



AESO Recommendation Paper

Milestones and Related Process Steps for Southern Alberta Transmission System Reinforcement

October 9, 2009

Table of Contents

| | |
|---|-----------|
| 1. Introduction | 2 |
| 2. Purpose..... | 2 |
| 3. Background | 3 |
| 4. AESO Obligations in Transmission Development..... | 4 |
| 4.1 Legislative and Policy Framework | 4 |
| 4.2 Assessment of Need | 5 |
| 4.3 Use of Milestones | 5 |
| 4.4 | 6 |
| 4.5 | 6 |
| 5. Milestones for the SATR Project | 7 |
| 5.1 Use of Milestones in SATR..... | 7 |
| 5.2 Milestones outlined in NID | 8 |
| 5.3 Proposed Milestones | 8 |
| 6. Monitoring & Reporting | 10 |
| 7. Summary | 13 |
| 8. Next Steps..... | 13 |
| Appendix – Milestones and Related Process Steps for SATR | |

1. Introduction

In its Decision 2009-126¹, the Alberta Utilities Commission (AUC) approved the Alberta Electric System Operator's (AESO) Southern Alberta Transmission System Reinforcement Need Identification Document (SATR or SATR NID), including the AESO's preferred option, Alternative 1A.

The Commission found that the draft milestone identification and monitoring process proposed by the AESO in the SATR NID² complied with the relevant provisions of the *Transmission Regulation* (TReg), that the milestones identified would be effective for the determining the ongoing certainty of the identified need, and would allow the AESO to effectively monitor the triggers for the future facilities proposed.

The Commission, in light of the draft nature of the milestones and the AESO's intention to conduct further consultation concerning same, directed the AESO file the final milestones and related process steps by December 31, 2009, identifying any changes from the document discussed, and seeking an amendment to its SATR NID approval to reflect such changes.

This paper summarizes the consultation undertaken by the AESO and presents the AESO's draft recommendations on milestones and monitoring process for the approved SATR project. The milestones are useful in reassessing transmission needs for the three stages of the project development as outlined in the SATR NID.

The AESO is required to ensure that there are adequate transmission facilities available so that the system can operate in a safe, reliable and efficient manner and to promote a fair, efficient and openly competitive market for electricity. The AESO uses demand and generation forecasts, information on customer interest for system access service and system studies to determine needs for transmission. The results are integrated into transmission planning processes that allow sufficient time for the proactive development of system transmission. The milestones and monitoring processes outlined in this paper will verify system need for the staged development of the SATR and are developed based on these same obligations and expectations – that is, the AESO must forecast need and be proactive in developing transmission.

2. Purpose

The AESO's obligations related to transmission system planning and need identification are clearly outlined in the Electric Utilities Act (EUA) and related regulations... This paper, in accordance with the Commission's directions in Decision 2009-126 serves to provide direction related to the appropriate milestones and monitoring process to implement transmission development for wind interconnections in Southern Alberta.

¹ Alberta Electric System Operator, Needs Identification Document Application, Southern Alberta Transmission System Reinforcement.

² As Appendix A to the AESO's Reply Evidence

This paper does not re-evaluate the need for the use of milestones nor should it be construed as establishing any precedent related to when milestones will be used in future need applications.

Consistent with subsection 11(4) of the TReg, this paper identifies appropriate milestones and the process for monitoring them for the SATR project, given that it will proceed as a staged development.

The AESO looks forward to receiving stakeholder feedback on this recommendation paper and its proposals. The purpose of these consultations is to finalize the milestones and related process steps to assess and verify need for the future stages in the SATR development. The final section of this document outlines the proposed timeline for consultation to enable the AESO to comply with the directions of the Commission prior to year end.

3. Background

As identified consistently through ongoing industry consultations and in the SATR NID, additional transmission development is needed to facilitate wind development in Southern Alberta. Of the approximately 12,000 MW of wind development that has expressed an interest to interconnect in Alberta, 8,000 MW are in the south and cannot be connected without significant transmission reinforcements. The SATR NID provided the details related to the generation scenarios and load forecasts which led the AESO to conclude that between 1,200 and 2,700 MW of additional wind in the South requires transmission reinforcement over the next ten years. In order to expedite transmission development and provide certainty to Alberta industry, the AESO included a staged development plan in the SATR NID, and elected to identify milestones to verify forecast need at various stages of the project.

In general terms, the incremental transmission development outlined in the SATR NID includes:

- Transmission capacity of 1,200 MW in stage 1, taking total southern capacity from 500 MW to 1,700 MW³;
- Transmission capacity of 1,000 MW in stage 2, for a total capacity of 2,700 MW; and
- Transmission capacity of 500 MW in stage 3, for a cumulative Southern Alberta capacity of 3,200 MW.

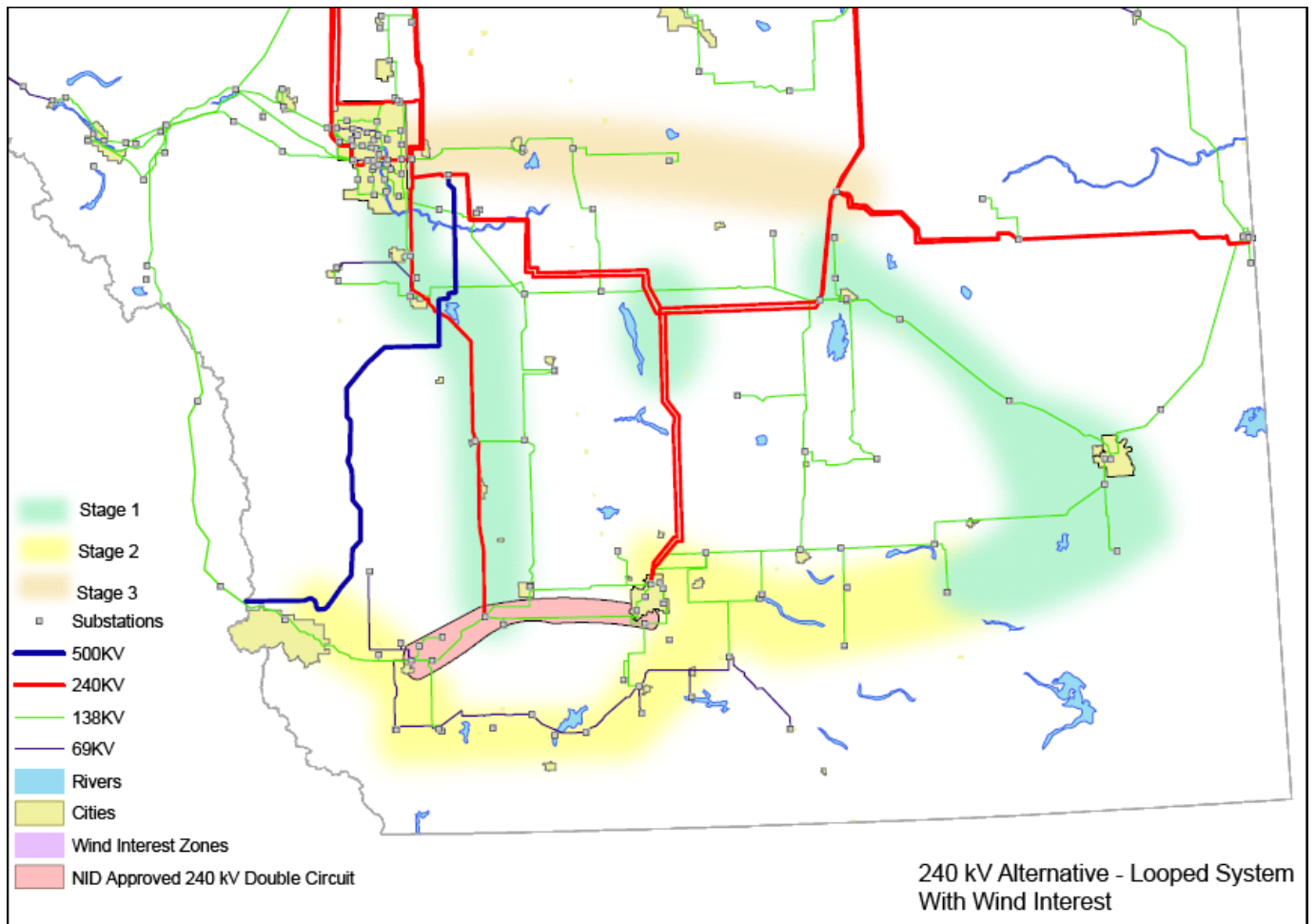
The area affected by these 3 stages is summarized below and shown in the map that follows:

- Stage 1 - comprise transmission development in the western as well as eastern parts of the region. The western reinforcement is proposed from south of

³ The 500 MW of wind on the system corresponded to the installed capacity when the SATR NID was filed.

Calgary to Peigan. In addition, minor reinforcements are also proposed at Coleman and Milo stations. The eastern reinforcement will take place in the area from West Brooks to Medicine Hat and from Medicine Hat to Burdett. This stage is shown in green on the map below.

- Stage 2 - consists of transmission development mostly in the southern parts of the region. Transmission development will take place between Goose Lake and Crowsnest Pass, Goose Lake and a proposed substation Sub C located south of Taber, from Sub C to Lethbridge and from Sub C to Burdett. This stage is shown in yellow on the map below.
- Stage 3 - consists of transmission development between Ware Junction and Calgary and is shown in light brown on the map below.



Decision 2009-126 approved the need identified by the AESO, which had been determined and assessed by the AESO based on forecast, interest and studies. The AESO intends to finalize milestones and the process for monitoring them on these same criteria.

4. AESO Obligations in Transmission Development

The AESO's planning and assessment of transmission system enhancements or expansions to meet the needs of Alberta is informed by the EUA and TReg, as well as government policy. The legislative and policy framework is clear that the AESO is to be proactive in its planning and development of transmission.

4.1 Legislative and Policy Framework:

The EUA sets out the powers and duties of the AESO, and with respect to transmission planning is specifically found subsections 5(b) and Section 17(g) which require the AESO:

- to provide system access service on the transmission system and prepare an ISO tariff;
- to direct the safe, reliable and economic operation of the interconnected electric system;
- to make arrangements for the expansion and enhancement of the transmission system.

Section 16 of the EUA indicates that the AESO "... must exercise its powers and carry out its duties, responsibilities and functions in a timely manner..." The element of timely delivery is reiterated in both the TReg and government policies which provide direction that the transmission system must be built proactively to ensure that it is uncongested.

Paragraph 15(1)(e) of the TReg, for example, requires the AESO to plan a transmission system that is sufficiently robust to ensure that 100% of the time, transmission of all anticipated in-merit electric energy can occur when all transmission facilities are in service.

From a policy perspective, it is equally clear that the AESO should work to develop transmission in a timely fashion. The Provincial Energy Strategy (PES) provides clear direction that transmission is required both as a facilitator of Alberta economic development and to support "greening" objectives, including building transmission to renewable energy zones.

4.2 Assessment of Need

In terms of assessing need, the legislative framework is clear that the ISO is to do so based on system forecasts. Both section 33 of the EUA and section 8 of the TReg confirm this:

- "The ISO must forecast the needs of Alberta and develop plans for the transmission system to provide efficient, reliable and non-discriminatory system access services and the timely implementation of required transmission system expansions and enhancements." (S33 EUA)

- “In forecasting the needs of Alberta under section 33 of the Act, the ISO (a) must anticipate future demand for electricity, generation capacity and appropriate reserves ... so that transmission facilities can be planned to be available in a timely manner to accommodate the forecast load and new generation capacity.” (S8 TReg)

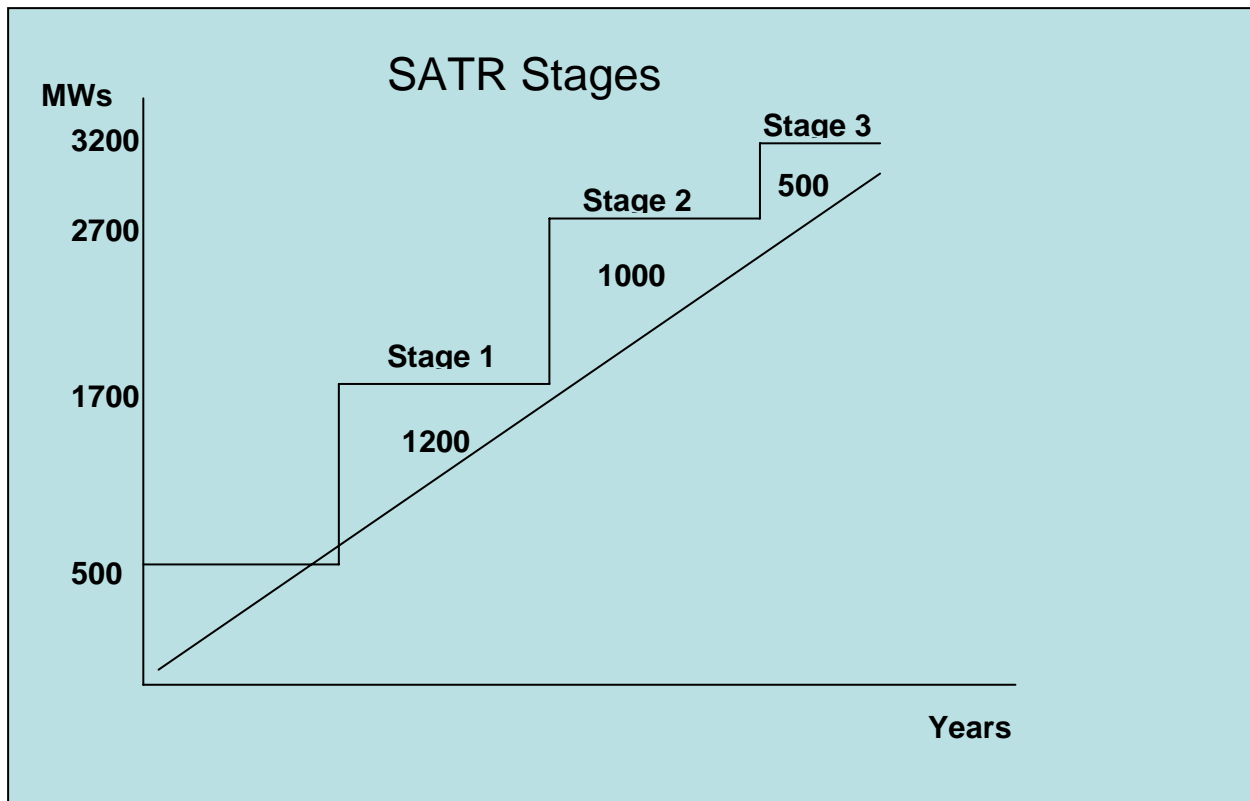
Through its regular system monitoring and forecasting, the AESO confirmed a need for transmission in the South Area to accommodate wind generation and outlined this need in its SATR NID. Because the AESO’s preferred alternative involved a staged project over time, it also elected to identify milestones to be used to provide confidence to industry that future wind development will continue as outlined in the AESO forecast, thereby confirming the need for the SATR project elements.

4.3 Use of Milestones

For any NID that it files with the Commission involving a preferred option to construct a future transmission facility, the AESO, through its assessment of forecast, studies, and interests, must be “reasonably certain” that transmission is needed . To this end, the AESO may elect to specify milestones to determine the certainty of that need.

Given the purpose of such milestones, it is reasonable that they be based on the same or similar measures as the original need assessment. It should further be noted that a determination by the AESO to adopt milestones is consistent with the fact that the AESO continually assesses changes in the market, revises and updates system studies and may amend a NID at any time. Nonetheless, when future milestones are used in a NID, it is prudent that the AESO work with industry to confirm the milestones as part of the process.

The following diagram assists, at a high level, in the interpretation of the forecast for wind development and how development stages are required to ensure that transmission is available in a timely fashion to serve these developments. As the forecast of wind development is expected to increase over time (as shown in stages on the graph), the incremental generation development will exceed transmission system limits without incremental staged transmission development to facilitate that new generation. While the transmission development will be a function of generation projects and not time, the timing element is of importance to ensuring that transmission development action is taken in a proactive fashion.



5. Milestones for the SATR Project

Any milestones should be effective and efficient in reassessing or reconfirming the original need as outlined in the NID. The use of milestones for the SATR project allowed the AESO to submit a longer term NID for consideration by industry with a commitment to monitor the “known uncertainty” related to generation additions from a larger queue of applications, each having a potential incremental impact on market conditions. It was viewed to be prudent to take this approach so as to avoid separate NIDs for each stage, while monitoring underlying generation development throughout the process.

5.1 Use of Milestones in SATR

The SATR NID outlined a number of potential milestones for consideration, each designed to trigger a particular key action for the SATR project. For example, the SATR NID referred to a “need milestone”, a “review milestone”, a “development milestone” and a “construction milestone”. A brief outline of each is provided as an explanation as well as to set the context for the AESO’s current recommendation related to the use of a single milestone:

- The Need Milestone – to set a process in place after a certain amount of generation interest that the AESO should develop a NID, outlining the need for transmission. As this obligation is clearly indicated as a legislative requirement

for the AESO and is part of regular cycle of evaluation, the AESO is recommending that a “Need Milestone” is redundant and therefore not required.

- The Review Milestone – to trigger a review of need by the AESO as system forecast and conditions change. For similar reasons, this milestone is not required and is not being recommended.
- The Development Milestone – to trigger a direction to a Transmission Facility Owner (TFO) to commence work on the facility application for any particular transmission development. While it is the first phase in the formal development, all parts of the project relate to development, so a better name for this milestone is “Facility Application Milestone” as that is what is being triggered. The AESO is open to a discussion as to whether a milestone is needed in this case. The authority is clear under the legislation and regulations that the AESO can direct a TFO to commence work in this regard at any point in the “need assessment” cycle ranging from early identification of need, to during or after a need application is filed, or to after a need is approved by the AUC. Since the commitment at this stage is approximately 5% of the costs of any project and since timing is so critical (to ensure that there is sufficient planning to meet future transmission development), the AESO recommends that it commit to industry to report on key indicators and data that lead to an AESO directive in this regard, but that a formal milestone is not required.
- The Construction Milestone – to “trigger” actual construction. What is confusing is that following the directive to commence work on a facility application, the TFO can commence work on construction following approval by the AUC of its facility application. This milestone becomes a “check” with AESO to verify the need and direct construction or may act as an off-ramp to delay or slow construction.

5.2 Milestones outlined in NID

The original SATR NID included Table 7.2-1 outlining key milestones related to the stages of development for the three stages of the SATR project. Subsequently, in Appendix “A” to its Reply Evidence, the AESO filed a draft alternative to those milestones for consideration by industry. The following outlines the key points relative to both and why the AESO has reconsidered its position in the milestones recommended in this paper.

- Table 7.2-1 in NID – While the milestones outlined reflected macro system conditions, it was not clear from the table what step was triggered by any particular milestone.
- Appendix “A” – This draft attempted to demonstrate the use of milestones as direct actions following key events. However, the milestones identified were too specific and the trigger proposed came after the approval of customer facility applications, which would be too late for the AESO to complete construction of new transmission.

Accordingly, and since the hearing of the SATR NID, the AESO has worked with industry to develop a new set of recommended milestones associated with key

terminology and concepts already established throughout the SATR hearing. The proposed milestones, as further discussed below, relate to providing certainty to advance the SATR project development, reasonably balanced to allow for the transmission development to occur in a proactive and timely manner.

5.3 Proposed Milestones

The proposed milestones for construction have been developed to reflect system studies and the forecast of resulting congestion that would occur in key areas given new generation additions. These milestones are relevant to indicate when transmission is required. The milestones are proposed to be measured against accepted Interconnection Proposals (IPs) on a as an indicator of confirmed system need. This is discussed below under monitoring and reporting.

The table below outlines the study results that create milestone definitions for each stage and by each area (SW, SE). As noted in the SATR hearing, over the course of project development, the AESO needs to verify not only how much project development will occur, but where that development will be sited. These milestones reflect that requirement as well.

| Stage | Area | Study Results | Milestone |
|-------|------|---|--|
| 1 | SW | (911L Rebuild) Studies have shown that with a 500 MW of additional* generation in either Goose Lake or Peigan or both areas, the 911L is loaded at 100% of its rated capacity. Therefore this level of new generation has been considered as a milestone to rebuild 911L. | 500 MW of generation forecast in Pincher Creek/Peigan region |
| 1 | SE | (W. Brooks – Sub D Line) The W. Brooks – Sub D line is needed to connect any new* wind farm located in the Burdett and Medicine Hat area of the system. At present there are only 138 kV lines in the area that do not have any additional capacity to interconnect the wind farms. | Any wind forecast in the Burdett/Med Hat area |
| 2 | SW | (Goose Lake – Crowsnest Line) The capability of Goose Lake – Peigan 240 kV line is 600 MVA per circuit (summer) and so another outlet from the area is needed as soon as the flow on one circuit reaches 600 MVA under contingency of the other. Studies have indicated that additional* generation of 600 MW around Pincher Creek area will result in overloading of the Goose Lake – Peigan 240 kV circuit under the contingency of the other circuit. | 600 MW of generation forecast in the Pincher Creek area |
| 2 | SW | (Goose Lake – Sub C Line) This reinforcement is required to interconnect any new* generation located between Sub C and Goose Lake. | Any wind forecast in the Goose Lake – Sub C area |
| 2 | SW | (Sub C – Sub D Line) This line is needed to connect any new* wind farm located in | Any wind forecast in the Sub C – Sub D area |

| | | | |
|---|----|---|--|
| | | the area. At present there are only 138 kV lines in the area that do not have any additional capacity to interconnect the wind farms. This line may also be required as part of the W. Brooks – Sub D – Sub C – MATL loop to address reliability concerns if a large amount of generation is connected in a radial manner on the W. Brooks – Medicine Hat line. | |
| 2 | SW | (Sub C – MATL Line) This line is needed to connect any new* wind farm located in the area. At present there are only 138 kV lines in the area that do not have any additional capacity to interconnect the wind farms. This line may also be required to complete the loop W. Brooks – Sub D – Sub C – MATL if a large amount of generation is connected radially to the W. Brooks – Sub D line to address the reliability concerns. | Any wind forecast in the Sub C – MATL area |
| 2 | SE | (Blackie, Ware Jn & Cypress Area Modifications) The Blackie area modifications are required to prevent the overloading of 853L W. Brooks – Queenstown 138 kV line. This line is overloaded when 400 MW of generation is online in the south east region i.e. Burdett, Medicine Hat and Empress areas. Ware Jn & Cypress modifications are required as the wind interest in SE grows. | 400 MW of wind forecast in the Burdett, Medicine Hat and Empress area combined or studies indicating overloading or voltage problems in the SE |
| 3 | SE | (Ware Junction – Langdon Line) This line is required to relieve the Ware Jn – W. Brooks and W. Brooks – Milo 240 kV lines under heavy generation in the south east region. It also provides relief for the Milo – Langdon 240 kV line that could be overloaded from generation located in the south east region as well as around the Lethbridge area. | Studies indicating overloading in the SE Alberta’s 240 kV network |

*Considering December 30, 2008 as the reference time frame.

The milestones identified in the right column of the table above will be used to assess need in any particular area and to trigger construction in a timely fashion to ensure transmission development in advance of generation development. The AESO will need to monitor need against project status, but also timing to ensure there is sufficient time for transmission development.

In terms of the “facility application milestone”, the AESO proposes to report and disclose when it intends to issue a directive to a TFO. However, given that timing is a key element as to when this work should occur (to allow up to 2 years for both planning, equipment and other processes), the AESO needs some discretion at this stage. In short, the milestone for construction is similar to the milestone for a directive for a facility application; however, the decision to proceed is based on pace and timing. The discretion required is already outlined by the authority provided to the AESO in the regulations to take action at any time once a need has been determined.

6. Monitoring & Reporting

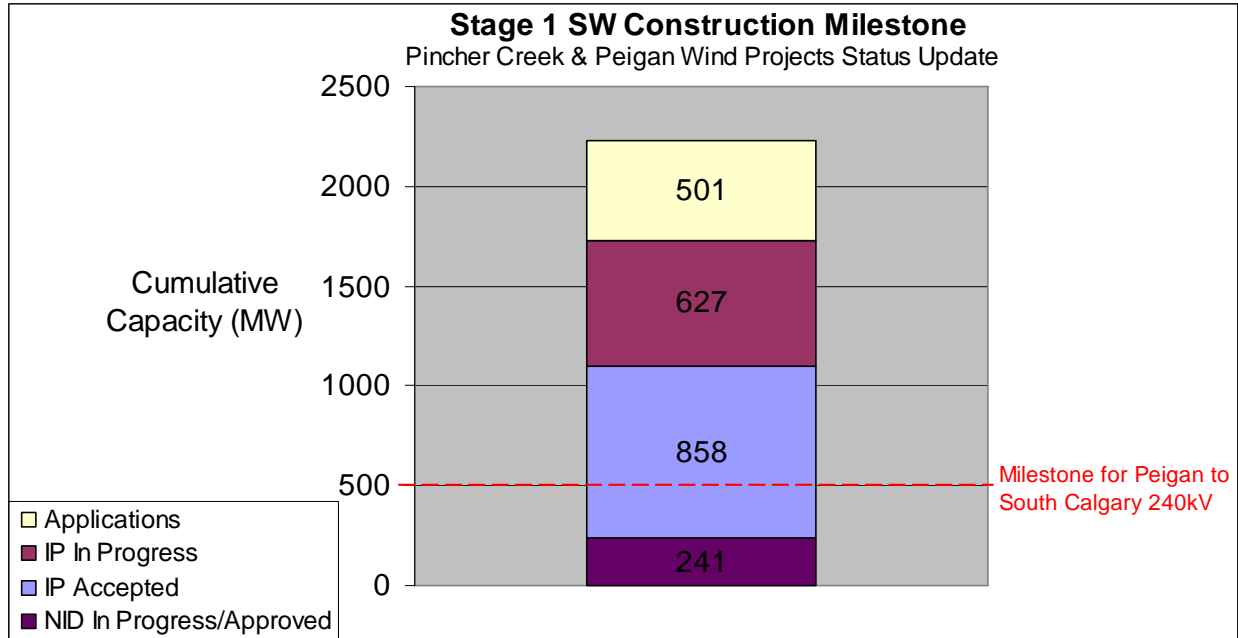
The AESO, having elected to utilize milestones for the SATR project, must identify the process by which it will monitor and determine when such milestones are met.

The AESO monitoring process will be based on key indicators that are also used to confirm / assess need based on forecast, interest and studies.

- The forecast is updated annually and as key conditions change, and reflects overall system demand, supply and market changes. The forecast outlines how much wind is expected to be developed, a result of key generation development scenarios. It is proposed that the AESO continue to monitor its macro forecast regularly and report on key indicators. The key forecast indicators to be reported on include, but are not limited to, the following;
 - Capacity requests in the wind interconnection queue as an indicator of forecast by area - this information will be used to assist with assessing locations.
 - Total system interest will be monitored by reporting on Interconnection Proposal (IP) developments and acceptance. It is proposed that the total megawatts of accepted IPs indicate a strong reflection of generation interest.
 - Market policy indicators (green credits, government policy etc) that assist with assessing wind growth potential.
- Studies will be conducted on a regular basis and at least annually to assess how incremental wind additions and system changes are impacting planned congestion.

The AESO also proposes to monitor for confirmed system need by monitoring the general forecast data above in conjunction with a focus on specific accepted IPs in any particular region to verify the forecast and interests. This more detailed information is critical to assessing not only how much wind development may occur, but where it will be located. It should be noted that as further work is completed on the interconnection queue process, there may be an opportunity to use information related to Gate 1 in that process as further verification.

As an example, in the Pincher Creek/Peigan area, there are over 1000 MWs of accepted IPs confirming the customer interest in the area and validating the system forecast. Accordingly, this milestone would be given a “green light” indicating a need to commence work on construction processes.



The monitoring of data indicates that the capacity interest in this area is consistent with the overall forecast for significant development in the area; the fact that over 1000 MWs of interconnection proposals have been accepted verifies the interest in the area; and there have been no changes in the studies to indicate that the need has changed. In short, the AESO can confidently conclude that the construction milestone has been met and the transmission development should proceed as planned for this particular line / stage / area.

A summary of the proposed quarterly monitoring against the proposed milestones is noted below including update data as at October 2009.

| Q4 Status Report against Construction Milestones | | | | | | | |
|--|------|--|-------------------|-----------------|--------------|---------|--------|
| Stage | Area | Milestone | Capacity Interest | IPs in Progress | IPs Accepted | Studies | Status |
| 1 | SW | 500 MW of generation forecast in Pincher Creek/Peigan region | 2227 | 1726 | 1099 | n/c | |
| 1 | SE | Any wind forecast in the Burdett/Med Hat area | 2580 | 2040 | 1175 | n/c | |
| 2 | SW | 600 MW of generation forecast in the Pincher Creek area | 1437 | 1246 | 834 | n/c | |
| 2 | SW | Any wind forecast in the Goose Lake – Sub C area | 1303 | 443 | 222 | n/c | |
| 2 | SW | Any wind forecast in the Sub C – Sub D area | 405 | 350 | 0 | n/c | |
| 2 | SW | Any wind forecast in the Sub C – MATL area | 399 | 100 | 100 | n/c | |
| 2 | SE | 400 MW of wind forecast in the Burdett, Medicine Hat and Empress area combined or studies indicating overloading or voltage problems in the SE | 2679 | 2139 | 1175 | n/c | |
| 3 | SE | Studies indicating overloading in the SE Alberta's 240 kV network | 2679 | 2139 | 1175 | n/c | |

7. Summary

The AESO is committed to continually assessing transmission system need based on forecasts, interest and studies. In the case of the SATR NID, the AESO has outlined clear milestones that are intended to clarify how the system may be pressured given the addition of certain limits of megawatts on key lines in the area covered by the SATR project. These system conditions were included in the SATR NID.

This recommendation paper identifies the key milestones that will be relevant and useful in determining the certainty of need for future facilities in the context of the staged transmission development plan outlined in the SATR NID. This paper also outlines a commitment to quarterly reporting of updated status against these milestones in addition to any change in studies or directives related to this project. This monitoring and reporting process will provide transparency to industry related to the SATR project.

Finally, as work related to the AESO's interconnection queue progresses and provides new information that can be used as part of the monitoring process, it will be included in reporting.

8. Next Steps

The AESO welcomes feedback on this discussion paper. A comment matrix has been prepared to make it easier for stakeholders to submit their comments. The AESO would particularly appreciate receiving comment on:

- Issues with interpretation of legislation and policy
- Use of Milestones
- Recommended Milestones – Construction Milestone only
- Recommendation for milestones – based on studies
- Monitoring & Reporting
- Draft Milestones and Related Process Steps for Southern Alberta Transmission System Reinforcement
- Relationship of interconnection queue management process to the SATR Milestones.
- Other

All comments received will be posted to the website. After reviewing the feedback from stakeholders, the AESO will provide feedback and communicate how it wishes to proceed on the issues raised. The following dates are on note for this process:

- Comments required by October 26, 2009
- Reply to comments by November 13, 2009
- Finalized recommendation by December 4, 2009
- Expected filing with AUC by December 11, 2009

Please use the comment matrix on the AESO website to submit your feedback to Bill Strongman at bill.strongman@aeso.ca

Milestones and Related Process Steps for Southern Alberta Transmission System Reinforcement

1. General

This document clarifies the milestones the ISO will use to confirm and verify the need for system work for the Southern Area Transmission Reinforcement and how the ISO will monitor these milestones (as per the Transmission Regulation, Section 11).

Section 2 below outlines how the milestones will be used; Section 3 outlines how the milestones were determined, and Section 4 summarizes how the information for milestones will be monitored and reported.

2. Milestone Process Definition

Facility Application Activities: Those activities carried out by the AESO and the TFO prior to the issuance of a Permit and License by the AUC, including engineering, planning studies, and procurement of long lead time items. The AESO has the authority to direct TFOs to commence work on facility applications and will do this at any time during a need identification, verification or approval phase depending on the timing required to complete the work and forecast requirement date.

Construction Activities: Those activities carried out by the AESO and TFO after the issuance of a Permit and License by the AUC. In order to be proactive, this stage must be timed to ensure transmission in place in advance of need.

Facility Application Monitoring: The AESO commits to monitoring the need for a directive for facility application work and communicating such directives to industry in a timely fashion. The ISO may issue a directive for this scope of work in advance of formal need approval on any particular staged milestone, in recognition of timing, costs, system requirements. A formal milestone is not recommended.

Construction Milestone: The Milestone which, if met, will lead the AESO to direct the TFO to start Construction Activities. Generally, there is no “start” construction directive and work would proceed following approval of facility applications; however, the milestone would act as an “off ramp” as required.

3. Milestones Applicable to South System NID Application

The following milestones are specific to the circumstance of the South System NID Application:

Construction Milestone is based on system studies indicating the threshold for wind generation additions without creating congestion. The milestones are determined for each area based on specific system studies and are summarized in the charts below.

SATR Milestones

Draft for Discussion

System Project

- Forecast
- Interest
- Studies

NID Preparation and Filing

NID Approval by the Commission

Direction to a TFO to Submit a Facilities Application

Facilities Application Approval by the Commission

Construction of Facilities

Construction Milestone



Stage 1

Incremental Forecast 1,200 MW Wind per NID



| | | |
|-------------------|---------------------------|---------------|
| Milestones | Construction Items | Status |
|-------------------|---------------------------|---------------|

SW
500 MW of gen forecast in Pincher Creek/Peigan Region

SW
Peigan to South Calgary 240kV line



SE
Any wind forecast in the Burdett/Medicine Hat area

SE
West Brooks to Medicine Hat 2 to Sub D 240kV line



Stage 2

Incremental 1,000 MW Wind / 2,200 MW Cumulative



| | | |
|-------------------|---------------------------|---------------|
| Milestones | Construction Items | Status |
|-------------------|---------------------------|---------------|

SW
600MW of gen forecast in the Pincher Creek Area

SW
Crownsnest Interconnection from Goose Lake



*Any wind forecast in the Goose Lake - Sub C - Sub D - MATL areas

*Goose Lake to Sub C 240 kV line



*Sub C to MATL 240 kV line



*Sub C to Sub D 240 kV line



SE
400MW of gen forecast in the Burdett, Medicine Hat and Empress areas combined or studies indicating overloading or voltage problems in the SE

SE
System modifications in Blackie, Ware Junction & Empress areas



Stage 3

Incremental 500 MW Wind / 2,700 MW Cumulative



| | | |
|-------------------|---------------------------|---------------|
| Milestones | Construction Items | Status |
|-------------------|---------------------------|---------------|

SE
Studies - indicating overloading in the SE Alberta's 240 kV network

SE
Ware Junction to Langdon 240kV line



4. Monitoring of Milestones for SATR

The AESO commits to updating information on the milestones and any directives related to Facility Applications using the following information and process:

Facility Application Directive is based on an assessment related to time required to complete facility application work in advance of required construction and the verification of need. The AESO will monitor the same information outlined in construction milestone below and report on same along with providing notice of any issued directives as they occur.

Construction Milestone is based on a target number of MWs of generation development projects in a specified region that confirm need based on system studies. The milestone will be assessed against all new information, and will be confirmed based on accepted Interconnection Proposals (IPs).

The preliminary monitoring report is attached following the summary of milestones below. The information contained therein represents the status update for Q4 2009.

| SATR Milestones Monitoring Report Q4 Status Report against Construction Milestones | | | | | | | |
|---|------|---|--------------------------------|------------------------------|--------------|----------------------|--------|
| Stage | Area | Milestone | Capacity Interest ⁴ | IPs ⁵ in Progress | IPs Accepted | Studies ⁶ | Status |
| 1 | SW | 500 MW of generation forecast in Pincher Creek/Peigan region | 2227 | 1726 | 1099 | n/c | |
| 1 | SE | Any wind forecast in the Burdett/Med Hat area | 2580 | 2040 | 1175 | n/c | |
| 2 | SW | 600 MW of generation forecast in the Pincher Creek area | 1437 | 1246 | 834 | n/c | |
| 2 | SW | Any wind forecast in the Goose Lake – Sub C area | 1303 | 443 | 222 | n/c | |
| 2 | SW | Any wind forecast in the Sub C – Sub D area | 405 | 350 | 0 | n/c | |
| 2 | SW | Any wind forecast in the Sub C – MATL area | 399 | 100 | 100 | n/c | |
| 2 | SE | 400 MW of wind forecast in the Burdette, Medicine Hat and Empress area combined or studies indicating overloading or voltage problems in the SE | 2679 | 2139 | 1175 | n/c | |
| 3 | SE | Studies indicating overloading in the SE Alberta's 240 kV network | 2679 | 2139 | 1175 | n/c | |
| Studies Update: None to report for Q4 | | | | | | | |
| Facility Application Directives: The TFO has been directed to commence work on Stage 1 for SATR facility studies work on [date]. It is expected based on current data as outlined above that a directive for work on the facility application stage for stage 2 may commence in short order as well. | | | | | | | |
| Other Information: None at present. | | | | | | | |

⁴ Capacity Interest is measured by applications for Capacity through the interconnection process.

⁵ IPs through this document refers to “Interconnection Proposals” as used in the AESO process for system access service.

⁶ As any new studies are finalized, the information will be referenced by this column and summarized below in the “Studies Update”. A “n/c” entry means that there has been “no change” in study work since the last reporting period.