DCG Consortium Proposal to AESO

May 14, 2020

Power Advisory LLC

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Submitted to AESO

Companies Supportive of this Proposal

The following companies sponsored the development of this proposal:

- BluEarth Renewables Inc
- Elemental Energy Renewables Inc
- Innogy Renewables Canada Inc
- Irricana Power Generation
- Siemens Energy Canada Limited

The following associations support the content of this proposal:

- Alberta Community and Co-Operative Association ("ACCA")
- Canadian Solar Industries Association ("CanSIA")
- First Nations Power Authority ("FNPA")

Outline

This presentation follows the AESO's requested outline

A. Proposal Summary
B. Principles and Objectives
C. Proposal Details
    i. Your proposal
    ii. What it is (more detailed than the initial overview)
    iii. Process considerations (i.e., how would this solution work?)
    iv. Has the solution been implemented in other jurisdictions? Is there any external validation for your proposal?
D. Proposal Implications
    i. What are the benefits?
    ii. What are the costs?
    iii. What are the risks?
    iv. What is your evaluation of your proposal weighed against the Principles?
    v. Any other Implications (e.g., what is the impact of your proposal on a stakeholder by stakeholder basis?)?

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Preamble

Acknowledging the Constraints

- The DCG Consortium notes that the current cost allocation practice limits new DCG development in Alberta and results in unbounded liabilities for existing DCG. This practice needs to be resolved as soon as possible to allow for certainty so that investment in Alberta DCG can continue. Accordingly, the DCG Consortium is committed to participating in this consultation to come to a mutually agreeable solution that is amenable to the AESO and other stakeholders, if possible, and which can progress through an expedited process before the Commission.
- To achieve that goal, the DCG Consortium needed to recognize and acknowledge a number of constraints that it does not agree with. These constraints are primarily that the *Transmission Regulation* allows the AESO to define local interconnection costs and that the AESO has implied that definition to include both incremental costs to connect and a contribution to shared facilities costs (currently allocated based on substation fractioning).

Acknowledging the Constraints

- The *Electric Utilities Act* defines a substation as part of the transmission system. The AESO successfully reinforced this definition with its adjusted metering practice that no longer allows load and generation to be totalized on the high side of the substation, but rather requires totalization at the feeder.
- The *Transmission Regulation* requires that generators only pay for their local interconnection costs (plus GUOC and line losses), while load pays for the remainder of the system costs.
- Local interconnection costs should be defined as incremental costs to connect to the transmission system (i.e. to add or upgrade infrastructure such that the power generated can make it to the substation). Everything beyond this should be paid for by load customers.
- For TCGs, there may be instances where interconnection facilities are shared and costs can be charged to the newly connected TCG and refunded to the first TCG. In the case of DCG, the facilities that have been already constructed have been built to accommodate load and have already become a part of TFO and DFO rate bases (and effectively systemized). Accordingly, DCGs should not be charged any shared facility costs as the substation is part of the transmission system and is not incrementally required for the local interconnection.

A. Proposal Summary

Proposal Summary

Proposal: DCGs pay (1) 100% of their incremental connection costs to connect; plus (2) an additional upfront charge to contribute towards the costs of shared facilities between their point of connection and the regional system.

The second charge requires replacement of the current substation fractioning methodology with a new $/MW charge which contributes towards the costs of shared facilities.

- The upfront charge is a $/MW charge that is the same across Alberta and is known in advance of connection as it will be listed in the tariff.
- The total cost of the upfront contribution towards shared facilities costs ($/MW * MW) will be finalized in the DFO quote letter regarding incremental connection costs and will have the same payment timelines and terms.
- After paying the incremental connection costs and the contribution towards the costs of shared facilities, DCGs will not be assessed additional costs.
- The contribution towards the costs of shared facilities will be assessed based on expected exports to the AIES past the high side of the transformer.
- The contribution towards the costs of shared facilities would only be invoiced on a go forward basis after the effective date of the new tariff provisions and existing CCDs would need to be recalculated in the manner set out below.

B. Principles and Objectives

AESO Principles

Principle 1: Parity between transmission interconnection costs calculation for transmission connected customers and distribution connected customers ….

- Just as TCGs are not assessed costs after connection, neither should DCGs be.
- True parity would suggest that DCGs should not pay for systemized costs that have already been added to the TFO or DFO rate base.

Principle 1: … while enabling effective price signals to ensure the optimal use of existing distribution and transmission facilities

- Optimal use of distribution facilities requires that connection costs for DCGs do not prevent development of DCG in Alberta. If the contribution towards shared facilities costs were to climb too high, this could prevent any future development of DCG. A balance needs to be struck.

AESO Principles

Principle 2: Market participants should be responsible for an appropriate share of the costs of transmission facilities that are required to provide them with access to the transmission system (may include paying a contribution towards facilities paid for by other customers and refund to the customer that paid)

- Notwithstanding our concerns around charging transmission costs to generation customers, the Transmission Regulation grants the AESO the authority to define "local interconnection costs" and the AESO has defined these costs to include both incremental connection costs and shared facility costs.
- Accordingly, this proposal works within the existing legislative framework and AESO definition in an attempt to find resolution and progress a proposal through a regulatory process as quickly and efficiently as possible.

AESO Principles

Principle 3*: DCG participants should have cost certainty when making their final investment decision

- The DCG Consortium strongly agrees with the need to prevent future liabilities by stopping the allocation of costs at the final investment decision.
- After the DFO quote letter regarding the DCG's incremental connection costs is issued to the DCG, the DCG has 30 days to indicate its intention to move forward with the project and a further 30 days to pay the invoice.
- This proposal submits that the final investment decision is made when the DCG indicates its intention to move forward to the DFO. After this point, DCGs should not be allocated any further costs, except for any true-ups required to the final incremental connection costs per the terms of the quote letter.
- The contribution towards shared facility costs should be assessed as a part of the quote letter and should have the same payment timeline and terms.

**This principle was revised in the draft AESO Stakeholder Proposal Evaluation and this slide reflects this new language.*

AESO Principles

- Today, DCGs face three risks regarding their connection costs:
    1. The magnitude of their incremental costs to connect;
    2. The magnitude of the shared facility costs that will be allocated to them immediately through recalculation of CCDs based on a new STS contract size; and
    3. The unmitigable future risk associated with having shared facility costs associated with future upgrades allocated to a project after its final investment decision is made.
- This proposal aims to minimize the risk associated with #2 as it looks to create a postage stamp rate that will be known in the early stages of development (note that there will still be some risk as the number of MW to which the rate applies may be unclear for some time).
- This proposal also eliminates the risk associated with #3 by preventing allocation of costs after the final investment decision. This aspect of the proposal is directly tied to principle 3.
- However, it is important to note that #1 may continue to pose a high level of risk for projects. Technical studies and functional specifications must also be completed and finalized in order to obtain an incremental connection cost quote from the TFO and DFO. The magnitude of incremental connection costs may not be known by the DCG until a significant amount of time has passed following the completion of those studies. By the time this information is known, it can also be the case that DCG projects may have already obtained their permit and licence from the Commission. Accordingly, certainty regarding connection costs is may not be obtained until late in the development process, after much has been invested in designing the project.

AESO Principles

Principle 4: DFOs should be provided with reasonable certainty re: cost treatment/recovery

- This proposal will resolve any CCDs/invoices that are currently being held in abeyance by the Commission, pending the resolution of this consultation and subsequent regulatory proceeding (See Exhibit 25058-X0030). (This resolution is further outlined later in the slides where the practical application of the proposal is discussed.)
- DFOs will no longer be issued CCDs with costs allocated to both DTS and STS for their customers. CCDs previously issued to DFOs with costs allocated to both DTS and STS will be recalculated as "DFO" projects. This will eliminate any cost uncertainty with regards to recovery of costs.
- DFOs will facilitate the flow through of the contribution towards shared facility costs at the same time as the processing of the incremental connection costs. This should not create additional work for the DFO, nor will it cause concerns regarding recovery as it will be a clearly defined flow through item.

AESO Principles

Principle 5*: Ease of understanding and implementation

- Currently, CCDs need to be recalculated every time the DTS or STS contract size changes. This proposal eliminates that administrative burden.
- This proposal charges the contribution towards shared facility costs at the time of the quote letter. At this point, the DCG is already paying a charge and the DFO is already facilitating this invoice. Accordingly, this does not add any additional burden.
- The use of postage stamp tariff charge makes this cost easy to understand by generators and easy to estimate early in the connection process.

**This principle has been added to the AESO Stakeholder Proposal Evaluation*

Objectives

AESO Question: What are the objectives you are trying to achieve or the challenges you're looking to address with your proposal (i.e., what are you trying to solve?)?

This proposal has the following objectives:

- Effective resolution in a timely manner, including expedited Commission approval
- Prevent the allocation of costs to a DCG after the final investment decision is made
- Prevent the allocation of significant costs to DCGs where the DCG did not cause the costs
- Maximize investor certainty
- Foster investment in Alberta and encourage new market entry for DCG projects

This proposal looks to solve the following issues:

- The current process results in unmitigable risk that will not allow for the development of DCG in Alberta as DCGs can be allocated costs after their final investment decision and which are associated with projects that they have no control over.
- Unmitigable risk makes it impossible for DCG projects to attain financing. There is currently a fairness issue between TCGs and DCGs.
- Prolonged investor uncertainty makes it difficult for projects to move forward with final investment decisions.

C. Proposal Details

Local Interconnection Costs

- The Transmission Regulation grants the AESO the authority to define "local interconnection costs."
- Under the ISO Tariff, there are two components of local interconnection costs:
    1. Incremental connection costs
    2. Contributions towards shared facility costs
- These components are included in the definition of participant-related costs (2020 applied for ISO Tariff, Section 4.2(2)).

- This proposal does not suggest any changes to incremental connection costs
- Changes proposed relate to the DCG contribution towards shared facilities

Step 1

Eliminate the current allocation of shared facility costs to DCGs through the substation fractioning methodology and CCDs

Current Calculator

- The 2019 CCD Calculator would designate a project at a DFO substation with both load and DCG as "DTS and STS."
- This designation will result in allocations of costs to both DTS and STS.
- The issue is that this calculation will be done for:
    1. Prior upgrades where a new STS contract has been added or an STS contract has increased
    2. Future upgrades, whether the STS contract changes or not
- A change is required to prevent costs from being allocated to STS, in accordance with AESO principle #3.

Attachment A1: Costs and Contract Details

Participant:	Name of Market Participant (Customer)			Tariff:	AESO 2019
Project:	Project Name			Effective	1 Jan 2019
Number:	Project Number	Type:	DTS and STS	To:	Current
Prepared by:	Name of Preparer	Date:	Date Prepared	Version:	2019.0.0

PROJECT DETAILS

(a)	New Service or Expansion of Existing Service?	New Service
(b)	Is Service at New or Existing Substation?	New Substation
(c)	Will Primary Service Credit Apply to Service?	No
(d)	Any Other Market Participant(s) at Substation?	No

COST OF CONNECTION PROJECT			**Reference**
(e)	Cost of New Transmission Facilities:		
(f)	Shared Cost of Existing Transmission Facilities		
(g)	Less: System-Related Costs:		
(h)	Participant-Related Costs:	$0	
(i)	Less: Facilities in Excess of Good Practice:		
(j)	Less: Reduction for Replaced Transformer		
(k)	Balance of Participant-Related Costs:	$0	
(l)	Estimated Operations and Maintenance:		

CONTRACT DETAILS			**Reference**
(m)	Date of Commission Permit and Licence:		
(n)	Date of AESO Energization Authorization:	Jan 1, 2019	
(o)	Date of Commercial Operation of Project:	Jan 1, 2019	
(p)	Maximum Investment Term (years):	20	
(q)	Discount Rate for Incremental Capacity:		
(r)	Prior Contribution (for Final Costs or Adjustmer		

Contract Stages			Contract Capacities at Substation (MW)					
			Contracted After Project			Contracted Prior to Project		
			This Participant		Other	This Participant		Other
No	Start Date	Duration Months	DTS	STS	Participant	NA	NA	Participant
(1)	Jan 2019	240						
	Total	240						

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Proposed Change

- **Create a new project type called "DFO"**
- This project type will be used for substation upgrades whenever the DFO is the market participant at the substation.
- The AESO will continue to use the "DTS," "STS," and "DTS and STS" project types for transmission connected substations.
- The "DFO" project type will use the same calculations as the "DTS Only" project type, which will ensure that all costs are allocated to load and that all costs are eligible for investments.

Attachment A1: Costs and Contract Details

Participant:	Name of Market Participant (Customer)			Tariff:	AESO 2019
Project:	Project Name			Effective	1 Jan 2019
Number:	Project Number	Type:	DTS Only	To:	Current
Prepared by:	Name of Preparer	Date:	Date Prepared	Version:	2019.0.0

PROJECT DETAILS

(a)	New Service or Expansion of Existing Service?	New Service
(b)	Is Service at New or Existing Substation?	New Substation
(c)	Will Primary Service Credit Apply to Service?	No
(d)	Any Other Market Participant(s) at Substation?	No

COST OF CONNECTION PROJECT			**Reference**
(e)	Cost of New Transmission Facilities:		
(f)	Shared Cost of Existing Transmission Facilities		
(g)	Less: System-Related Costs:		
(h)	Participant-Related Costs:	$0	
(i)	Less: Facilities in Excess of Good Practice:		
(j)	Less: Reduction for Replaced Transformer		
(k)	Balance of Participant-Related Costs:	$0	
(l)	Estimated Operations and Maintenance:		

CONTRACT DETAILS			**Reference**
(m)	Date of Commission Permit and Licence:		
(n)	Date of AESO Energization Authorization:	Jan 1, 2019	
(o)	Date of Commercial Operation of Project:	Jan 1, 2019	
(p)	Maximum Investment Term (years):	20	
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(r)	Prior Contribution (for Final Costs or Adjustmer		

Contract Stages			Contract Capacities at Substation (MW)					
			Contracted After Project			Contracted Prior to Project		
			This Participant		Other	This Participant		Other
No	Start Date	Duration Months	DTS	NA	Participant	NA	NA	Participant
(1)	Jan 2019	240						
	Total	240						

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If Shared Facility Costs aren't allocated by CCDs, then how?

- With the proposed CCD calculator changes, the DFO will no longer be allocated STS costs from any substation upgrades.
  - This includes (1) that costs will not be allocated to STS for upgrades that occur after the DCG has energized; and (2) that costs associated with historical upgrades will not be re-calculated and re-allocated to STS when a DCG connects.
- In lieu of the contributions towards shared facilities costs that were previously allocated using the substation fraction approach in the CCD calculator, this proposal submits that DCGs would be invoiced a $/MW contribution towards shared facilities at the time of their invoice for the incremental connection costs.

Step 2

Create a new allocation methodology that allocates shared facility costs to DCGs in a reasonable and predictable manner

Contribution Towards Shared Facilities Costs

- The contribution towards shared facilities costs is proposed to be a $/MW postage stamp rate that is applicable to every DCG in Alberta at the same time as its incremental connection costs.
- This is consistent with other aspects of tariff structure in Alberta and avoids the complication of sending location incentives to DCGs based solely on recent and/or expected future costs of substation upgrades for the needs of load.

Considering Costs of a Generation Substation

- Generation substations are fairly simple facilities with lower overall costs than substations that are purpose build for multiple load customers on a DFO network.
- DFO substations are more complex with higher standards and requirements for reliability and resilience (differences that are driven by the load customers)
  - DFO substations are designed typically to a minimum of N-1 redundancy
  - They include complex protection and control schemes to manage system outages and abnormal operating conditions
  - DFO substations can include higher considerations for security and site access
  - Generation substations are designed and built for a specific application, DFO substations must be adaptive to future electricity demand requirements as well as supply capability for distribution network operation and maintenance (e.g., multiple buses and feeders that can support backfeed needs)
- As a part of its incremental connection cost payment, a DCG will pay all costs for facilities only necessary to serve generation. Accordingly, a DCG should not share in the costs of these additional facilities that are only necessary due to the load.

Core Components

- The DCG Consortium proposes that DCGs should only pay a contribution towards the costs of shared facilities for core components. It proposes these core components to be the transformer and a high voltage breaker for 138 kV service.
- The proposed contribution is only towards the materials and installation costs associated with these two core components.
- The DCG Consortium does not propose to pay for protection and controls, SCADA, engineering, technical studies, etc.
- In many cases, those costs will be duplicative of DCG incremental costs to connect as the DCG will need to pay for its own technical studies and SCADA, for example.

Excluded Components

- The DCG Consortium proposes that DCGs should not pay a share of either the low voltage breakers or the supply line.
- Low Voltage Breakers
  - The number of breakers at a station is determined by the distribution network and existing load customers. Accordingly, the DCG should not be required to contribute towards the costs of the additional feeders.
  - In many cases, a DCG will pay incremental connection costs associated with a new low voltage breaker or the upgrade of an existing low voltage breaker. In these cases, paying a contribution towards the shared facilities costs associated with these would be double counting
- Supply Line
  - A TCG is able to site in a manner that controls supply line costs. A DCG sites near load and connects to existing transmission infrastructure. A DCG cannot control the length of the supply line and should not pay increased connection costs for longer supply lines.
  - Adding a $/MW/km charge for the supply line will send a locational incentive with no associated benefit, i.e. a locational incentive to connect to substations with shorter supply lines to save on connection costs.

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Cost Sharing

- Analysis should be completed to determine a typical cost for these two components on an average $/MW basis.
- Next, it should be noted that current flows both ways through a transformer and the use of those facilities by a DCG will not diminish their capability to be used by the load customers. The full capacity of the transformer is available for load to use in the downwards direction and generation to use in the upwards direction. Accordingly, the $/MW costs associated with the costs of a transformer and high voltage breaker should be divided in half in order to attribute 50% of the costs to generation.
- This methodology would continue to be used on a go forward basis, but the output $/MW charge could be revisited on a four year cycle with the tariff applications as component costs may change through time.

High Level Estimate

- In discussion with Fortis, we have developed the following substation component assumptions:
  - Transformer capacity with maximum rating of 42 MVA
  - High voltage breaker for 138 kV service
- In discussion with suppliers,* we understand the following to be appropriate estimates of the installed costs of substation components:
  - 42 MVA Transformer ~$1m-1.6m
  - 138 kV High Voltage Breaker ~ $130-165k
- This leads to the following postage stamp rate that acts as a contribution towards the shared facilities costs:
  - $1.447m * 50% = $724k
  - $724k / 42 MW = $17,232/MW to be paid by generators
- Further, to avoid double-counting, additional consideration will need to be made in the event that the transformer or high voltage breaker are upgraded as a part of the DCG connection (as these costs would then be included in the incremental connection costs)

**The above estimates are based on preliminary quotes from suppliers and the DCG Consortium is working to confirm and obtain these estimates in final written form for use in the AESO consultation sessions.*

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An Upper Limit

- TCG enjoys a competitive advantage over DCG given the economies of scale associated with larger generation projects.
- DCG's competitive advantage is lower connection costs based on use of existing transmission infrastructure.
- There is a threshold above which a contribution towards shared facilities costs will be prohibitively expensive and not allow future development of DCG in Alberta. This threshold will vary depending on the project.
- In order for a proposal to be connection type agnostic (i.e. allow for both TCG and DCG to continue in Alberta in the future), the DCG contribution towards shared facilities costs cannot be so great as to prevent development of DCG.

Step 3

Determine which MWs the $/MW charge is applied

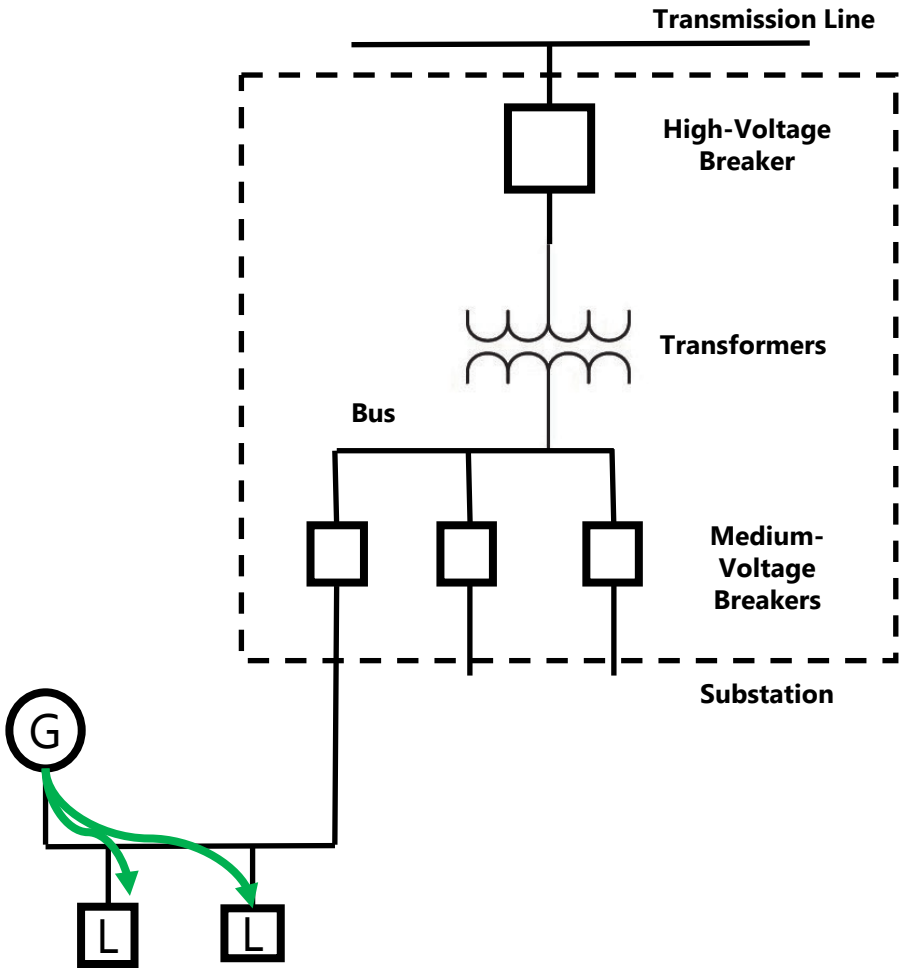
Application of the $/MW Charge

Proposal: To use estimated hourly production data from the DCG combined with historical hourly consumption data to determine an expectation of DCG export to the AIES via the high side of the transformer.

- As the DCG is being charged for the usage of shared transmission facilities (i.e. the substation), it is fair to only apply the charge to energy that may use/benefit from the specific transmission facilities.
- These calculations determine the amount of expected exports past the high side of the transformer.
- This is similar to the methodology used to calculate STS contract capacities, but it is a more accurate estimate of exports.
    - DFOs determine STS contract capacities by comparing the minimum load to the maximum generation in all hours of the day. The exception is solar facilities, where they specifically focus on the period between 9am and 3pm.
    - This does not reflect differences in timing. For example, the minimum load could be at 9am, while the load could be materially higher during the hours when the solar DCG is producing its maximum output.
    - Similarly, for wind and gas DCGs, the minimum load is occurring over night which may not correlate with periods of maximum generation

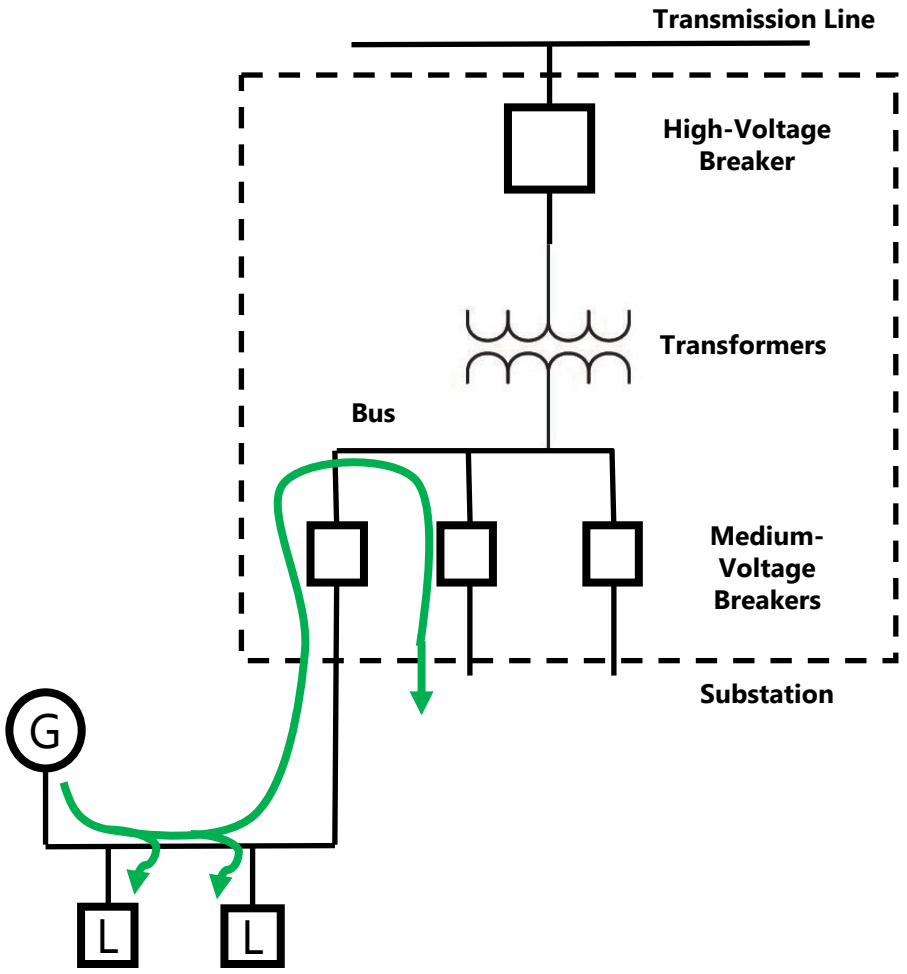
Scenario 1: DCG supplies local load on same feeder

- The diagram to the right shows a simplified typical arrangement for a DFO owned substation
- Under Scenario 1, energy output from the Generator (see green line) is consumed by load on the same feeder for all hours of the year
- Since no DCG output flows to the substation, no costs are allocated to the generator, i.e. 0 MWs are charged the contribution towards shared facility costs



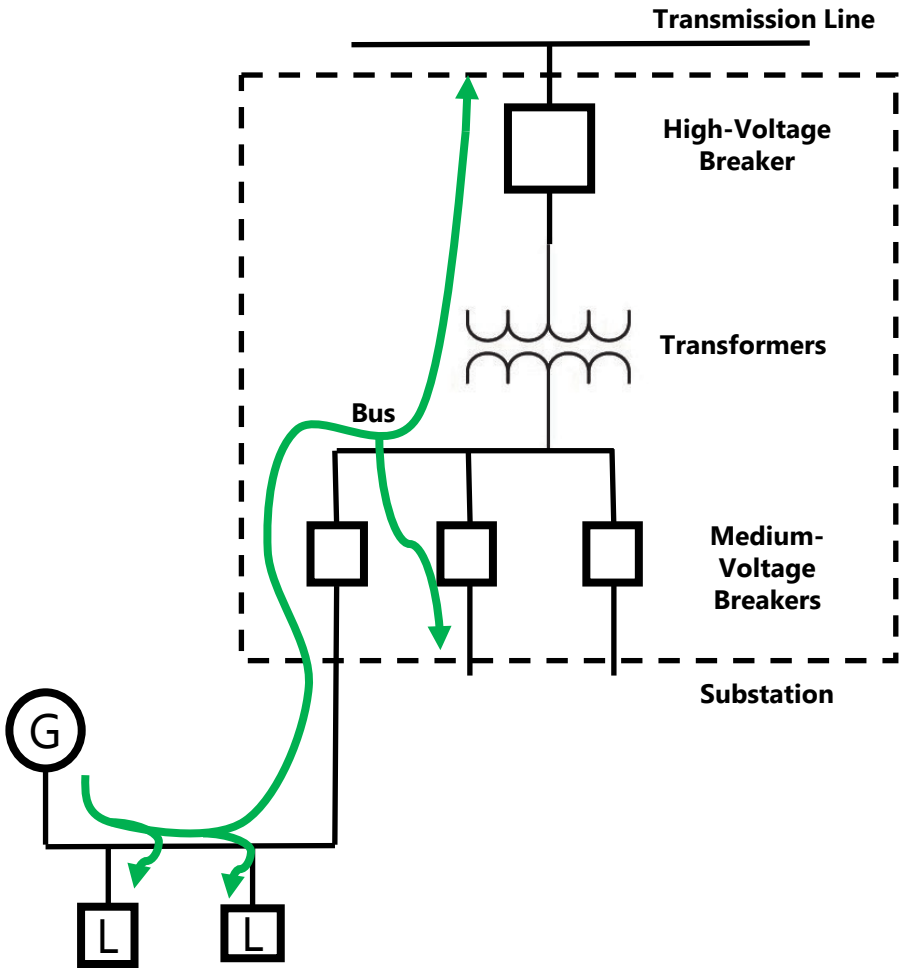
Scenario 2: DCG supplies local load on different feeder

- Under Scenario 2, some energy output from the Generator (green line) is consumed by load on a different feeder
- DCG output flows to the substation and then back out of the substation to a different feeder
- As long as the substation requires imports from the transmission system to serve load on any of the feeders, the power will flow down to the feeders. Accordingly, the DCG will not be exporting power back up to the transmission system
- Since no DCG output flows to the transformer or the high-voltage breaker, no costs are allocated to the generator, i.e. 0 MWs are charged the contribution towards shared facility costs



Scenario 3: DCG supplies up to transmission network

- Under Scenario 3, some energy output from the Generator (green line) is supplied to the transmission network
- In this scenario, the DCG would be charged for a contribution towards the costs of the transformers and the high-voltage breakers, i.e. the costs of primary components in the substation to connect to the transmission network.



Step 4

Establish clear timing of the final charges to ensure investor certainty

Restrict Further Charges After the Final Investment Decision

- Under the current connection process, the DFO issues a quote letter to a DCG that notes the incremental costs of connection. This quote letter includes both DFO and TFO incremental connection costs and a 20 year up front payment towards DFO O&M.
- The DCG is given 30 days to accept this quote letter and indicate its intention to move ahead with its connection and a further 30 days to pay its invoice.
- At the point when a DCG accepts the quote from its DFO, it can be considered to have made its final investment decision and will be investing significant capital into the costs of its connection.
- The contribution towards shared facilities costs would be included in the quote letter along side the incremental connection costs. It would then be subject to the same payment timeline and terms as the incremental connection costs. This proposal suggests no changes should be made to the current terms that accompany the quote letter.
- After the DCG accepts this quote, no further costs can be assessed to the DCG over the life of its project, except for costs outlined in the terms and conditions of the quote letter or where the DCG makes changes that require the construction of additional transmission facilities.

Changes to Load and Supply Through Time

- The current substation fractioning methodology reassesses CCDs whenever the DTS or STS contract capacities change. This is one of the primary issues with the current methodology as it prevents investor certainty.
- This proposal assesses a contribution towards shared facilities costs based on moment in time data at the point of connection.
- It could be true that load decreases at a substation, causing an STS contract capacity to increase after its connection. It could be equally true that load growth causes an STS contract capacity to fall after the DCG connection. This proposal does not include any additional charges to be assessed or any contribution towards shared facility costs to be refunded in these cases. This is necessary to have investor certainty.
- Accordingly, changes to STS and DTS contract capacities through time will not impact connection costs.
- A project will not be charged further connection costs except in the case where they add additional generation in a manner that would trigger an increase in the STS contract. In that case, the incremental generation addition should be treated like a new generation project and assessed a contribution towards shared facilities costs accordingly.

Step 5

The transition

Practical Application of this Proposal

- The AESO noted in Session #1 that it considers its CCD calculators have worked for allocating costs to DTS and STS in the case of dual-use customers, but that the calculations were never contemplated to apply to DCGs/DFOs and have not functioned effectively for that purpose.
- Given this, it is necessary to recalculate all CCDs that have been given to DFOs with costs allocated to STS. These CCDs would all be recalculated using the project type "DFO."
  - This would ensure any existing DCGs are not assessed costs after their final investment decision.
  - DCGs that are still before their final investment decision will be assessed the new $/MW charge in addition to their incremental connection costs.
- As noted in the previous slide, the new $/MW charge would be finalized at the time of the DFO quote letter and paid with the DFO/TFO invoice for incremental connection costs. These invoices would only be sent out on a go forward basis.
- **Grandfathering implication:** Any projects that have already received their quote letter will not be assessed the new contribution towards shared facilities costs charge and will not be assessed any previous or future shared costs under the current substation fractioning approach.

C.iv. Jurisdictional Validation

Jurisdictional Validation

- The DCG Consortium has not undertaken a jurisdictional review.
- It is our understanding that other jurisdictions only charge DCGs for their incremental connection costs and do not have this concept of shared facility costs where DCGs pay for components previously constructed for load customers. It is also our understanding that other jurisdictions are moving towards policies that foster and encourage non-wires solutions, including DCGs, and, accordingly, are looking to remove existing barriers.
    - This understanding is anecdotal, as the research has not been commissioned.
- Accordingly, we do not expect to find external validation for our proposal; however, we note that our proposal was designed to solve the issue caused by the current substation fractioning methodology while fitting into the AESO's definitions of local interconnection costs (which includes a provision for shared facility costs in addition to incremental connection costs).

D. Proposal Implications

Benefits

- Investor certainty, i.e. no charges to DCGs past the final investment decision
- The charge is postage stamp and, accordingly, does not provide a locational signal based on historic and expected future costs associated with substation upgrades driven by the needs of load customers.
    - If this was designed based on depreciated costs, there would be a locational signal to site at older substations, which is not ideal.
- Fairness across DCGs
    - Under the current methodologies, some DCGs are assigned significant costs while others could be free from any charges, based on past and unknowable future substation upgrades.
    - This proposal creates increased fairness across different sizes of DCG and across different connections.
- Speedy resolution of this issue will allow projects near their final investment decision to move forward. This is preferable to a drawn out regulatory proceeding.

Costs/Risks

- This proposal will require more up-front work to put in place relative to a proposal that determines shared facility costs on a substation by substation basis,
  - That being said, overall this proposal is likely more simple than having to set the allocation on a case by case basis. Implementation of the cost allocation will be less work each time a DCG discusses connection options with a DFO and the AESO will not have to constantly re-issue CCDs for PODs with changing STS and DTS contract capacity sizes.
  - Further, this proposal will increase investor certainty.

Assessment of Compliance With Principles

Principle	Does our proposal meet it?
Principle 1: Parity between transmission interconnection costs calculation for transmission connected customers and distribution connected customers while enabling effective price signals to ensure the optimal use of existing distribution and transmission facilities	Yes*
Principle 2: Market participants should be responsible for an appropriate share of the costs of transmission facilities that are required to provide them with access to the transmission system (may include paying a contribution towards facilities paid for by other customers and refund to the customer that paid)	Yes*
Principle 3: DCG participants should have cost certainty when making their final investment decision	Yes
Principle 4: DFOs should be provided with reasonable certainty re: cost treatment/recovery	Yes
Principle 5: Ease of understanding and implementation	Yes

**This proposal meets Principle 1 and 2 as best as possible given the second-best solution. A solution not required to meet the constraints of the Transmission Regulation would better meet both principles.*

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Impact of Proposal on Stakeholders

- **DFO** – DFOs will no longer be issued CCDs with costs allocated to both DTS and STS. This will eliminate any cost uncertainty with regards to recovery of costs. Rather, DFOs will facilitate the flow though of a the contribution towards shared facility costs at the same time as the processing of the incremental connection costs.
- **DFO** – This proposal will resolve any CCDs/invoices that are currently being held in abeyance by Fortis, pending the resolution of this consultation and subsequent regulatory proceeding.
- **DFO/AESO/DCG** – The level of this charge will only need to be determined once per tariff cycle (4 years) rather than the current methodology which involves calculations every time a substation is upgraded or every time contract capacities (STS or DTS) change.
- **DCG** – This proposal provides the cost certainty required to continue to invest in DCG development in Alberta.
- **Investors/Financial Institutions** – This proposal provides cost certainty required for financial institutions to provide access to credit.
- **DFO Connected Load Customers** – Load customers will pay the full costs associated with any substation upgrades and other transmission infrastructure as a part of their distribution and transmission rates. DCG contributions to shared facility costs will be remitted to the TFO to offset revenue requirement and associated TFO rates.

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Acronyms

- AESO / ISO – Alberta Electric System Operator
- AIES – Alberta Interconnected Electric System
- CCD – Construction Contribution Decision
- DCG – Distribution Connected Generation / Distribution Connected Generator
- DFO – Distribution Facility Operator
- DTS – Demand Transmission Service
- GUOC – Generator Unit Owners Contribution
- NPV – Net Present Value
- O&M – Operation and Maintenance
- STS – Supply Transmission Service
- TCG – Transmission Connected Generation / Transmission Connected Generator
- TFO – Transmission Facility Operator