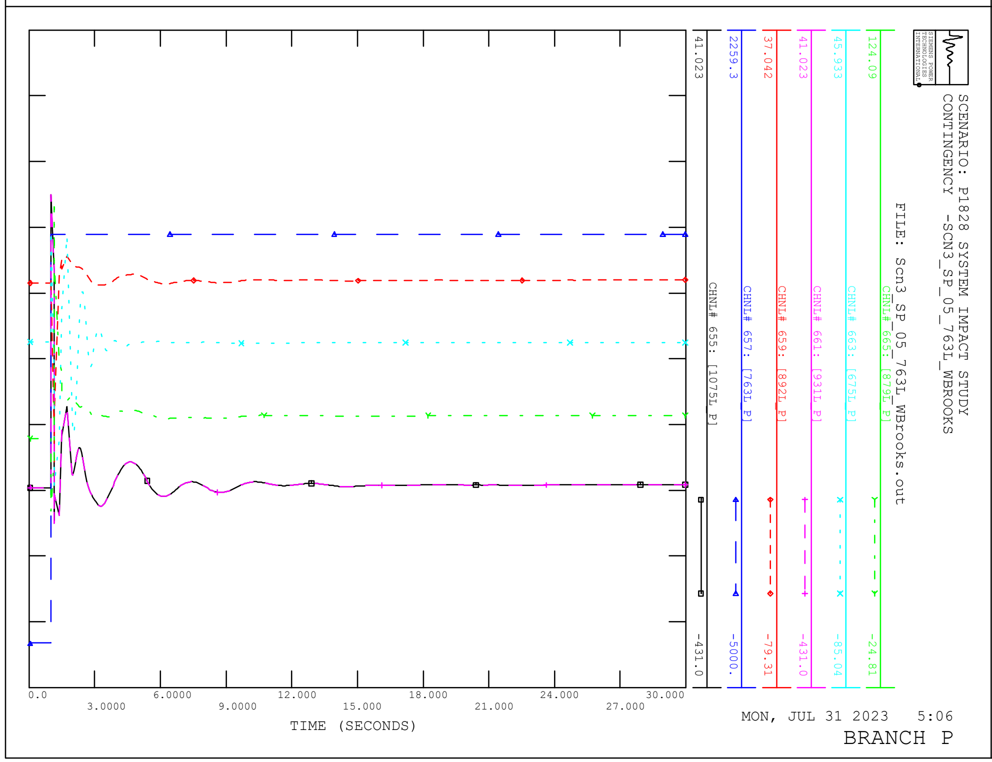
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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-431.0
CHNL# 655: [1075L P]
2259.3
-5000.
CHNL# 657: [763L P]
37.042
-79.31
CHNL# 659: [892L P]
41.023
-431.0
CHNL# 661: [931L P]
45.933
-85.04
CHNL# 663: [675L P]
124.09
-24.81
CHNL# 665: [879L P]
FILE: Scn3_SP_05_763L_WBrooks.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_05_763L_WBROOKS
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6.0000
9.0000
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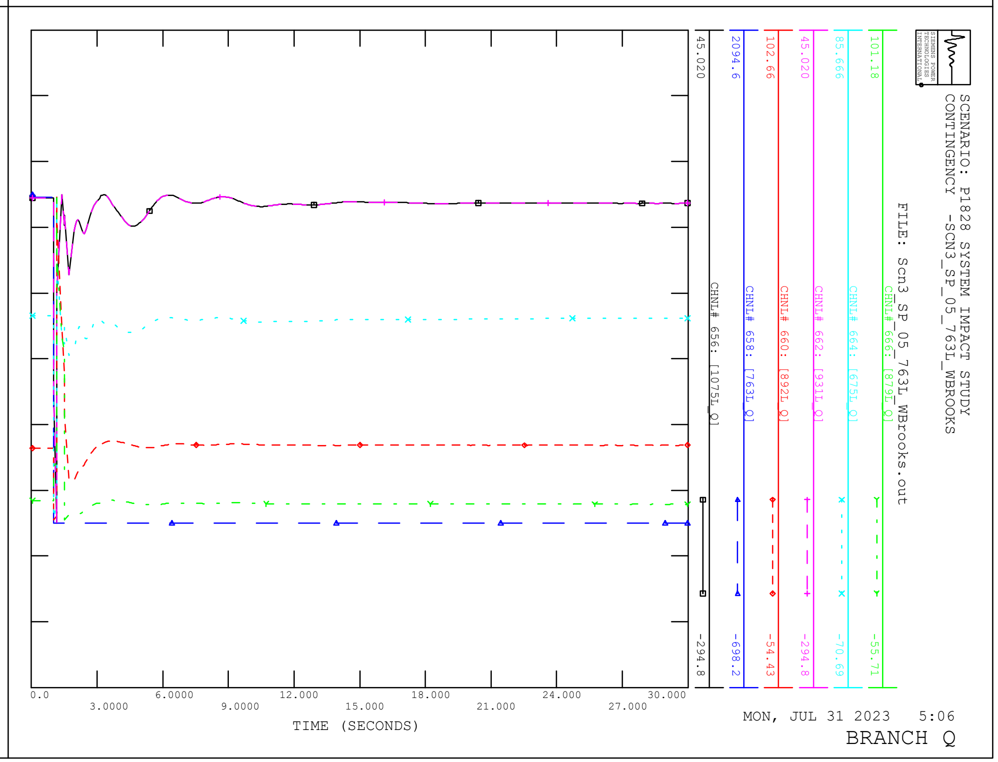
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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-294.8
CHNL# 656: [1075L Q]
2094.6
-698.2
CHNL# 658: [763L Q]
102.66
-54.43
CHNL# 660: [892L Q]
45.020
-294.8
CHNL# 662: [931L Q]
85.666
-70.69
CHNL# 664: [675L Q]
101.18
-55.71
CHNL# 666: [879L Q]
FILE: Scn3_SP_05_763L_WBrooks.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_05_763L_WBROOKS
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6.0000
9.0000
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MON, JUL 31 2023 5:06
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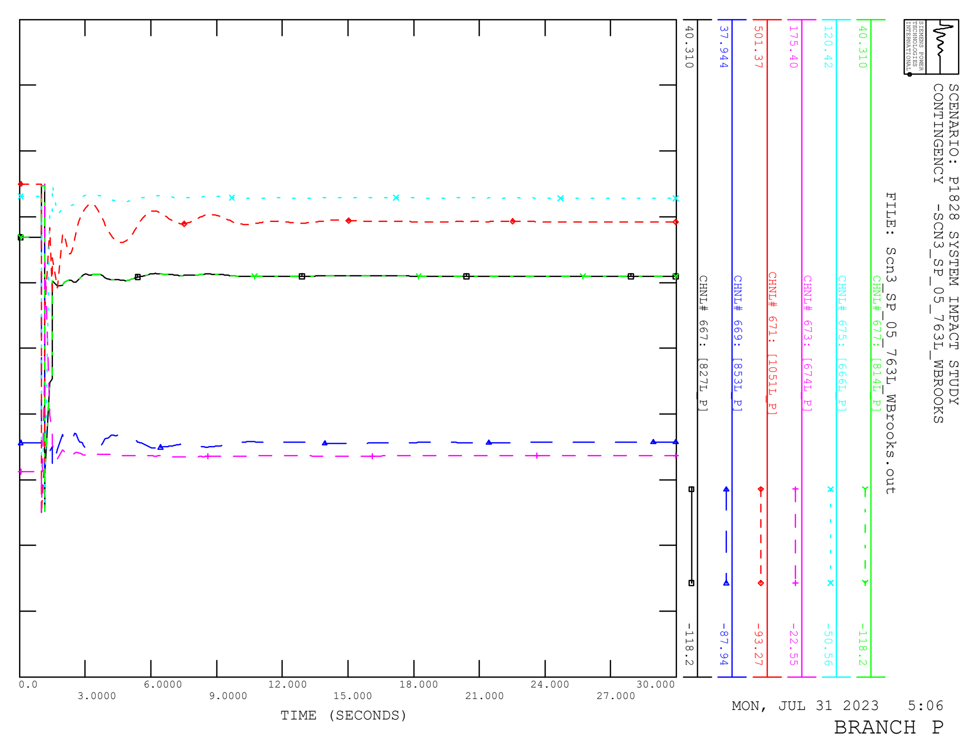
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CHNL# 669: [853L_P] 37.944 -87.94
CHNL# 671: [1051L_P] 501.37 -93.27
CHNL# 673: [674L_P] 175.40 -22.55
CHNL# 675: [666L_P] 120.42 -50.56
CHNL# 677: [814L_P] 40.310 -118.2
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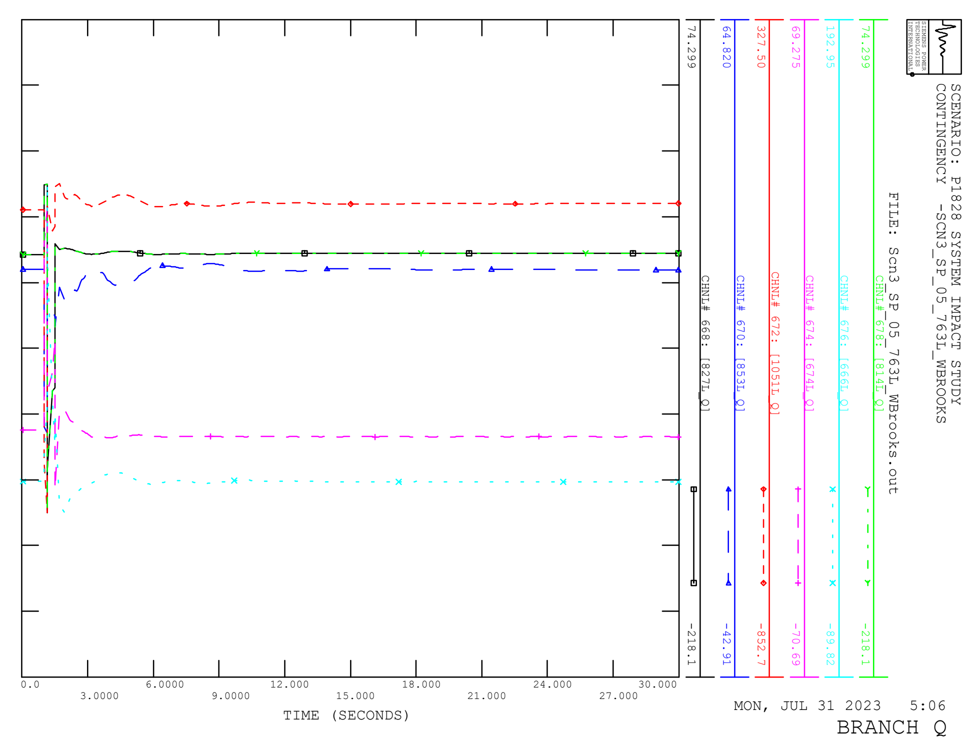
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 64.820 -42.91
CHNL# 672: [1051L_Q] 327.50 -852.7
CHNL# 674: [674L_Q] 69.275 -70.69
CHNL# 676: [666L_Q] 192.95 -89.82
CHNL# 678: [814L_Q] 74.299 -218.1
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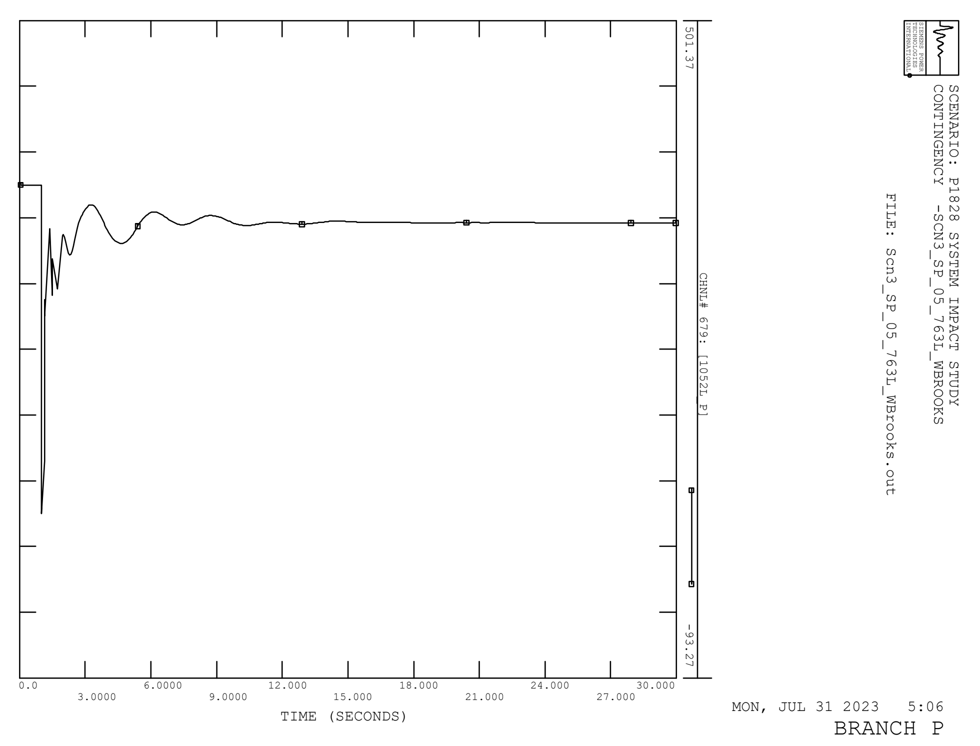
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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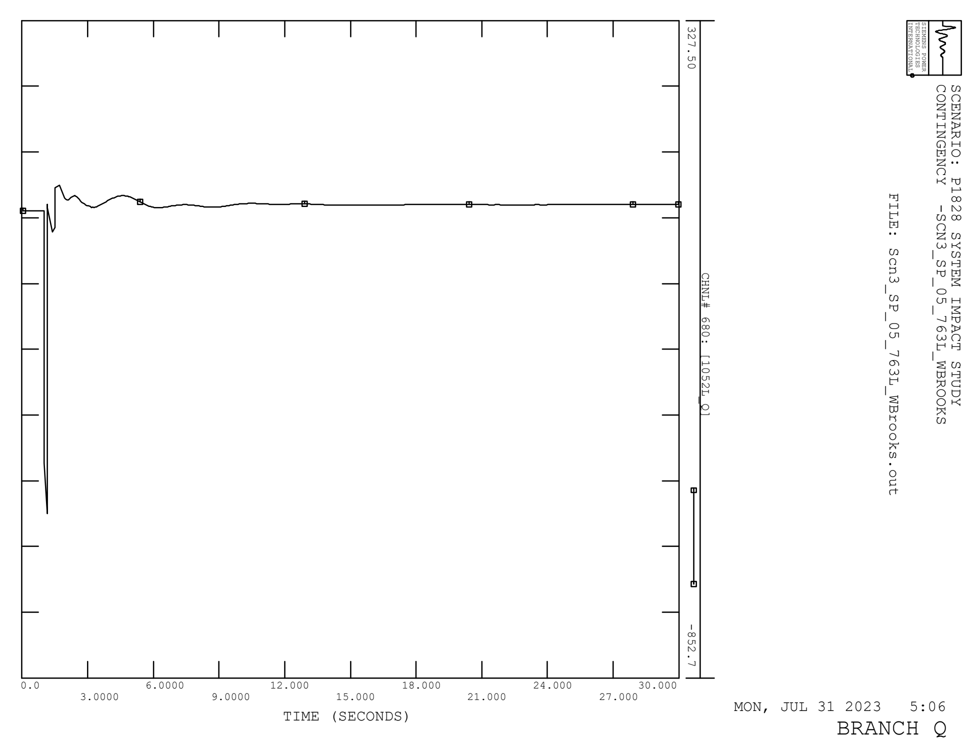
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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FILE: Scn3_SP_05_763L_WBrooks.out
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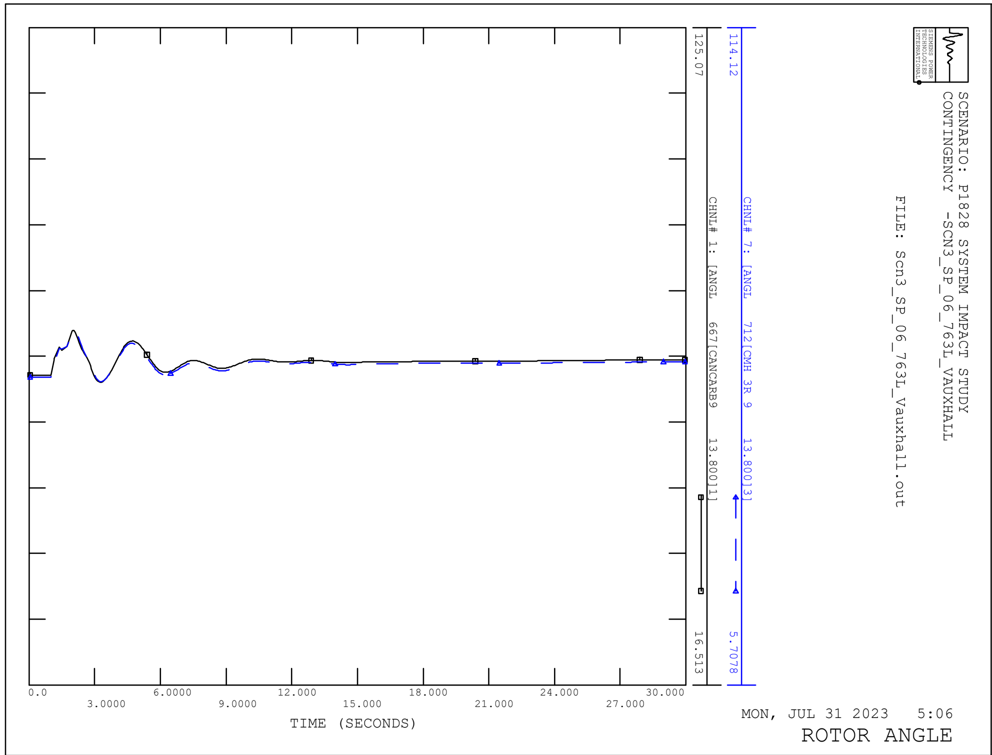
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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114.12 CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3] 5.7078
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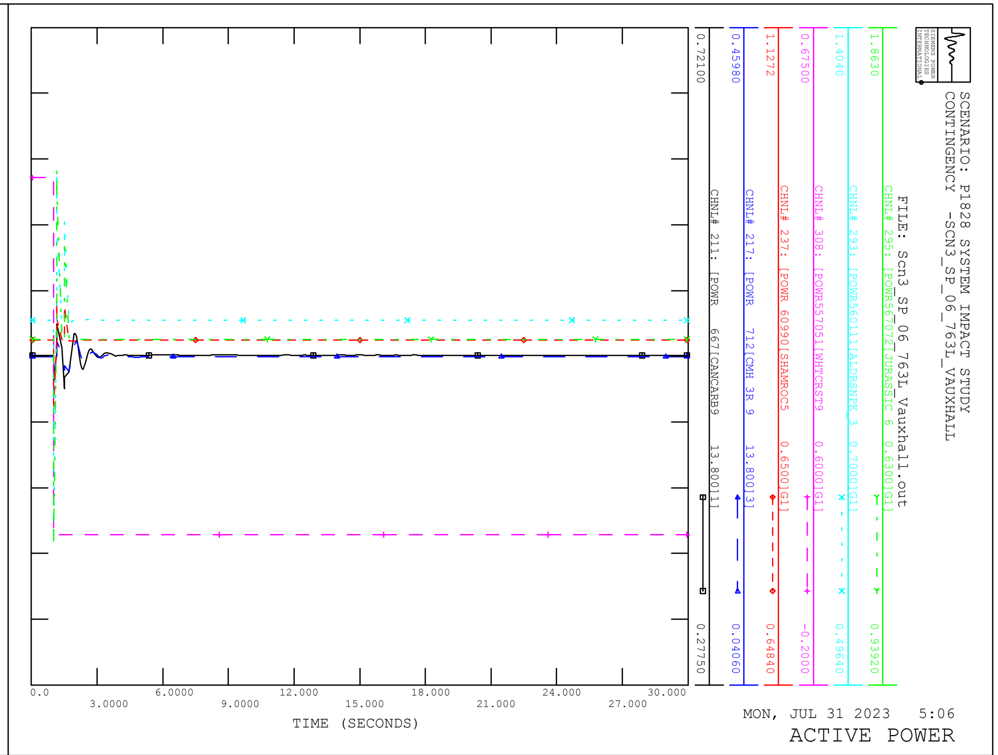
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.45980 CHNL# 217: [POWR 712[CMH 3R 9 13.800]3] 0.04060
1.1272 CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 0.64840
0.67500 CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] -0.2000
1.4040 CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1] 0.49640
1.8630 CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1] 0.93920
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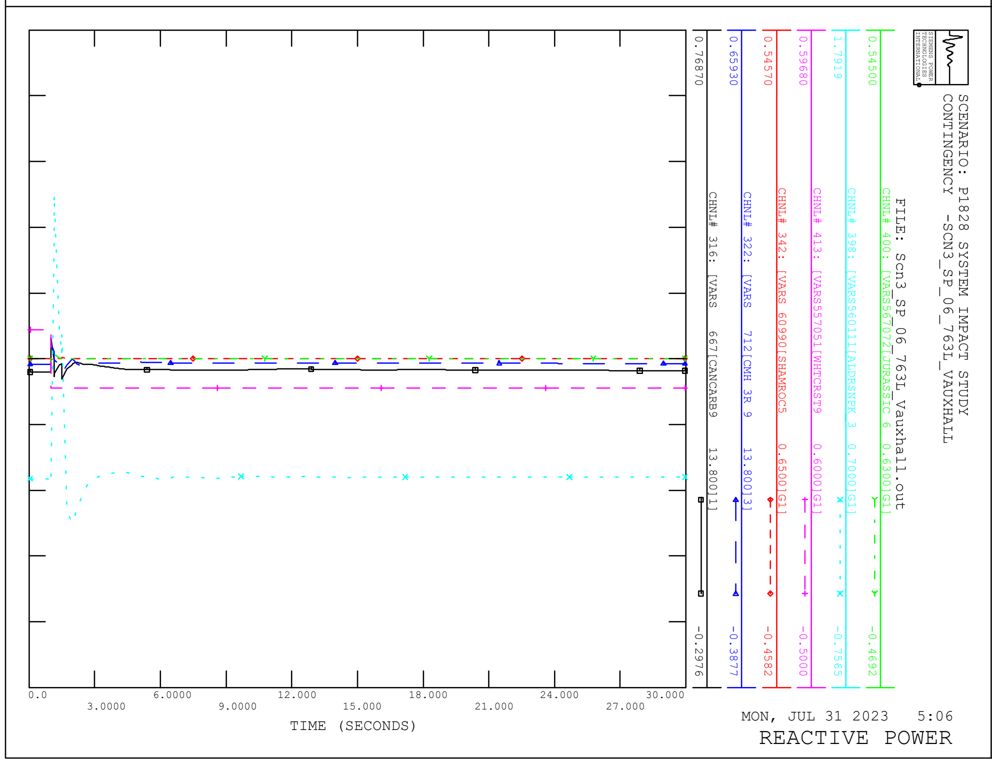
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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0.54570 CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] -0.4582
0.59680 CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] -0.5000
1.1919 CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1] -0.7565
0.54500 CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1] -0.4692
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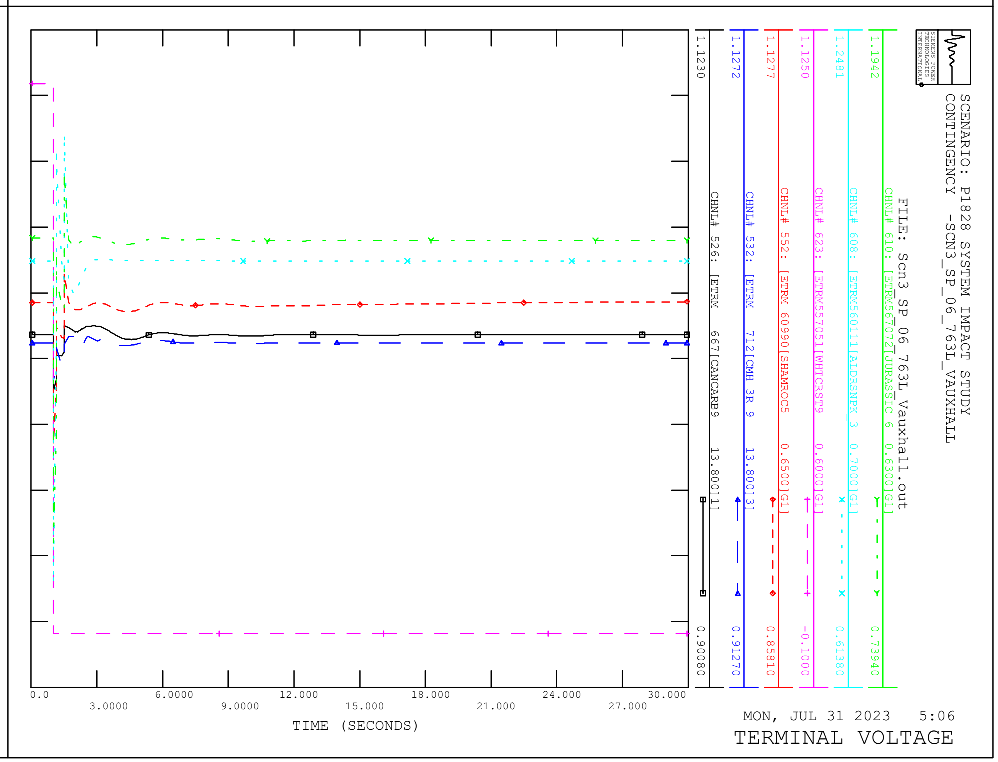
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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1.1272 CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3] 0.91270
1.1277 CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1] 0.85810
1.1250 CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] -0.1000
1.2481 CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1] 0.61380
1.1942 CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1] 0.73940
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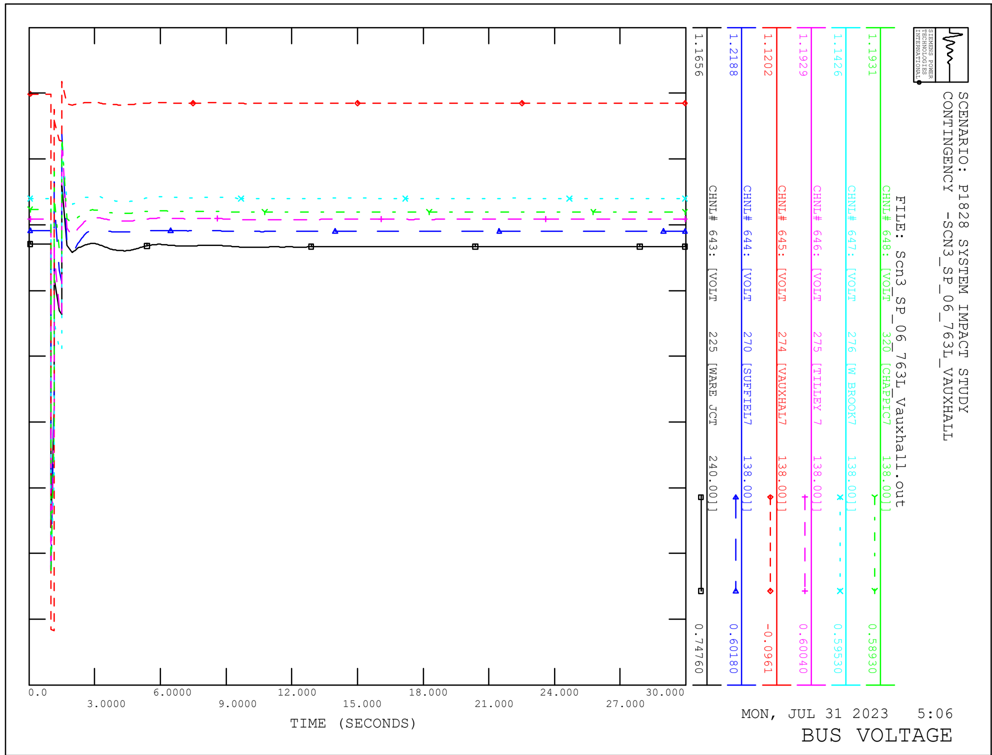
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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FILE: Scn3_SP_06_763L_Vauxhall.out
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.2188 0.60180
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1202 -0.0961
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.1929 0.60040
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.1426 0.59530
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]] 1.1931 0.58930
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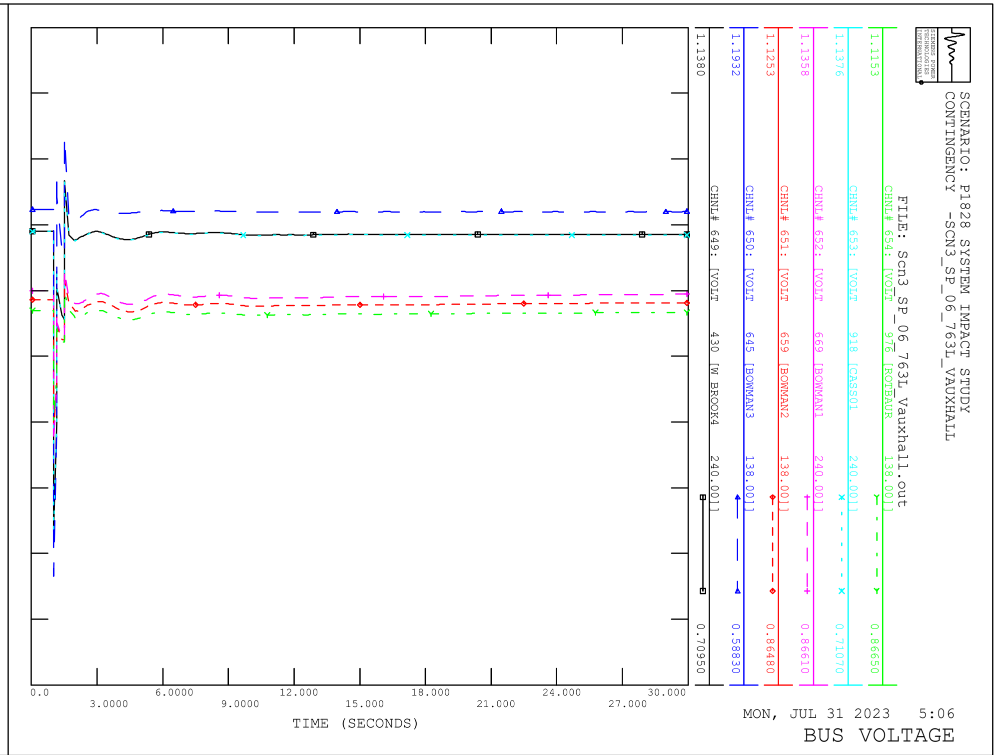
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_06_763L_VAUXHALL
FILE: Scn3_SP_06_763L_Vauxhall.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1932 0.58830
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1253 0.86480
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1358 0.86610
CHNL# 653: [VOLT 918 [CASSOI 240.00]] 1.1376 0.71070
CHNL# 654: [VOLT 976 [ROTHBUR 138.00]] 1.1153 0.86650
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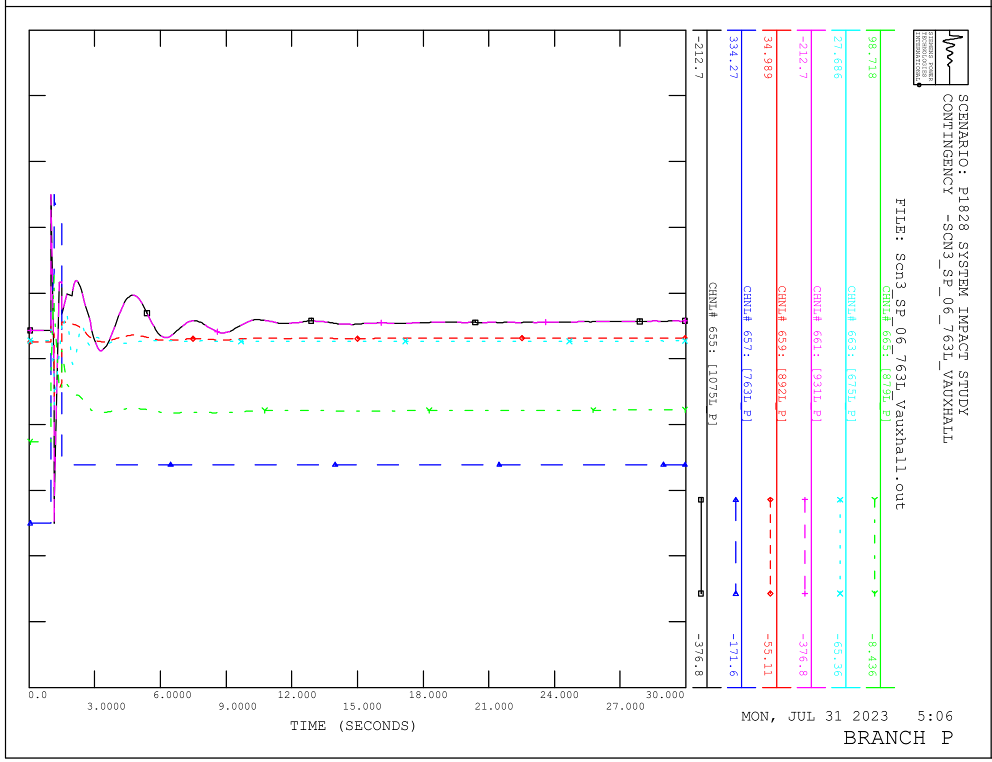
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN3_SP_06_763L_VAUXHALL
FILE: Scn3_SP_06_763L_Vauxhall.out
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CHNL# 657: [763L P] 334.27 -171.6
CHNL# 659: [892L P] 34.989 -55.11
CHNL# 661: [931L P] -212.7 -376.8
CHNL# 663: [675L P] 27.686 -65.36
CHNL# 665: [879L P] 98.718 -8.436
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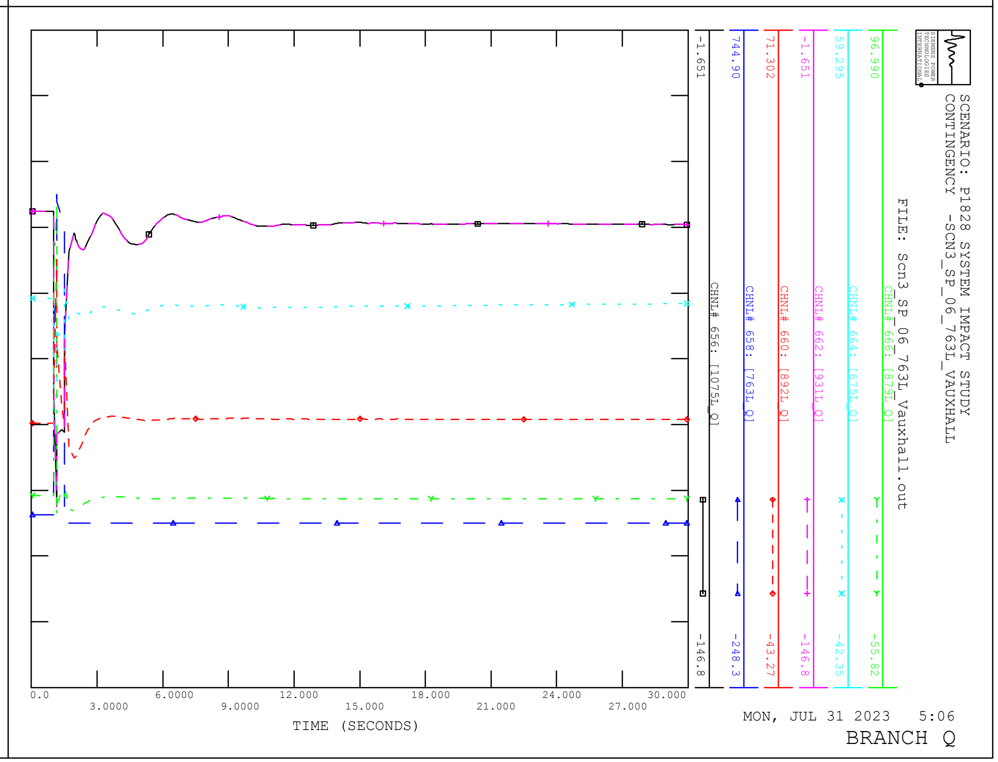
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q] 744.90 -248.3
CHNL# 660: [892L Q] 71.302 -43.27
CHNL# 662: [931L Q] -1.651 -146.8
CHNL# 664: [675L Q] 59.295 -42.35
CHNL# 666: [879L Q] 96.990 -55.82
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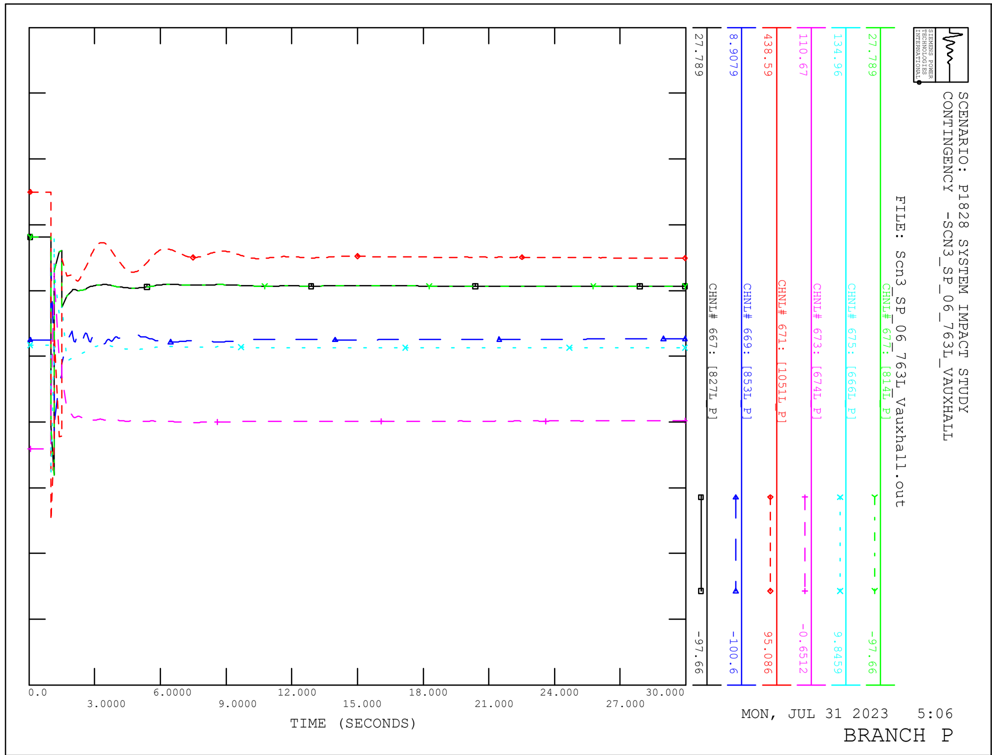
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P] 8.9079 -100.6
CHNL# 671: [1051L_P] 438.59 95.086
CHNL# 673: [674L_P] 110.67 -0.6512
CHNL# 675: [666L_P] 134.96 9.8459
CHNL# 677: [814L_P] 27.789 -97.66
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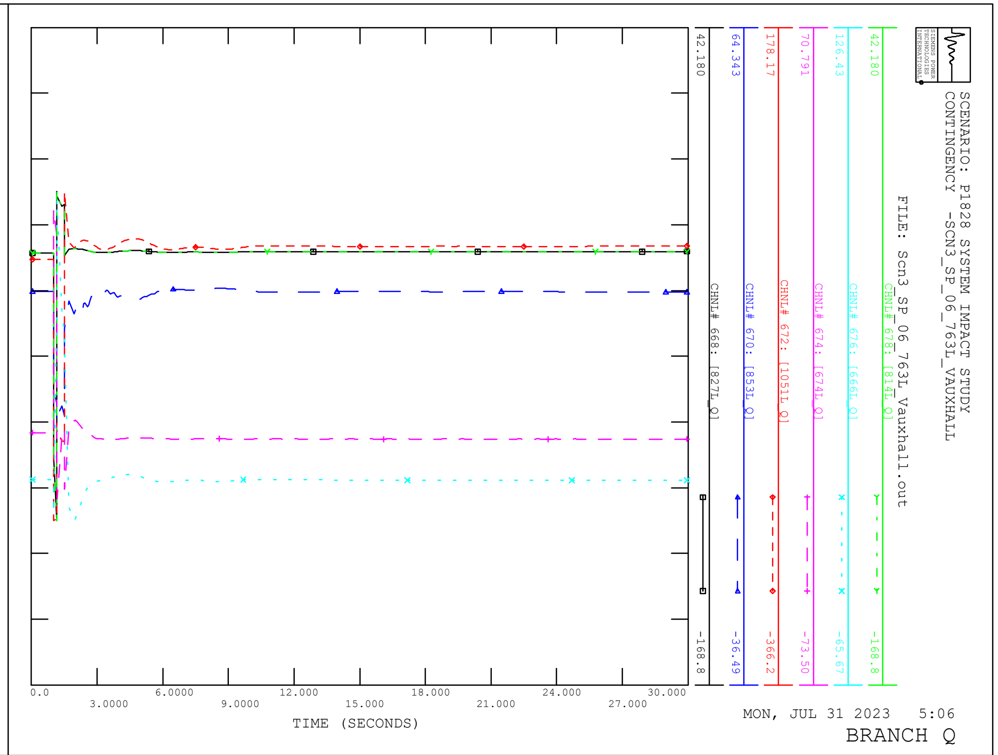
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 672: [1051L_Q] 178.17 -366.2
CHNL# 674: [674L_Q] 70.791 -73.50
CHNL# 676: [666L_Q] 126.43 -65.67
CHNL# 678: [814L_Q] 42.180 -168.8
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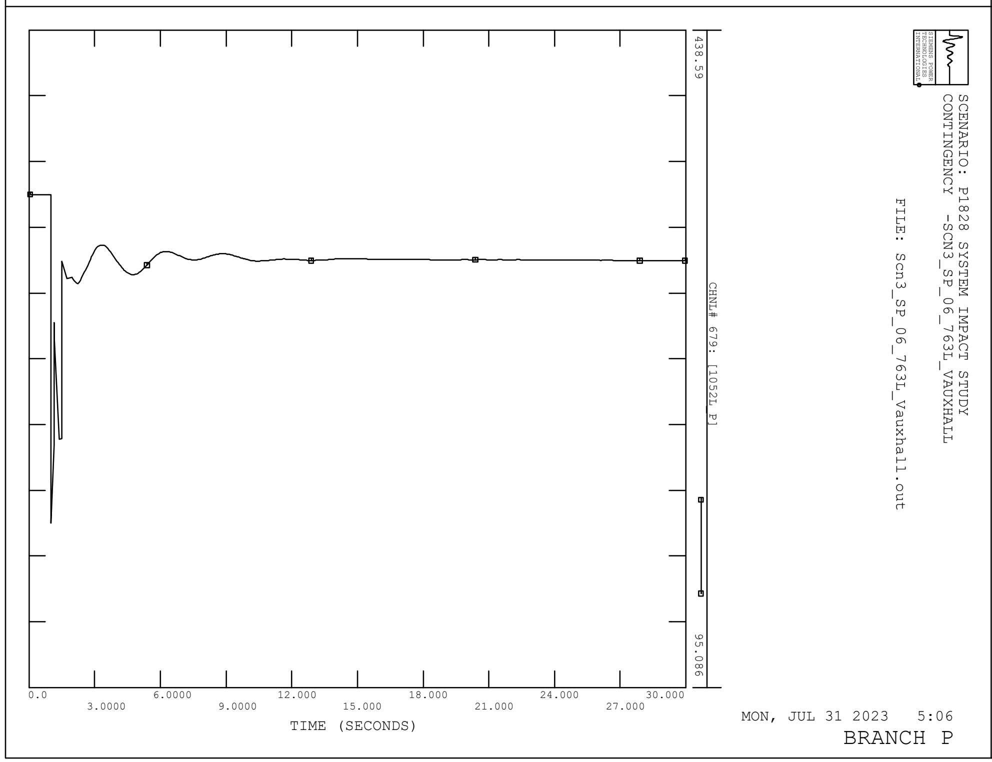
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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FILE: Scn3_SP_06_763L_Vauxhall.out
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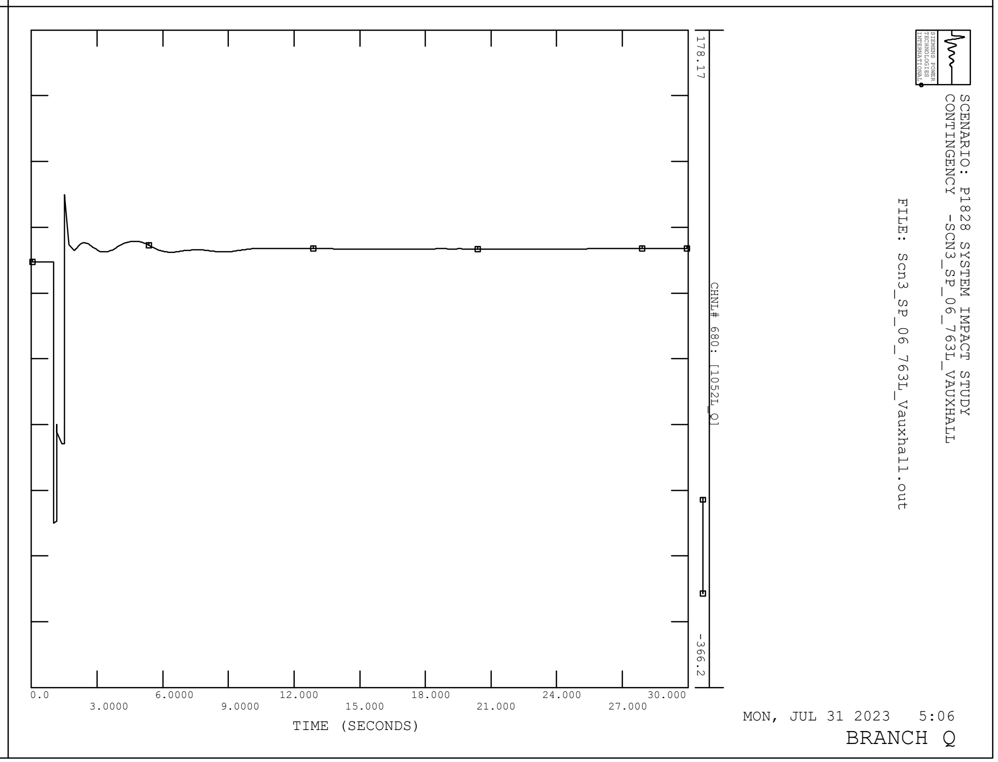
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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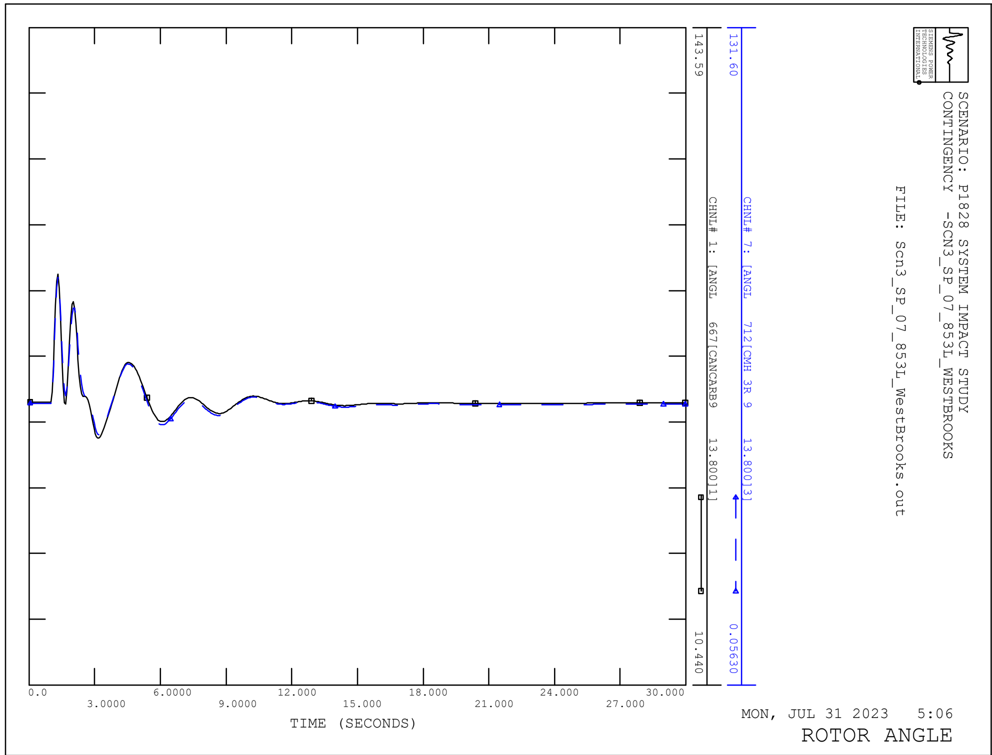
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3] 131.60 0.05630
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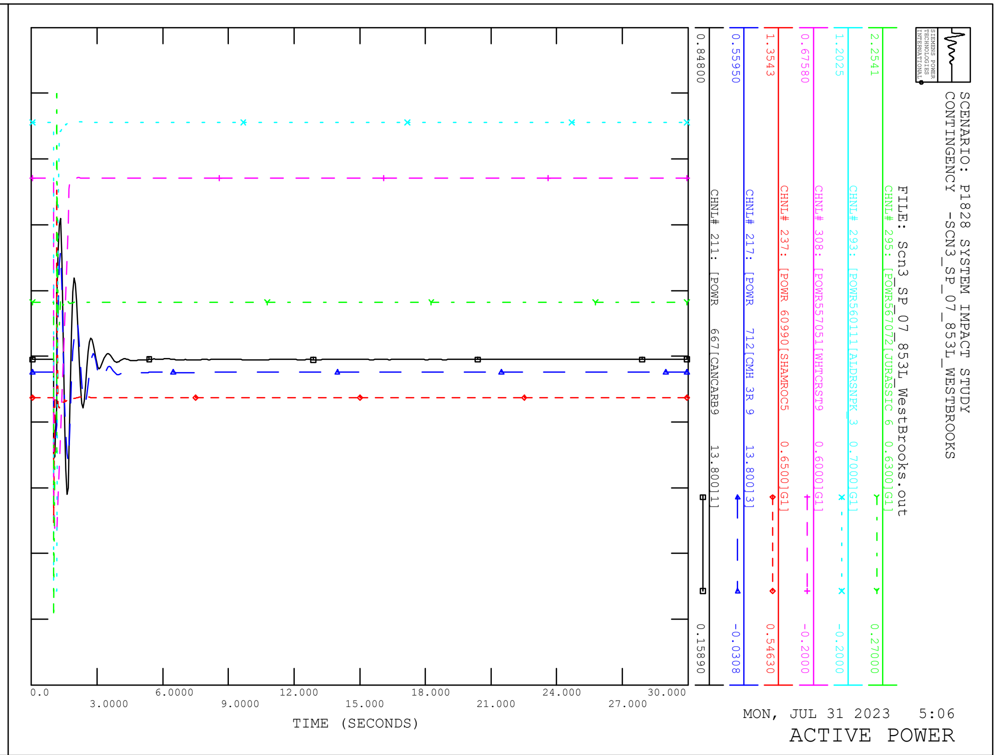
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CONTINGENCY -SCN3_SP_07_853L_WESTBROOKS
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3] 0.55950 -0.0308
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 1.3543 0.54630
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] 0.67580 -0.2000
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1] 1.2025 -0.2000
CHNL# 295: [POWR587072[JURASSIC 6 0.6300]G1] 2.2541 0.27000
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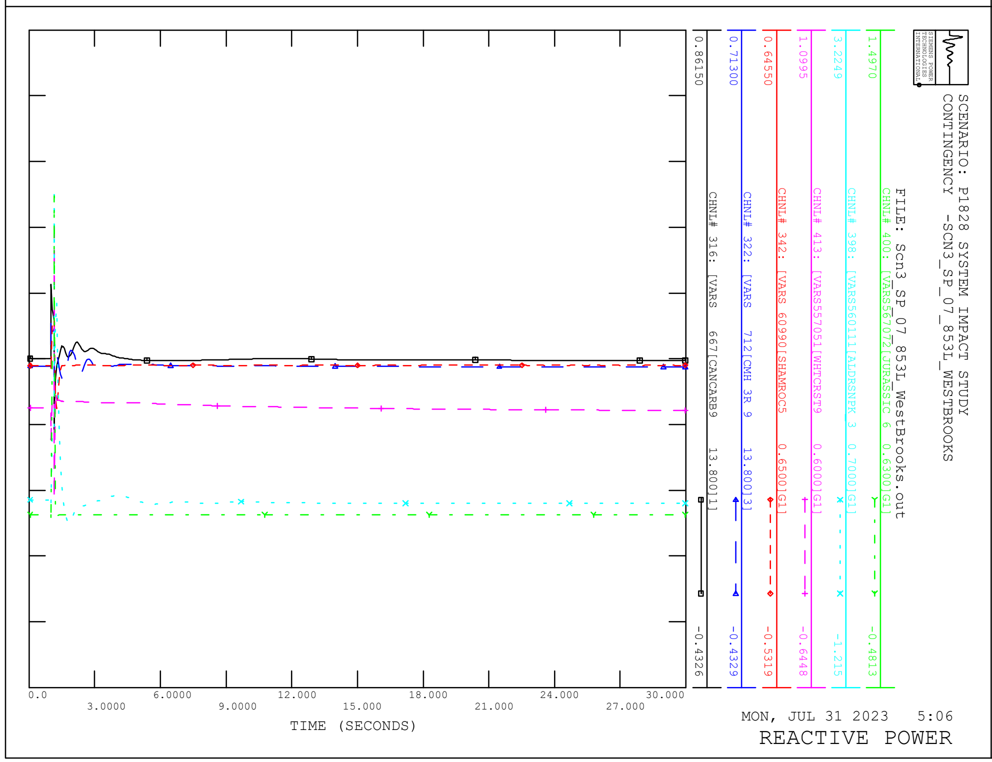
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] 0.64550 -0.5319
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] 1.0995 -0.6448
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1] 3.2249 -1.215
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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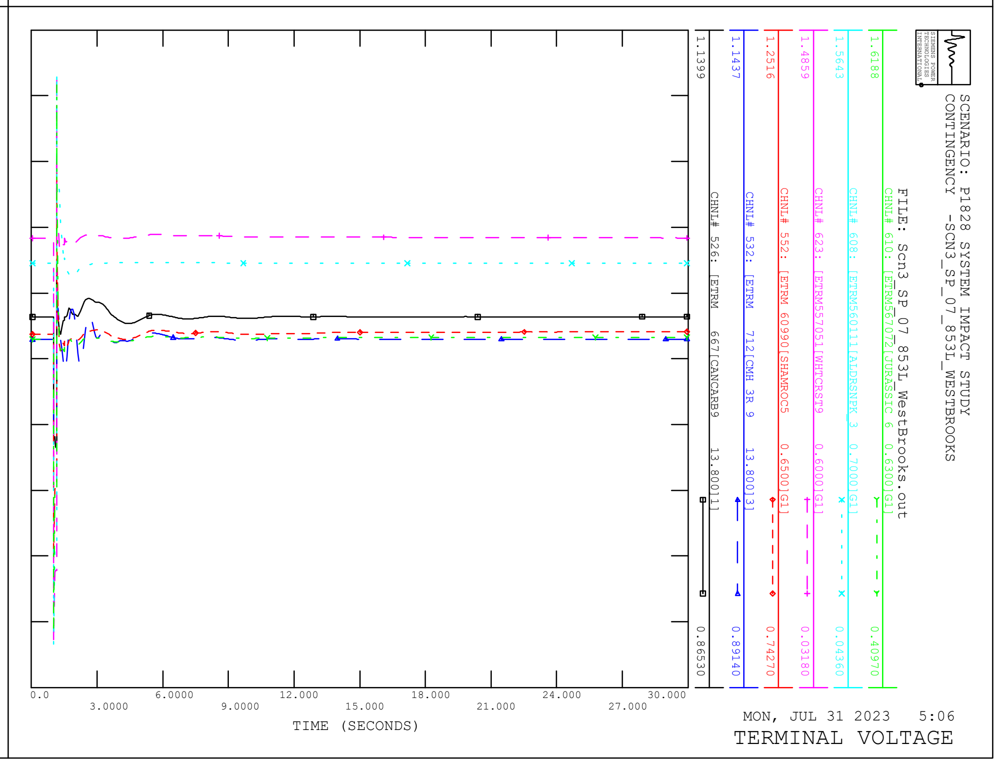
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MON, JUL 31 2023 5:06
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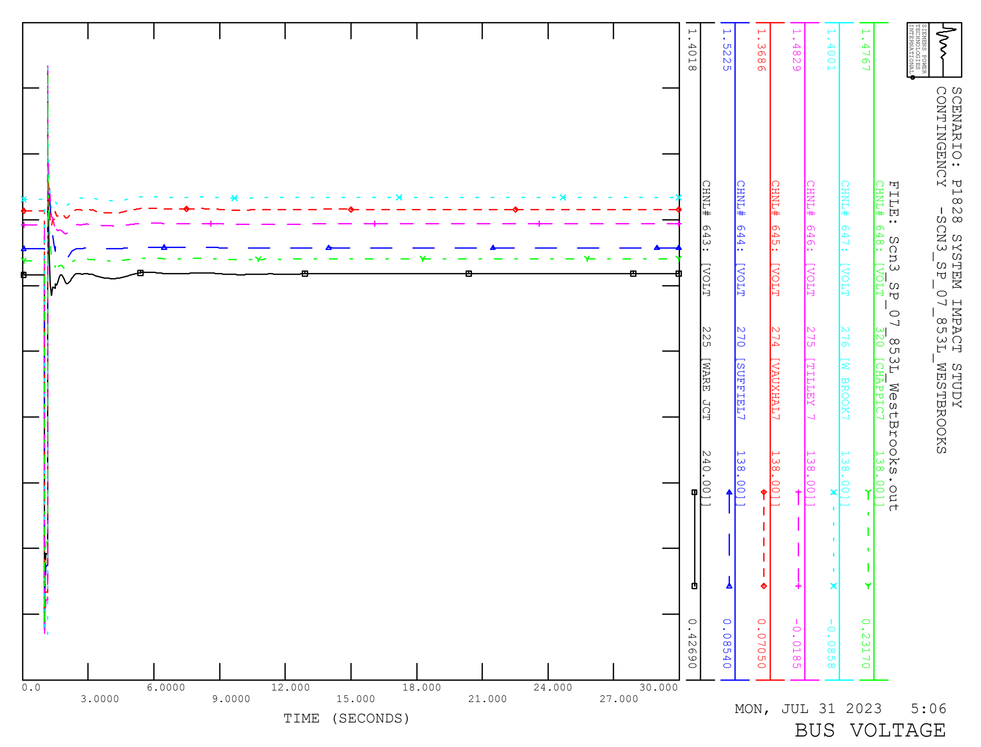
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MON, JUL 31 2023 5:06
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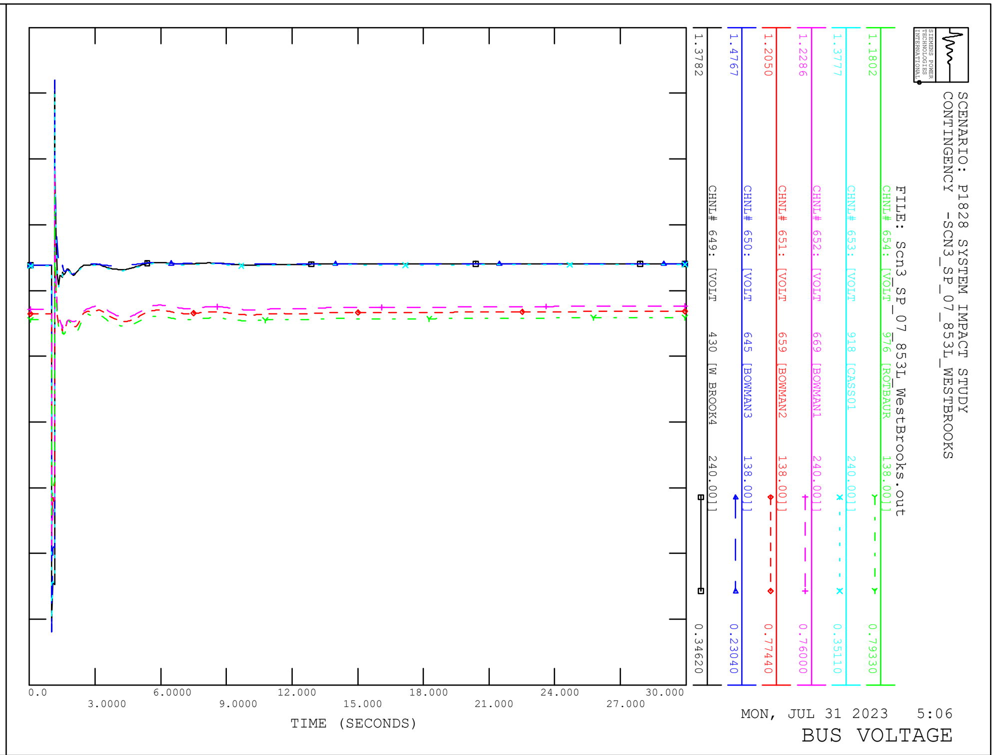
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CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.2050 0.77440
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2286 0.76000
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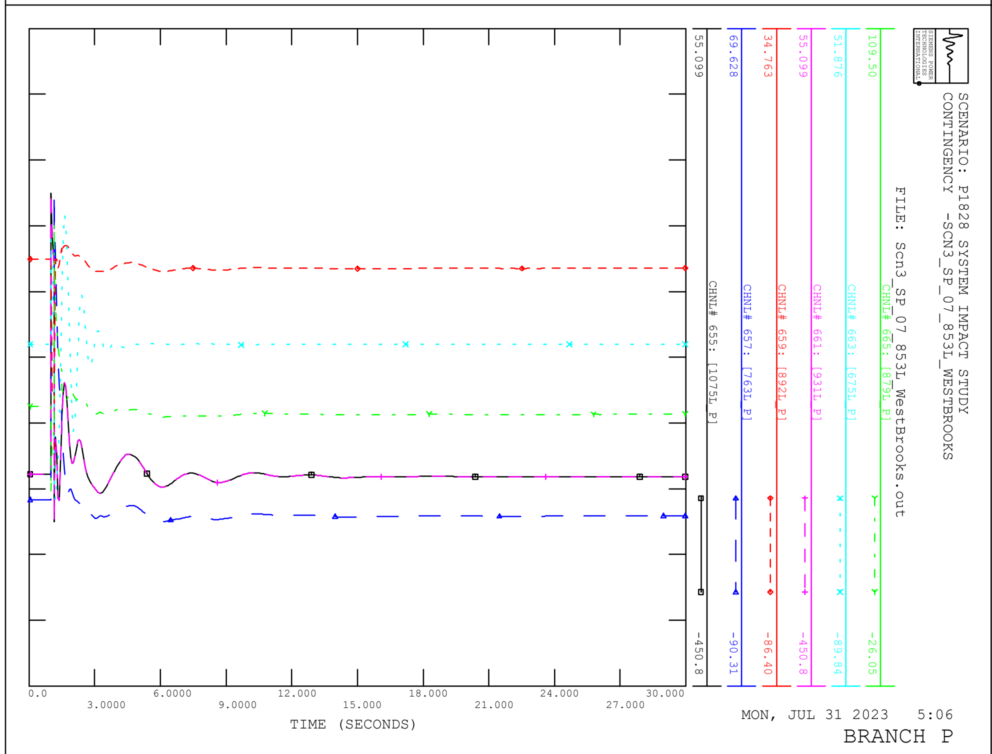
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MON, JUL 31 2023 5:06
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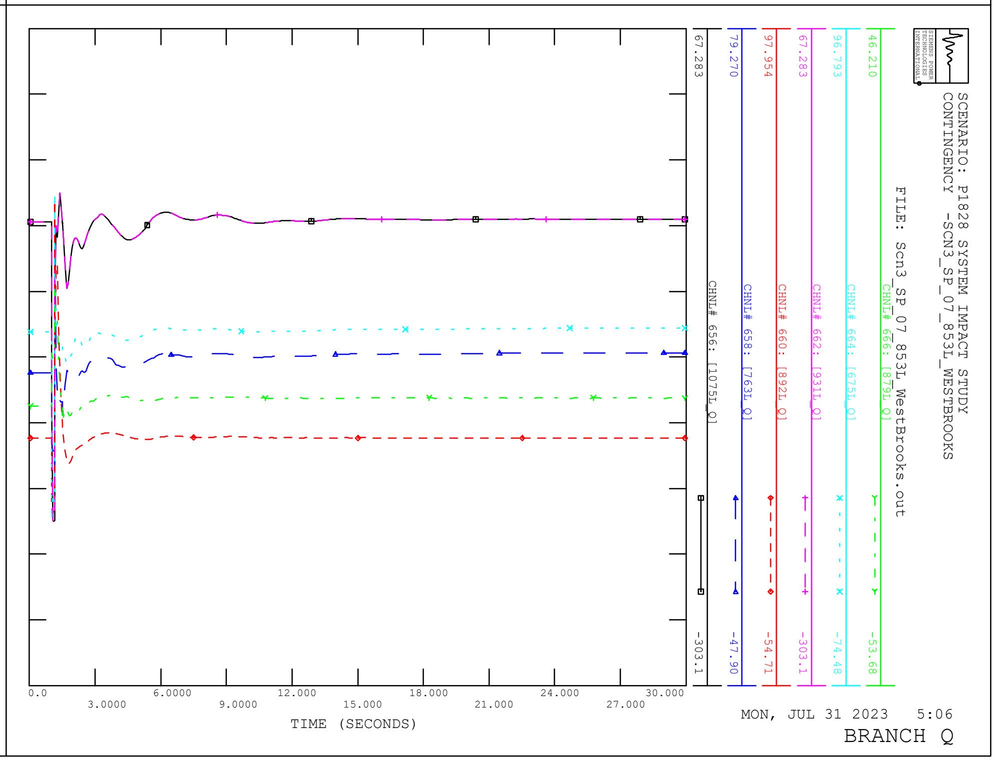
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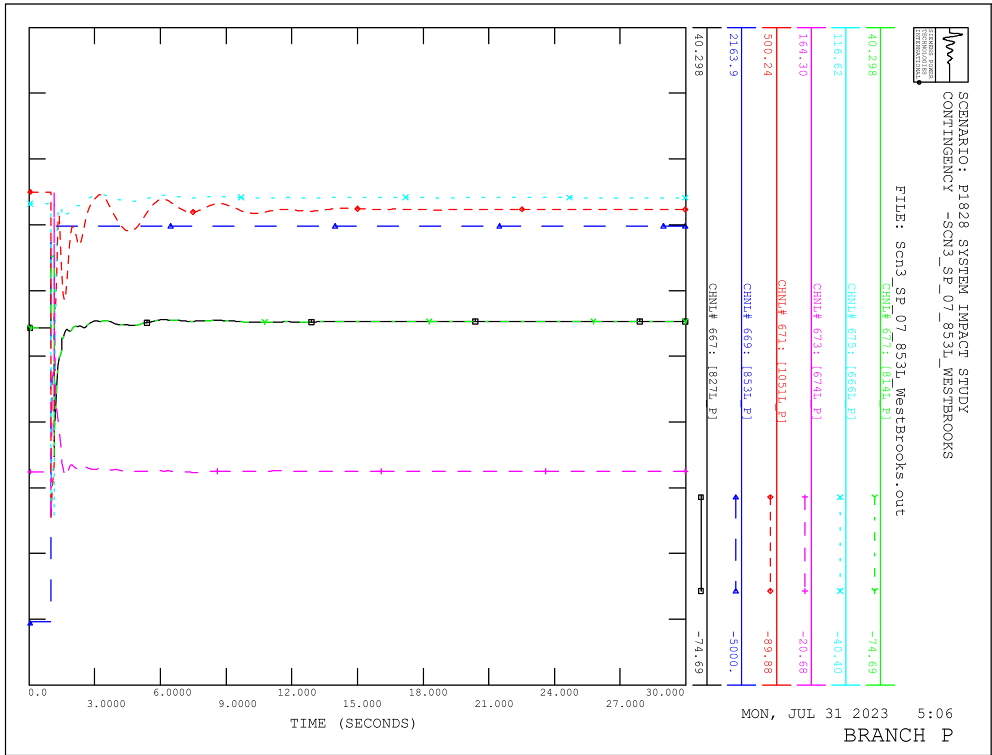
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CHNL# 671: [1051L_P] 500.24 -89.88
CHNL# 673: [674L_P] 164.30 -20.68
CHNL# 675: [666L_P] 116.62 -40.40
CHNL# 677: [878L_P] 40.298 -74.69
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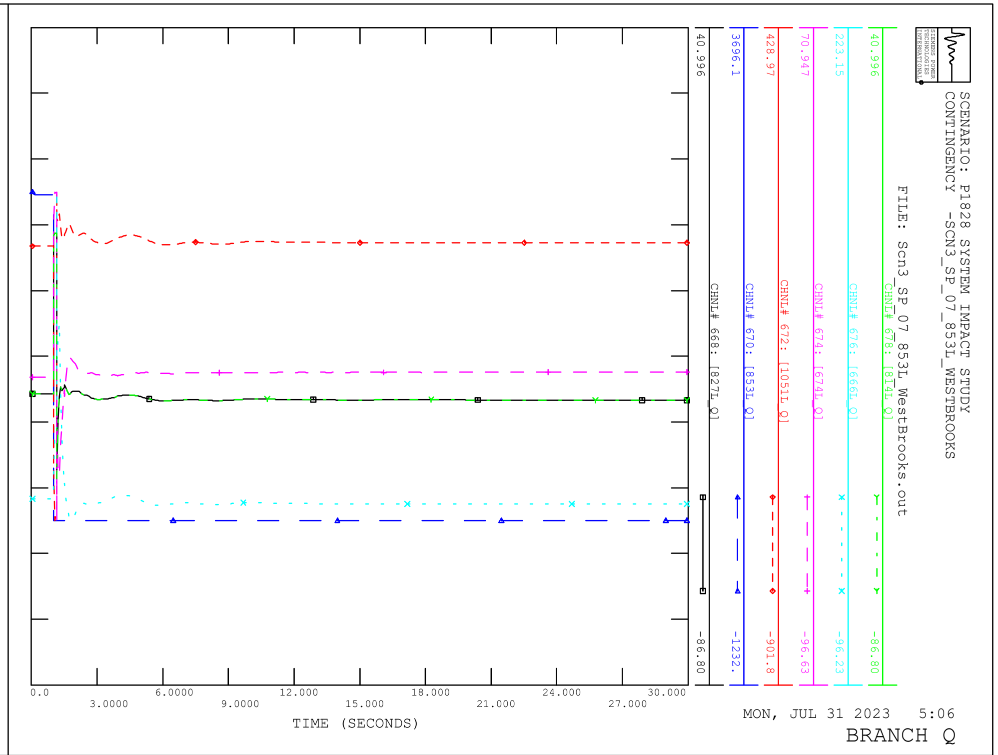
BRANCH P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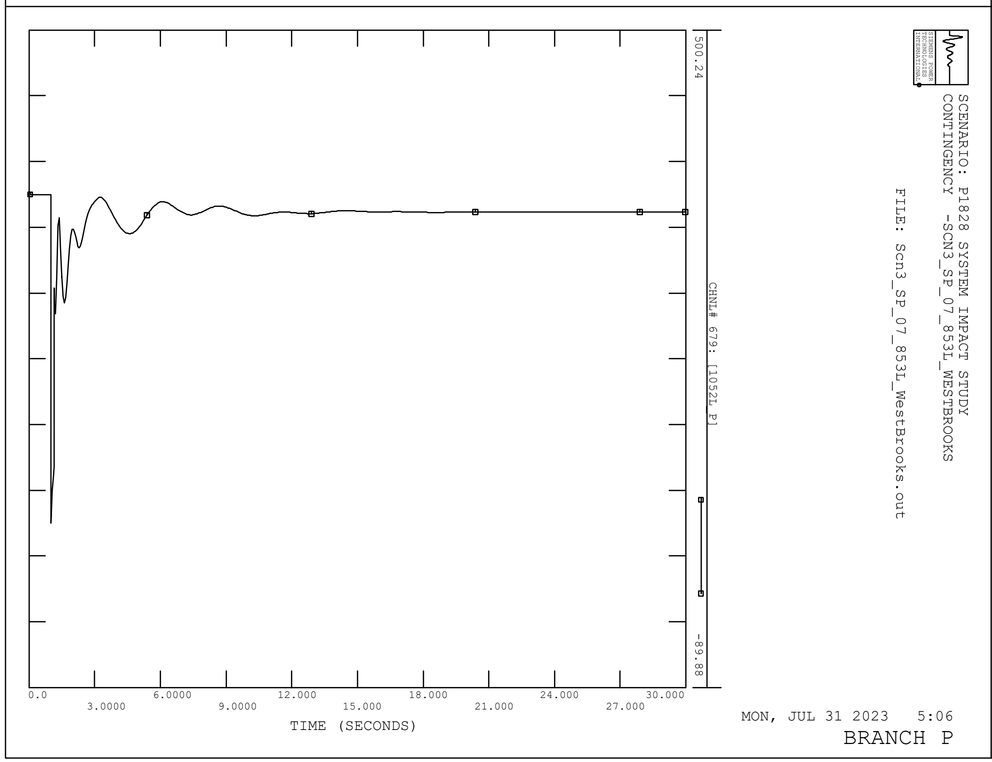
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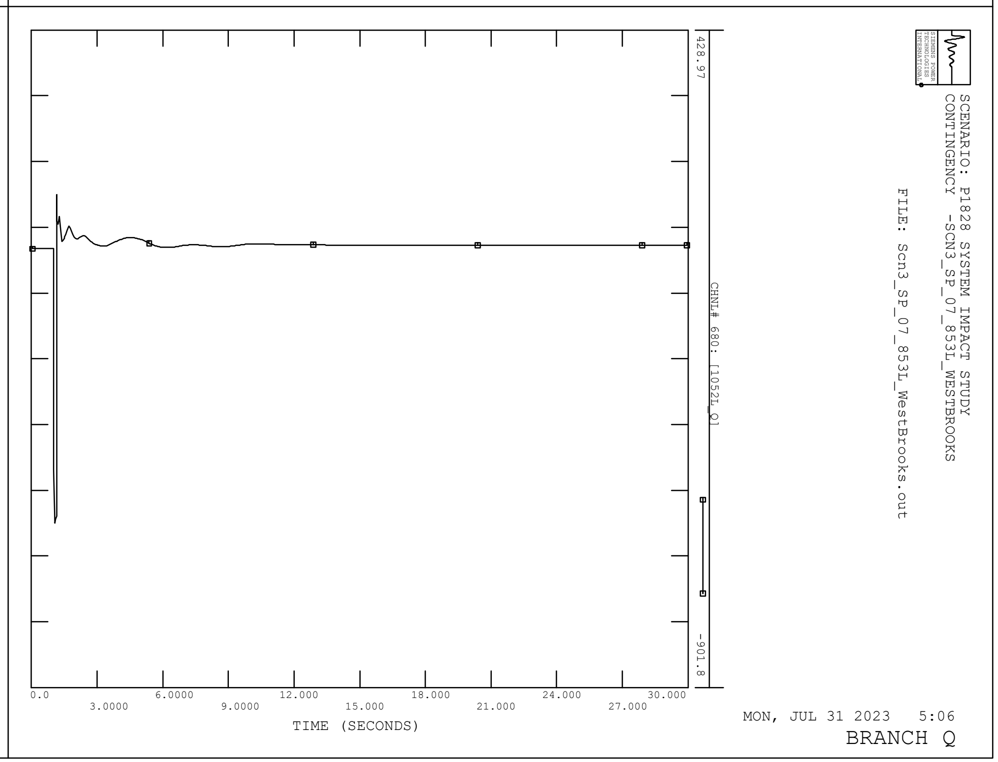
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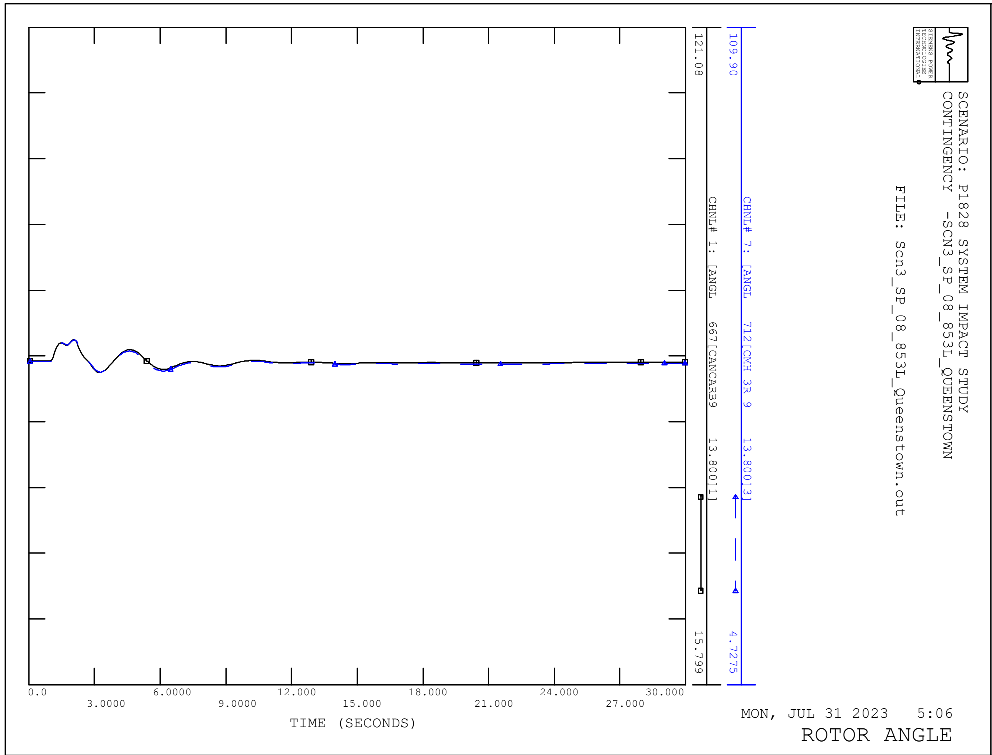
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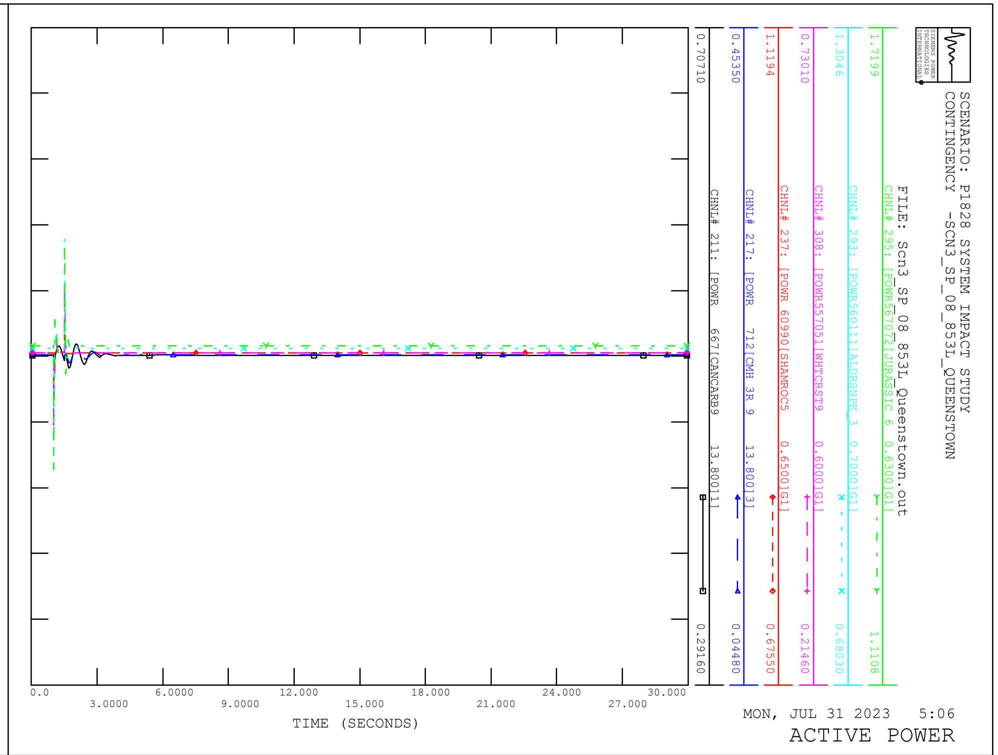
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CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
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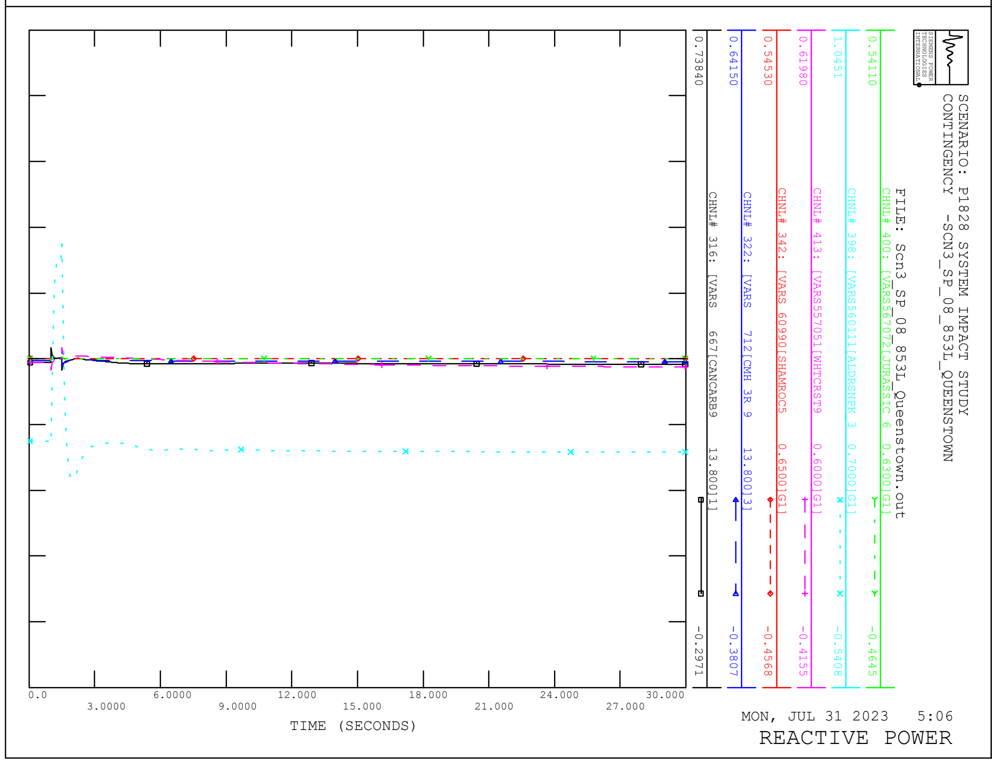
MON, JUL 31 2023 5:06
ACTIVE POWER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CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
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TIME (SECONDS)
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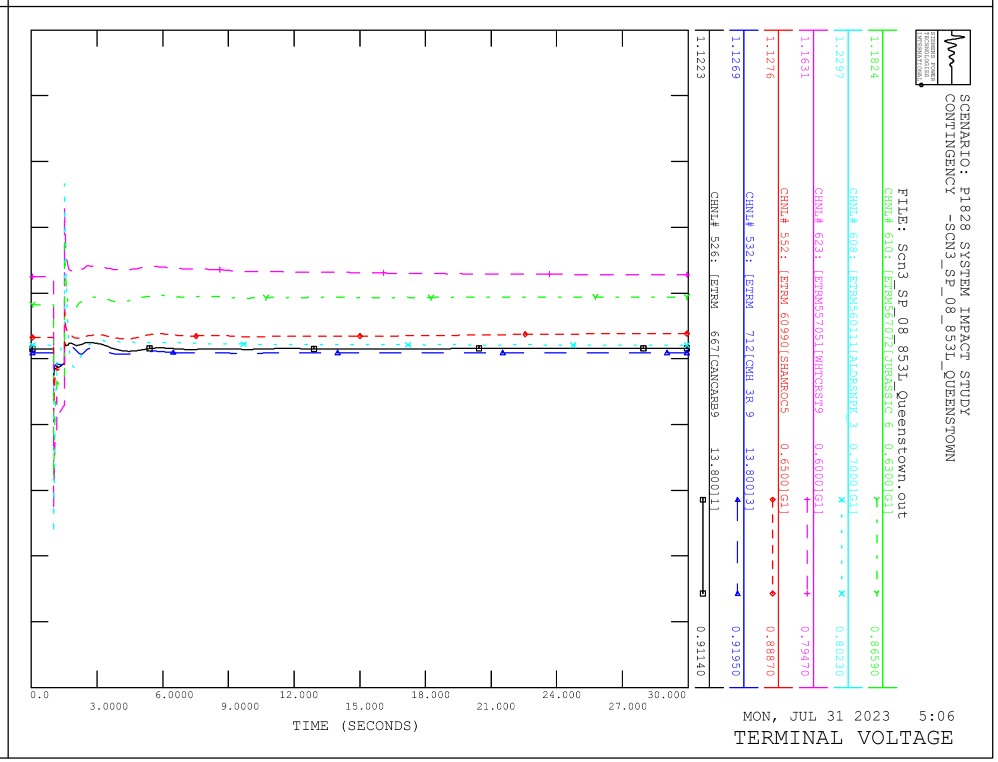
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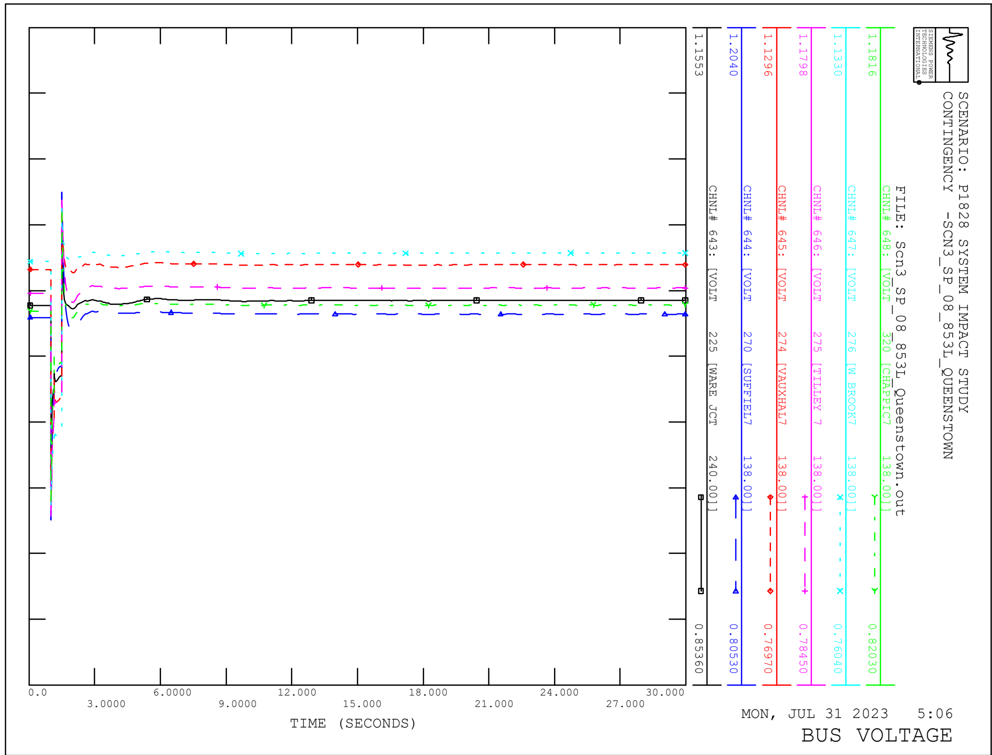

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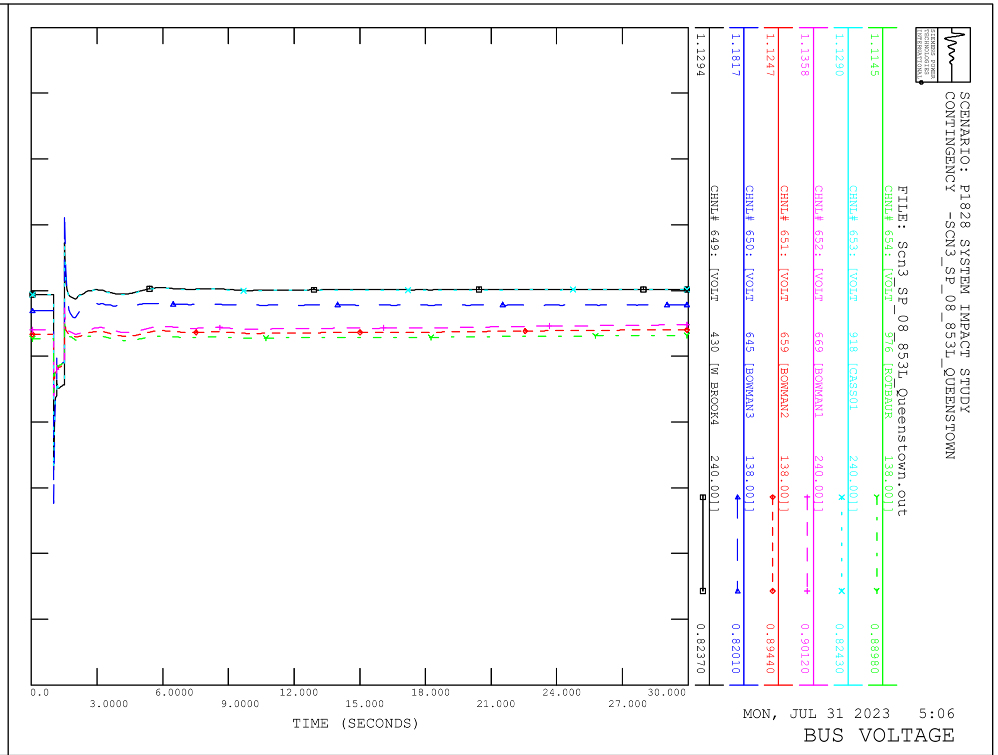
BUS VOLTAGE



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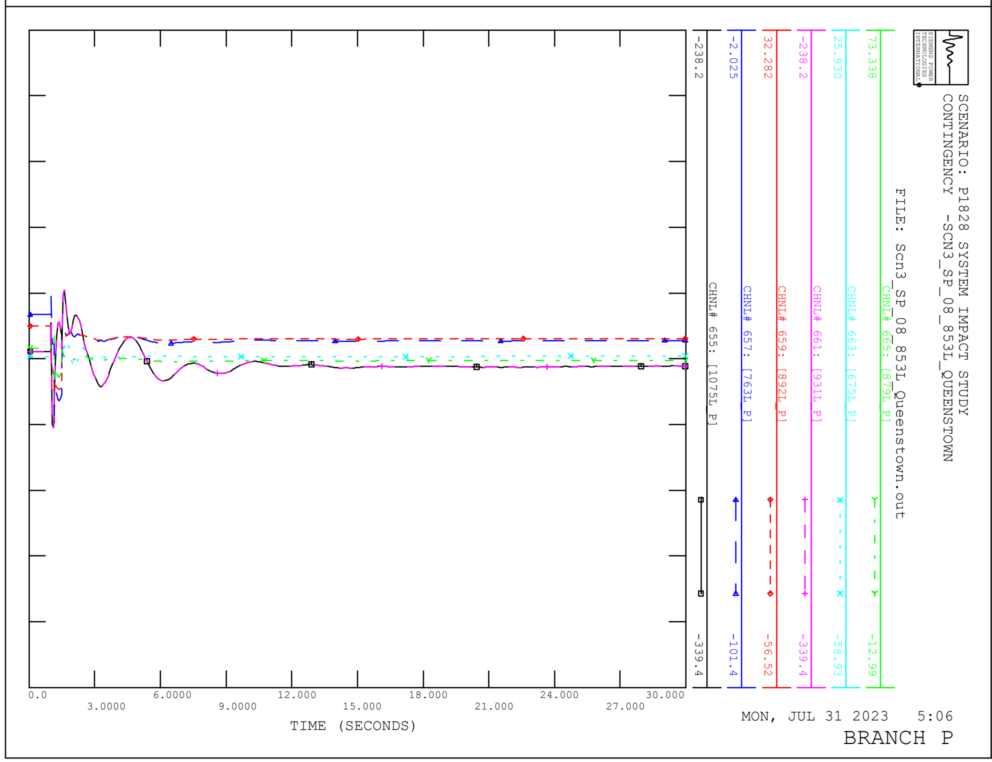

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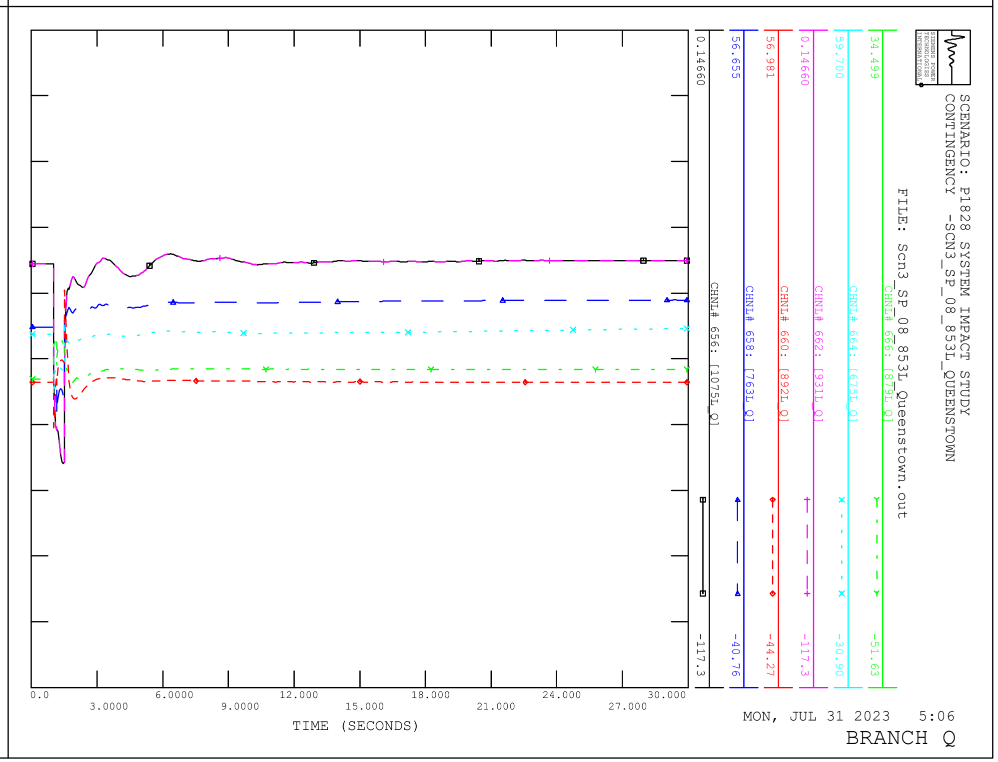

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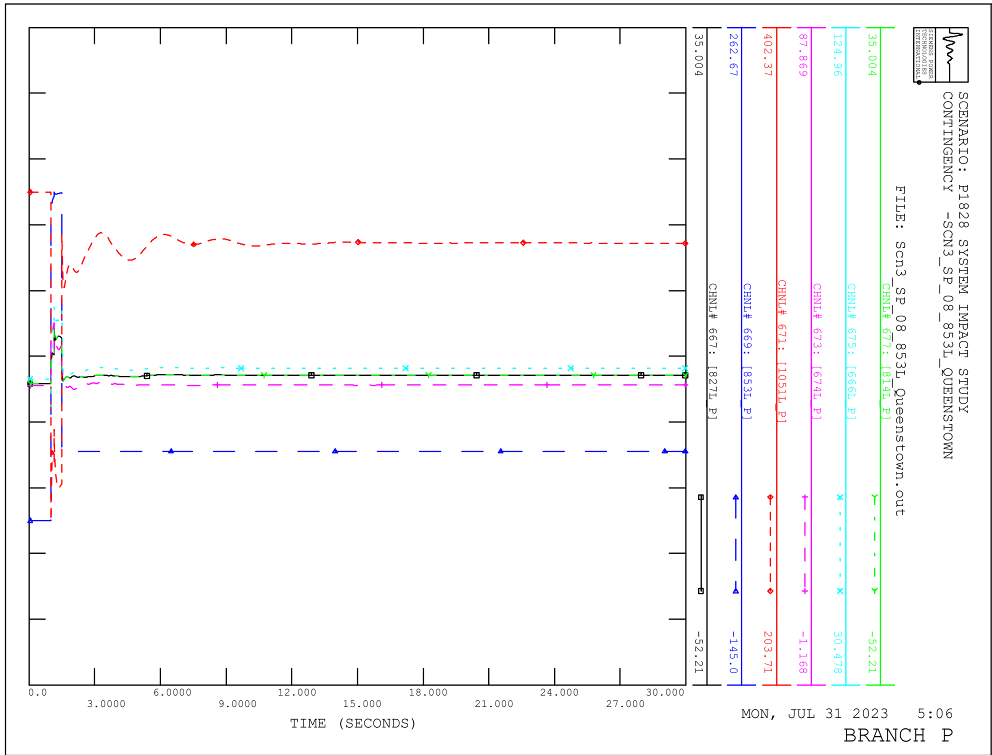
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TIME (SECONDS)
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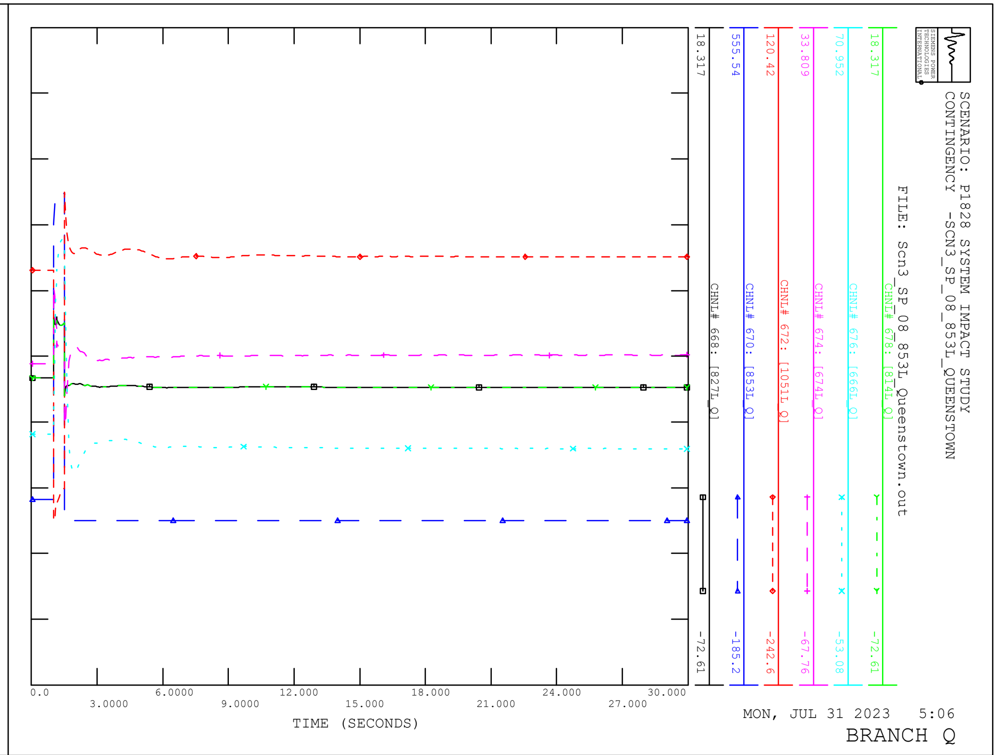
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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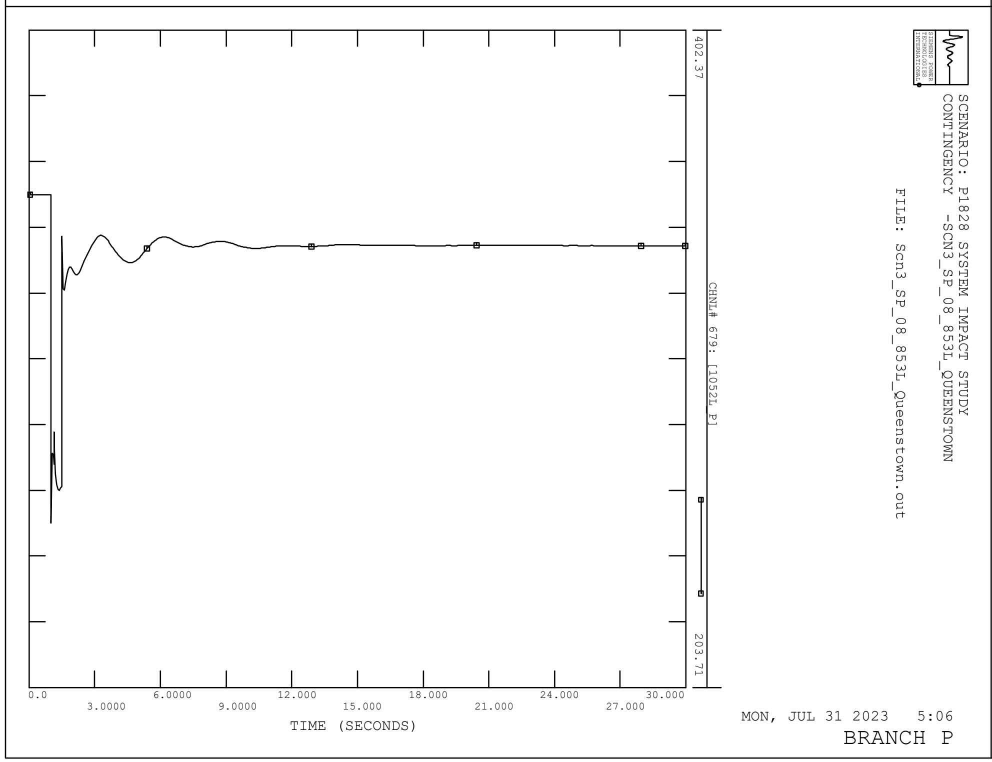
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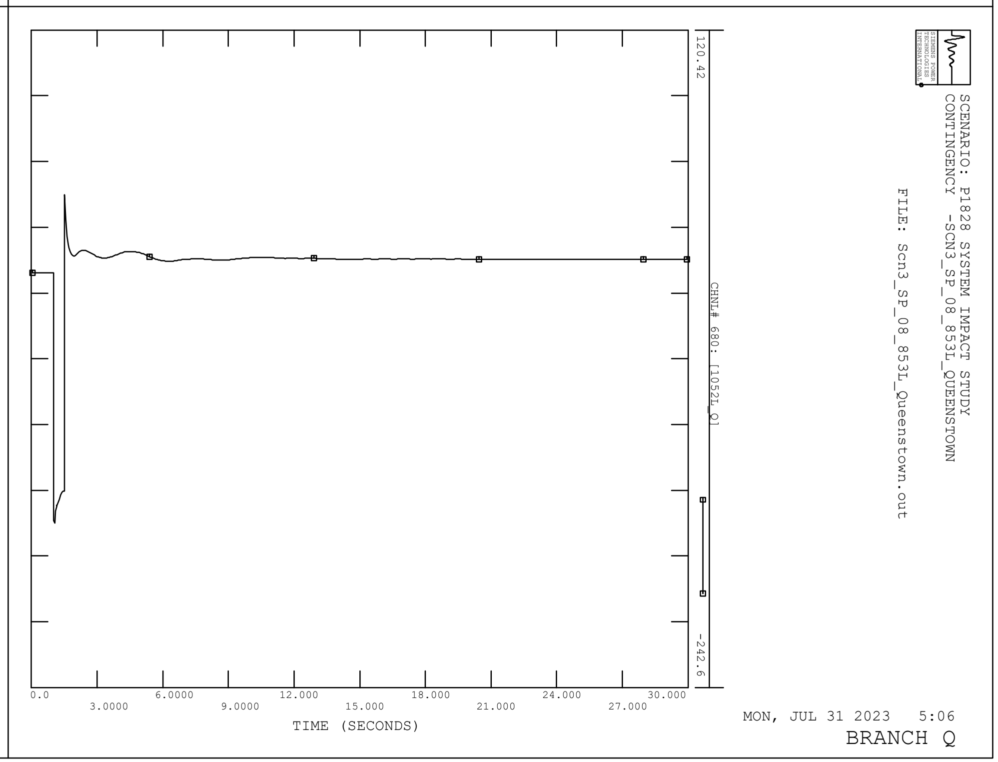
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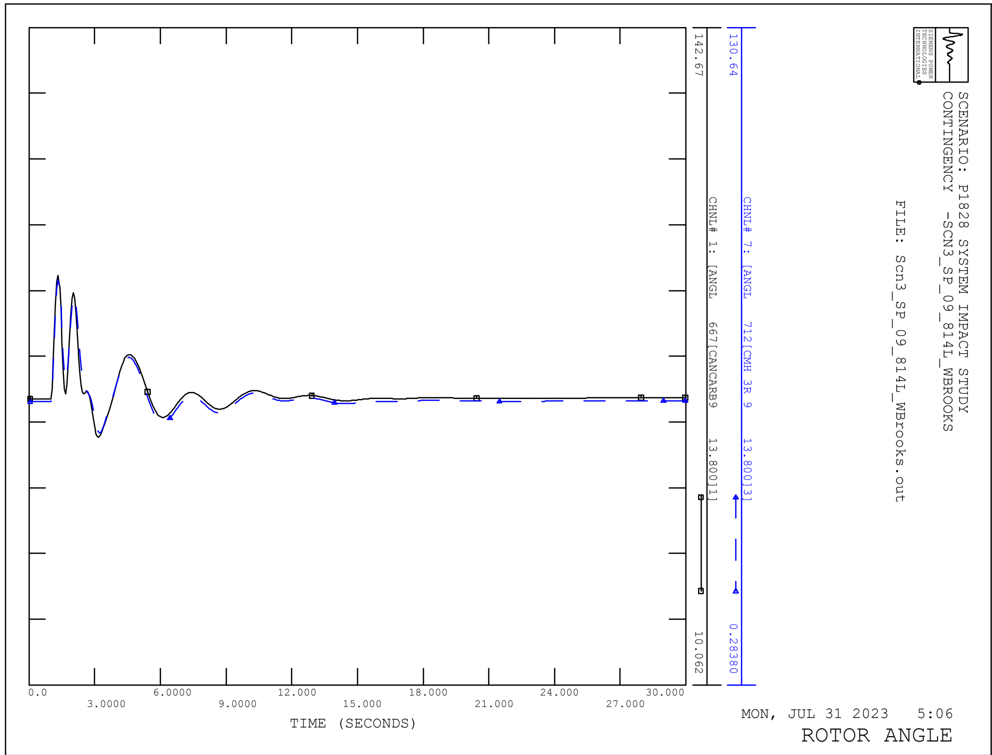

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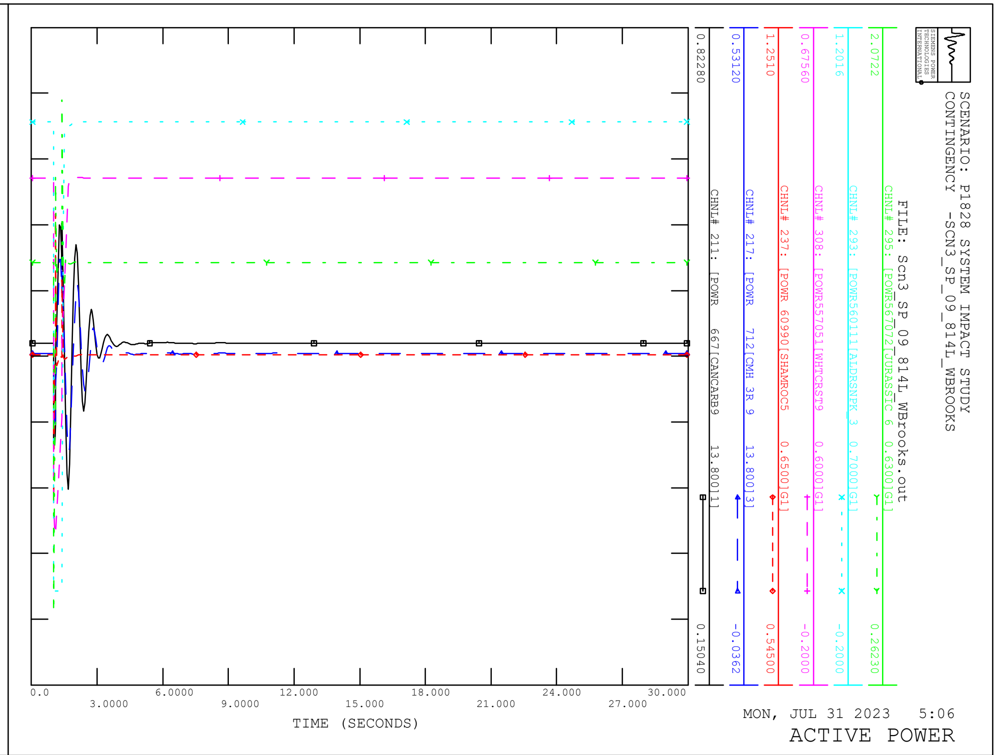

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CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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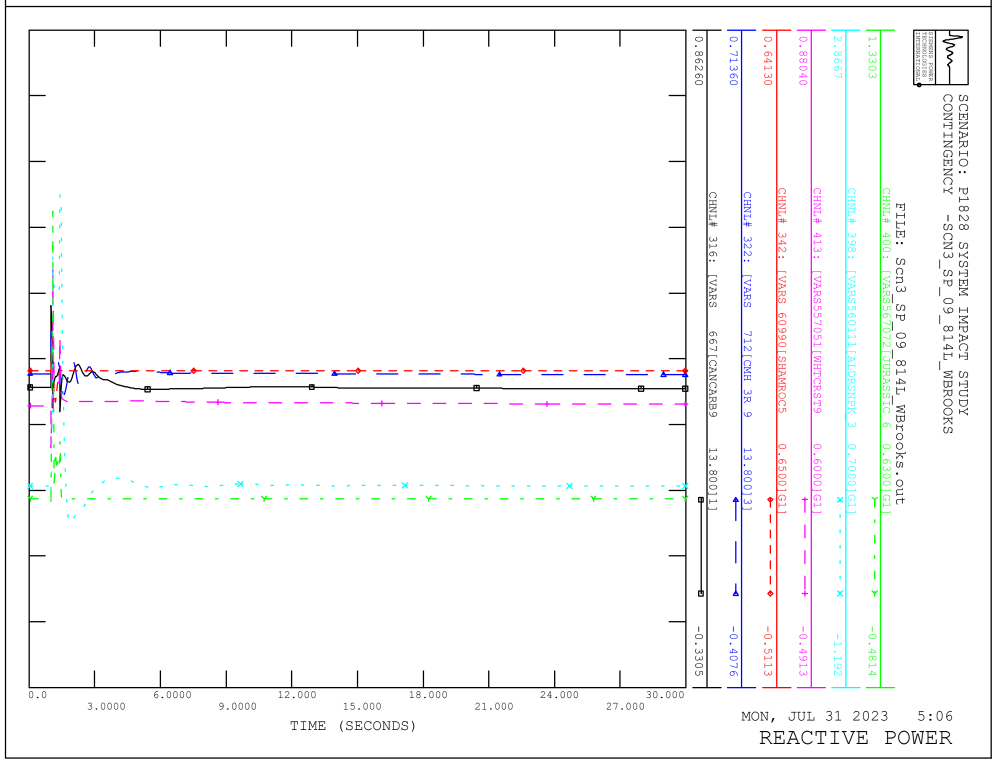
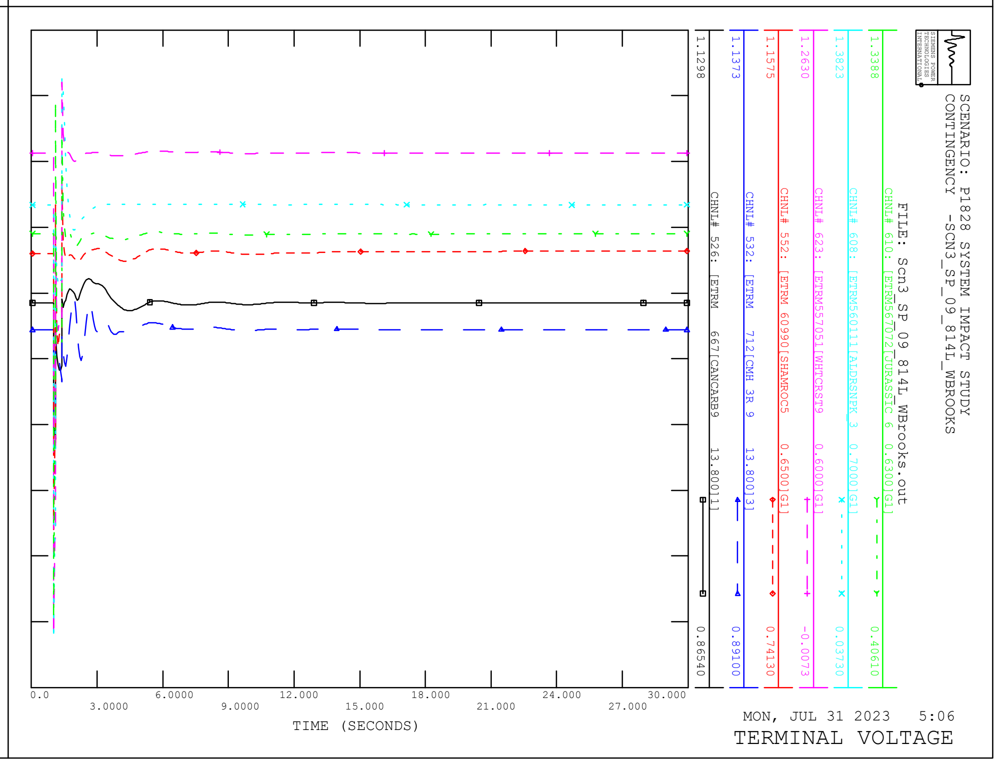
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 316: [VARS 667[CANCARB9 13.800]1]
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER



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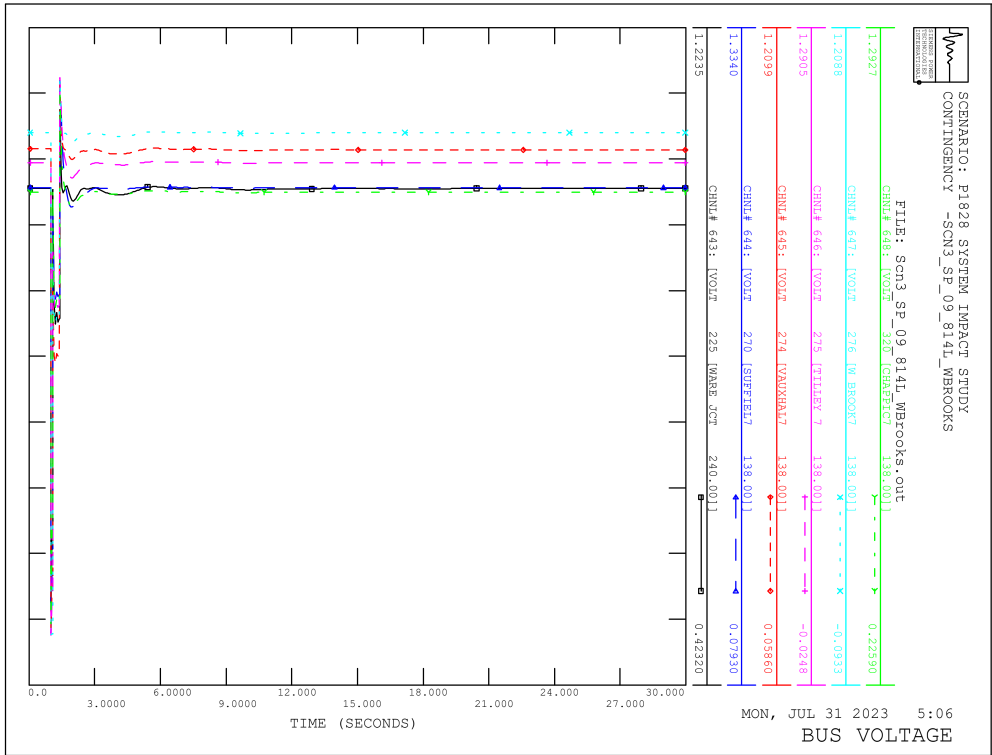
CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.2235 0.42320
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3340 0.07930
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2099 0.05860
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2905 -0.0248
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.2088 -0.0933
CHNL# 648: [VOLT 320 [CHAFFCT7 138.00]] 1.2927 0.22590
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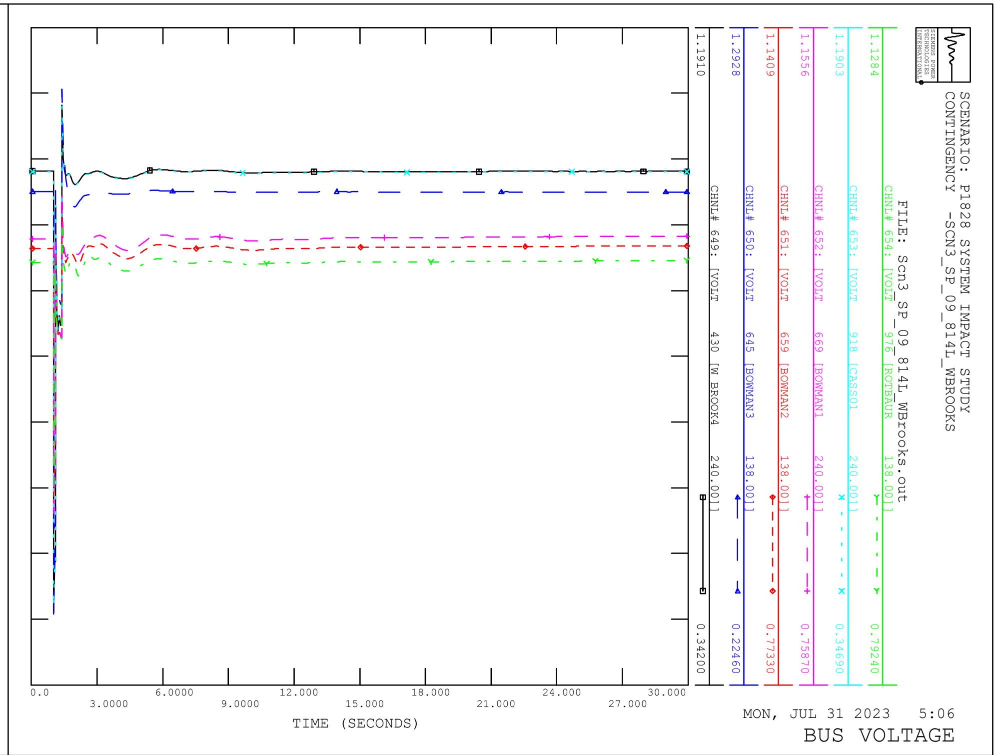
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.1910 0.34200
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.2928 0.22460
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1409 0.77330
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1556 0.75870
CHNL# 653: [VOLT 918 [CASSDI 240.00]] 1.1903 0.34690
CHNL# 654: [VOLT 976 [ROTHSAY 138.00]] 1.1284 0.79240
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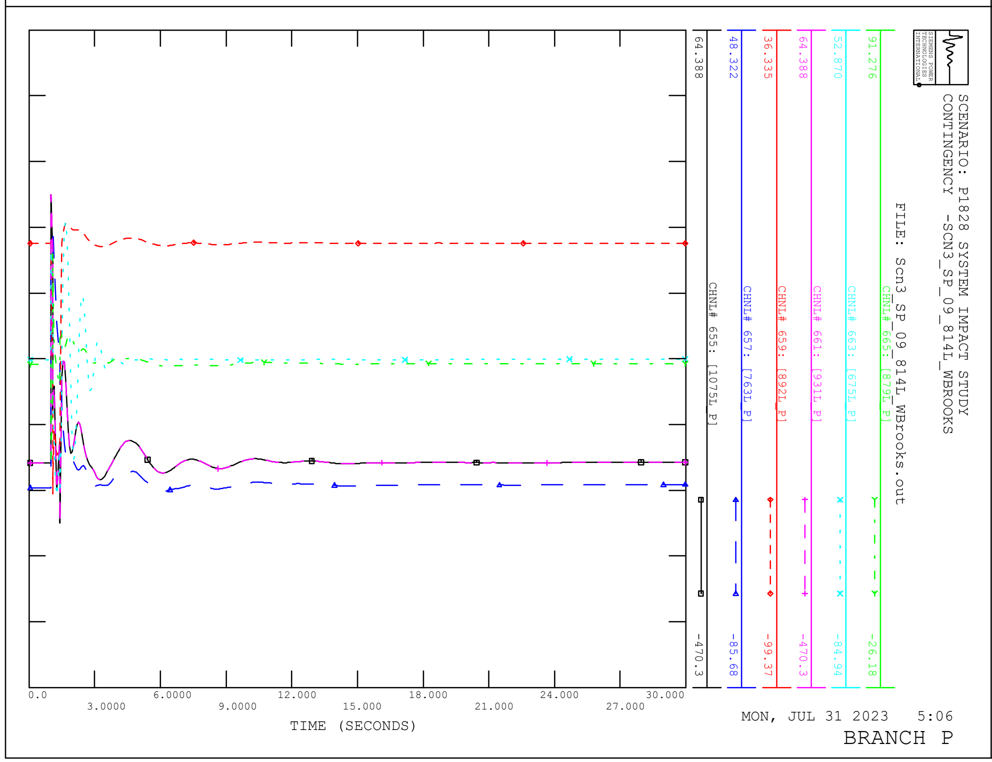
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 655: [1075L P] 64.388 -470.3
CHNL# 657: [763L P] 48.322 -85.68
CHNL# 659: [892L P] 36.335 -99.37
CHNL# 661: [931L P] 64.388 -470.3
CHNL# 663: [675L P] 52.870 -84.94
CHNL# 665: [679L P] 91.276 -26.18
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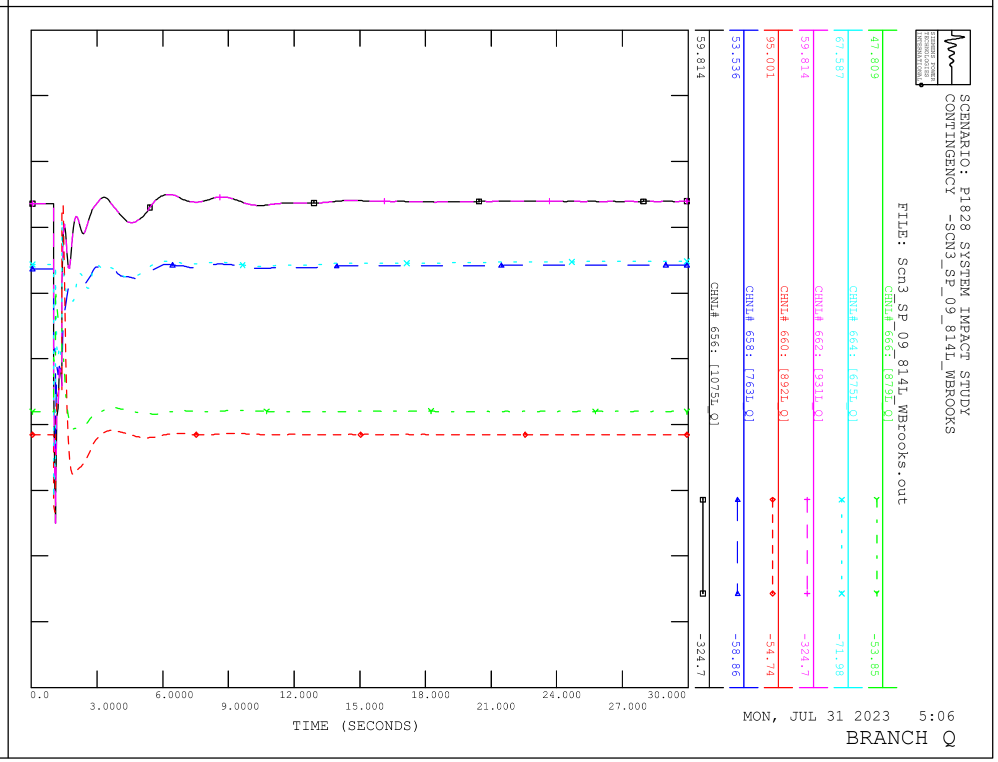
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 656: [1075L Q] 59.814 -324.7
CHNL# 658: [763L Q] 53.536 -58.86
CHNL# 660: [892L Q] 95.001 -54.74
CHNL# 662: [931L Q] 59.814 -324.7
CHNL# 664: [675L Q] 67.587 -71.98
CHNL# 666: [679L Q] 47.809 -53.85
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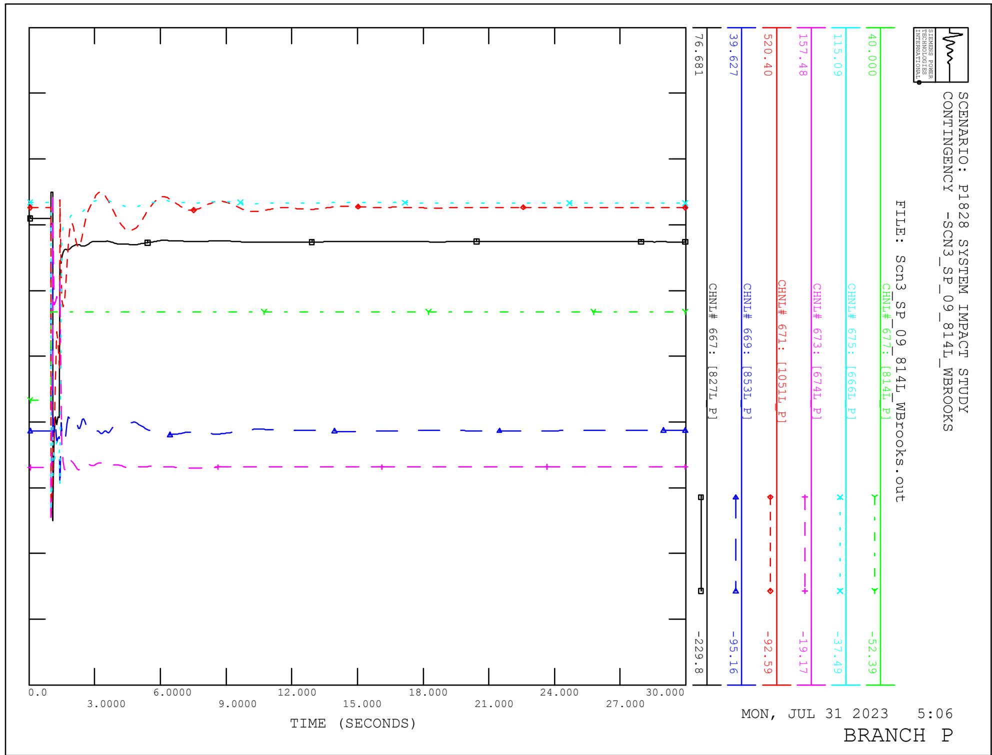
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 667: [827L_P]
CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
CHNL# 675: [666L_P]
CHNL# 677: [814L_P]
76.681
-229.8
39.627
-95.16
520.40
-92.59
157.48
-19.17
115.09
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40.000
-52.39
TIME (SECONDS)
MON, JUL 31 2023 5:06
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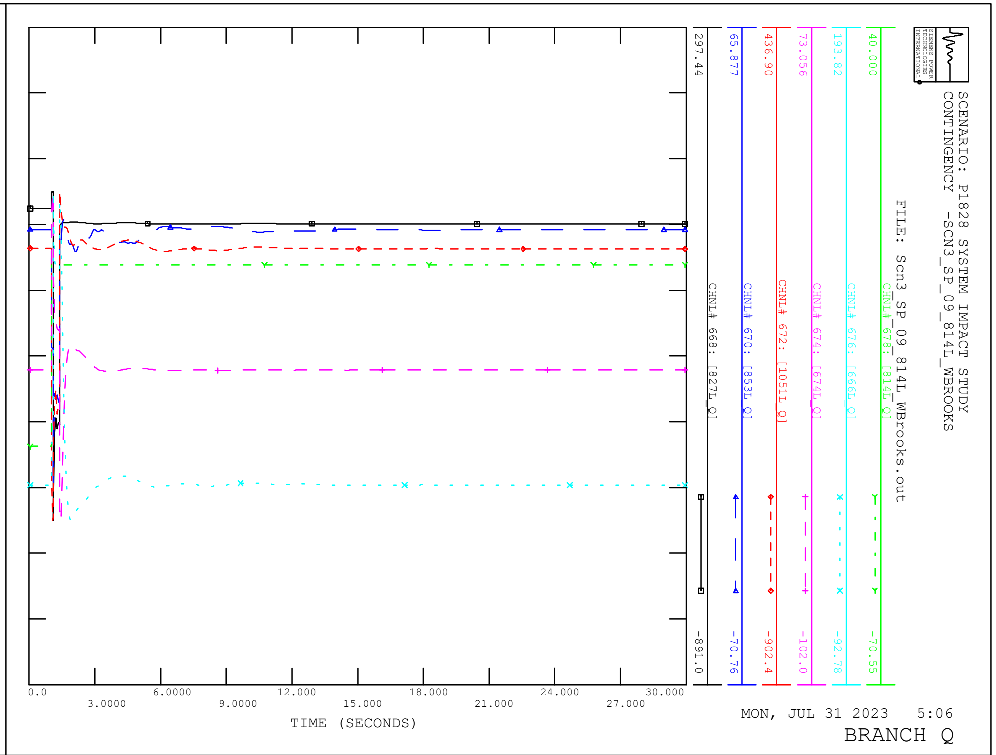
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CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
CHNL# 668: [827L_Q]
CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
CHNL# 674: [674L_Q]
CHNL# 676: [666L_Q]
CHNL# 678: [814L_Q]
297.44
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65.877
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436.90
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MON, JUL 31 2023 5:06
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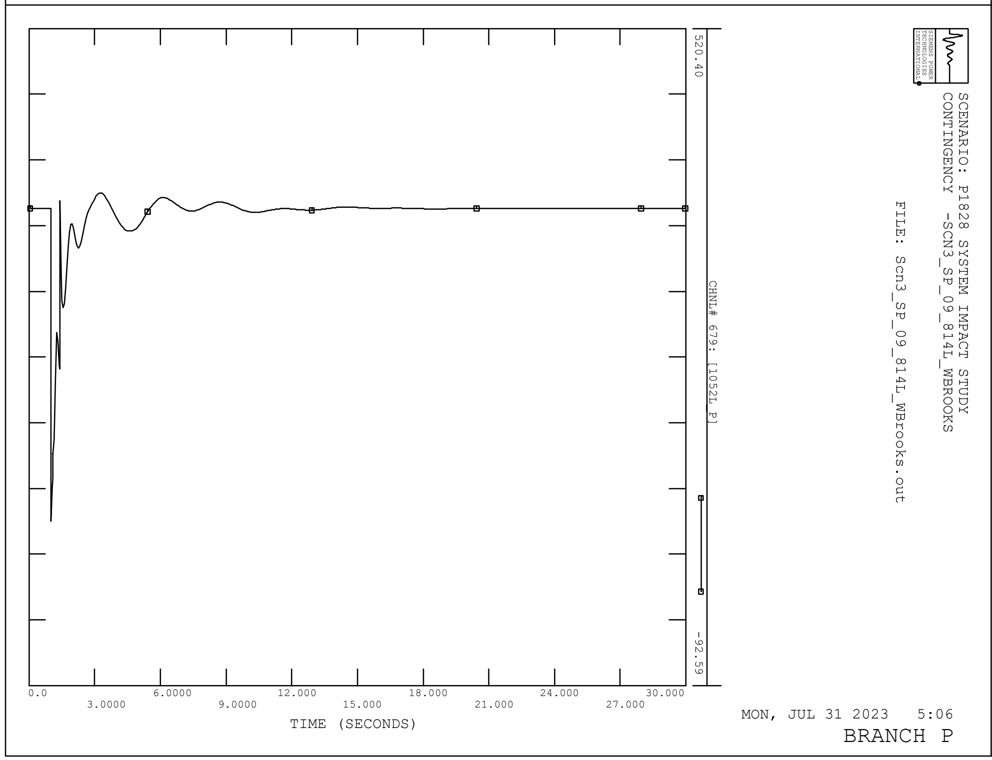
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CONTINGENCY -SCN3_SP_09_814L_WBROOKS
FILE: Scn3_SP_09_814L_WBrooks.out
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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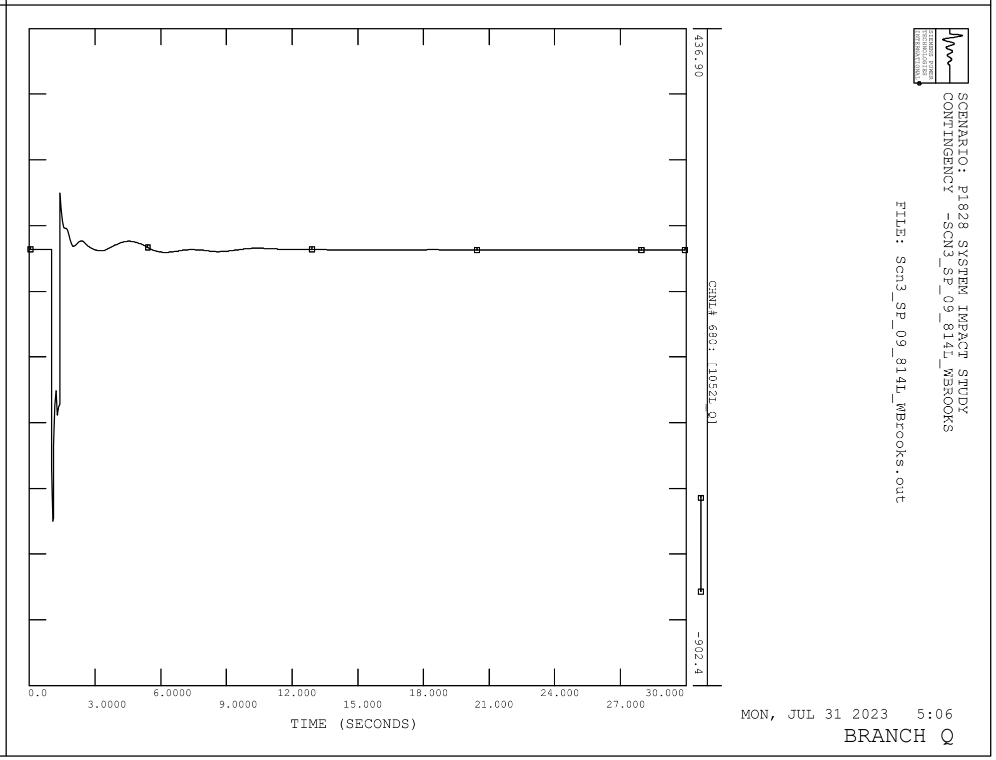
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FILE: Scn3_SP_09_814L_WBrooks.out
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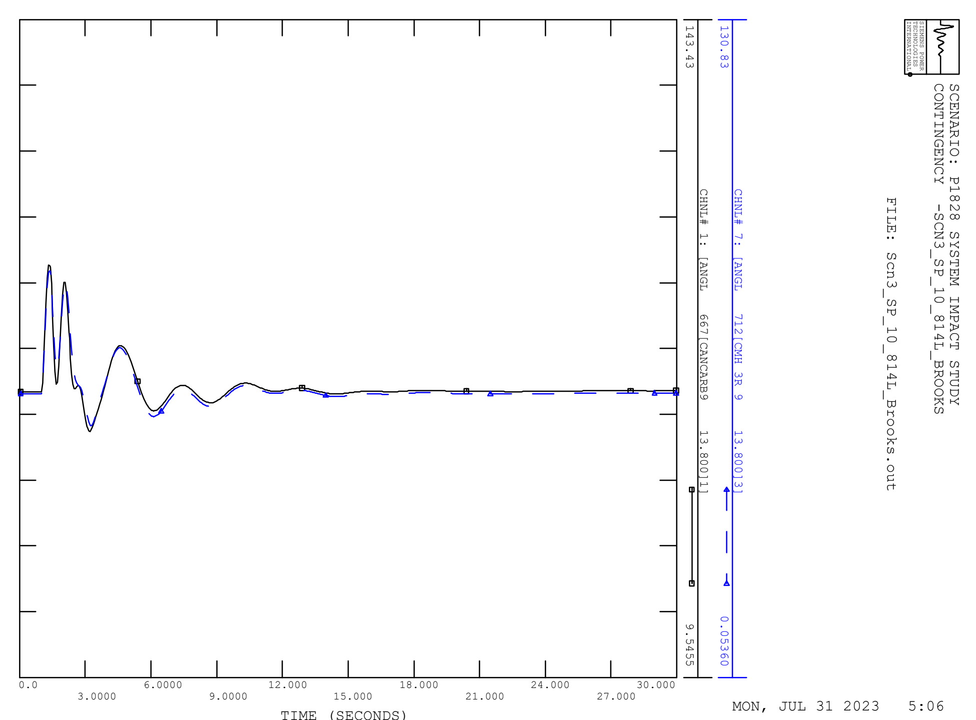
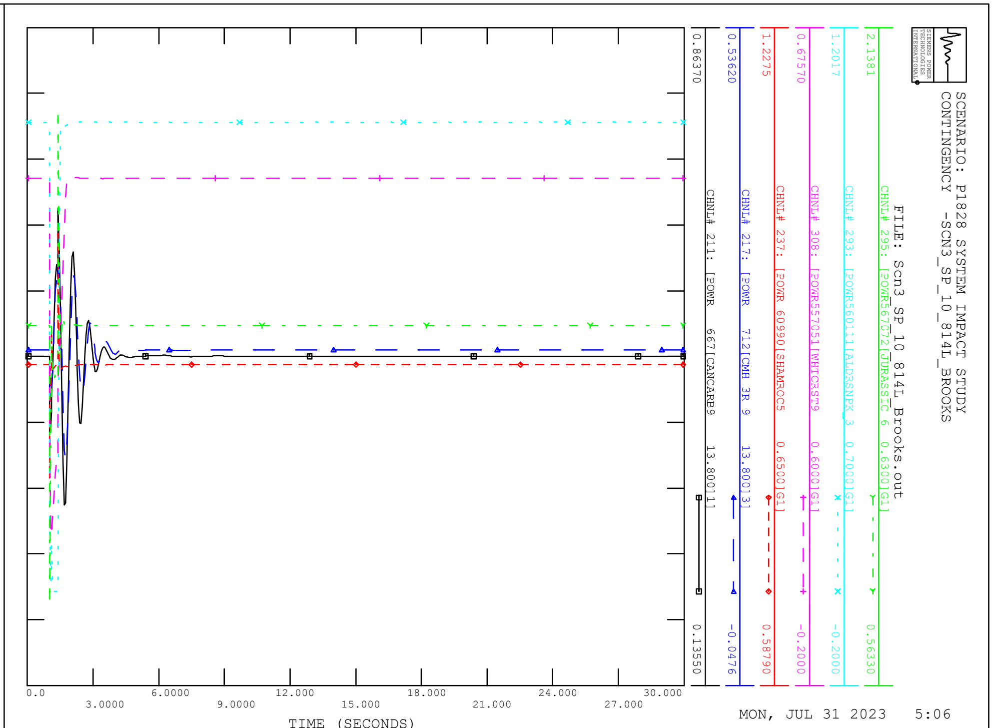
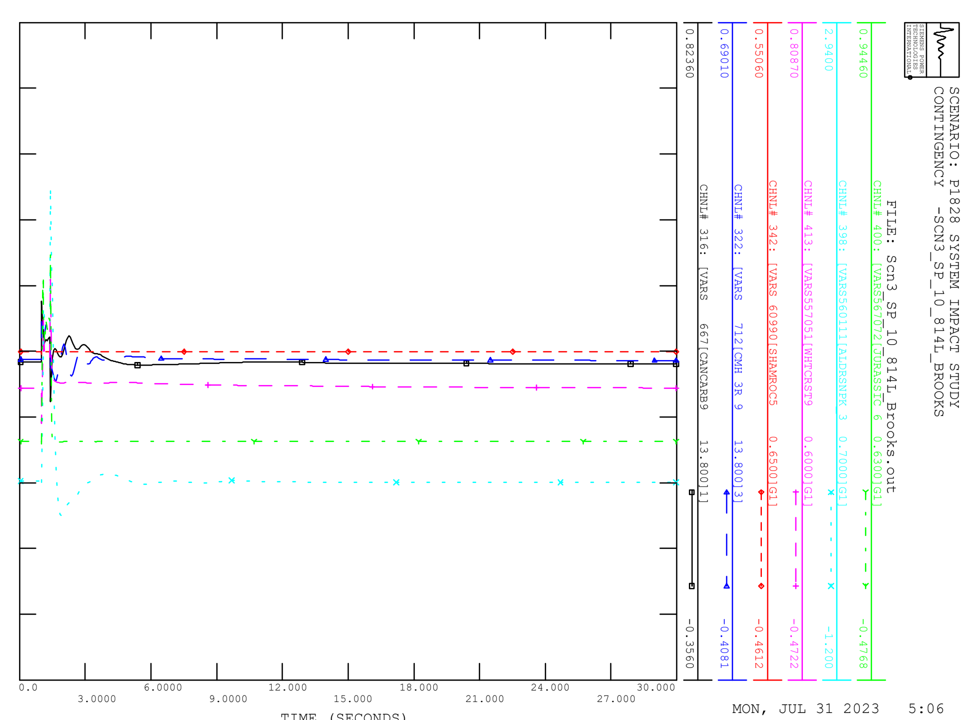
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



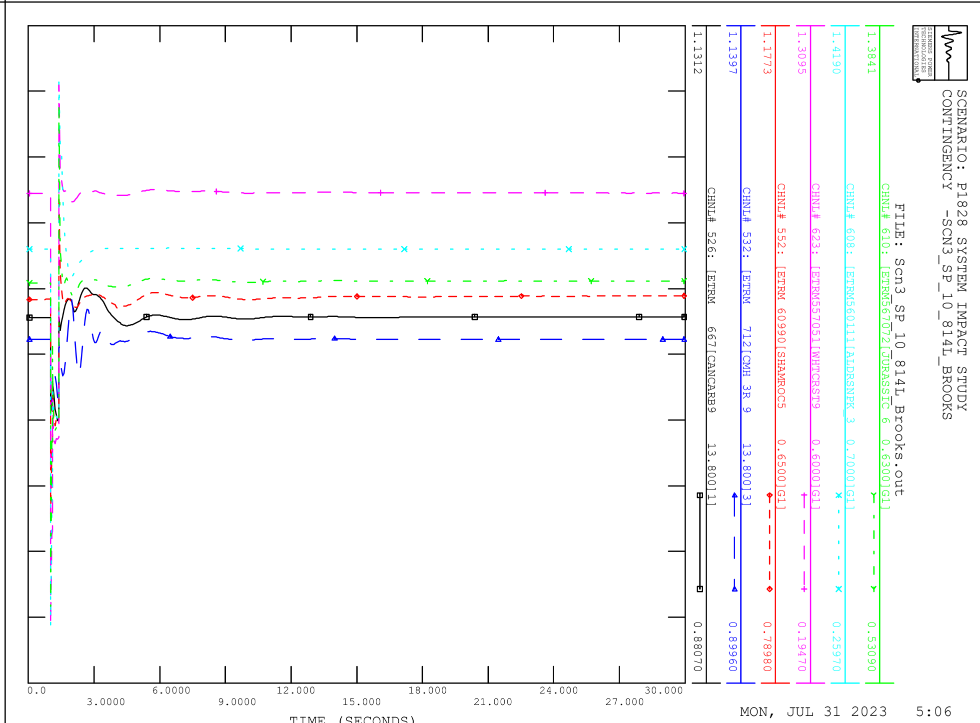
ROTOR ANGLE



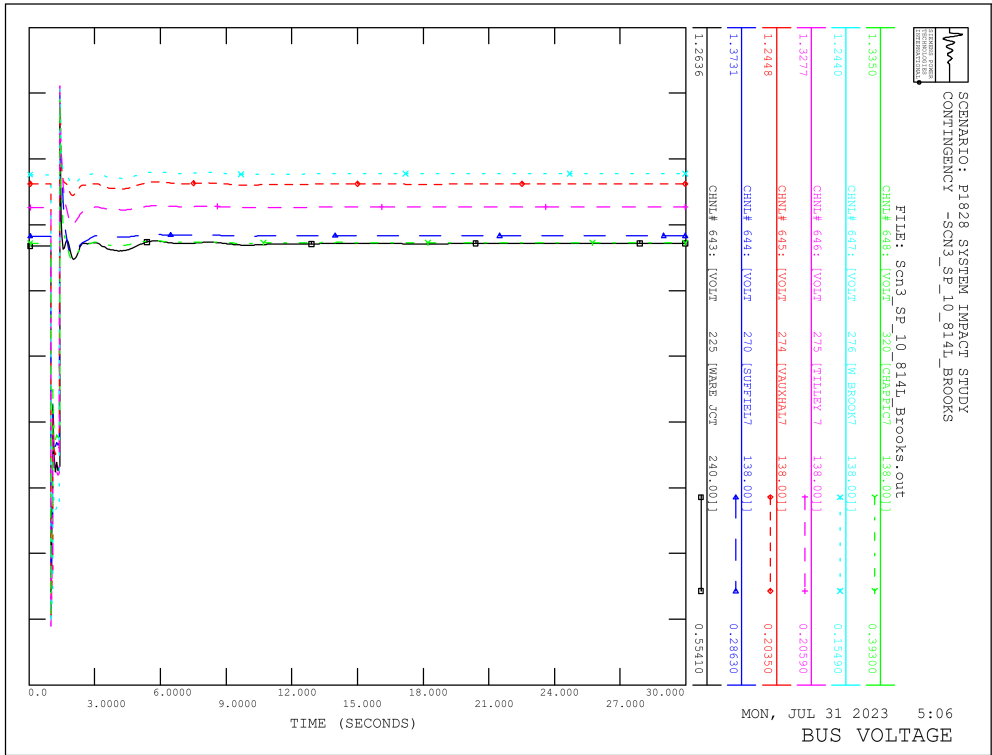
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE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CONTINGENCY -SCN3_SP_10_814L_BROOKS
FILE: Scn3_SP_10_814L_Brooks.out
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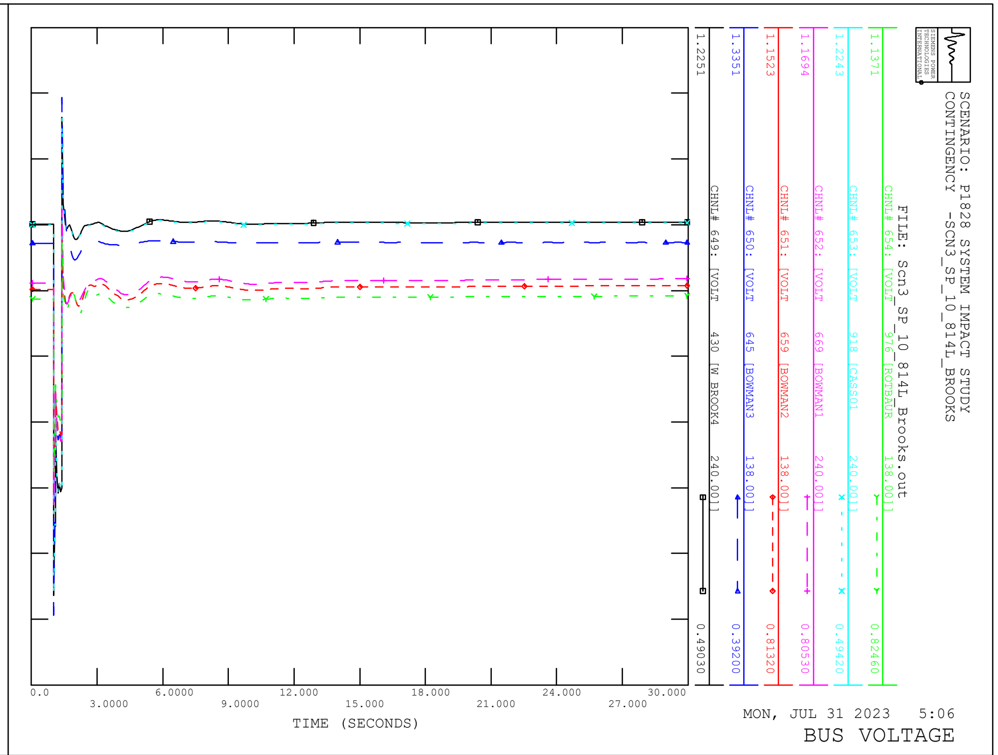
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE

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CONTINGENCY -SCN3_SP_10_814L_BROOKS
FILE: Scn3_SP_10_814L_Brooks.out
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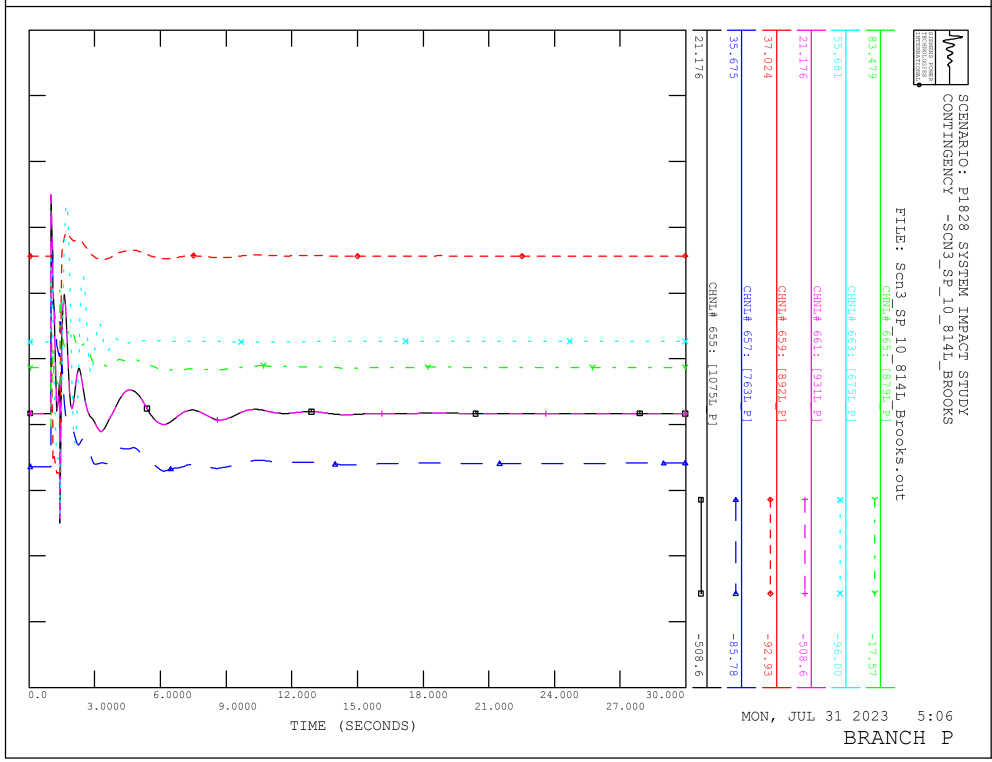
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSOI 240.00]]
CHNL# 654: [VOLT 976 [ROTHRA 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE

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CONTINGENCY -SCN3_SP_10_814L_BROOKS
FILE: Scn3_SP_10_814L_Brooks.out
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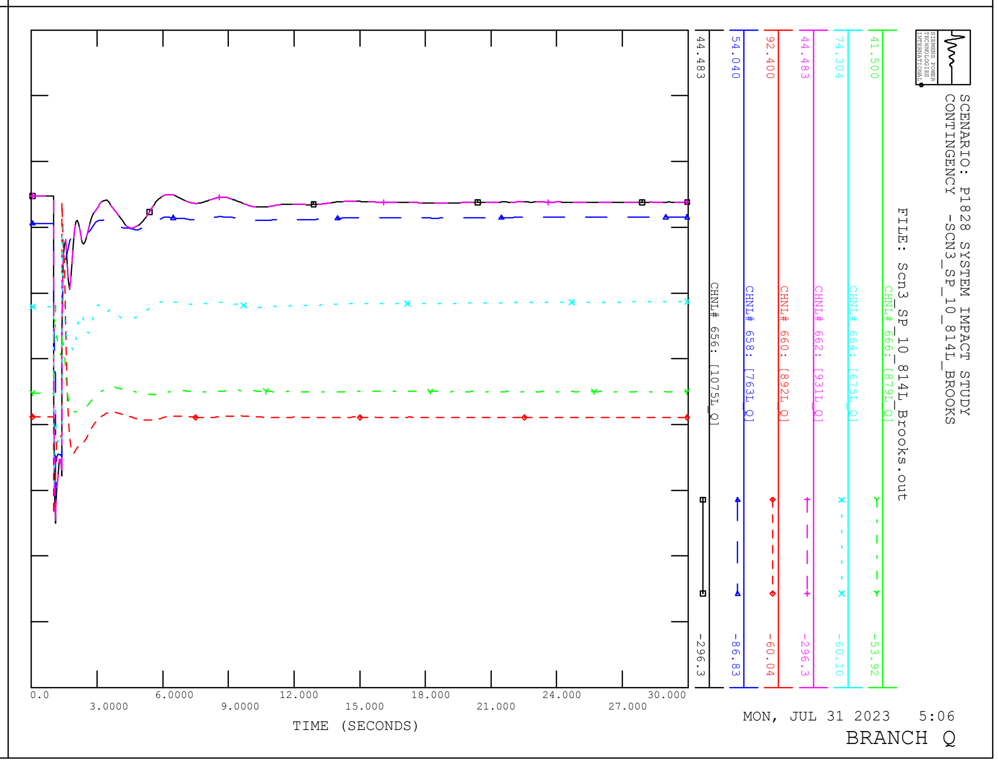
CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [675L P]
CHNL# 665: [879L P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P

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CONTINGENCY -SCN3_SP_10_814L_BROOKS
FILE: Scn3_SP_10_814L_Brooks.out
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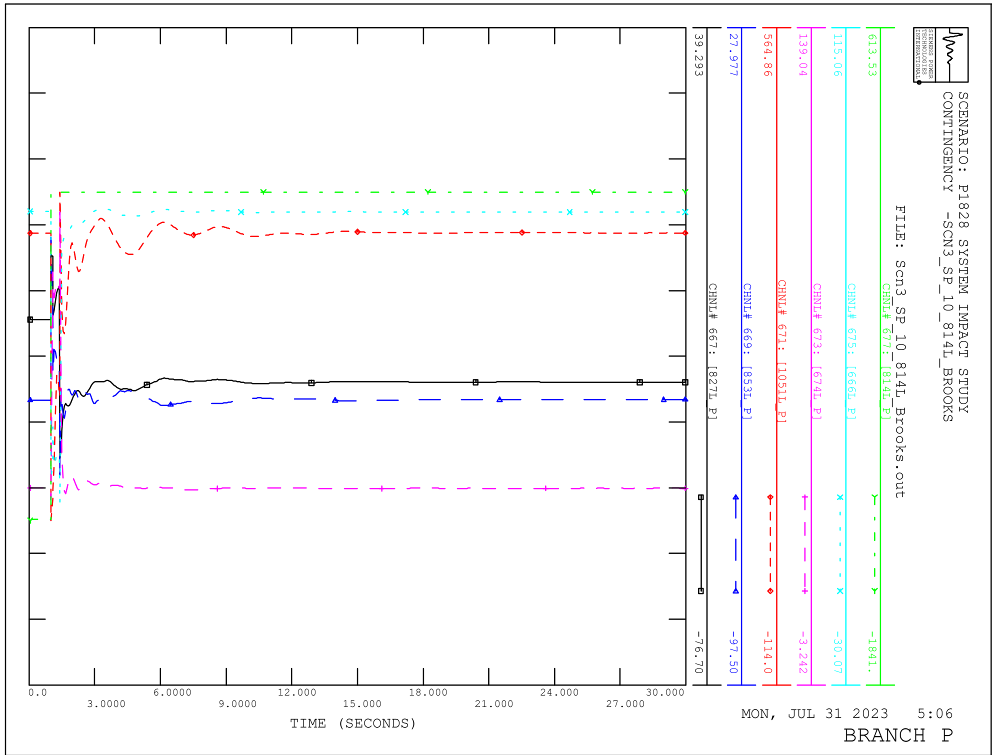
CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
CHNL# 666: [879L Q]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN3_SP_10_814L_BROOKS
FILE: Scn3_SP_10_814L_Brooks.out
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CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
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CHNL# 677: [814L_P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
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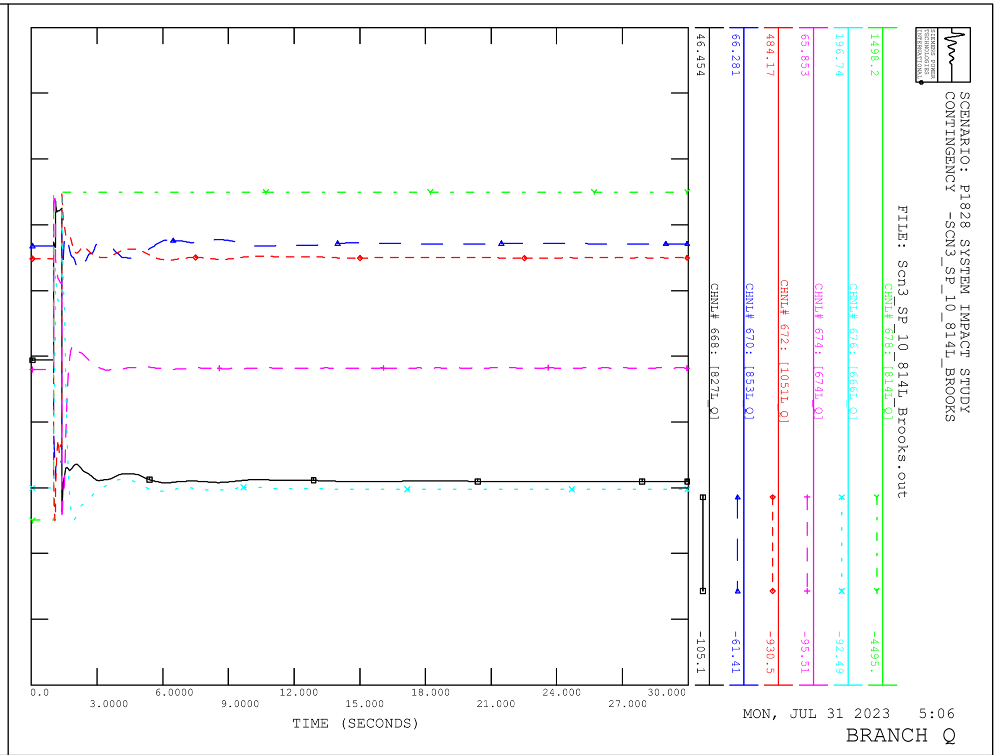
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CONTINGENCY -SCN3_SP_10_814L_BROOKS
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CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
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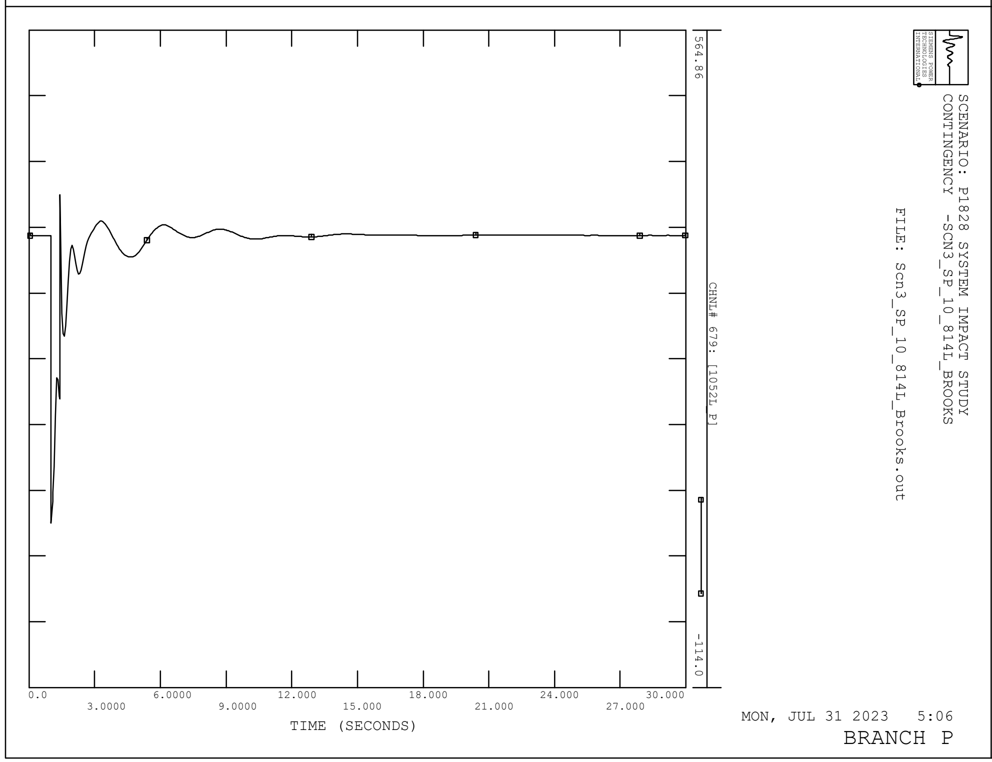
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_10_814L_BROOKS
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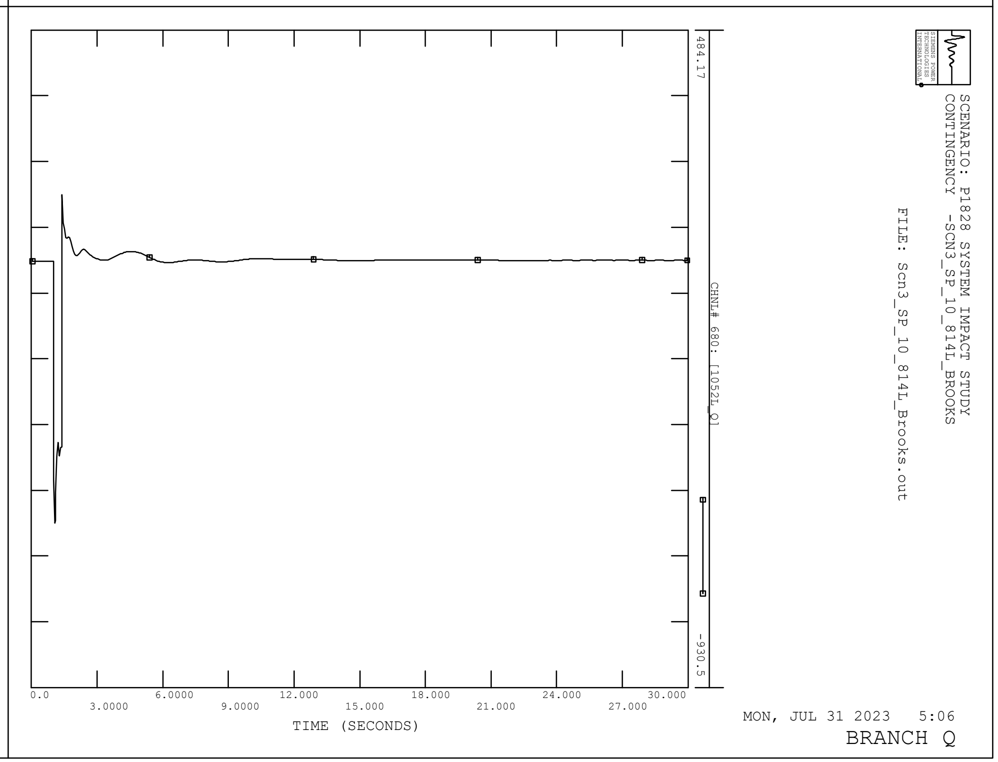
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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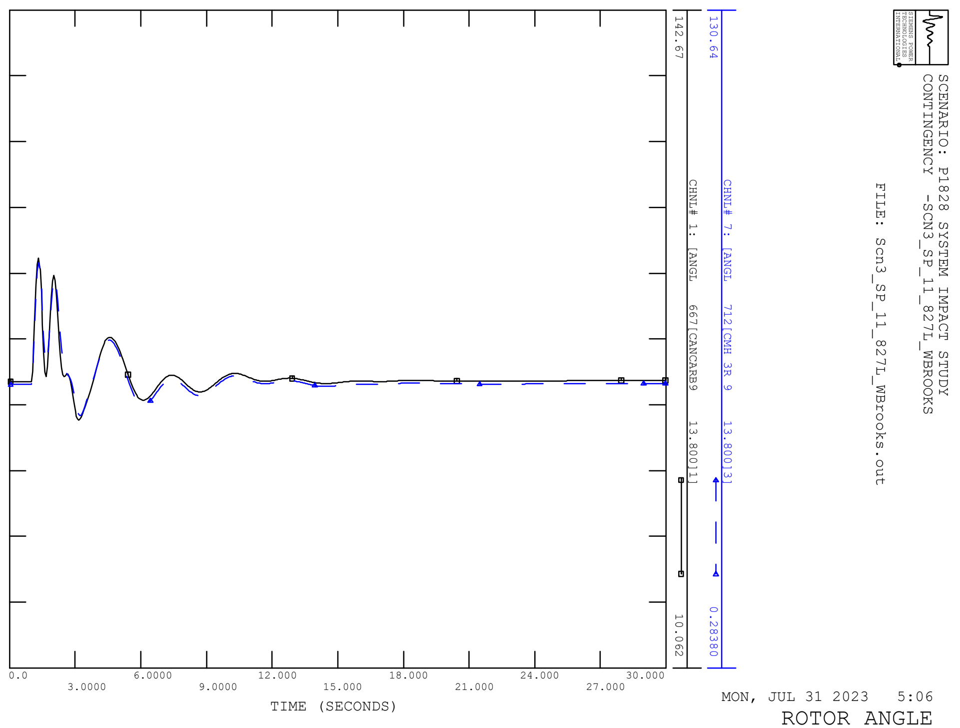
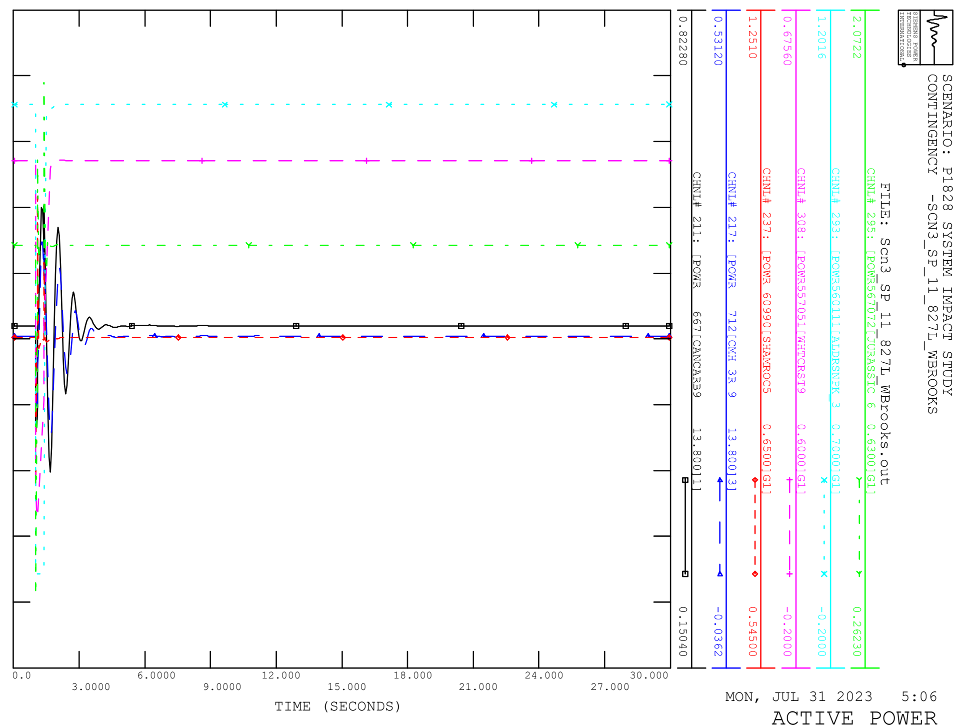
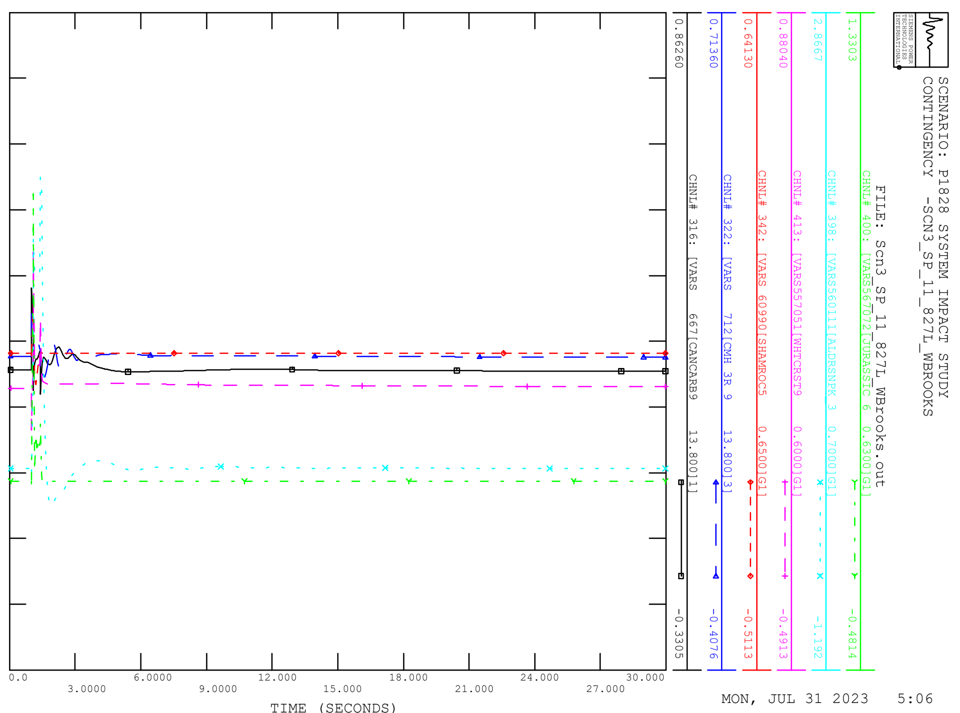
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



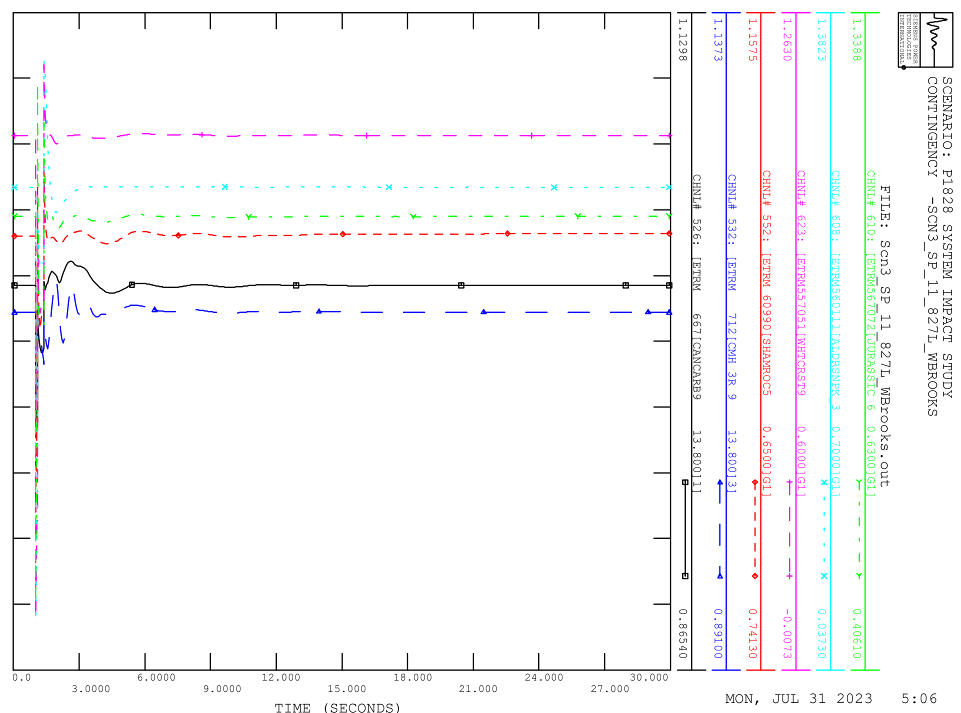
ROTOR ANGLE



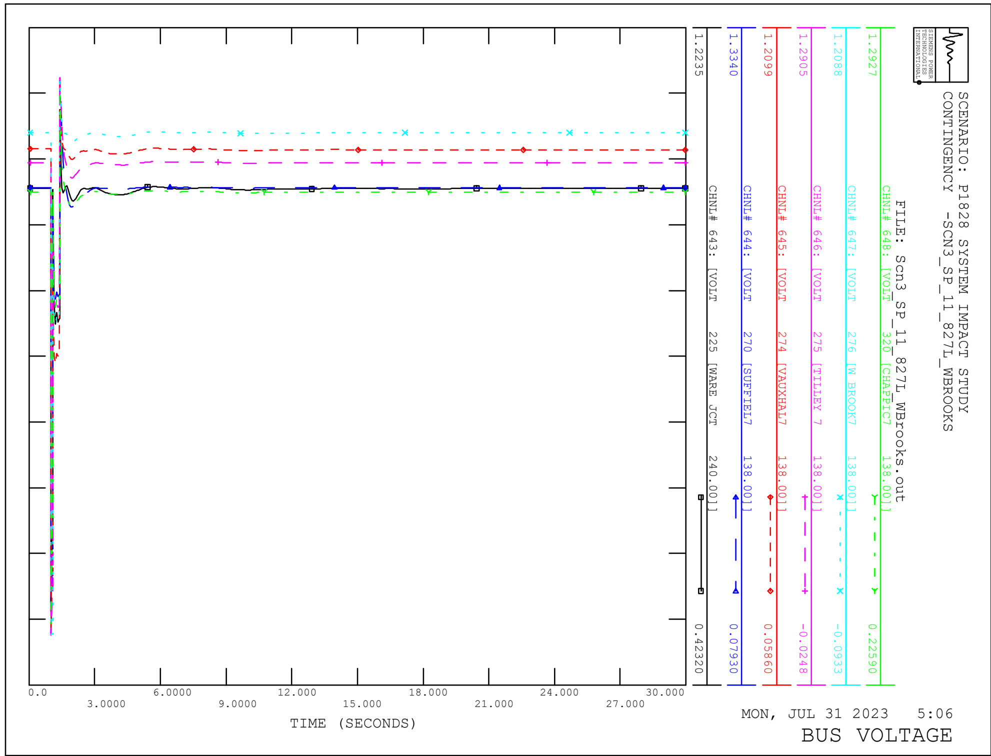
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE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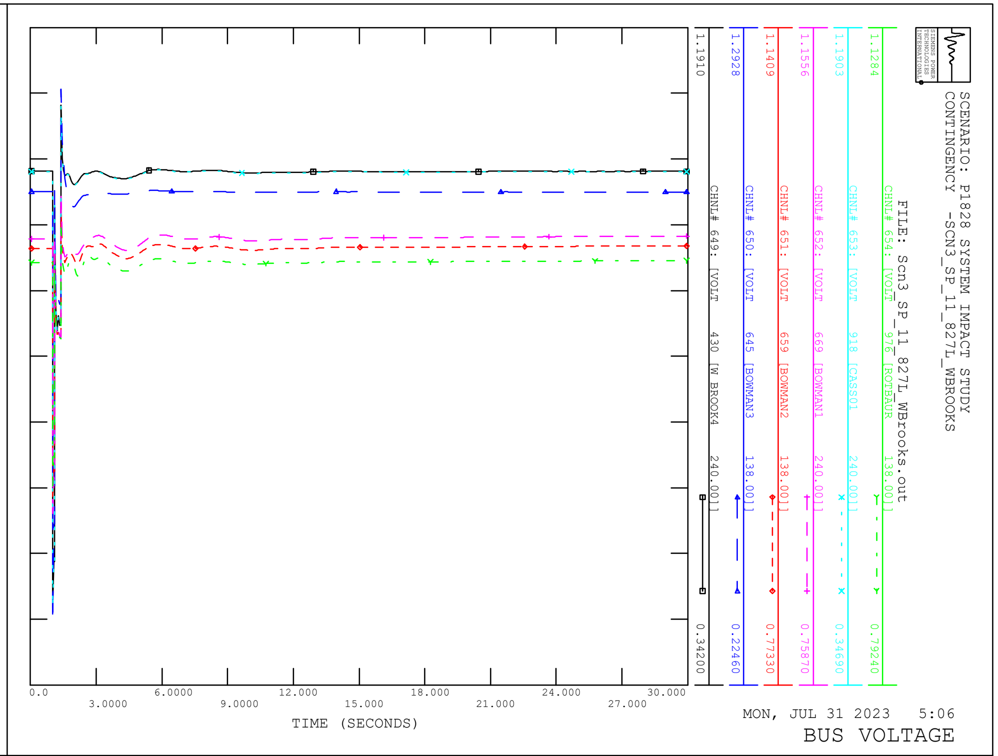
CONTINGENCY -SCN3_SP_11_827L_WBROOKS
FILE: Scn3_SP_11_827L_WBrooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]]
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
1.2235 0.42320
1.3340 0.07930
1.2099 0.05860
1.2905 -0.0248
1.2088 -0.0933
1.2927 0.22590
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN3_SP_11_827L_WBROOKS
FILE: Scn3_SP_11_827L_WBrooks.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASS01 240.00]]
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
1.1910 0.34200
1.2928 0.22460
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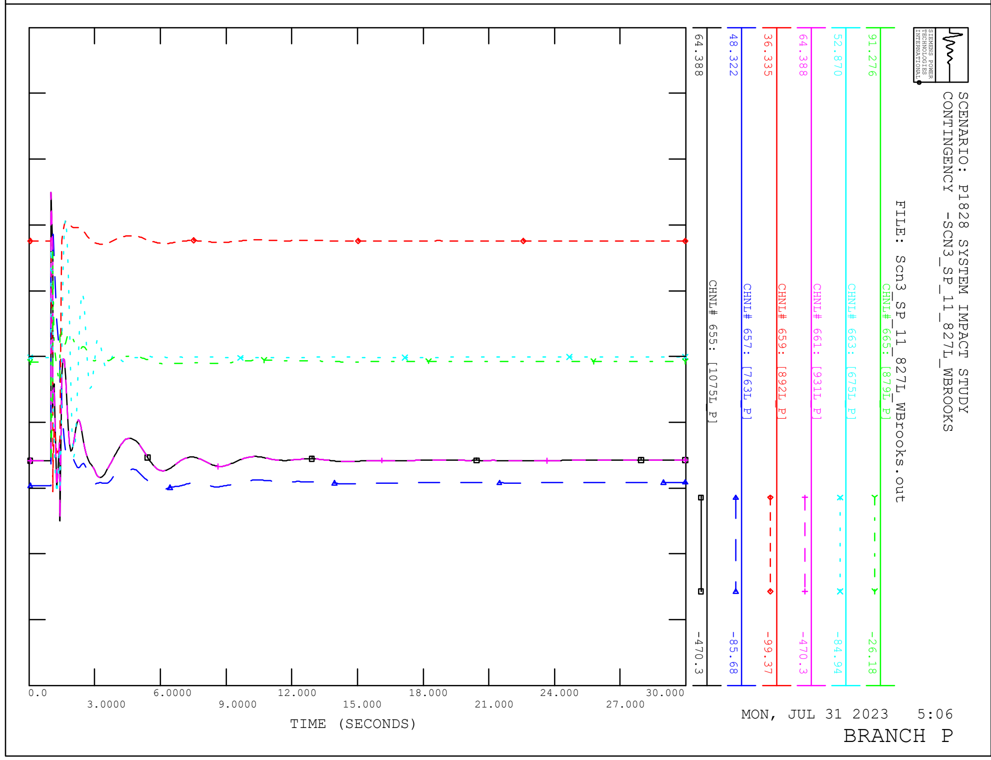
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_11_827L_WBROOKS
FILE: Scn3_SP_11_827L_WBrooks.out
CHNL# 655: [1075L P]
CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [675L P]
CHNL# 665: [879L P]
64.388 -470.3
48.322 -85.68
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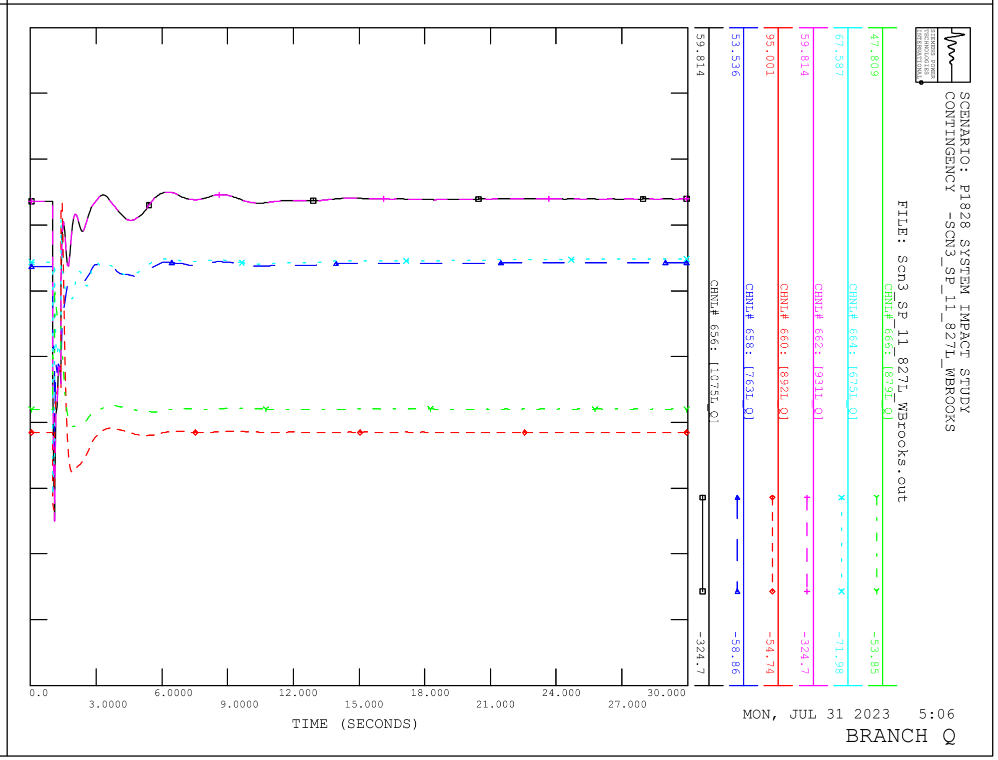
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN3_SP_11_827L_WBROOKS
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CHNL# 658: [763L Q]
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CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
CHNL# 666: [879L Q]
59.814 -324.7
53.536 -58.86
95.001 -54.74
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67.587 -71.98
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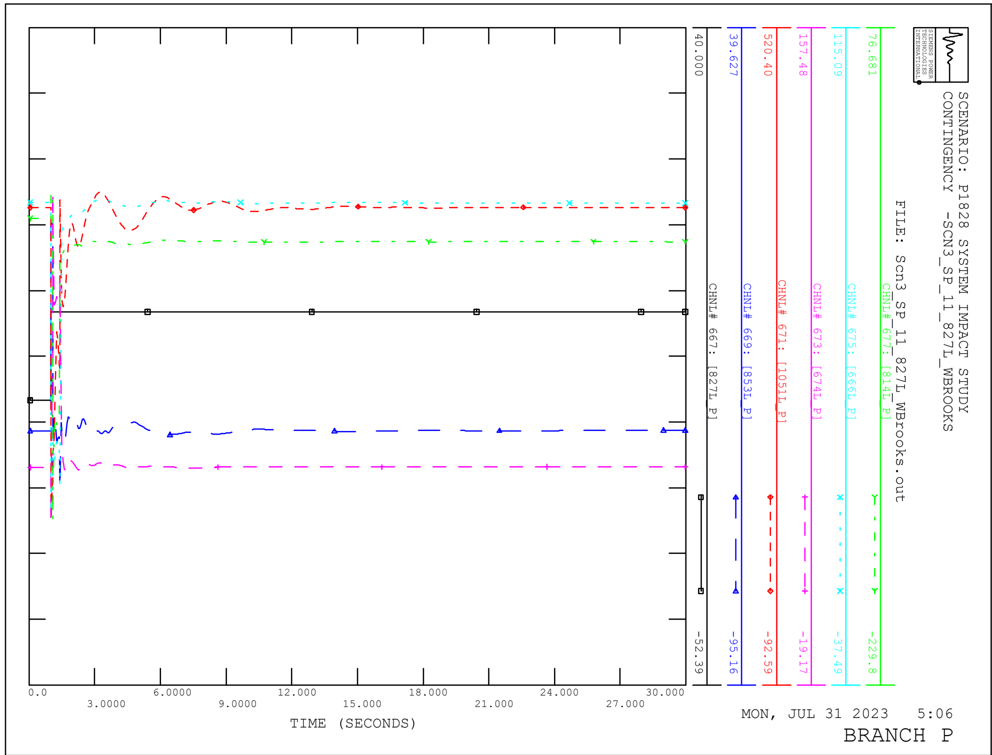
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P] 39.627 -95.16
CHNL# 671: [1051L_P] 520.40 -92.59
CHNL# 673: [674L_P] 157.48 -19.17
CHNL# 675: [666L_P] 115.09 -37.49
CHNL# 677: [814L_P] 76.681 -229.8
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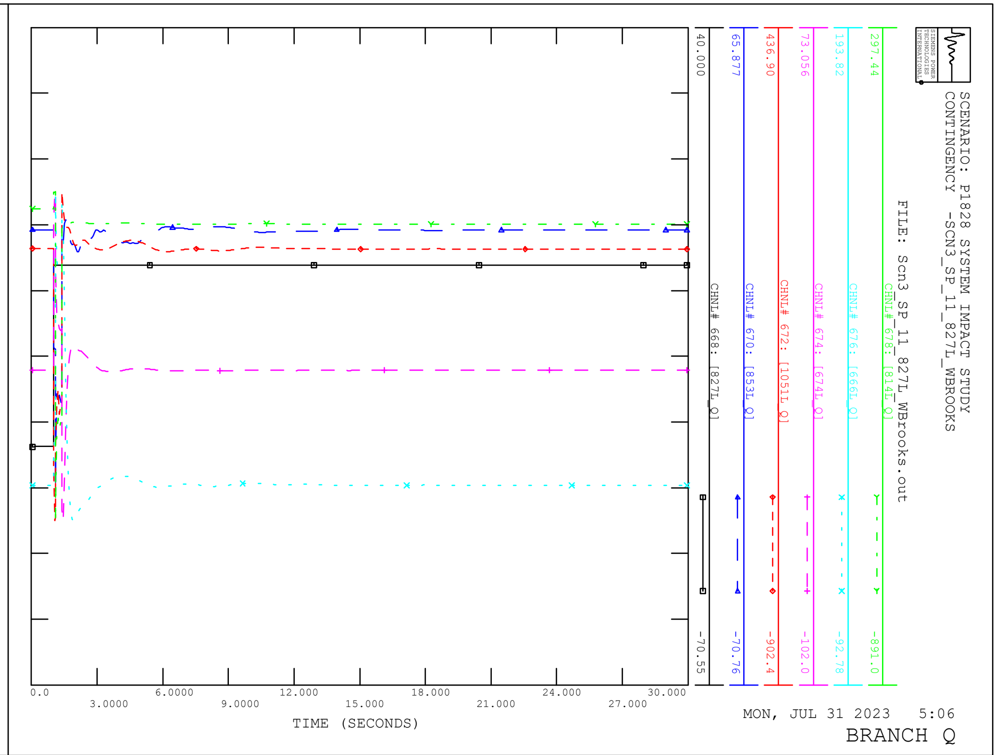
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN3_SP_11_827L_WBROOKS
FILE: Scn3_SP_11_827L_WBrooks.out
CHNL# 668: [827L_Q] 40.000 -70.55
CHNL# 670: [853L_Q] 65.877 -70.76
CHNL# 672: [1051L_Q] 436.90 -902.4
CHNL# 674: [674L_Q] 73.056 -102.0
CHNL# 676: [666L_Q] 193.82 -92.78
CHNL# 678: [814L_Q] 297.44 -891.0
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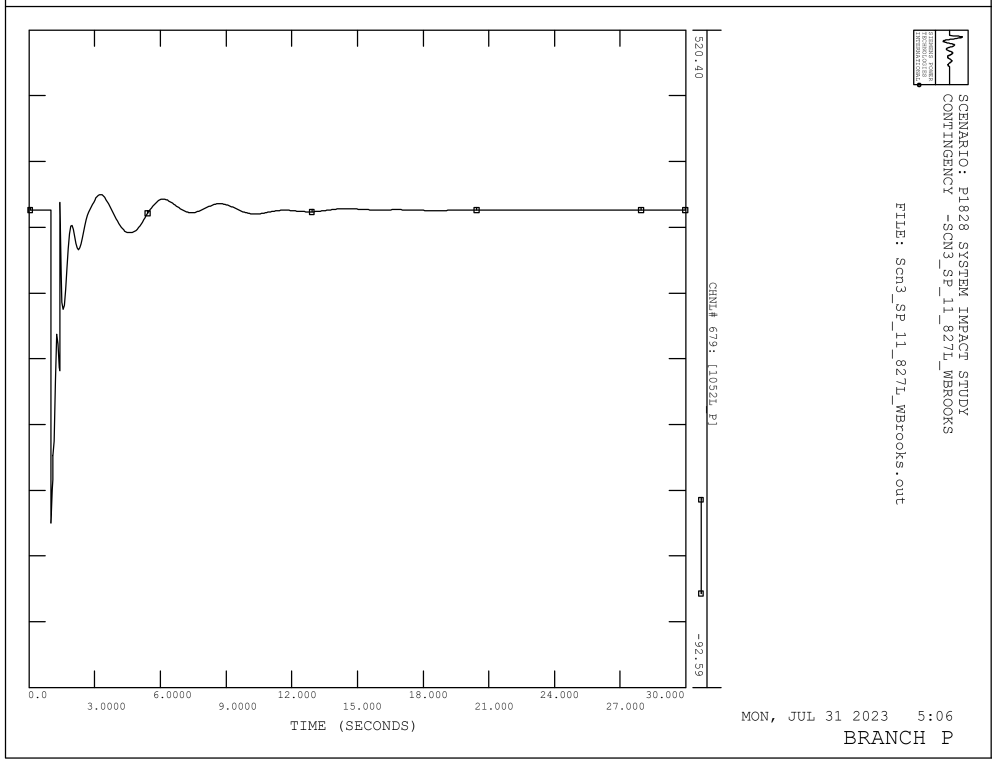
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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TIME (SECONDS)
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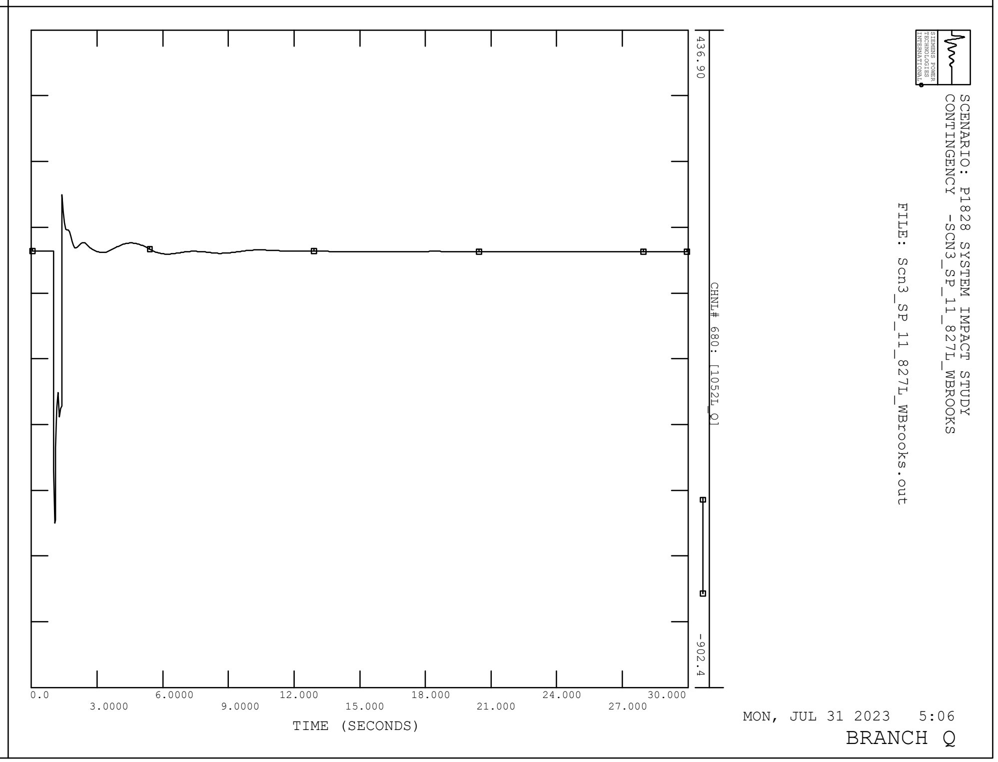
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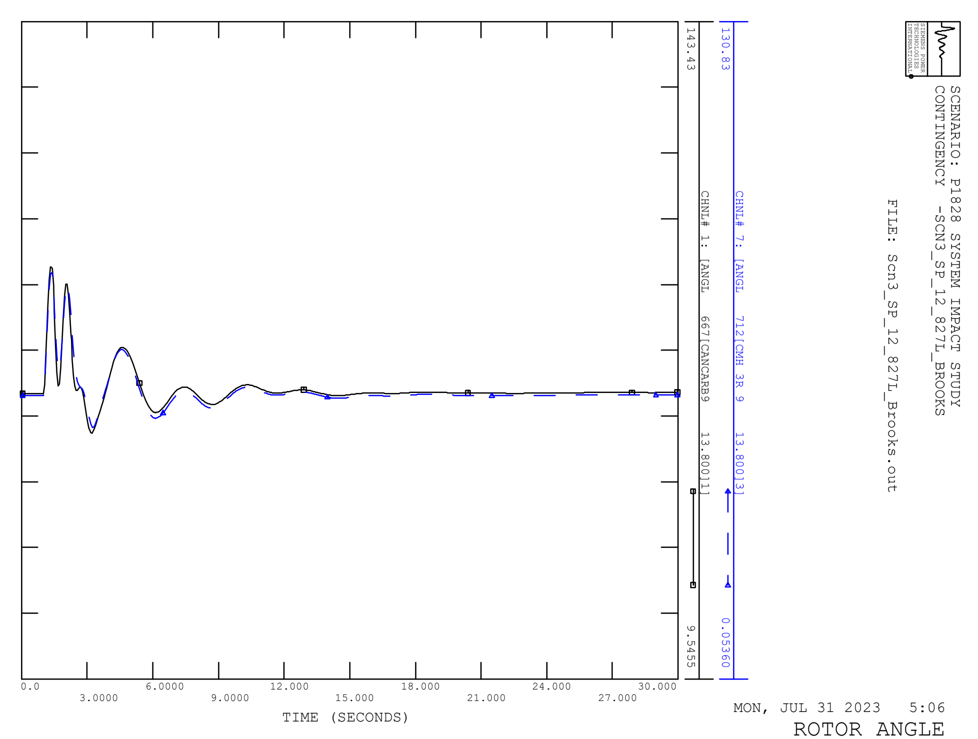
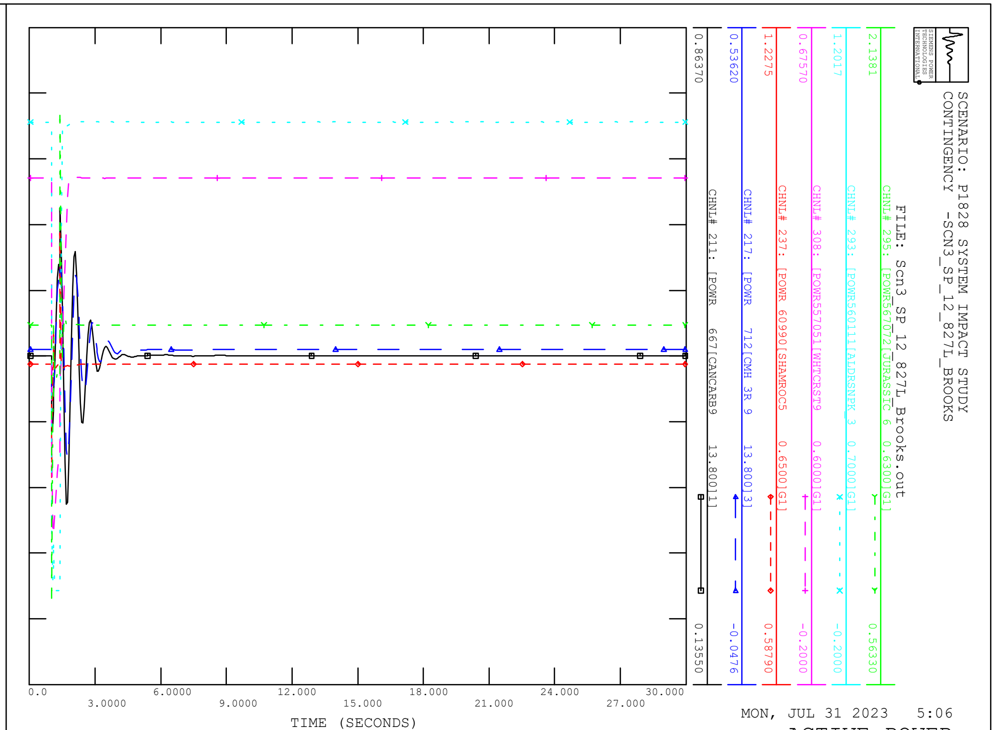
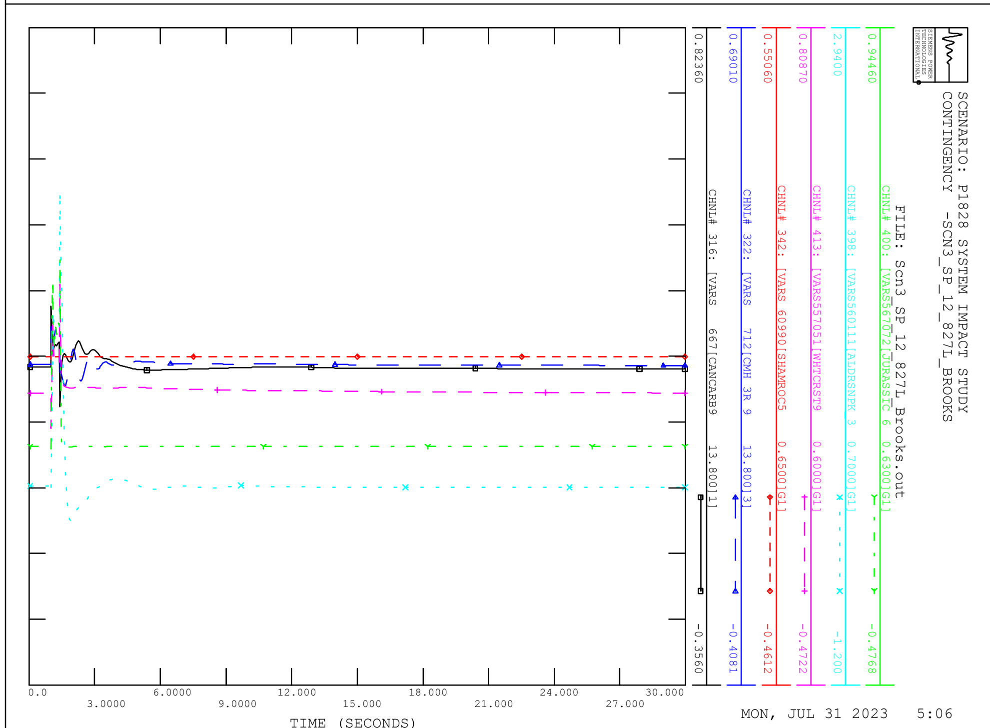


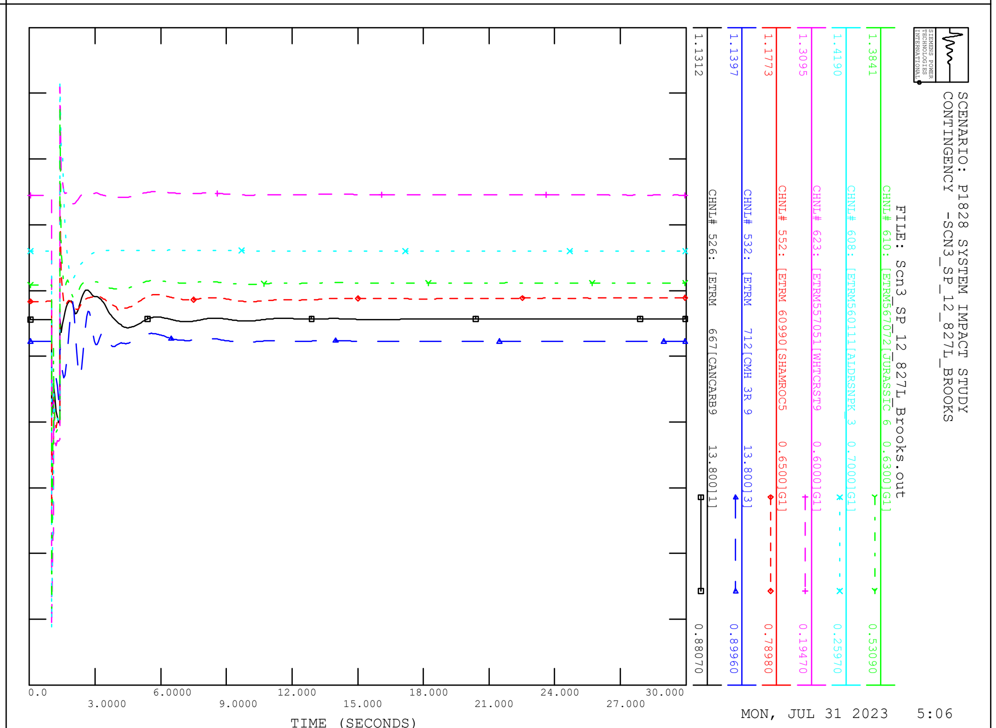
ROTOR ANGLE



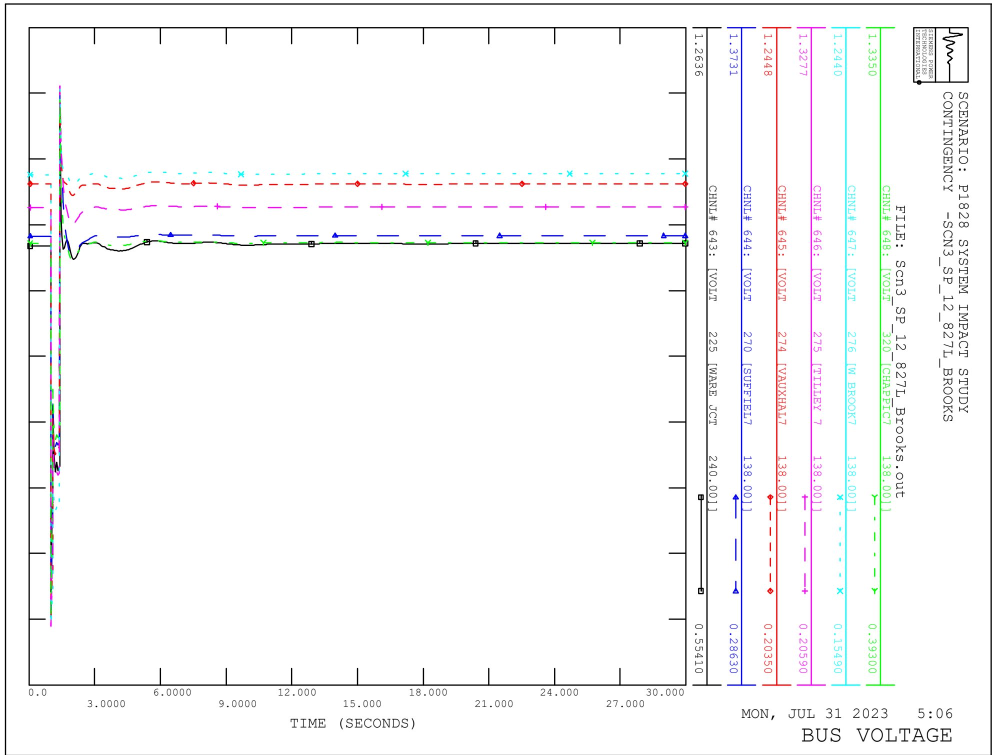
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE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CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.2636 0.55410
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3731 0.28630
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2448 0.20350
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3277 0.20590
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.2440 0.15490
CHNL# 648: [VOLT 320 [CHAPIC7 138.00]] 1.3350 0.39300
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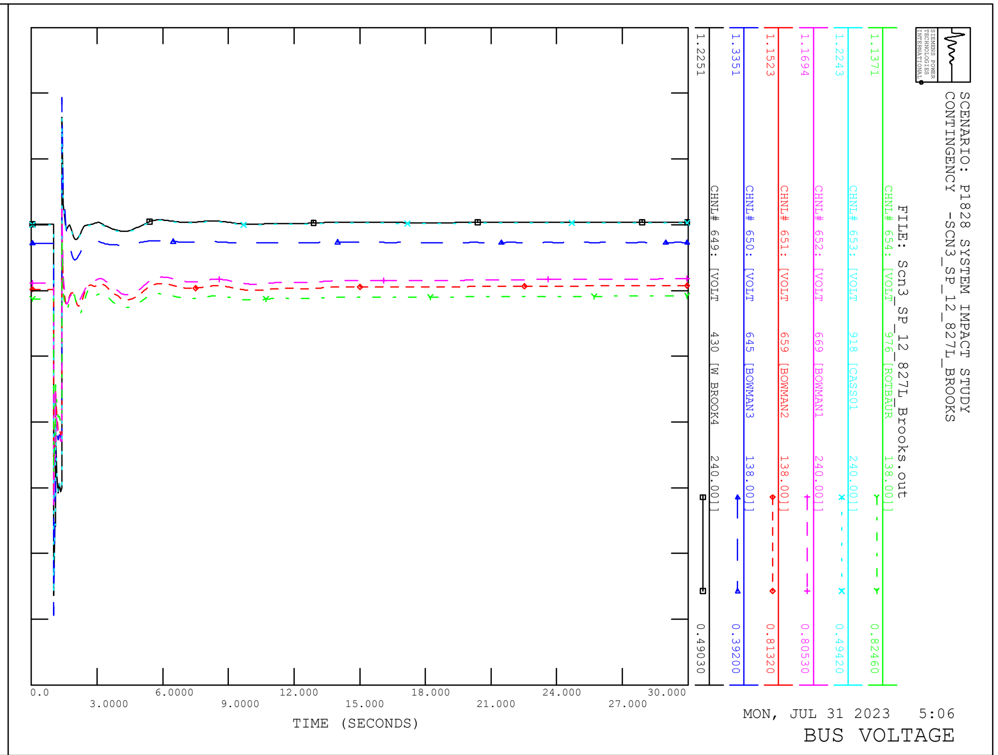
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.2251 0.49030
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3351 0.39200
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1523 0.81320
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1694 0.80530
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.2243 0.49420
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1371 0.82460
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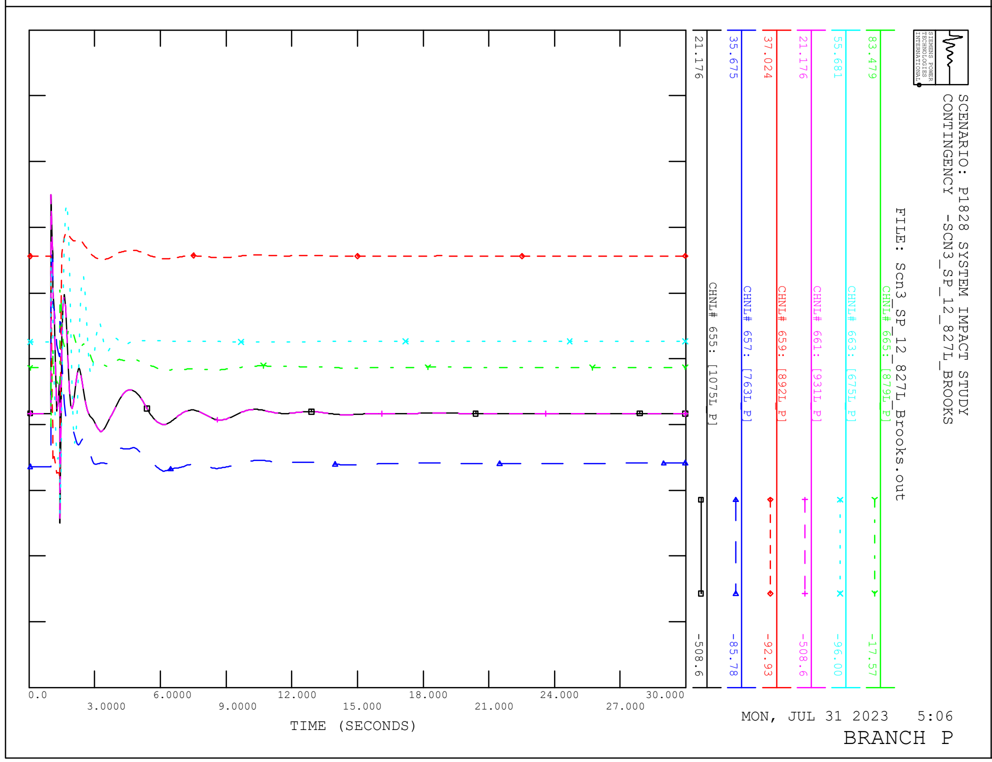
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FILE: Scn3_SP_12_827L_Brooks.out
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CHNL# 657: [763L_P] 35.675 -85.78
CHNL# 659: [892L_P] 37.024 -92.93
CHNL# 661: [931L_P] 21.176 -508.6
CHNL# 663: [675L_P] 55.681 -96.00
CHNL# 665: [879L_P] 83.479 -17.57
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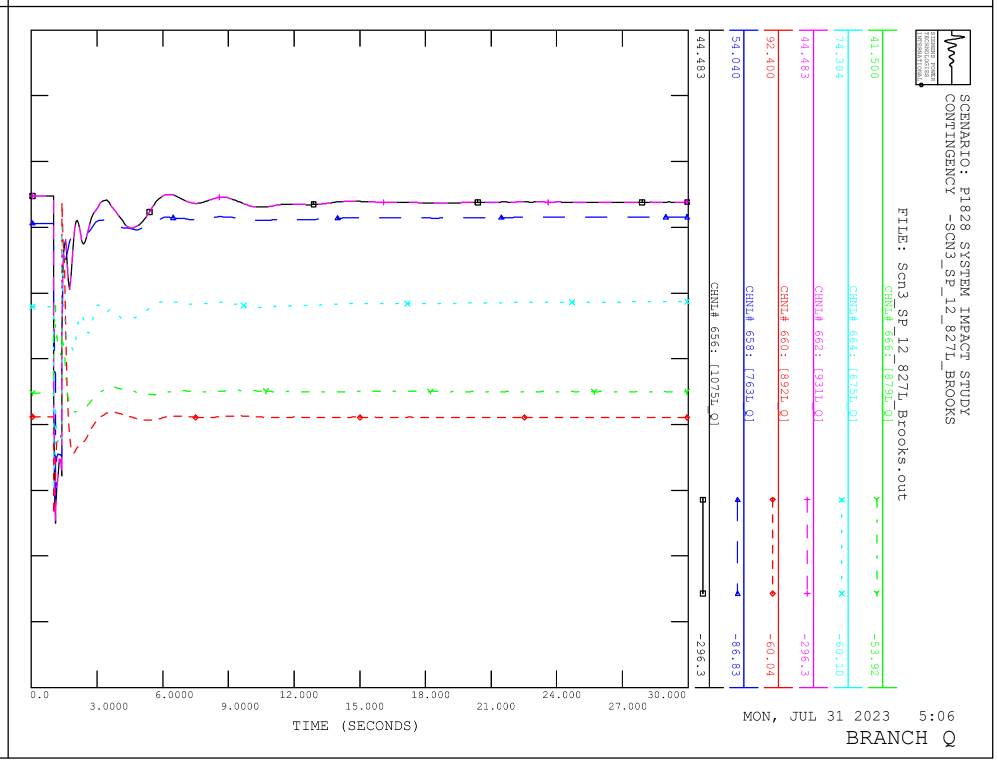
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L_Q] 54.040 -86.83
CHNL# 660: [892L_Q] 92.400 -60.04
CHNL# 662: [931L_Q] 44.483 -296.3
CHNL# 664: [675L_Q] 74.304 -60.10
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MON, JUL 31 2023 5:06
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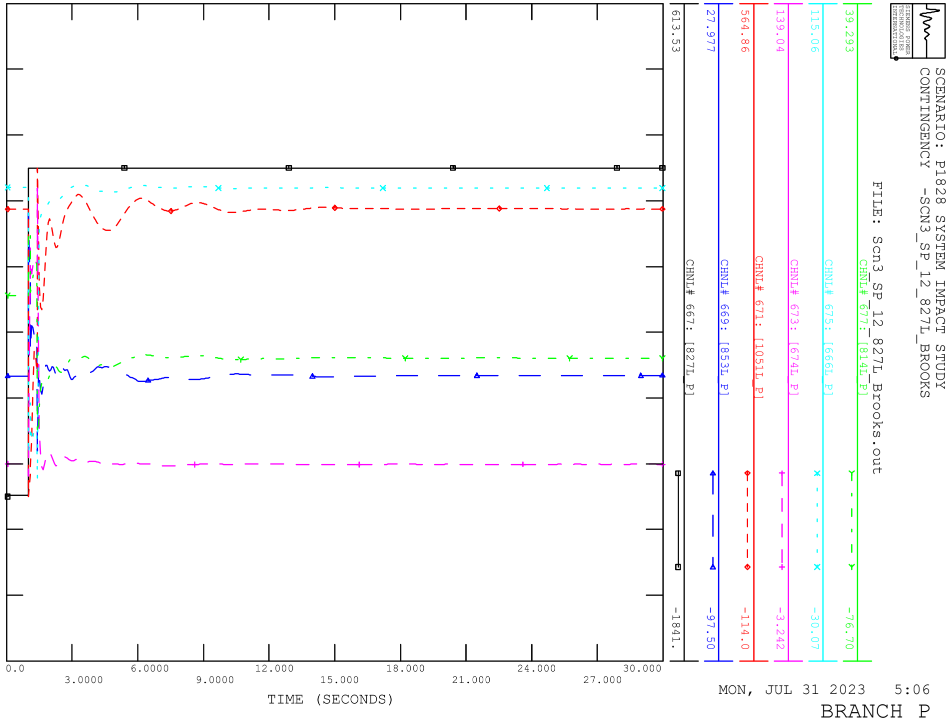
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CHNL# 669: [853L_P] 27.977 -97.50
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CHNL# 673: [674L_P] 139.04 -3.242
CHNL# 675: [666L_P] 115.06 -30.07
CHNL# 677: [814L_P] 39.293 -76.70
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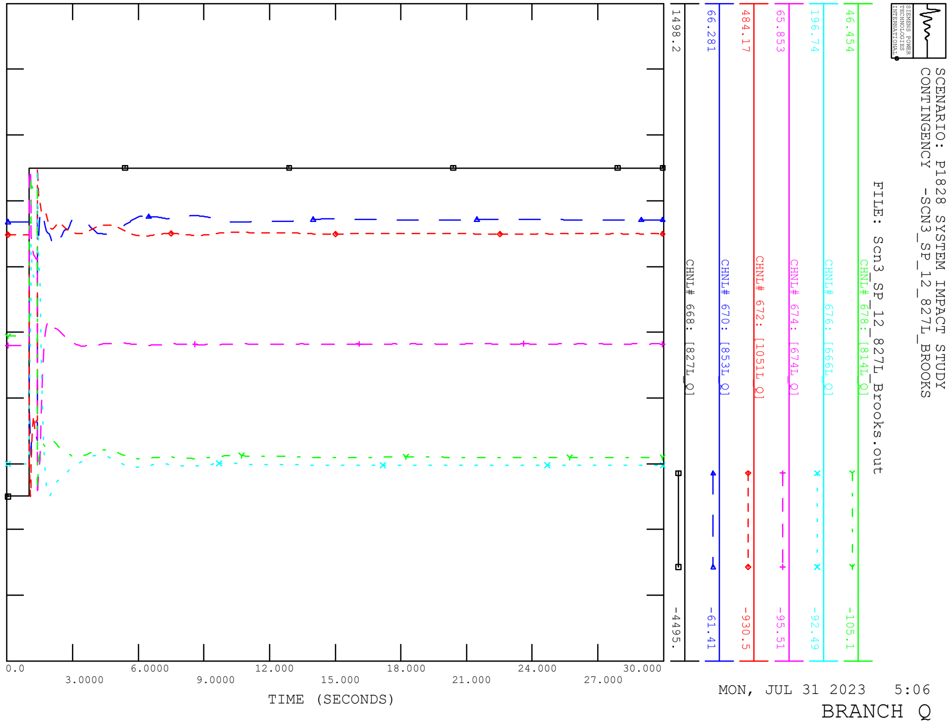
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 66.281 -61.41
CHNL# 672: [1051L_Q] 484.17 -930.5
CHNL# 674: [674L_Q] 65.853 -95.51
CHNL# 676: [666L_Q] 196.74 -92.49
CHNL# 678: [814L_Q] 46.454 -105.1
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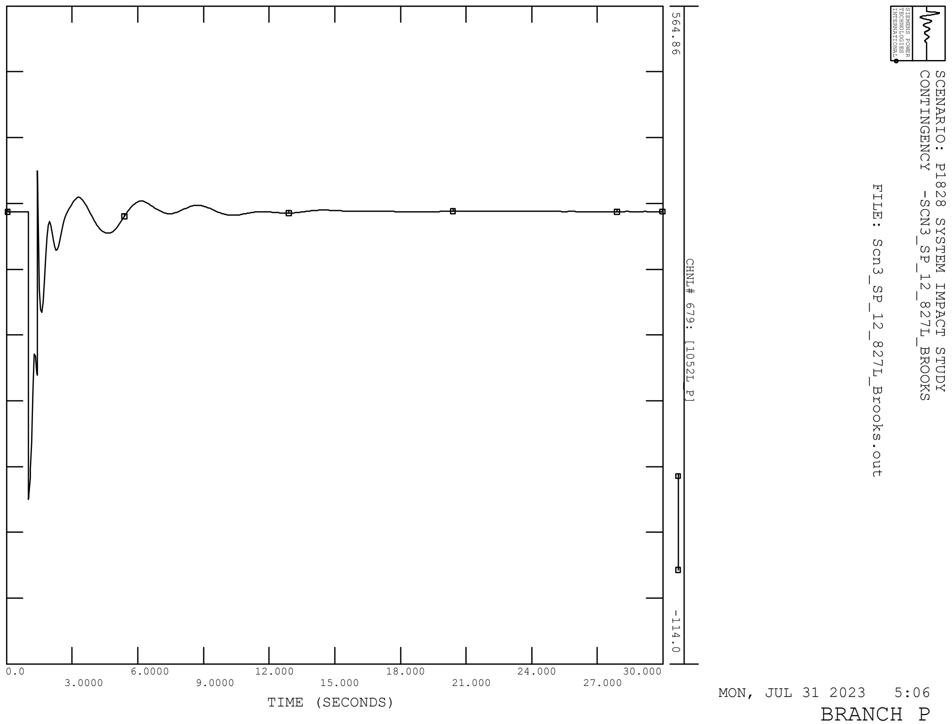
MON, JUL 31 2023 5:06
BRANCH Q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MON, JUL 31 2023 5:06
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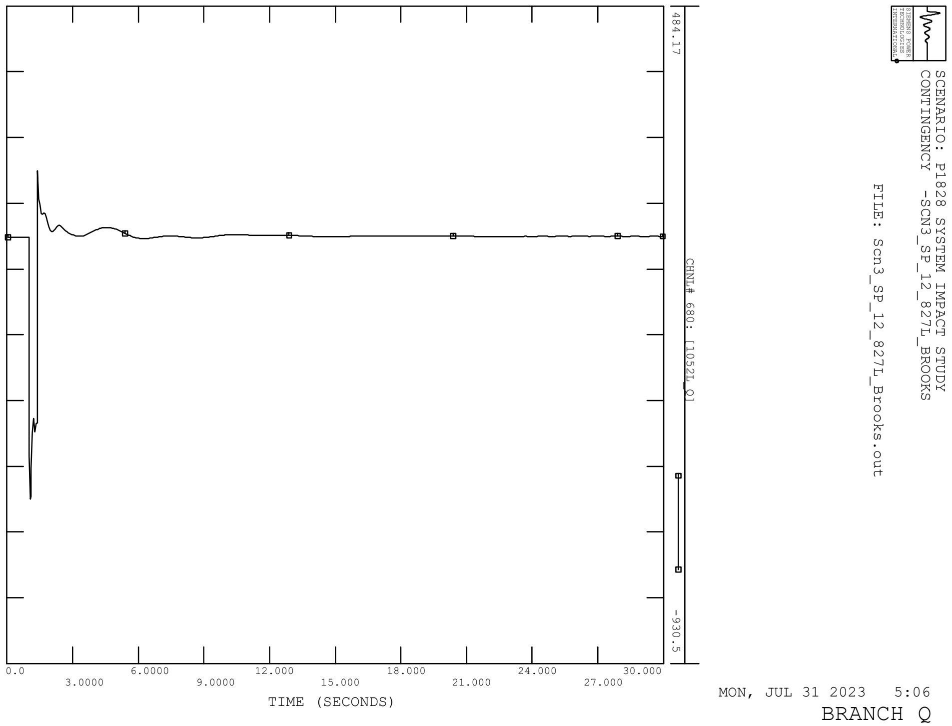
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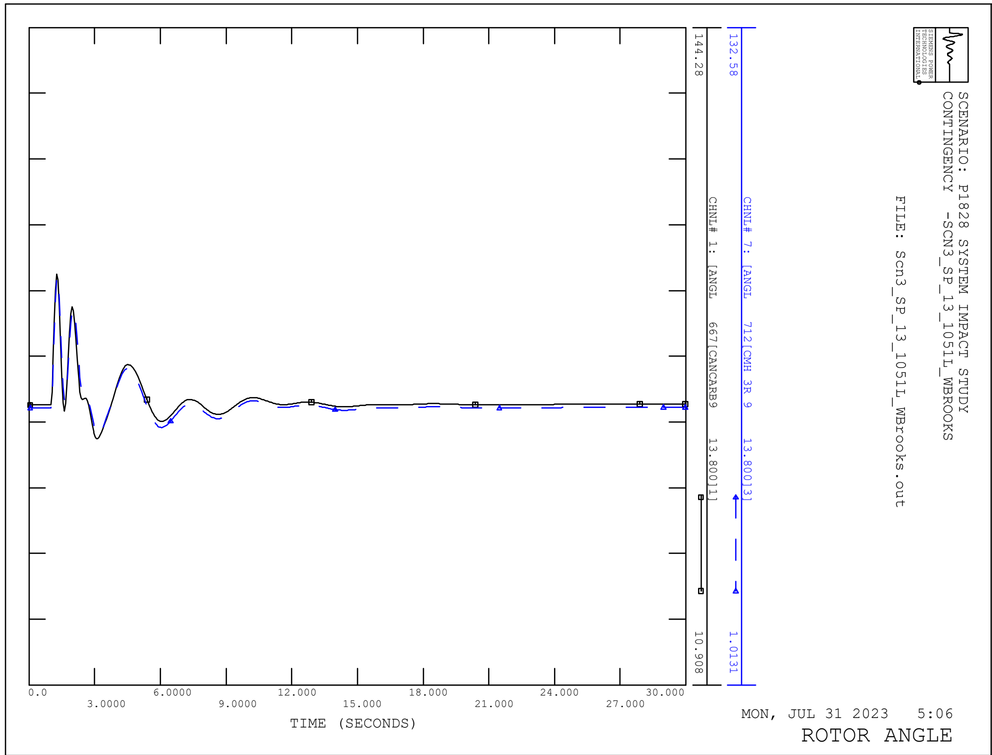
BRANCH Q



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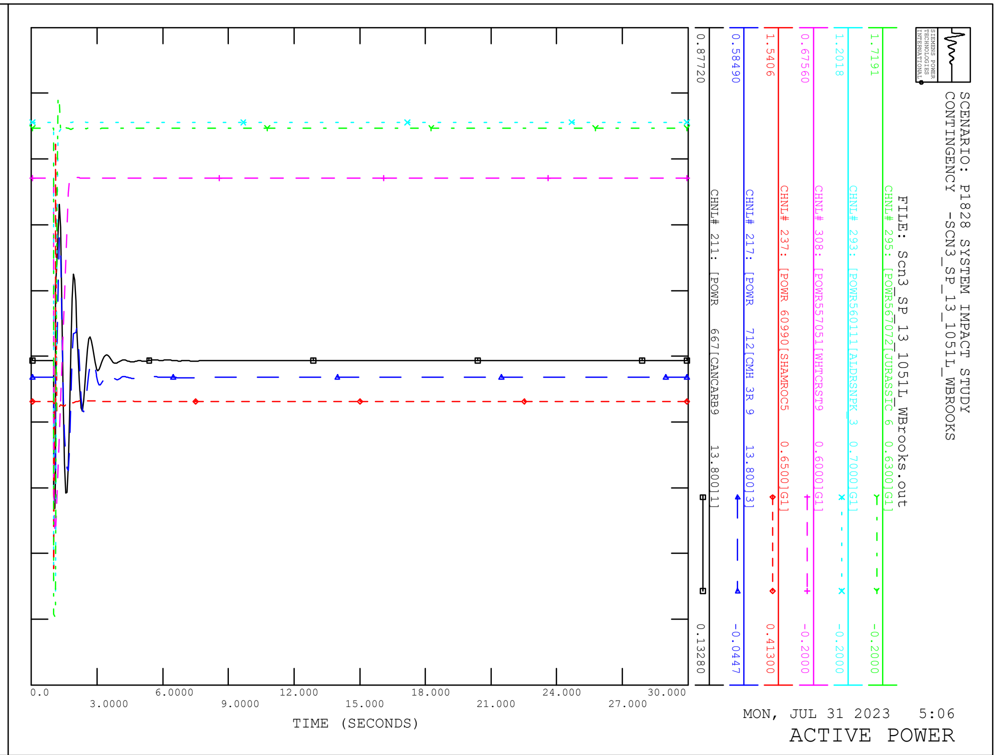
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE



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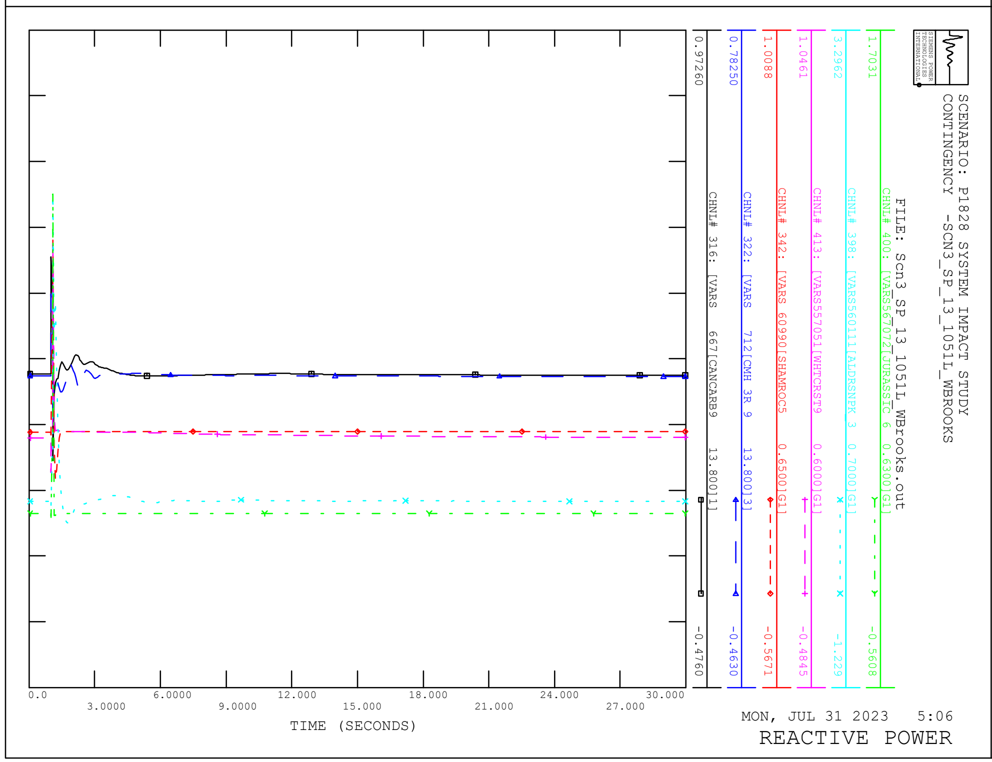
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER



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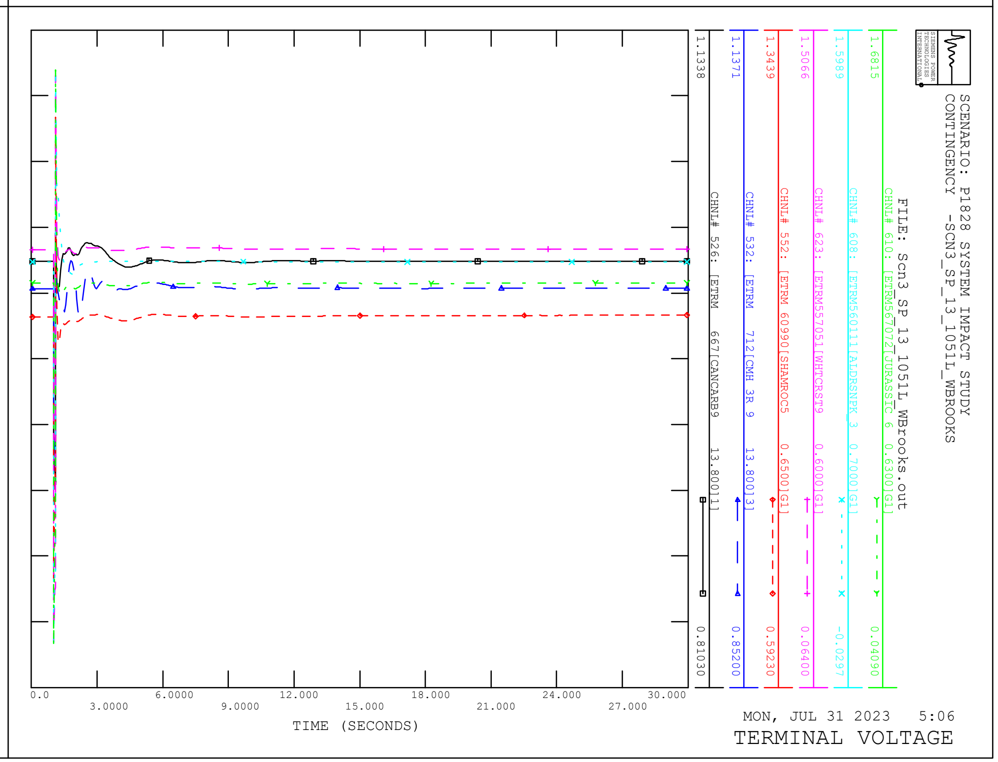
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER



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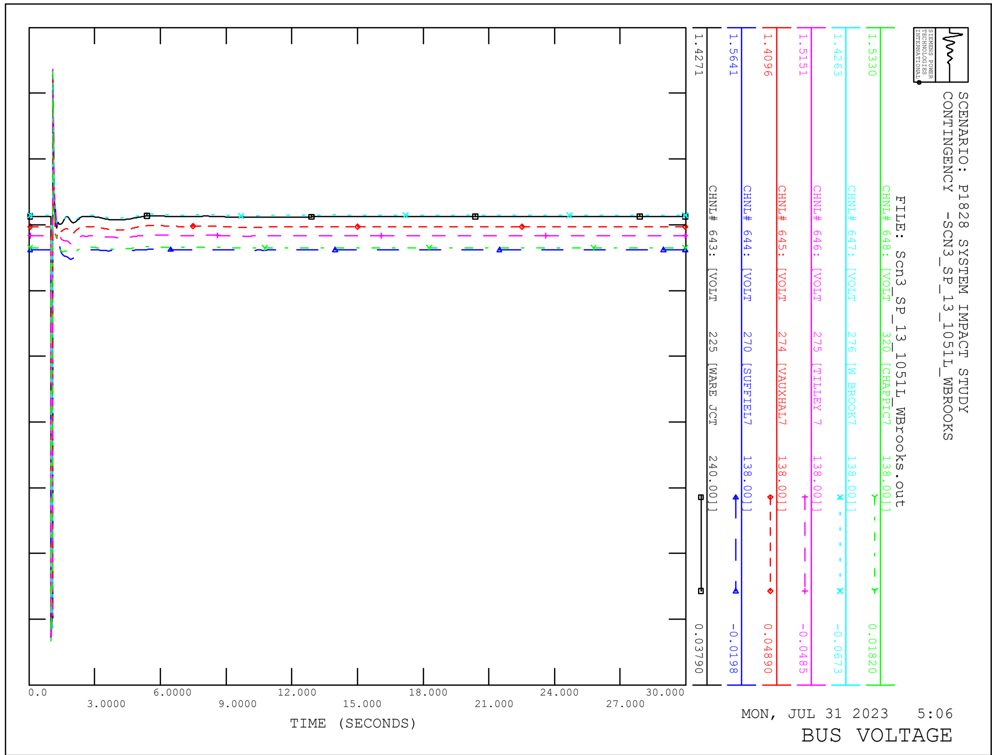
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.5641 -0.0198
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.4096 0.04890
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.5151 -0.0485
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.4263 -0.0673
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.5330 0.01820
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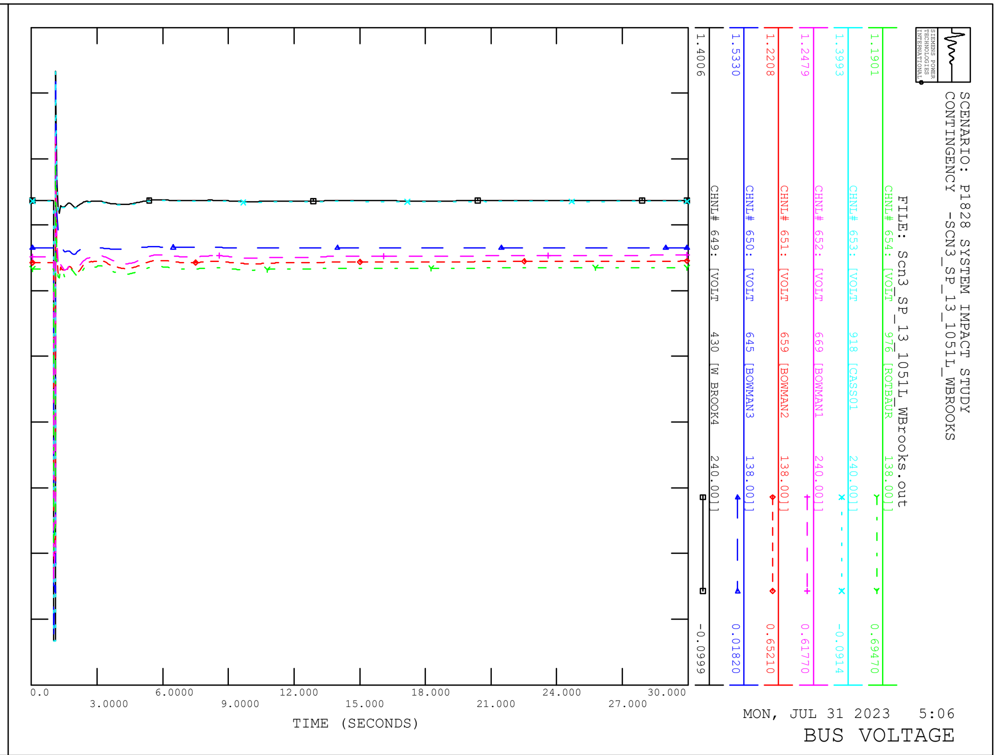
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.2208 0.65210
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CHNL# 653: [VOLT 918 [CASSOI 240.00]] 1.3993 -0.0914
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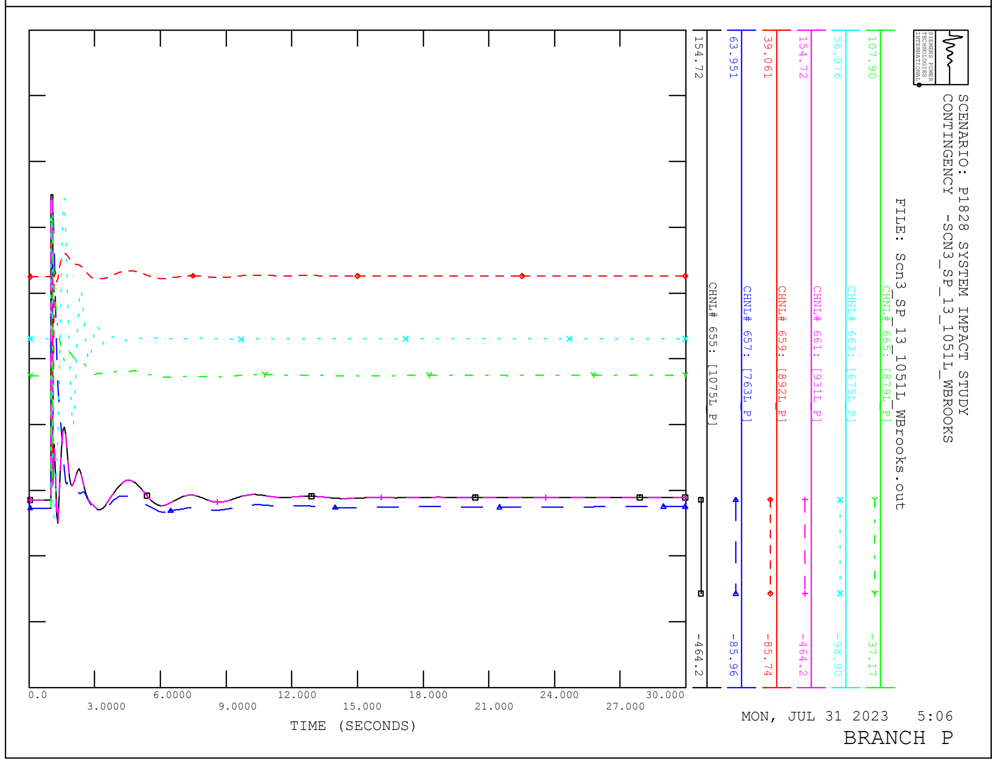

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CHNL# 657: [763L P] 63.951 -85.96
CHNL# 659: [892L P] 39.061 -85.74
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CHNL# 663: [675L P] 56.976 -98.90
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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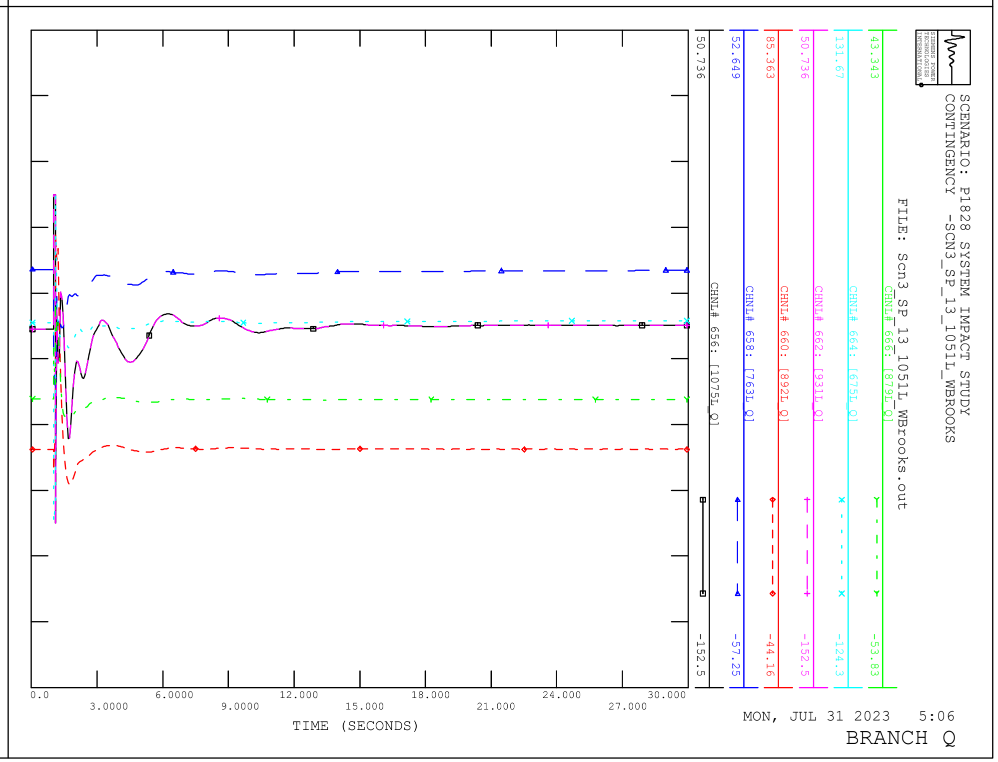

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CHNL# 660: [892L Q] 85.363 -44.16
CHNL# 662: [931L Q] 50.736 -152.5
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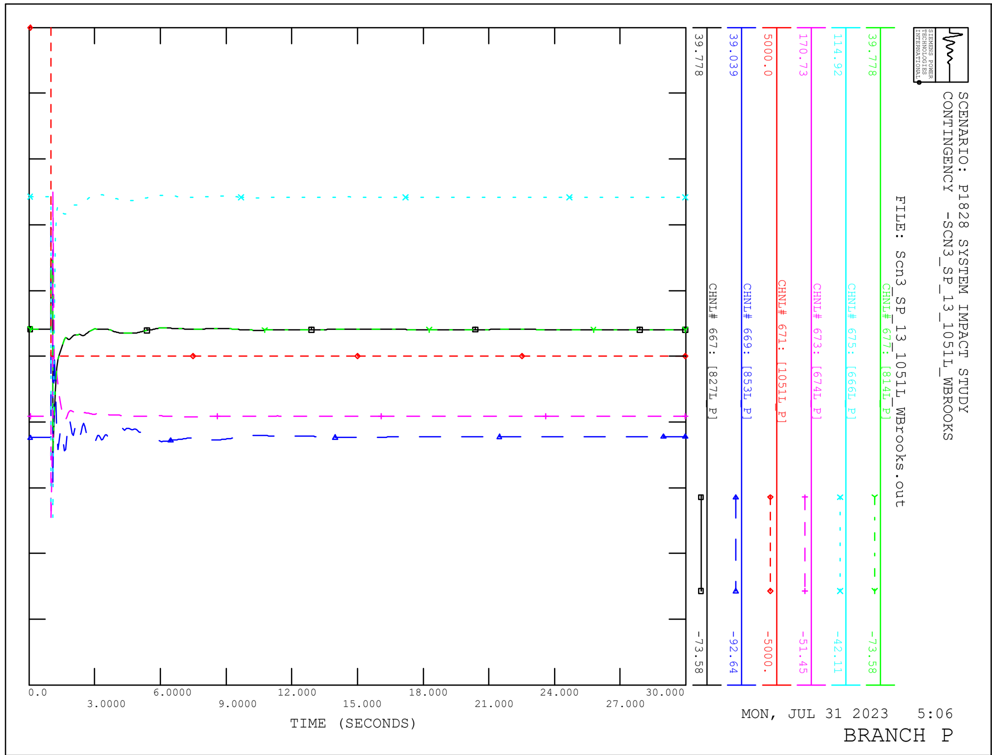
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39.039 CHNL# 669: [853L_P] -92.64
5000.0 CHNL# 671: [1051L_P] -5000.
170.73 CHNL# 673: [674L_P] -51.45
114.92 CHNL# 675: [666L_P] -42.11
39.778 CHNL# 677: [819L_P] -73.58
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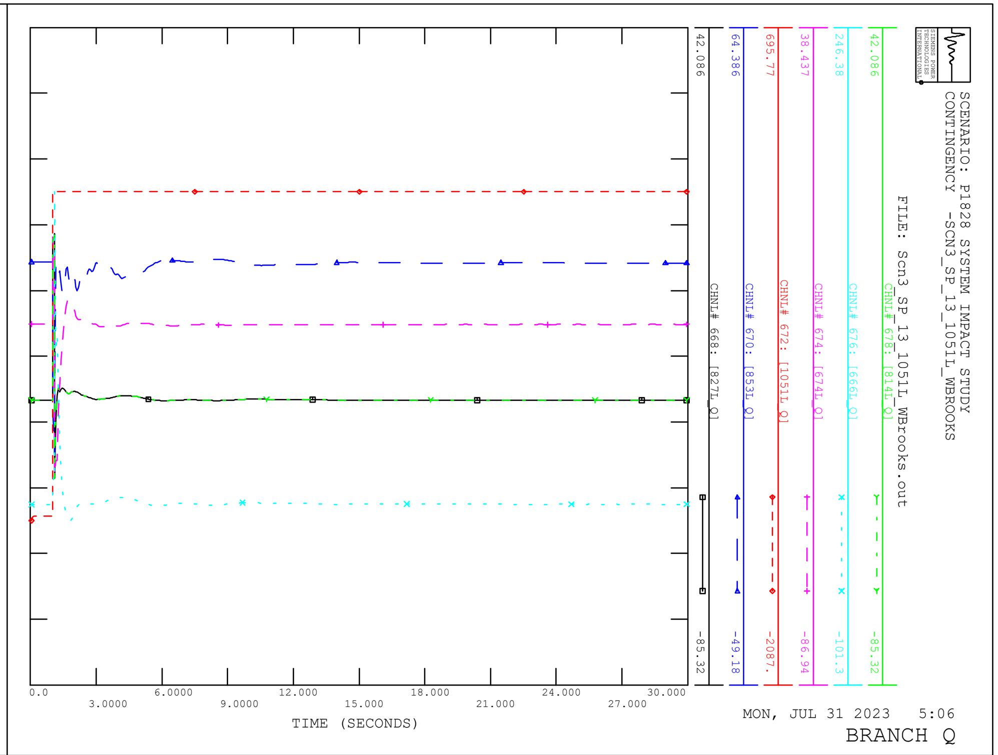
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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695.77 CHNL# 672: [1051L_Q] -2087.
38.437 CHNL# 674: [674L_Q] -86.94
246.38 CHNL# 676: [666L_Q] -101.3
42.086 CHNL# 678: [819L_Q] -85.32
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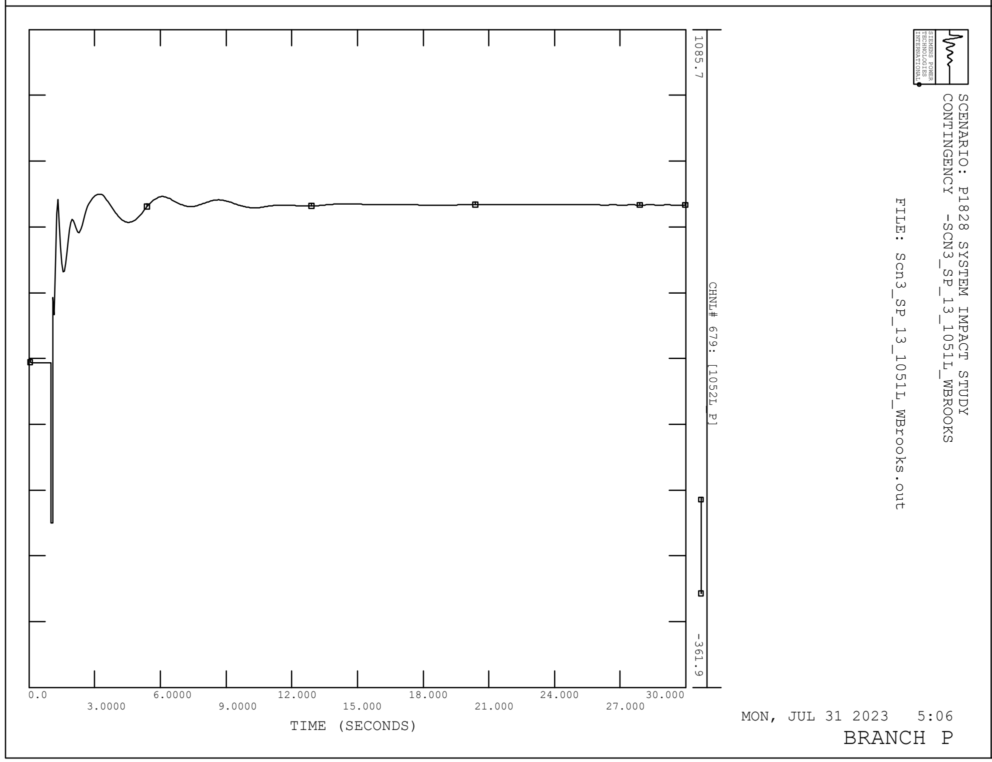
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN3_SP_13_1051L_WBROOKS
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TIME (SECONDS)
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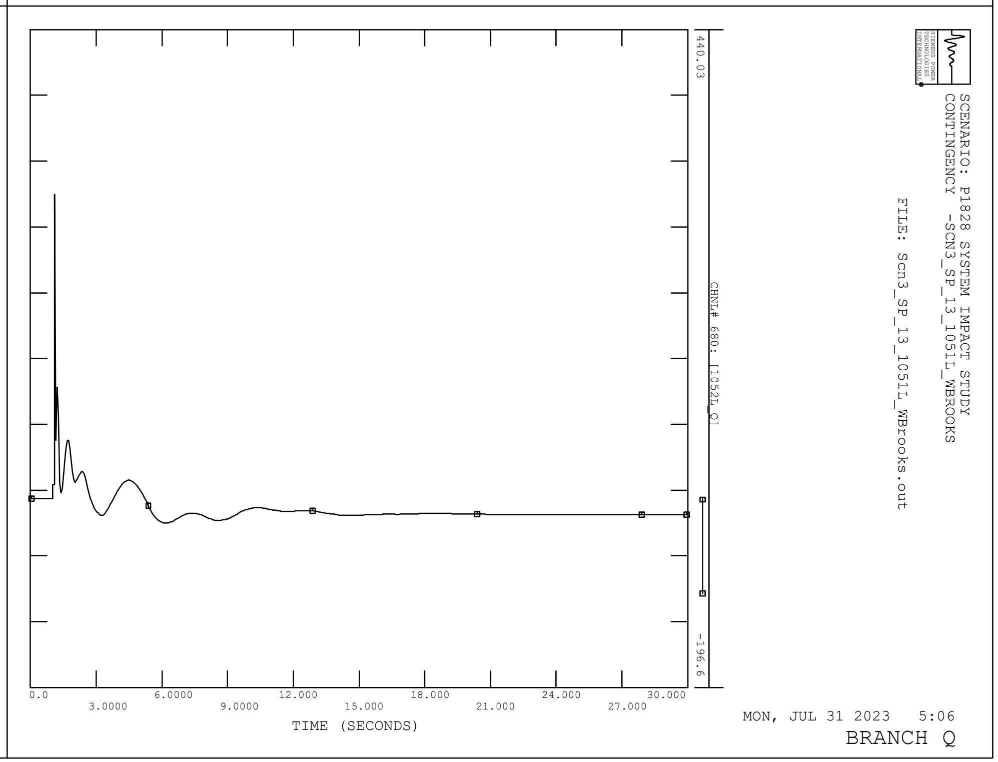
BRANCH P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CONTINGENCY -SCN3_SP_13_1051L_WBROOKS
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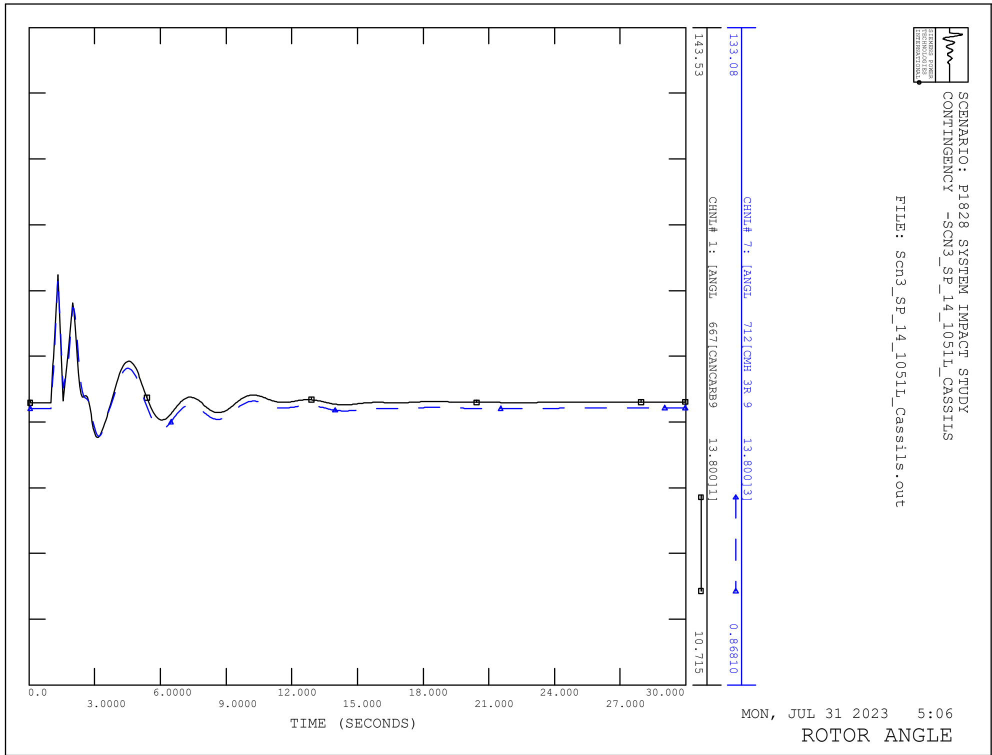
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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10.715
133.08
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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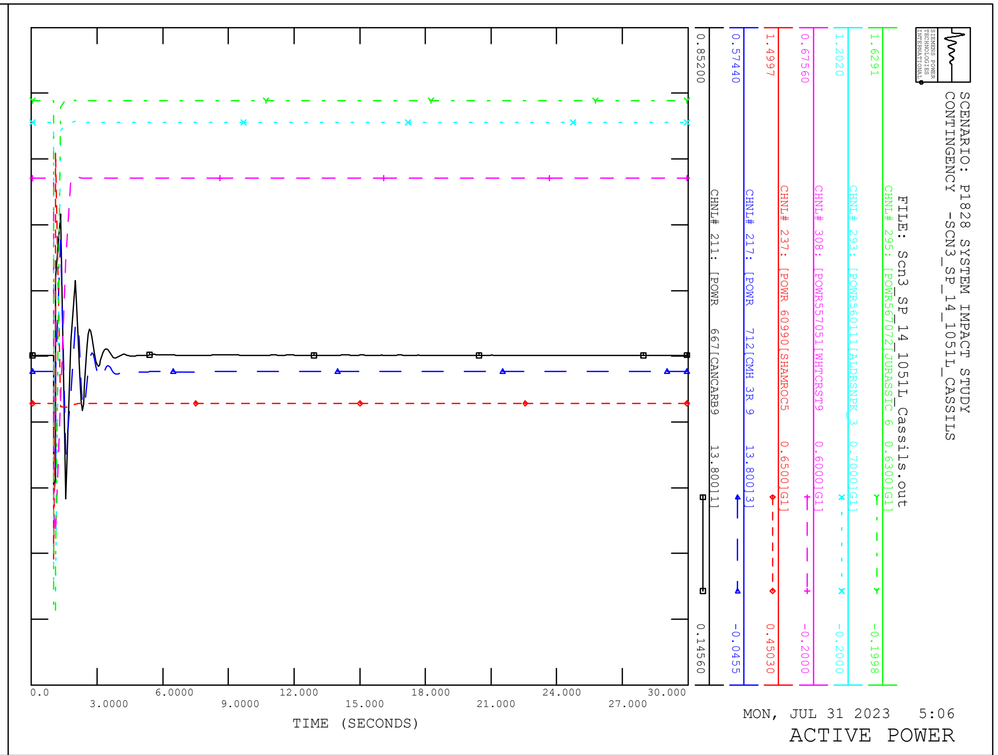
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.57440
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
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1.4997
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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0.67560
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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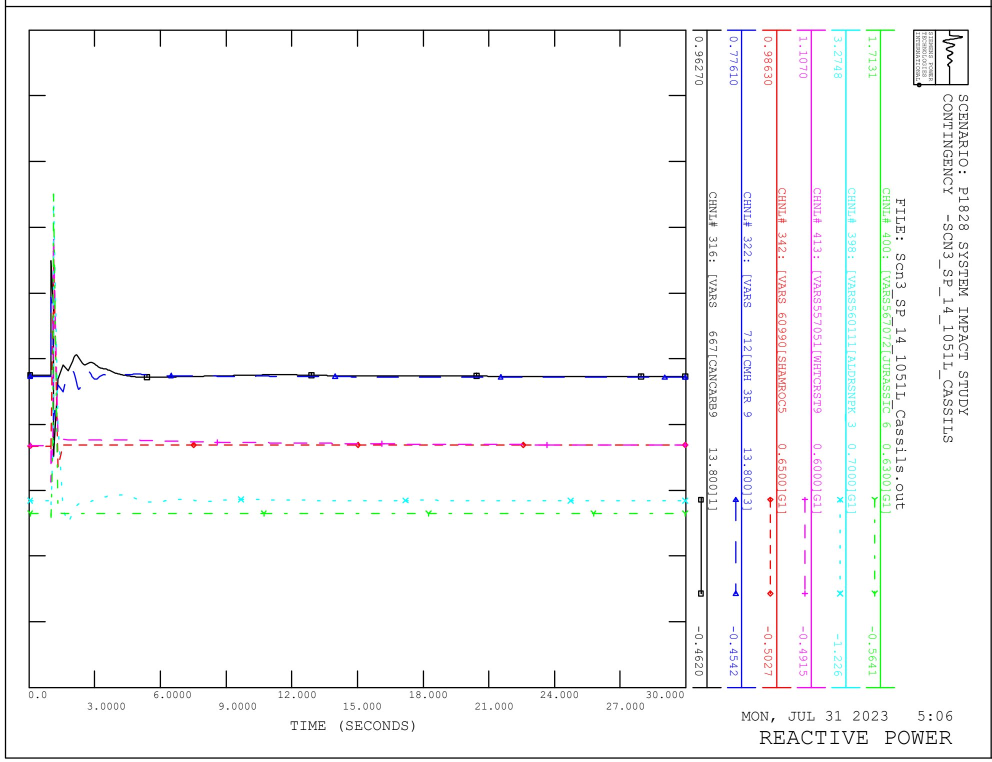
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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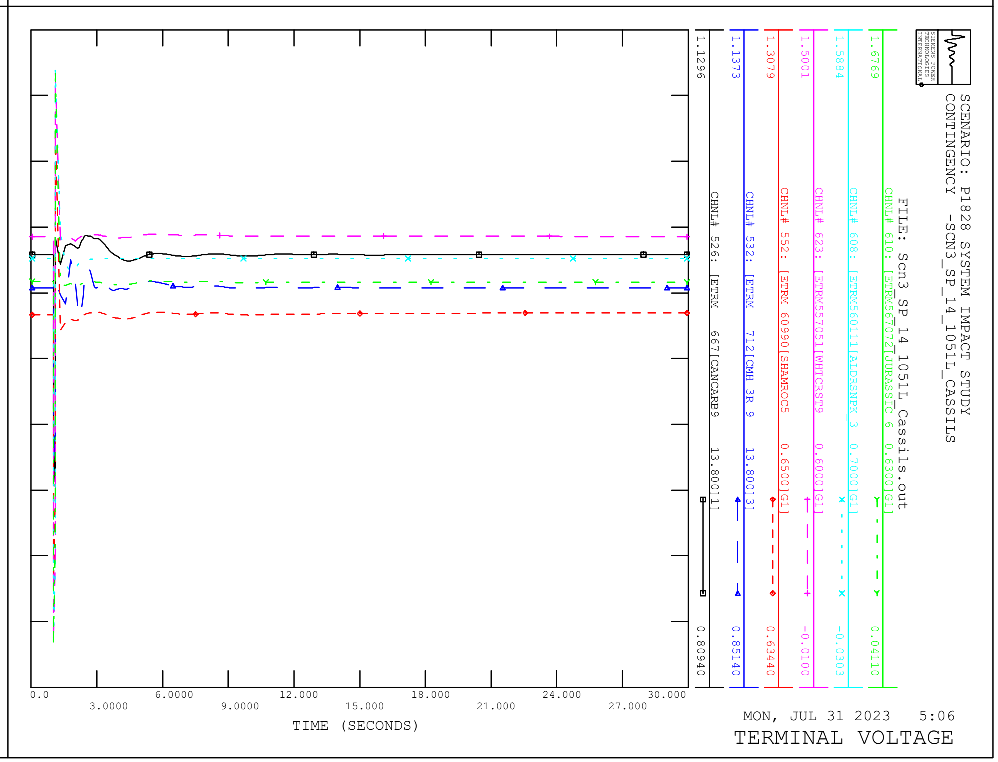
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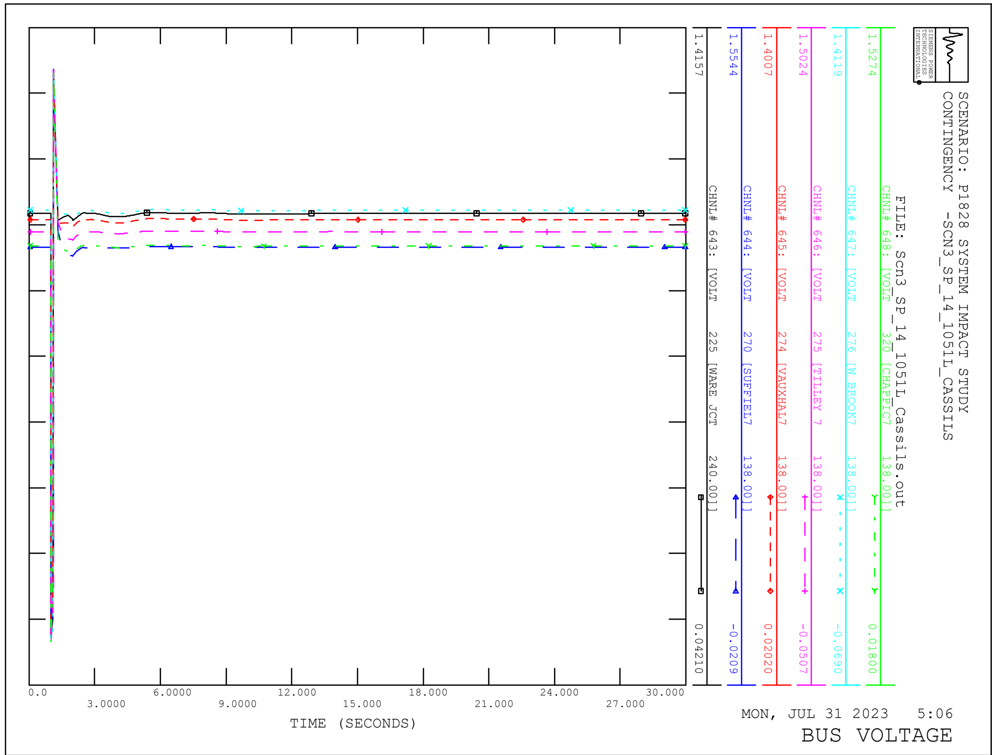
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CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.5024 -0.0507
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.4119 -0.0690
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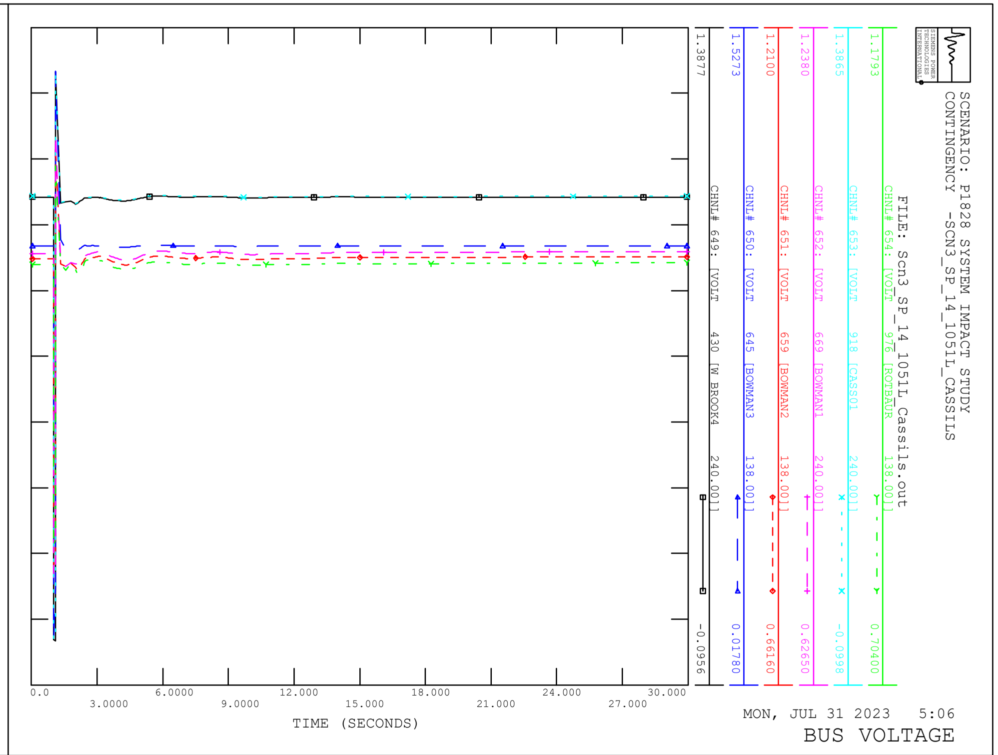
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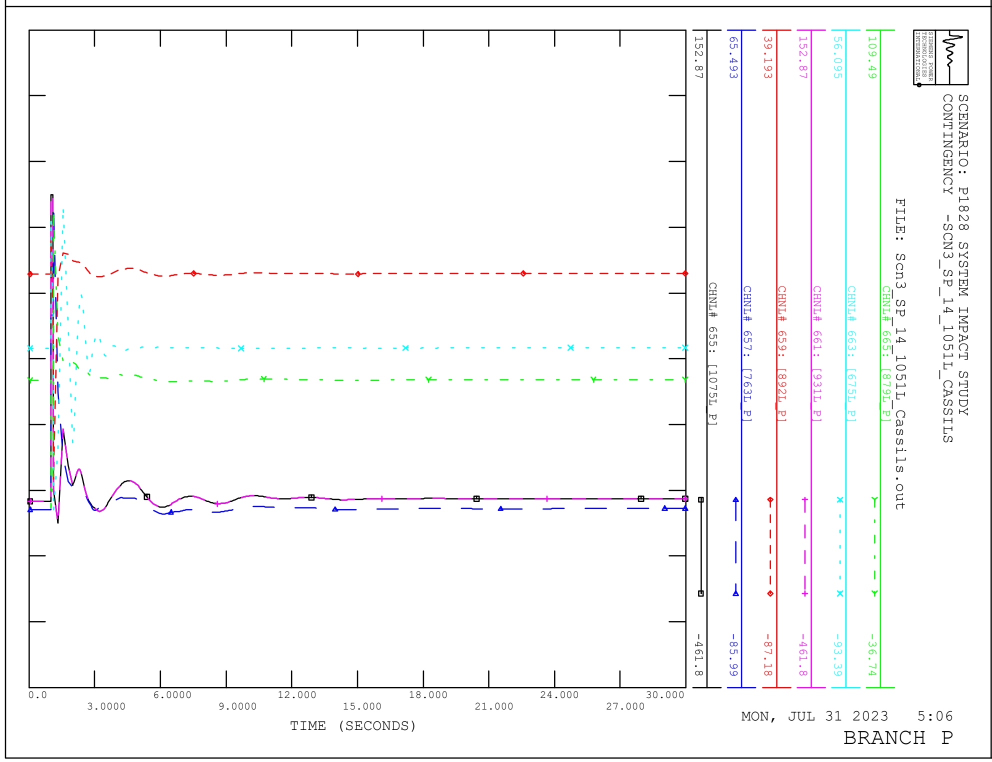
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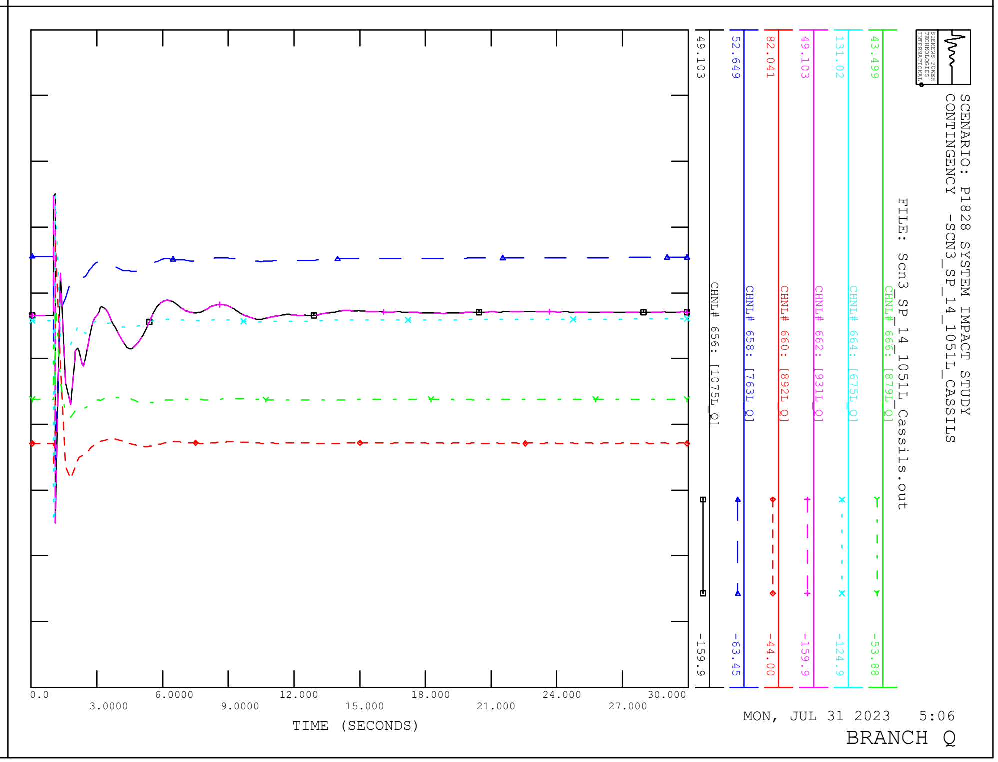
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CHNL# 662: [931L Q] 49.103 -159.9
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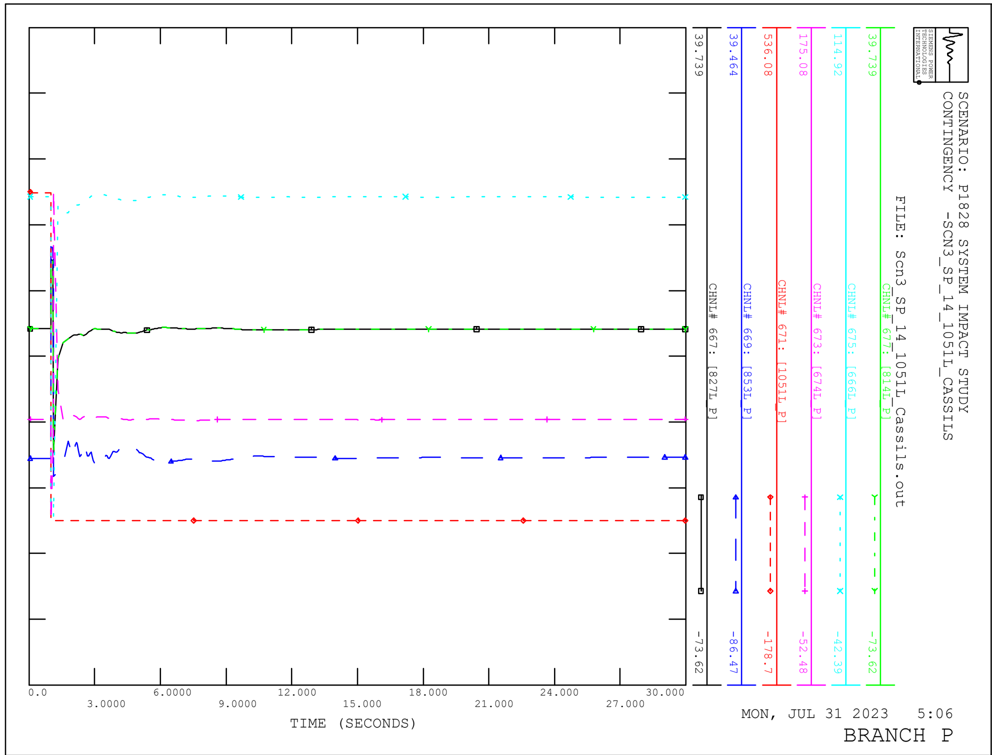

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CHNL# 671: [1051L_P] 536.08 -178.7
CHNL# 673: [674L_P] 175.08 -52.48
CHNL# 675: [666L_P] 114.92 -42.39
CHNL# 677: [814L_P] 39.739 -73.62
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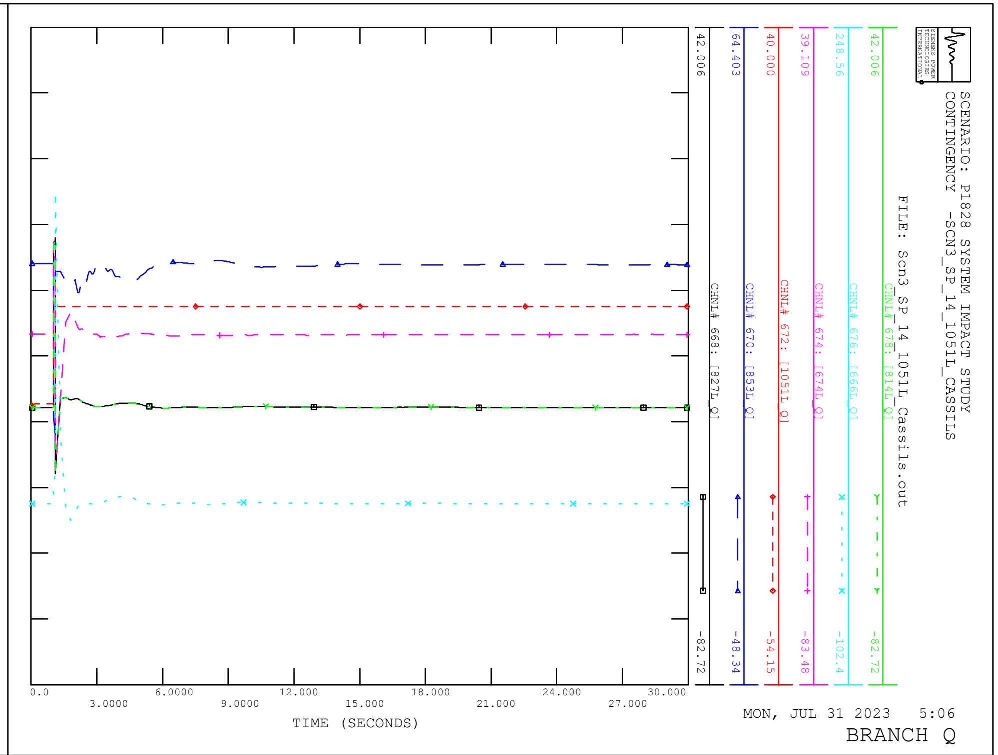

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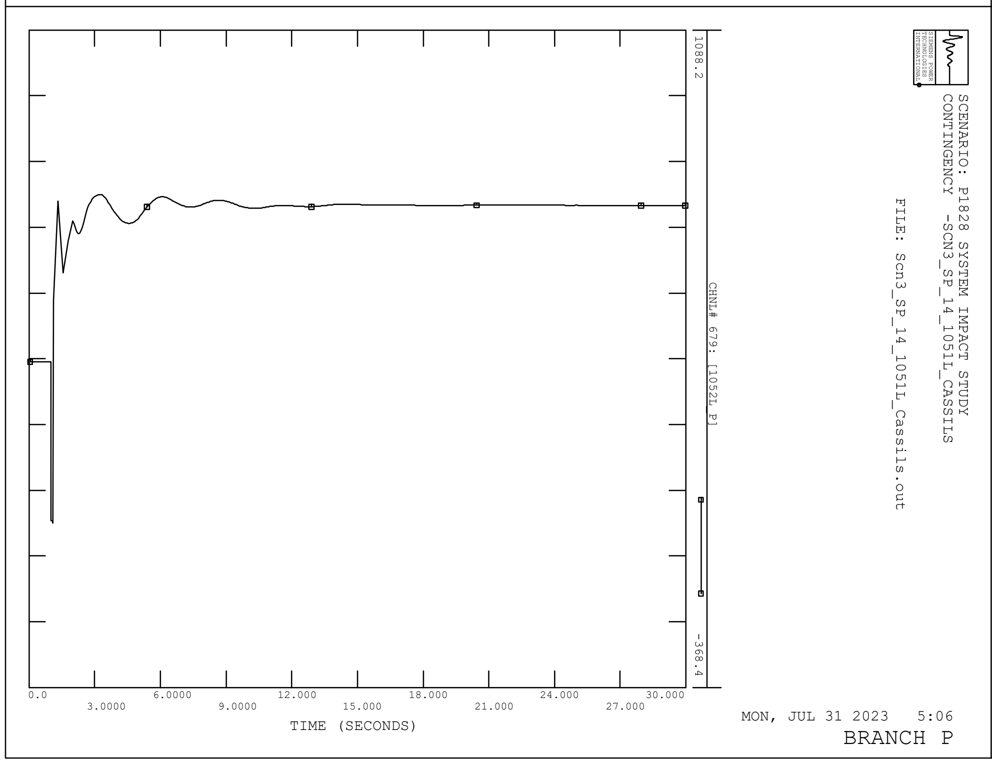

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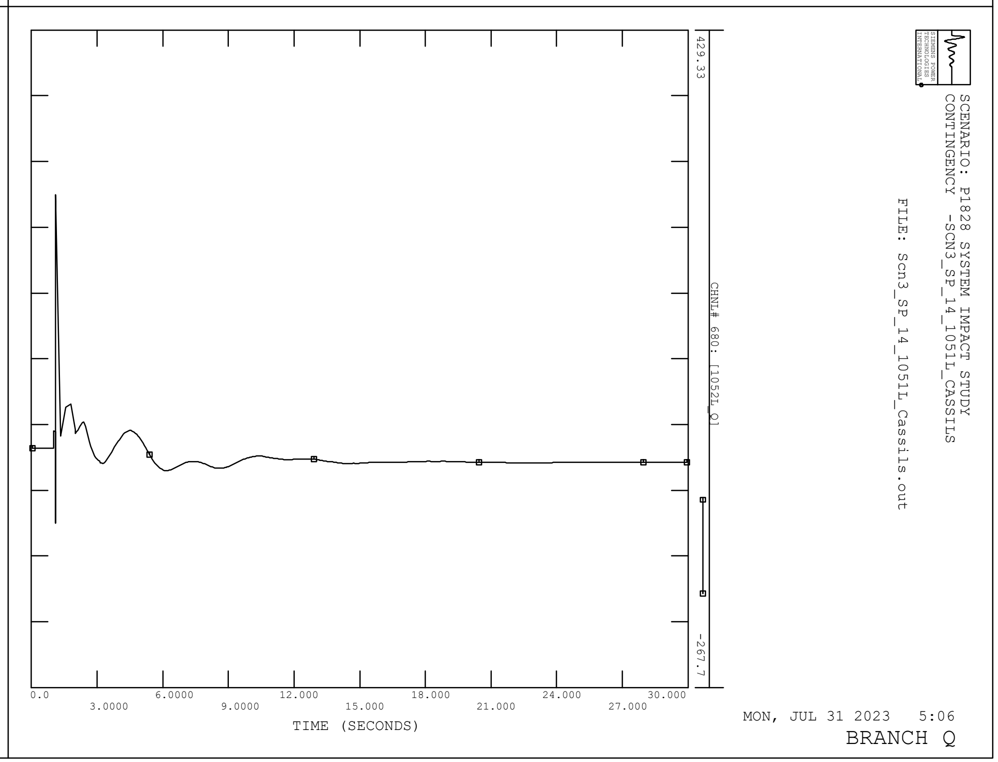

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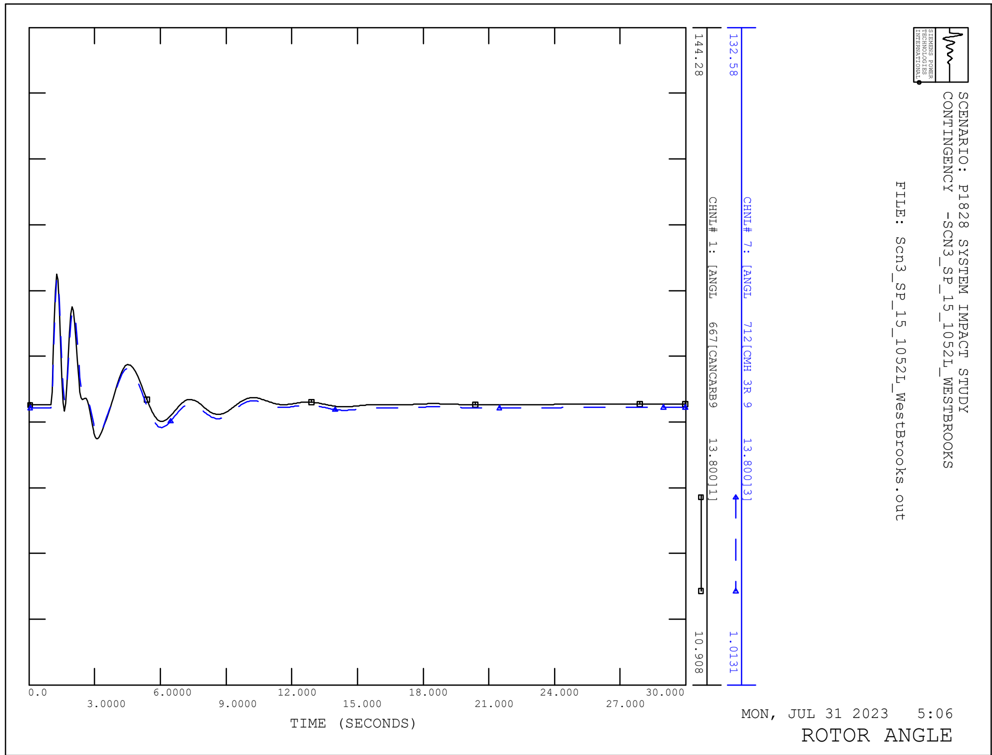
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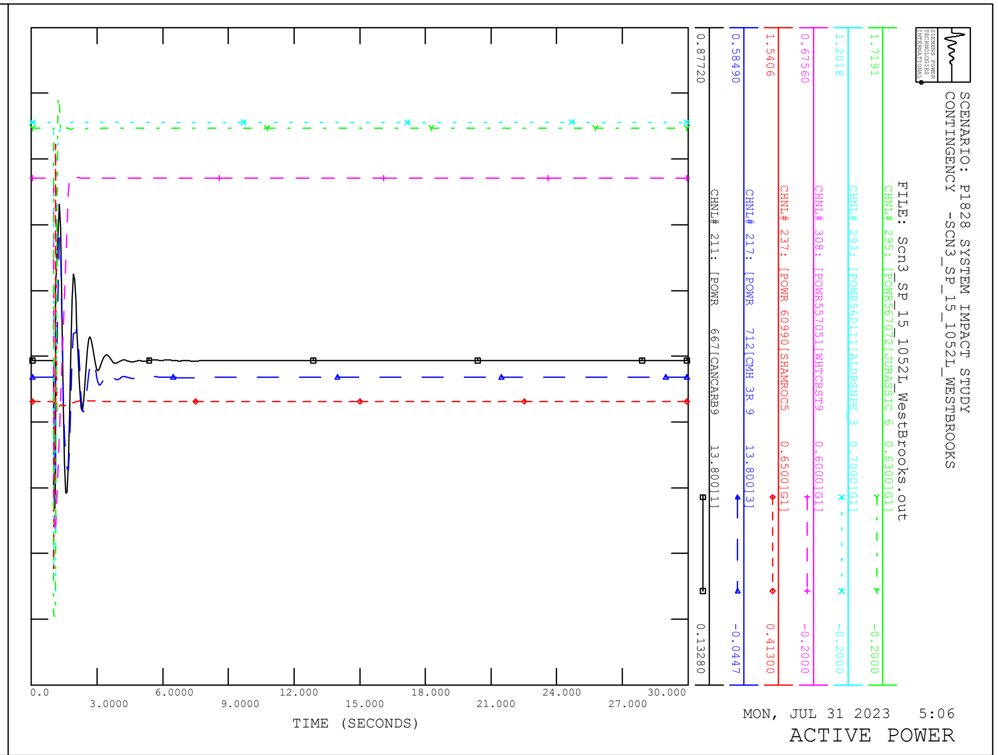
ROTOR ANGLE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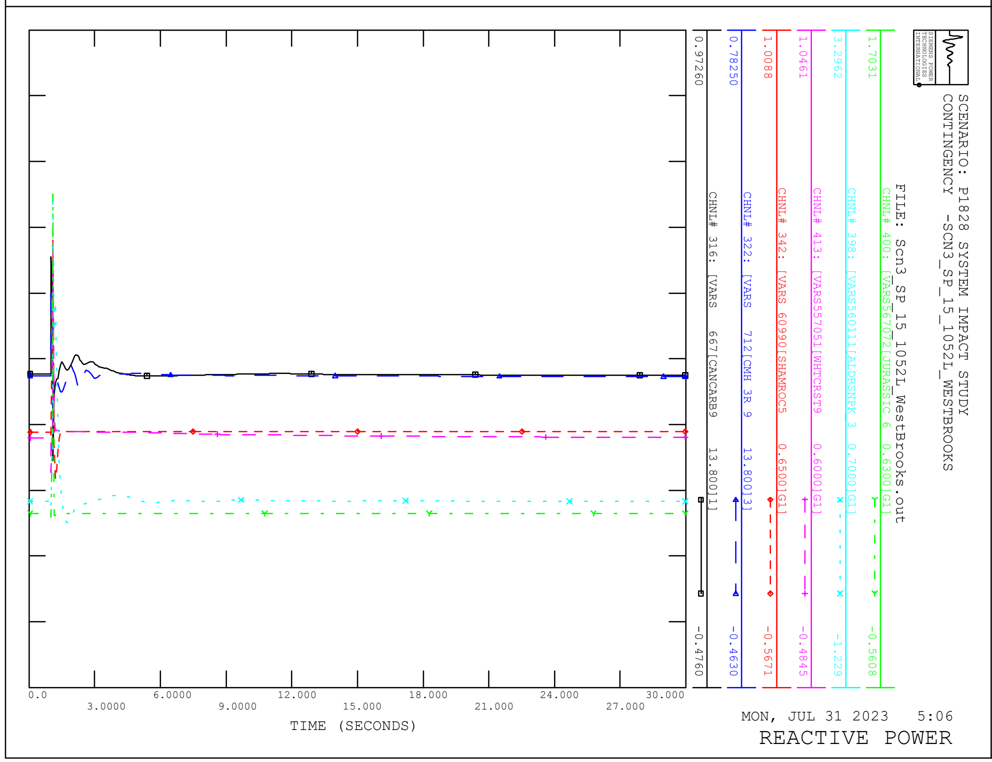
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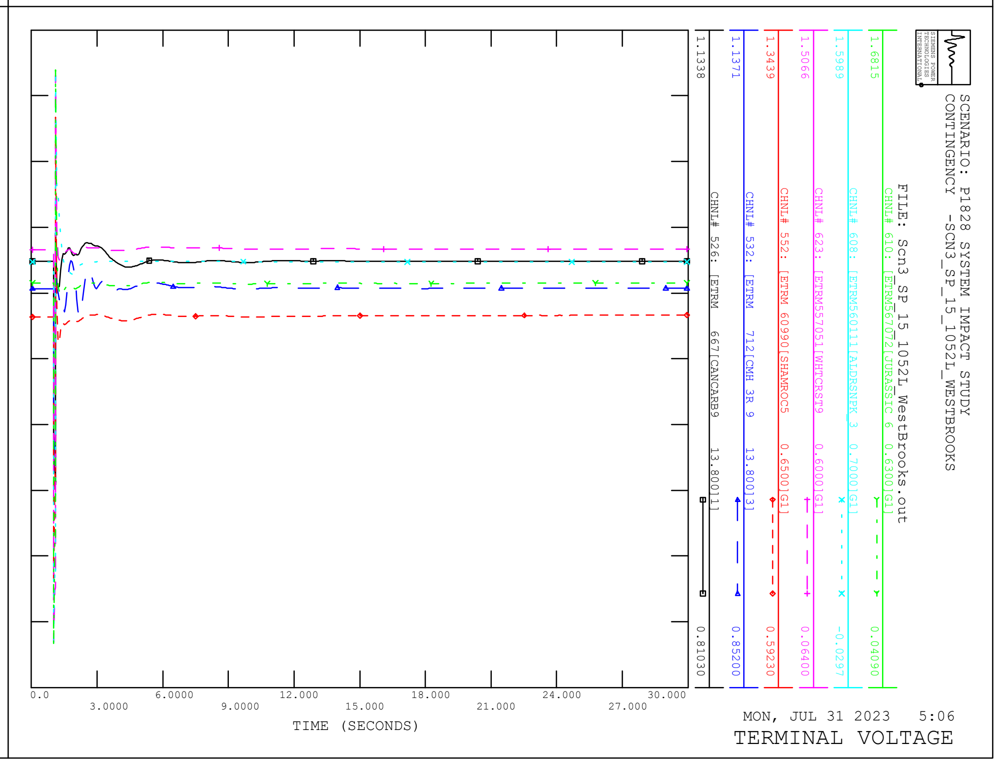
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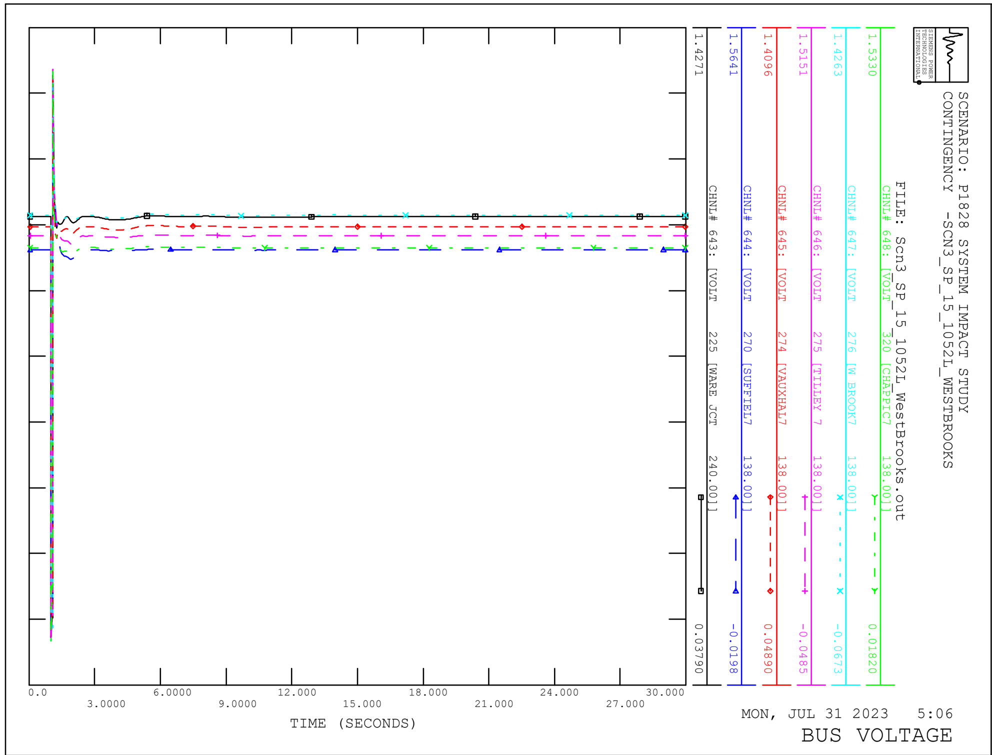
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CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.5151 -0.0485
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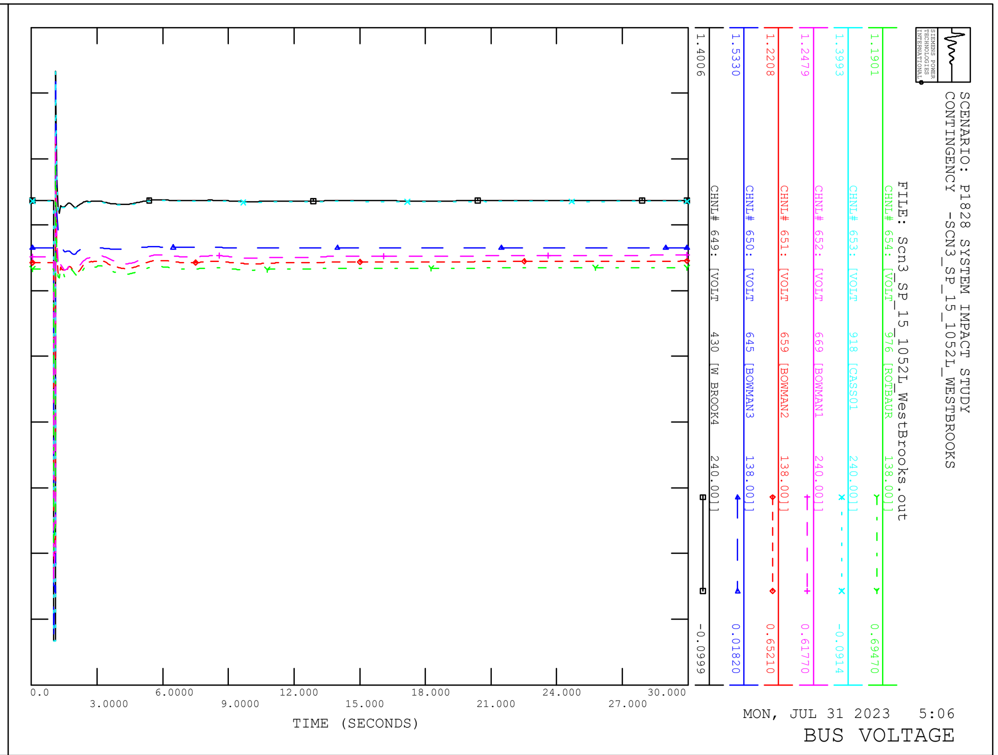
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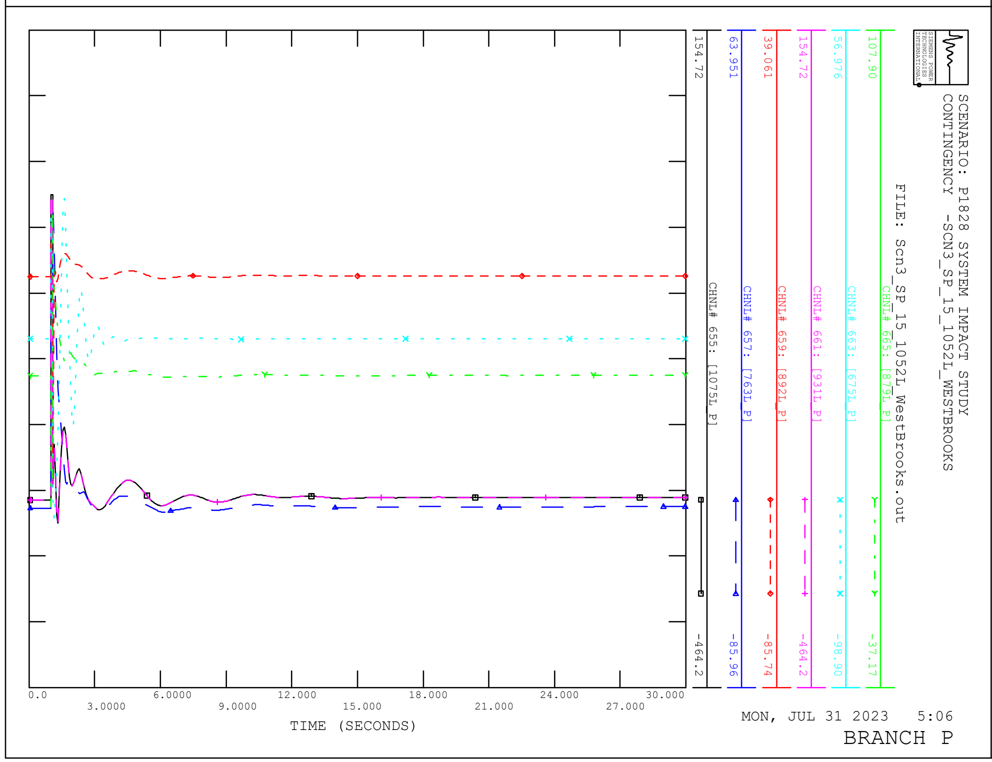
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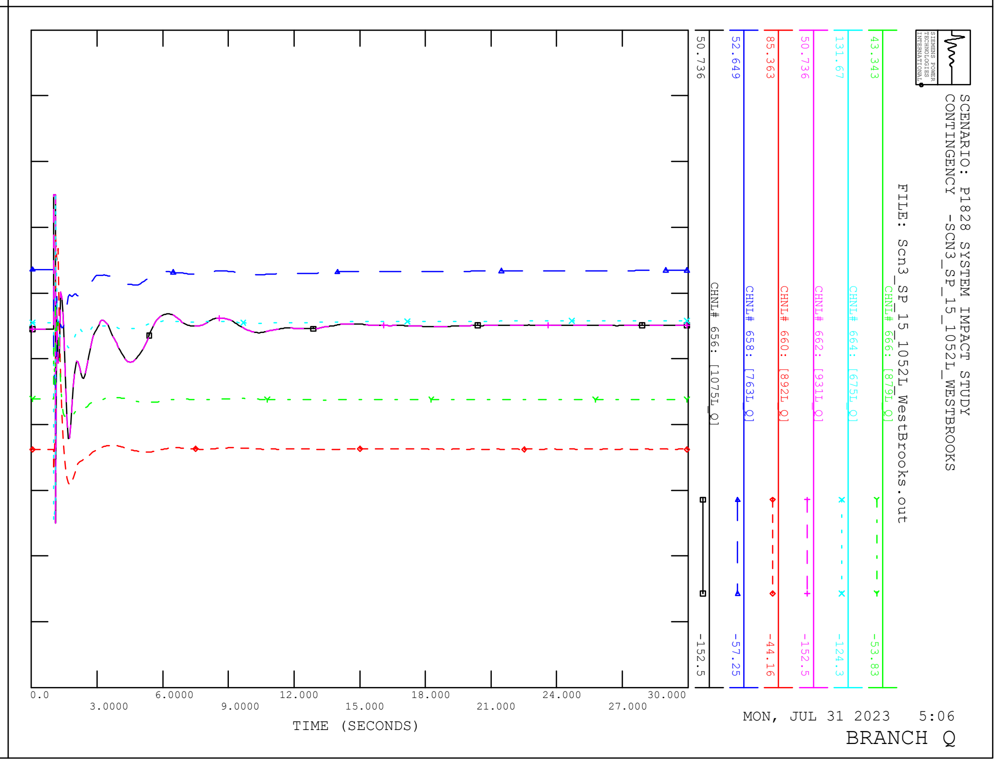
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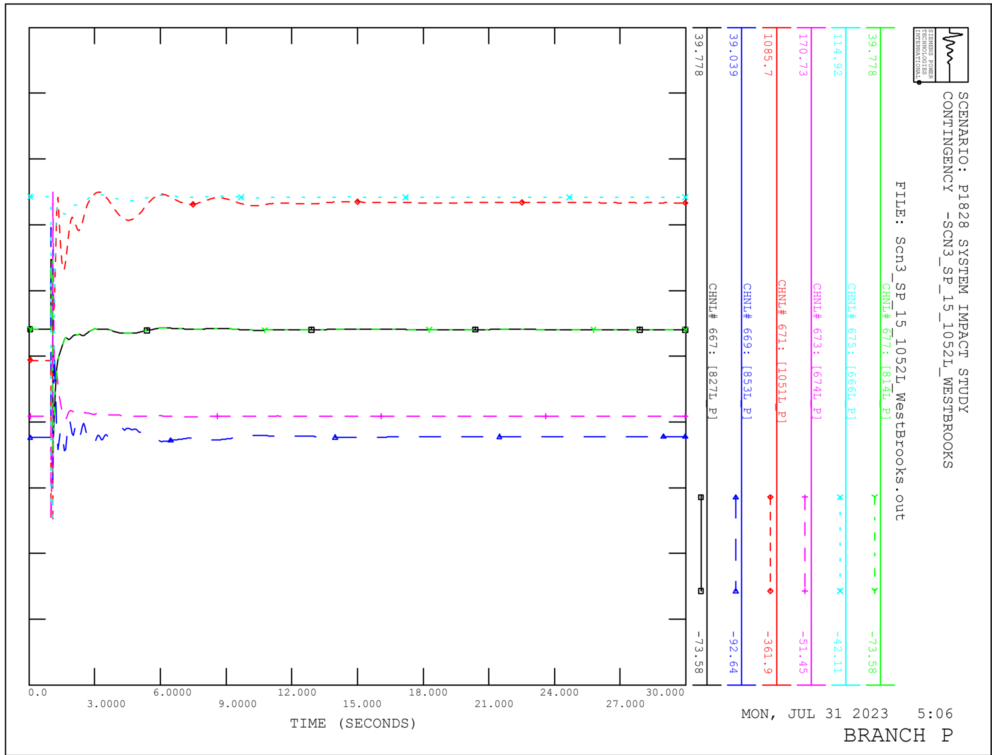

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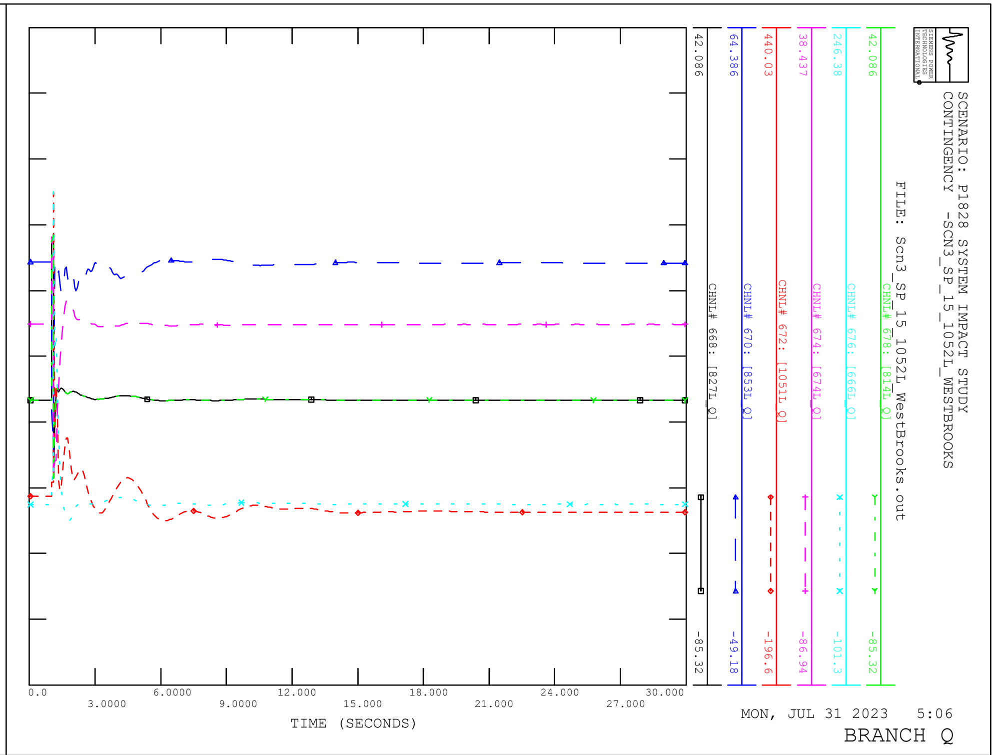

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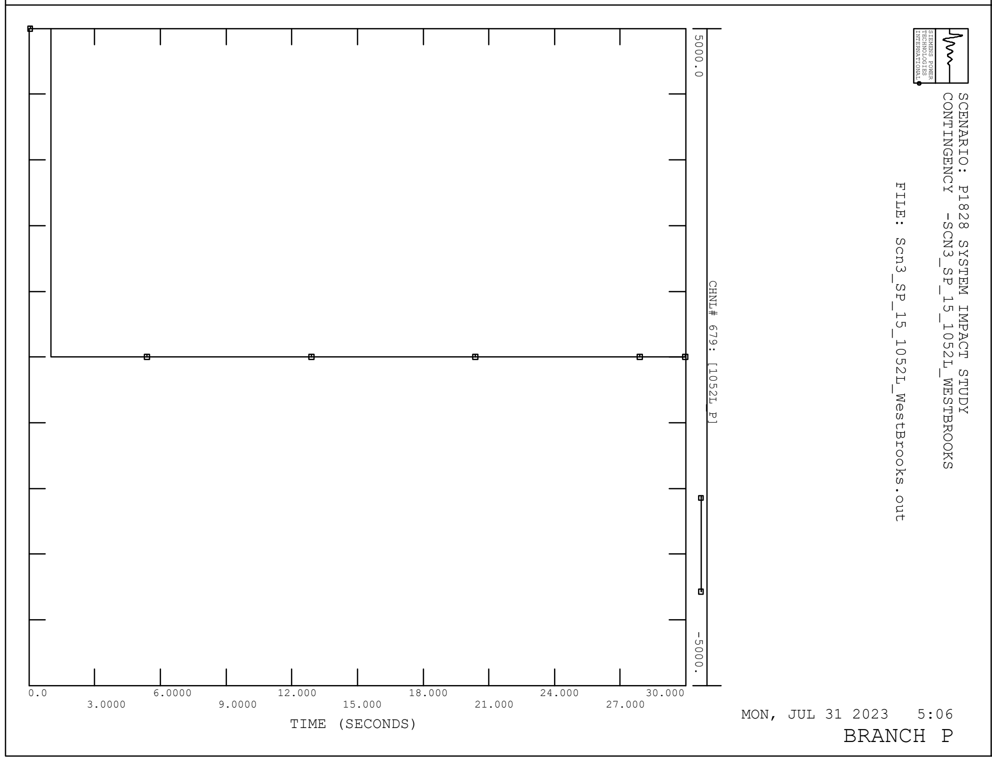

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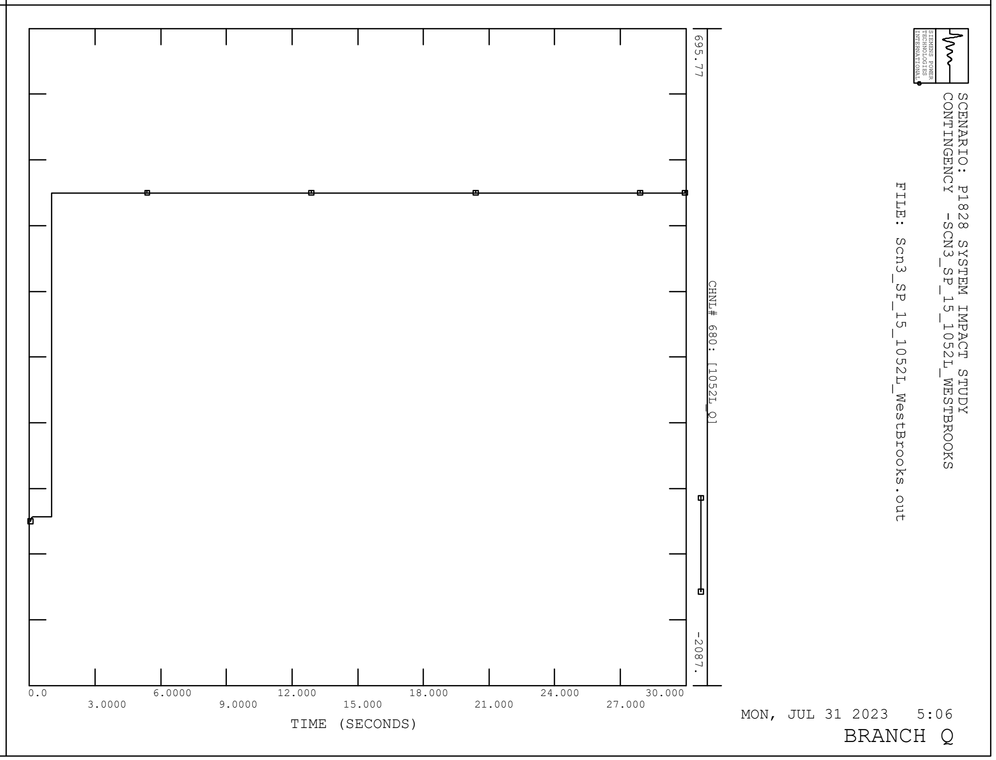

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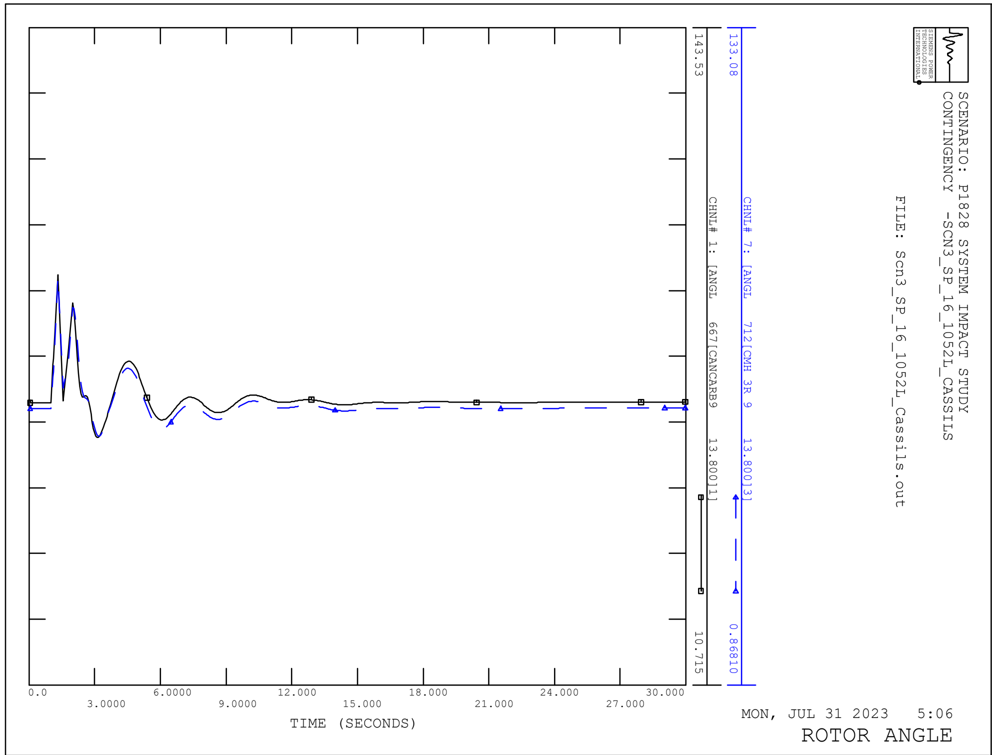
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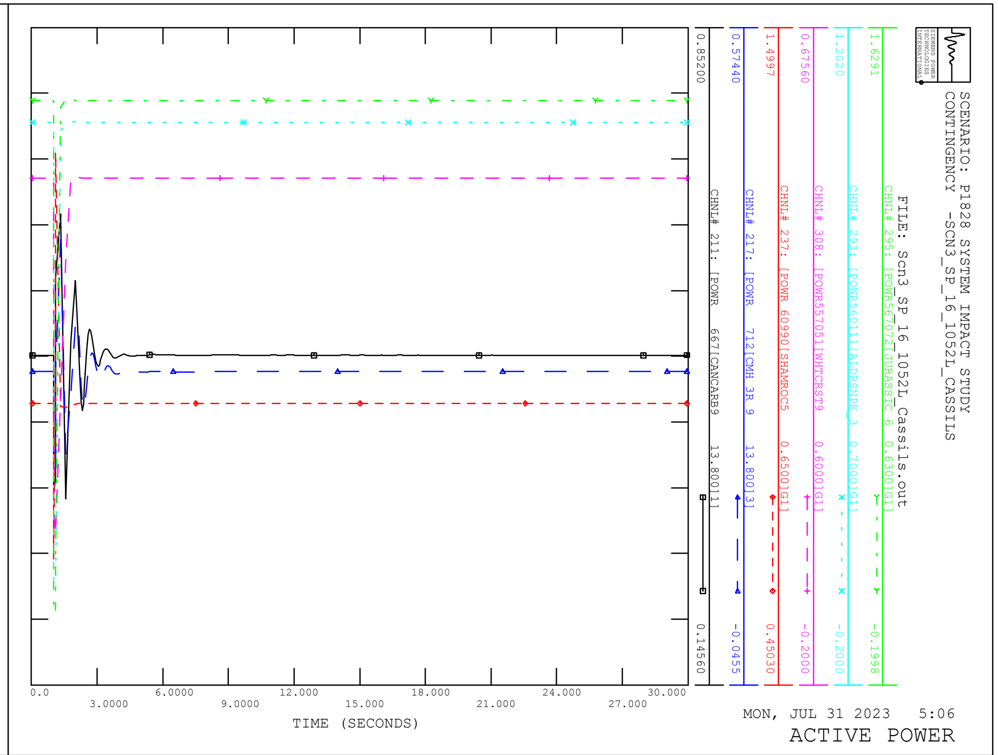
MON, JUL 31 2023 5:06
ROTOR ANGLE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TIME (SECONDS)
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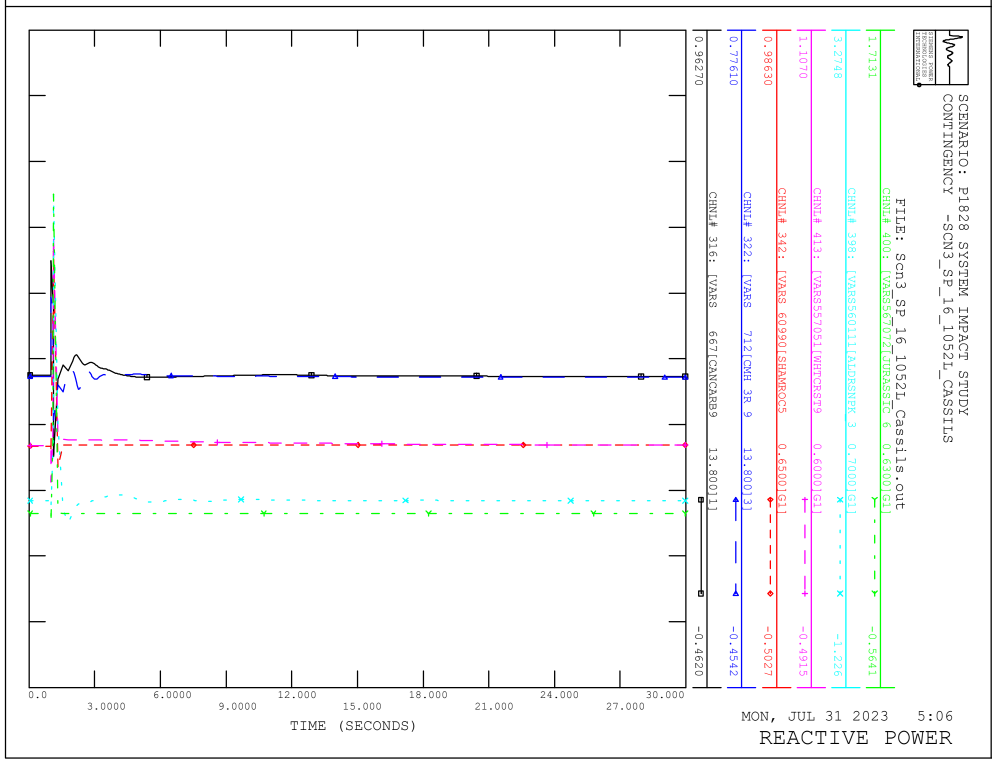
ACTIVE POWER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-1.226
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MON, JUL 31 2023 5:06
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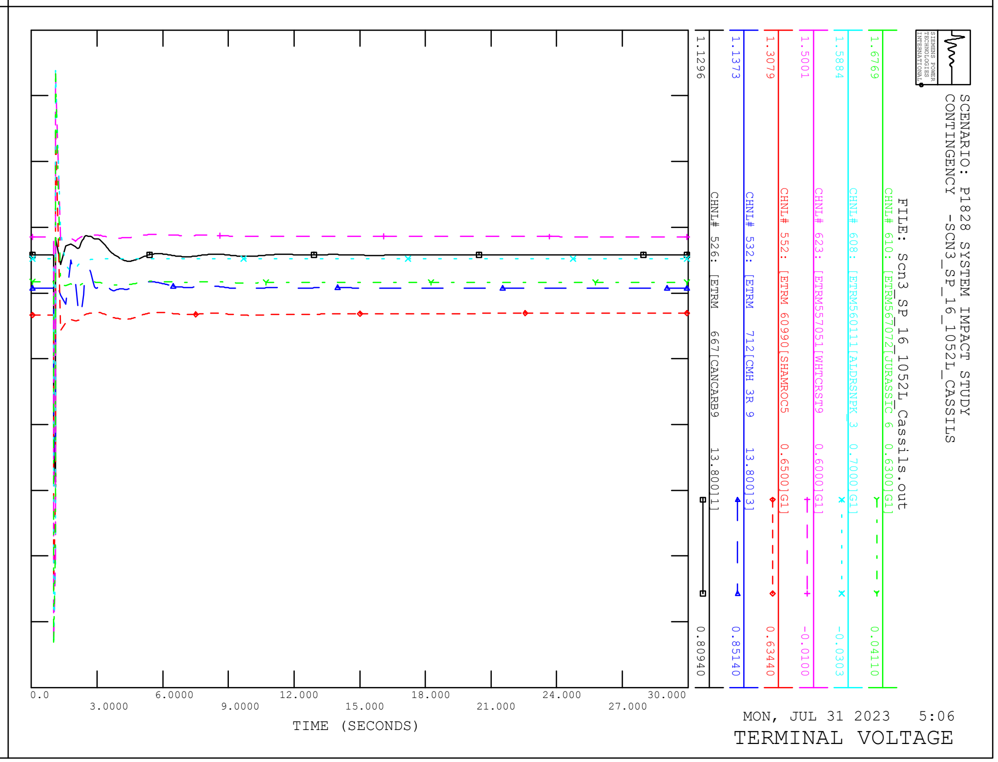
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MON, JUL 31 2023 5:06
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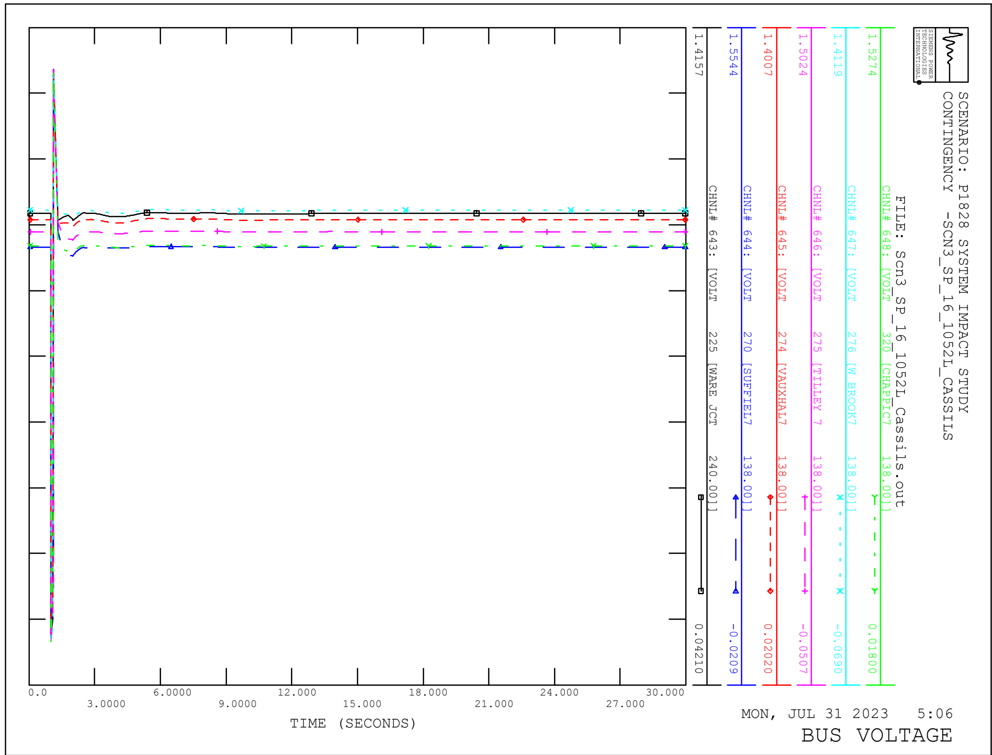
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CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.4007 0.02020
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.5024 -0.0507
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.4119 -0.0690
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.5274 0.01800
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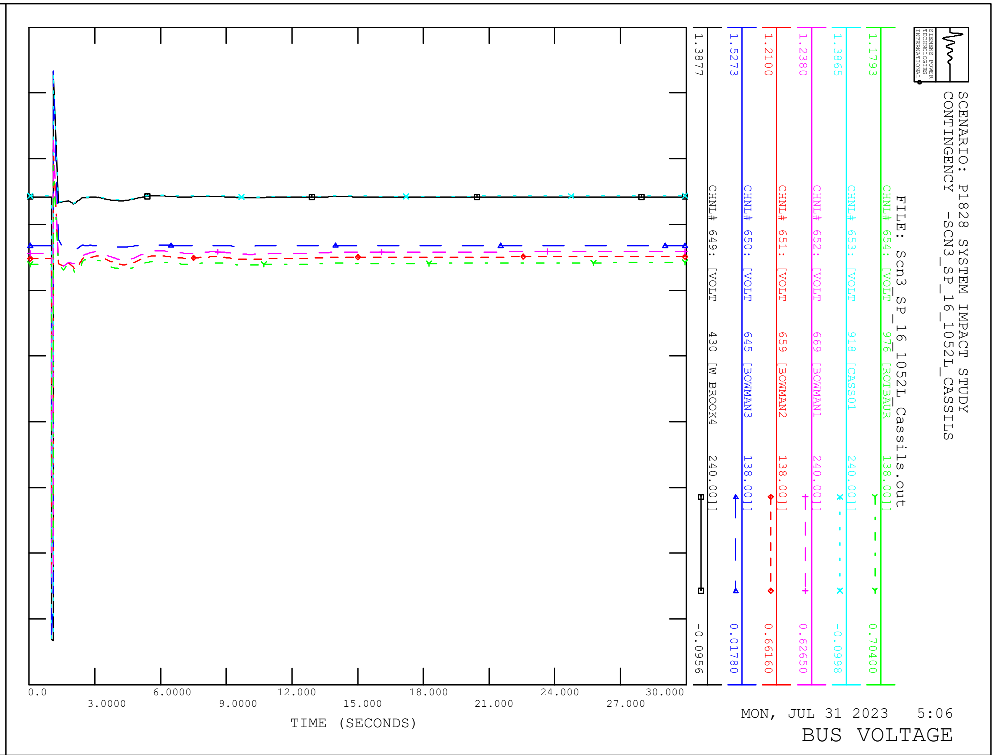
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CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.3865 -0.0998
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1793 0.70400
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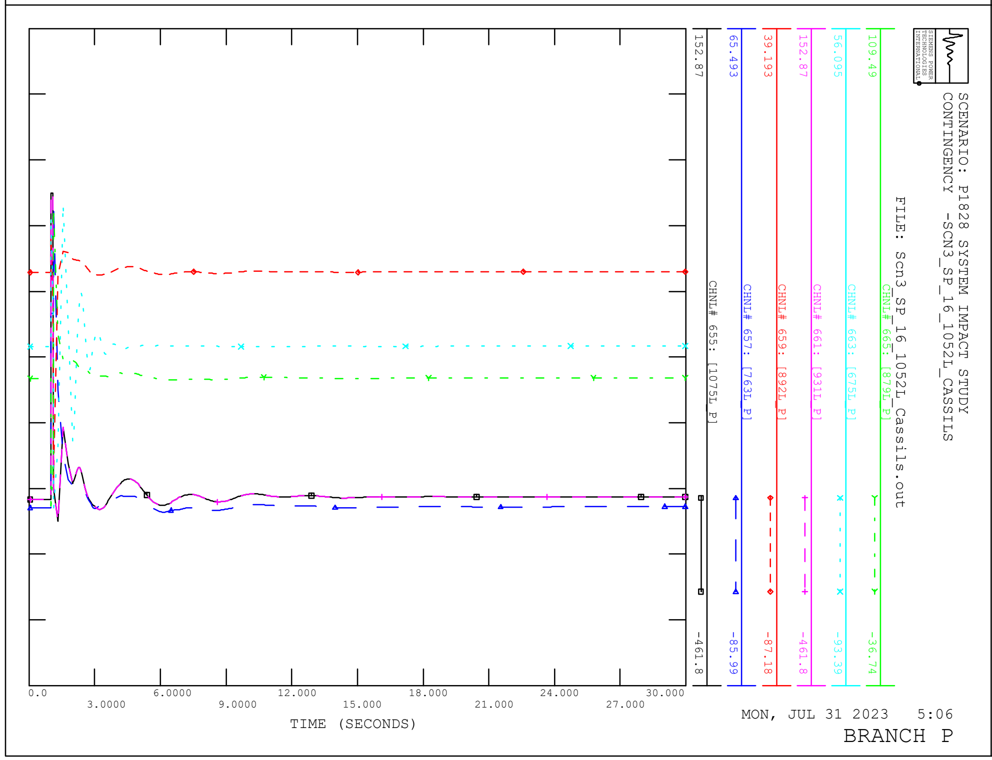
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CHNL# 659: [892L P] 39.193 -87.18
CHNL# 661: [931L P] 152.87 -461.8
CHNL# 663: [675L P] 56.095 -93.39
CHNL# 665: [879L P] 109.49 -36.74
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MON, JUL 31 2023 5:06
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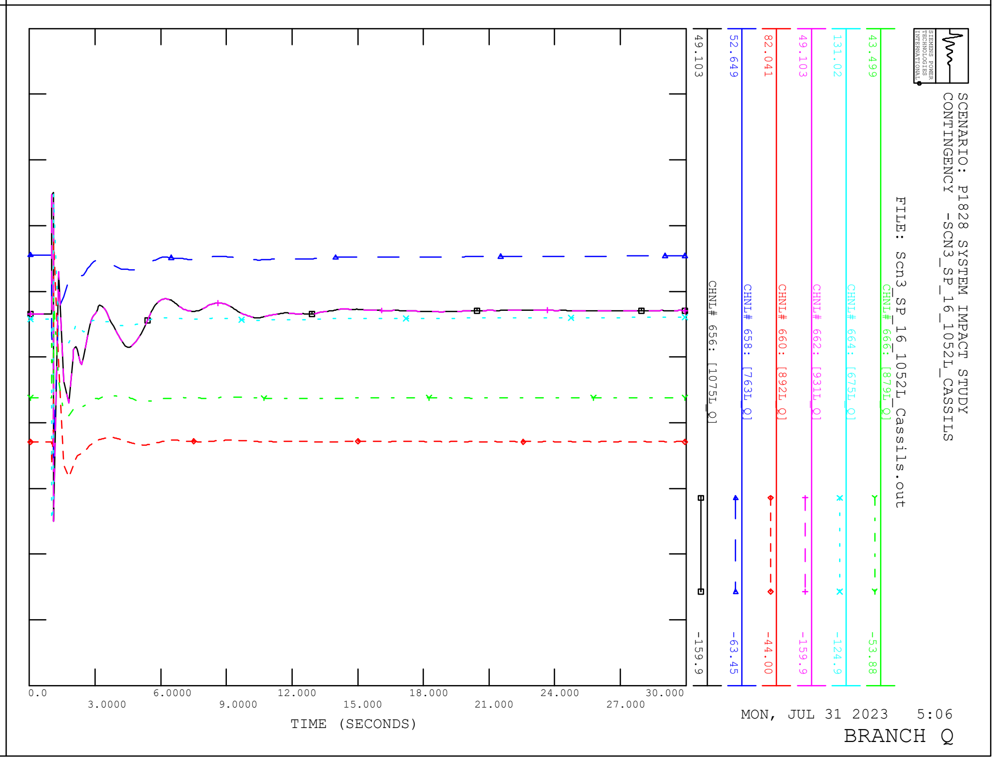
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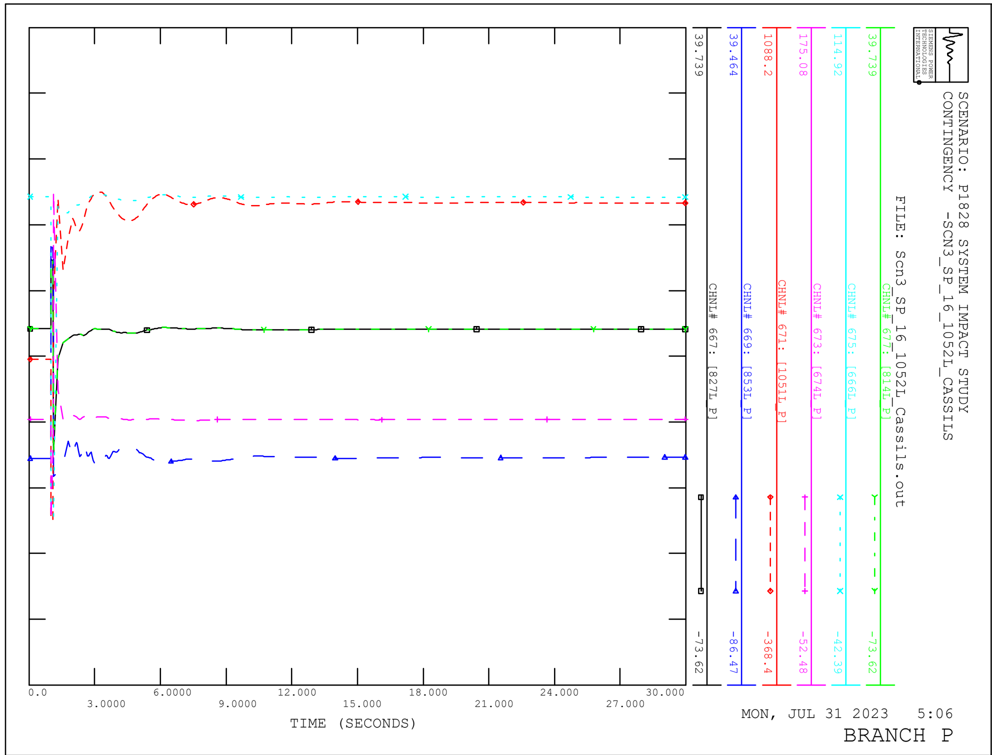
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39.464
-86.47
CHNL# 669: [853L_P]
1088.2
-368.4
CHNL# 671: [1051L_P]
175.08
-52.48
CHNL# 673: [674L_P]
114.92
-42.39
CHNL# 675: [666L_P]
39.739
-73.62
CHNL# 677: [814L_P]
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TIME (SECONDS)
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MON, JUL 31 2023 5:06
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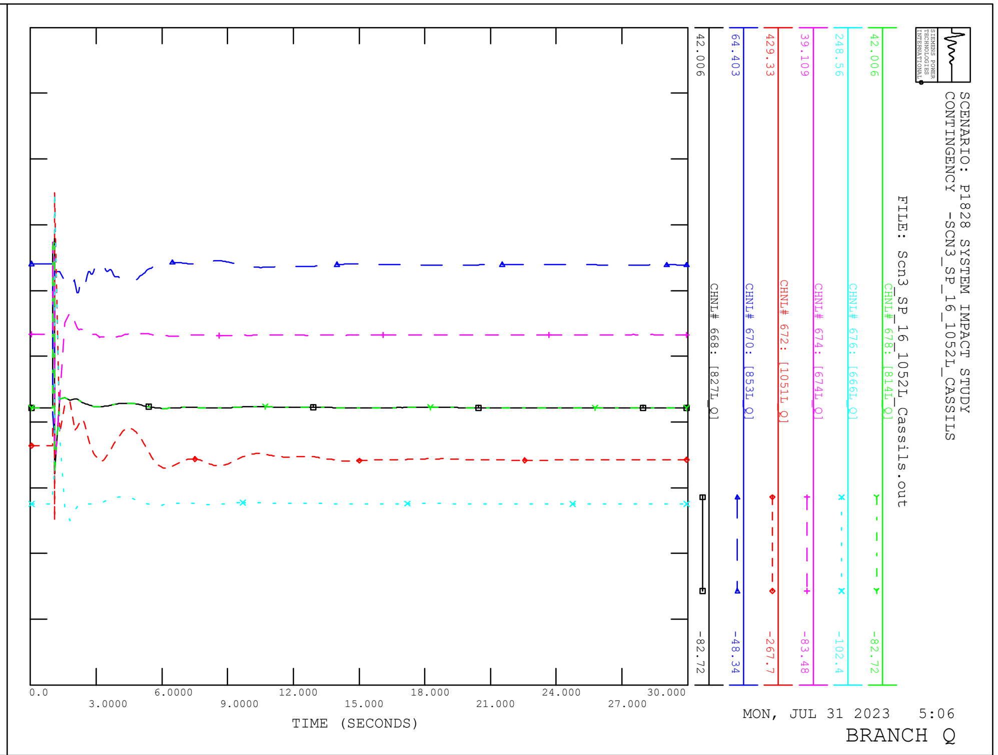
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CHNL# 670: [853L_Q]
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CHNL# 674: [674L_Q]
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-102.4
CHNL# 676: [666L_Q]
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-82.72
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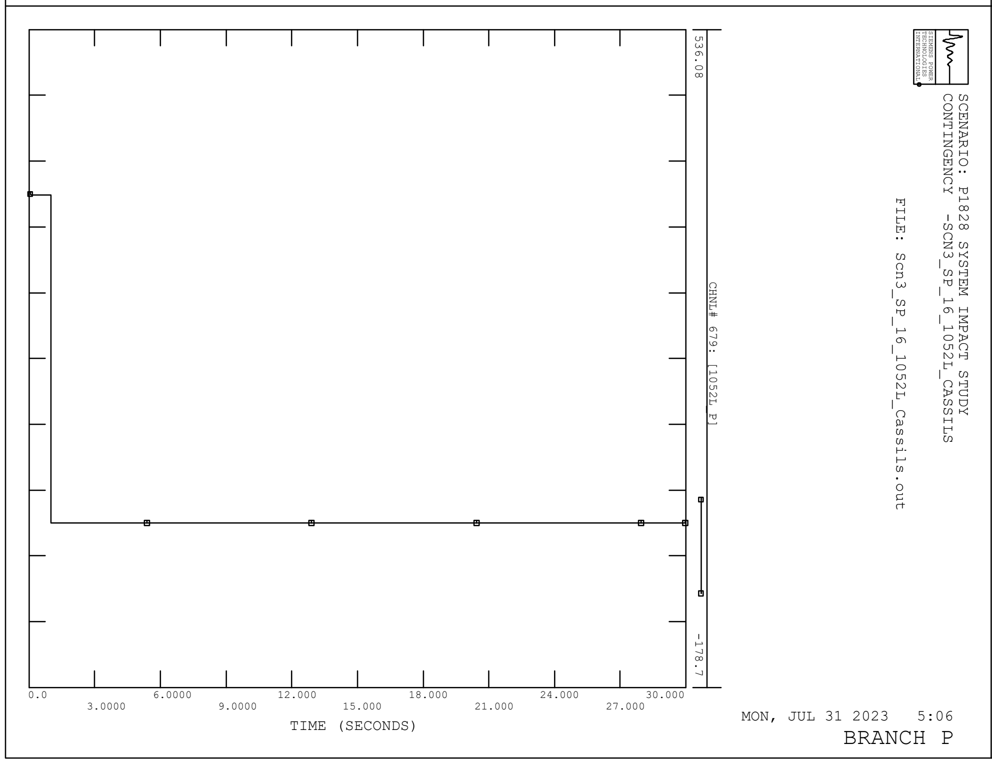
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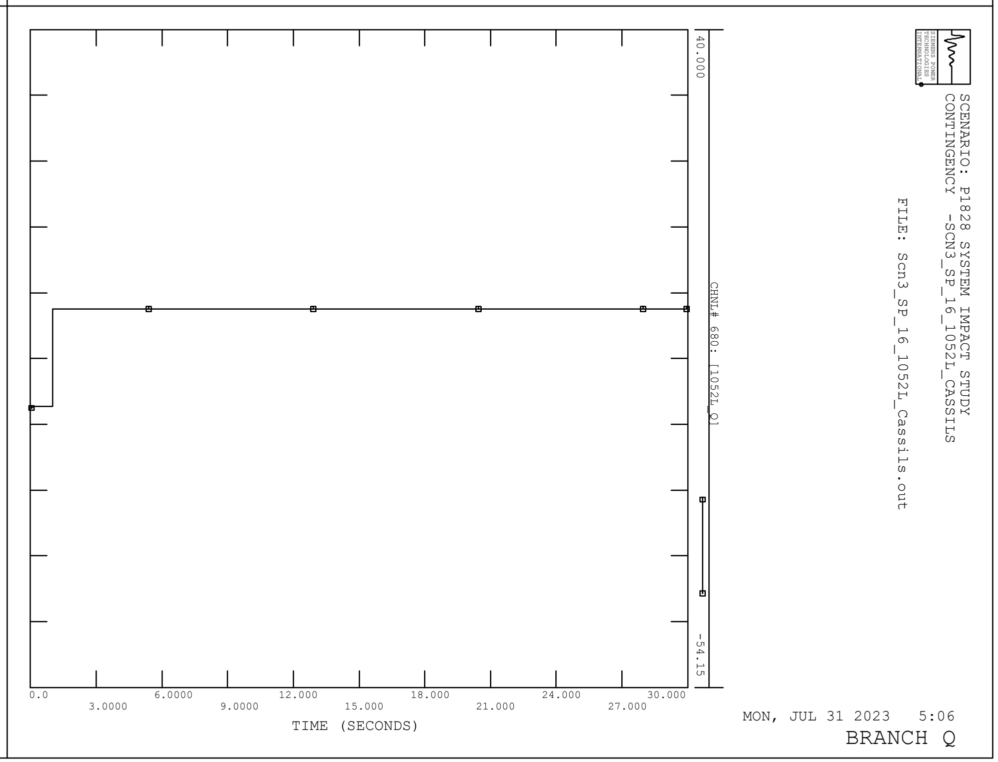
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TIME (SECONDS)
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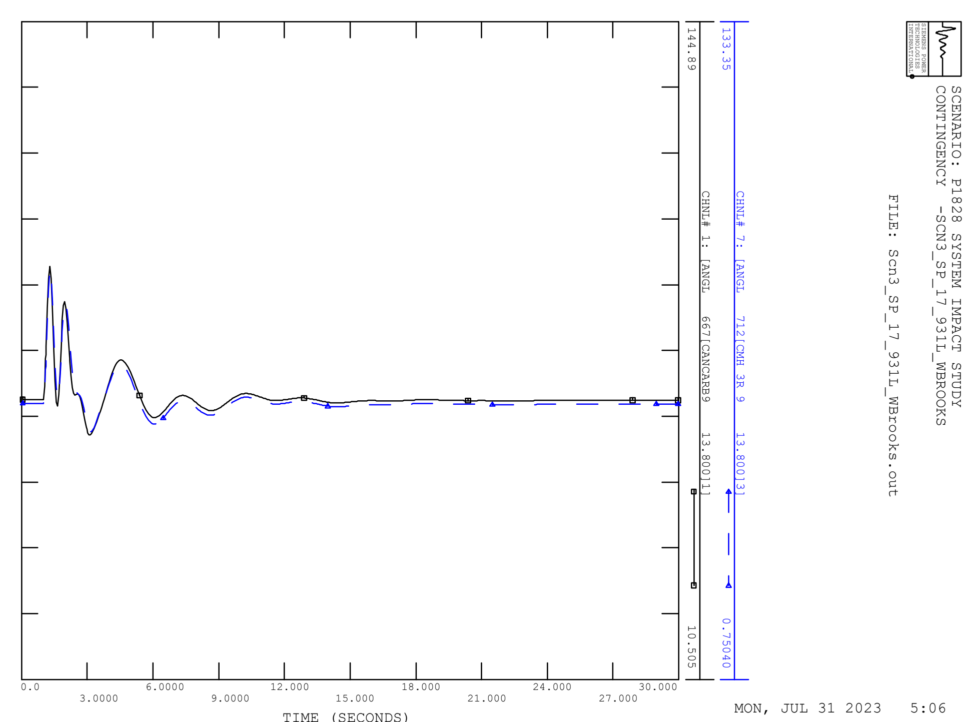
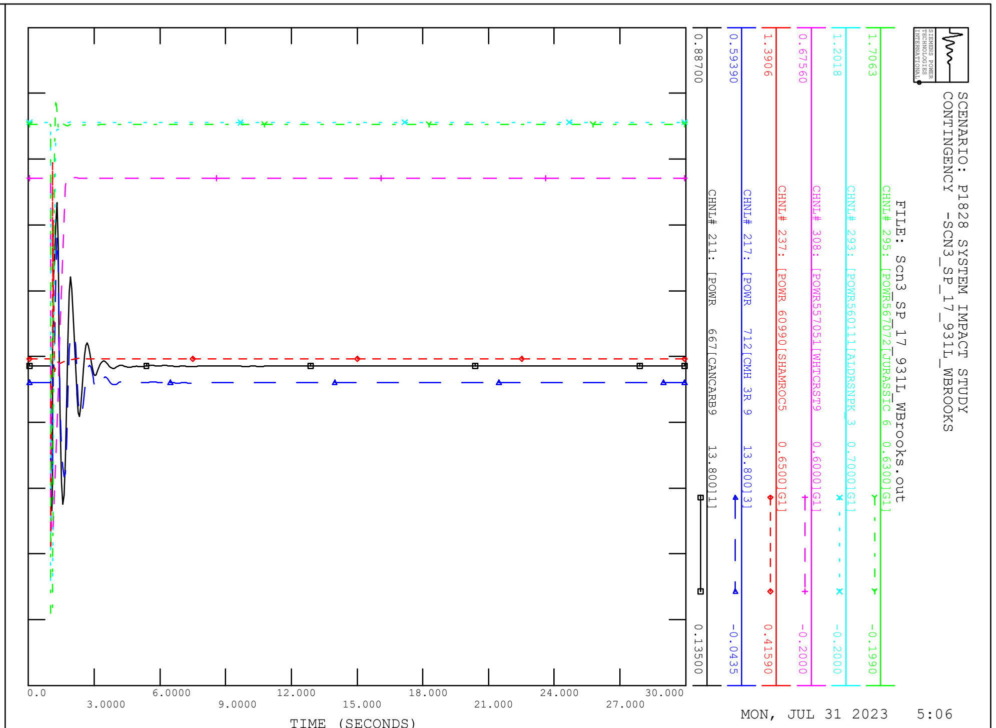
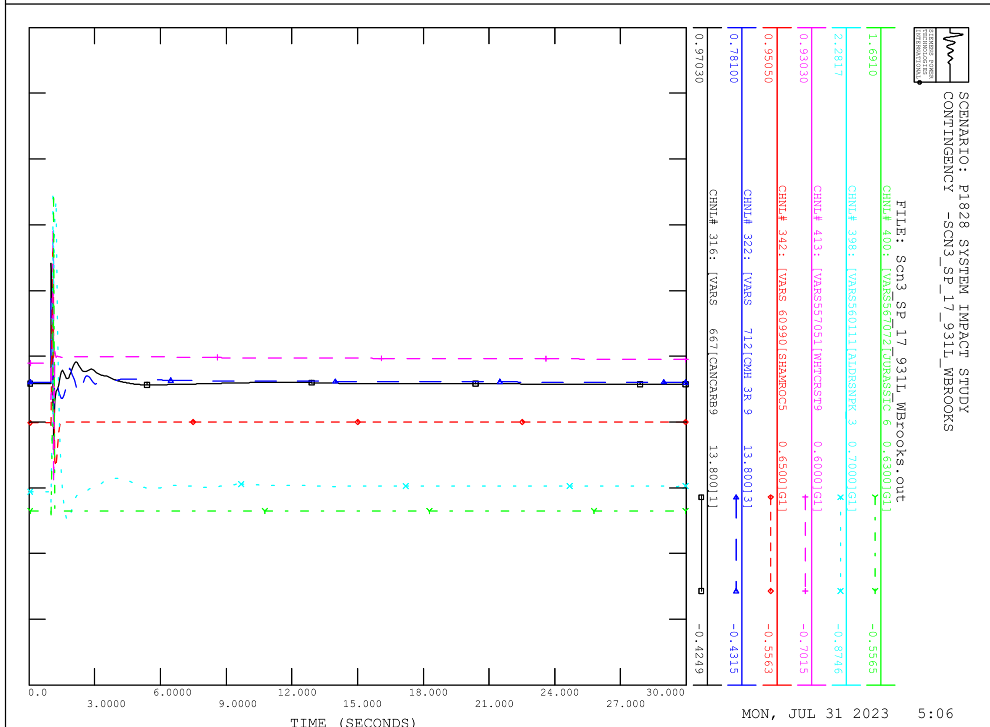
MON, JUL 31 2023 5:06
BRANCH Q



ROTOR ANGLE



ACTIVE POWER



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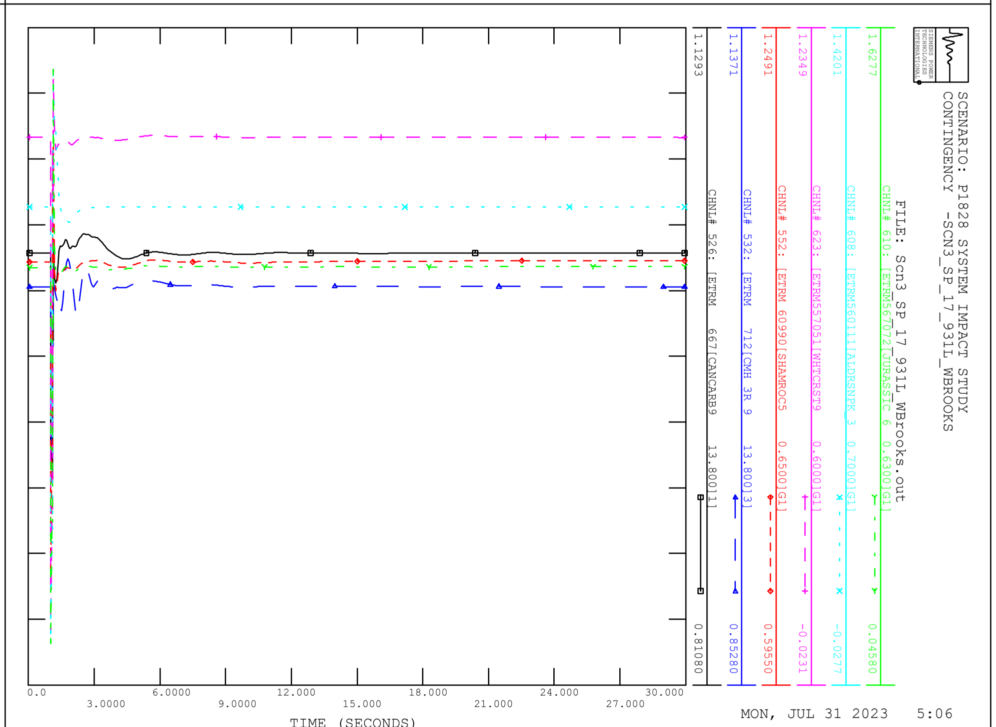
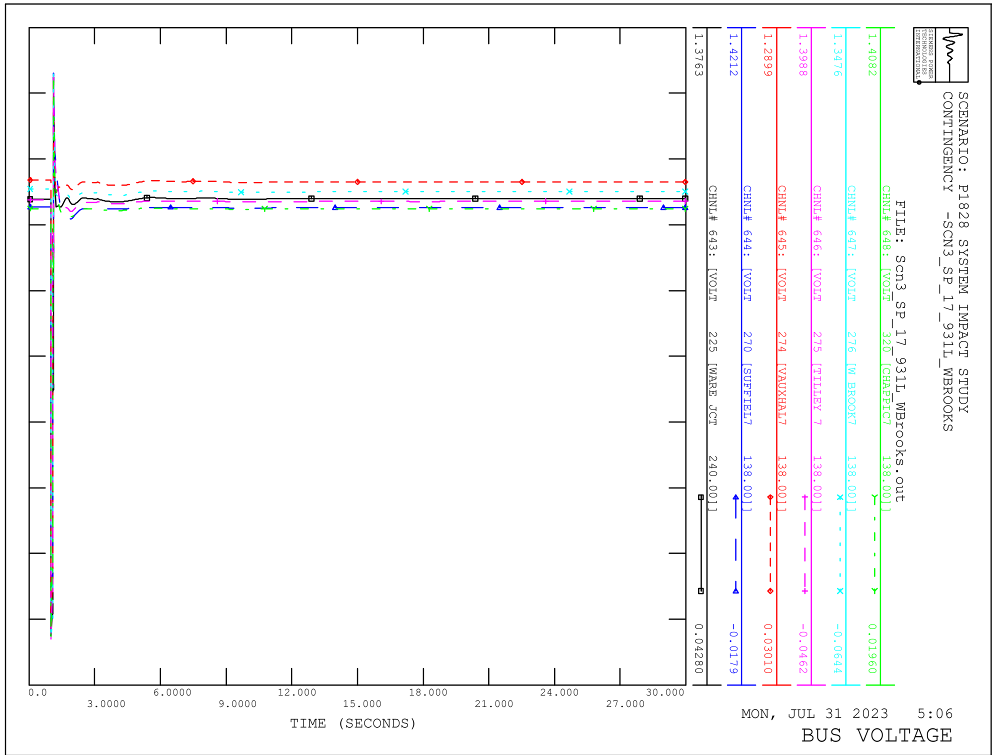


TERMINAL VOLTAGE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CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3988 -0.0462
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.3476 -0.0644
CHNL# 648: [VOLT 320 [CHAFFEE7 138.00]] 1.4082 0.01960
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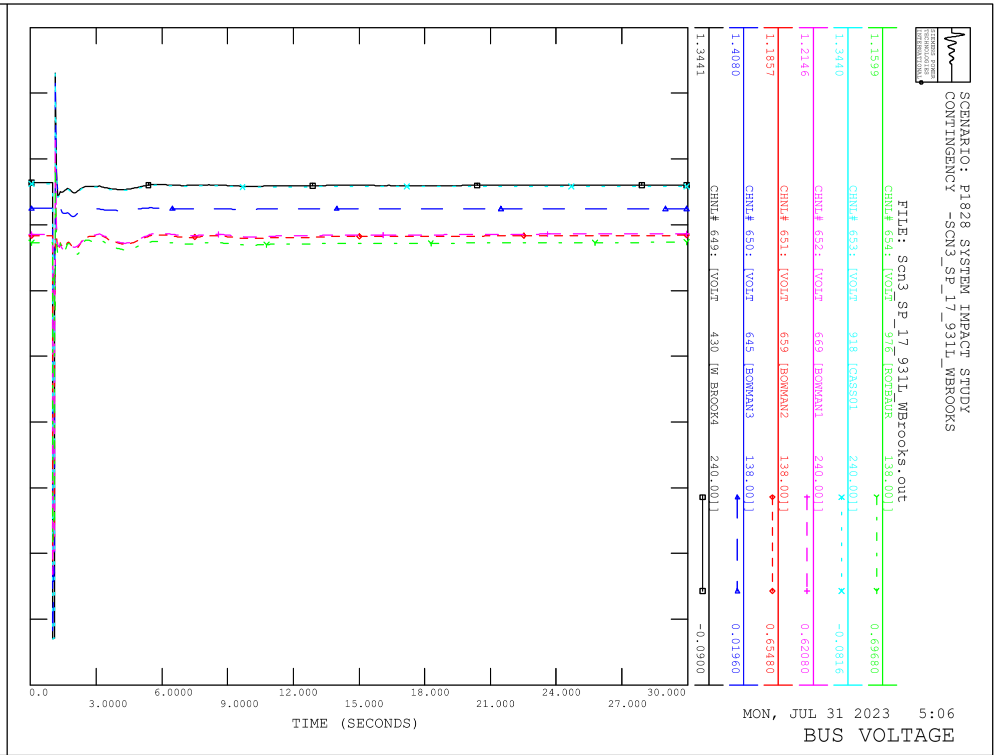
MON, JUL 31 2023 5:06
BUS VOLTAGE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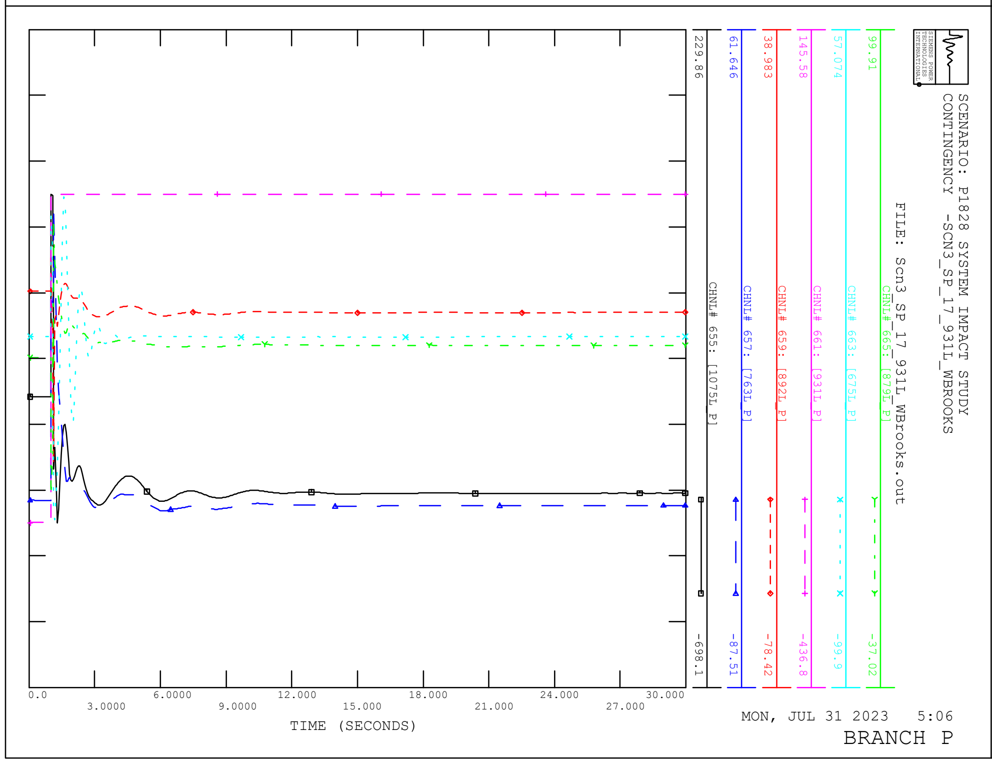
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CHNL# 657: [763L_P] 61.646 -87.51
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CHNL# 661: [931L_P] 145.58 -436.8
CHNL# 663: [675L_P] 57.074 -99.9
CHNL# 665: [679L_P] 99.91 -37.02
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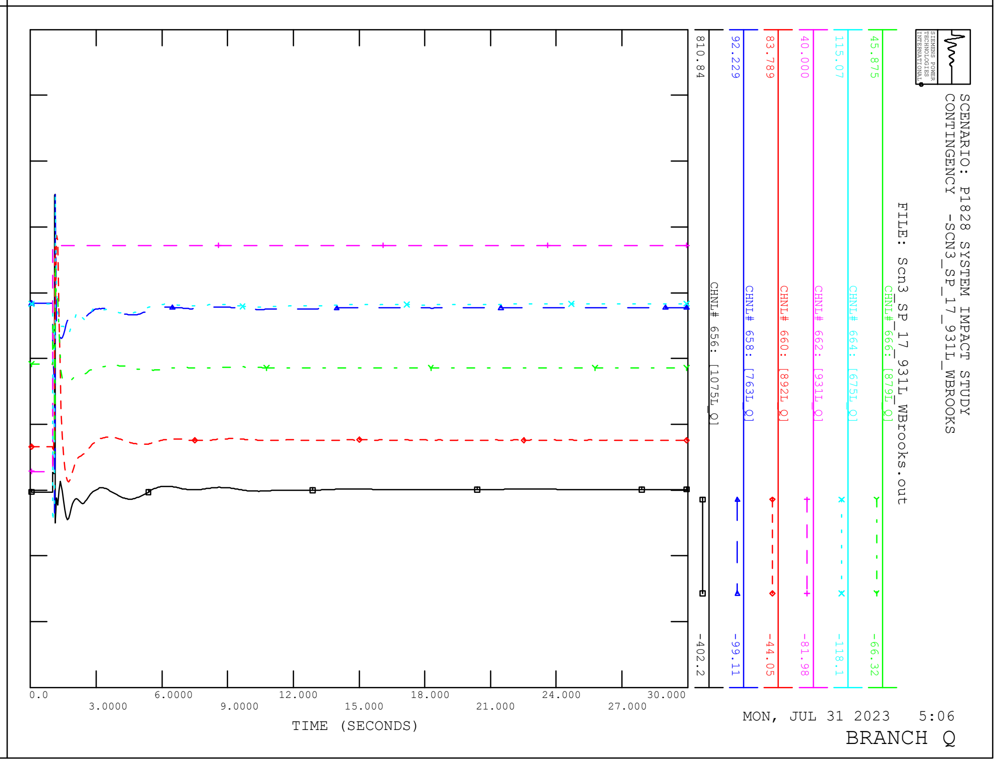
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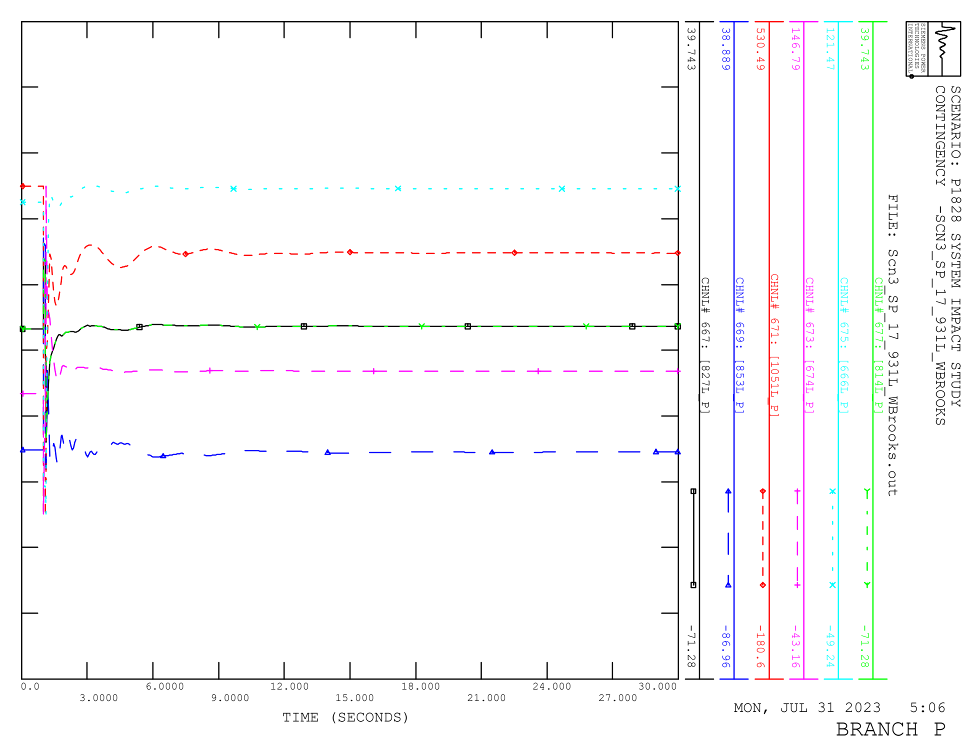

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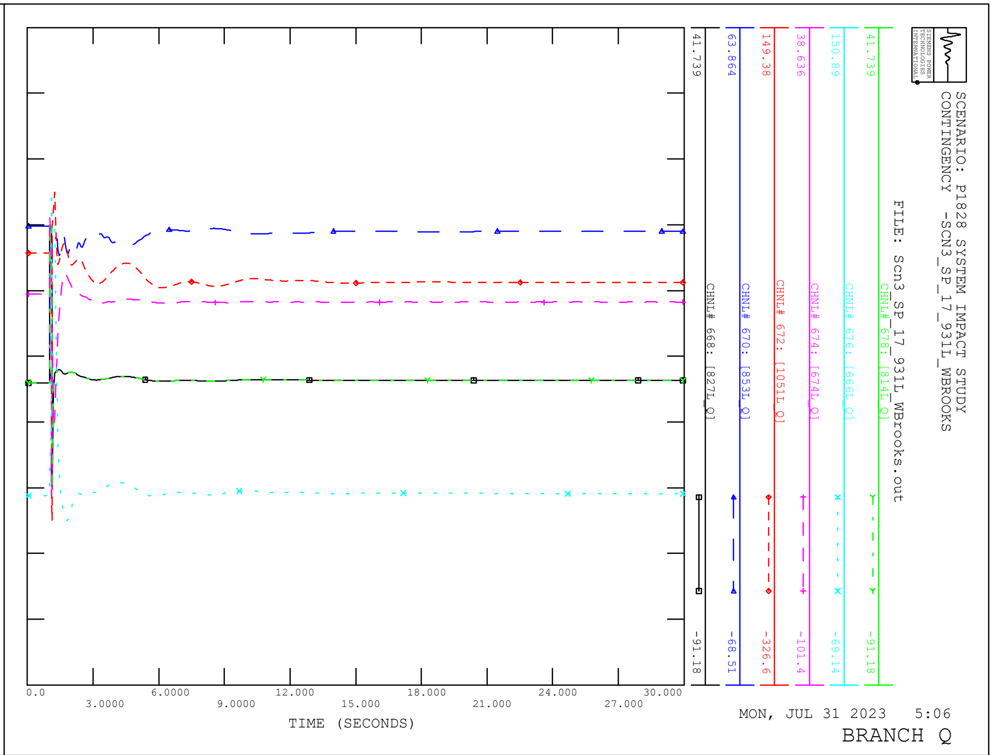

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MON, JUL 31 2023 5:06
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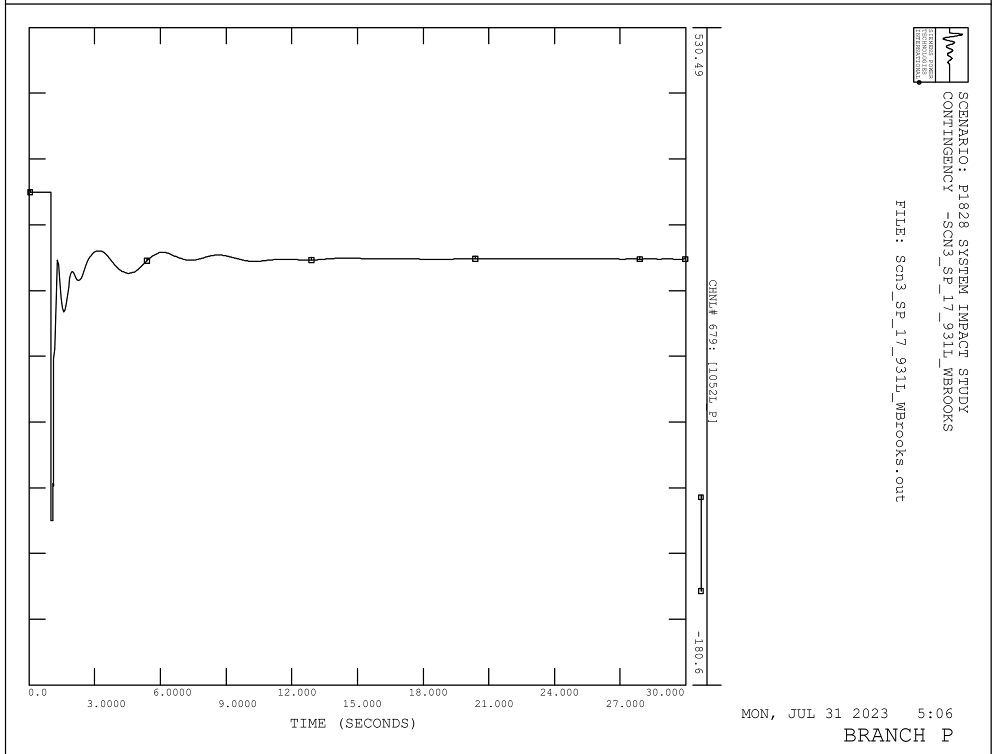

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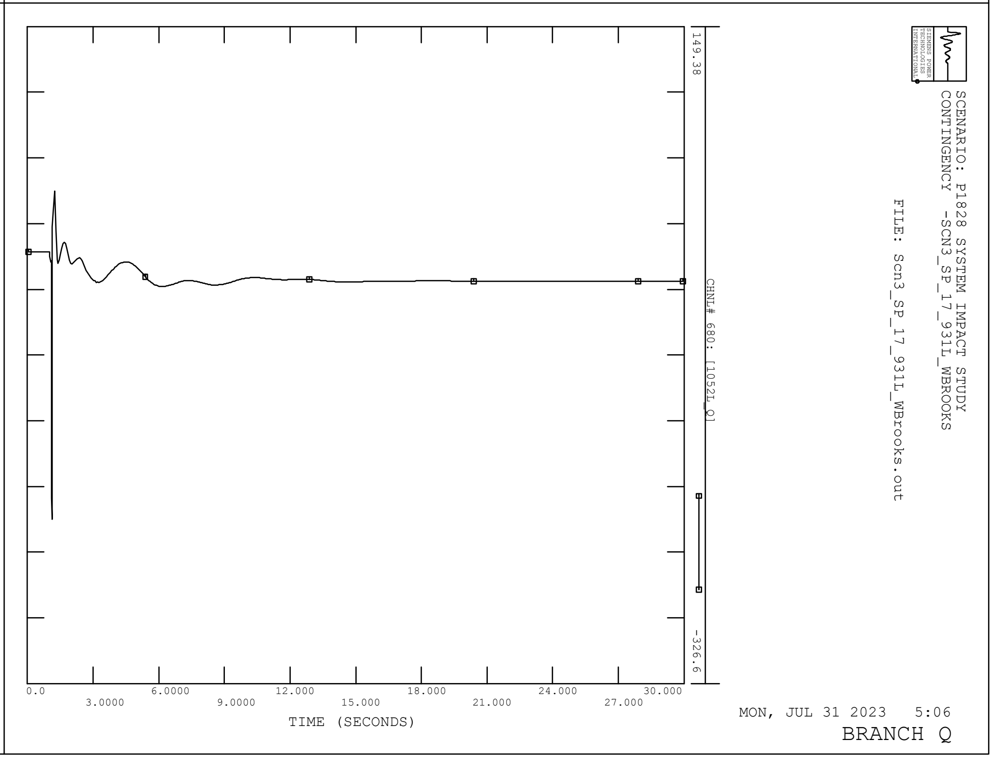

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MON, JUL 31 2023 5:06
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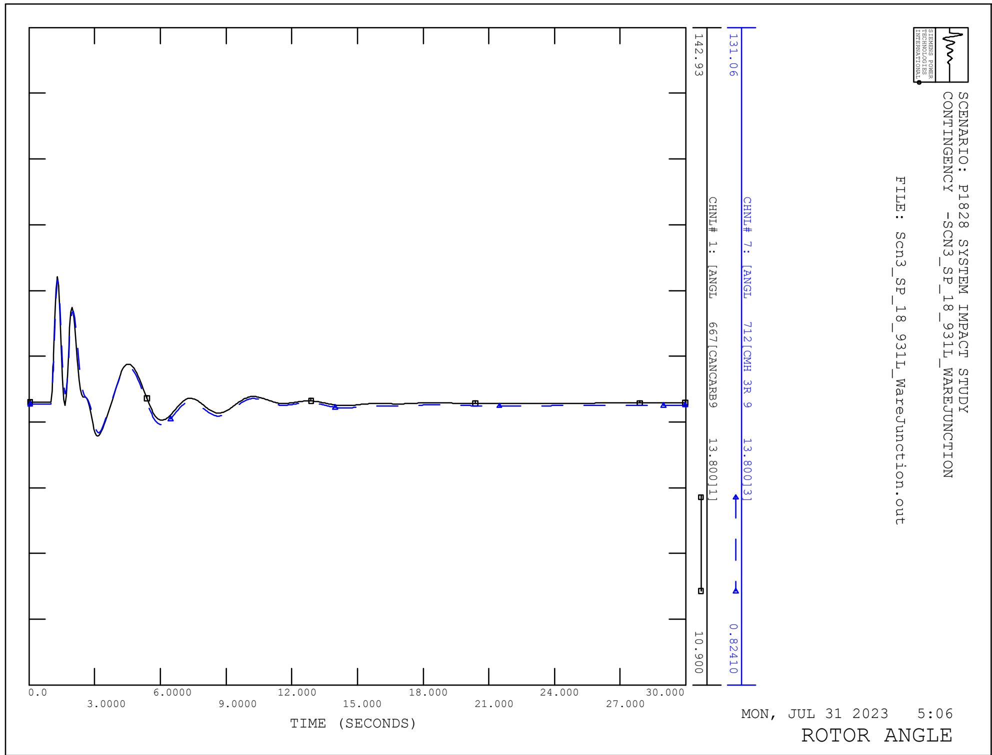
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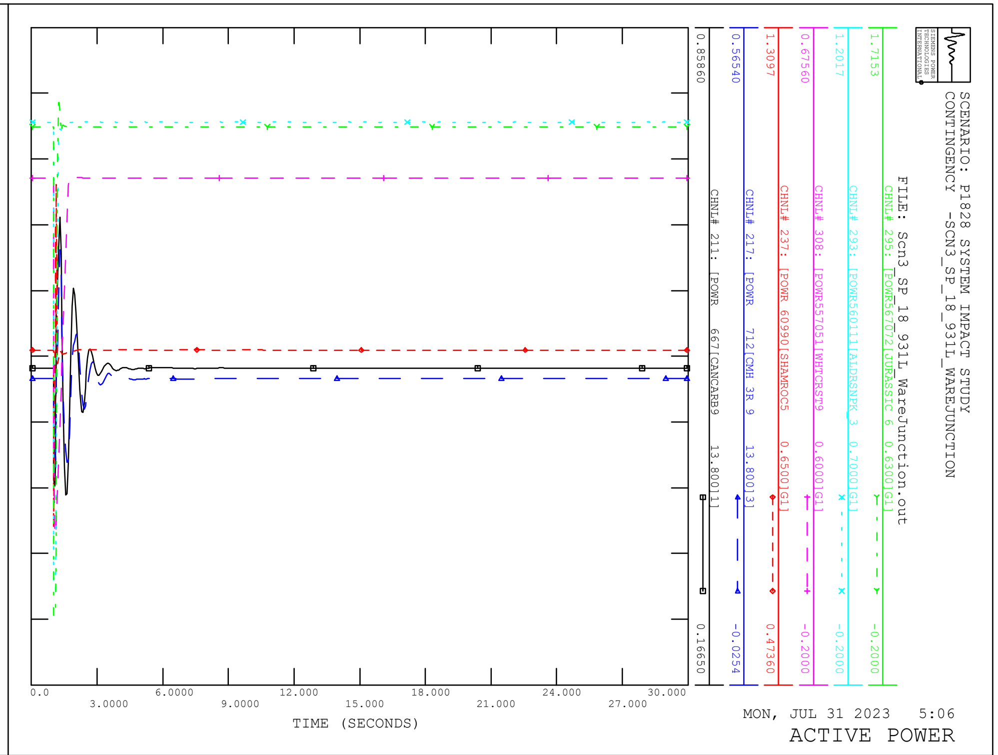
ROTOR ANGLE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TIME (SECONDS)
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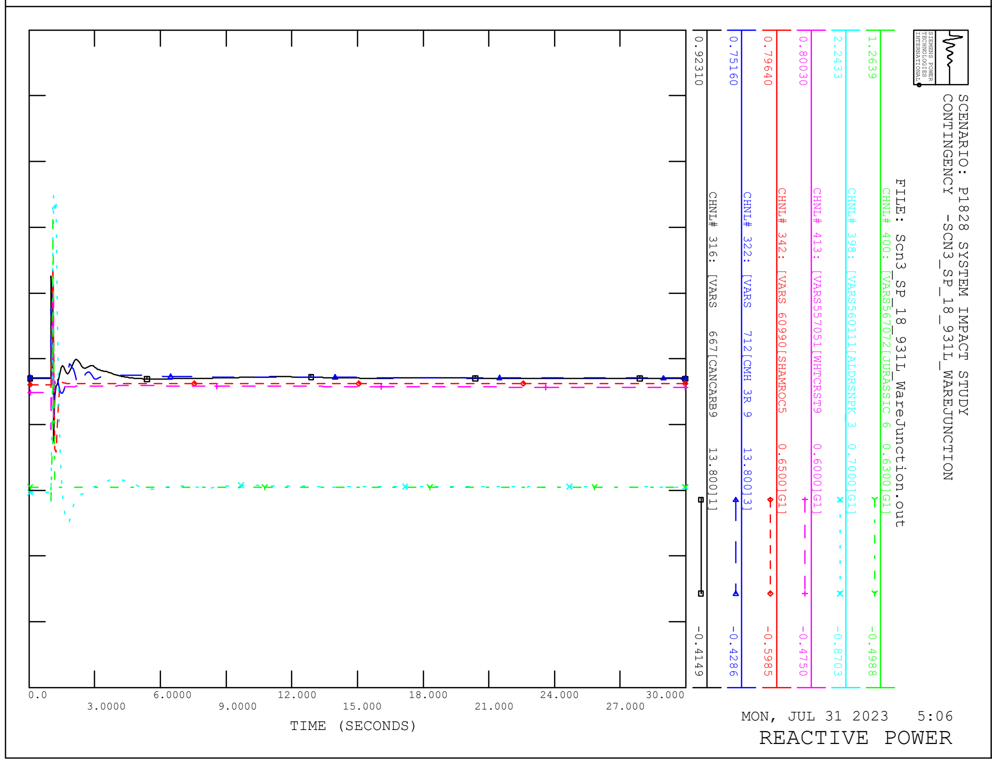
ACTIVE POWER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CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
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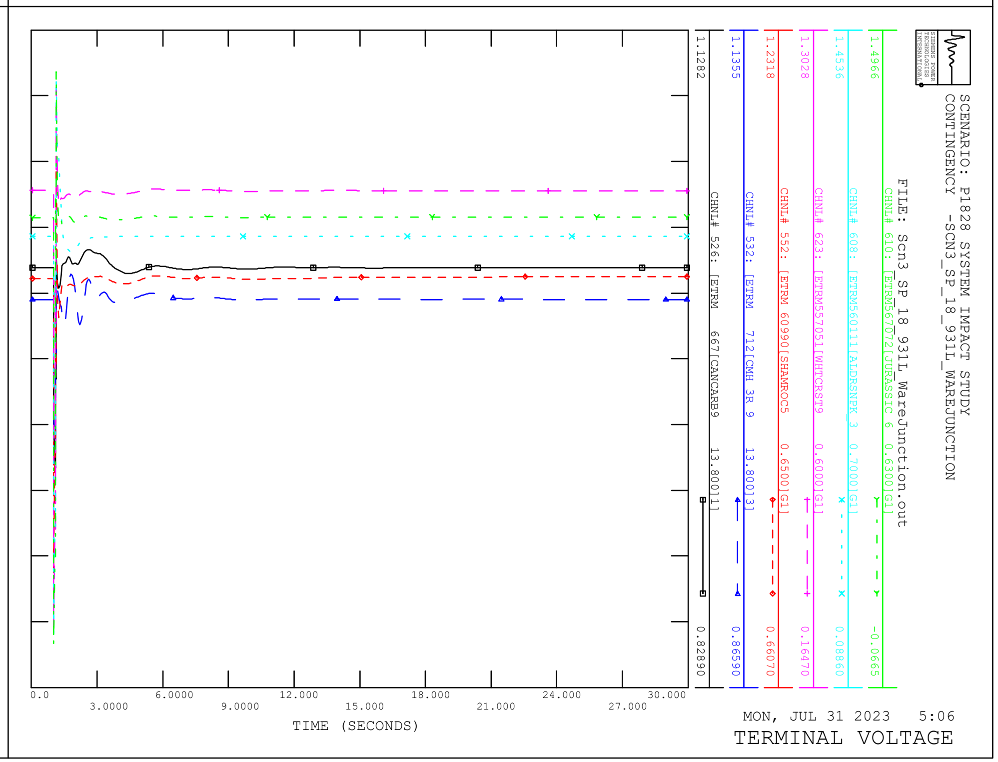
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
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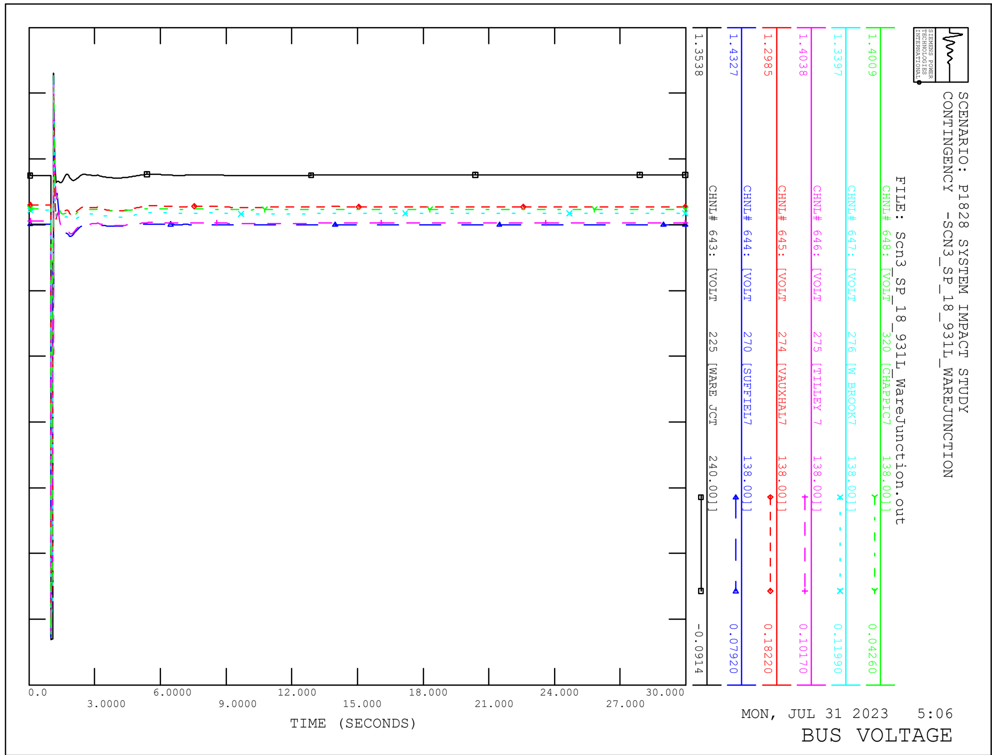
TERMINAL VOLTAGE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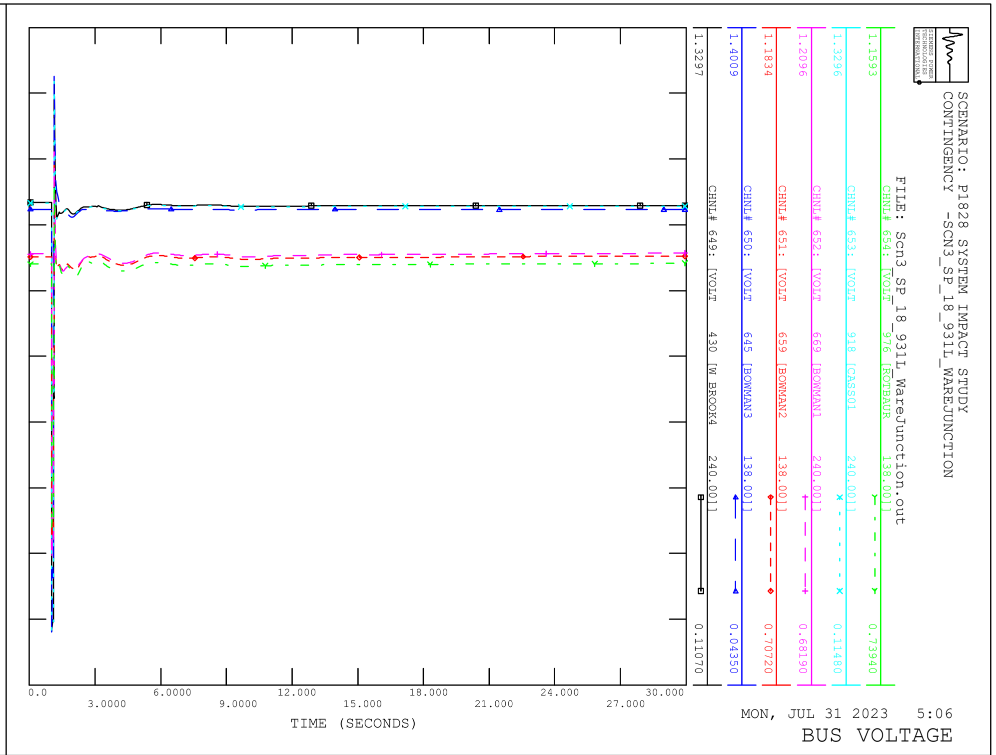
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [N BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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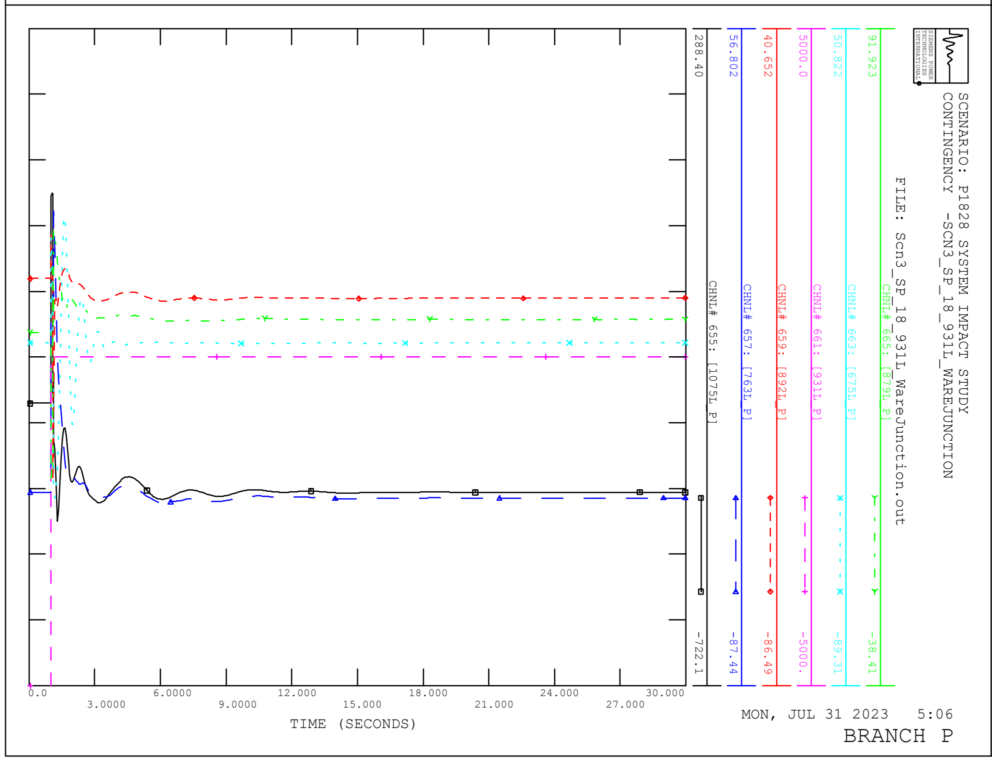
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSOL 240.00]]
CHNL# 654: [VOLT 976 [ROTHAUR 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
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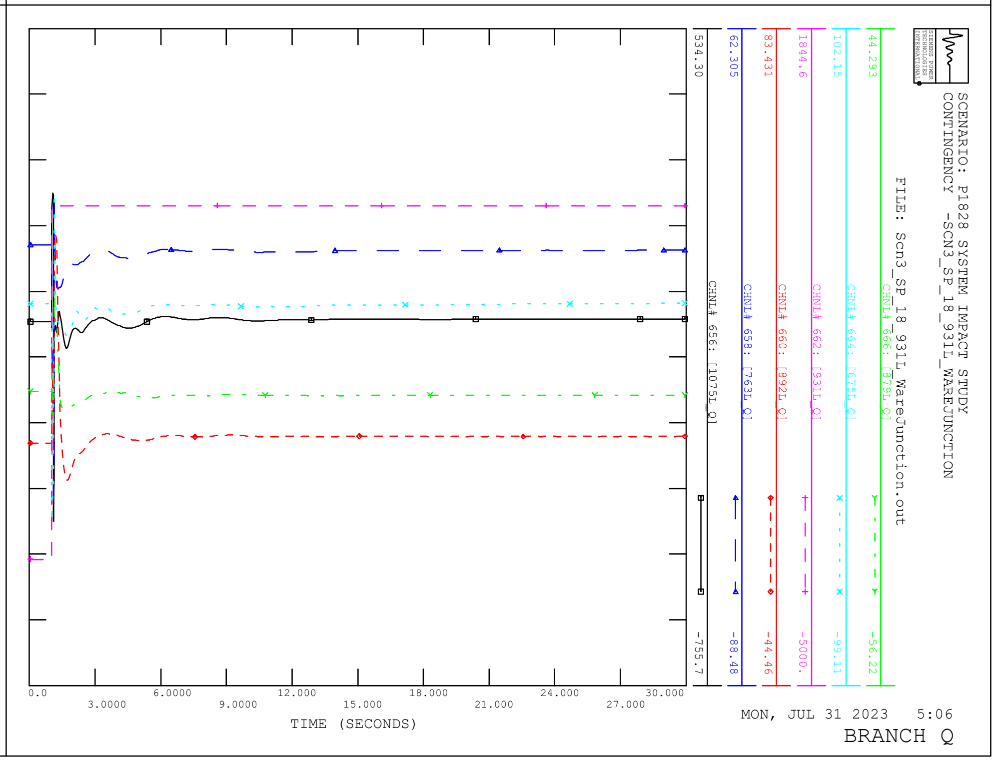
CHNL# 665: [879L P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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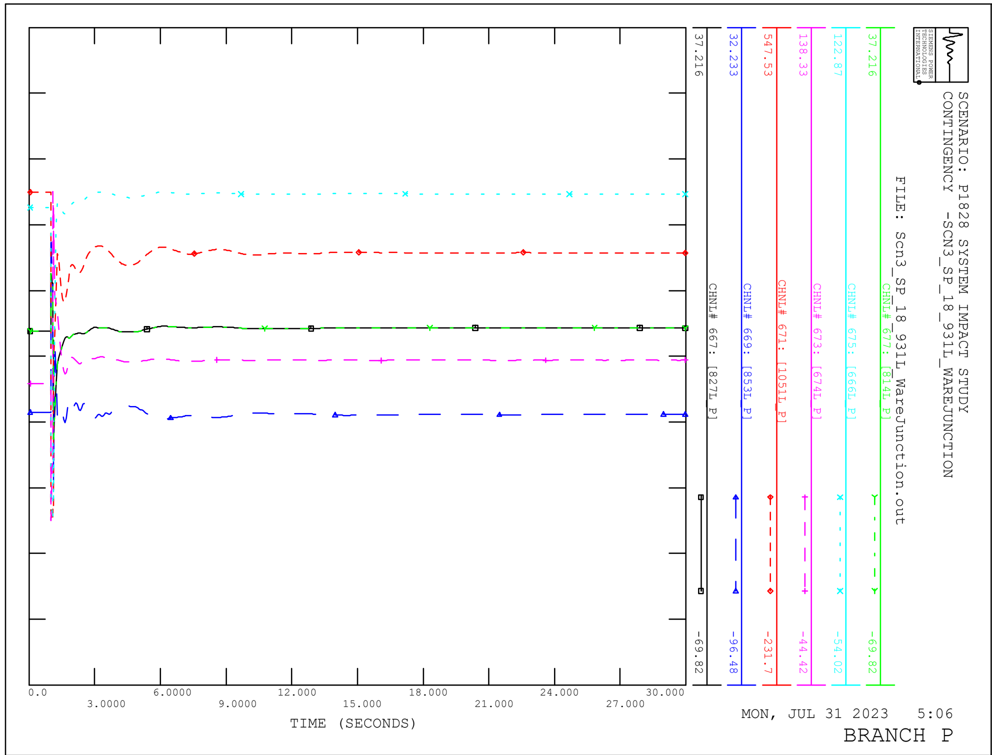
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-69.82
CHNL# 669: [853L_P]
32.233
-96.48
CHNL# 671: [1051L_P]
547.53
-231.7
CHNL# 673: [674L_P]
138.33
-44.42
CHNL# 675: [666L_P]
122.87
-54.02
CHNL# 677: [814L_P]
37.216
-69.82
0.0
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6.0000
9.0000
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MON, JUL 31 2023 5:06
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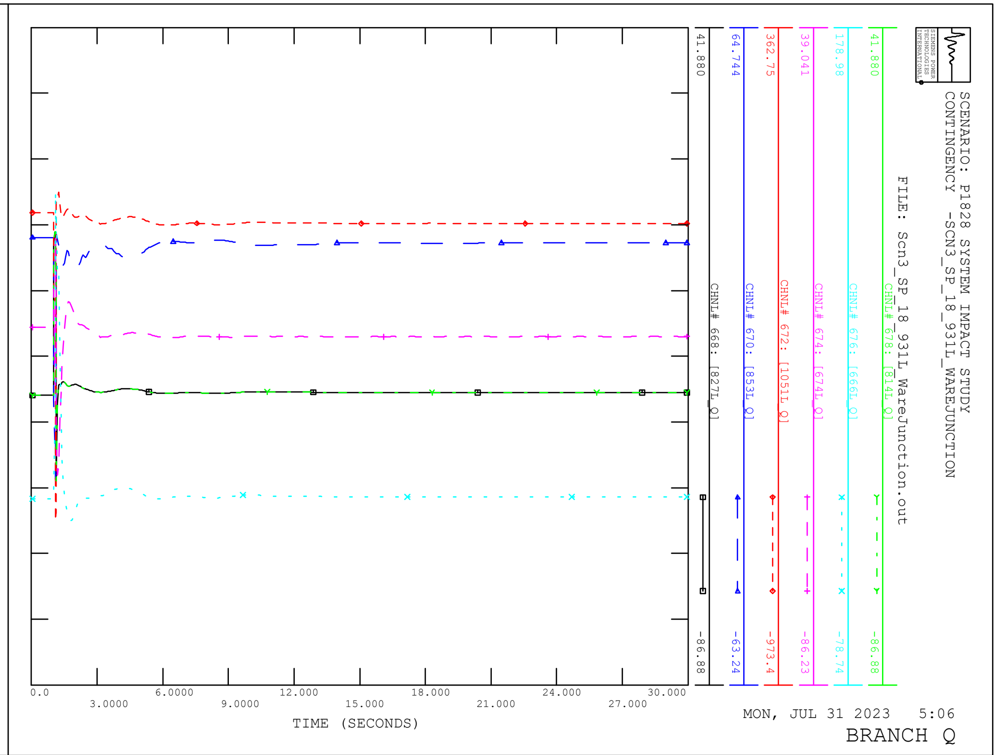
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CHNL# 670: [853L_Q]
64.744
-63.24
CHNL# 672: [1051L_Q]
362.75
-973.4
CHNL# 674: [674L_Q]
39.041
-86.23
CHNL# 676: [666L_Q]
178.98
-78.74
CHNL# 678: [814L_Q]
41.880
-86.88
0.0
3.0000
6.0000
9.0000
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27.000
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TIME (SECONDS)
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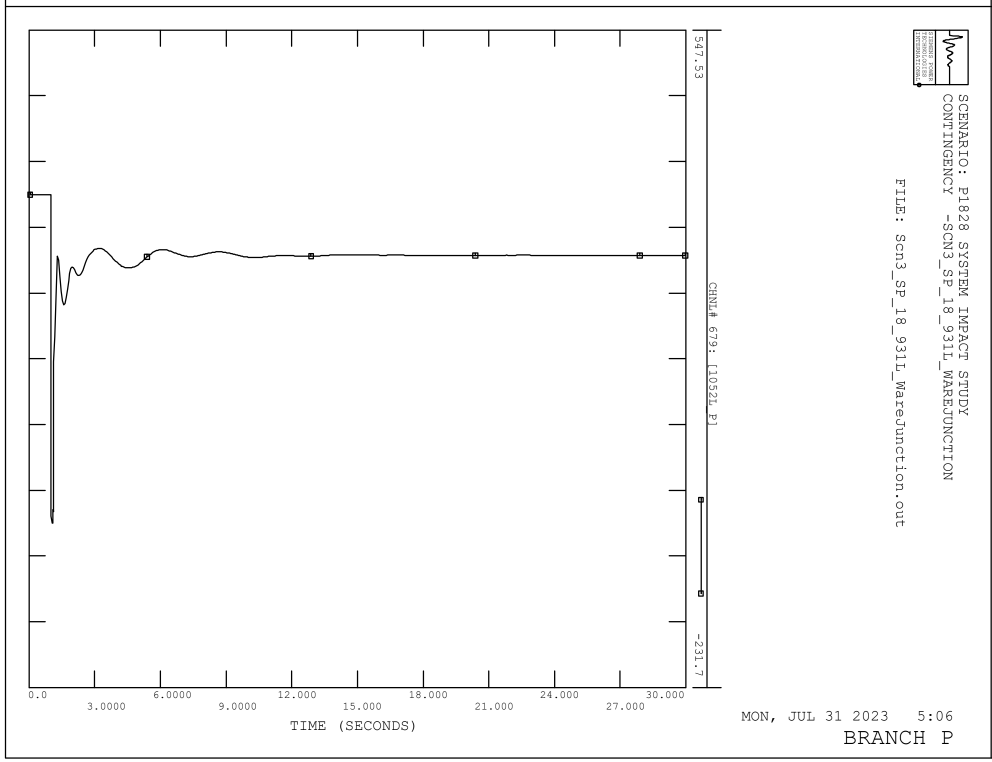
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CONTINGENCY -SCN3_SP_18_931L_WAREJUNCTION
FILE: Scn3_SP_18_931L_WareJunction.out
CHNL# 679: [1052L_P]
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0.0
3.0000
6.0000
9.0000
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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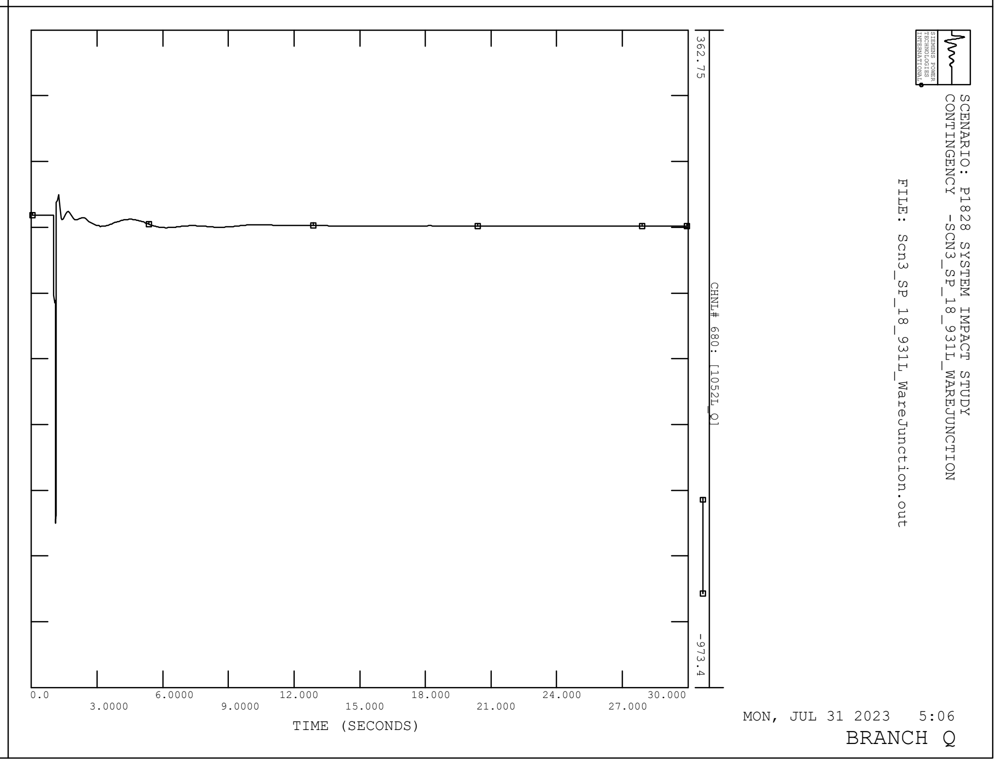
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FILE: Scn3_SP_18_931L_WareJunction.out
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6.0000
9.0000
12.000
15.000
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21.000
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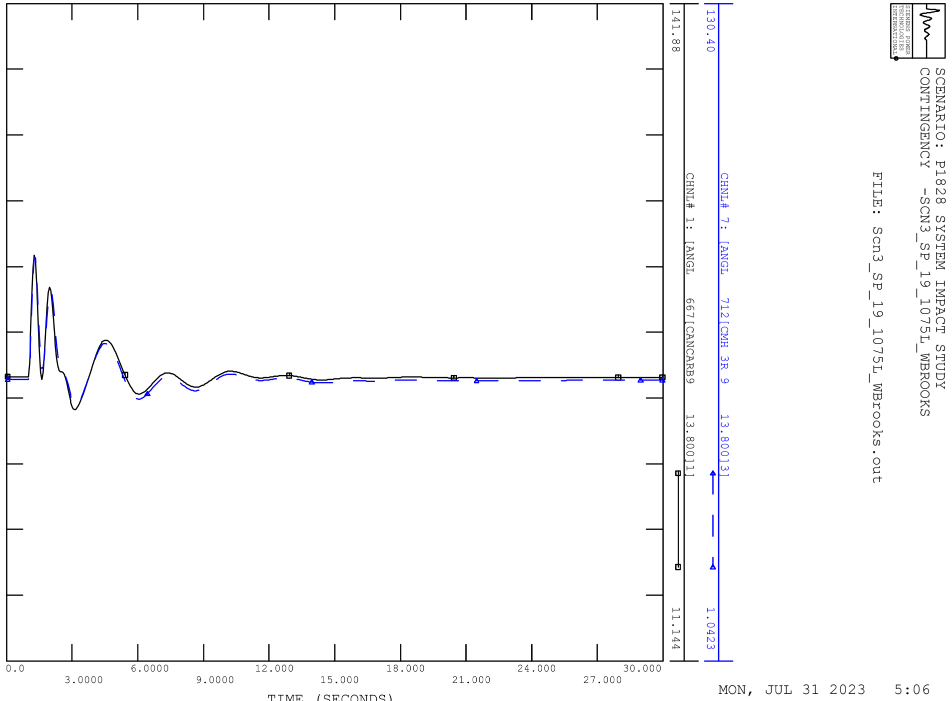
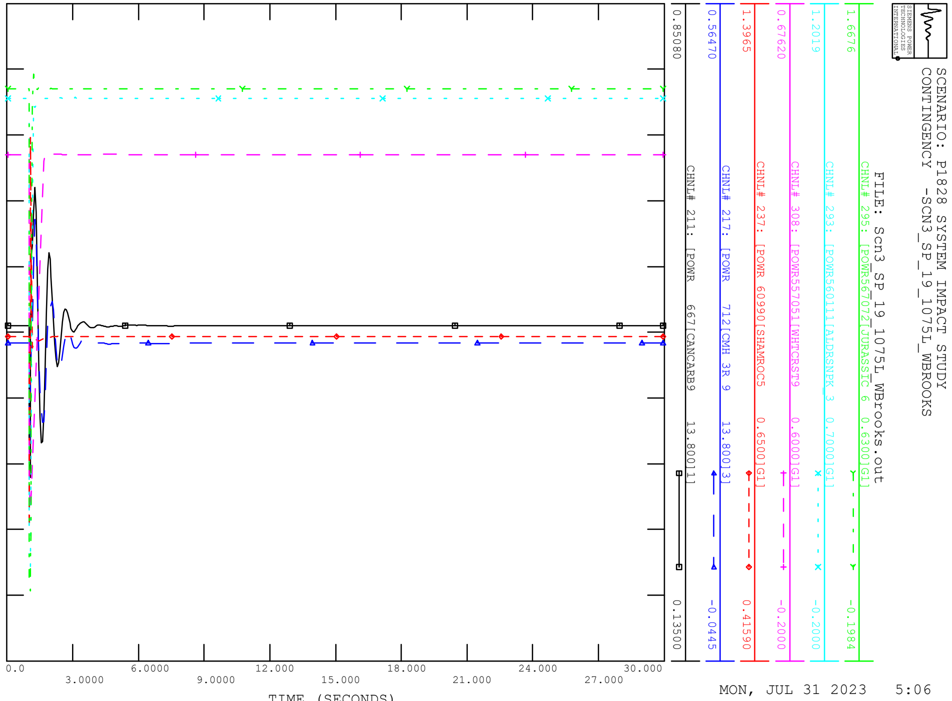
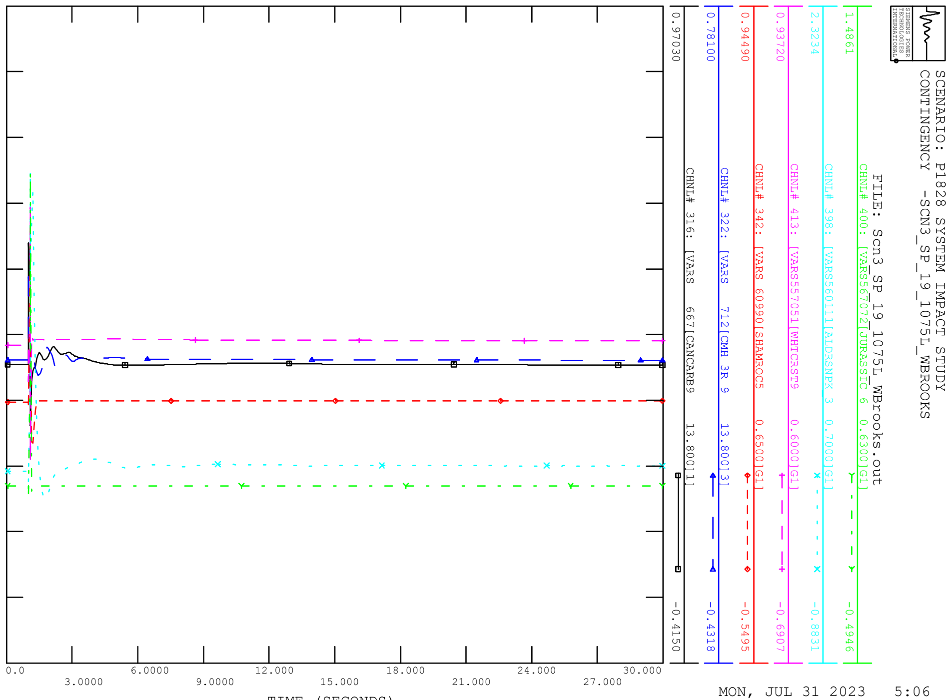
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



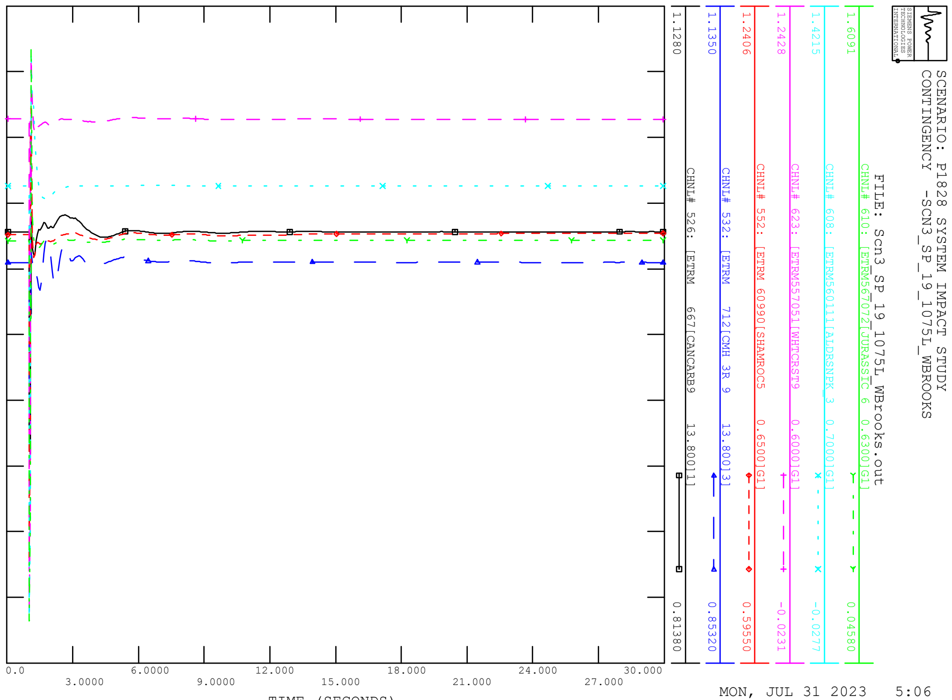
ROTOR ANGLE



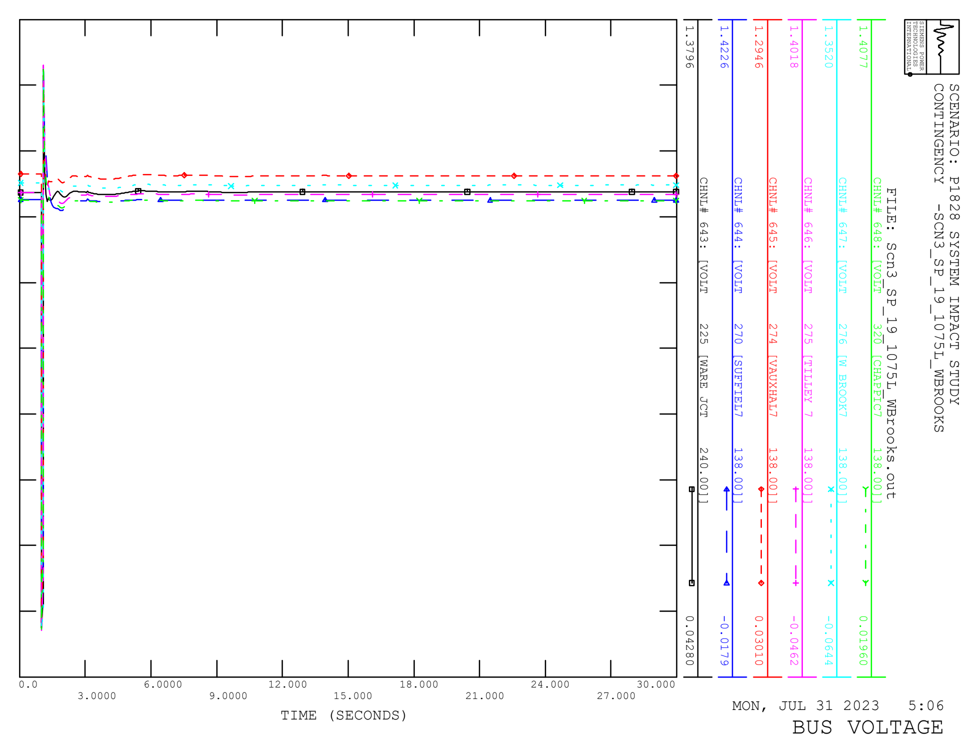
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE



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CONTINGENCY -SCN3_SP_19_1075L_WBROOKS
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.4226 -0.0179
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2946 0.03010
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.4018 -0.0462
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.3520 -0.0644
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.4077 0.01960
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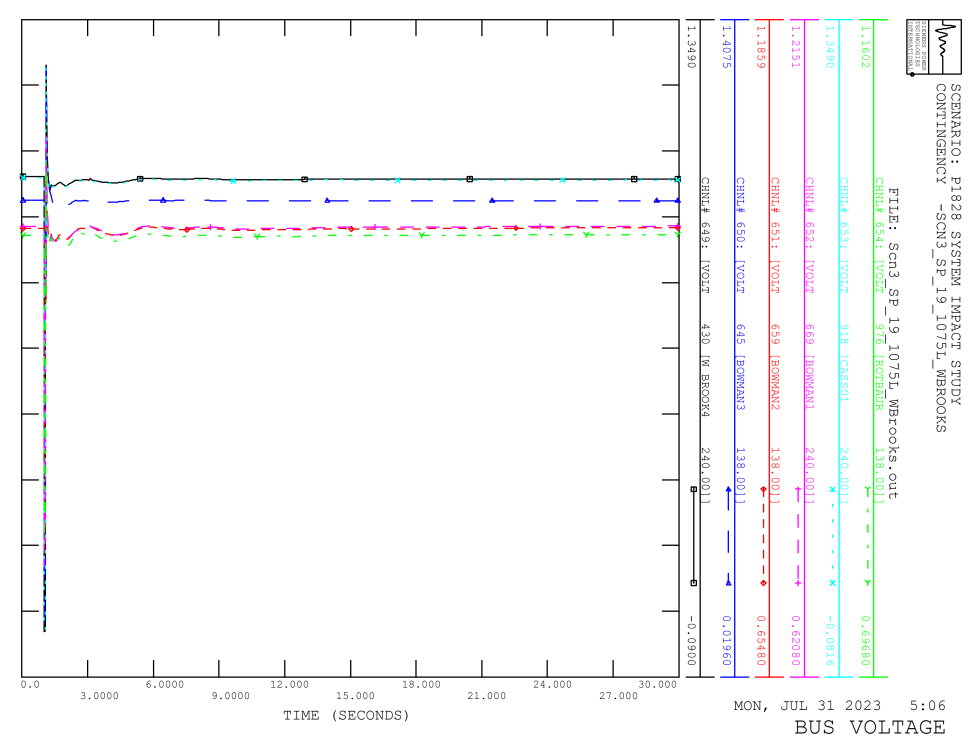
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



FILE: Scn3_SP_19_1075L_WBrooks.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_19_1075L_WBROOKS
CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.3490 -0.0900
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.4075 0.01960
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1859 0.65480
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2151 0.62080
CHNL# 653: [VOLT 918 [CASSOI 240.00]] 1.3490 -0.0816
CHNL# 654: [VOLT 976 [ROTHBUR 138.00]] 1.1602 0.69680
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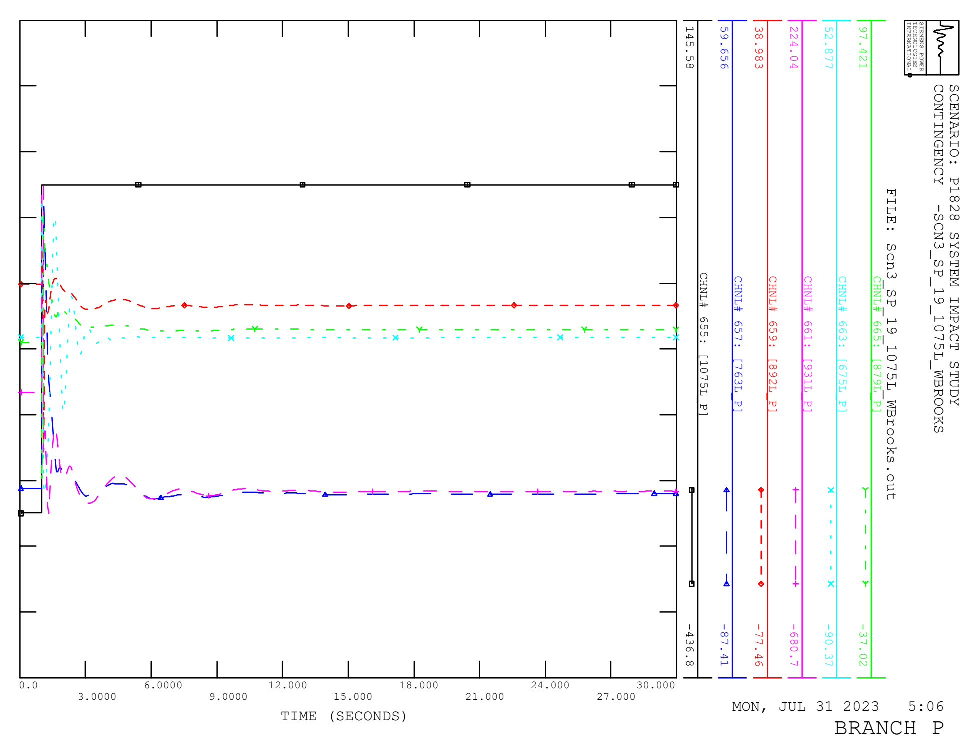
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 655: [1075L_P] 145.58 -436.8
CHNL# 657: [763L_P] 59.656 -87.41
CHNL# 659: [892L_P] 38.983 -77.46
CHNL# 661: [931L_P] 224.04 -680.7
CHNL# 663: [675L_P] 52.877 -90.37
CHNL# 665: [879L_P] 97.421 -37.02
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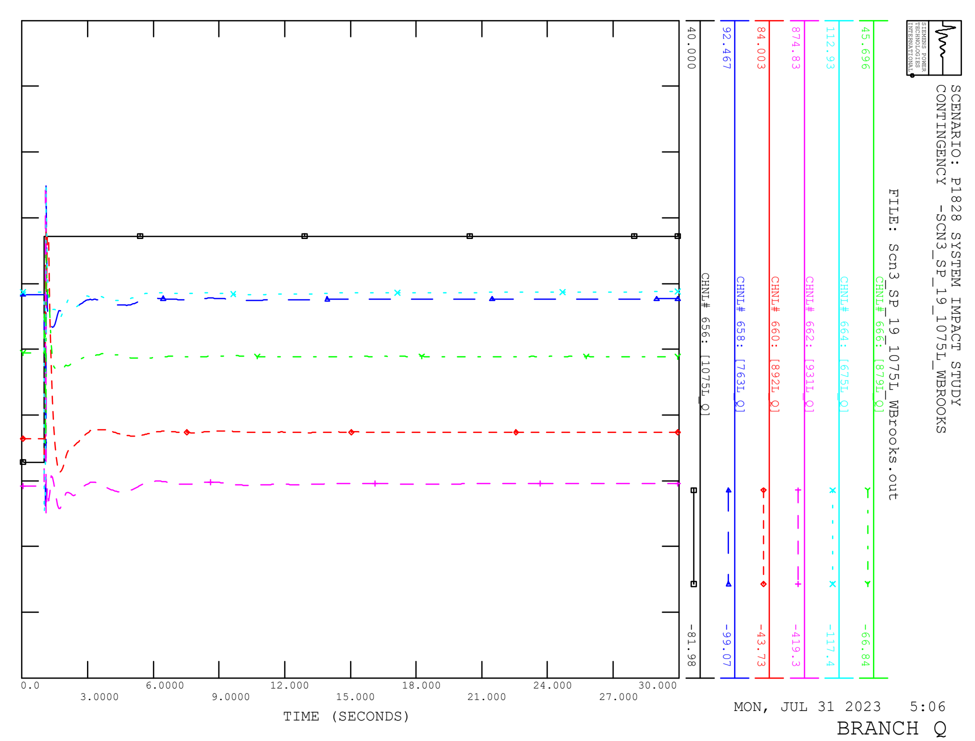
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 658: [763L_Q] 92.467 -99.07
CHNL# 660: [892L_Q] 84.003 -43.73
CHNL# 662: [931L_Q] 874.83 -419.3
CHNL# 664: [675L_Q] 112.93 -117.4
CHNL# 666: [879L_Q] 45.696 -66.84
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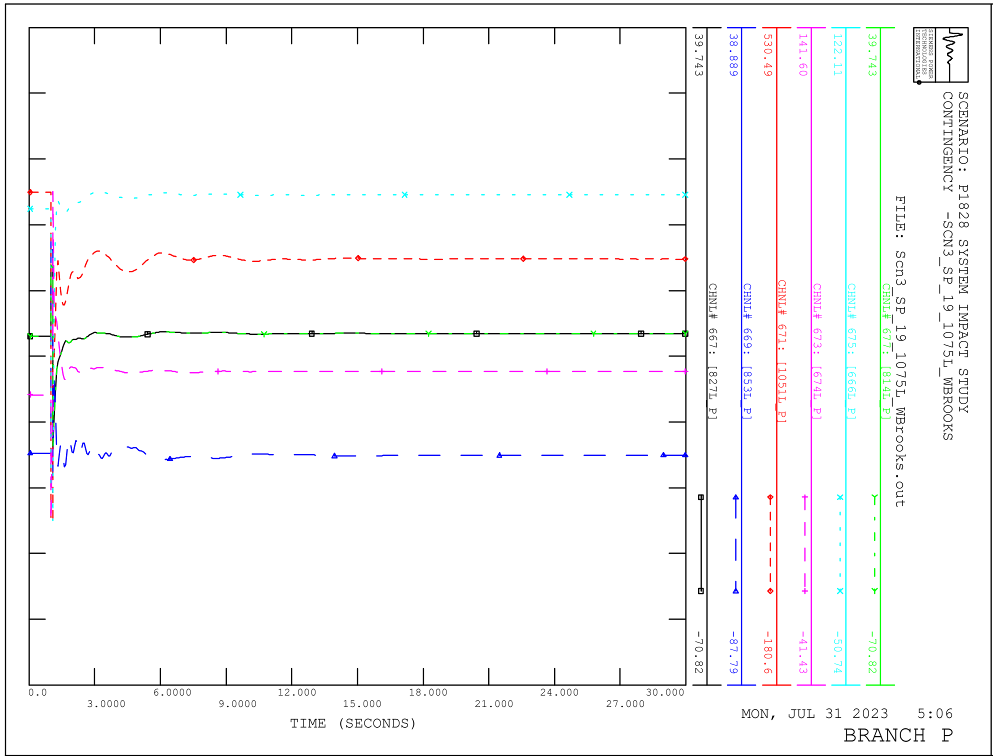
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



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FILE: Scn3_SP_19_1075L_WBrooks.out
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CHNL# 669: [853L_P] 38.889 -87.79
CHNL# 671: [1051L_P] 530.49 -180.6
CHNL# 673: [674L_P] 141.60 -41.43
CHNL# 675: [666L_P] 122.11 -50.74
CHNL# 677: [818L_P] 39.743 -70.82
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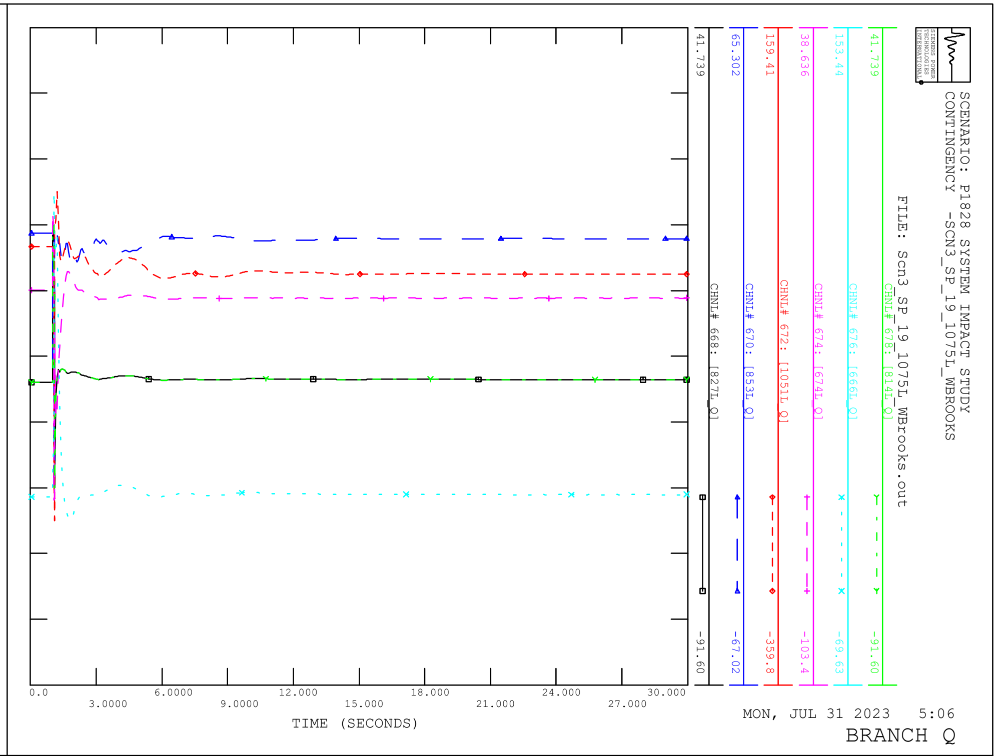
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 670: [853L_Q] 65.302 -67.02
CHNL# 672: [1051L_Q] 159.41 -359.8
CHNL# 674: [674L_Q] 38.636 -103.4
CHNL# 676: [666L_Q] 153.44 -69.63
CHNL# 678: [818L_Q] 41.739 -91.60
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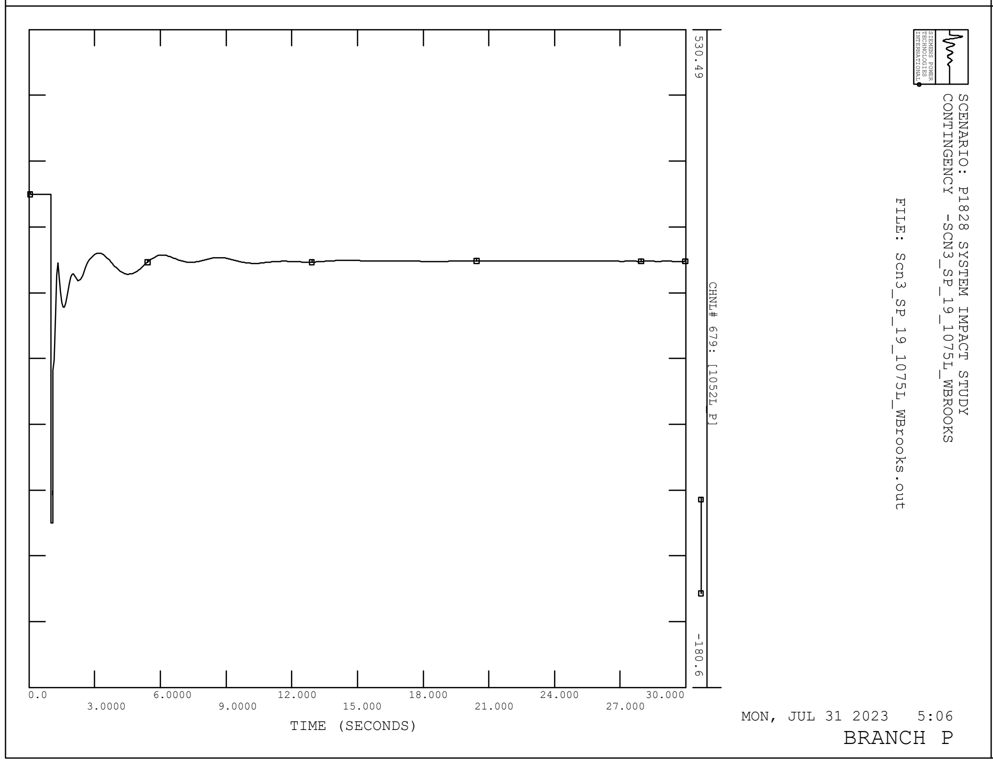
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



SCENARIO: P1828 SYSTEM IMPACT STUDY
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FILE: Scn3_SP_19_1075L_WBrooks.out
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TIME (SECONDS)
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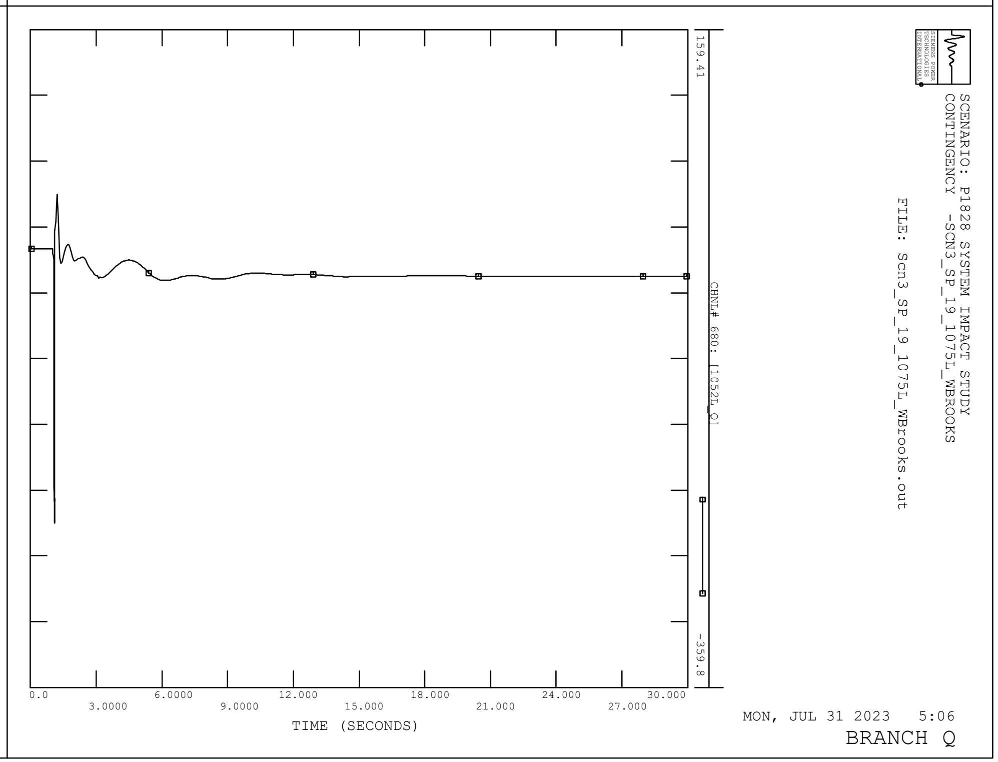

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TIME (SECONDS)
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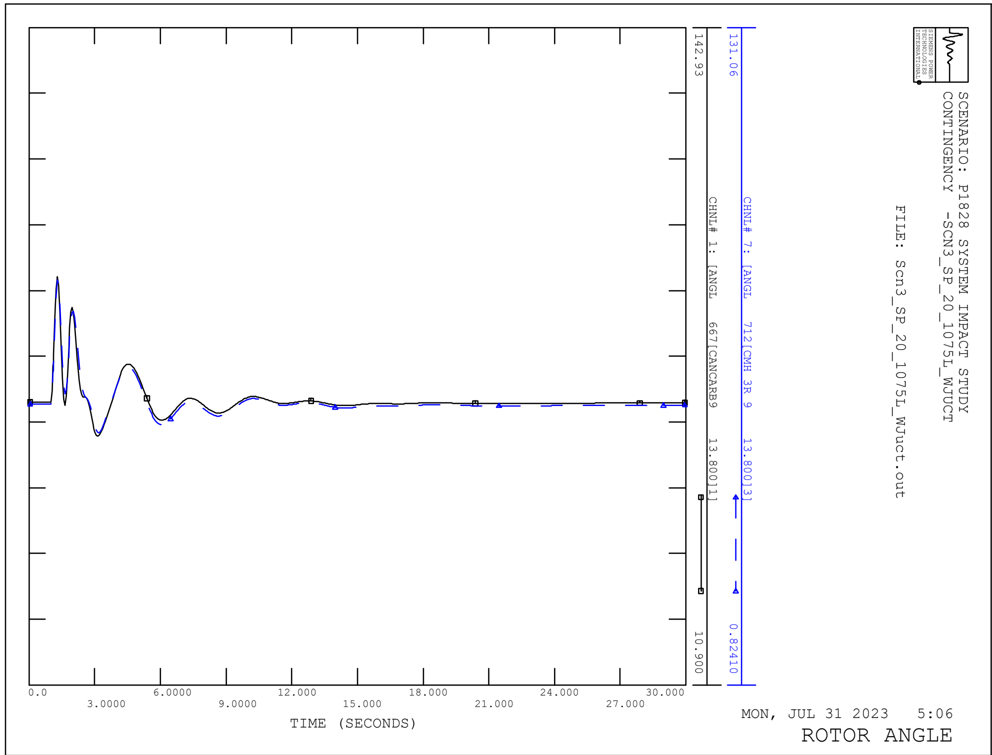
BRANCH Q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FILE: Scn3_SP_20_1075L_WJuct.out
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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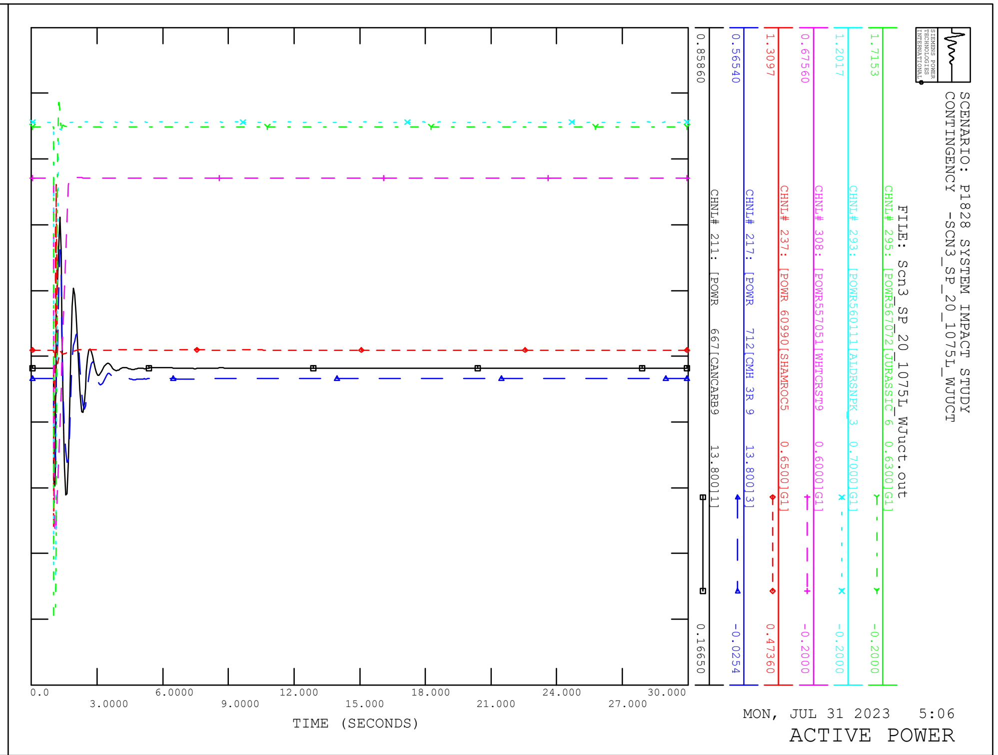
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE

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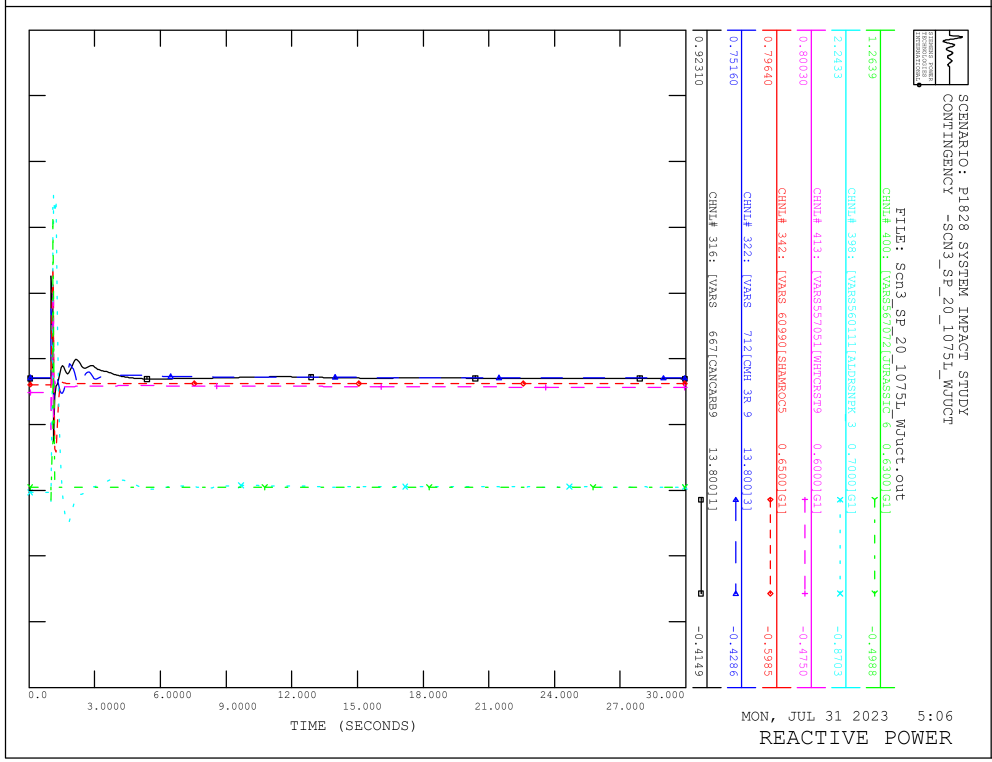
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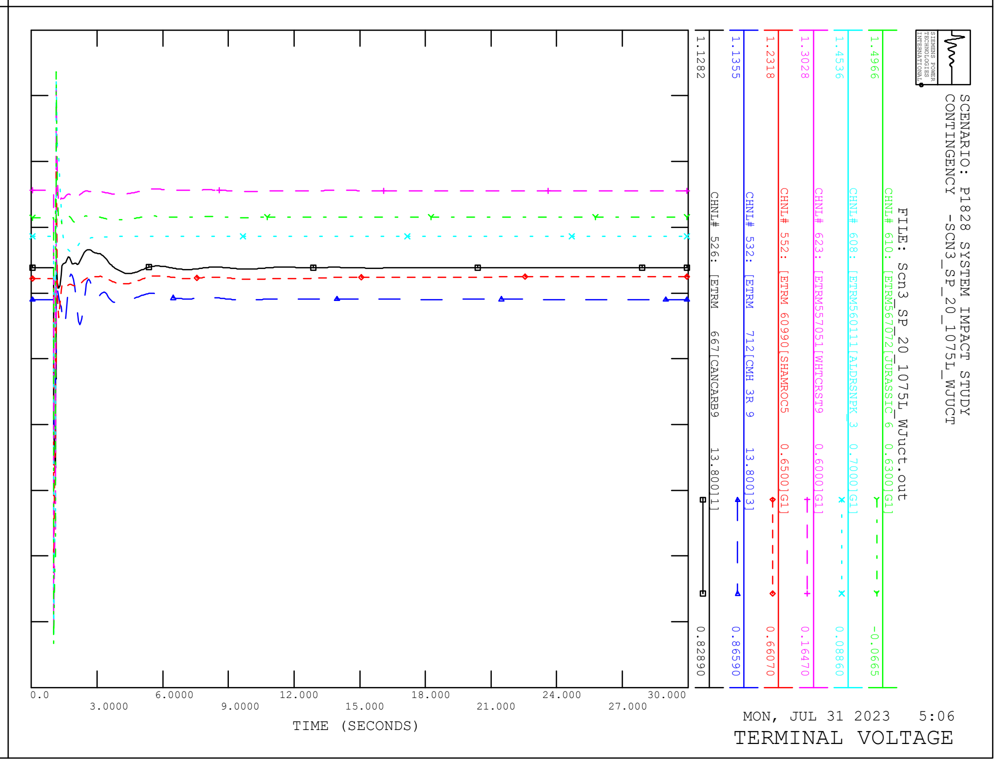
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER

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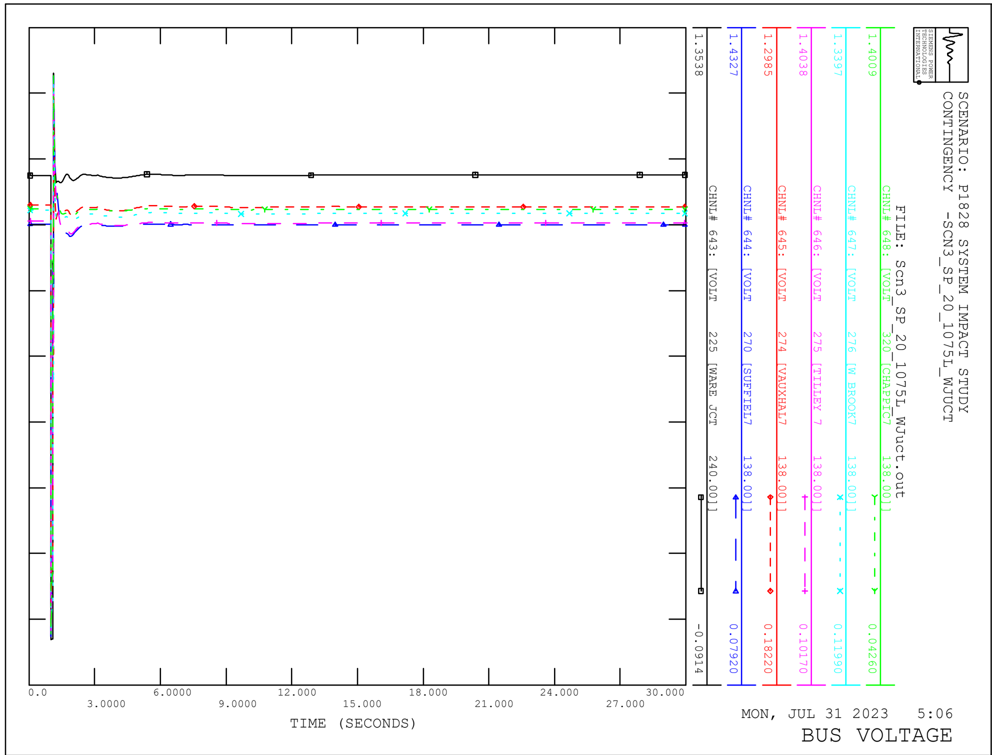
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]]
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
1.3538 -0.0914
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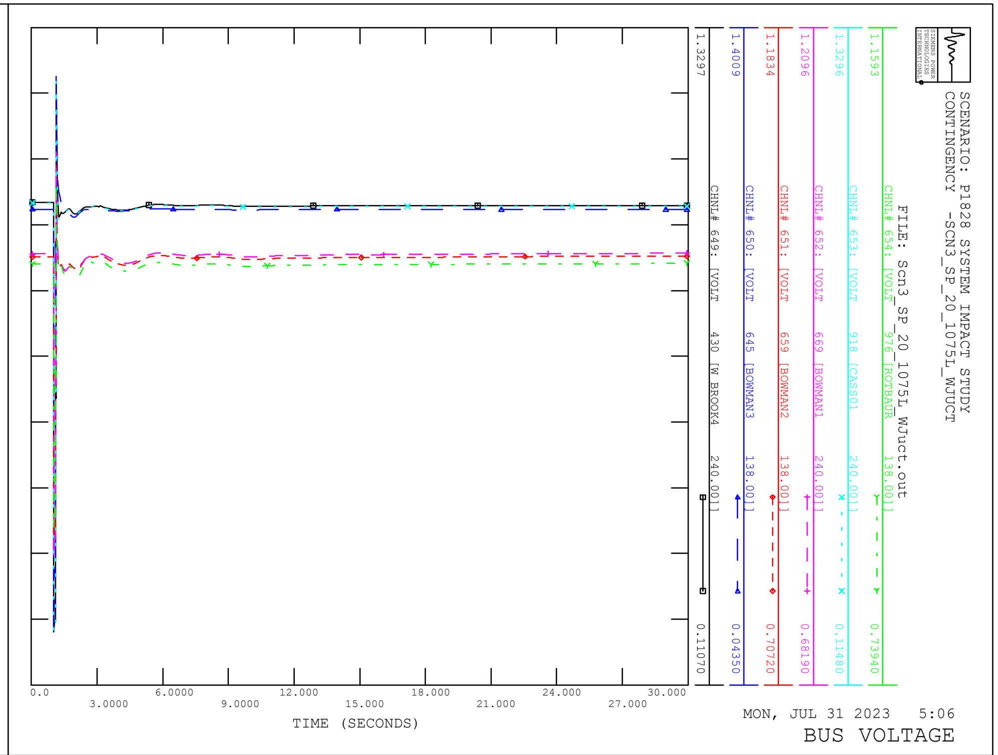
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSD1 240.00]]
CHNL# 634: [VOLT 976 [ROTBAR 138.00]]
1.3297 0.11070
1.4009 0.04350
1.1834 0.70720
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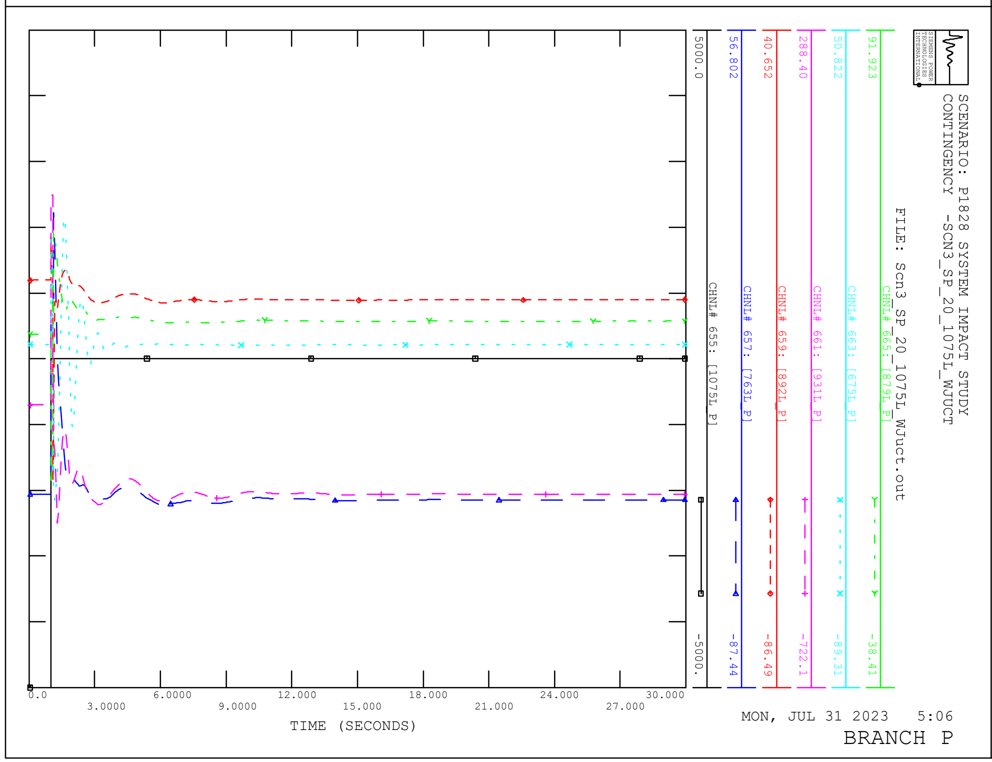
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
CHNL# 655: [1075L P]
CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [675L P]
CHNL# 665: [879L P]
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56.802 -87.44
40.652 -86.49
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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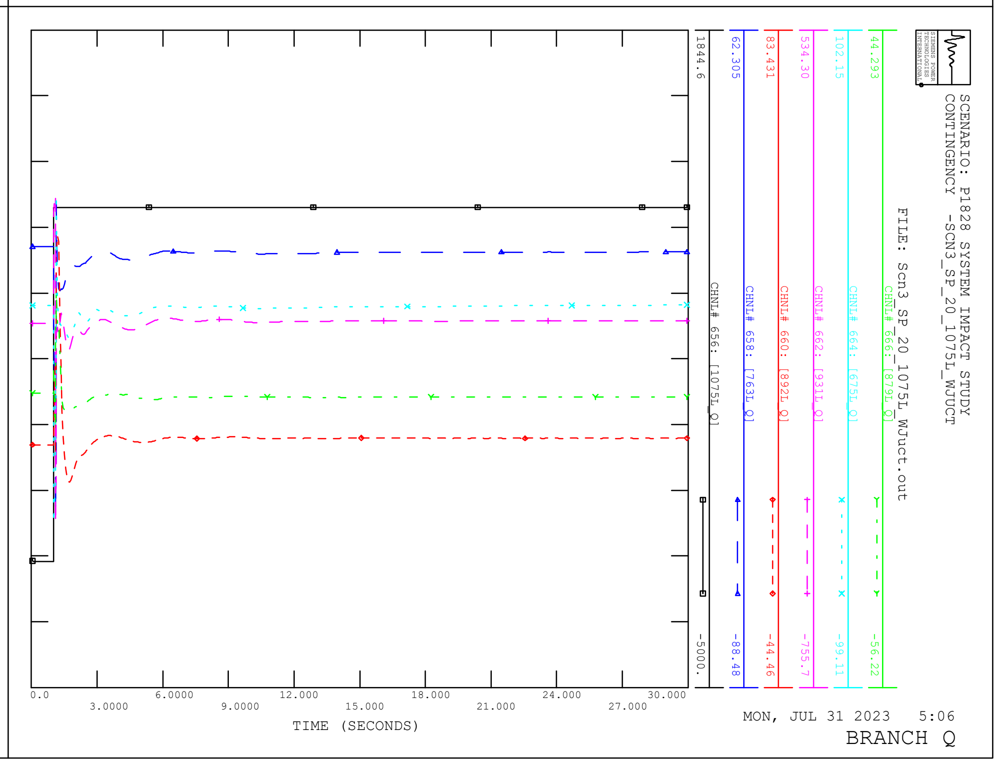
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CONTINGENCY -SCN3_SP_20_1075L_WJUCT
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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
CHNL# 666: [879L Q]
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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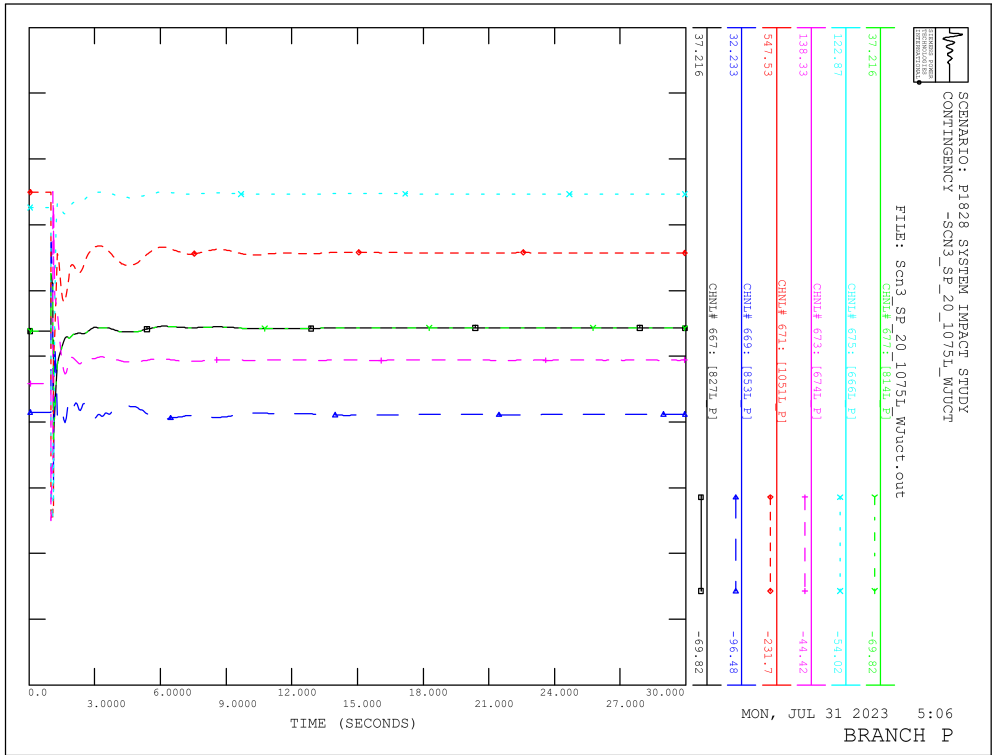

SCENARIO: P1828 SYSTEM IMPACT STUDY
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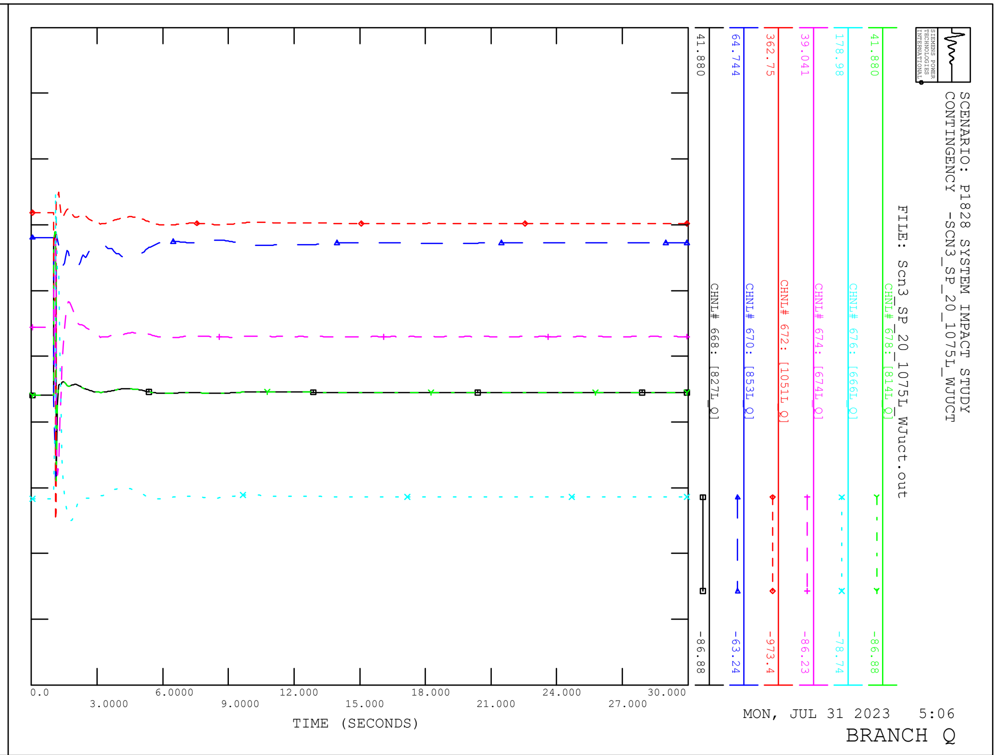
32.233 CHNL# 669: [853L_P] -96.48
547.53 CHNL# 671: [1051L_P] -231.7
138.33 CHNL# 673: [674L_P] -44.42
122.87 CHNL# 675: [666L_P] -54.02
37.216 CHNL# 677: [814L_P] -69.82
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
41.880 CHNL# 668: [827L_Q] -86.88
64.744 CHNL# 670: [853L_Q] -63.24
362.75 CHNL# 672: [1051L_Q] -973.4
39.041 CHNL# 674: [674L_Q] -86.23
178.98 CHNL# 676: [666L_Q] -78.74
41.880 CHNL# 678: [814L_Q] -86.88
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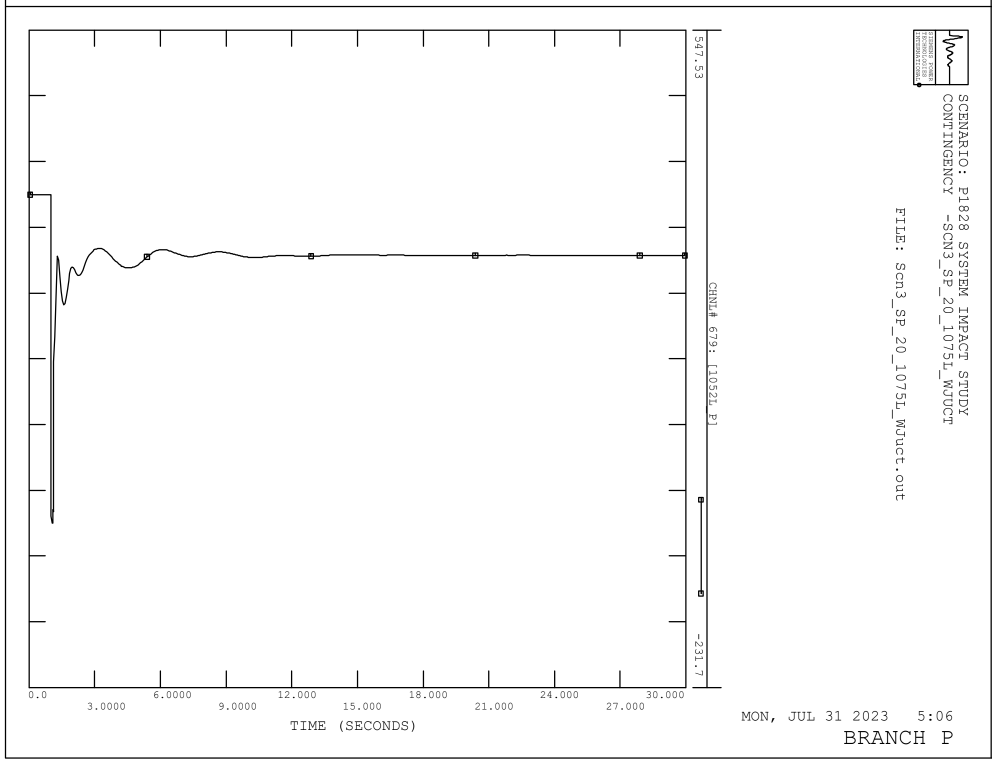
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
547.53 CHNL# 679: [1052L_P] -231.7
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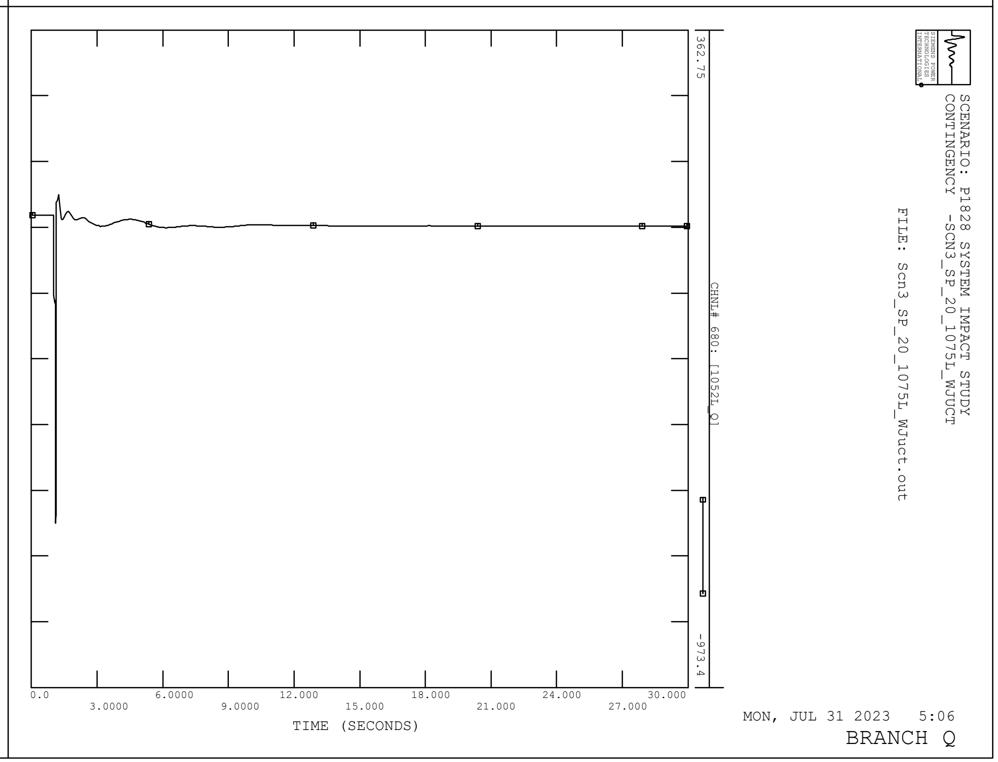
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_20_1075L_WJUCT
FILE: Scn3_SP_20_1075L_WJuct.out
362.75 CHNL# 680: [1052L_Q] -973.4
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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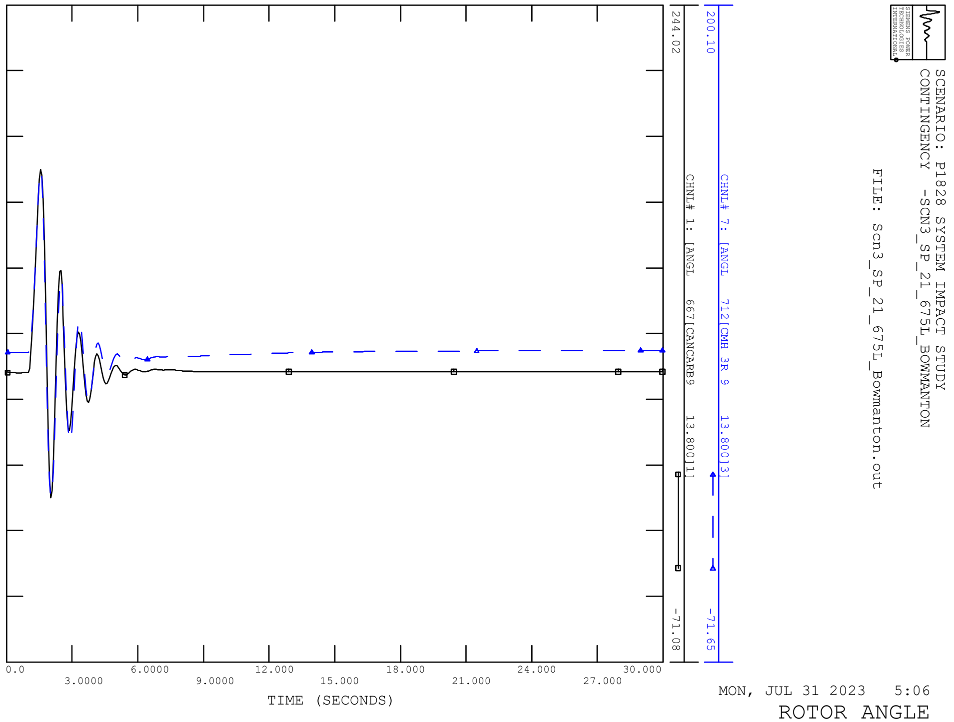
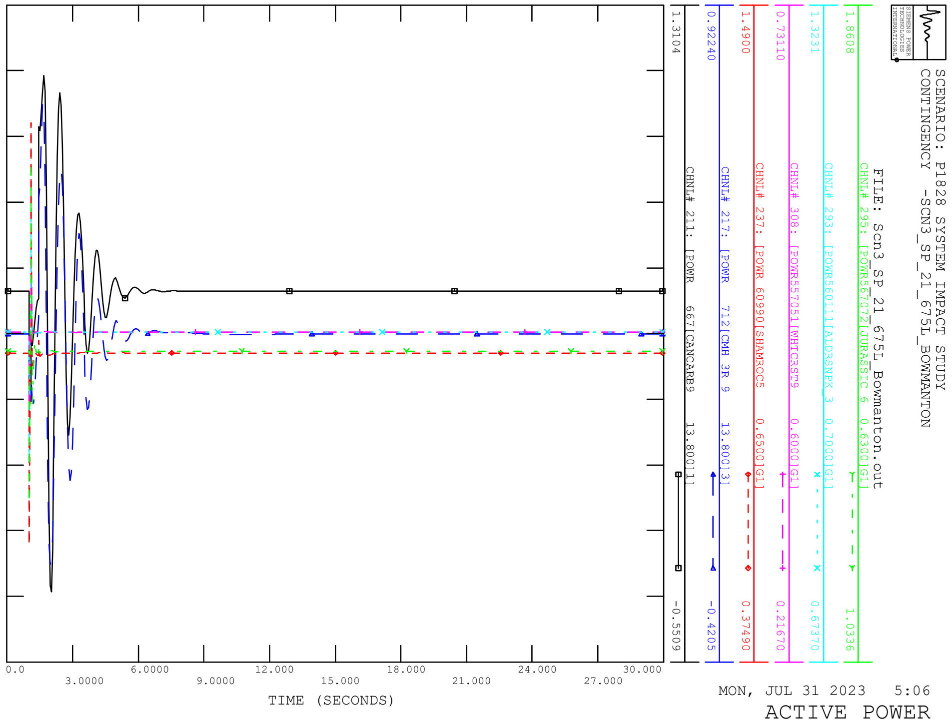


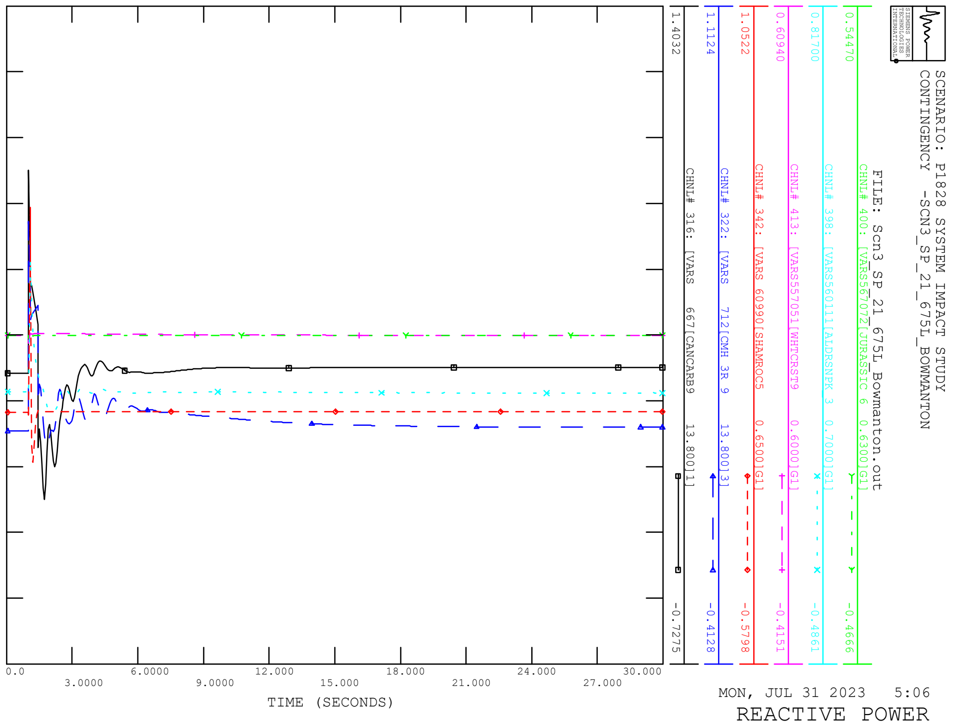
MON, JUL 31 2023 5:06

ROTOR ANGLE



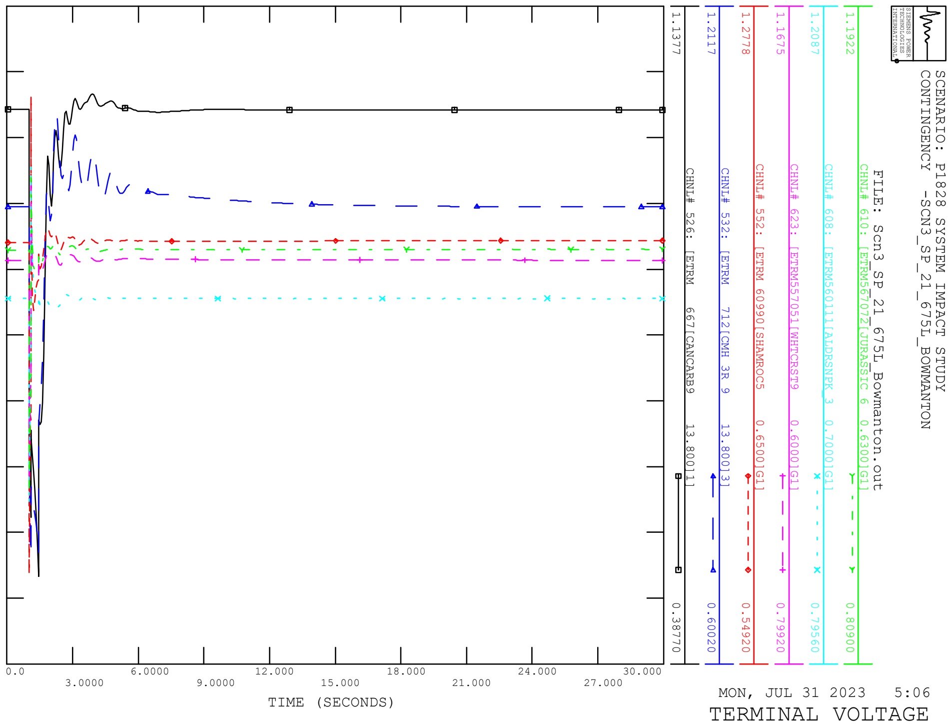
MON, JUL 31 2023 5:06

ACTIVE POWER



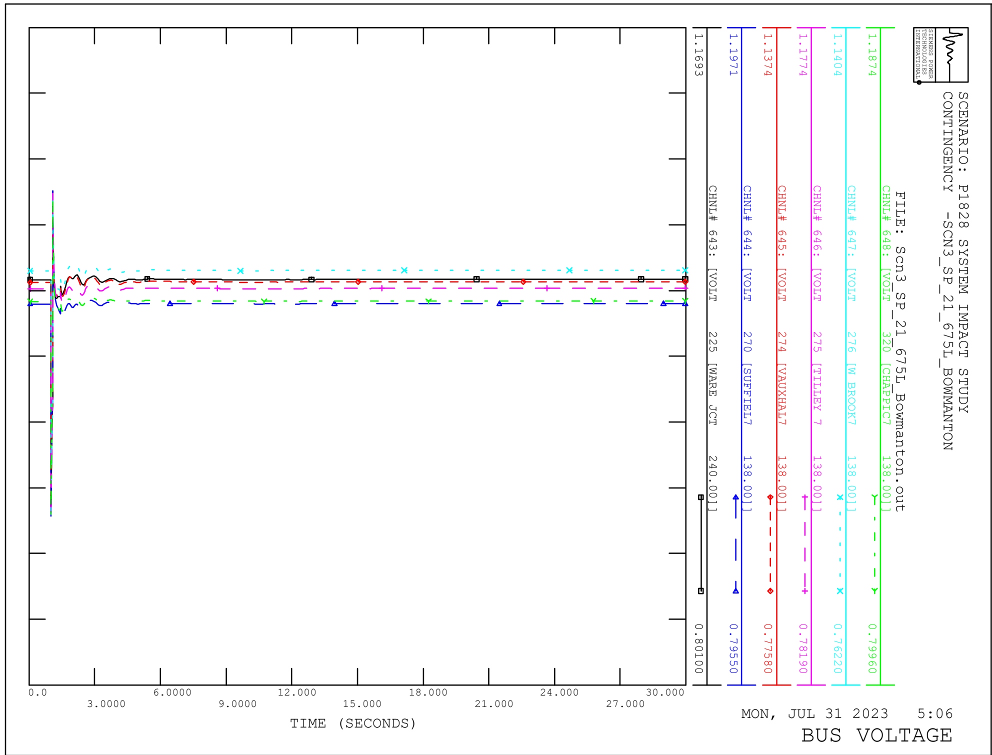
MON, JUL 31 2023 5:06

REACTIVE POWER



MON, JUL 31 2023 5:06

TERMINAL VOLTAGE


FILE: Scn3_SP_21_675L_Bowmanton.out
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.1693 0.80100
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.1971 0.79550
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1374 0.77580
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.1774 0.78190
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1404 0.76220
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.1874 0.79960
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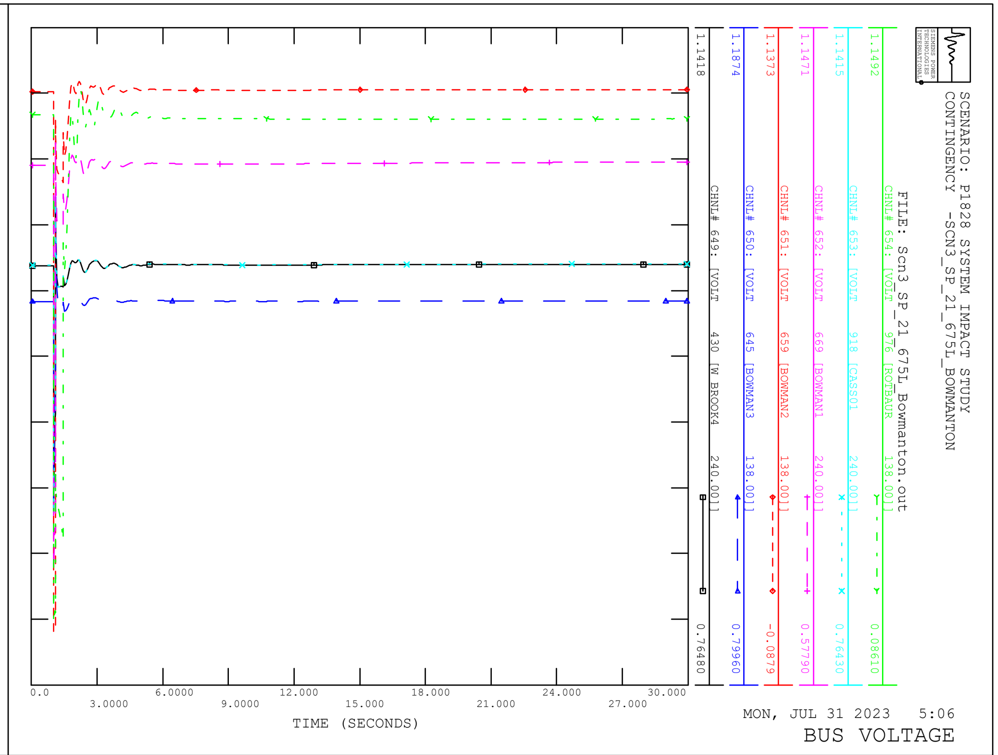
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.1418 0.76480
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1874 0.79960
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1373 -0.0879
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1471 0.57790
CHNL# 653: [VOLT 918 [CASSOL 240.00]] 1.1415 0.70430
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1492 0.08610
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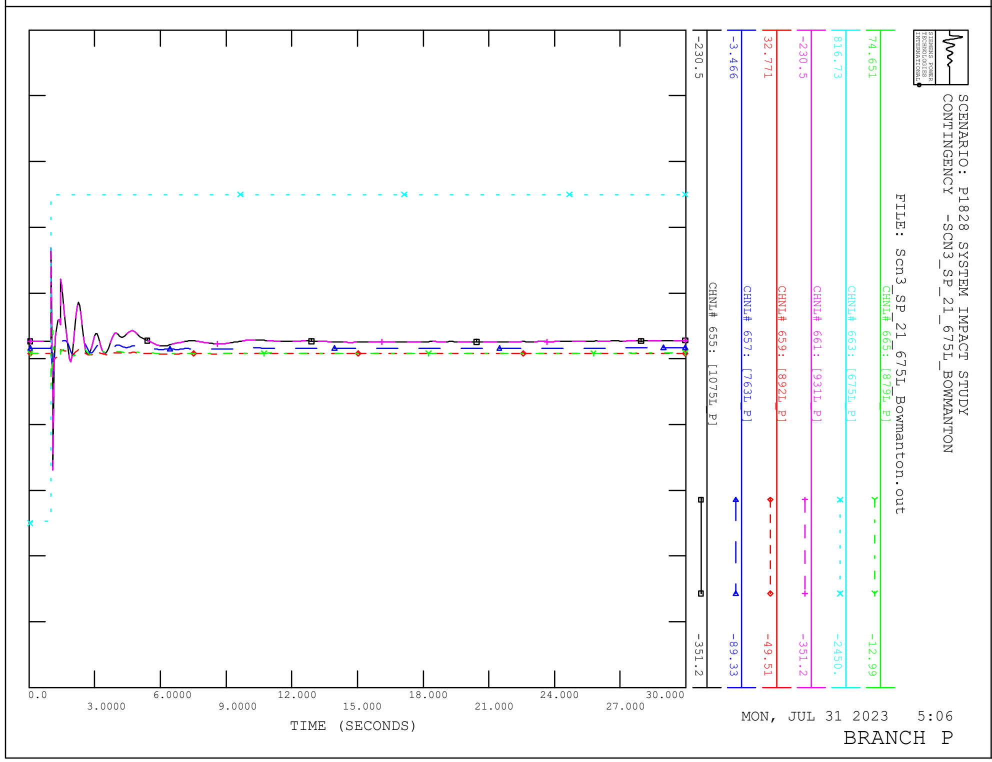
MON, JUL 31 2023 5:06
BUS VOLTAGE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SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
CHNL# 655: [1075L_P] -230.5 -351.2
CHNL# 657: [763L_P] -3.466 -89.33
CHNL# 659: [892L_P] 32.771 -49.51
CHNL# 661: [931L_P] -230.5 -351.2
CHNL# 663: [675L_P] 816.73 -2450.
CHNL# 665: [879L_P] 74.651 -12.99
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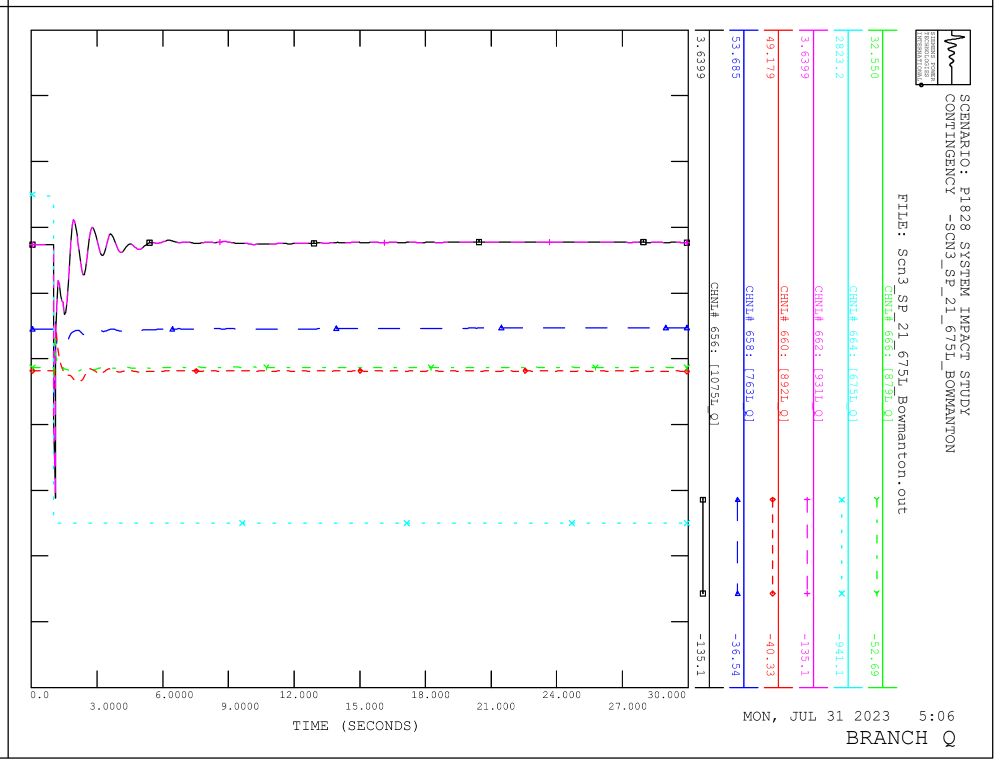
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
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CHNL# 658: [763L_Q] 53.685 -36.54
CHNL# 660: [892L_Q] 49.179 -40.33
CHNL# 662: [931L_Q] 3.6399 -135.1
CHNL# 664: [675L_Q] 2823.2 -941.1
CHNL# 666: [879L_Q] 32.550 -52.69
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MON, JUL 31 2023 5:06
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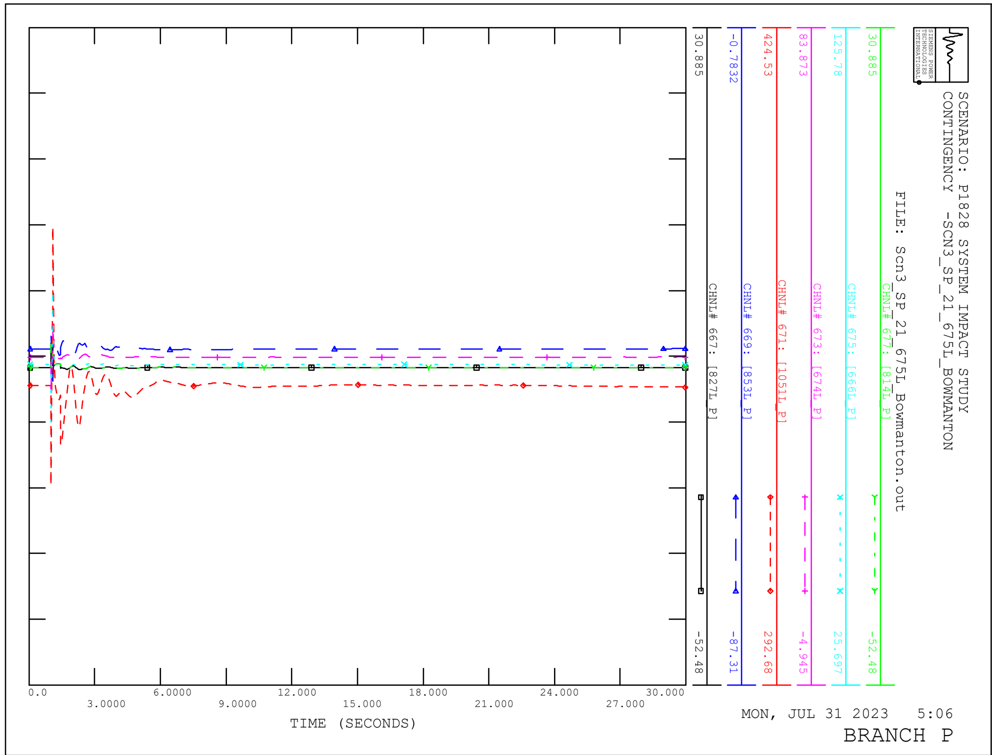
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CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
FILE: Scn3_SP_21_675L_Bowmanton.out
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-0.7832 CHNL# 669: [853L_P] -87.31
424.53 CHNL# 671: [1051L_P] 292.68
83.873 CHNL# 673: [674L_P] -4.945
125.78 CHNL# 675: [666L_P] 25.697
30.885 CHNL# 677: [819L_P] -52.48
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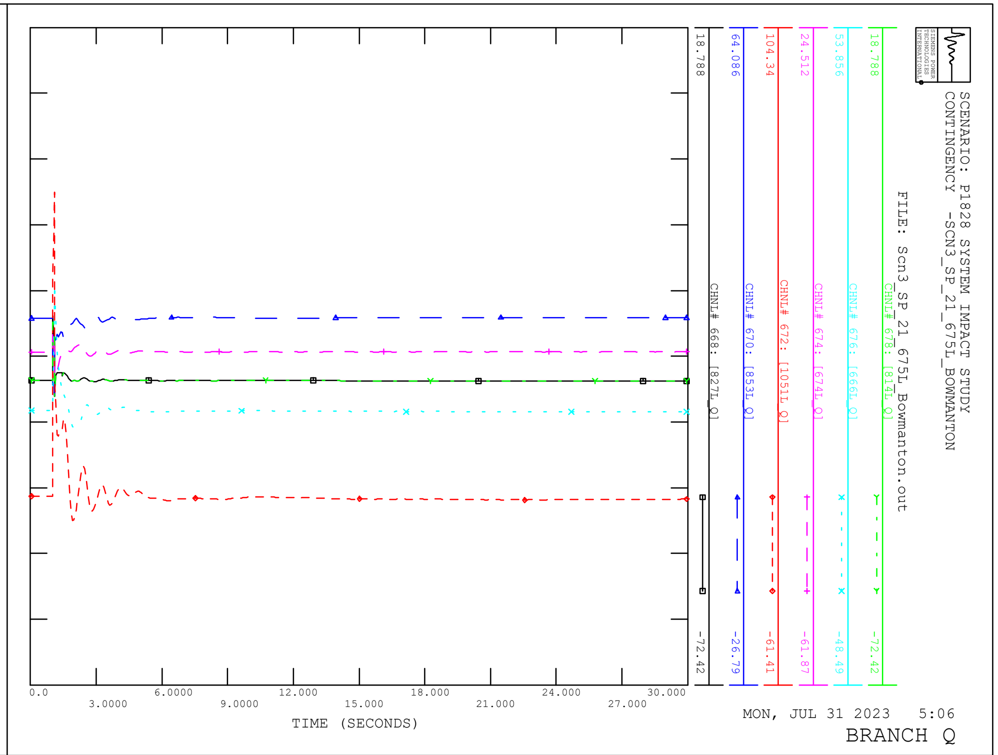
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_21_675L_BOWMANTON
FILE: Scn3_SP_21_675L_Bowmanton.out
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64.086 CHNL# 670: [853L_Q] -26.79
104.34 CHNL# 672: [1051L_Q] -61.41
24.512 CHNL# 674: [674L_Q] -61.87
53.856 CHNL# 676: [666L_Q] -48.49
18.788 CHNL# 678: [819L_Q] -72.42
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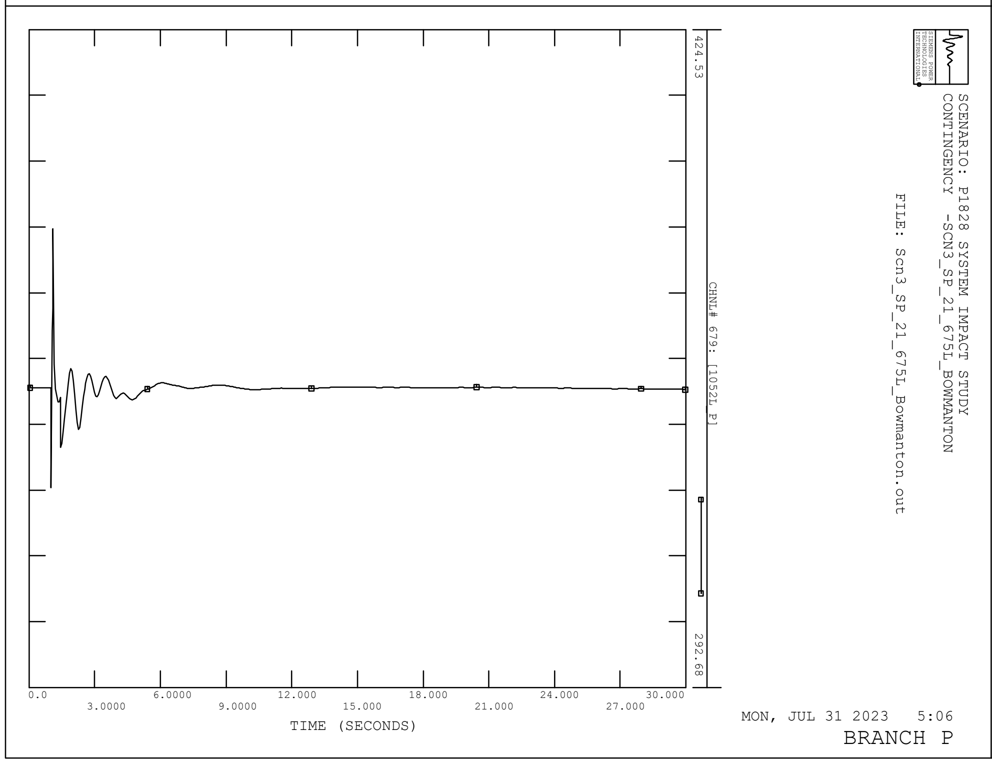
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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TIME (SECONDS)
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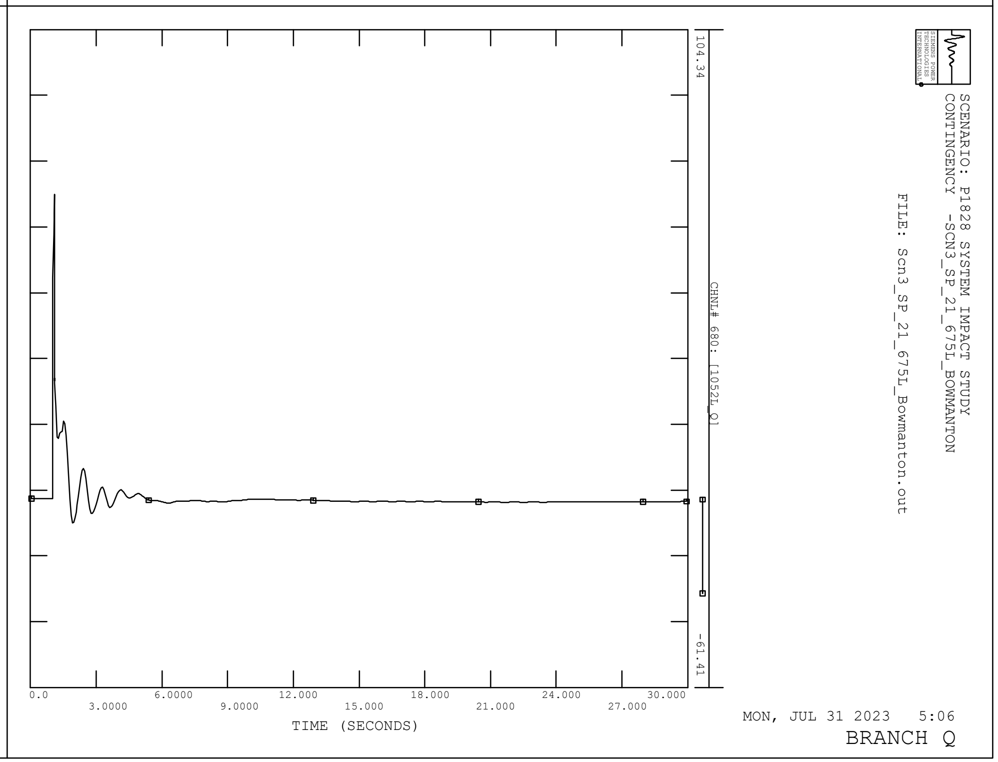
BRANCH P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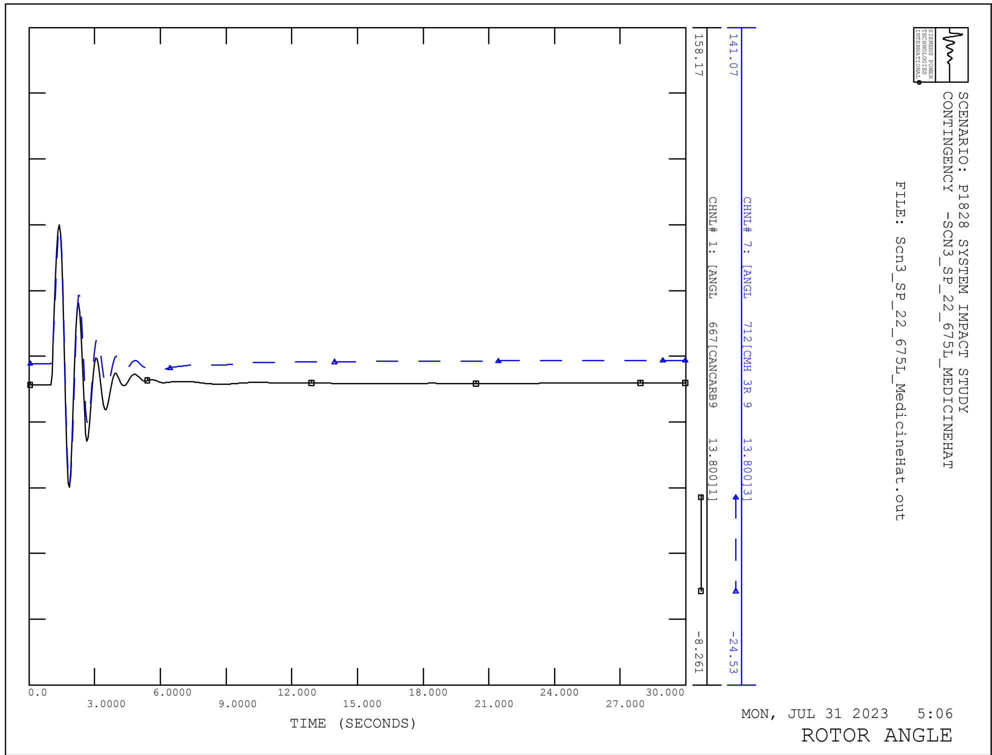
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



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CONTINGENCY -SCN3_SP_22_675L_MEDICINEHAT
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CHNL# 1: [ANGL 667[CANCARB9 13.800]1]
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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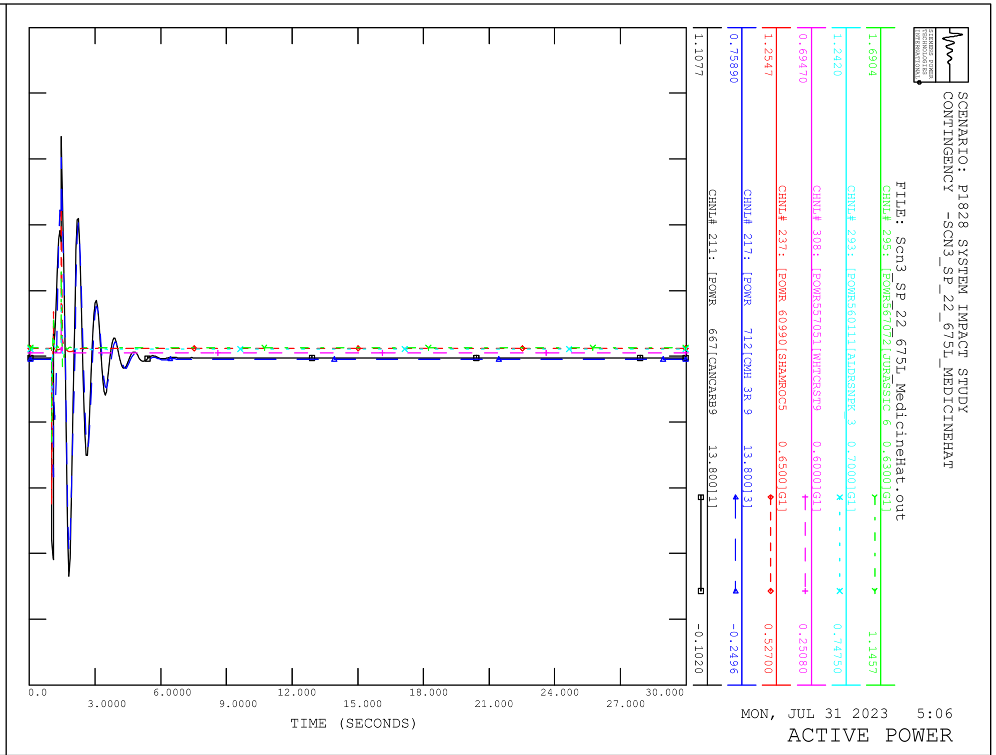
-24.53
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE



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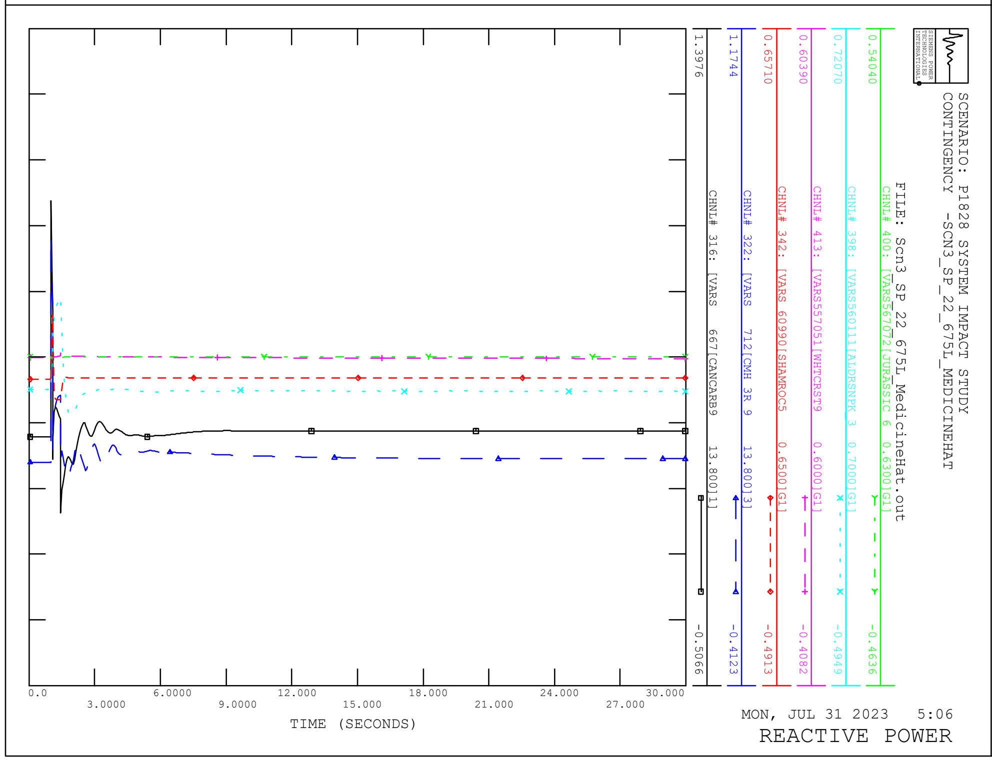
CONTINGENCY -SCN3_SP_22_675L_MEDICINEHAT
FILE: Scn3_SP_22_675L_MedicineHat.out
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER



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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
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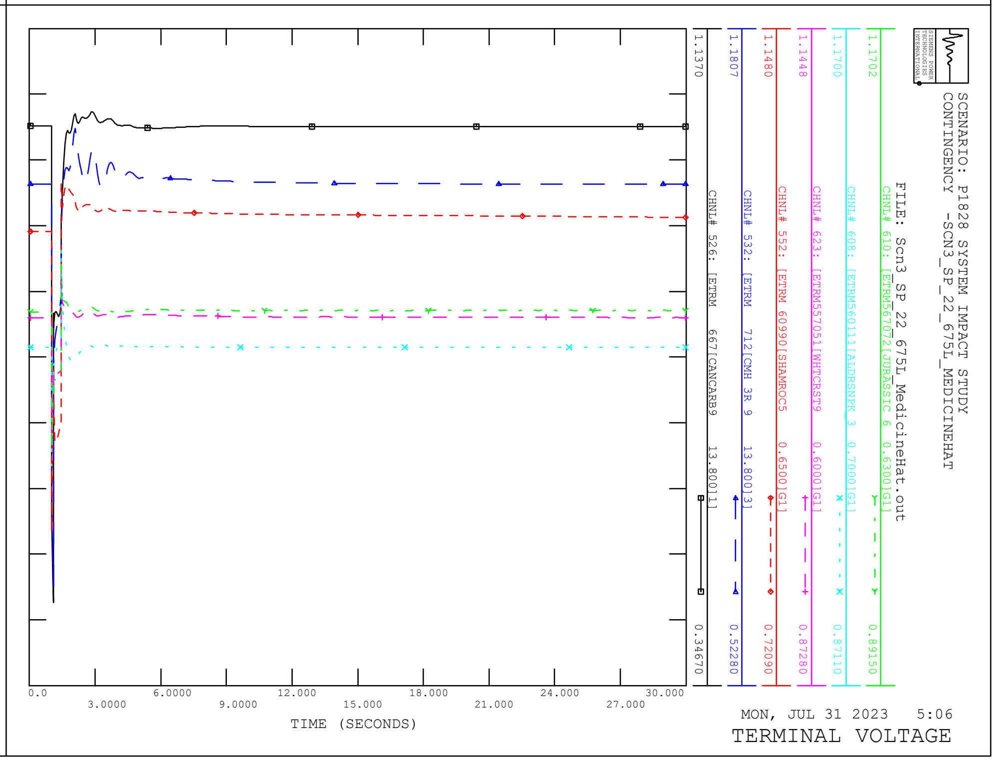
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER



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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
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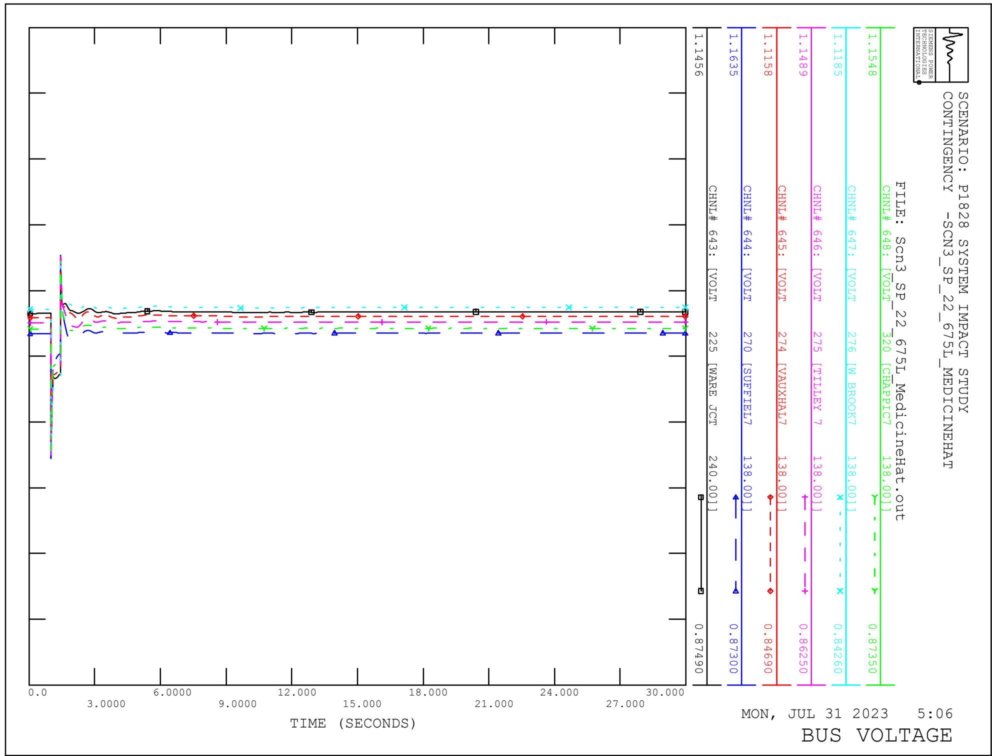
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
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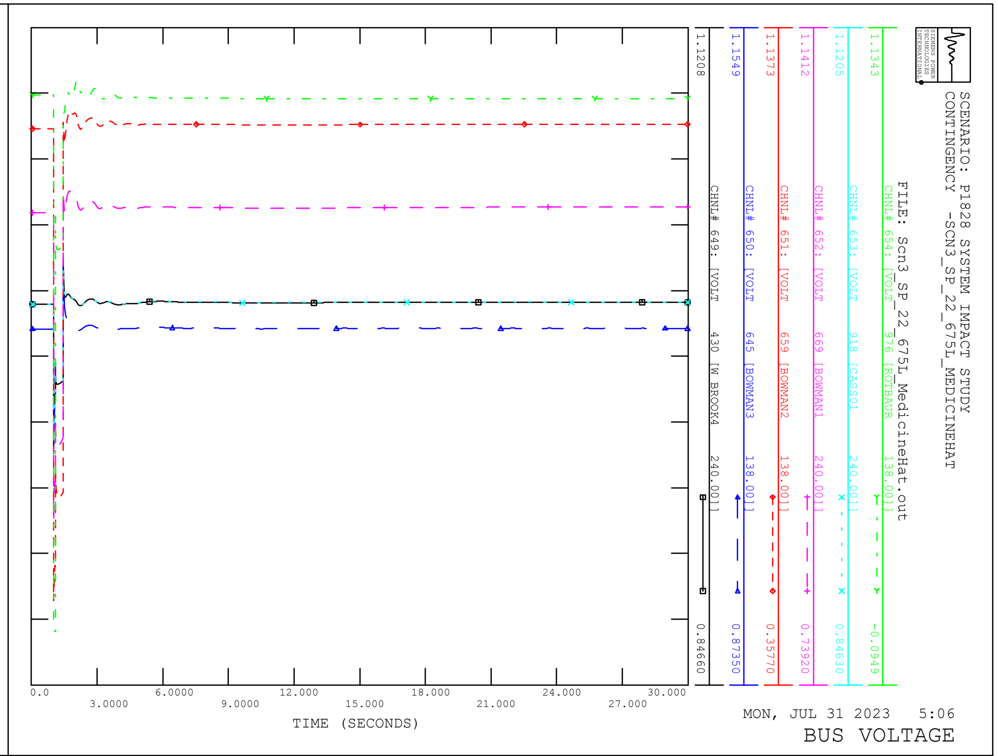
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn3_SP_22_675L_MedicineHat.out
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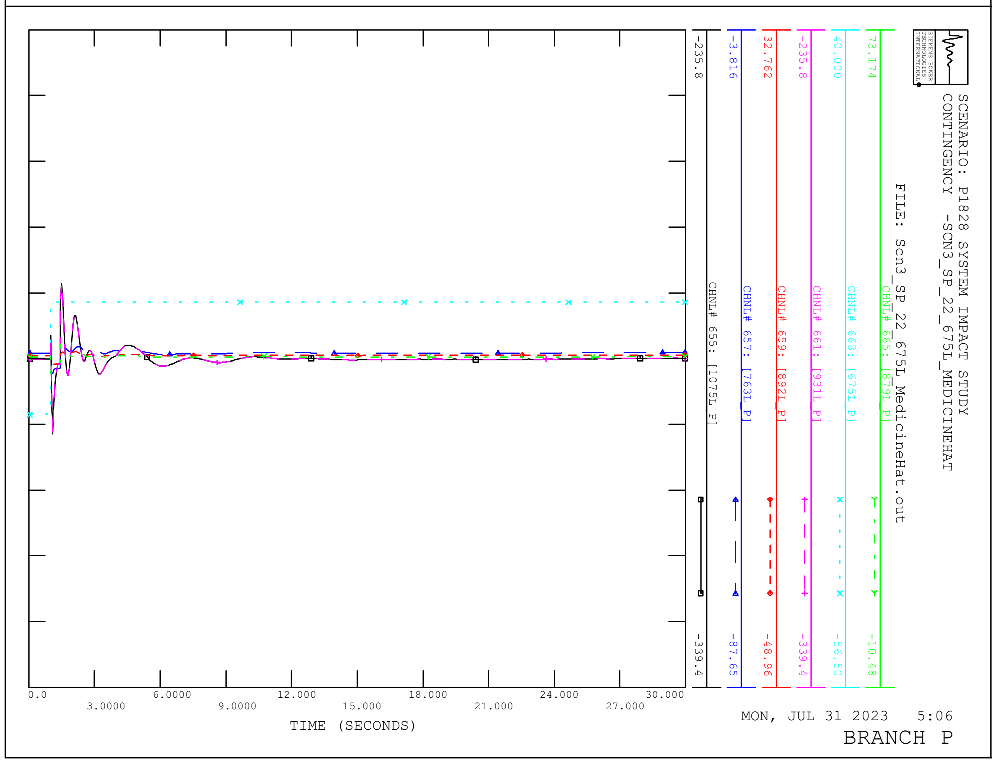
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSO1 240.00]]
CHNL# 654: [VOLT 976 [ROTHAUR 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 655: [1075L P]
CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
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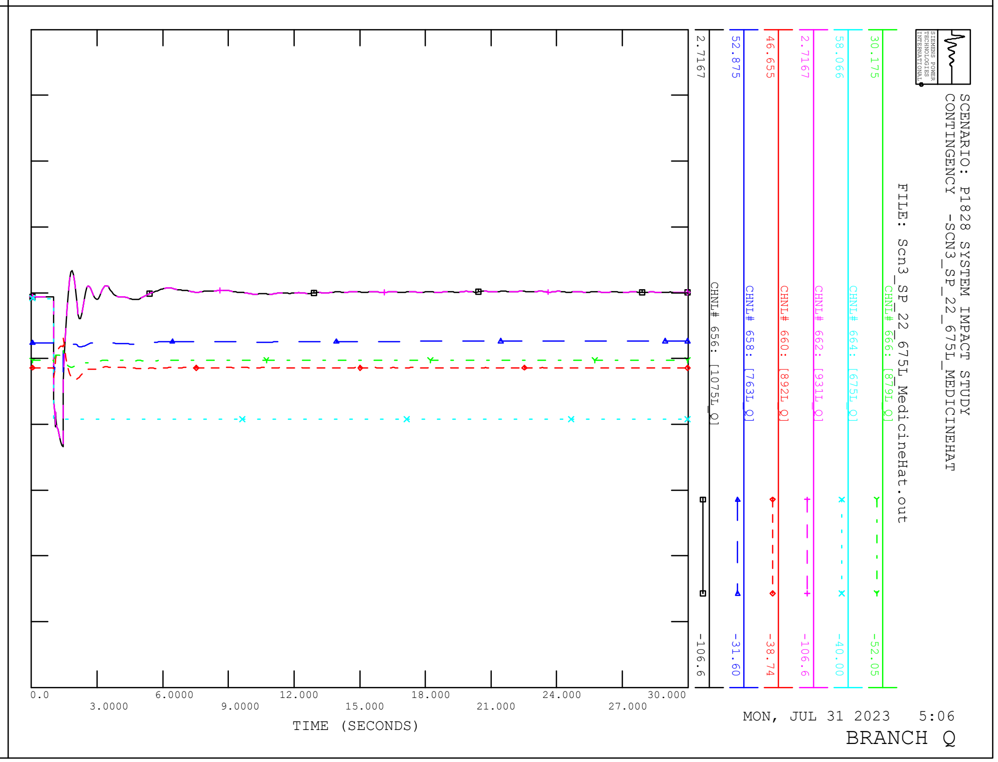
CHNL# 665: [679L P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
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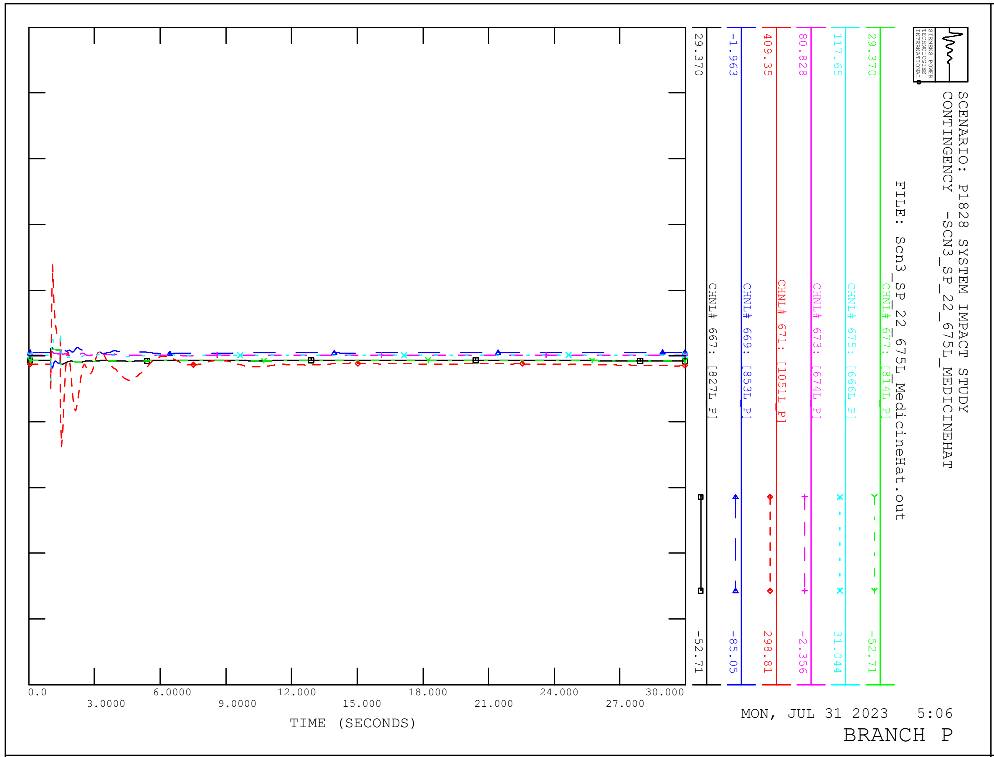
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN3_SP_22_675L_MEDICINEHAT
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CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
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TIME (SECONDS)
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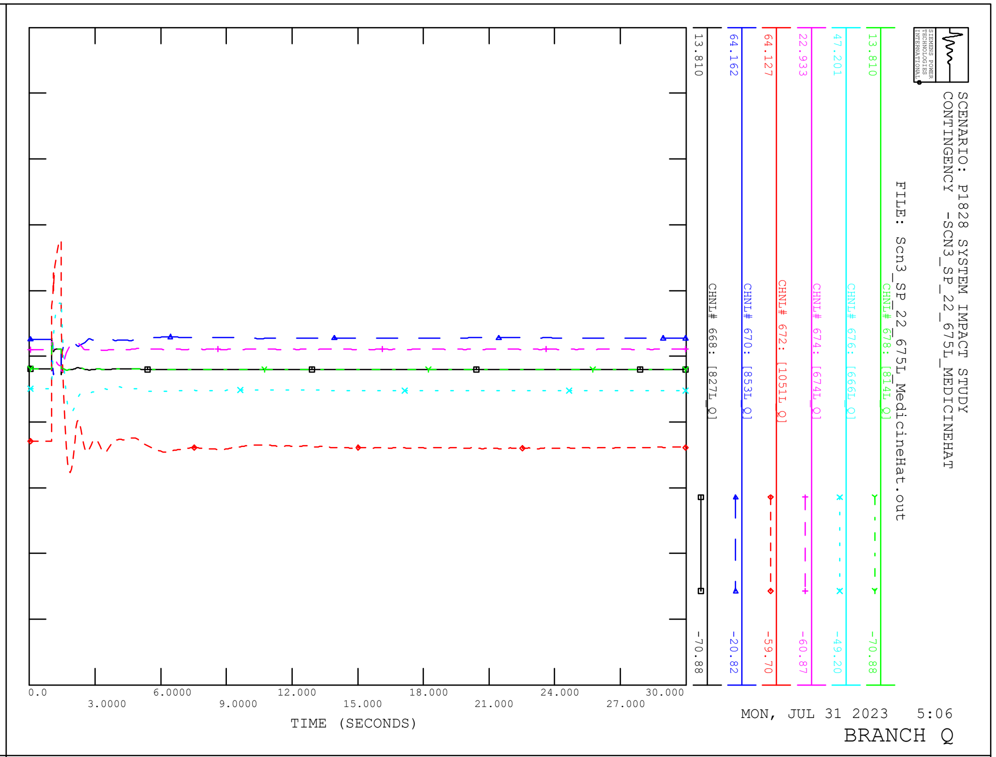
BRANCH P

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CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
CHNL# 674: [674L_Q]
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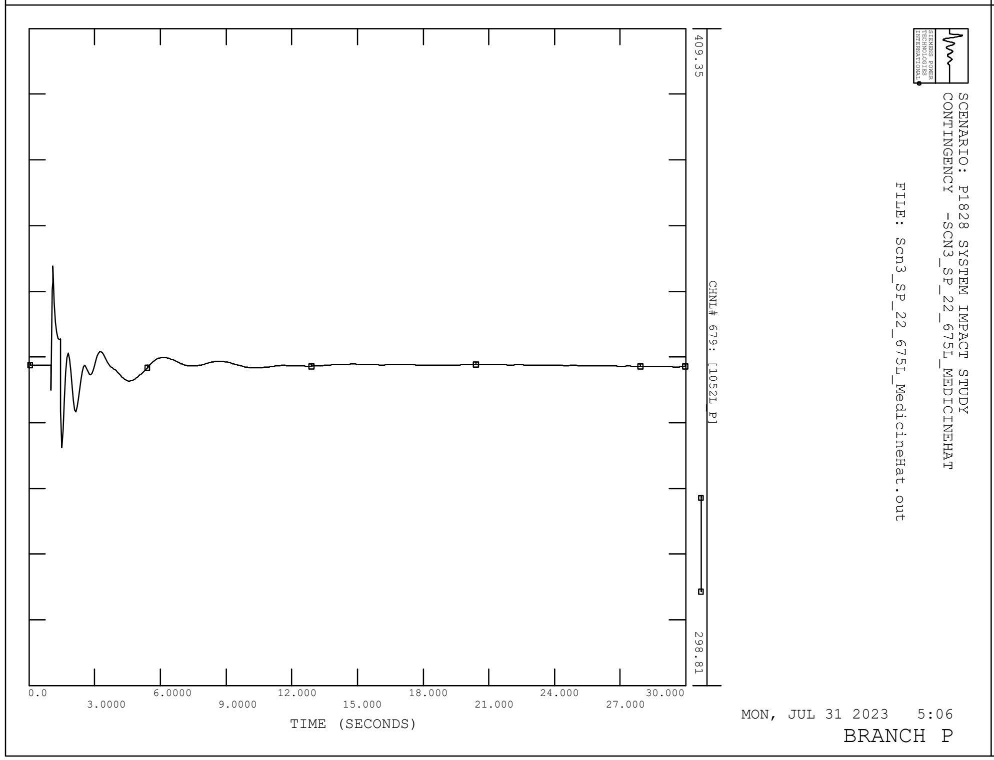
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_22_675L_MEDICINEHAT
FILE: Scn3_SP_22_675L_MedicineHat.out
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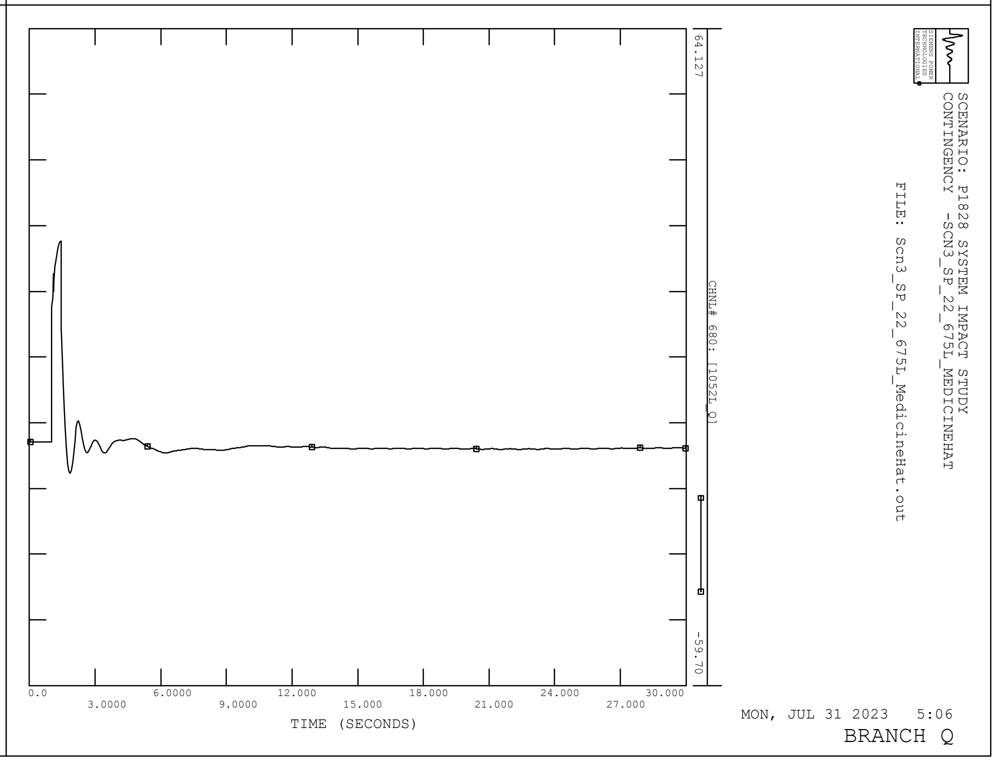
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P

SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN3_SP_22_675L_MEDICINEHAT
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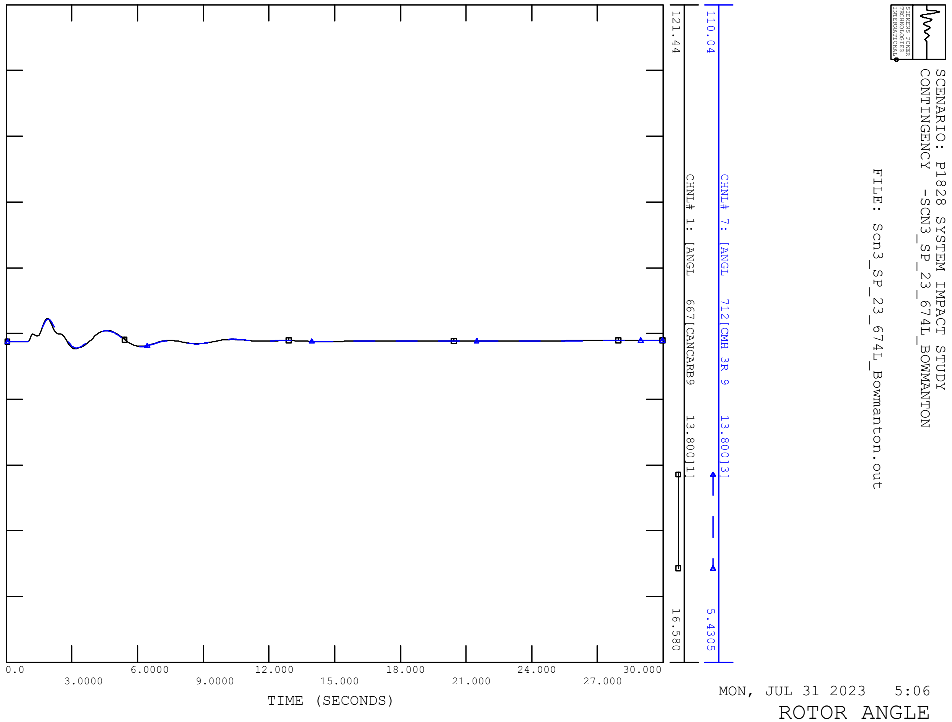
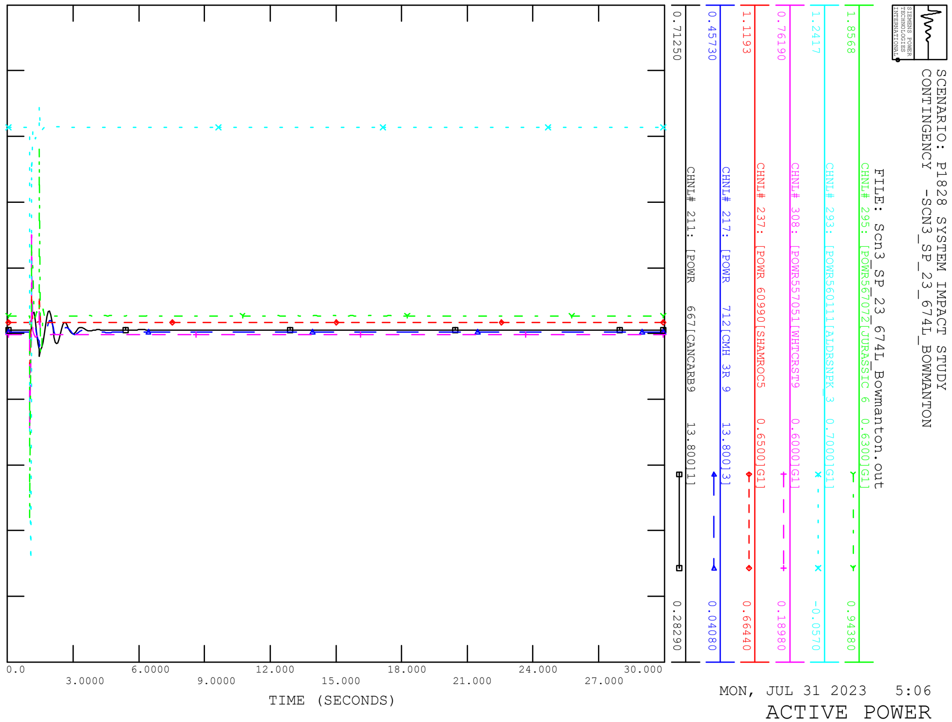
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



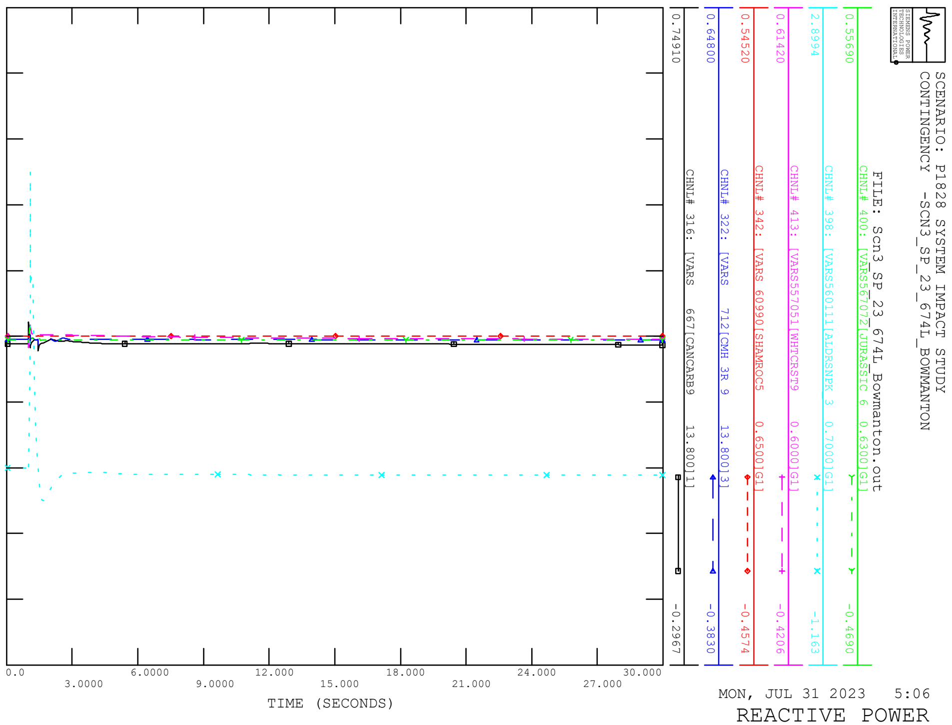
MON, JUL 31 2023 5:06

ROTOR ANGLE



MON, JUL 31 2023 5:06

ACTIVE POWER



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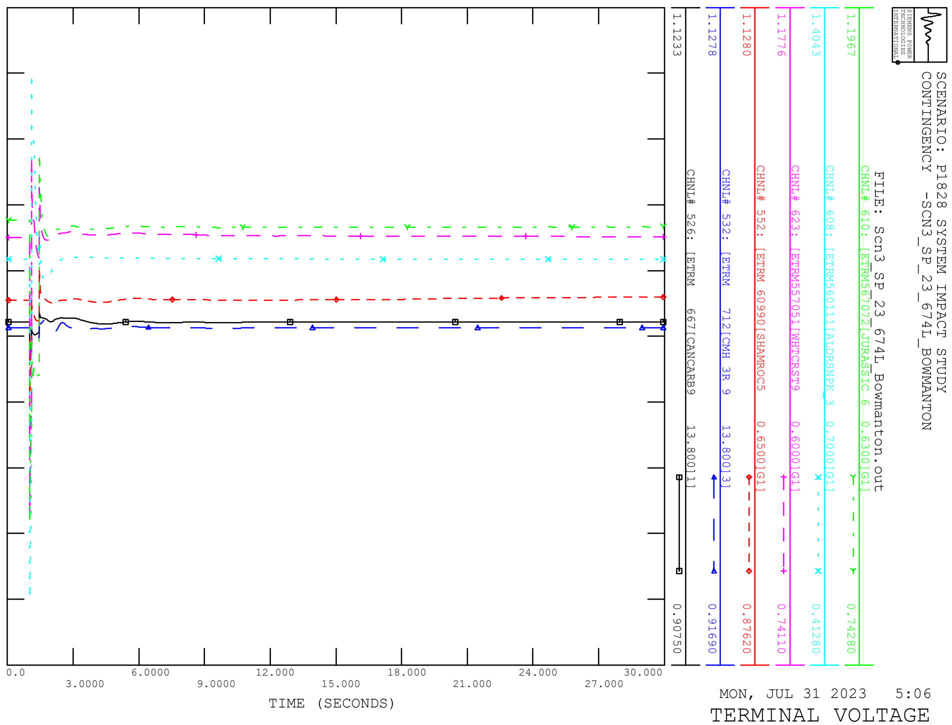
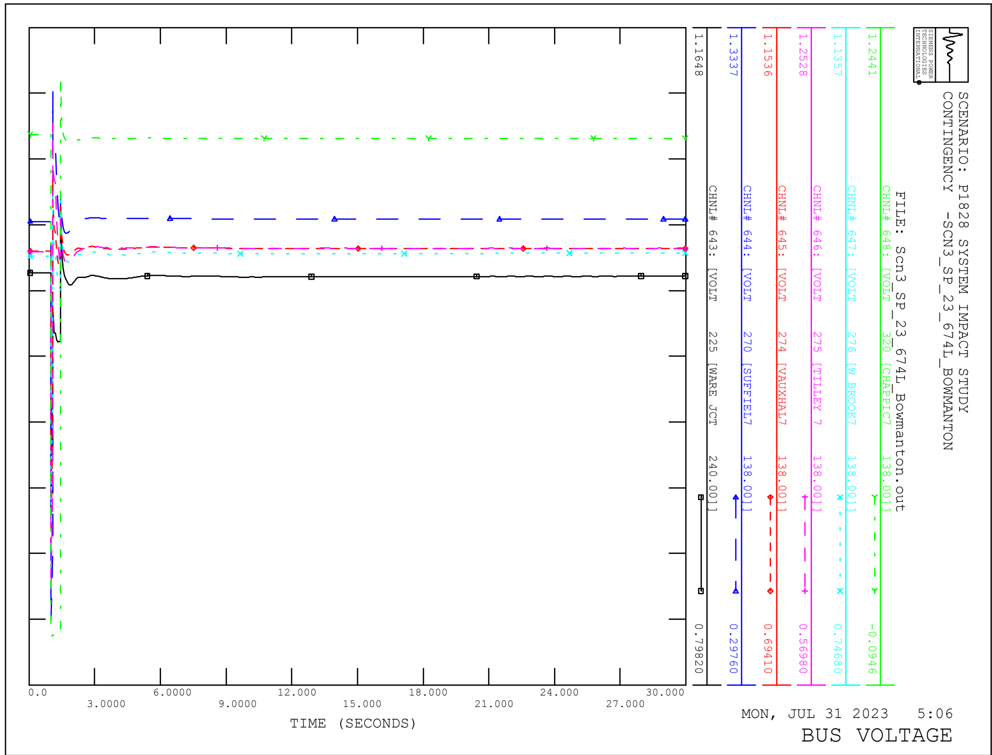
REACTIVE POWER



MON, JUL 31 2023 5:06

TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
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FILE: Scn3_SP_23_674L_Bowmanton.out
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3337 0.29760
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1536 0.69410
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2528 0.56980
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1357 0.74680
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.2441 -0.0946
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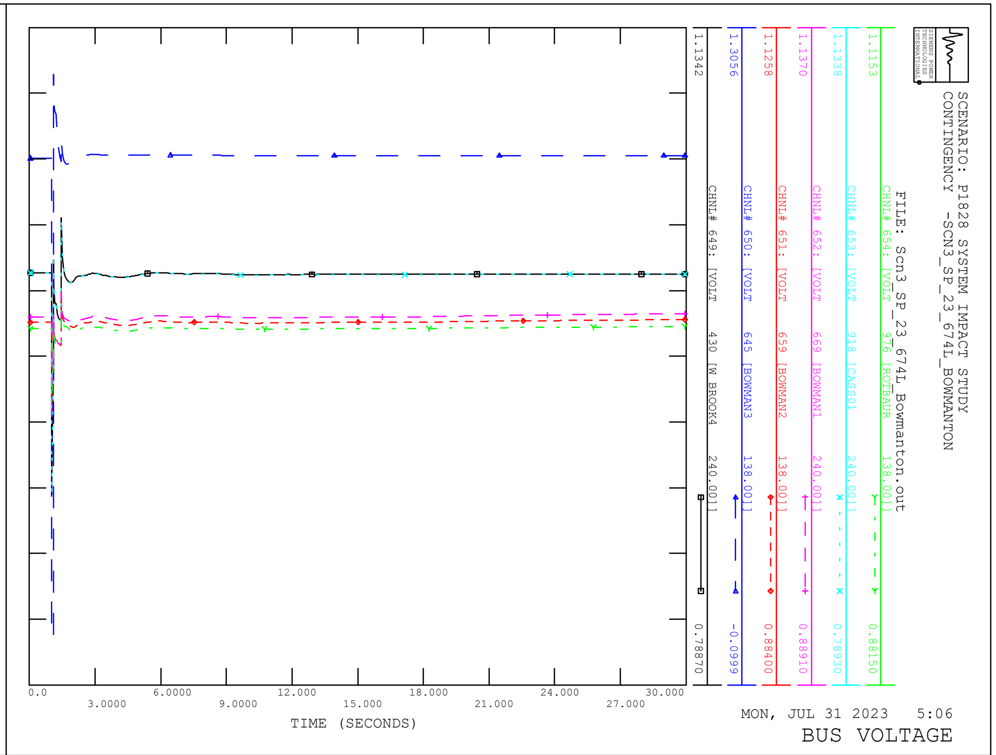
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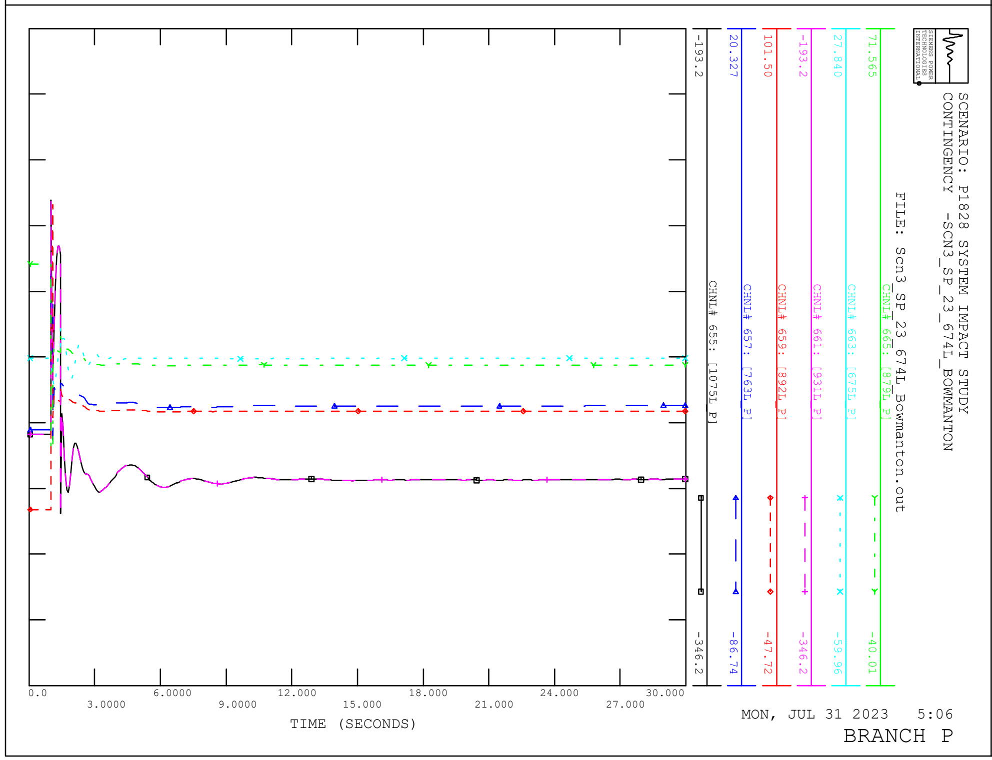
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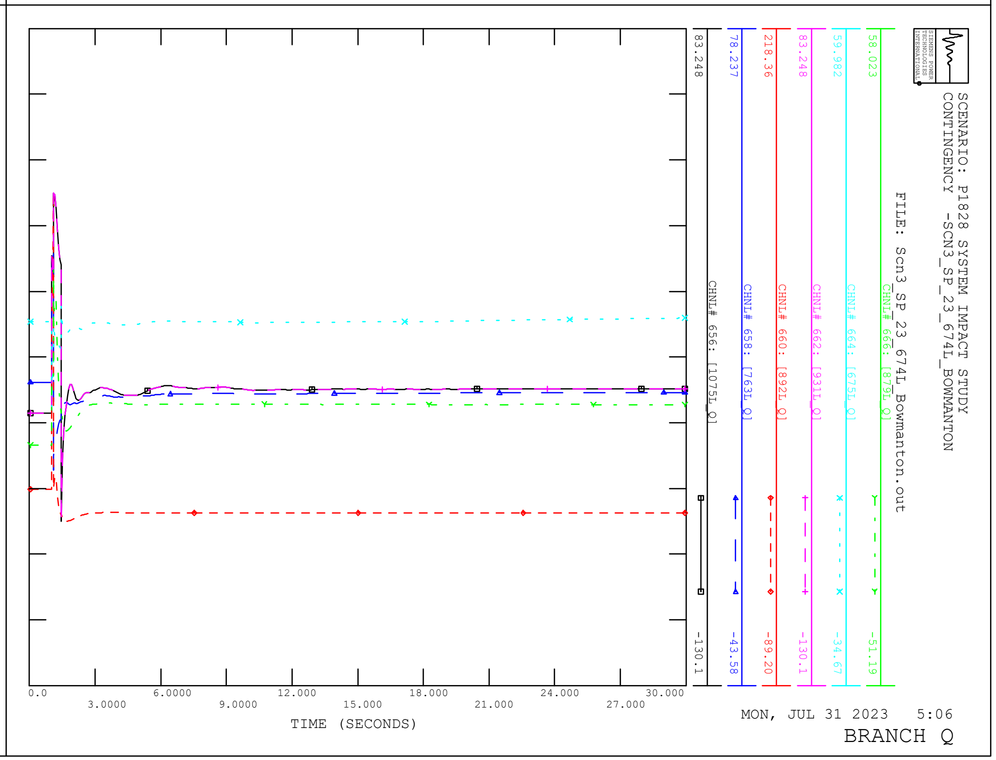
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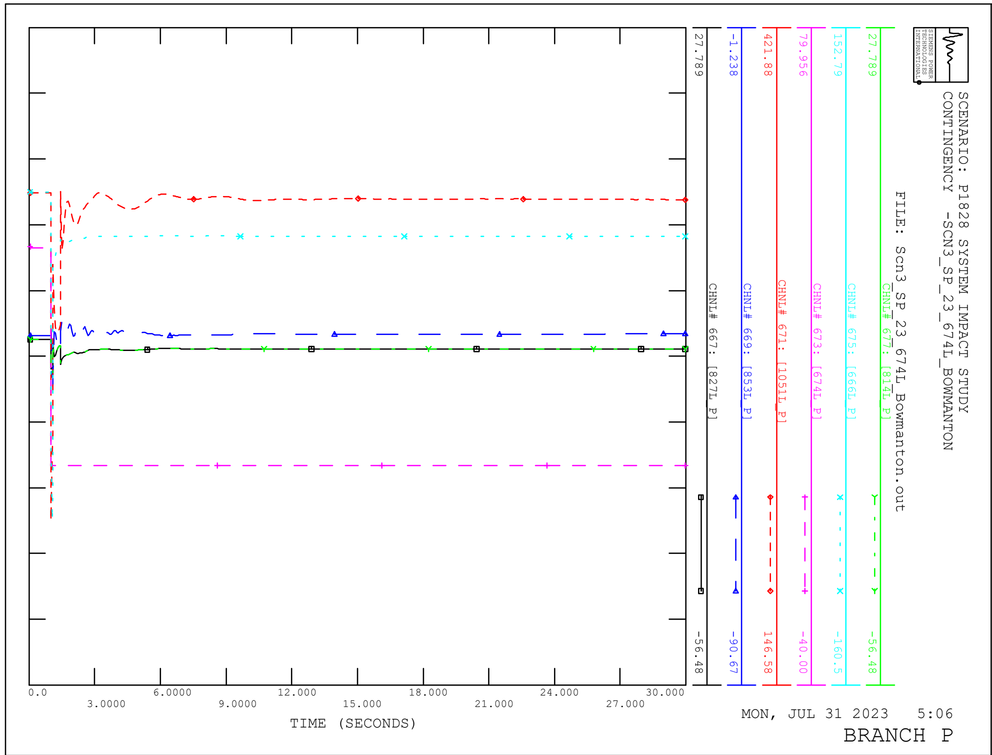
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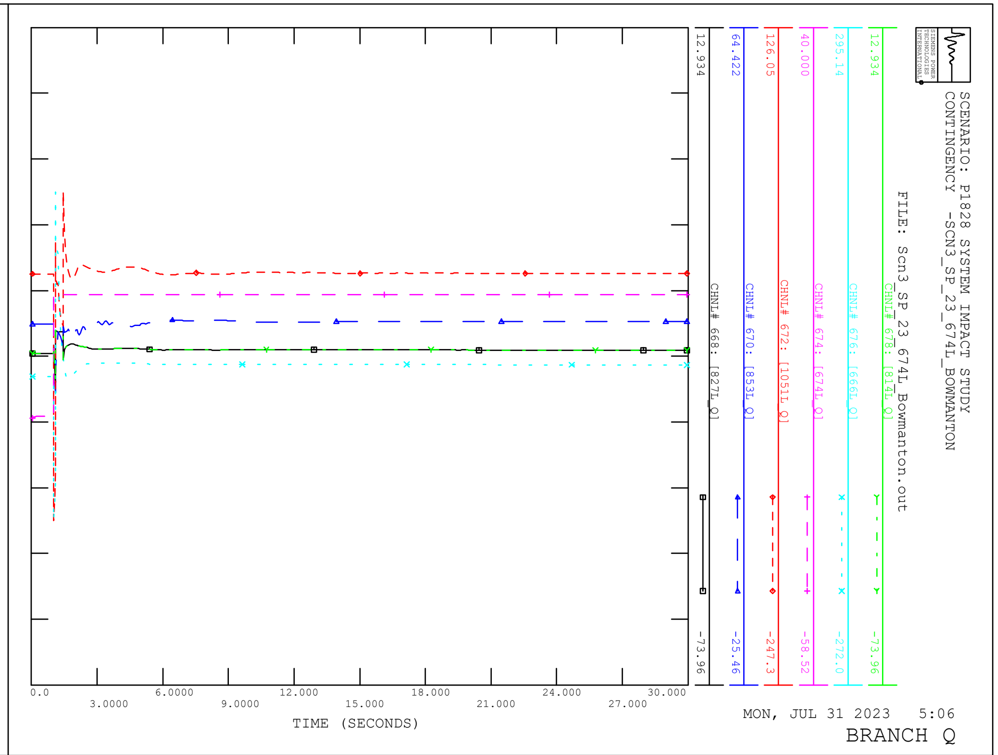
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CHNL# 670: [853L_Q] 64.422 -25.46
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CHNL# 674: [674L_Q] 40.000 -58.52
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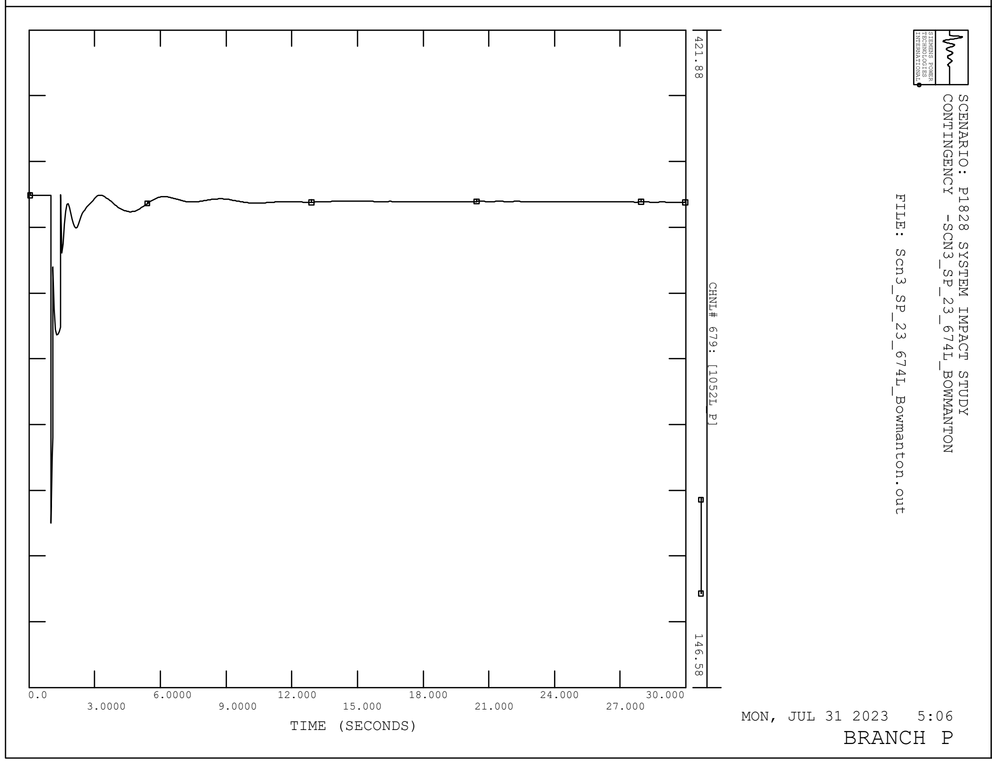
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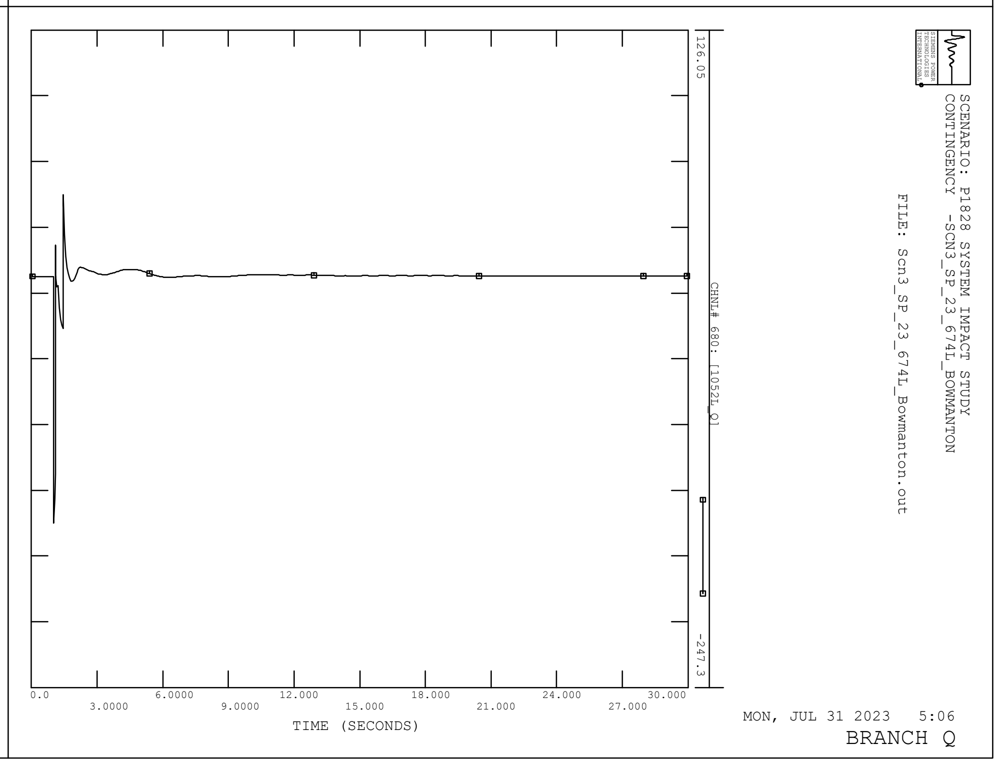
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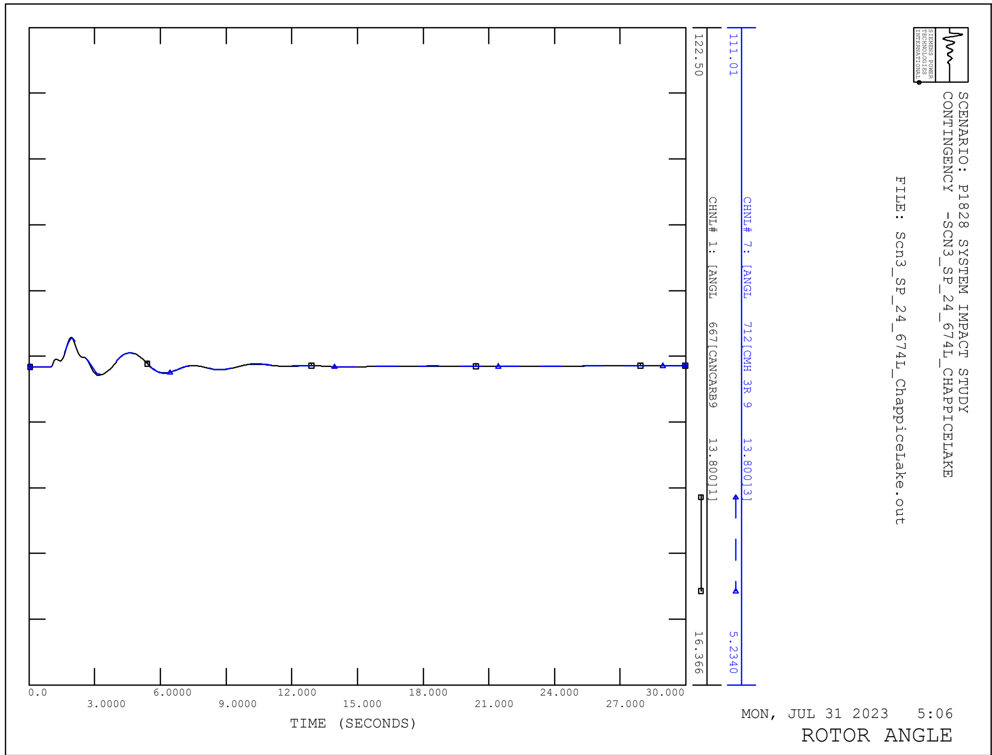
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
111.01
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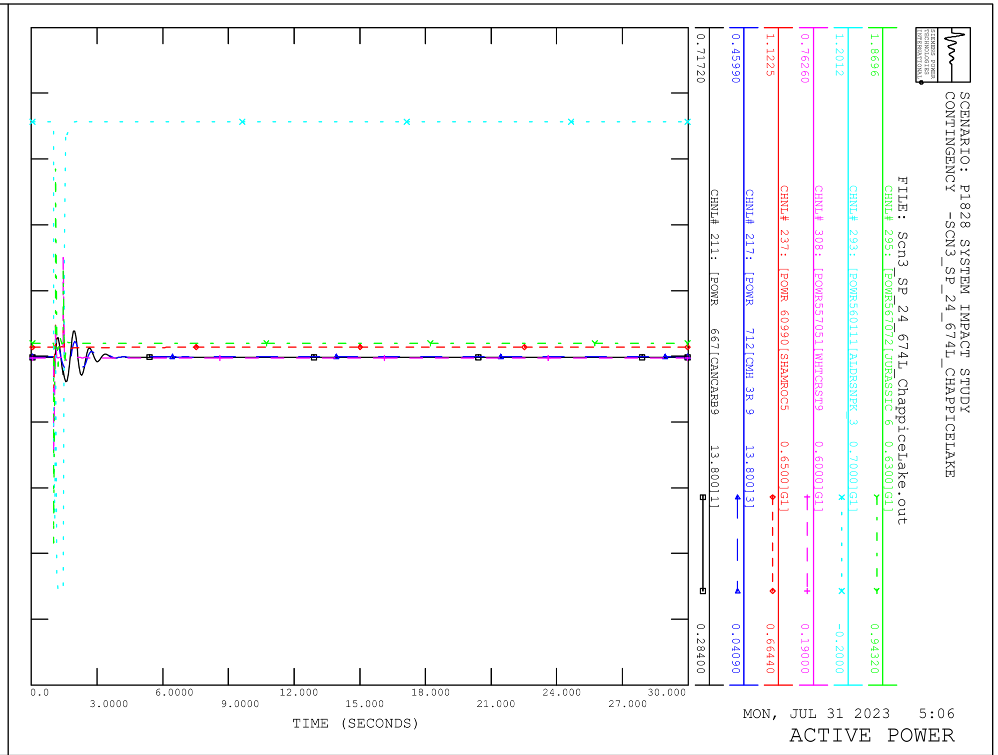
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.04090
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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0.19000
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
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-0.2000
CHNL# 295: [POWR562672[JURASSIC 6 0.6300]G1]
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MON, JUL 31 2023 5:06
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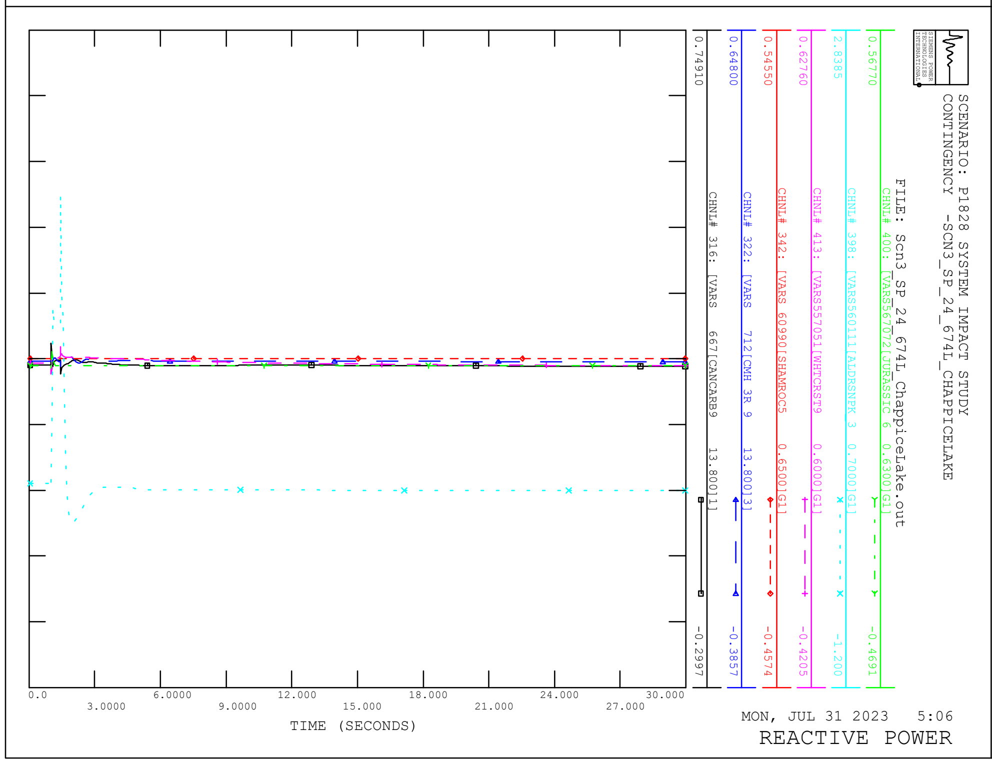
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
0.64800
-0.3857
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.54550
-0.4574
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.62760
-0.4205
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
2.8385
-1.200
CHNL# 400: [VARS562672[JURASSIC 6 0.6300]G1]
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-0.4691
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MON, JUL 31 2023 5:06
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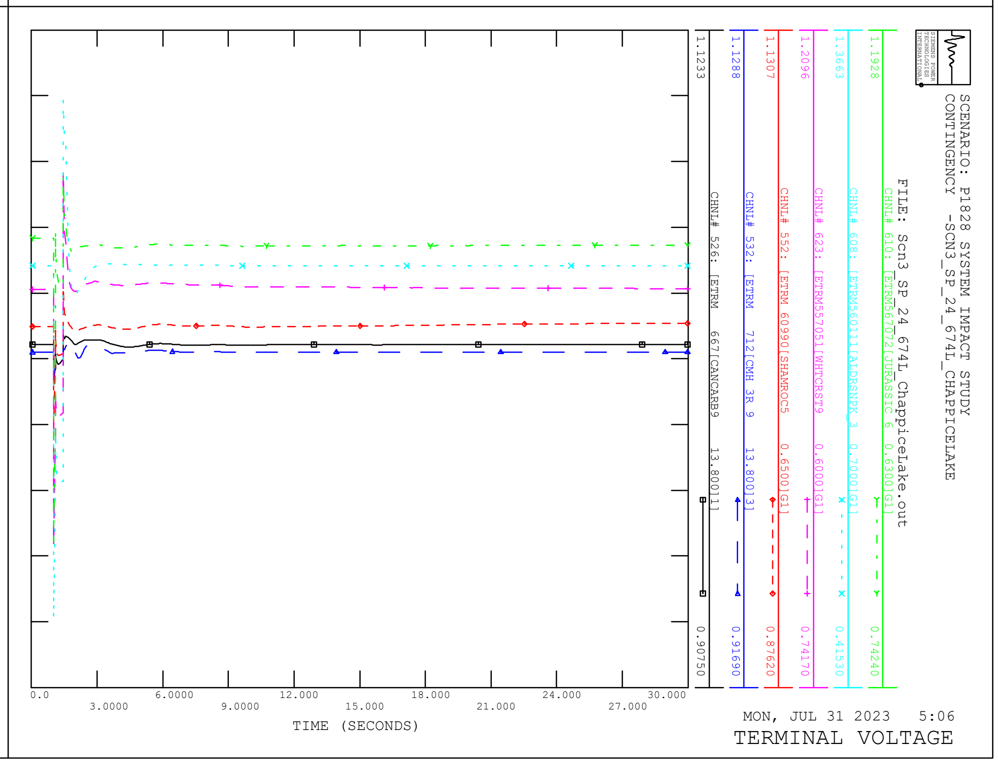
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
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0.91690
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.1307
0.87620
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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0.74170
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
1.3663
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CHNL# 610: [ETRM562672[JURASSIC 6 0.6300]G1]
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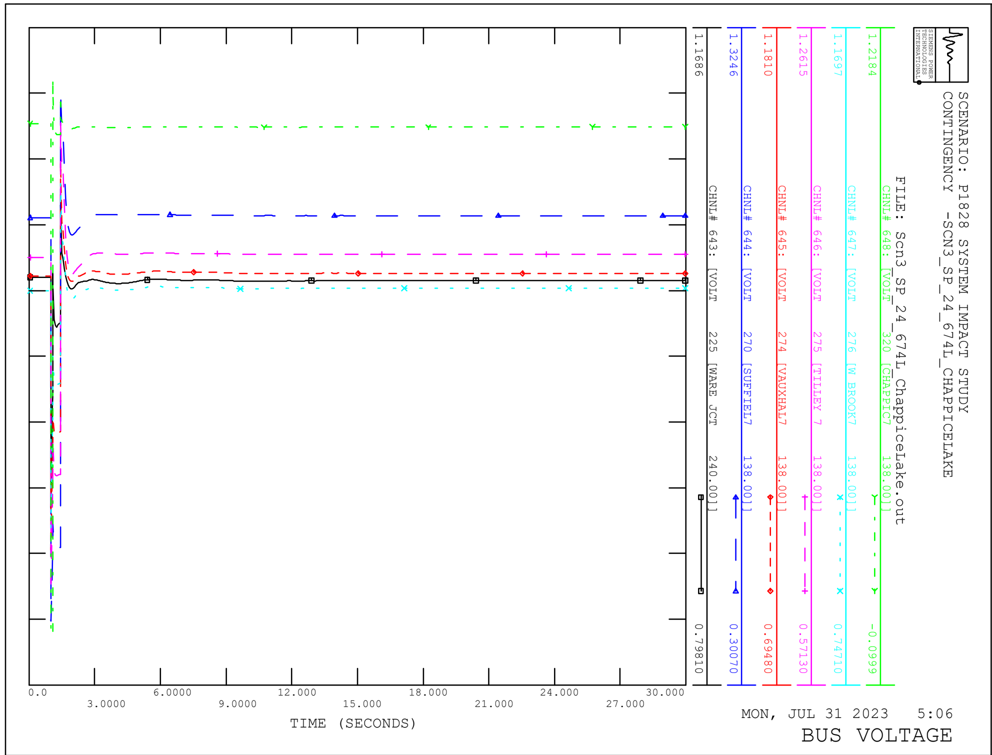
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CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1810 0.69480
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2615 0.57130
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1697 0.74710
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.2184 -0.0999
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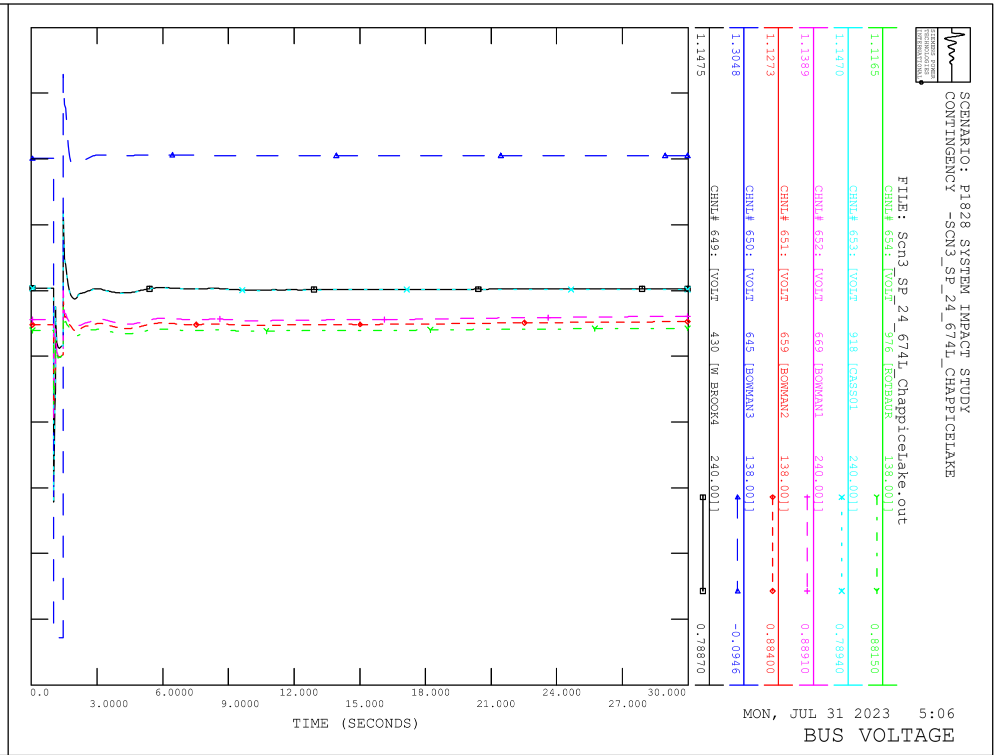
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CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1273 0.88400
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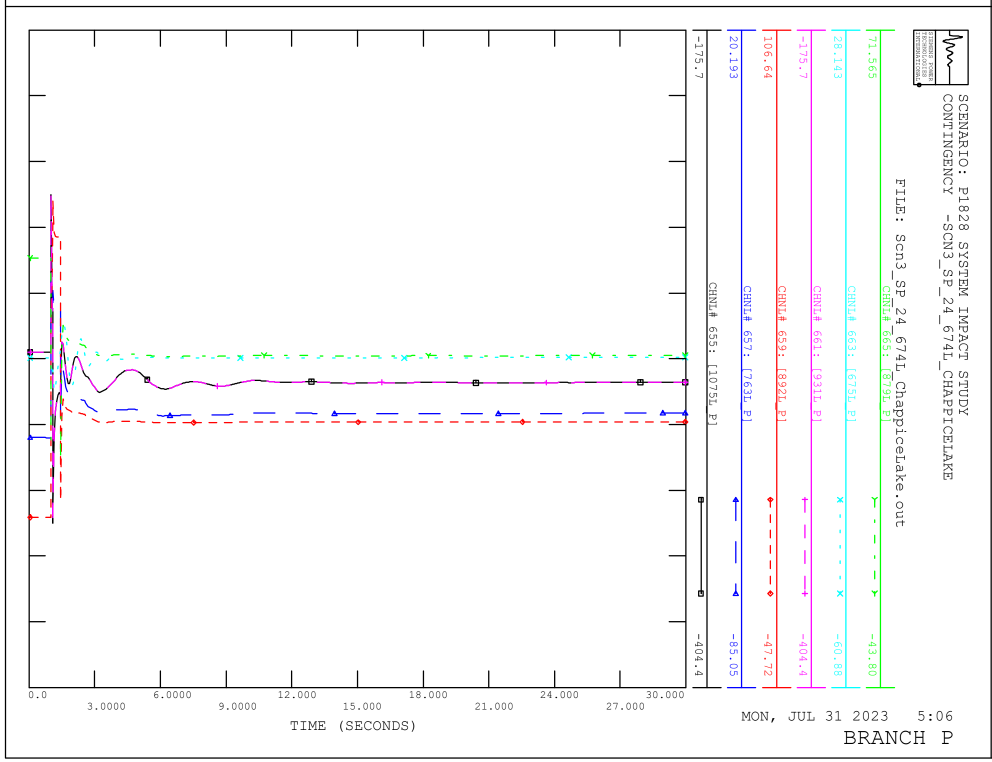
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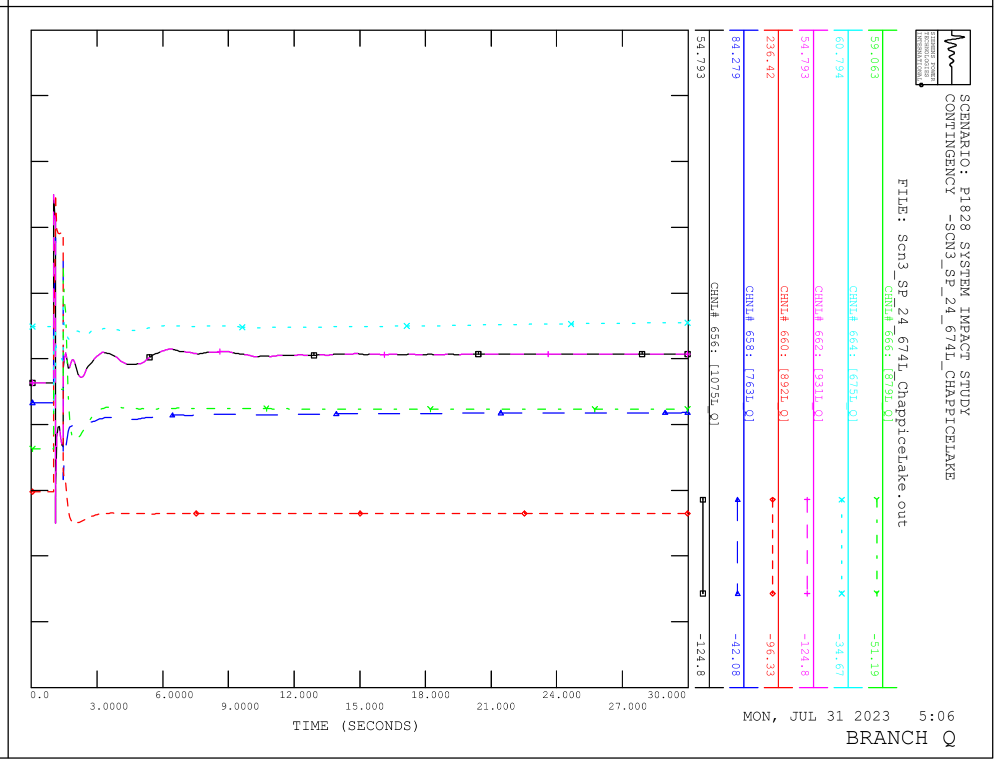
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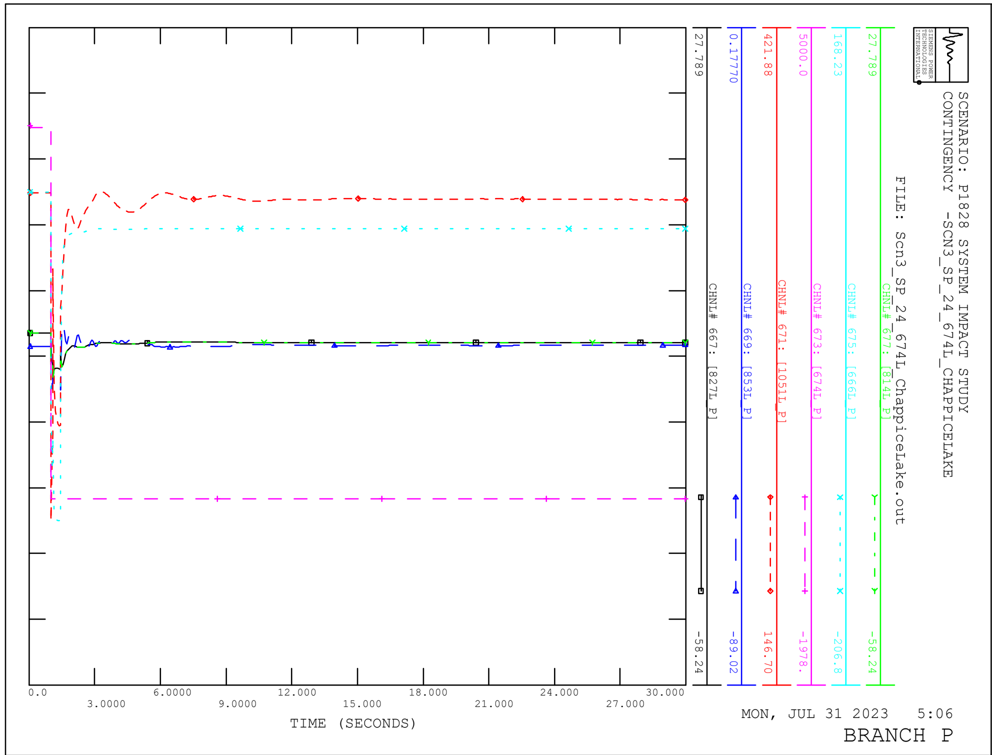
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421.88 CHNL# 671: [1051L_P] 146.70
5000.0 CHNL# 673: [674L_P] -1978.
168.23 CHNL# 675: [666L_P] -206.8
27.789 CHNL# 677: [814L_P] -58.24
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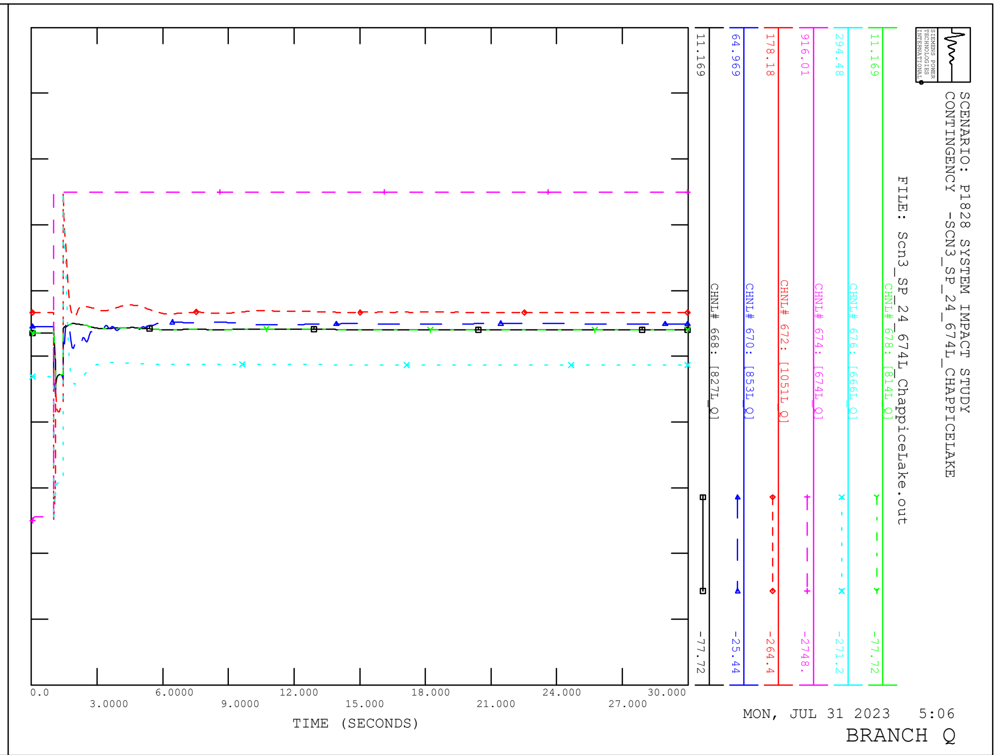
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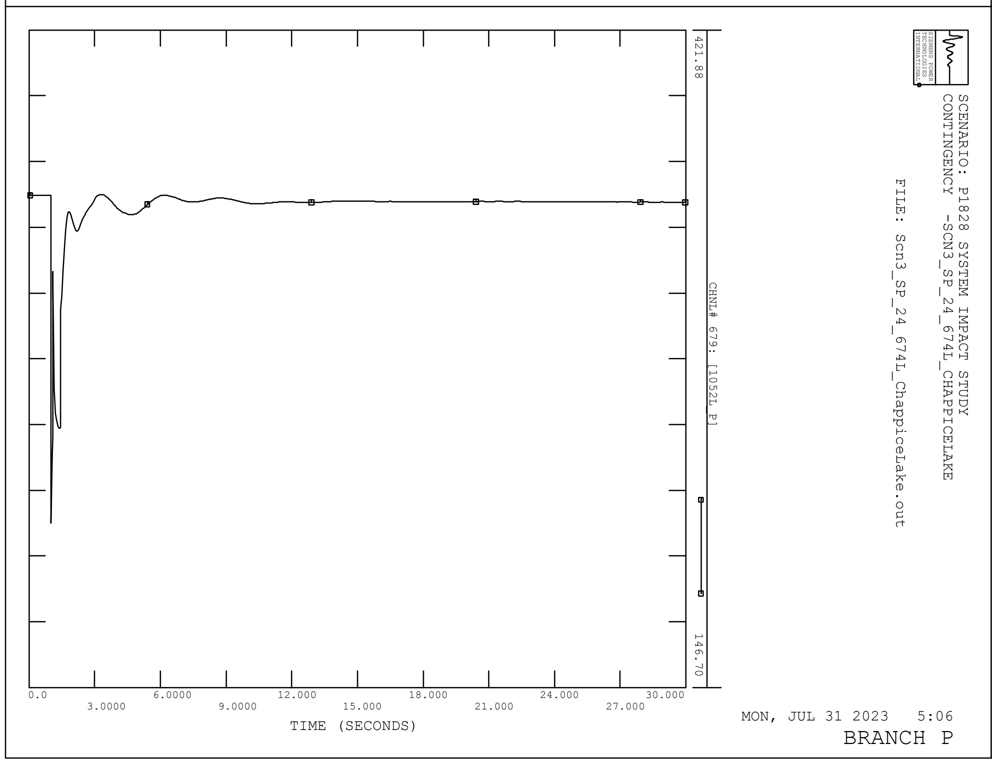
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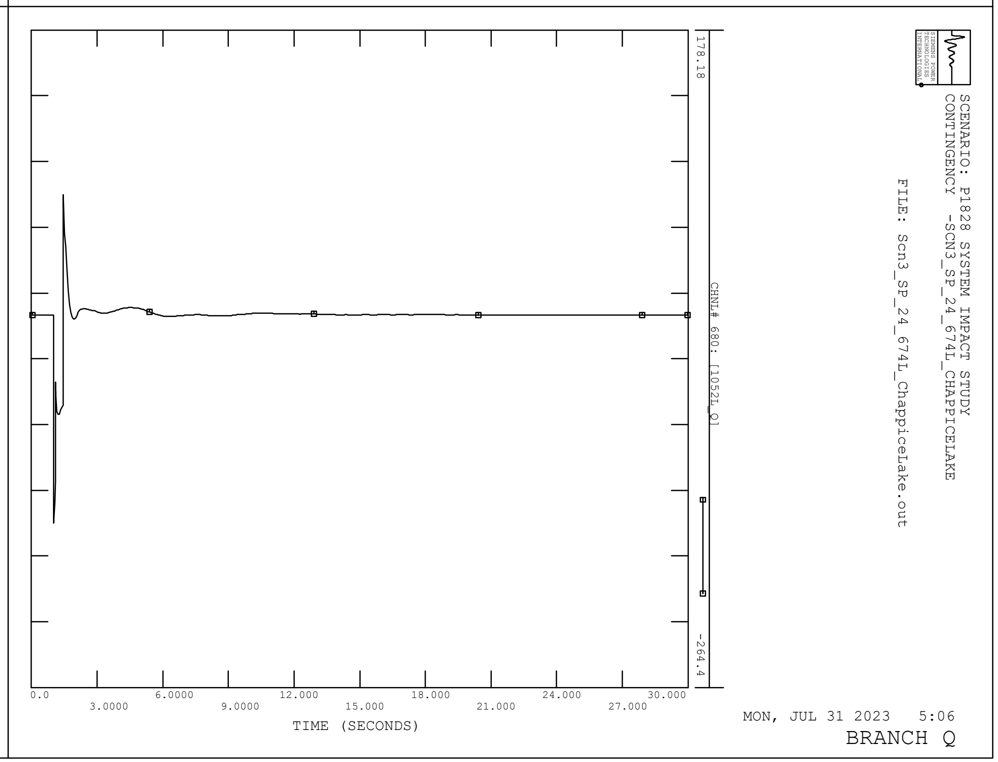
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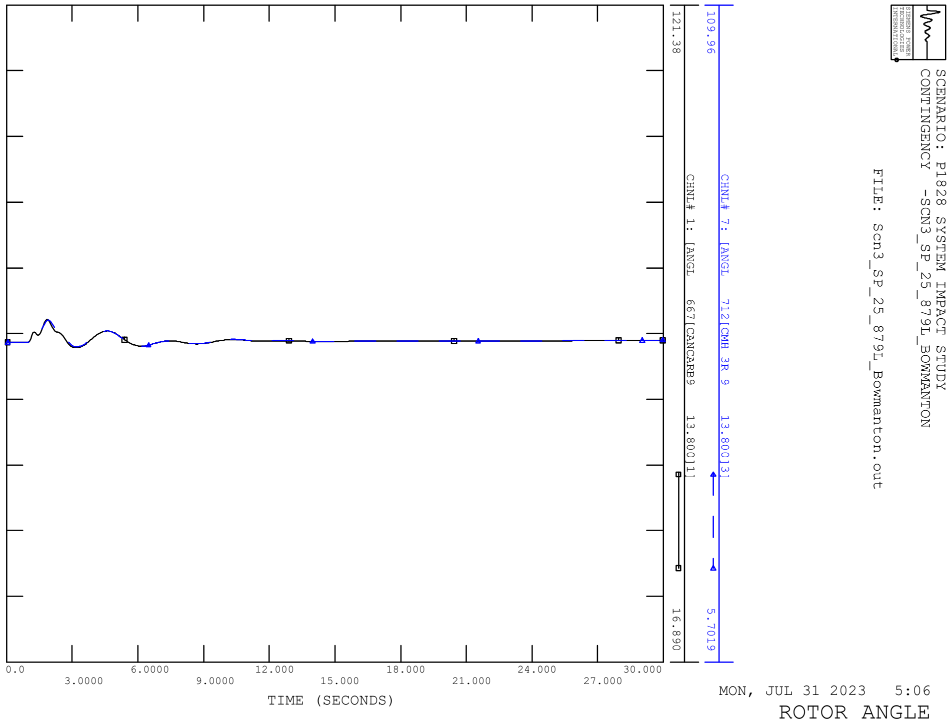

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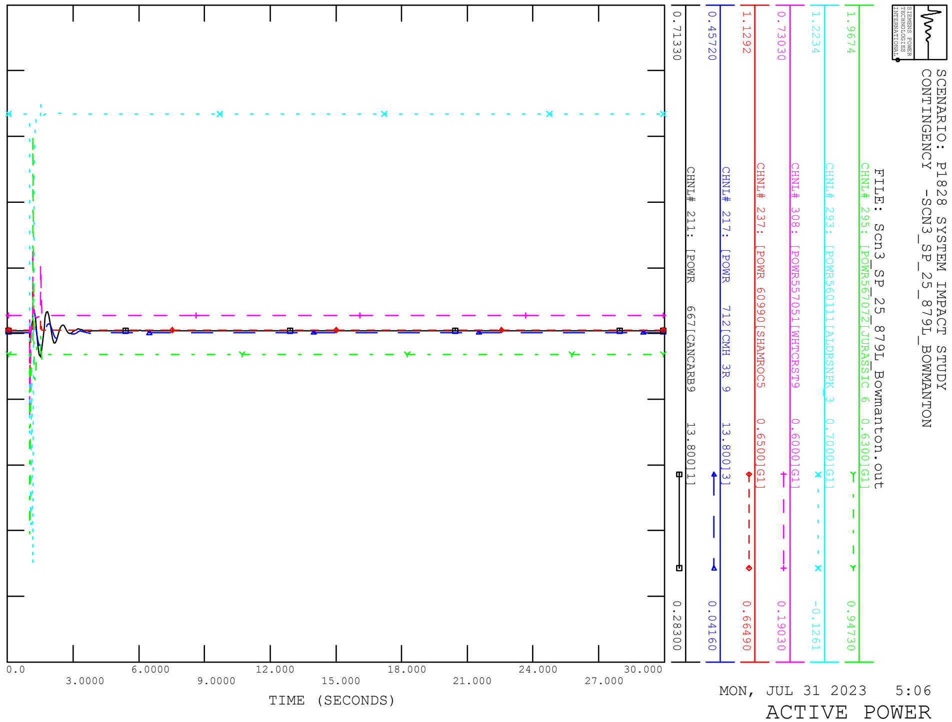

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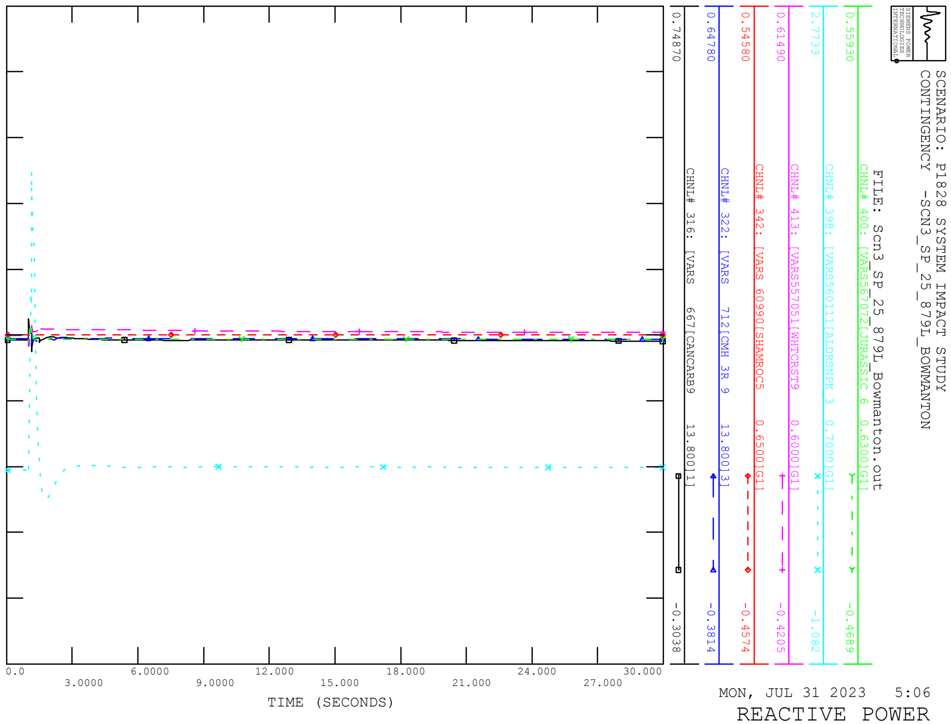

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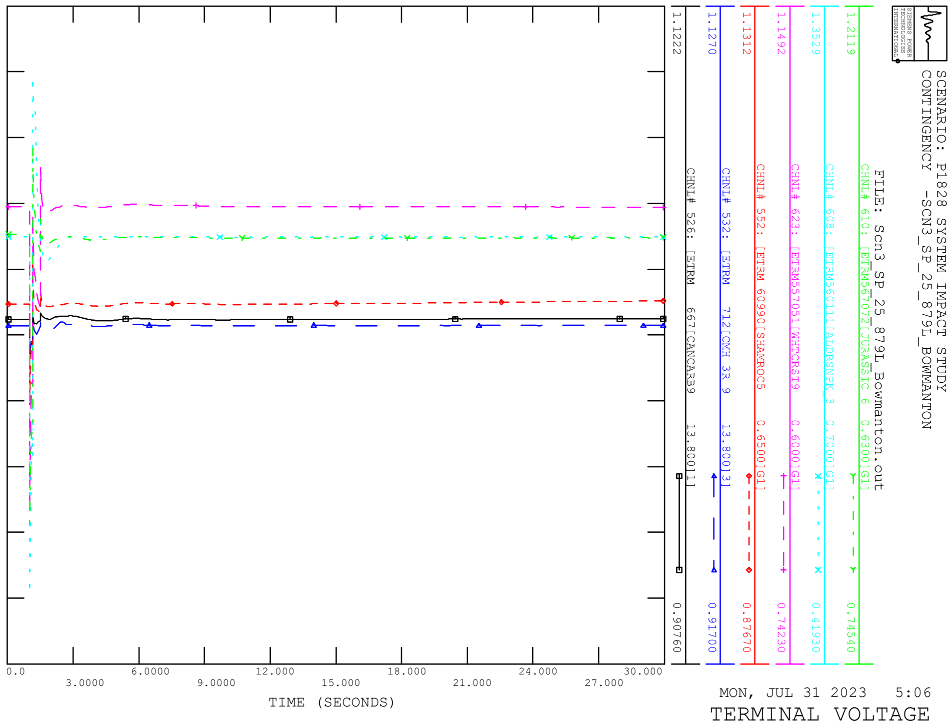

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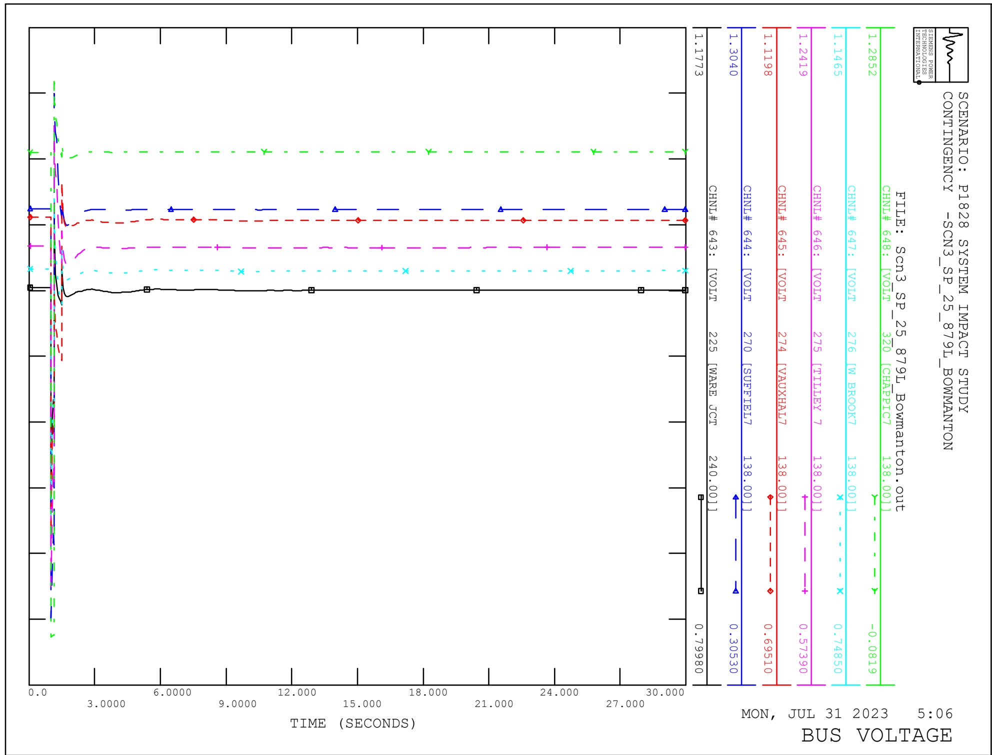
TERMINAL VOLTAGE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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
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1.1198 0.69510
1.2419 0.57390
1.1465 0.74850
1.2852 -0.0819
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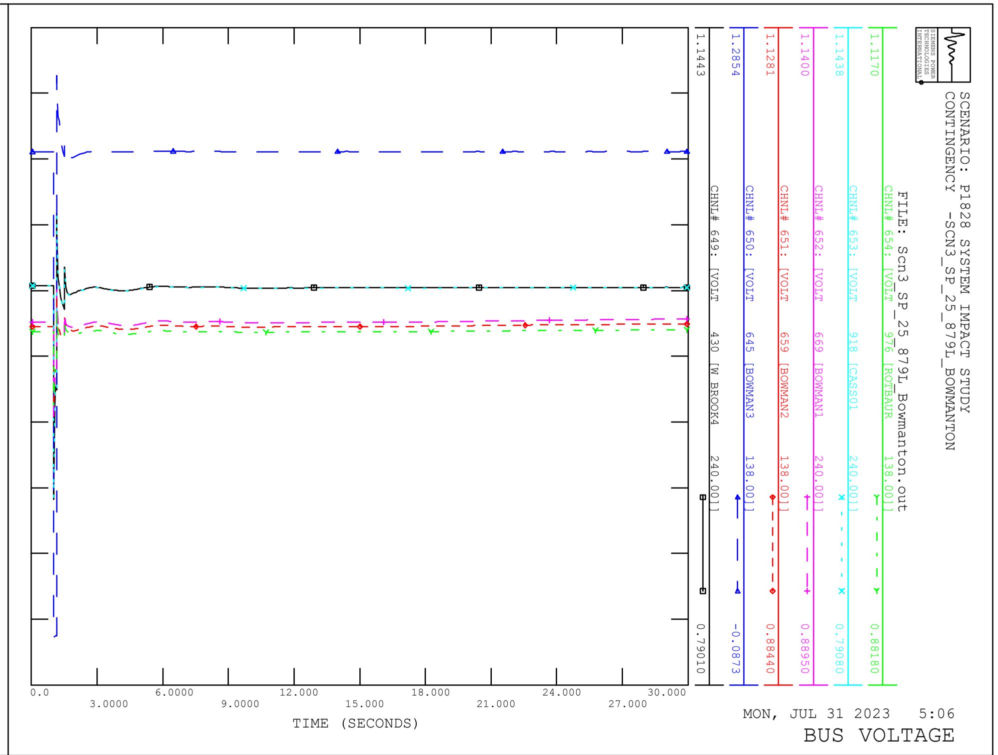
BUS VOLTAGE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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
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CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
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1.1400 0.88950
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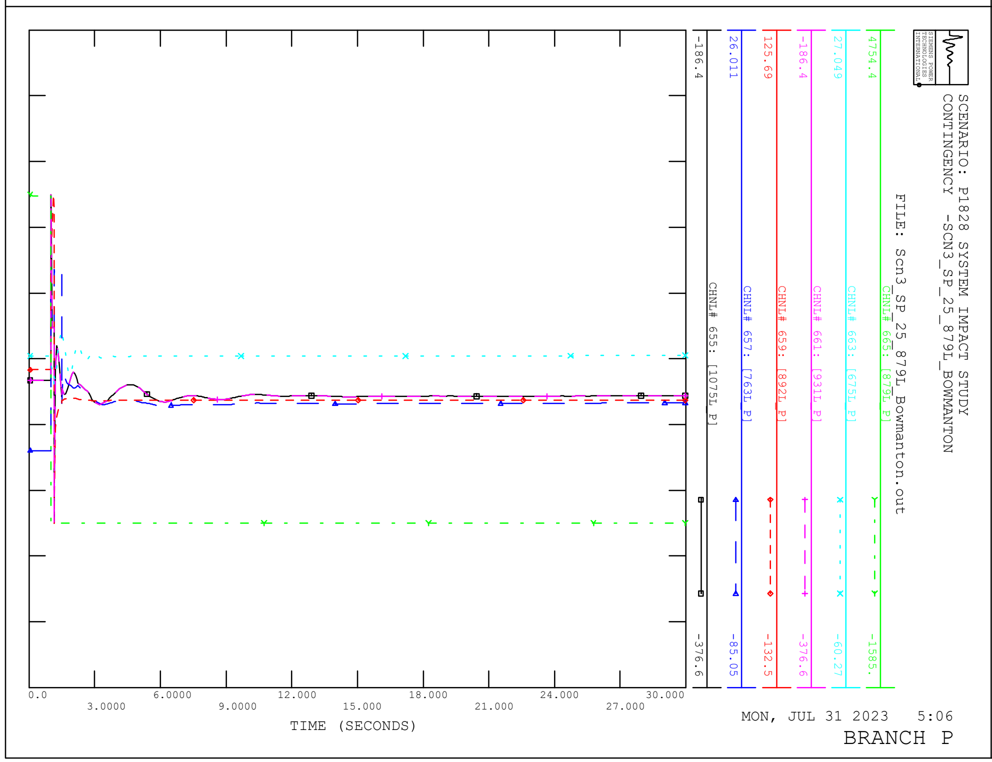
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [675L P]
CHNL# 665: [879L P]
-186.4 -376.6
26.011 -85.05
125.69 -132.5
-186.4 -376.6
27.049 -60.27
4754.4 -1585.
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MON, JUL 31 2023 5:06
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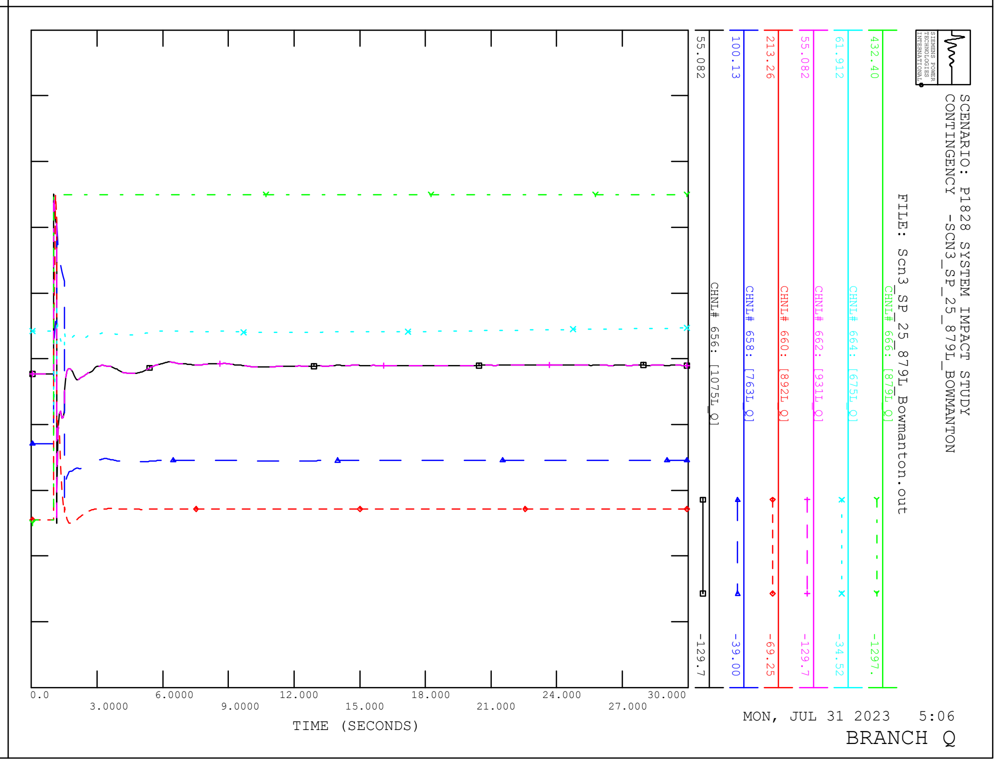
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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
CHNL# 666: [879L Q]
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100.13 -39.00
213.26 -69.25
55.082 -129.7
61.912 -34.52
432.40 -1297.
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MON, JUL 31 2023 5:06
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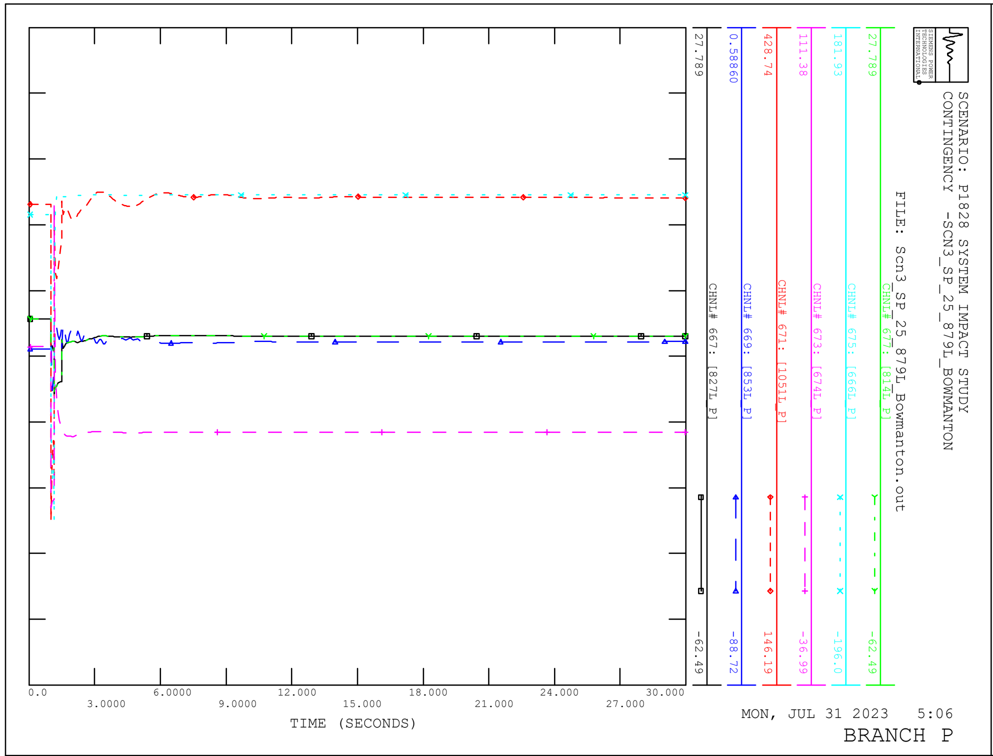
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CHNL# 669: [853L_P] 0.58860 -88.72
CHNL# 671: [1051L_P] 428.74 146.19
CHNL# 673: [674L_P] 111.38 -36.99
CHNL# 675: [666L_P] 181.93 -196.0
CHNL# 677: [818L_P] 27.789 -62.49
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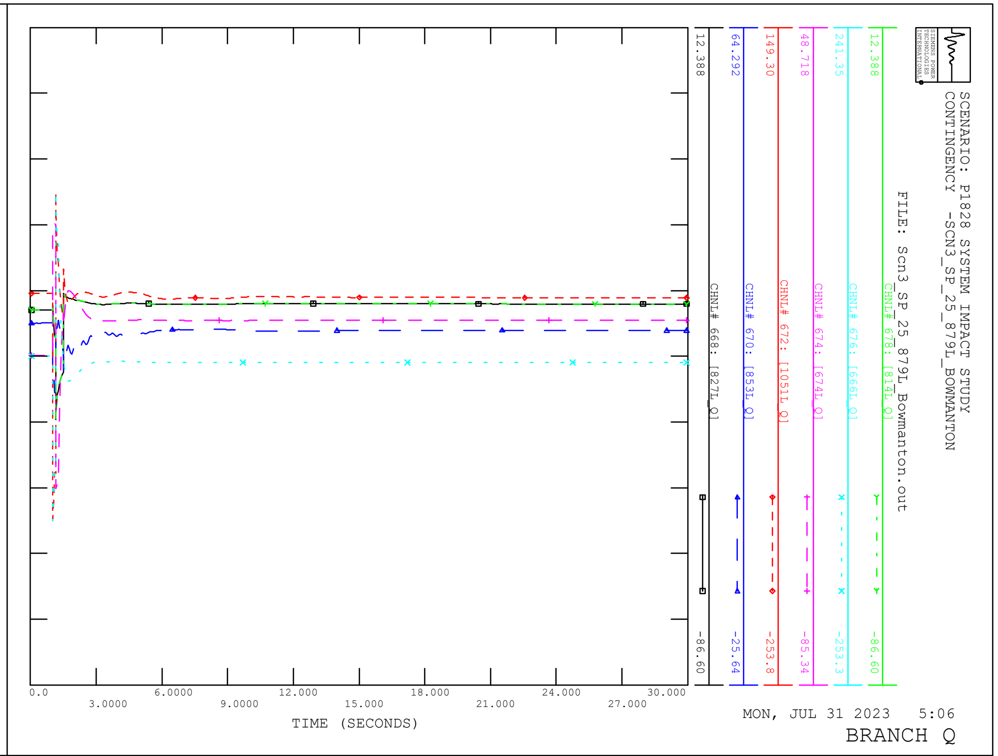
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CHNL# 672: [1051L_Q] 149.30 -253.8
CHNL# 674: [674L_Q] 48.718 -85.34
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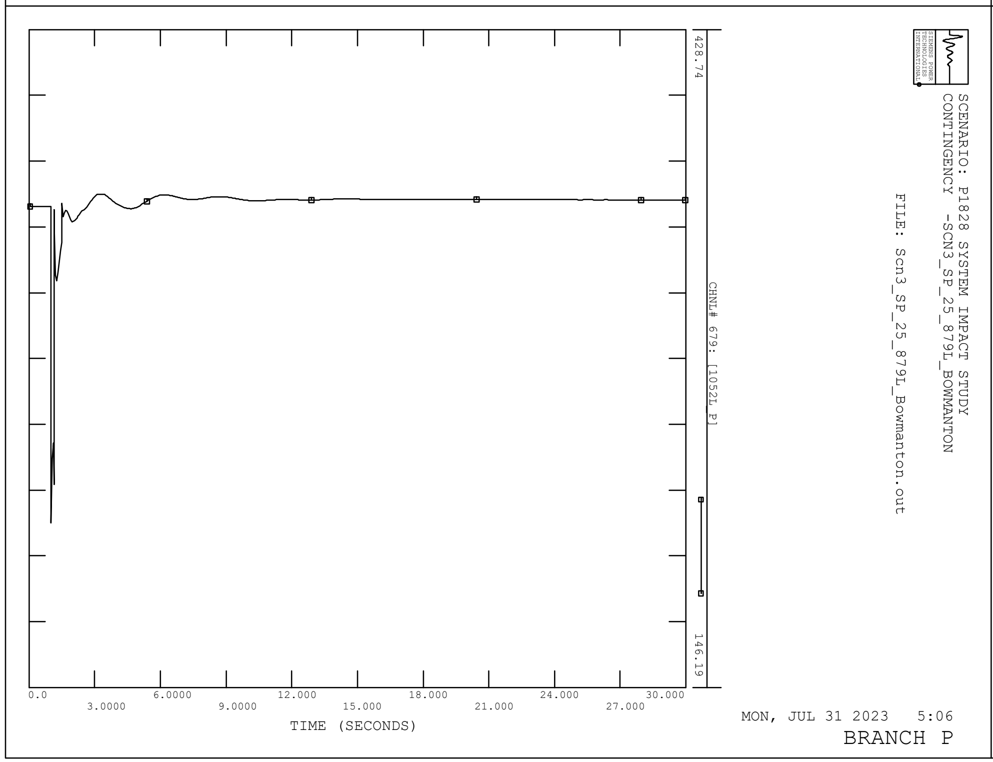
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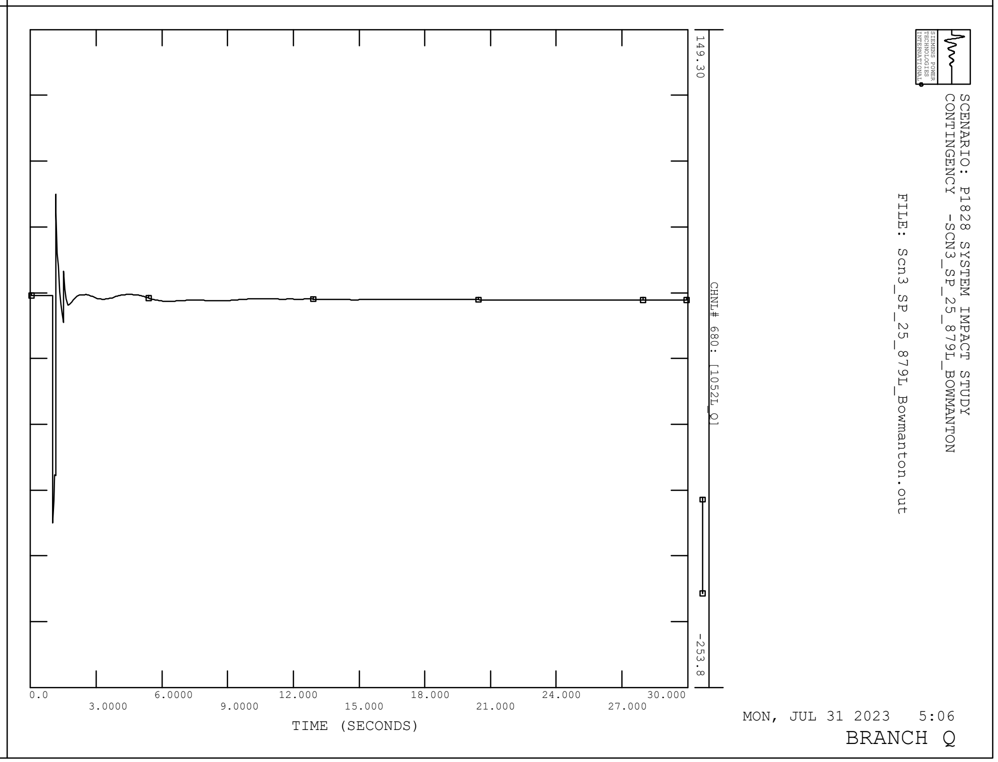
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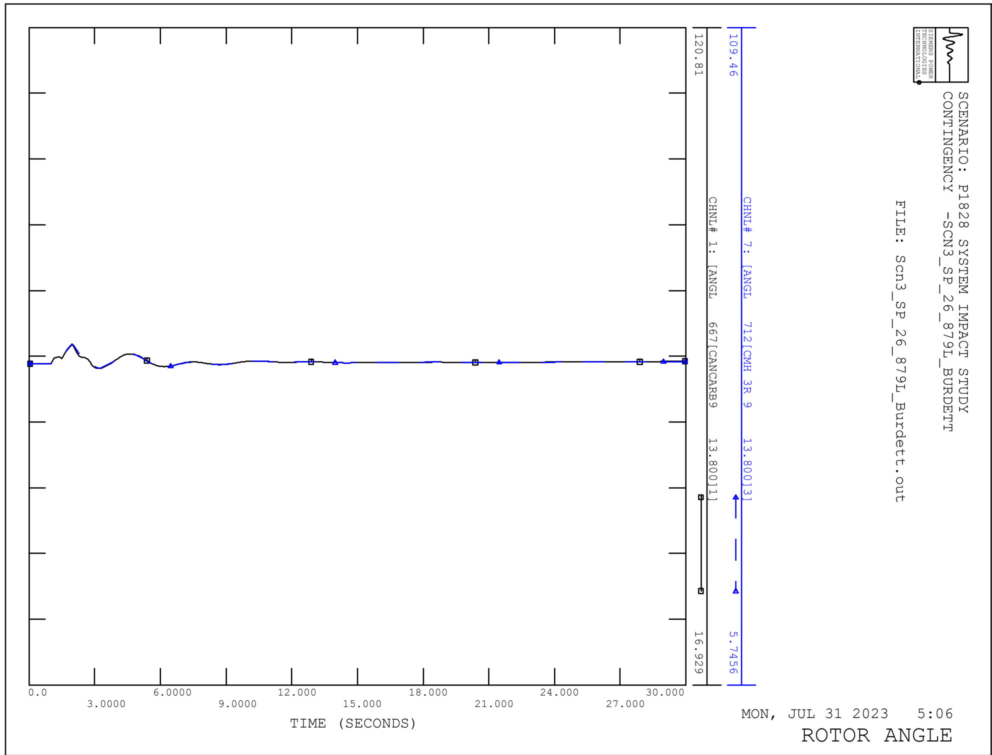
BRANCH Q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6.0000
9.0000
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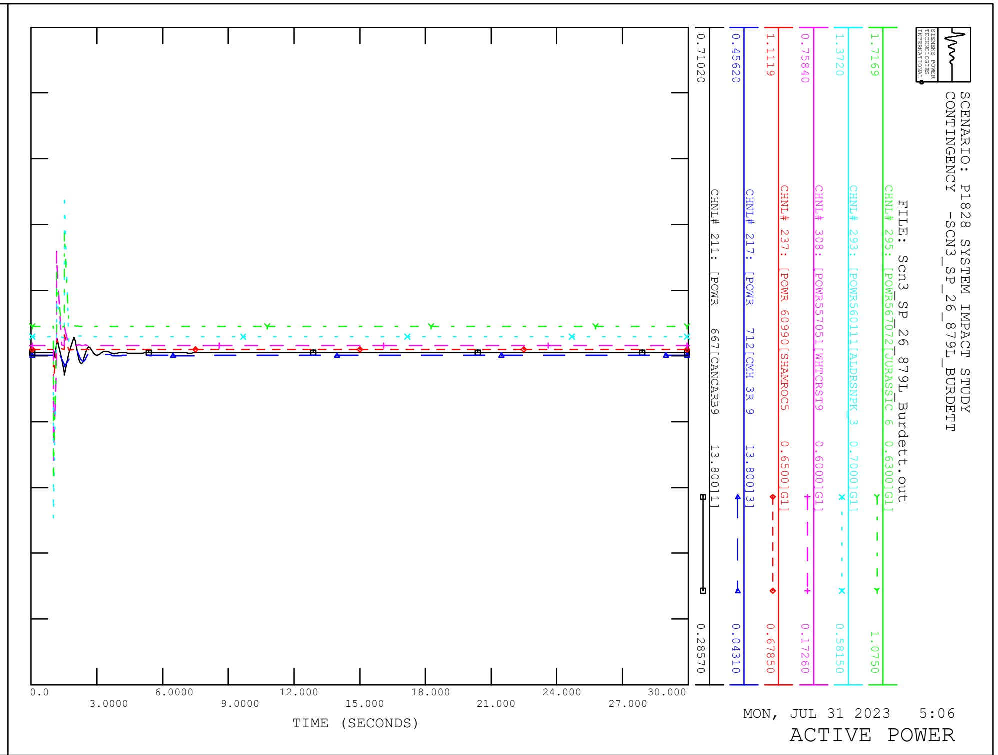
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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FILE: Scn3_SP_26_879L_Burdett.out
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.45620
0.04310
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
1.1119
0.67850
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
0.75840
0.17260
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
1.3720
0.58150
CHNL# 295: [POWR560772[JURASSIC 6 0.6300]G1]
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6.0000
9.0000
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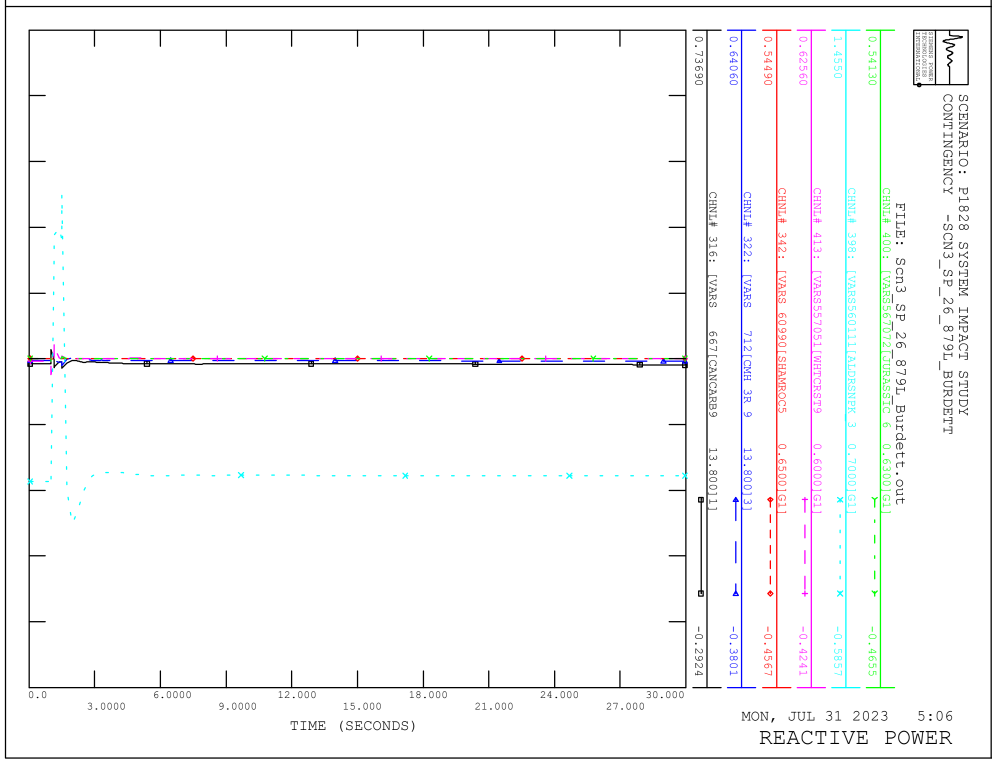
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.2924
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
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-0.3801
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
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-0.4567
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
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-0.4241
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
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-0.5857
CHNL# 400: [VARS560772[JURASSIC 6 0.6300]G1]
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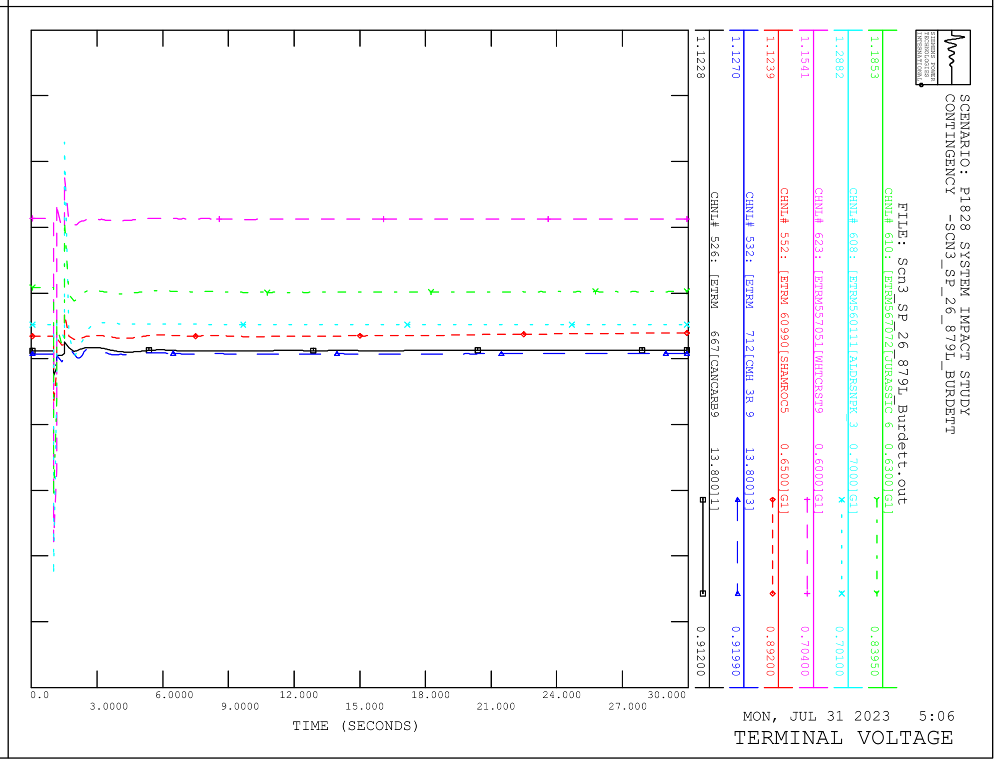
MON, JUL 31 2023 5:06
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1270
0.91990
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.1239
0.89200
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
1.1541
0.70400
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
1.2882
0.70100
CHNL# 610: [ETRM560772[JURASSIC 6 0.6300]G1]
1.1853
0.83950
0.0
3.0000
6.0000
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12.000
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MON, JUL 31 2023 5:06
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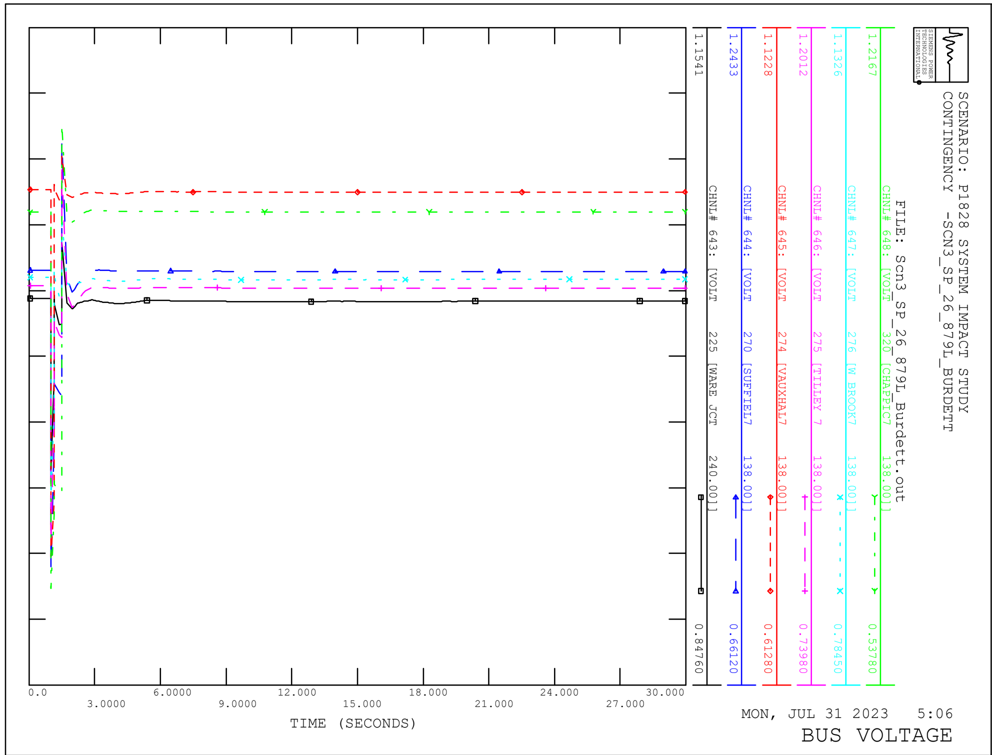
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FILE: Scn3_SP_26_879L_Burdett.out
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [N BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]]
1.1541 0.84760
1.2433 0.66120
1.1228 0.61280
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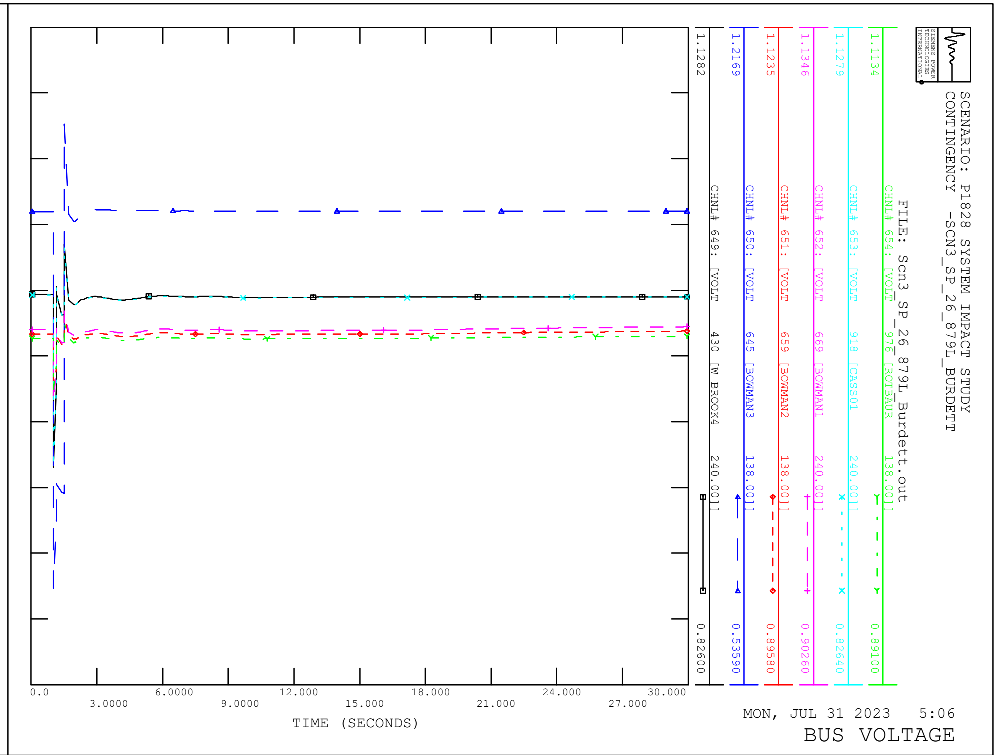
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASS01 240.00]]
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
1.1282 0.82600
1.2169 0.53590
1.1235 0.89580
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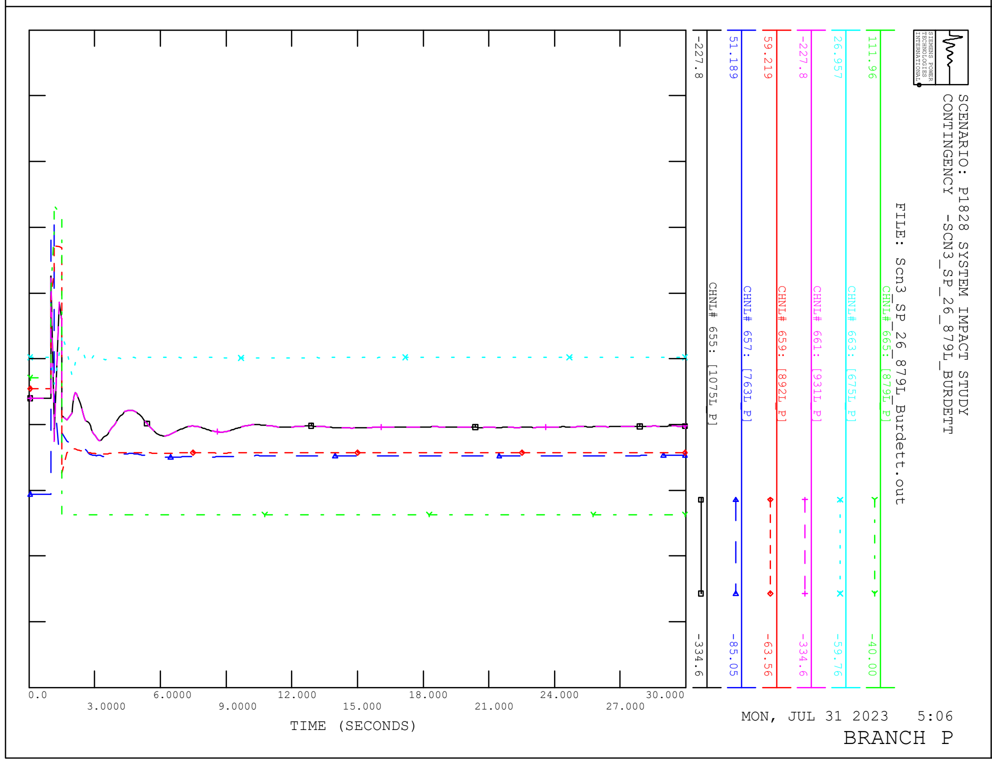
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN3_SP_26_879L_BURDETT
FILE: Scn3_SP_26_879L_Burdett.out
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CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [1675L P]
CHNL# 665: [879L P]
-227.8 -334.6
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TIME (SECONDS)
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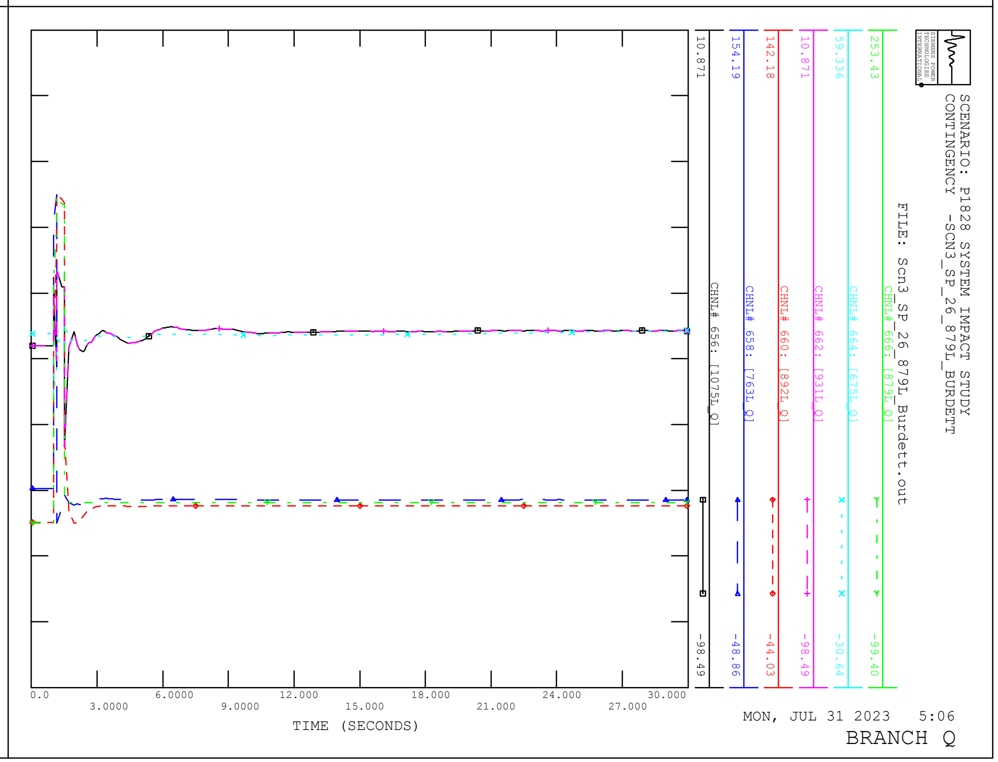
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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [1675L Q]
CHNL# 666: [879L Q]
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154.19 -48.86
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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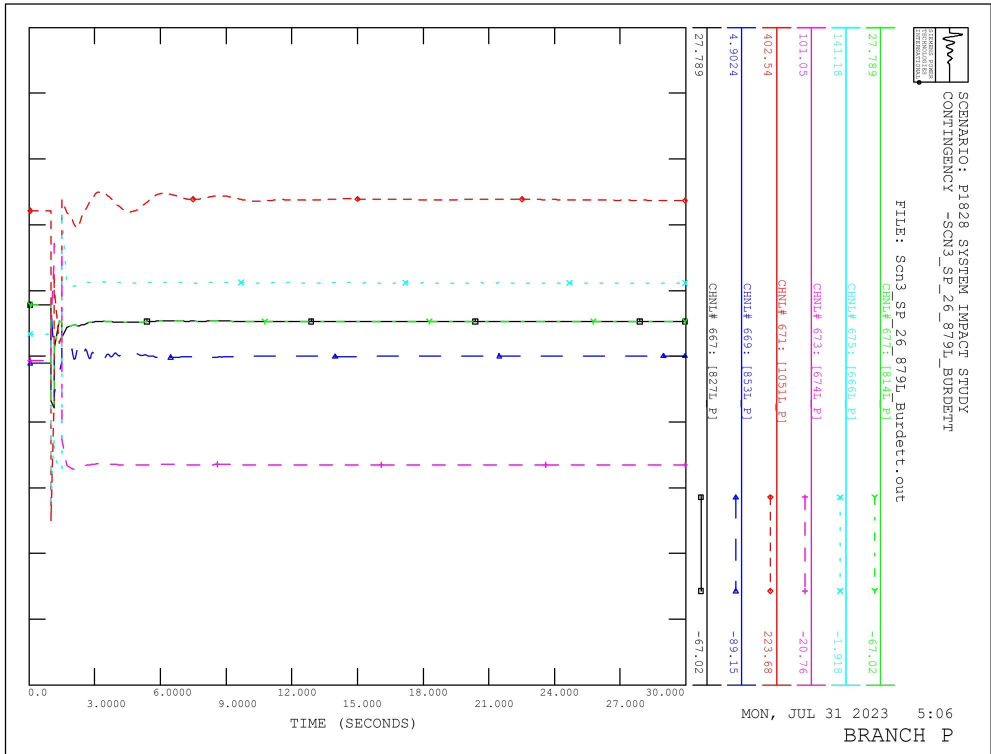
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402.54 CHNL# 671: [1051L_P] 223.68
101.05 CHNL# 673: [674L_P] -20.76
141.18 CHNL# 675: [666L_P] -1.918
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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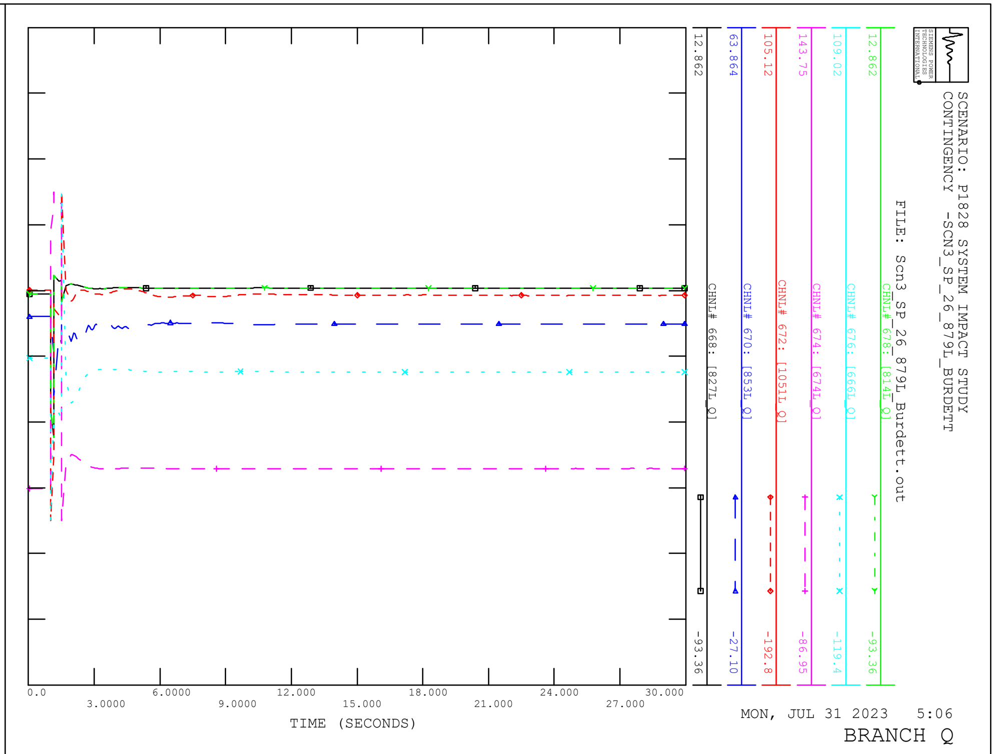
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MON, JUL 31 2023 5:06
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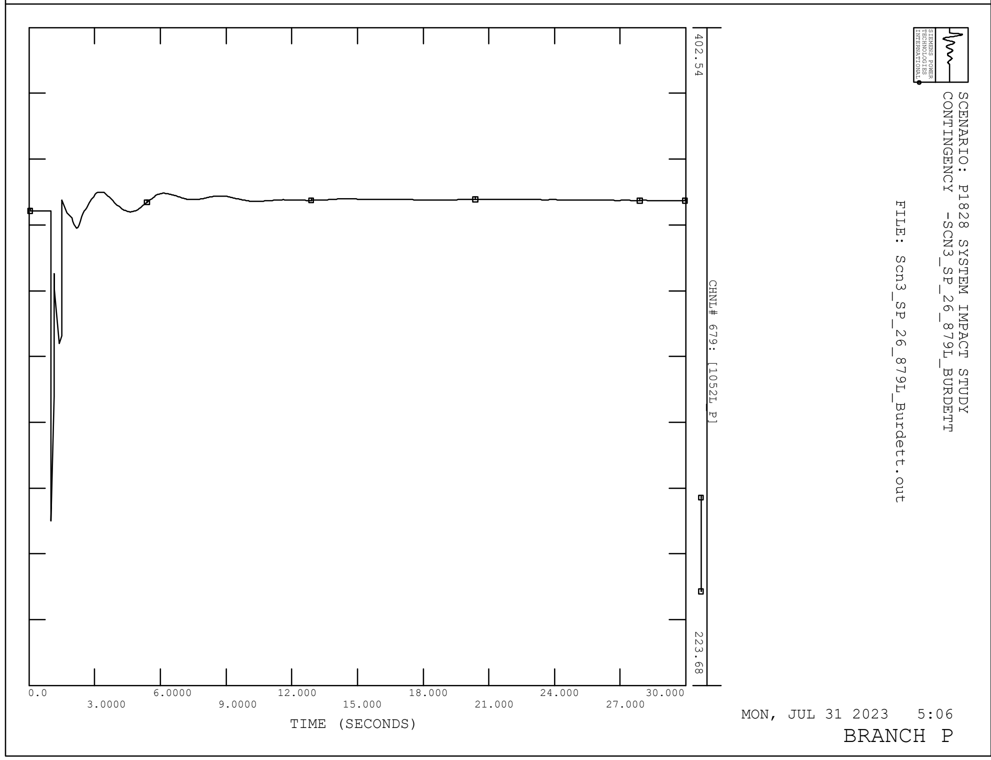
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MON, JUL 31 2023 5:06
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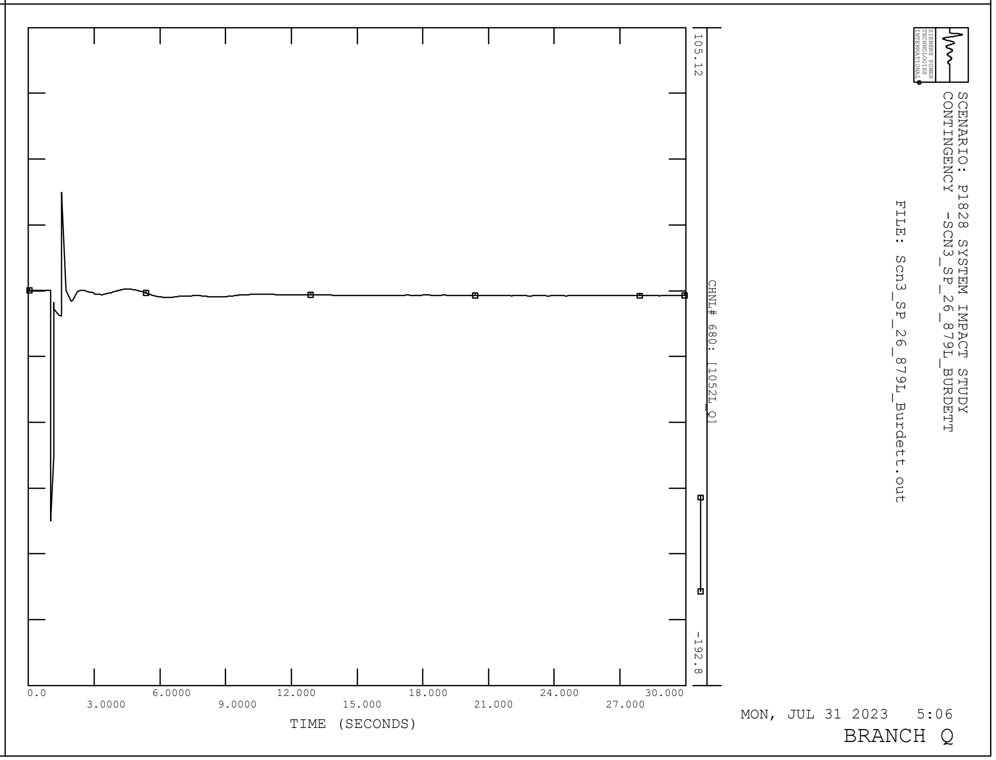
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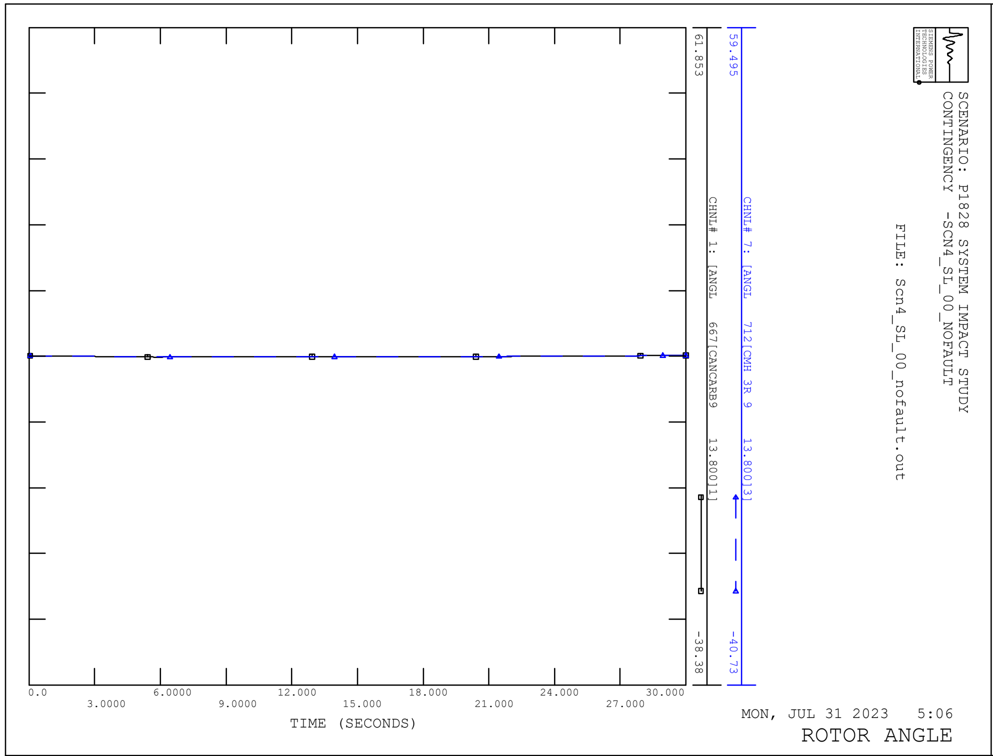
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MON, JUL 31 2023 5:06
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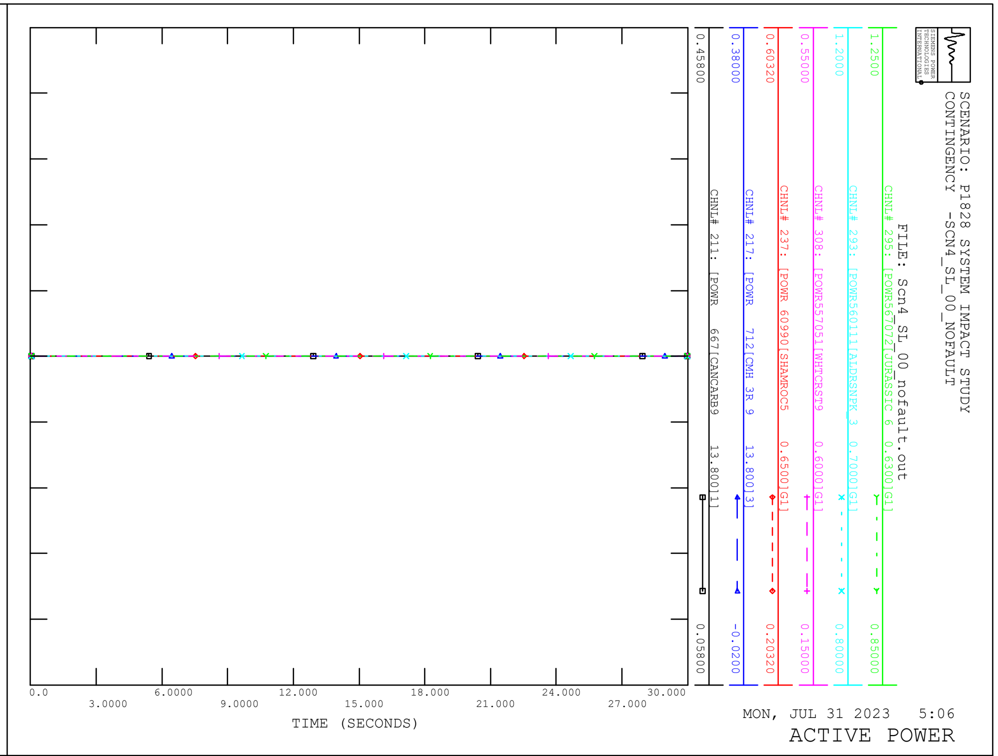
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
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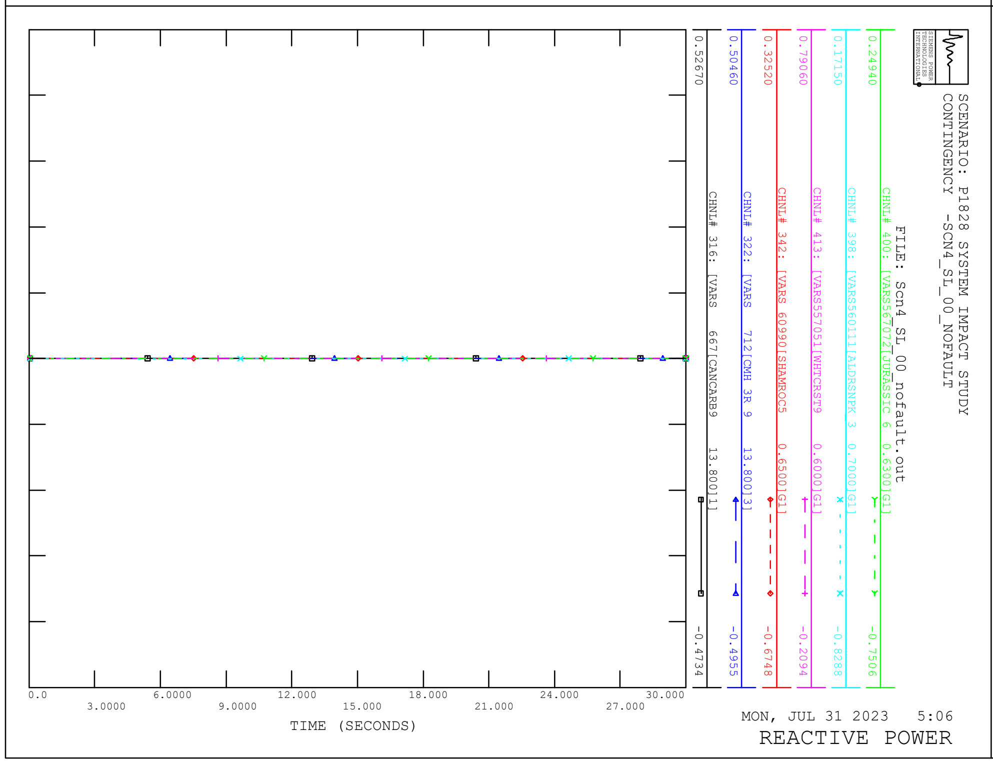
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER

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CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
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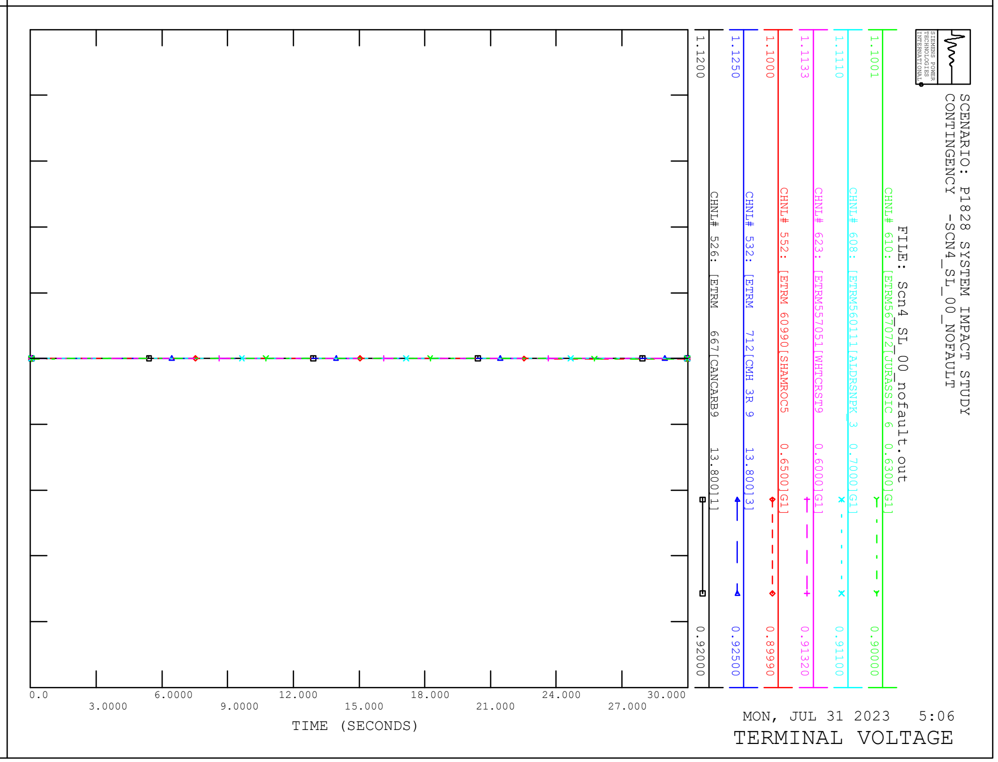
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER

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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
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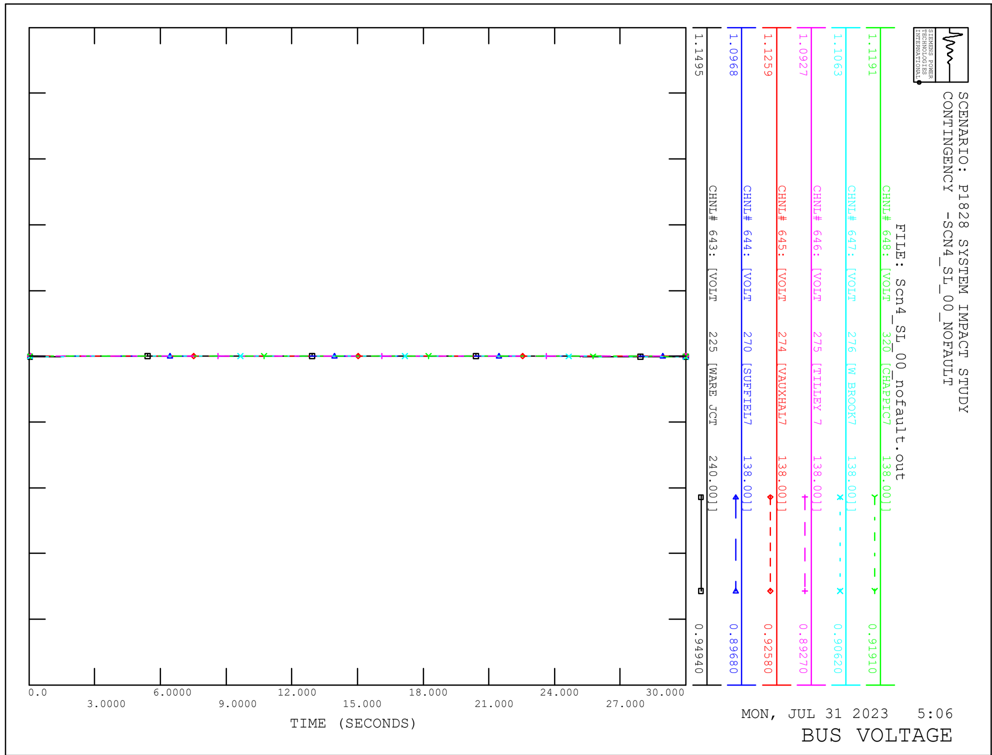
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CONTINGENCY -SCN4_SL_00_NOFAULT
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.0968 0.89680
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1259 0.92580
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.0927 0.89270
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1063 0.90620
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.1191 0.91910
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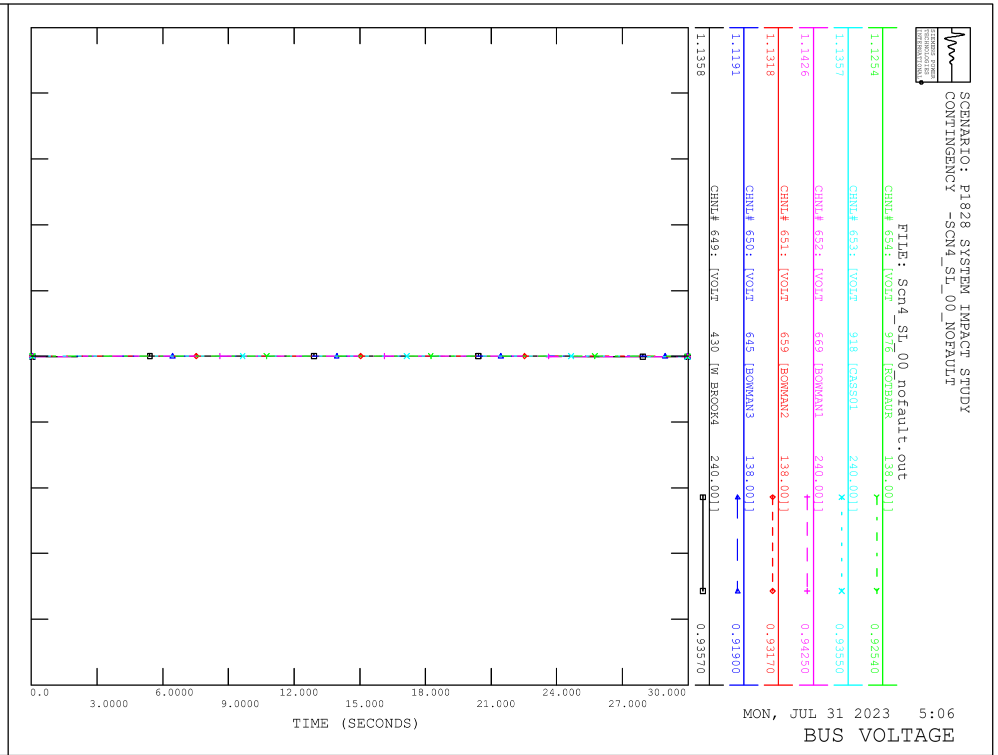
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn4_SL_00_nofault.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1191 0.91900
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1318 0.93170
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1426 0.94250
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.1357 0.93550
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1254 0.92540
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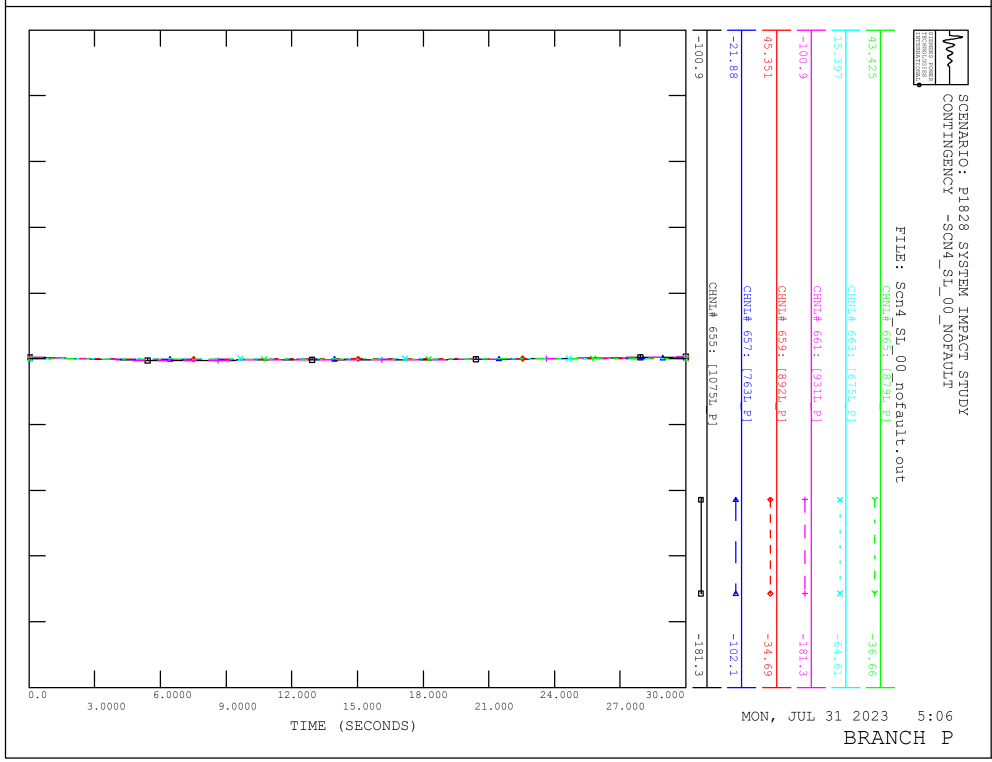
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 659: [892L_P] 45.351 -34.69
CHNL# 661: [931L_P] -100.9 -181.3
CHNL# 663: [675L_P] 15.397 -64.61
CHNL# 665: [879L_P] 43.425 -36.66
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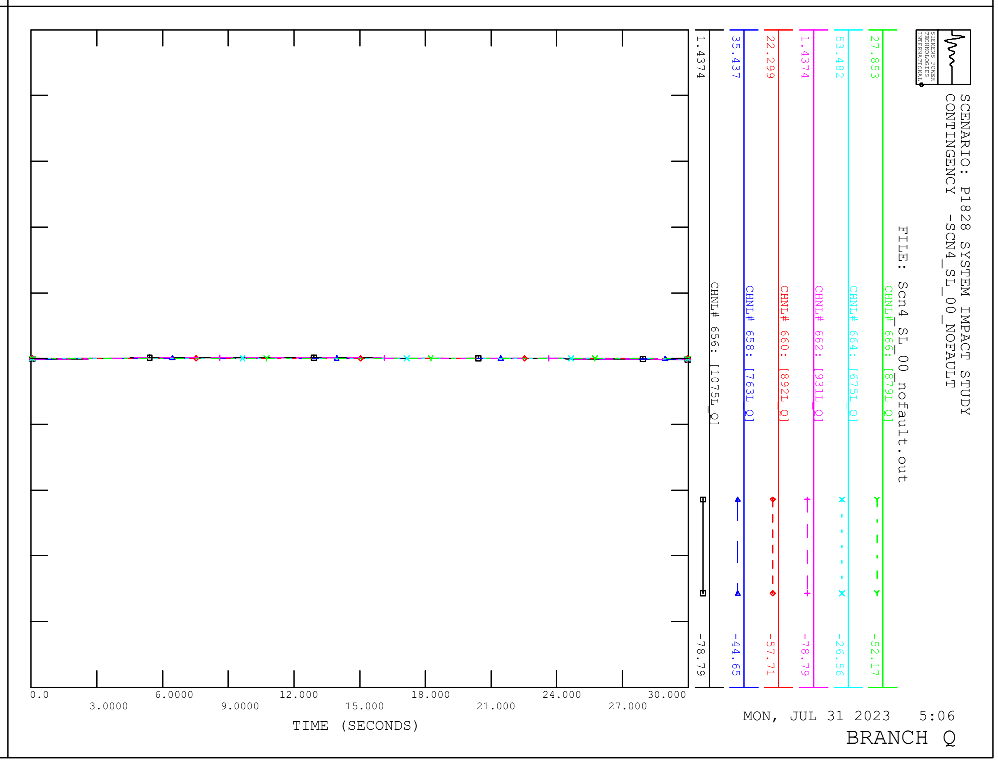
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CHNL# 660: [892L_Q] 22.299 -57.71
CHNL# 662: [931L_Q] 1.4374 -78.79
CHNL# 664: [675L_Q] 53.482 -26.56
CHNL# 666: [879L_Q] 27.853 -52.17
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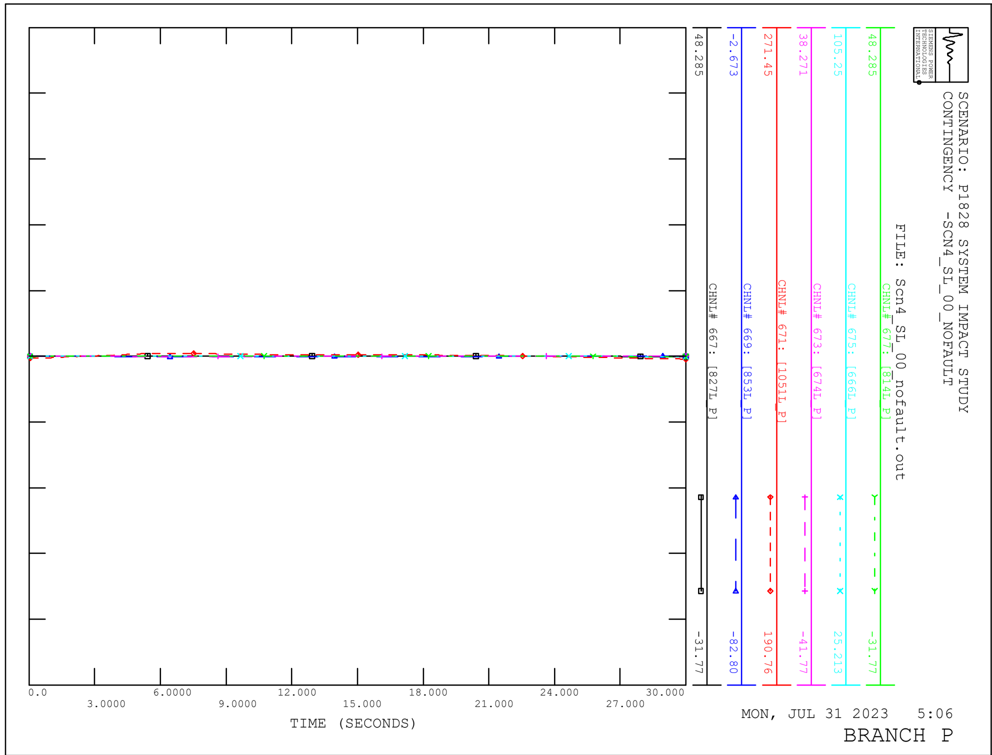
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-31.77
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-2.673
-82.80
CHNL# 669: [853L_P]
271.45
190.76
CHNL# 671: [1051L_P]
38.271
-41.77
CHNL# 673: [674L_P]
105.25
25.213
CHNL# 675: [666L_P]
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-31.77
CHNL# 677: [814L_P]
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MON, JUL 31 2023 5:06
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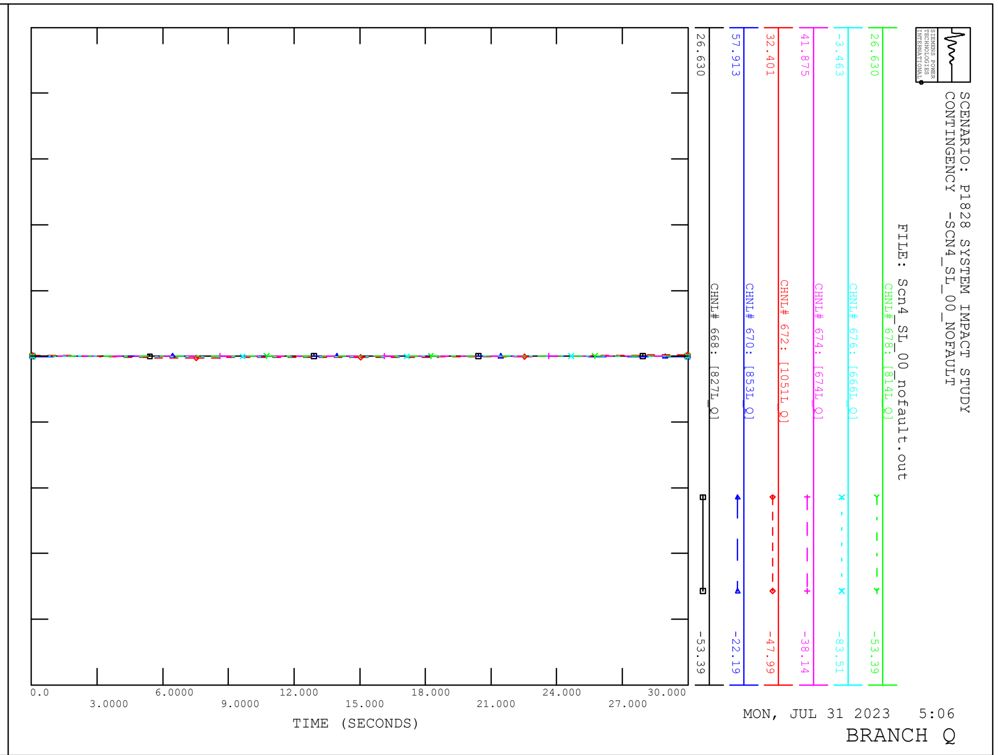
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-53.39
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CHNL# 672: [1051L_Q]
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-38.14
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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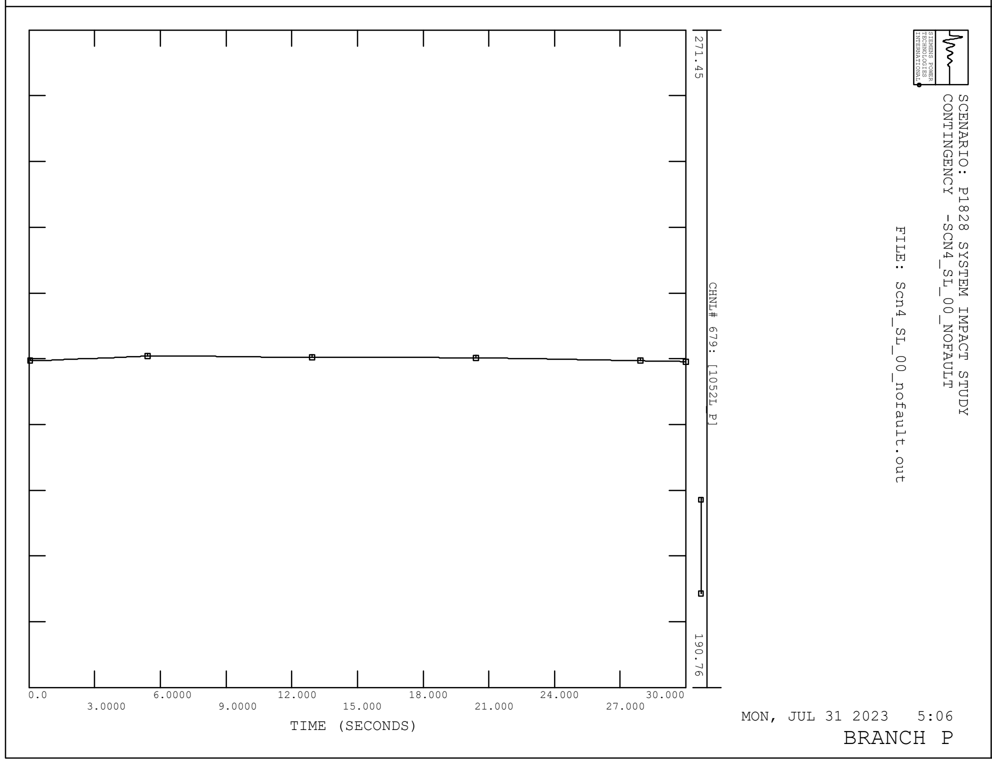
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MON, JUL 31 2023 5:06
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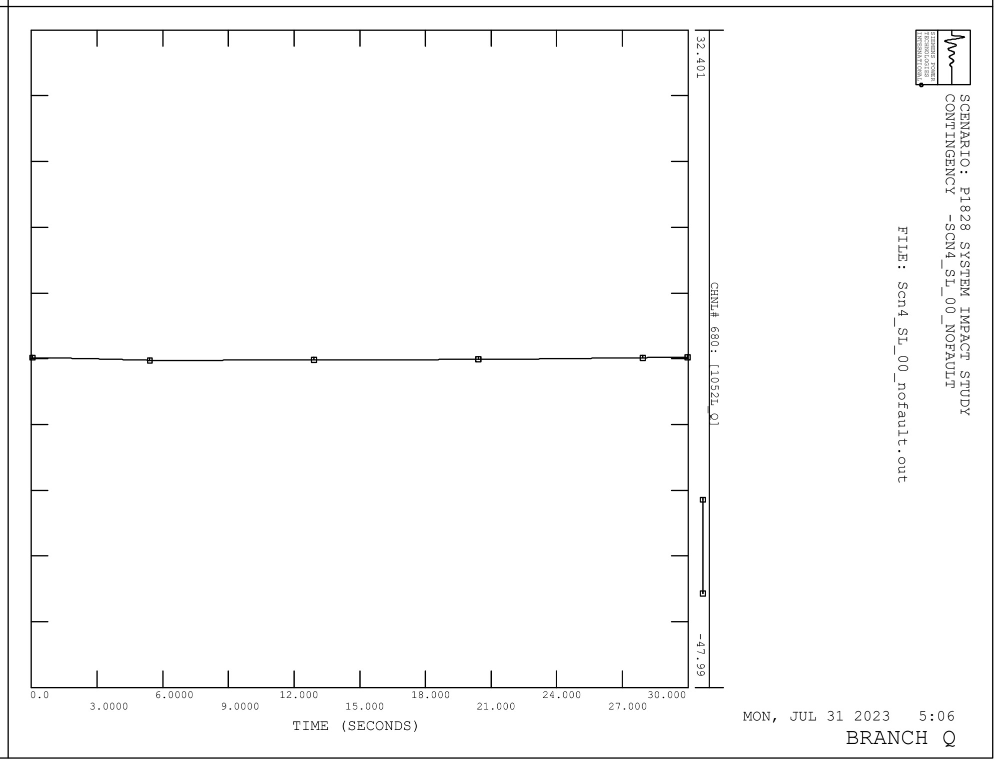
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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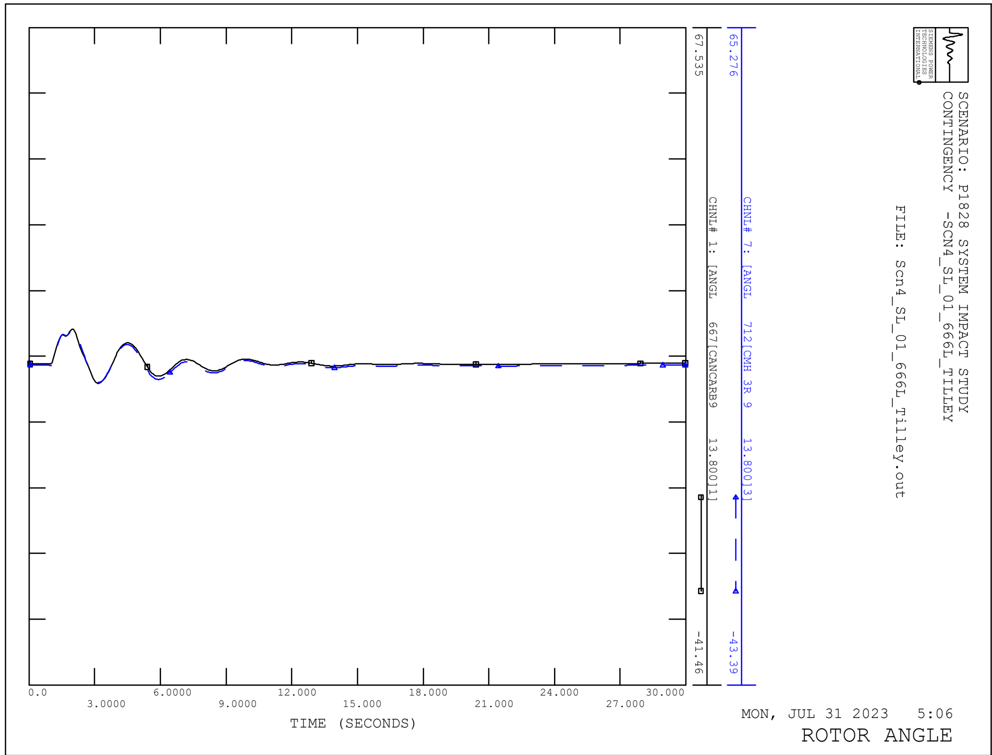
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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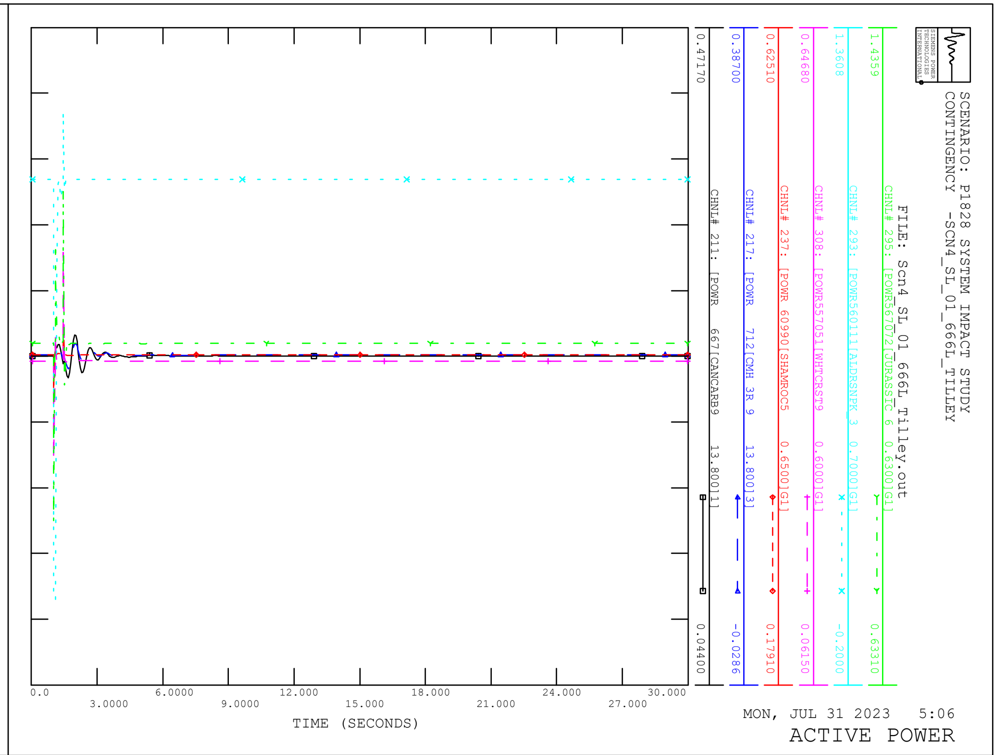
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
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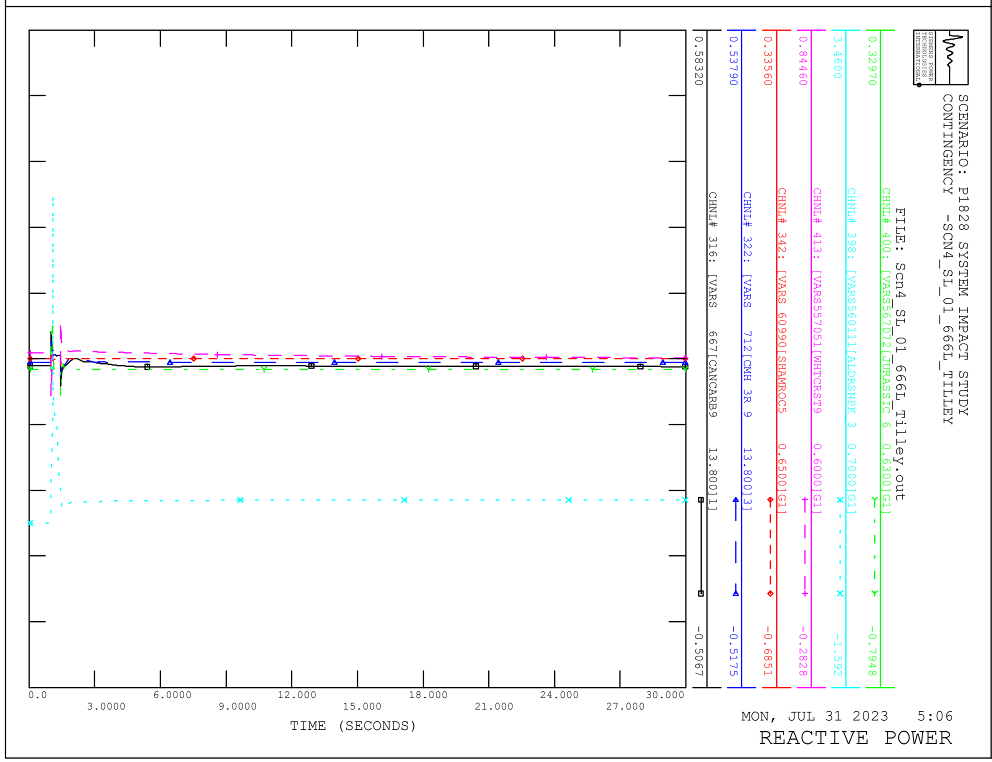
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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CONTINGENCY -SCN4_SL_01_666L_TILLEY
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
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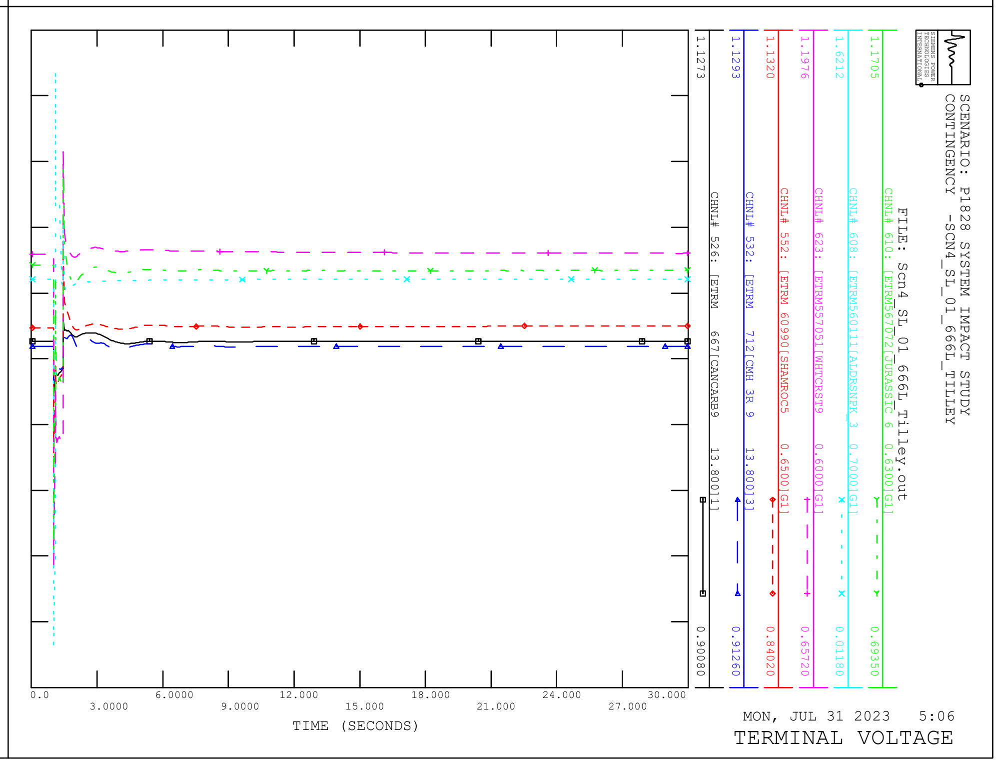
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CONTINGENCY -SCN4_SL_01_666L_TILLEY
FILE: Scn4_SL_01_666L_Tilley.out
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
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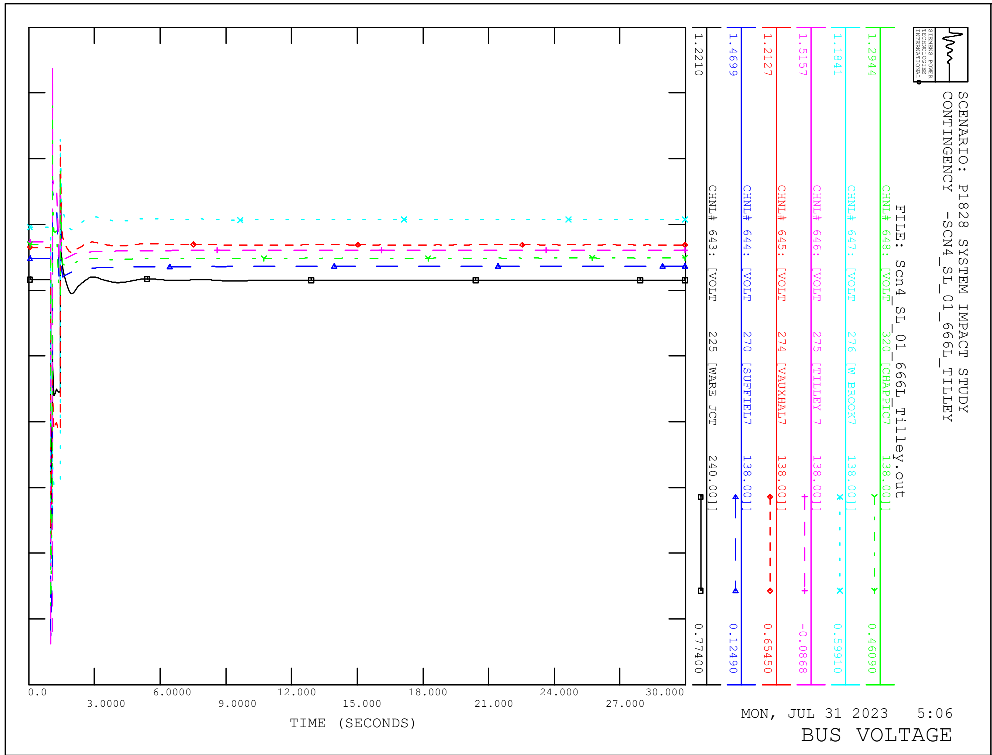
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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1.4699 CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 0.12490
1.2127 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.65450
1.5157 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] -0.0868
1.1841 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 0.59910
1.2944 CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 0.46090
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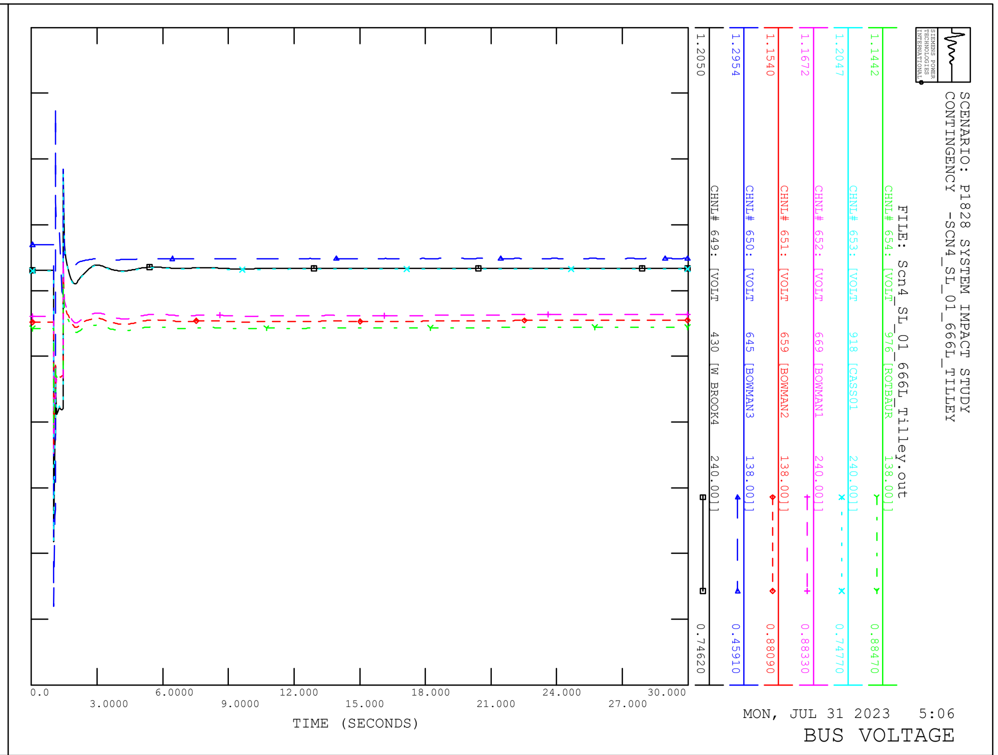
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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1.2954 CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 0.45910
1.1540 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 0.88090
1.1672 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.88330
1.2047 CHNL# 653: [VOLT 918 [CASS01 240.00]] 0.74770
1.1442 CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 0.88470
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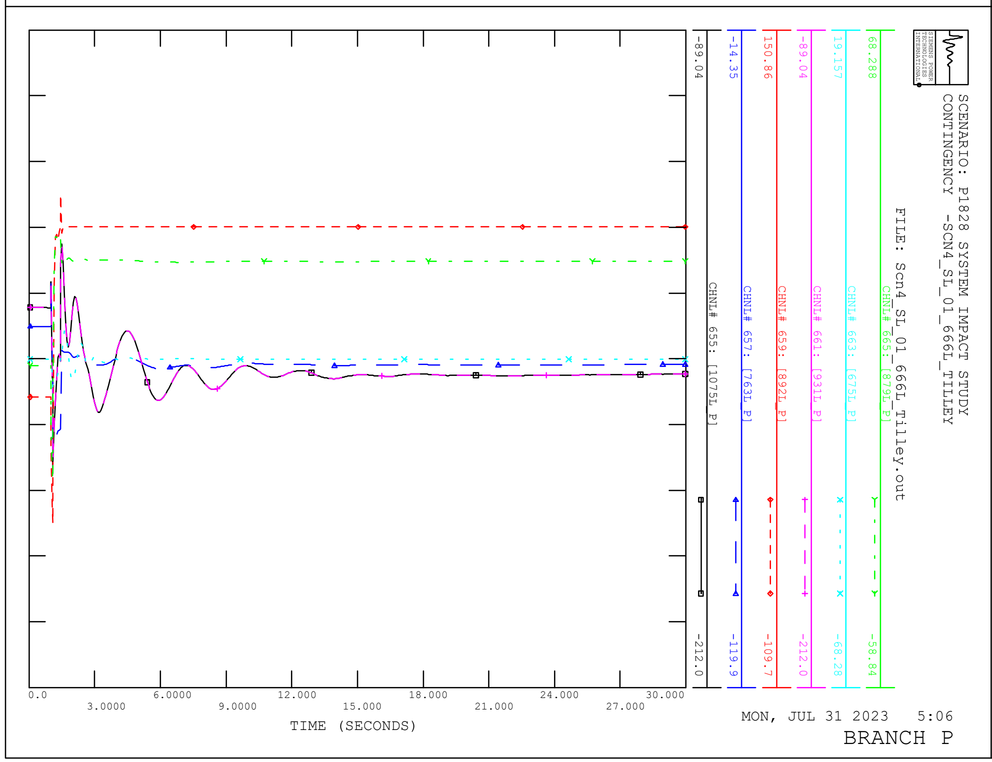
MON, JUL 31 2023 5:06
BUS VOLTAGE



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-14.35 CHNL# 657: [763L_P] -119.9
150.86 CHNL# 659: [892L_P] -109.7
-89.04 CHNL# 661: [931L_P] -212.0
19.157 CHNL# 663: [675L_P] -68.28
88.288 CHNL# 665: [879L_P] -58.84
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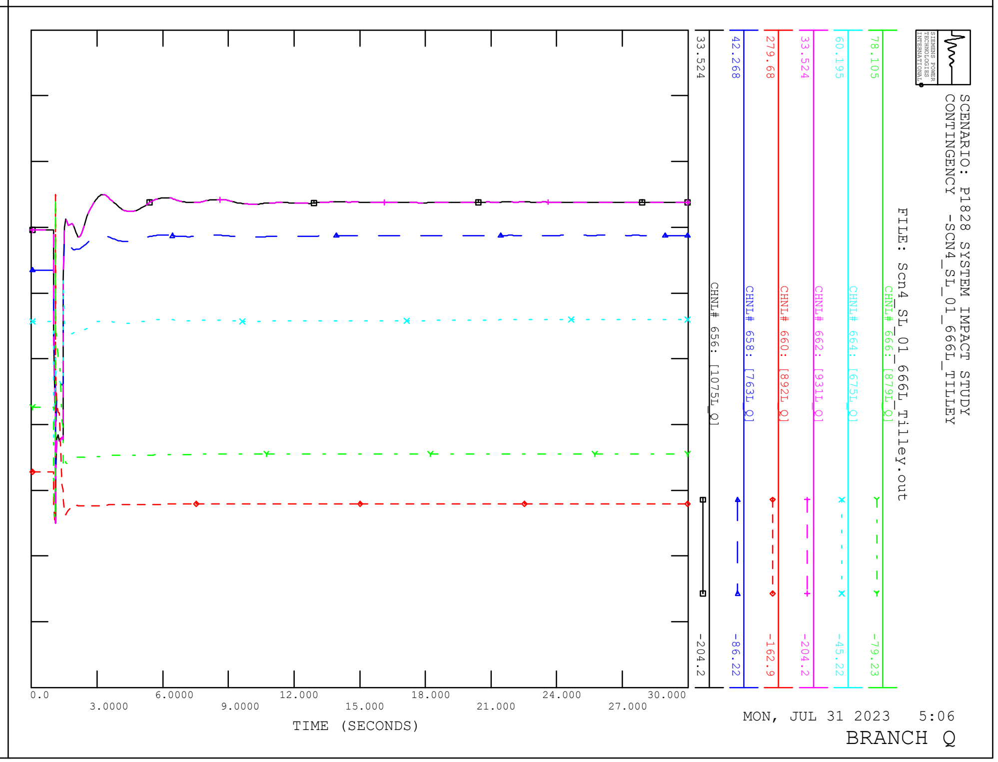
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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42.268 CHNL# 658: [763L_Q] -86.22
279.68 CHNL# 660: [892L_Q] -162.9
33.524 CHNL# 662: [931L_Q] -204.2
60.195 CHNL# 664: [675L_Q] -45.22
78.105 CHNL# 666: [879L_Q] -79.23
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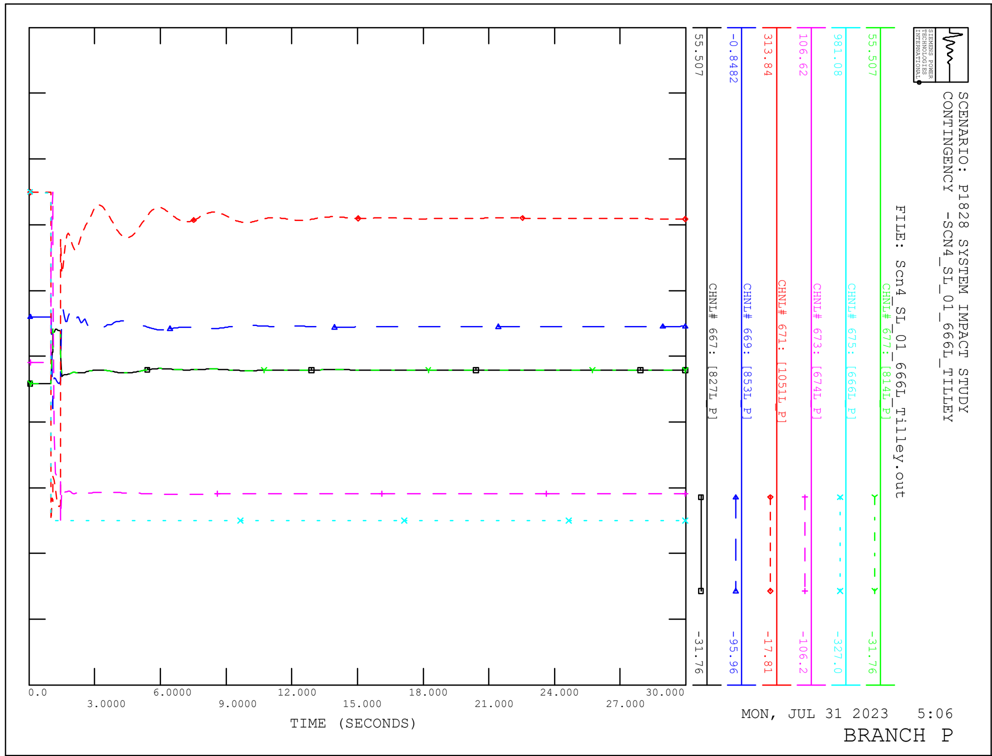
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



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313.84 CHNL# 671: [1051L_P] -17.81
106.62 CHNL# 673: [674L_P] -106.2
981.08 CHNL# 675: [666L_P] -327.0
55.507 CHNL# 677: [814L_P] -31.76
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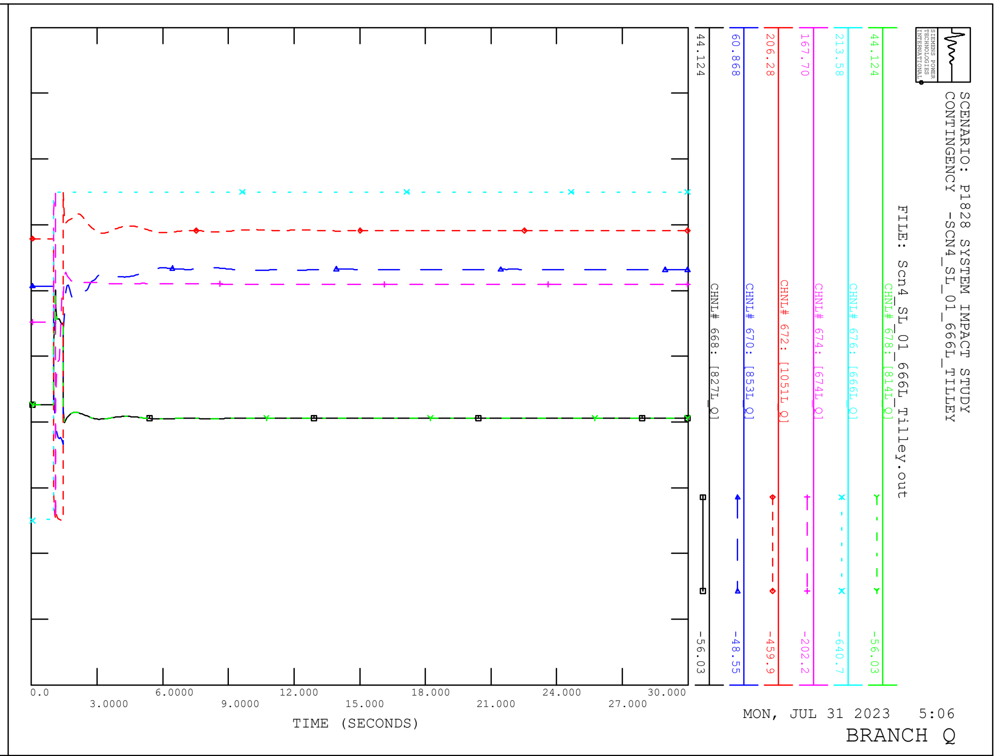
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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60.868 CHNL# 670: [853L_Q] -48.55
206.28 CHNL# 672: [1051L_Q] -459.9
167.70 CHNL# 674: [674L_Q] -202.2
213.58 CHNL# 676: [666L_Q] -640.7
44.124 CHNL# 678: [814L_Q] -56.03
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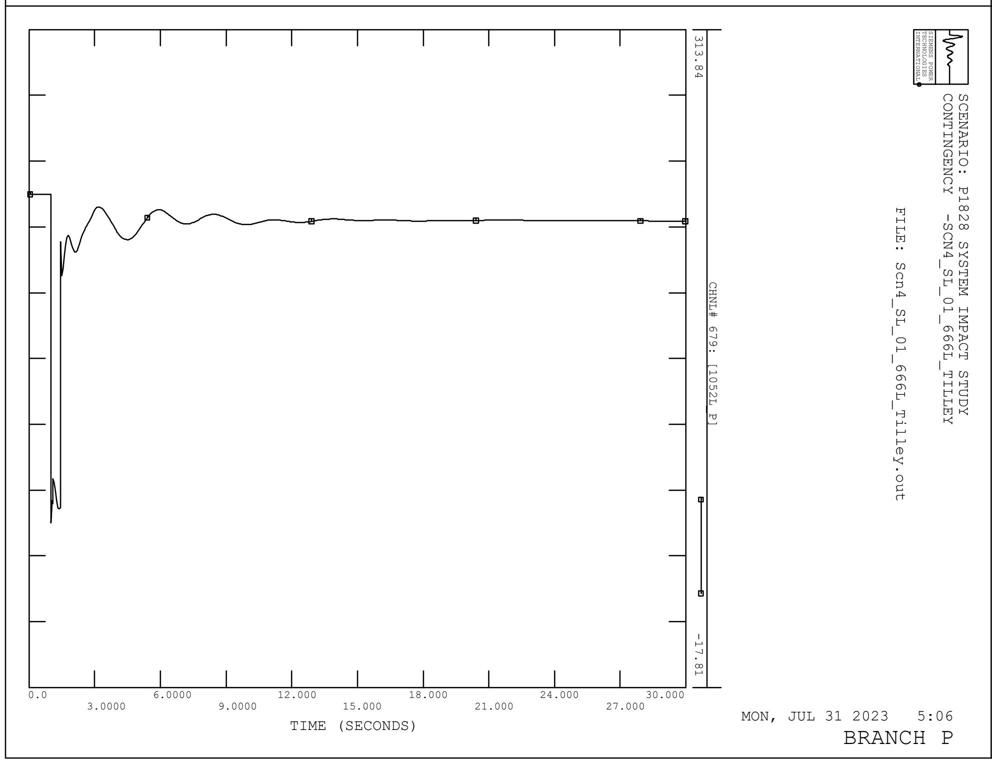

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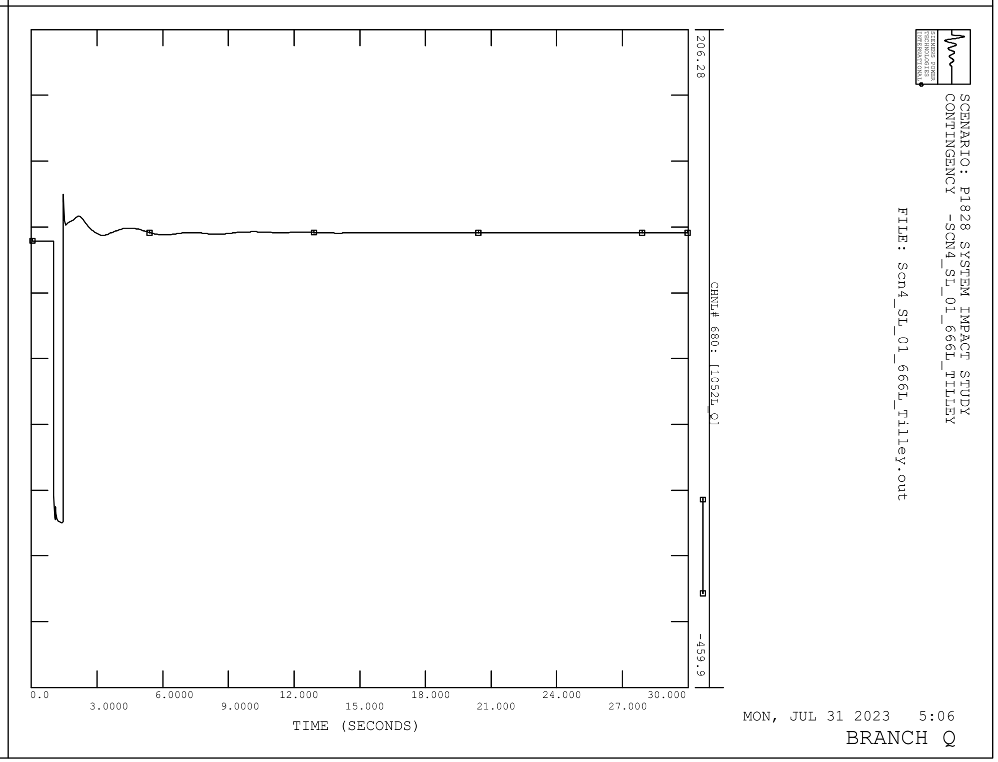

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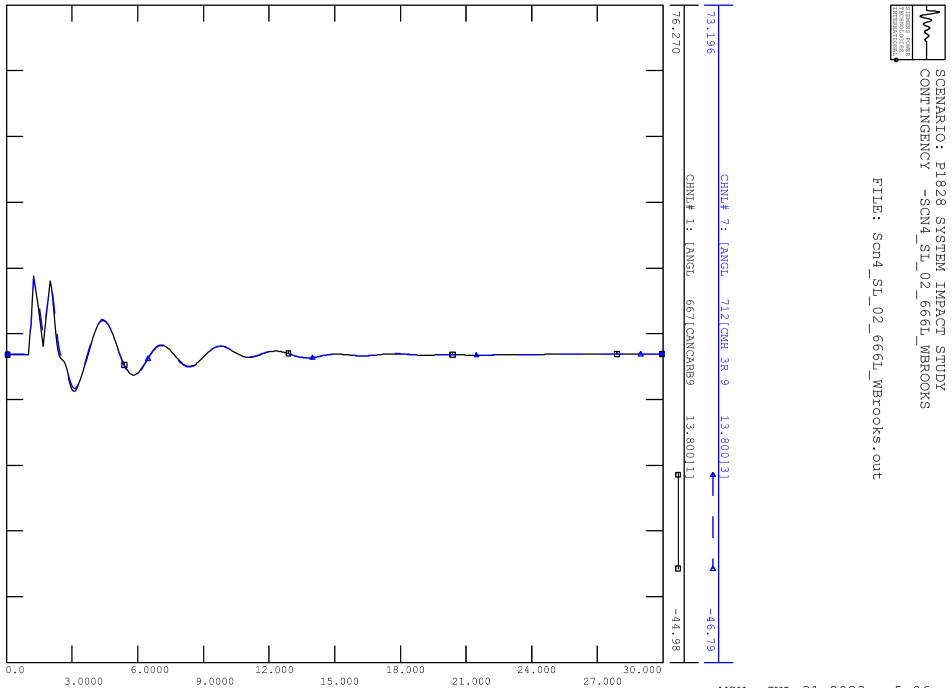
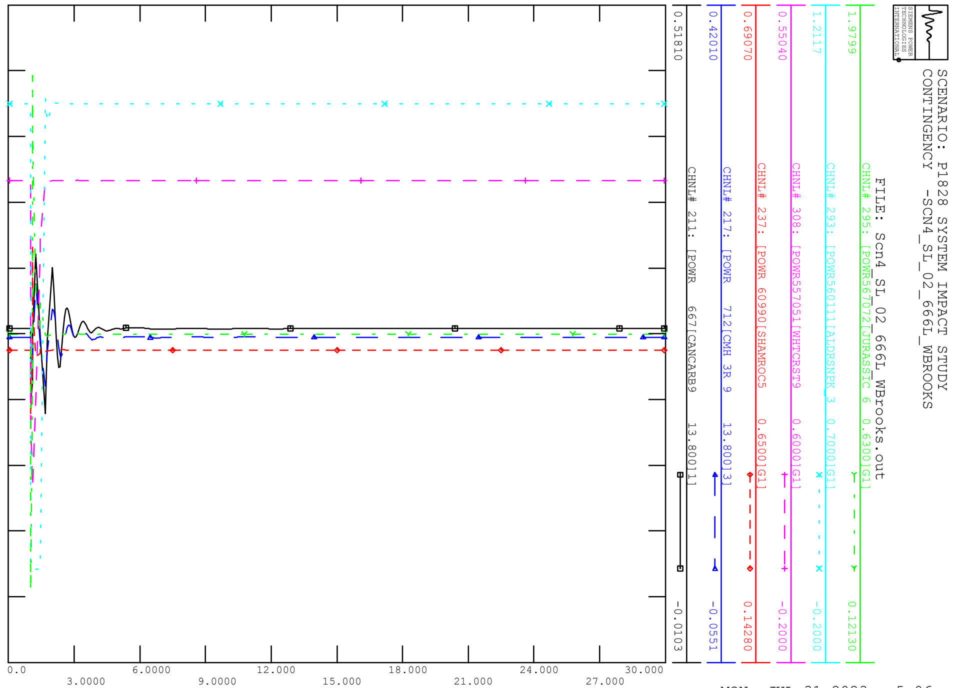
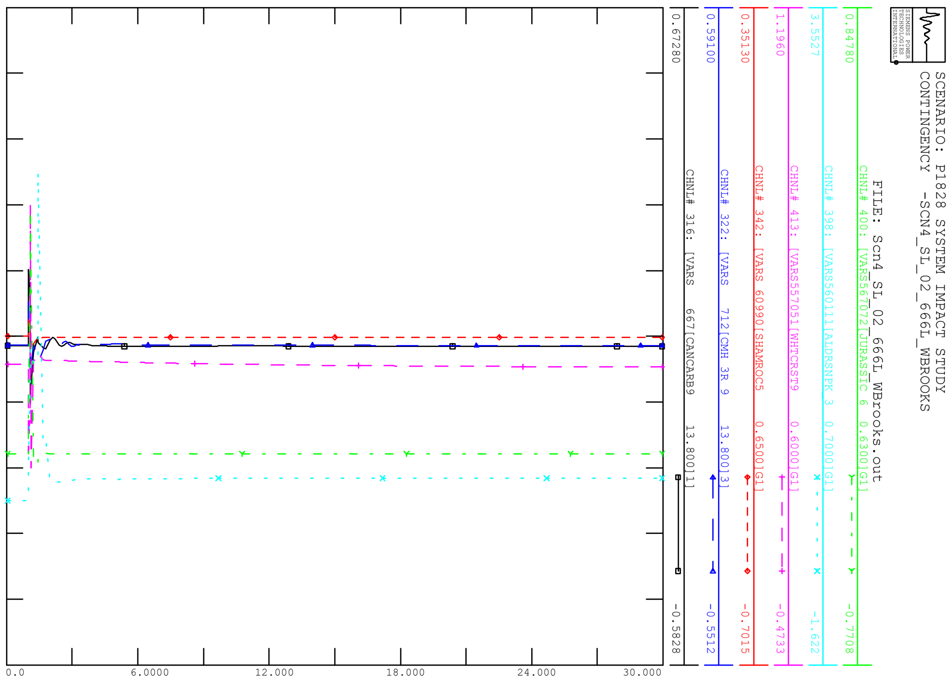


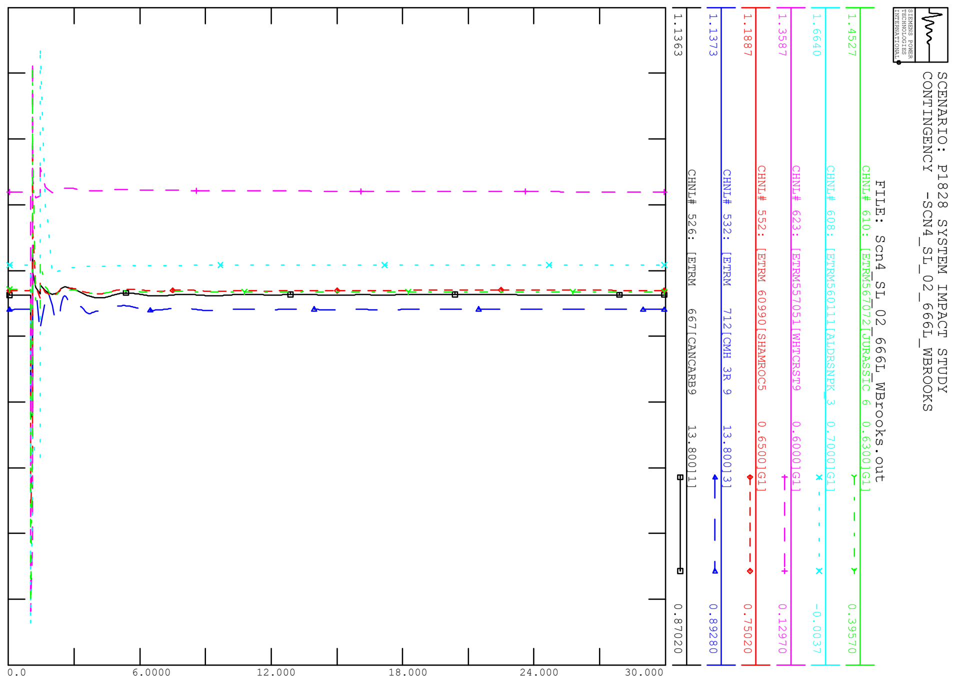
ROTOR ANGLE



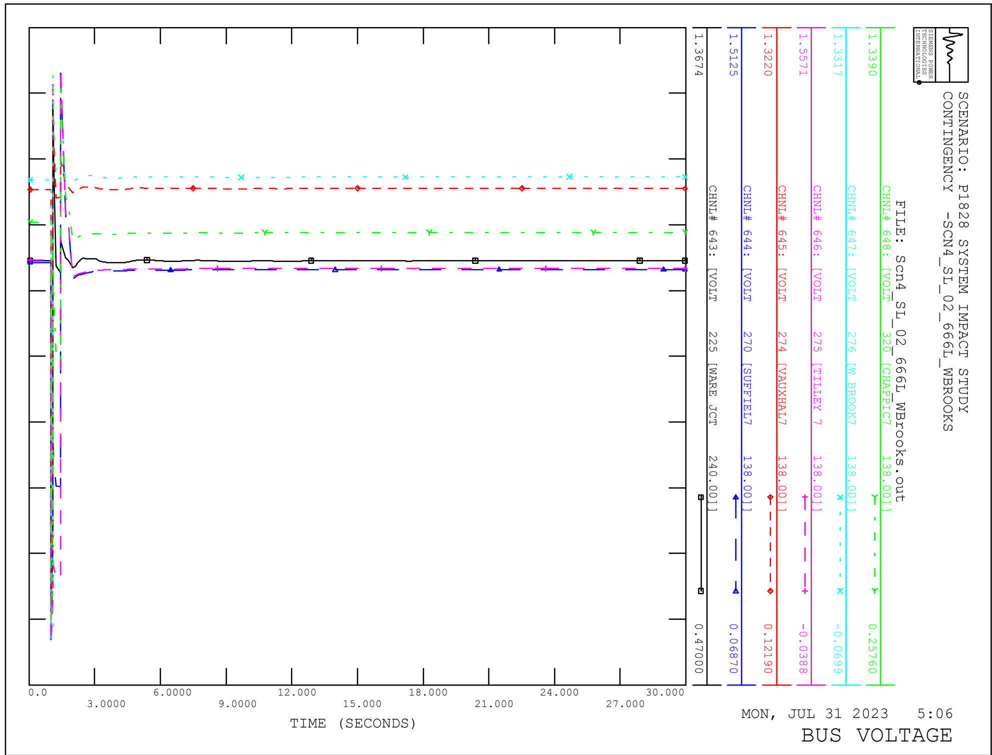
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE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1.5125 CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 0.06870
1.3220 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.12190
1.5571 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] -0.0388
1.3317 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] -0.0699
1.3390 CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 0.25760
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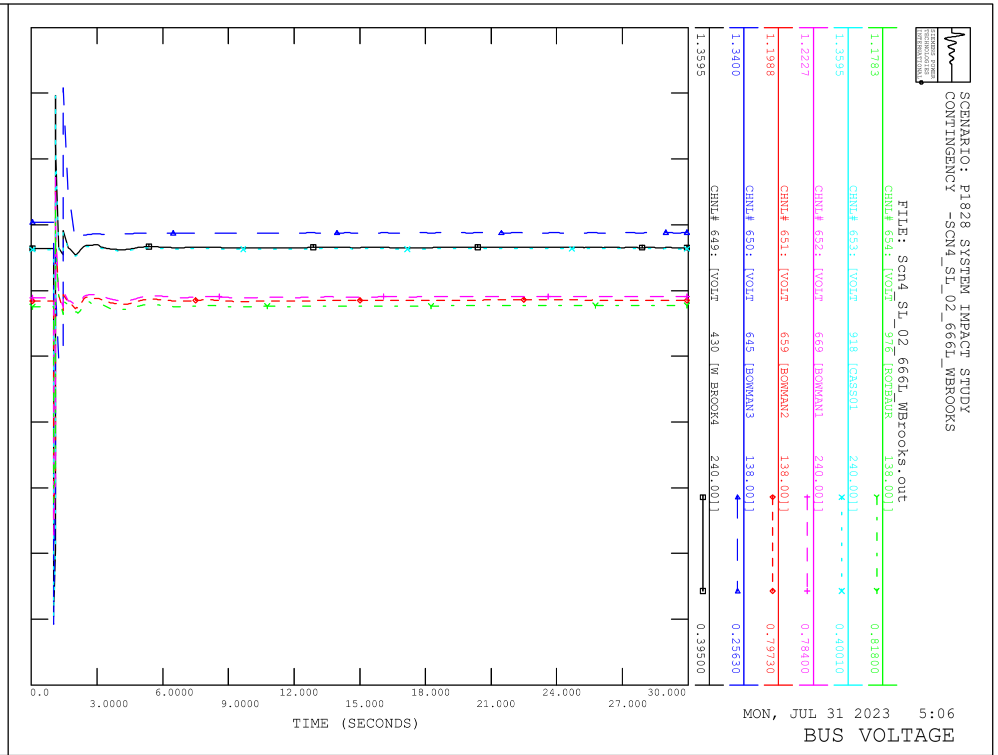
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn4_SL_02_666L_WBrooks.out
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
1.3595 CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 0.39500
1.3400 CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 0.25630
1.1988 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 0.79730
1.2227 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.78400
1.3595 CHNL# 653: [VOLT 918 [CASS01 240.00]] 0.40010
1.1783 CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 0.81800
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TIME (SECONDS)
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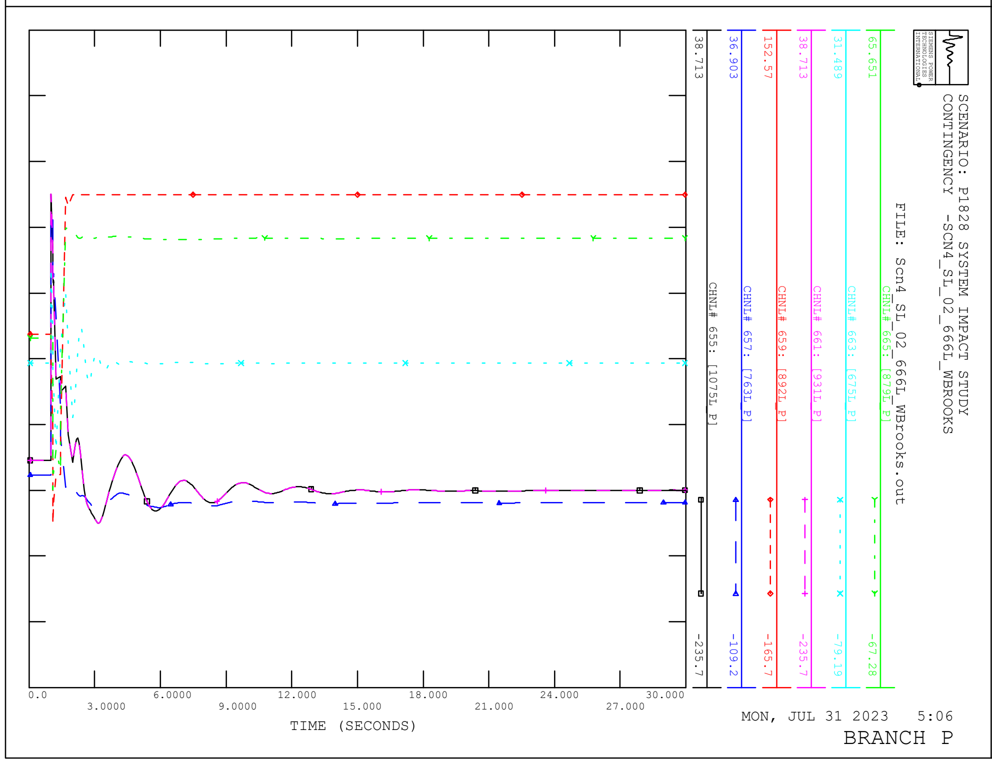
BUS VOLTAGE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FILE: Scn4_SL_02_666L_WBrooks.out
SIEMENS POWER TECHNOLOGIES INTERNATIONAL
38.713 CHNL# 655: [1075L_P] -235.7
36.903 CHNL# 657: [763L_P] -109.2
152.57 CHNL# 659: [892L_P] -165.7
38.713 CHNL# 661: [931L_P] -235.7
31.489 CHNL# 663: [675L_P] -79.19
65.651 CHNL# 665: [879L_P] -67.28
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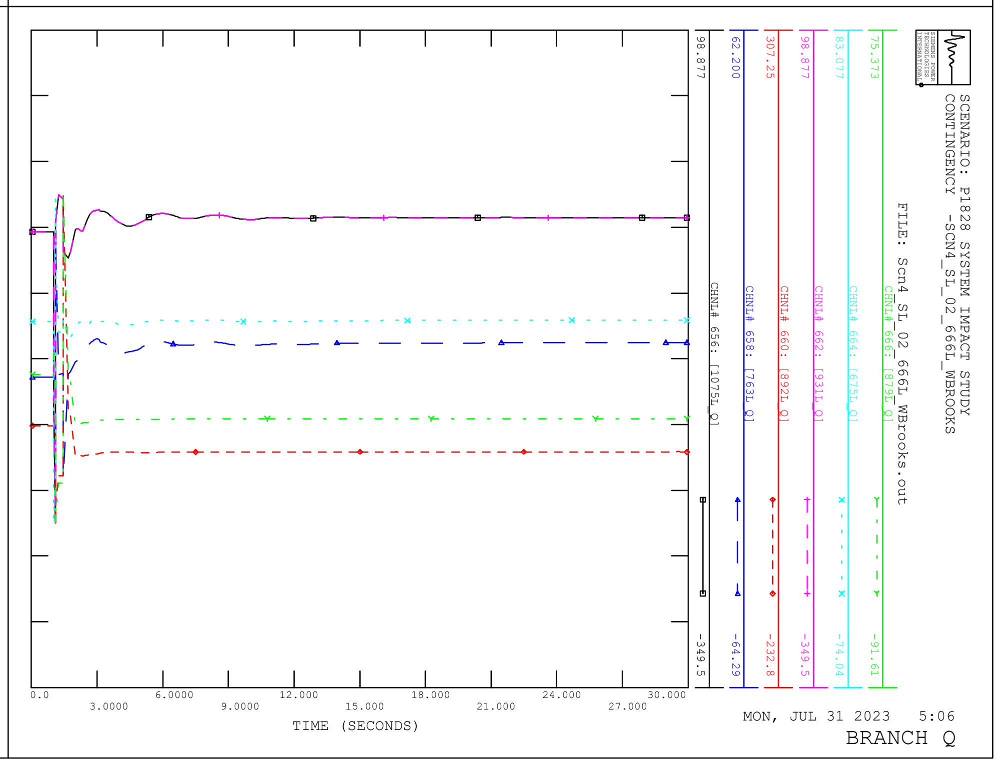
BRANCH P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307.25 CHNL# 660: [892L_Q] -232.8
98.877 CHNL# 662: [931L_Q] -349.5
83.077 CHNL# 664: [675L_Q] -74.04
75.373 CHNL# 666: [879L_Q] -91.61
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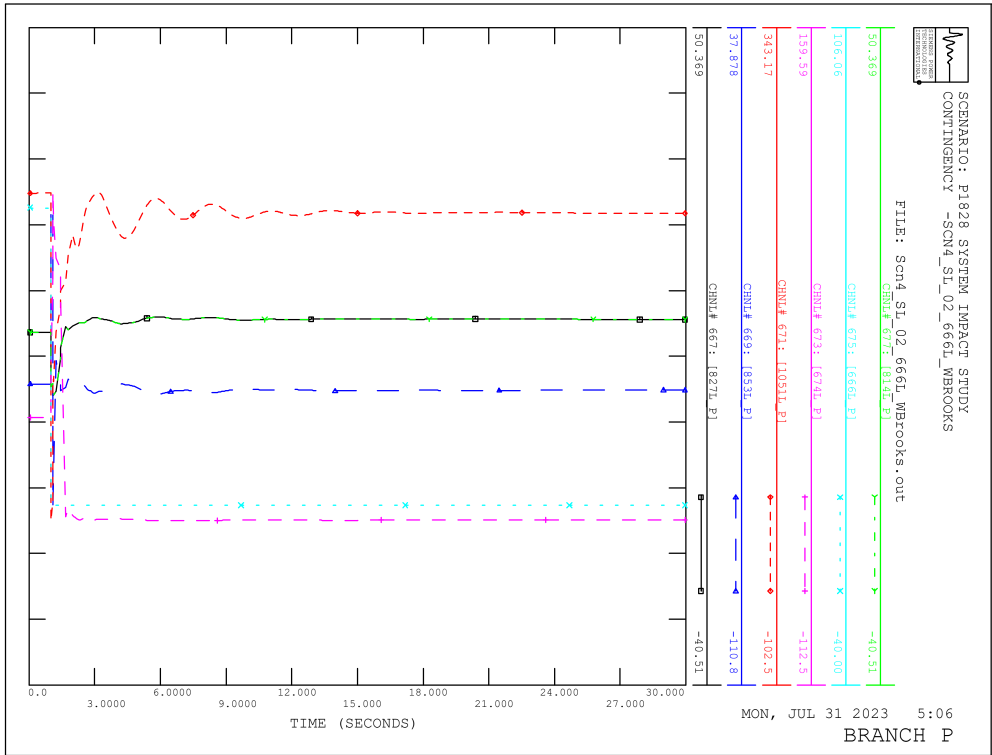
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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TIME (SECONDS)
MON, JUL 31 2023 5:06
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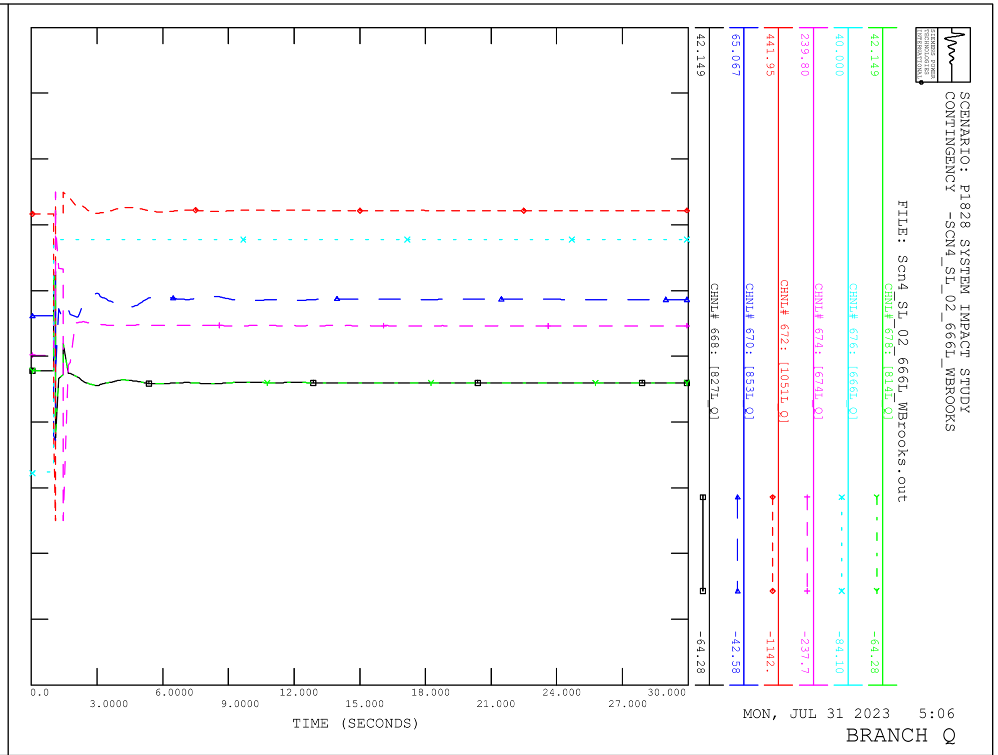
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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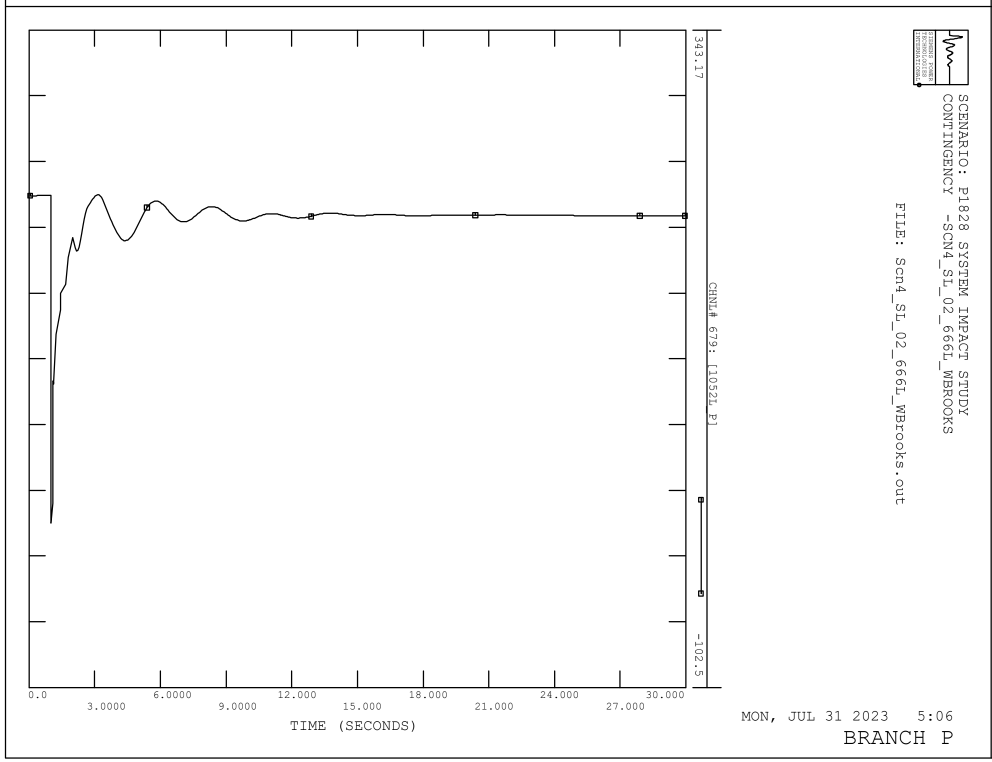
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MON, JUL 31 2023 5:06
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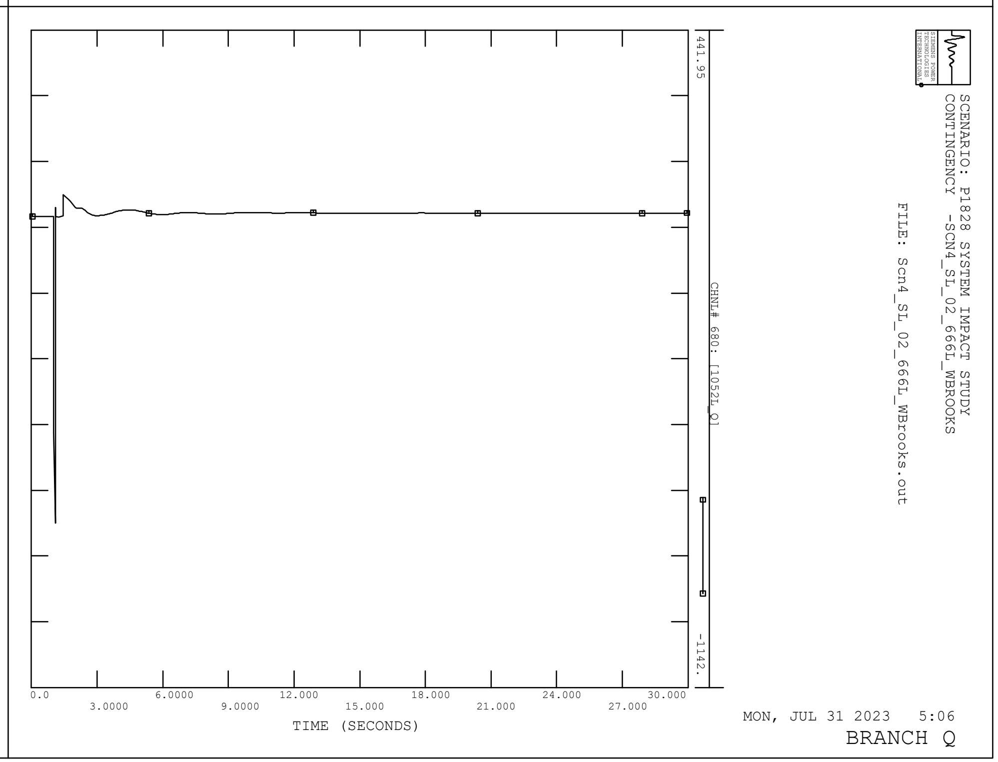
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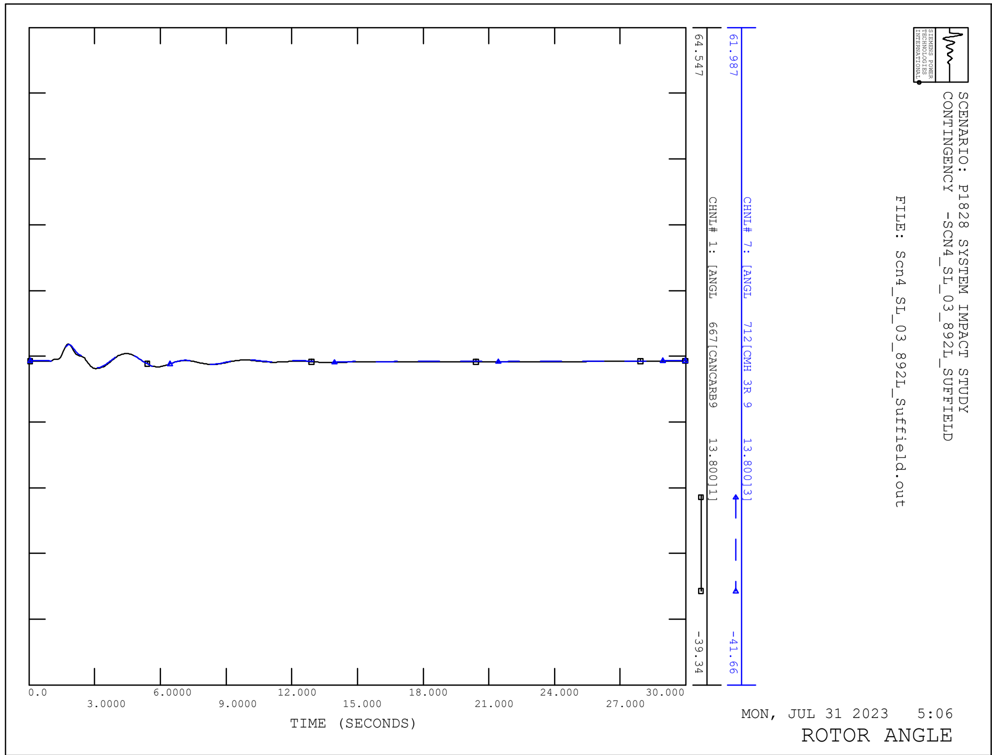
BRANCH Q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MON, JUL 31 2023 5:06
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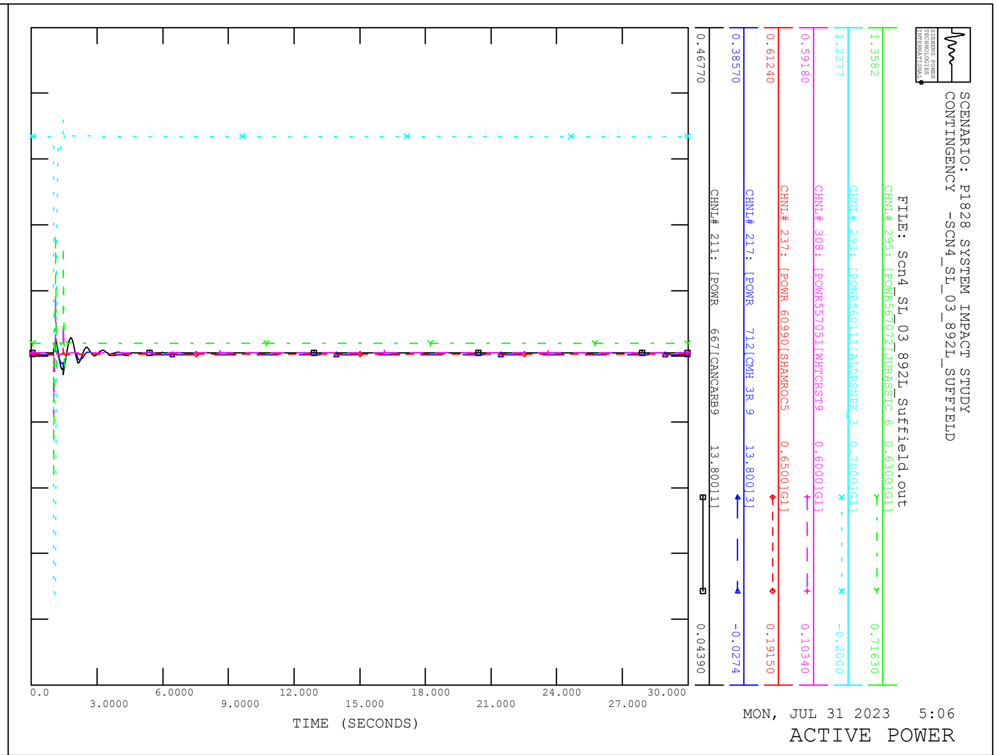
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CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] 0.59180 0.10340
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1] 1.2377 -0.2000
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MON, JUL 31 2023 5:06
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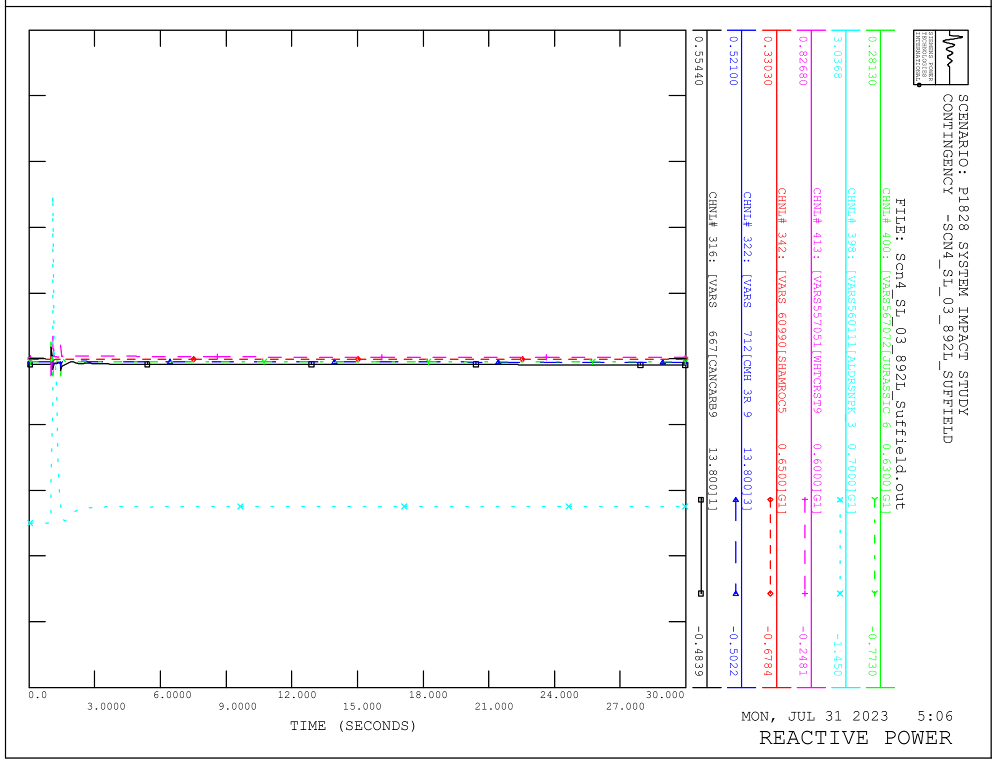
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CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] 0.82680 -0.2481
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1] 3.0368 -1.450
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MON, JUL 31 2023 5:06
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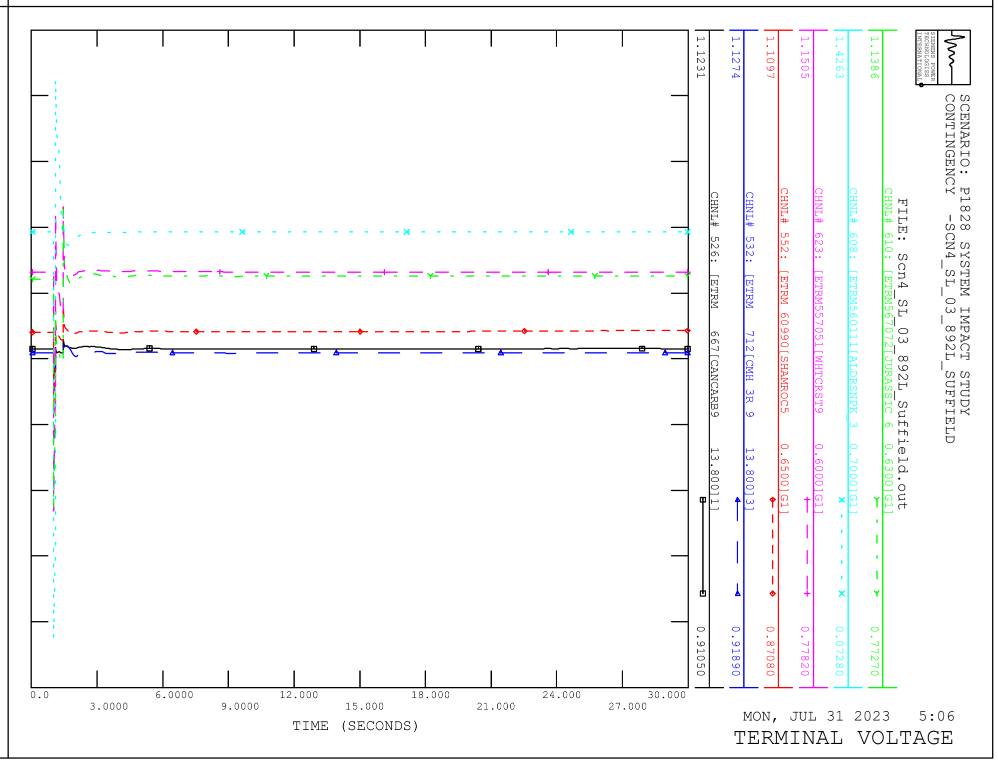
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CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] 1.1505 0.77820
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1] 1.4263 0.07280
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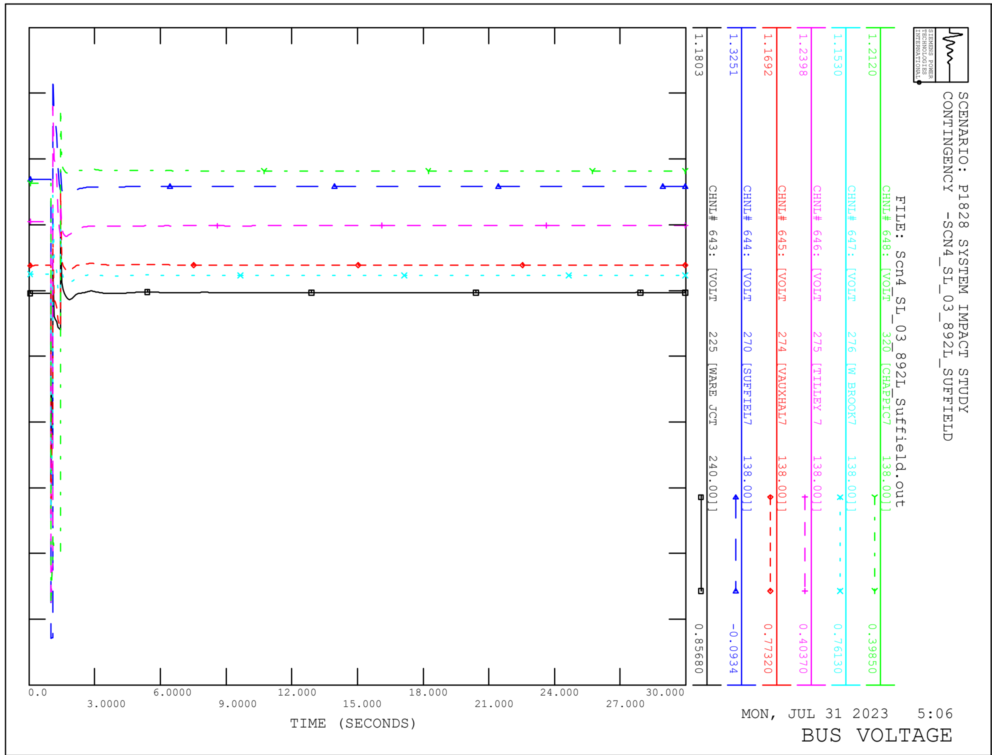
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1692 0.77320
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2398 0.40370
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1530 0.76130
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.2120 0.39850
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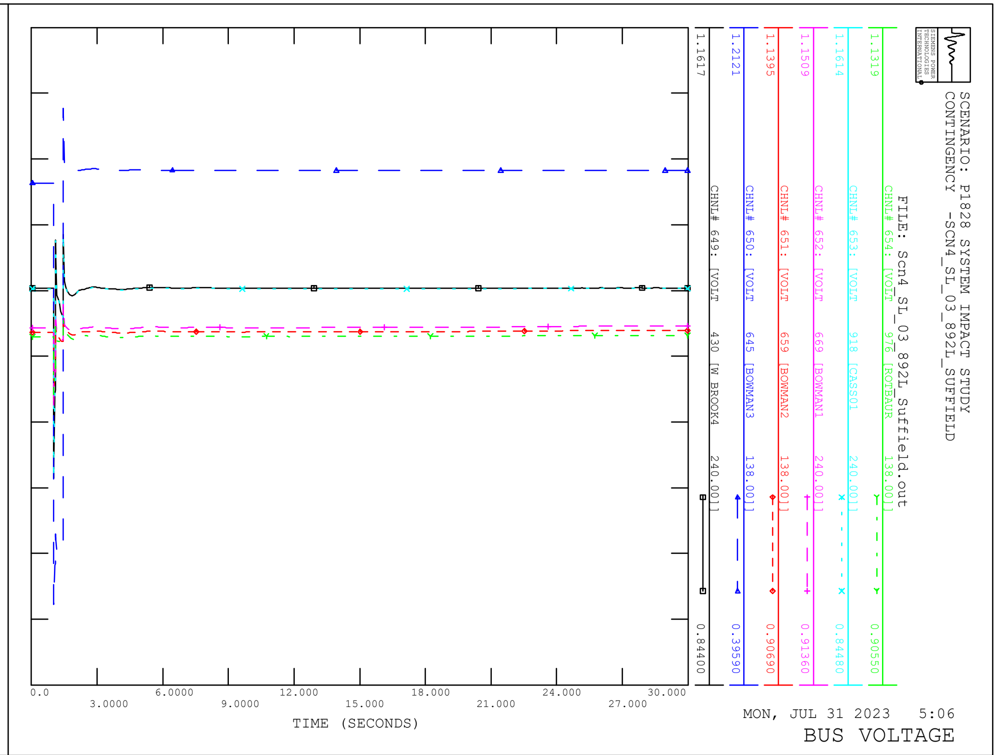
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1395 0.90690
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1509 0.91360
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.1614 0.84480
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1319 0.90550
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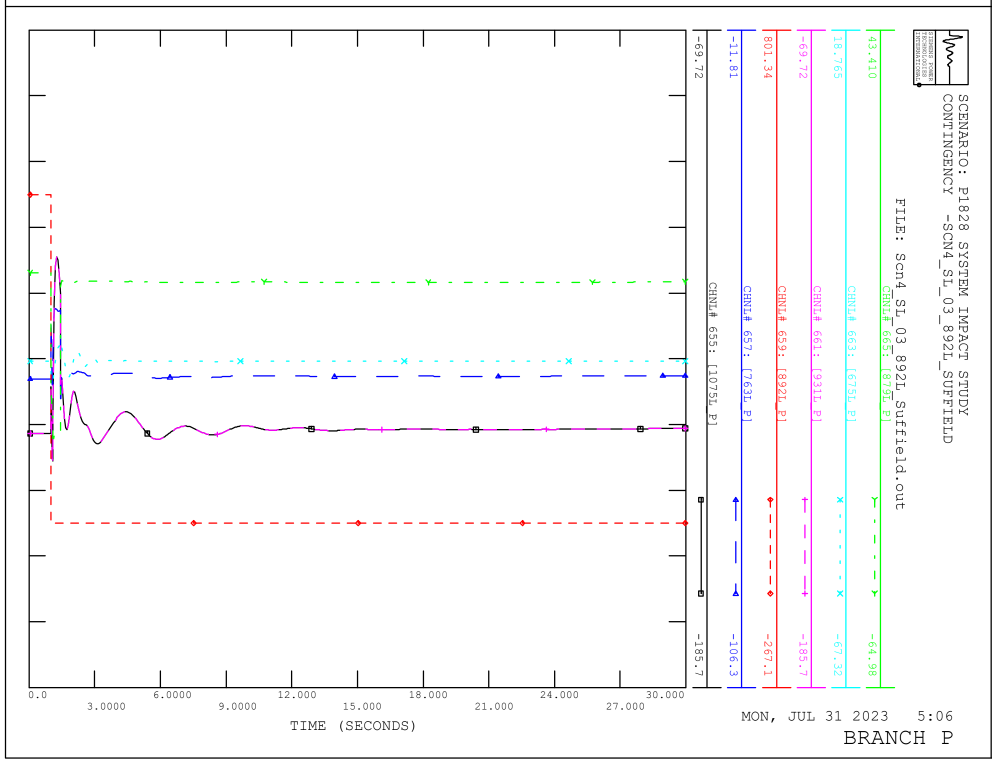
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CHNL# 659: [892L_P] 801.34 -267.1
CHNL# 661: [931L_P] -69.72 -185.7
CHNL# 663: [675L_P] 18.765 -67.32
CHNL# 665: [879L_P] 43.410 -64.98
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MON, JUL 31 2023 5:06
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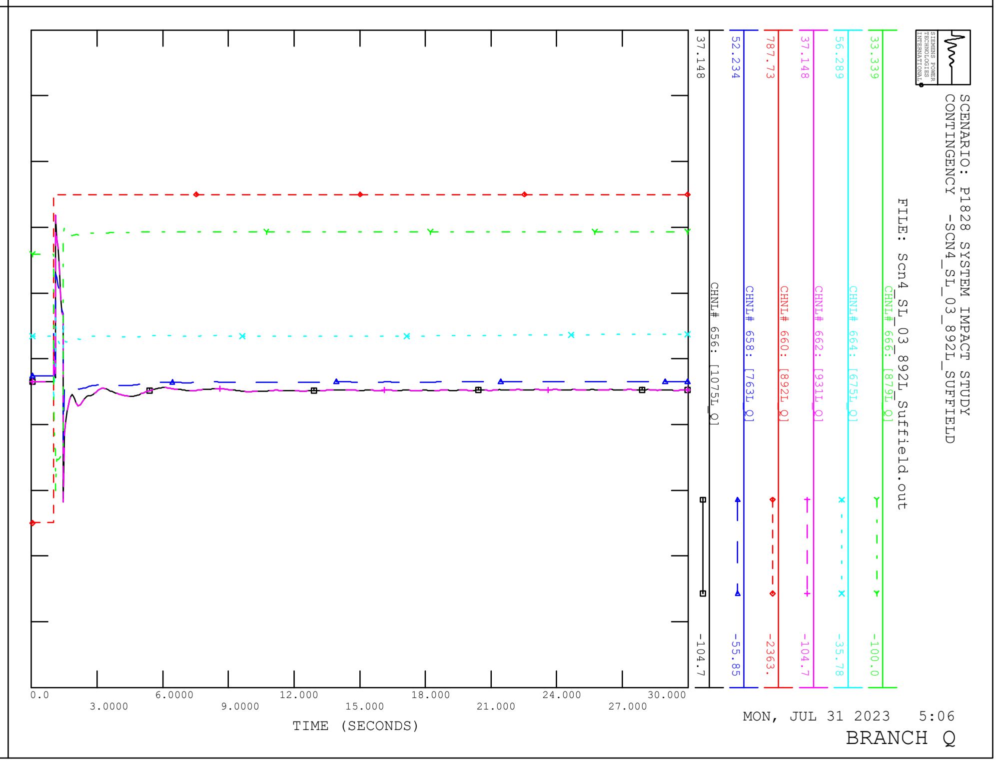
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CHNL# 660: [892L_Q] 787.73 -2363.
CHNL# 662: [931L_Q] 37.148 -104.7
CHNL# 664: [675L_Q] 56.289 -35.78
CHNL# 666: [879L_Q] 33.339 -100.0
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MON, JUL 31 2023 5:06
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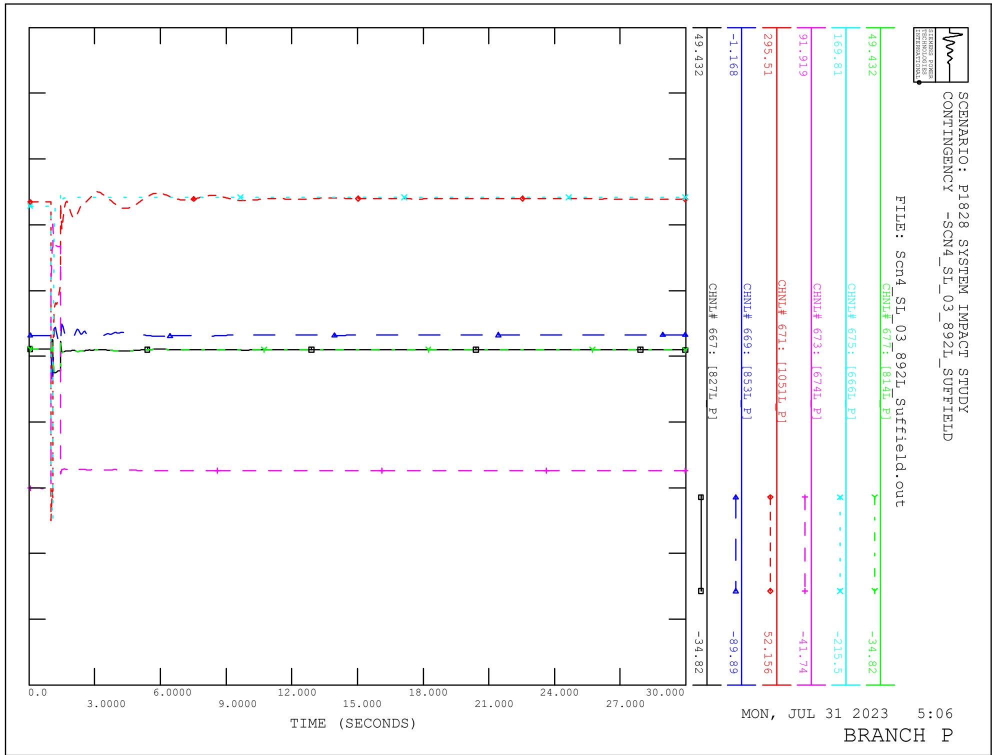

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CHNL# 671: [1051L_P] 295.51 52.156
CHNL# 673: [674L_P] 91.919 -41.74
CHNL# 675: [666L_P] 169.81 -215.5
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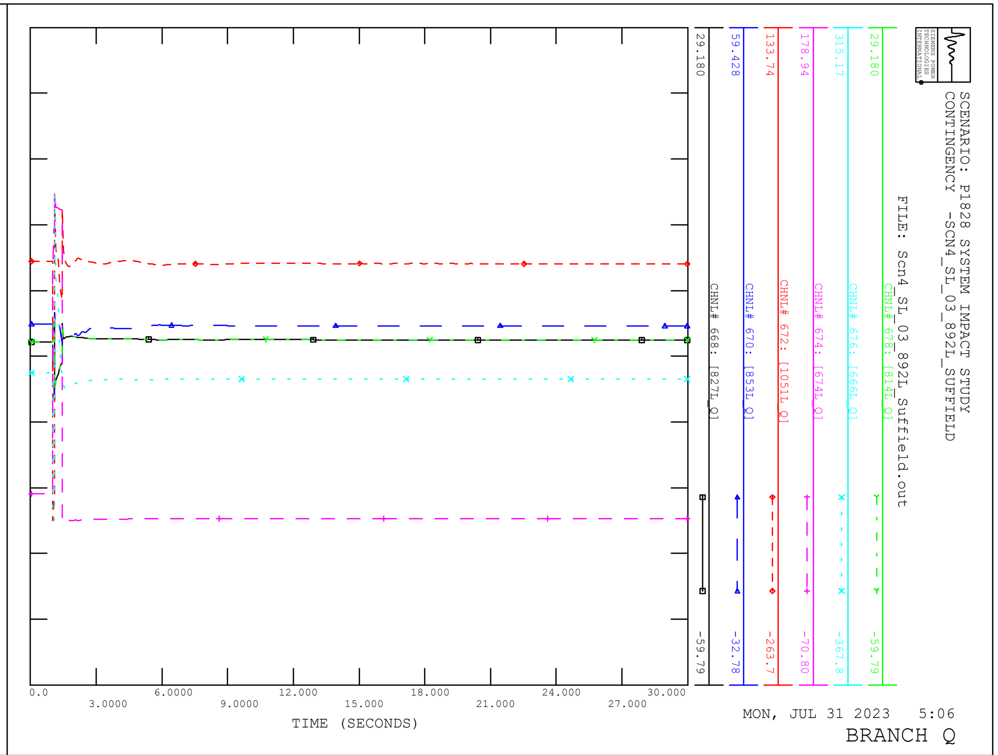
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 674: [674L_Q] 178.94 -70.80
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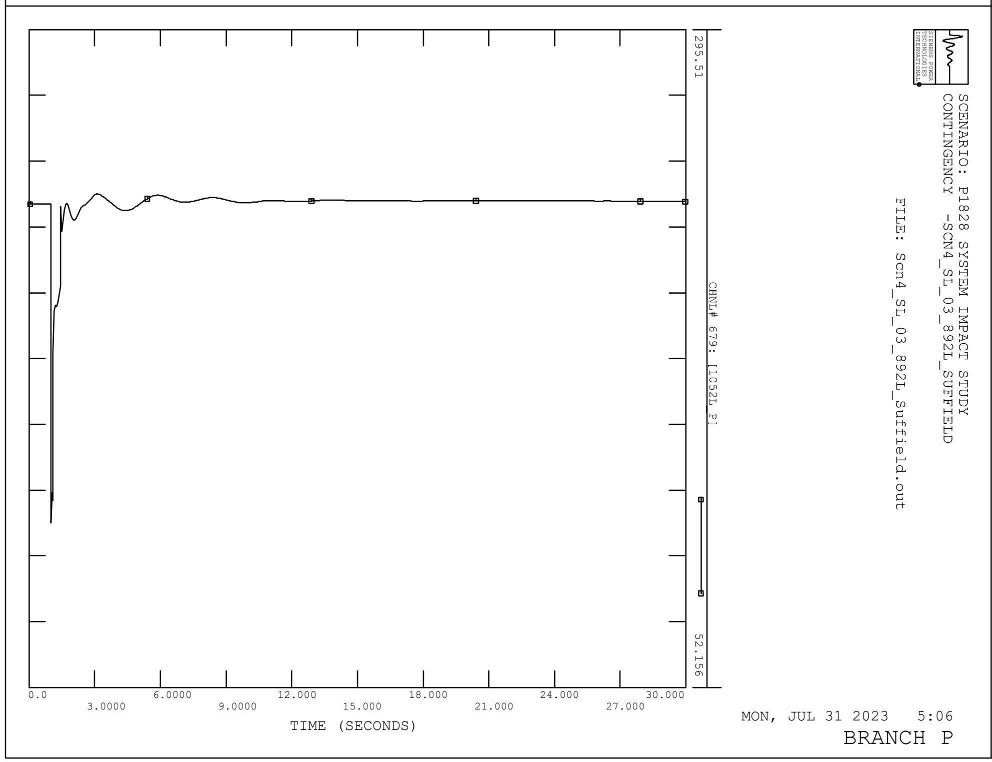
MON, JUL 31 2023 5:06
BRANCH Q



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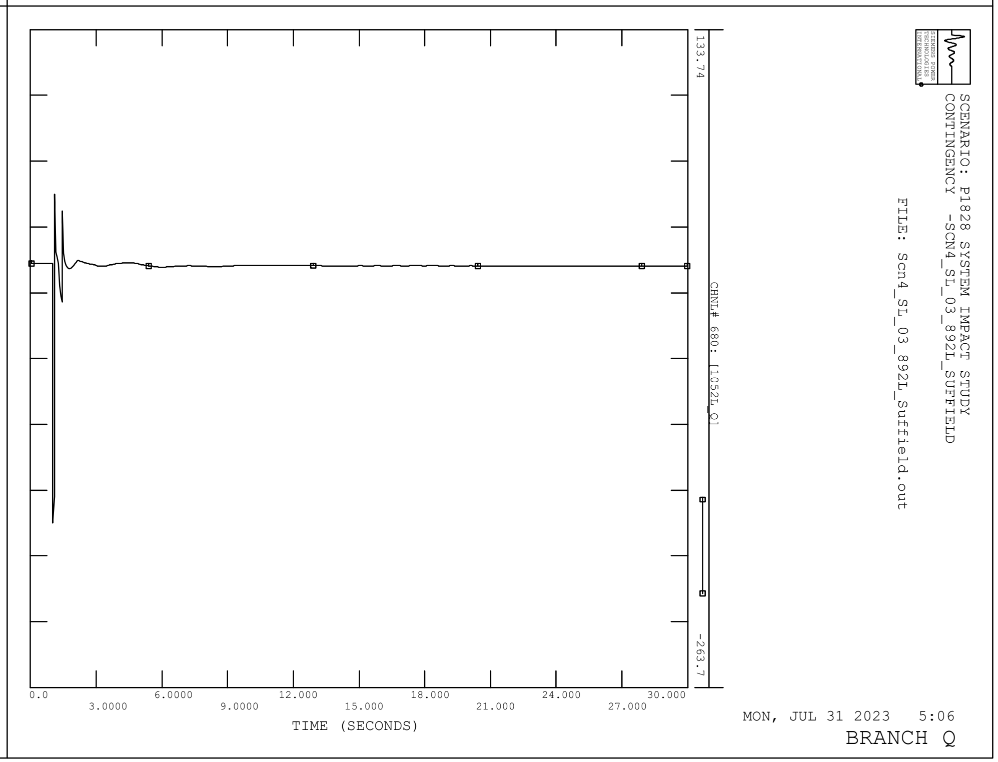

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TIME (SECONDS)
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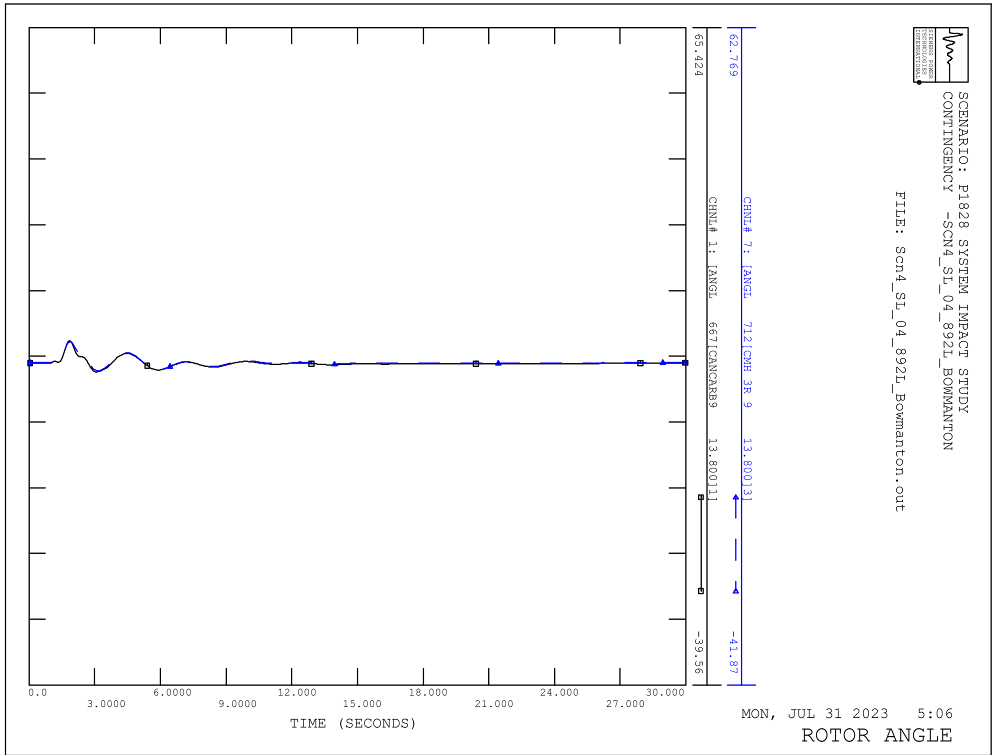
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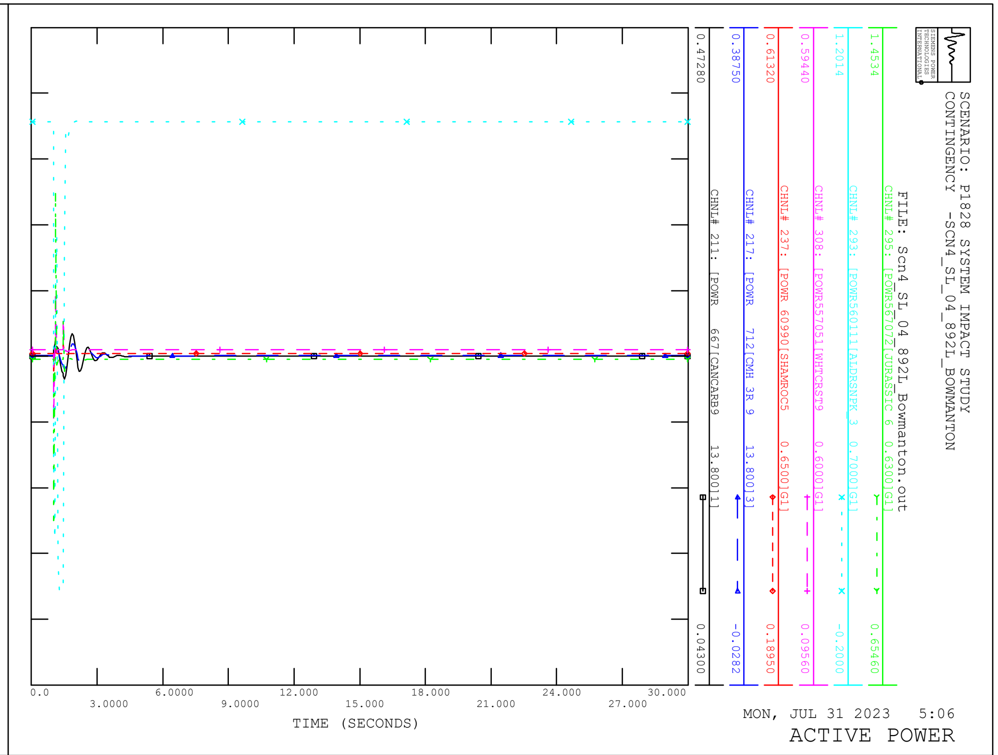
MON, JUL 31 2023 5:06
ROTOR ANGLE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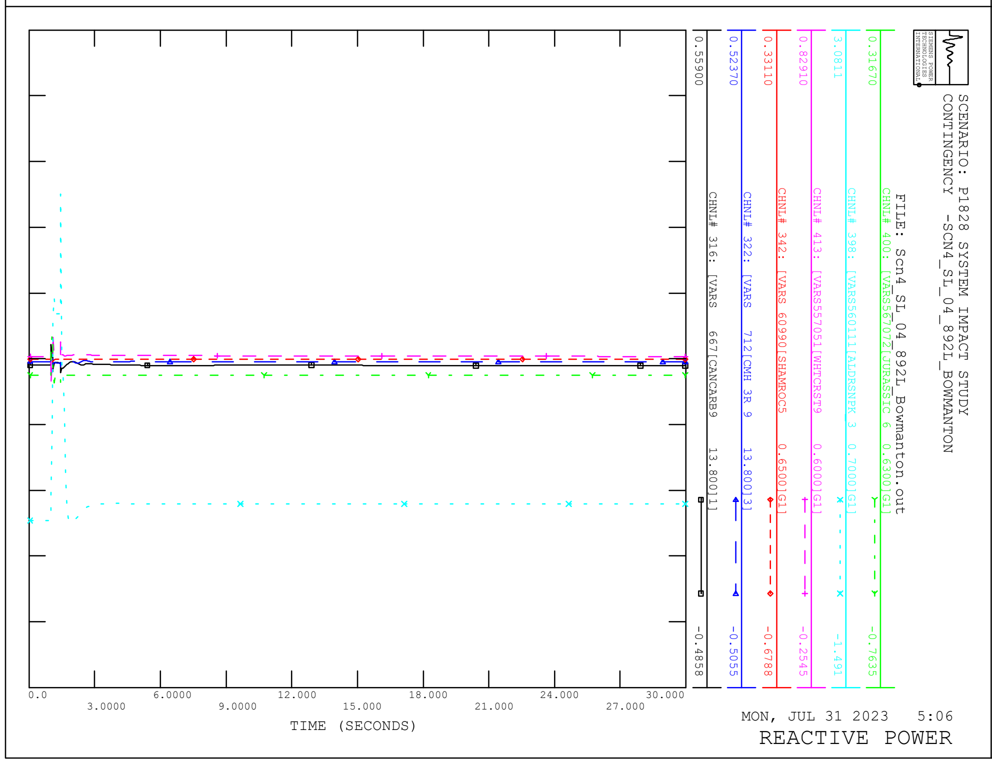
MON, JUL 31 2023 5:06
ACTIVE POWER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0.82910 CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] -0.2545
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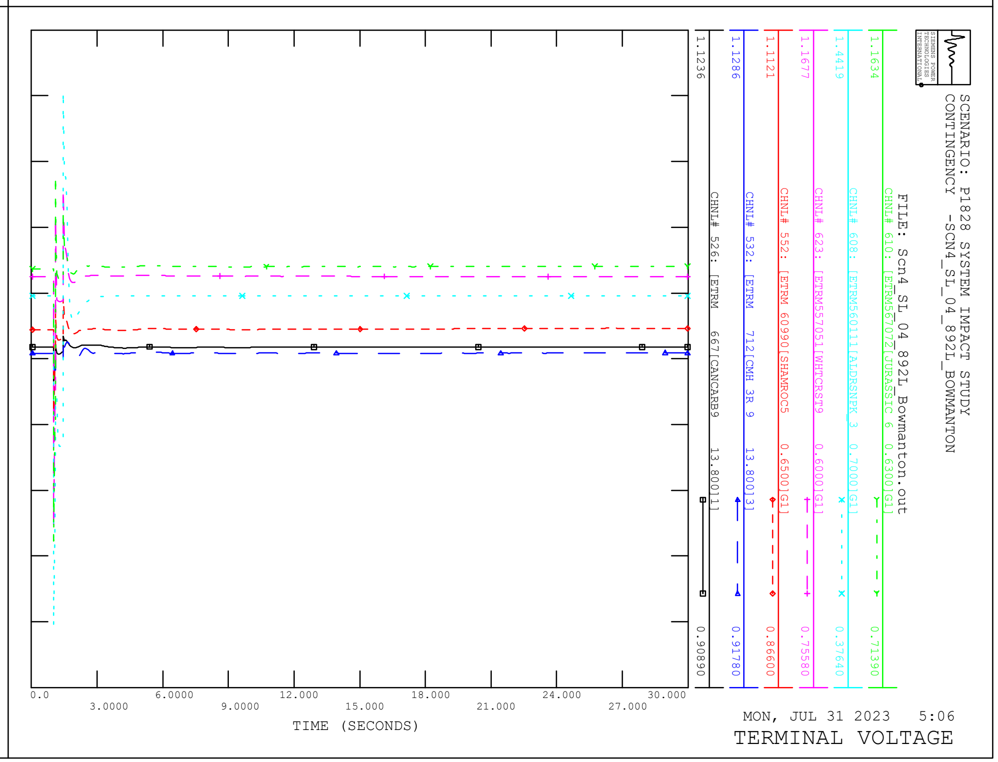
MON, JUL 31 2023 5:06
REACTIVE POWER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1.4419 CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1] 0.37640
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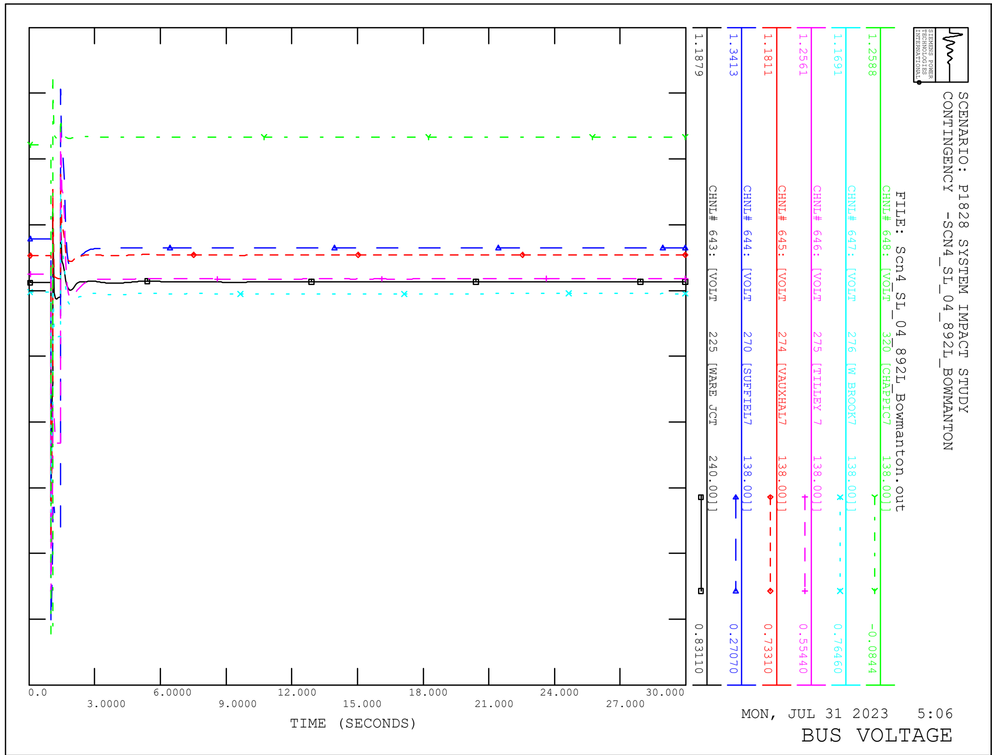
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3413 0.27070
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1811 0.73310
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2561 0.55440
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1691 0.76460
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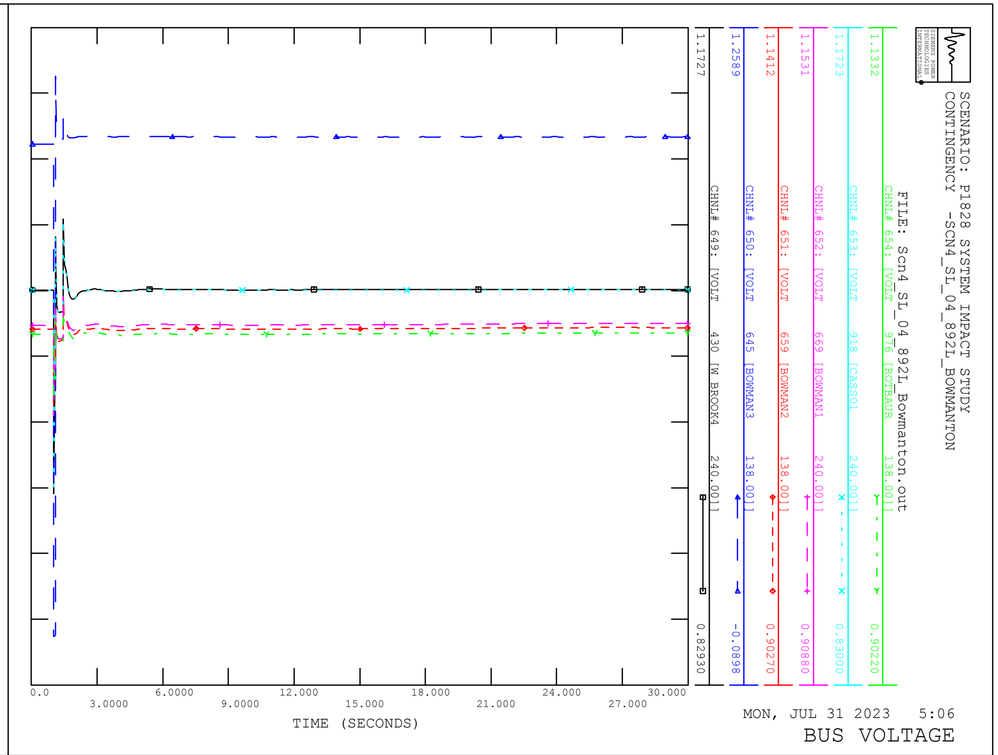
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1412 0.90270
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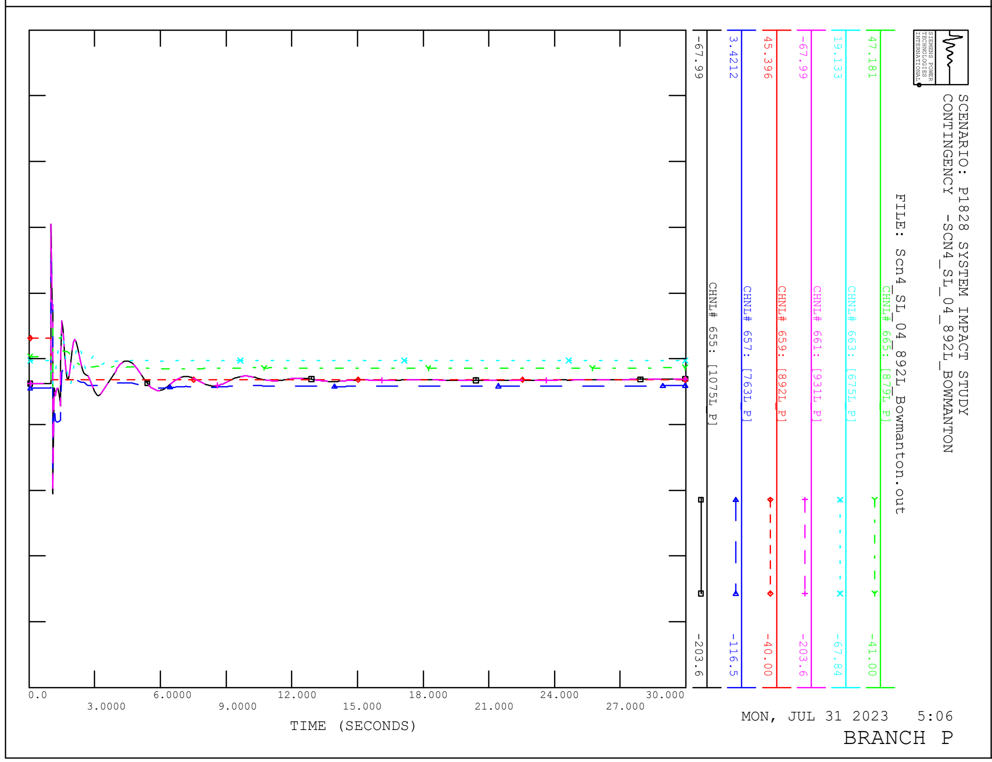
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 659: [892L P] 45.396 -40.00
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CHNL# 663: [675L P] 19.133 -67.84
CHNL# 665: [679L P] 47.181 -41.00
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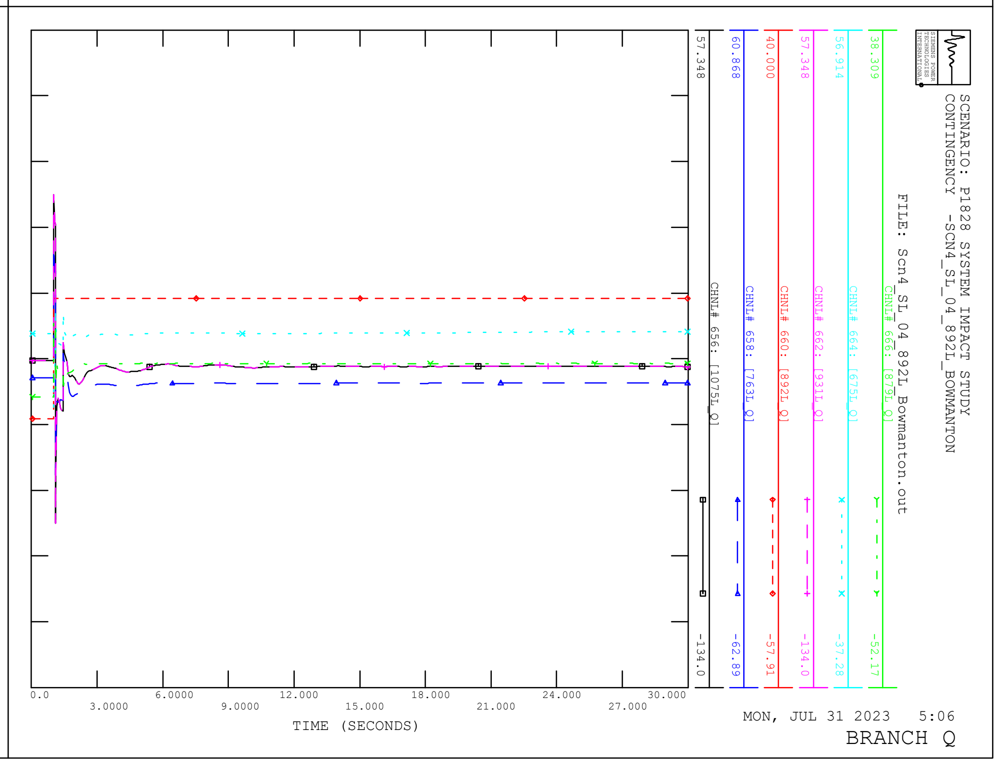
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 662: [931L Q] 57.348 -134.0
CHNL# 664: [675L Q] 56.914 -37.28
CHNL# 666: [679L Q] 38.309 -52.17
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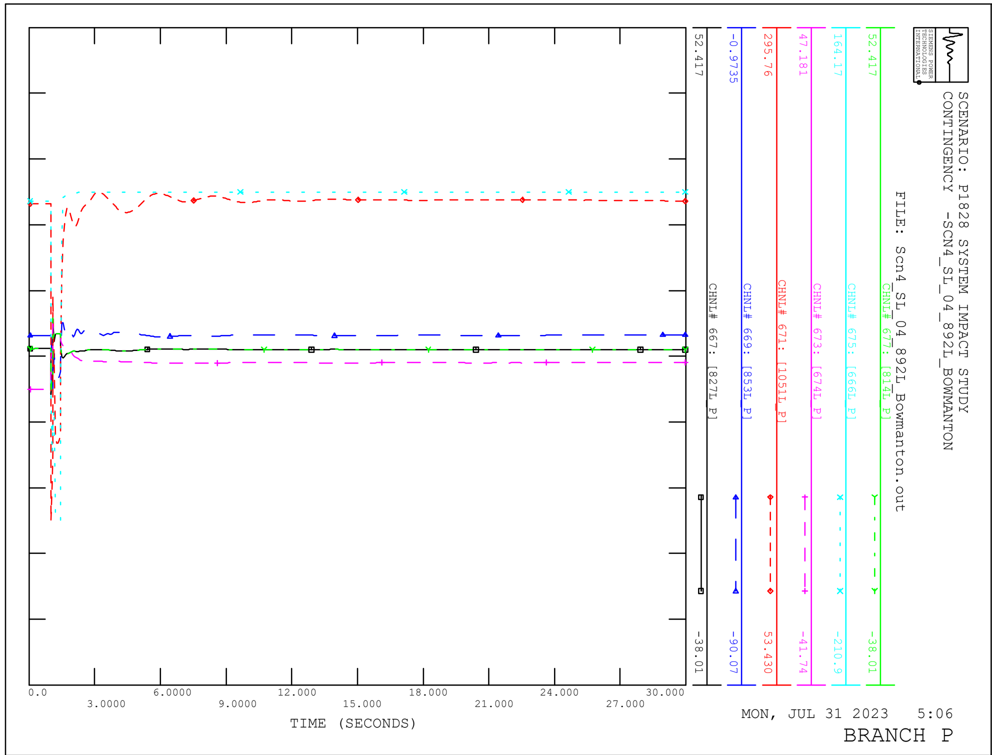
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P] -0.9735 -90.07
CHNL# 671: [1051L_P] 295.76 53.430
CHNL# 673: [674L_P] 47.181 -41.74
CHNL# 675: [666L_P] 164.17 -210.9
CHNL# 677: [819L_P] 52.417 -38.01
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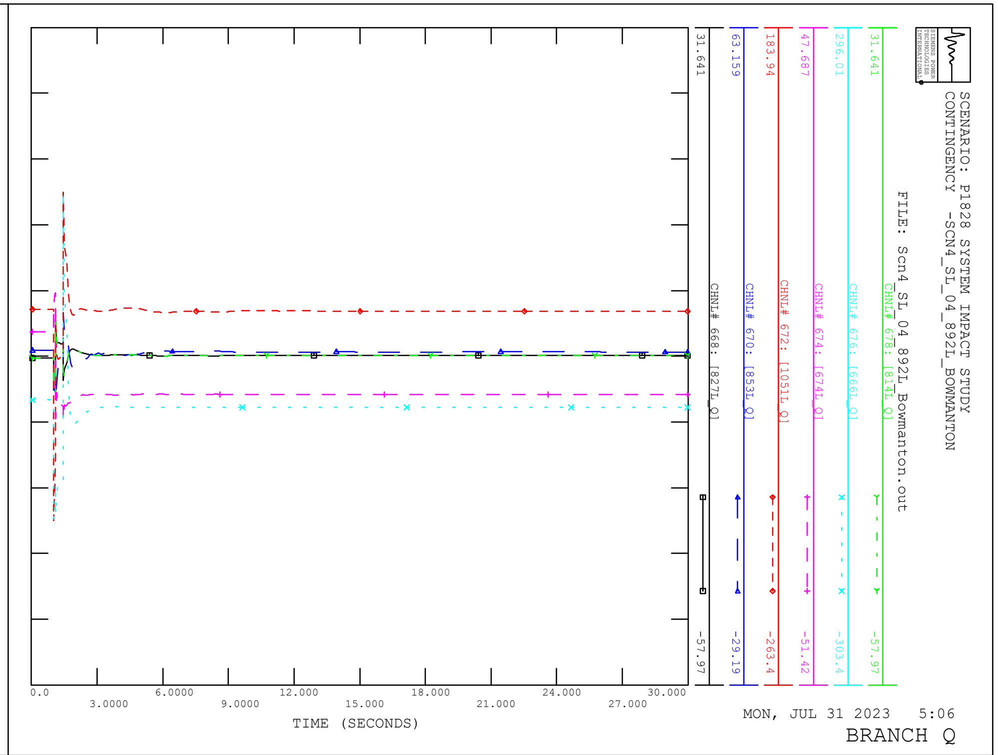
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 63.159 -29.19
CHNL# 672: [1051L_Q] 183.94 -263.4
CHNL# 674: [674L_Q] 47.687 -51.42
CHNL# 676: [666L_Q] 296.01 -303.4
CHNL# 678: [819L_Q] 31.641 -57.97
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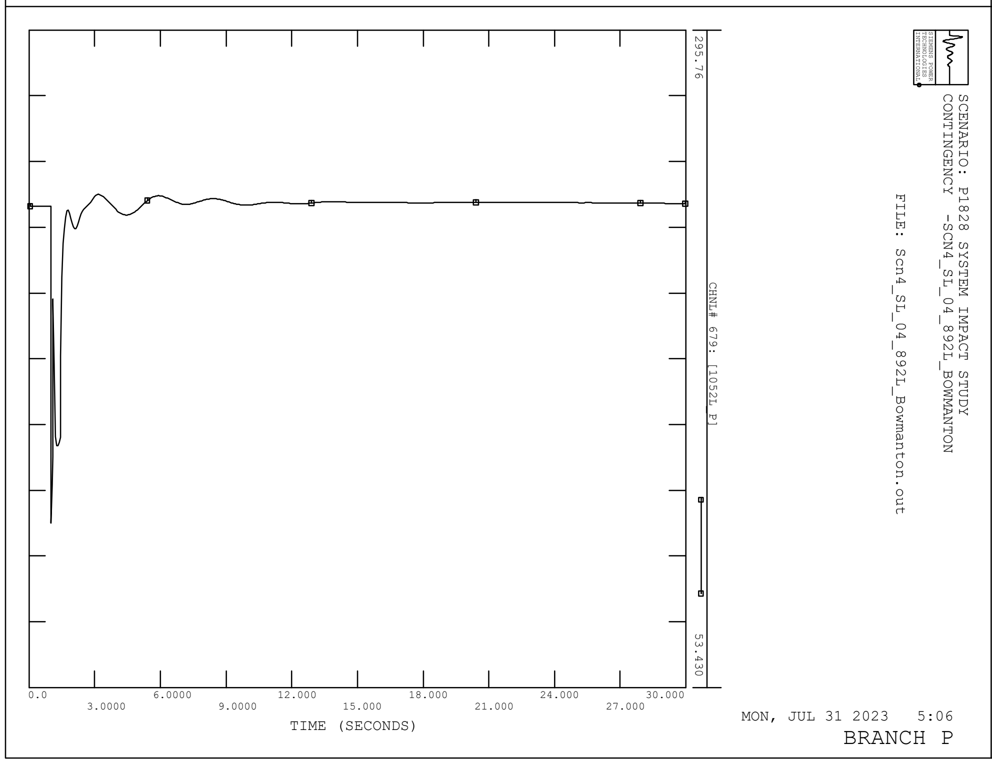
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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TIME (SECONDS)
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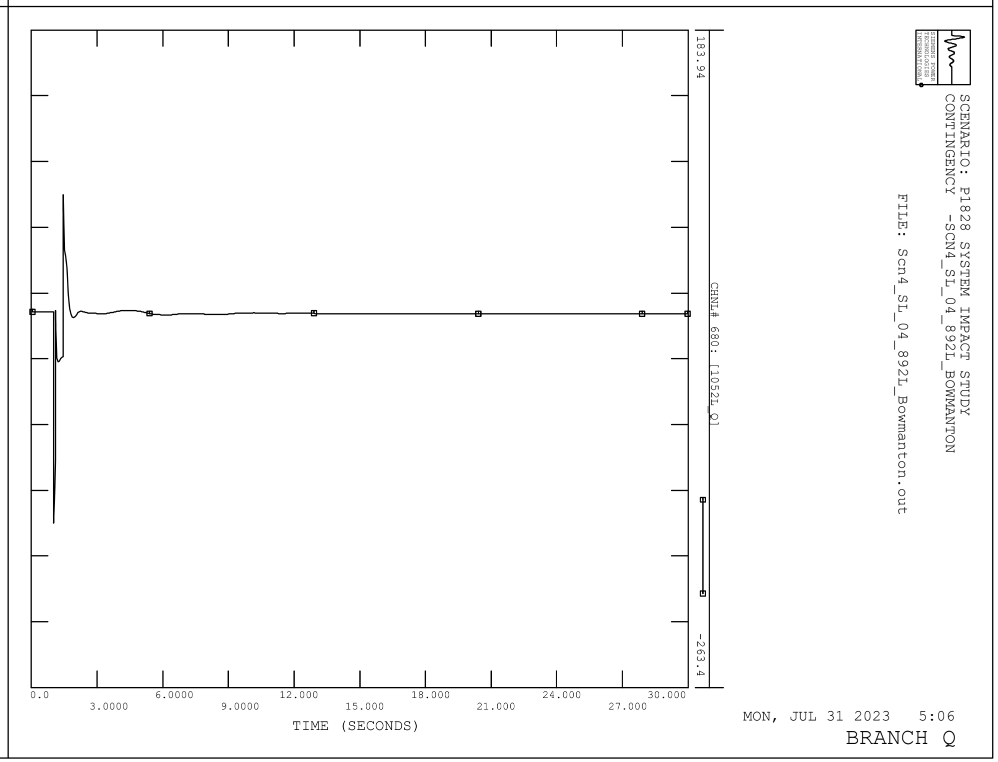
BRANCH P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TIME (SECONDS)
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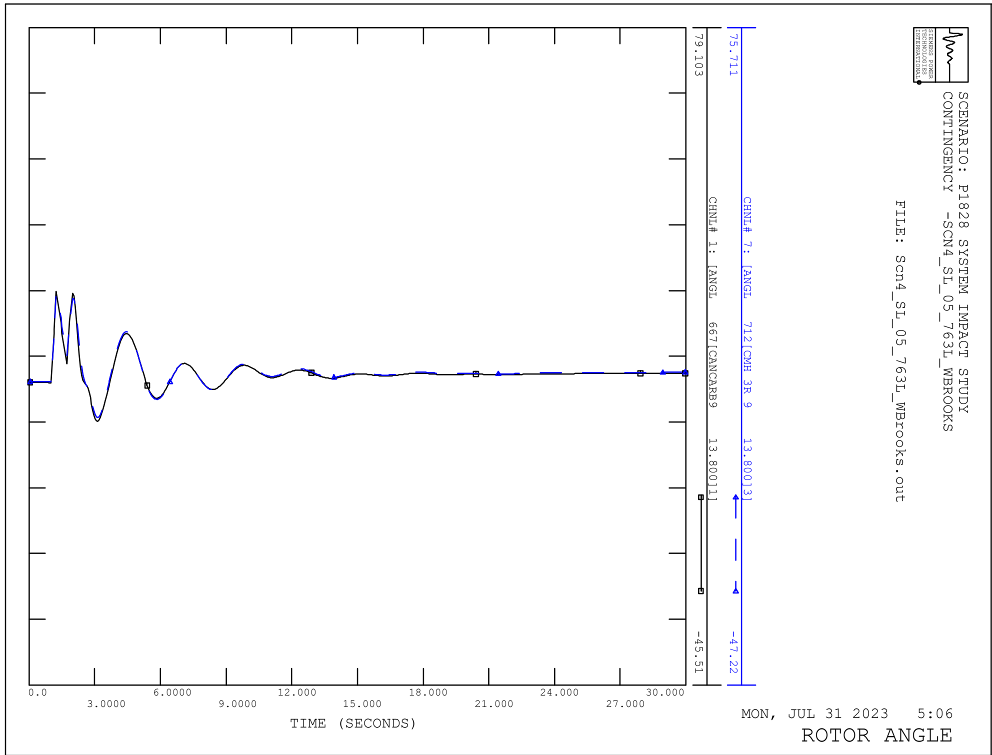
BRANCH Q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-45.51
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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-47.22
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6.0000
9.0000
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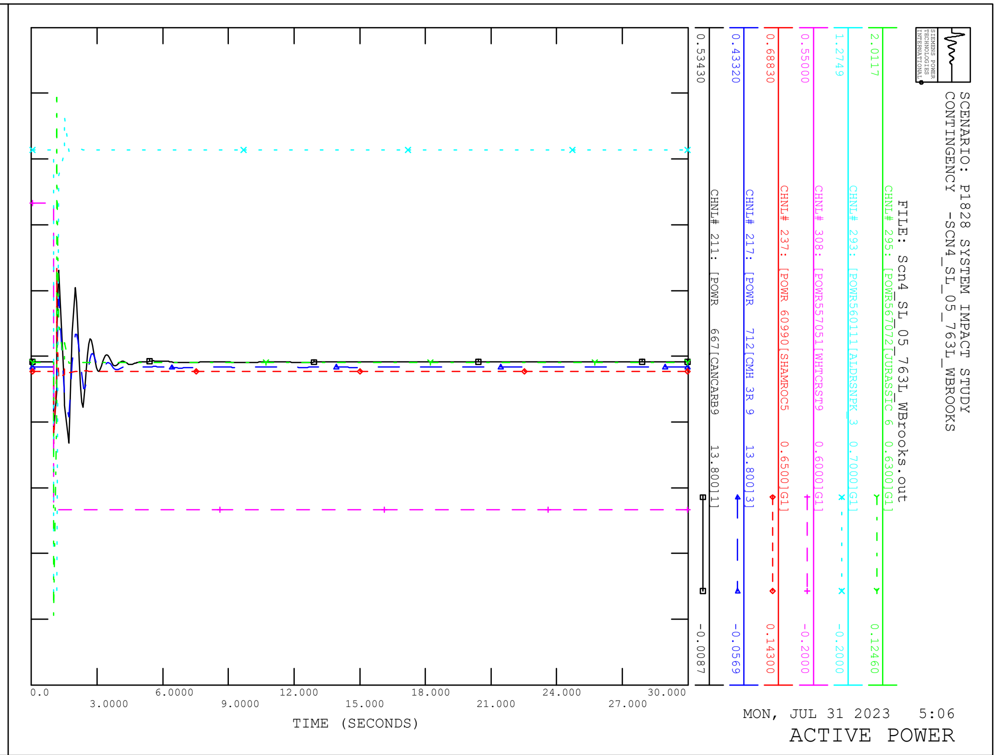
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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FILE: Scn4_SL_05_763L_WBrooks.out
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-0.0087
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.4320
-0.0569
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.6883
0.1430
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
0.5500
-0.2000
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
1.2749
-0.2000
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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0.1246
0.0
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6.0000
9.0000
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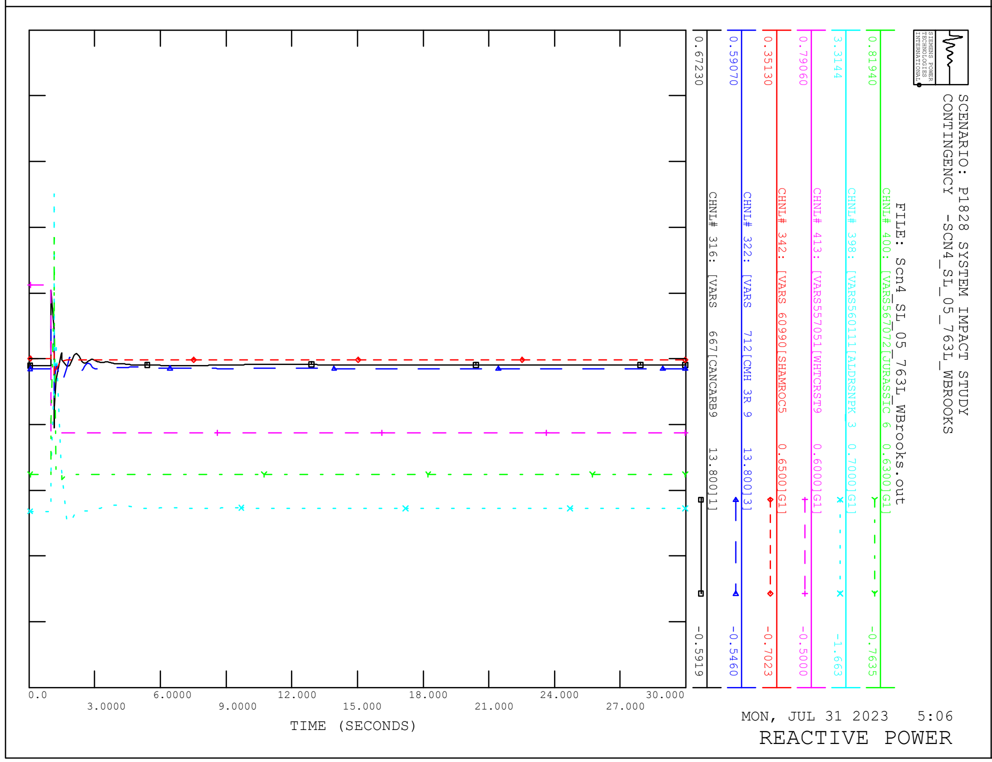
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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FILE: Scn4_SL_05_763L_WBrooks.out
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
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-0.5460
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.3513
-0.7023
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.7906
-0.5000
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
3.3144
-1.663
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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6.0000
9.0000
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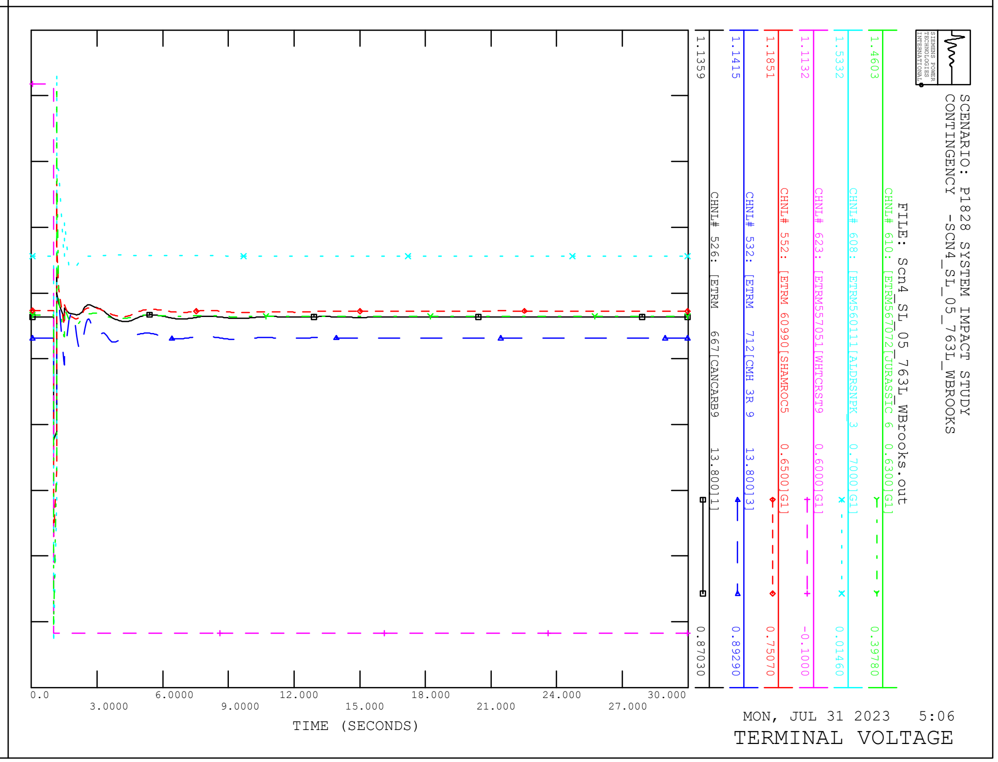
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1415
0.8929
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.1851
0.7507
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
1.1132
-0.1000
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
1.5332
0.0146
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
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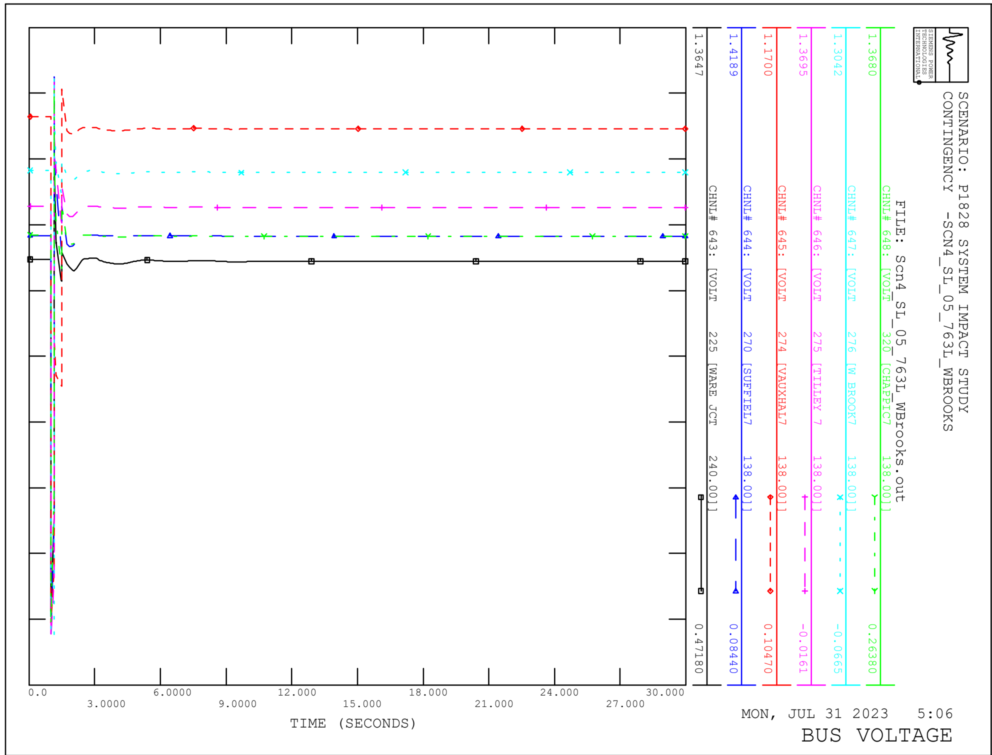
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CHNL# 644: [VOLT 270 [SUFFIE7 138.00]] 1.4189 0.08440
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1700 0.10470
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3695 -0.0161
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3042 -0.0665
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]] 1.3680 0.26380
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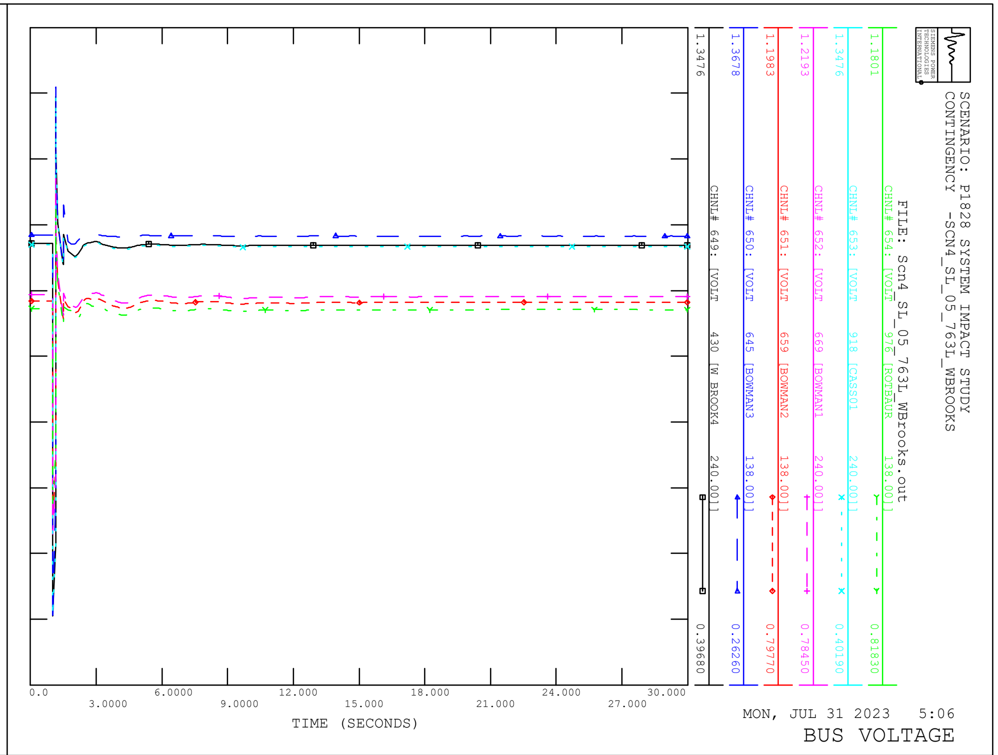
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3678 0.26260
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1983 0.79770
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2193 0.78450
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.3476 0.40190
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1801 0.81830
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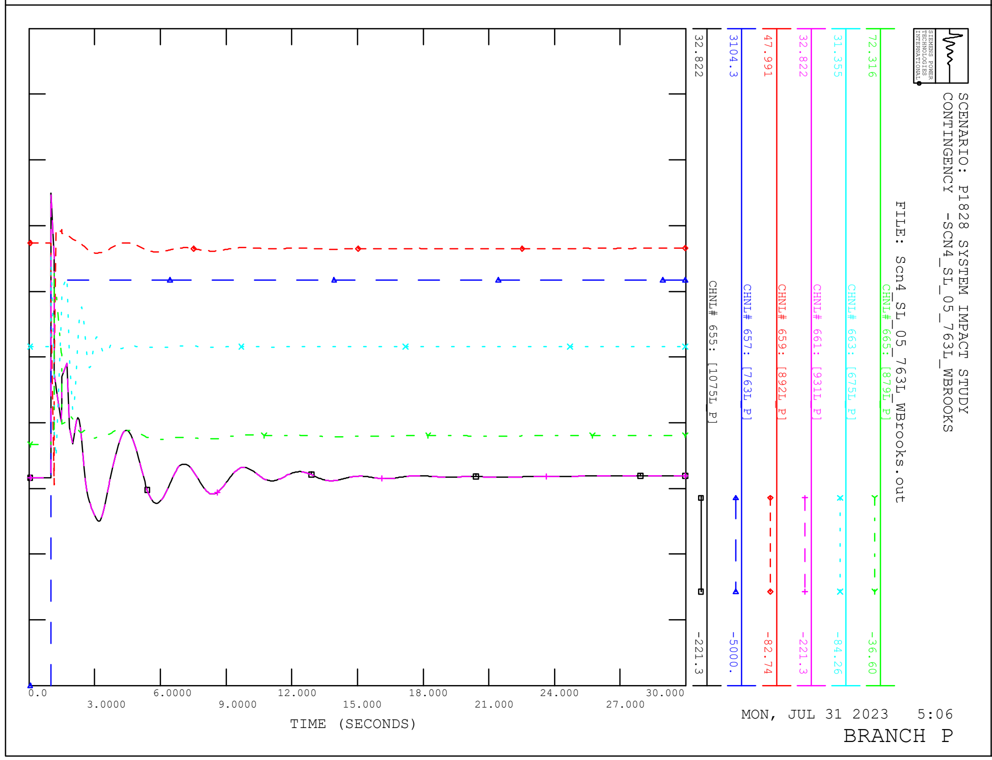
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 657: [763L_P] 3104.3 -5000.
CHNL# 659: [892L_P] 47.991 -82.74
CHNL# 661: [931L_P] 32.822 -221.3
CHNL# 663: [1675L_P] 31.355 -84.26
CHNL# 665: [879L_P] 72.316 -36.60
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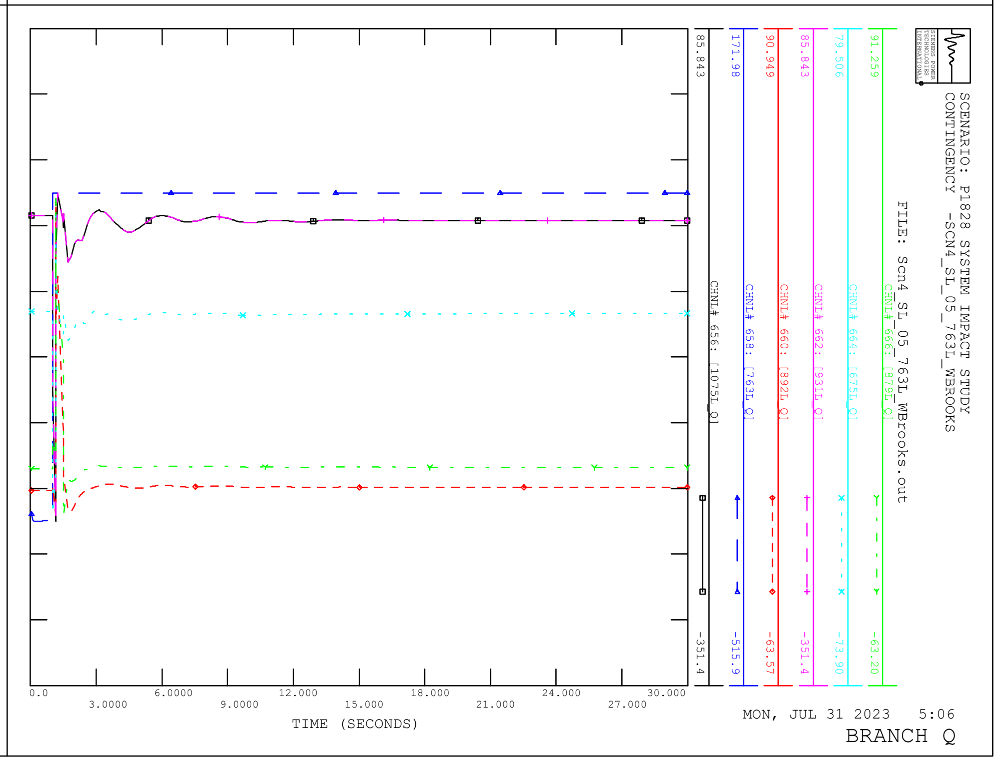
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 658: [763L_Q] 171.98 -515.9
CHNL# 660: [892L_Q] 90.949 -63.57
CHNL# 662: [931L_Q] 85.843 -351.4
CHNL# 664: [1675L_Q] 79.506 -72.90
CHNL# 666: [879L_Q] 91.259 -63.20
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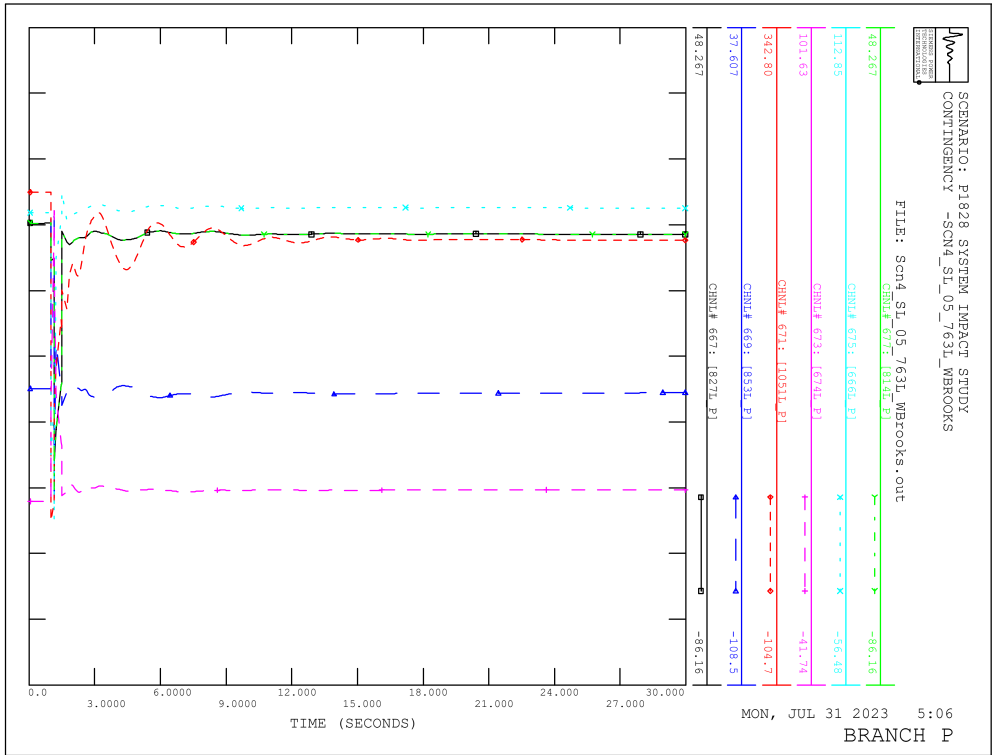
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_05_763L_WBROOKS
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CHNL# 669: [853L_P] 37.607 -108.5
CHNL# 671: [1051L_P] 342.80 -104.7
CHNL# 673: [674L_P] 101.63 -41.74
CHNL# 675: [666L_P] 112.85 -56.48
CHNL# 677: [814L_P] 48.267 -86.16
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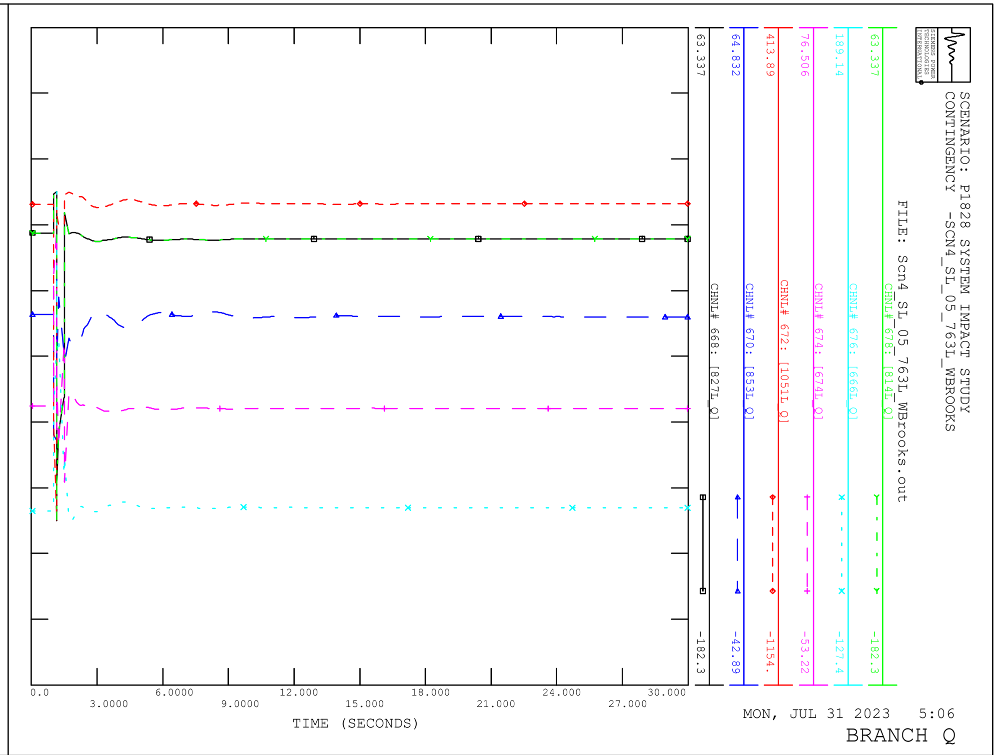
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 64.832 -42.89
CHNL# 672: [1051L_Q] 413.89 -1154.
CHNL# 674: [674L_Q] 76.506 -53.22
CHNL# 676: [666L_Q] 189.14 -127.4
CHNL# 678: [814L_Q] 63.337 -182.3
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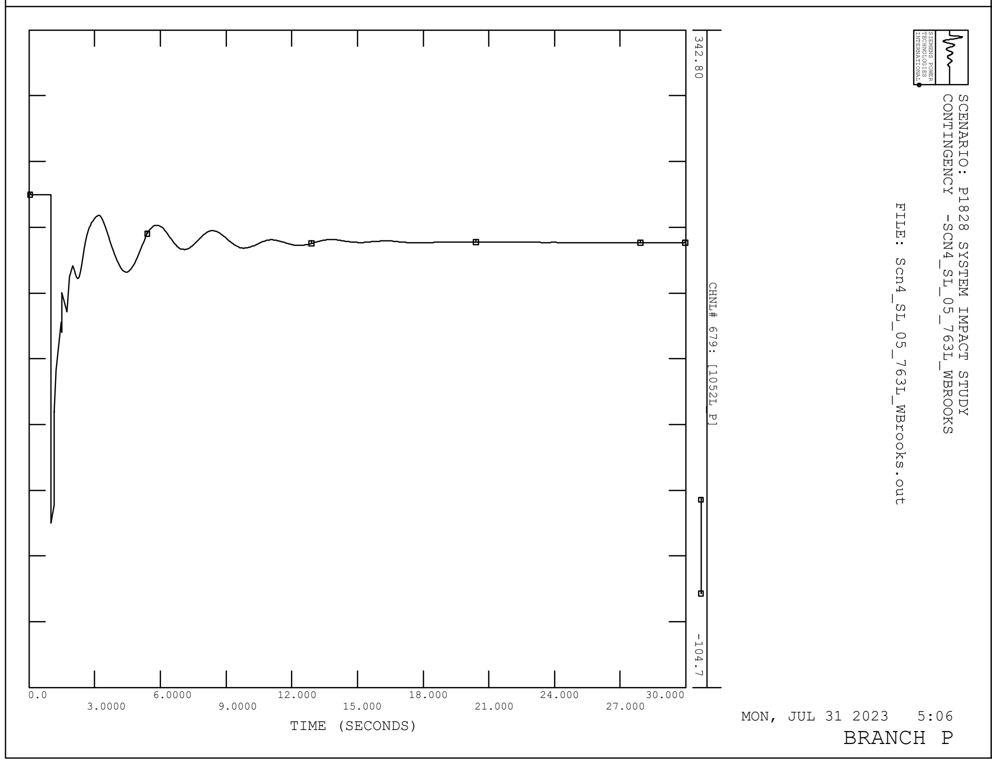
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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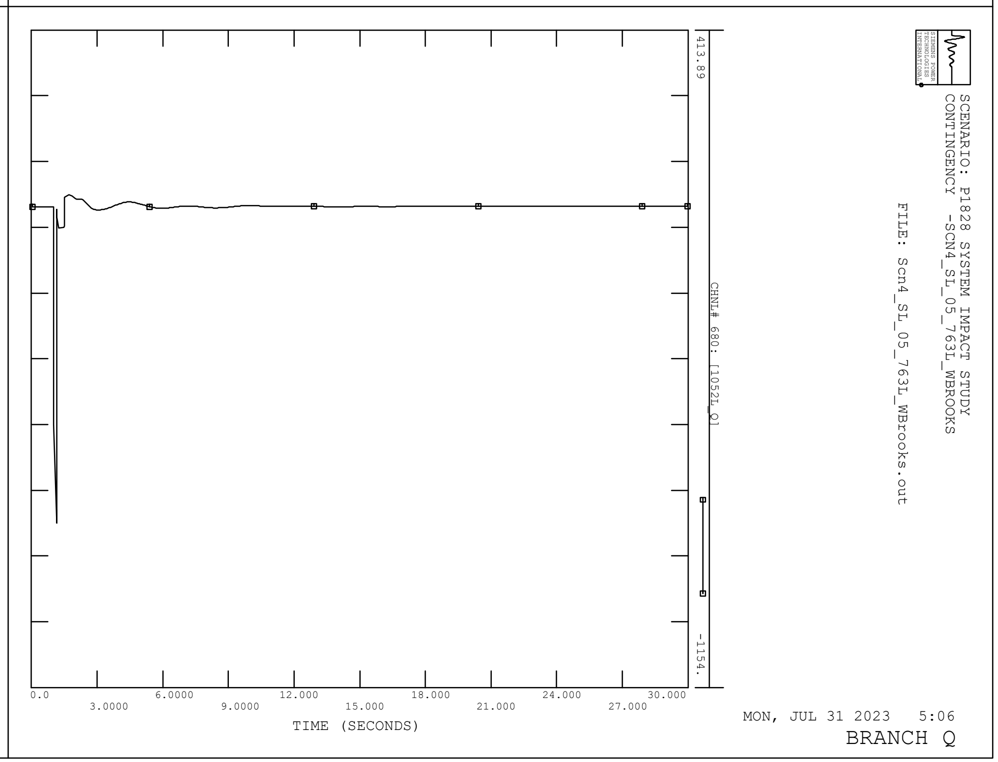
MON, JUL 31 2023 5:06
BRANCH P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TIME (SECONDS)
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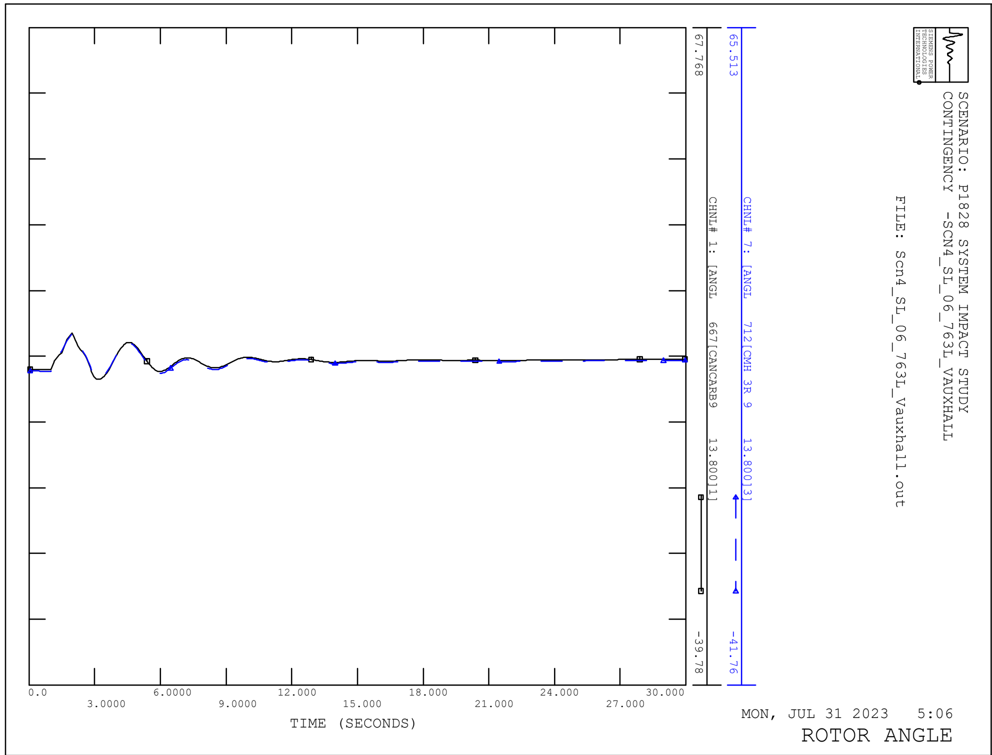
BRANCH Q


ROTOR ANGLE
MON, JUL 31 2023 5:06
TIME (SECONDS)
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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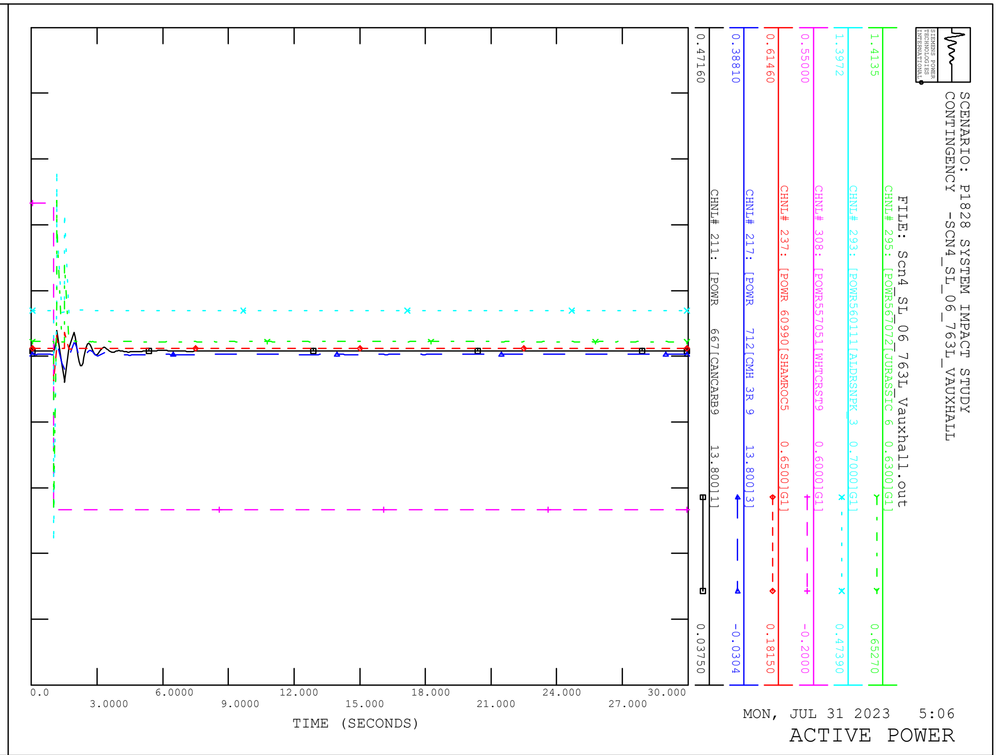
-41.76


ACTIVE POWER
MON, JUL 31 2023 5:06
TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
FILE: Scn4_SL_06_763L_Vauxhall.out
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.38810
-0.0304
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.61460
0.18150
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
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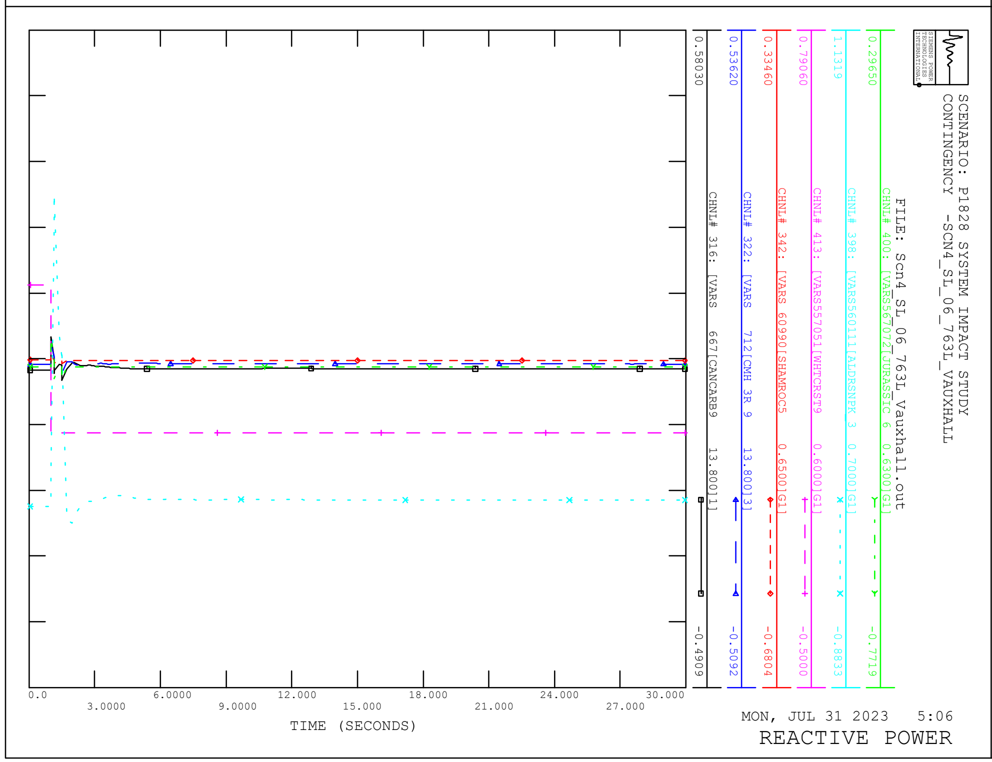
REACTIVE POWER
MON, JUL 31 2023 5:06
TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
FILE: Scn4_SL_06_763L_Vauxhall.out
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
0.53620
-0.5092
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.33460
-0.6804
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.79060
-0.5000
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
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CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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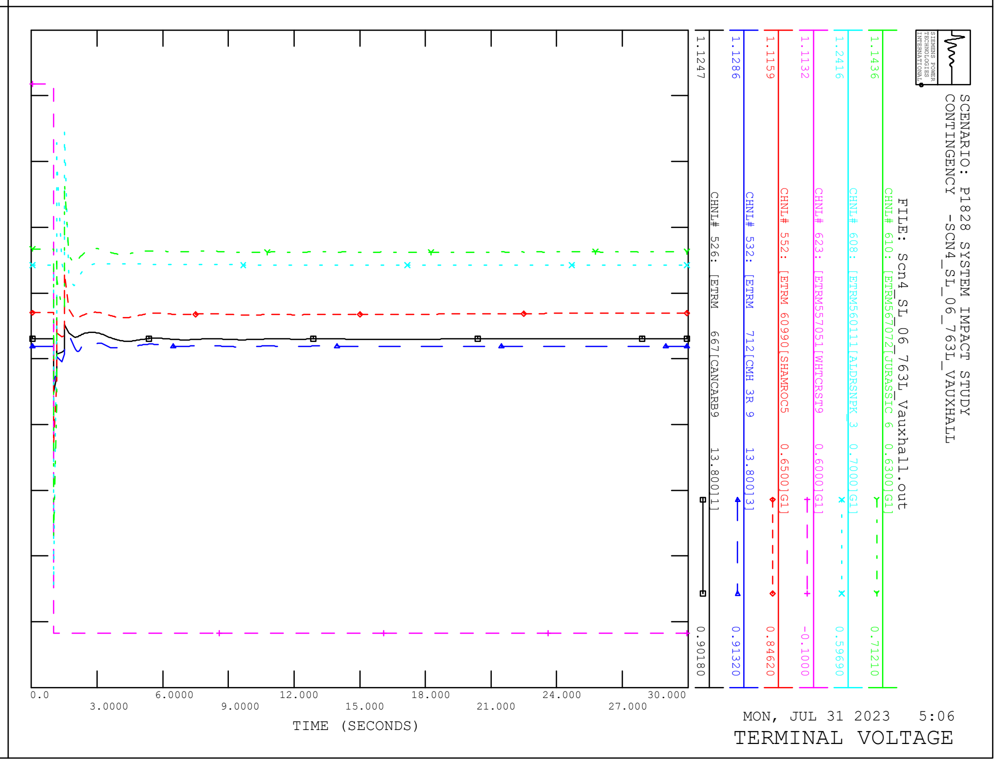
TERMINAL VOLTAGE
MON, JUL 31 2023 5:06
TIME (SECONDS)
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
FILE: Scn4_SL_06_763L_Vauxhall.out
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1286
0.91320
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.1159
0.84620
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
1.1132
-0.1000
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
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CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
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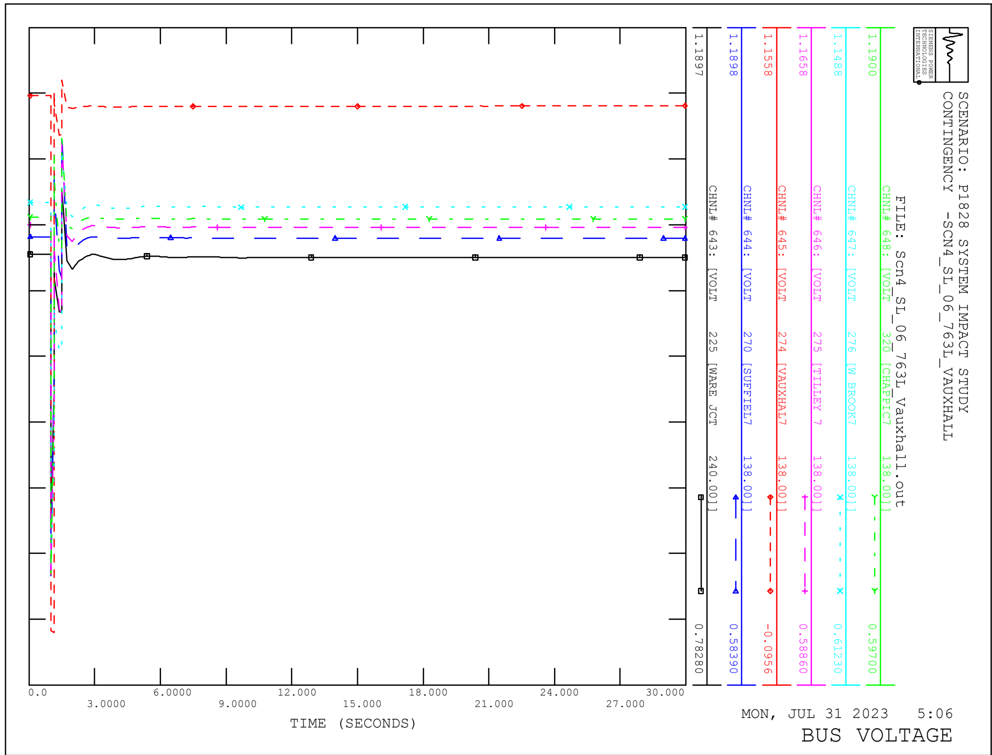
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CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.1898 0.58390
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1558 -0.0956
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.1658 0.58820
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.1488 0.61230
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]] 1.1900 0.59700
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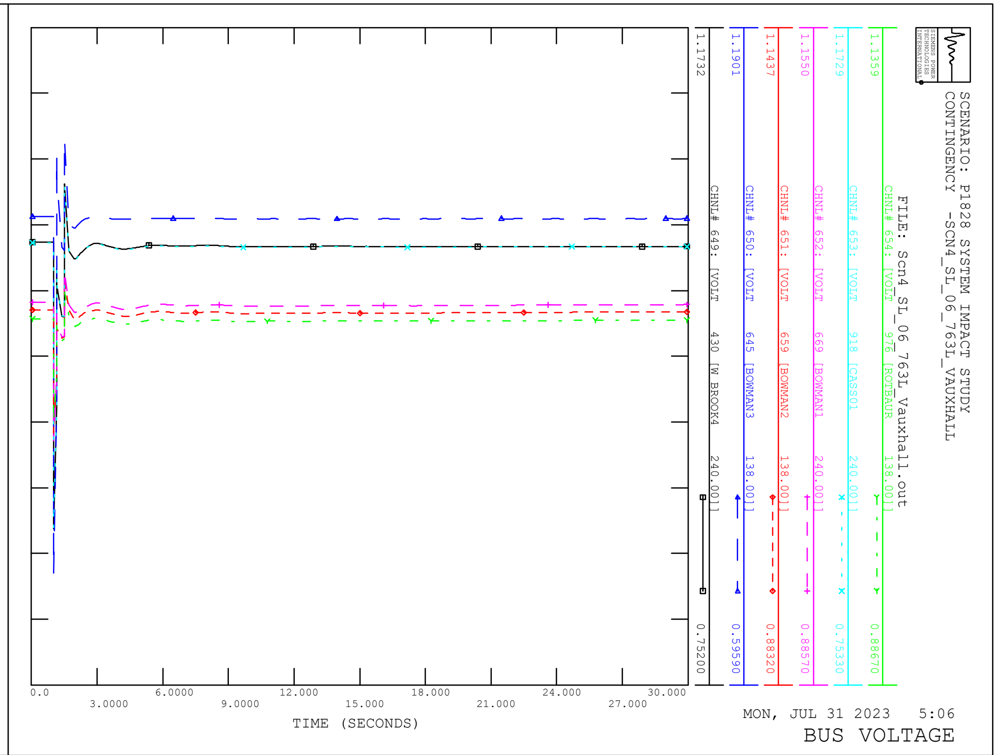
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1901 0.59590
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1437 0.88320
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1550 0.88570
CHNL# 653: [VOLT 918 240.00] 1.1729 0.75330
CHNL# 654: [VOLT 976 138.00] 1.1359 0.88670
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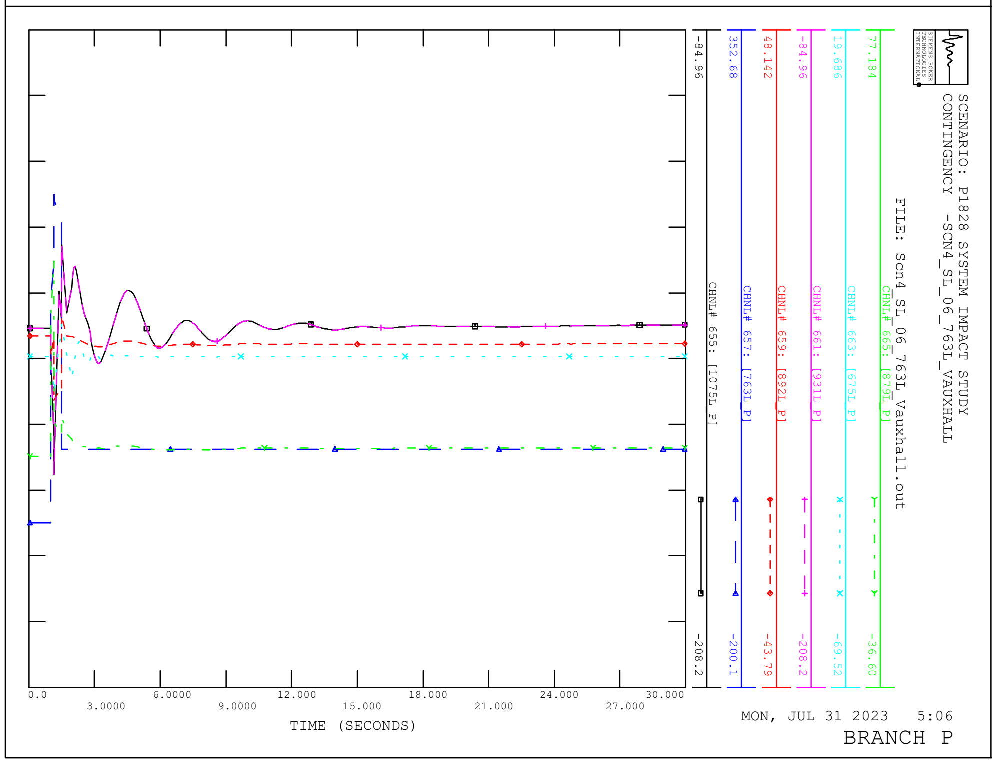
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_06_763L_VAUXHALL
FILE: Scn4_SL_06_763L_Vauxhall.out
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CHNL# 657: [763L P] 352.68 -200.1
CHNL# 659: [892L P] 48.142 -43.79
CHNL# 661: [931L P] -84.96 -208.2
CHNL# 663: [1675L P] 19.686 -69.52
CHNL# 665: [879L P] 77.184 -36.60
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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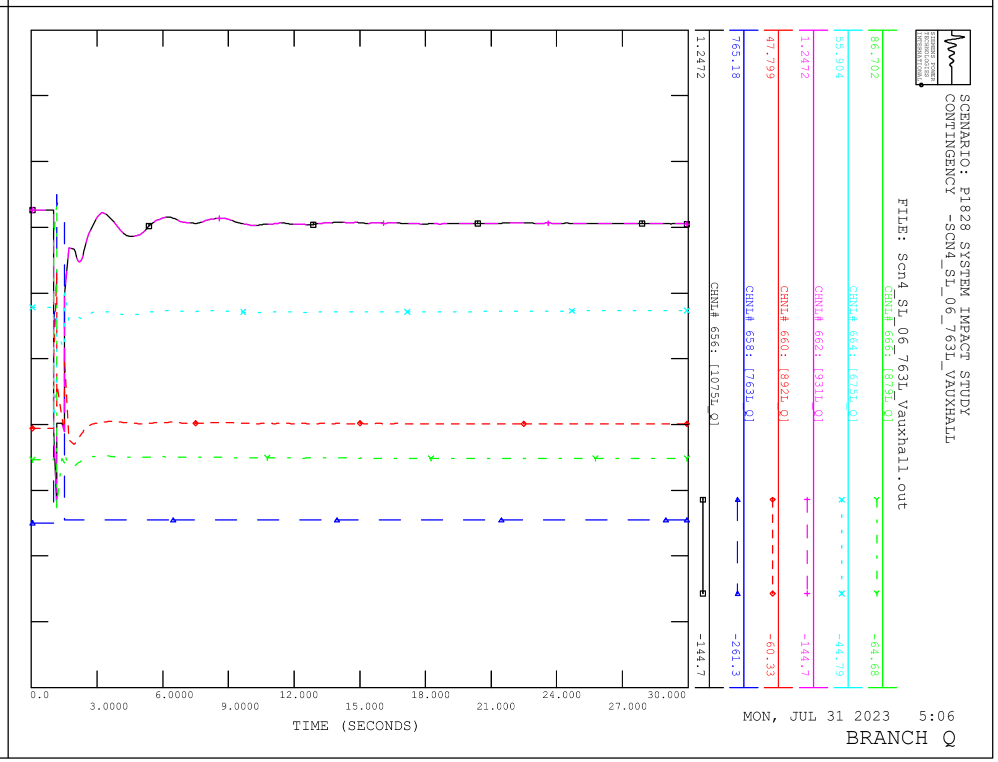
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CHNL# 658: [763L Q] 765.18 -261.3
CHNL# 660: [892L Q] 47.799 -60.33
CHNL# 662: [931L Q] 1.2472 -144.7
CHNL# 664: [1675L Q] 55.904 -44.79
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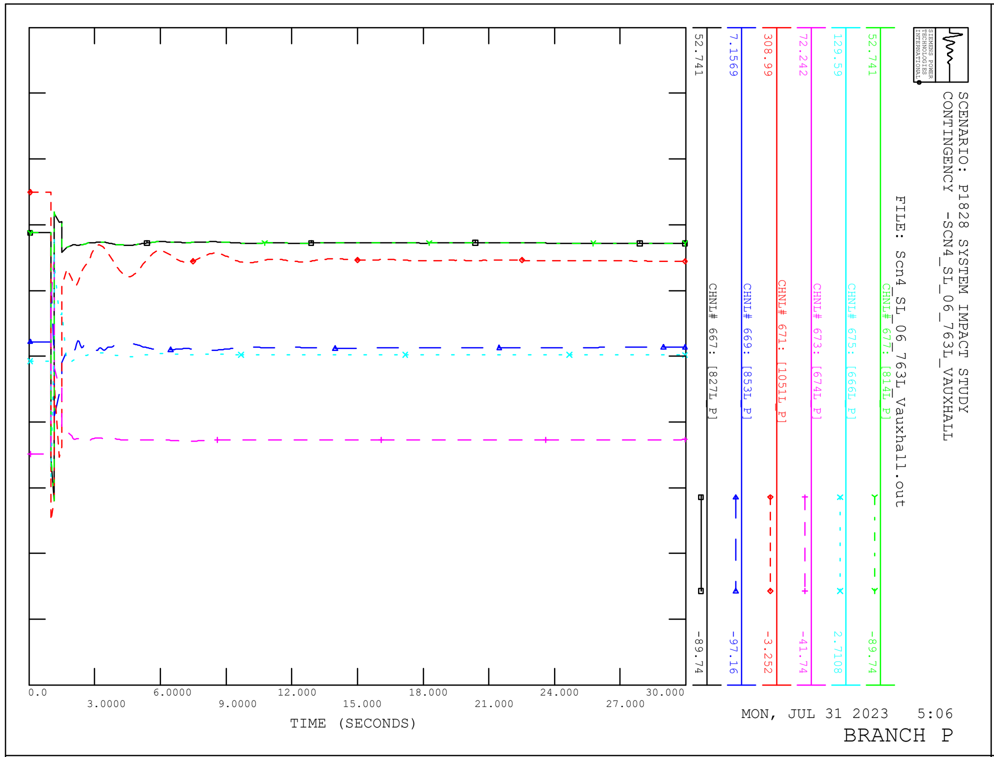
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CHNL# 669: [853L_P] 7.1569 -97.16
CHNL# 671: [1051L_P] 308.99 -3.252
CHNL# 673: [674L_P] 72.242 -41.74
CHNL# 675: [666L_P] 129.59 2.7108
CHNL# 677: [818L_P] 52.741 -89.74
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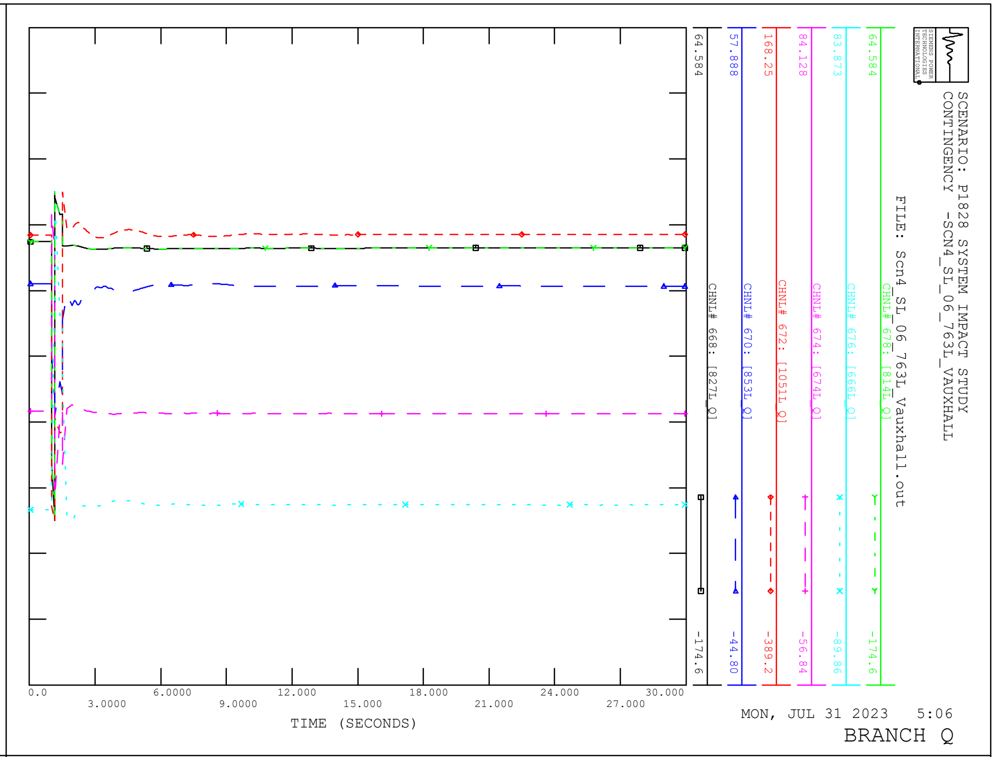
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CHNL# 672: [1051L_Q] 168.25 -389.2
CHNL# 674: [674L_Q] 84.128 -56.84
CHNL# 676: [666L_Q] 83.873 -89.86
CHNL# 678: [818L_Q] 64.584 -174.6
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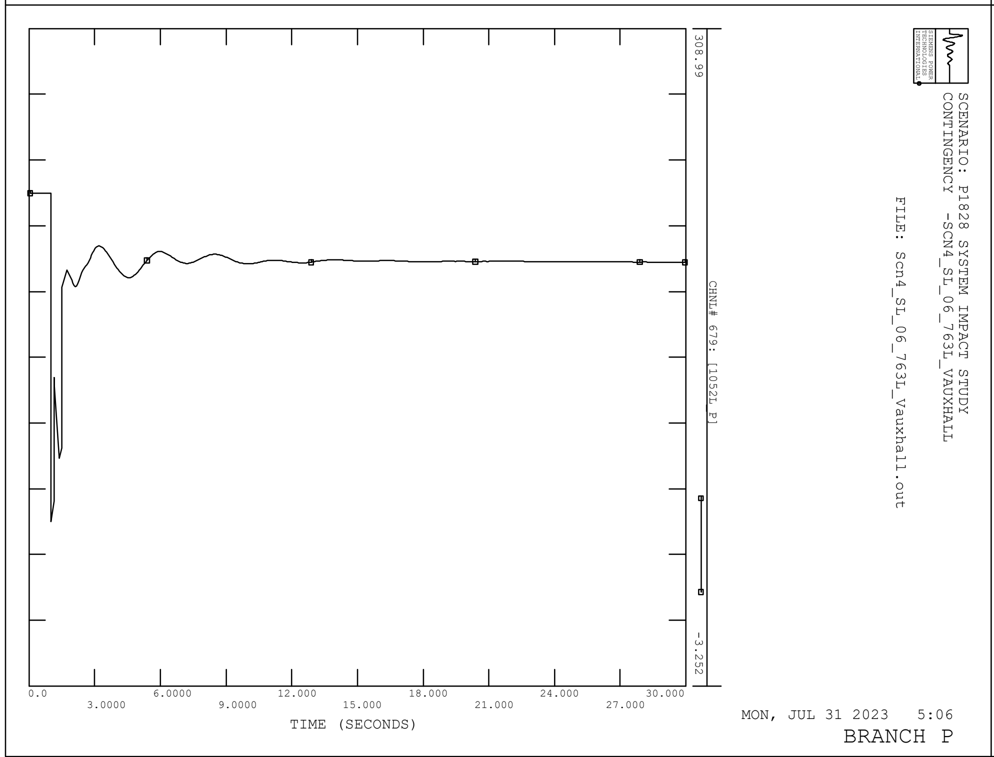
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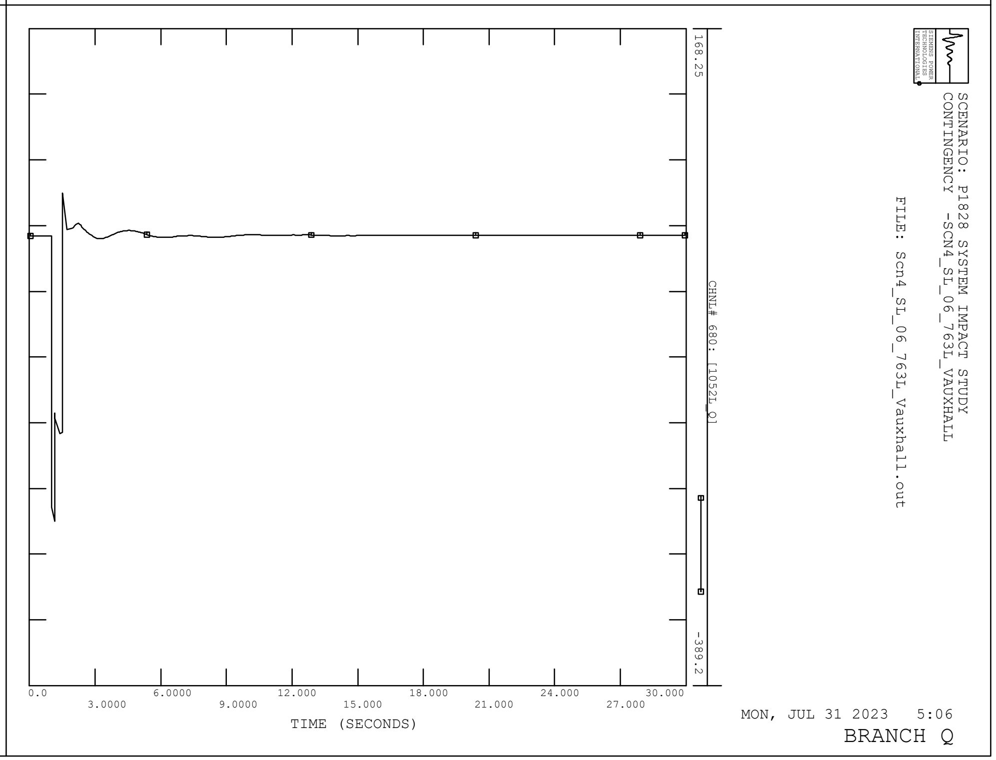
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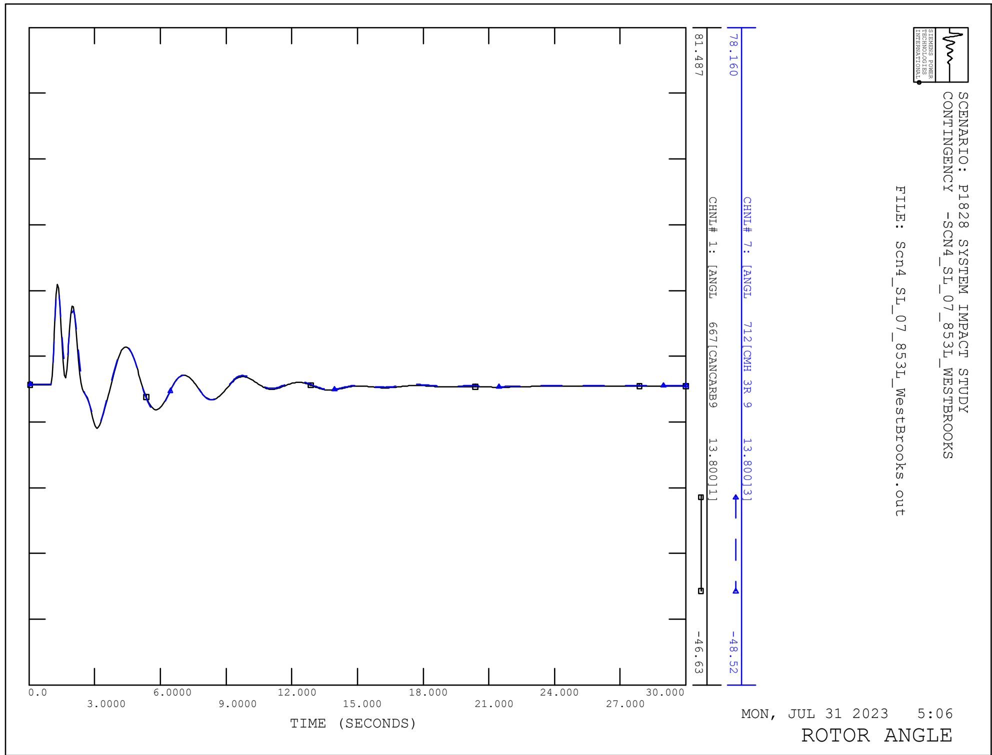
BRANCH Q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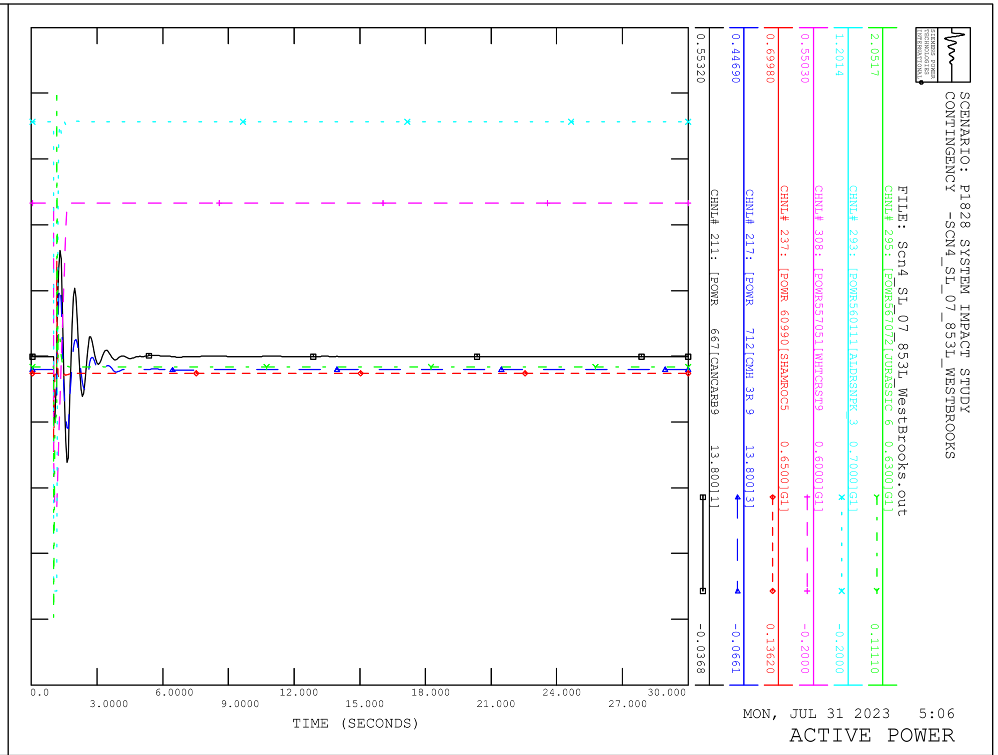
ROTOR ANGLE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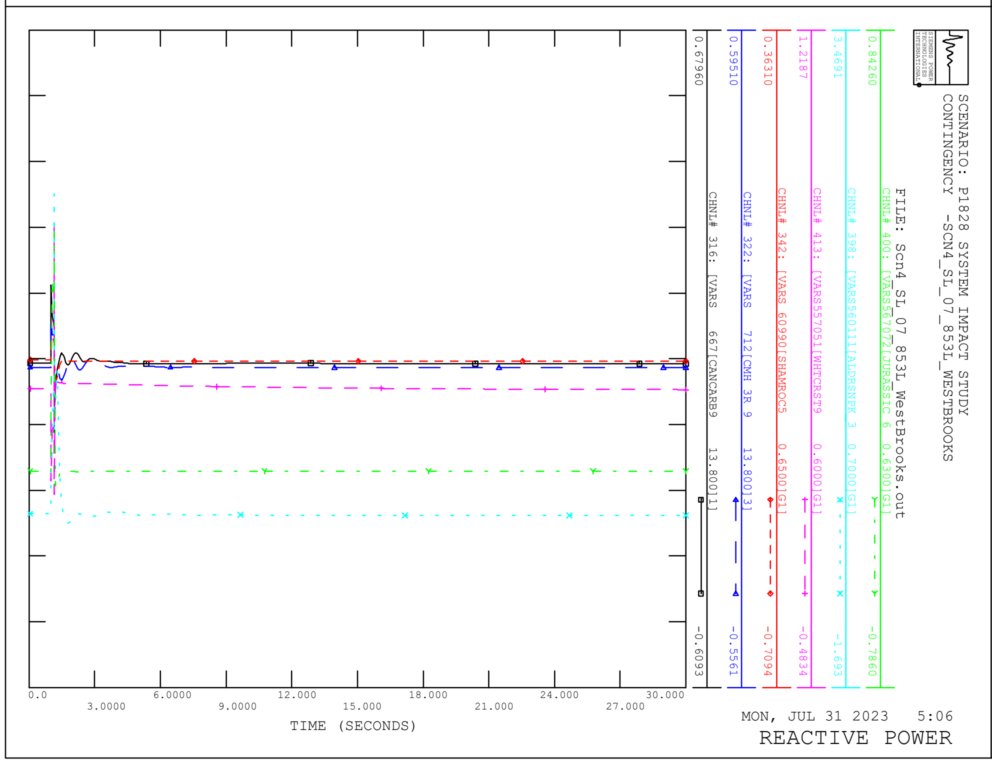
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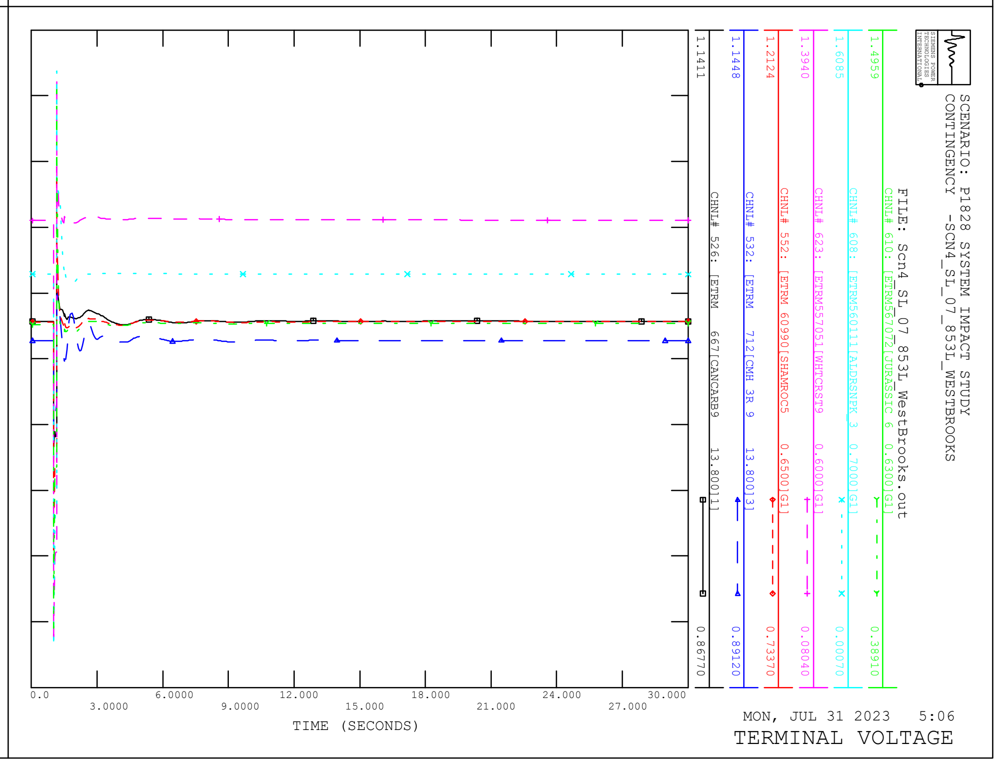
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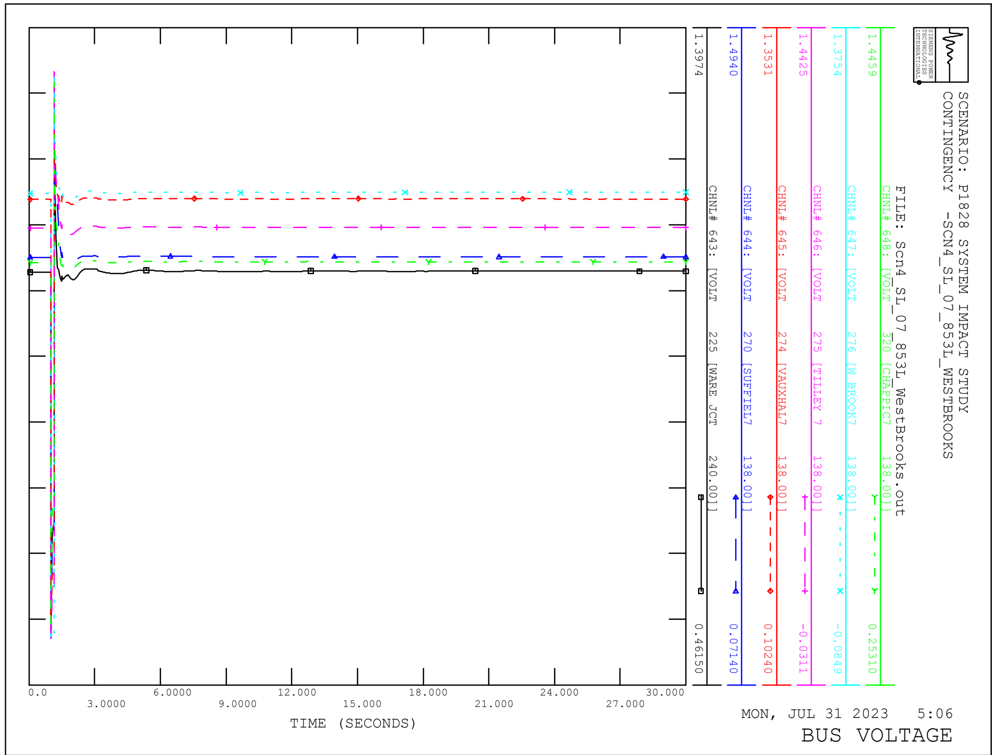
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.4940 0.07140
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.3531 0.10240
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.4425 -0.0311
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3754 -0.0849
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.4459 0.25310
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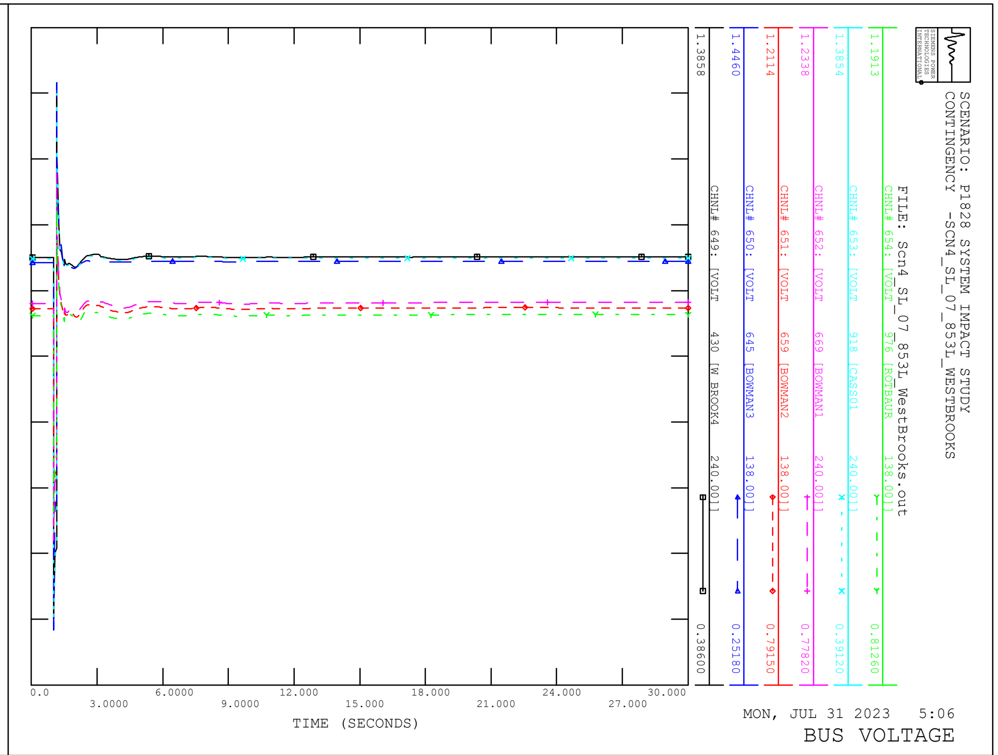
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.4460 0.25180
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.2114 0.79150
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2338 0.77820
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.3854 0.39120
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1913 0.81260
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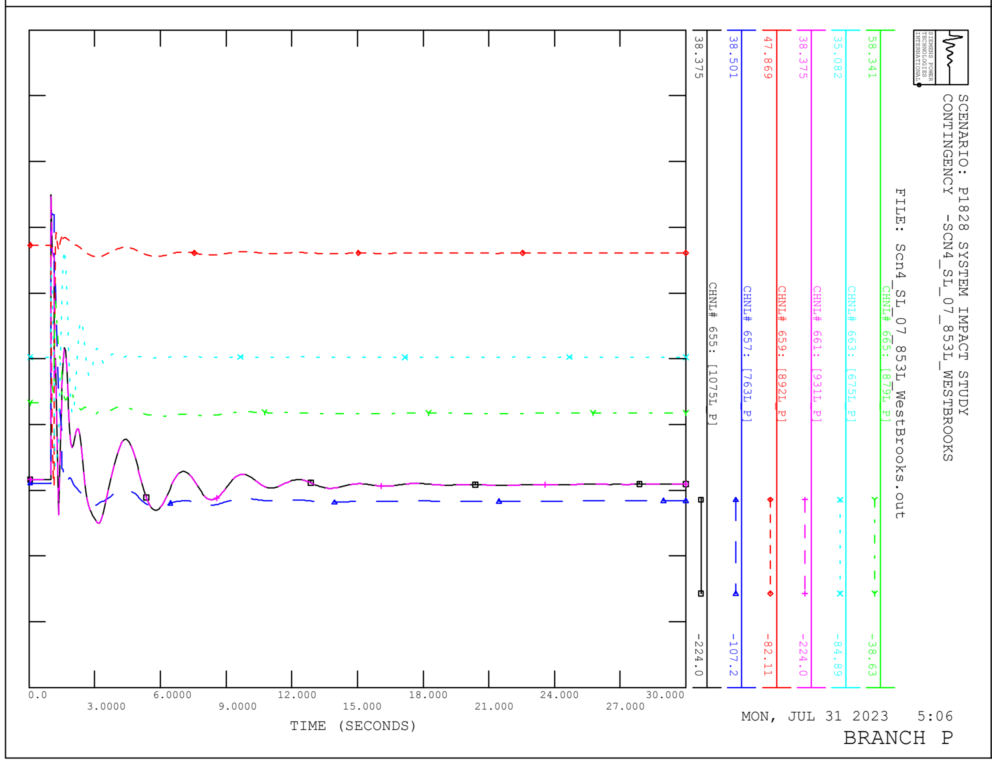
BUS VOLTAGE



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CHNL# 657: [763L_P] 38.501 -107.2
CHNL# 659: [892L_P] 47.869 -82.11
CHNL# 661: [931L_P] 38.375 -224.0
CHNL# 663: [675L_P] 35.082 -84.89
CHNL# 665: [879L_P] 58.341 -38.63
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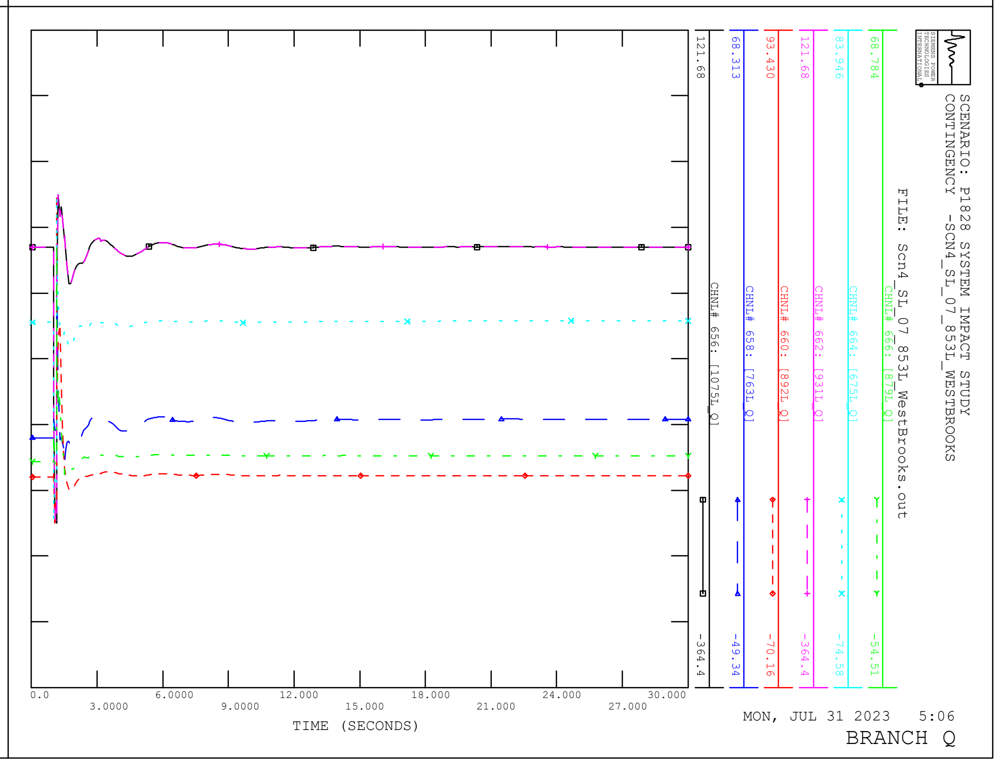
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 664: [675L_Q] 83.946 -74.58
CHNL# 666: [879L_Q] 68.784 -54.51
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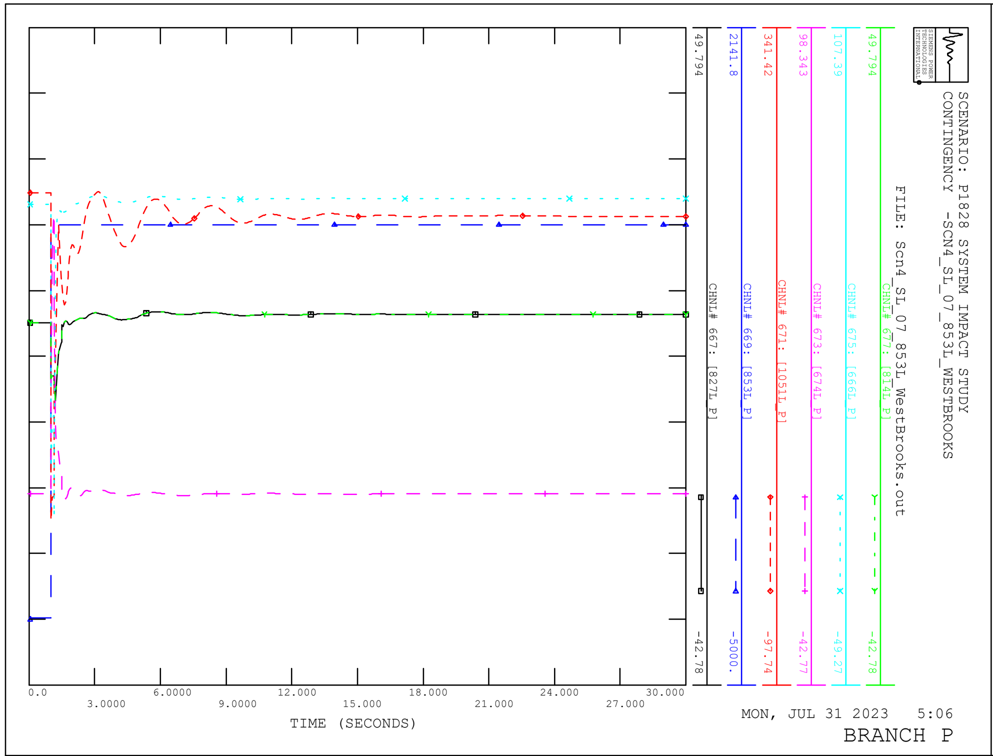
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P] 2141.8 -5000.
CHNL# 671: [1051L_P] 341.42 -97.74
CHNL# 673: [674L_P] 98.343 -42.77
CHNL# 675: [666L_P] 107.39 -49.27
CHNL# 677: [819L_P] 49.794 -42.78
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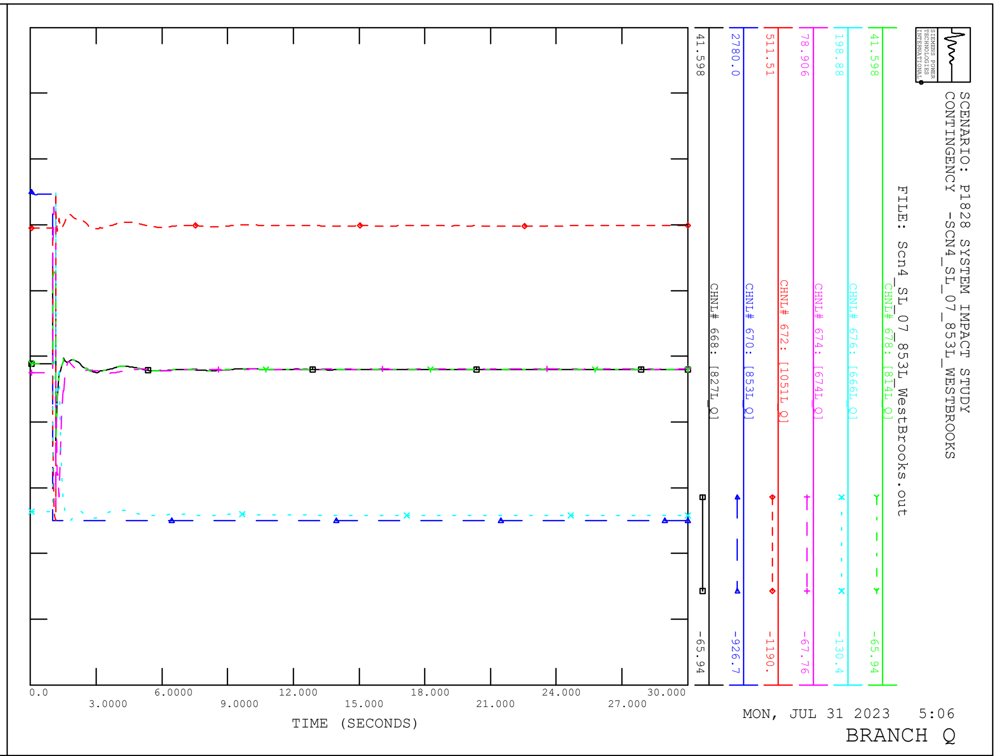
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 2780.0 -926.7
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CHNL# 674: [674L_Q] 78.906 -67.76
CHNL# 676: [666L_Q] 198.88 -130.4
CHNL# 678: [819L_Q] 41.598 -65.94
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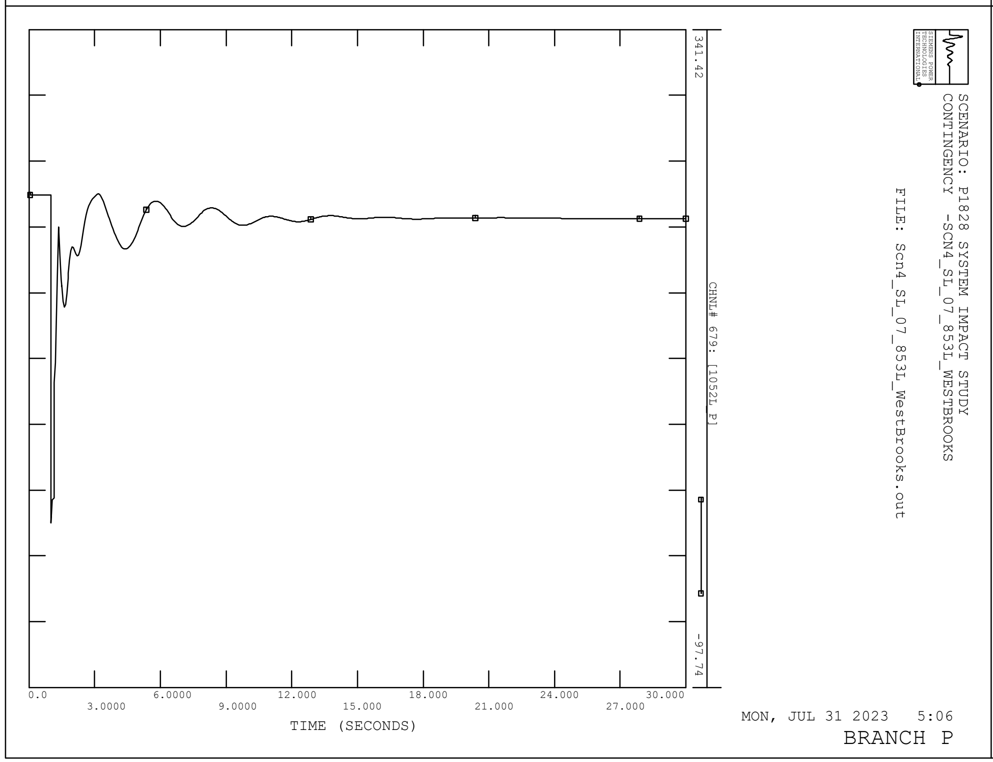
BRANCH Q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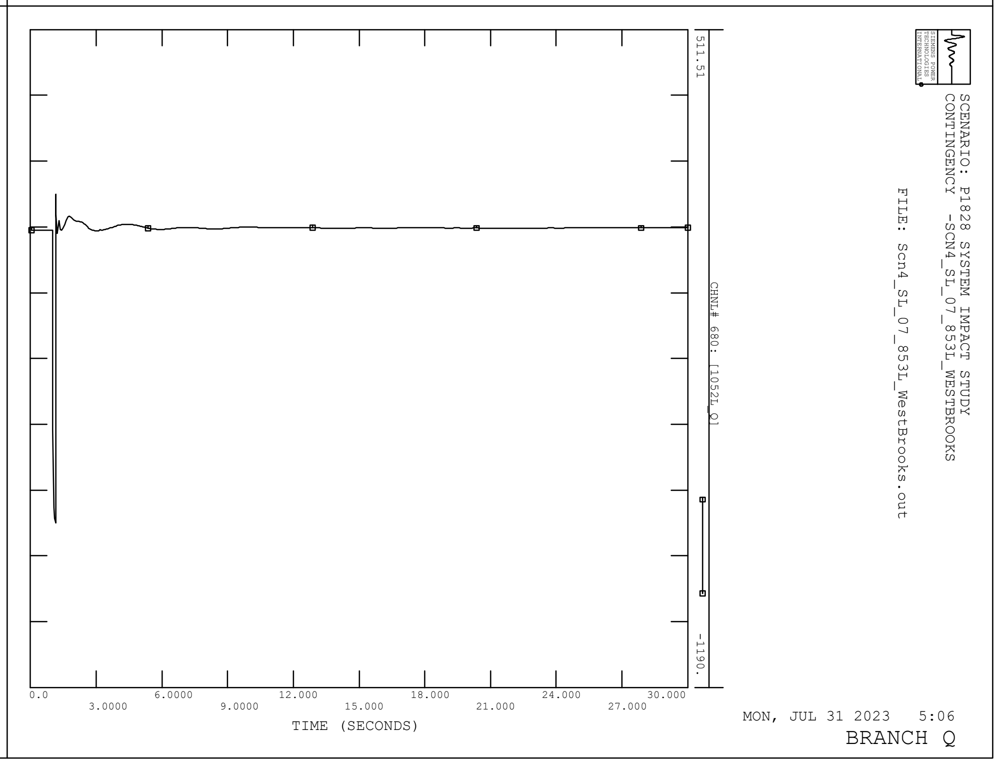
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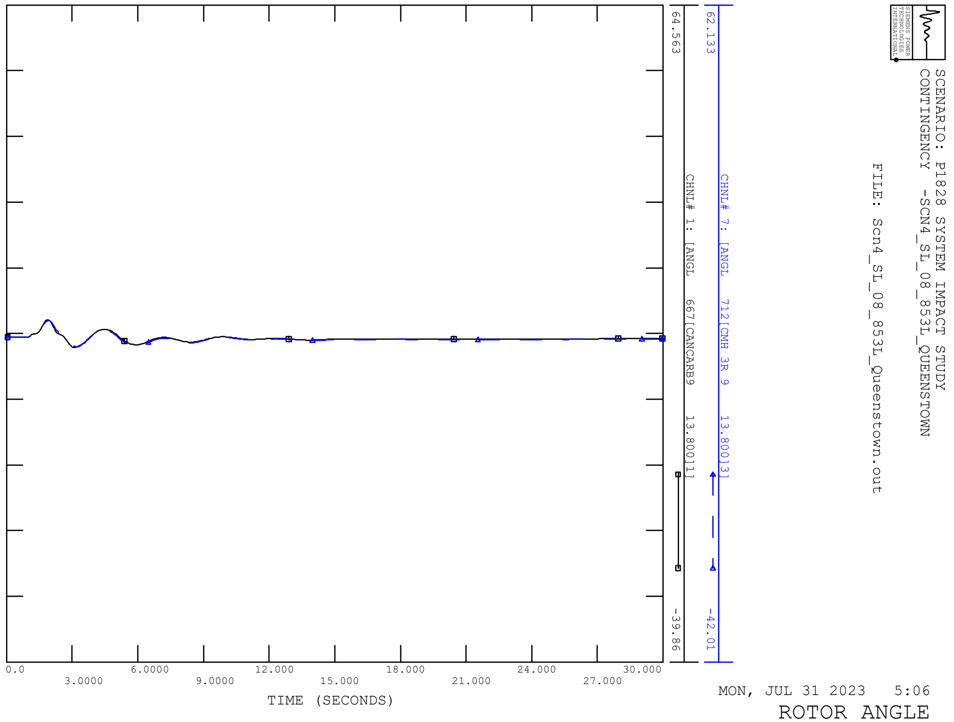
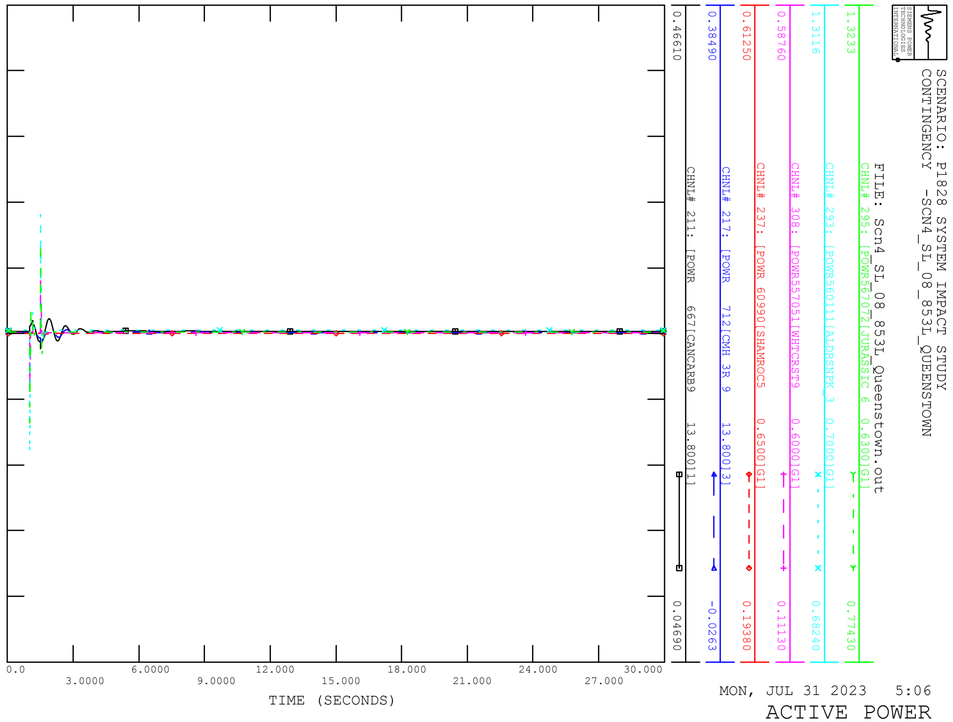
BRANCH Q



MON, JUL 31 2023 5:06
ROTOR ANGLE



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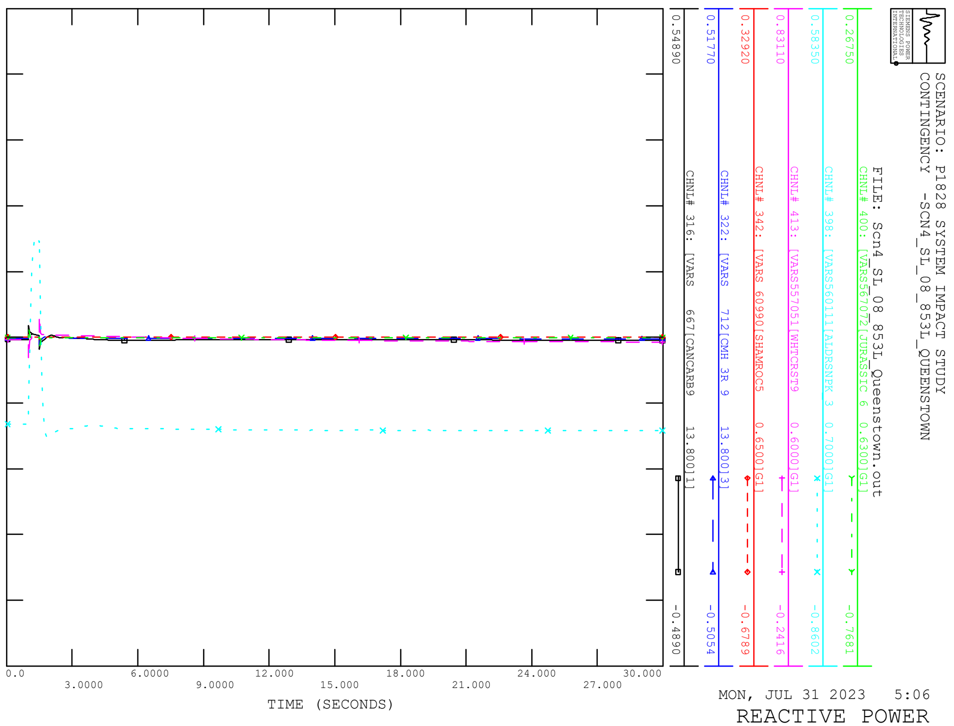
ACTIVE POWER



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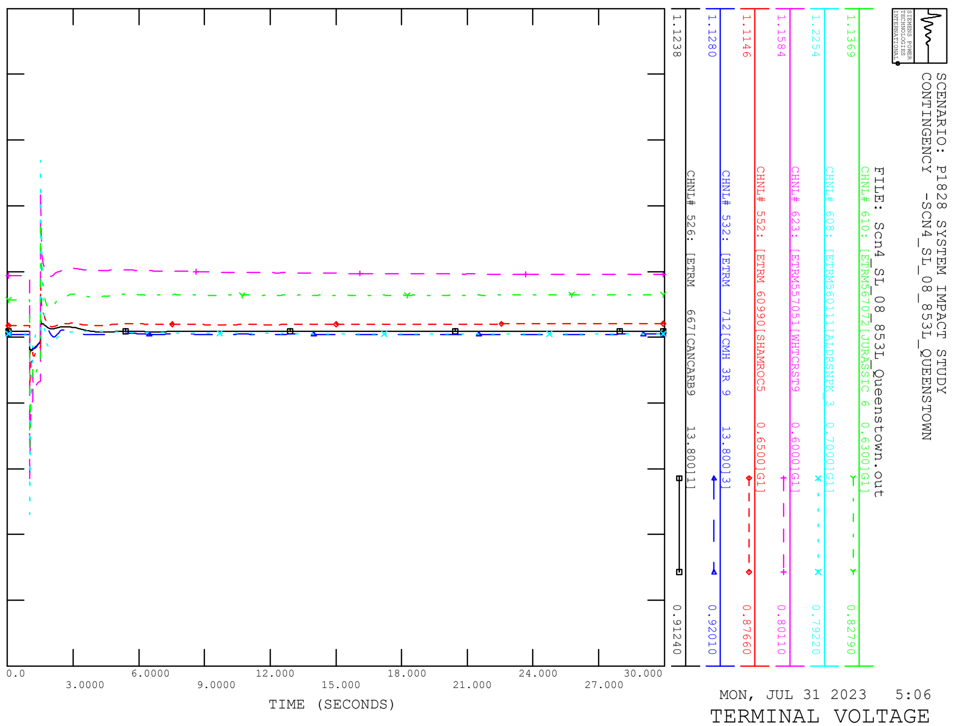

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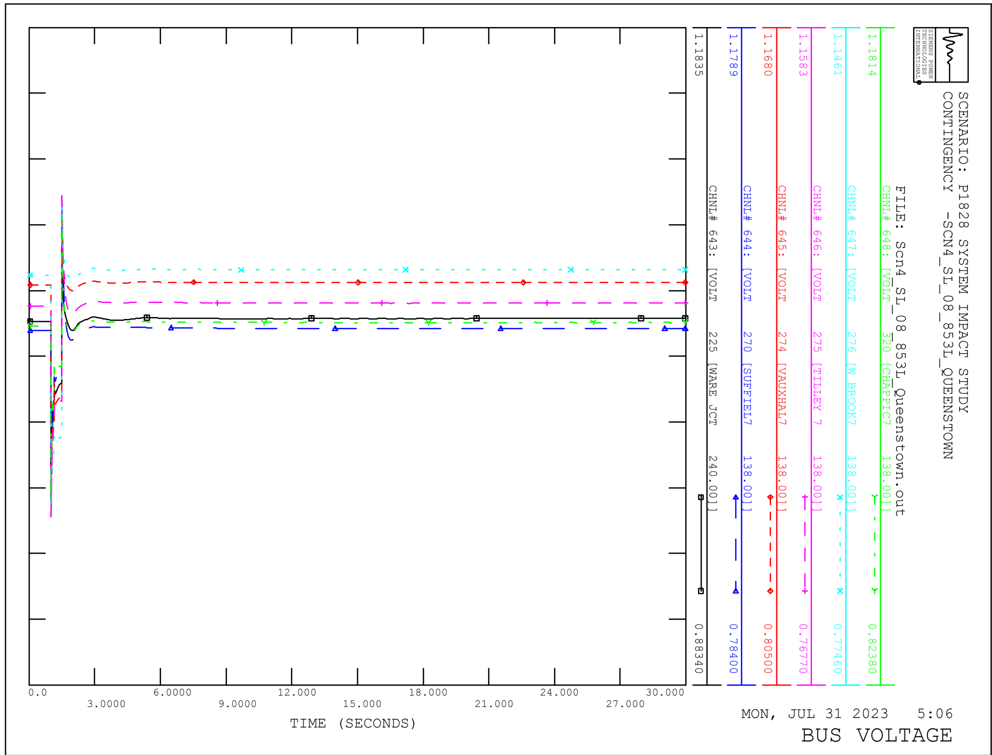
TERMINAL VOLTAGE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1.1680 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.80500
1.1583 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 0.76770
1.1461 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 0.77460
1.1814 CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 0.82380
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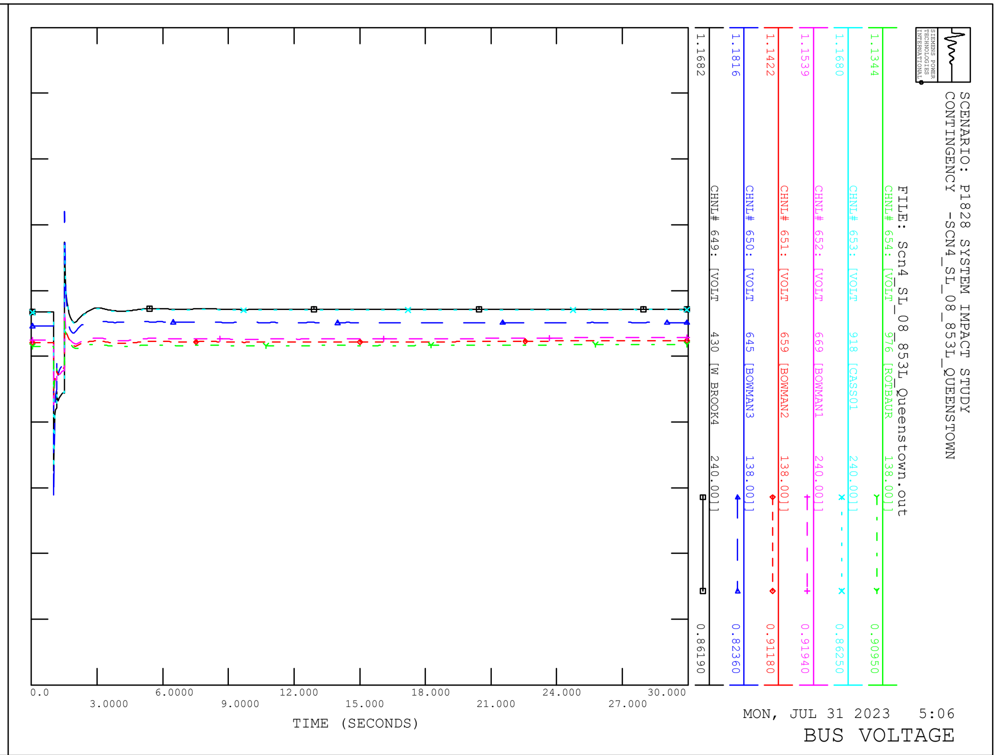
MON, JUL 31 2023 5:06
BUS VOLTAGE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1.1422 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 0.91180
1.1539 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.91940
1.1680 CHNL# 653: [VOLT 918 [CASSOL1 240.00]] 0.86250
1.1344 CHNL# 654: [VOLT 976 [ROTHSAY 138.00]] 0.90950
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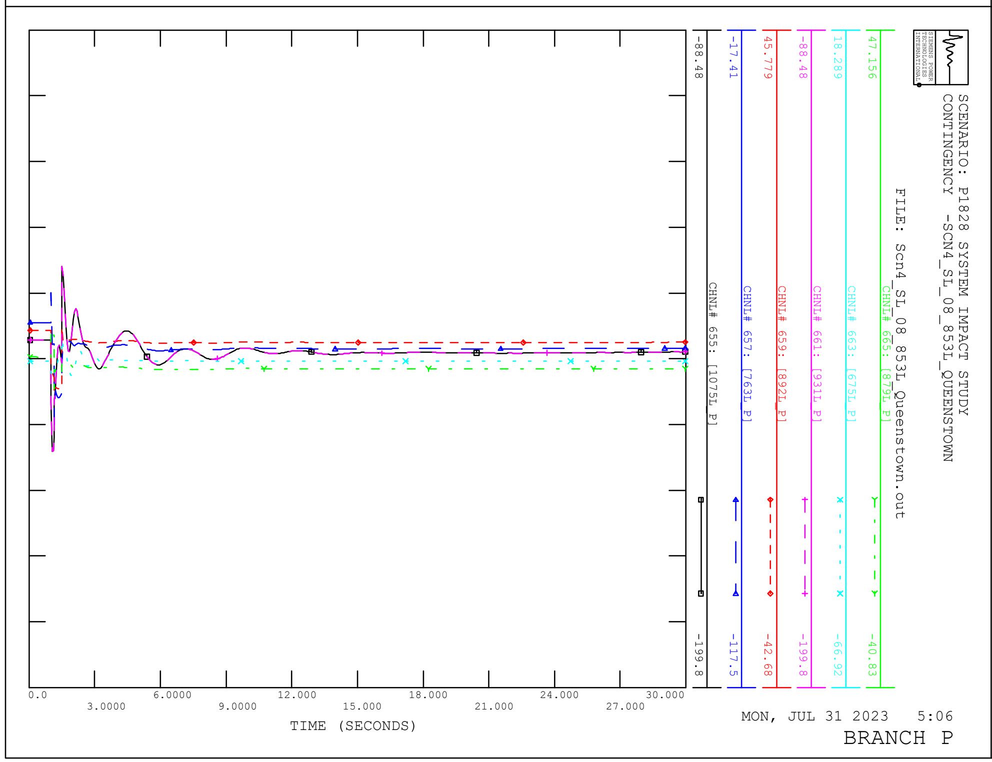
MON, JUL 31 2023 5:06
BUS VOLTAGE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45.779 CHNL# 659: [892L P] -42.68
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18.289 CHNL# 663: [675L P] -66.92
47.156 CHNL# 665: [879L P] -40.83
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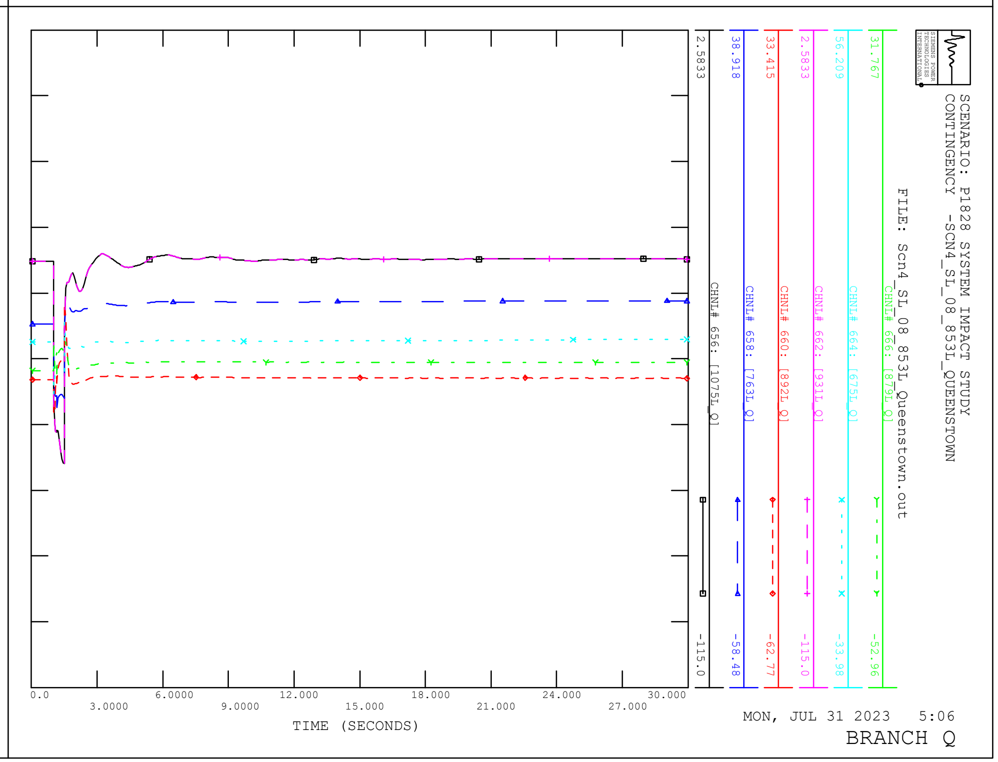
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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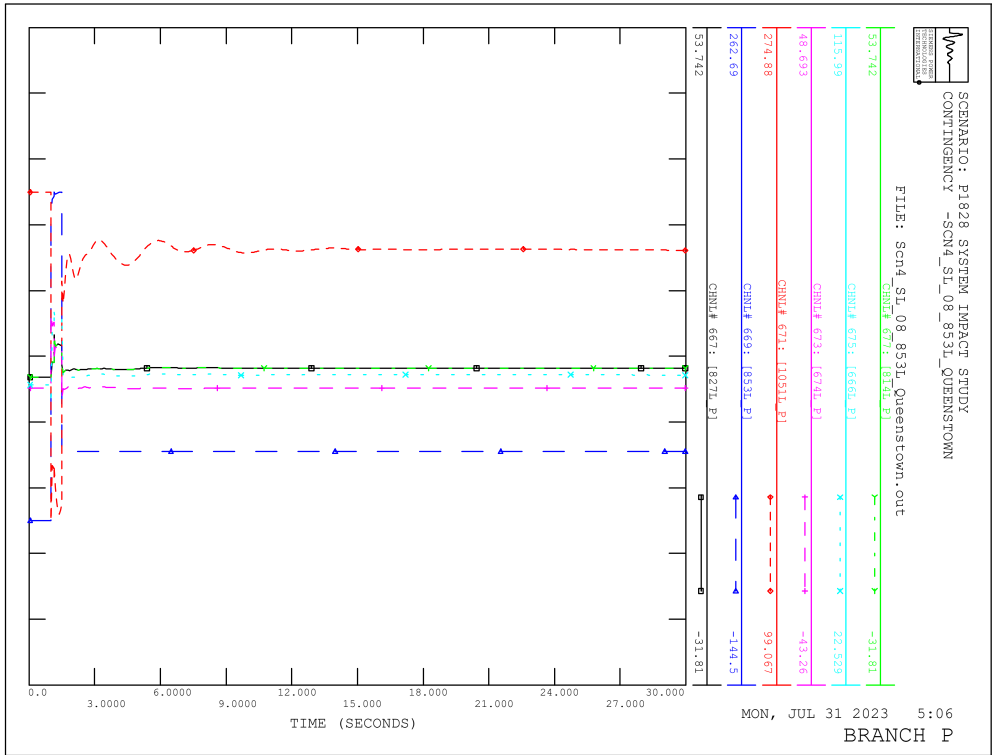
BRANCH Q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CHNL# 669: [853L_P] 262.69 -144.5
CHNL# 671: [1051L_P] 274.88 99.067
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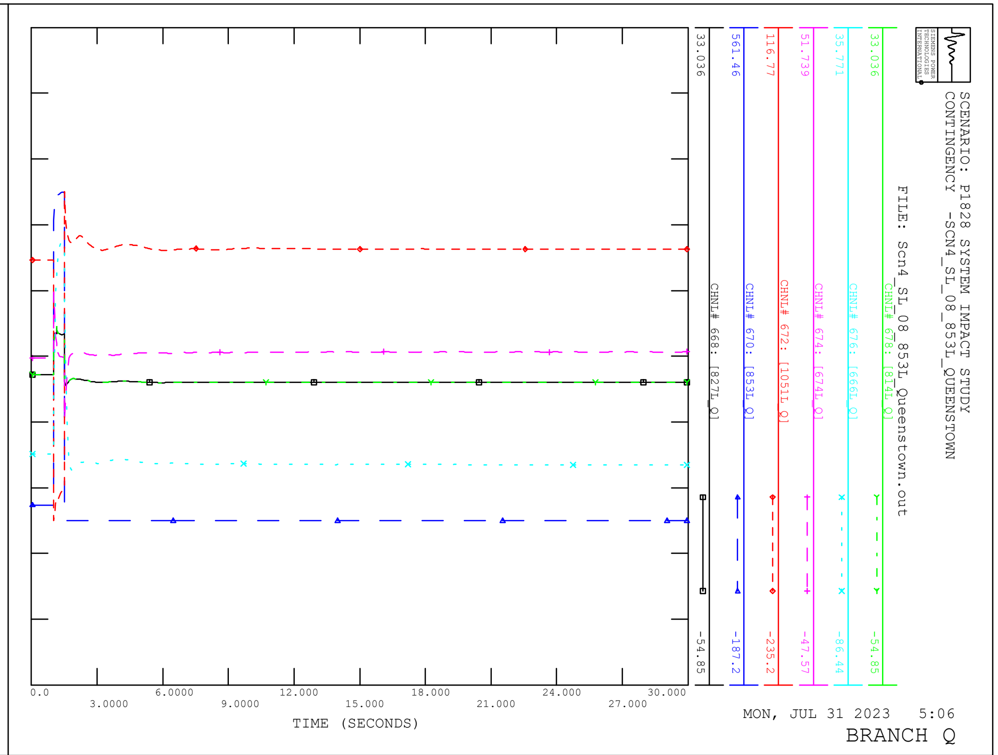
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P

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TIME (SECONDS)
MON, JUL 31 2023 5:06
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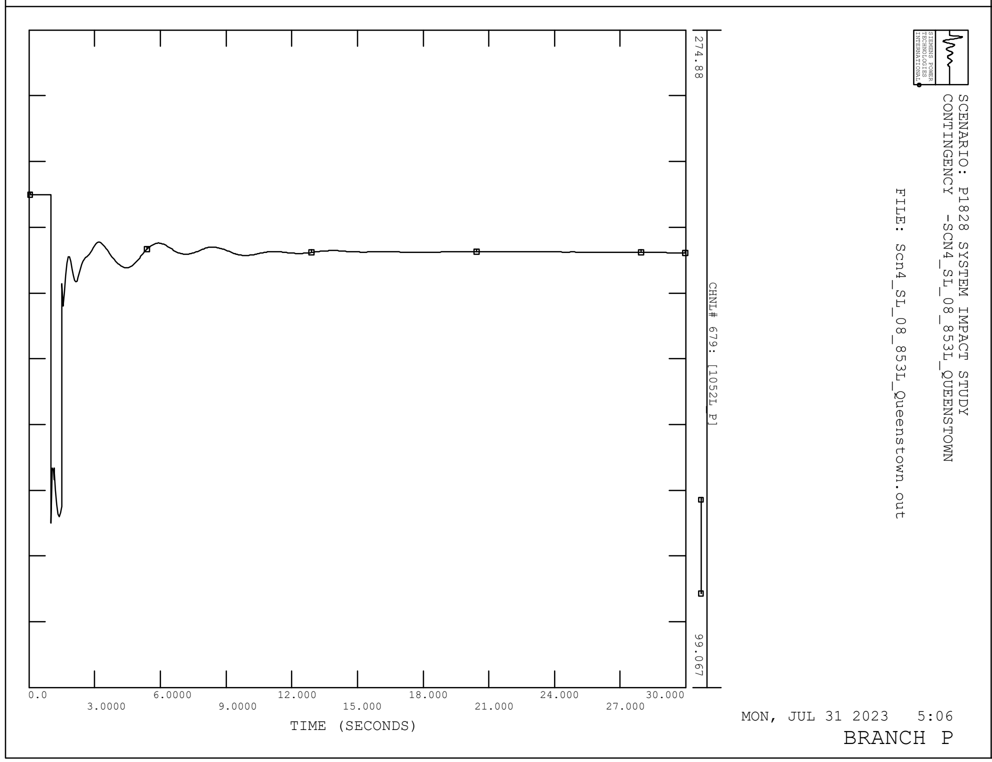
SCENARIO: P1828 SYSTEM IMPACT STUDY
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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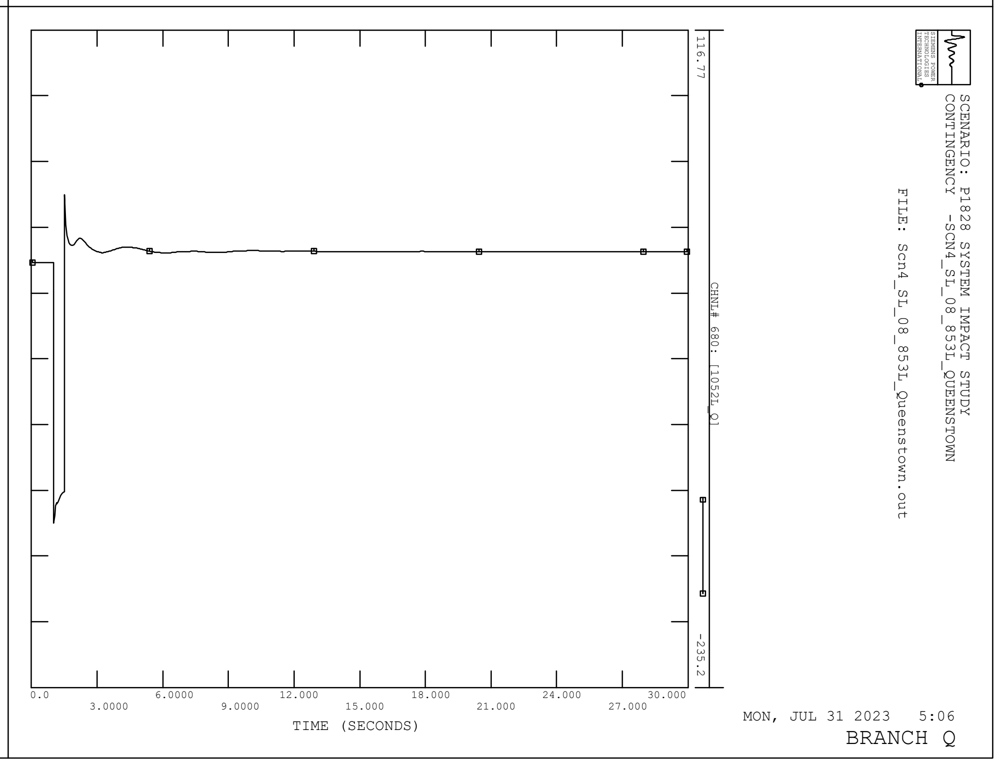
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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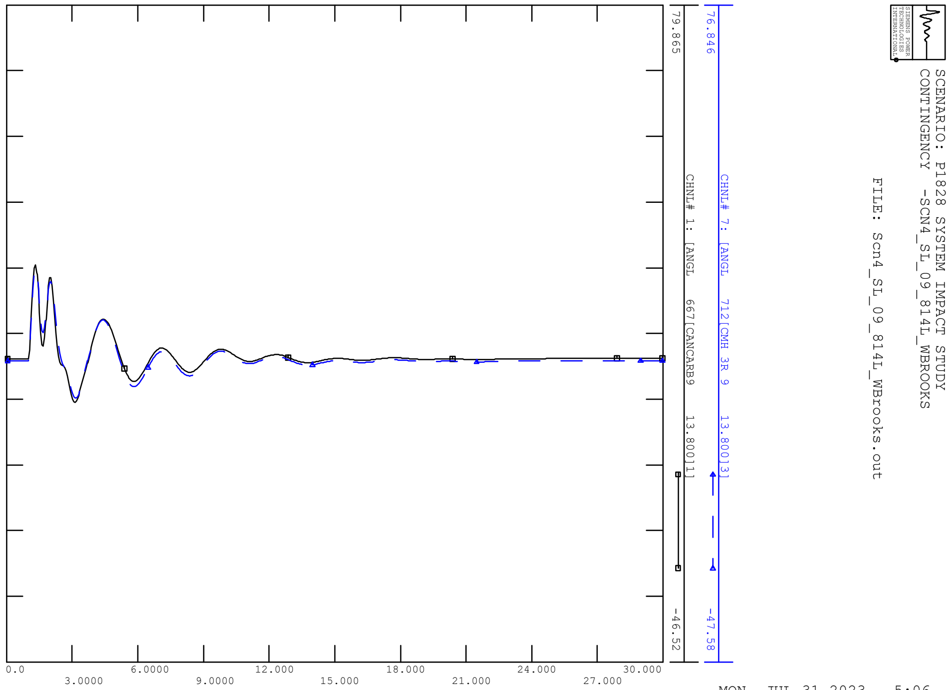
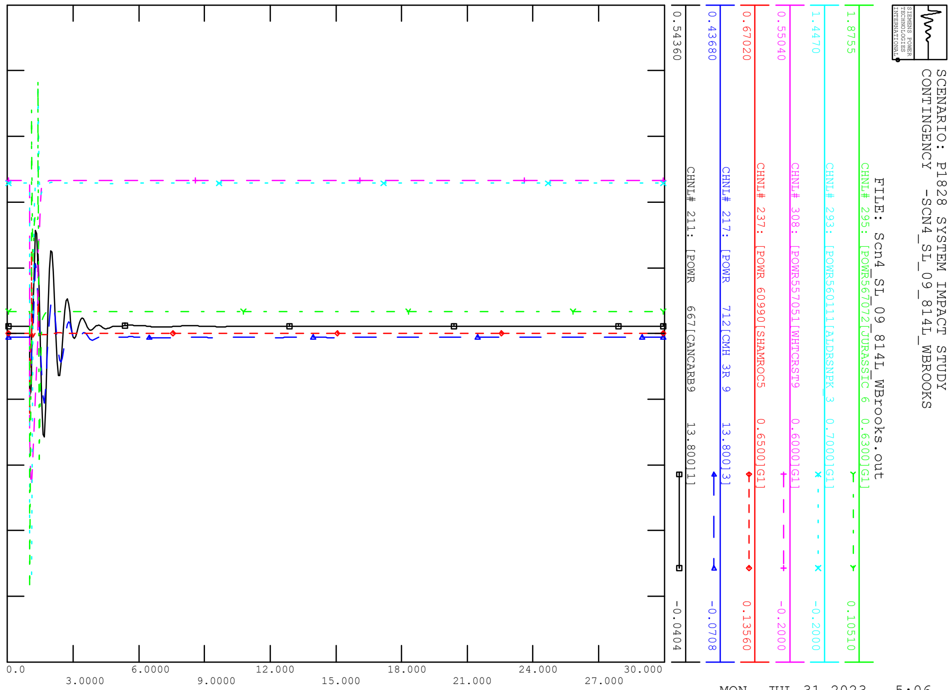


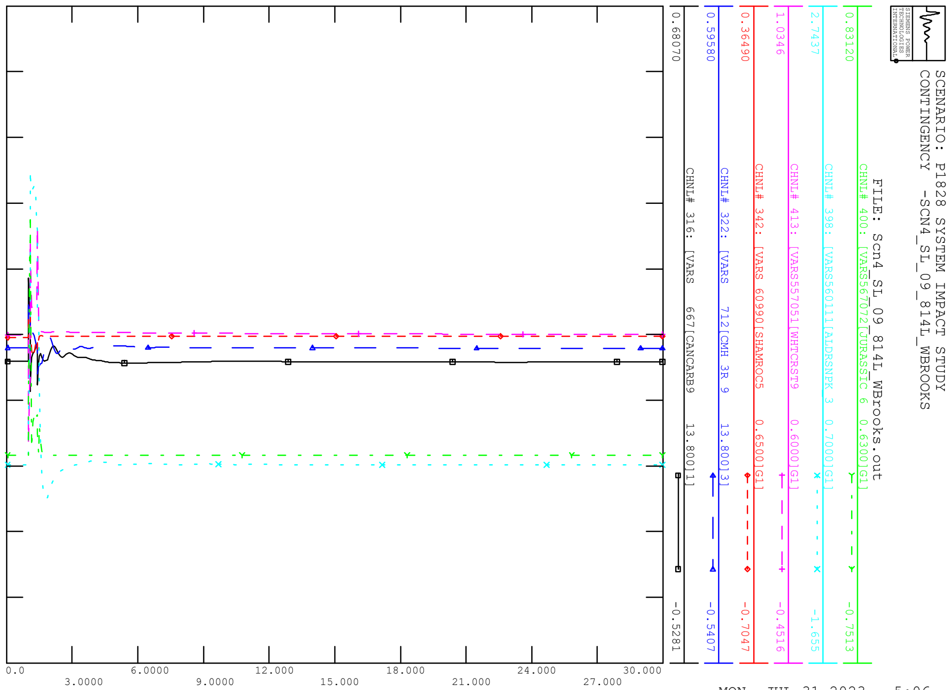
MON, JUL 31 2023 5:06

ROTOR ANGLE



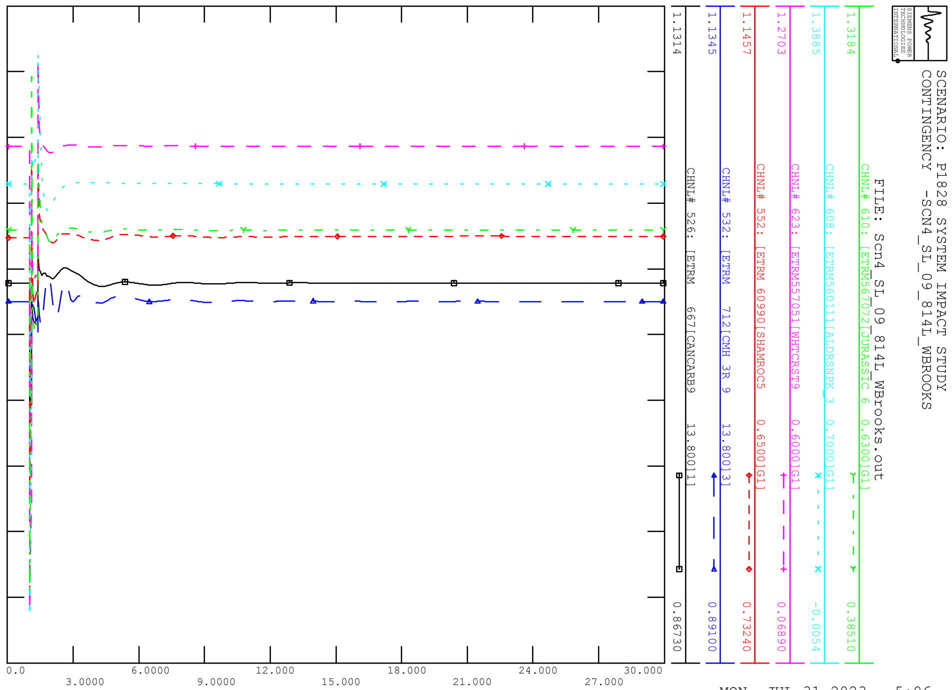
MON, JUL 31 2023 5:06

ACTIVE POWER



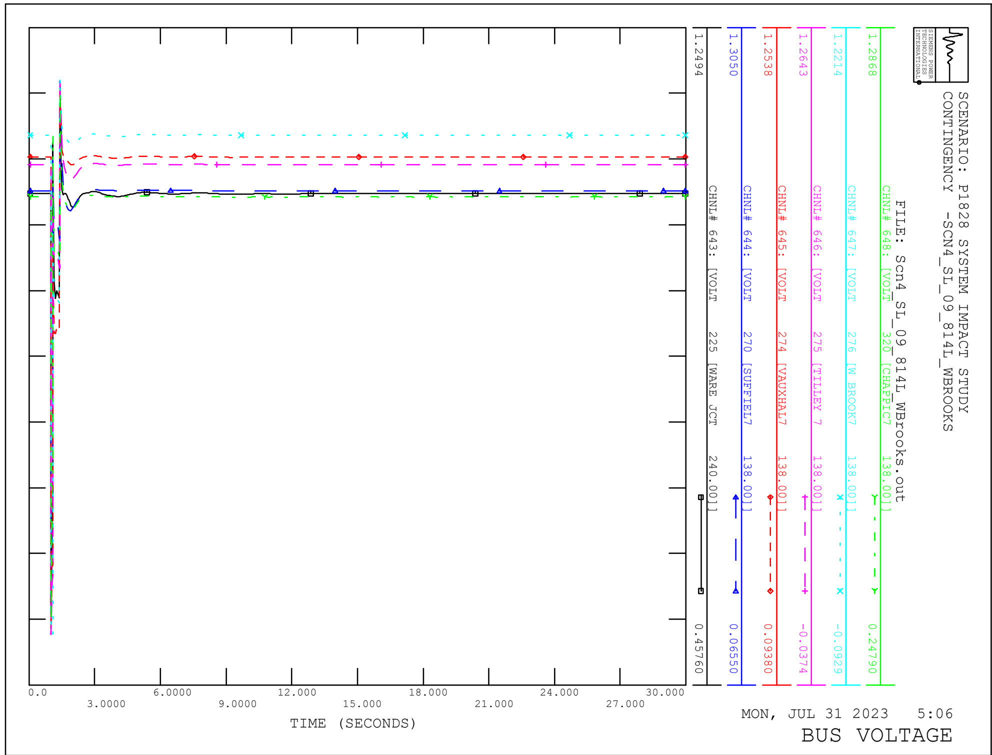
MON, JUL 31 2023 5:06

REACTIVE POWER



MON, JUL 31 2023 5:06

TERMINAL VOLTAGE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CONTINGENCY -SCN4_SL_09_814L_WBROOKS
FILE: Scn4_SL_09_814L_WBrooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]]
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]]
1.2494 0.45760
1.3050 0.06550
1.2538 0.09380
1.2643 -0.0374
1.2214 -0.0929
1.2868 0.24790
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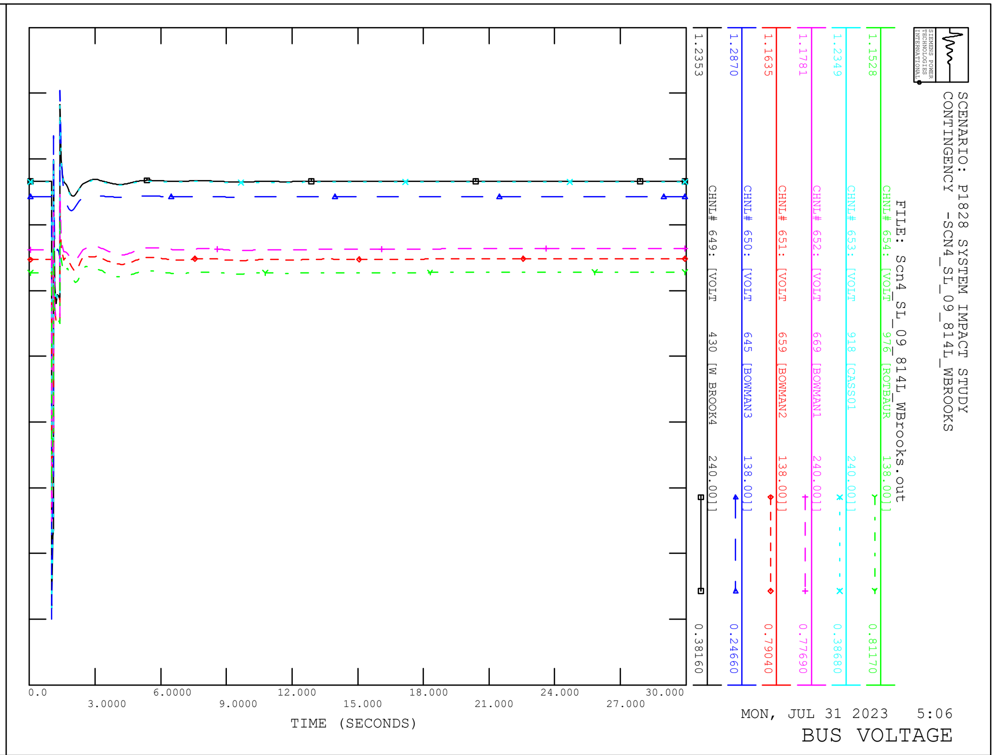
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn4_SL_09_814L_WBrooks.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSDI 240.00]]
CHNL# 654: [VOLT 976 [ROTHBUR 138.00]]
1.2353 0.38160
1.2870 0.24660
1.1635 0.79040
1.1781 0.77690
1.2349 0.38680
1.1528 0.81170
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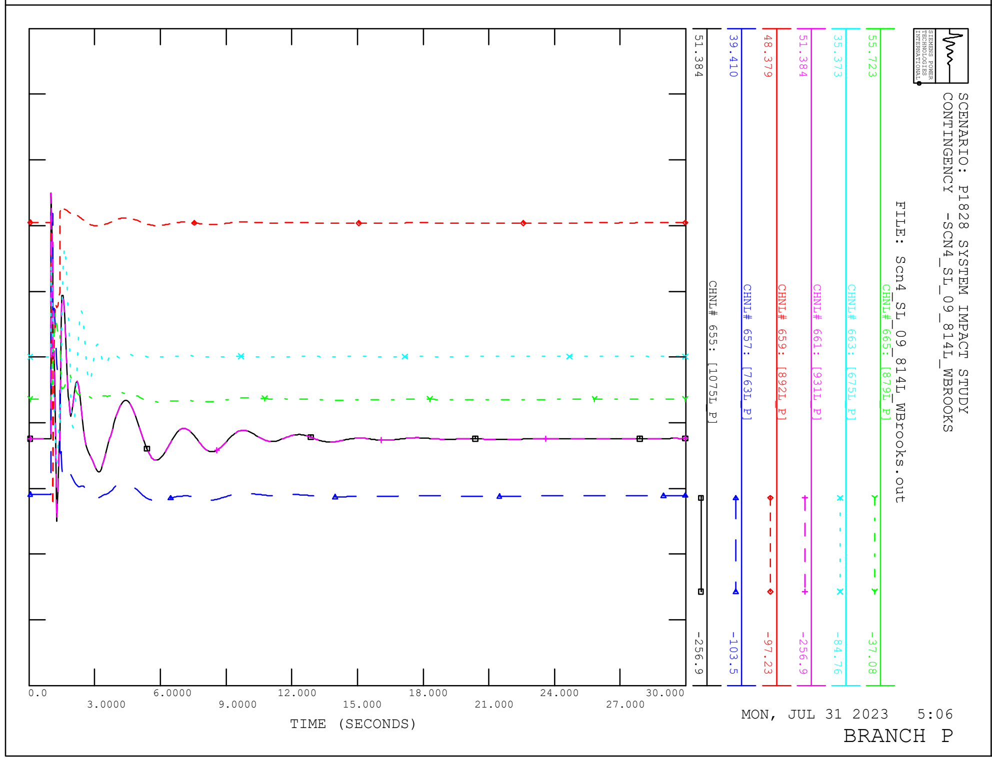
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn4_SL_09_814L_WBrooks.out
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CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [1675L P]
CHNL# 665: [679L P]
51.384 -256.9
39.410 -103.5
48.379 -97.23
51.384 -256.9
35.373 -84.76
55.723 -37.08
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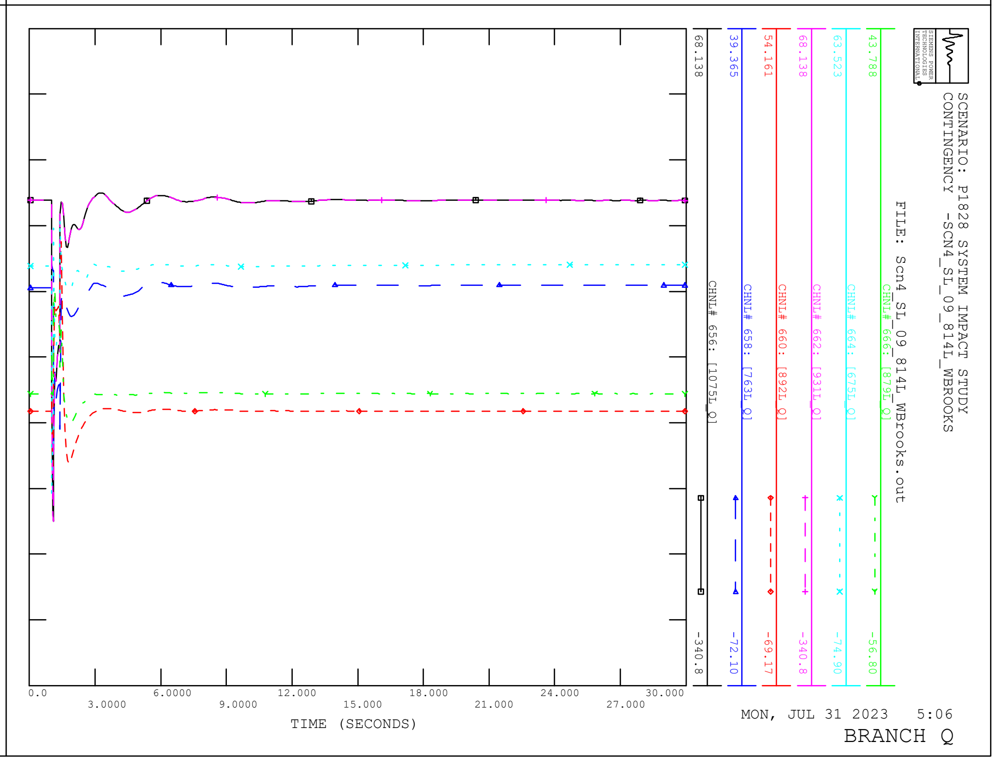
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [1675L Q]
CHNL# 666: [679L Q]
68.138 -340.8
39.365 -72.10
54.161 -69.17
68.138 -340.8
63.523 -74.90
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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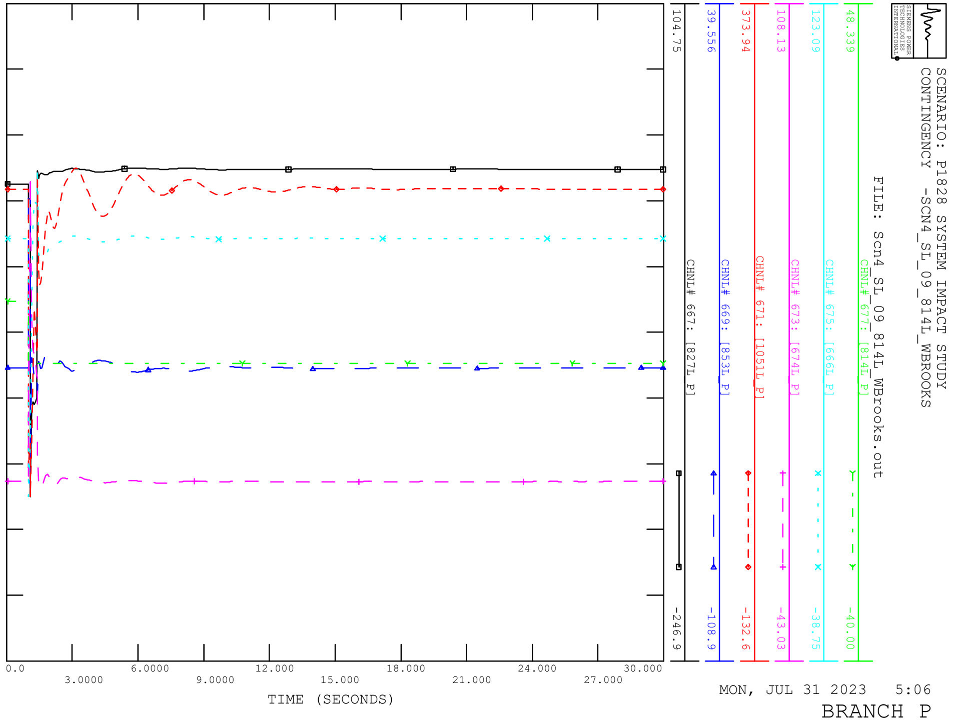
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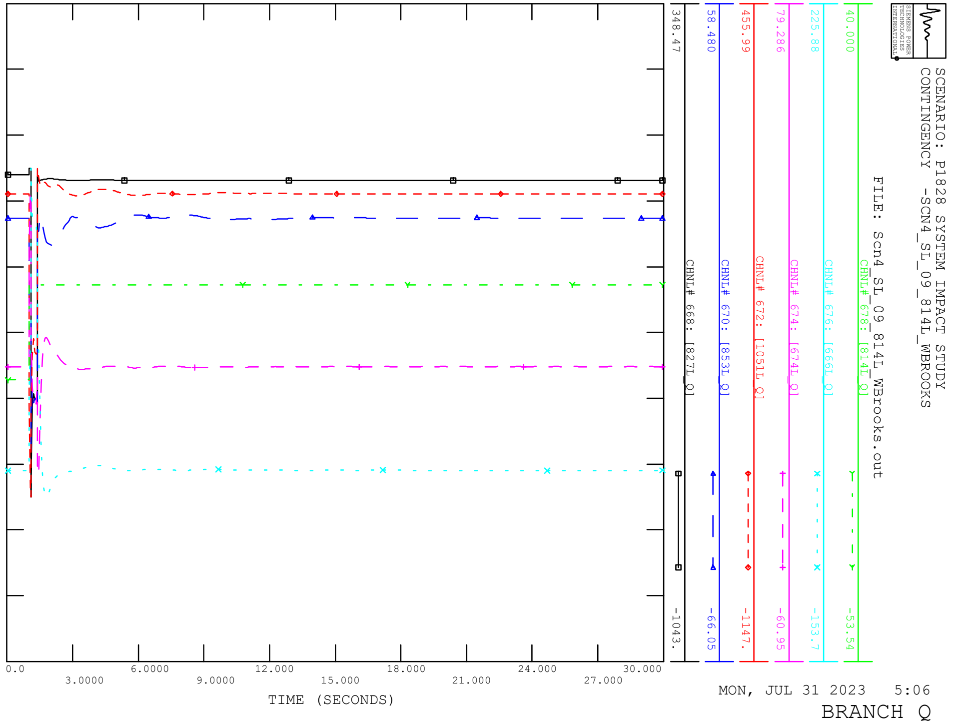
CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
CHNL# 675: [666L_P]
CHNL# 677: [814L_P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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FILE: Scn4_SL_09_814L_WBrooks.out
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CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
CHNL# 674: [674L_Q]
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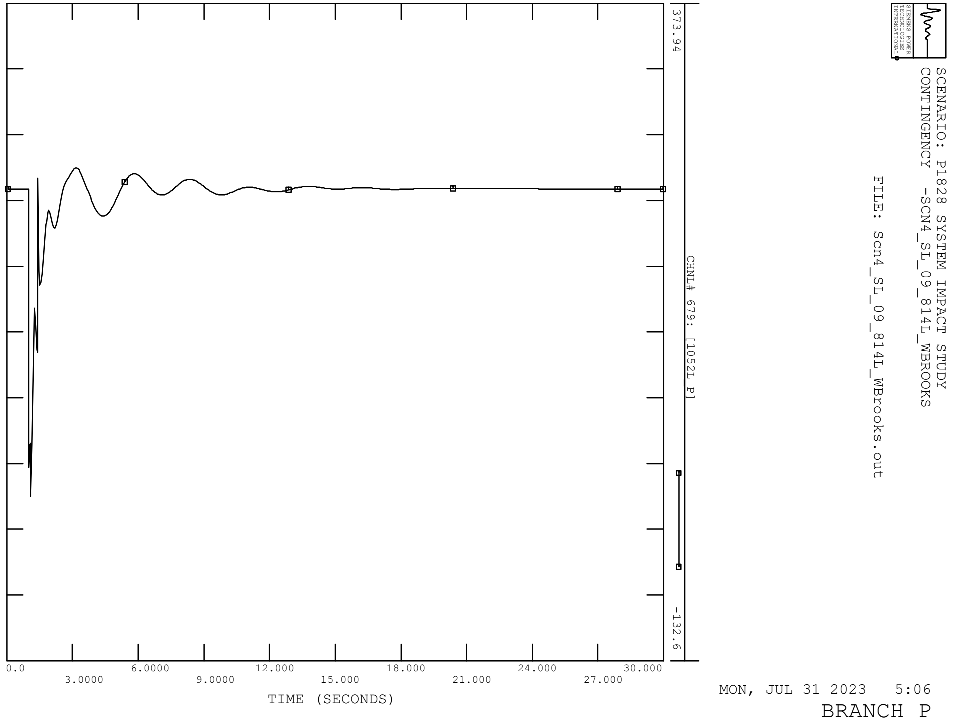
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_09_814L_WBROOKS
FILE: Scn4_SL_09_814L_WBrooks.out
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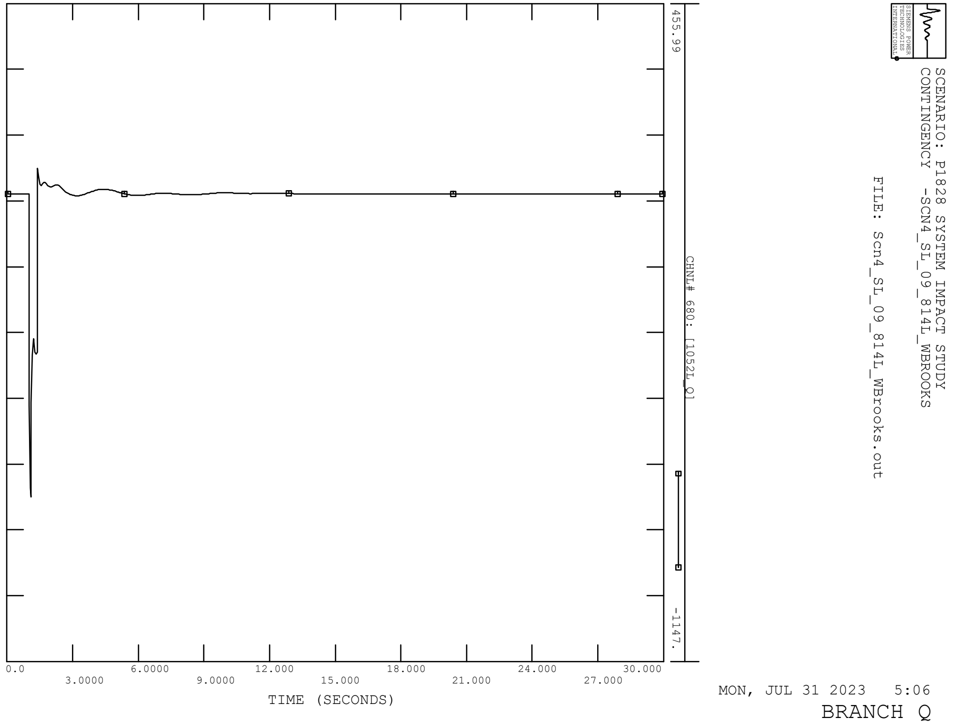
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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MON, JUL 31 2023 5:06
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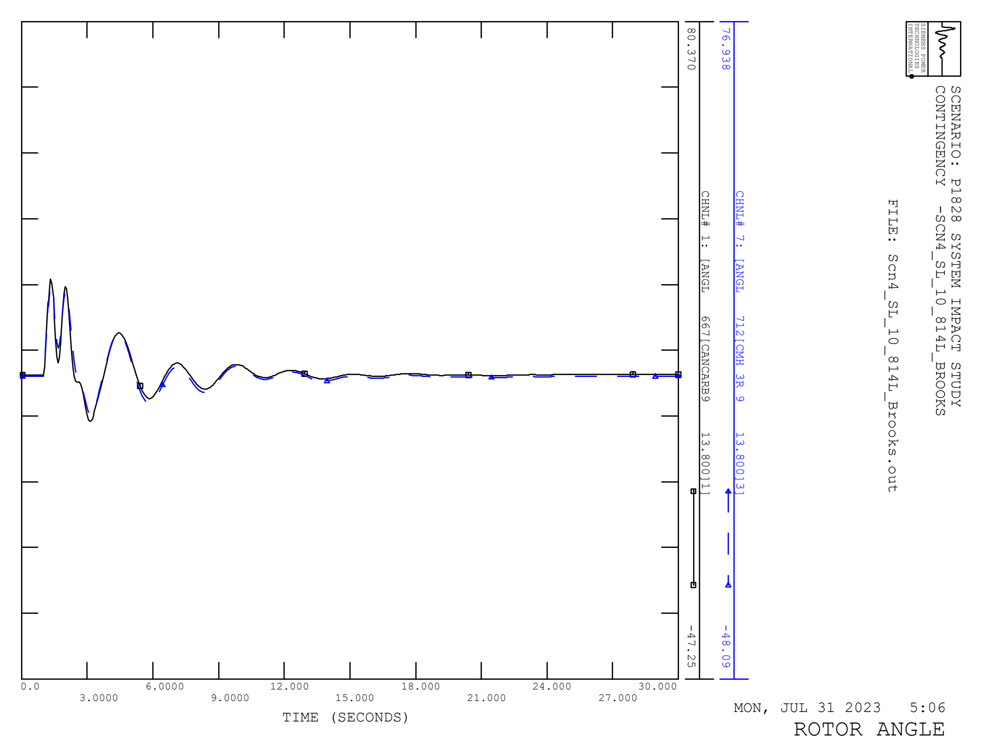
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76.938 CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3] -48.09
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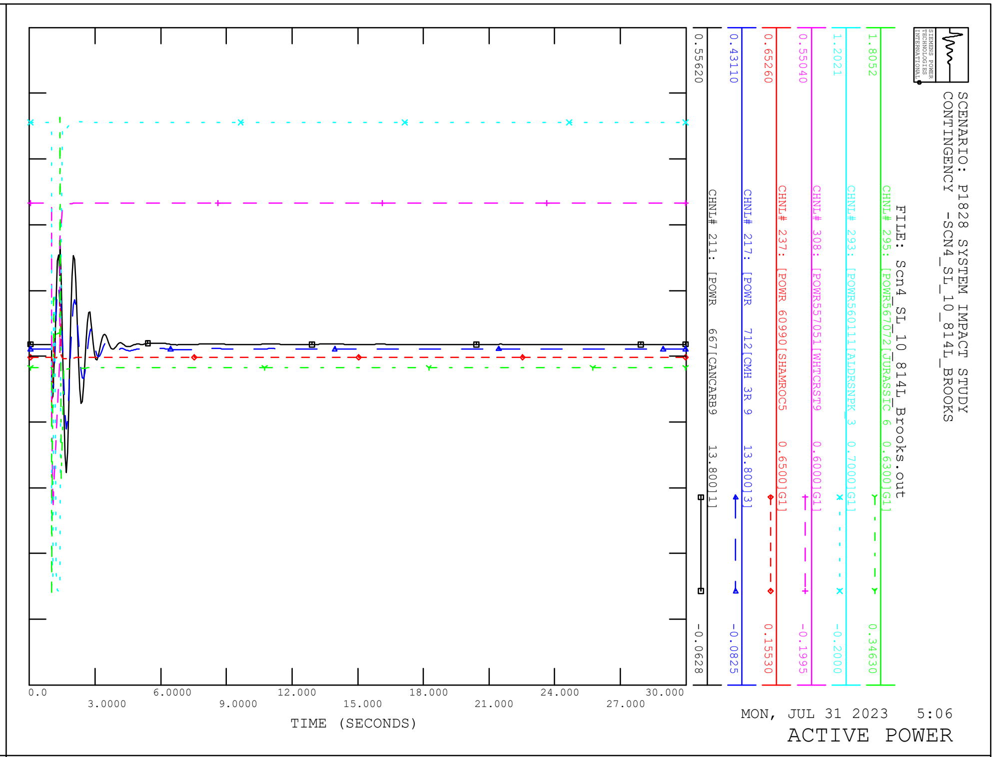
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.43110 CHNL# 217: [POWR 712[CMH 3R 9 13.800]3] -0.0825
0.65260 CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 0.15530
0.55040 CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] -0.1995
1.2021 CHNL# 293: [POWR560111[ALDRSNPK_3 0.7000]G1] -0.2000
1.8052 CHNL# 295: [POWR567072[JURASSIC_6 0.6300]G1] 0.34630
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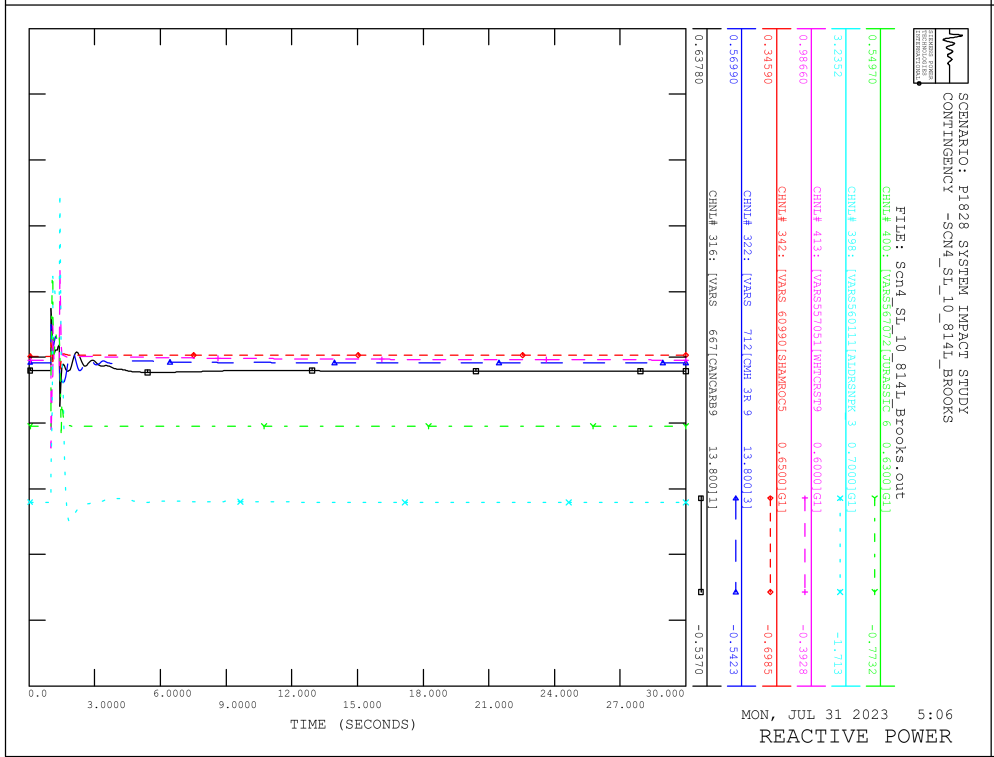
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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0.34590 CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] -0.6985
0.98660 CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] -0.3928
3.2352 CHNL# 398: [VARS560111[ALDRSNPK_3 0.7000]G1] -1.713
0.54970 CHNL# 400: [VARS567072[JURASSIC_6 0.6300]G1] -0.7732
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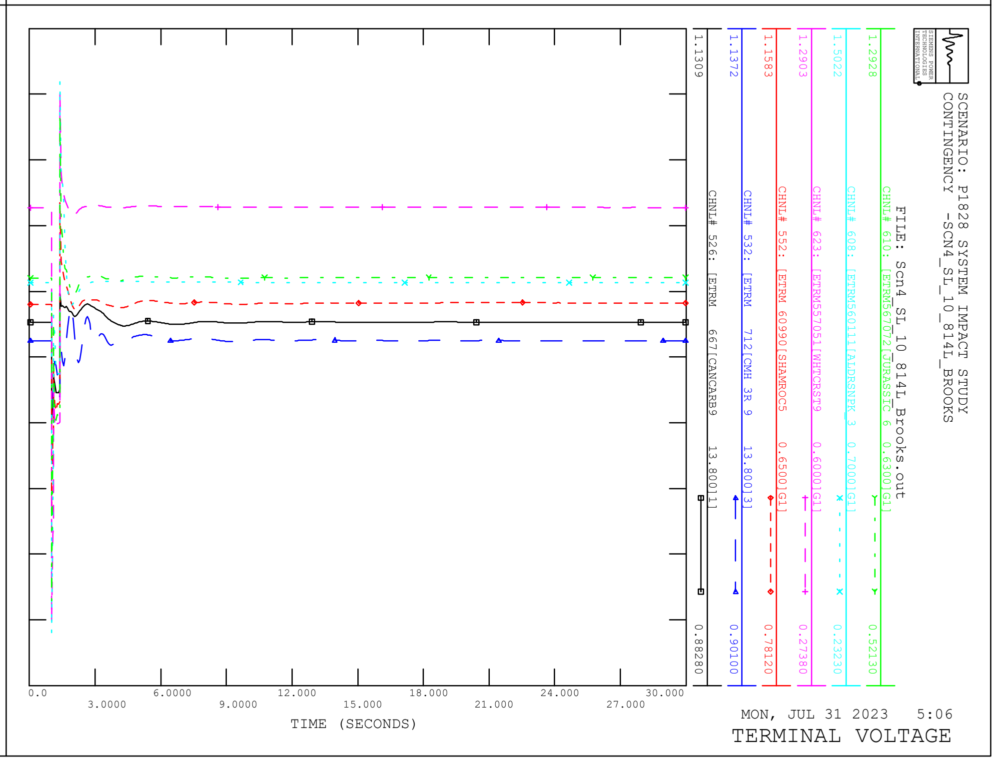
MON, JUL 31 2023 5:06
REACTIVE POWER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1.1372 CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3] 0.90100
1.1583 CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1] 0.78120
1.2903 CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] 0.27380
1.5022 CHNL# 608: [ETRM560111[ALDRSNPK_3 0.7000]G1] 0.23230
1.2928 CHNL# 610: [ETRM567072[JURASSIC_6 0.6300]G1] 0.52130
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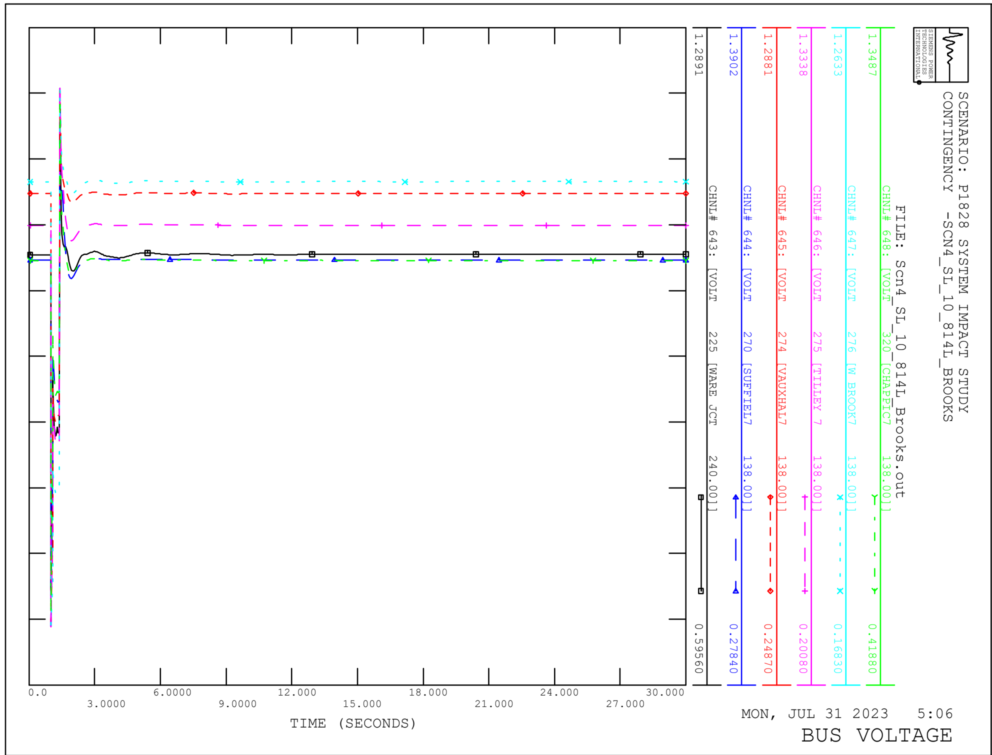
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3902 0.27840
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2881 0.24870
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3338 0.20080
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.2633 0.16830
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.3487 0.41880
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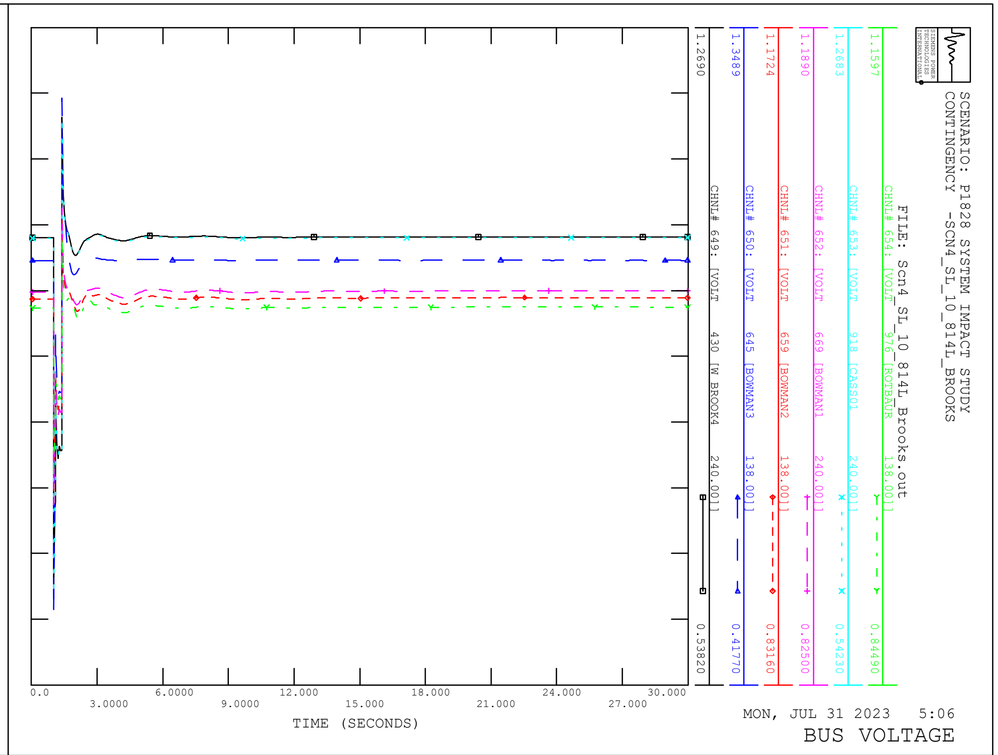
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_10_814L_BROOKS
FILE: Scn4_SL_10_814L_Brooks.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3489 0.41770
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1724 0.83160
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1890 0.82500
CHNL# 653: 1.2683 0.54230
CHNL# 654: 1.1597 0.84490
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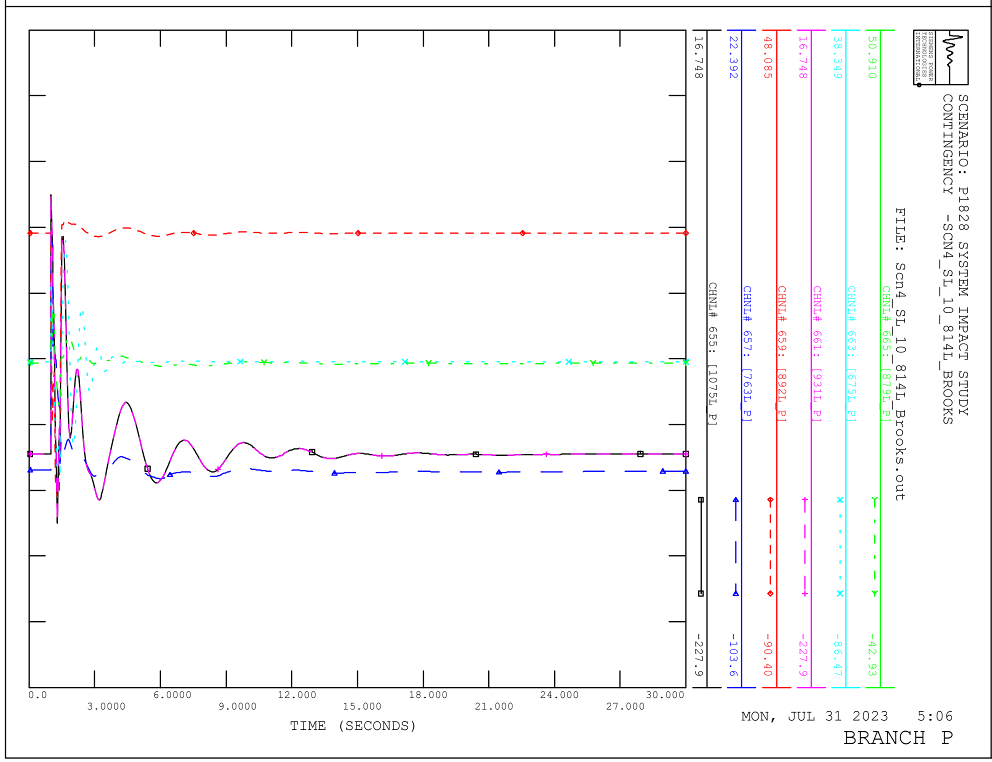
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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FILE: Scn4_SL_10_814L_Brooks.out
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CHNL# 657: [763L P] 22.392 -103.6
CHNL# 659: [892L P] 48.085 -90.40
CHNL# 661: [931L P] 16.748 -227.9
CHNL# 663: [675L P] 38.349 -86.47
CHNL# 665: [879L P] 50.910 -42.93
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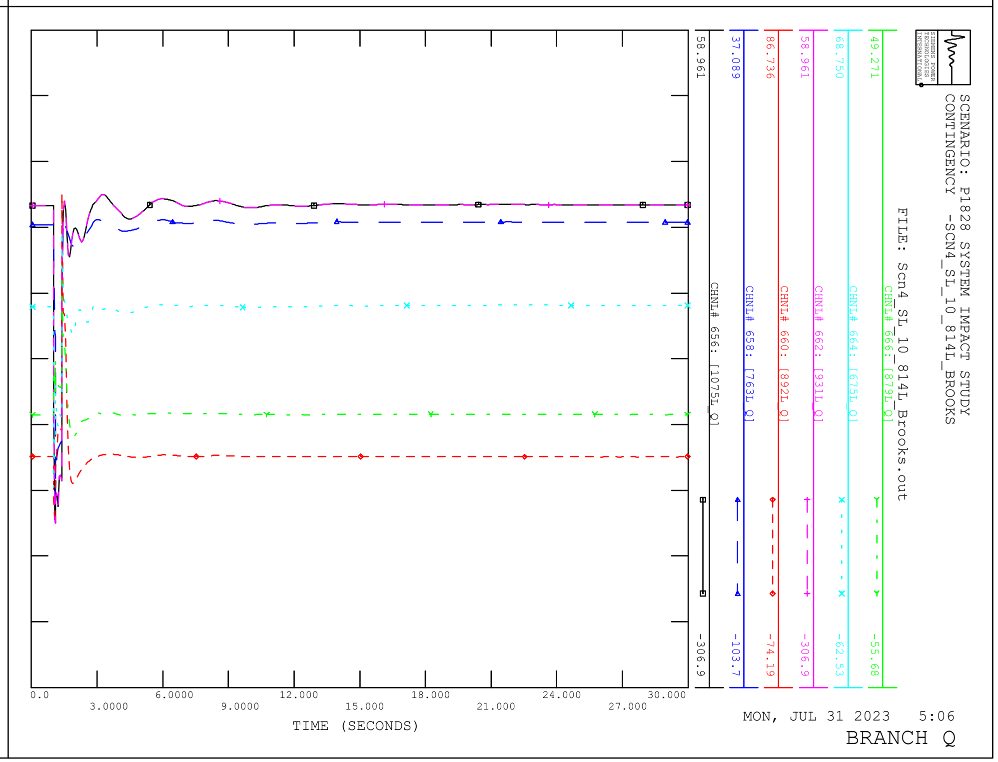
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q] 37.089 -103.7
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CHNL# 662: [931L Q] 58.961 -306.9
CHNL# 664: [675L Q] 68.750 -62.53
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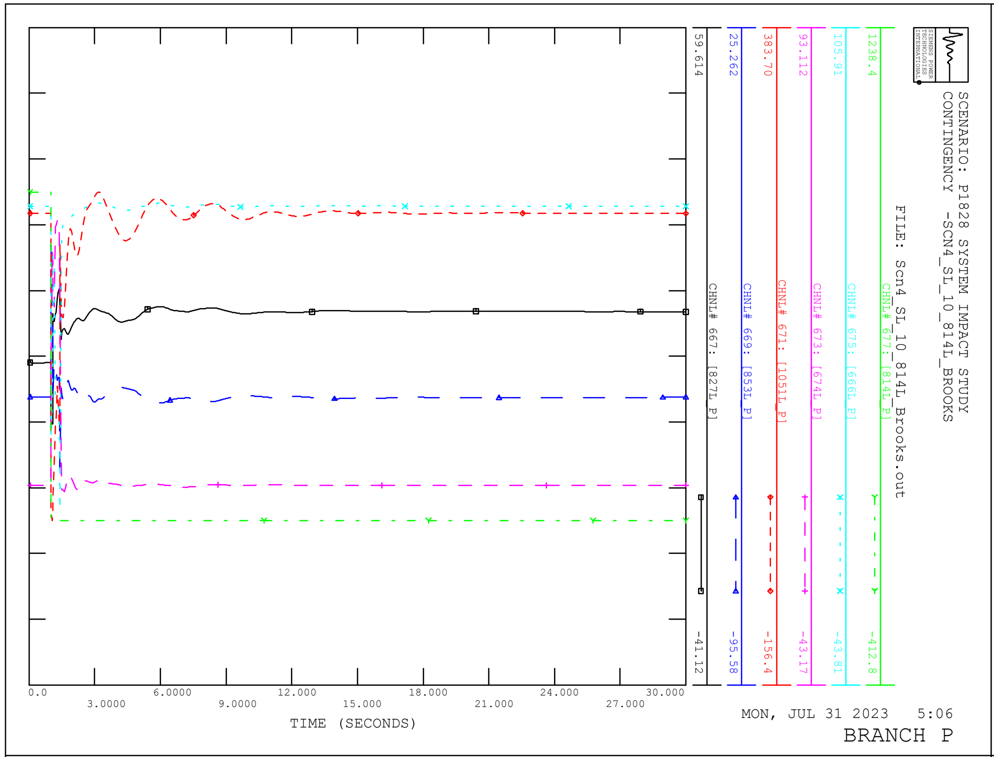
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_10_814L_BROOKS
FILE: Scn4_SL_10_814L_Brooks.out
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CHNL# 671: [1051L_P] 383.70 -156.4
CHNL# 673: [674L_P] 93.112 -43.17
CHNL# 675: [666L_P] 105.91 -43.81
CHNL# 677: [814L_P] 1238.4 -412.8
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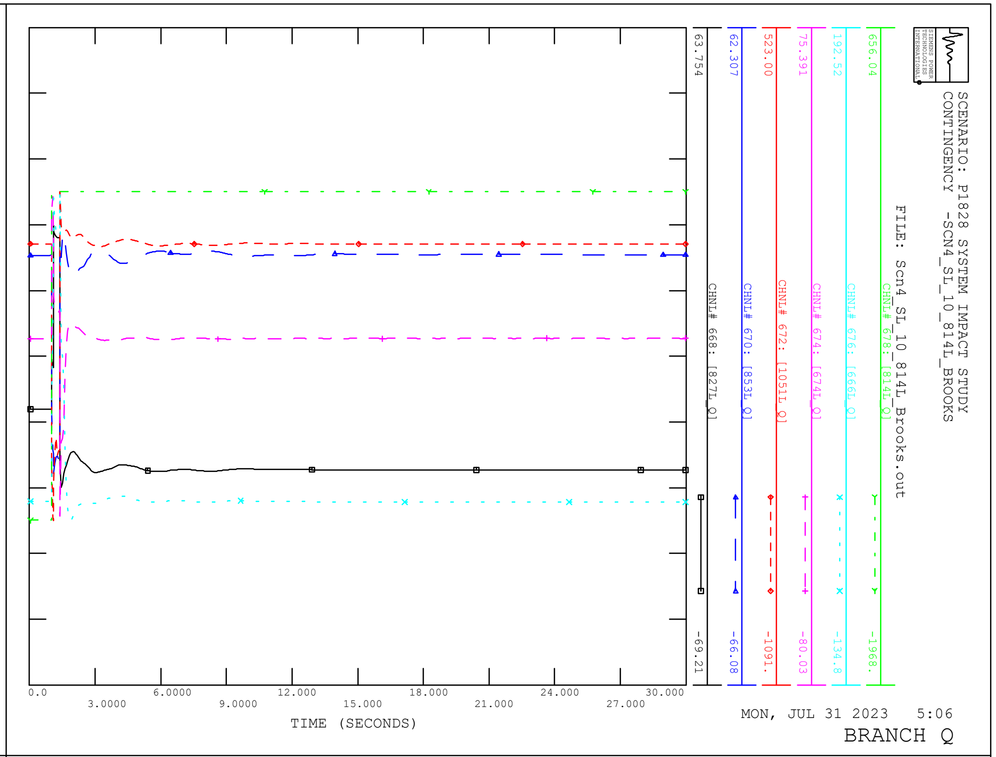
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 674: [674L_Q] 75.391 -80.03
CHNL# 676: [666L_Q] 192.52 -134.8
CHNL# 678: [814L_Q] 656.04 -1968.
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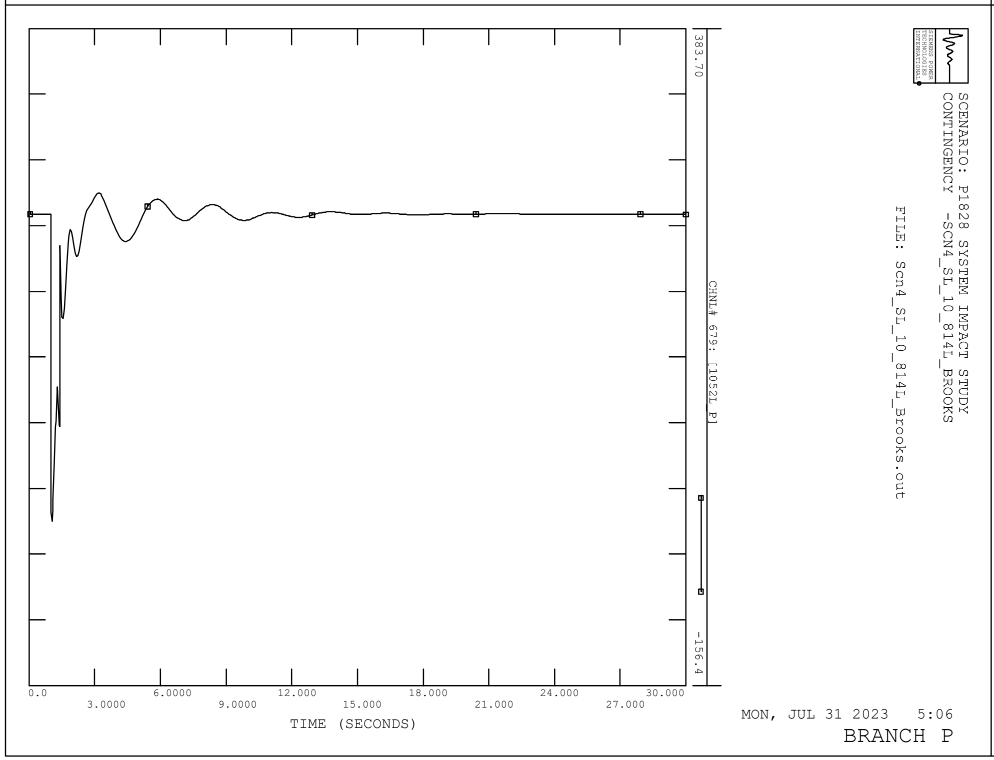
MON, JUL 31 2023 5:06
BRANCH Q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TIME (SECONDS)
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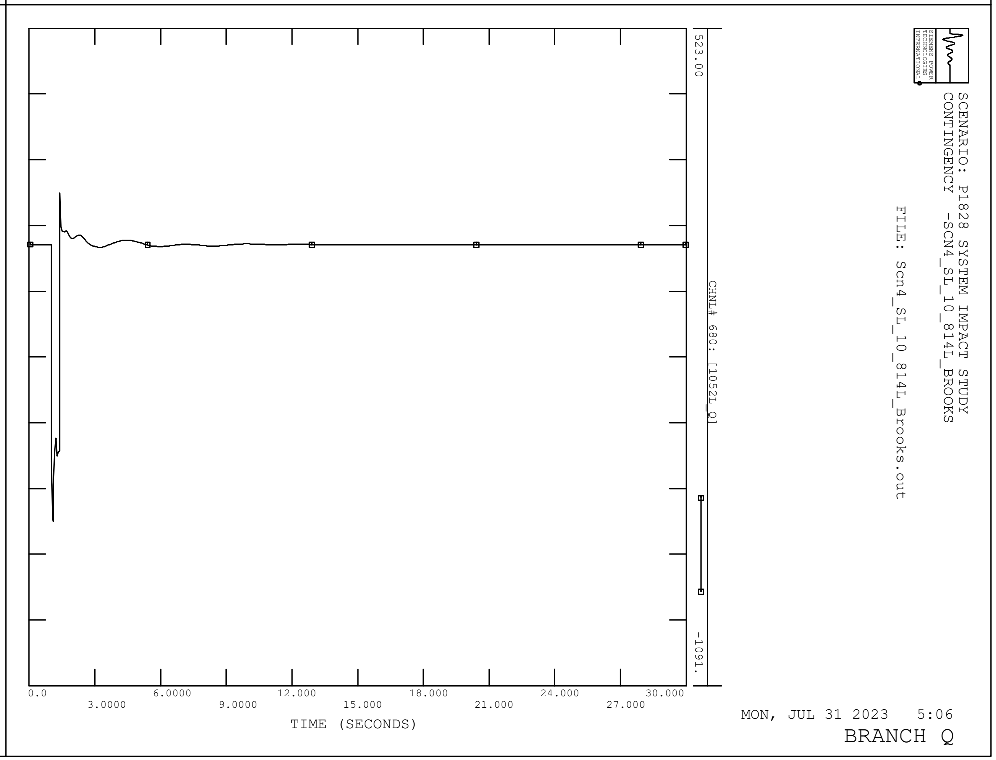
BRANCH P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TIME (SECONDS)
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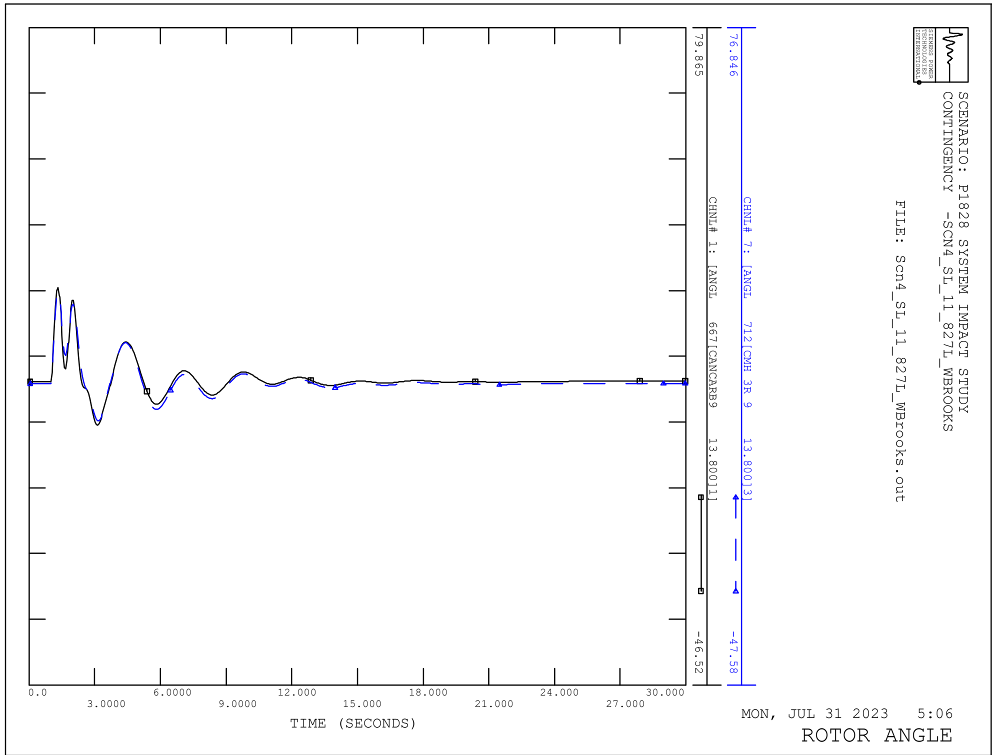
BRANCH Q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-47.58
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6.0000
9.0000
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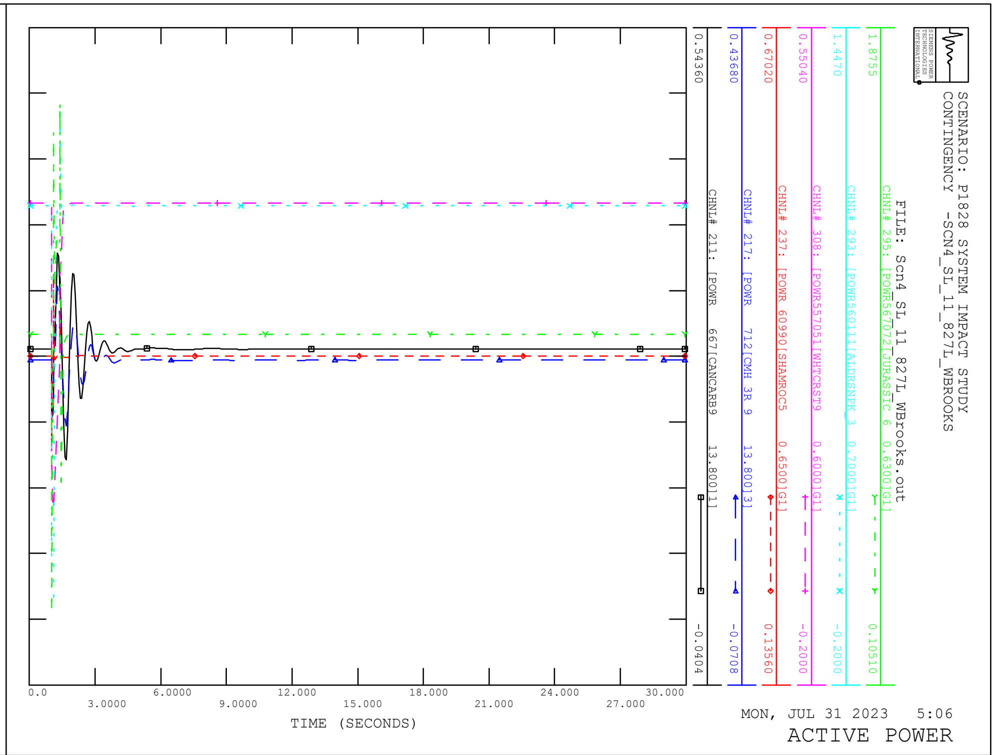
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK_3 0.7000]G1]
CHNL# 295: [POWR567072[JURASSIC_6 0.6300]G1]
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-0.0708
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-0.2000
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-0.2000
1.8755
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6.0000
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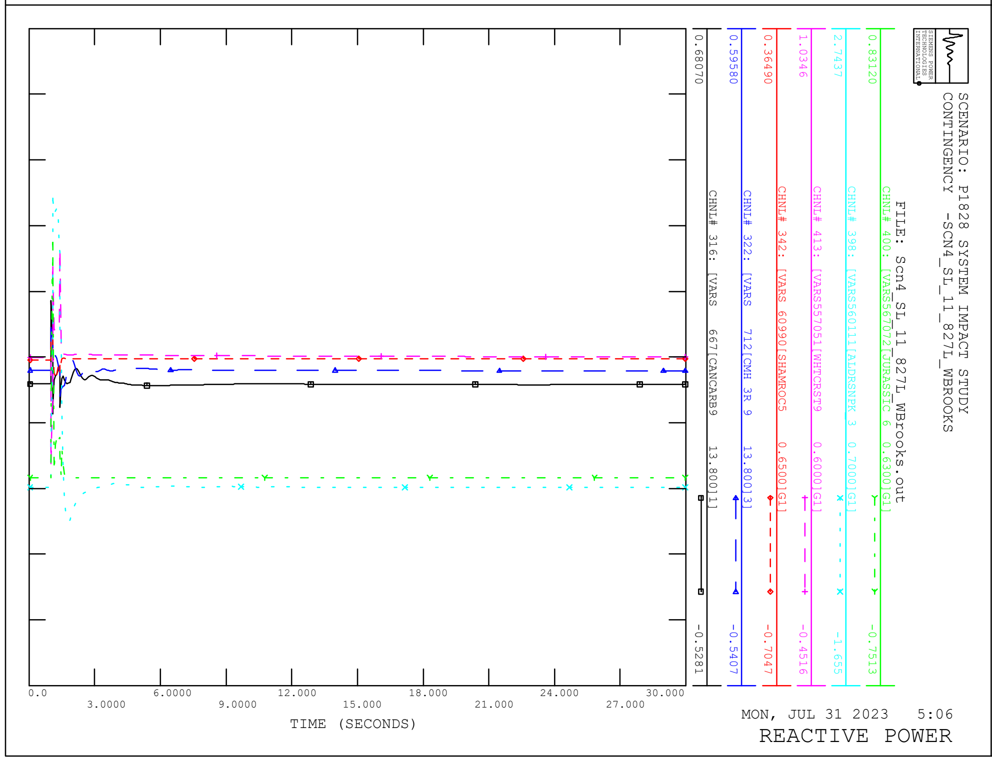
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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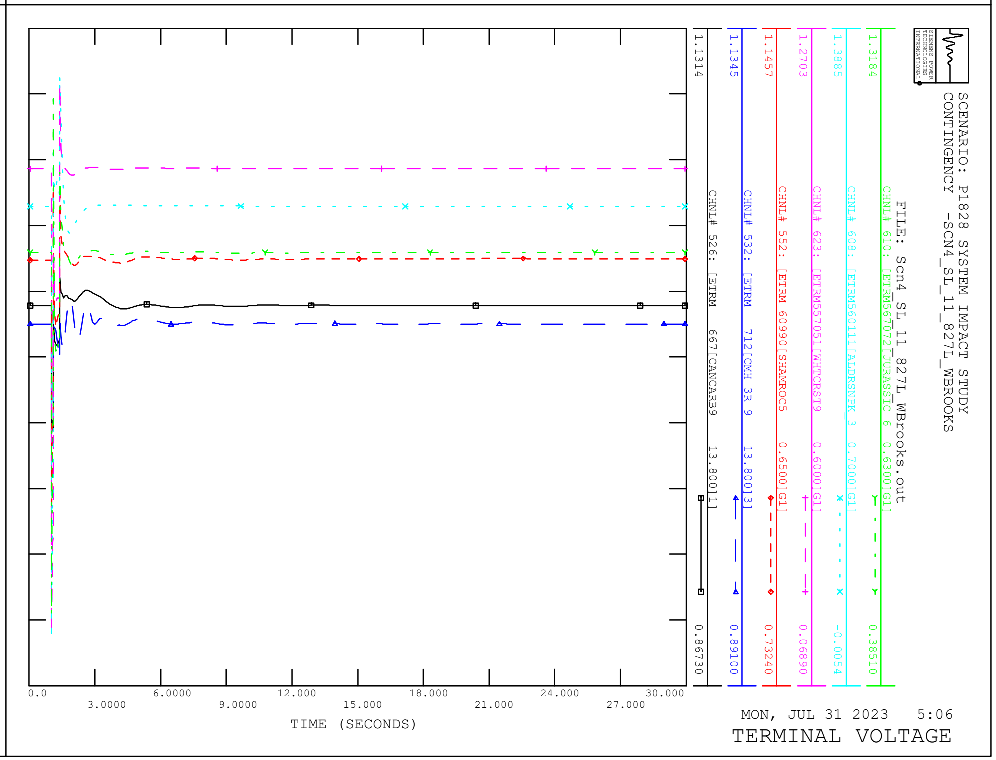
CONTINGENCY -SCN4_SL_11_827L_WBROOKS
FILE: Scn4_SL_11_827L_WBrooks.out
CHNL# 316: [VARS 667[CANCARB9 13.800]1]
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK_3 0.7000]G1]
CHNL# 400: [VARS567072[JURASSIC_6 0.6300]G1]
0.68070
-0.5281
0.59580
-0.5407
0.36490
-0.7047
1.0346
-0.4516
2.7437
-1.655
0.83120
-0.7513
0.0
3.0000
6.0000
9.0000
12.000
15.000
18.000
21.000
24.000
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_11_827L_WBROOKS
FILE: Scn4_SL_11_827L_WBrooks.out
CHNL# 526: [ETRM 667[CANCARB9 13.800]1]
CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK_3 0.7000]G1]
CHNL# 610: [ETRM567072[JURASSIC_6 0.6300]G1]
1.1314
0.86730
1.1345
0.89100
1.1457
0.73240
1.2703
0.06890
1.3885
-0.0054
1.3184
0.38510
0.0
3.0000
6.0000
9.0000
12.000
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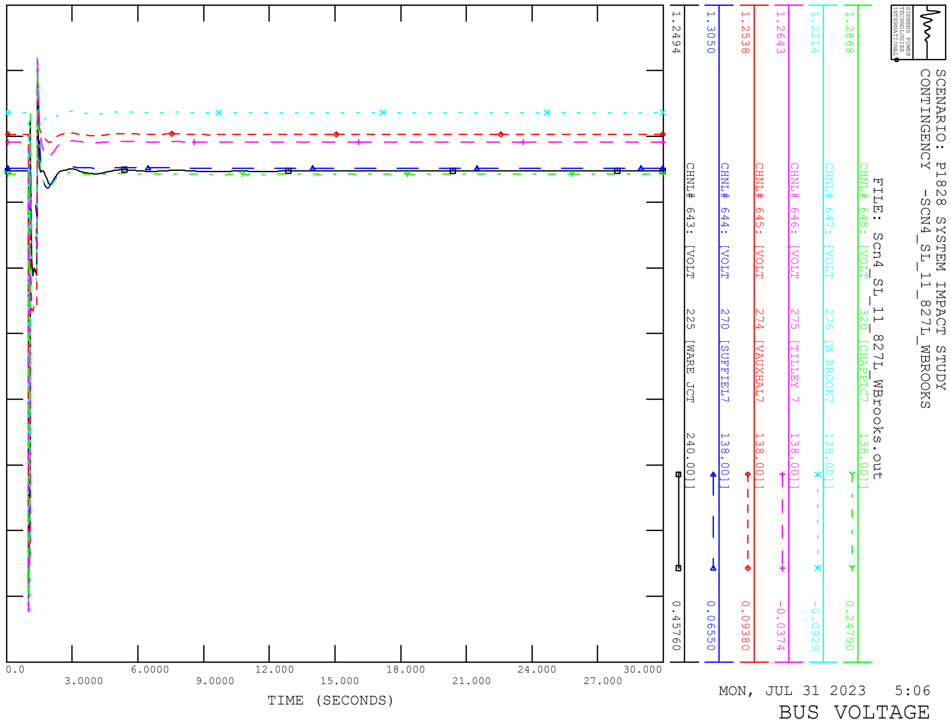
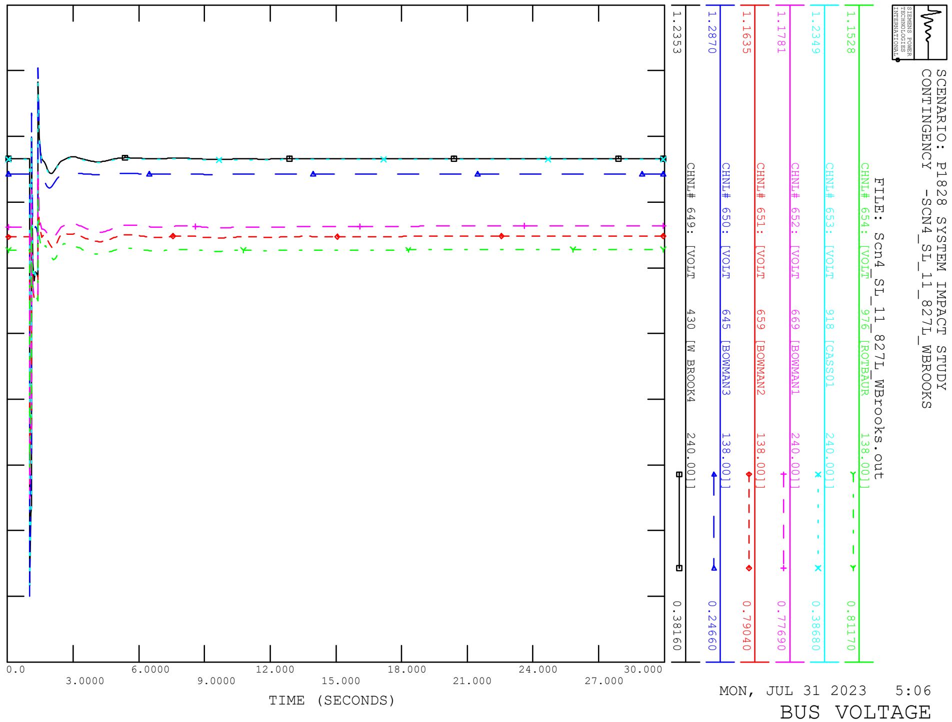
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



MON, JUL 31 2023 5:06
BUS VOLTAGE



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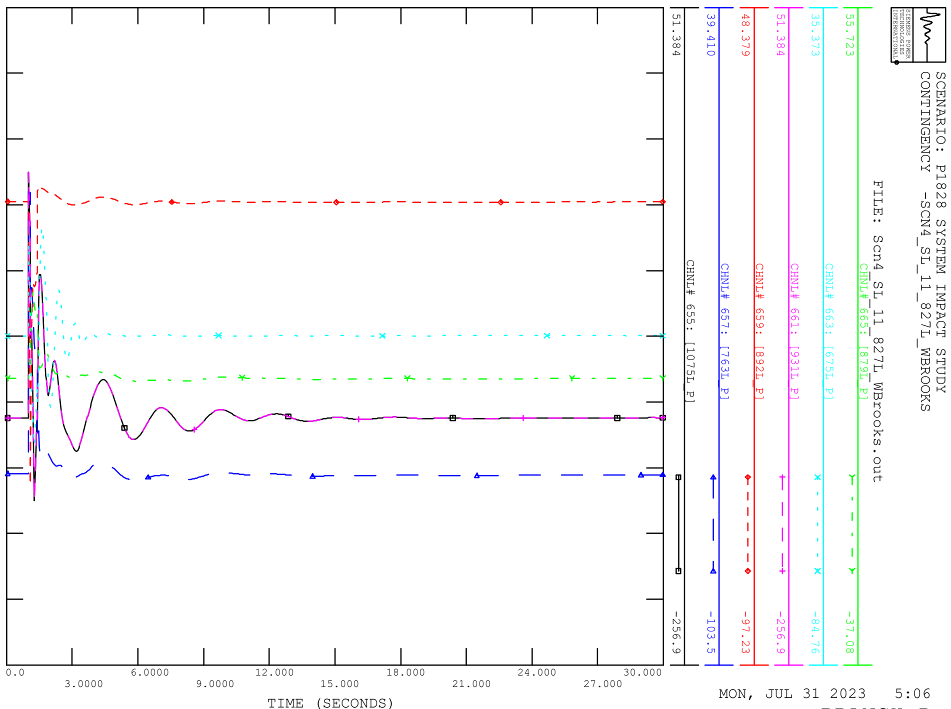
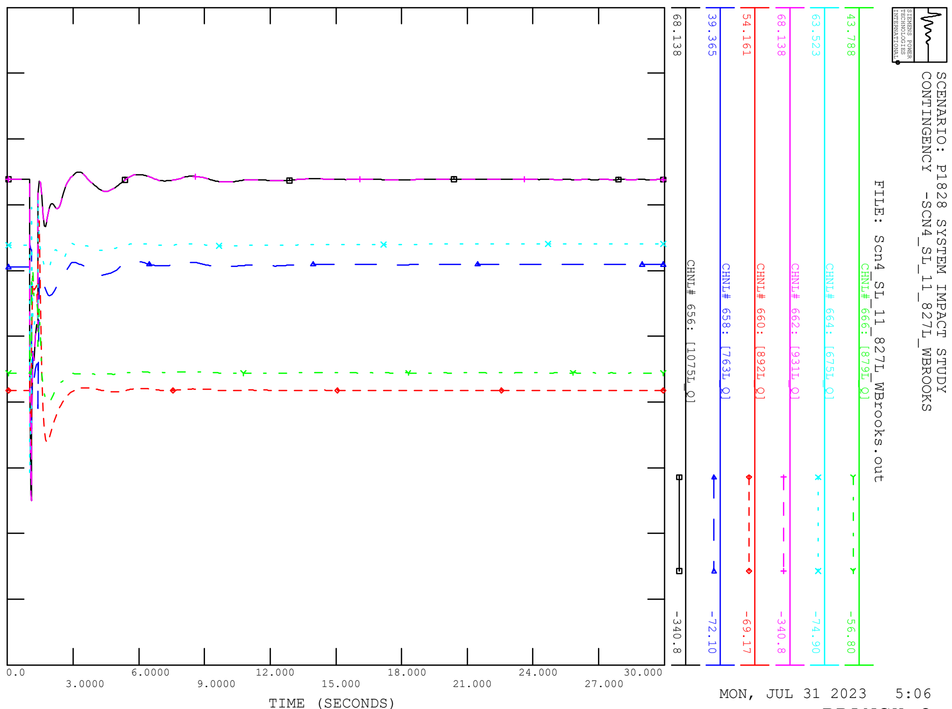
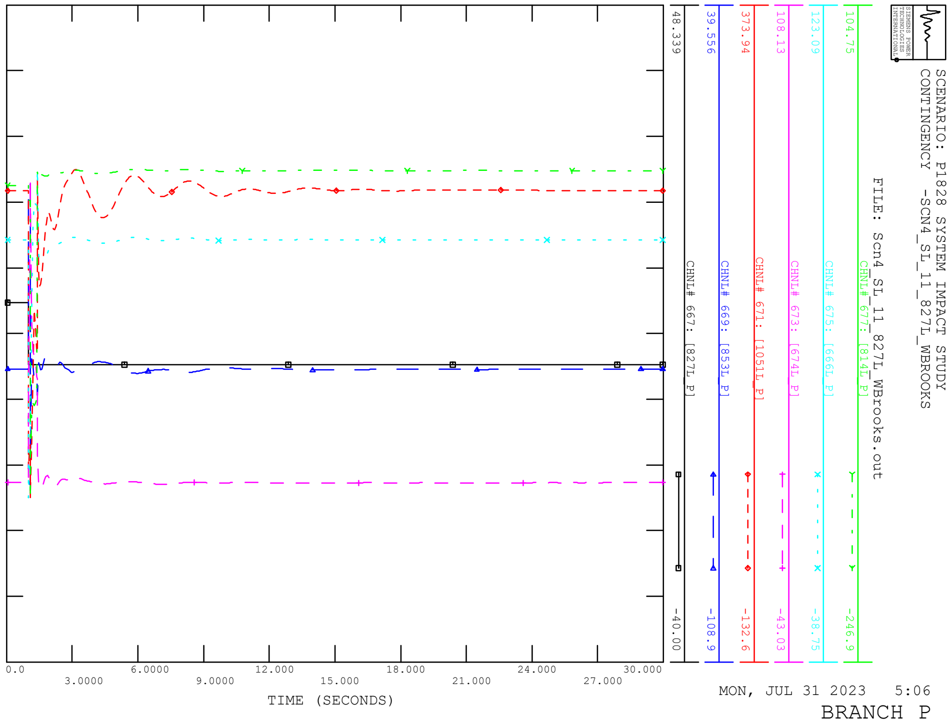


MON, JUL 31 2023 5:06
BRANCH P



MON, JUL 31 2023 5:06
BRANCH Q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39.556 CHNL# 669: [853L_P] -108.9
373.94 CHNL# 671: [1051L_P] -132.6
108.13 CHNL# 673: [674L_P] -43.03
123.09 CHNL# 675: [666L_P] -38.75
104.75 CHNL# 677: [814L_P] -246.9
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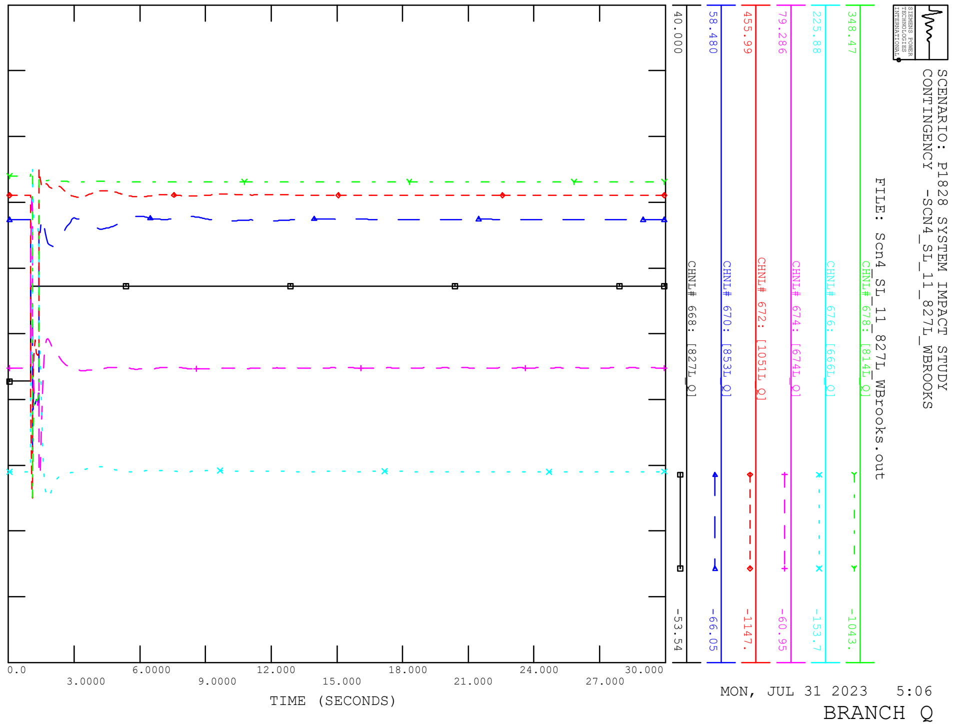
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN4_SL_11_827L_WBROOKS
FILE: Scn4_SL_11_827L_WBrooks.out
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58.480 CHNL# 670: [853L_Q] -66.05
455.99 CHNL# 672: [1051L_Q] -1147.
79.286 CHNL# 674: [674L_Q] -60.95
225.88 CHNL# 676: [666L_Q] -153.7
348.47 CHNL# 678: [814L_Q] -1043.
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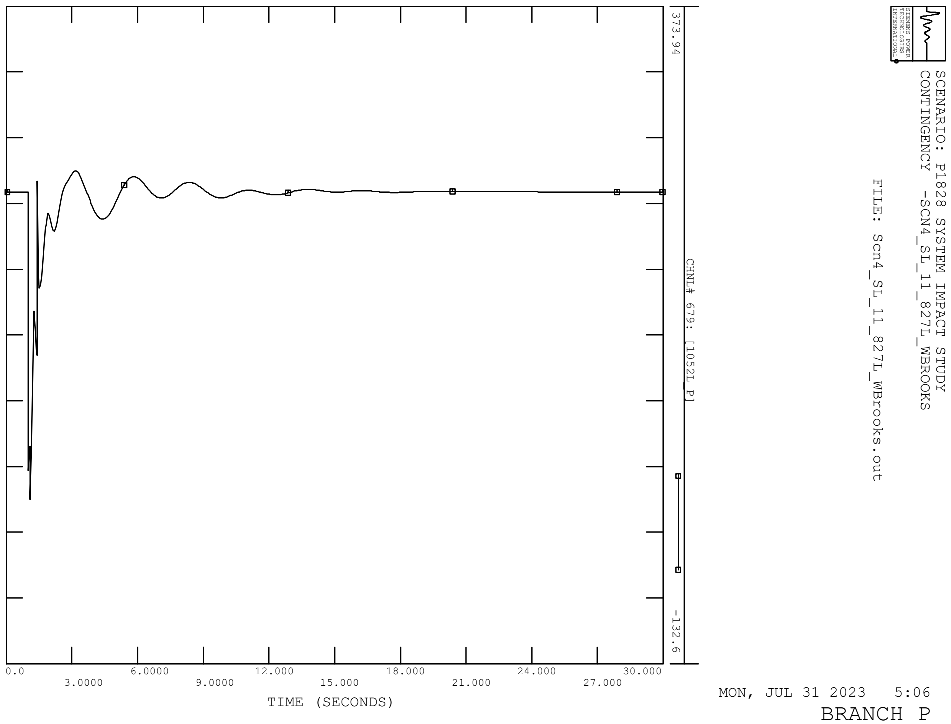
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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373.94 CHNL# 679: [1052L_P] -132.6
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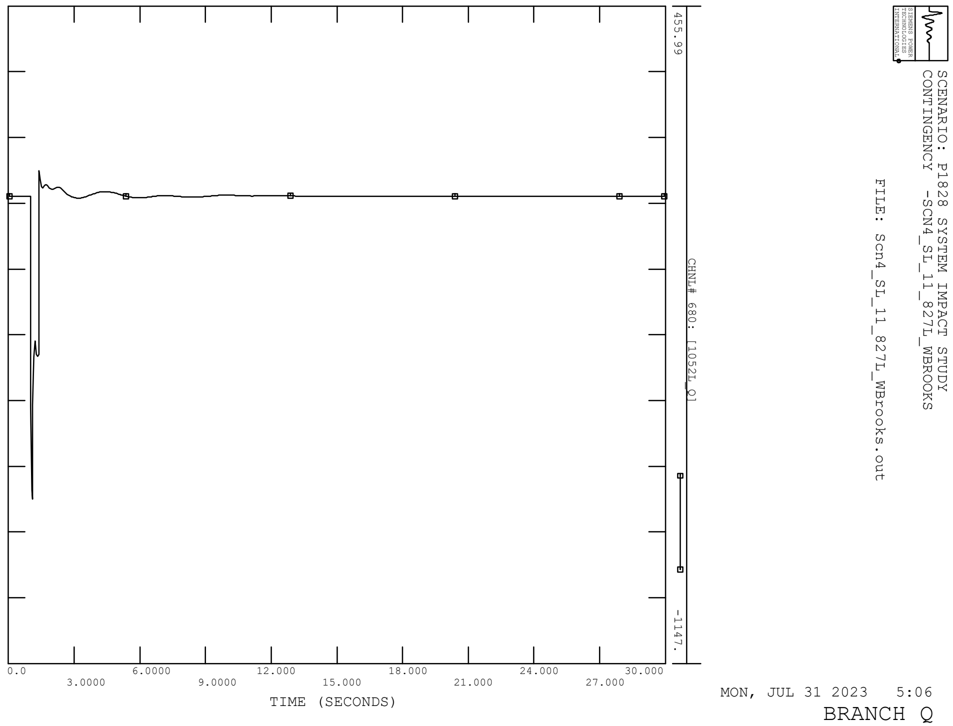
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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FILE: Scn4_SL_11_827L_WBrooks.out
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TIME (SECONDS)
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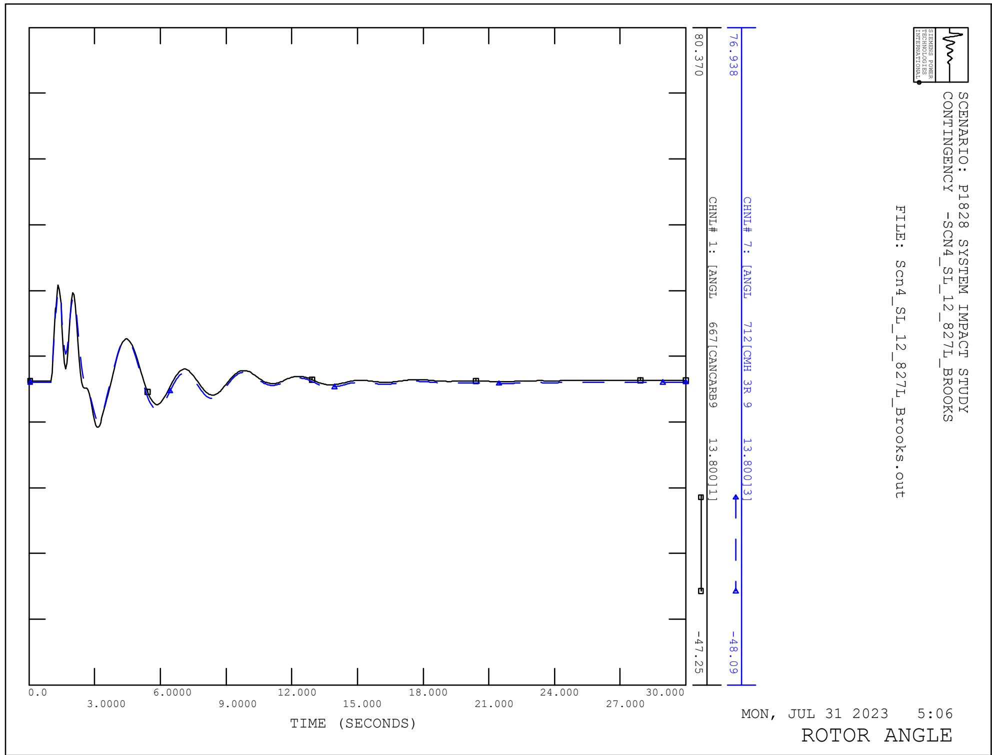
BRANCH Q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CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 1: [ANGL 667[CANCARB9 13.800]1]
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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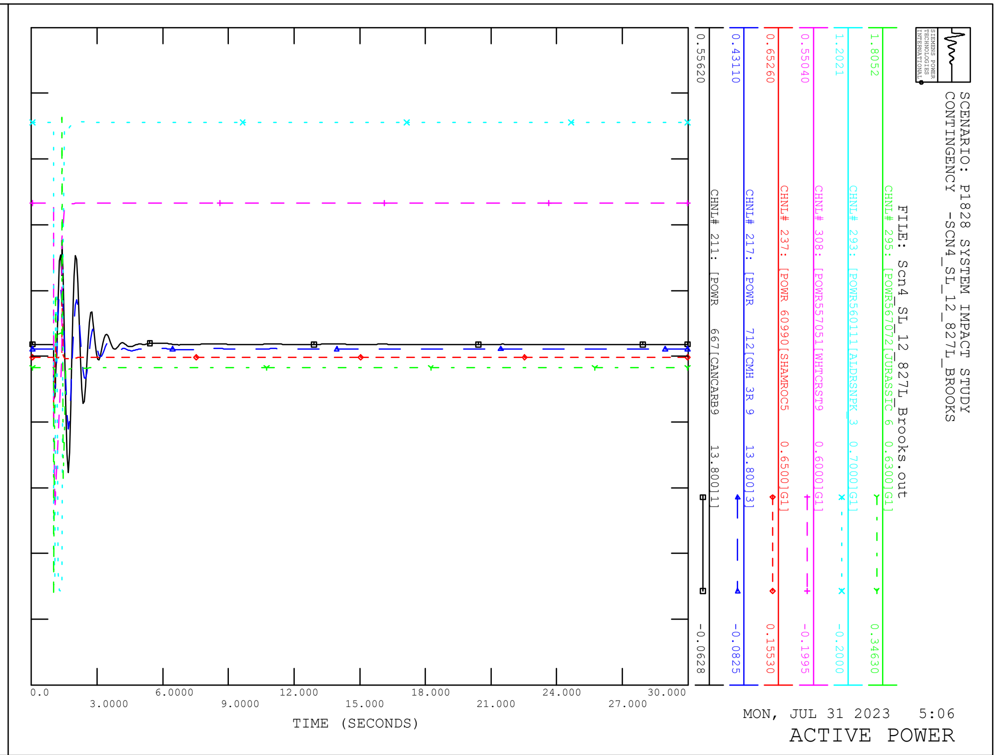
-48.09
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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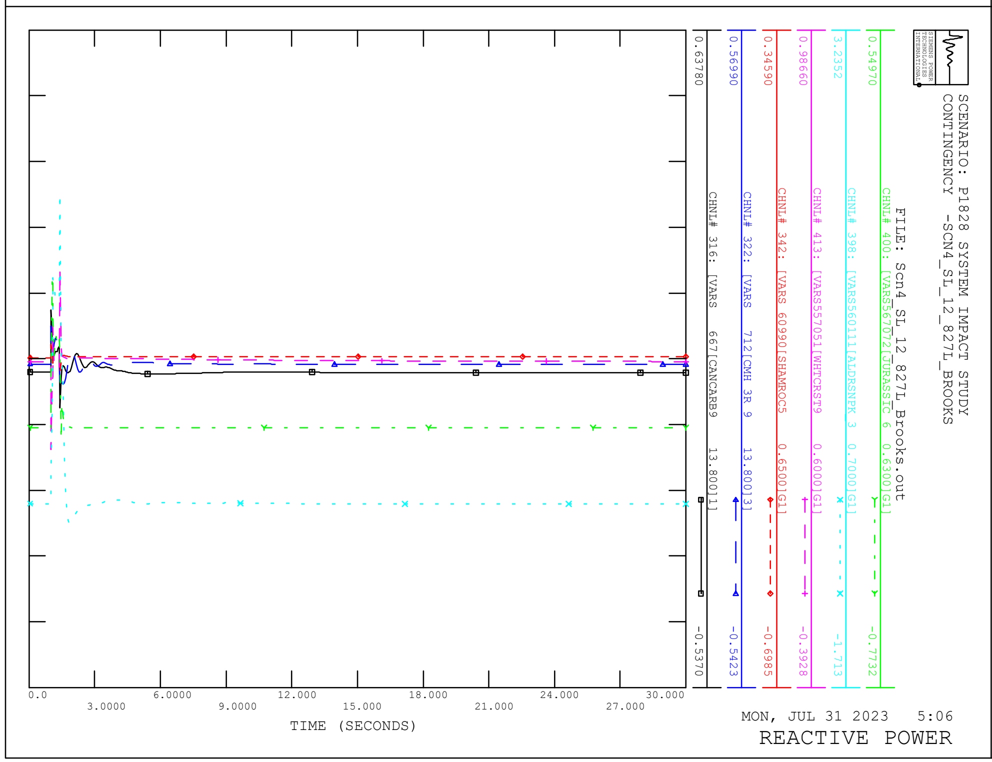
CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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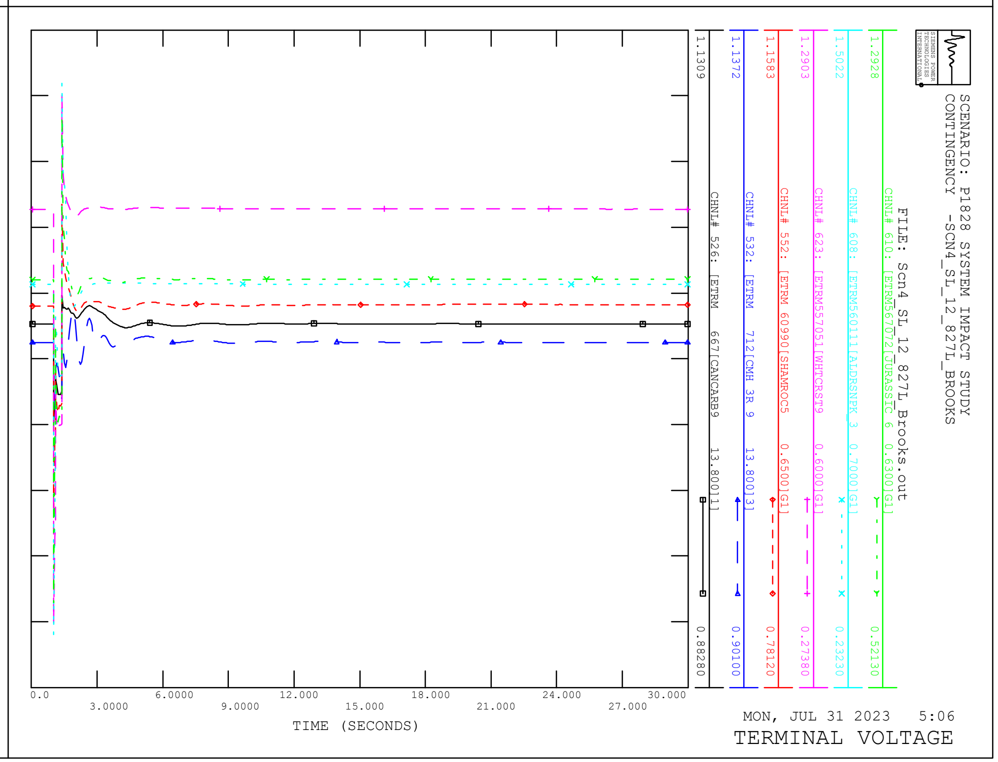
CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 316: [VARS 667[CANCARB9 13.800]1]
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
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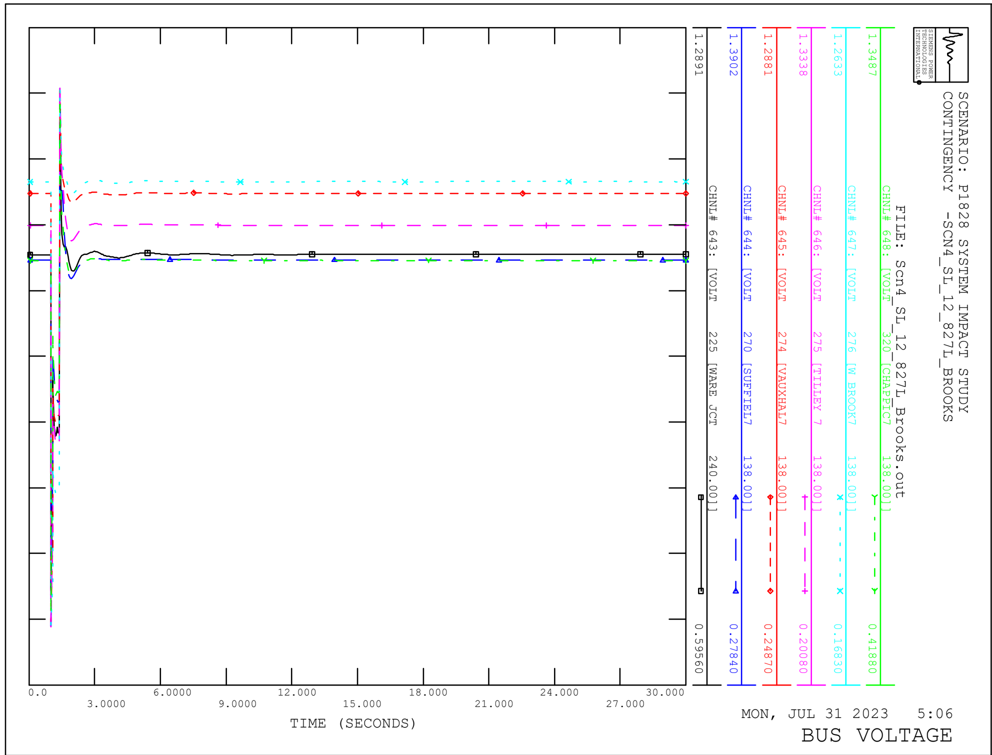
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.2891 0.59560
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3902 0.27840
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2881 0.24870
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3338 0.20080
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.2633 0.16830
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.3487 0.41880
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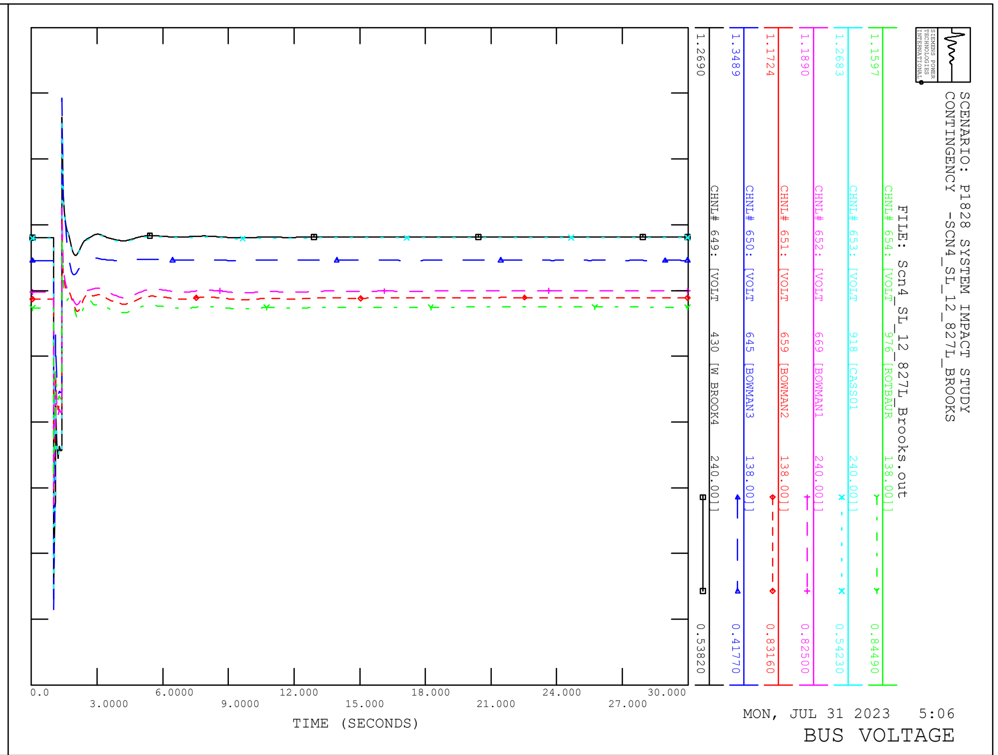
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]] 1.2690 0.53820
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3489 0.41770
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1724 0.83160
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1890 0.82500
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.2683 0.54230
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1597 0.84490
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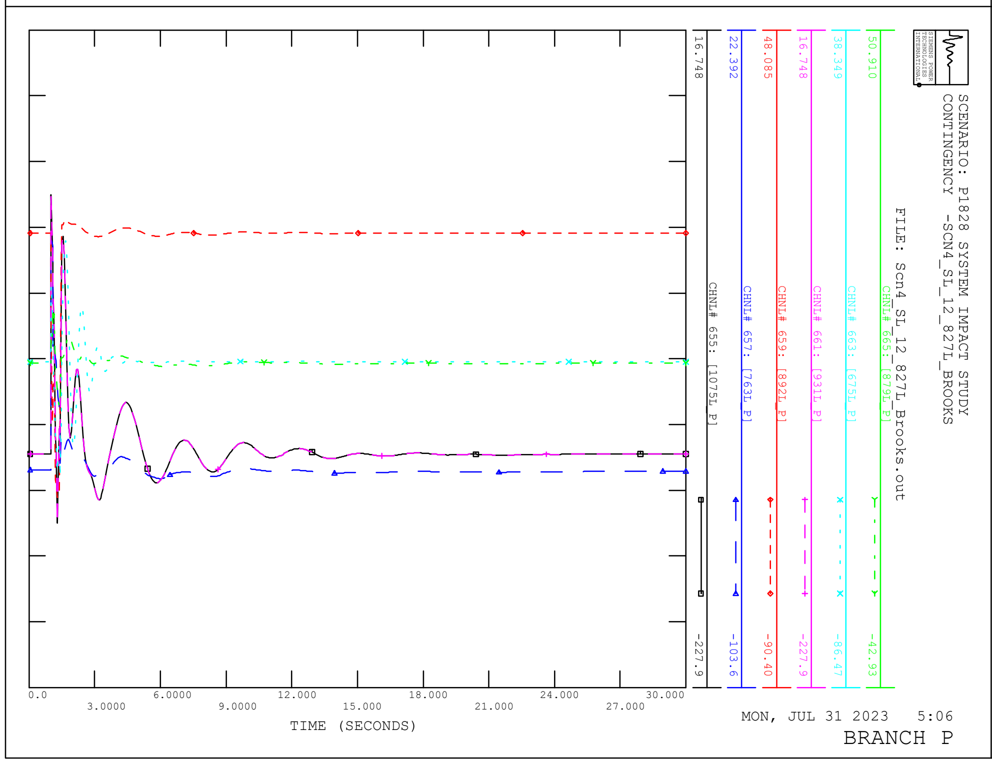
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_12_827L_BROOKS
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CHNL# 655: [1075L_P] 16.748 -227.9
CHNL# 657: [763L_P] 22.392 -103.6
CHNL# 659: [892L_P] 48.085 -90.40
CHNL# 661: [931L_P] 16.748 -227.9
CHNL# 663: [675L_P] 38.349 -86.47
CHNL# 665: [879L_P] 50.910 -42.93
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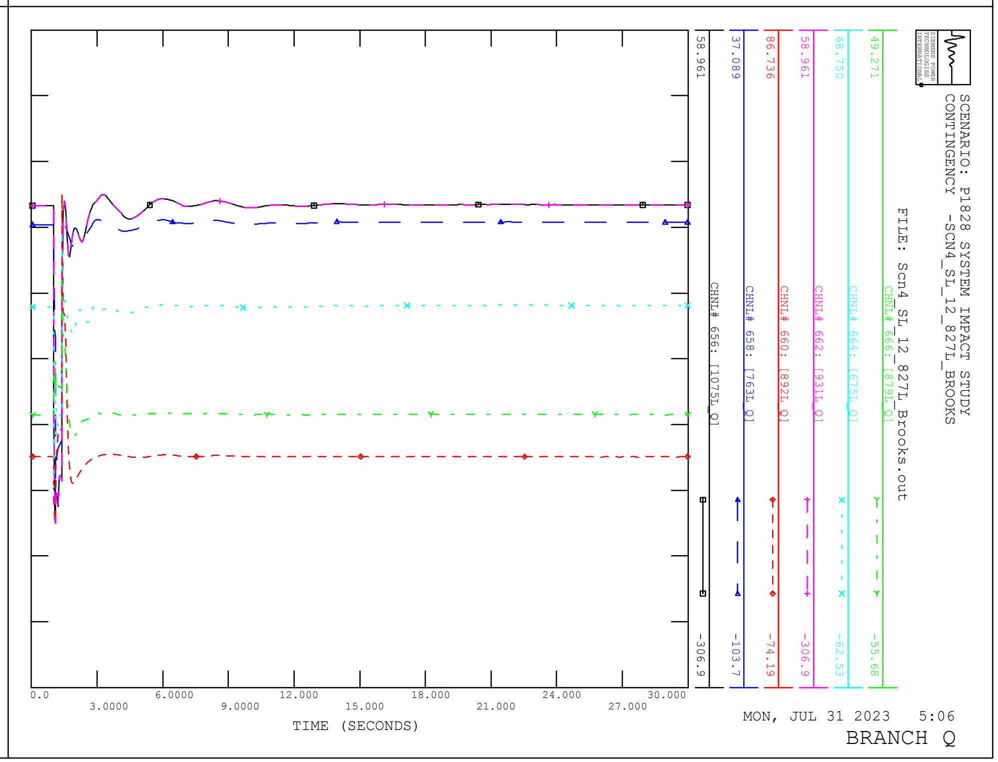
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L_Q] 37.089 -103.7
CHNL# 660: [892L_Q] 86.736 -74.19
CHNL# 662: [931L_Q] 58.961 -306.9
CHNL# 664: [675L_Q] 68.750 -62.53
CHNL# 666: [879L_Q] 49.271 -55.68
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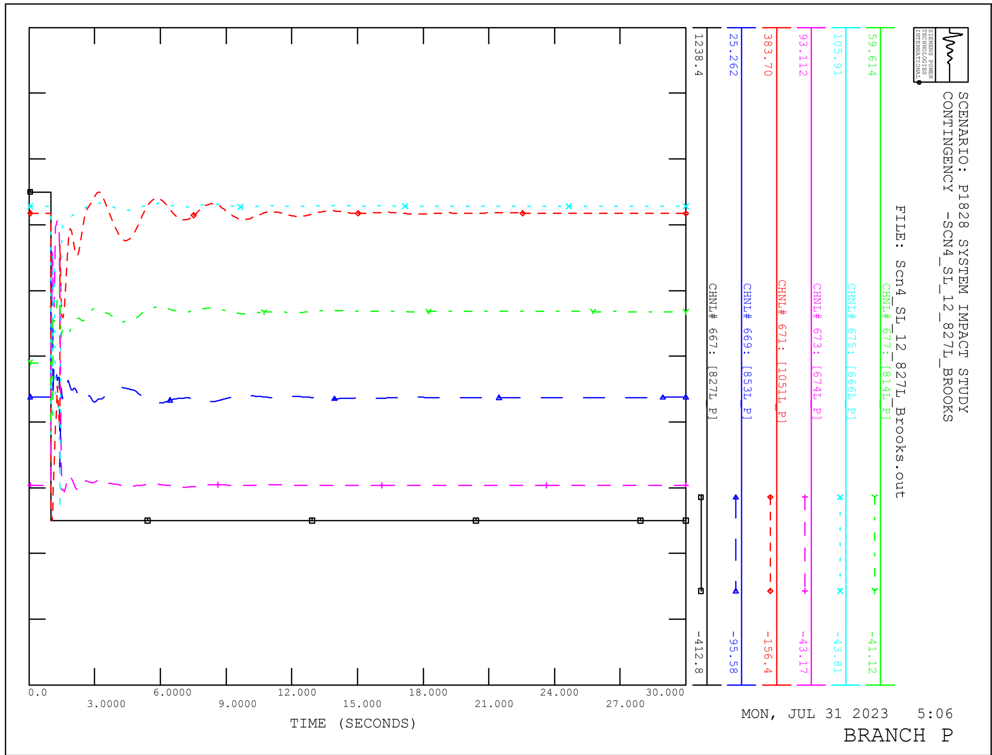
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
CHNL# 675: [666L_P]
CHNL# 677: [814L_P]
1238.4
-412.8
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-95.58
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93.112
-43.17
105.91
-43.81
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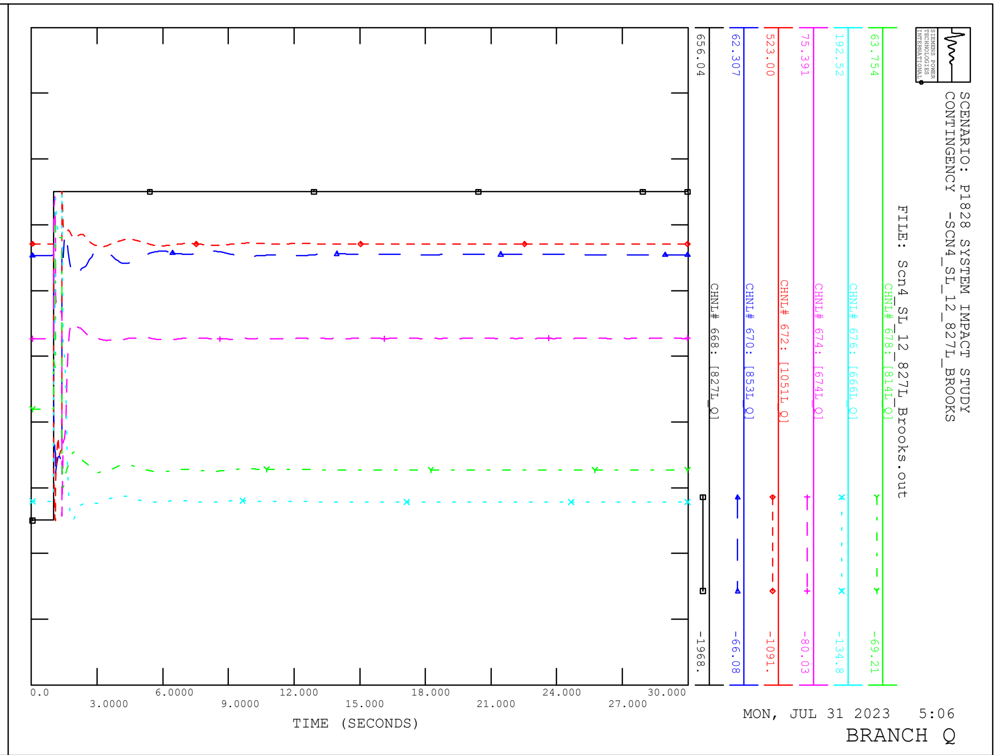
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
CHNL# 674: [674L_Q]
CHNL# 676: [666L_Q]
CHNL# 678: [814L_Q]
656.04
-1968.
62.307
-66.08
523.00
-1091.
75.391
-80.03
192.52
-134.8
63.754
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0.0
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6.0000
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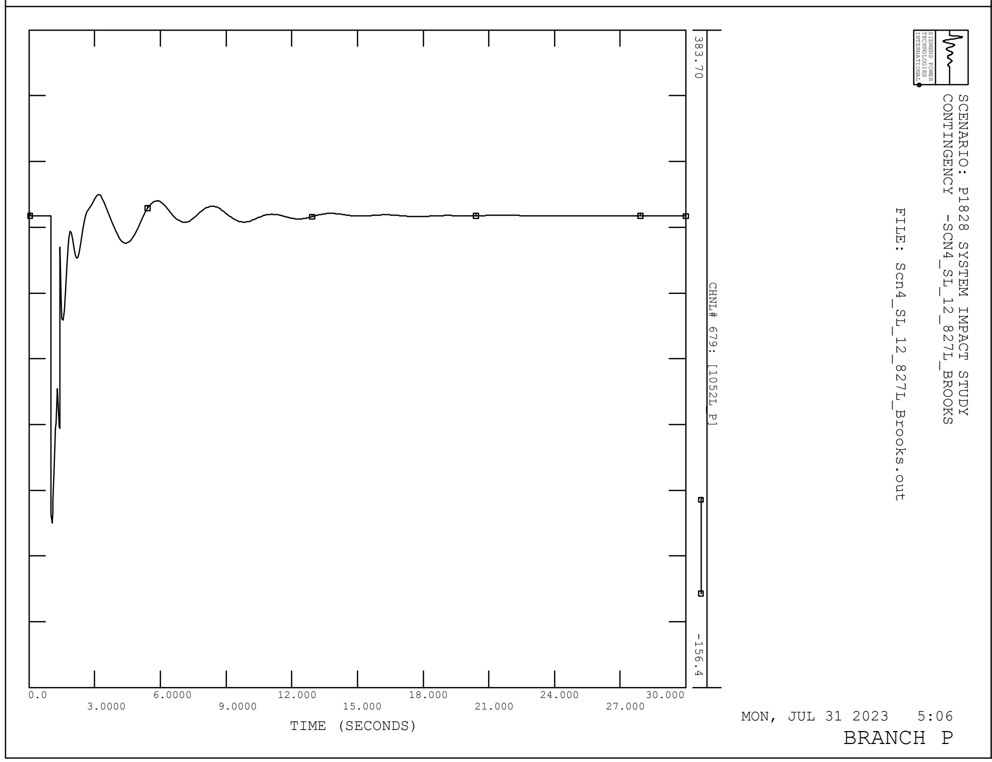
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
CHNL# 679: [1052L_P]
383.70
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6.0000
9.0000
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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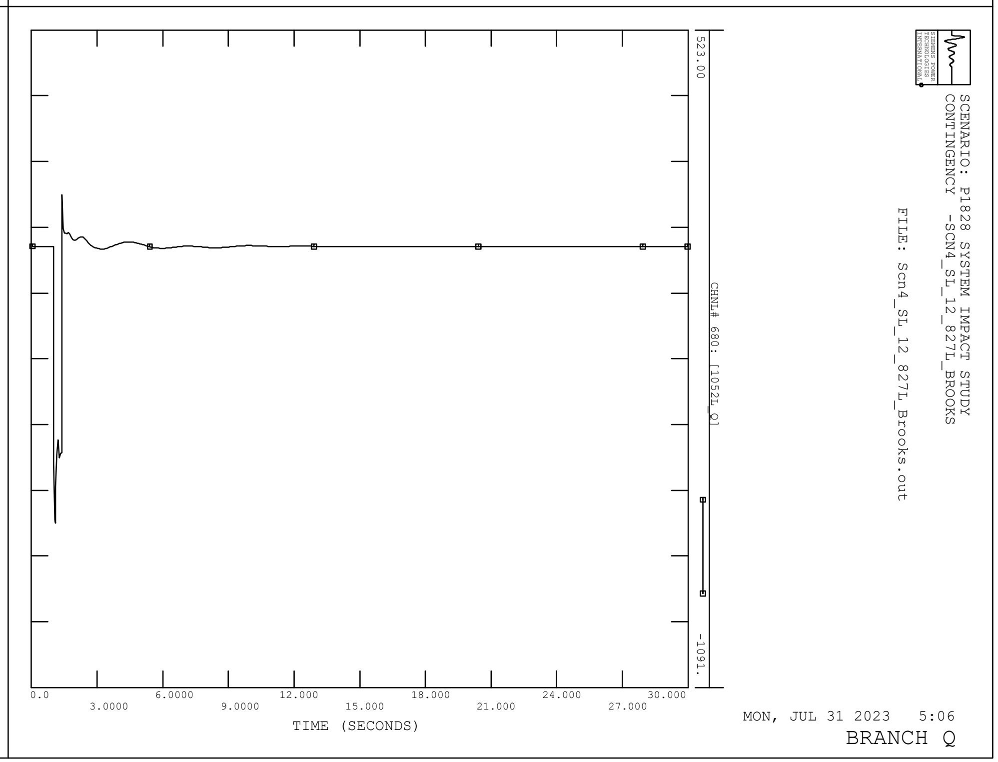
SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_12_827L_BROOKS
FILE: Scn4_SL_12_827L_Brooks.out
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523.00
-1091.
0.0
3.0000
6.0000
9.0000
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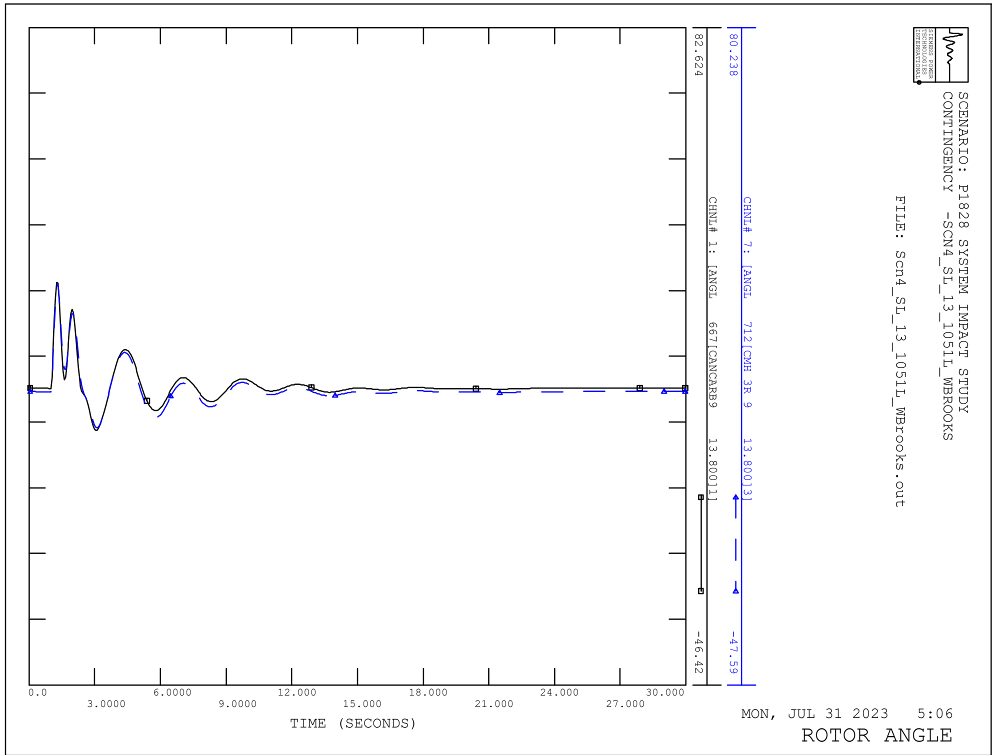
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_13_1051L_WBROOKS
FILE: Scn4_SL_13_1051L_WBrooks.out
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80.238 CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3] -47.59
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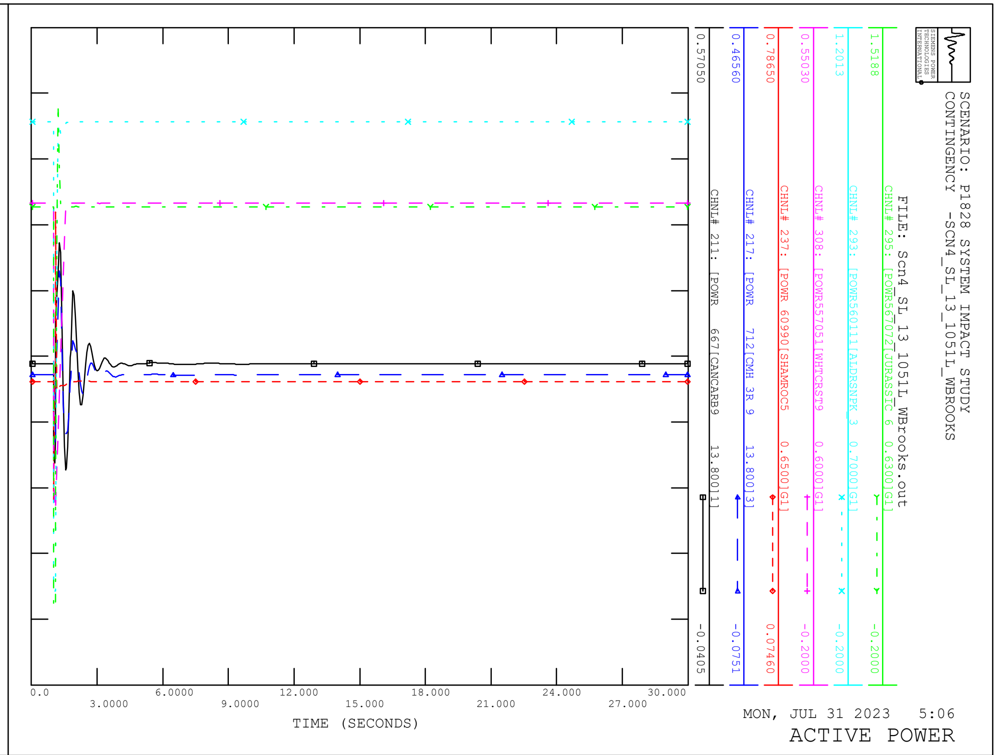
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CONTINGENCY -SCN4_SL_13_1051L_WBROOKS
FILE: Scn4_SL_13_1051L_WBrooks.out
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0.46560 CHNL# 217: [POWR 712[CMH 3R 9 13.800]3] -0.0751
0.78650 CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 0.07460
0.55030 CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] -0.2000
1.2013 CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1] -0.2000
1.5188 CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1] -0.2000
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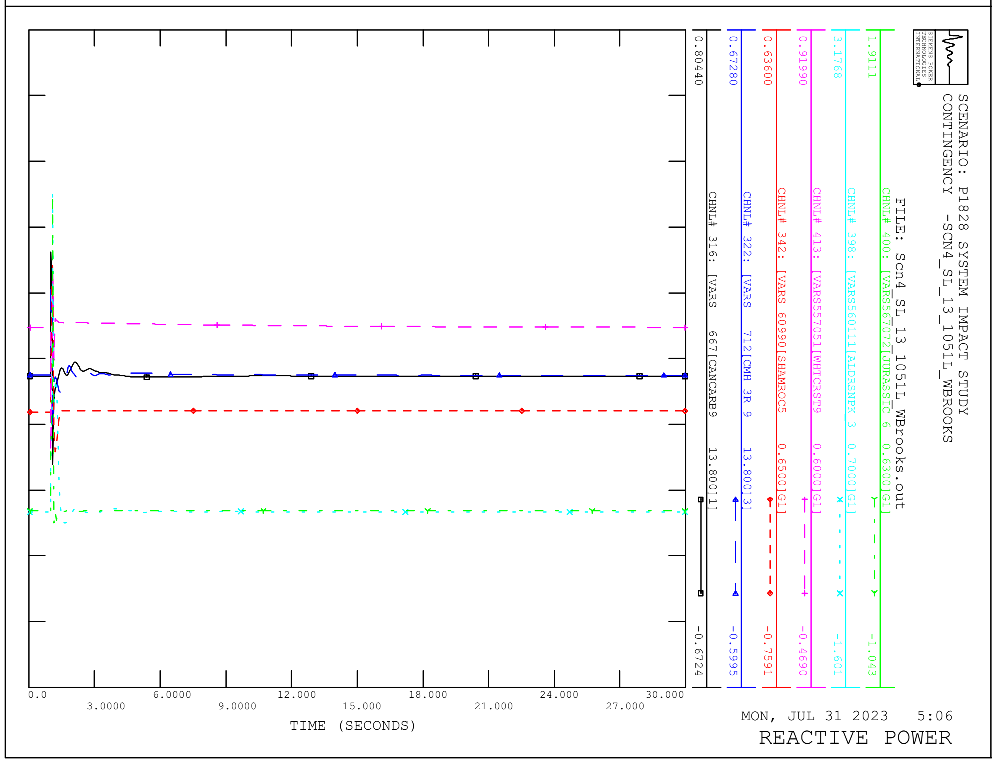
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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CONTINGENCY -SCN4_SL_13_1051L_WBROOKS
FILE: Scn4_SL_13_1051L_WBrooks.out
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0.67280 CHNL# 322: [VARS 712[CMH 3R 9 13.800]3] -0.5995
0.63600 CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] -0.7591
0.91990 CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1] -0.4690
3.1768 CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1] -1.601
1.9111 CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1] -1.043
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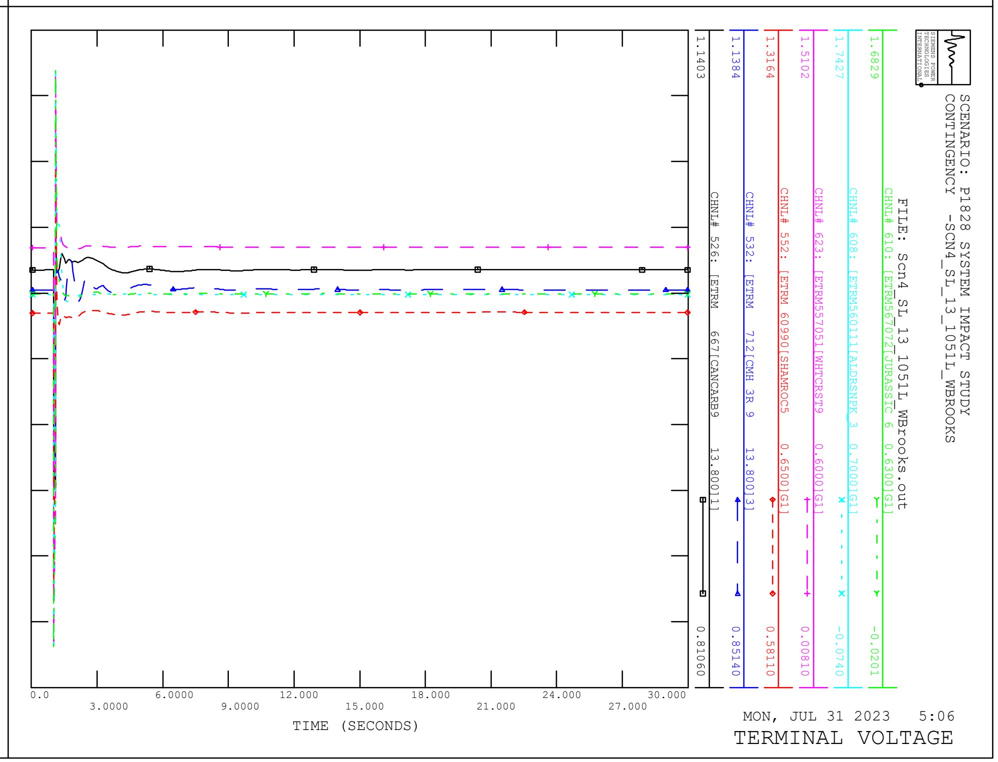
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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1.1384 CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3] 0.85140
1.3164 CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1] 0.58110
1.5102 CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] 0.00810
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1.6829 CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1] -0.0201
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MON, JUL 31 2023 5:06
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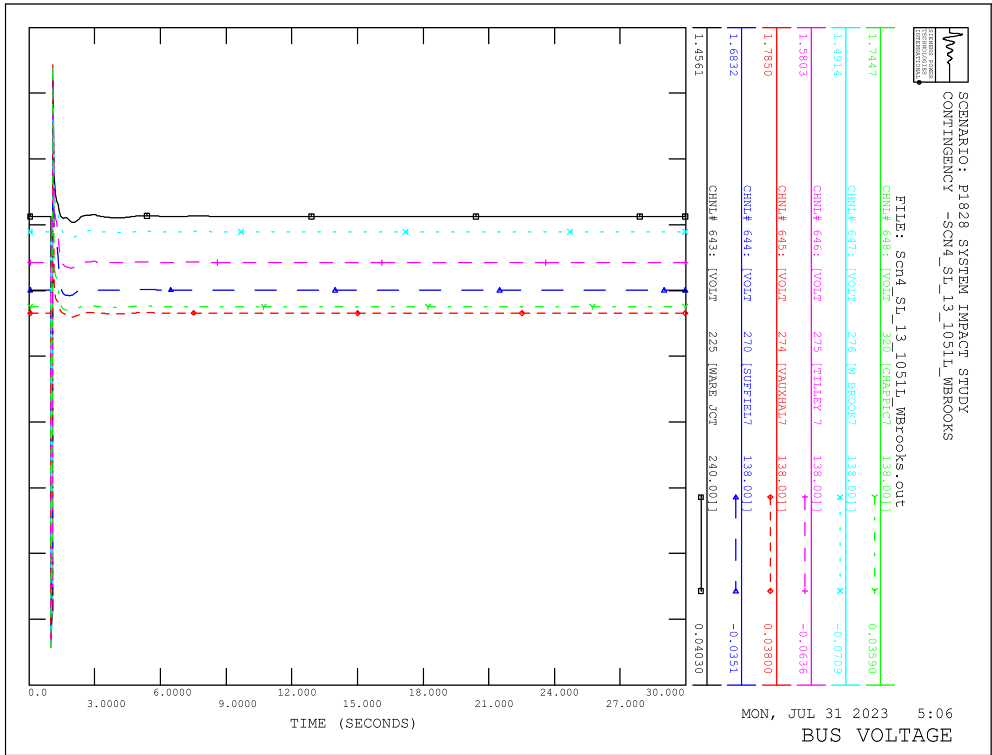
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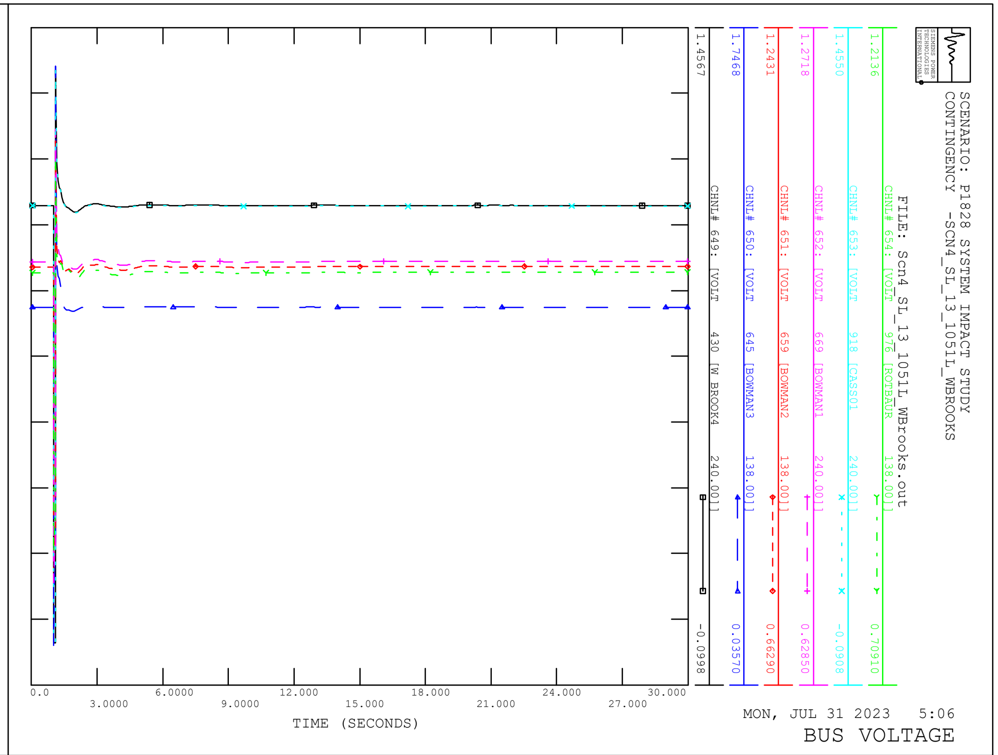
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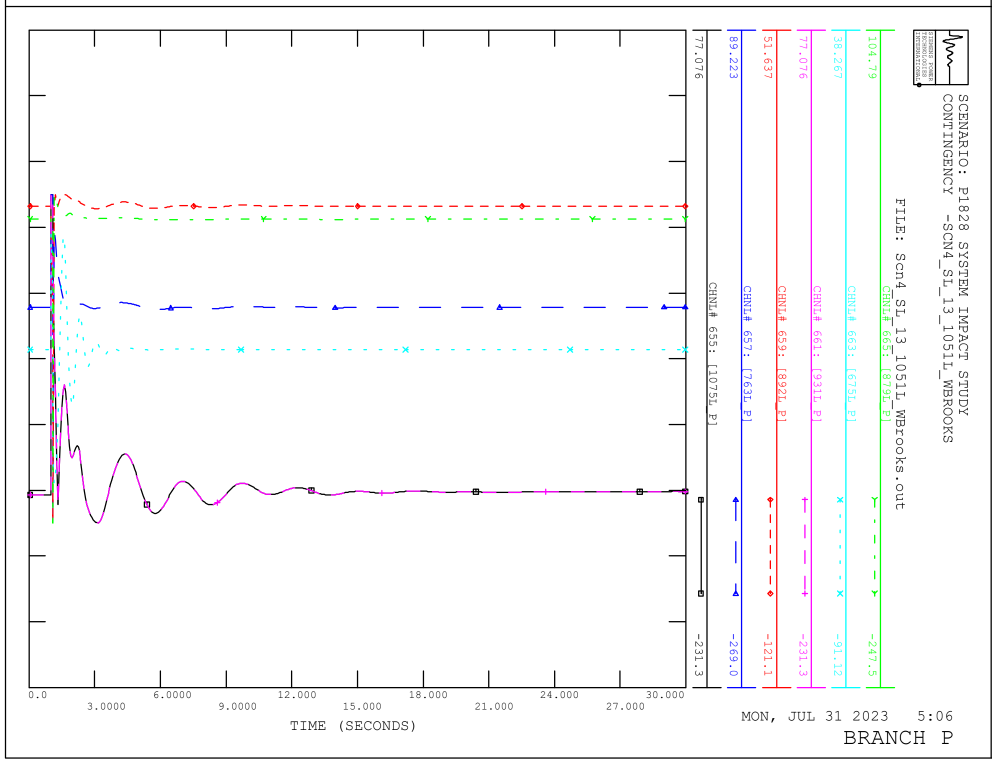
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CHNL# 663: [675L_P] 38.267 -91.12
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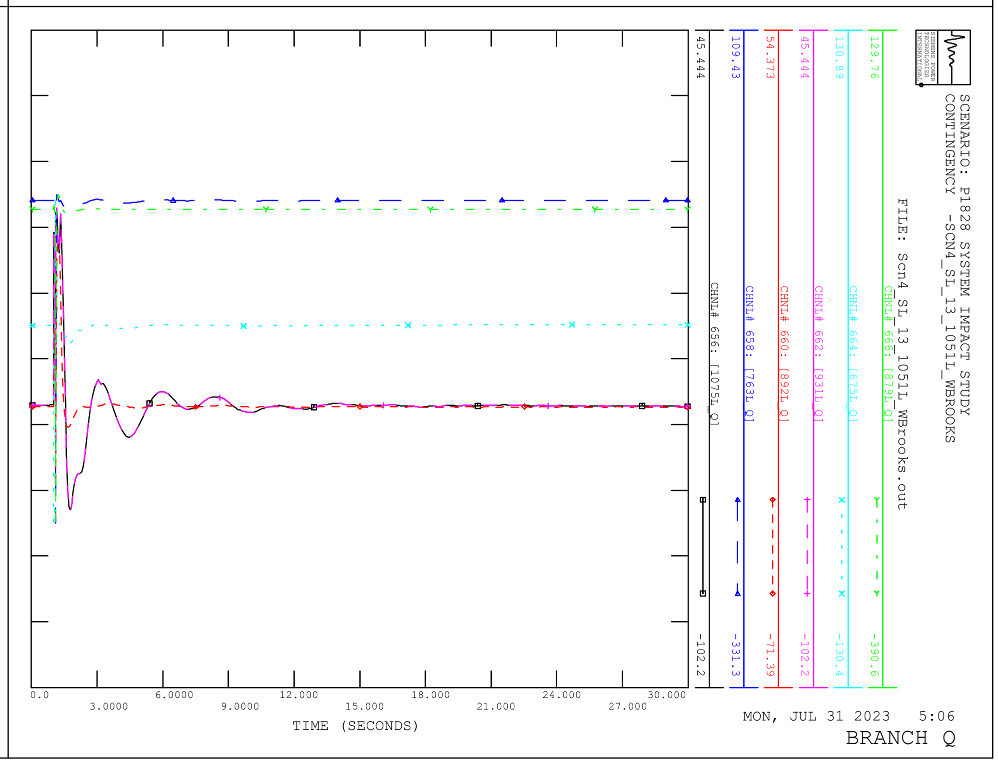
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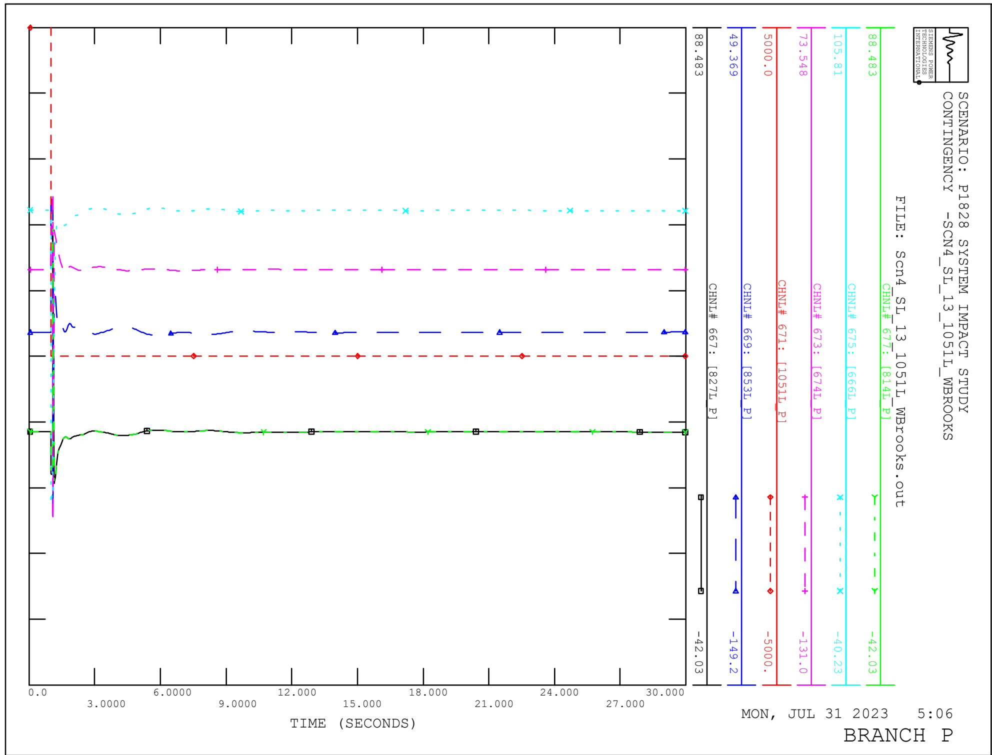
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CHNL# 673: [674L_P] 73.548 -131.0
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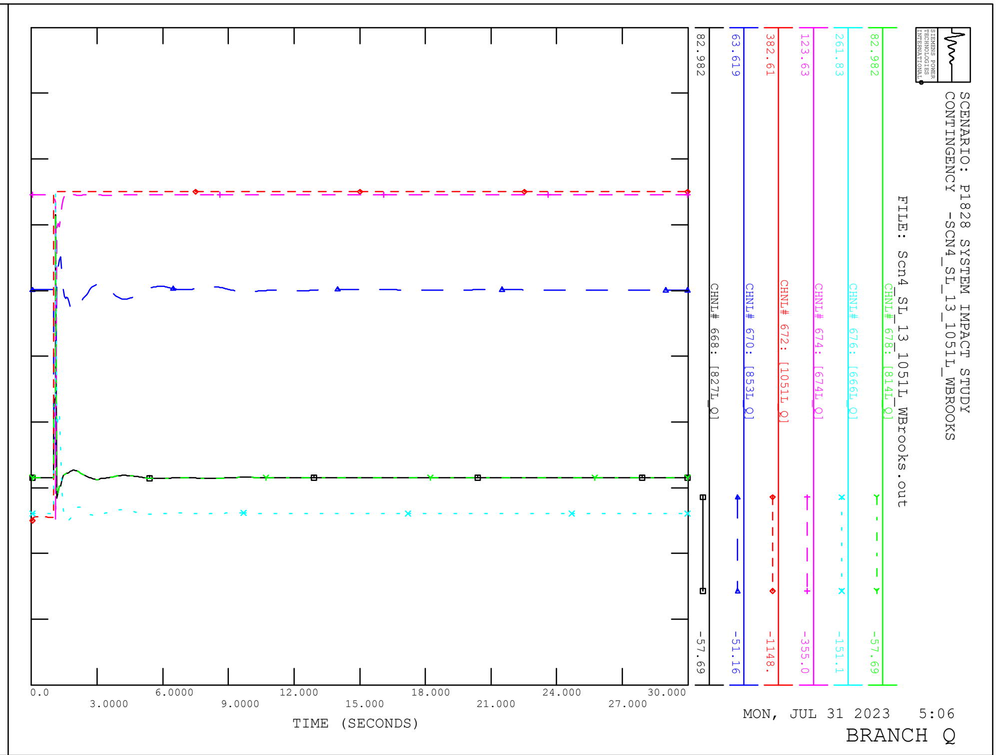
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CHNL# 672: [1051L_Q] 382.61 -1148.
CHNL# 674: [674L_Q] 123.63 -355.0
CHNL# 676: [666L_Q] 261.83 -151.1
CHNL# 678: [814L_Q] 82.982 -57.69
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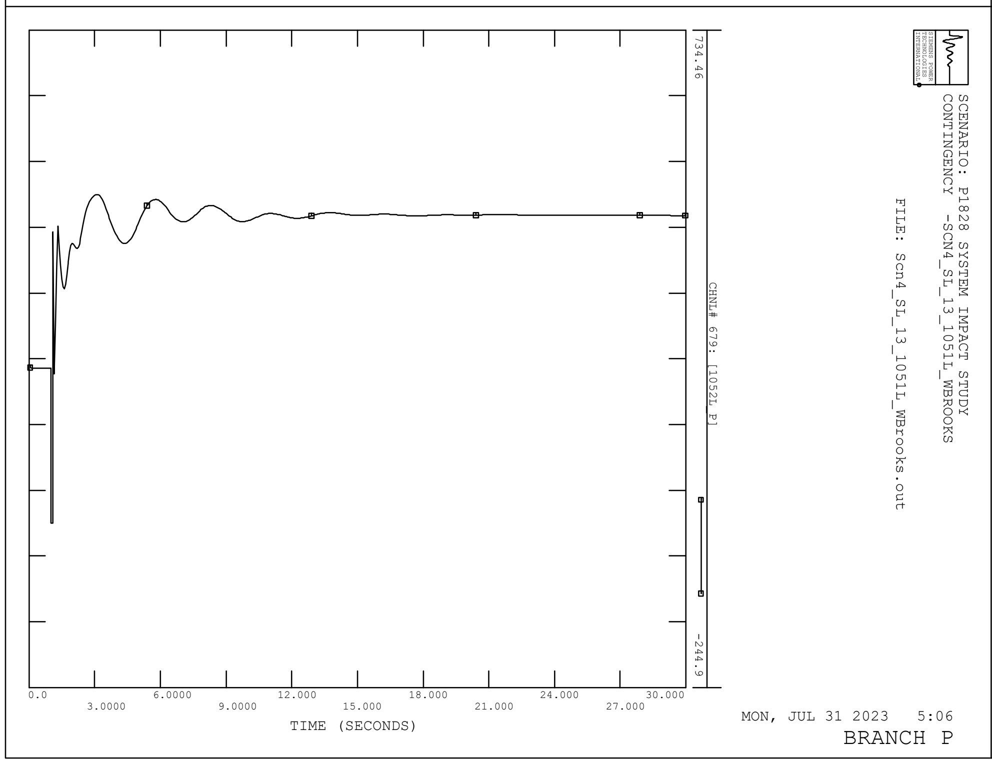
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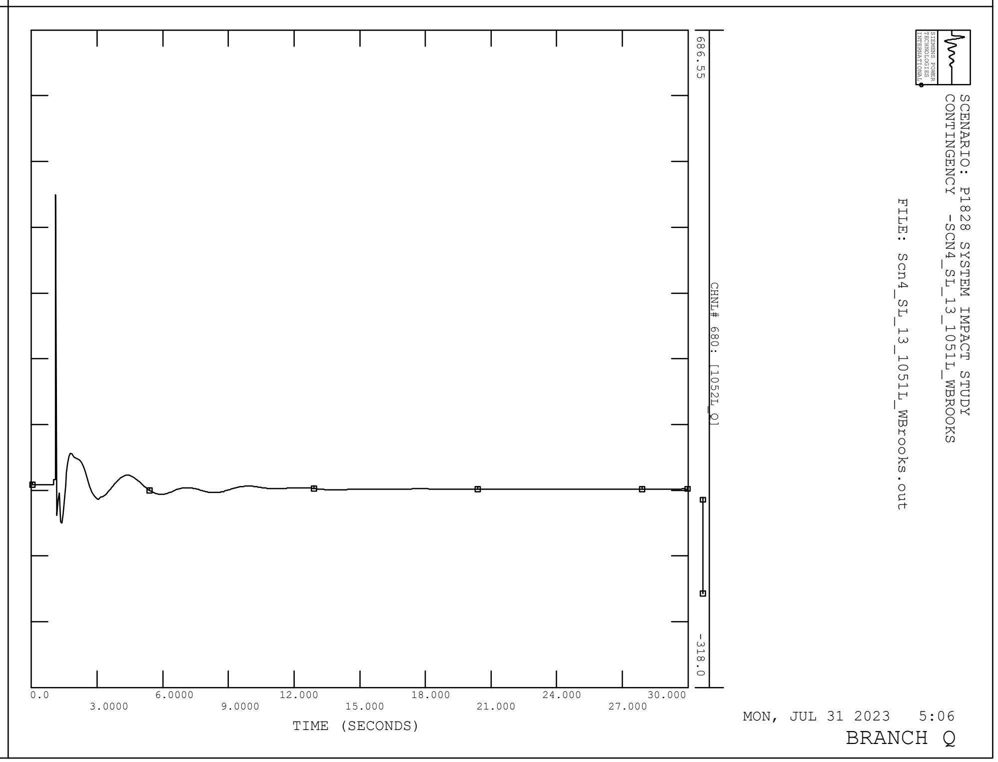
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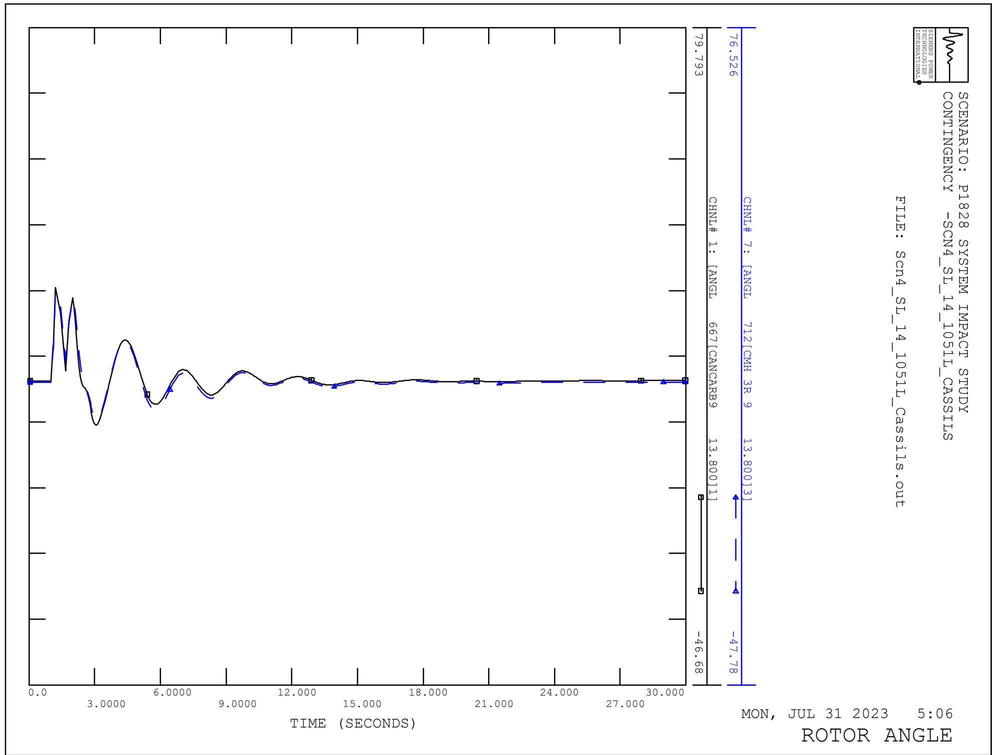
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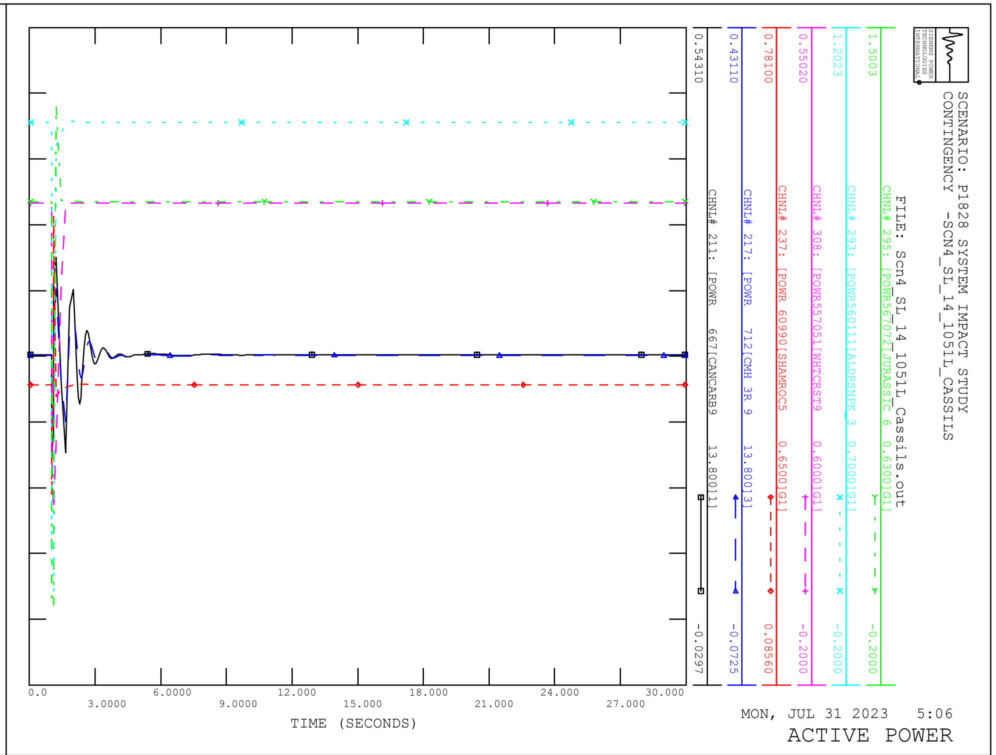
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.78100 CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1] 0.08560
0.55020 CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1] -0.2000
1.2023 CHNL# 293: [POWR560111[ALDRSNPK_3 0.7000]G1] -0.2000
1.5003 CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1] -0.2000
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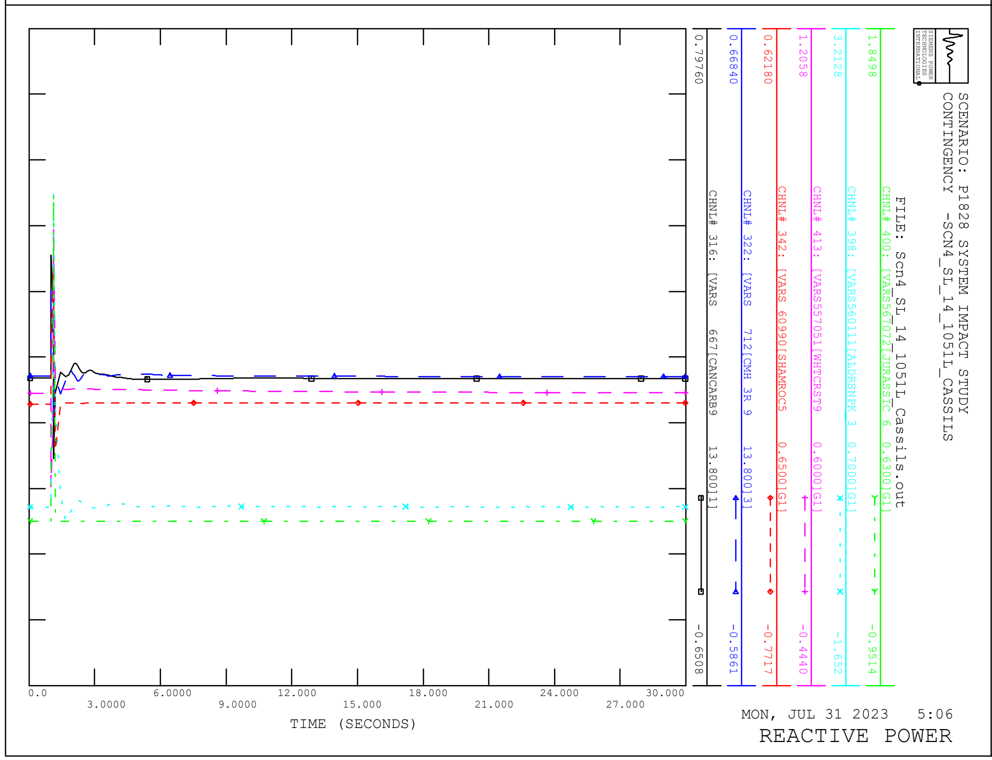
MON, JUL 31 2023 5:06
ACTIVE POWER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0.62180 CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1] -0.7717
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3.2128 CHNL# 398: [VARS560111[ALDRSNPK_3 0.7000]G1] -1.652
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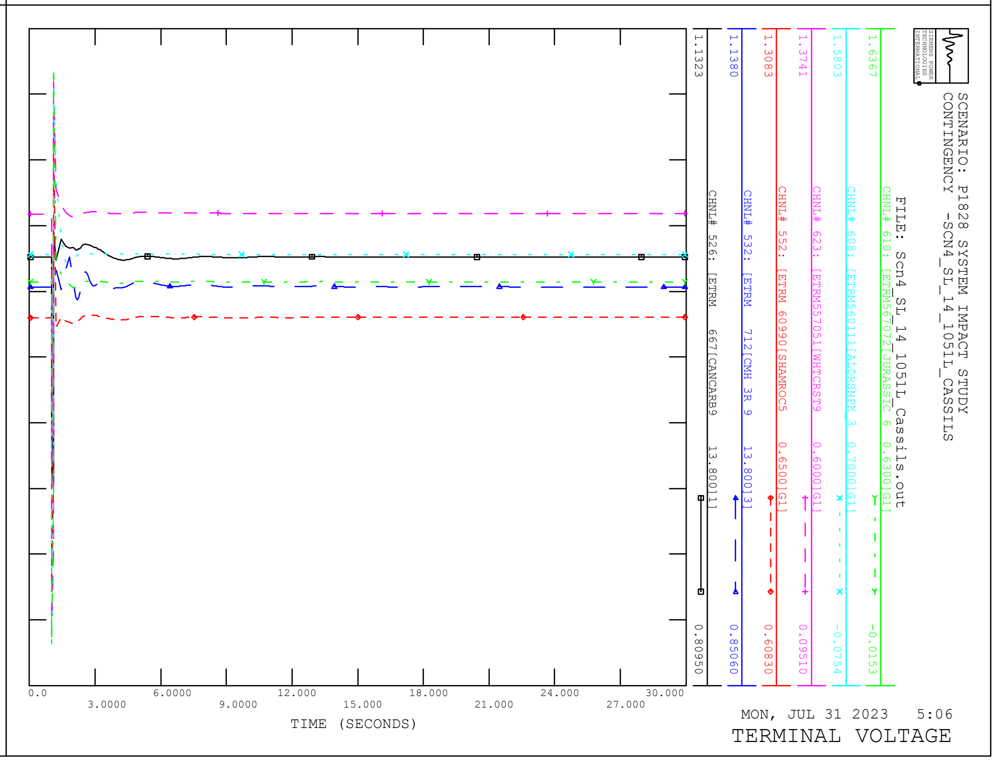
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1.3083 CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1] 0.60830
1.3741 CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1] 0.09510
1.5803 CHNL# 608: [ETRM560111[ALDRSNPK_3 0.7000]G1] -0.0754
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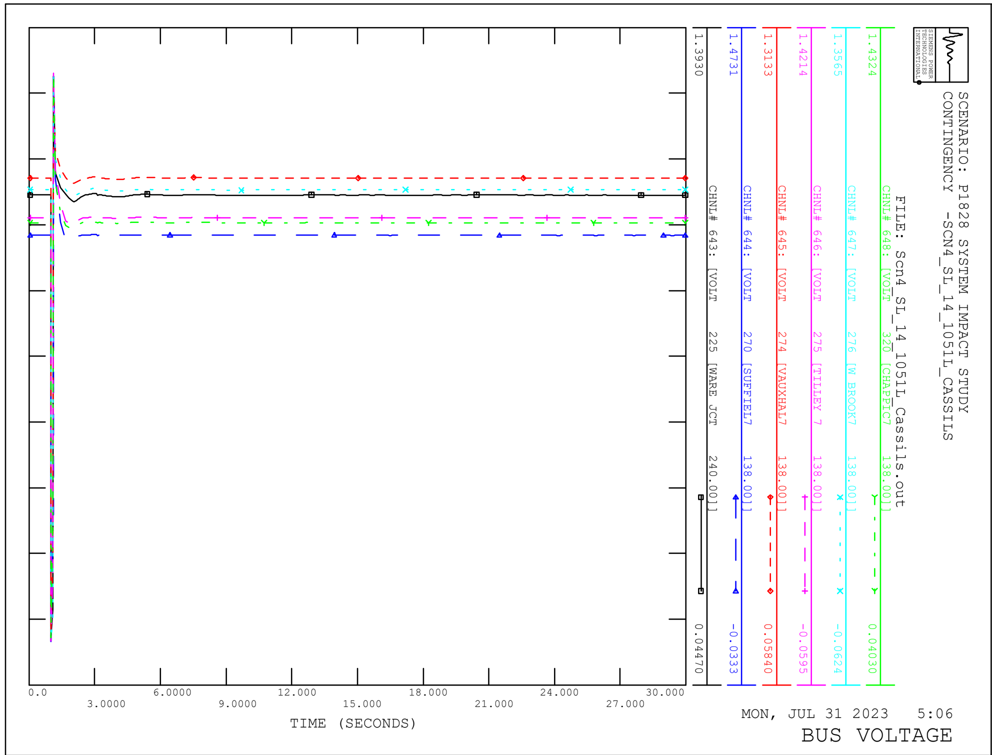

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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.4731 -0.0333
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.3133 0.05840
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.4214 -0.0595
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3565 -0.0624
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MON, JUL 31 2023 5:06
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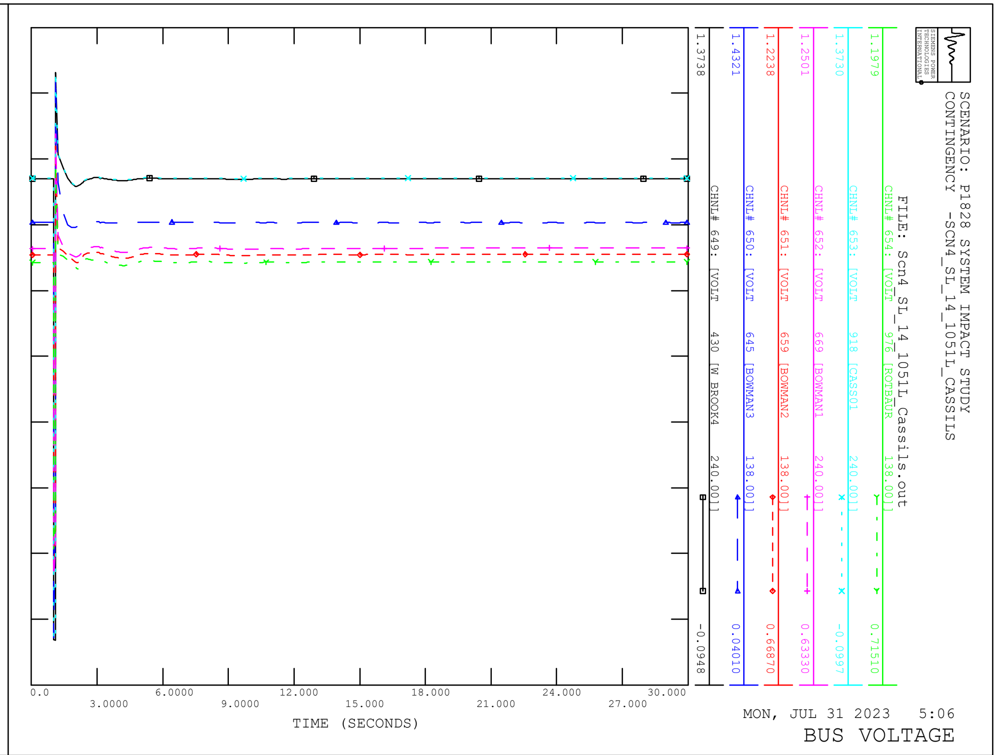

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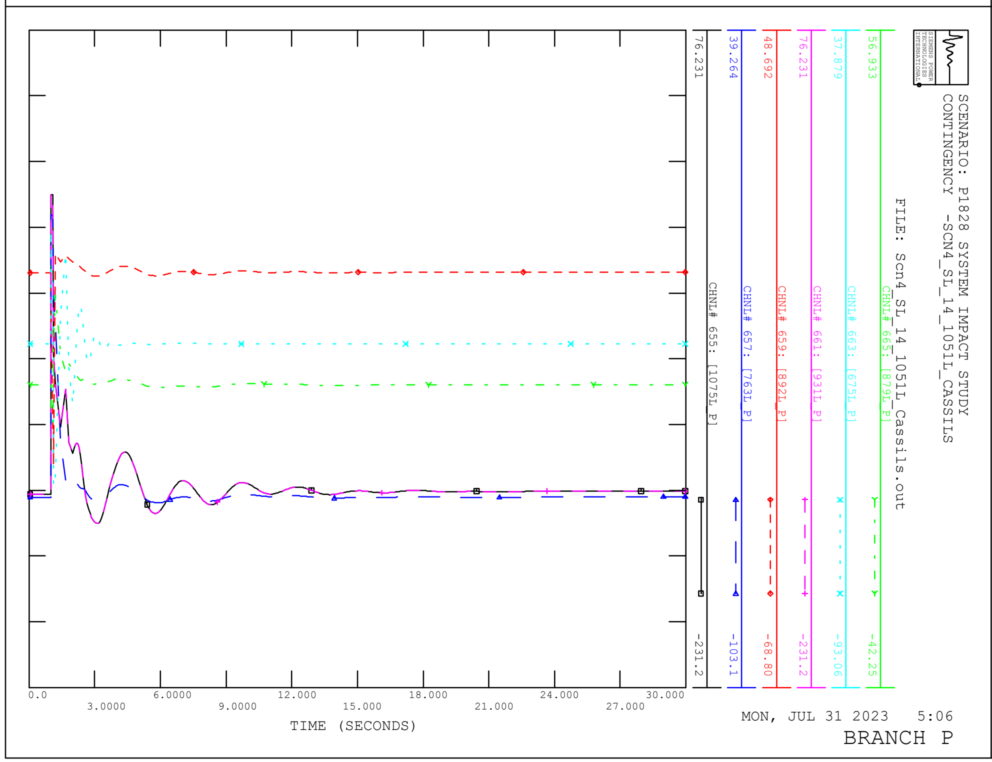

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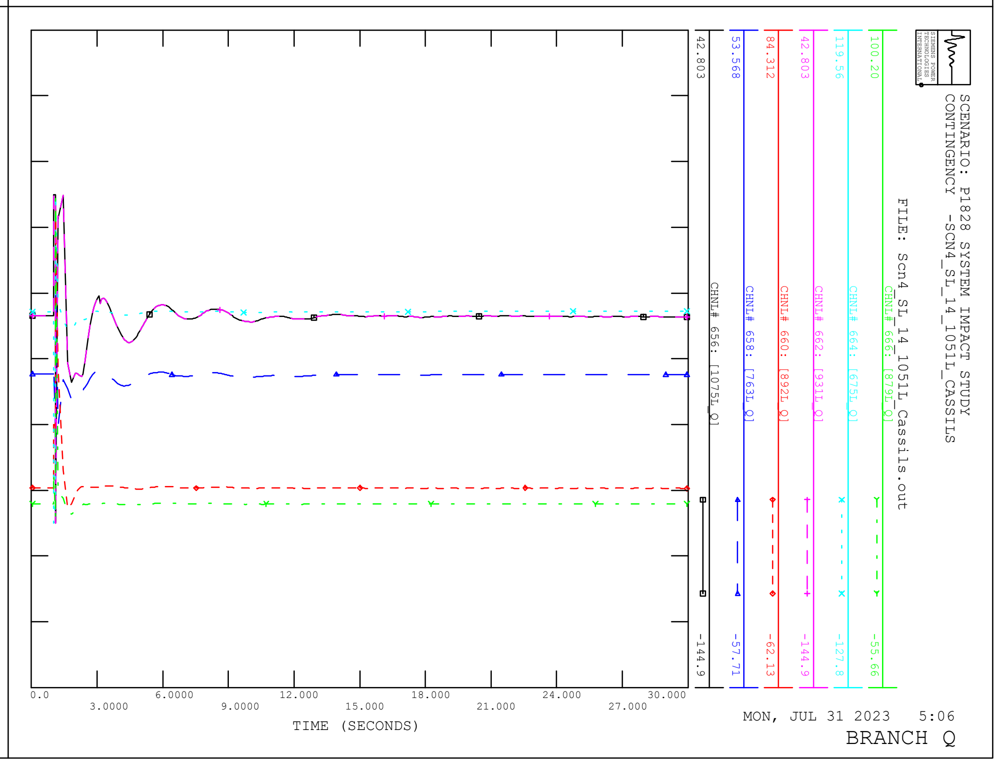

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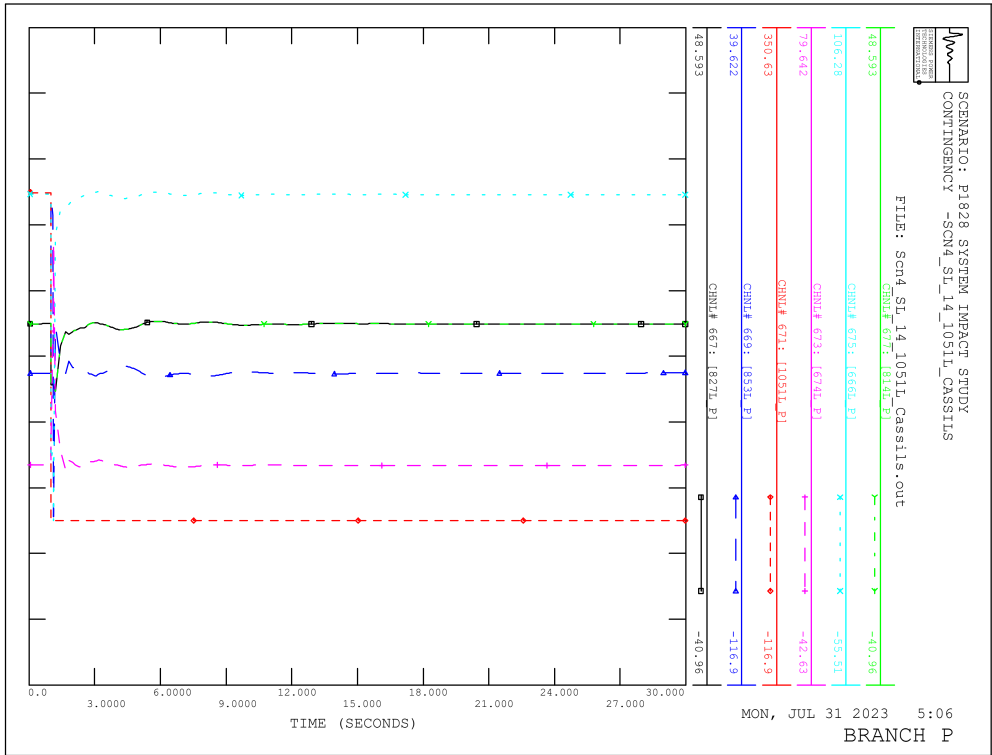
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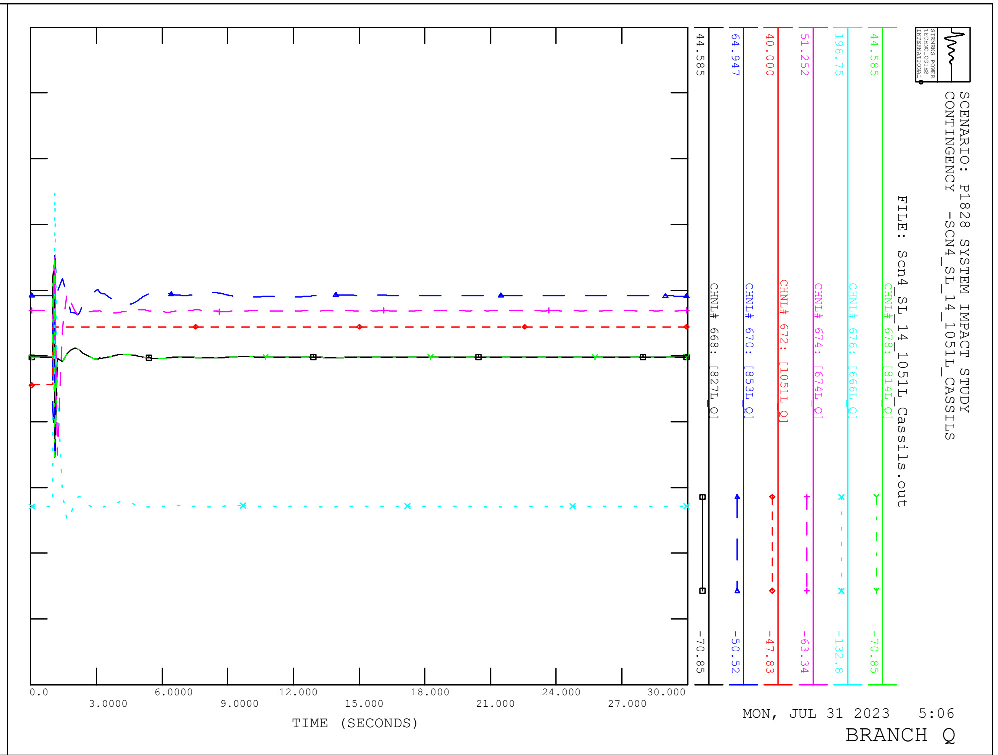
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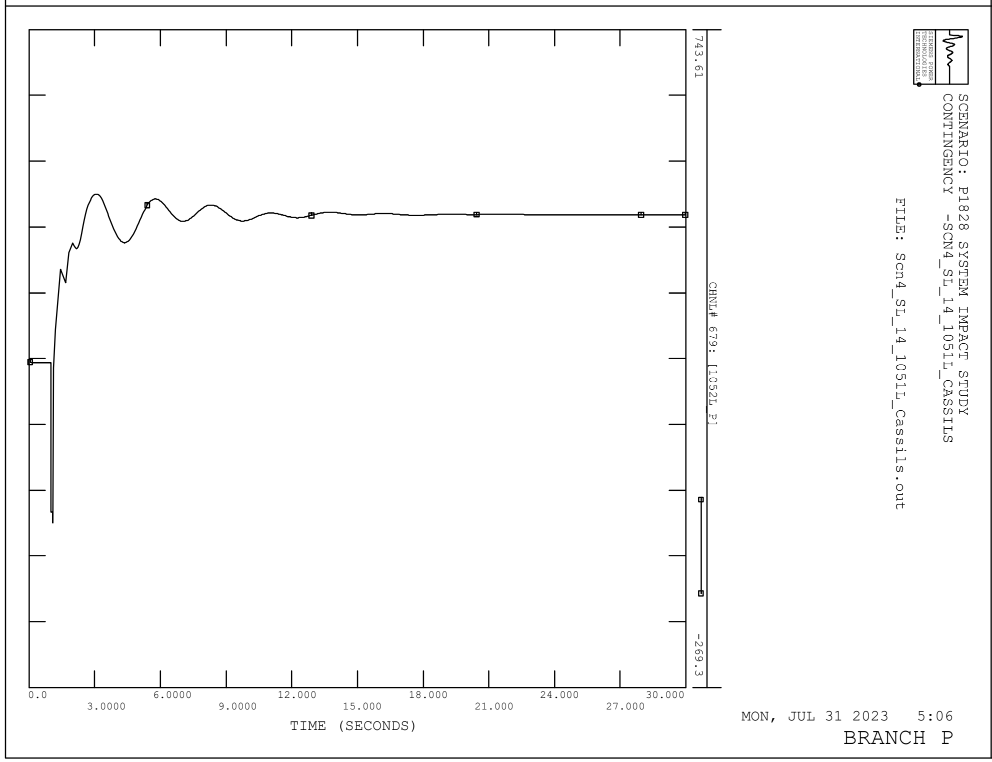
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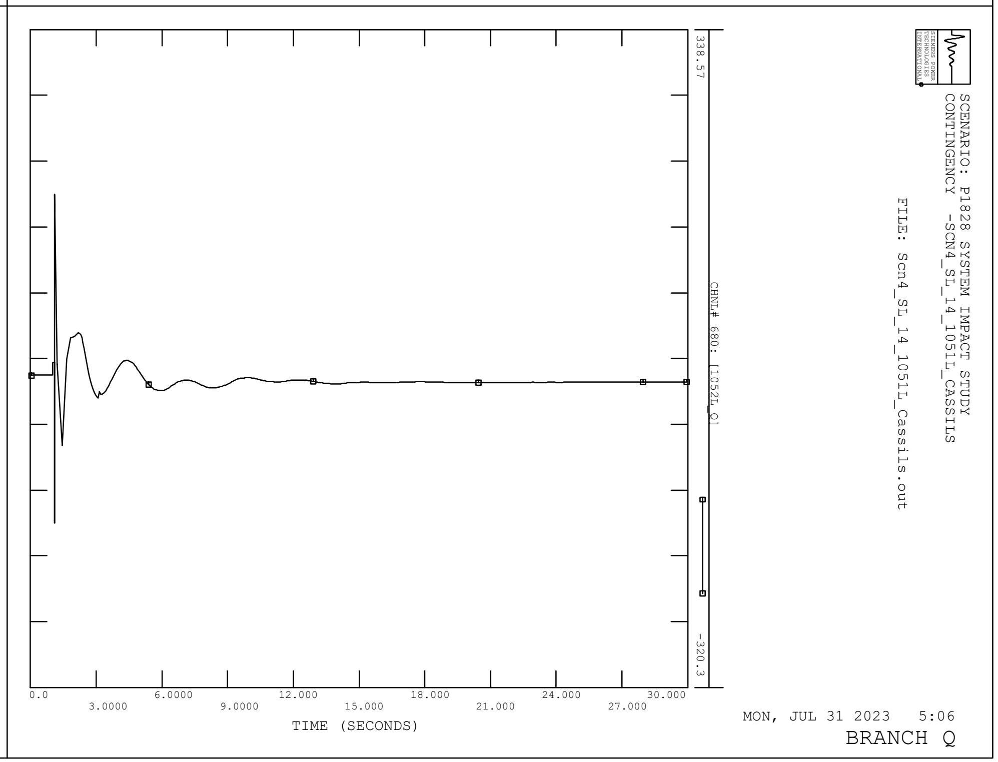
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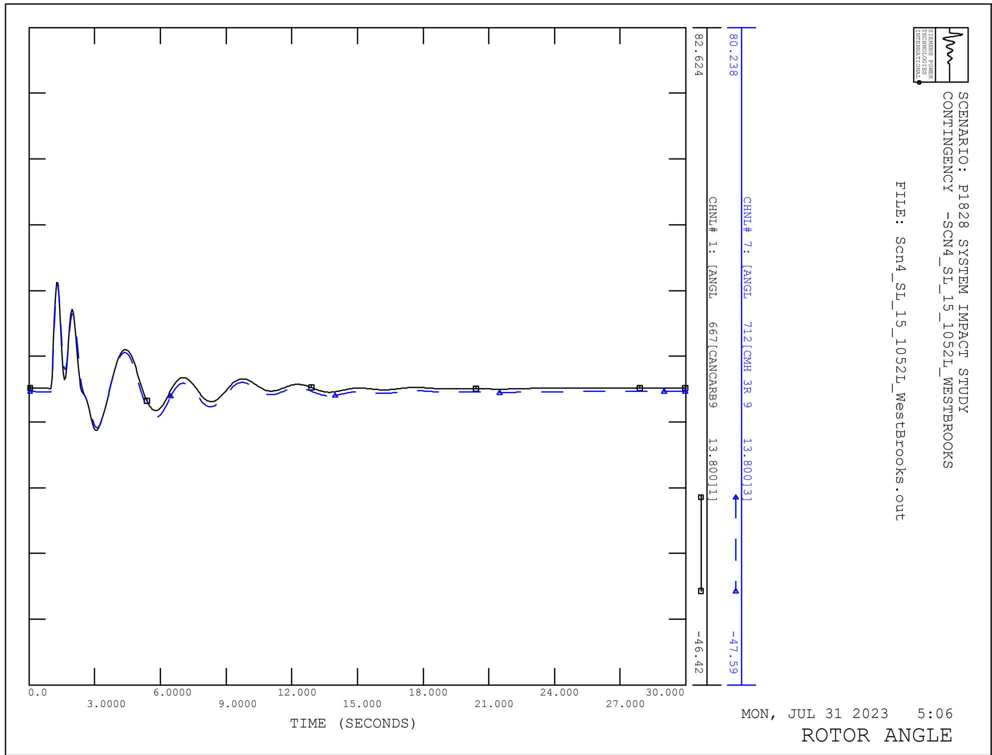
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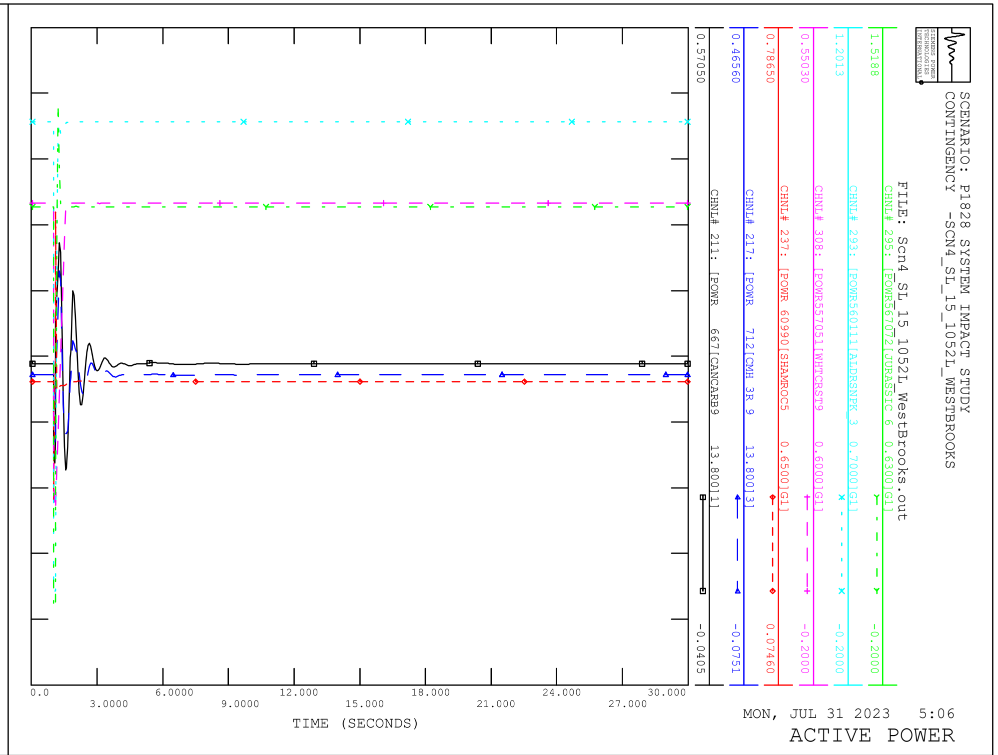
MON, JUL 31 2023 5:06
ROTOR ANGLE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CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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0.07460
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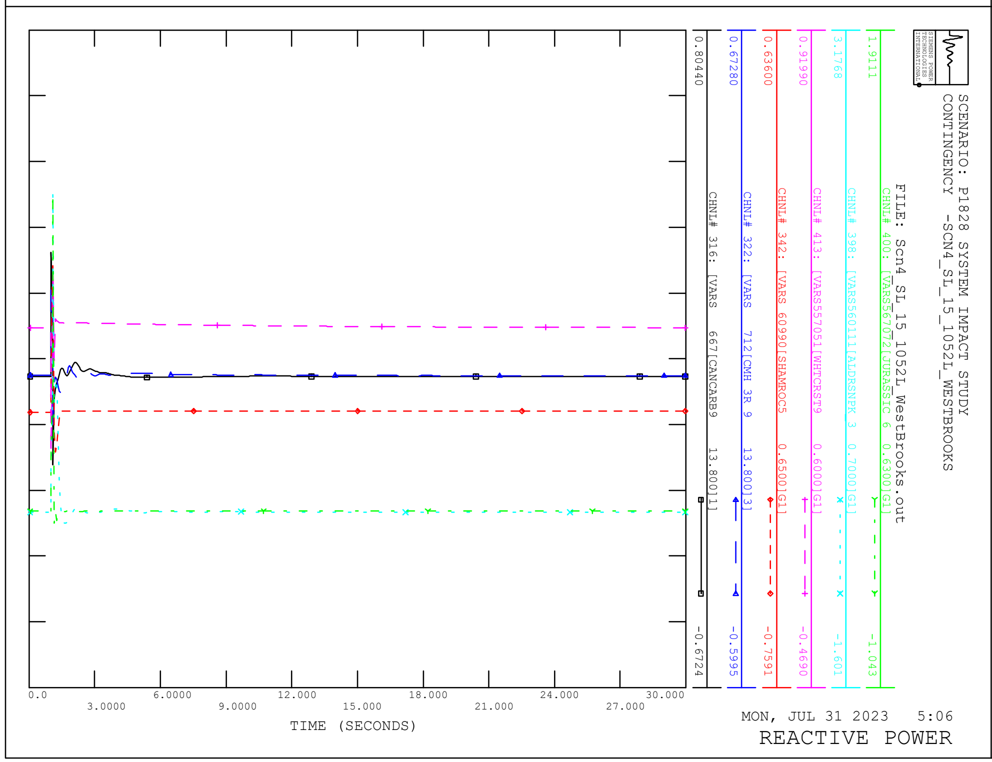
ACTIVE POWER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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
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0.67280
-0.5995
0.63600
-0.7591
0.91990
-0.4690
3.3768
-1.601
1.9111
-1.043
0.0
3.0000
6.0000
9.0000
12.000
15.000
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21.000
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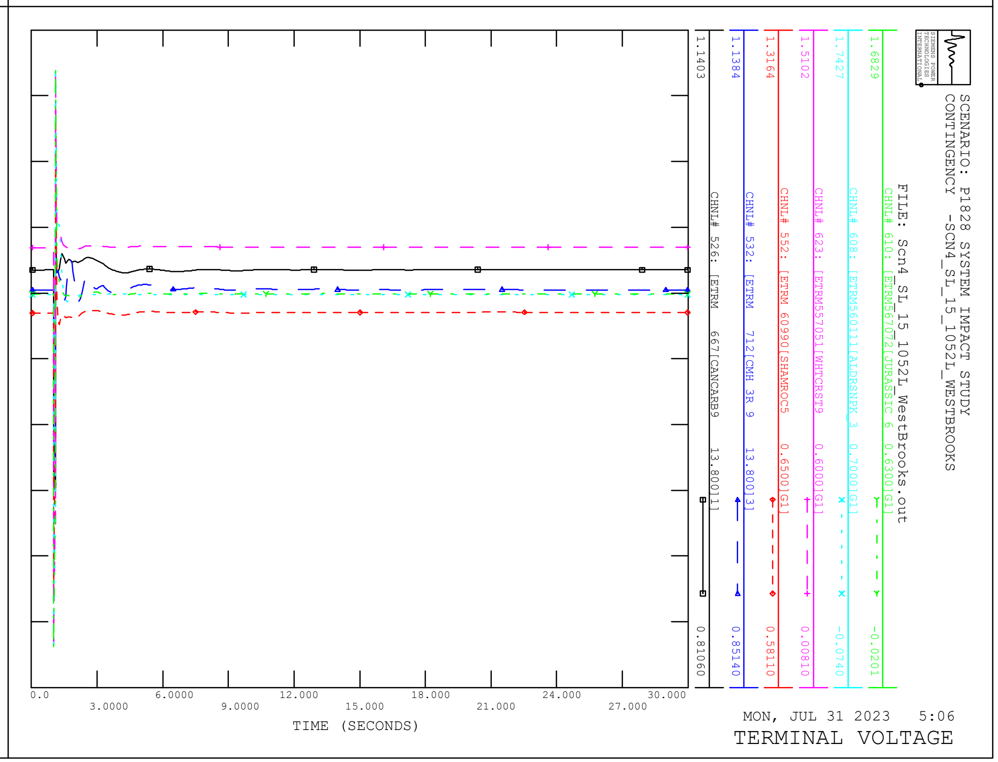
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
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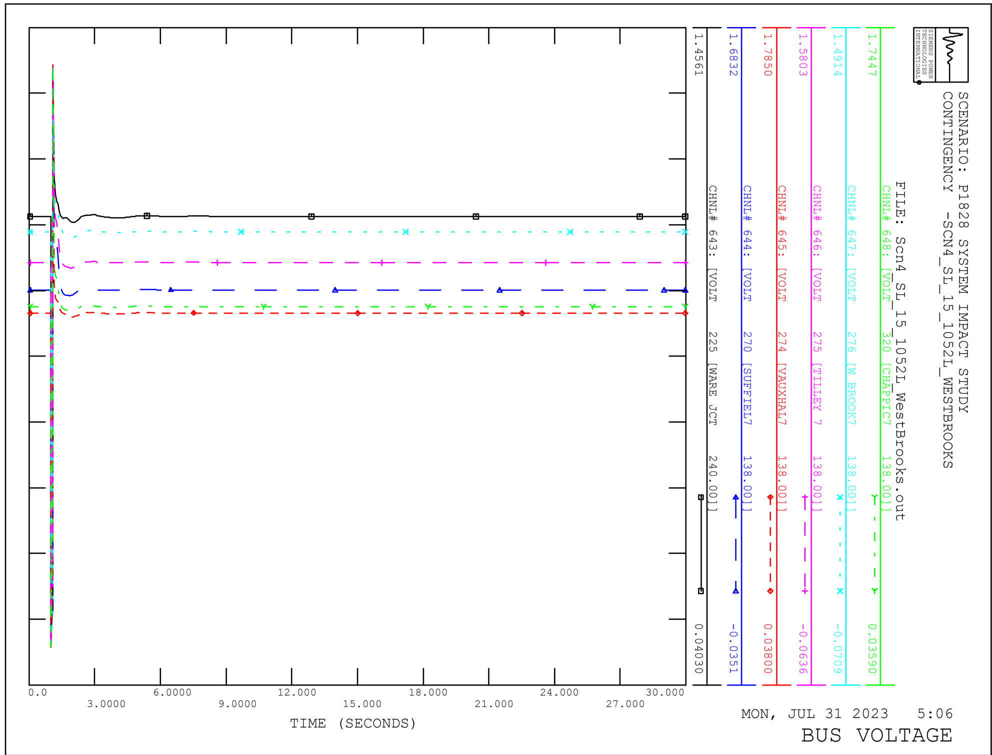
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_15_1052L_WESTBROOKS
FILE: Scn4_SL_15_1052L_WestBrooks.out
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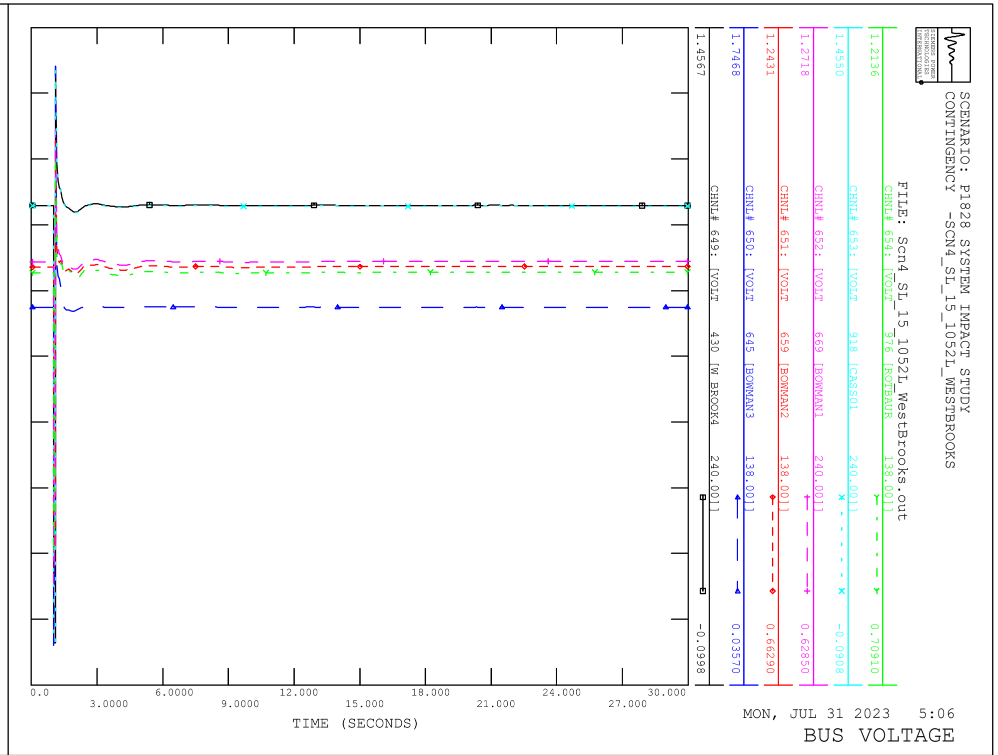
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_15_1052L_WESTBROOKS
FILE: Scn4_SL_15_1052L_WestBrooks.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSDI 240.00]]
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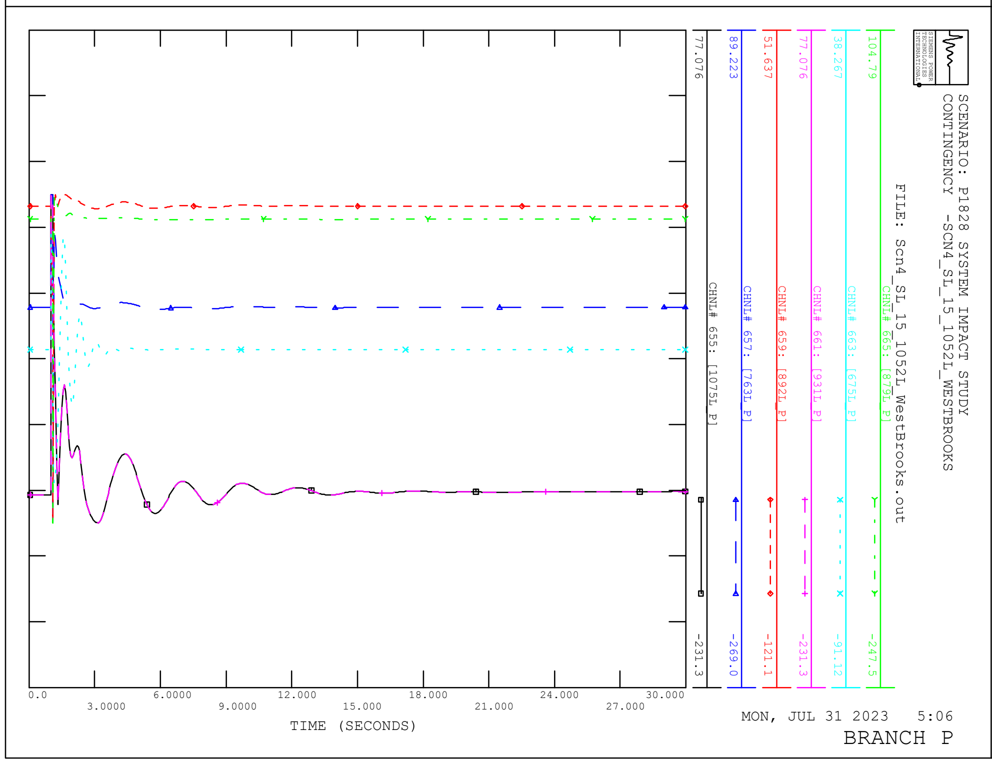
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_15_1052L_WESTBROOKS
FILE: Scn4_SL_15_1052L_WestBrooks.out
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CHNL# 657: [763L_P]
CHNL# 659: [892L_P]
CHNL# 661: [931L_P]
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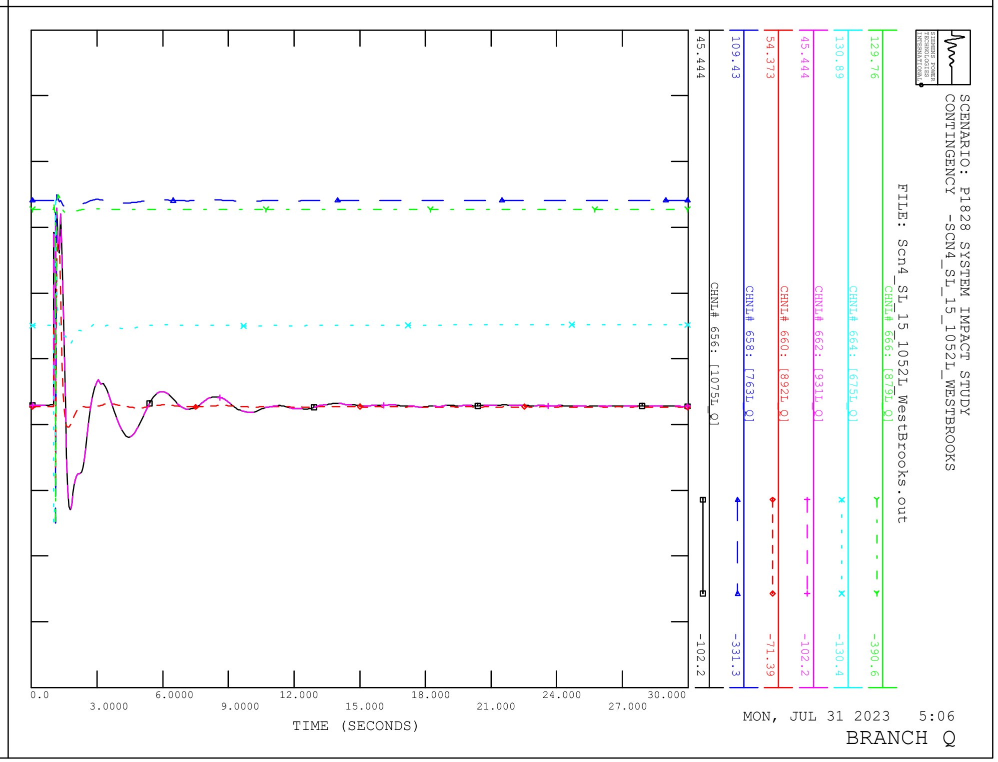
CHNL# 665: [679L_P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 658: [763L_Q]
CHNL# 660: [892L_Q]
CHNL# 662: [931L_Q]
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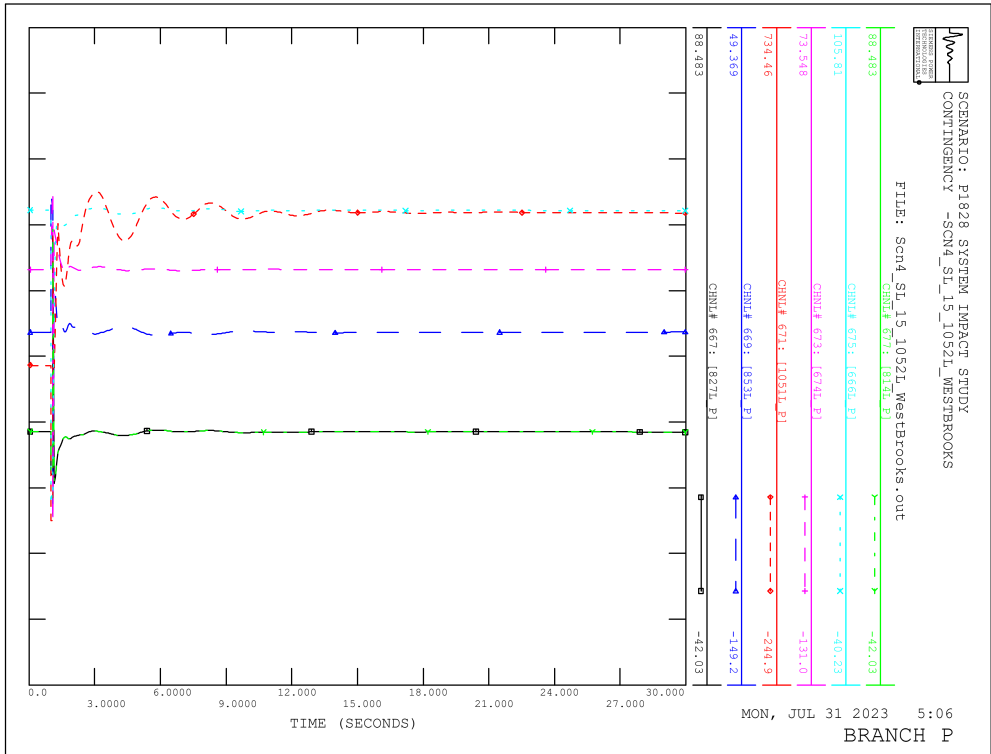
CHNL# 666: [679L_Q]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 669: [853L_P] 49.369 -149.2
CHNL# 671: [1051L_P] 734.46 -244.9
CHNL# 673: [674L_P] 73.548 -131.0
CHNL# 675: [666L_P] 105.81 -40.23
CHNL# 677: [874L_P] 88.483 -42.03
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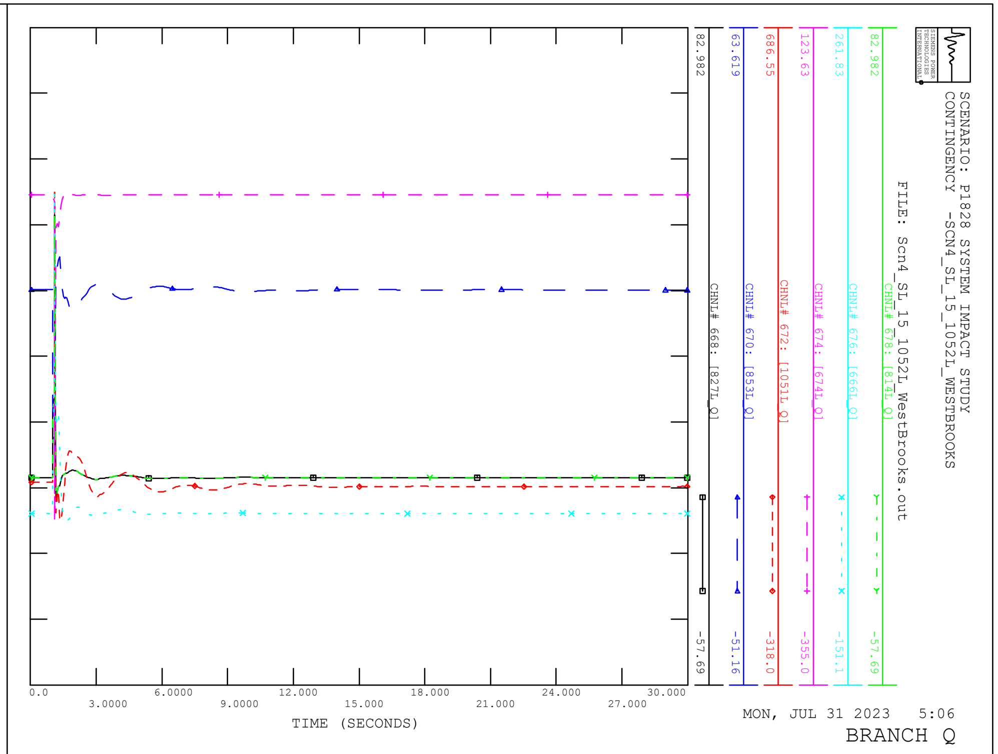
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 63.619 -51.16
CHNL# 672: [1051L_Q] 686.55 -318.0
CHNL# 674: [674L_Q] 123.63 -355.0
CHNL# 676: [666L_Q] 261.83 -151.1
CHNL# 678: [874L_Q] 82.982 -57.69
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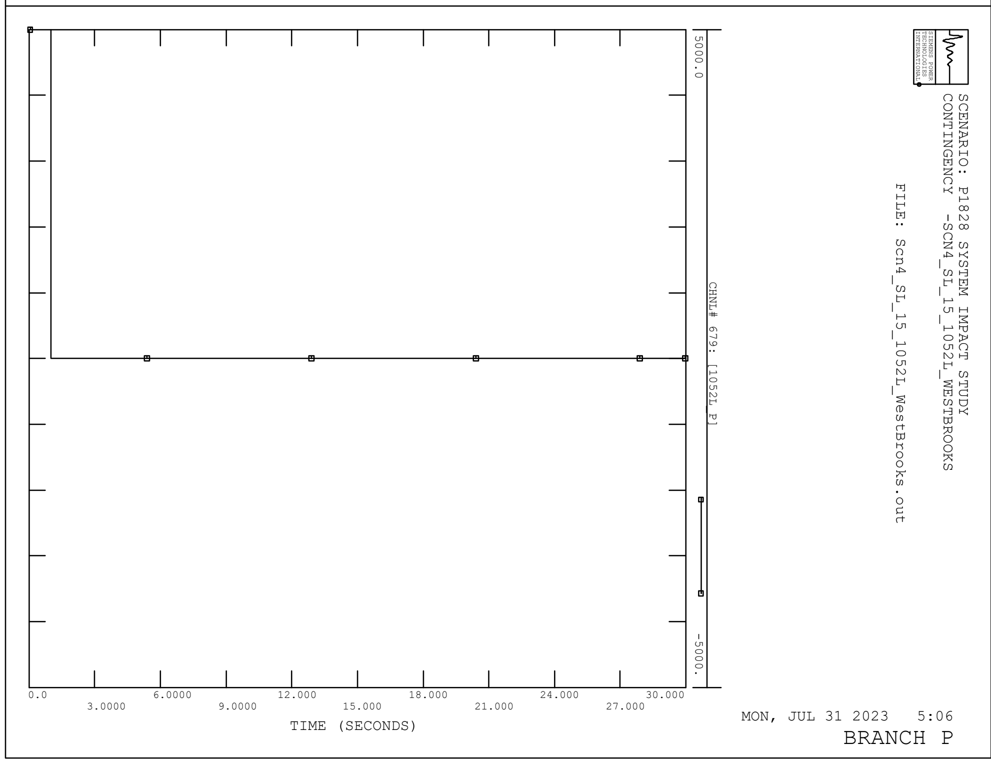
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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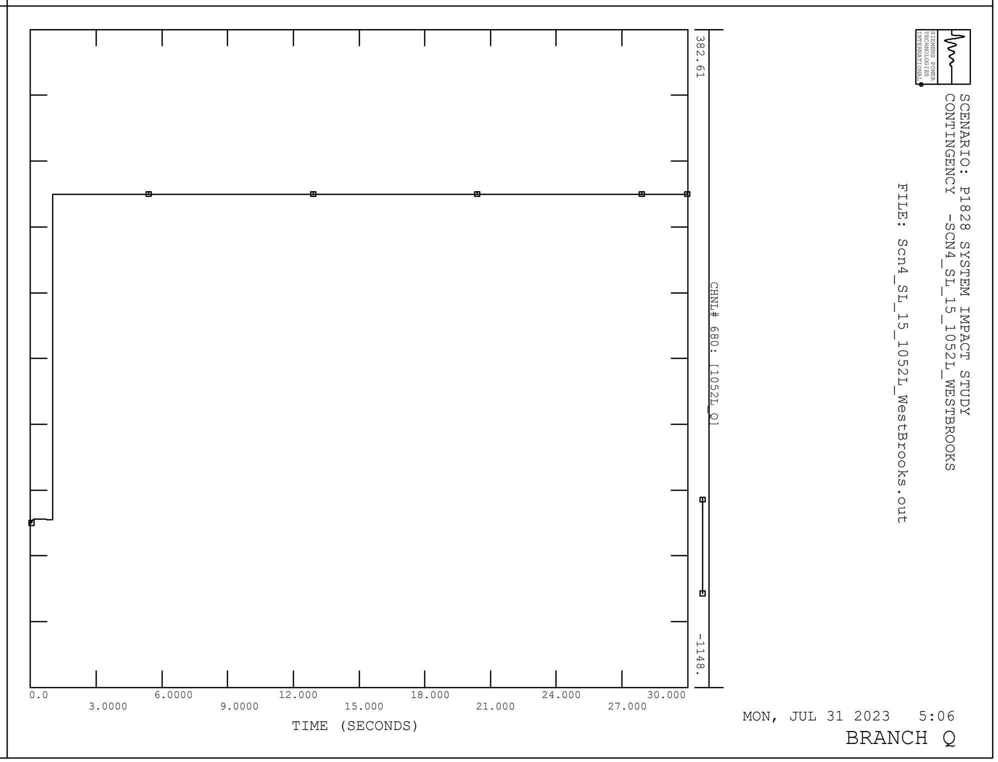
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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TIME (SECONDS)
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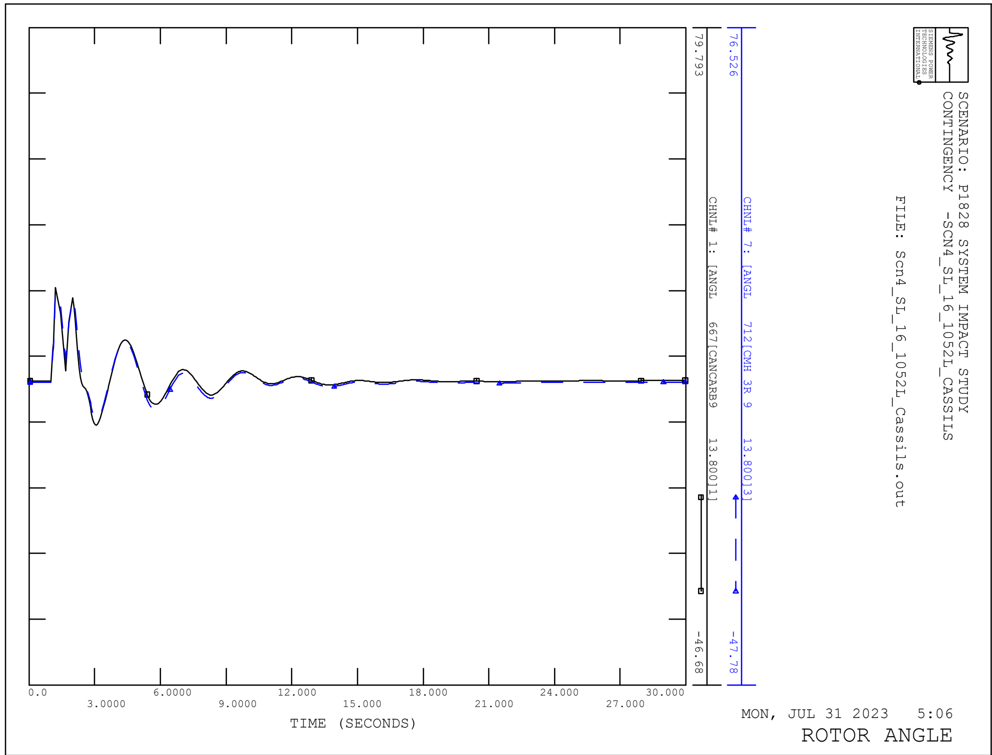
BRANCH Q



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FILE: Scn4_SL_16_1052L_Cassils.out
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-46.68
76.526
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
-47.78
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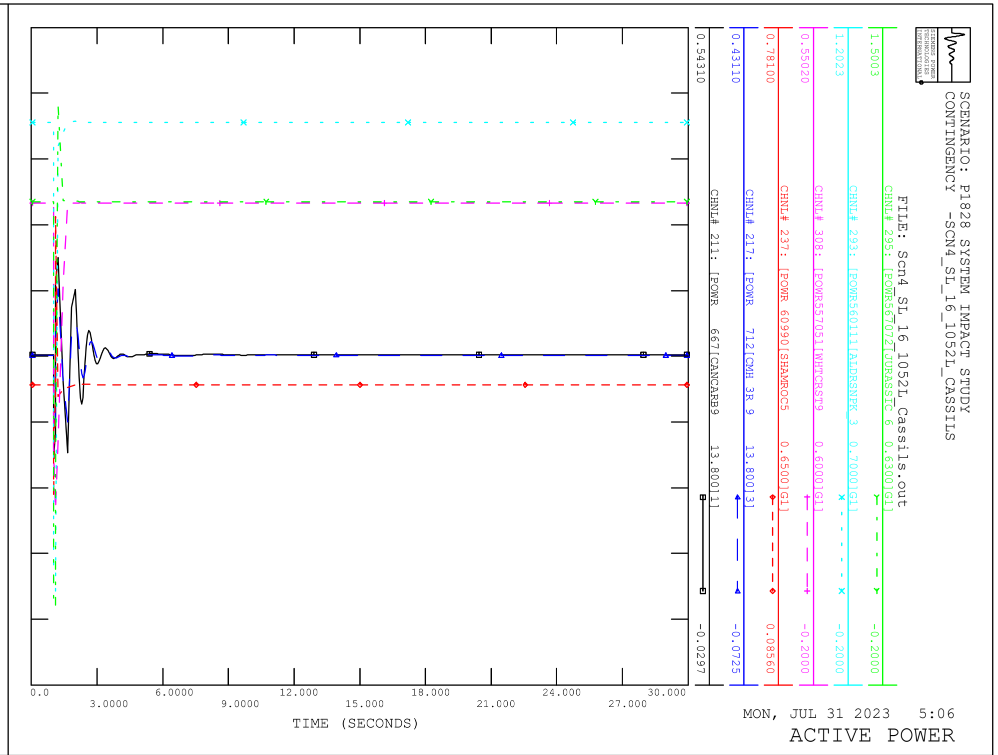
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE



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-0.0297
0.43110
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
-0.0725
0.78100
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.08560
0.55020
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
-0.2000
1.2023
CHNL# 293: [POWR560111[ALDRSHK 3 0.7000]G1]
-0.2000
1.5003
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
-0.2000
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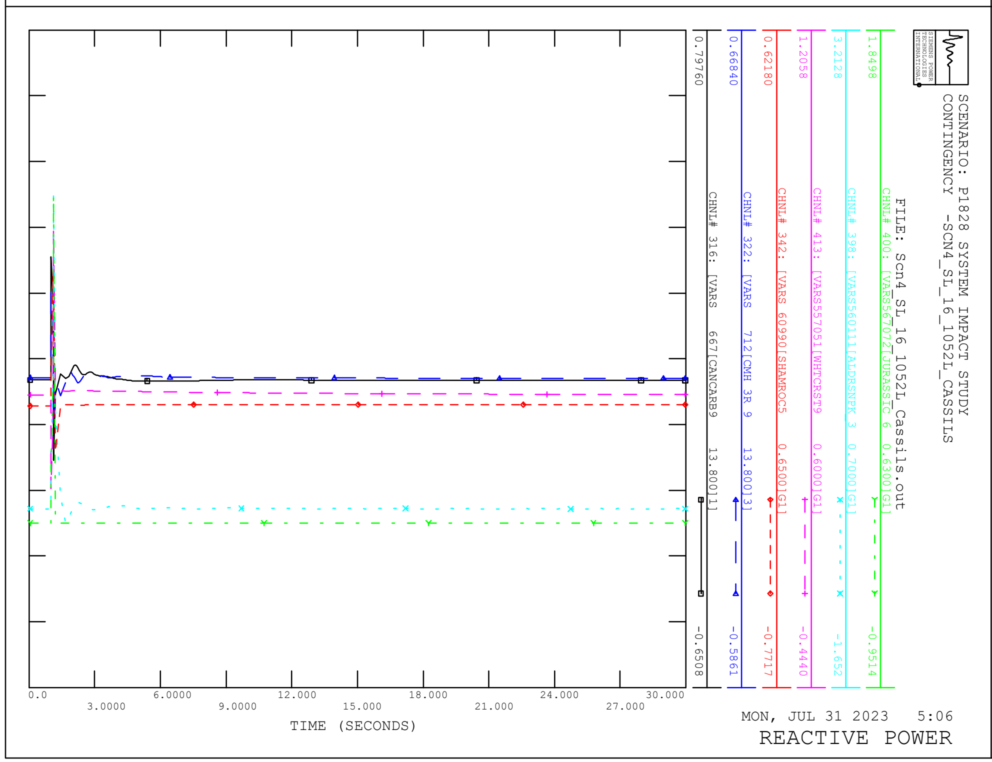
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER



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-0.6508
0.66840
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
-0.5861
0.62180
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
-0.7717
1.2058
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
-0.4440
3.2128
CHNL# 398: [VARS560111[ALDRSHK 3 0.7000]G1]
-1.652
1.8498
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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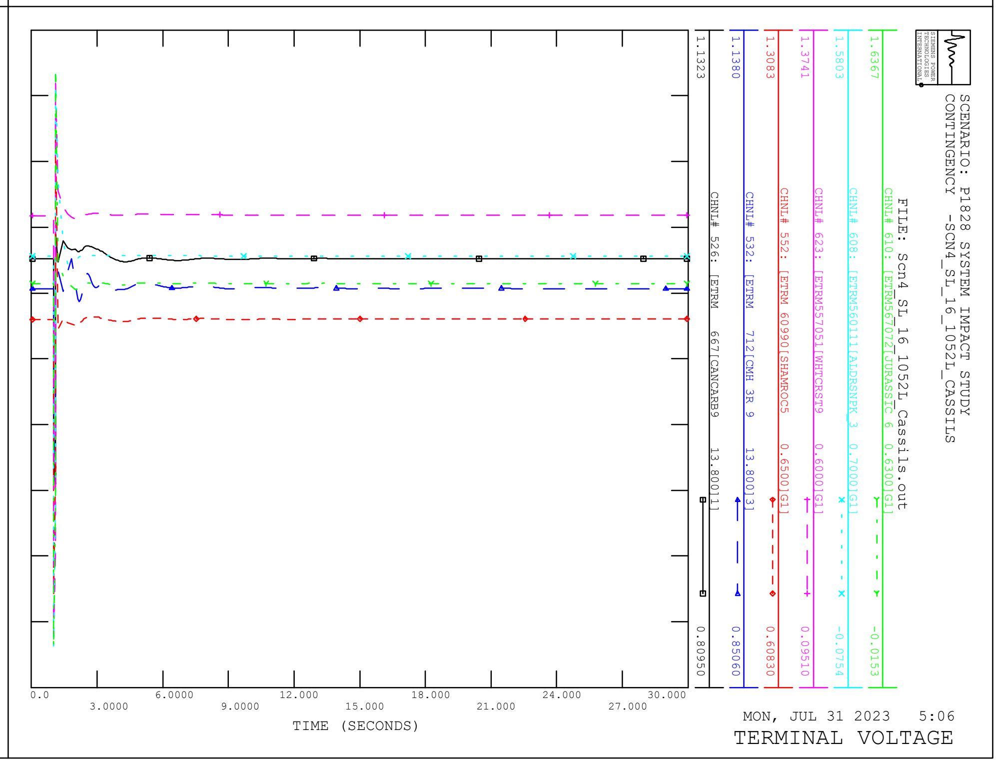
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER



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CONTINGENCY -SCN4_SL_16_1052L_CASSILS
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
0.85060
1.3083
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
0.60830
1.3741
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
0.09510
1.5803
CHNL# 608: [ETRM560111[ALDRSHK 3 0.7000]G1]
-0.0754
1.6367
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
-0.0153
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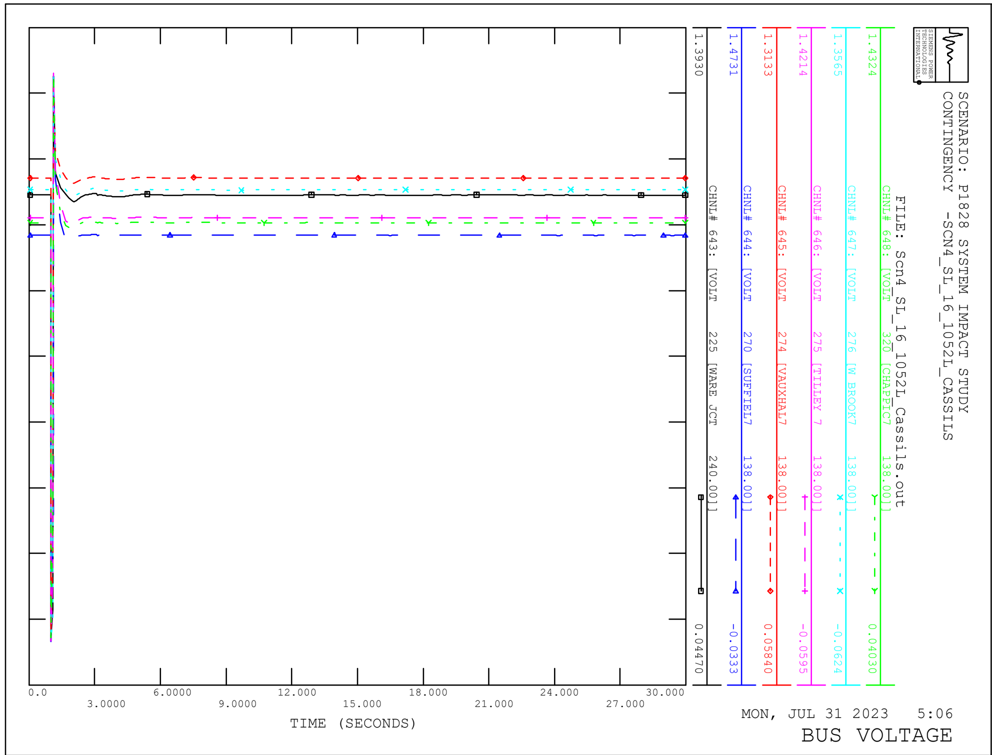
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CONTINGENCY -SCN4_SL_16_1052L_CASSILS
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1.3930 0.04470
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
1.4731 -0.0333
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
1.3133 0.05840
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
1.4214 -0.0595
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
1.3565 -0.0624
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
1.4324 0.04030
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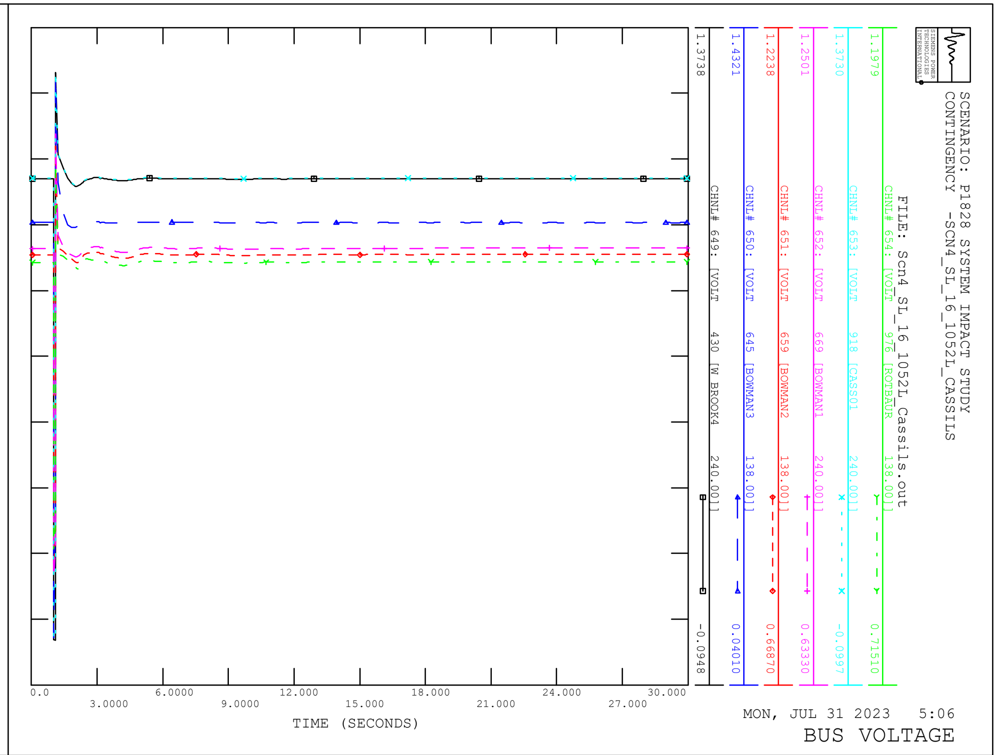
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_16_1052L_CASSILS
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CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
1.3738 -0.0948
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
1.4321 0.04010
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
1.2238 0.66870
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
1.2501 0.63330
CHNL# 653: [VOLT 918 [CASSOI 240.00]]
1.3730 -0.0997
CHNL# 654: [VOLT 976 [ROTHRN 138.00]]
1.1979 0.71510
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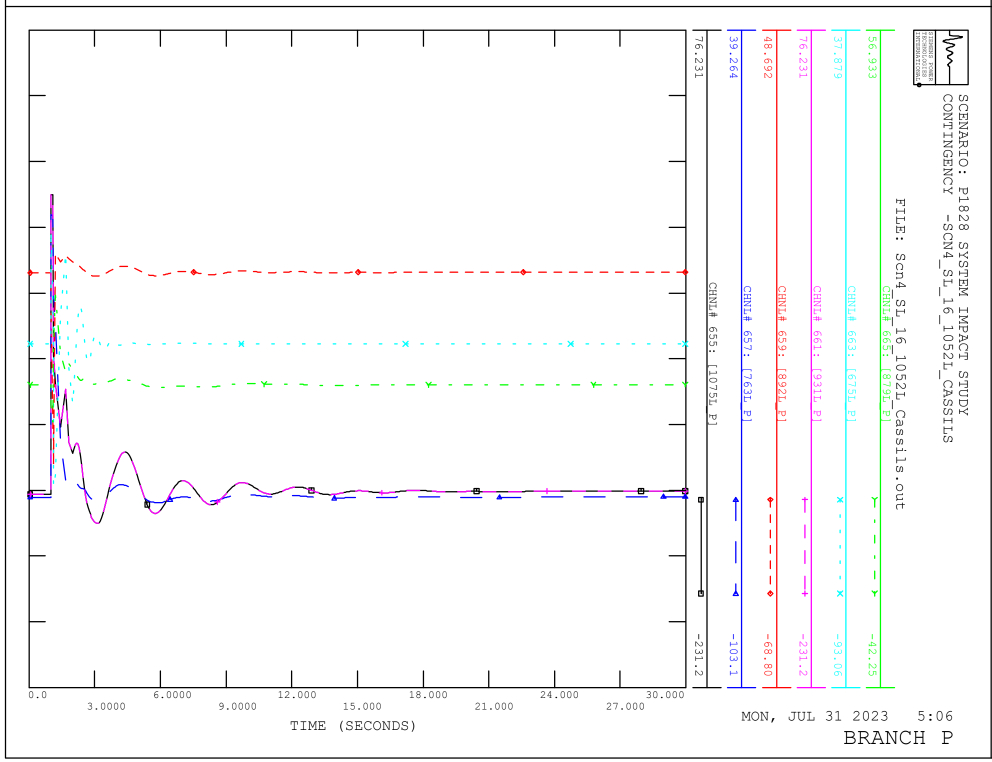
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_16_1052L_CASSILS
FILE: Scn4_SL_16_1052L_Cassils.out
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76.231 -231.2
CHNL# 657: [763L_P]
39.264 -103.1
CHNL# 659: [892L_P]
48.692 -68.80
CHNL# 661: [931L_P]
76.231 -231.2
CHNL# 663: [675L_P]
37.879 -93.06
CHNL# 665: [879L_P]
56.933 -42.25
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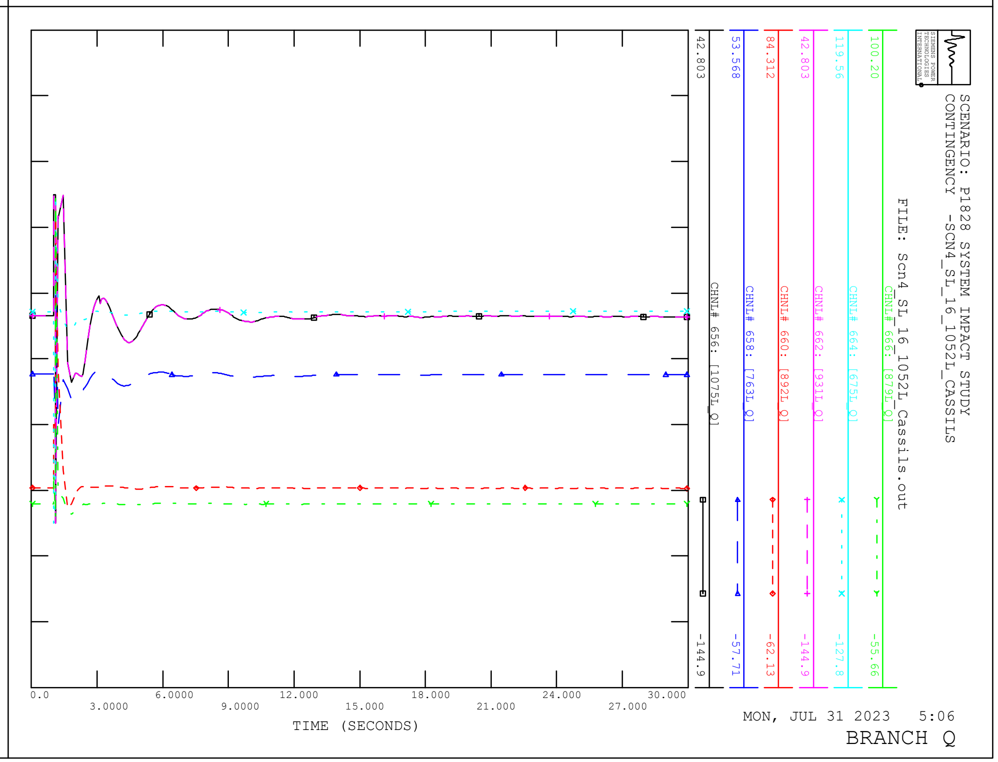
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_16_1052L_CASSILS
FILE: Scn4_SL_16_1052L_Cassils.out
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CHNL# 658: [763L_Q]
53.568 -57.71
CHNL# 660: [892L_Q]
84.312 -62.13
CHNL# 662: [931L_Q]
42.803 -144.9
CHNL# 664: [675L_Q]
119.56 -127.8
CHNL# 666: [879L_Q]
100.20 -55.66
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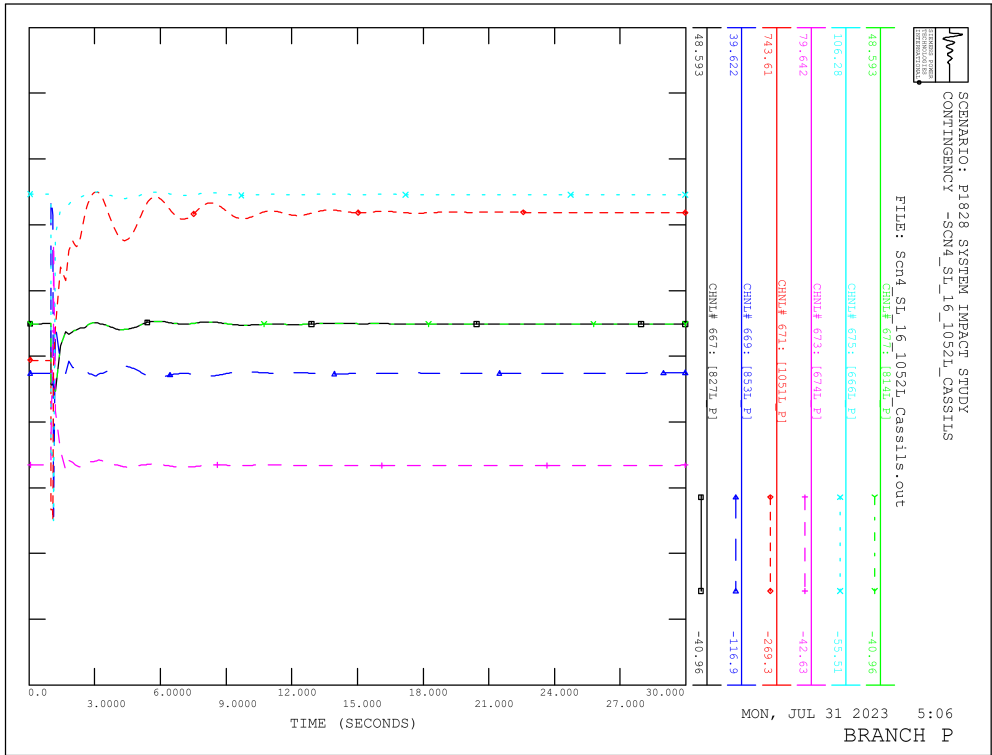
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CONTINGENCY -SCN4_SL_16_1052L_CASSILIS
FILE: Scn4_SL_16_1052L_Cassilis.out
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CHNL# 669: [853L_P] 39.622 -116.9
CHNL# 671: [1051L_P] 743.61 -269.3
CHNL# 673: [674L_P] 79.642 -42.63
CHNL# 675: [666L_P] 106.28 -55.51
CHNL# 677: [814L_P] 48.593 -40.96
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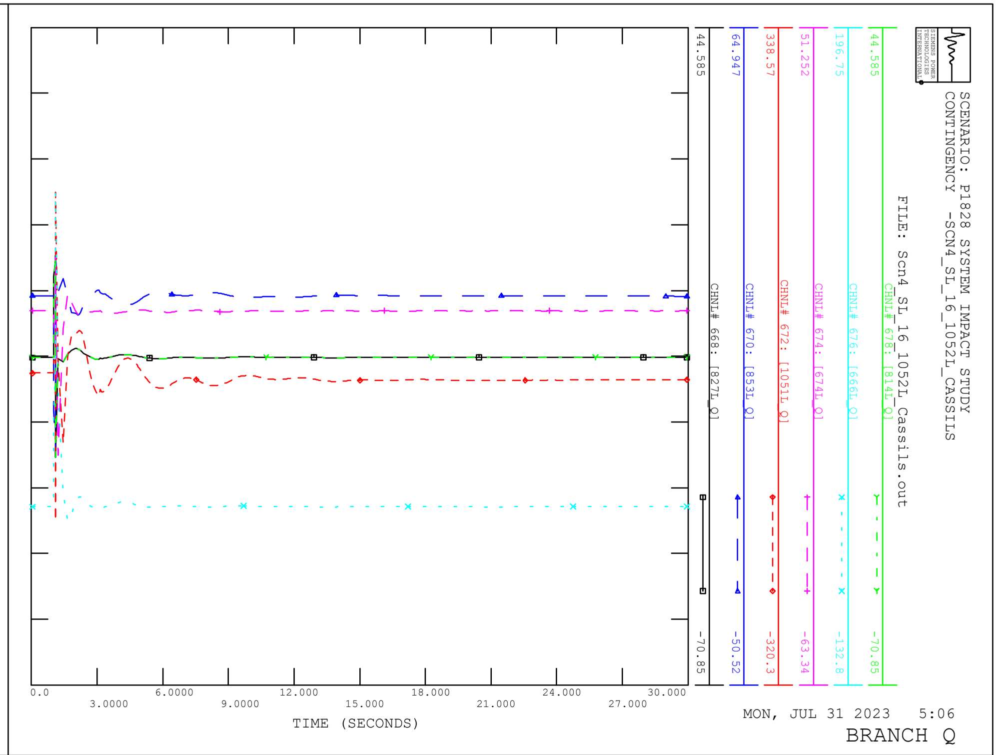
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
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CHNL# 670: [853L_Q] 64.947 -50.52
CHNL# 672: [1051L_Q] 338.57 -320.3
CHNL# 674: [674L_Q] 51.252 -63.34
CHNL# 676: [666L_Q] 196.75 -132.8
CHNL# 678: [814L_Q] 44.585 -70.85
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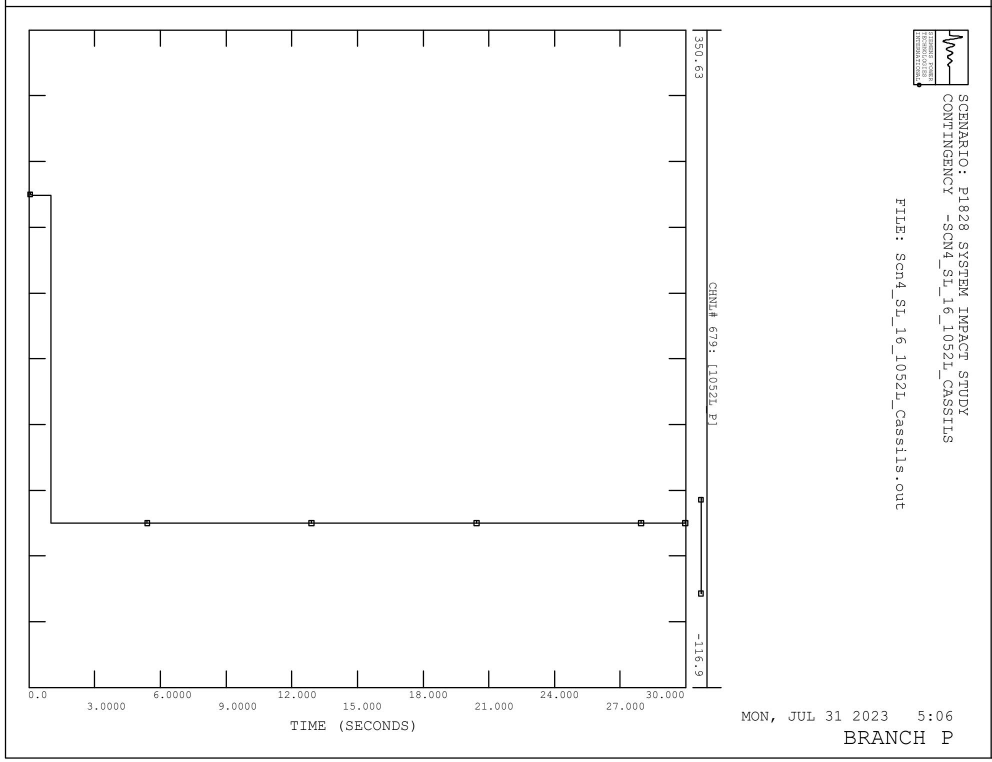
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_16_1052L_CASSILIS
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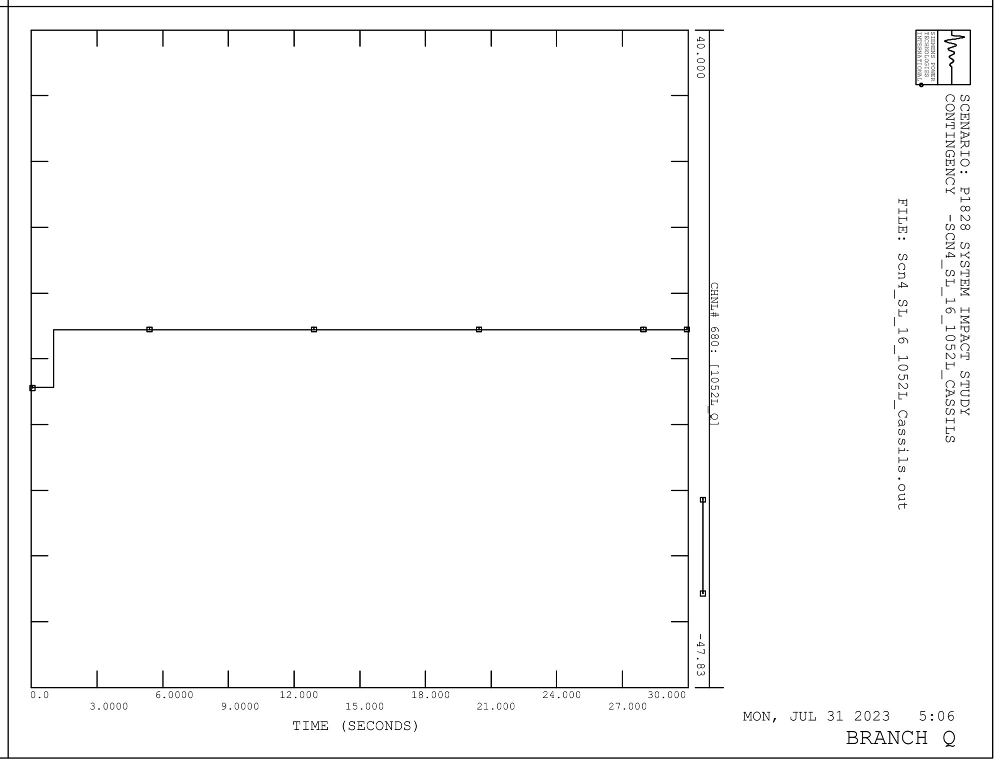
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_16_1052L_CASSILIS
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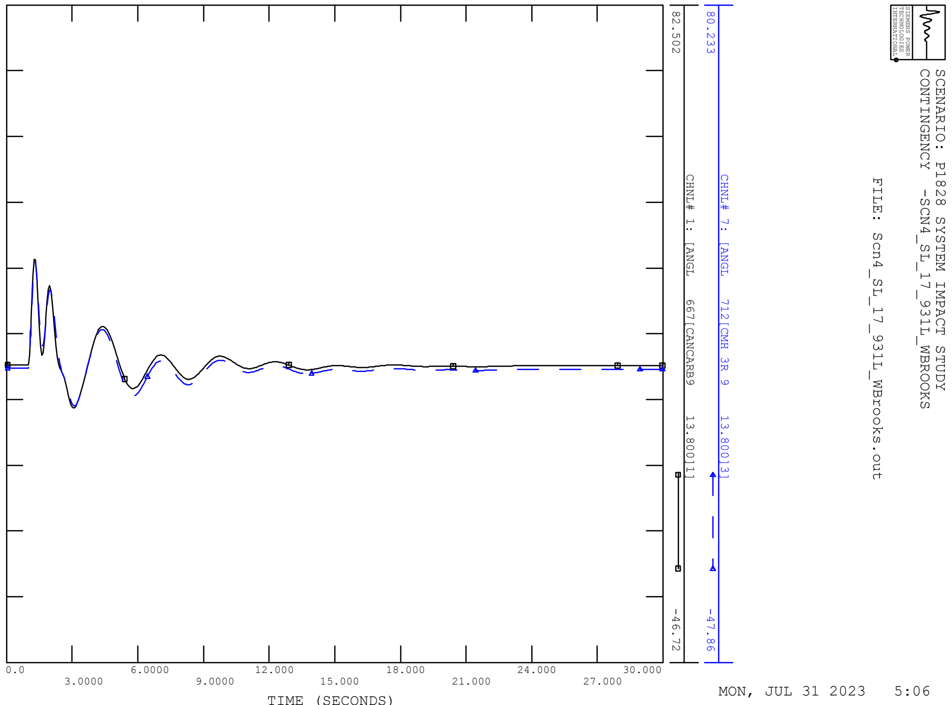
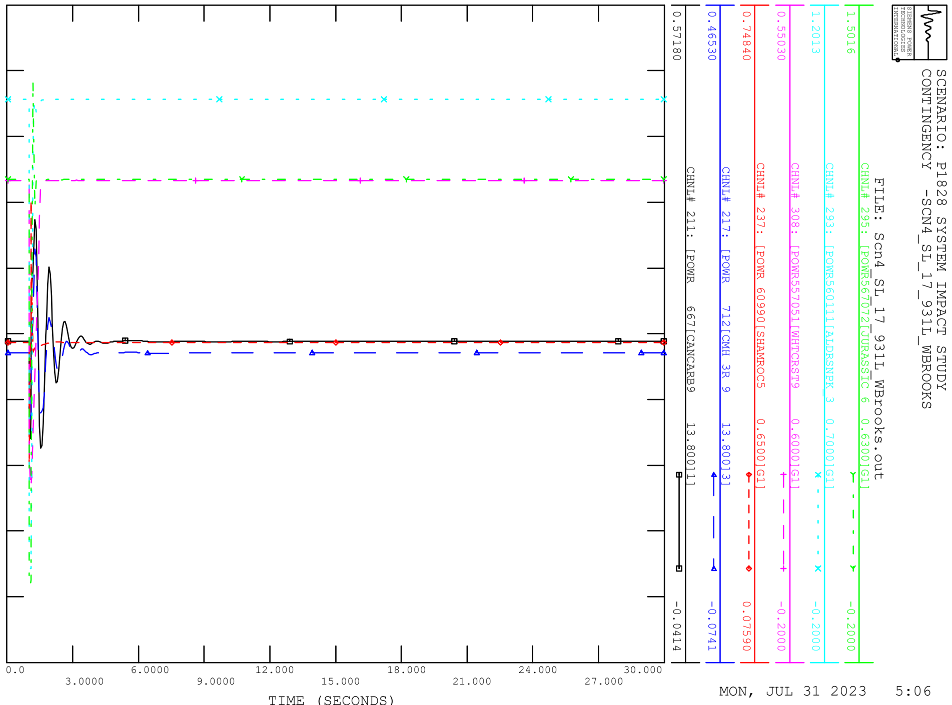
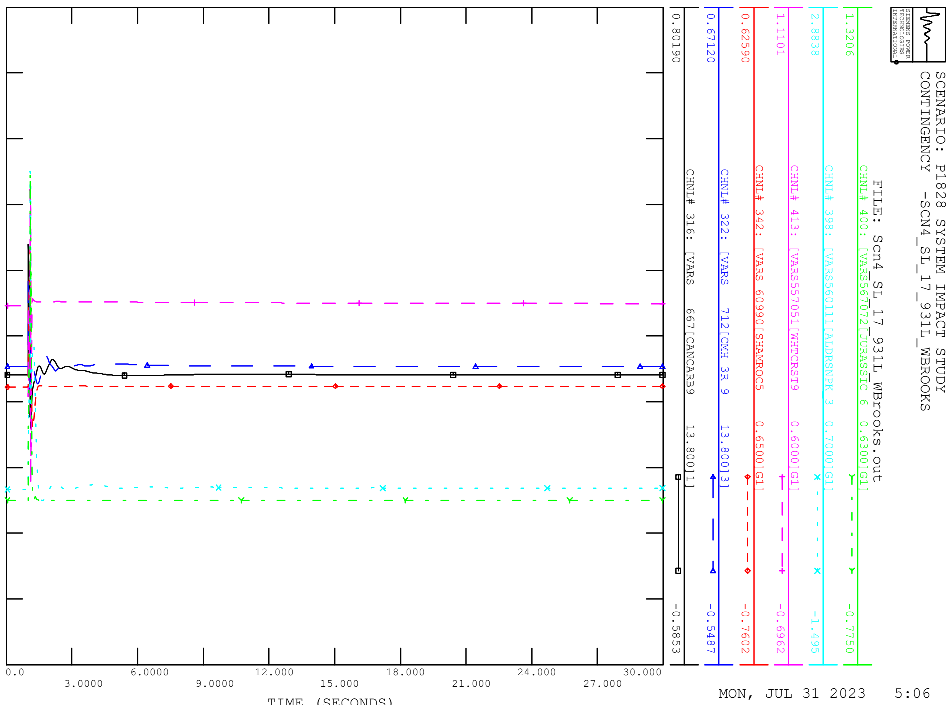
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



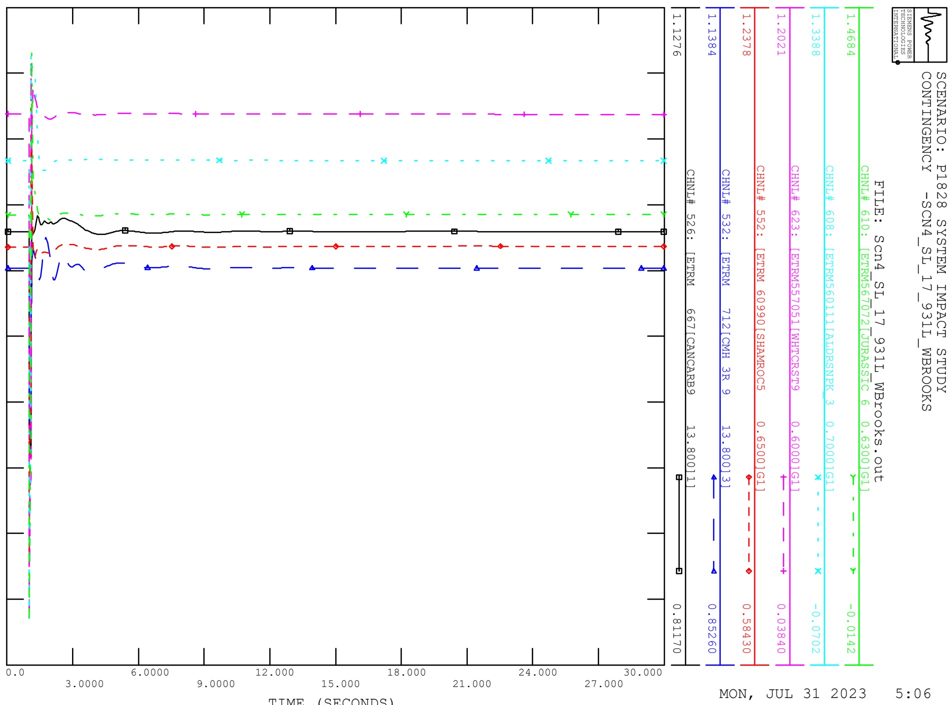
ROTOR ANGLE



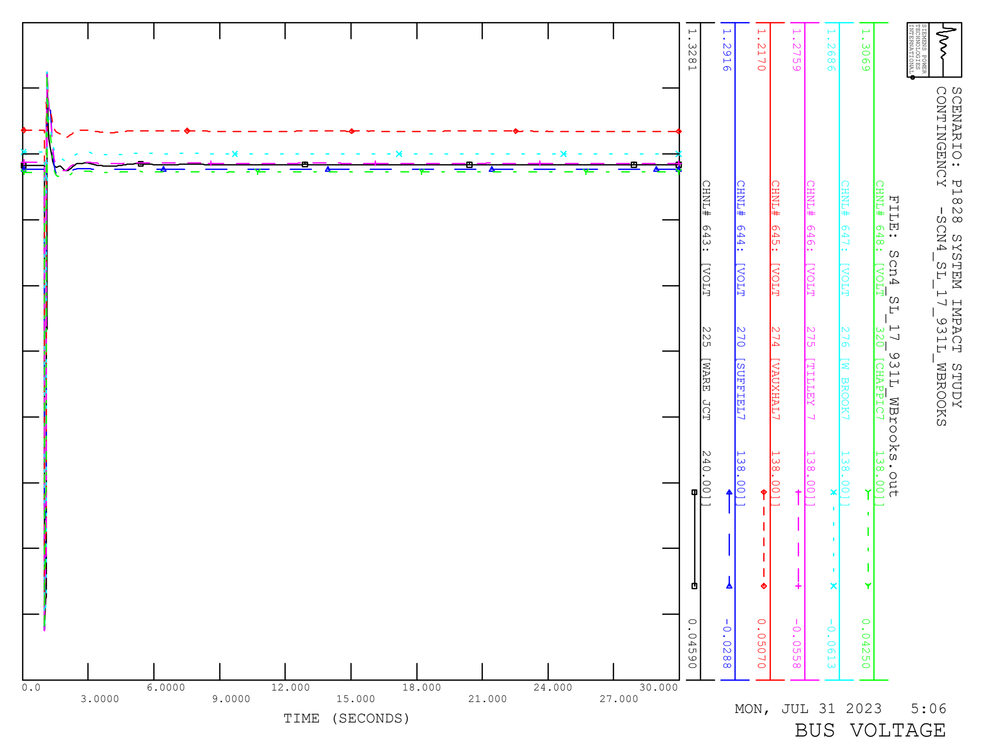
ACTIVE POWER



REACTIVE POWER



TERMINAL VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_17_931L_WBROOKS
FILE: Scn4_SL_17_931L_WBrooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]]
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [N BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]]
1.3281 0.04590
1.2916 -0.0288
1.2170 0.05070
1.2759 -0.0558
1.2686 -0.0613
1.3069 0.04250
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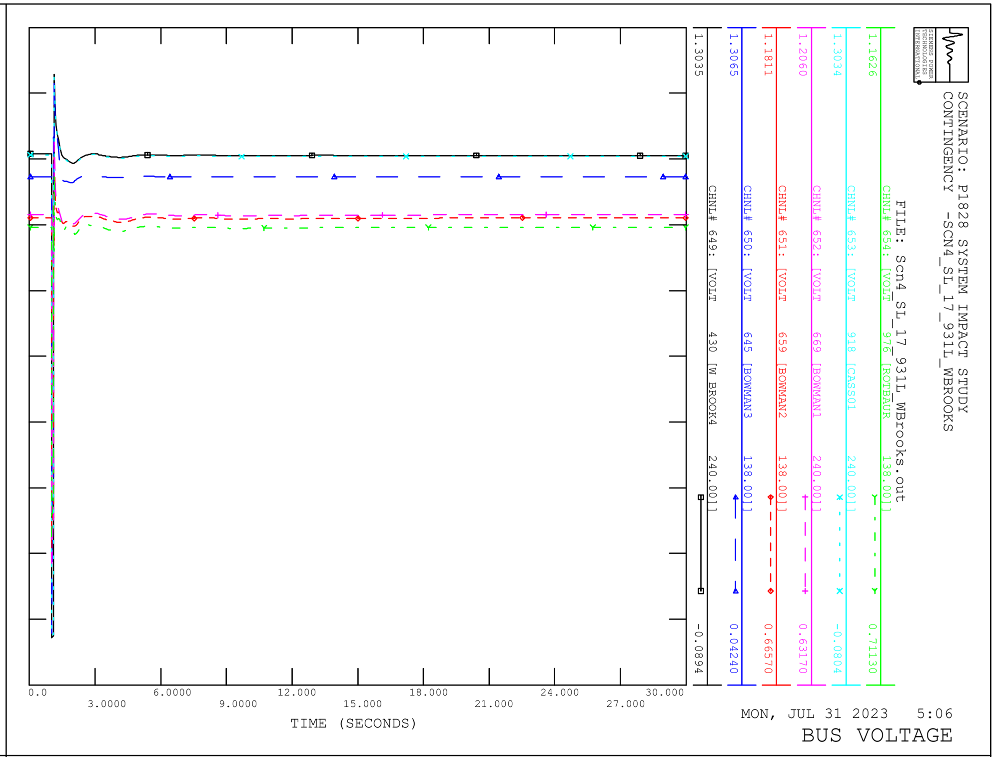
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_17_931L_WBROOKS
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASS01 240.00]]
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
1.3035 -0.0894
1.3065 0.04240
1.1811 0.66570
1.2060 0.63170
1.3034 -0.0804
1.1626 0.71130
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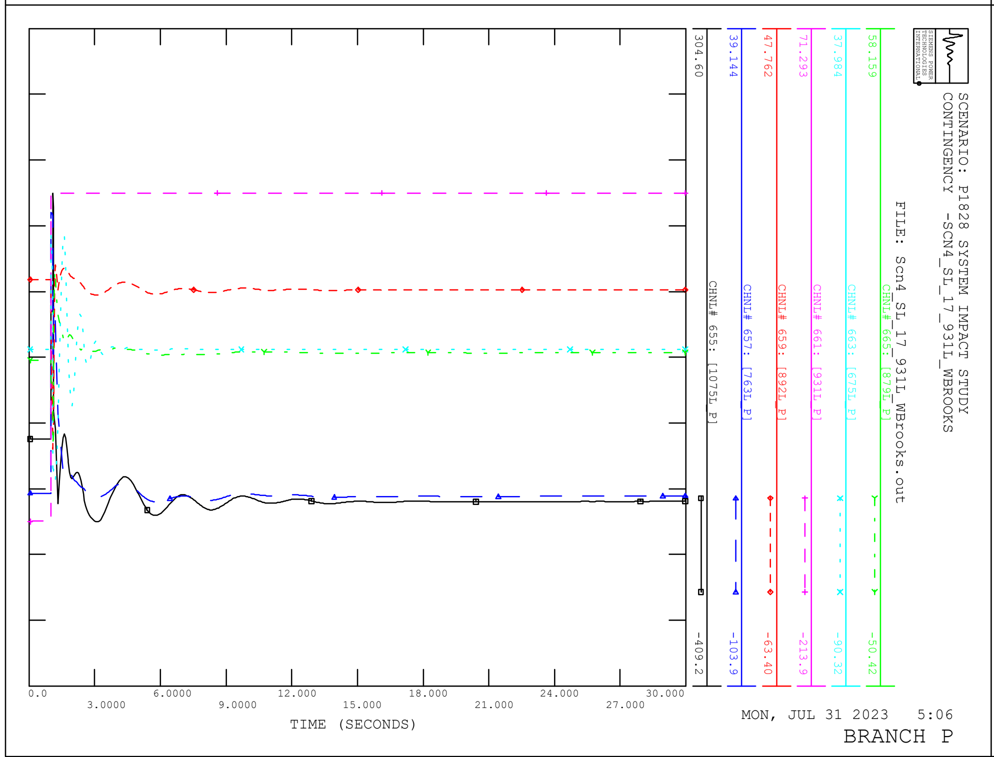
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_17_931L_WBROOKS
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CHNL# 657: [763L P]
CHNL# 659: [892L P]
CHNL# 661: [931L P]
CHNL# 663: [675L P]
CHNL# 665: [879L P]
304.60 -409.2
39.144 -103.9
47.762 -63.40
71.293 -213.9
37.984 -90.32
58.159 -50.42
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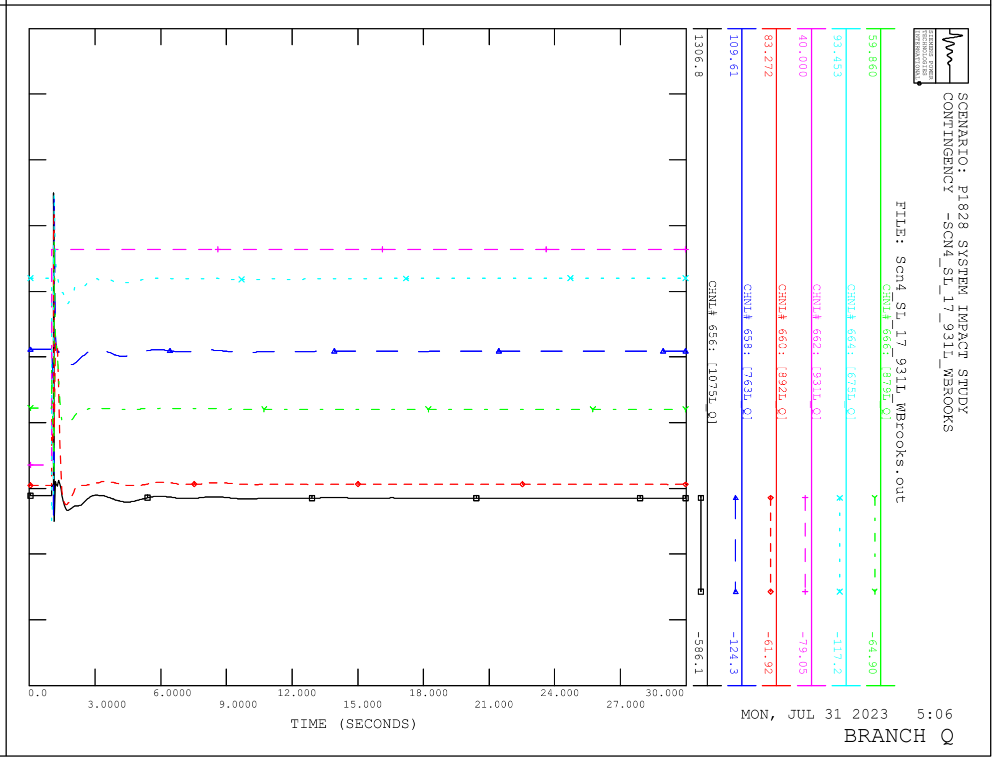
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
CHNL# 666: [879L Q]
1306.8 -586.1
109.61 -124.3
83.272 -61.92
40.000 -79.05
93.453 -117.2
59.860 -64.90
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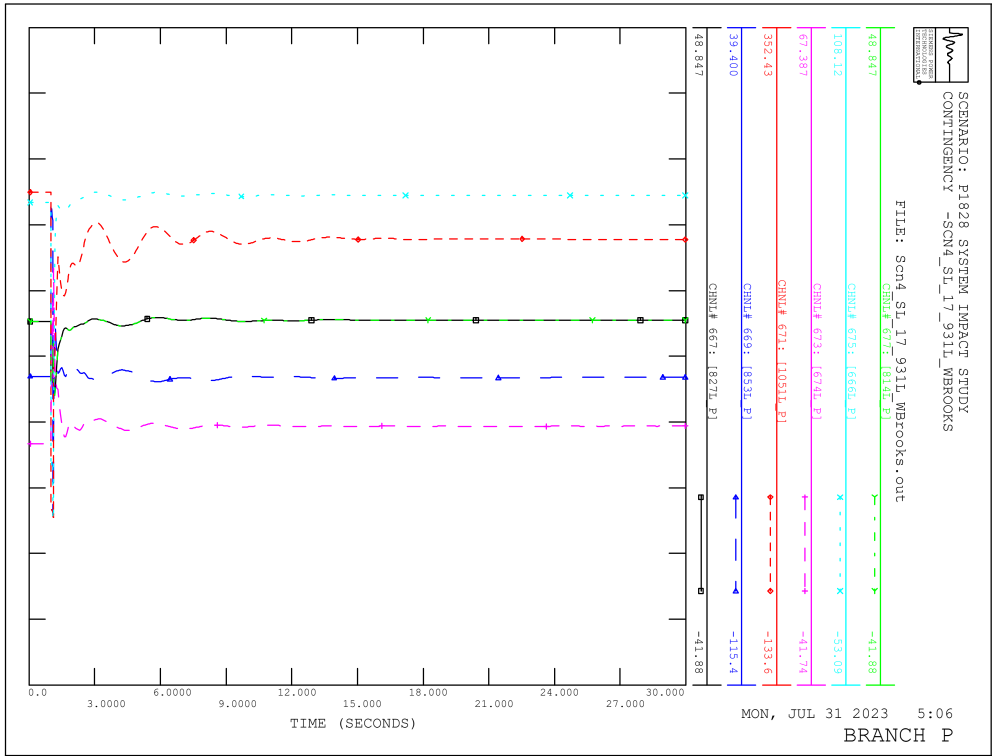

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CHNL# 669: [853L_P] 39.400 -115.4
CHNL# 671: [1051L_P] 352.43 -133.6
CHNL# 673: [674L_P] 67.387 -41.74
CHNL# 675: [666L_P] 108.12 -53.09
CHNL# 677: [814L_P] 48.847 -41.88
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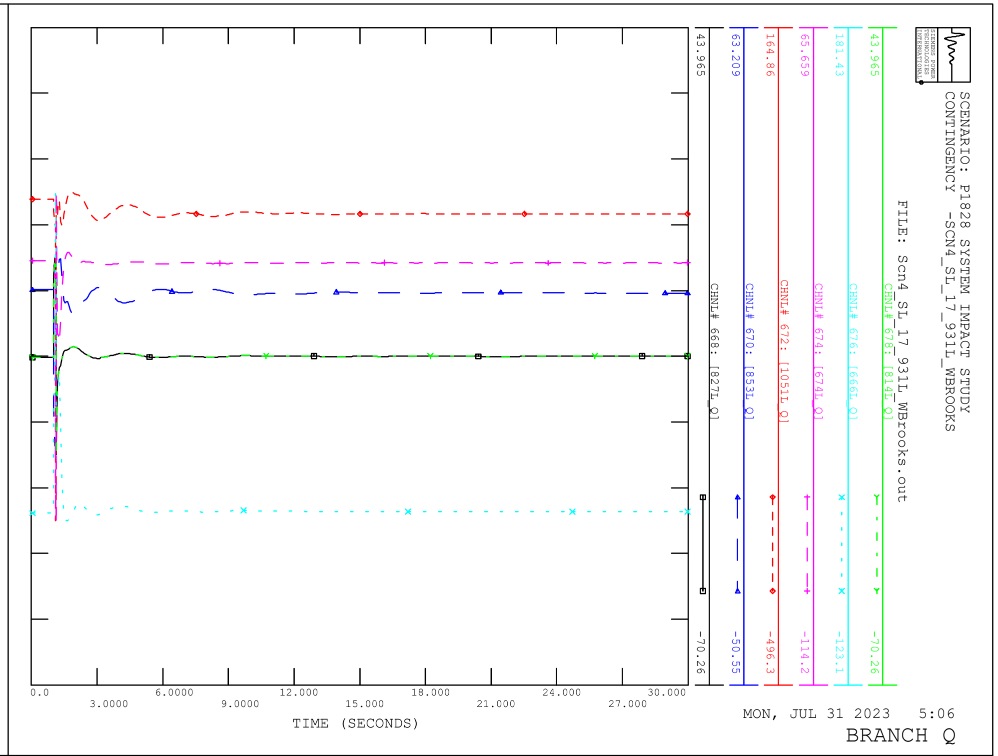
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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CONTINGENCY -SCN4_SL_17_931L_WBROOKS
FILE: Scn4_SL_17_931L_WBrooks.out
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CHNL# 670: [853L_Q] 63.209 -50.55
CHNL# 672: [1051L_Q] 164.86 -496.3
CHNL# 674: [674L_Q] 65.659 -114.2
CHNL# 676: [666L_Q] 181.43 -123.1
CHNL# 678: [814L_Q] 43.965 -70.26
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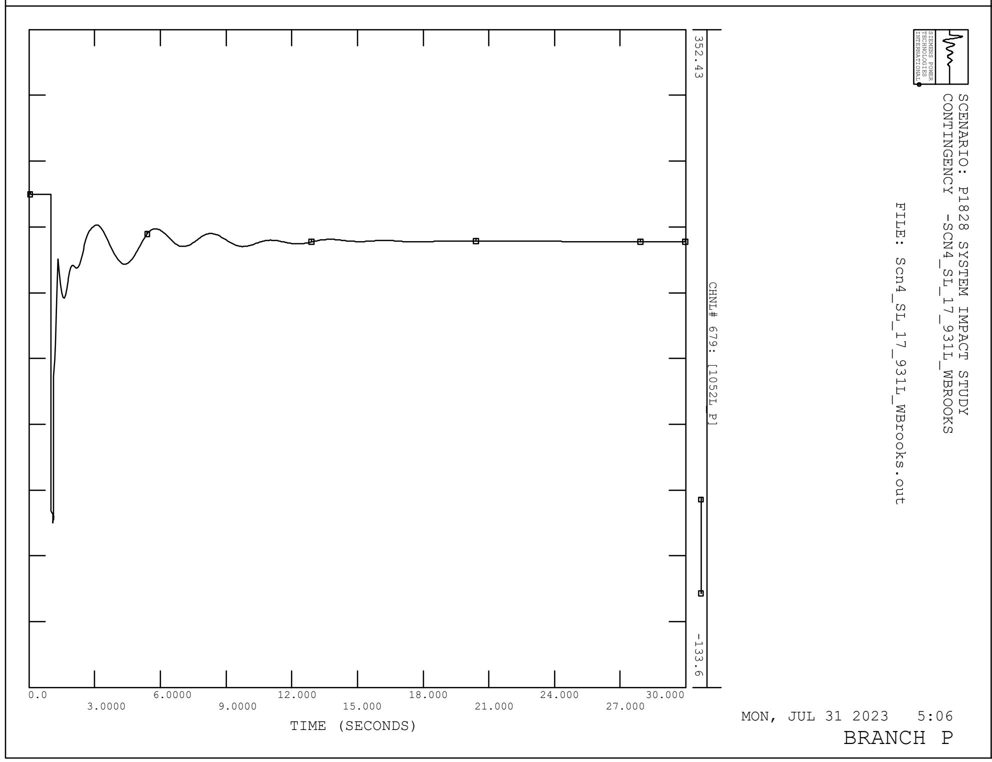
MON, JUL 31 2023 5:06
BRANCH Q



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FILE: Scn4_SL_17_931L_WBrooks.out
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TIME (SECONDS)
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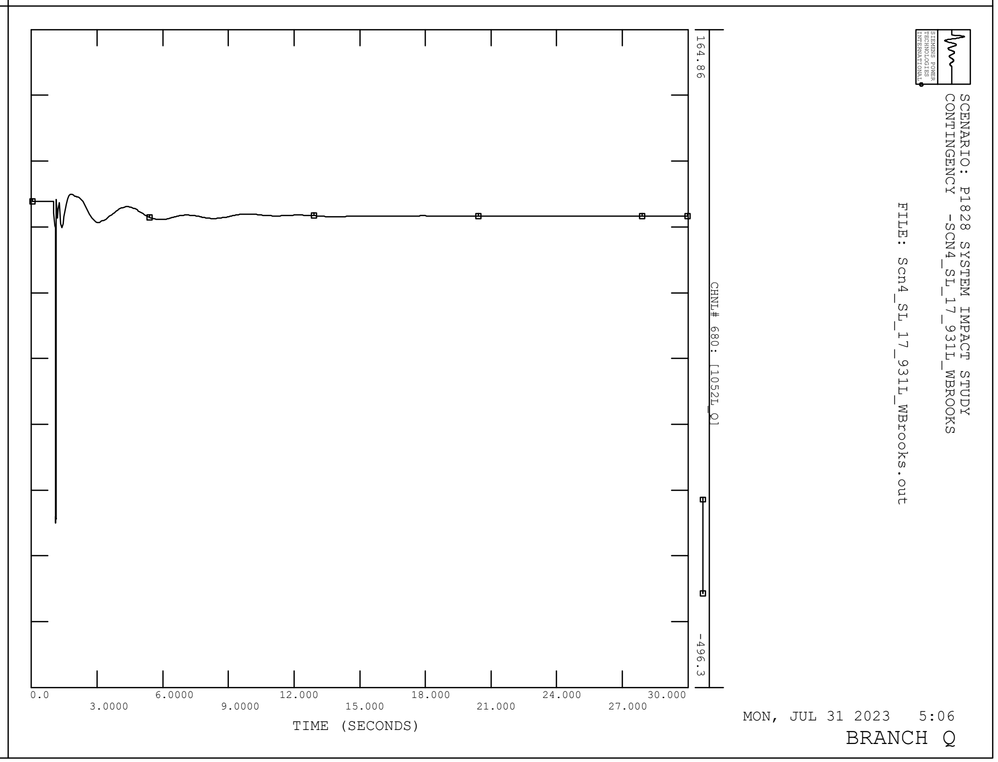
BRANCH P



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TIME (SECONDS)
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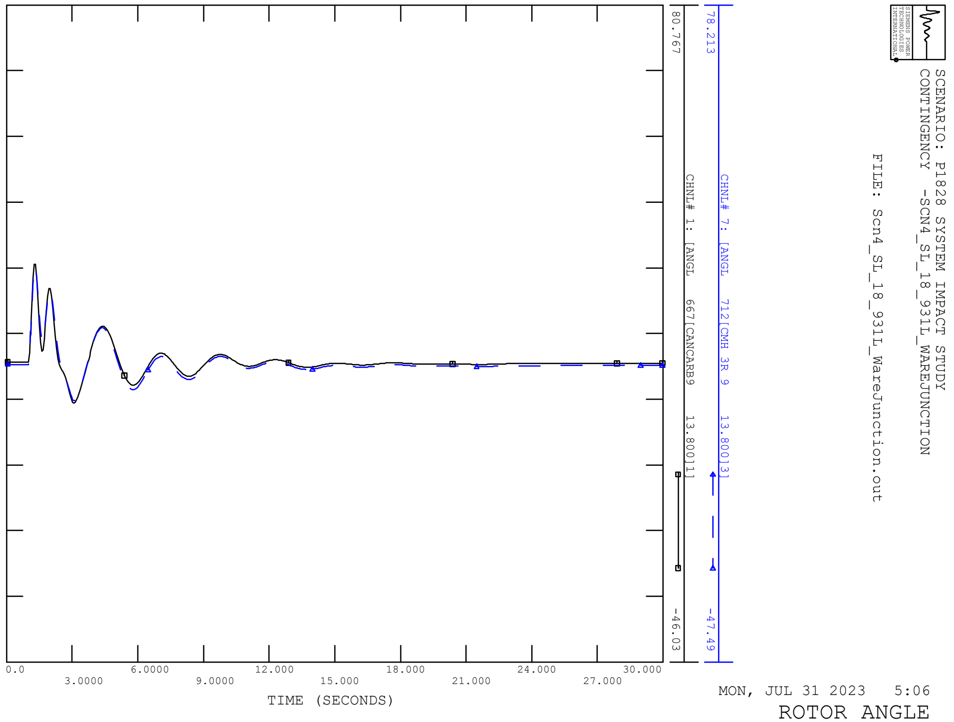
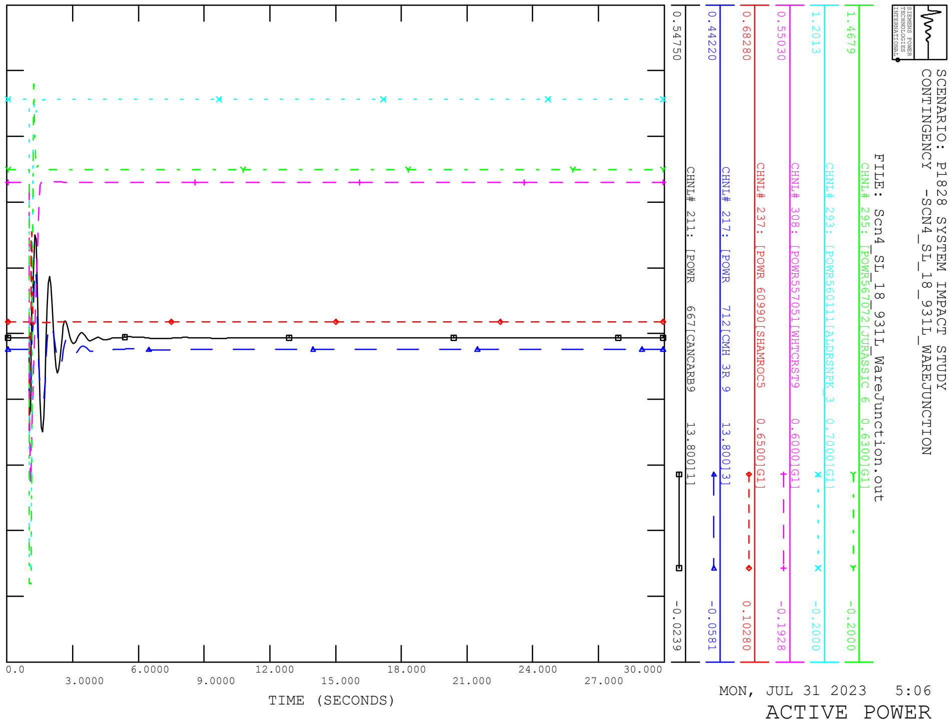
BRANCH Q



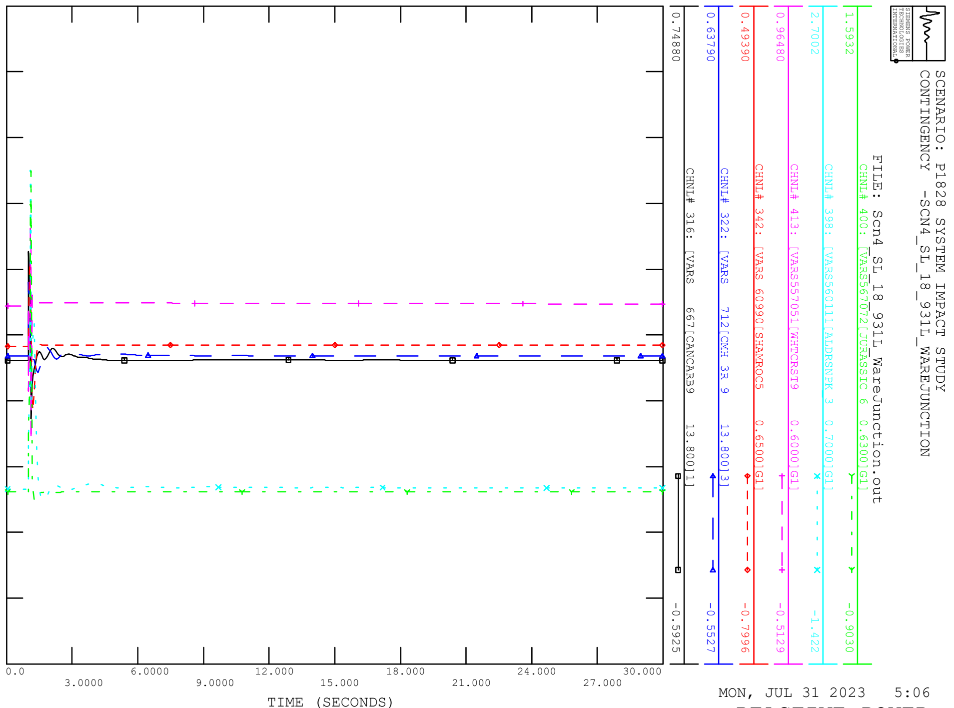
MON, JUL 31 2023 5:06

ROTOR ANGLE



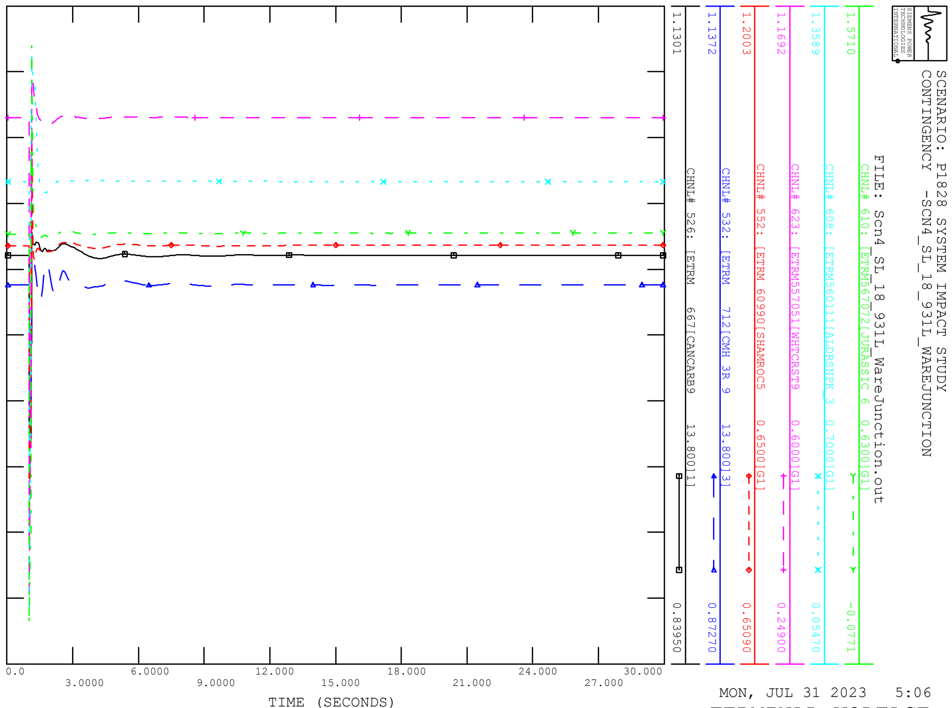
MON, JUL 31 2023 5:06

ACTIVE POWER



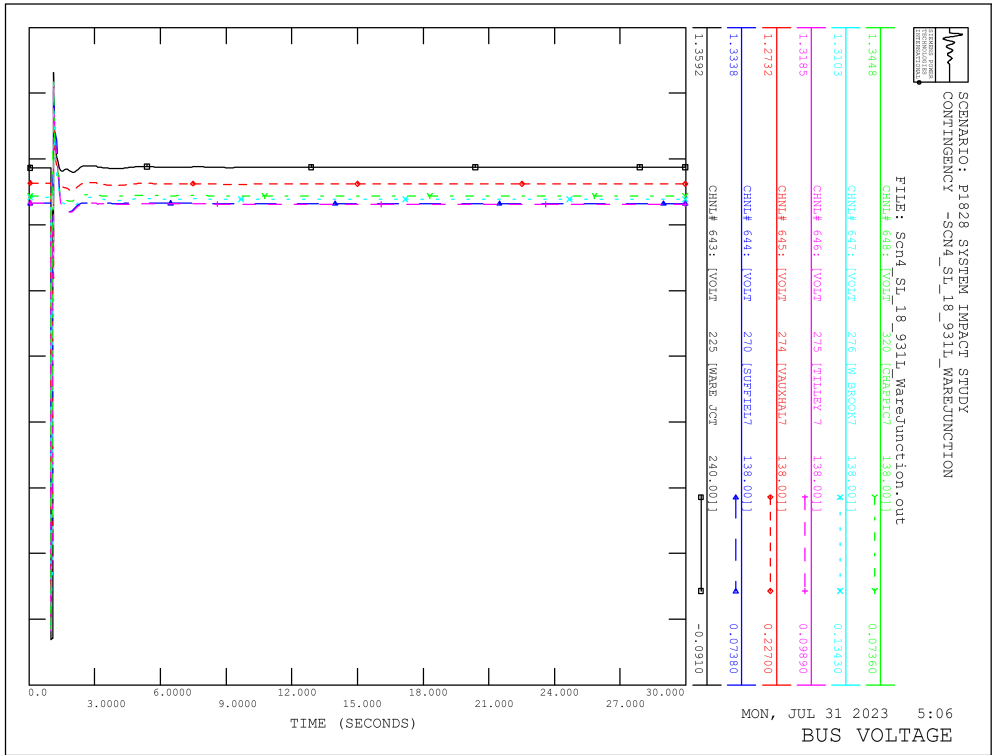
MON, JUL 31 2023 5:06

REACTIVE POWER



MON, JUL 31 2023 5:06

TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_18_931L_WAREJUNCTION
FILE: Scn4_SL_18_931L_WareJunction.out
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3338 0.07380
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2732 0.22700
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3185 0.09890
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3103 0.13430
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.3448 0.07360
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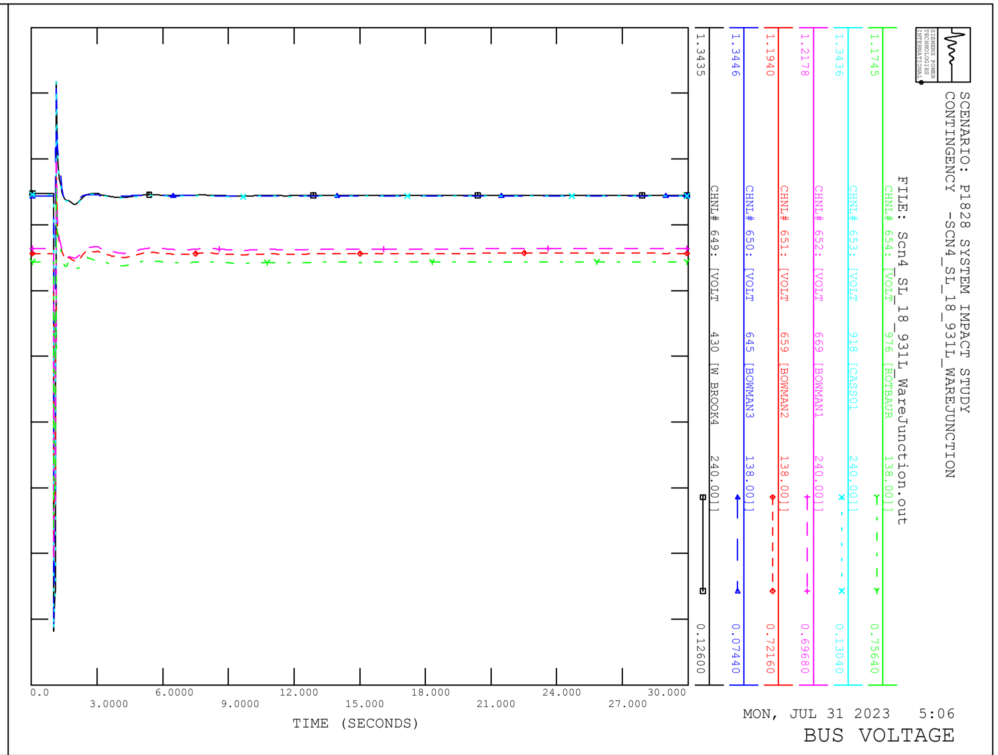
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_18_931L_WAREJUNCTION
FILE: Scn4_SL_18_931L_WareJunction.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3446 0.07440
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1940 0.72160
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2178 0.69680
CHNL# 653: [VOLT 918 [CASSOI 240.00]] 1.3436 0.13040
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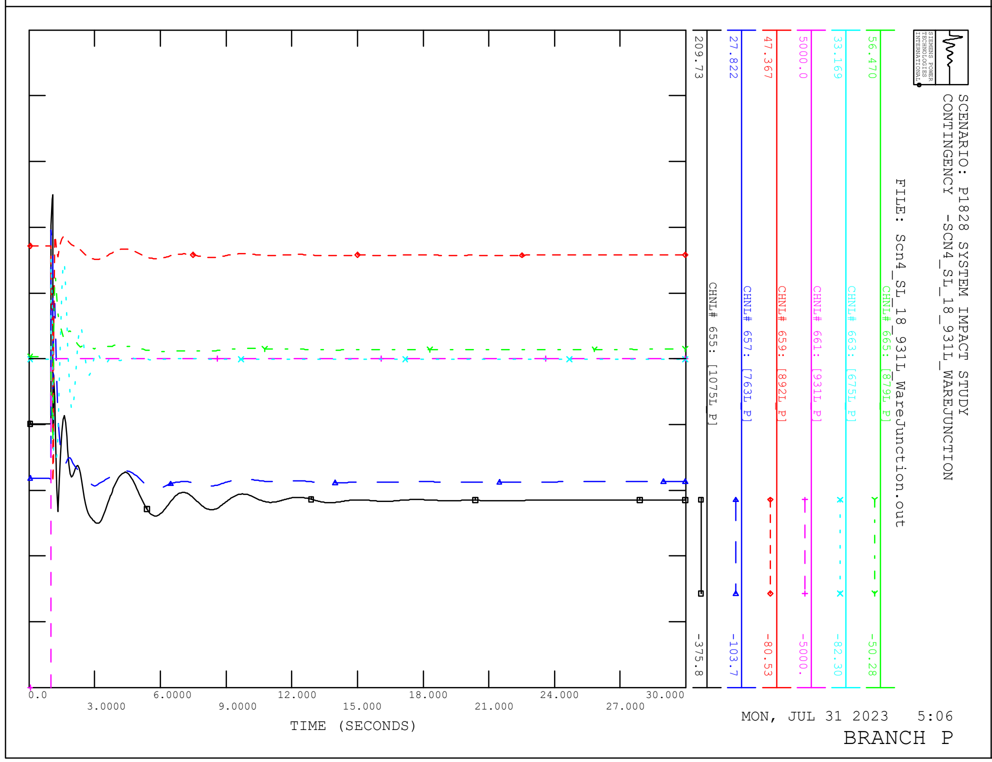
BUS VOLTAGE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FILE: Scn4_SL_18_931L_WareJunction.out
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CHNL# 657: [763L P] 27.822 -103.7
CHNL# 659: [892L P] 47.367 -80.53
CHNL# 661: [931L P] 5000.0 -5000.
CHNL# 663: [675L P] 33.169 -82.30
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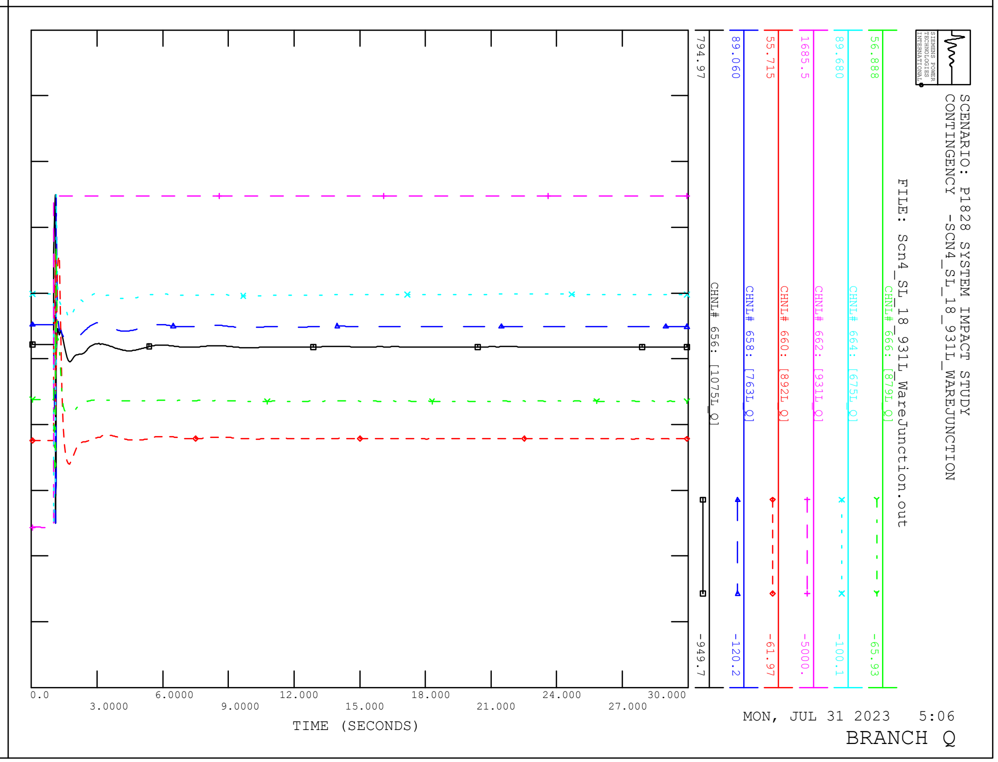
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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FILE: Scn4_SL_18_931L_WareJunction.out
CHNL# 656: [1075L Q] 794.97 -949.7
CHNL# 658: [763L Q] 89.060 -120.2
CHNL# 660: [892L Q] 55.715 -61.97
CHNL# 662: [931L Q] 1685.5 -5000.
CHNL# 664: [675L Q] 89.680 -100.1
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TIME (SECONDS)
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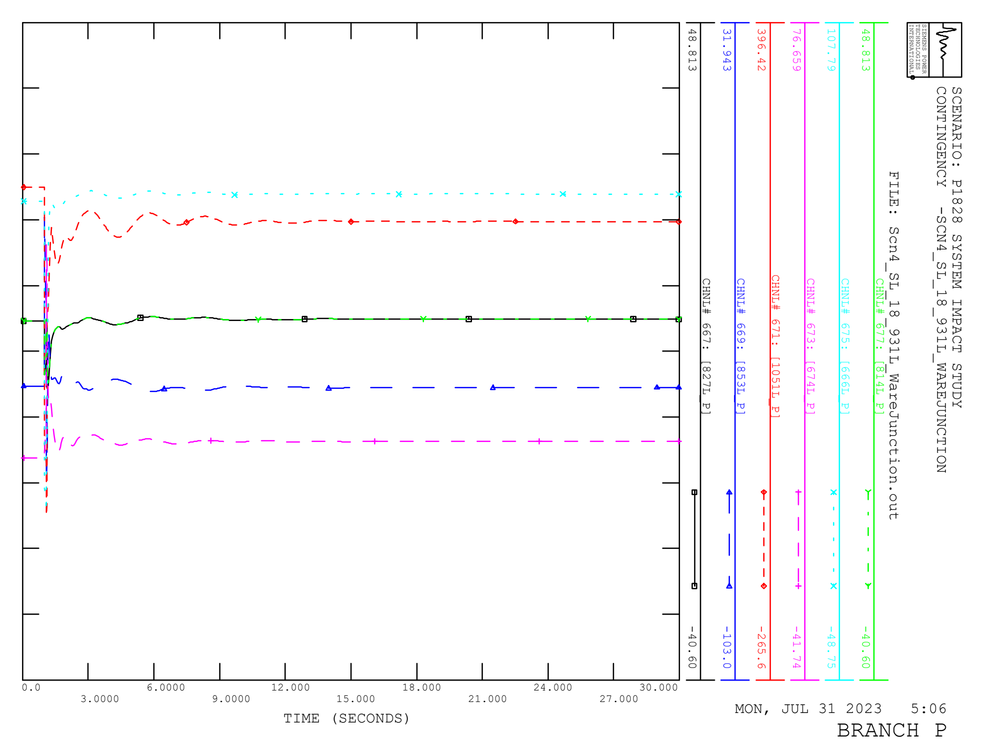
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CONTINGENCY -SCN4_SL_18_931L_WAREJUNCTION
FILE: Scn4_SL_18_931L_WareJunction.out
CHNL# 667: [827L_P] 48.813 -40.60
CHNL# 669: [853L_P] 31.943 -103.0
CHNL# 671: [1051L_P] 396.42 -265.6
CHNL# 673: [674L_P] 76.659 -41.74
CHNL# 675: [666L_P] 107.79 -48.75
CHNL# 677: [814L_P] 48.813 -40.60
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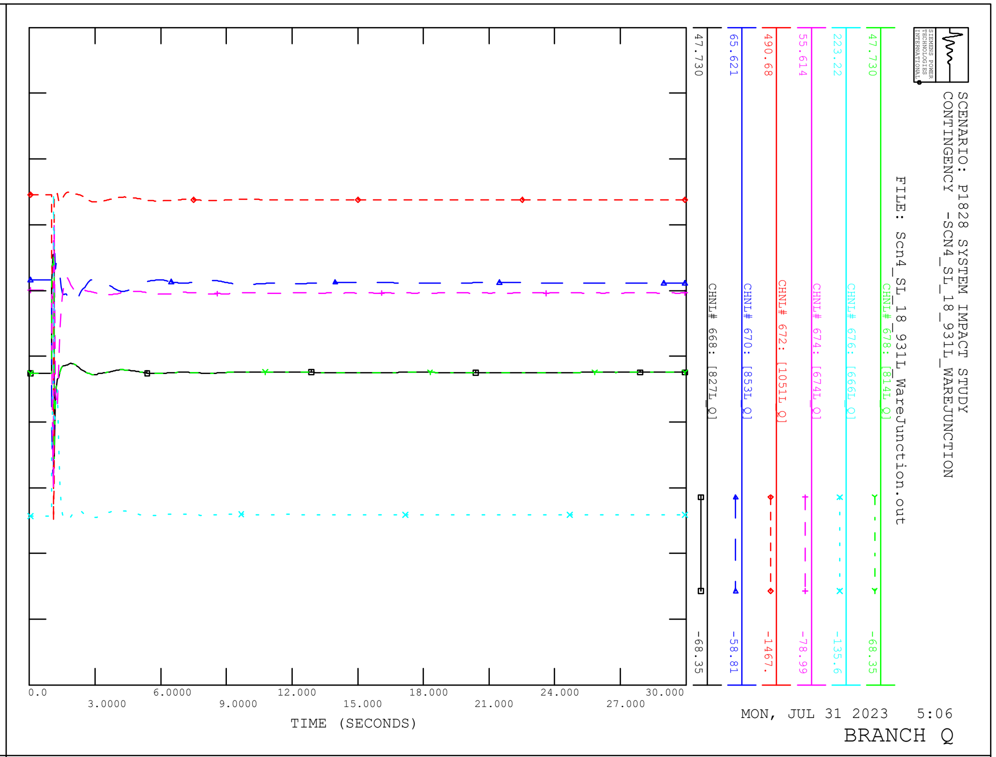
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 670: [853L_Q] 65.621 -58.81
CHNL# 672: [1051L_Q] 490.68 -1467.
CHNL# 674: [674L_Q] 55.614 -78.99
CHNL# 676: [666L_Q] 223.22 -135.6
CHNL# 678: [814L_Q] 47.730 -68.35
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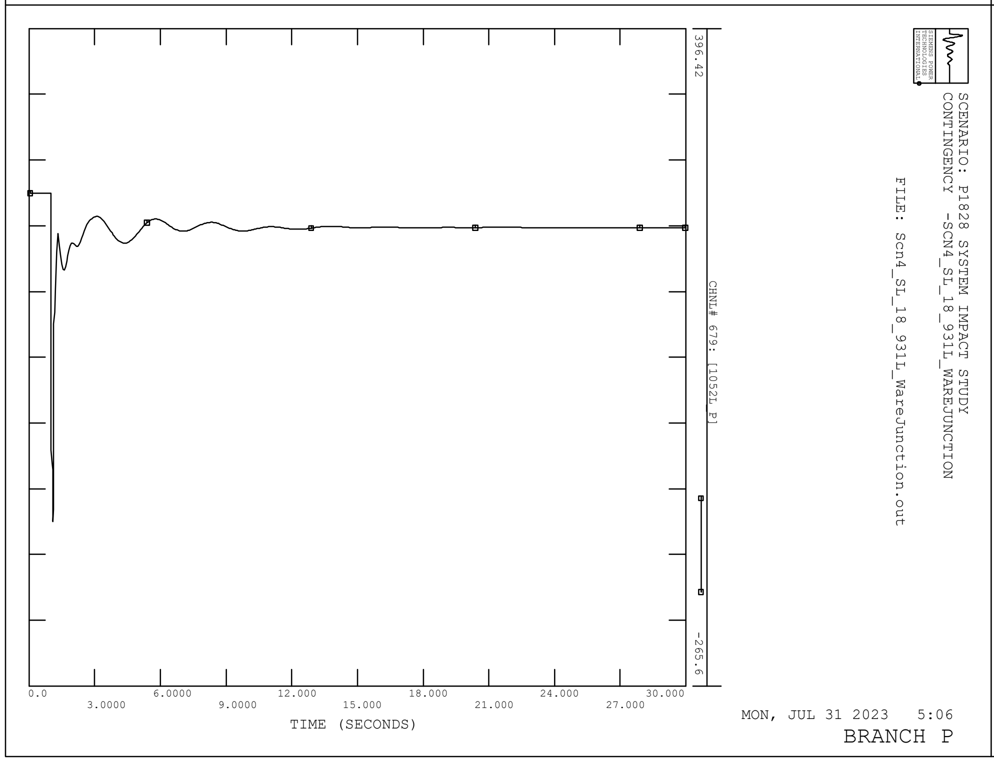
BRANCH Q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CONTINGENCY -SCN4_SL_18_931L_WAREJUNCTION
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TIME (SECONDS)
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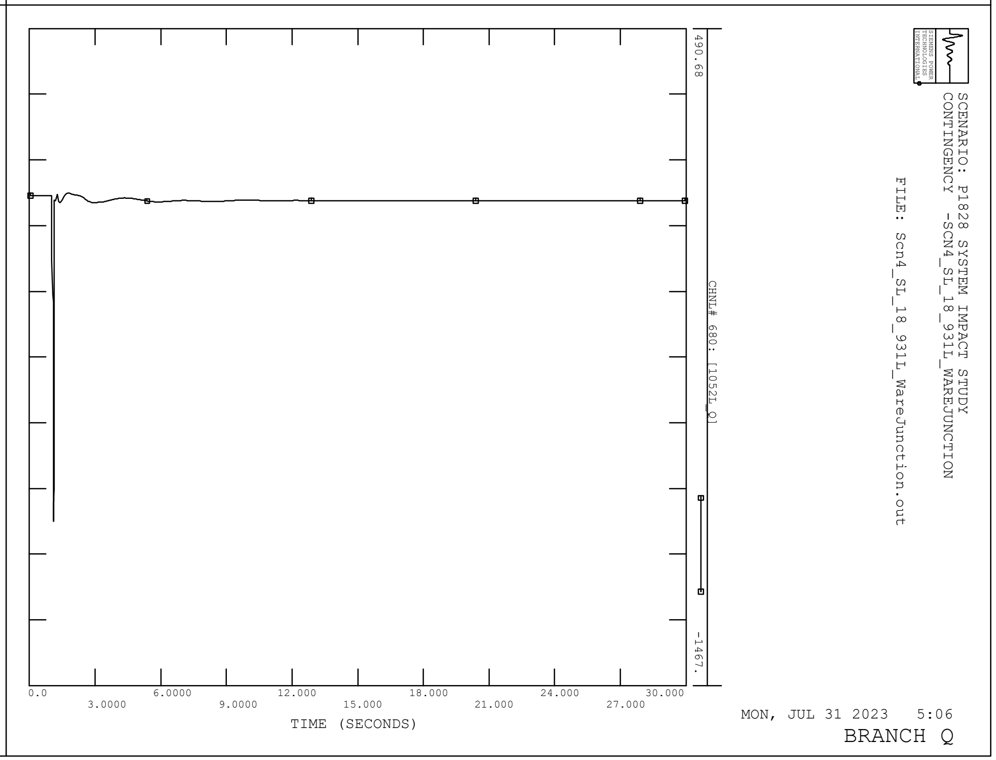
BRANCH P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TIME (SECONDS)
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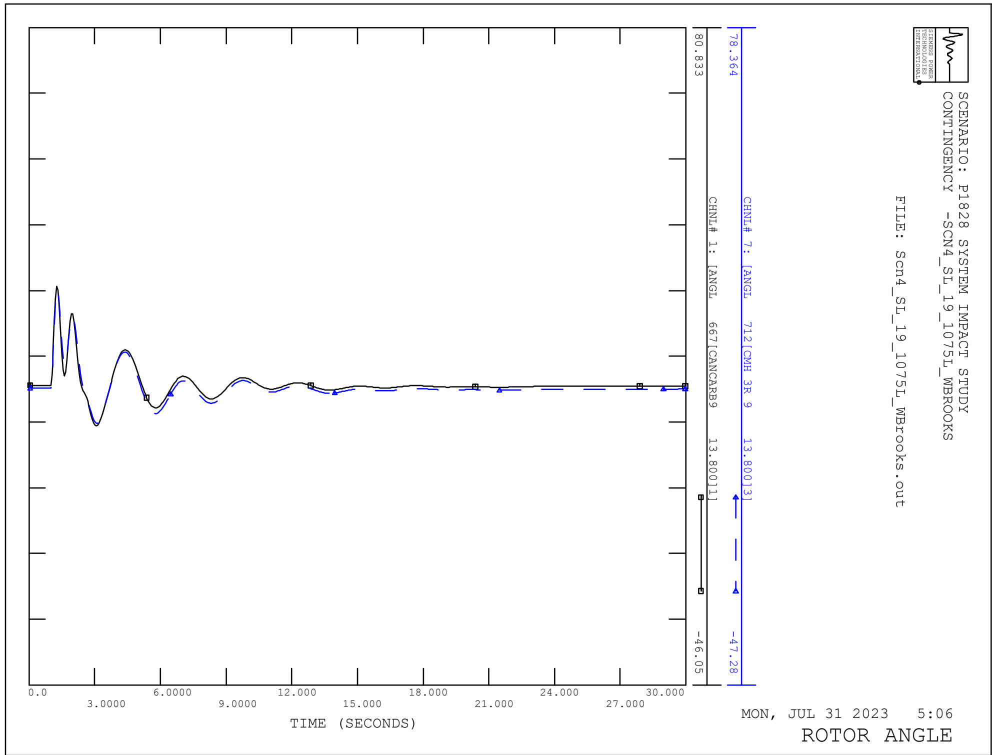
BRANCH Q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-46.05
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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-47.28
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3.0000
6.0000
9.0000
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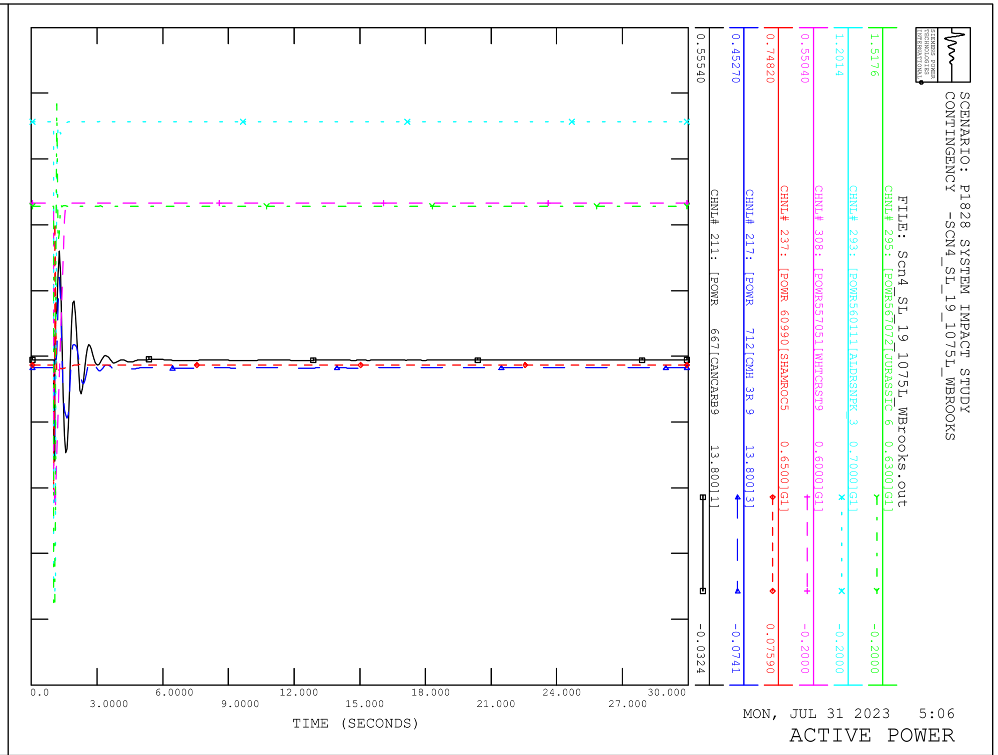
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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FILE: Scn4_SL_19_1075L_WBrooks.out
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.45270
-0.0741
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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0.07590
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
1.2014
-0.2000
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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6.0000
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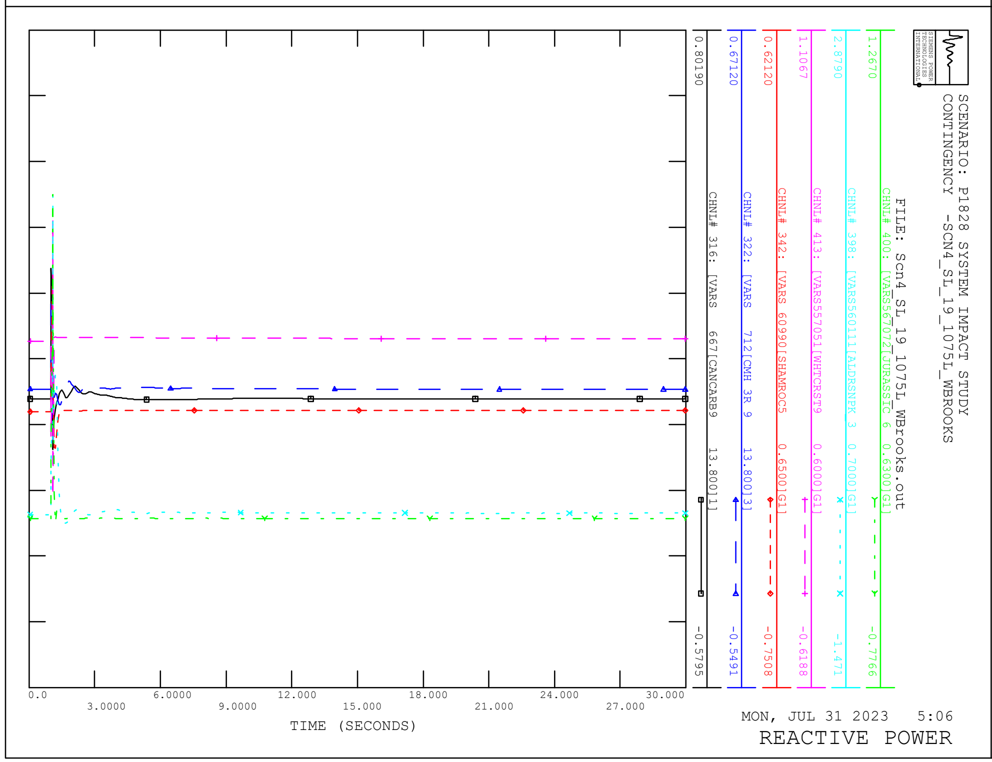
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.5795
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
0.67120
-0.5491
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.62120
-0.7508
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
1.1067
-0.6188
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
2.8790
-1.471
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
1.2670
-0.7766
0.0
3.0000
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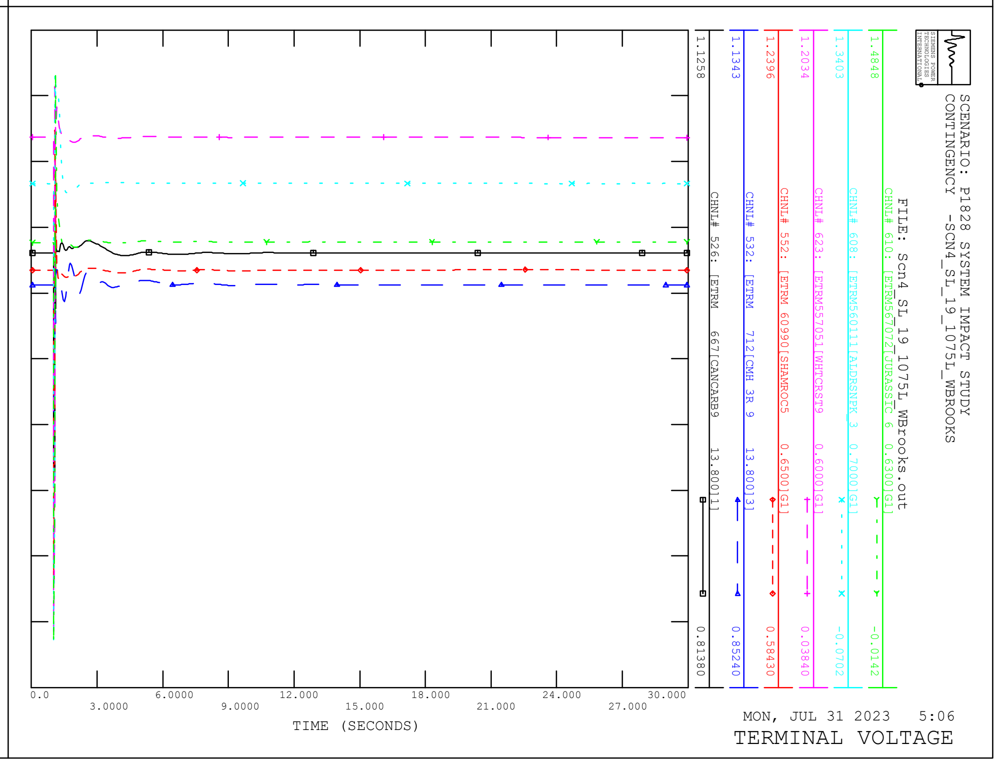
MON, JUL 31 2023 5:06
REACTIVE POWER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CONTINGENCY -SCN4_SL_19_1075L_WBROOKS
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1343
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CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.2396
0.58430
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
1.2034
0.03840
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
1.3403
-0.0702
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
1.4848
-0.0142
0.0
3.0000
6.0000
9.0000
12.000
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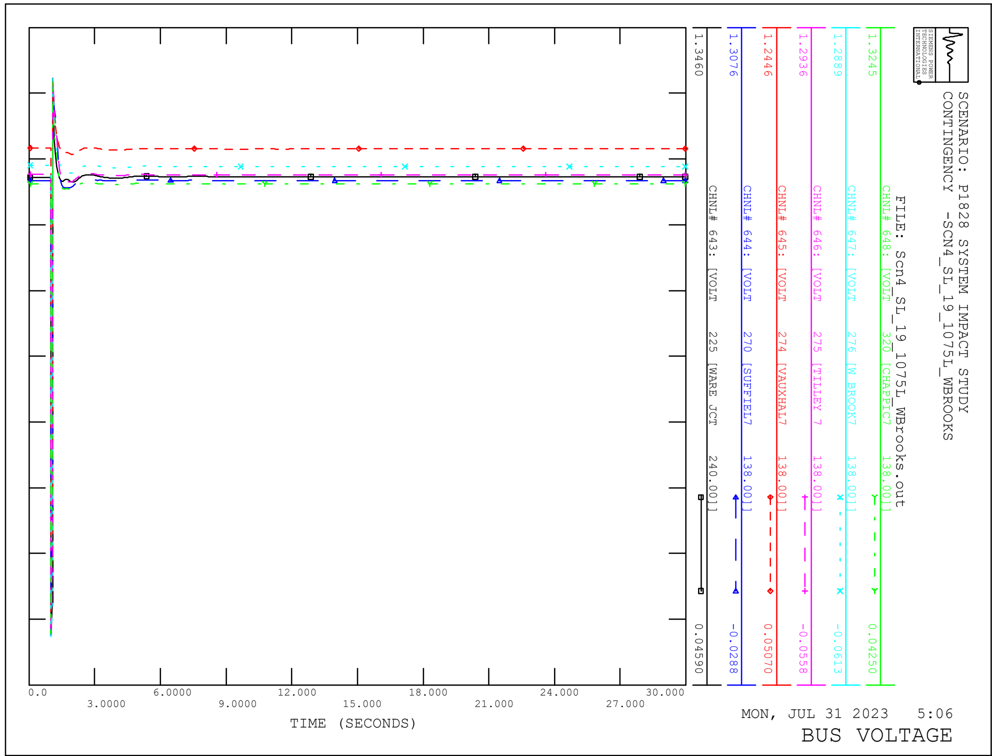
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_19_1075L_WBROOKS
FILE: Scn4_SL_19_1075L_WBrooks.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]] 1.3460 0.04590
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3076 -0.0288
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2446 0.05070
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2936 -0.0558
CHNL# 647: [VOLT 276 [N BROOK7 138.00]] 1.2889 -0.0613
CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]] 1.3245 0.04250
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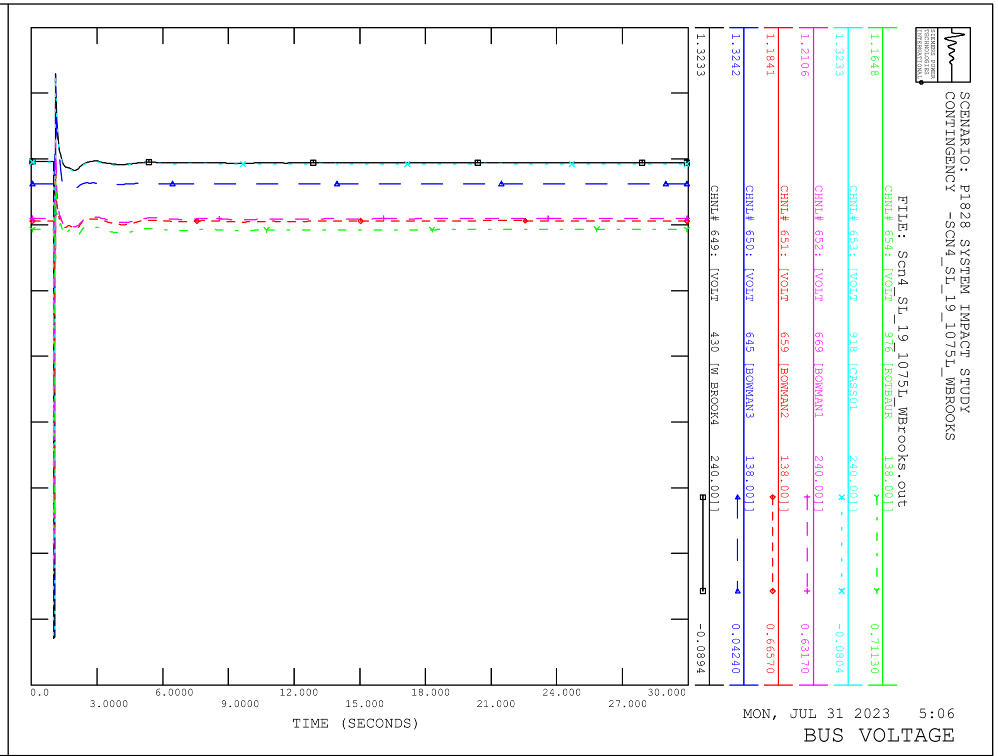
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_19_1075L_WBROOKS
FILE: Scn4_SL_19_1075L_WBrooks.out
CHNL# 649: [VOLT 430 [N BROOK4 240.00]] 1.3233 -0.0894
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3242 0.04240
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1841 0.66570
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2106 0.63170
CHNL# 653: [VOLT 918 [CASSDI 240.00]] 1.3233 -0.0804
CHNL# 654: [VOLT 976 [ROTHAM 138.00]] 1.1648 0.71130
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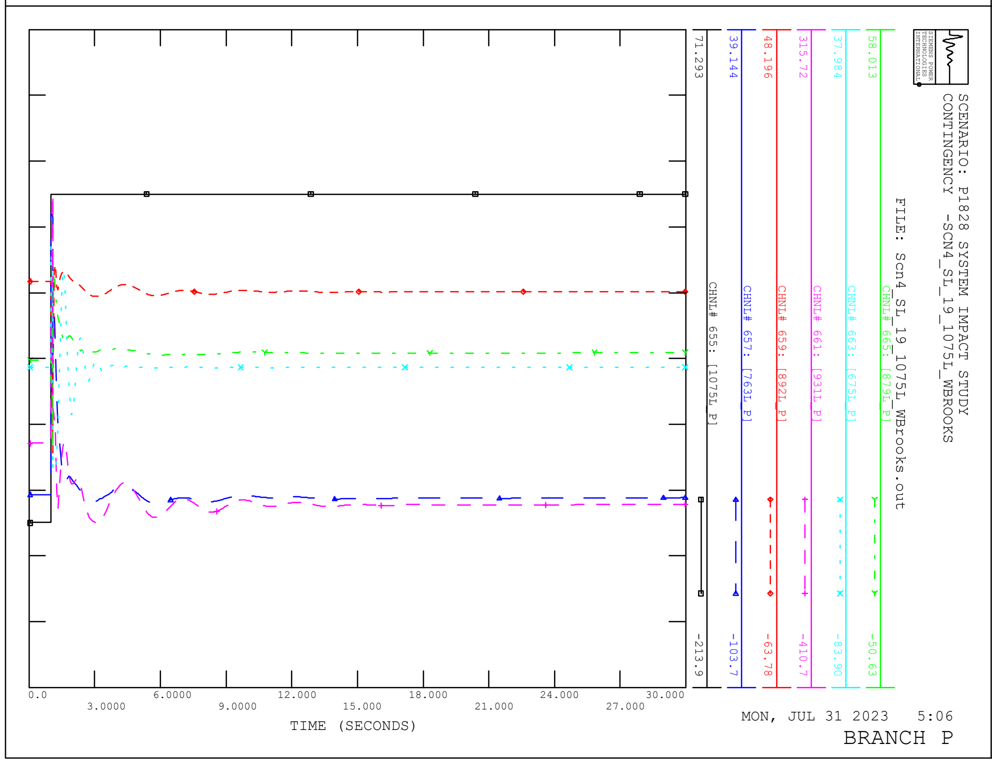
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L_P] 39.144 -103.7
CHNL# 659: [892L_P] 48.196 -63.78
CHNL# 661: [931L_P] 315.72 -410.7
CHNL# 663: [675L_P] 37.984 -83.90
CHNL# 665: [879L_P] 58.013 -50.63
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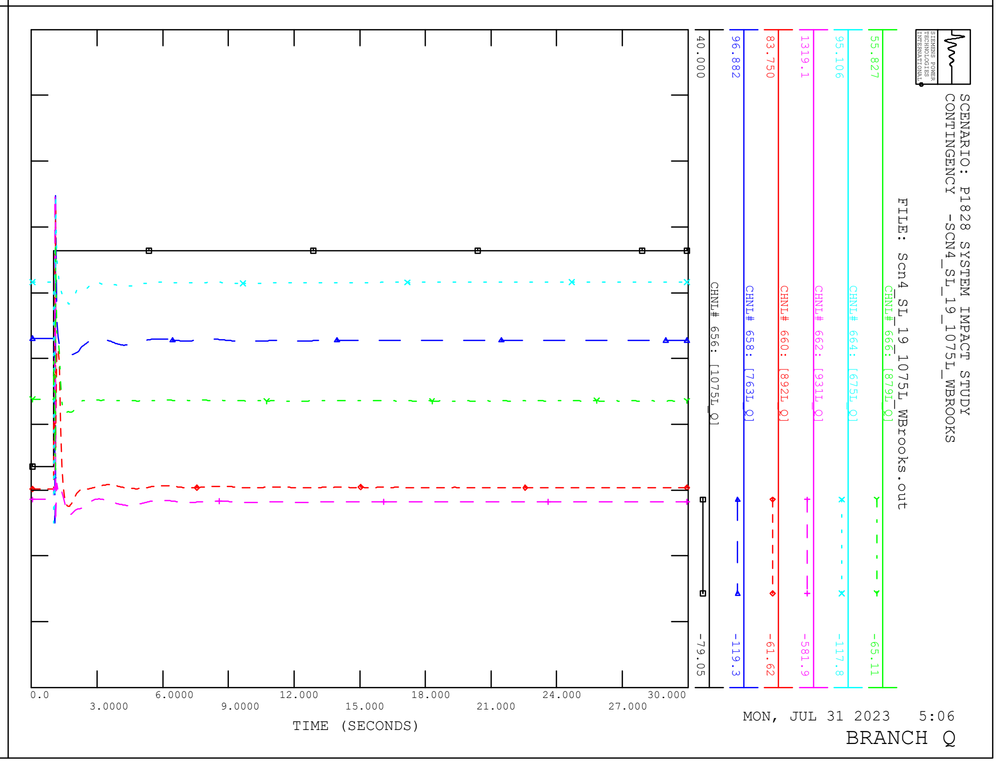
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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FILE: Scn4_SL_19_1075L_WBrooks.out
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CHNL# 658: [763L_Q] 96.882 -119.3
CHNL# 660: [892L_Q] 83.750 -61.62
CHNL# 662: [931L_Q] 1319.1 -581.9
CHNL# 664: [675L_Q] 95.106 -117.8
CHNL# 666: [879L_Q] 55.827 -65.11
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MON, JUL 31 2023 5:06
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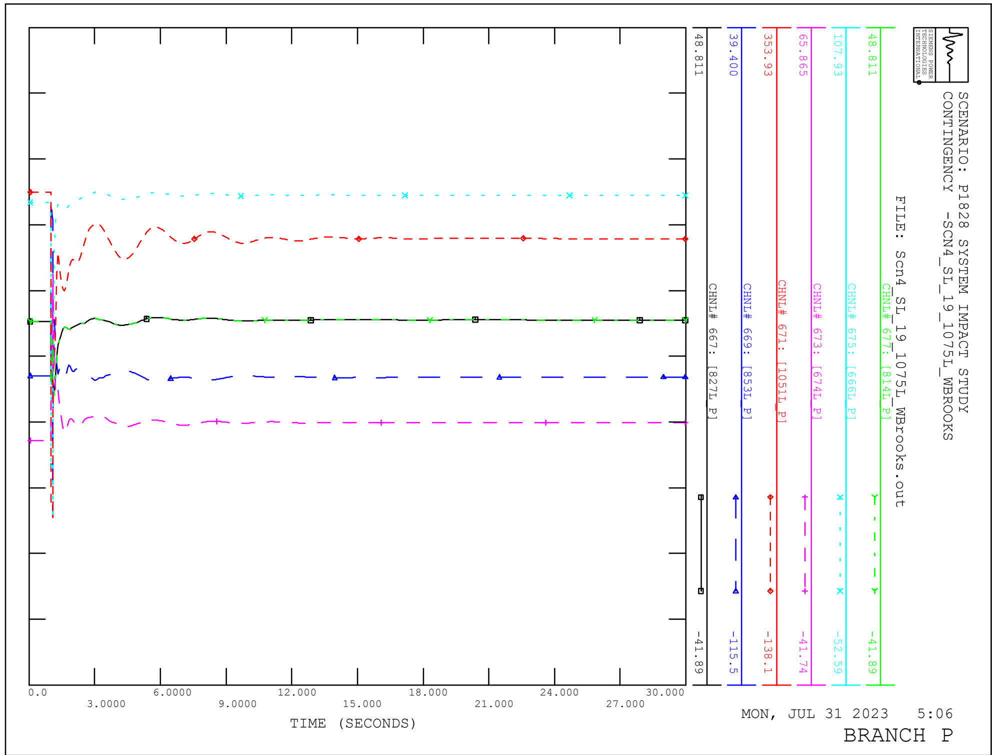

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CHNL# 669: [853L_P] 39.400 -115.5
CHNL# 671: [1051L_P] 353.93 -138.1
CHNL# 673: [674L_P] 65.865 -41.74
CHNL# 675: [666L_P] 107.93 -52.59
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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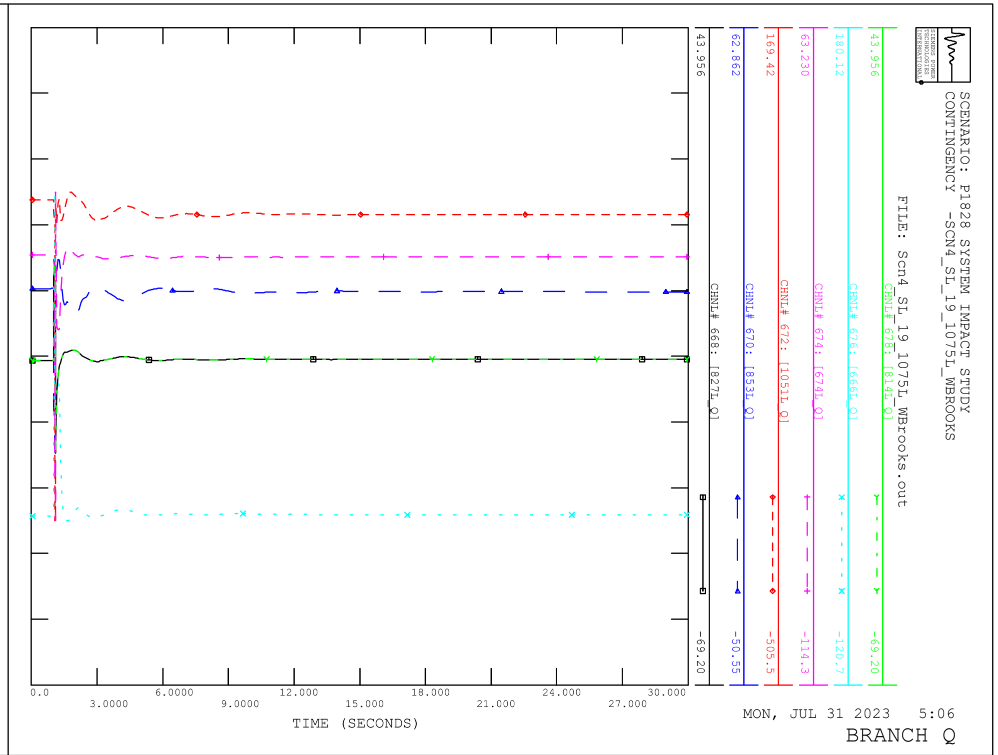

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CHNL# 670: [853L_Q] 62.862 -50.55
CHNL# 672: [1051L_Q] 169.42 -505.5
CHNL# 674: [674L_Q] 63.230 -114.3
CHNL# 676: [666L_Q] 180.12 -120.7
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MON, JUL 31 2023 5:06
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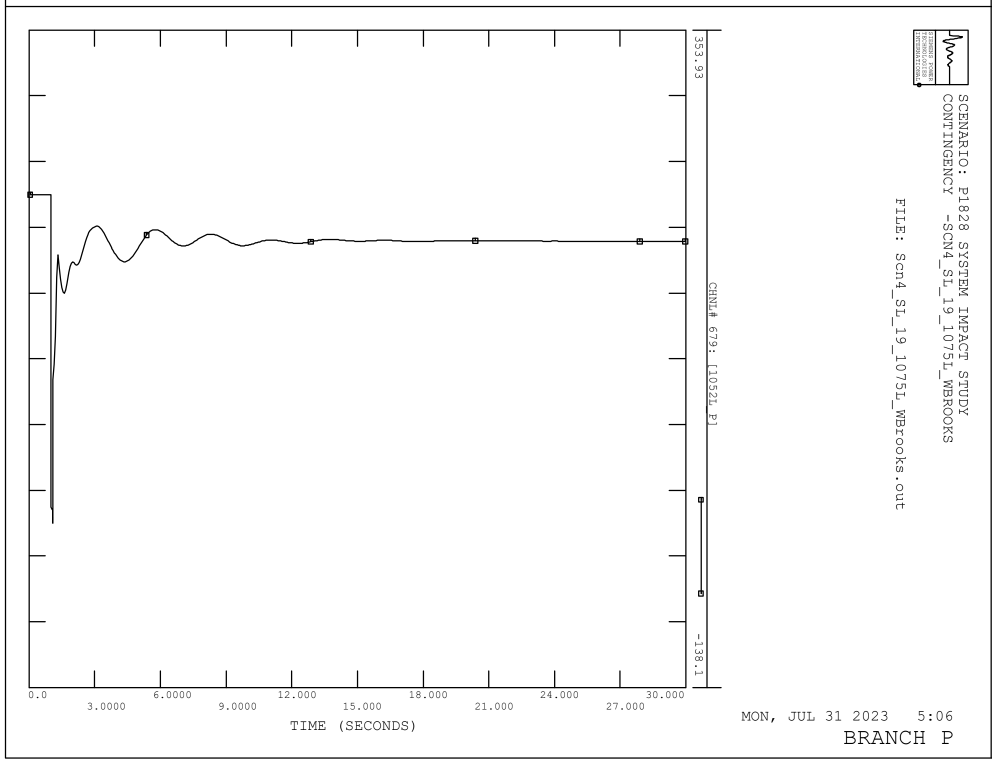

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MON, JUL 31 2023 5:06
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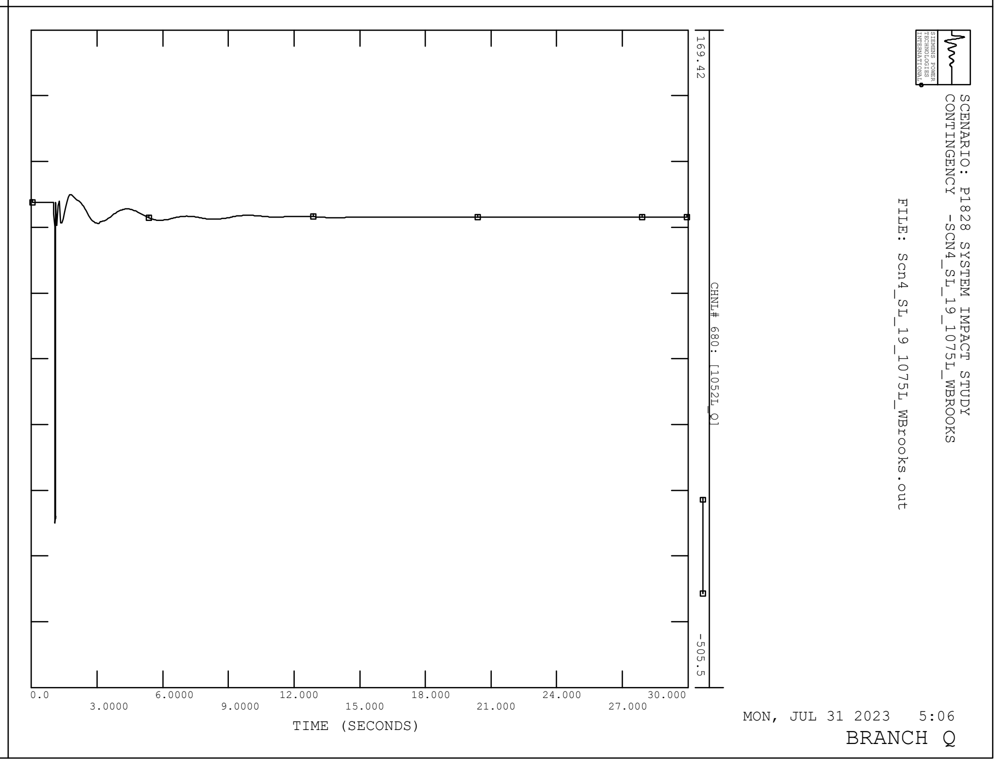

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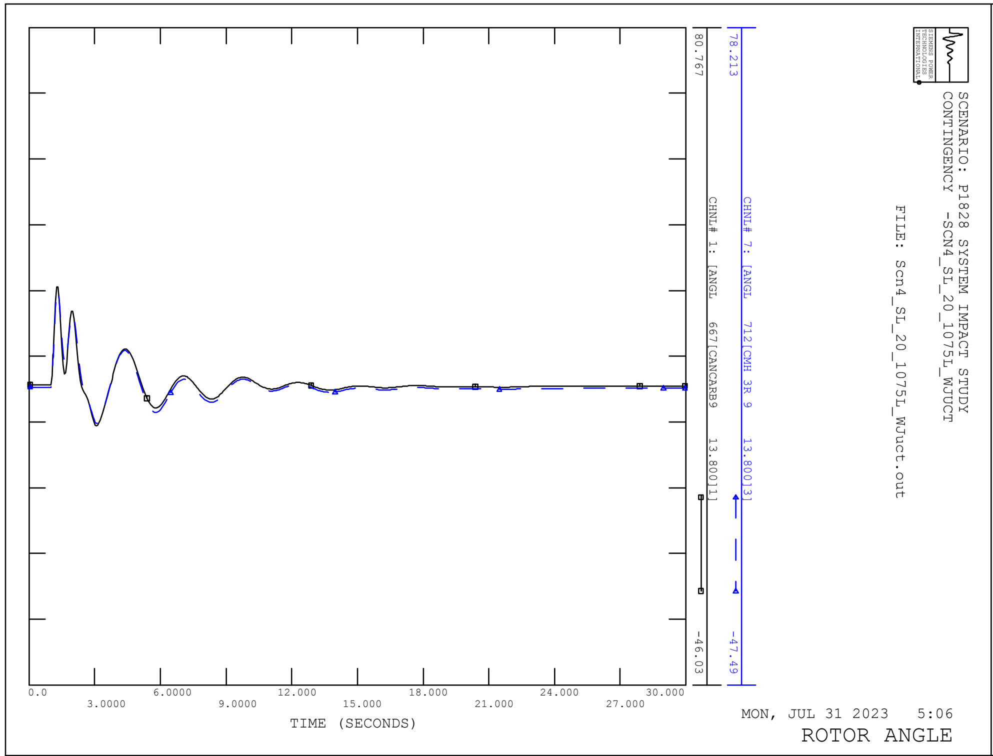
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-46.03
CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
78.213
-47.49
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6.0000
9.0000
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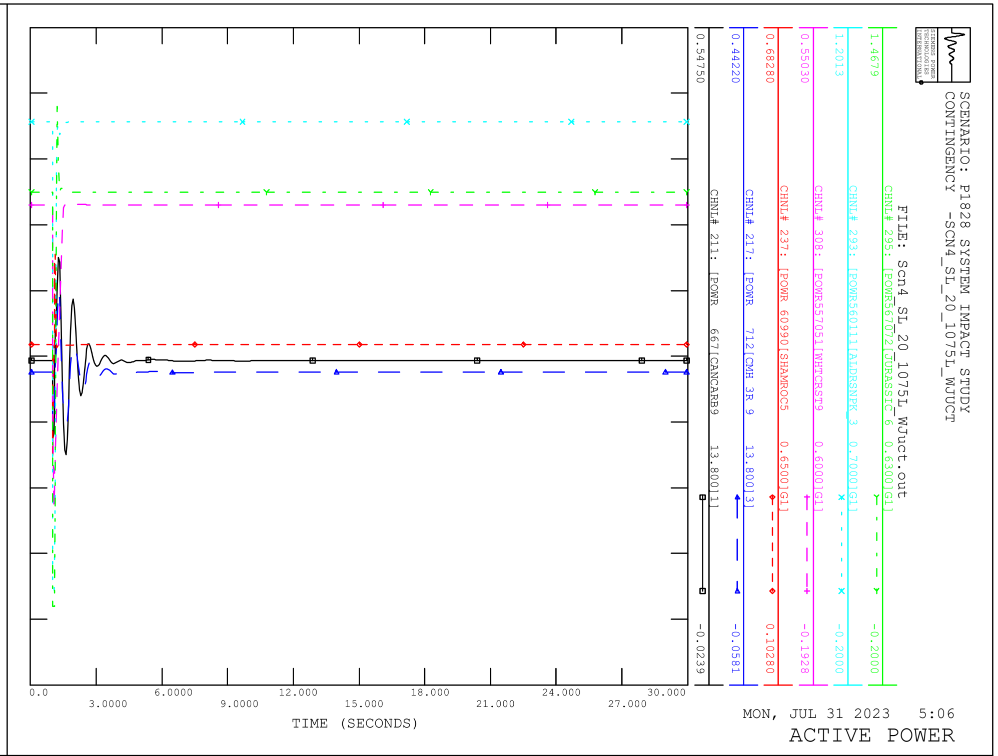
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_20_1075L_WJUCT
FILE: Scn4_SL_20_1075L_WJuct.out
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
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-0.0239
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
0.44220
-0.0581
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.68280
0.10280
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
0.55030
-0.1928
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
1.2013
-0.2000
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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-0.2000
0.0
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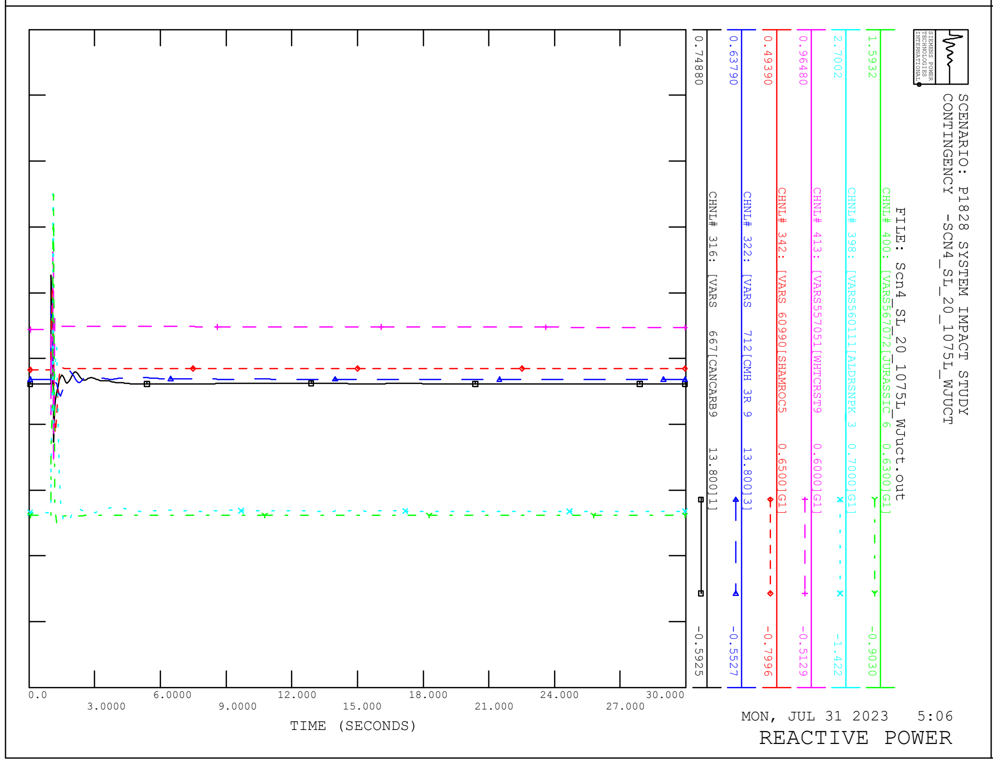
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.5925
CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
0.63790
-0.5527
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.49390
-0.7996
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.96480
-0.5129
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
2.7002
-1.422
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
1.5932
-0.9030
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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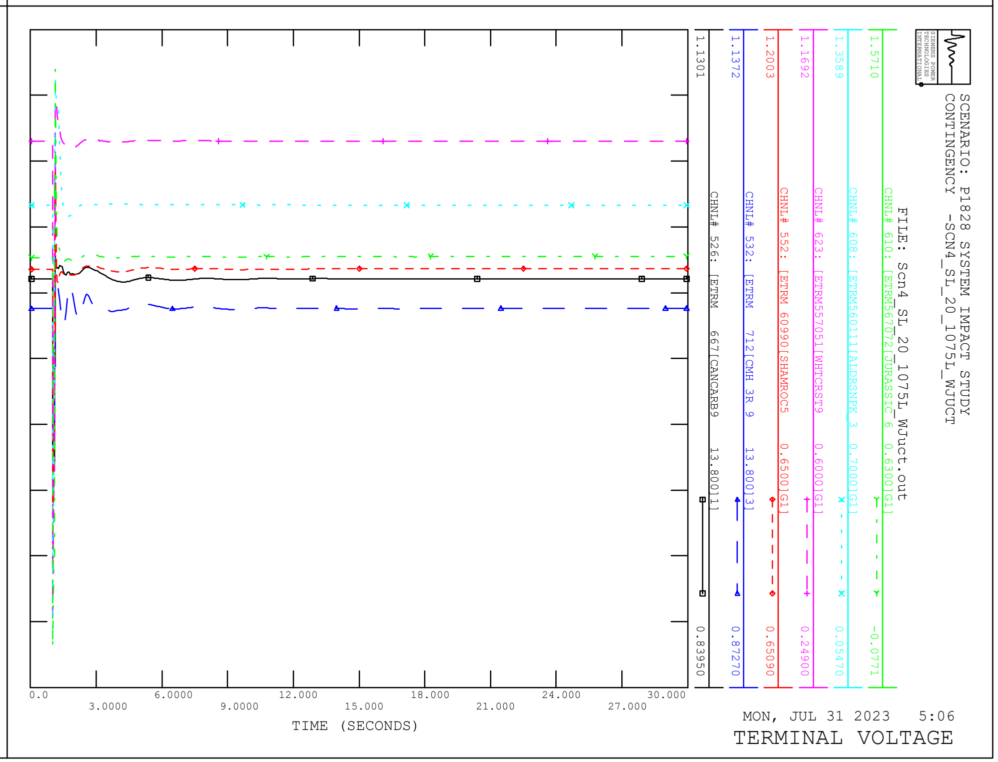
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0.83950
CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
1.1372
0.87270
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.2003
0.65090
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
1.1692
0.24900
CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
1.3989
0.05470
CHNL# 610: [ETRM567072[JURASSIC 6 0.6300]G1]
1.5710
-0.0771
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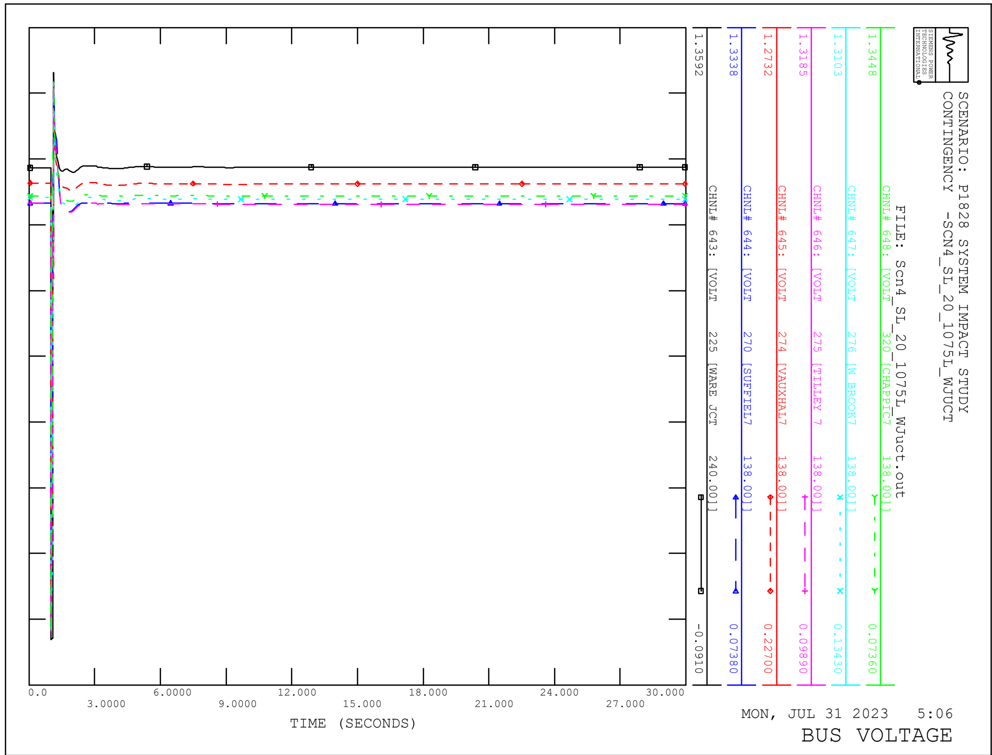
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CONTINGENCY -SCN4_SL_20_1075L_WJUCT
FILE: Scn4_SL_20_1075L_WJuct.out
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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3338 0.07380
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.2732 0.22700
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.3185 0.09850
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.3103 0.13430
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.3448 0.07360
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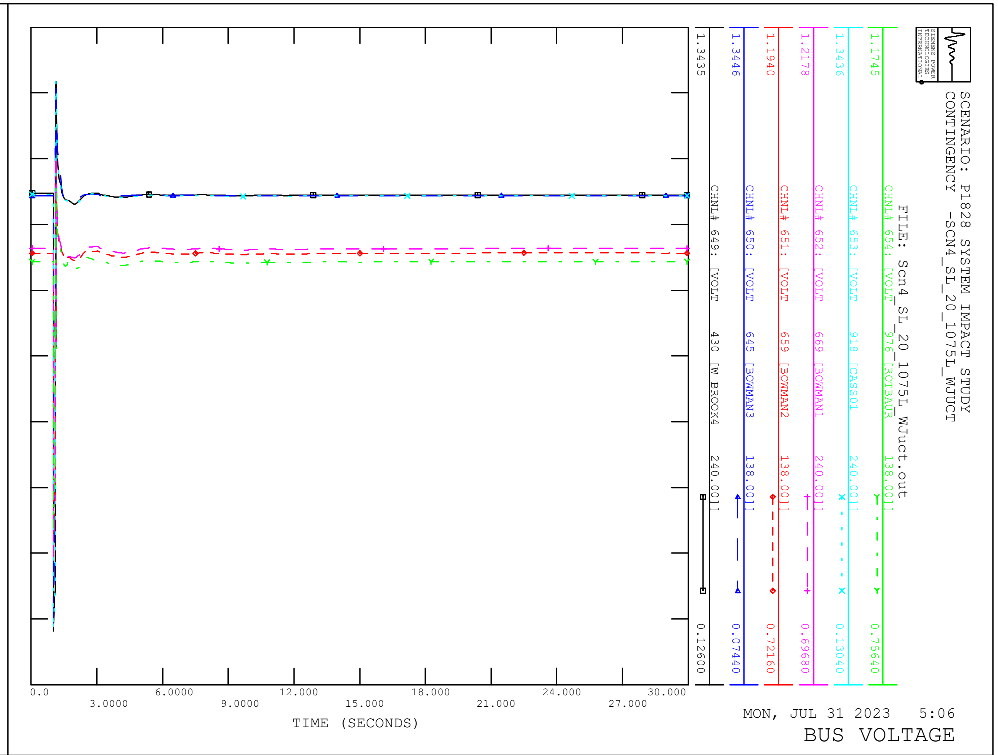
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_20_1075L_WJUCT
FILE: Scn4_SL_20_1075L_WJuct.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3446 0.07440
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1940 0.72160
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.2178 0.69680
CHNL# 653: [VOLT 918 [CASSDI 240.00]] 1.3436 0.13040
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1745 0.75640
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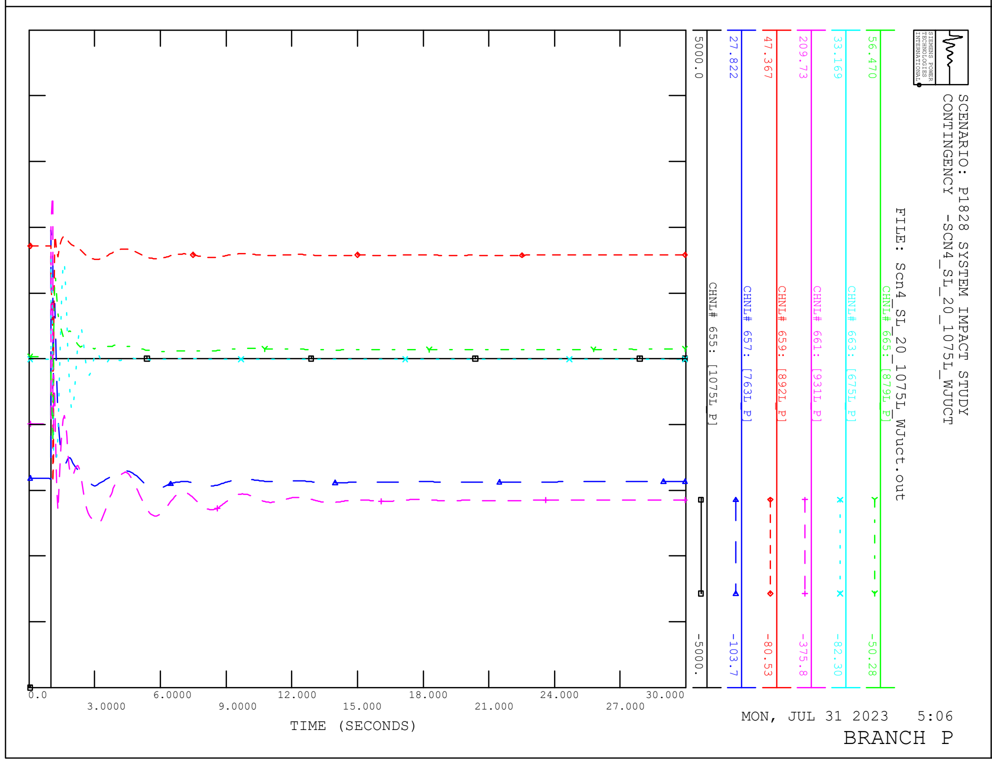
MON, JUL 31 2023 5:06
BUS VOLTAGE



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CONTINGENCY -SCN4_SL_20_1075L_WJUCT
FILE: Scn4_SL_20_1075L_WJuct.out
CHNL# 655: [1075L_P] 5000.0 -5000.
CHNL# 657: [763L_P] 27.822 -103.7
CHNL# 659: [892L_P] 47.367 -80.53
CHNL# 661: [931L_P] 209.73 -375.8
CHNL# 663: [1675L_P] 33.169 -82.30
CHNL# 665: [879L_P] 56.470 -50.28
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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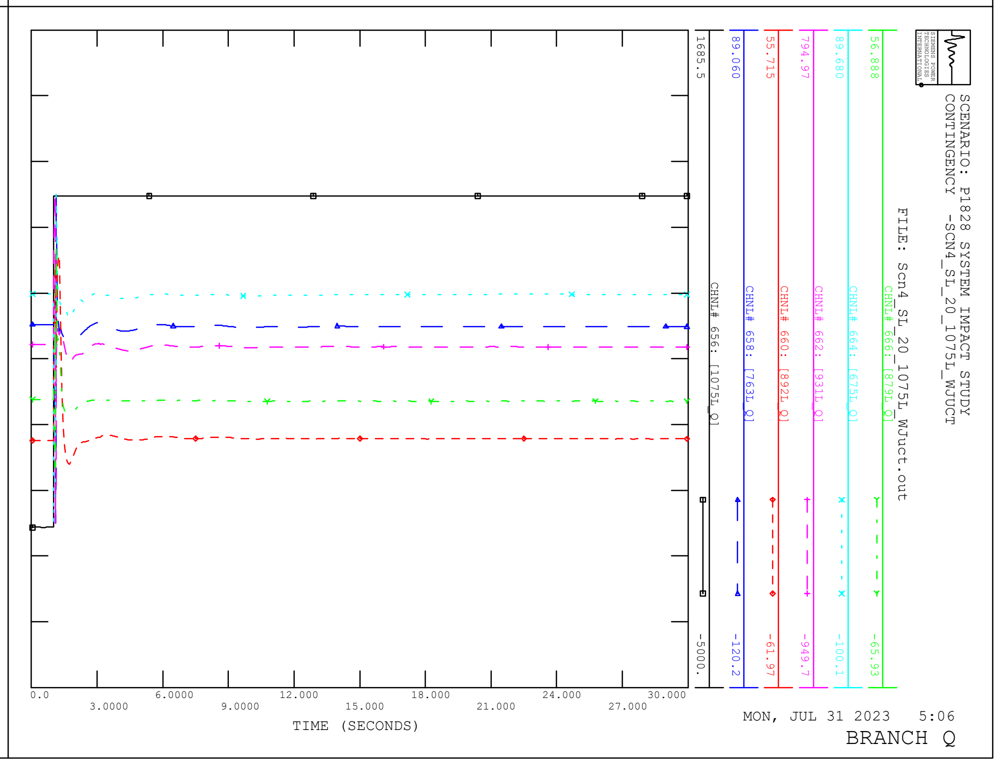

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CHNL# 658: [763L_Q] 89.060 -120.2
CHNL# 660: [892L_Q] 55.715 -61.97
CHNL# 662: [931L_Q] 794.97 -949.7
CHNL# 664: [1675L_Q] 89.680 -100.1
CHNL# 666: [879L_Q] 56.888 -65.93
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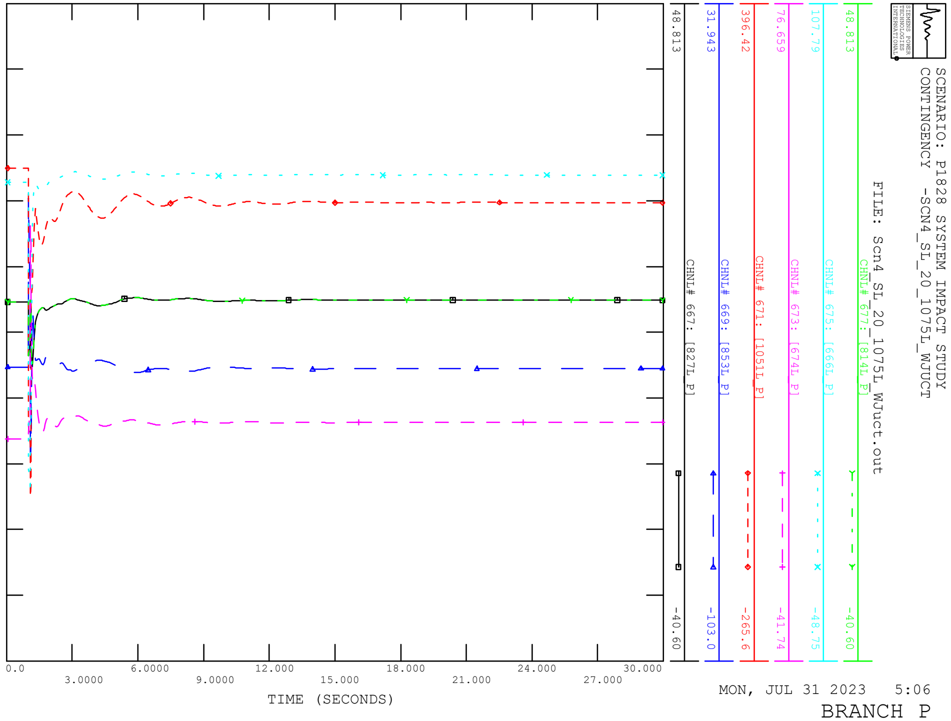
MON, JUL 31 2023 5:06
BRANCH Q



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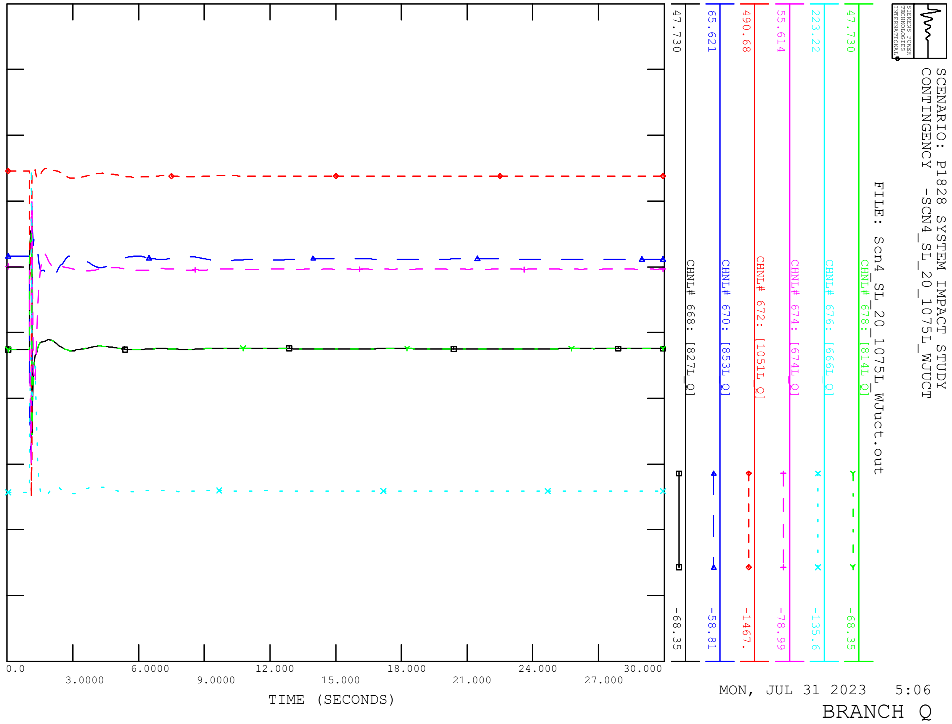

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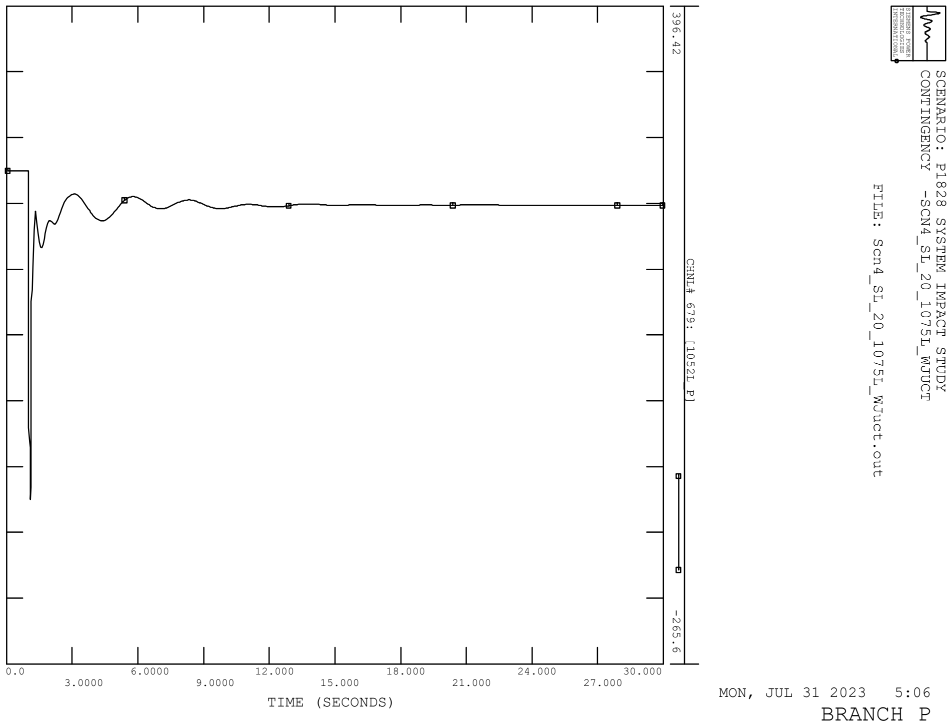

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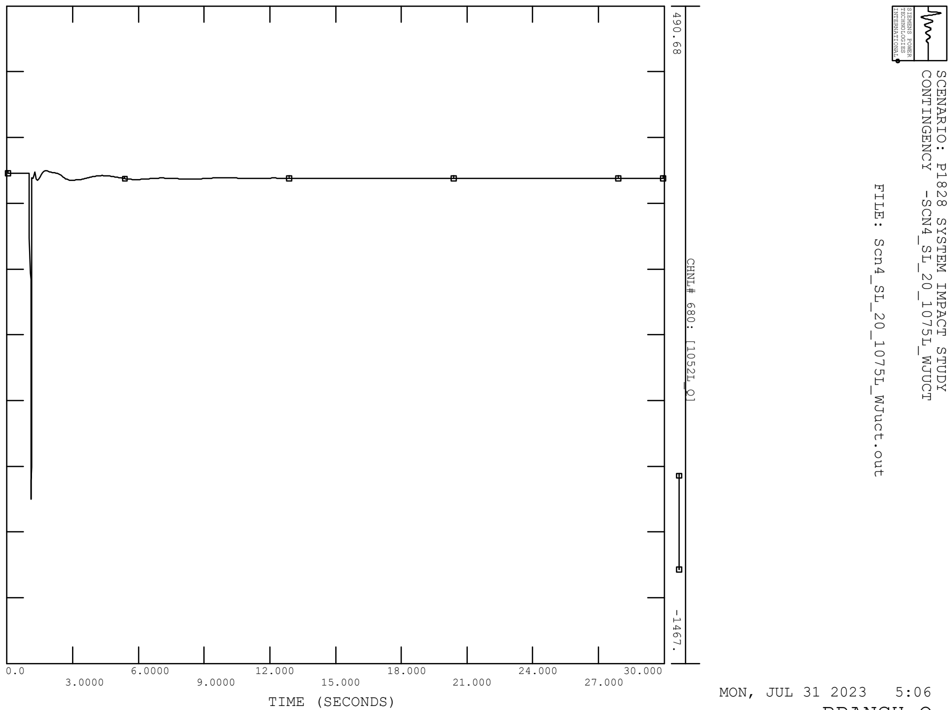

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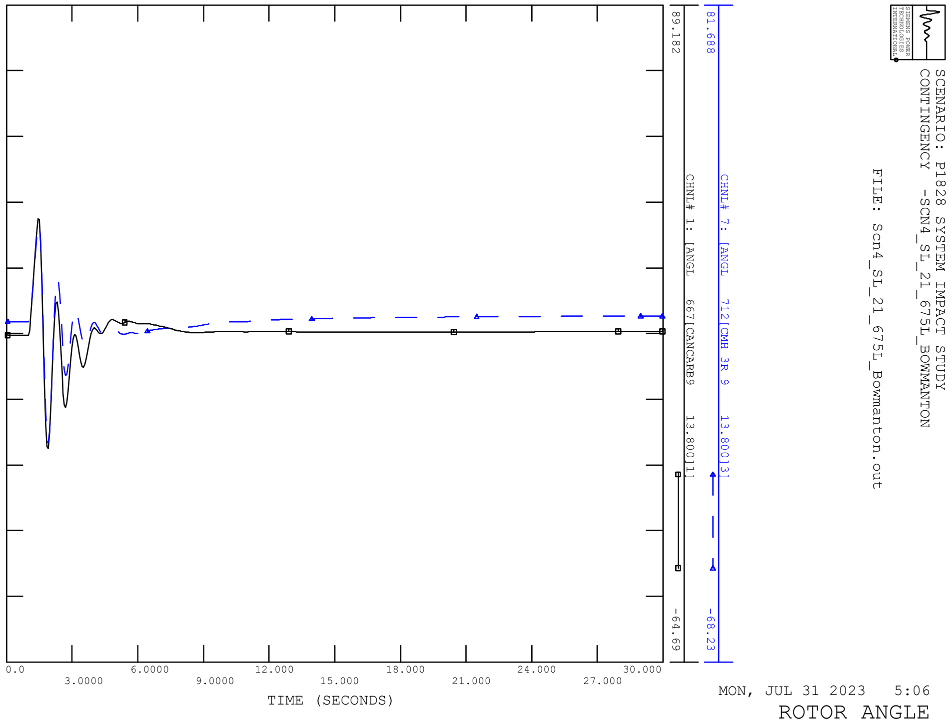
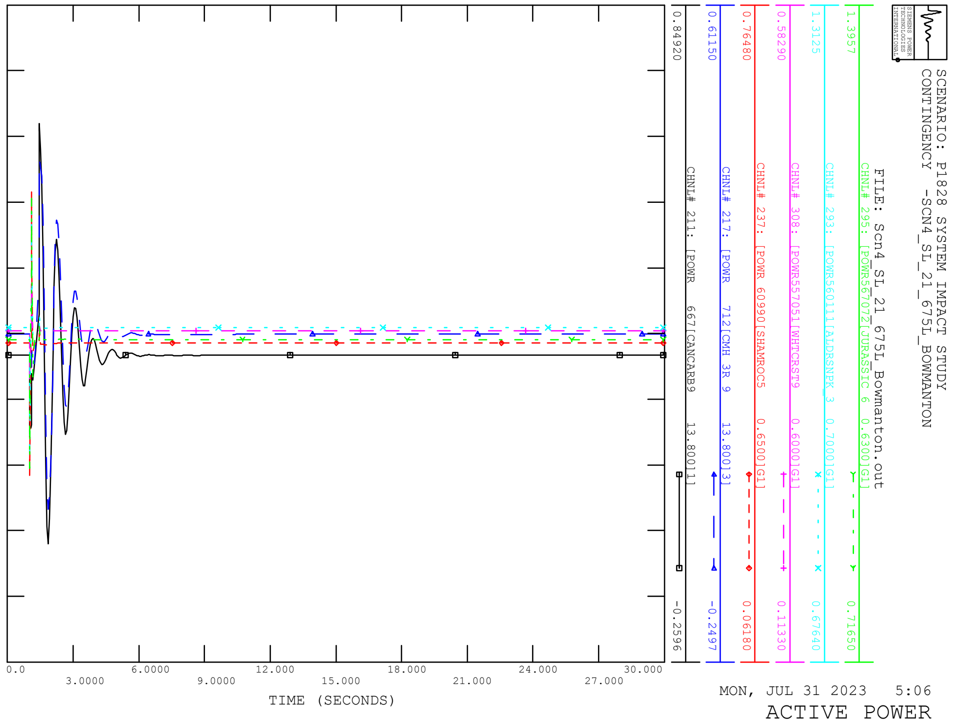


MON, JUL 31 2023 5:06

ROTOR ANGLE



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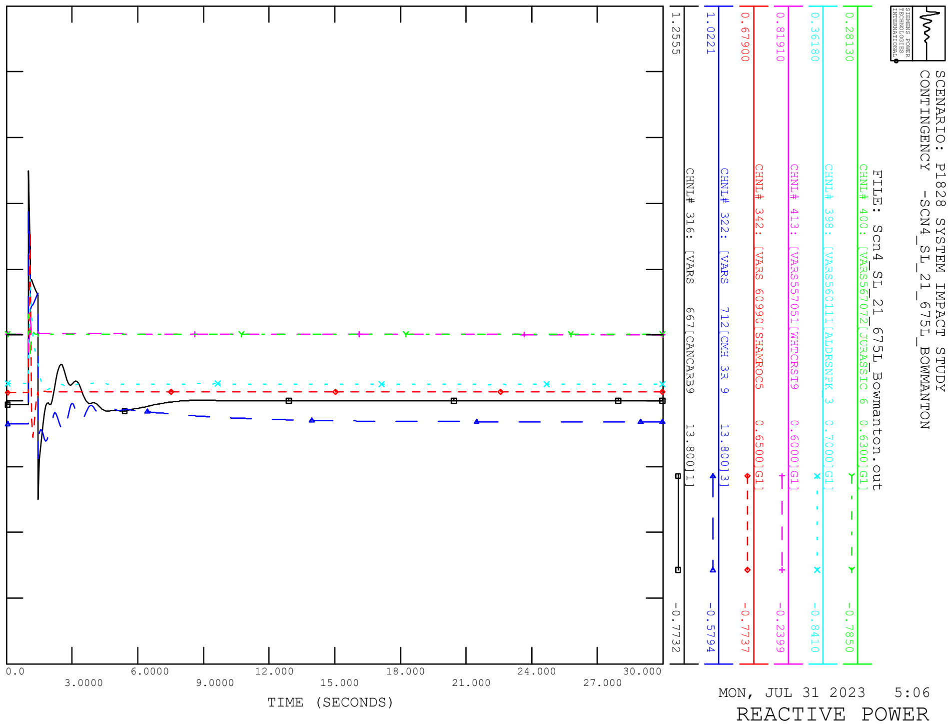
ACTIVE POWER



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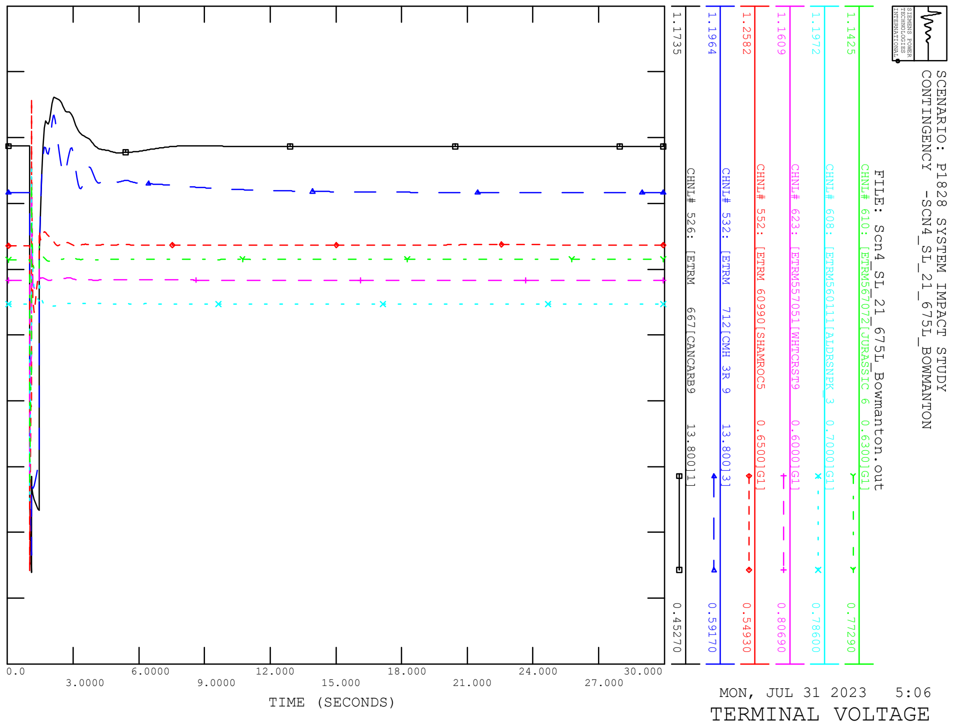

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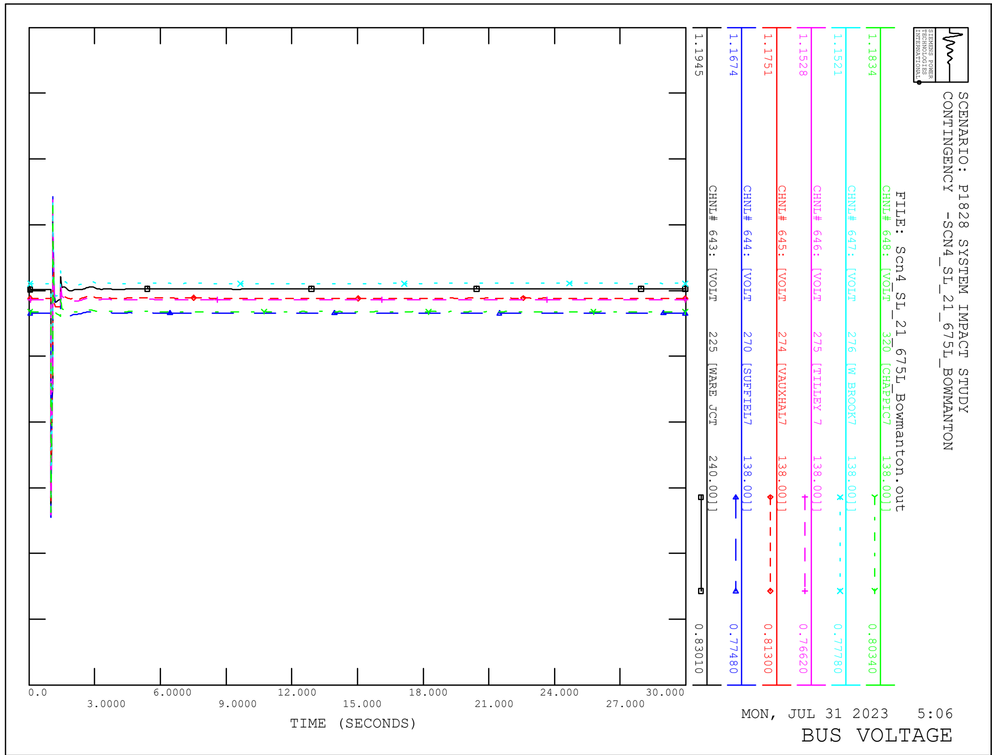
TERMINAL VOLTAGE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1.1751 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.81300
1.1528 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 0.76620
1.1521 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 0.77780
1.1834 CHNL# 648: [VOLT 320 [CHAFFIC7 138.00]] 0.80340
0.0
3.0000
6.0000
9.0000
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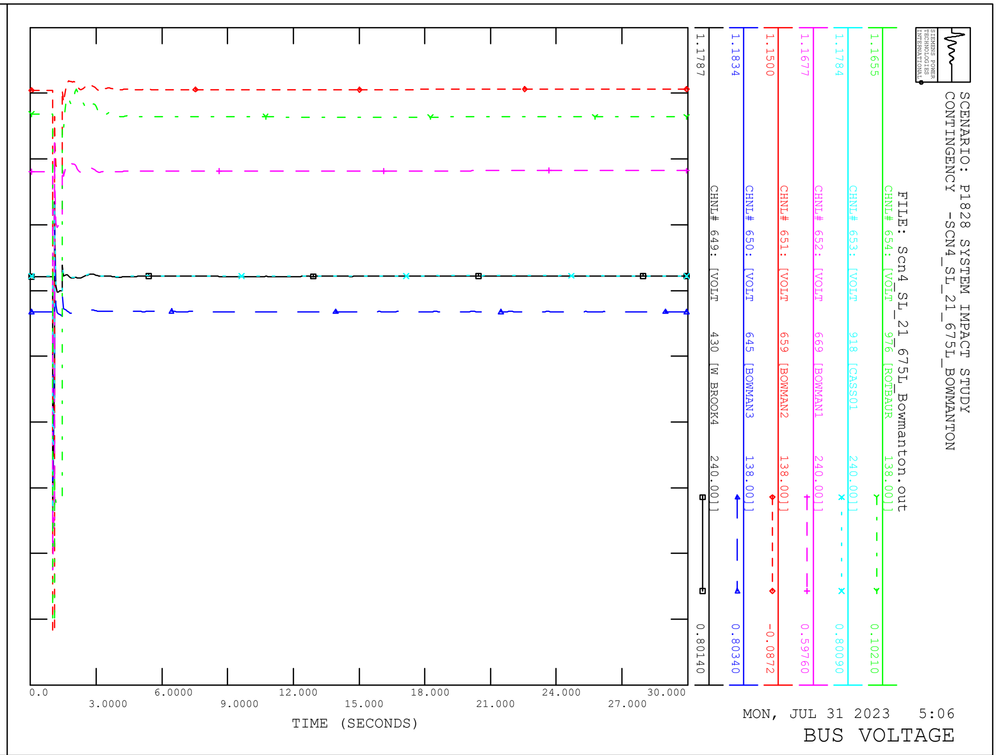
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_21_675L_BOWMANTON
FILE: Scn4_SL_21_675L_Bowmanton.out
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1.1834 CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 0.80340
1.1500 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] -0.0872
1.1677 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.59760
1.1784 CHNL# 653: [VOLT 918 [CASSO1 240.00]] 0.80090
1.1655 CHNL# 654: [VOLT 976 [ROTHAR 138.00]] 0.10210
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3.0000
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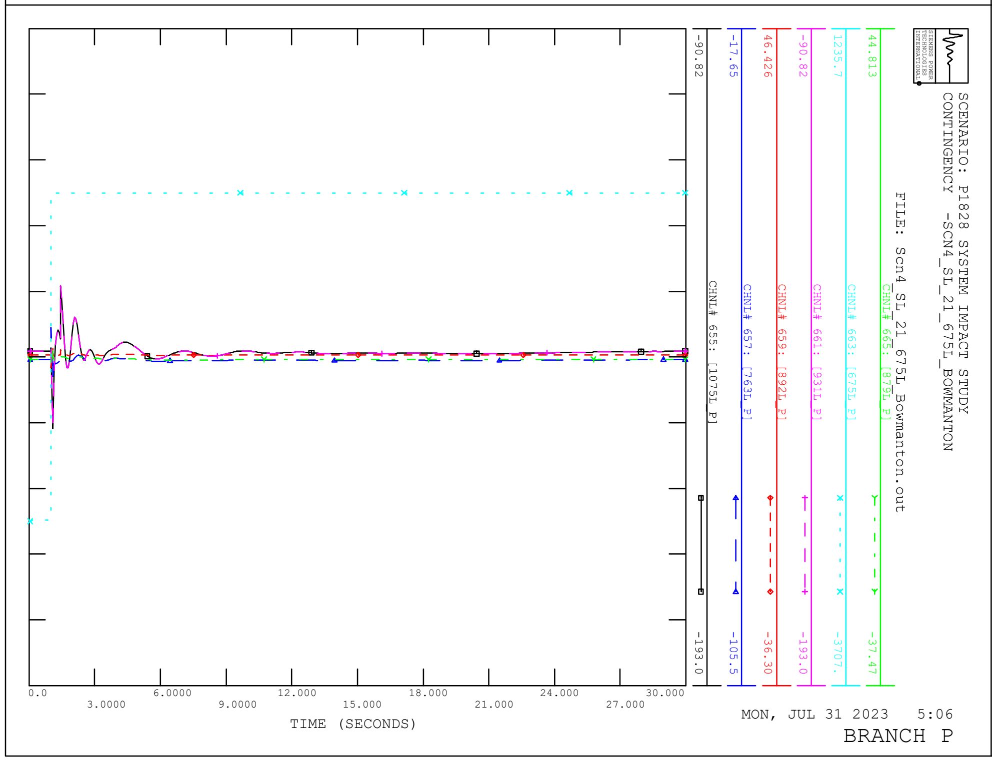
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_21_675L_BOWMANTON
FILE: Scn4_SL_21_675L_Bowmanton.out
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-17.65 CHNL# 657: [763L P] -105.5
46.426 CHNL# 659: [892L P] -36.30
-90.82 CHNL# 661: [931L P] -193.0
1235.7 CHNL# 663: [675L P] -3707.
44.813 CHNL# 665: [675L P] -37.47
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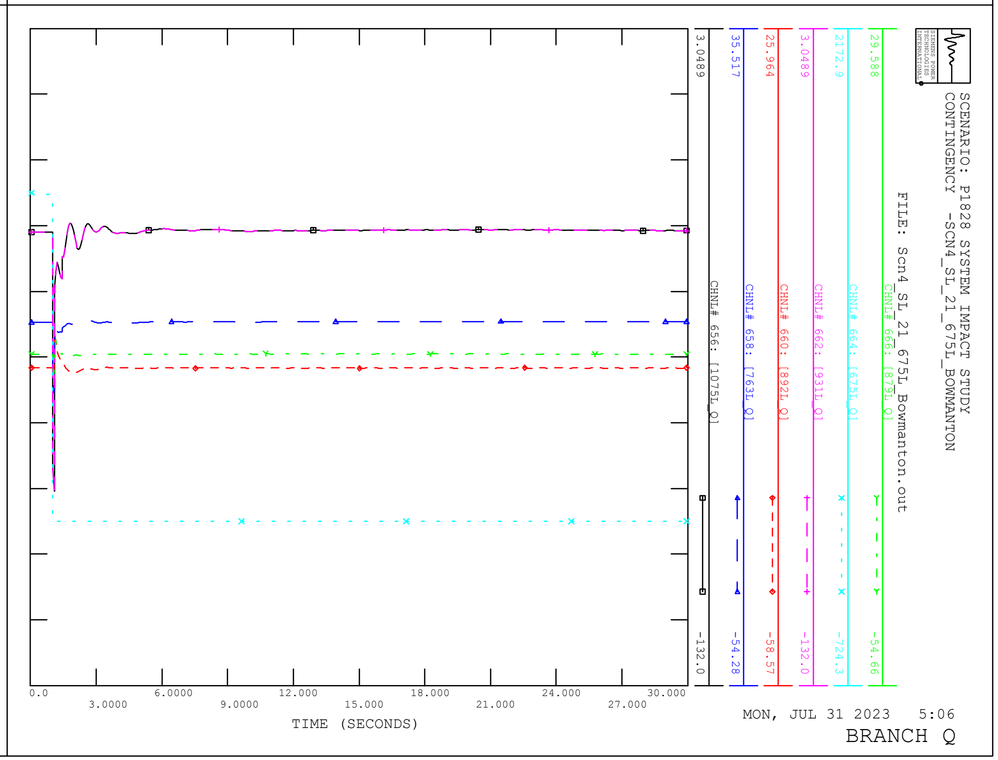
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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35.517 CHNL# 658: [763L Q] -54.28
25.964 CHNL# 660: [892L Q] -58.57
3.0489 CHNL# 662: [931L Q] -132.0
2172.9 CHNL# 664: [675L Q] -724.3
29.588 CHNL# 666: [675L Q] -54.66
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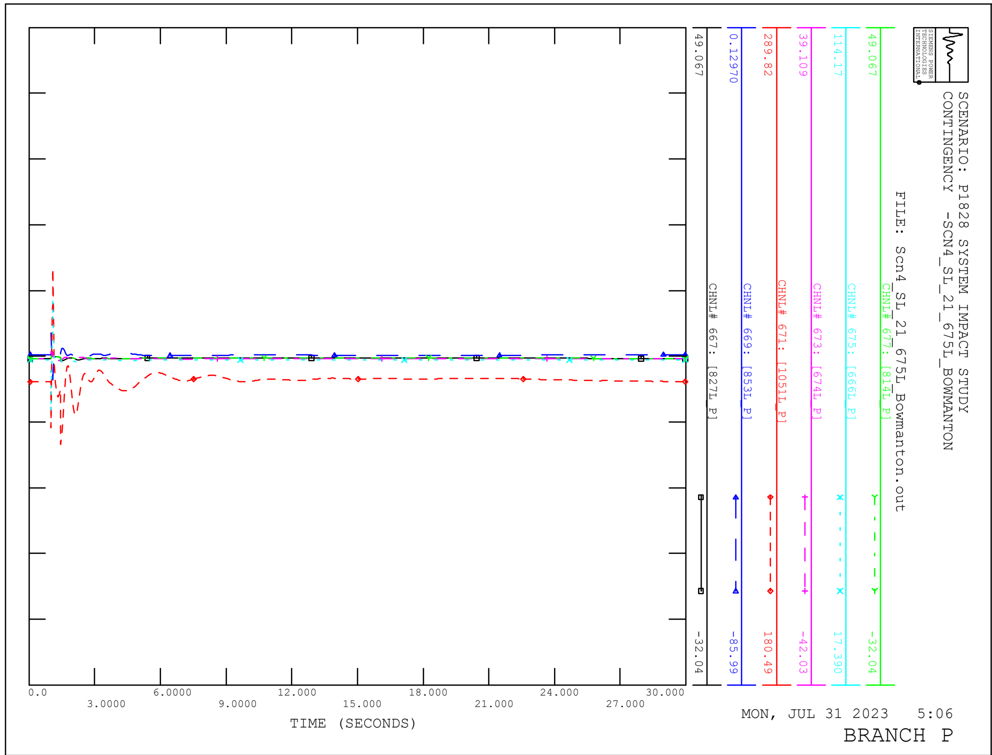
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_21_675L_BOWMANTON
FILE: Scn4_SL_21_675L_Bowmanton.out
CHNL# 667: [827L_P] 49.067 -32.04
CHNL# 669: [853L_P] 0.12970 -85.99
CHNL# 671: [1051L_P] 289.82 180.49
CHNL# 673: [674L_P] 39.109 -42.03
CHNL# 675: [666L_P] 114.17 17.390
CHNL# 677: [819L_P] 49.067 -32.04
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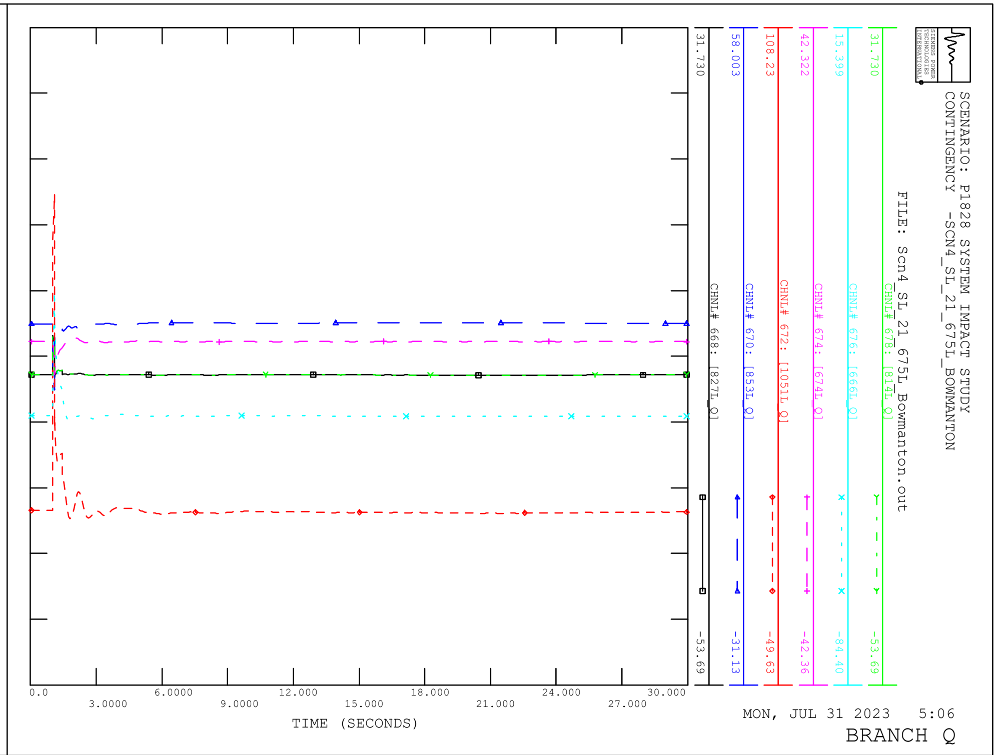
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN4_SL_21_675L_BOWMANTON
FILE: Scn4_SL_21_675L_Bowmanton.out
CHNL# 668: [827L_Q] 31.730 -53.69
CHNL# 670: [853L_Q] 58.003 -31.13
CHNL# 672: [1051L_Q] 108.23 -49.63
CHNL# 674: [674L_Q] 42.322 -42.36
CHNL# 676: [666L_Q] 15.399 -84.40
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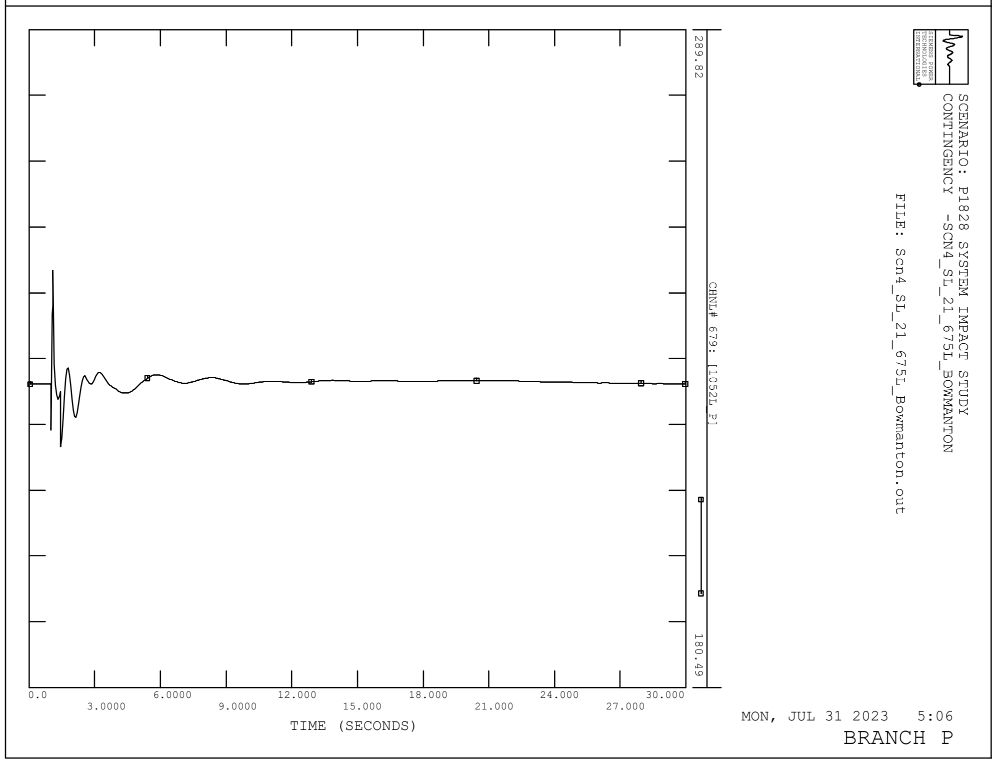
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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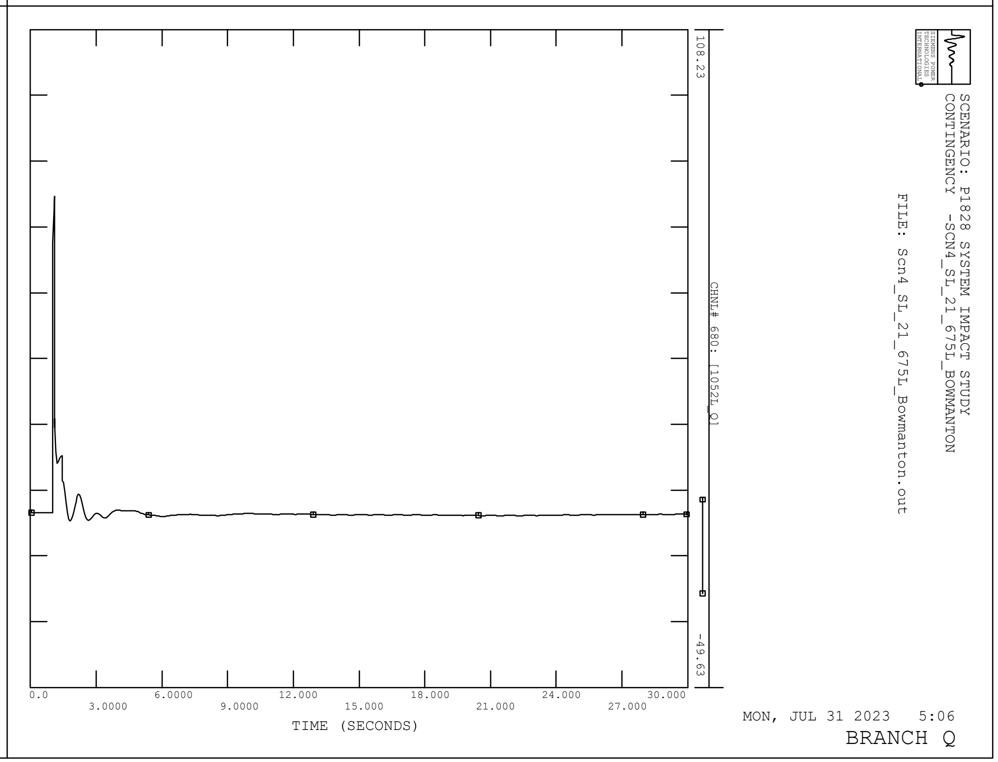
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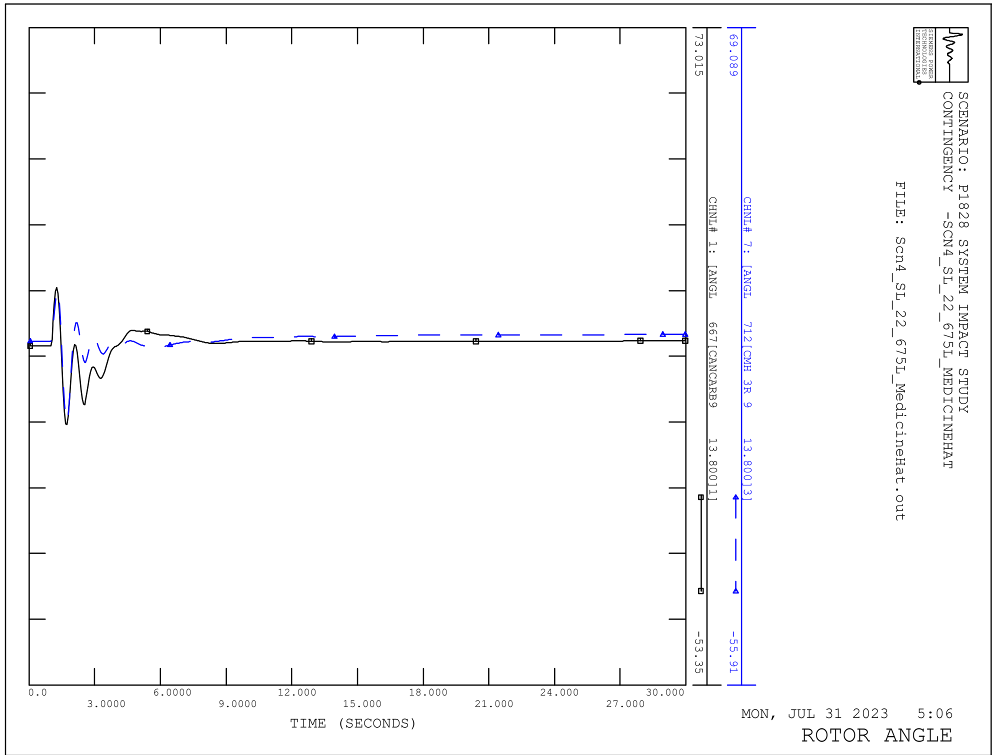
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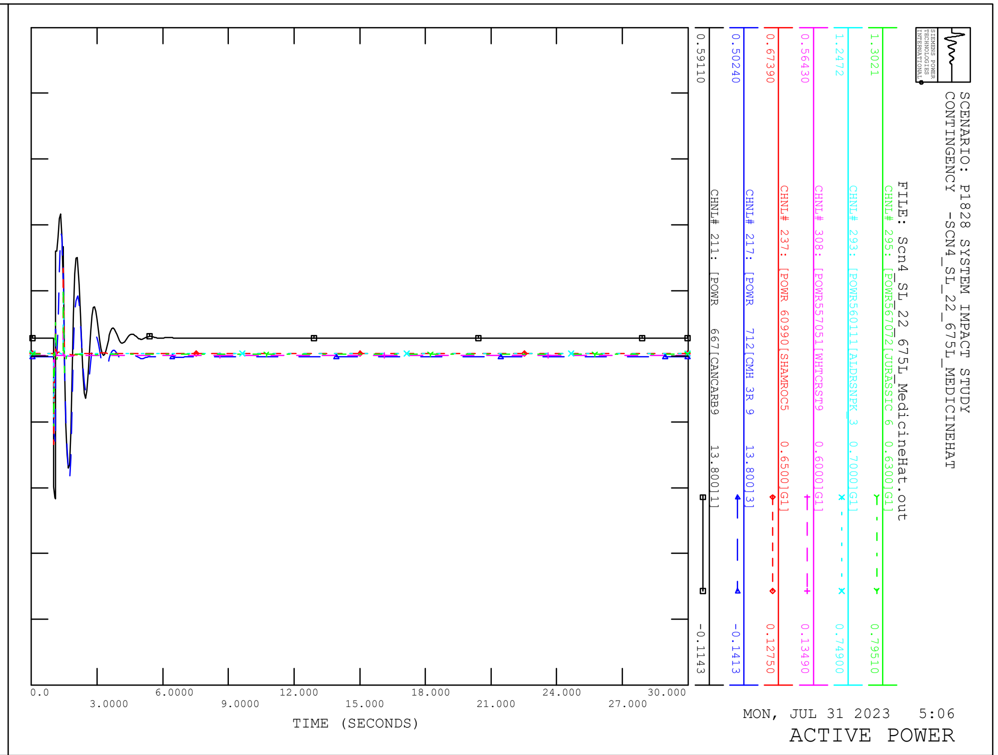
MON, JUL 31 2023 5:06
ROTOR ANGLE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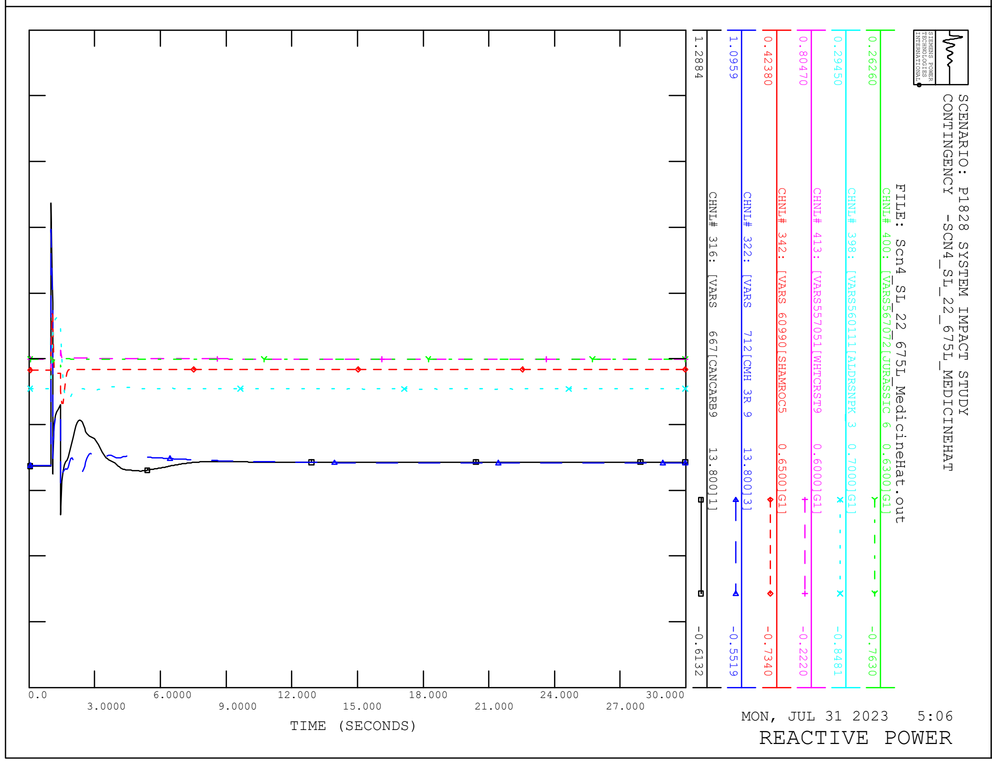
MON, JUL 31 2023 5:06
ACTIVE POWER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MON, JUL 31 2023 5:06
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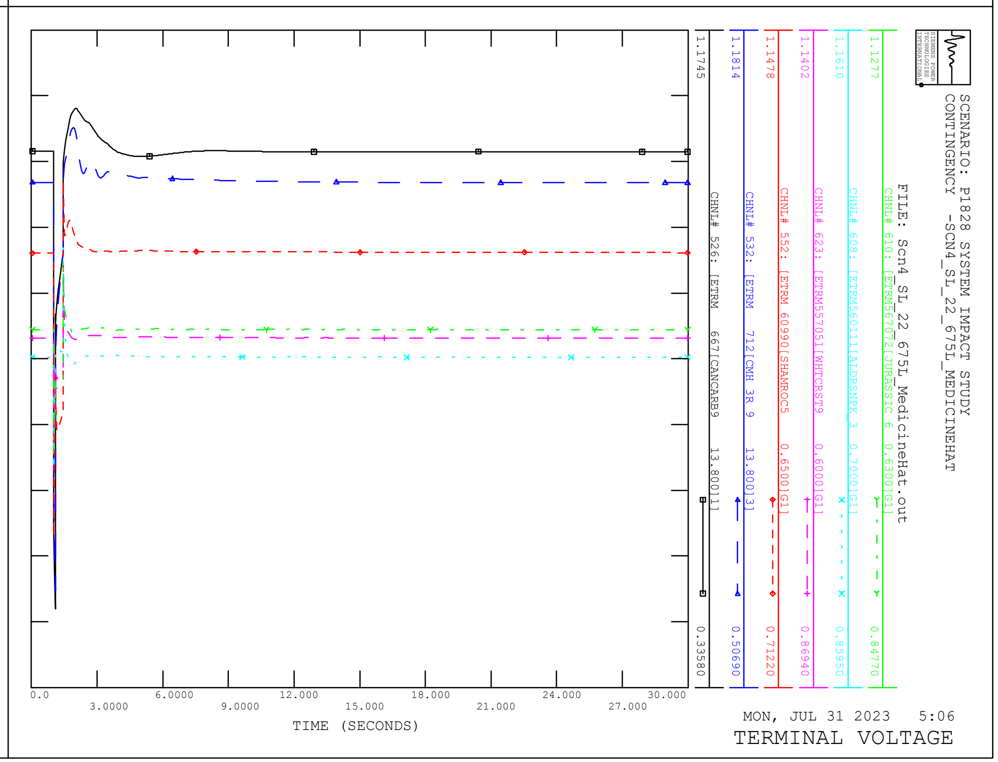
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MON, JUL 31 2023 5:06
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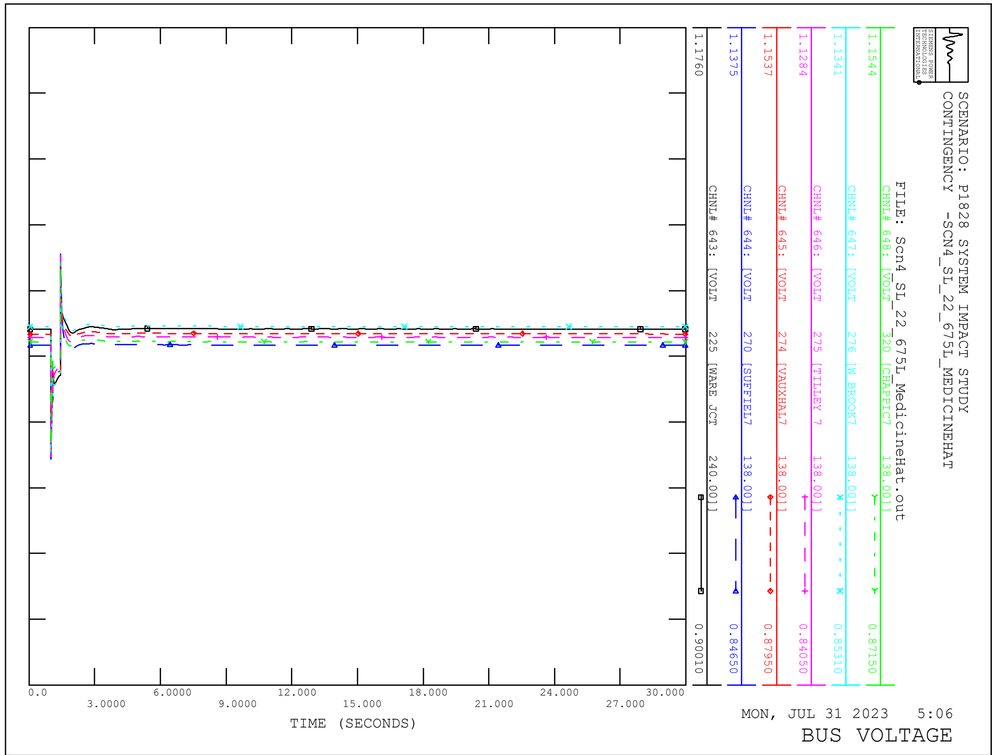
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CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1537 0.87950
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.1284 0.84050
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1341 0.85310
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.1544 0.87150
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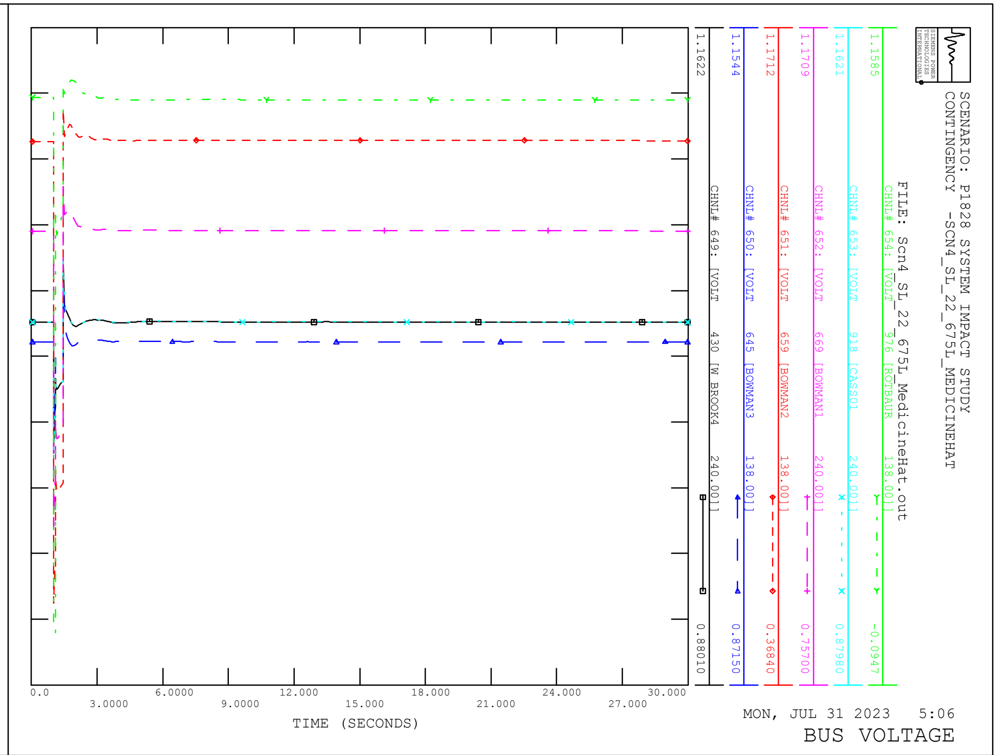
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.1544 0.87150
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1712 0.36840
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1709 0.75700
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.1621 0.87980
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1585 -0.0947
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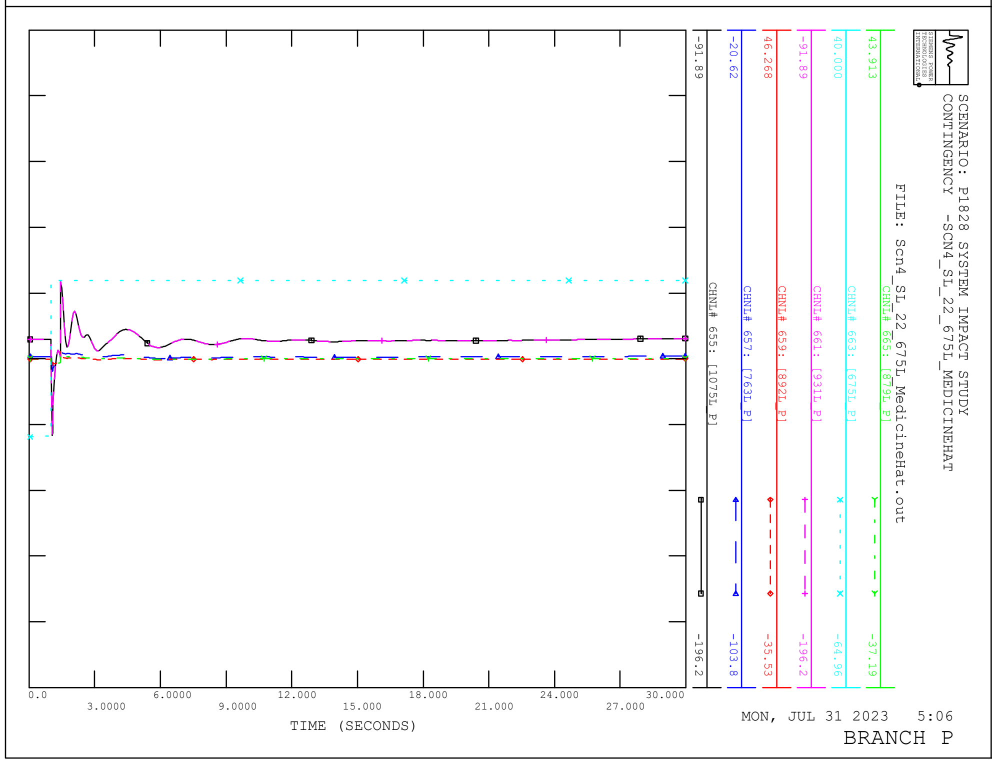
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L P] -20.62 -103.8
CHNL# 659: [892L P] 46.268 -35.53
CHNL# 661: [931L P] -91.89 -196.2
CHNL# 663: [675L P] 40.000 -64.96
CHNL# 665: [679L P] 43.913 -37.19
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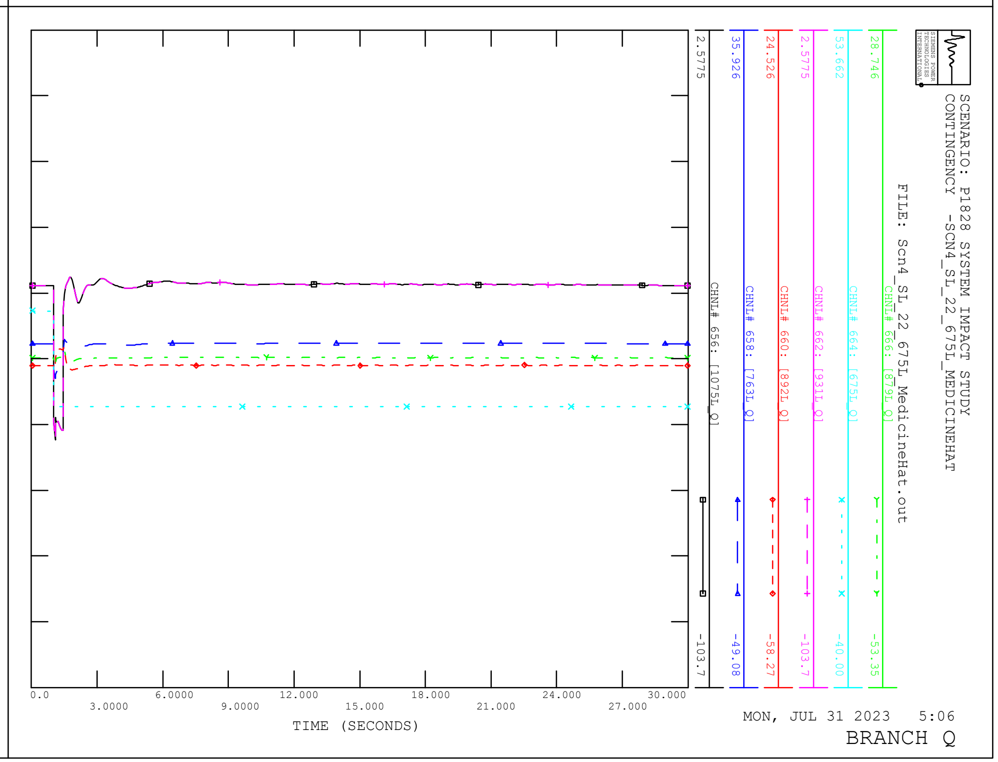
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CHNL# 658: [763L Q] 35.926 -49.08
CHNL# 660: [892L Q] 24.526 -58.27
CHNL# 662: [931L Q] 2.5775 -103.7
CHNL# 664: [675L Q] 53.662 -40.00
CHNL# 666: [679L Q] 28.746 -53.35
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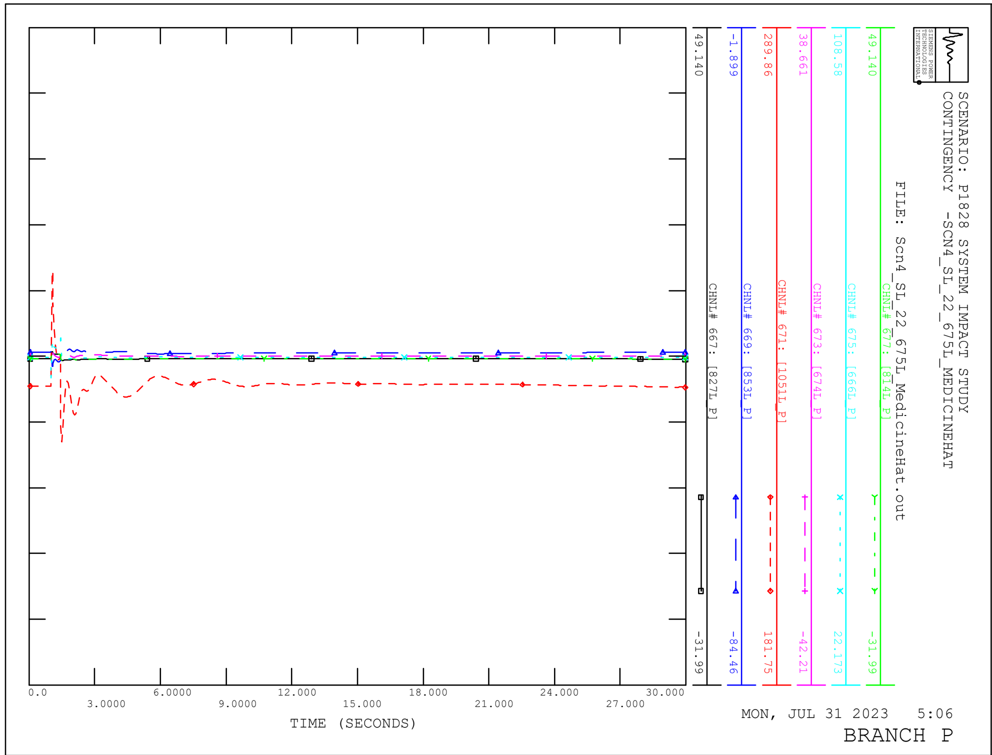
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



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CHNL# 669: [853L_P]
CHNL# 671: [1051L_P]
CHNL# 673: [674L_P]
CHNL# 675: [666L_P]
CHNL# 677: [819L_P]
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-31.99
-1.899
-84.46
289.86
181.75
38.661
-42.21
108.58
22.173
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-31.99
0.0
3.0000
6.0000
9.0000
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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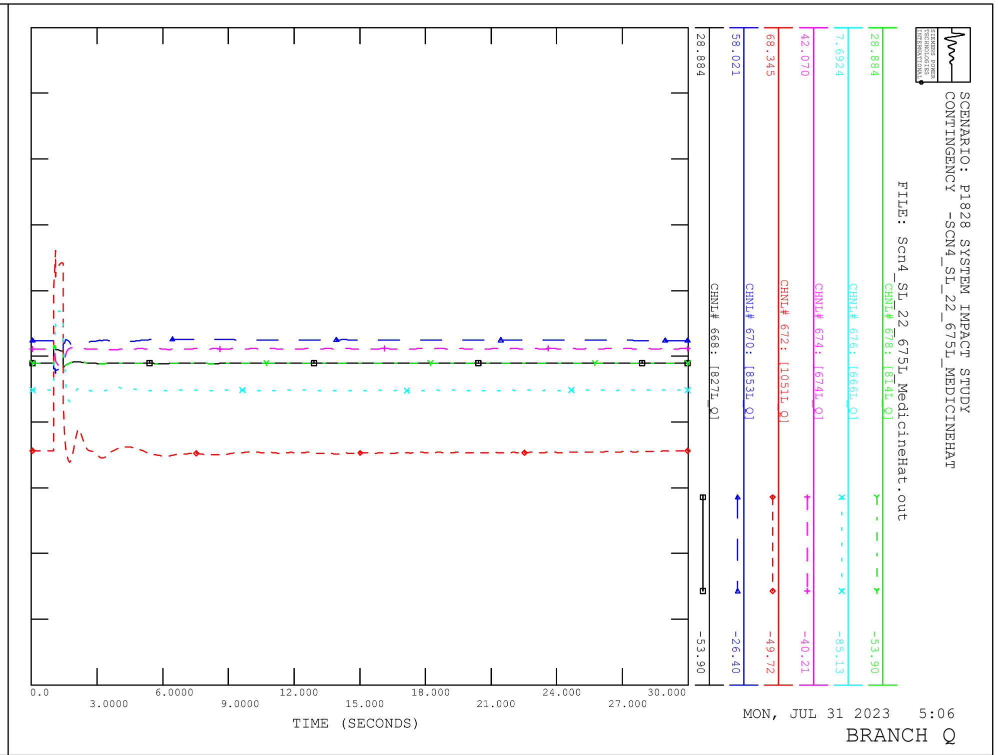

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CHNL# 670: [853L_Q]
CHNL# 672: [1051L_Q]
CHNL# 674: [674L_Q]
CHNL# 676: [666L_Q]
CHNL# 678: [819L_Q]
28.884
-53.90
58.021
-26.40
68.345
-49.72
42.070
-40.21
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-53.90
0.0
3.0000
6.0000
9.0000
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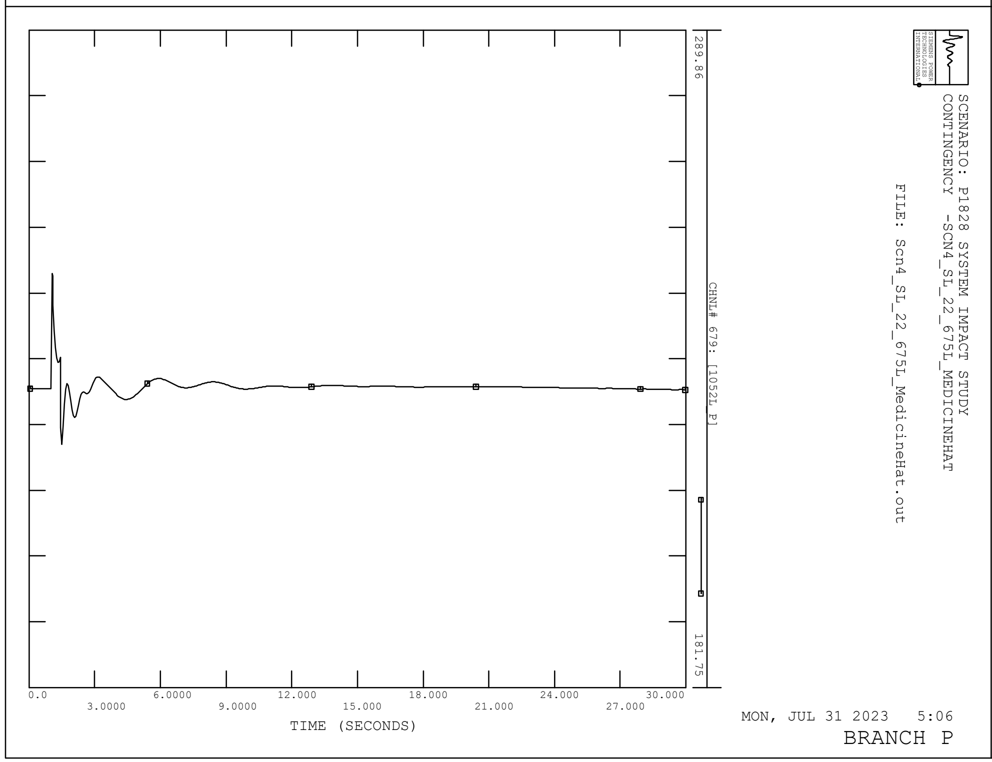
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



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CONTINGENCY -SCN4_SL_22_675L_MEDICINEHAT
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9.0000
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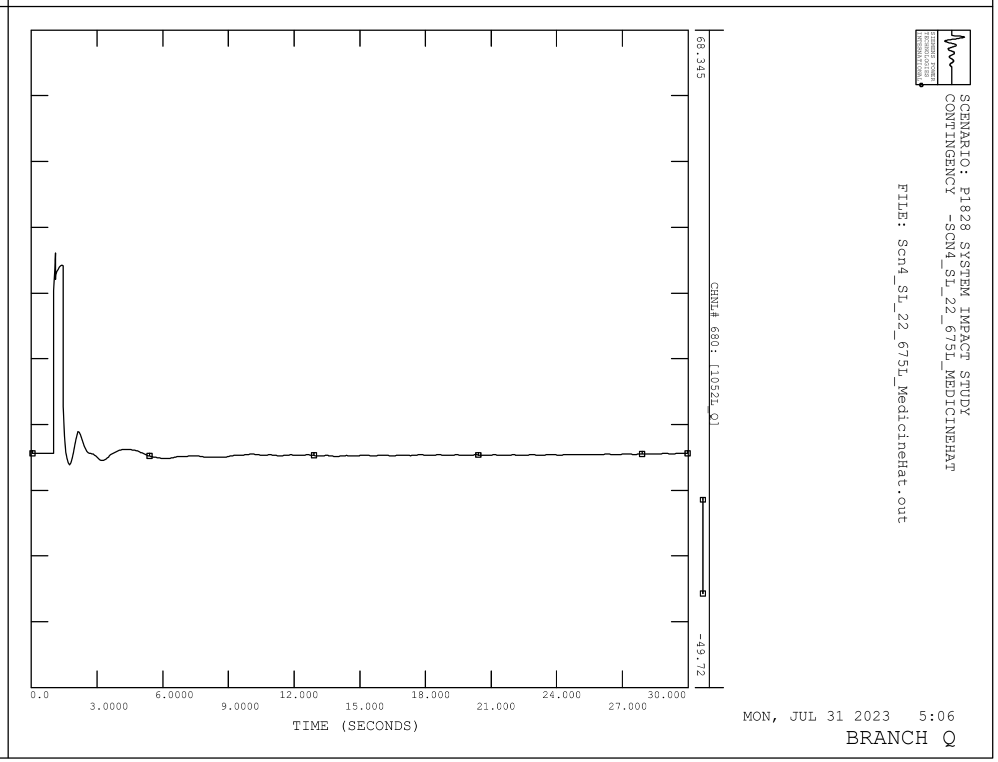
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



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6.0000
9.0000
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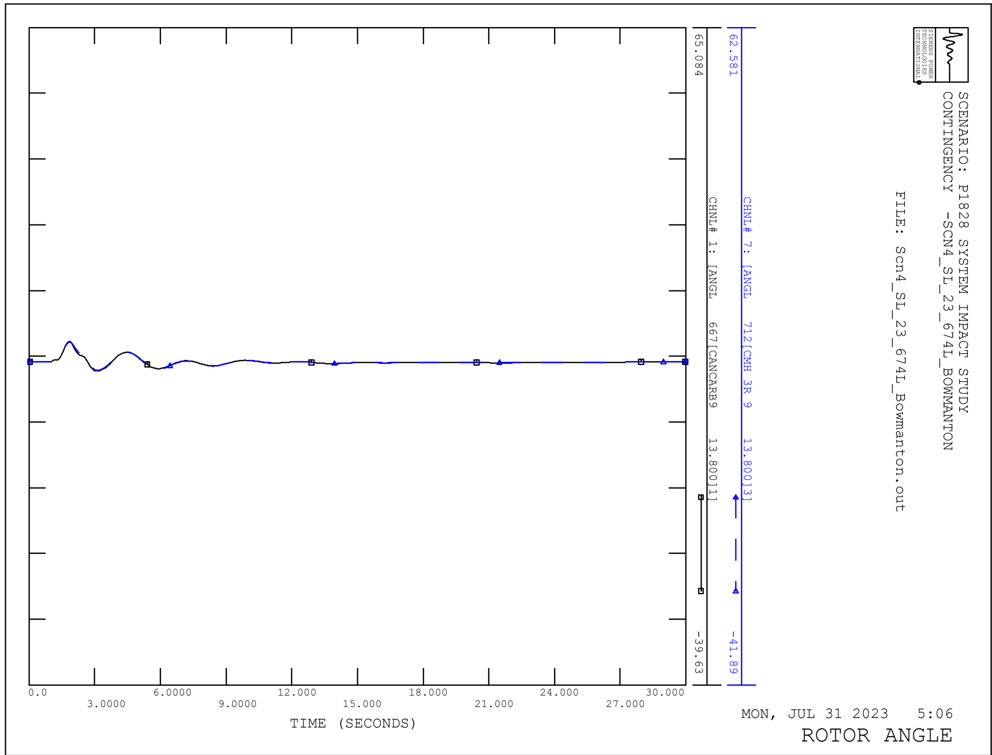
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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6.0000
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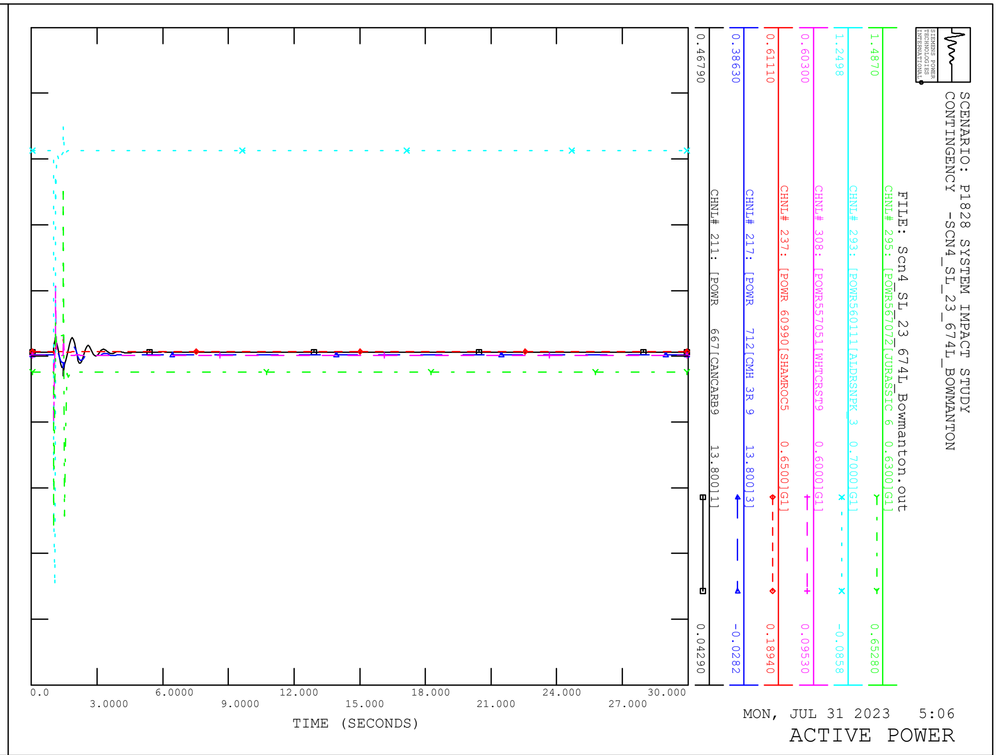
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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0.61110
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
0.18940
0.60300
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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1.2498
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
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1.4870
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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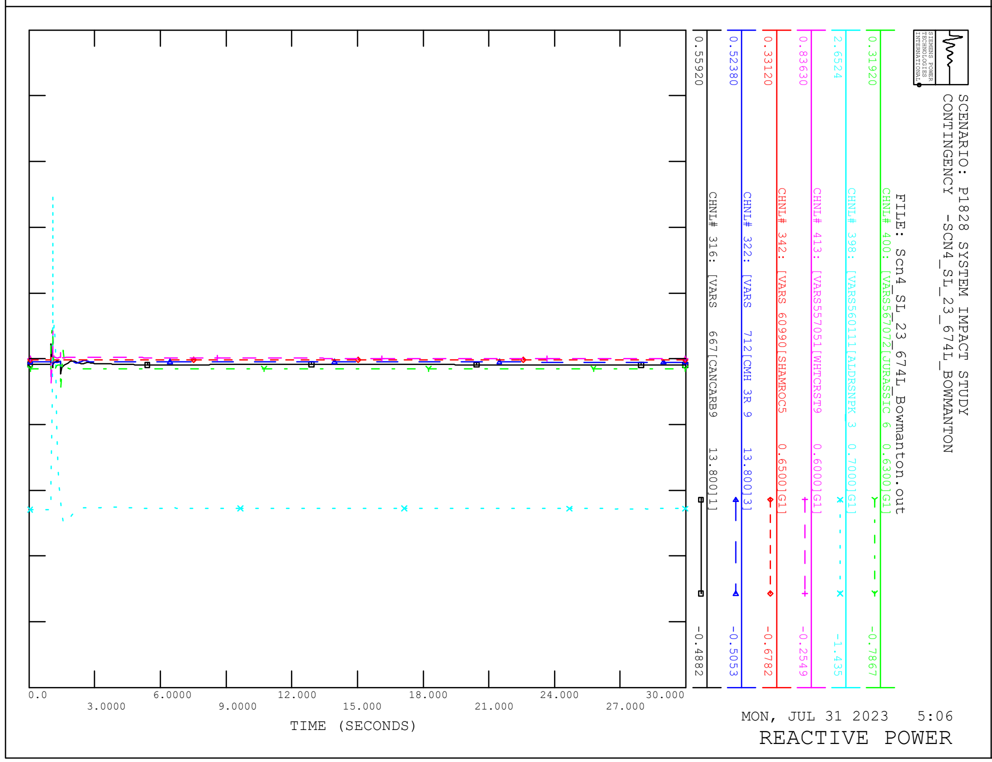
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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-0.5053
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CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
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0.83630
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
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2.6524
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
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CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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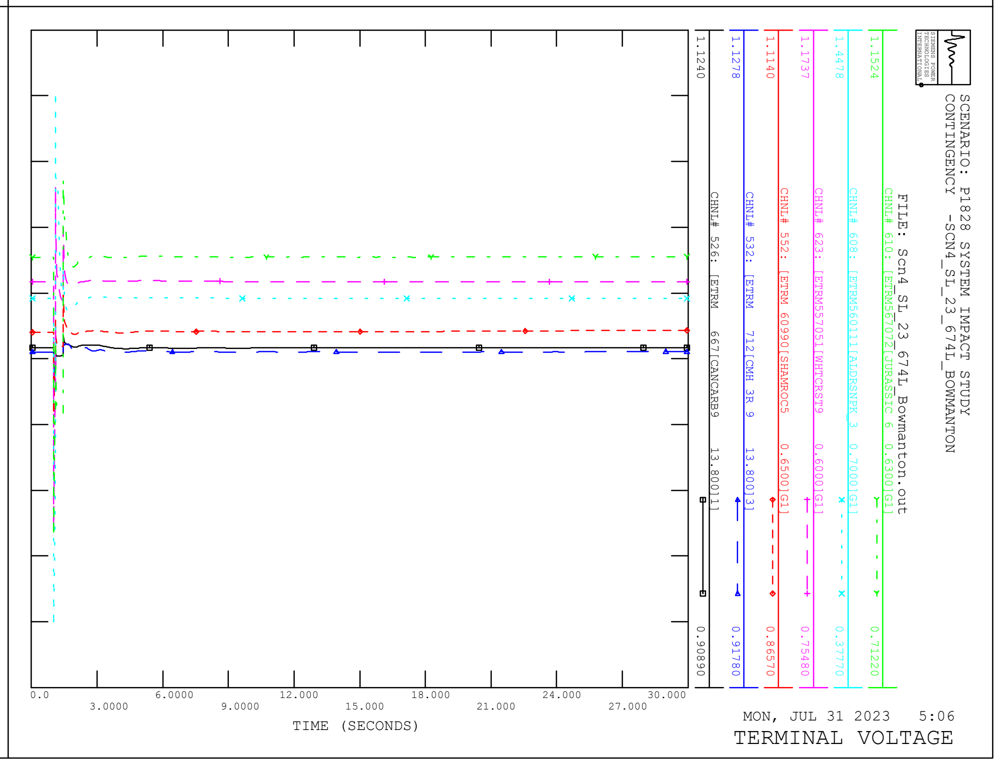
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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0.91780
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CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
0.86570
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CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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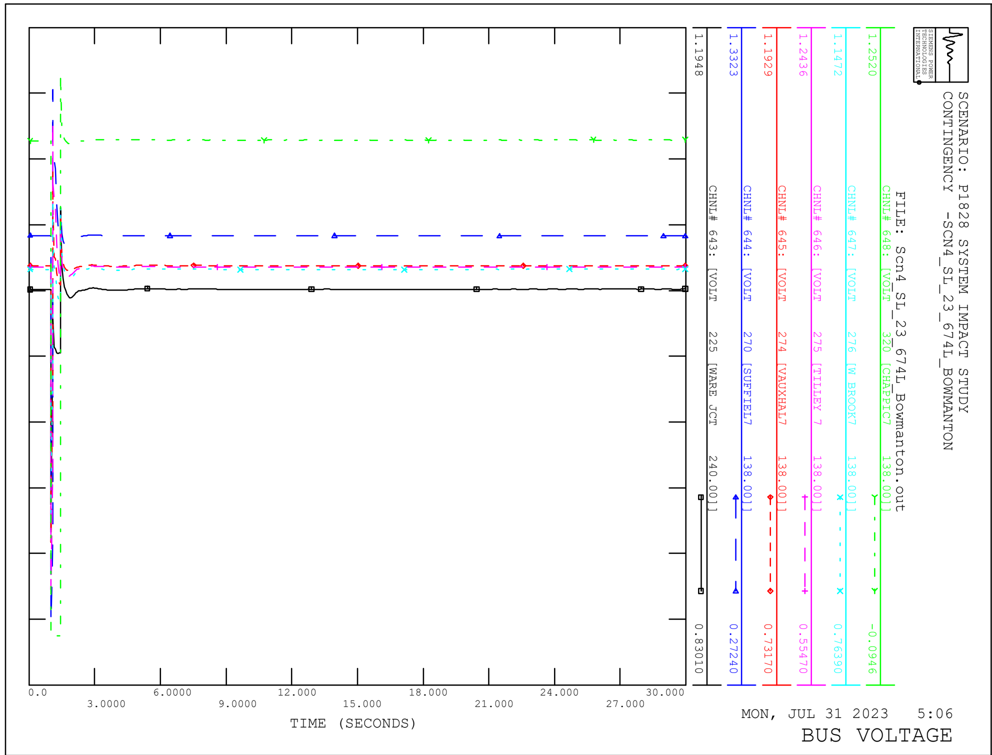
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE



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CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 1.3323 0.27240
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 1.1929 0.73170
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 1.2436 0.55470
CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 1.1472 0.76390
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 1.2520 -0.0946
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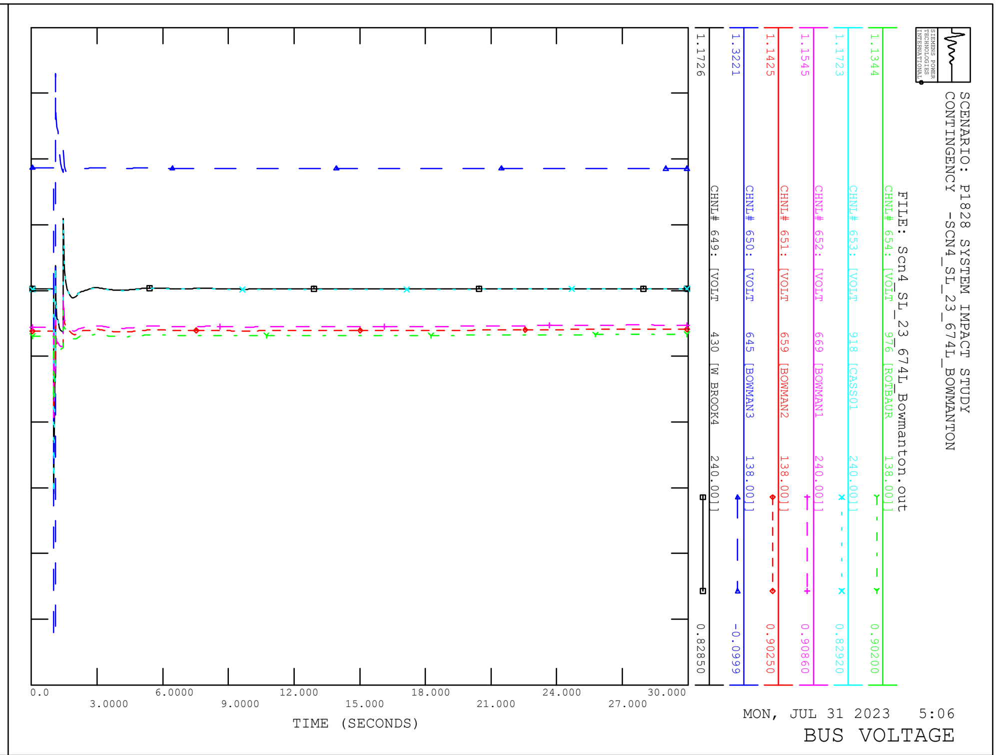
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_23_674L_BOWMANTON
FILE: Scn4_SL_23_674L_Bowmanton.out
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CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 1.3221 -0.0999
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 1.1425 0.90250
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 1.1545 0.90860
CHNL# 653: [VOLT 918 [CASS01 240.00]] 1.1723 0.82920
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]] 1.1344 0.90200
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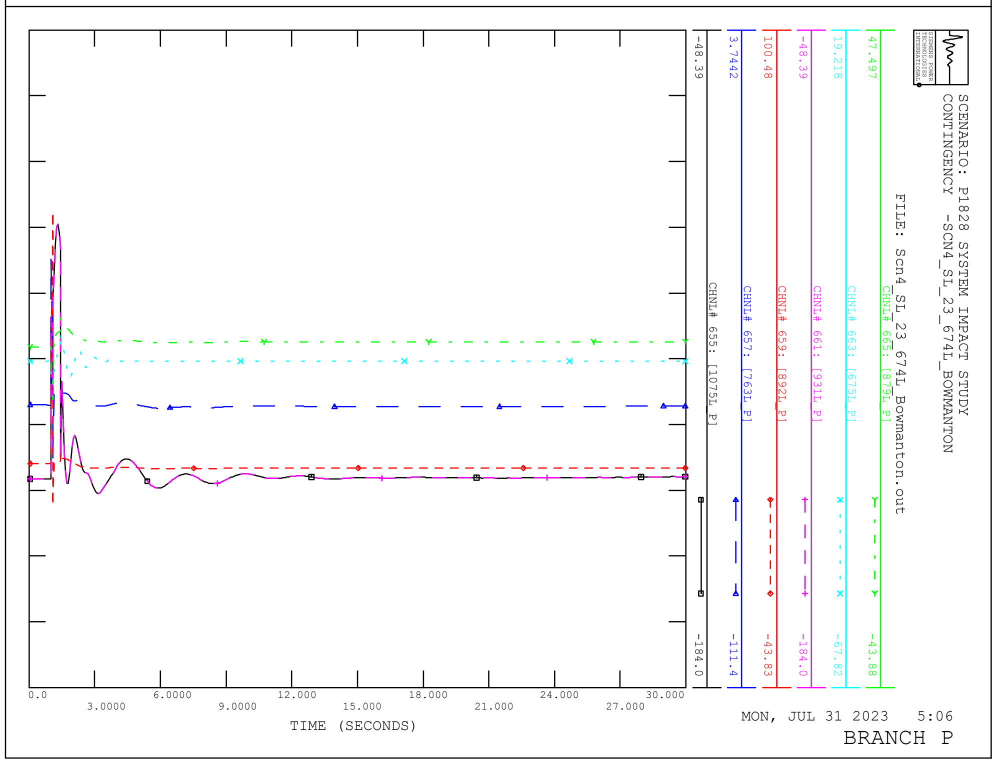
MON, JUL 31 2023 5:06
BUS VOLTAGE



SCENARIO: P1828 SYSTEM IMPACT STUDY
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CHNL# 657: [763L_P] 3.7442 -111.4
CHNL# 659: [892L_P] 100.48 -43.83
CHNL# 661: [931L_P] -48.39 -184.0
CHNL# 663: [675L_P] 19.218 -67.82
CHNL# 665: [679L_P] 47.497 -43.88
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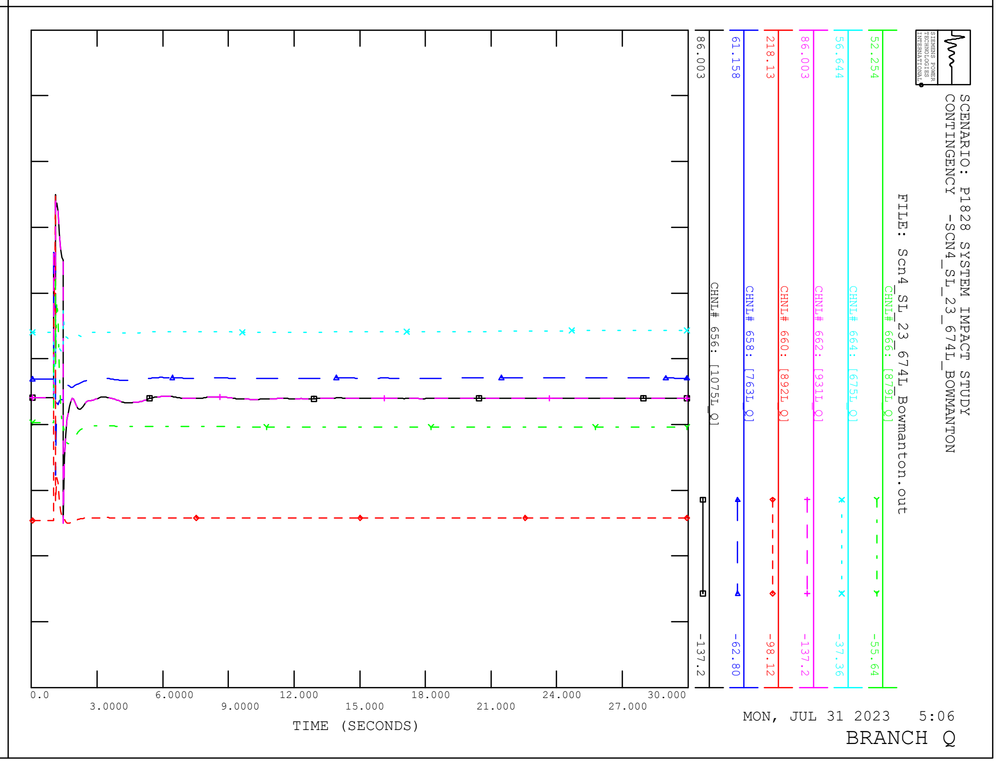
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P



SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_23_674L_BOWMANTON
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CHNL# 658: [763L_Q] 61.158 -62.80
CHNL# 660: [892L_Q] 218.13 -98.12
CHNL# 662: [931L_Q] 86.003 -137.2
CHNL# 664: [675L_Q] 56.644 -37.36
CHNL# 666: [679L_Q] 52.254 -55.64
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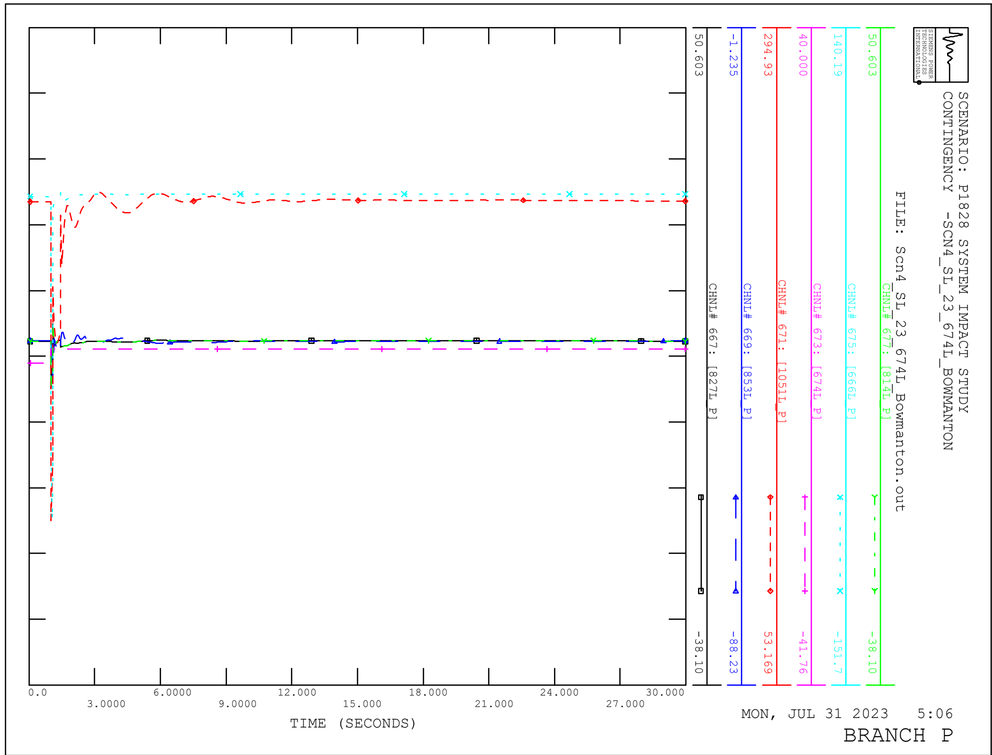
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_23_674L_BOWMANTON
FILE: Scn4_SL_23_674L_Bowmanton.out
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CHNL# 669: [853L_P] -1.235 -88.23
CHNL# 671: [1051L_P] 294.93 53.169
CHNL# 673: [674L_P] 40.000 -41.76
CHNL# 675: [666L_P] 140.19 -151.7
CHNL# 677: [819L_P] 50.603 -38.10
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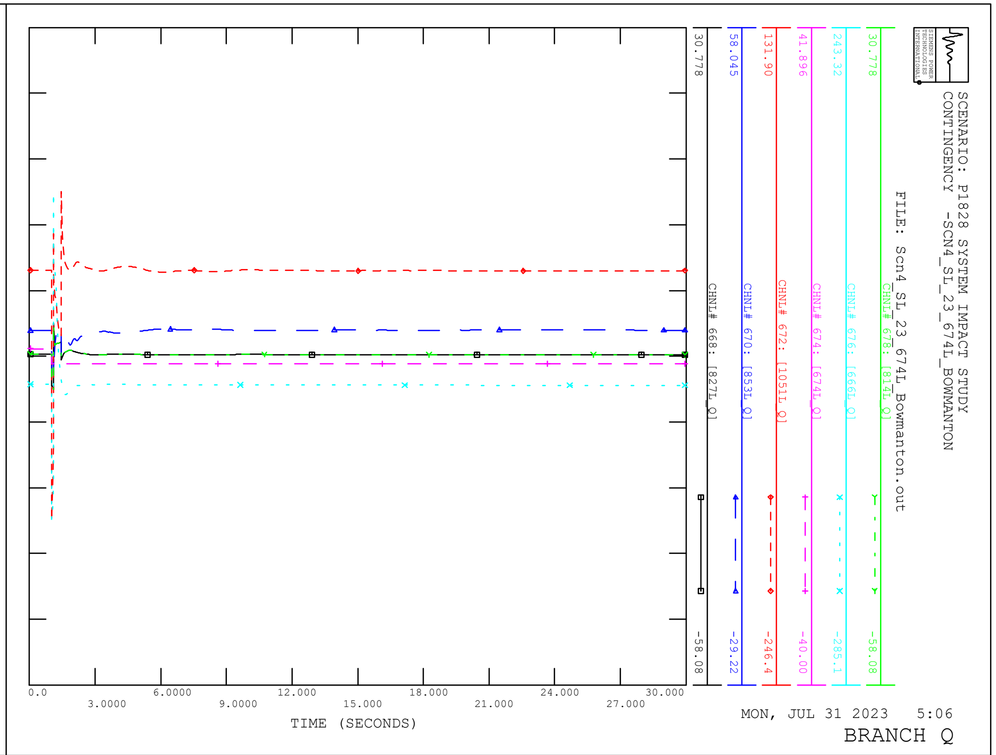
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_23_674L_BOWMANTON
FILE: Scn4_SL_23_674L_Bowmanton.out
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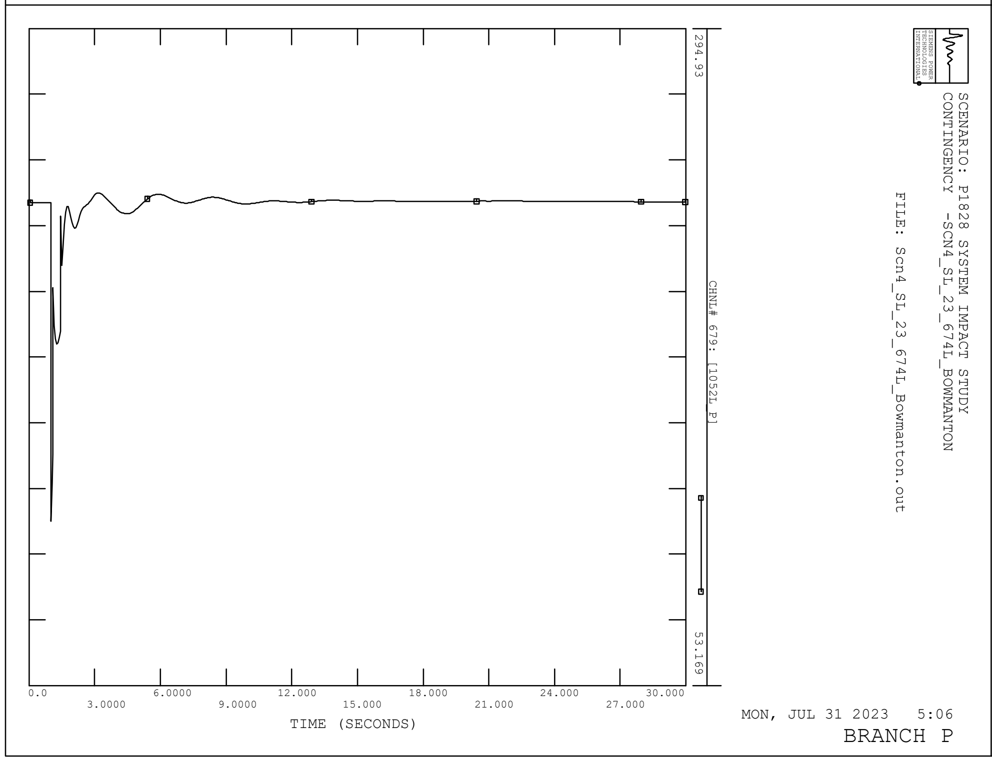
CHNL# 670: [853L_Q] 58.045 -29.22
CHNL# 672: [1051L_Q] 131.90 -246.4
CHNL# 674: [674L_Q] 41.896 -40.00
CHNL# 676: [666L_Q] 243.32 -285.1
CHNL# 678: [819L_Q] 30.778 -58.08
0.0 3.0000 6.0000 9.0000 12.000 15.000 18.000 21.000 24.000 27.000 30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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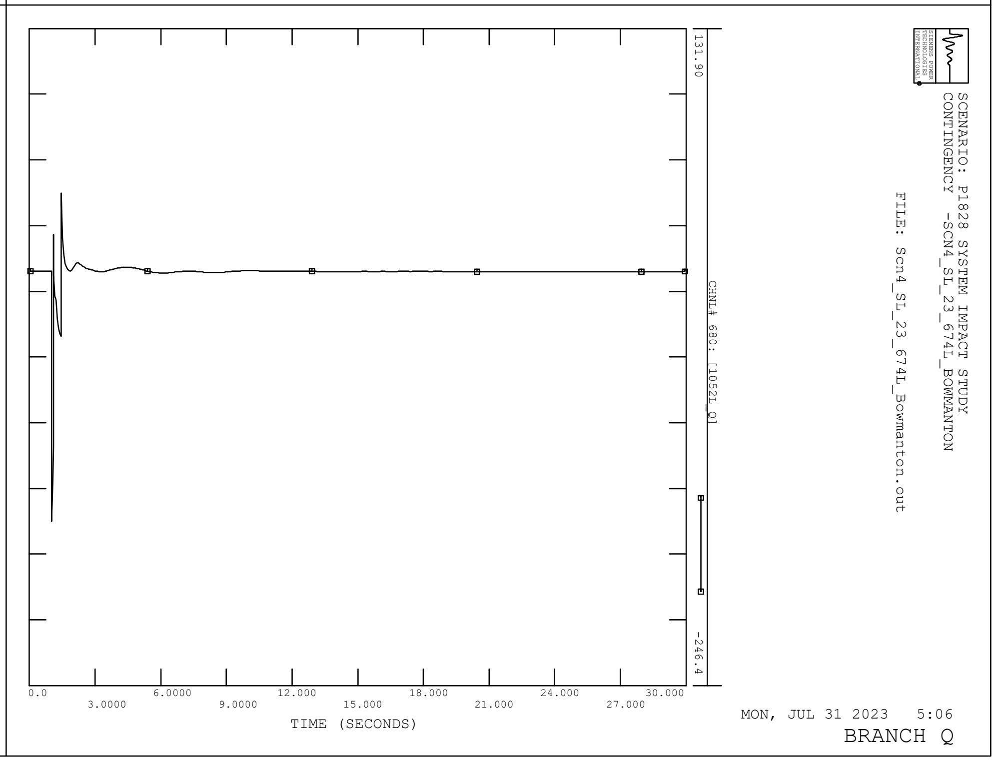
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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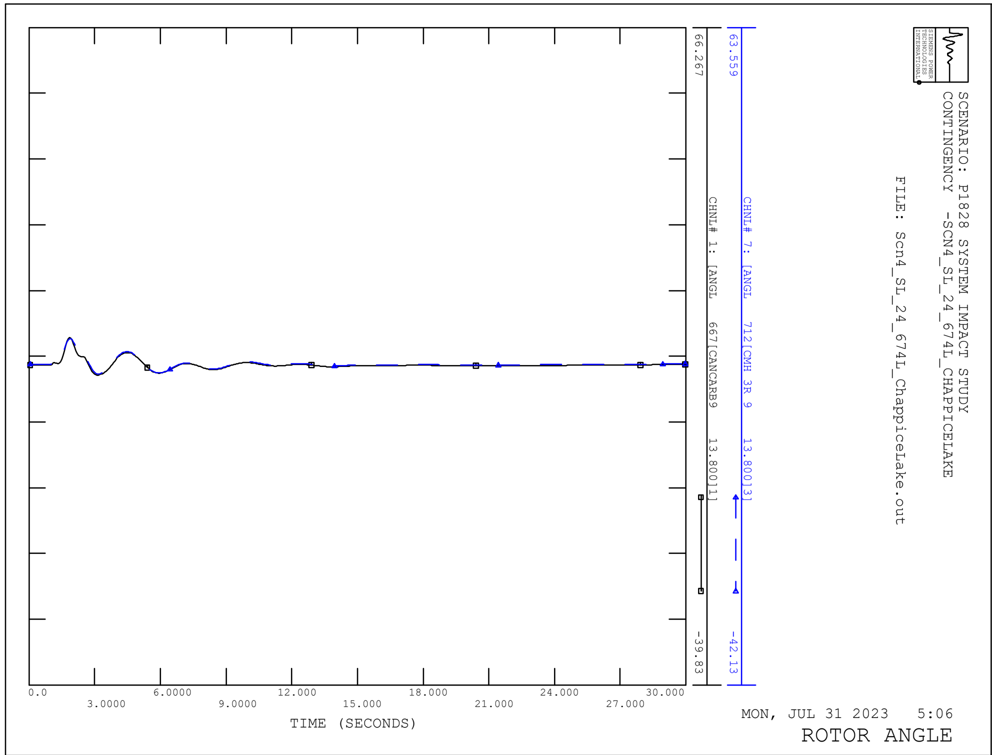
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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FILE: Scn4_SL_24_674L_ChappiceLake.out
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
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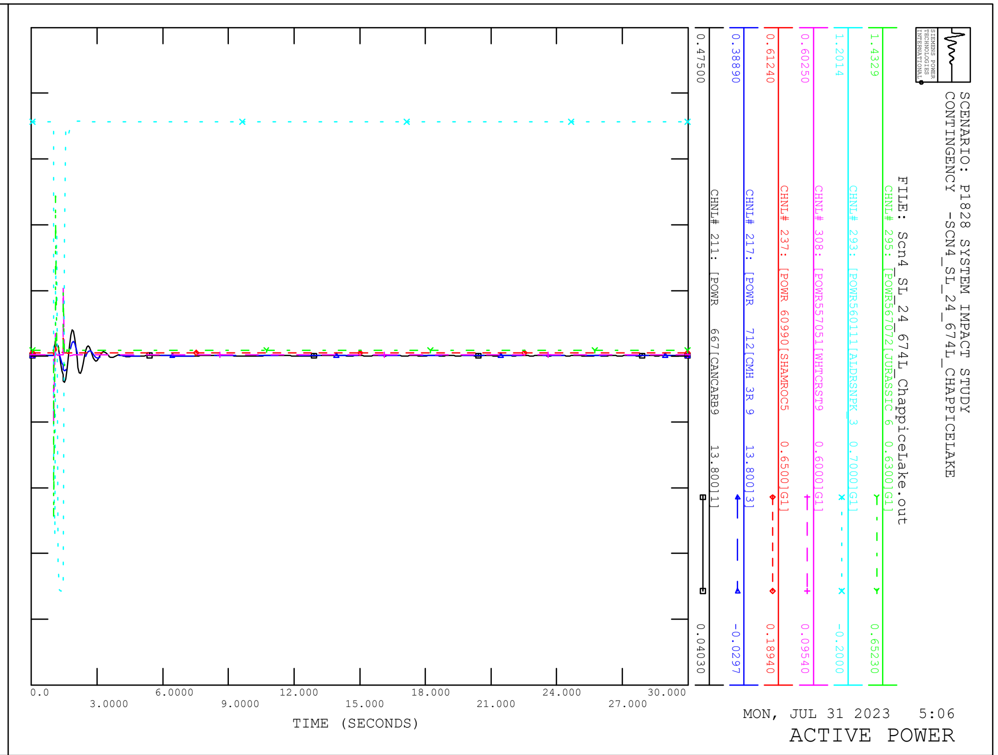
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CONTINGENCY -SCN4_SL_24_674L_CHAPPICELAKE
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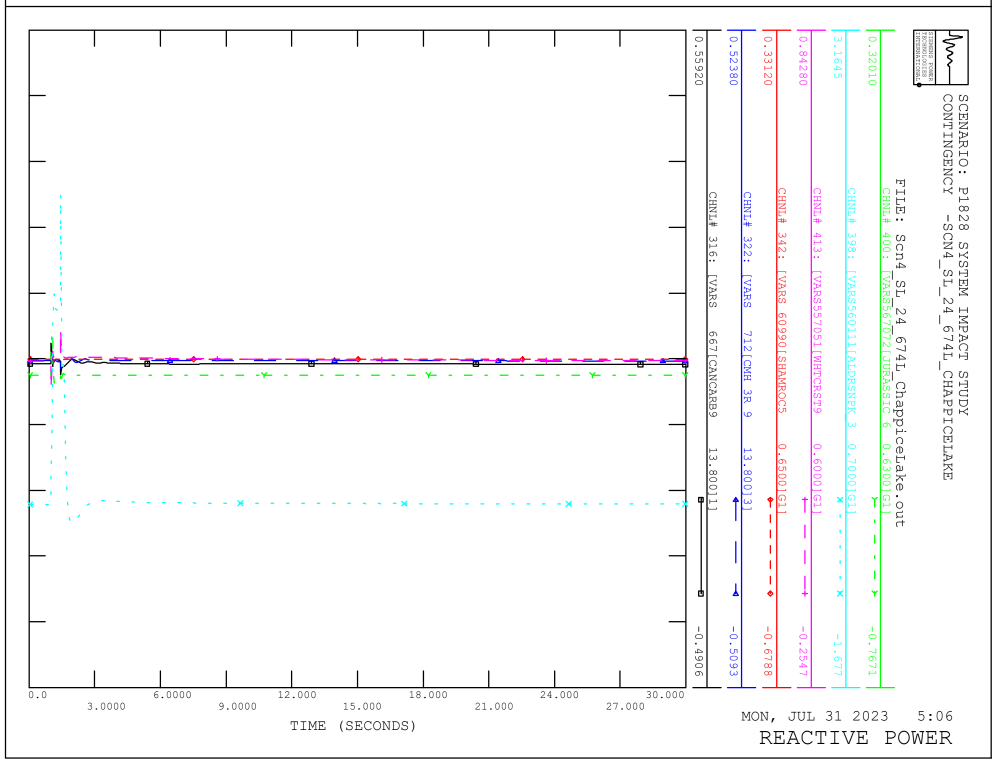
CHNL# 211: [POWR 667[CANCARB9 13.800]1]
CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
CHNL# 293: [POWR560111[ALDRSNFK 3 0.7000]G1]
CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
TIME (SECONDS)
MON, JUL 31 2023 5:06
ACTIVE POWER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CONTINGENCY -SCN4_SL_24_674L_CHAPPICELAKE
FILE: Scn4_SL_24_674L_ChappiceLake.out
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
CHNL# 398: [VARS560111[ALDRSNFK 3 0.7000]G1]
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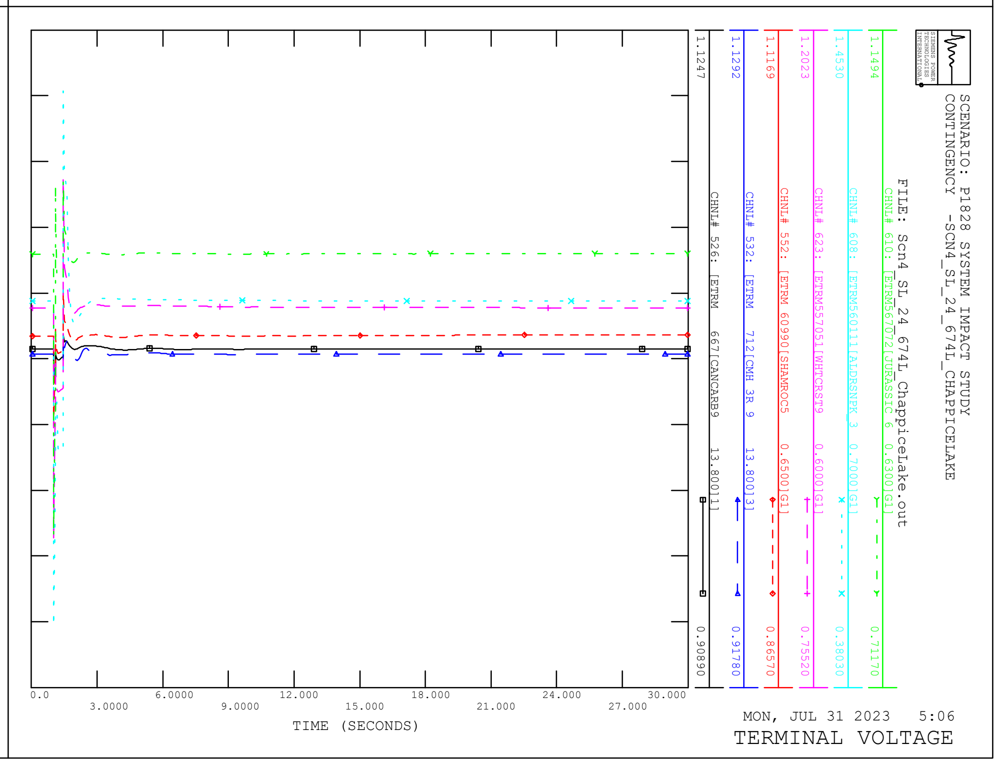
TIME (SECONDS)
MON, JUL 31 2023 5:06
REACTIVE POWER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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
CHNL# 608: [ETRM560111[ALDRSNFK 3 0.7000]G1]
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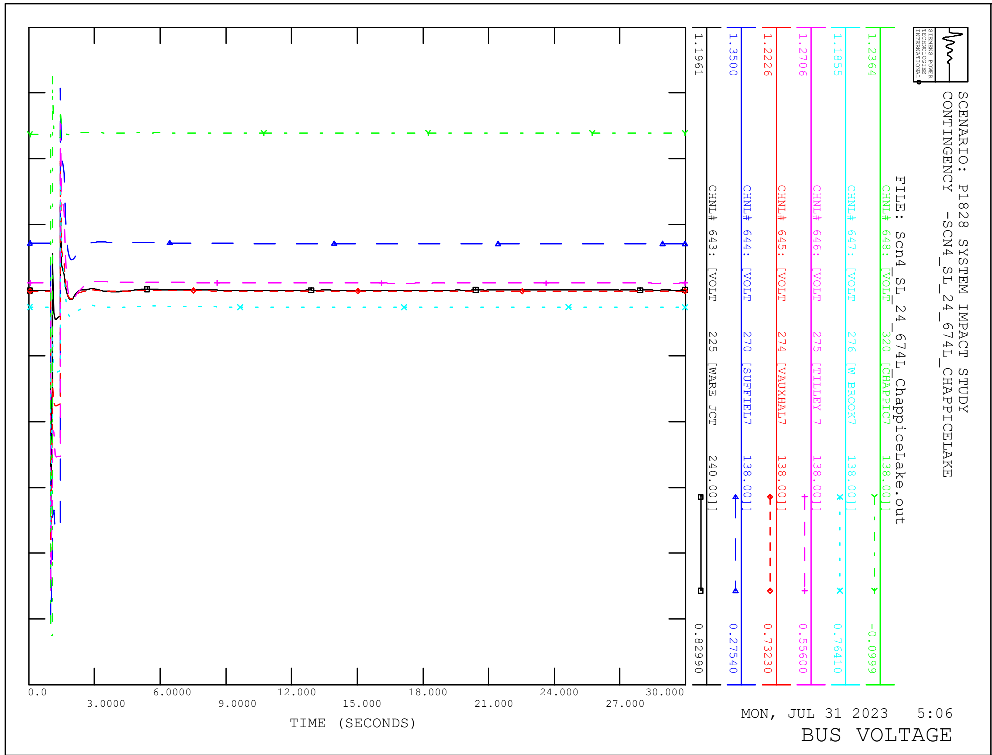
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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FILE: Scn4_SL_24_674L_ChappiceLake.out
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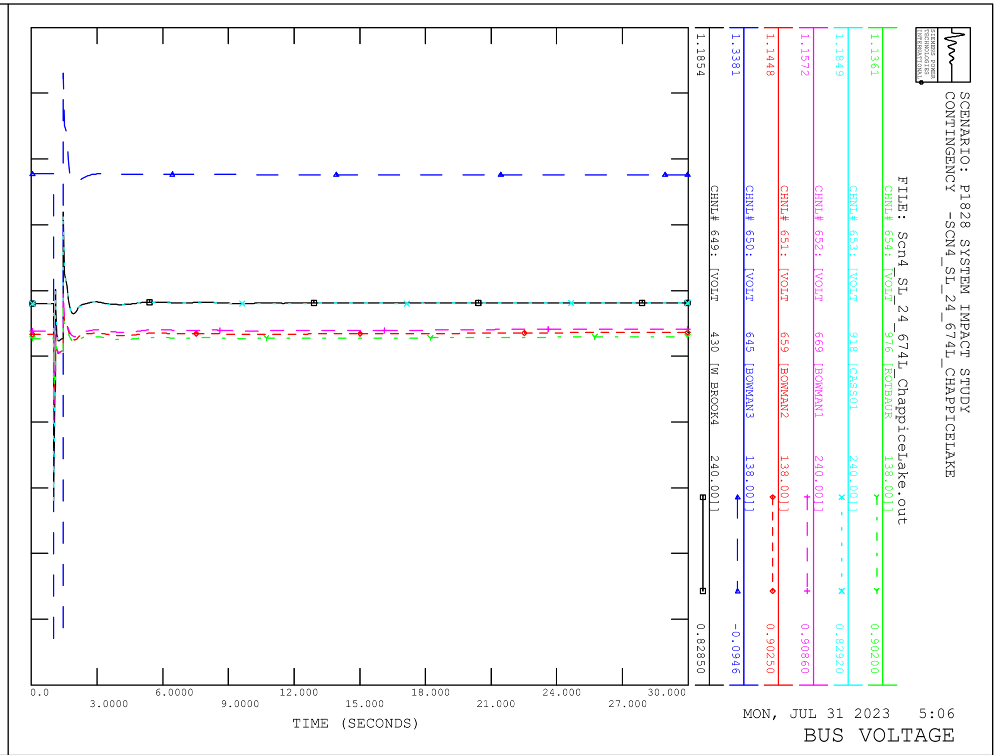
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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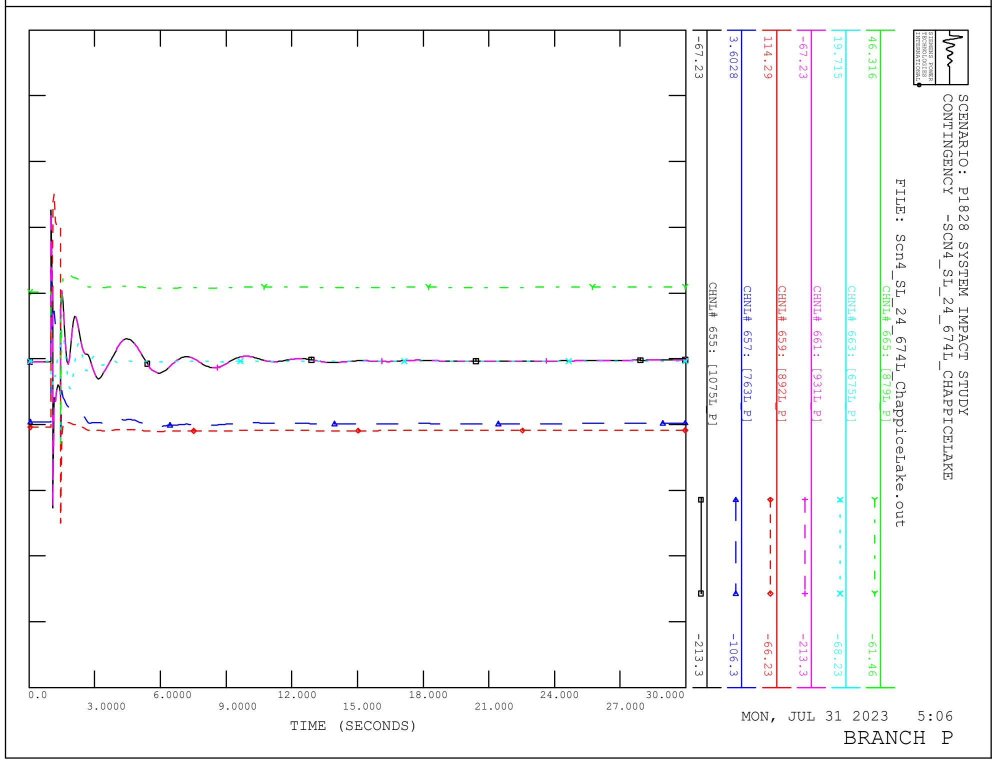
CONTINGENCY -SCN4_SL_24_674L_CHAPPICELAKE
FILE: Scn4_SL_24_674L_ChappiceLake.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CHNL# 657: [763L P]
CHNL# 659: [892L P]
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CHNL# 663: [675L P]
TIME (SECONDS)
MON, JUL 31 2023 5:06
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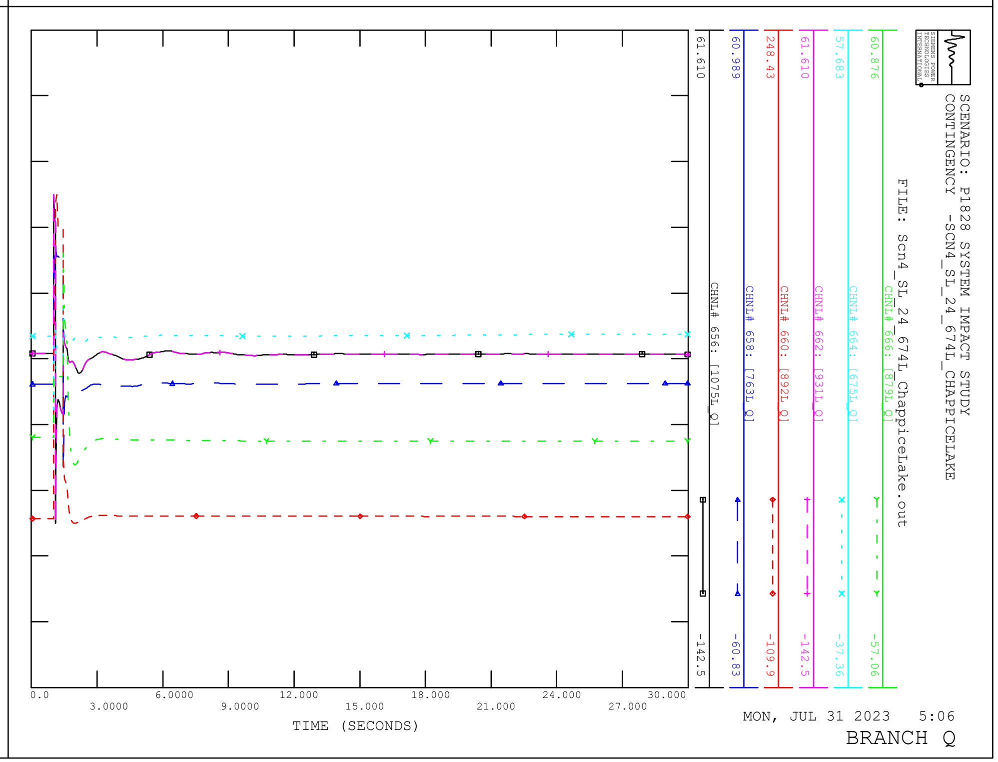
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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
CHNL# 662: [931L Q]
CHNL# 664: [675L Q]
TIME (SECONDS)
MON, JUL 31 2023 5:06
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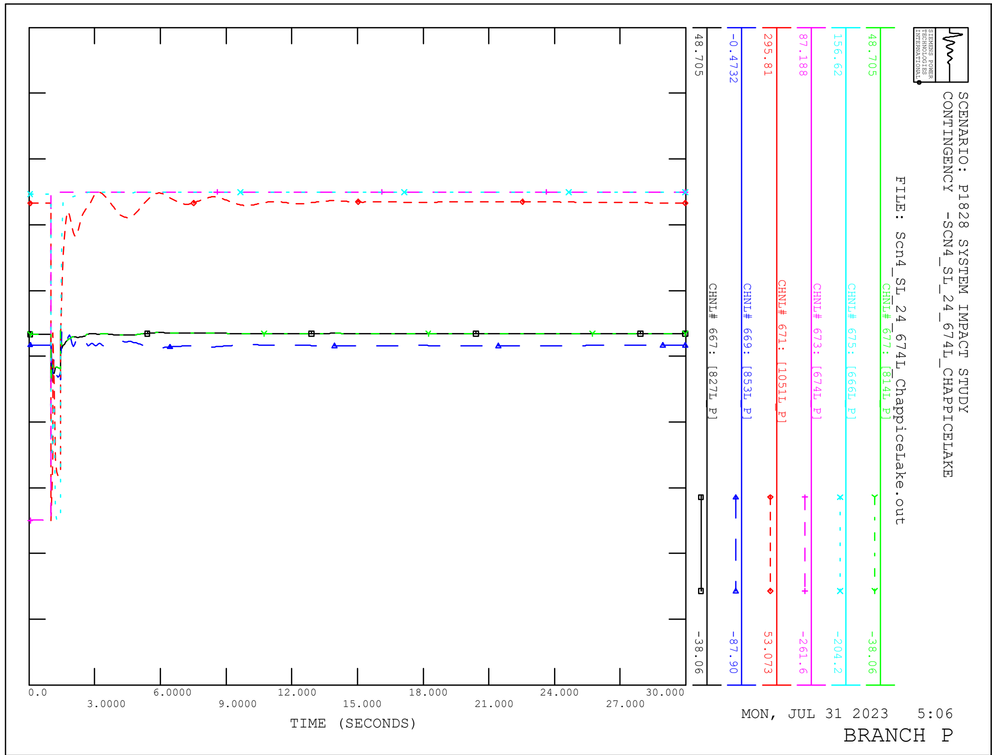
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-87.90
CHNL# 669: [853L_P]
295.81
53.073
CHNL# 671: [1051L_P]
87.188
-261.6
CHNL# 673: [674L_P]
156.62
-204.2
CHNL# 675: [666L_P]
48.705
-38.06
CHNL# 677: [814L_P]
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FILE: Scn4_SL_24_674L_ChappiceLake.out
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3.0000
6.0000
9.0000
12.000
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21.000
24.000
27.000
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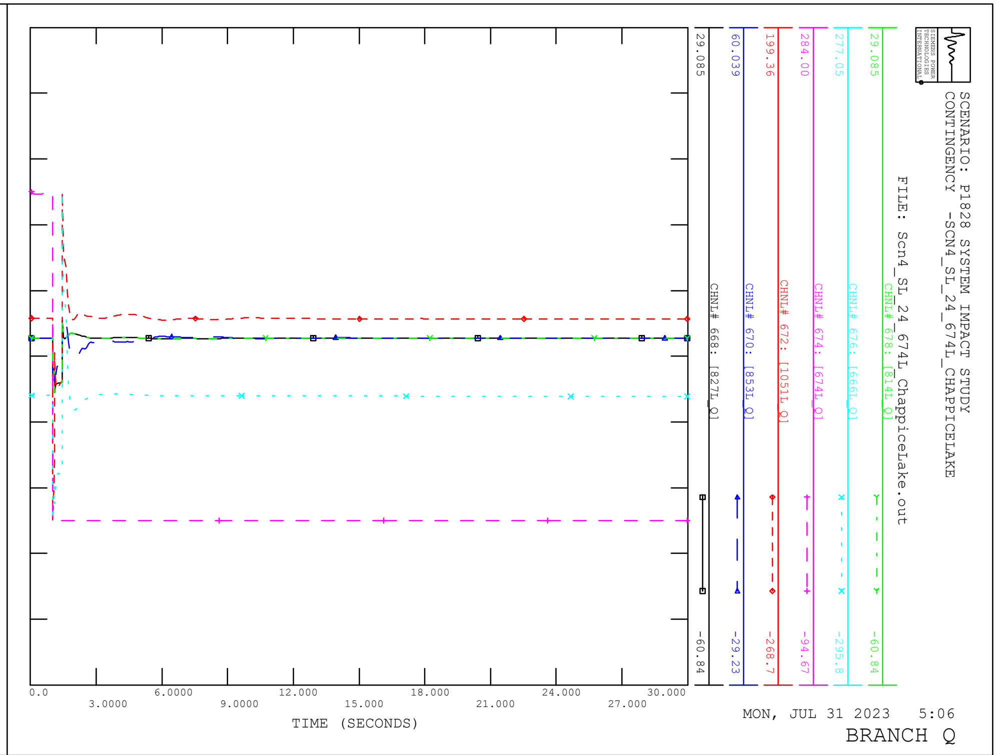
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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60.039
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CHNL# 670: [853L_Q]
199.36
-268.7
CHNL# 672: [1051L_Q]
284.00
-94.67
CHNL# 674: [674L_Q]
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-295.8
CHNL# 676: [666L_Q]
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CHNL# 678: [814L_Q]
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CONTINGENCY -SCN4_SL_24_674L_CHAPPICELAKE
FILE: Scn4_SL_24_674L_ChappiceLake.out
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3.0000
6.0000
9.0000
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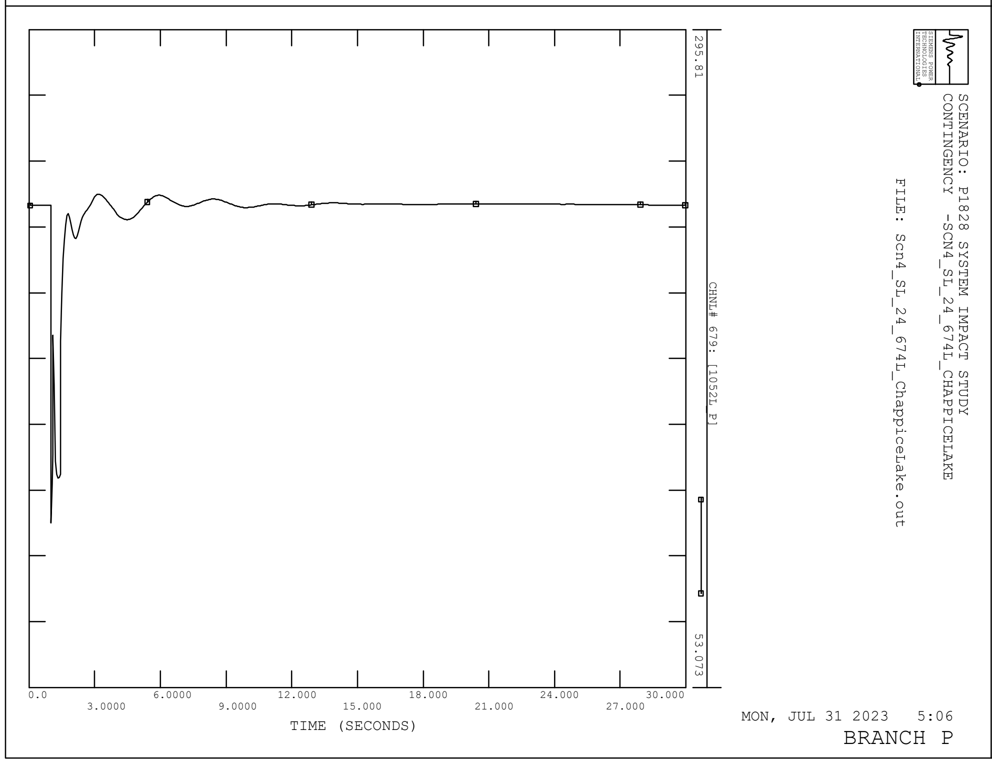
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q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53.073
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6.0000
9.0000
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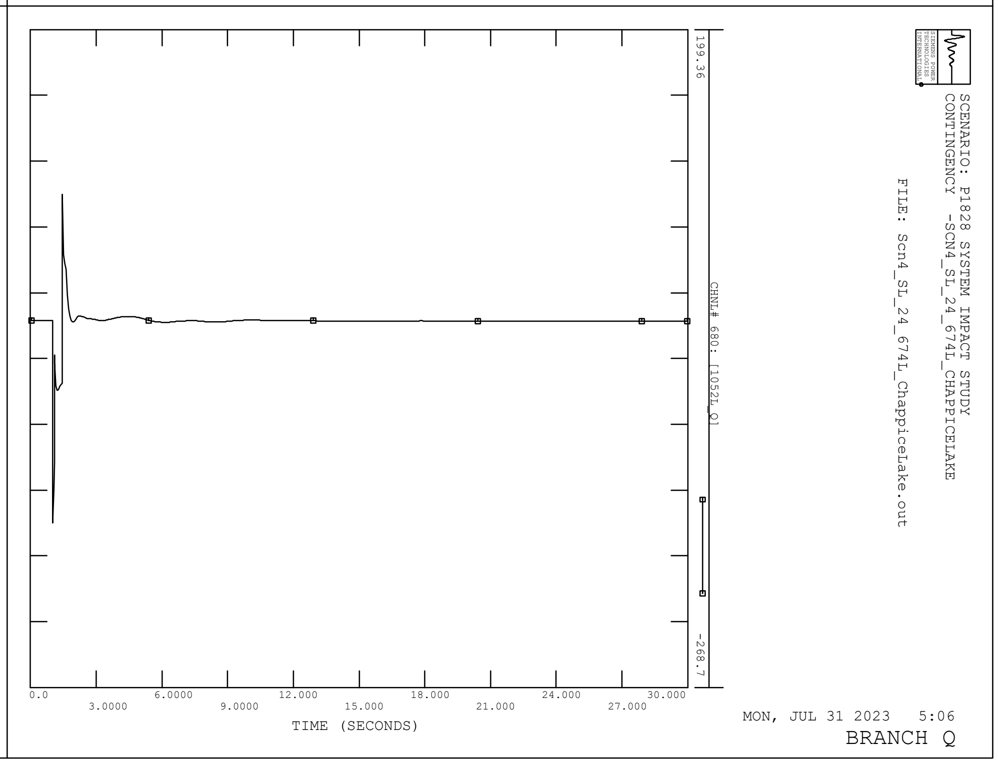
27.000
30.000
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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3.0000
6.0000
9.0000
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TIME (SECONDS)
MON, JUL 31 2023 5:06
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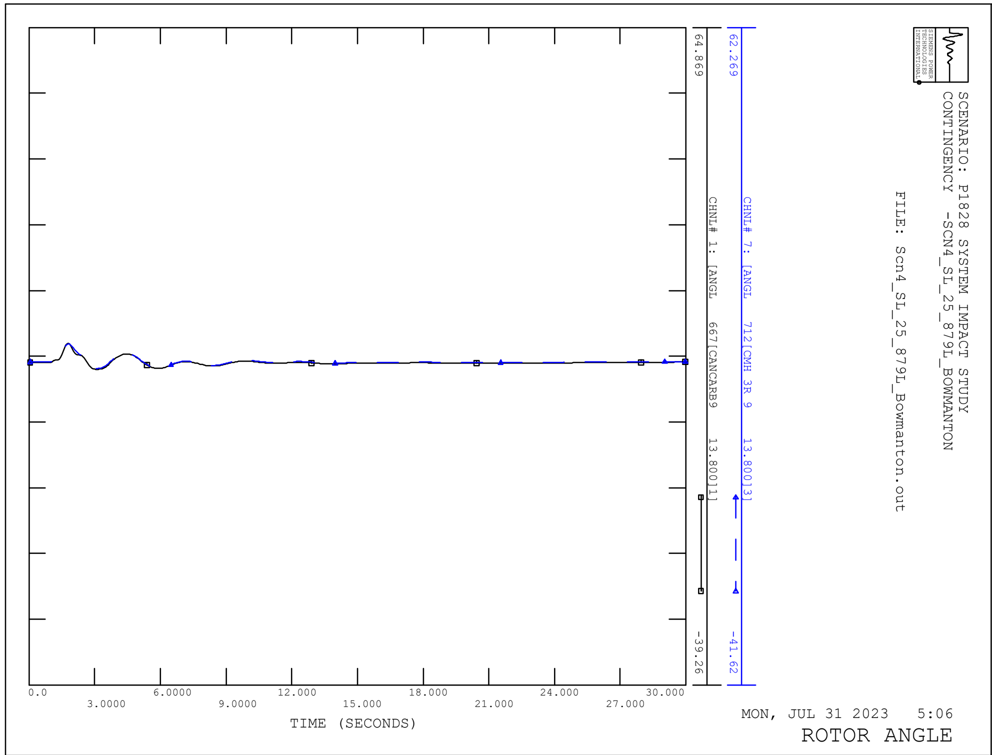
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CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
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64.869
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CHNL# 7: [ANGL 712[CMH 3R 9 13.800]3]
62.269
-41.62
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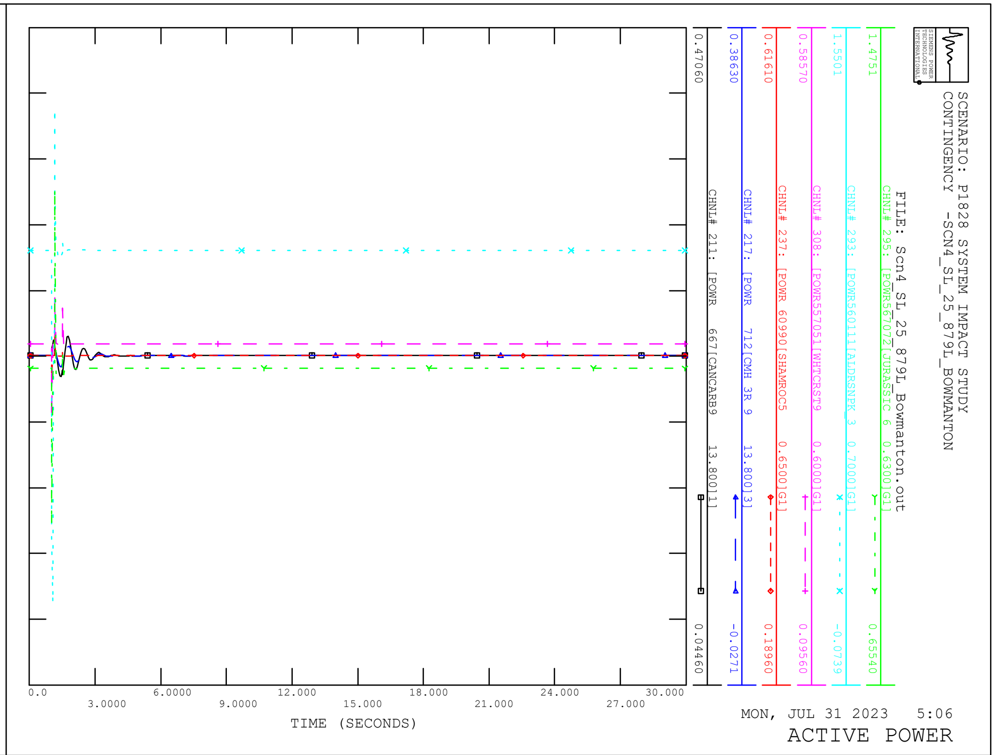
TIME (SECONDS)
MON, JUL 31 2023 5:06
ROTOR ANGLE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CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
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CHNL# 217: [POWR 712[CMH 3R 9 13.800]3]
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CHNL# 237: [POWR 60990[SHAMROC5 0.6500]G1]
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0.18960
CHNL# 308: [POWR557051[WHTCRST9 0.6000]G1]
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0.09560
CHNL# 293: [POWR560111[ALDRSNPK 3 0.7000]G1]
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CHNL# 295: [POWR567072[JURASSIC 6 0.6300]G1]
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MON, JUL 31 2023 5:06
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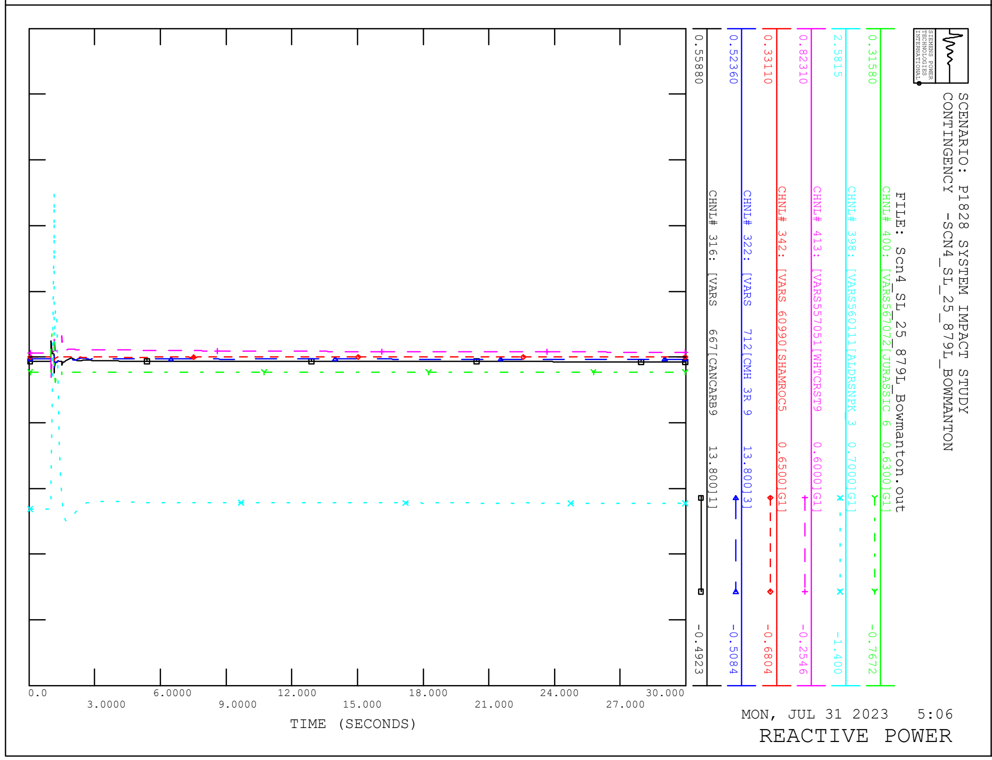
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CHNL# 322: [VARS 712[CMH 3R 9 13.800]3]
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-0.5084
CHNL# 342: [VARS 60990[SHAMROC5 0.6500]G1]
0.33110
-0.6804
CHNL# 413: [VARS557051[WHTCRST9 0.6000]G1]
0.82310
-0.2546
CHNL# 398: [VARS560111[ALDRSNPK 3 0.7000]G1]
2.5815
-1.400
CHNL# 400: [VARS567072[JURASSIC 6 0.6300]G1]
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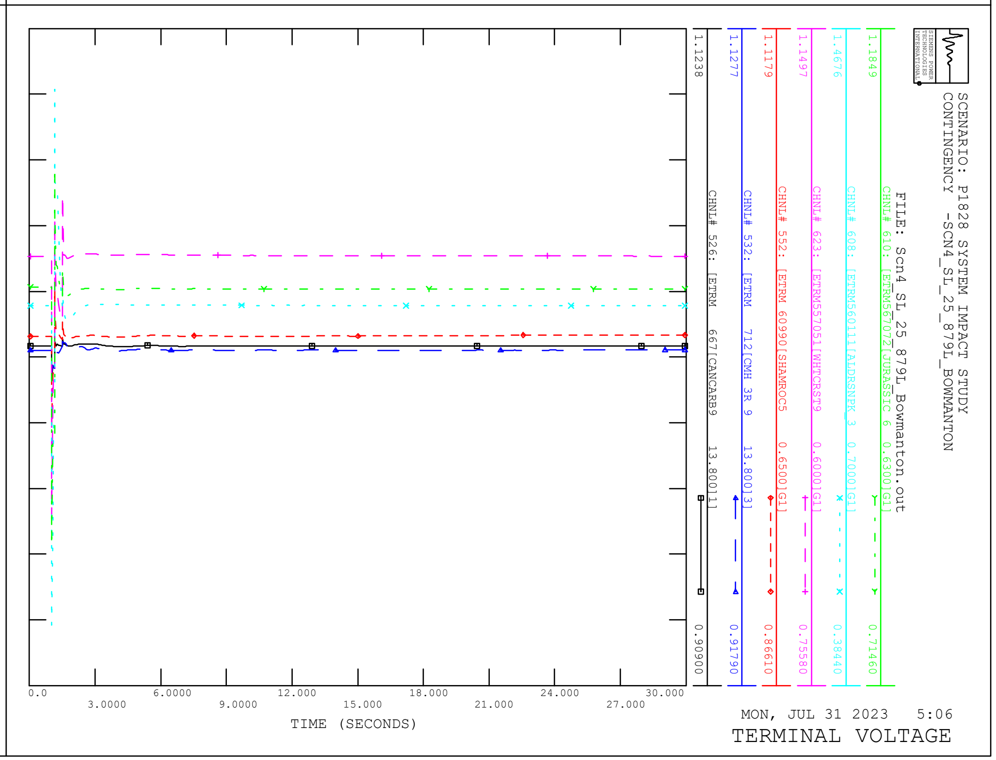
MON, JUL 31 2023 5:06
REACTIVE POWER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CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
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CHNL# 532: [ETRM 712[CMH 3R 9 13.800]3]
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0.91790
CHNL# 552: [ETRM 60990[SHAMROC5 0.6500]G1]
1.1179
0.86610
CHNL# 623: [ETRM557051[WHTCRST9 0.6000]G1]
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CHNL# 608: [ETRM560111[ALDRSNPK 3 0.7000]G1]
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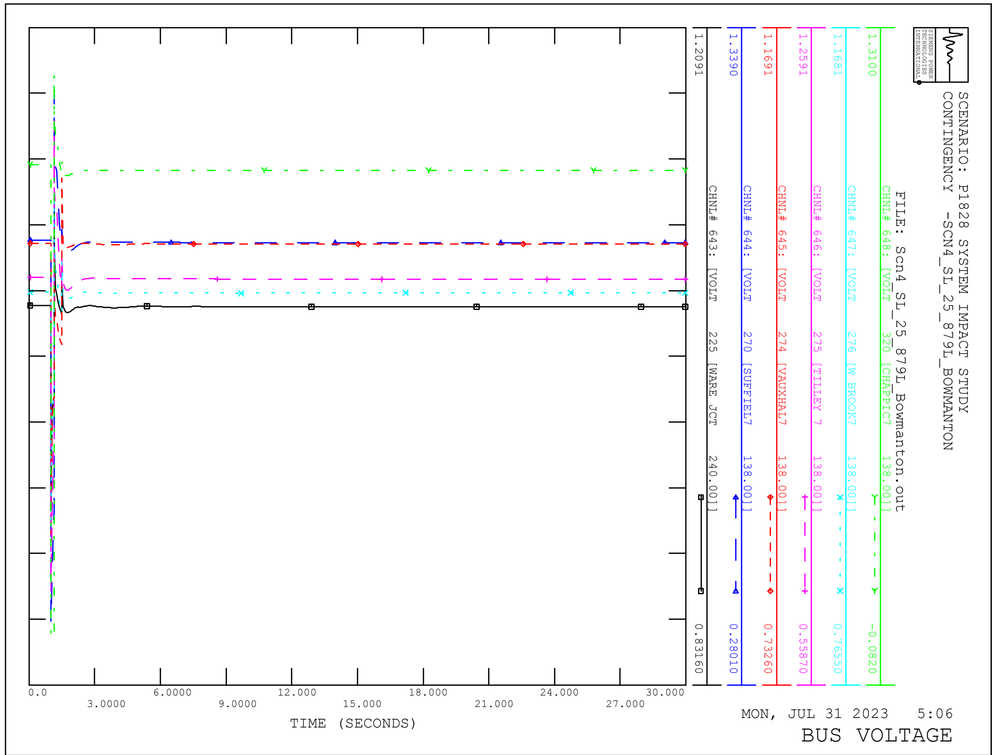
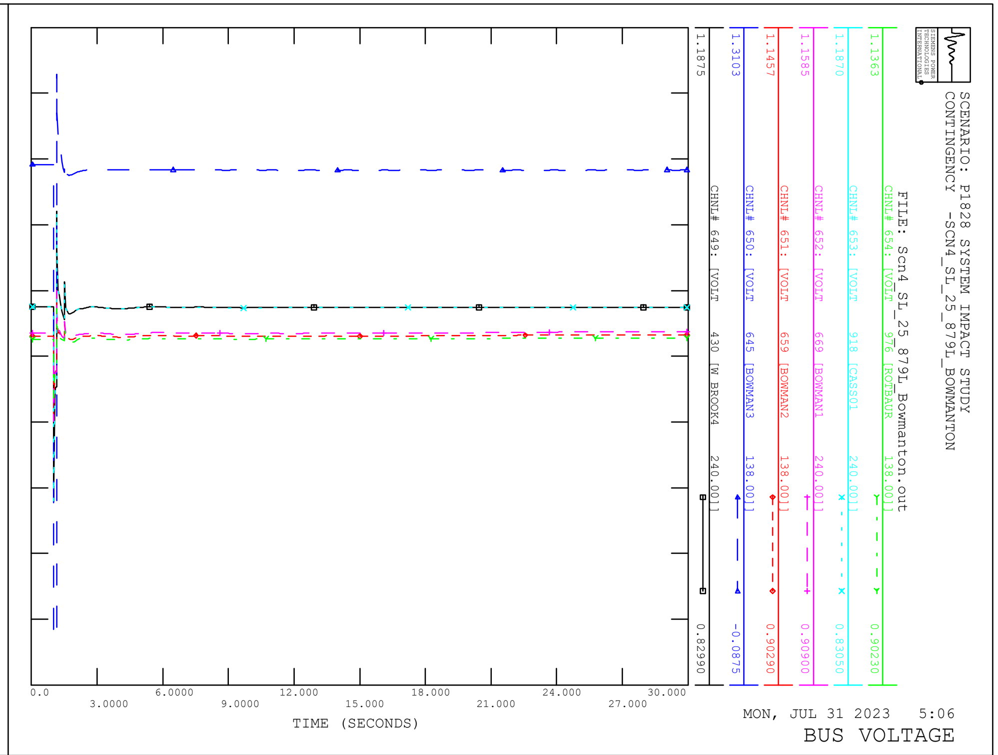
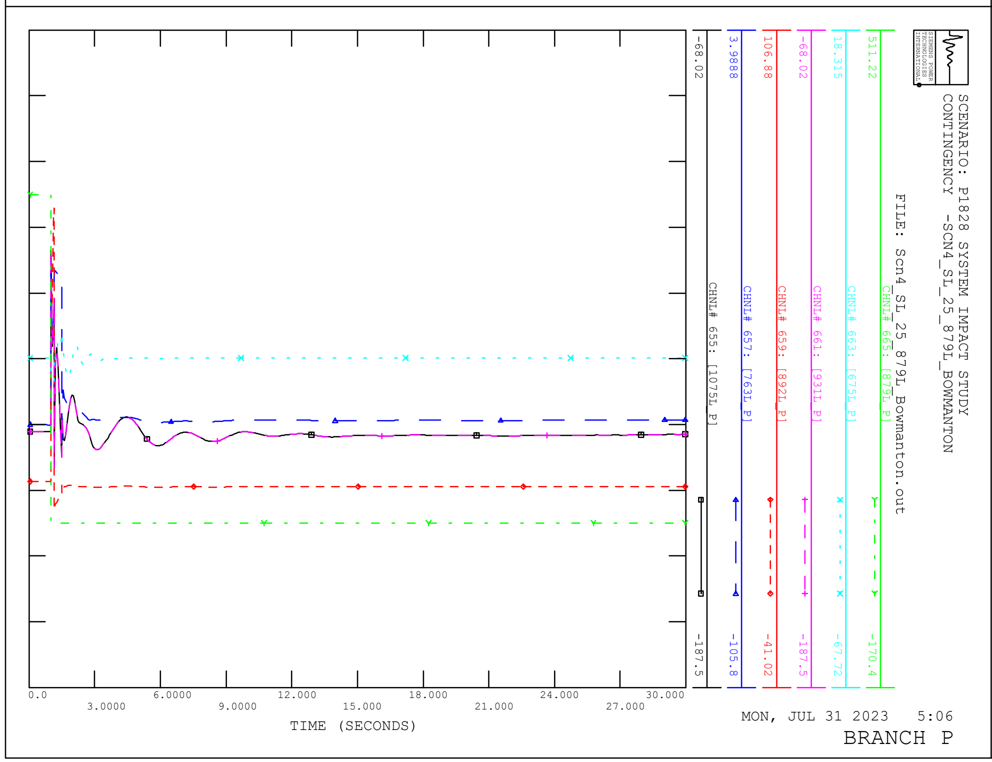
TIME (SECONDS)
MON, JUL 31 2023 5:06
TERMINAL VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
FILE: Scn4_SL_25_879L_Bowmanton.out
CHNL# 643: [VOLT 225 [WARE JCT 240.00]]
CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]]
CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]]
CHNL# 646: [VOLT 275 [TILLEY 7 138.00]]
CHNL# 647: [VOLT 276 [W BROOK7 138.00]]
CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE


SCENARIO: P1828 SYSTEM IMPACT STUDY
CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
FILE: Scn4_SL_25_879L_Bowmanton.out
CHNL# 649: [VOLT 430 [W BROOK4 240.00]]
CHNL# 650: [VOLT 645 [BOWMAN3 138.00]]
CHNL# 651: [VOLT 659 [BOWMAN2 138.00]]
CHNL# 652: [VOLT 669 [BOWMAN1 240.00]]
CHNL# 653: [VOLT 918 [CASSOI 240.00]]
CHNL# 654: [VOLT 976 [ROTBAUR 138.00]]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
FILE: Scn4_SL_25_879L_Bowmanton.out
CHNL# 655: [1075L P]
CHNL# 657: [763L P]
CHNL# 659: [892L P]
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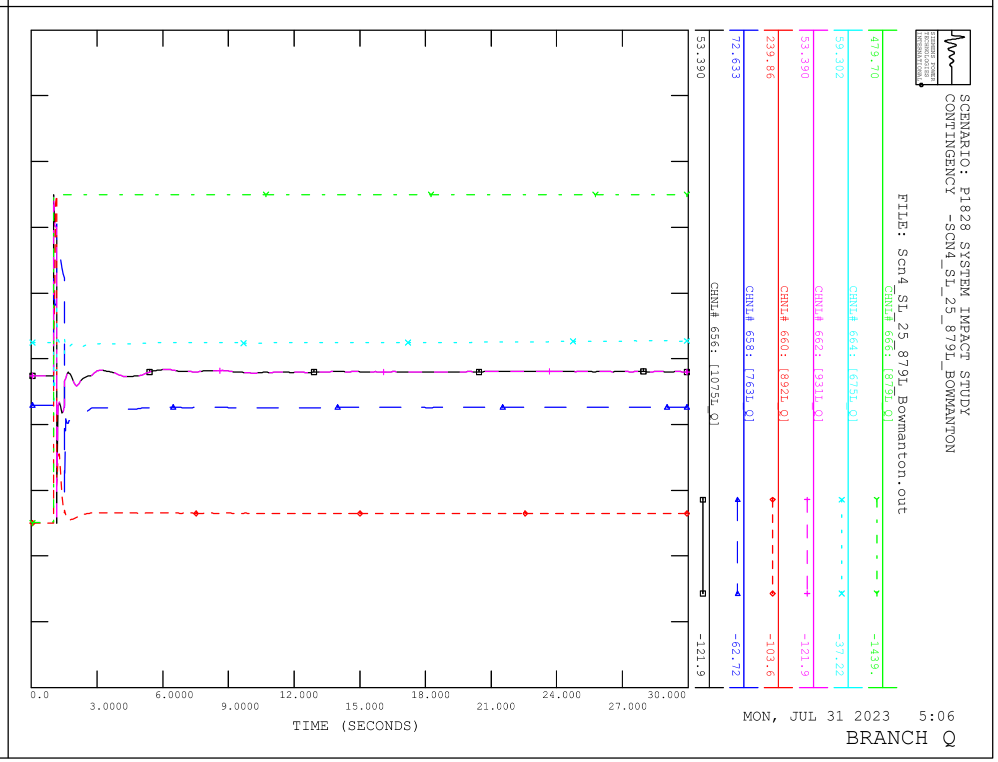
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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CONTINGENCY -SCN4_SL_25_879L_BOWMANTON
FILE: Scn4_SL_25_879L_Bowmanton.out
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CHNL# 658: [763L Q]
CHNL# 660: [892L Q]
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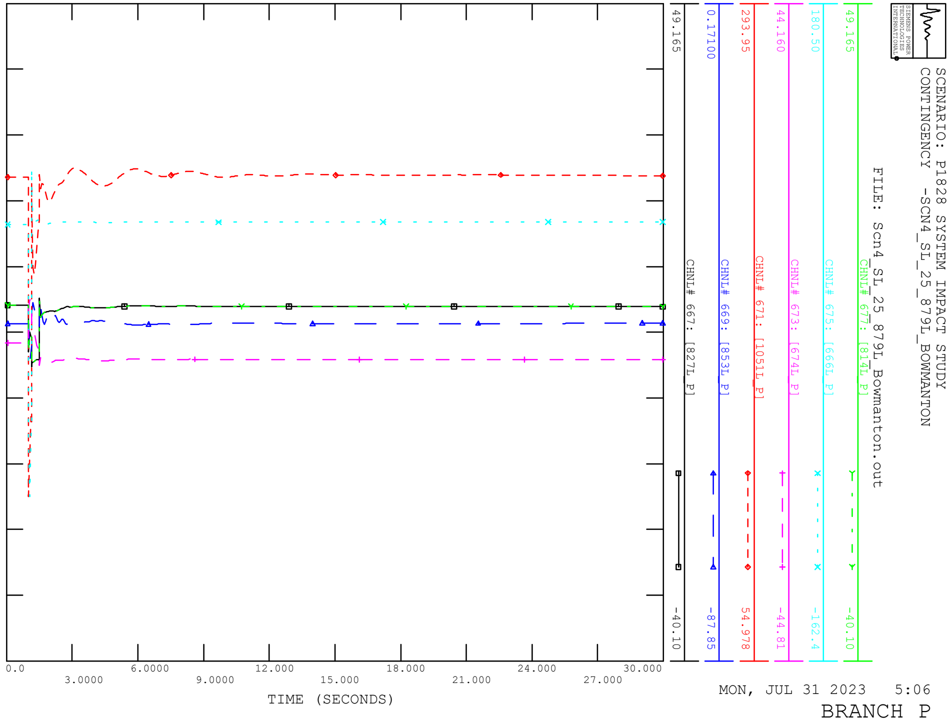
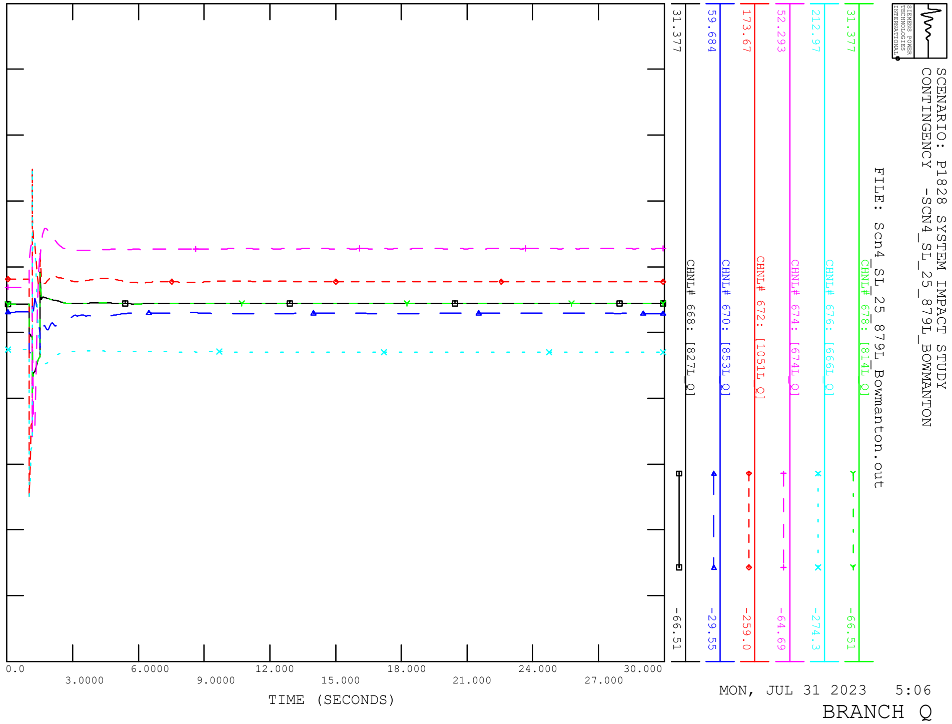
CHNL# 666: [879L Q]
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH Q



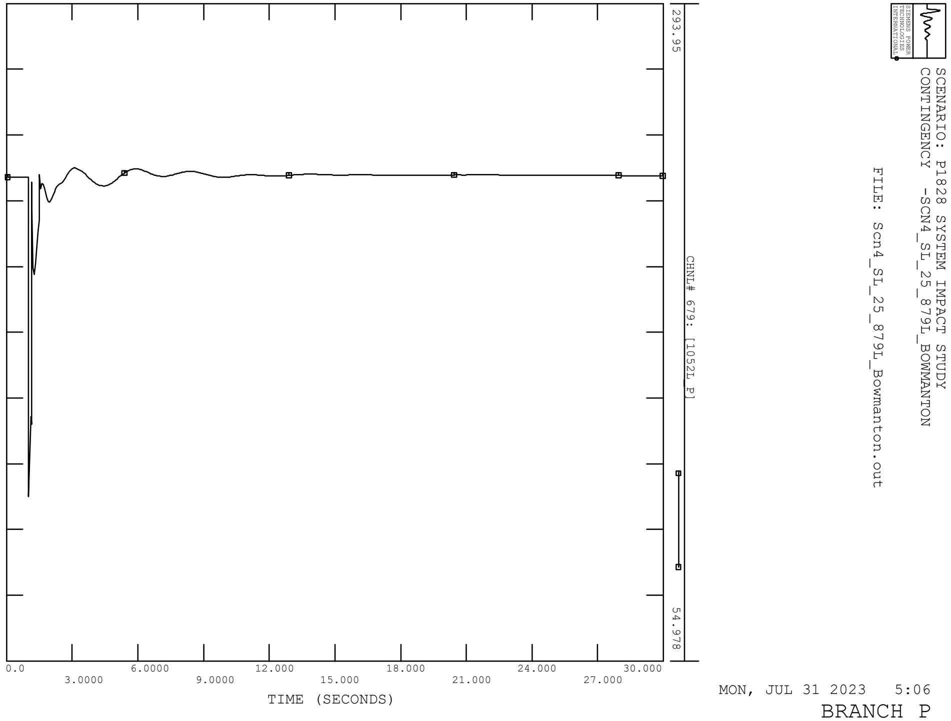
MON, JUL 31 2023 5:06

BRANCH P



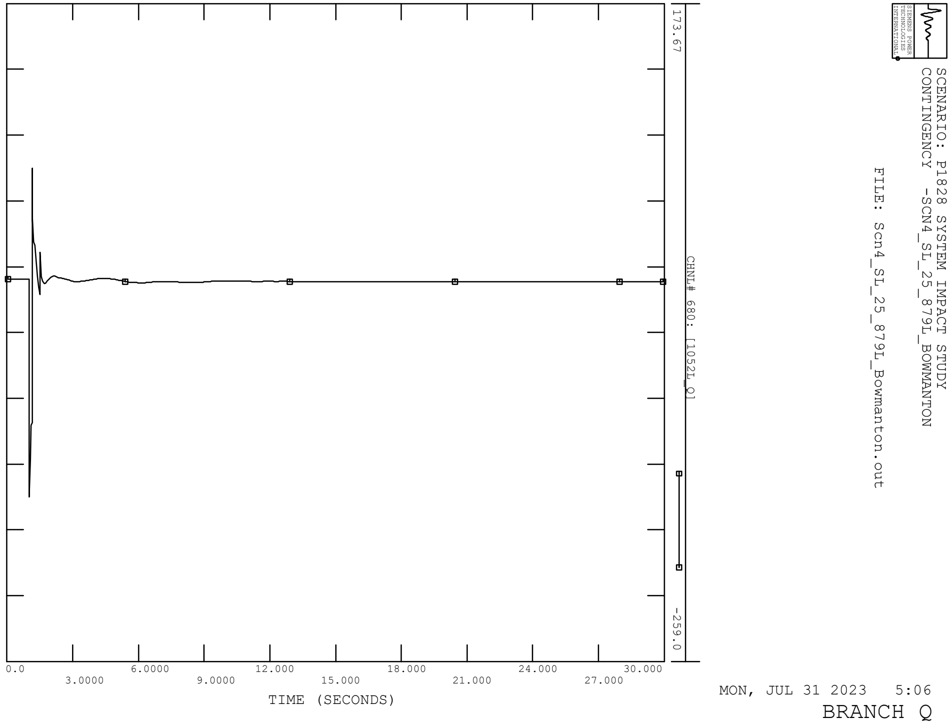
MON, JUL 31 2023 5:06

BRANCH Q



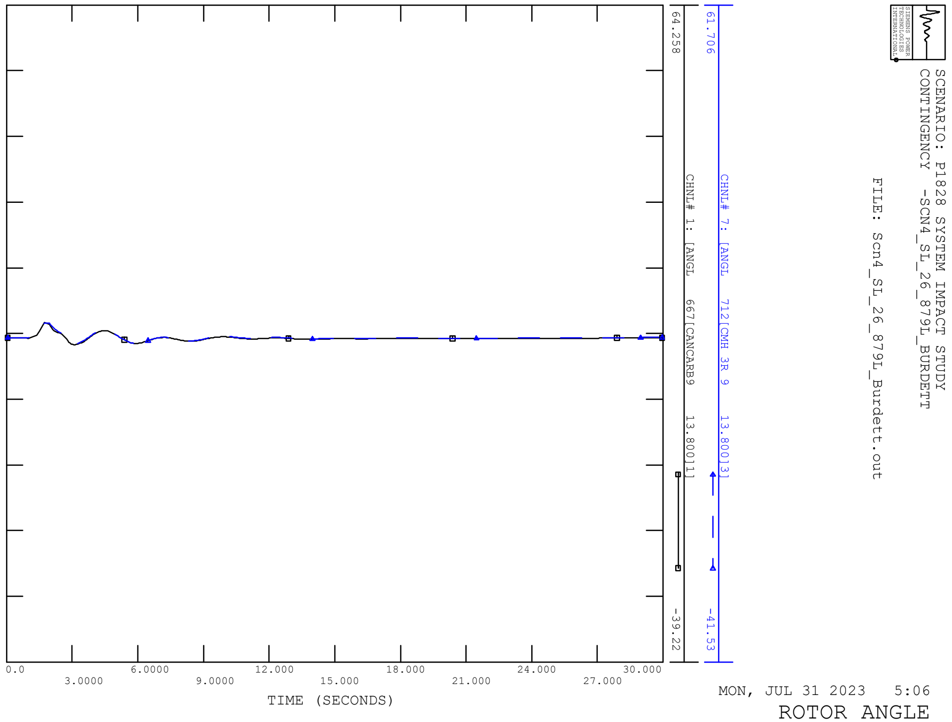
MON, JUL 31 2023 5:06

BRANCH P

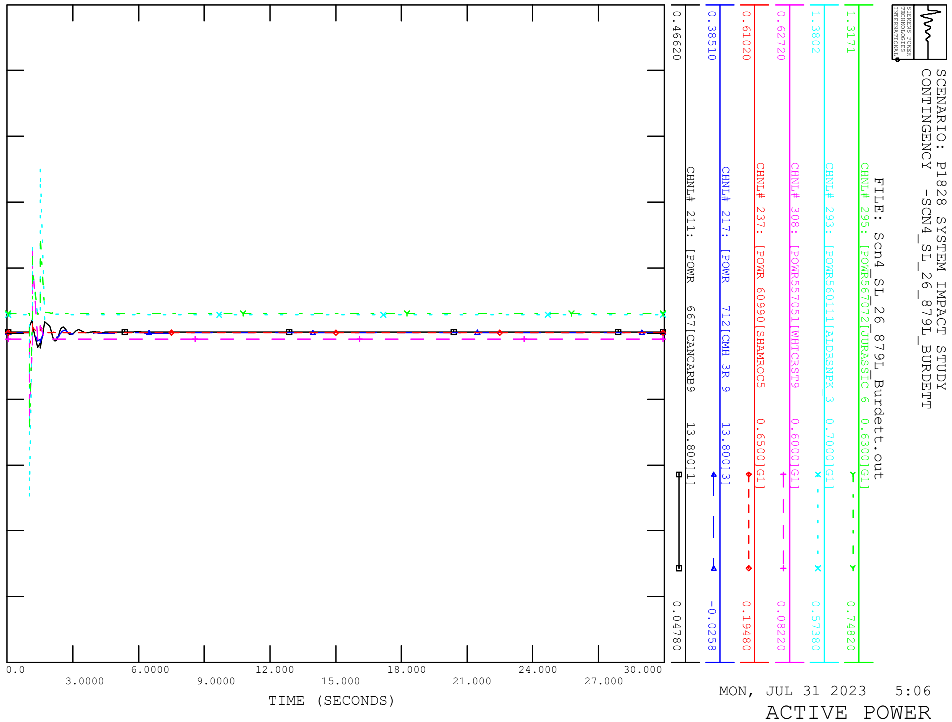


MON, JUL 31 2023 5:06

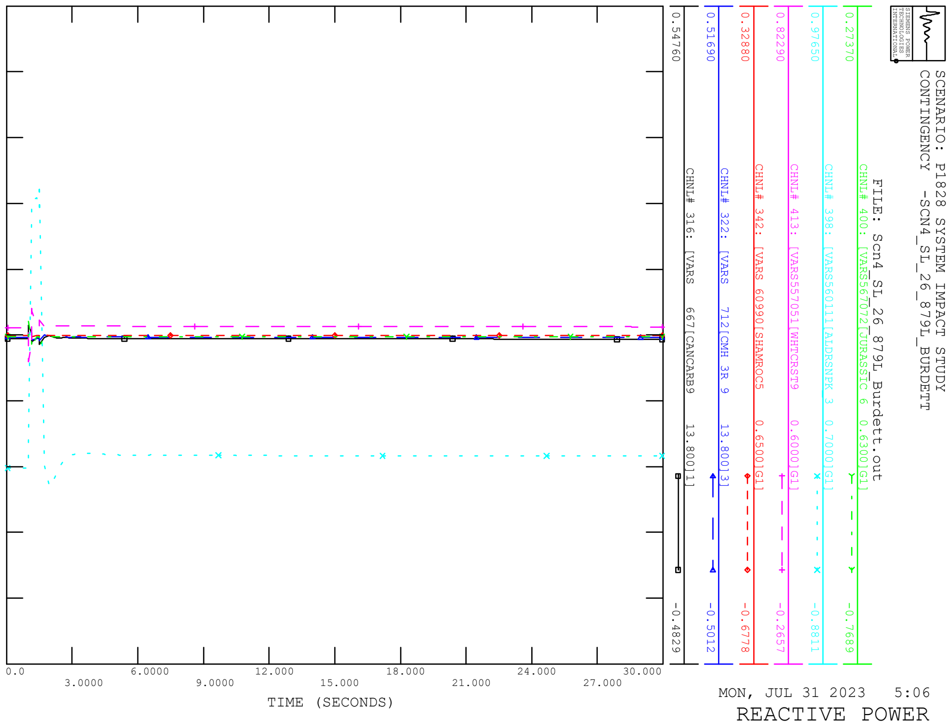
BRANCH Q



MON, JUL 31 2023 5:06
ROTOR ANGLE



MON, JUL 31 2023 5:06
ACTIVE POWER



MON, JUL 31 2023 5:06
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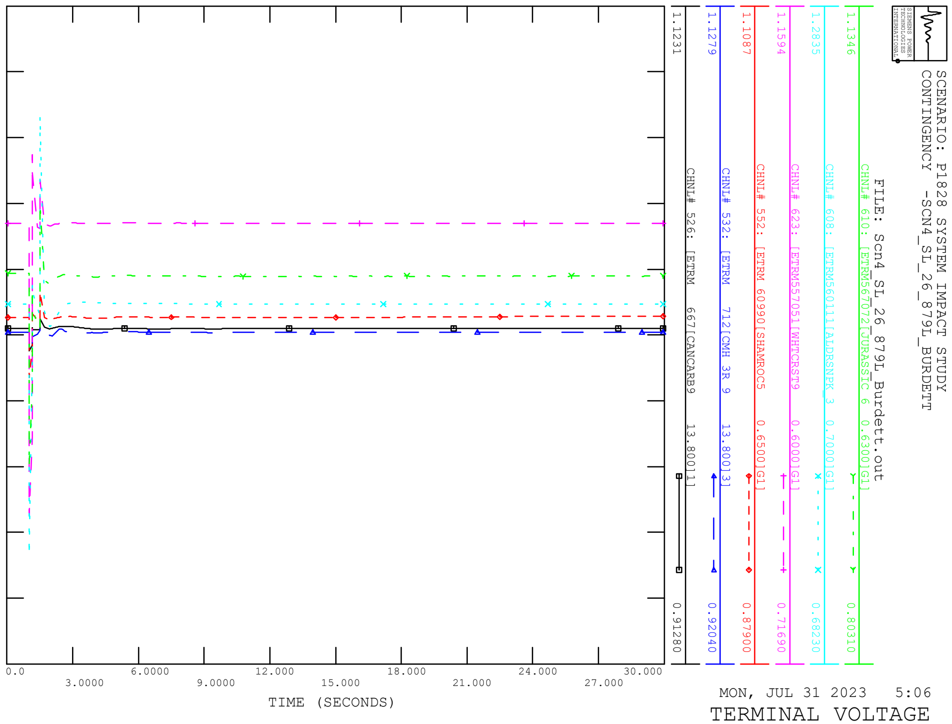
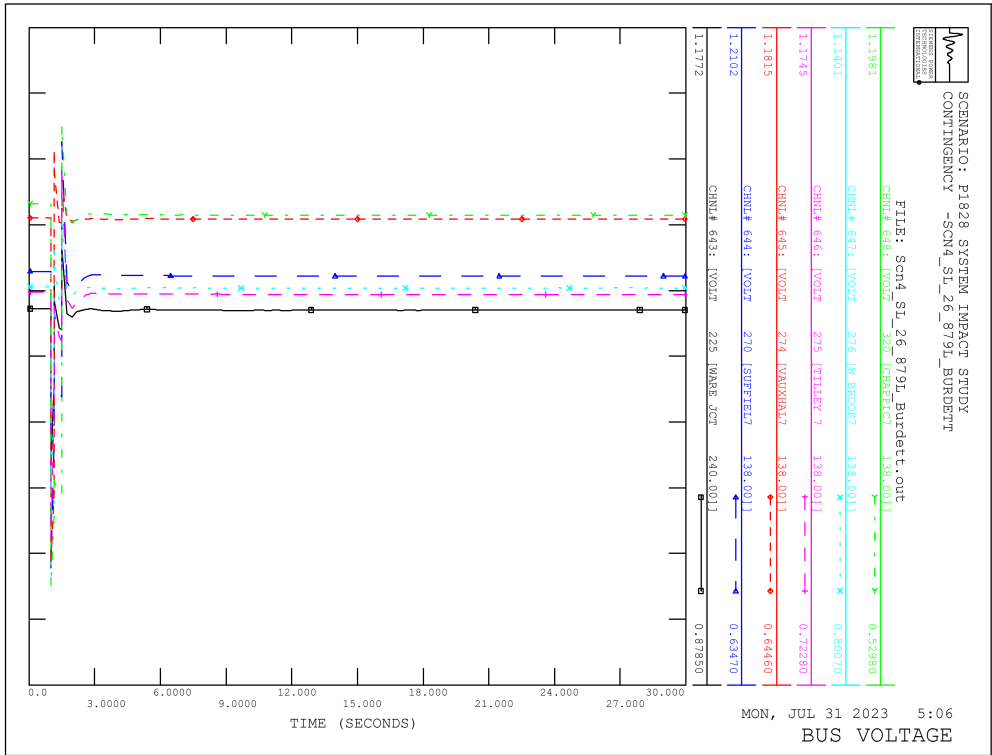


MON, JUL 31 2023 5:06
TERMINAL VOLTAGE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1.2102 CHNL# 644: [VOLT 270 [SUFFIEL7 138.00]] 0.63470
1.1815 CHNL# 645: [VOLT 274 [VAUXHAL7 138.00]] 0.64460
1.1745 CHNL# 646: [VOLT 275 [TILLEY 7 138.00]] 0.72280
1.1401 CHNL# 647: [VOLT 276 [W BROOK7 138.00]] 0.80070
1.1981 CHNL# 648: [VOLT 320 [CHAPPIC7 138.00]] 0.52980
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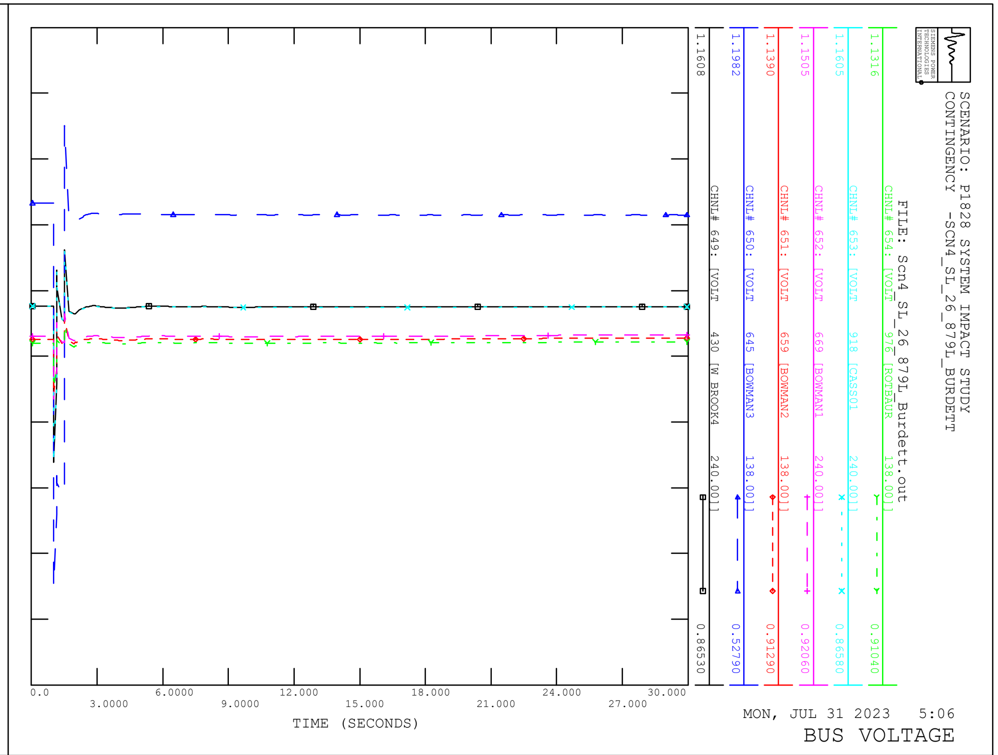
TIME (SECONDS)
MON, JUL 31 2023 5:06
BUS VOLTAGE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1.1982 CHNL# 650: [VOLT 645 [BOWMAN3 138.00]] 0.52790
1.1390 CHNL# 651: [VOLT 659 [BOWMAN2 138.00]] 0.91290
1.1505 CHNL# 652: [VOLT 669 [BOWMAN1 240.00]] 0.92060
1.1605 CHNL# 653: [VOLT 918 [CASSOI 240.00]] 0.86580
1.1316 CHNL# 654: [VOLT 976 [ROTHBUR 138.00]] 0.91040
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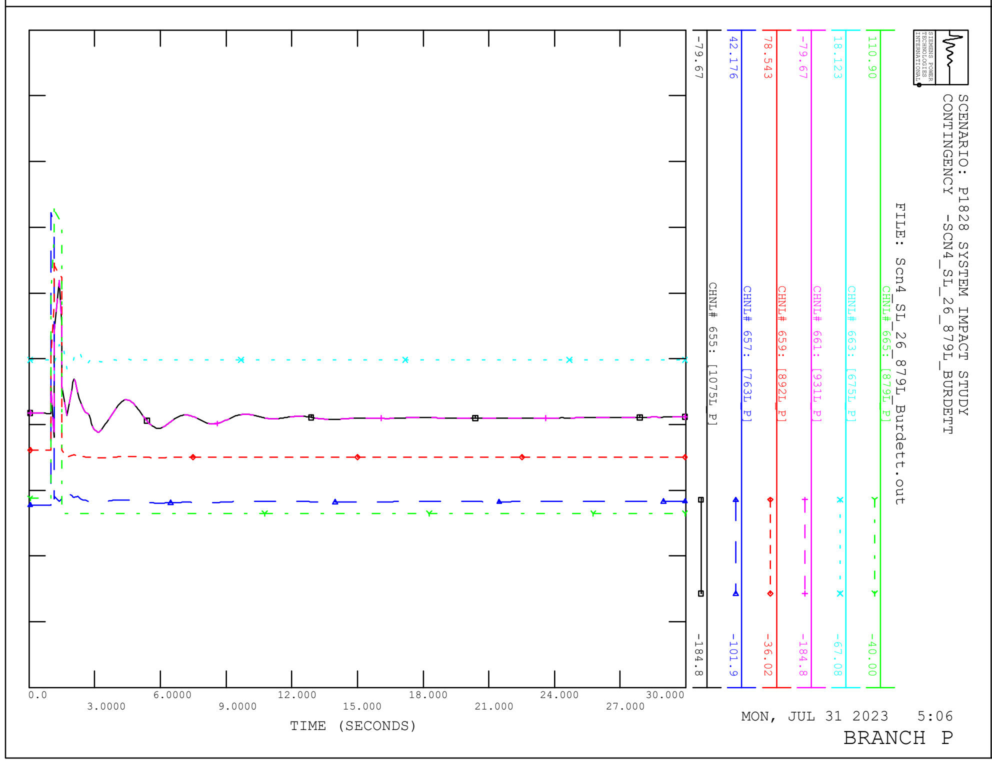
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42.176 CHNL# 657: [763L P] -101.9
78.543 CHNL# 659: [892L P] -36.02
-79.67 CHNL# 661: [931L P] -184.8
18.123 CHNL# 663: [675L P] -67.08
110.90 CHNL# 665: [879L P] -40.00
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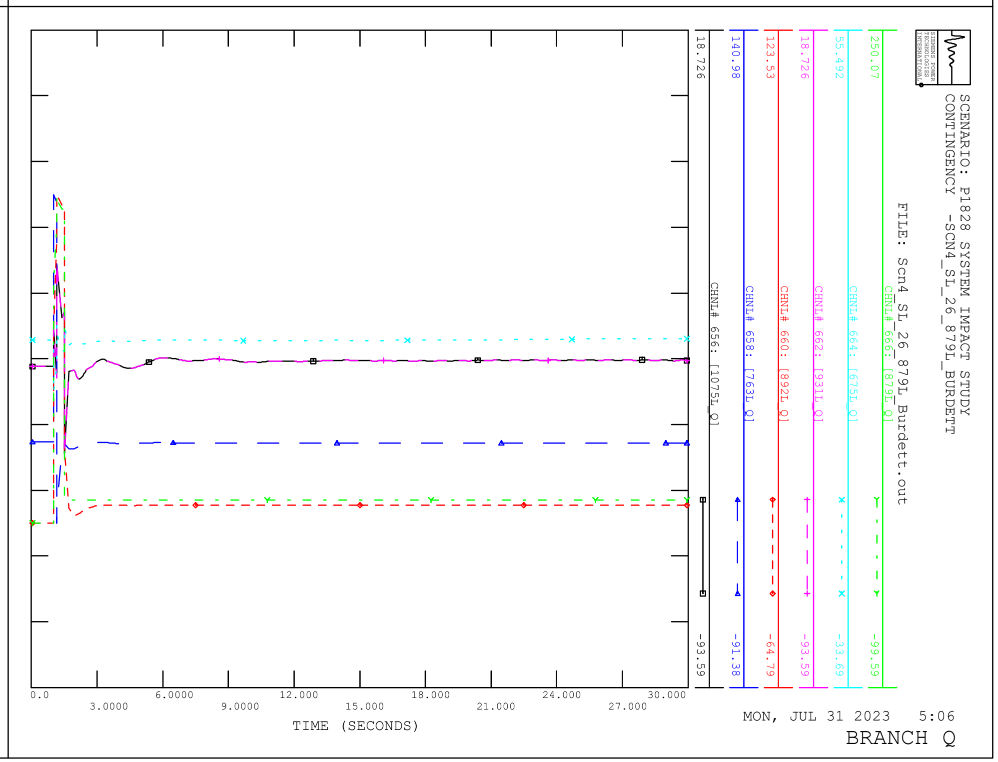
TIME (SECONDS)
MON, JUL 31 2023 5:06
BRANCH P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140.98 CHNL# 658: [763L Q] -91.38
123.53 CHNL# 660: [892L Q] -64.79
18.726 CHNL# 662: [931L Q] -93.59
55.492 CHNL# 664: [675L Q] -33.69
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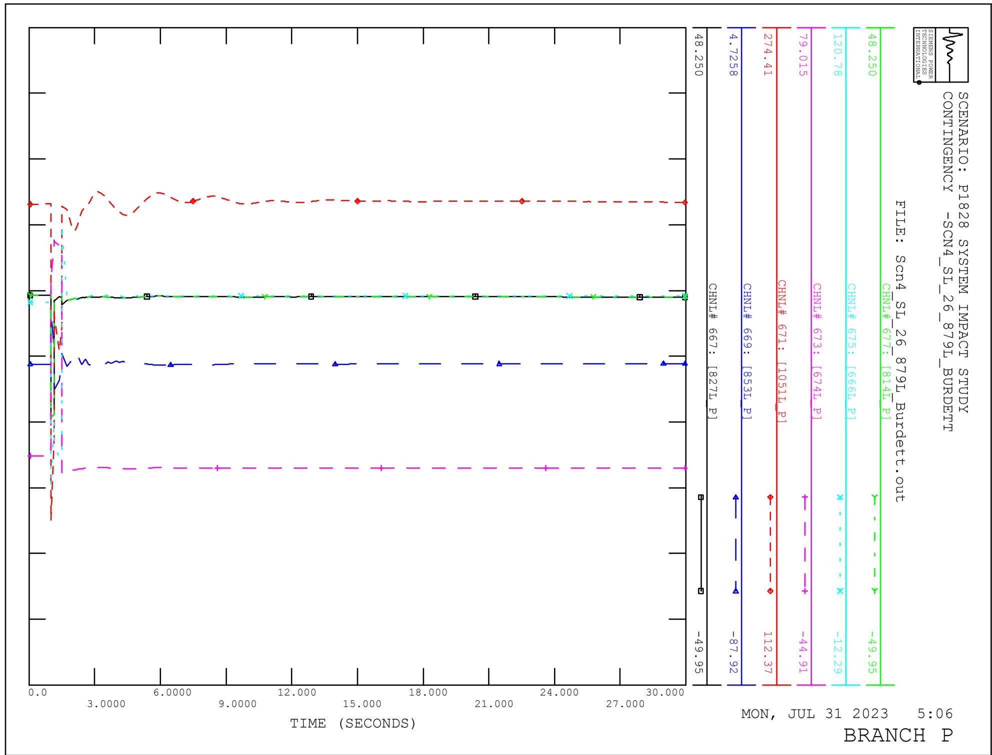
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CHNL# 669: [853L_P] 4.7258 -87.92
CHNL# 671: [1051L_P] 274.41 112.37
CHNL# 673: [674L_P] 79.015 -44.91
CHNL# 675: [666L_P] 120.78 -12.29
CHNL# 677: [814L_P] 48.250 -49.95
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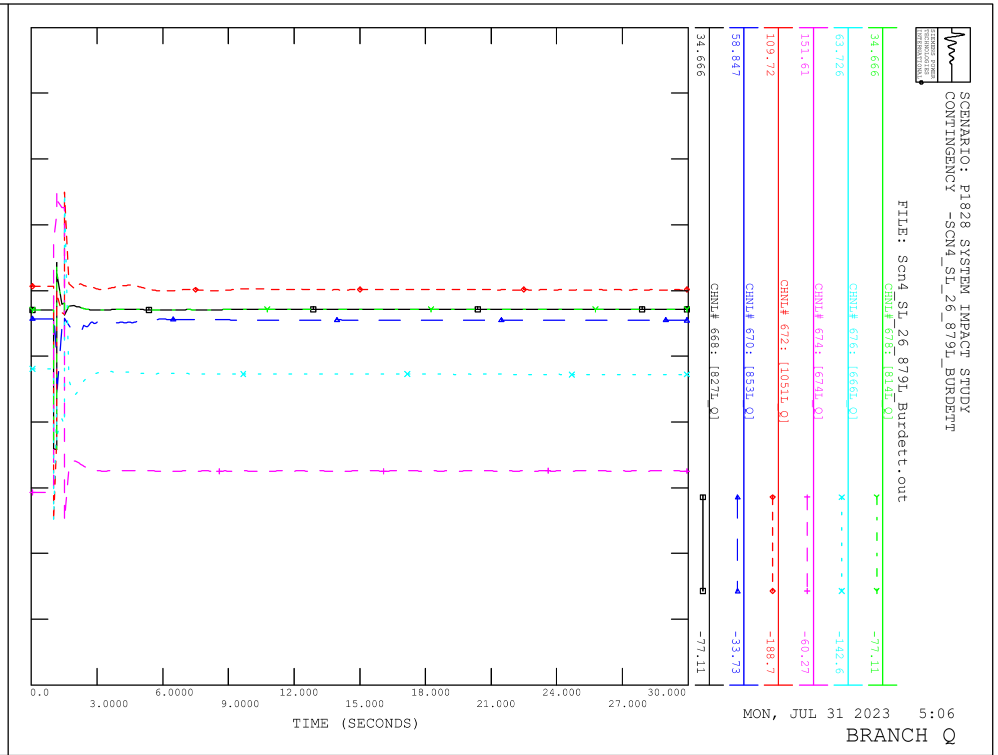
BRANCH P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CHNL# 672: [1051L_Q] 109.72 -188.7
CHNL# 674: [674L_Q] 151.61 -60.27
CHNL# 676: [666L_Q] 63.726 -142.6
CHNL# 678: [814L_Q] 34.666 -77.11
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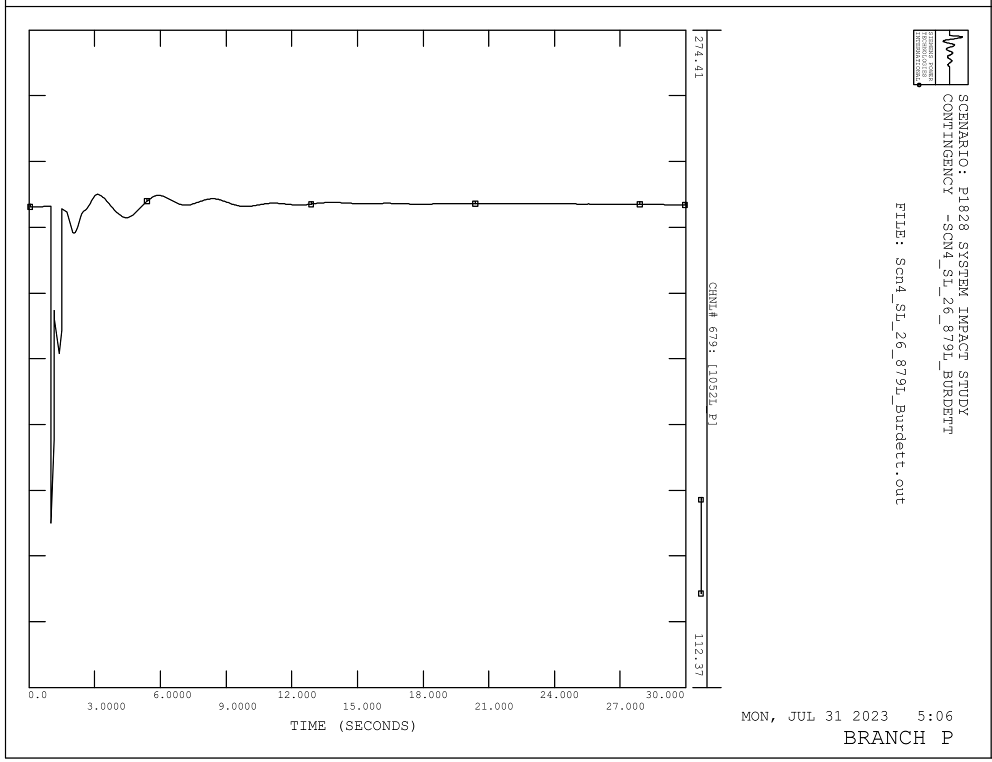
BRANCH Q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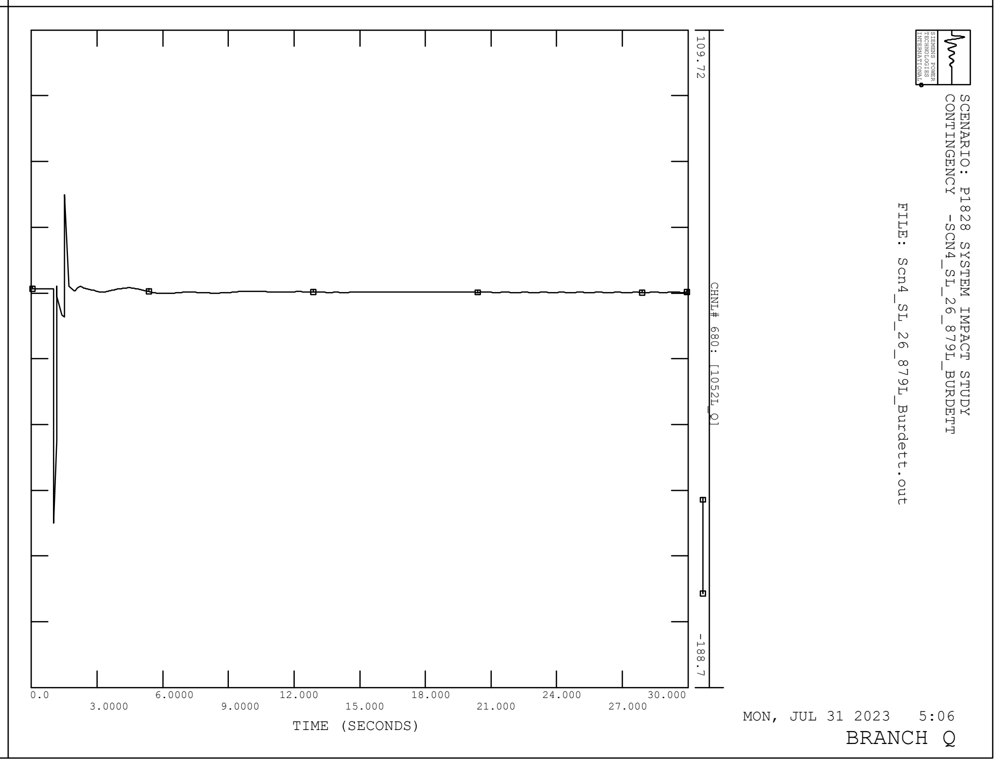
BRANCH P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MON, JUL 31 2023 5:06
BRANCH Q

Attachment F: Constraints Summary Tables (Scenarios 3 to 4, 8 to 9, 12 to 13)

Triggering Events	Type of System Constraint	Details of Constraint						Diff (Post-Pre)%	Assumed System Condition	Mitigation Approach (RAS or Procedure, also include post-RAS system performance, ex. %I of MVA loading of nominal rating)								
		Thermal								Automatic (RAS) OR Real Time Operating Practice	Post RAS Action							Total Generation Curtailment (MW)
		Nominal rating (MVA)	Short-term rating (MVA)	Pre-Project		Post-Project					Action 1 % of MVA Continuous Rating	Action 2 % of MVA Continuous Rating	Action 3 % of MVA Continuous Rating	Action 4 % of MVA Continuous Rating	Action 5 % of MVA Continuous Rating	Action 6 % of MVA Continuous Rating	Action 7 % of MVA Continuous Rating	
				Load Flow (MVA)	%I of MVA continuous ratings	Load Flow (MVA)	%I of MVA continuous ratings											
									Scenario 3									
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	61.8	51.5	124.1	103.4	51.9	2025 SP	RTOP								
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	68.1	56.8	129.2	107.7	51.0	2025 SP	RTOP								
871L (Amoco Empress 163S to Sand Hills 341S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	525.4	96.0	548.6	100.3	4.3	2025 SP	RTOP								
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.7	88.9	85.6	100.6	11.7	2025 SP	RTOP								
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	70.6	83.0	100.4	118.0	35.0	2025 SP	RAS 181; logic: if 610L O/L (flow 336S to 83S), trip RTL1, P1959, P1918	77.0							43.6
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	635.7	103.4	691.0	112.4	9.0	2025 SP	RTOP								
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	635.7	103.4	691.0	112.4	9.0	2025 SP	RTOP								
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	582.0	106.4	606.6	110.9	4.5	2025 SP	RTOP								
935L (Milo 356S to Cassils 324S)	923L (Milo 356s to Newell 2075s)	547.0	656.0	564.0	103.1	610.5	111.6	8.5	2025 SP	RTOP								
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547.0	656.0	572.7	104.7	619.2	113.2	8.5	2025 SP	RTOP								
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	759.7	131.9	793.7	137.8	5.9	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	109.8							441.8
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	757.6	138.5	792.1	144.8	6.3	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	115.3							441.8
831L (Brooks 121S to Duchess 339S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	524.0	95.8	547.0	100.0	4.2	2025 SP	RTOP								
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	61.3	72.1	89.9	105.6	33.6	2025 SP	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	71.6							100.0
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	80.1	94.2	108.4	127.4	33.2	2025 SP		93.6							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	18.6	23.2	96.2	120.2	97.0	2025 SP		15.9							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	1.1	1.4	92.8	119.0	117.6	2025 SP		5.3							100.0
163ST5 (Amoco Empress 163S Transformer T5)	924L (Milo 356s to Langdon 102s)	547.0	656.0	526.1	96.2	549.2	100.4	4.2	2025 SP	RTOP								
163ST5 (Amoco Empress 163S Transformer T5)	760L (Oyen 394S to P2421 Tap)	110.2	131.0	116.0	105.3	116.0	105.3	0.0	2025 SP	RTOP								
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	871.4	159.3	900.4	164.6	5.3	2025 SP	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927	118.5	118.5						0.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	654.2	119.6	667.9	122.1	2.5	2025 SP	RAS164; logic: If pre-contingency combined load on 1034L and 1035L > 600MW, and 1035L O/S, trip WHT 1, 2, P1812, P2413; (this should take the loading below emergency, but probably above rating; at that point, it can be dealt with RTOP)	111.3							277.8
EATL	935L (Milo 356s to Cassils 324s)	547.0	656.0	600.1	109.7	628.0	114.8	5.1	2025 SP	RTOP (pre-curtailment)								
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	740.1	135.3	765.3	139.9	4.6	2025 SP			106%	Curtail 300 MW from Travers					
EATL	927L (Milo 356s to Langdon 102s)	576.0	691.0	742.5	128.9	767.8	133.3	4.4	2025 SP			101%						
EATL	923L (Milo 356s to Newell 2075s)	547.0	656.0	626.9	114.6	654.8	119.7	5.1	2025 SP									
EATL	760L (Oyen 394S to P2421 Tap)	110.2	131.0	111.3	101.0	116.2	105.4	4.4	2025 SP									
									Scenario 4									
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	51.7	66.3	124.6	103.8	37.5	2025 SL	RTOP								
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	67.1	78.9	95.7	112.4	33.6	2025 SL	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	77.1							
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	28.0	35.0	85.8	107.2	72.2	2025 SL		34.2							
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	24.9	31.9	80.7	103.4	71.5	2025 SL		30.3							
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	74.1	87.1	101.8	119.6	32.5	2025 SL	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	85.1							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.2	106.6	133.3	116.2	2025 SL		11.6							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	0.0	0.0	102.3	131.2	131.2	2025 SL		5.4							100.0
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	790.4	144.5	815.0	149.0	4.5	2025 SL	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927	106.6	90.9						252.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	537.0	98.2	550.3	100.6	2.4	2025 SL	RTOP								
									Scenario 8									
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	72.1	60.1	141.8	118.2	58.1	2025 SP	New RAS 1; logic (If 100L flow into 498S O/L, trip P1828)	59.1							100.0
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	78.8	65.7	147.5	122.9	57.2	2025 SP	New RAS 1; logic (If 100L flow into 498S O/L, trip P1828)	64.6							100.0
871L (Amoco Empress 163S to Sand Hills 341S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.4	46.2	121.3	101.1	54.9	2025 SP	RTOP								
931L (Ware Junction 132S to West Brooks 28S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	57.4	47.8	122.9	102.4	54.6	2025 SP	RTOP								
1075L (Ware Junction 132S to West Brooks 28S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	57.4	47.8	122.9	102.4	54.6	2025 SP	RTOP								
1053L (Ware Junction 132S to Cassils 324S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	56.7	47.2	122.3	101.9	54.7	2025 SP	RTOP								
1002L (Jenner 275S to Amoco Empress 163S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	57.2	47.6	123.5	102.9	55.3	2025 SP	RTOP								
945L (Jenner 275S to Cypress 562S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	57.7	48.1	124.1	103.4	55.3	2025 SP	RTOP								
163ST1 (Amoco Empress 163S Transformer T5)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.6	46.4	121.7	101.4	55.1	2025 SP	RTOP								
760L (Amoco Empress 163S to Empress 394S)	668L (Empress 394S to Cypress 562S)	121.0	133.0	166.6	137.7	167.5	138.4	0.7	2025 SP	Planned RAS 607; logic: if 760L O/S and 668L flow out of 394S O/L, trip P2418	15.0							190.0
722L (Burdett 368S to Westfield 107S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	79.8	93.8	90.0	105.7	11.9	2025 SP	RTOP								
722L (Burdett 368S to Westfield 107S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	54.4	45.3	120.8	100.7	55.4	2025 SP	RTOP								
892L (Suffield 895S to Bowmanton 244S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	86.5	101.6	86.3	101.4	-0.2	2025 SP	RTOP								
507L (Taber 83S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.9	92.7	89.8	105.5	12.8	2025 SP	RTOP								
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	83.9	98.5	94.6	111.2	12.7	2025 SP	RAS 181; logic: if 610L O/L (flow 336S to 83S), trip RTL1, P1959, P1918	75.7							43.6
666L (Tilley 498S to West Brooks 28S)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	56.2	66.1	87.2	102.5	36.4	2025 SP	RAS 181; logic: if 610L O/L (flow 336S to 83S), trip RTL1, P1959, P1918	110.5							43.6
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.8	91.5	108.2	127.1	35.6	2025 SP		87.2							43.6

1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	702.7	114.3	756.8	123.1	8.8	2025 SP	New RAS 2; logic: (If 1051L O/S and 1052L O/L) Or (If 1052L O/S and 1051L O/L), trip BSC1, BRK1-2	118.7							39.9
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	702.7	114.3	756.8	123.1	8.8	2025 SP	New RAS 2; logic: (If 1051L O/S and 1052L O/L) Or (If 1052L O/S and 1051L O/L), trip BSC1, BRK1-2	118.7							39.9
1148L (Whitla 251S to Shamrock 1018S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	54.9	45.7	121.8	101.5	55.8	2025 SP	RTOP								
562ST1 (Cypress 562S Transformer T1)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.7	46.4	121.8	101.5	55.1	2025 SP	RTOP								
562ST1 (Cypress 562S Transformer T2)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.7	46.4	121.8	101.5	55.1	2025 SP	RTOP								
935L (Milo 356S to Cassils 324S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.0	91.7	88.2	103.7	12.0	2025 SP	New RAS 3; logic: (If 935LL O/S and 923L O/L) Or (If 923L O/S and 935L O/L), trip Granlea, P2337, P1927, Whitla, P2237 (half)	96.7							434.6
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	626.3	114.5	649.8	118.8	4.3	2025 SP		113.4							434.6
935L (Milo 356S to Cassils 324S)	923L (Milo 356s to Newell 2075s)	547.0	656.0	647.1	118.3	688.1	125.8	7.5	2025 SP		80.7							434.6
1087L (Cassils 324S to Newell 2075S)	1088L (Cassils 324S to Newell A2075S)	931.0	1024.0	923.5	99.2	952.4	102.3	3.1	2025 SP	RTOP								
923L (Milo 356S to Newell 2075S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.4	91.0	87.7	103.1	12.1	2025 SP	New RAS 3; logic: (If 935LL O/S and 923L O/L) Or (If 923L O/S and 935L O/L), trip Granlea, P2337, P1927, Whitla, P2237 (half)	95.8							434.6
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547.0	656.0	656.4	120.0	696.9	127.4	7.4	2025 SP		83.0							434.6
336ST1 (Fincastle 336S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.1	89.5	86.1	101.2	11.7	2025 SP	RTOP								
895ST2 (Suffield 895S Transformer T2)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	54.6	45.5	121.7	101.4	55.9	2025 SP	RTOP								
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	747.1	129.7	777.0	134.9	5.2	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	119.0							260.8
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	745.0	136.2	775.1	141.7	5.5	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	125.0							260.8
853L (Queenstown 504S to West Brooks 28S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.2	46.0	121.4	101.2	55.2	2025 SP	RTOP								
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	65.7	77.3	95.4	112.1	34.9	2025 SP	RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	77.4							100.0
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	87.1	102.4	116.1	136.4	34.0	2025 SP		102.8							100.0
	879L (Burdett 368S to 879AL_Tap)	85.0	94.0	55.7	65.6	86.3	101.5	35.9	2025 SP		65.3							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	17.1	21.4	103.0	128.8	107.4	2025 SP		19.5							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	1.1	1.4	97.7	125.3	123.9	2025 SP		5.2							100.0
	879L (Bowmanton 244S to 879AL Tap)	85.0	94.0	61.1	71.9	91.1	107.2	35.3	2025 SP		71.5							100.0
100L (Suffield 895S to Tilley 498S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	87.4	102.7	87.9	103.3	0.6	2025 SP	RTOP								
760L/7L60 (Amoco Empress 163S to Oyen 767S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	54.3	45.2	120.7	100.6	55.4	2025 SP	RTOP								
163ST5 (Amoco Empress 163S Transformer T5)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.1	91.8	88.4	103.9	12.1	2025 SP	Planned RAS 607; logic: if 760L O/S and 668L flow out of 394S O/L, trip P2418	86.6							190.0
163ST5 (Amoco Empress 163S Transformer T5)	668L (Empress 394S to Cypress 562S)	121.0	133.0	167.8	138.7	168.4	139.2	0.5	2025 SP		15.4							190.0
163ST5 (Amoco Empress 163S Transformer T5)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	61.8	51.5	126.8	105.7	54.2	2025 SP		93.8							190.0
944L (Jenner 275S to Ware Junction 132S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	56.7	47.3	124.0	103.3	56.1	2025 SP	RTOP								
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	923.3	168.8	951.8	174.0	5.2	2025 SP	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927 Action 3: RAS175, Trip TVS1, Reduce EATL to 500 MW	127.1	127.1	119.6					0.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newell 2075S)	547.0	656.0	684.8	125.2	701.3	128.2	3.0	2025 SP	RAS164; logic: If pre-contingency combined load on 1034L and 1035L > 600MW, and 1035L O/S, trip WHT 1, 2, P1812, P2413; (this should take the loading below emergency, but probably above rating; at that point, it can be dealt with RTOP)	116.9							277.8
964L (Bowmanton 244S to Whitla 251S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	55.5	46.3	122.9	102.4	56.1	2025 SP	RTOP								
676L (Bowmanton 244S to Bullshead 523S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	54.7	45.6	121.6	101.3	55.7	2025 SP	RTOP								
763L (West Brooks 28S to Vauxhall 158S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.3	88.5	85.6	100.6	12.1	2025 SP	RTOP								
368ST1 (Burdett 368S Transformer T1)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	68.4	57.0	138.6	115.5	58.5	2025 SP	New RAS 1; logic (If 100L flow into 498S O/L, trip P1828)	56.0							100.0
257ST1 (Hull 257S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.9	92.7	89.8	105.5	12.8	2025 SP	RTOP								
158ST2 (Vauxhall 158S Transformer T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	81.5	95.7	92.2	108.4	12.7	2025 SP	RTOP								
879L	100L (Tilley 498S to 100AL Tap)	120.0	132.0	69.9	58.3	138.8	115.7	57.4	2025 SP	New RAS 1; logic (If 100L flow into 498S O/L, trip P1828)	57.2							100.0
172L (Taber 83S to Coaldale 254S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	57.5	47.9	124.4	103.7	55.8	2025 SP	RTOP								
EATL	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.8	91.4	87.8	103.2	11.8	2025 SP	RTOP (pre-curtailment)								
EATL	935L (Milo 356s to Cassils 324s)	547.0	656.0	650.9	119.0	676.6	123.7	4.7	2025 SP			88%	curtail area 4 wind by 600 MW					
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	731.3	133.7	754.3	137.9	4.2	2025 SP			109%						
EATL	927L (Milo 356s to Langdon 102s)	576.0	691.0	734.4	127.5	757.4	131.5	4.0	2025 SP			104%						
EATL	923L (Milo 356s to Newell 2075s)	547.0	656.0	678.3	124.0	704.5	128.8	4.8	2025 SP			90%						
EATL	760L (Oyen 394S to P2421 Tap)	110.2	131.0	112.5	102.1	119.8	108.7	6.6	2025 SP									
									Scenario 9									
612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	51.4	65.9	124.7	103.9	38.0	2025 SL	RTOP								
610L (Taber 83S to Fincastle 336S)	666L (Tilley 498S to West Brooks 28S)	120.0	108.0	49.7	41.4	120.2	100.2	58.8	2025 SL	New RAS 1; logic (If 100L flow into 498S O/L, trip P1828)	39.7							100.0
	100L (Tilley 498S to 100AL Tap)	120.0	132.0	63.9	81.9	137.2	114.3	32.4	2025 SL		51.6							100.0
1002L (Jenner 275S to Amoco Empress 163S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.3	88.5	85.5	100.5	12.0	2025 SL	RTOP								
945L (Jenner 275S to Cypress 562S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.7	88.9	85.9	100.9	12.0	2025 SL	RTOP								
945L (Jenner 275S to Cypress 562S)	760L (Oyen 394S to P2421 Tap)	110.2	131.0	104.7	95.0	110.5	100.3	5.3	2025 SL	RTOP								
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.9	90.4	106.3	124.9	34.5	2025 SL	RAS 181; logic: if 610L O/L (flow 336S to 83S), trip RTL1, P1959, P1918	96.3							32.1
666L (Tilley 498S to West Brooks 28S)	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	28.0	35.0	85.4	106.8	71.9	2025 SL		106.6							32.1
666L (Tilley 498S to West Brooks 28S)	100L (Suffield 895S to 100AL Tap)	78.0	86.0	24.9	31.9	80.5	103.2	71.3	2025 SL		103.1							32.1
935L (Milo 356S to Cassils 324S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	76.1	89.5	86.5	101.6	12.1	2025 SL	RTOP								
923L (Milo 356S to Newell 2075S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.4	88.6	85.7	100.7	12.1	2025 SL	RTOP								
336ST1 (Fincastle 336S Transformer T1)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.7	89.0	85.7	100.7	11.7	2025 SL	RTOP								
Burdett 368S Transformer T2	610L (Fincastle 336S to Taber 83S)	85.1	94.0	75.8	89.1	85.8	100.8	11.7	2025 SL	RTOP								
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	84.1	98.8	112.4	132.1	33.3	2025 SL	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	98.3							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.2	106.4	133.0	115.8	2025 SL		11.7							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	0.0	0.0	102.3	131.1	131.1	2025 SL		5.4							100.0
	760L (Oyen 394S to P2421 Tap)	110.2	131.0	100.8	91.5	111.4	101.1	9.6	2025 SL		91.8							100.0
163ST5 (Amoco Empress 163S Transformer T5)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.4	92.1	89.0	104.6	12.5	2025 SL	RTOP								

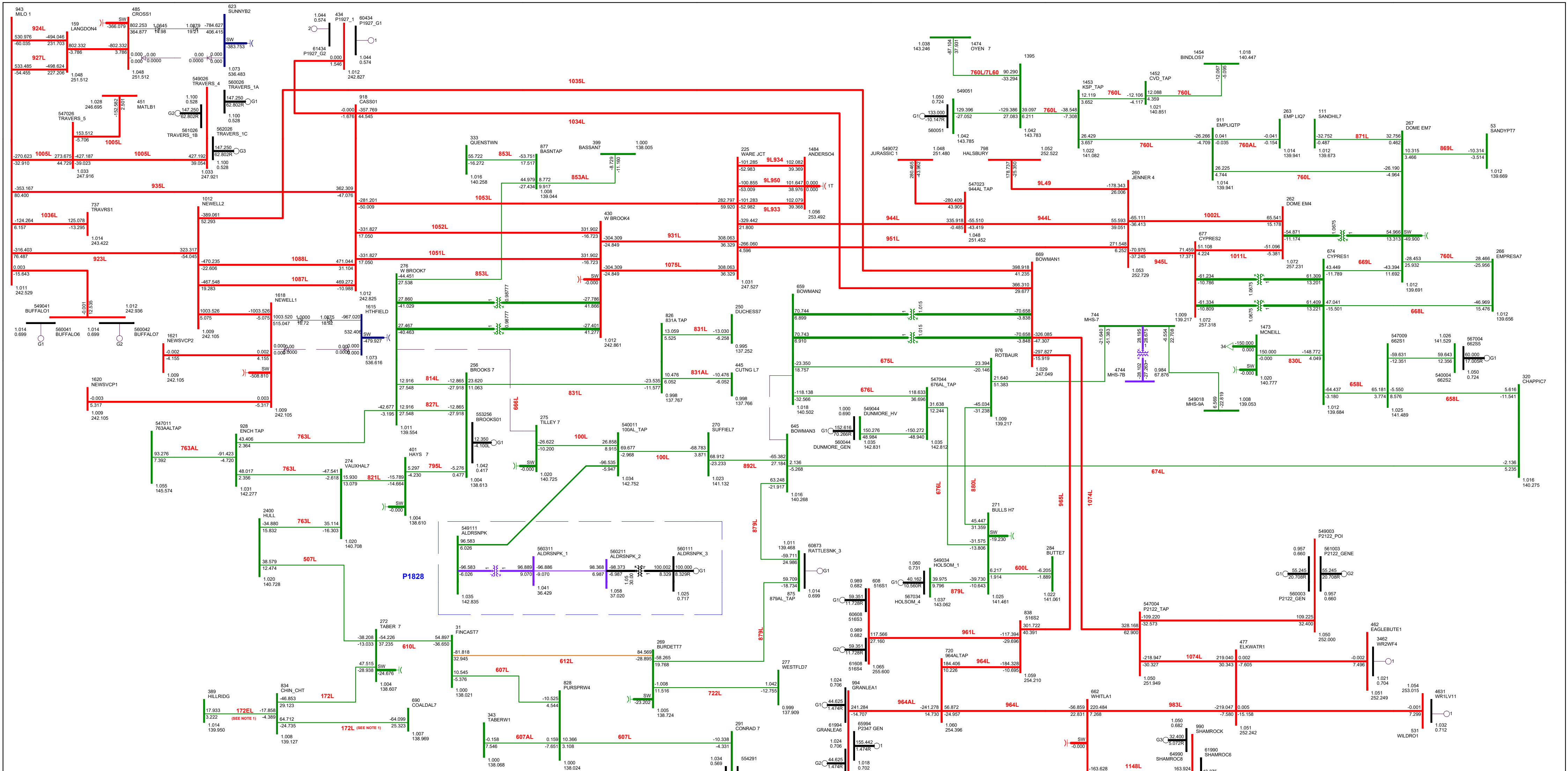
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	822.1	150.3	844.6	154.4	4.1	2025 SL	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927	112.9	97.2						252.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	554.1	101.3	566.7	103.6	2.3	2025 SL	RTOP								
EATL	610L (Fincastle 336S to Taber 83S)	85.1	94.0	80.5	94.6	90.3	106.1	11.5	2025 SL	RTOP								
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	550.8	100.7	568.9	104.0	3.3	2025 SL	RTOP								
EATL	760L (Oyen 394S to P2421 Tap)	110.2	131.0	121.8	110.5	127.3	115.5	5.0	2025 SL	RTOP								
									Scenario 12									
763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.6	91.2	86.8	102.0	10.8	2025 SP	RTOP								
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	77.0	90.5	104.2	122.4	31.9	2025 SP	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	90.0							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	22.7	28.4	89.1	111.4	83.0	2025 SP		21.9							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	13.7	17.6	85.7	109.9	92.3	2025 SP		14.4							100.0
1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	614.8	738.0	634.5	103.2	684.3	111.3	8.1	2025 SP	RTOP								
1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	614.8	738.0	634.5	103.2	684.3	111.3	8.1	2025 SP	RTOP								
935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	580.4	106.1	600.6	109.8	3.7	2025 SP	RTOP								
935L (Milo 356S to Cassils 324S)	923L (Milo 356s to Newell 2075s)	547.0	656.0	554.7	101.4	592.4	108.3	6.9	2025 SP	RTOP								
923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	547.0	656.0	563.4	103.0	601.7	110.0	7.0	2025 SP	RTOP								
924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	576.0	691.0	751.1	130.4	779.9	135.4	5.0	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	107.6							441.8
927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	547.0	656.0	748.8	136.9	777.8	142.2	5.3	2025 SP	RAS 175; logic: (If 924L O/S, and 927L O/L) OR (If 927L O/S, and 924L O/L) , trip TVS1, P1927, P2247	113.1							441.8
498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Suffield 895S)	85.1	94.0	57.7	67.8	85.7	100.7	32.9	2025 SP	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	66.8							100.0
	610L (Fincastle 336S to Taber 83S)	85.1	94.0	78.8	92.6	106.3	124.9	32.3	2025 SP		92.1							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	17.0	21.2	95.9	119.9	98.7	2025 SP		14.2							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	1.1	1.4	92.9	119.1	117.7	2025 SP		5.1							100.0
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	873.0	159.6	896.5	163.9	4.3	2025 SP	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927	117.5	117.5						0.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	657.5	120.2	670.6	122.6	2.4	2025 SP	RAS164; logic: If pre-contingency combined load on 1034L and 1035L > 600MW, and 1035L O/S, trip WHT 1, 2, P1812, P2413; (this should take the loading below emergency, but probably above rating; at that point, it can be dealt with RTOP)	111.6							270.8
EATL	935L (Milo 356s to Cassils 324s)	547.0	656.0	593.5	108.5	617.6	112.9	4.4	2025 SP	RTOP (pre-curtailment)								
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	735.7	134.5	759.2	138.8	4.3	2025 SP									
EATL	927L (Milo 356s to Langdon 102s)	576.0	691.0	738.4	128.2	762.0	132.3	4.1	2025 SP		RTOP (pre-curtailment)							
EATL	923L (Milo 356s to Newell 2075s)	547.0	656.0	620.8	113.5	644.4	117.8	4.3	2025 SP									
									Scenario 13									
610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	120.0	132.0	49.0	62.8	121.9	101.6	38.8	2025 SL	RTOP								
666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	68.2	80.1	98.0	115.1	35.0	2025 SL	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	80.7							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	20.5	25.6	99.0	123.8	98.2	2025 SL		22.4							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	11.8	15.1	94.5	121.2	106.1	2025 SL		11.9							100.0
498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	85.1	94.0	70.7	83.1	100.2	117.8	34.7	2025 SL	New RAS209; logic: (If 100L flowing into 895S O/L) OR (If 892L flowing out of 895S O/L), trip P1828	83.5							100.0
	892L (Suffield 895S to Bowmanton 244S)	80.0	88.0	13.7	17.1	106.7	133.4	116.3	2025 SL		11.6							100.0
	100L (Suffield 895S to 100AL Tap)	78.0	86.0	0.0	0.0	102.3	131.2	131.2	2025 SL		5.4							100.0
1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	794.8	145.3	817.8	149.5	4.2	2025 SL	Pre-curtailment, RAS197; logic: (If 1088L O/S, and 1087L O/L out of 324S), trip P1927 and HVDC redispatch Action 1: Reduce EATL to 600 MW Action 2: Trip P1927	107.3	91.4						252.0
1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	547.0	656.0	539.4	98.6	551.9	100.9	2.3	2025 SL	RTOP								
EATL	924L (Milo 356s to Langdon 102s)	547.0	656.0	530.1	96.9	547.5	100.1	3.2	2025 SL	RTOP								

Attachment G: Constraint Effective Factors Tables

	ctg	brn	%loading	Suncor Fo	P2247 Bul	P2337 Du	P1927 Sol	P1567 EDI	P2421 REF	Capital Po	P2263 BEI
SCN3_2025SP_HS_POST_P1828	612L (Burdett 368S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	103.4	-0.0109	-0.0044	-0.0112	-0.0054	0.0093	0.0379	-0.0109	0.0034
	610L (Taber 83S to Fincastle 336S)	100L (Tilley 498S to 100AL Tap)	107.7	-0.0114	-0.0043	-0.0117	-0.0054	0.0089	0.0373	-0.0113	0.0030
	871L (Amoco Empress 163S to Sand Hills 341S)	924L (Milo 356s to Langdon 102s)	100.3	0.1709	0.2569	0.1727	0.2003	0.1181	0.1261	0.1710	0.1382
	763L (Vauxhall 158S to Hull 257S)	610L (Fincastle 336S to Taber 83S)	100.6	0.0161	0.0002	0.0164	0.0176	0.0196	0.0372	0.0161	0.0193
	666L (Tilley 498S to West Brooks 28S)	610L (Fincastle 336S to Taber 83S)	118	0.0031	-0.0029	0.0031	0.0048	0.0160	0.0431	0.0031	0.0124
	1051L (West Brooks 28S to Cassils 324S)	1052L (West Brooks 28S to Cassils 324S)	112.4	-0.2813	-0.1802	-0.2854	-0.2963	0.2312	0.2535	-0.2813	0.2695
	1052L (West Brooks 28S to Cassils 324S)	1051L (West Brooks 28S to Cassils 324S)	112.4	-0.2813	-0.1802	-0.2854	-0.2963	0.2312	0.2535	-0.2813	0.2695
	935L (Milo 356S to Cassils 324S)	1087L (Cassils 324S to Newwell 2075S)	110.9	0.0029	-0.1103	0.0027	0.2572	0.1538	0.1621	0.0030	0.1795
	935L (Milo 356S to Cassils 324S)	923L (Milo 356s to Newell 2075s)	111.6	0.4383	-0.2336	0.4439	0.4717	0.2922	0.3141	0.4382	0.3434
	923L (Milo 356S to Newell 2075S)	935L (Milo 356s to Cassils 324s)	113.2	0.4395	-0.2260	0.4445	0.5055	0.3051	0.3233	0.4396	0.3568
	924L (Langdon 102S to Milo 356S)	927L (Milo 356s to Langdon 102s)	137.8	0.2403	0.3807	0.2425	0.2925	0.1745	0.1831	0.2404	0.2013
	927L (Langdon 102S to Milo 356S)	924L (Milo 356s to Langdon 102s)	144.8	0.2402	0.3801	0.2424	0.2922	0.1744	0.1830	0.2403	0.2012
	831L (Brooks 121S to Duchess 339S)	924L (Milo 356s to Langdon 102s)	100	0.1714	0.2571	0.1732	0.2005	0.1185	0.1269	0.1714	0.1387
	498ST1T2 (Tilley 498S Transformer T1/T2)	612L (Fincastle 336S to Burdett 368S)	105.6	0.0053	-0.0025	0.0053	0.0057	0.0173	0.0450	0.0053	0.0139
	498ST1T2 (Tilley 498S Transformer T1/T2)	610L (Fincastle 336S to Taber 83S)	127.4	0.0025	-0.0030	0.0025	0.0044	0.0155	0.0424	0.0025	0.0119
	498ST1T2 (Tilley 498S Transformer T1/T2)	892L (Suffield 895S to Bowmanton 244S)	120.2	-0.0014	0.0000	-0.0015	-0.0004	-0.0017	-0.0050	-0.0014	-0.0014
	498ST1T2 (Tilley 498S Transformer T1/T2)	100L (Suffield 895S to 100AL Tap)	119	-0.0004	0.0000	-0.0004	-0.0001	-0.0005	-0.0014	-0.0004	-0.0004
	163ST5 (Amoco Empress 163S Transformer T5)	924L (Milo 356s to Langdon 102s)	100.4	0.1716	0.2576	0.1734	0.2011	0.1150	0.1085	0.1716	0.1376
	163ST5 (Amoco Empress 163S Transformer T5)	760L (Oyen 394S to P2421 Tap)	105.3	-0.0016	-0.0006	-0.0016	-0.0009	-0.0041	0.9600	-0.0016	-0.0027
	1088L (Cassils 324S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	164.6	-0.1593	-0.1202	-0.1613	0.2861	0.1690	0.1786	-0.1592	0.1981
	1035L (Bowmanton 244S to Newell 2075S)	1087L (Cassils 324S to Newwell 2075S)	122.1	0.1032	-0.0651	0.1042	0.1460	0.0857	0.0909	0.1030	0.1005
	EATL	935L (Milo 356s to Cassils 324s)	114.8	0.2284	-0.1366	0.2304	0.2924	0.1877	0.1906	0.2283	0.2111

Case	ctg	brn	%loading	Suncor For	P2247 Buf	P2337 Dun	P1927 Sola	P1567 EDP	P2421 RES	Capital Po	P2263 BER	P1704 Pair	P1898 Patt	P2237 RES	RESC Rattl	P1909 Trai	P2122 EDF	P1533 Joss	P2254 RES	P2137 Ene	CMH1	P2348 Blu	Halkirk (H	Enmax Tab	P1878 Fort	Hays (HYS	P2365 Fort	P1918 Fort	Jenner (JE	Suffield So	P1922 Fort	P2249 Fort	Burdett So	Westfield	P2250 Fort	P2424 ATC	Brooks Sol	P2059 ATC	Brooks Sol	Brooks Sol	Ghost Pine	Burdett So	P2061 ATC	P2216 Fort	P1892 Fort	P1853 Fort	P2195 Fort	P2199 Buf	Lethbridge	Lethbridge	P2412 Fort	P2361 ATC	P2446 Fort	P2418 Gre	P2411 Gre	P1828 HEP Energy Alderson MPC Solar
SCN1_2025SP_HS_PRE_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	107.8	0.0083	-0.0019	0.0083	0.0093	0.0173	0.0382	0.0082	0.0148	0.0113	0.025	0.0083	0.5264	0.0135	0.0084	0.033	0.1069	0.0084	0.0087	-0.0382	0.0113	-0.1899	-0.0786	-0.0377	-0.0376	-0.192	0.0319	0.1245	-0.0557	0.0639	0.6804	0.6652	0.0652	0.0253	0.0027	0.0111	0.0023	0.0024	0.0107	0.6832	0.0135	0.2121	0.0328	0.0328	0.0021	0.0336	-0.0971	0.6573	0.0317	0.0205	0	0	0.0292	0
	Base Case	610L (Fincastle 336S to Taber 83S)	186.1	-0.0043	-0.0063	-0.0035	0.0021	0.0115	0.0302	-0.0046	0.0083	0.0068	0.018	-0.0043	0.5043	0.0079	-0.0041	0.0244	0.0959	-0.0033	-0.003	-0.0485	0.0068	0.7974	-0.072	-0.0422	-0.0469	0.7784	0.0237	0.1152	-0.0558	0.0537	0.6625	0.6498	0.0555	0.0184	-0.0053	0.0062	-0.0061	-0.0056	0.006	0.668	0.0075	0.1966	0.0243	0.0243	-0.0063	0.025	-0.0665	0.6558	0.0233	0.0144	0	0	0.0204	0
	Base Case	172L (Taber 83S to 172EL Tap)	118	0.0527	0.0072	0.0528	0.055	0.0434	0.0576	0.0526	0.047	0.0329	0.0515	0.053	0.3157	0.0419	0.0537	0.0621	0.1015	0.053	0.0544	0.2164	0.0331	0.4713	0.3845	0.232	0.2163	0.4583	0.06	0.1343	0.2979	0.0768	0.4004	0.3932	0.0782	0.0495	0.0985	0.0342	0.0898	0.0902	0.0327	0.4044	0.0423	0.1562	0.0617	0.0617	0.0622	0.0633	0.4941	0.4005	0.0596	0.0451	0	0	0.0606	0
	Base Case	924L (Milo 356s to Langdon 102s)	139	0.1012	0.2346	0.1093	0.1666	0.1085	0.1112	0.0972	0.1232	0.0867	0.1197	0.1014	0.1142	0.1121	0.1054	0.133	0.1281	0.1123	0.1195	0.1373	0.087	0.1193	0.1457	0.1529	0.1388	0.1133	0.1292	0.1522	0.1499	0.1249	0.1183	0.1171	0.1295	0.1108	0.1659	0.0892	0.1481	0.1499	0.0852	0.1207	0.1095	0.115	0.1325	0.1325	0.1305	0.1363	0.1429	0.1249	0.1261	0.1078	0	0	0.1325	0
	Base Case	927L (Milo 356s to Langdon 102s)	132.5	0.1016	0.2356	0.1097	0.1673	0.1089	0.1117	0.0976	0.1237	0.087	0.1202	0.1018	0.1146	0.1126	0.1059	0.1336	0.1286	0.1128	0.12	0.1378	0.0873	0.1198	0.1463	0.1535	0.1394	0.1138	0.1298	0.1528	0.1505	0.1255	0.1188	0.1175	0.13	0.1112	0.1666	0.0896	0.1487	0.1505	0.0855	0.1212	0.1099	0.1155	0.133	0.133	0.131	0.1369	0.1435	0.1254	0.1266	0.1083	0	0	0.1331	0
	Base Case	760L (Oyen 394S to P2421 Tap)	105.8	0.0248	0.0205	0.0249	0.0255	-0.0841	0.5375	0.0247	-0.0102	-0.0244	-0.2009	0.0249	0.0663	-0.0136	0.0253	0.0744	0.1476	0.025	0.0256	0.0292	-0.0246	0.0395	0.0332	0.0308	0.0292	0.0383	0.0718	0.0697	0.0318	0.1682	0.0529	0.052	0.1708	-0.2247	0.029	-0.015	0.0266	0.0267	-0.0154	0.0535	-0.0133	0.0959	0.0739	0.0738	0.0238	0.0757	0.0348	0.053	0.0716	-0.1332	0	0	0.0636	
SCN3_2025SP_HS_POST_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	120.1	0.0084	-0.0021	0.0085	0.0089	0.0174	0.0386	0.0084	0.0148	0.0113	0.0252	0.0085	0.5247	0.0135	0.0086	0.0331	0.1067	0.0085	0.0087	-0.0381	0.0113	-0.1898	-0.0771	-0.0373	-0.0375	-0.1925	0.0319	0.1206	-0.0549	0.0642	0.68	0.6648	0.0654	0.0255	0.0021	0.0112	0.0018	0.0019	0.0107	0.6827	0.0135	0.2093	0.0328	0.0328	0.0018	0.0336	-0.0939	0.6567	0.0318	0.0206	0	0	0.0293	0.0872
	Base Case	610L (Fincastle 336S to Taber 83S)	199	-0.0058	-0.0073	-0.0051	0.0006	0.0106	0.0294	-0.0061	0.0073	0.006	0.0171	-0.0059	0.4989	0.007	-0.0057	0.0232	0.0938	-0.0048	-0.0046	-0.0496	0.0061	0.7953	-0.0711	-0.0425	-0.048	0.7763	0.0225	0.1083	-0.0559	0.0525	0.6589	0.6463	0.0541	0.0176	-0.0072	0.0055	-0.0078	-0.0073	0.0052	0.6645	0.0065	0.191	0.023	0.023	-0.0078	0.0237	-0.063	0.653	0.0221	0.0136	0	0	0.0192	0.0751
	Base Case	172L (Taber 83S to 172EL Tap)	127.9	0.0544	0.0079	0.0544	0.0564	0.0446	0.0586	0.0543	0.0483	0.034	0.0528	0.0547	0.3094	0.0432	0.0554	0.0631	0.1007	0.0547	0.0561	0.2164	0.0342	0.4686	0.3871	0.2331	0.2165	0.4542	0.061	0.1268	0.2992	0.0772	0.3959	0.3892	0.0786	0.0507	0.0995	0.0354	0.0908	0.0911	0.0339	0.4005	0.0435	0.1509	0.0627	0.0626	0.0631	0.0642	0.503	0.3994	0.0606	0.0462	0	0	0.0617	0.1079
	Base Case	100L (Tilley 498S to Suffield 895S)	155.8	-0.0275	-0.0096	-0.0262	-0.0173	0.0028	0.0294	-0.028	-0.0039	-0.0009	0.0109	-0.0276	0.1481	-0.0026	-0.0276	0.0165	0.1143	-0.0259	-0.0259	-0.0215	-0.001	0.0459	0.0055	-0.0182	-0.021	0.045	0.0159	0.5376	-0.0079	0.0606	0.0956	0.0934	0.061	0.0124	-0.0386	-0.0023	-0.0374	-0.0367	-0.0021	0.0959	-0.0034	0.255	0.0164	0.0164	-0.0347	0.0168	0.0236	0.0916	0.0158	0.0071	0	0	0.0107	0.5968
	Base Case	924L (Milo 356s to Langdon 102s)	143.1	0.091	0.2309	0.0995	0.1602	0.1049	0.1061	0.0871	0.1186	0.0841	0.1153	0.0911	0.1046	0.1085	0.0952	0.1263	0.1192	0.1027	0.1098	0.1312	0.0844	0.1128	0.1402	0.1474	0.1328	0.1069	0.1229	0.1306	0.1442	0.1175	0.1102	0.1091	0.1222	0.1066	0.1592	0.0865	0.1419	0.1437	0.0827	0.1126	0.1055	0.1021	0.1258	0.1259	0.1248	0.1295	0.1379	0.1172	0.1197	0.1041	0	0	0.1257	0.1204
	Base Case	927L (Milo 356s to Langdon 102s)	136.4	0.0914	0.2318	0.1	0.1608	0.1053	0.1066	0.0875	0.1191	0.0844	0.1158	0.0916	0.105	0.1089	0.0956	0.1269	0.1197	0.1032	0.1103	0.1318	0.0847	0.1133	0.1408	0.148	0.1334	0.1073	0.1234	0.1311	0.1448	0.1179	0.1107	0.1096	0.1227	0.107	0.1599	0.0869	0.1425	0.1443	0.083	0.113	0.1059	0.1026	0.1264	0.1264	0.1253	0.13	0.1384	0.1176	0.1202	0.1045	0	0	0.1262	0.1209
	Base Case	760L (Oyen 394S to P2421 Tap)	111.8	0.0255	0.0207	0.0255	0.0257	-0.0837	0.5385	0.0255	-0.0101	-0.0243	-0.2002	0.0256	0.0658	-0.0135	0.026	0.0748	0.1471	0.0256	0.0263	0.0295	-0.0245	0.0397	0.0333	0.0309	0.0295	0.0384	0.0722	0.0667	0.0319	0.1681	0.0528	0.0518	0.1711	-0.2243	0.0291	-0.015	0.0268	0.0268	-0.0154	0.0533	-0.0132	0.0938	0.0742	0.0742	0.0241	0.076	0.0348	0.0528	0.072	-0.1324	0	0	0.064	0.0533
SCN4_2025SL_HS_POST_P1828	Base Case	610L (Fincastle 336S to Taber 83S)	106.8	0.0068	-0.0014	0.0066	0.008	0.015	0.0362	0.0068	0.0128	0.0091	0.0225	0.0068	0.5503	0.0113	0.0068	0.0307	0.1076	0.0068	0.0069	-0.0381	0.0091	0.827	-0.0687	-0.0344	-0.0391	0.8103	0.0296	0.1236	-0.0504	0.0622	0.6917	0.6811	0.0633	0.0227	0.0003	0.0087	-0.0004	0	0.0083	0.6941	0.0116	0.2184	0.0308	0.0308	-0.0038	0.031	-0.072	0.6753	0.0302	0.0183	0	0	0.0262	0.0876
	Base Case	100L (Tilley 498S to Suffield 895S)	129.9	-0.0093	-0.0044	-0.0093	-0.0089	0.0068	0.0329	-0.0093	0.0016	0.0023	0.0149	-0.0093	0.1511	0.0019	-0.0093	0.0215	0.1169	-0.0094	-0.0094	-0.0125	0.0023	0.0505	0.0114	-0.011	-0.0126	0.0491	0.0207	0.5474	-0.0014	0.0632	0.0971	0.0956	0.0636	0.0161	-0.0313	0.0016	-0.0299	-0.0297	0.0015	0.0974	0.0017	0.2604	0.0215	0.0216	-0.0306	0.0217	0.0291	0.0948	0.0213	0.0109	0	0	0.0161	0.608
SCN6_2025SP_HS_POST_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	120.7	0.0096	-0.0014	0.0097	0.0099	0.0179	0.0384	0.0095	0.0154	0.0117	0.0256	0.0096	0.5249	0.014	0.0098	0.033	0.1048	0.0097	0.01	-0.0359	0.0118	-0.1833	-0.0763	-0.0358	-0.0353	-0.1849	0.0318	0.1248	-0.0536	0.0615	0.6847	0.6702	0.0628	0.0259	0.0037	0.0117	0.0033	0.0033	0.0113	0.6885	0.0141	0.2096	0.0327	0.0327	0.0031	0.0335	-0.0953	0.6671	0.0318	0.0209	0	0.0605	0.0295	0
	Base Case	610L (Fincastle 336S to Taber 83S)	199.1	-0.0014	-0.0063	-0.0014	0.0022	0.0115	0.0299	-0.0014	0.0084	0.0068	0.0181	-0.0014	0.5029	0.0079	-0.0016	0.0239	0.0932	-0.0013	-0.0012	-0.0468	0.0068	0.8024	-0.0712	-0.0413	-0.0452	0.7817	0.0231	0.1146	-0.0549	0.0509	0.6668	0.6543	0.0526	0.0185	-0.0049	0.0064	-0.0056	-0.0052	0.0061	0.6727	0.0076	0.1939	0.0237	0.0237	-0.0057	0.0243	-0.067	0.6628	0.0229	0.0144	0	0.0501	0.0202	0
	Base Case	760L (EMPRESS 394S ?? AMOCO EMPRE	120.5	0.0073	0.0081	0.0074	0.0085	-0.0319	-0.1526	0.0073	-0.0061	-0.011	-0.0703	0.0073	0.0652	-0.0074	0.0074	0.0149	0.1634	0.0075	0.0077	0.0164	-0.011	0.0125	0.0223	0.0176	0.0164	0.0315	0.0145	0.066	0.0197	0.5897	0.0488	0.0479	0.594	-0.0769	0.0138	-0.0073	0.0125	0.0125	-0.0074	0.0452	-0.0067	0.1009	0.0149	0.0149	0.011	0.0153	0.0257	0.0484	0.0141	-0.0505	0	0.58	0.0126	0
	Base Case	172L (Taber 83S to 172EL Tap)	130.6	0.0529	0.0083	0.0537	0.0567	0.0451	0.0582	0.0527	0.0486	0.0344	0.0533	0.0531	0.3115	0.0435	0.0542	0.0622	0.0989	0.054	0.0555	0.2169	0.0346	0.4711	0.3899	0.2342	0.217	0.4566	0.0601	0.1342	0.3013	0.0741	0.3997	0.3928	0.0757	0.051	0.0998	0.036	0.0908	0.0912	0.0345	0.4041	0.0439	0.1529	0.0618	0.0619	0.0631	0.0634	0.5061	0.4025	0.0599	0.0466	0	0.0729	0.0611	0
	Base Case	924L (Milo 356s to Langdon 102s)	146.7	0.1052	0.229	0.1063	0.1571	0.1031	0.1021	0.1046	0.1161	0.0828	0.1133	0.1054	0.1042	0.1064	0.1057	0.1202	0.1126	0.1088	0.1149	0.1292	0.0831	0.1123	0.1385	0.1447	0.1309	0.1065	0.1168	0.1409	0.1423	0.108	0.1103	0.1091	0.1124	0.1041	0.157	0.0854	0.1395	0.1415	0.0816	0.1125	0.1034	0.1029	0.1197	0.1198	0.1227	0.1232	0.1366	0.1166	0.1139	0.102	0	0.1062	0.12	0
	Base Case	927L (Milo 356s to Langdon 102s)	139.8	0.1056	0.2299	0.1068	0.1577	0.1035	0.1025	0.1051	0.1166	0.0831	0.1138	0.1059	0.1046	0.1069	0.1061	0.1207	0.113	0.1093	0.1154	0.1297	0.0835	0.1128	0.1391	0.1453	0.1315	0.1069	0.1173	0.1415	0.1428	0.1084	0.1107	0.1095	0.1128	0.1046	0.1576	0.0857	0.1401	0.1421	0.082	0.1129	0.1039	0.1034	0.1202	0.1203	0.1232	0.1238	0.1372	0.1171	0.1144	0.1024	0	0.1067	0.1205	0
	Base Case	760L (Oyen 394S ?? P2421 Tap)	136.9	0.0246	0.0202	0.0249	0.025	-0.0826	0.5397	0.0245	-0.0105	-0.0243	-0.1986	0.0246	0.066	-0.0138	0.0252	0.0733	0.1443	0.025	0.0257	0.0291	-0.0245	0.0398	0.0329	0.0304	0.0291	0.0386	0.0707	0.0681	0.0315	0.1628	0.053	0.052	0.1659	-0.2225	0.0285	-0.0153	0.0263	0.0263	-0.0157	0.0534	-0.0136	0.0951	0.0728	0.0728	0.0236	0.0745	0.0343	0.0525	0.0708	-0.1296	0	0.1601	0.063	0
SCN7_2025SL_HS_PRE_P1828	Base Case	610L (Fincastle 336S to Taber 83S)	102.6	0.0073	-0.0012	0.0072	0.0085	0.0153	0.0364	0.0073	0.0132	0.0093	0.0229	0.0073	0.5562	0.0116	0.0074	0.0308	0.1089	0.0073	0.0075	-0.0377	0.0093	0.8308	-0.0715	-0.0349	-0.0384	0.8116	0.0297	0.1317	-0.0518	0.0613	0.6949	0.684	0.0625	0.023	0.0014	0.009	0.0007	0.0009	0.0085	0.6979	0.0118	0.2236	0.0309	0.0309	-0.0024	0.0311	-0.0803	0.6825	0.0304	0.0186	0	0.0604	0.0265	0
SCN8_2025SP_HS_PRE_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	132.4	0.0091	-0.002	0.0092	0.0094	0.018	0.039	0.0091	0.0154	0.0117	0.0259	0.0091	0.524	0.0139	0.0094	0.0332	0.1051	0.0093	0.0095	-0.0369	0.0118	-0.1831	-0.0753	-0.0363	-0.0363	-0.1859	0.0321	0.1224	-0.0536	0.0622	0.6758	0.6711	0.0635	0.0262	0.0027	0.0118	0.0023	0.0024	0.0114	0.6852	0.0141	0.2067	0.033	0.033	0.0023	0.0338	-0.0917	0.6729	0.0321	0.0211	0	0.0612	0.0297	0.0882
	Base Case	610L (Fincastle 336S to Taber 83S)	212.2	-0.0067	-0.0096	-0.0068	-0.002	0.0088	0.0273	-0.0066	0.0052	0.0046	0.0152	-0.0067	0.4984	0.0051	-0.007	0.0204	0.0897	-0.0067	-0.0065	-0.0521	0.0046	0.796	-0.0724	-0.0449	-0.0505	0.776	0.0198	0.1071	-0.0579	0.048	0.6555	0.6491	0.0496	0.0158	-0.0098	0.0039	-0.0103	-0.0098	0.0037	0.6646	0.0047	0.1873	0.0203	0.0203	-0.01	0.0208	-0.0628	0.659	0.0195	0.0117	0	0.0472	0.0165	0.0734
	Base Case	760L (EMPRESS 394S ?? AMOCO EMPRE	125.6	0.006	0.0079	0.006	0.0078	-0.0343	-0.1636	0.0059	-0.0076	-0.0121	-0.0753	0.006	0.0653	-0.0086	0.006	0.0135	0.1636	0.0061	0.0064	0.016	-0.0122	0.0026	0.0223	0.0173	0.0161	0.0317	0.0133	0.0632	0.0195	0.6007	0.0485	0.0481	0.5956	-0.0827	0.0132	-0.0086	0.0119	0.012	-0.0087	0.0492	-0.0083	0.0994	0.0136	0.0136	0.0104	0.014	0.0257	0.0487	0.0125	-0.0532	0	0.5908	0.0109	0.0473
	Base Case	879L (Burdett 368S to 879AL_Tap)	100.6	0.0156	0.0012	0.0159	0.0142	0.0218	0.0438	0.0156	0.0197	0.0148	0.0304	0.0157	0.5418	0.0157	0.0161	0.0387	0.1121	0.0159	0.0162	-0.0308	0.0149	-0.1749	-0.0773	-0.0329	-0.0306	-0.1731	0.0373	0.1309	-0.0523	0.068	-0.2843	-0.2859	0.0693	0.0306	0.008	0.0151	0.0077	0.0075	0.0146	-0.2883	0.0181	0.2156	0.0384	0.0384	0.0075	0.0393	-0.1054	-0.2715	0.0373	0.025	0	0.0668	0.0352	0.0956
	Base Case	100L (Tilley 498S to Suffield 895S)	171.6	-0.0285	-0.0123	-0.029	-0.0209	0.0002	0.0264	-0.0284	-0.007	-0.003	0.008	-0.0286	0.1431	-0.0052	-0.0296	0.0126	0.1094	-0.0289	-0.0291	-0.0248	-0.0031	0.0431	0.001	-0.0211	-0.0243	0.0421	0.0122	0.5357	-0.0105	0.0554	0.09	0.0898	0.056	0.0096	-0.0419	-0.0047	-0.0407	-0.0399	-0.0044	0.0913	-0.0063	0.2485	0.0126	0.0126	-0.038	0.0129	0.0215	0.0883	0.0121	0.0044	0	0.0544	0.0069	0.5933
	Base Case	172L (Taber 83S to 172EL Tap)	137.4	0.0577	0.0119	0.0584	0.0619	0.0492	0.062	0.0574	0.0531	0.0379	0.0578	0.0578	0.3068	0.0477	0.0591	0.0665	0.1008	0.0588	0.0604	0.2218	0.0381	0.4708	0.4054	0.243	0.2225	0.4531	0.0643	0.1298	0.3125	0.0774	0.3974	0.3911	0.079	0.0552	0.105	0.0399	0.0953	0.0956	0.0383	0.403	0.0481	0.1488	0.0661	0.0661	0.0673	0.0677	0.5368	0.4075	0.0639	0.0506	0	0.0761	0.0655	0.1102
	Base Case	935L (Milo 356s to Cassils 324s)	103.9	0.1704	-0.1712	0.1719	0.2404	0.1597	0.158	0.1695	0.18	0.1285	0.1753	0.1708	0.0942	0.1645	0.1724	0.1863	0.1625	0.1749	0.1831	0.1531	0.1291	0.0608	0.1086	0.1662	0.1545	0.0582	0.181	0.173	0.1415	0.165	0.0781	0.0769	0.1701	0.1617	0.221	0.1337	0.1987	0.2001	0.1281	0.0792	0.1613	0.1294	0.1855	0.1855	0.1664	0.1906	0.0614	0.0801	0.1771	0.1577	0	0.1621	0.1876	0.164
	Base Case	924L (Milo 356s to Langdon 102s)	151.1	0.083	0.2172	0.0834	0.1402	0.0918	0.0879	0.0826	0.1025	0.0744	0.1002	0.0832	0.0868	0.0953	0.0827	0.1029	0.0939	0.086	0.092	0.1133	0.0747	0.0972	0.124	0.1297	0.1151	0.0917	0.1003	0.1096	0.1273	0.0909	0.0949	0.0927	0.0953	0.0912	0.1403	0.0761	0.1237	0.1254	0.0728	0.0963	0.0912	0.081	0.1026	0.1026	0.108	0.1057	0.1232	0.0999	0.097	0.0905	0	0.0892	0.1022	0.1007
	Base Case	927L (Milo 356s to Langdon 102s)	144	0.0834	0.2181	0.0838	0.1408	0.0922	0.0883	0.0829	0.103	0.0747	0.1006	0.0836	0.0872	0.0958	0.0831	0.1034	0.0943	0.0864	0.0924	0.1138	0.075	0.0976	0.1246	0.1303	0.1156	0.0921	0.1008	0.1101	0.1278	0.0913	0.0954	0.0931	0.0957	0.0916	0.1409	0.0765	0.1242	0.126	0.0731	0.0967	0.0916	0.0813	0.1031	0.1031	0.1085	0.1062	0.1237	0.1003	0.0974	0.0909	0	0.0896	0.1027	0.1012
	Base Case	760L (Oyen 394S to P2421 Tap)	142.9	0.0264	0.0215	0.0268	0.0264	-0.0823	0.5403	0.0263	-0.0098	-0.024	-0.1982	0.0265	0.0672	-0.0133	0.0271	0.0751	0.1448	0.0269	0.0276	0.0308	-0.0243	0.0415	0.0345	0.0319	0.0307	0.0404	0.0725	0.067	0.033	0.1638	0.054	0.0535	0.167	-0.2224	0.0299	-0.0149	0.0276	0.0275	-0.0154	0.0548	-0.0129	0.0942	0.0745	0.0745	0.0249	0.0763	0.0358	0.0541	0.0725	-0.1294	0	0.1609	0.0648	0.0539
SCN9_2025SL_HS_POST_P1828	Base Case	610L (Fincastle 336S to Taber 83S)	117	0.0065	-0.0014	0.0063	0.0077	0.0147	0.0356	0.0065	0.0124	0.0088	0.0222	0.0065	0.5497	0.011	0.0066	0.0296	0.1057	0.0065	0.0066	-0.0378	0.0088	0.8285	-0.0676	-0.0341	-0.0388	0.8113	0.0285	0.123	-0.0498	0.0598	0.6922	0.6816	0.0609	0.0223	0.0001	0.0085	-0.0006	-0.0003	0.0081	0.6948	0.0112	0.2166	0.0297	0.0297	-0.0038	0.0299	-0.07	0.6771	0.0292	0.0179	0	0.059	0.0254	0.0871
	Base Case	100L (Tilley 498S to Suffield 895S)	141.9	-0.0094	-0.0044	-0.0095	-0.0089	0.0066	0.0327	-0.0094	0.0015	0.0022	0.0148	-0.0095	0.1509	0.0017	-0.0095	0.0209	0.1164	-0.0096	-0.0096	-0.0128	0.0022	0.0504	0.0112	-0.0112	-0.013	0.0491	0.0201	0.5478	-0.0016	0.0619	0.097	0.0955	0.0623	0.0159	-0.0314	0.0015	-0.0301	-0.0298	0.0014	0.0973	0.0015	0.2597	0.0209	0.021	-0.0314	0.0211	0.0289	0.0946	0.0207	0.0108	0	0.0612	0.0157	0.6075
SCN10_2025SP_HS_PRE_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	109.3	0.0072	-0.0024	0.0073	0.0086	0.0168	0.0375	0.0071	0.0143	0.0109	0.0244	0.0072	0.528	0.013	0.0073	0.0322	0.1056	0.0073	0.0076	-0.0393	0.011	-0.1892	-0.0768	-0.0381	-0.0386	-0.1926	0.0311	0.1232	-0.0553	0.0629	0.6719	0.6698	0.0641	0.0247	0.0019	0.0107	0.0013	0.0015	0.0103	0.6813	0.013	0.2107	0.0319	0.0319	0.0004	0.0327	-0.0917	0.6611	0.0309	0.02	0.0524	0	0.0284	0
	Base Case	610L (Fincastle 336S to Taber 83S)	191	-0.0058	-0.0079	-0.0058	-0.0002	0.0097	0.0281	-0.0057	0.0063	0.0054	0.016	-0.0058	0.5013	0.0062	-0.0061	0.022	0.0925	-0.0056	-0.0054	-0.052	0.0054	0.7899	-0.0683	-0.0438	-0.0503	0.7738	0.0212	0.1111	-0.0554	0.051	0.6519	0.6474	0.0527	0.0165	-0.0081	0.0047	-0.0091	-0.0084	0.0045	0.6611	0.0057	0.1927	0.0218	0.0218	-0.013	0.0224	-0.0534	0.6495	0.0208	0.0127	0.0407	0	0.0179	0
	Base Case	172L (Taber 83S to 172EL Tap)	116.5	0.0529	0.0083	0.0535	0.0567	0.0448	0.059	0.0526	0.0485	0.0342	0.053	0.053	0.3192	0.0434	0.0541	0.0638	0.1029	0.0538	0.0553	0.2217	0.0344	0.4788	0.3941	0.2383	0.2218	0.465	0.0615	0.136	0.3059	0.0784	0.4056	0.401	0.0797	0.051	0.1012	0.0355	0.092	0.0926	0.034	0.4112	0.0437	0.1575	0.0632	0.0632	0.0628	0.0648	0.5061	0.4096	0.0611	0.0465	0.1075	0	0.0622	0
	Base Case	924L (Milo 356s to Langdon 102s)	139	0.119	0.2373	0.1215	0.1696	0.1117	0.1147	0.1187	0.1265	0.0896	0.1231	0.1198	0.1169	0.1154	0.1207	0.1376	0.1318	0.124	0.1304	0.1407	0.09	0.123	0.1486	0.1557	0.142	0.1171	0.1332	0.1536	0.1528	0.1292	0.123	0.1206	0.1335	0.1142	0.1685	0.0924	0.15	0.1525	0.0883	0.1248	0.1127	0.1181	0.1364	0.1363	0.1244	0.1402	0.1452	0.1277	0.1299	0.1111	0.1572	0	0.1372	0
	Base Case	927L (Milo 356s to Langdon 102s)	132.5	0.1195	0.2382	0.122	0.1703	0.1122	0.1152	0.1192	0.127	0.09	0.1236	0.1203	0.1174	0.1158	0.1212	0.1381	0.1323	0.1245	0.131	0.1413	0.0904	0.1235	0.1492	0.1563	0.1426	0.1176	0.1337	0.1542	0.1534	0.1298	0.1235	0.1211	0.1341	0.1147	0.1692	0.0928	0.1507	0.1531	0.0887	0.1253	0.1132	0.1186	0.1369	0.1368	0.1249	0.1407	0.1458	0.1283	0.1304	0.1116	0.1578	0	0.1377	0
	Base Case	760L (Oyen 394S to P2421 Tap)	105.3	0.0243	0.0207	0.0246	0.0256	-0.0848	0.5354	0.0241	-0.0101	-0.0247	-0.202	0.0243	0.0649	-0.0136	0.0248	0.074	0.1461	0.0247	0.0254	0.0291	-0.0249	0.039	0.033	0.0307	0.0292	0.0378	0.0714	0.069	0.0317	0.1665	0.0517	0.0512	0.1692	-0.226	0.0291	-0.0151	0.0266	0.0267	-0.0155	0.0524	-0.0131	0.0946	0.0733	0.0733	0.0242	0.0751	0.0345	0.0522	0.0711	-0.1352	0.0446	0	0.0633	0
SCN12_2025SP_HS_POST_P1828	Base Case	612L (Fincastle 336S to Suffield 895S)	122	0.0058	-0.003	0.0059	0.0077	0.0162	0.0369	0.0058	0.0135	0.0104	0.0238	0.0059	0.5206	0.0124	0.006	0.0313	0.1039	0.006	0.0063	-0.0414	0.0105	-0.1942	-0.0776	-0.0393	-0.0405	-0.1984	0.0302	0.1206	-0.0565	0.0618	0.6647	0.6623	0.0631	0.0241	0.0006	0.0102	0	0.0002	0.0098	0.674	0.0123	0.2046	0.031	0.031	0	0.0318	-0.0904	0.6547	0.0299	0.0194	0.0509	0	0.0274	0.0909
	Base Case	610L (Fincastle 336S to Taber 83S)	202.8	-0.0067	-0.0085	-0.0066	-0.0011	0.0092	0.0275	-0.0066	0.0057	0.0049	0.0154	-0.0066	0.4932	0.0056	-0.0069	0.0212	0.0907	-0.0064	-0.0062	-0.0535	0.0049	0.7868	-0.0699	-0.0445	-0.0516	0.7698	0.0205	0.1055	-0.0568	0.05	0.6457	0.6406	0.0517	0.0159	-0.0094	0.0043	-0.0101	-0.0096	0.0041	0.6548	0.0051	0.1863	0.021	0.0208	-0.0101	0.0215	-0.0547	0.6458	0.0206	0.0121	0.0376	0	0.0171	0.0739
	Base Case	172L (Taber 83S to 172EL Tap)	126.1	0.0538	0.009	0.0544	0.0575	0.0455	0.0595	0.0534	0.0492	0.0348	0.0538	0.0538	0.3114	0.0441	0.055	0.0642	0.1017	0.0547	0.0562	0.2215	0.035	0.4744	0.397	0.2396	0.2218	0.4592	0.062	0.1285	0.3075	0.0782	0.3993	0.3943	0.0796	0.0516	0.1021	0.0362	0.0931	0.0935	0.0347	0.4049	0.0444	0.1515	0.0636	0.0636	0.0651	0.0652	0.5156	0.4061	0.0615	0.0472	0.1037	0	0.0627	0.1101
	Base Case	100L (Tilley 498S to Suffield 895S)	139.9	-0.0265	-0.0103	-0.0265	-0.0182	0.0011	0.0246	-0.0262	-0.0054	-0.002	0.0082	-0.0264	0.1399	-0.0038	-0.0273	0.0135	0.1091	-0.0263	-0.0264	-0.0237	-0.002	0.0415	0.0042	-0.0196	-0.0231	0.0401	0.0132	0.5783	-0.0091	0.0534	0.0891	0.0882	0.0557	0.0095	-0.04	-0.0034	-0.039	-0.0382	-0.0032	0.0903	-0.0048	0.2403	0.0134	0.0132	-0.0364	0.0138	0.0232	0.0896	0.0137	0.0052	-0.1778	0	0.0077	0.6504
	Base Case	924L (Milo 356s to Langdon 102s)	143	0.1139	0.2343	0.1165	0.1649	0.1091	0.1117	0.1136	0.1233	0.0875	0.1203	0.1147	0.112	0.1126	0.1155	0.1332	0.1261	0.1189	0.1253	0.1368	0.0878	0.1192	0.1446	0.1518	0.1382	0.1134	0.129	0.1308	0.1486	0.1249	0.118	0.1158	0.129	0.1114	0.1634	0.0902	0.1466	0.148	0.0862	0.1197	0.1099	0.1105	0.132	0.1308	0.1297	0.1356	0.1414	0.1227	0.131	0.1085	0.1414	0	0.1328	0.1157
	Base Case	927L (Milo 356s to Langdon 102s)	136.3	0.1144	0.2352	0.117	0.1656	0.1096	0.1121	0.1141	0.1238	0.0878	0.1208	0.1152	0.1125	0.1131	0.116	0.1337	0.1266	0.1194	0.1258	0.1373	0.0882	0.1197	0.1452	0.1524	0.1388	0.1139	0.1295	0.1313	0.1492	0.1254	0.1185	0.1163	0.1296	0.1119	0.164	0.0906	0.1472	0.1487	0.0866	0.1202	0.1103	0.111	0.1326	0.1313	0.1303	0.1362	0.142	0.1232	0.1315	0.1089	0.1419	0	0.1333	0.1162
	Base Case	760L (Oyen 394S to P2421 Tap)	110.6	0.0245	0.0208	0.0248	0.0256	-0.0846	0.5357	0.0243	-0.0101	-0.0247	-0.2018	0.0245	0.0647	-0.0137	0.025	0.074	0.145	0.0249	0.0256	0.0293	-0.0249	0.0392	0.0331	0.0308	0.0293	0.038	0.0715	0.0666	0.0318	0.1659	0.0517	0.0512	0.1689	-0.2256	0.0291	-0.0151	0.0268	0.0268	-0.0156	0.0524	-0.0132	0.0919	0.0734	0.0734	0.024	0.0751	0.0346	0.0523	0.0706	-0.1344	0.0435	0	0.0634	0.0545
SCN13_2025SL_HS_POST_P1828	Base Case	610L (Fincastle 336S to Taber 83S)	100.7	0.0067	-0.0014	0.0066	0.008	0.015	0.0362	0.0067	0.0128	0.0091	0.0225	0.0067	0.5502	0.0113	0.0068	0.0306	0.1076	0.0067	0.0069	-0.0381	0.0091	0.8272	-0.0687	-0.0344	-0.0391	0.8104	0.0295	0.1232	-0.0505	0.0621	0.6917	0.6811	0.0633	0.0227	0.0003	0.0087	-0.0004	-0.0001	0.0083	0.6941	0.0115	0.2182	0.0307	0.0307	-0.0038	0.0309	-0.072	0.6755	0.0302	0.0183	0.0497	0	0.0261	0.0872
	Base Case	100L (Tilley 498S to Suffield 895S)	121.6	-0.0094	-0.0044	-0.0094	-0.0089	0.0068	0.033	-0.0094	0.0016	0.0023	0.015	-0.0094	0.1515	0.0019	-0.0094	0.0215	0.1172	-0.0095	-0.0095	-0.0126	0.0023	0.0506	0.0114	-0.0112	-0.0128	0.0493	0.0207	0.5464	-0.0015	0.0634	0.0973	0.0959	0.0637	0.0161	-0.0315	0.0015	-0.0301	-0.0299	0.0015	0.0977	0.0017	0.2612	0.0215	0.0215	-0.0309	0.0217	0.0291	0.095	0.0213	0.011	-0.1732	0	0.0161	0.6074

Attachment H: Post-Project Post-Mitigation Power Flow Diagrams (Scenarios 3 to 4, 8 to 9, 12 to 13)



DRAWING NOTE:

1) These portions of 172L and 172EL are outside of the study area. Provided for reference only. Typical for all proceeding .SLDs in this appendix.

P1828 HEP Alderson Solar Project

BC Import: -553.828 MW

Sask Import: -150.000 MW

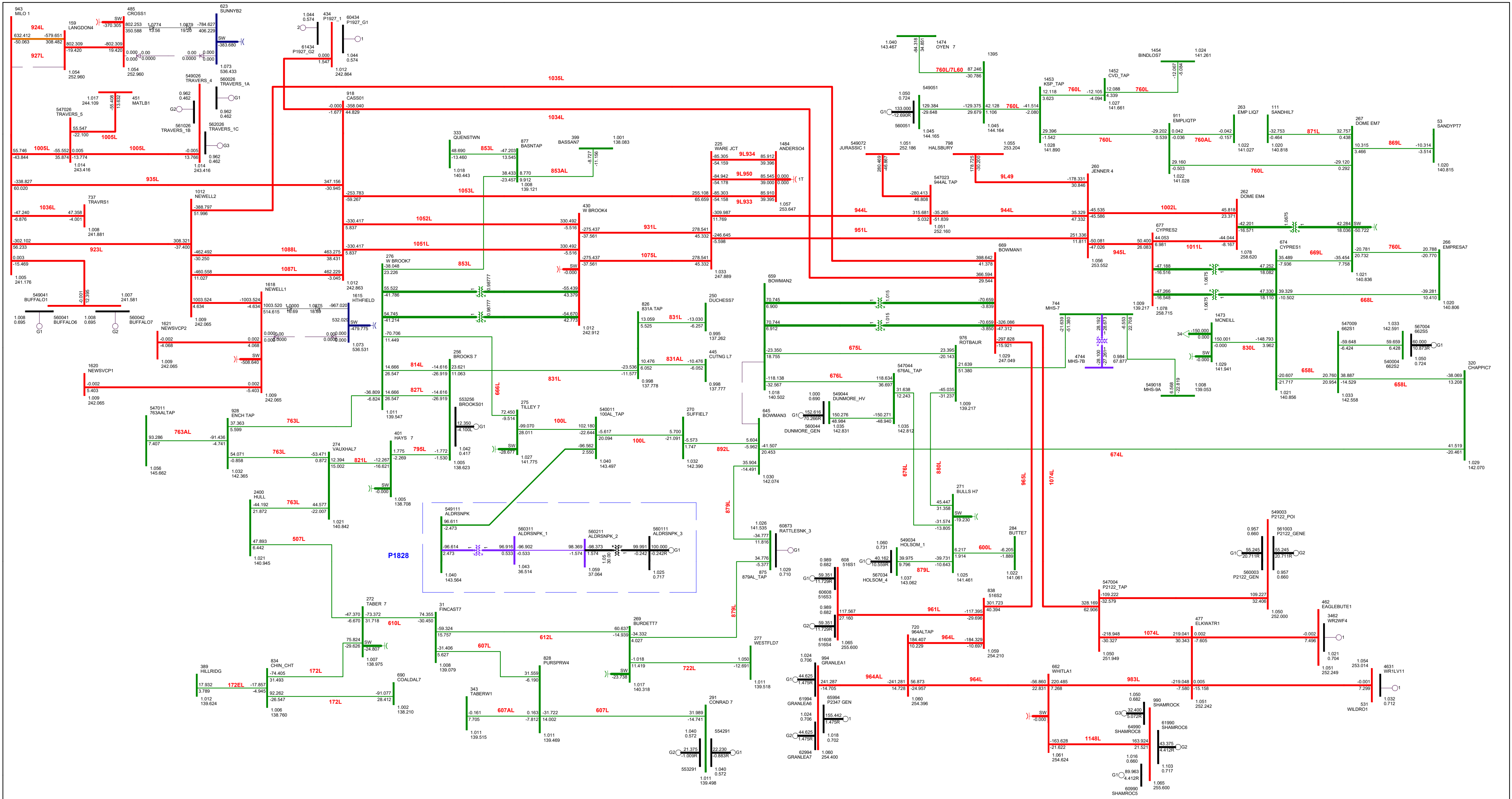
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-6-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS181
TUE, AUG 22 2023 12:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -190.737 MW

Sask Import: -150.000 MW

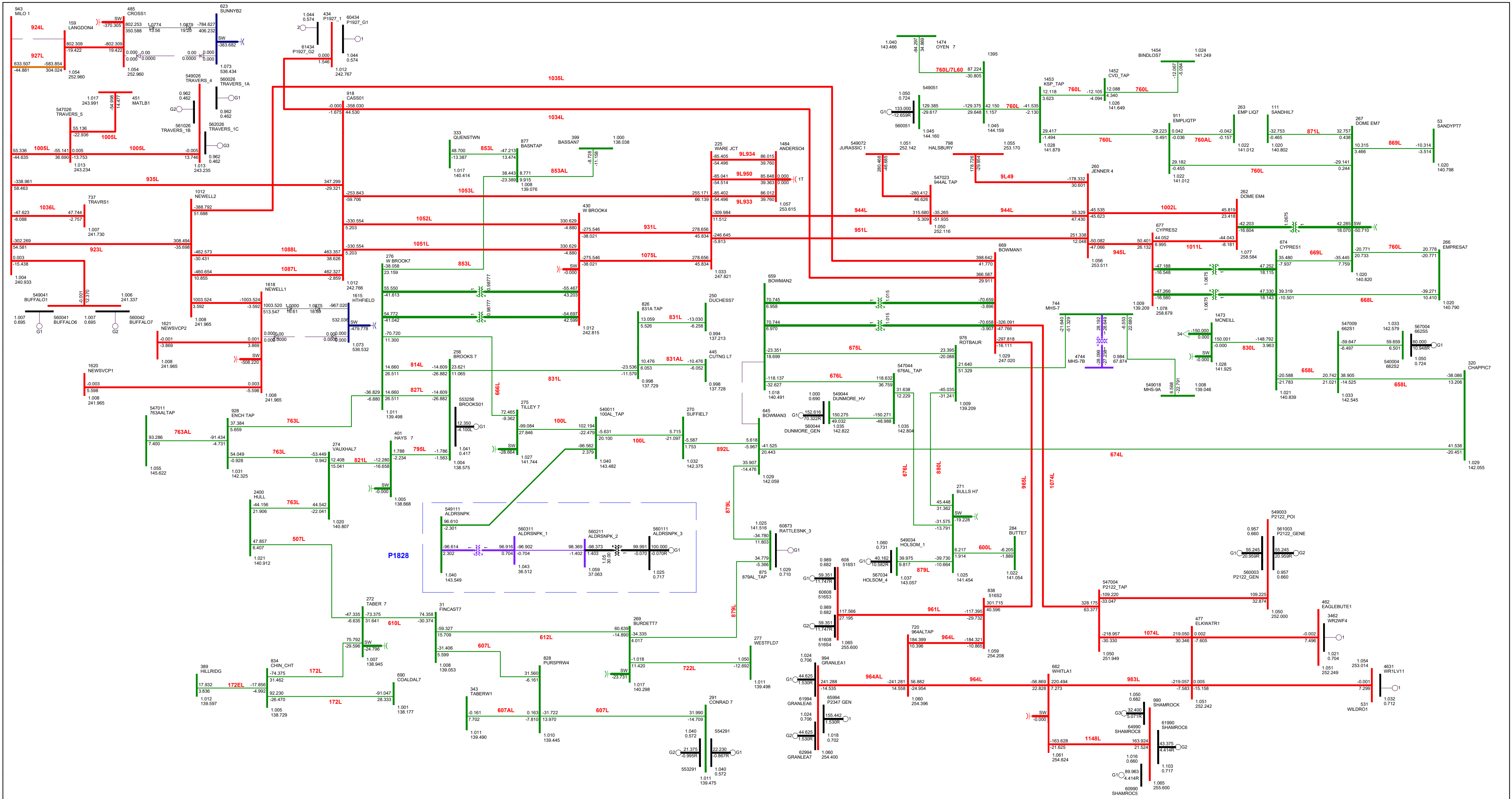
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-11-N-1: 927L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS175
TUE, AUG 22 2023 12:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -193.958 MW

Sask Import: -150.000 MW

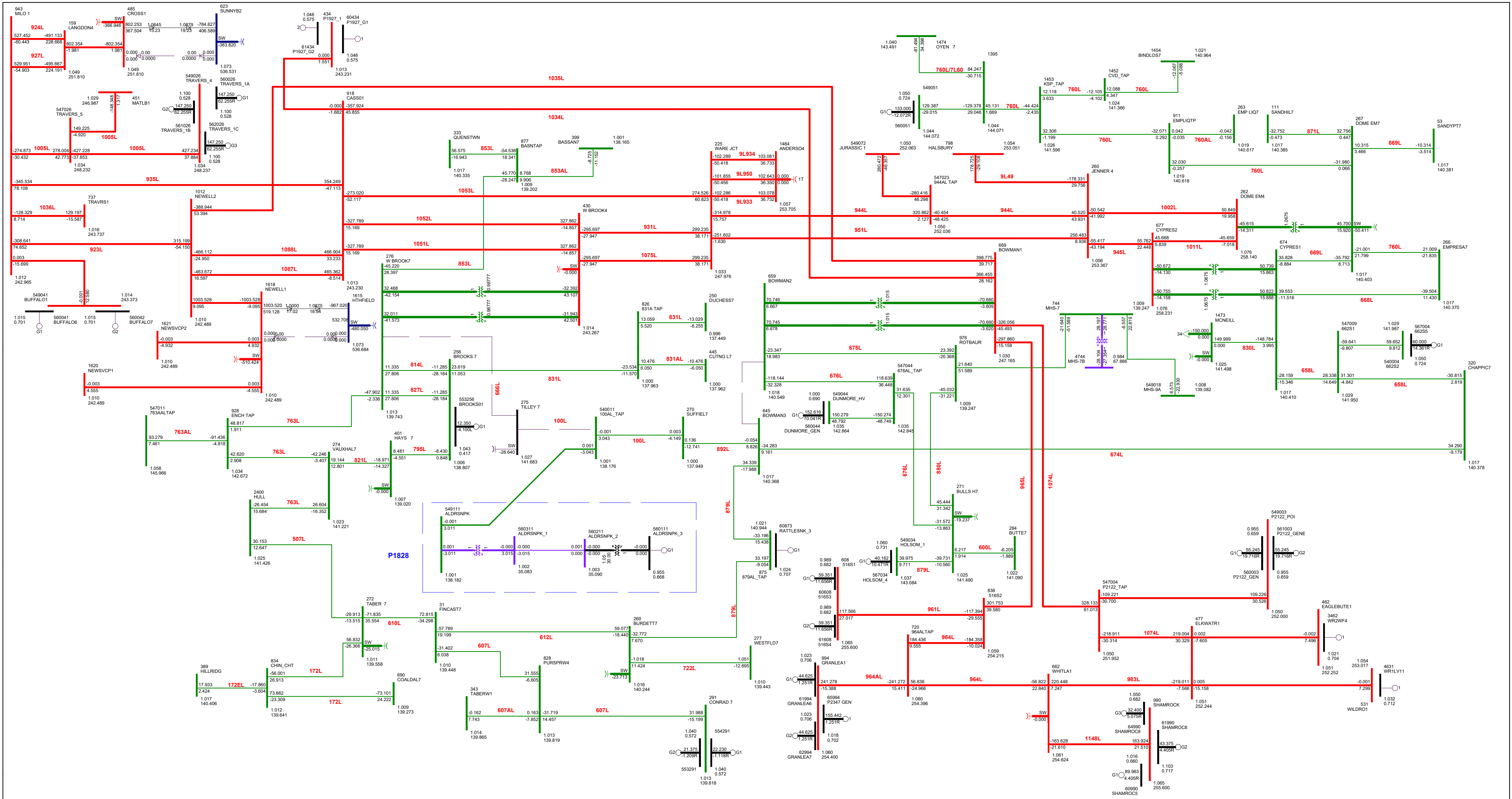
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-12-N-1: 924L (LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS175
TUE, AUG 22 2023 12:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

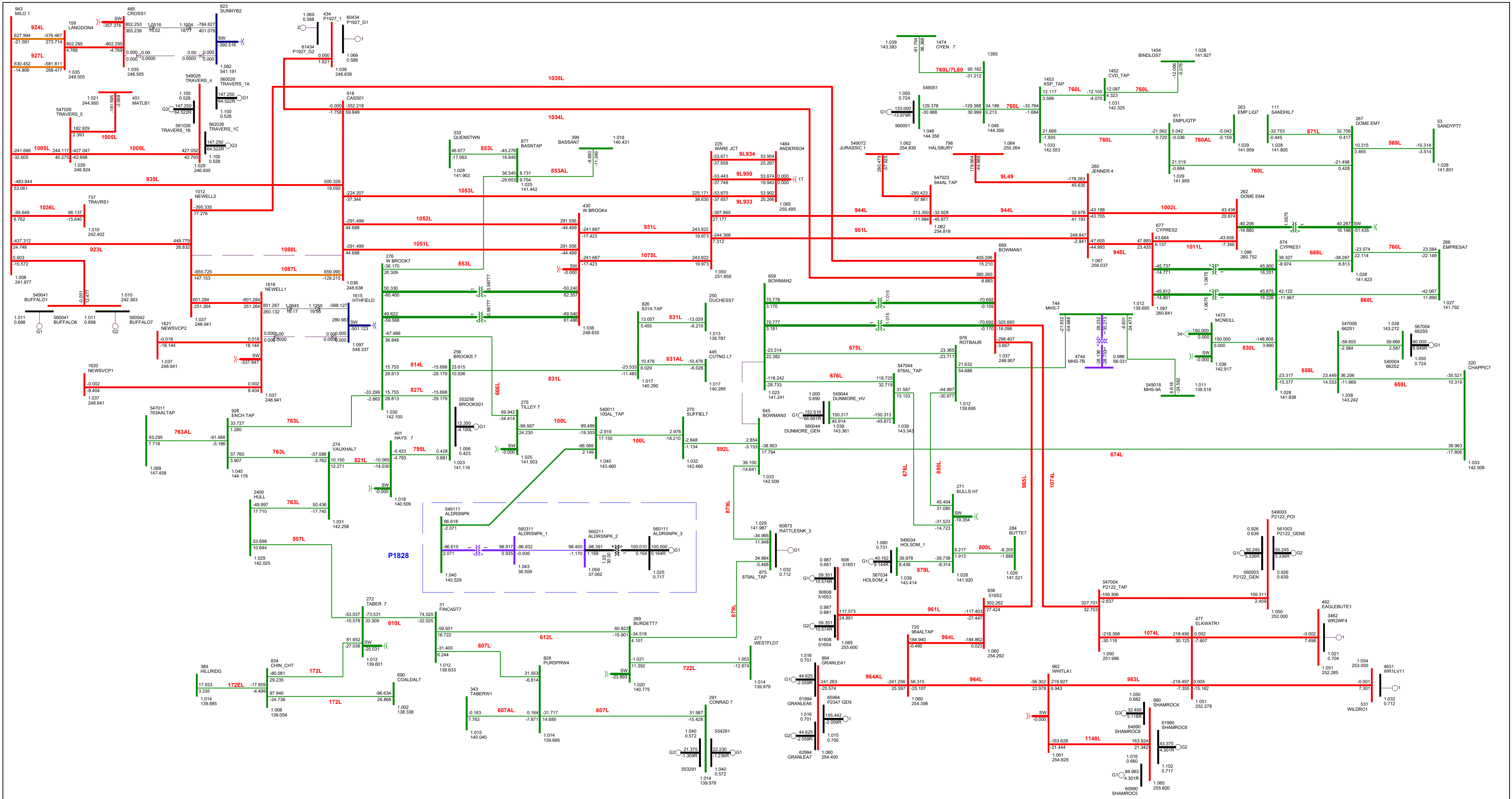
BC Import: -541.727 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE B1-14-N-1: 498ST1T2 (TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS209
TUE, AUG 22 2023 12:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -522.906 MW

Sask Import: -150.000 MW

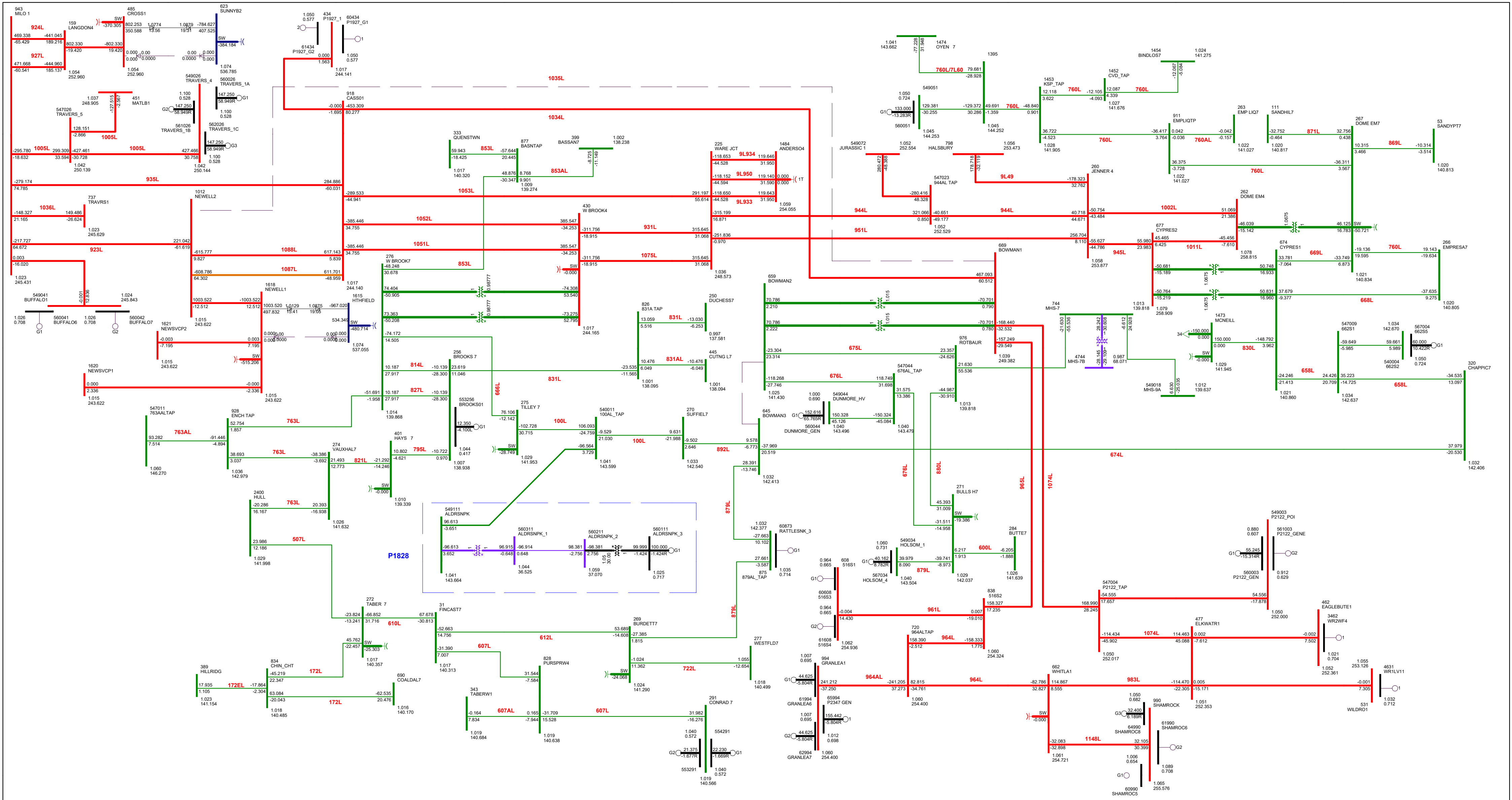
EATL: -600.000 MW

WATL: -800.000 MW

FIGURE B1-16-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS197
TUE, AUG 22 2023 12:23

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -357.480 MW

Sask Import: -150.000 MW

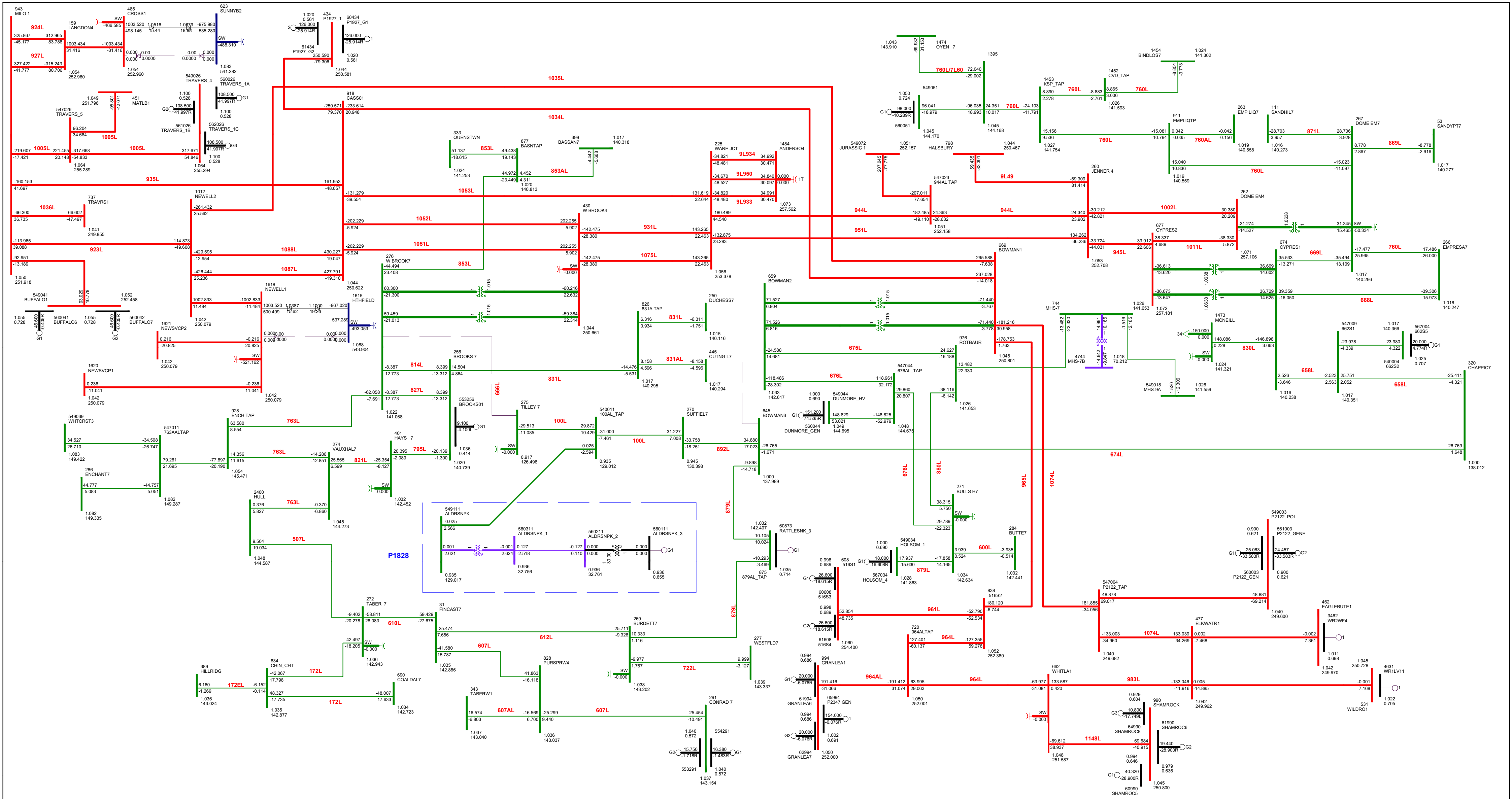
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B1-17-N-1: 1035L (BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 3 (POST PROJECT)-RAS164
TUE, AUG 22 2023 12:24

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -441.650 MW

Sask Import: -150.000 MW

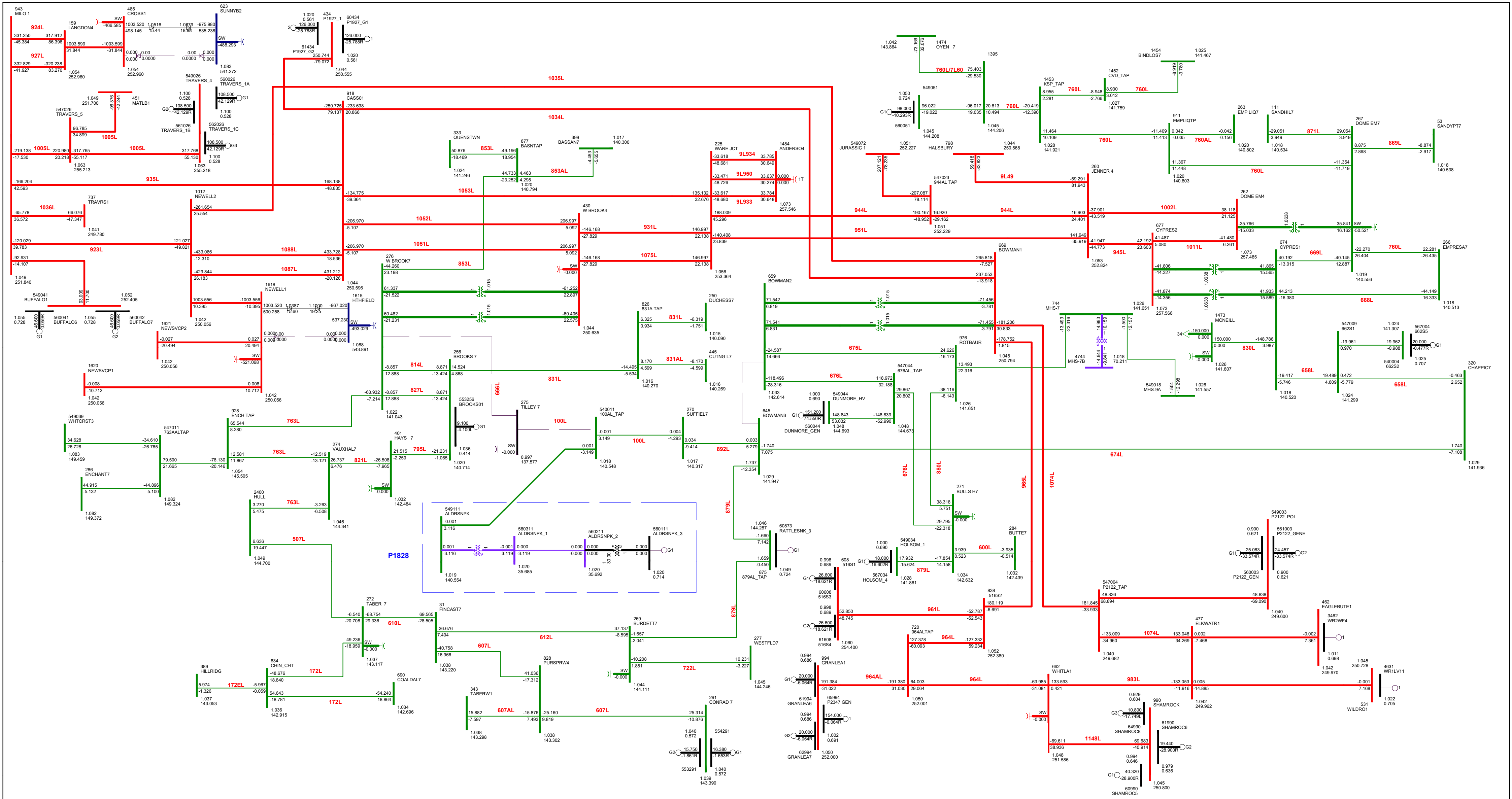
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)-RAS209
TUE, AUG 22 2023 12:28

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -461.658 MW

Sask Import: -150.000 MW

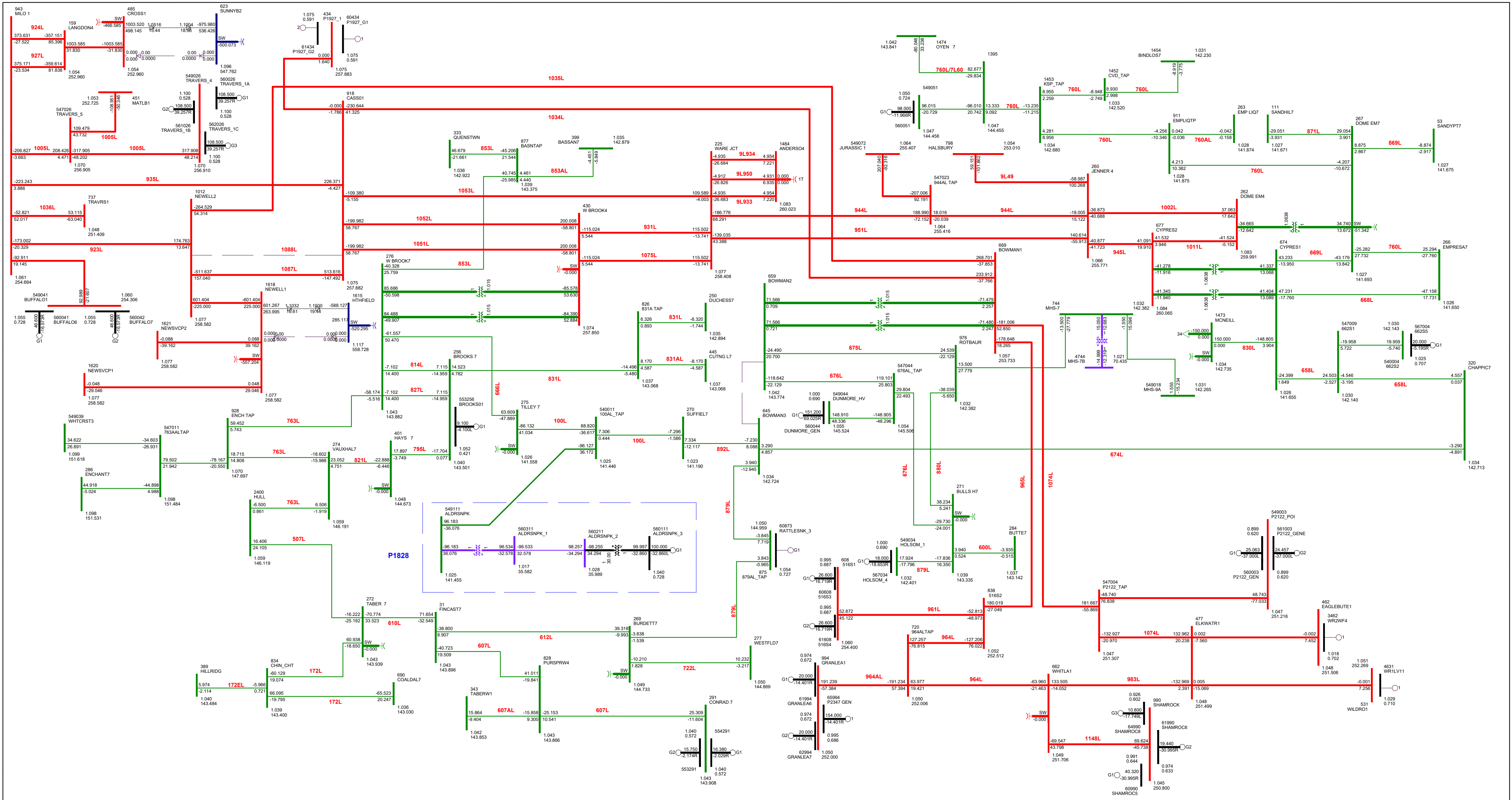
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE B2-4-N-1: 498ST1T2 (TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)-RAS209
TUE, AUG 22 2023 12:31

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -296.942 MW

Sask Import: -150.000 MW

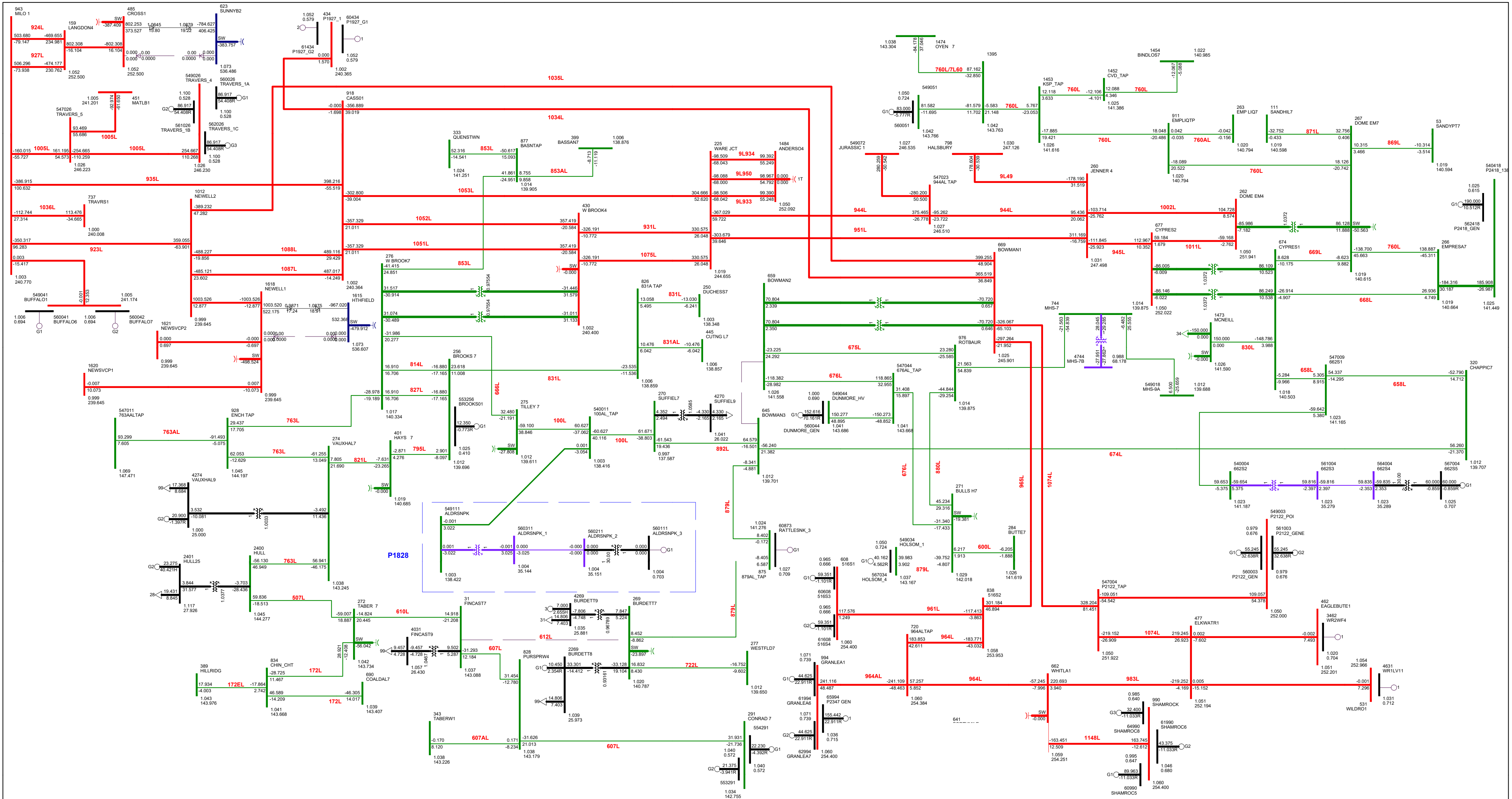
EATL: -600.000 MW

WATL: -800.000 MW

FIGURE B2-5-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 4 (POST PROJECT)-RAS197
TUE, AUG 22 2023 12:28

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -449.750 MW

Sask Import: -150.000 MW

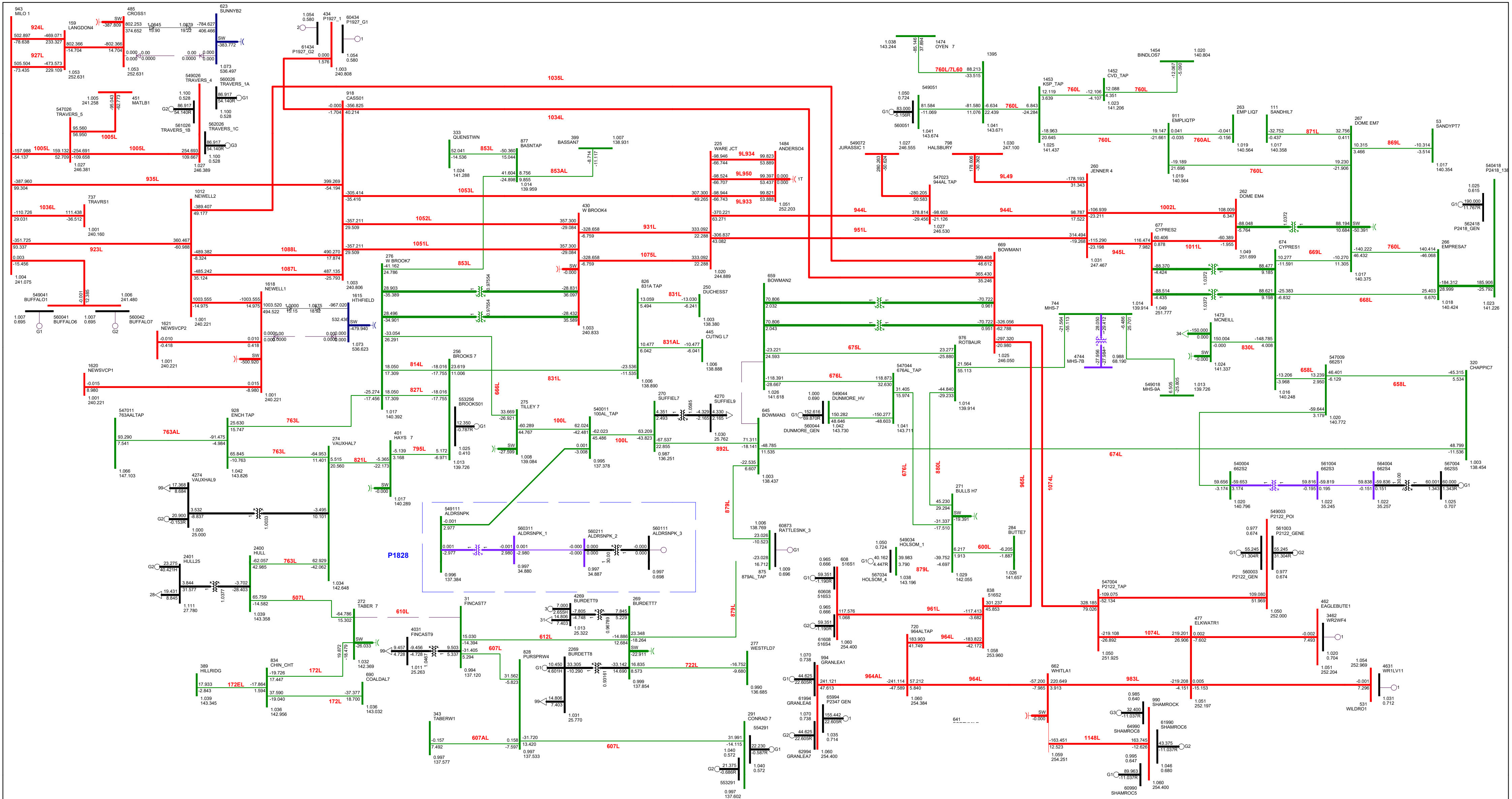
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-2-N-1: 612L (BURDETT 368S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS 1
TUE, AUG 22 2023 21:08

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -444.283 MW

Sask Import: -150.000 MW

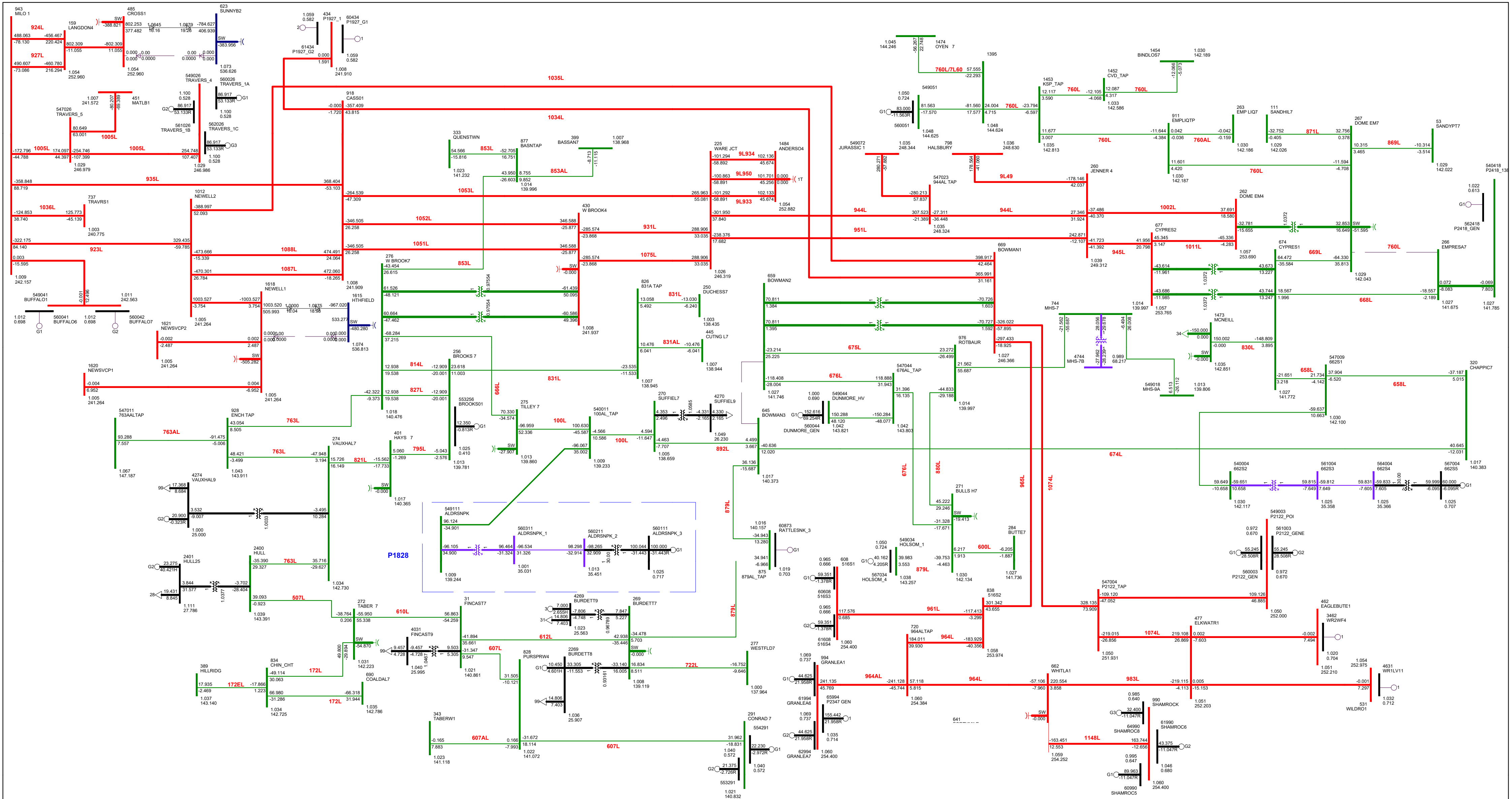
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS 1
TUE, AUG 22 2023 21:26

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -391.517 MW

Sask Import: -150.000 MW

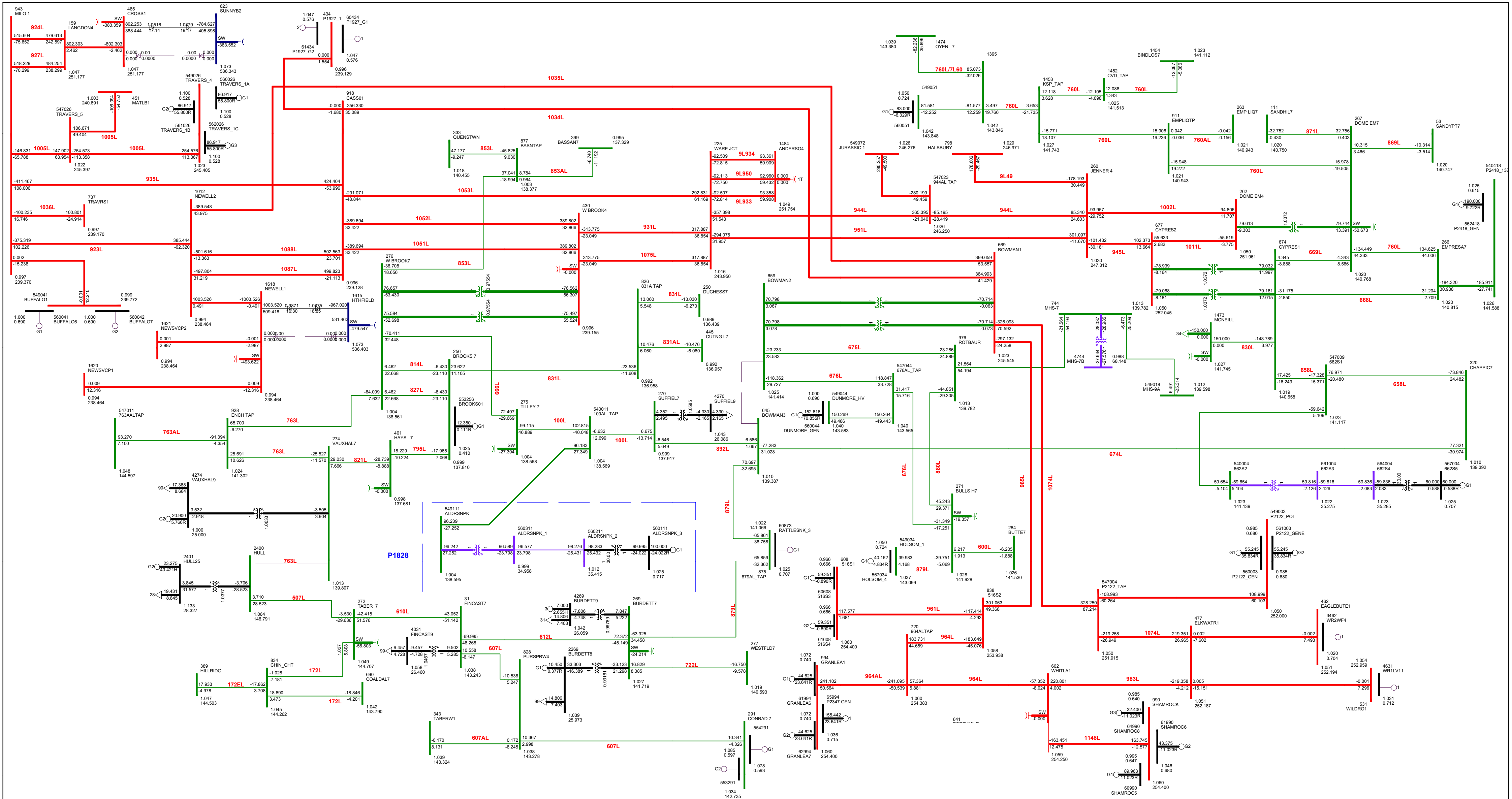
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-11-N-1: 760L (AMOCO EMPRESS 163S TO EMPRESS 394S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS607
TUE, AUG 22 2023 21:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -483.418 MW

Sask Import: -150.000 MW

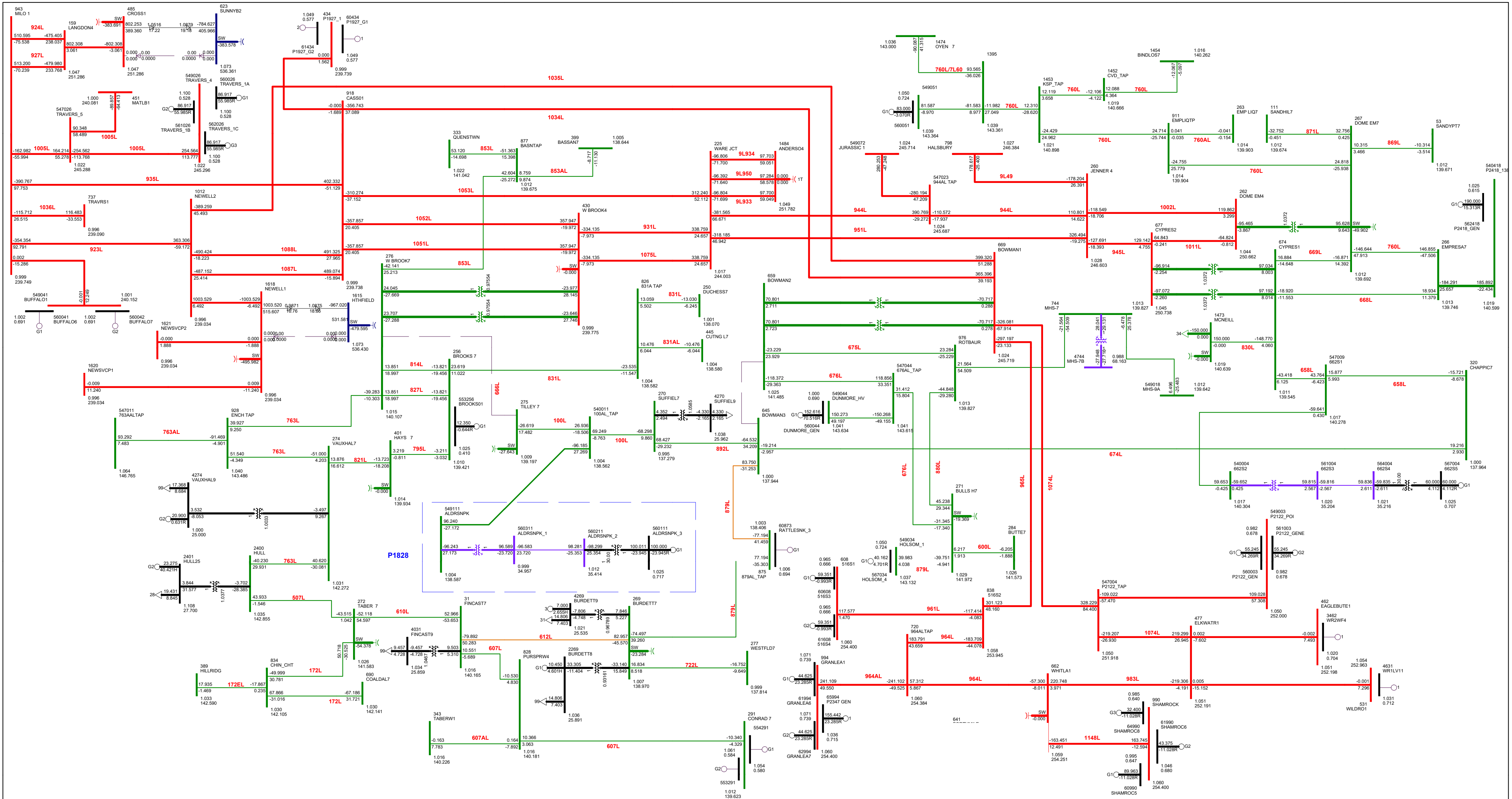
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-15-N-1: 763L (VAUXHALL 158S TO HULL 257S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS181
TUE, AUG 22 2023 21:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -480.304 MW

Sask Import: -150.000 MW

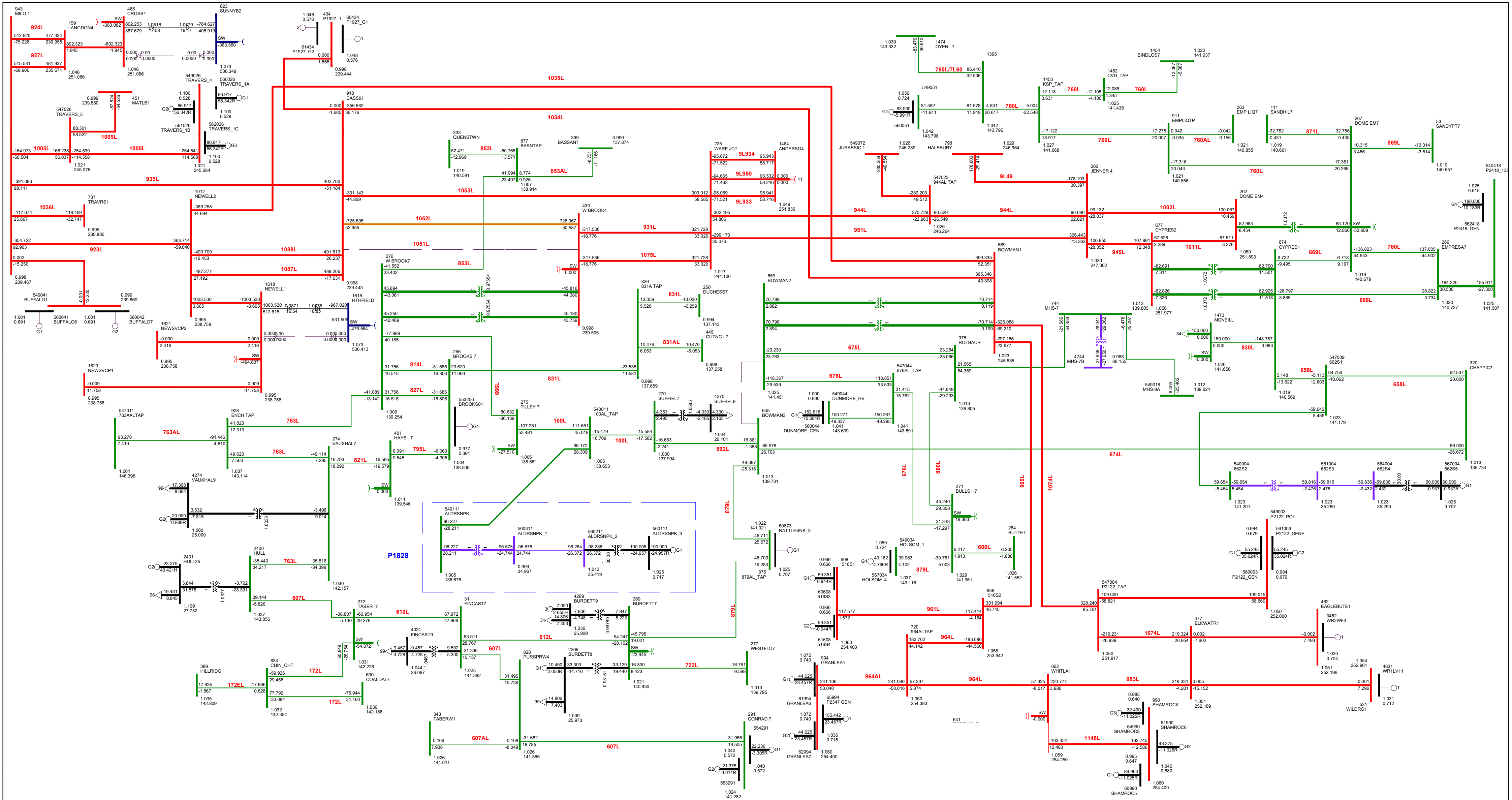
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-16-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS181
TUE, AUG 22 2023 21:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -488.490 MW

Sask Import: -150.000 MW

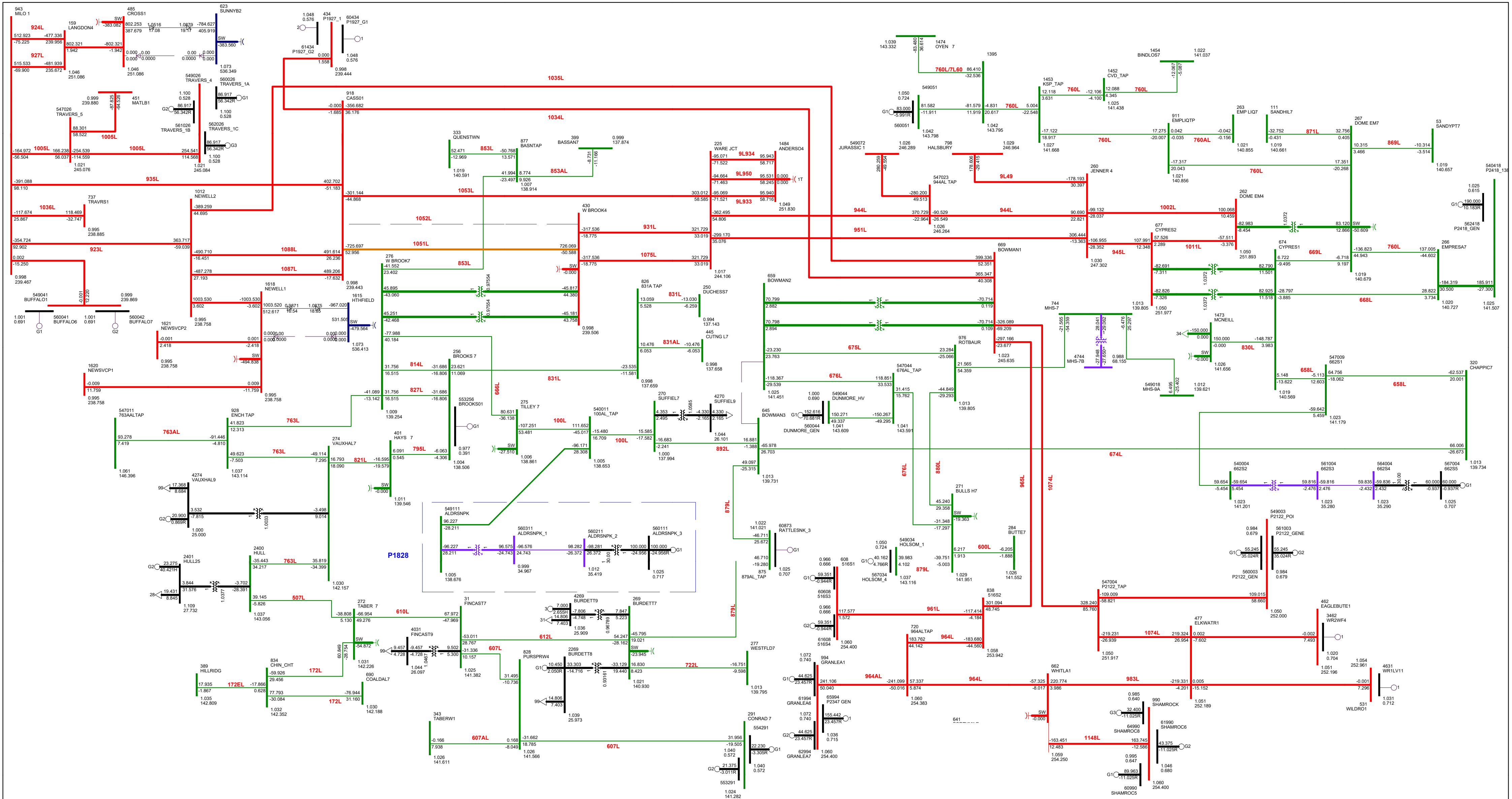
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-17-N-1: 1051L(WEST BROOKS 228S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS2
TUE, AUG 22 2023 20:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -488.501 MW

Sask Import: -150.000 MW

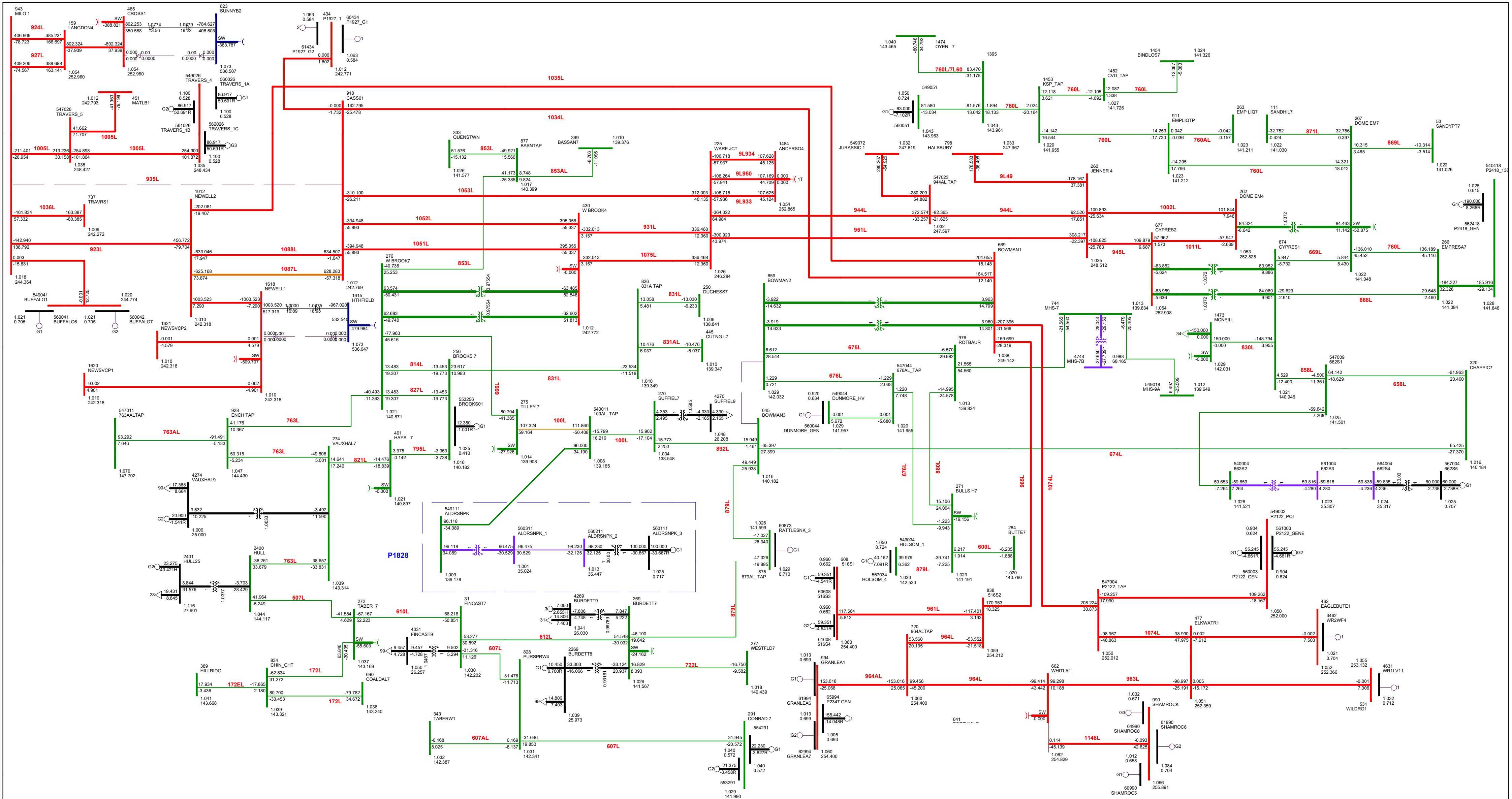
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-18-N-1: 1052L(WEST BROOKS 228S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS2
TUE, AUG 22 2023 20:59

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -200.965 MW

Sask Import: -150.000 MW

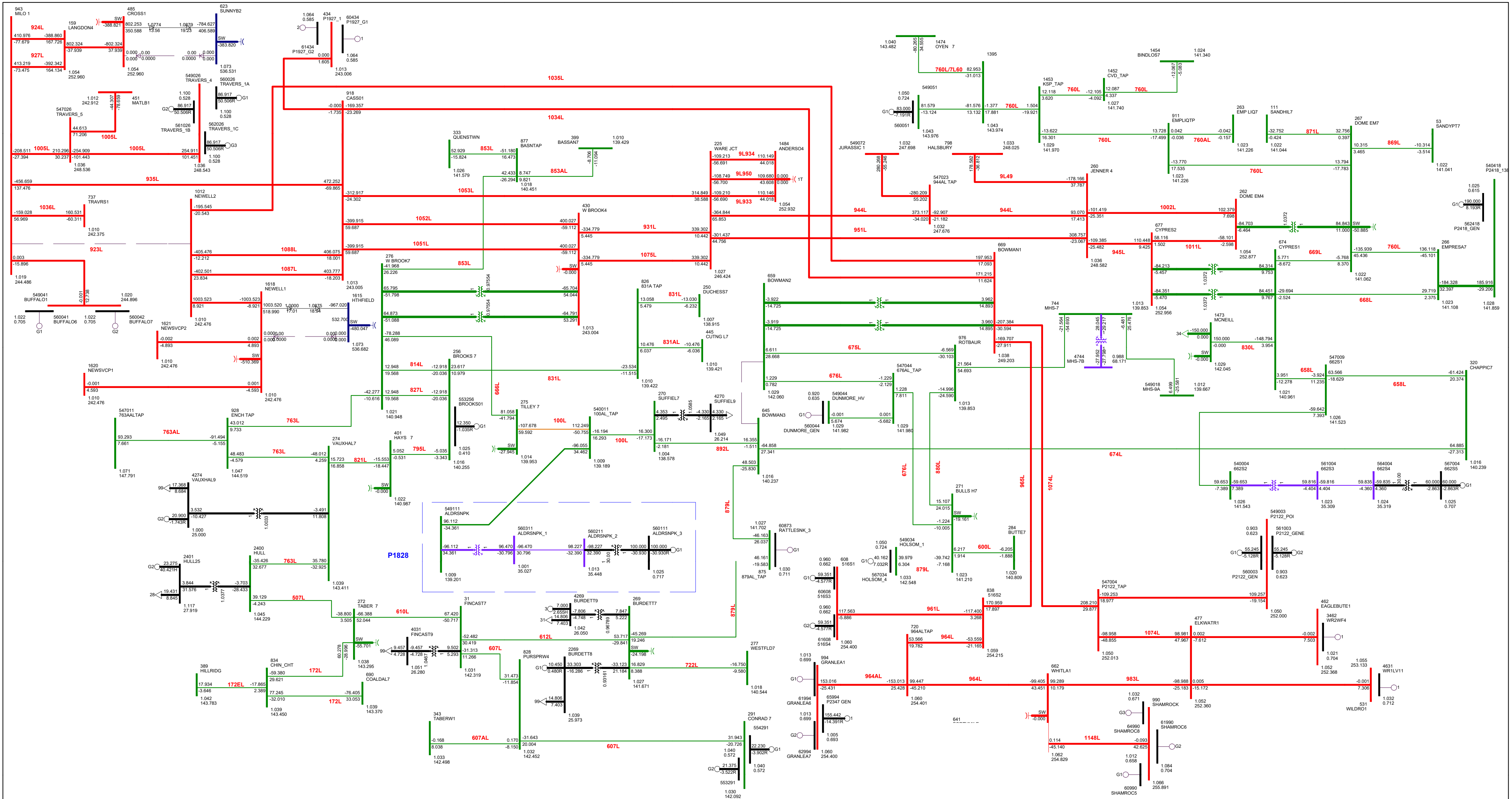
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-22-N-1: 935L(MILO 356S TO CASSILS 324S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS3
TUE, AUG 22 2023 21:09

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -203.654 MW

Sask Import: -150.000 MW

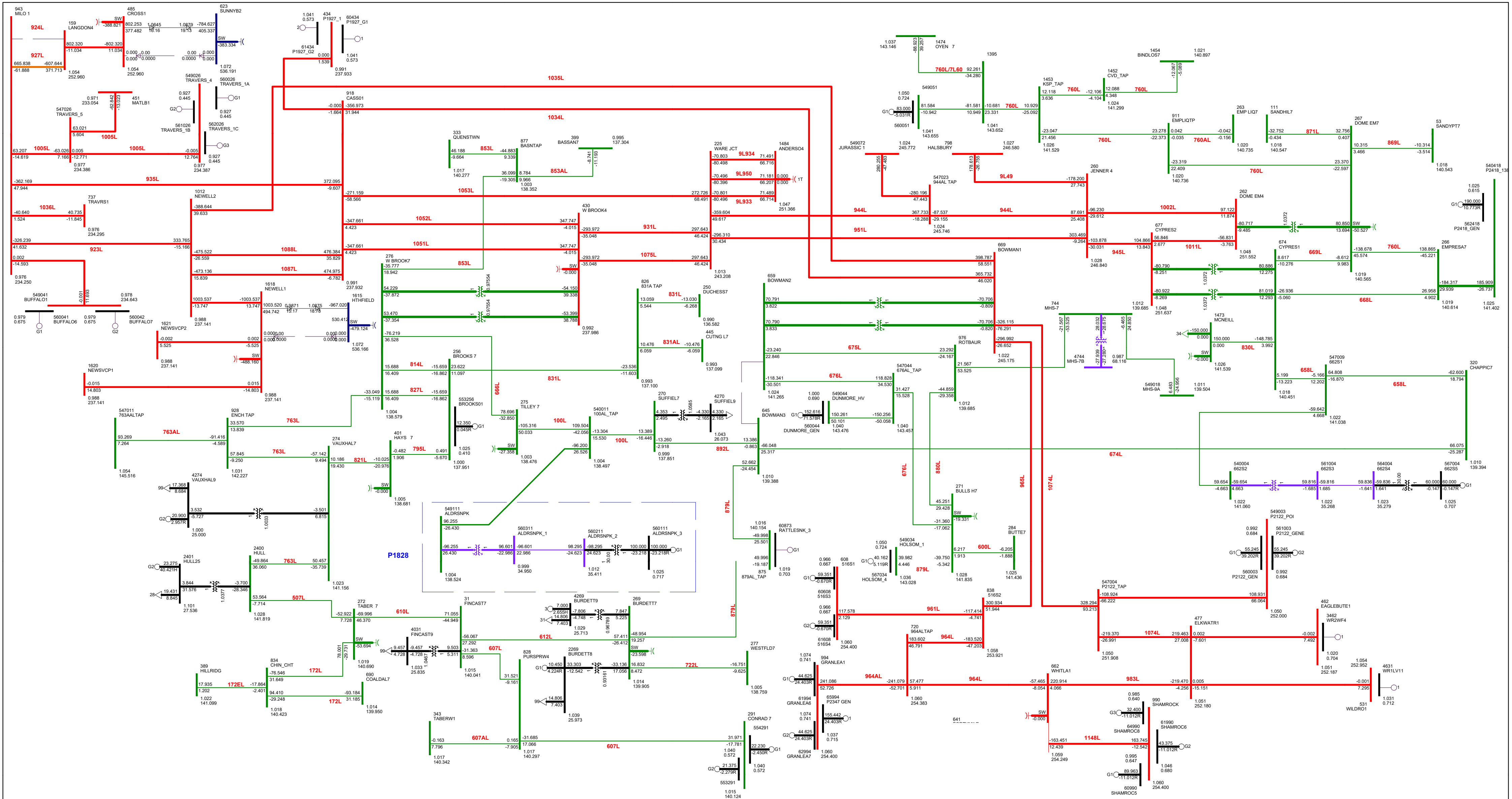
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-24-N-1: 923L(MILO 356S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS3
TUE, AUG 22 2023 21:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -260.231 MW

Sask Import: -150.000 MW

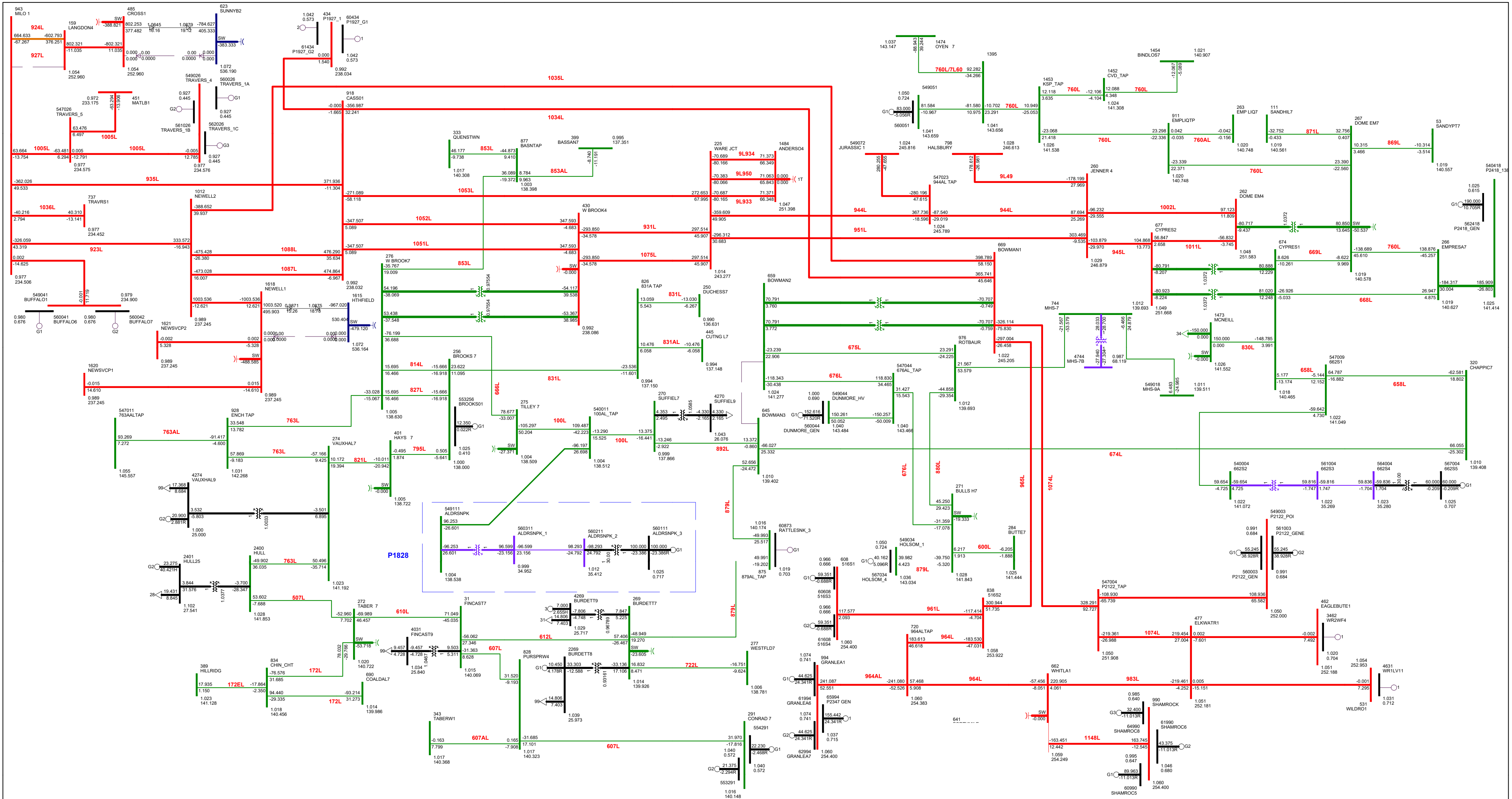
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-27-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS175
TUE, AUG 22 2023 21:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -256.434 MW

Sask Import: -150.000 MW

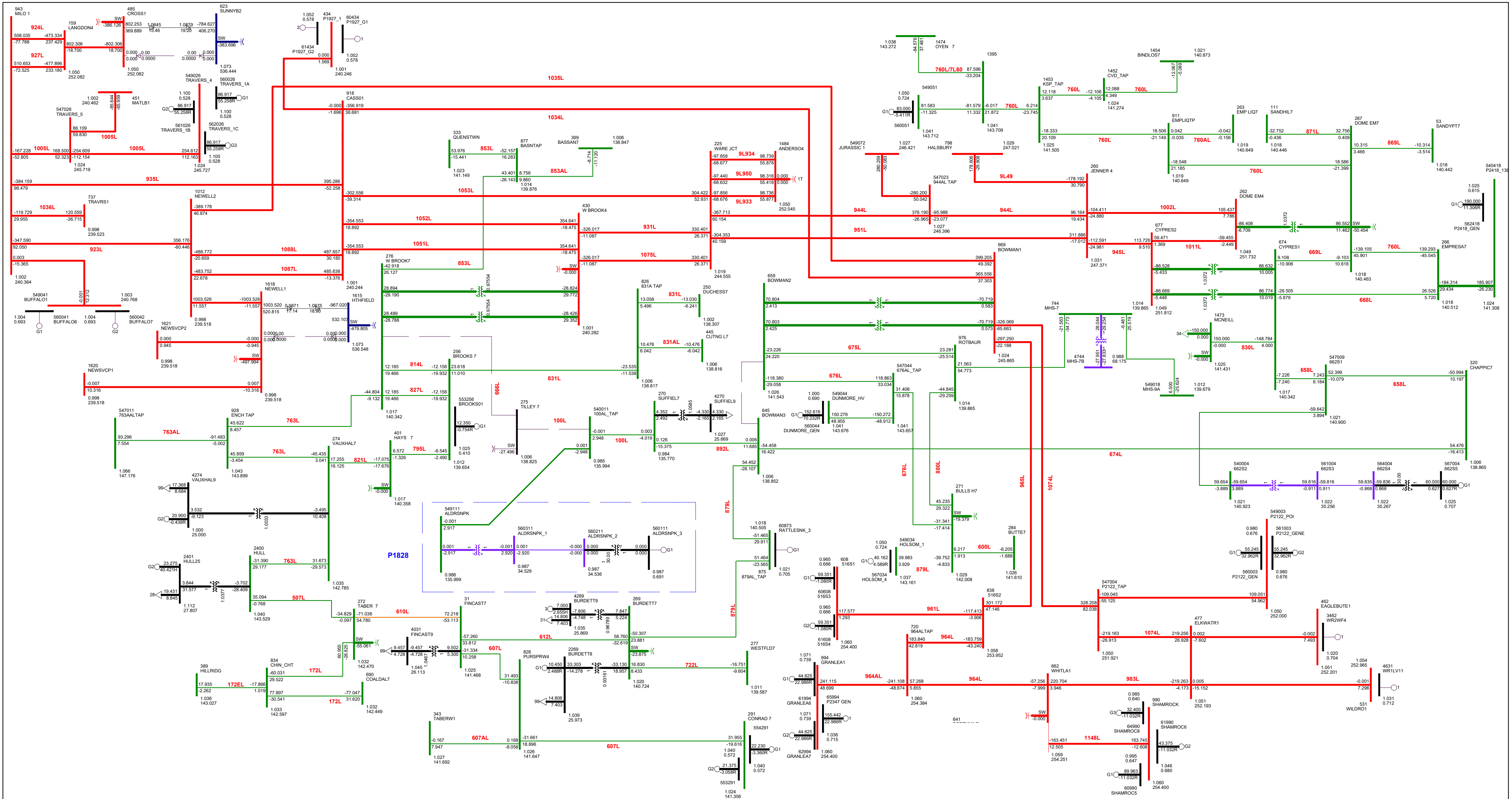
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-28-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS175
TUE, AUG 22 2023 21:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -470.850 MW

Sask Import: -150.000 MW

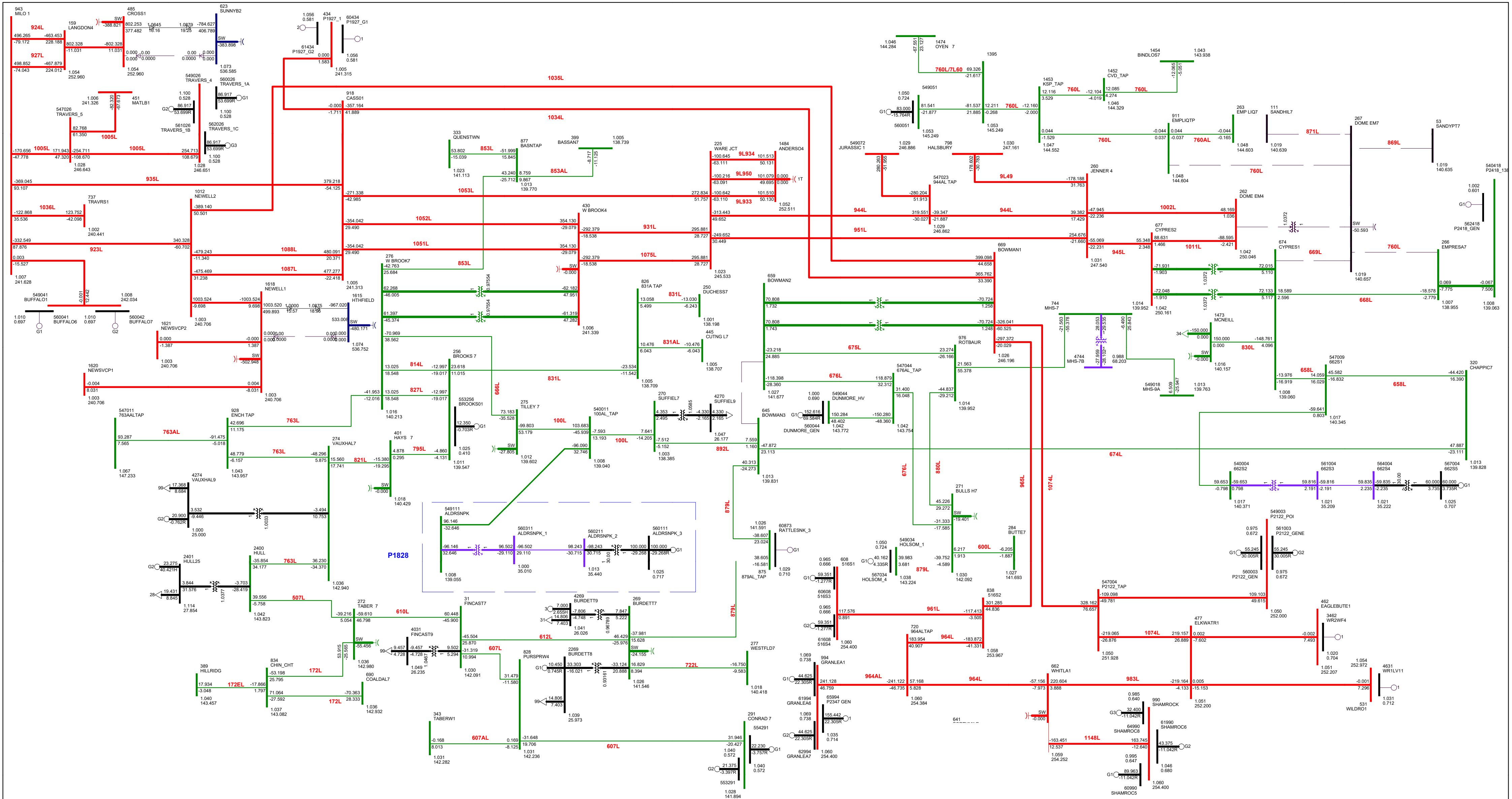
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-30-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS209
TUE, AUG 22 2023 21:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -422.196 MW

Sask Import: -150.000 MW

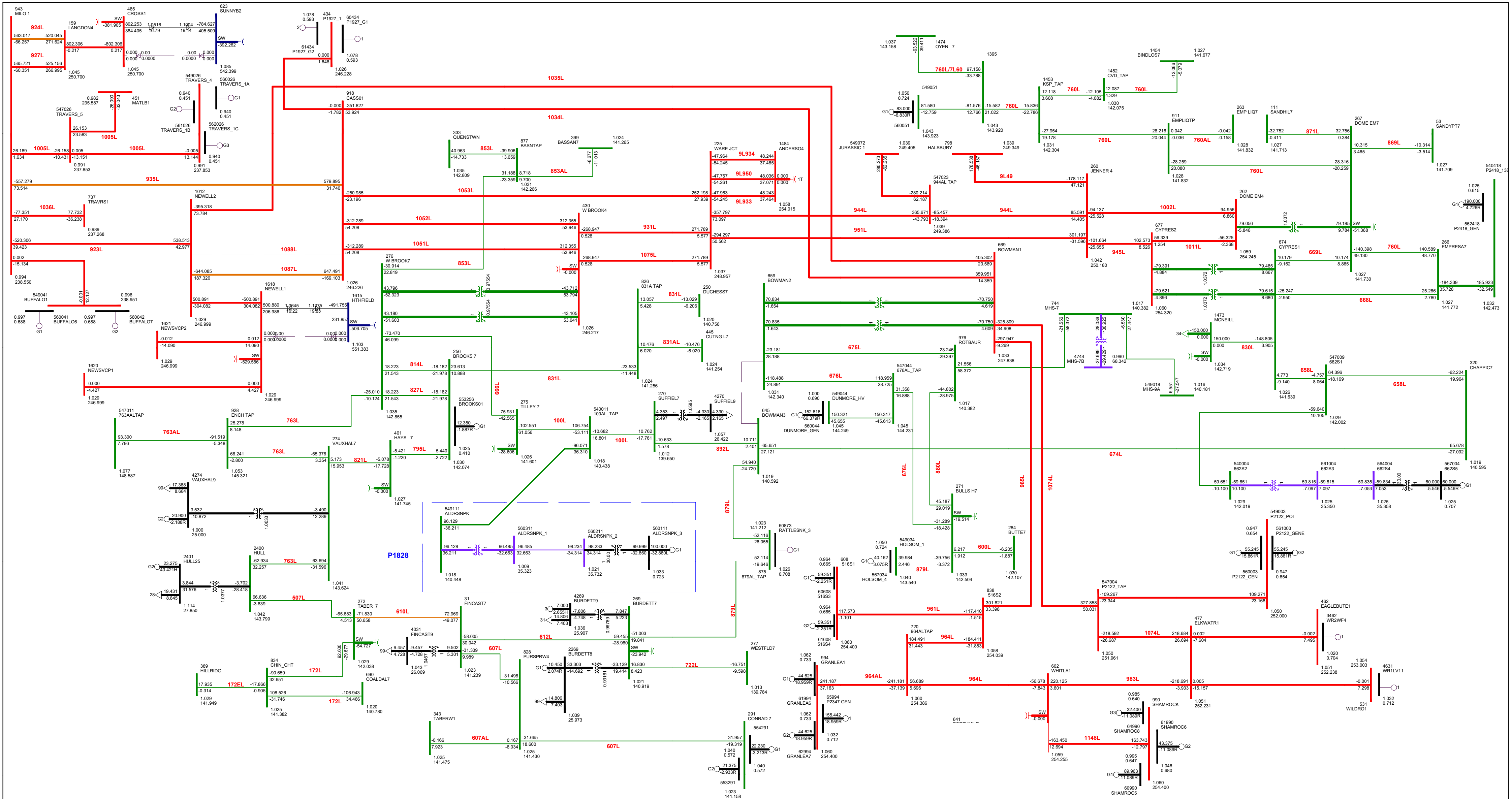
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-33-N-1: 163ST5(AMOCO EMPRESS 163S TRANSFORMER T5)
2025 SUMMER PEAK- SCN 8(POST SENSITIVITY PROJECT)-RAS607
TUE, AUG 22 2023 21:10

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -211.717 MW

Sask Import: -150.000 MW

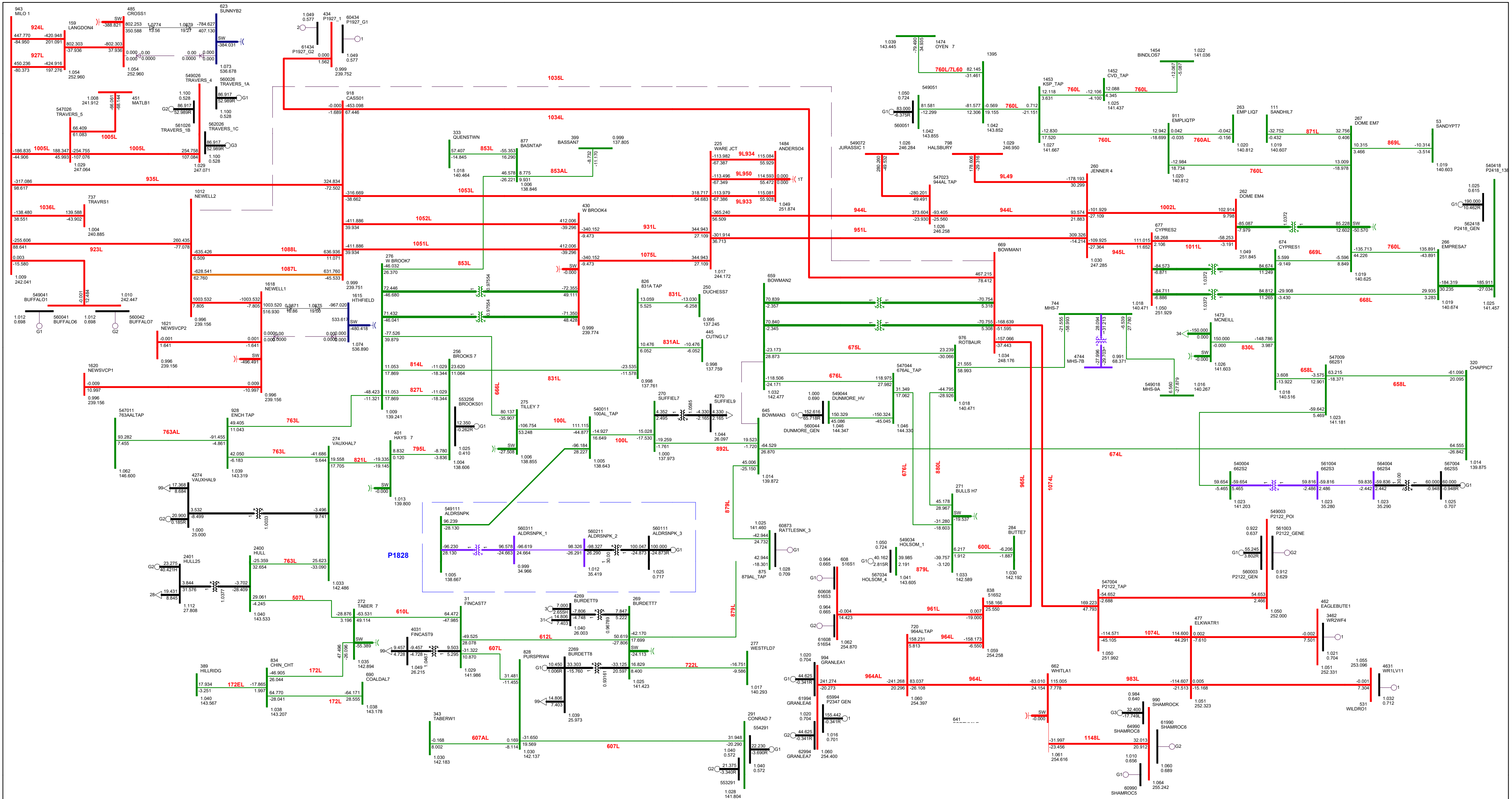
EATL: -500.000 MW

WATL: -800.000 MW

FIGURE D1-35-N-1: 1088L(CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS197
TUE, AUG 22 2023 21:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -281.394 MW

Sask Import: -150.000 MW

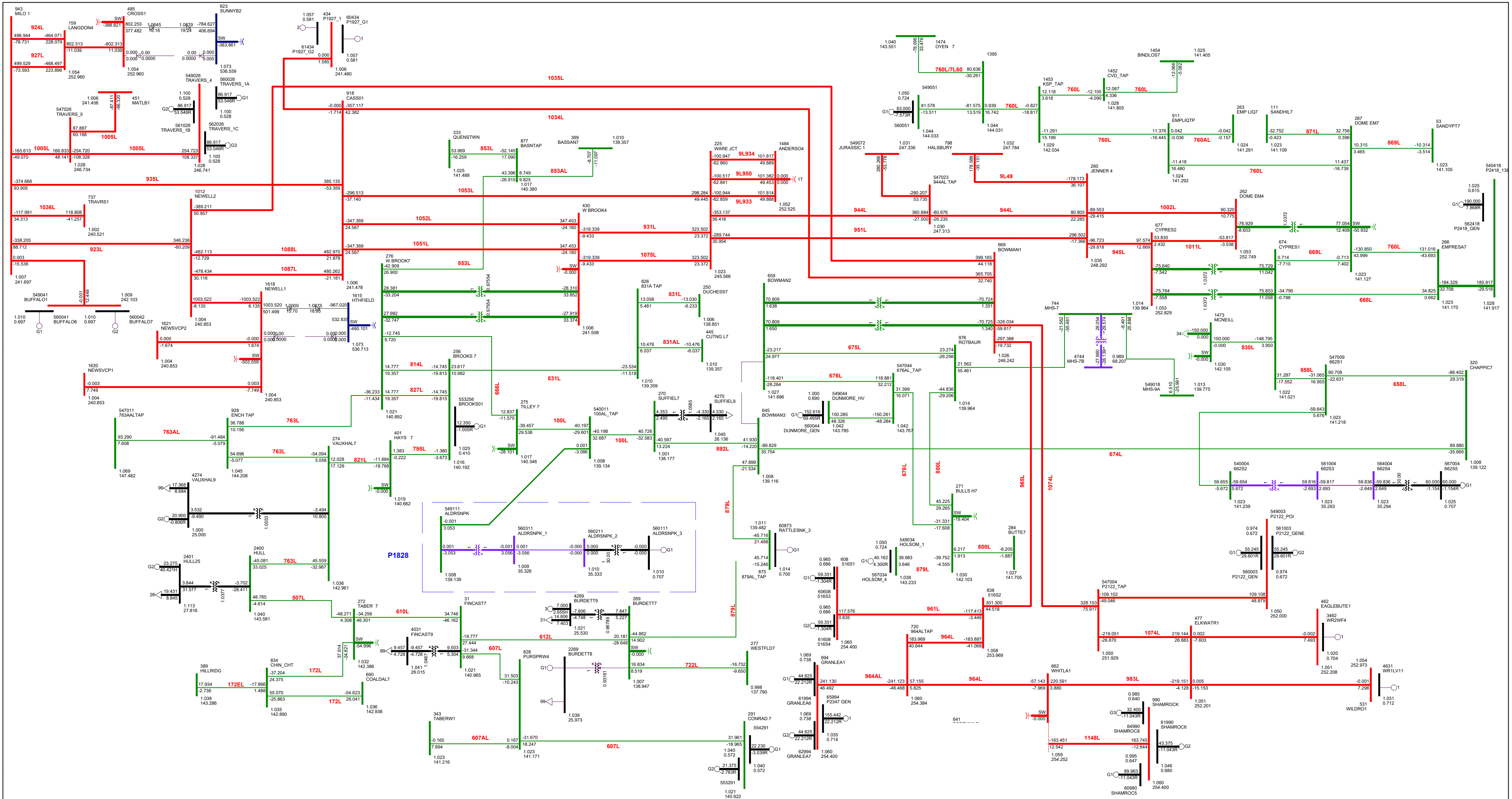
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-36-N-1: 1035L(BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS164
TUE, AUG 22 2023 21:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -425.531 MW

Sask Import: -150.000 MW

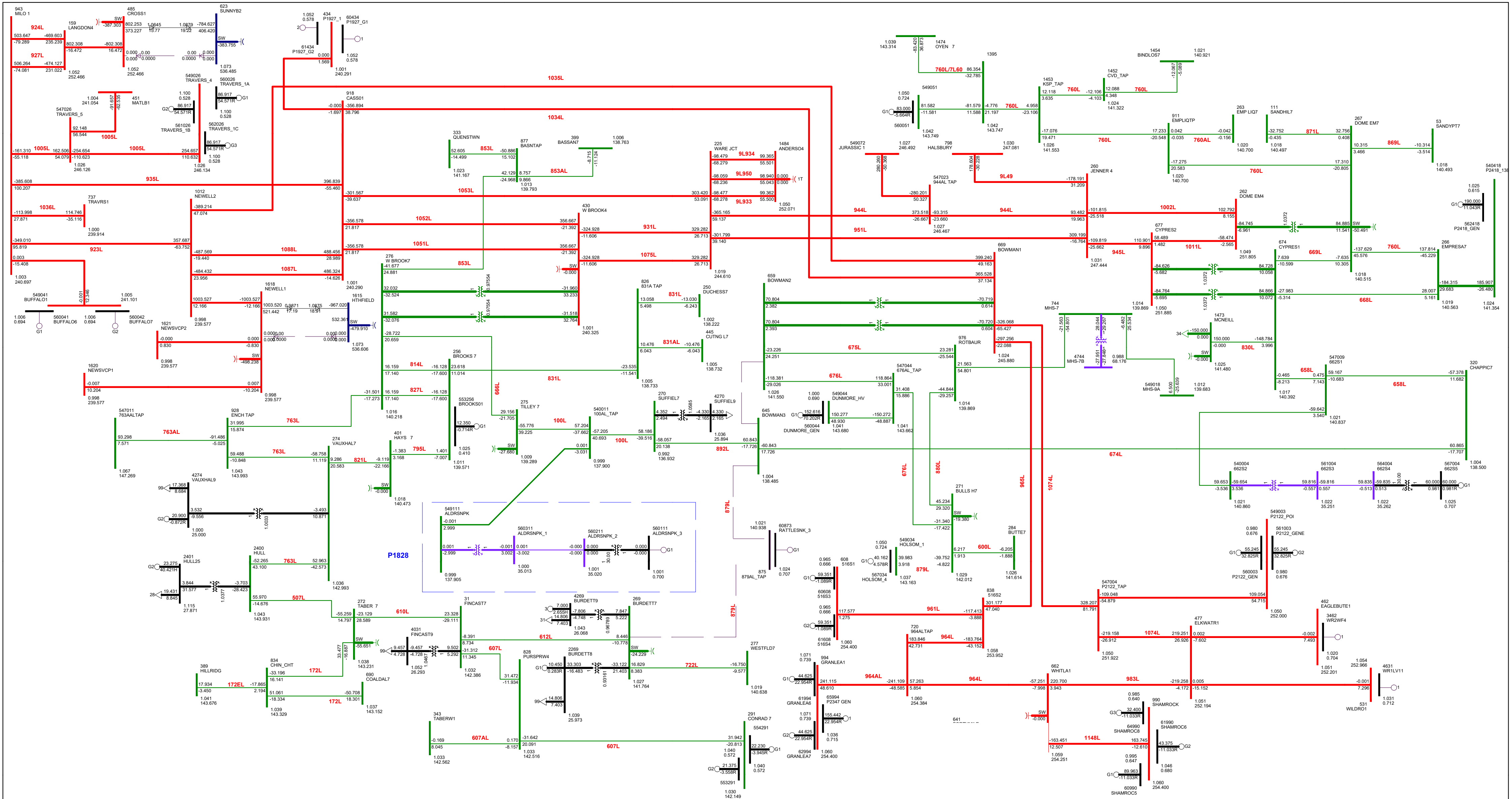
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-40-N-1: 368ST1(BURDETT 368S TRANSFORMER T1)
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS1
TUE, AUG 22 2023 21:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -450.422 MW

Sask Import: -150.000 MW

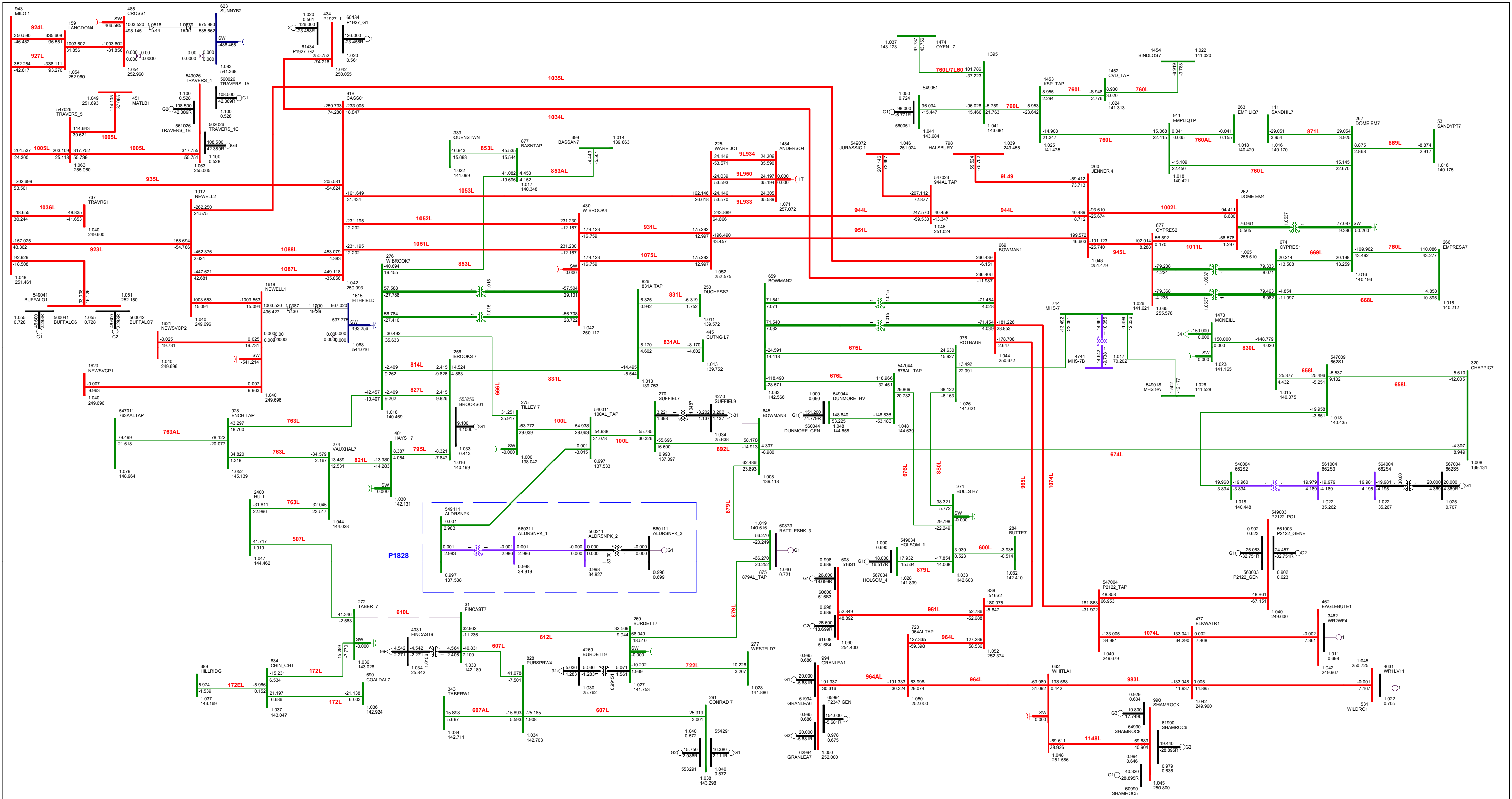
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D1-43-N-1: 879L
2025 SUMMER PEAK - SCN 8 (POST SENSITIVITY PROJECT)-RAS1
TUE, AUG 22 2023 21:11

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -435.699 MW

Sask Import: -150.000 MW

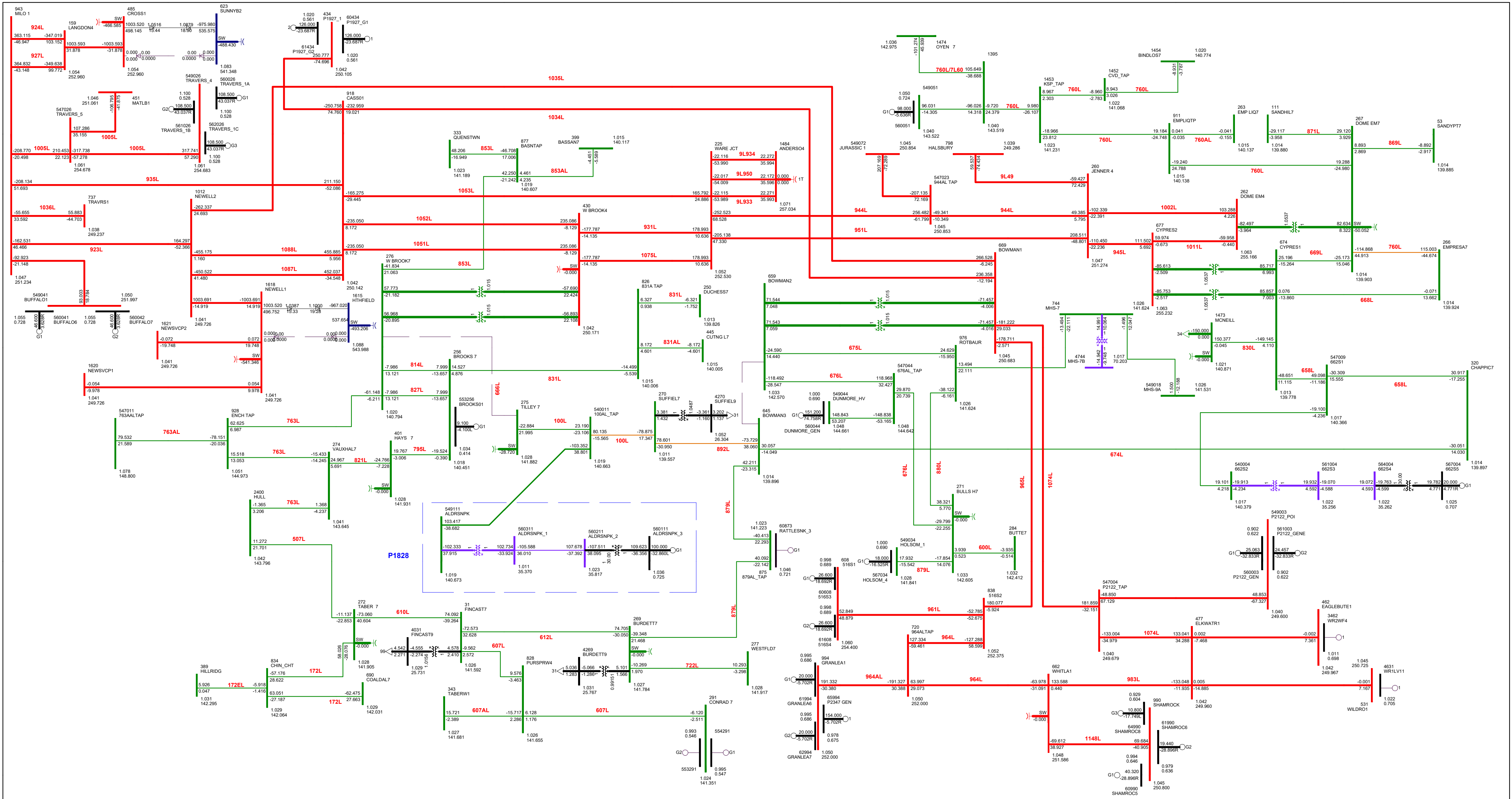
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-3-N-1: 610L (TABER 83S TO FINCASTLE 336S)
2025 SUMMER PEAK - SCN 9 (POST SENSITIVITY PROJECT)-RAS1
TUE, AUG 22 2023 12:50

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -488.507 MW

Sask Import: -150.000 MW

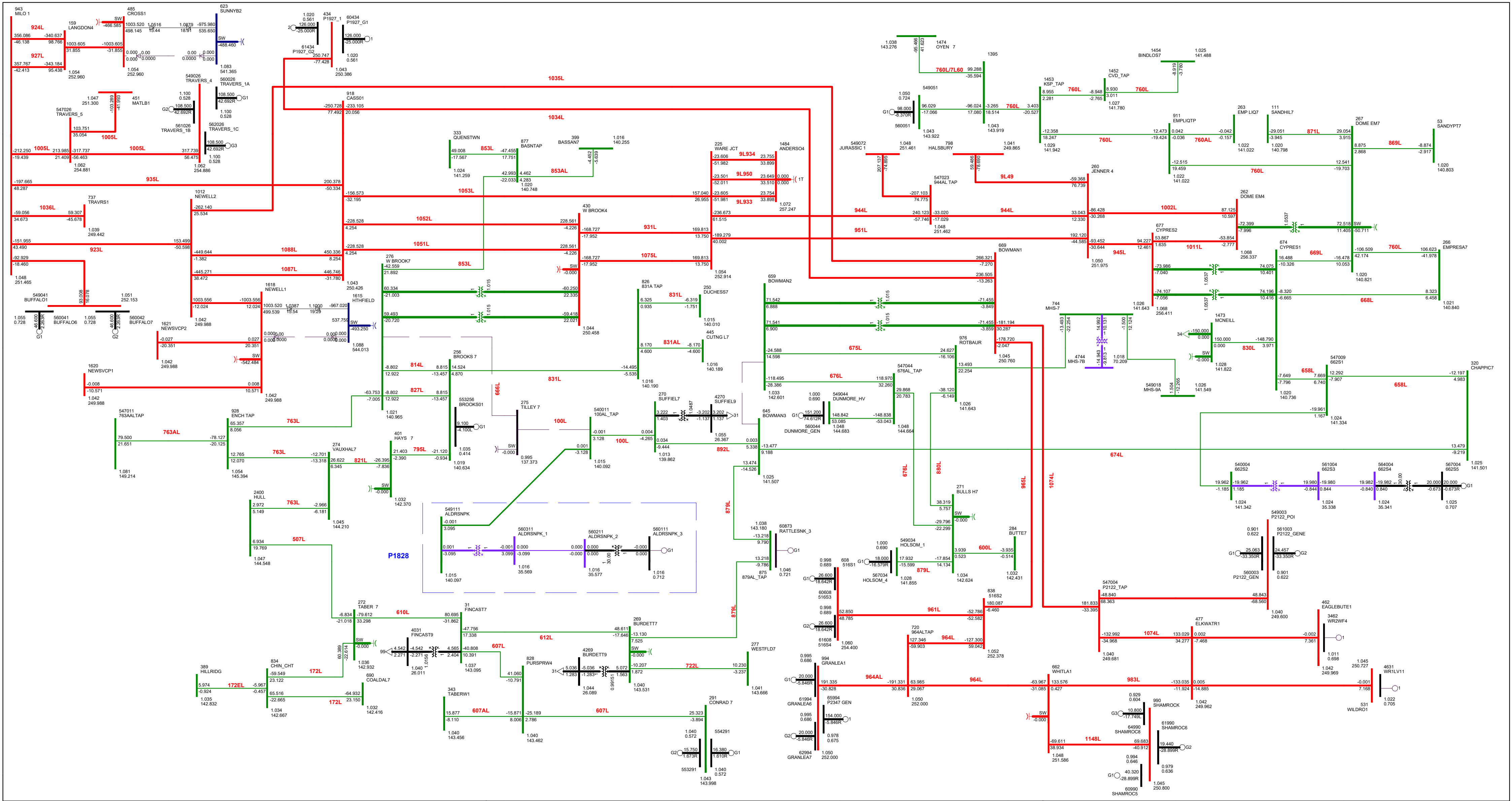
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D2-8-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 9 (POST SENSITIVITY PROJECT)-RAS181)
TUE, AUG 22 2023 12:50

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

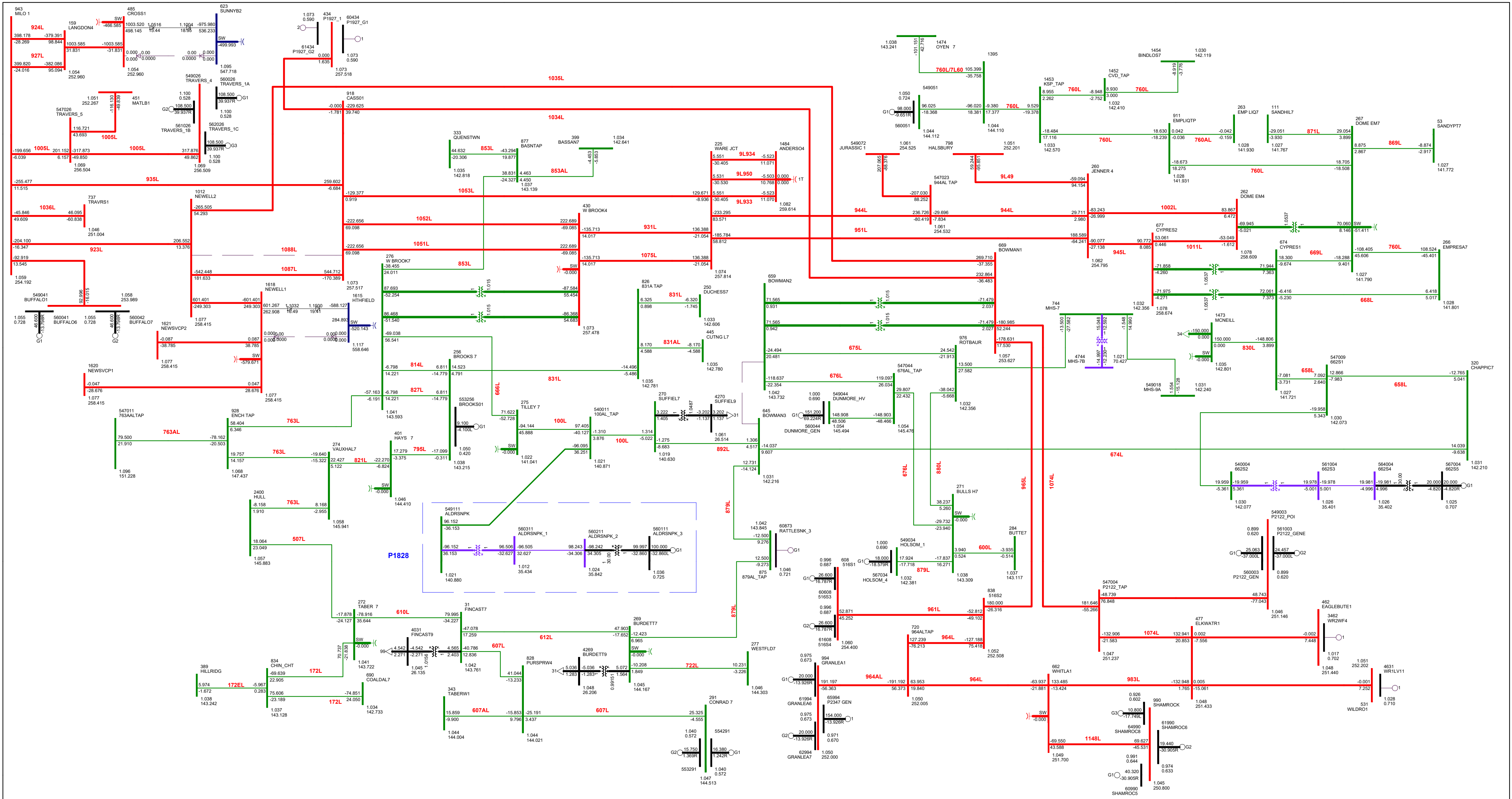
BC Import: -463.068 MW   Sask Import: -150.000 MW

EATL: -1000.000 MW   WATL: -800.000 MW

FIGURE D2-15-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 9 (POST SENSITIVITY PROJECT)-RAS209
TUE, AUG 22 2023 12:51

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -291.666 MW

Sask Import: -150.000 MW

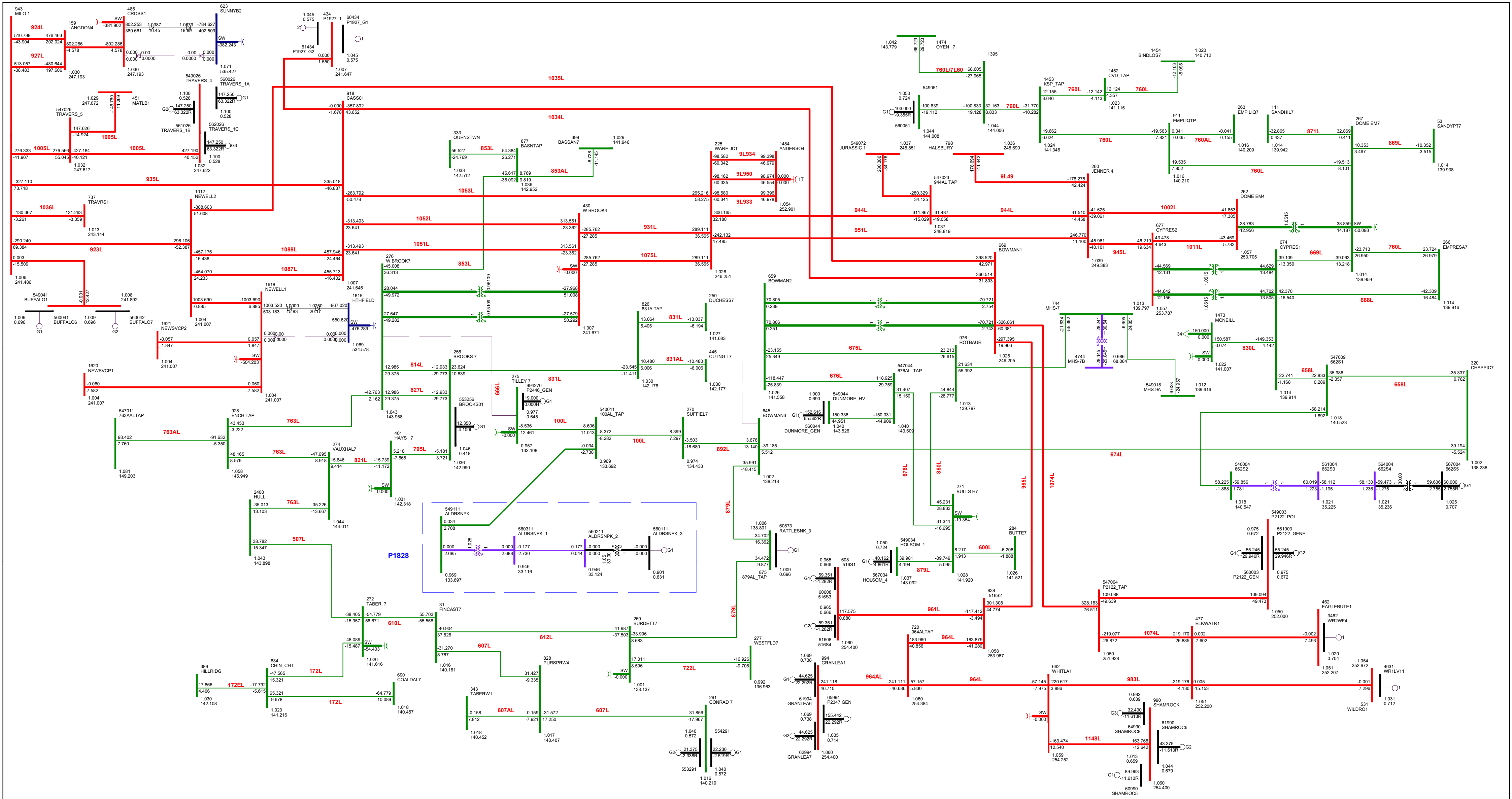
EATL: -600.000 MW

WATL: -800.000 MW

FIGURE D2-17-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 9 (POST SENSITIVITY PROJECT)-RAS197
TUE, AUG 22 2023 12:51

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -450.237 MW

Sask Import: -150.000 MW

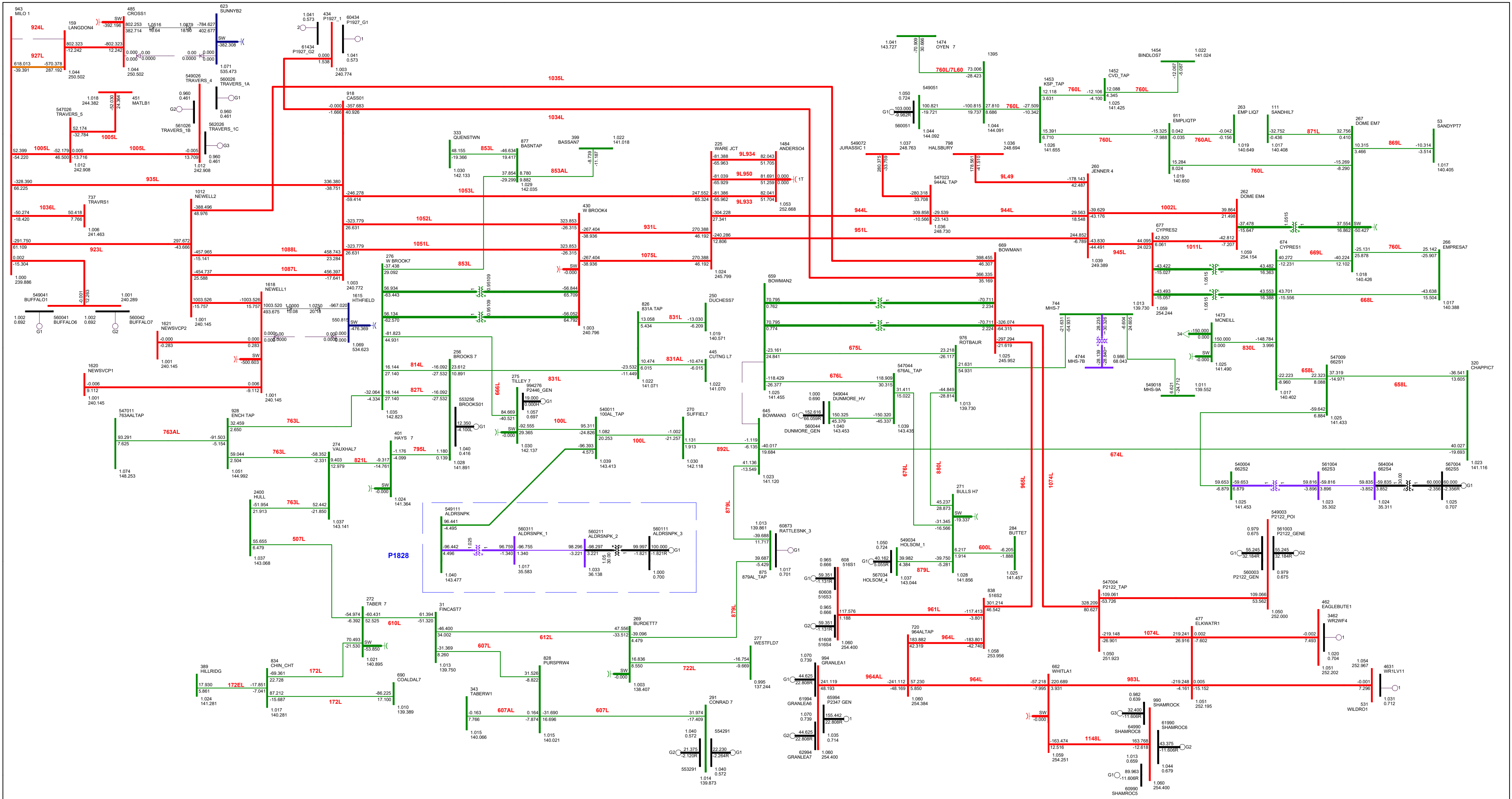
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS209)
TUE, AUG 22 2023 12:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -119.969 MW

Sask Import: -150.000 MW

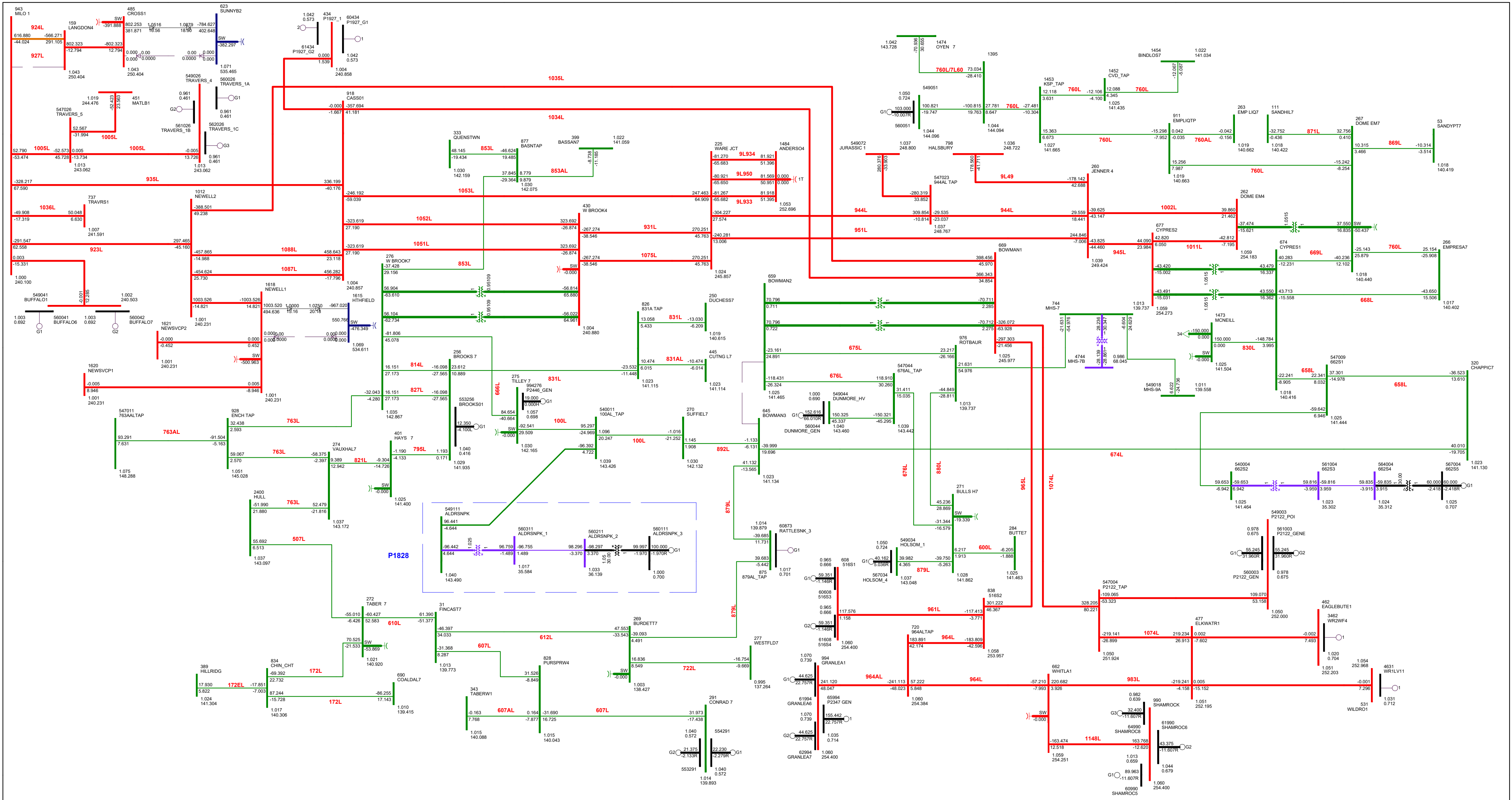
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-8-N-1: 924L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS175
TUE, AUG 22 2023 12:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -116.867 MW

Sask Import: -150.000 MW

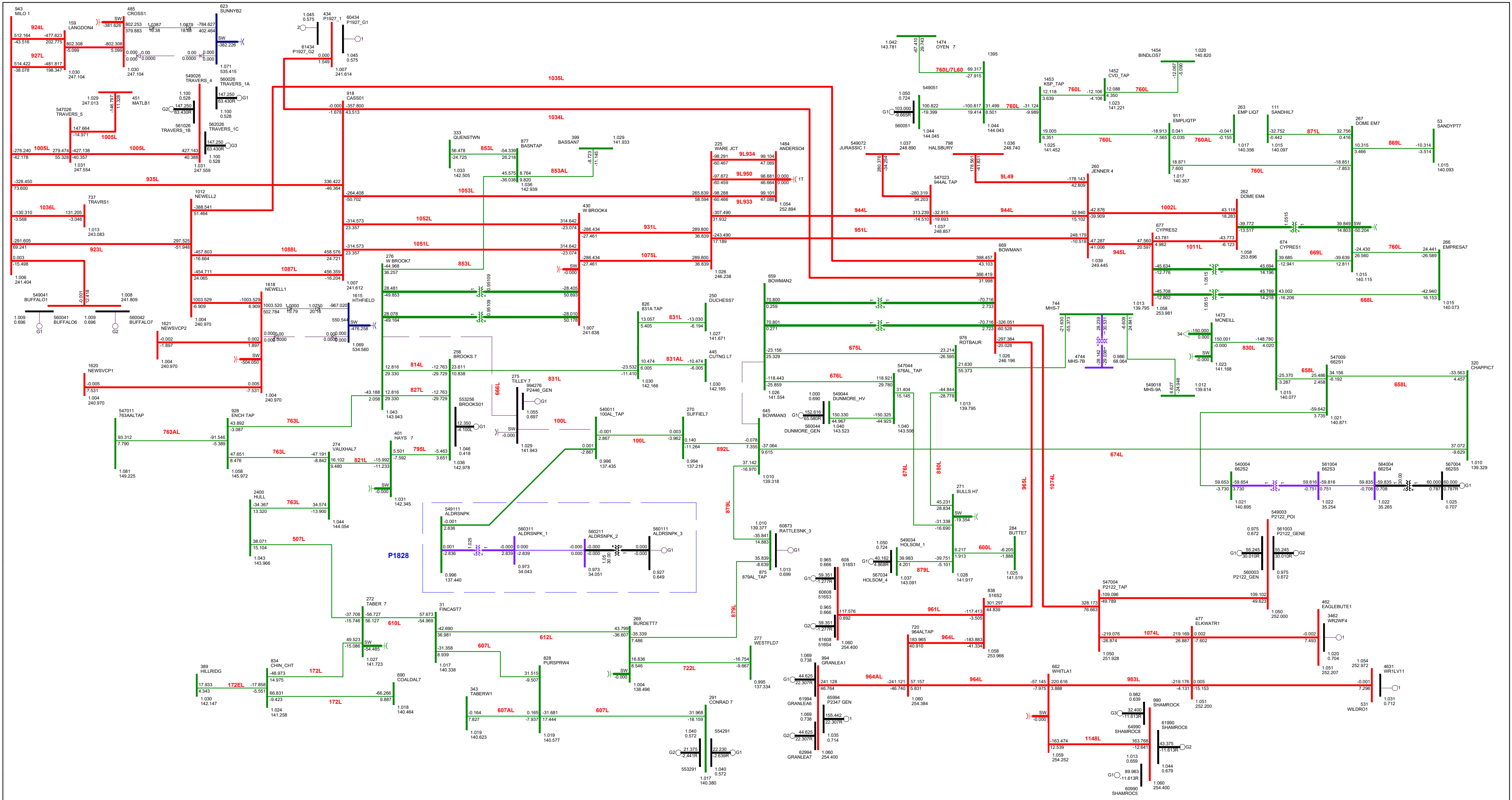
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-9-N-1: 927L(LANGDON 102S TO MILO 356S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS175
TUE, AUG 22 2023 12:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -455.241 MW

Sask Import: -150.000 MW

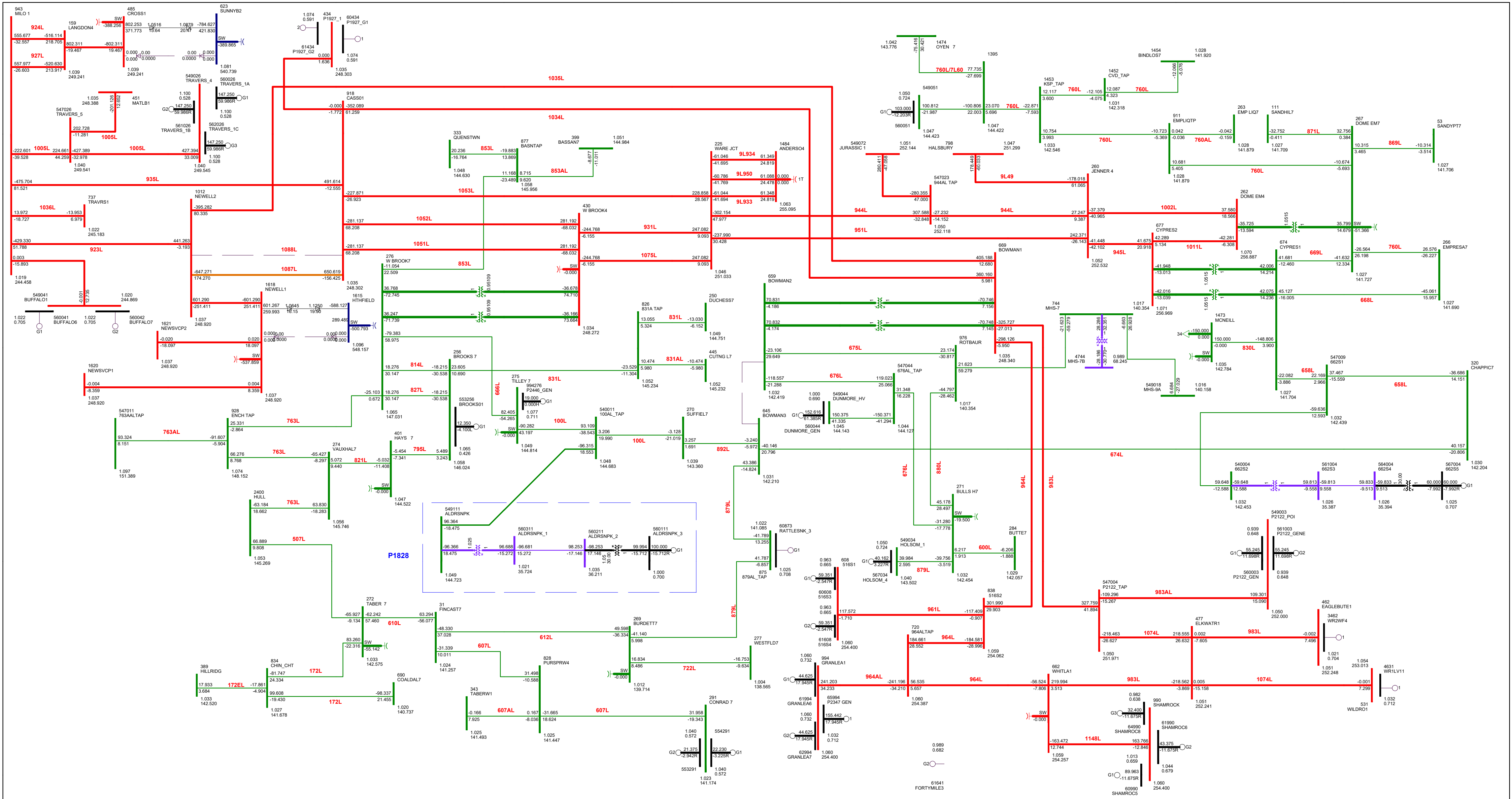
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-10-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS209
TUE, AUG 22 2023 12:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -202.209 MW

Sask Import: -150.000 MW

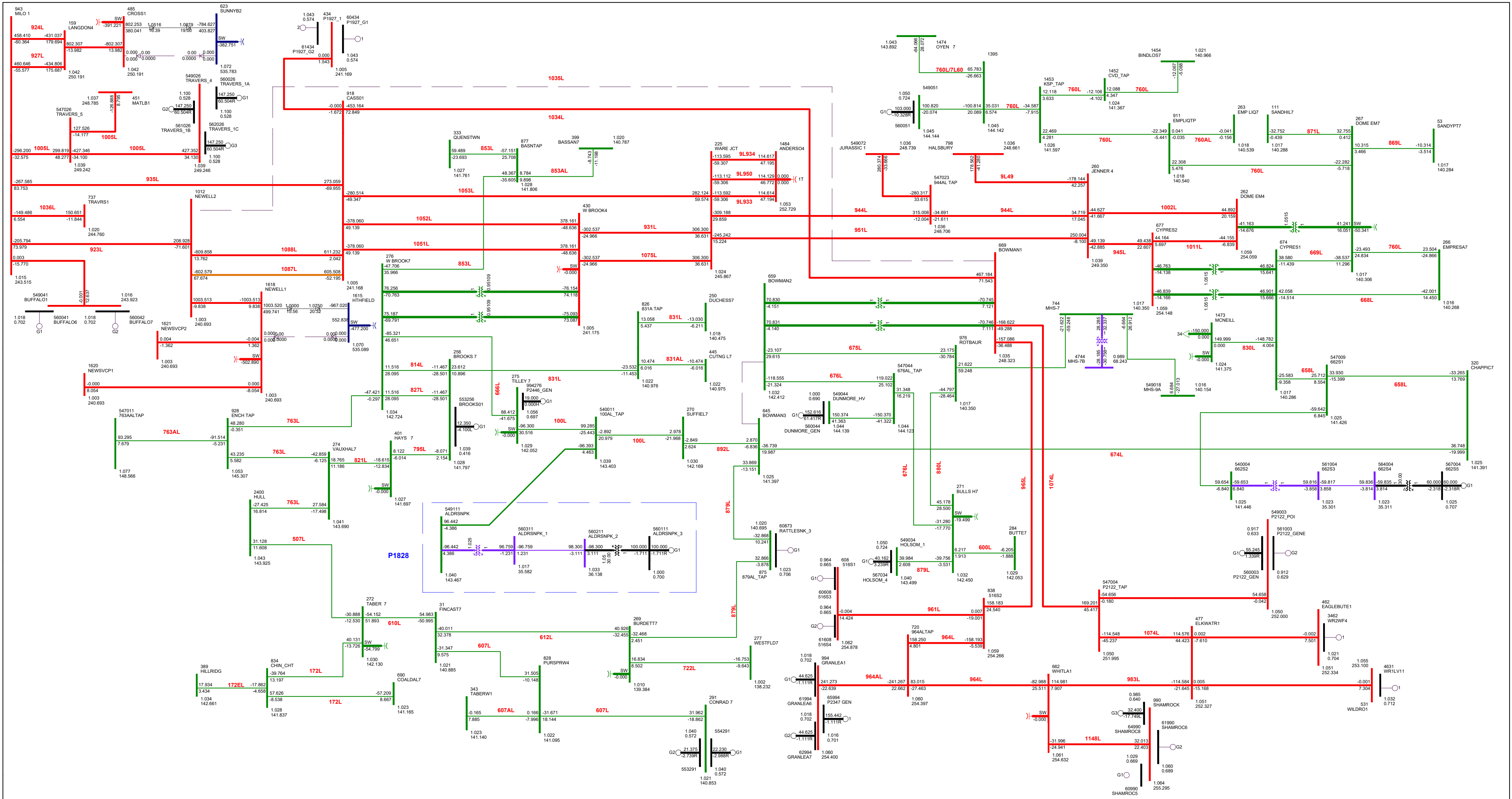
EATL: -600.000 MW

WATL: -800.000 MW

FIGURE D3-11-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS197
TUE, AUG 22 2023 12:57

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -282.409 MW

Sask Import: -150.000 MW

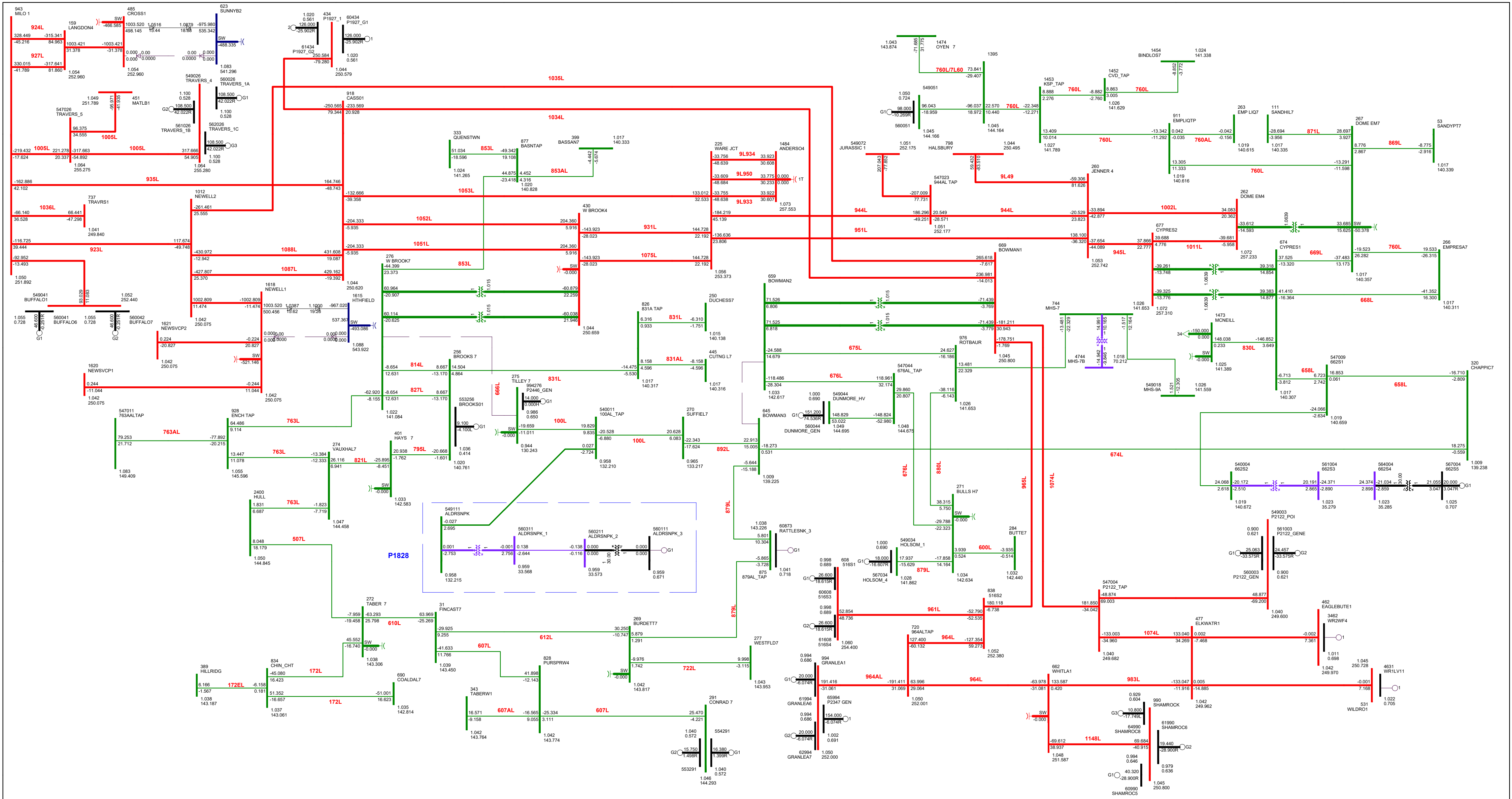
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D3-12-N-1: 1035L (BOWMANTON 244S TO NEWELL 2075S)
2025 SUMMER PEAK - SCN 12 (POST SENSITIVITY PROJECT)-RAS164
TUE, AUG 22 2023 12:58

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -442.065 MW

Sask Import: -150.000 MW

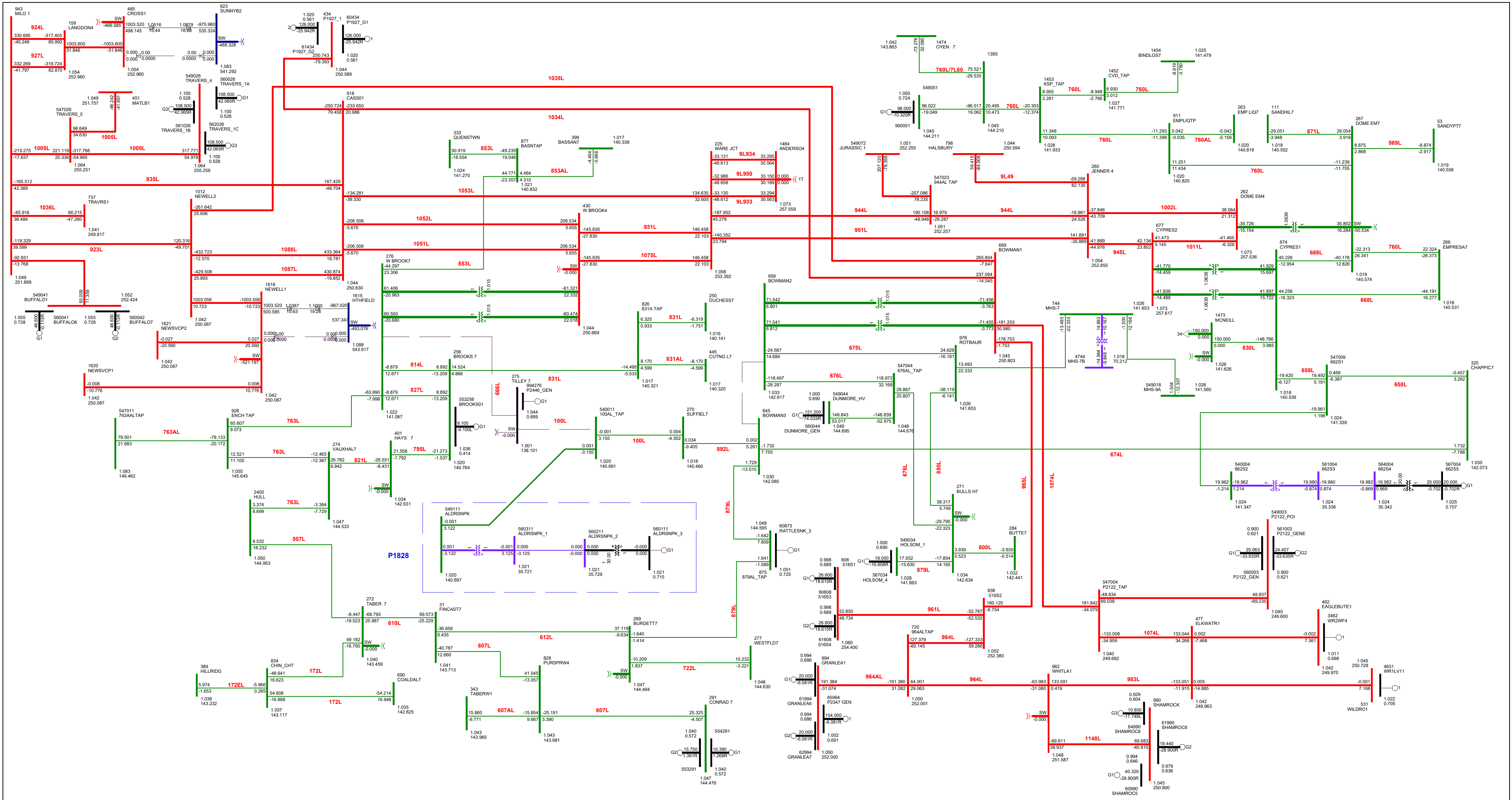
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-3-N-1: 666L(TILLEY 498S TO WEST BROOKS 28S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)-RAS209
TUE, AUG 22 2023 13:03

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -450.042 MW

Sask Import: -150.000 MW

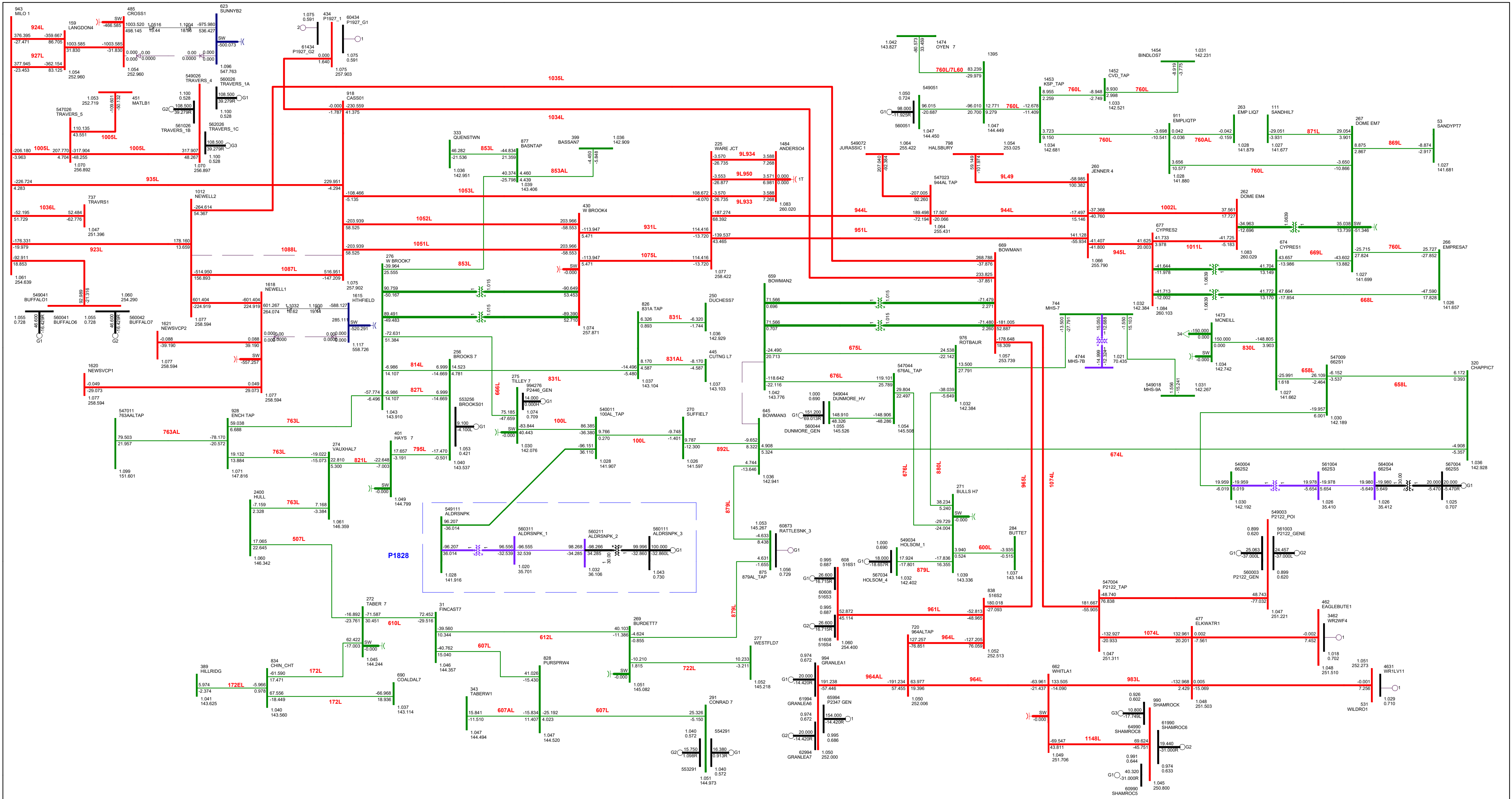
EATL: -1000.000 MW

WATL: -800.000 MW

FIGURE D4-4-N-1: 498ST1T2(TILLEY 498S TRANSFORMER T1/T2)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)-RAS209
TUE, AUG 22 2023 13:03

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000



P1828 HEP Alderson Solar Project

BC Import: -296.449 MW

Sask Import: -150.000 MW

EATL: -600.000 MW

WATL: -800.000 MW

FIGURE D4-5-N-1: 1088L (CASSILS 324S TO NEWELL 2075S)
2025 SUMMER LIGHT - SCN 13 (POST SENSITIVITY PROJECT)-RAS19
TUE, AUG 22 2023 13:03

Bus - Voltage (kV/pu)
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A

kV: <=25.000 <=69.000 <=138.000 <=240.000 <=500.000 >500.000

Attachment I: Dynamic Data and Assumptions

```
/*********************** PV GENERATION GENERIC MODELS ***************************/
/********P1828 HEP Alderson Park 100 MW Solar(G1), T-tap on 100L*********/
/
/STAGE-3
/
560111 'USRMDL' G1 'REGCAU1' 101 1 1 14 3 4 1 0.20000E-01 10.000 0.90000
0.500 1.2200 1.2000 0.80000 0.40000 -1.3000 0.20000E-01 0.70000
9999.0 -9999.0 1.0000 / Inverter

560111 'USRMDL' G1 'REECAU1' 102 0 6 45 6 9
0 0 1 0 0                                      0
0.90 1.1 0.01 -0.10 0.10 1 1.0 -1.0 1.00        0 0 0
0.01 0.60 -0.60 1.10 0.9 0.3 5.0 0.5 0.0        0
0.01 99 -99 1 0 1.0 0.01
0.00 0.01 0.49 0.01 0.5 1 1.2 1
0.00 0.01 0.49 0.01 0.5 1 1.2 1/ Electrical control

560111 'USRMDL' G1 'REPCAU1' 107 0 7 27 7 9
560311 560311 560211 'L1' 1 1 1
0.020000 18.000 5.0000 0.0000 0.75000E-01 0.0000 0.0000 0.0000 0.20000E-01 0.1000
-0.10000 0.0000 0.0000 0.43600 -0.43600 0.10000 0.50000E-01 0.25000 0.00
0.0000 999.00 -999.00 999.00 -999.00 0.10000 20.000 0.0000 / Power plant controller
```