CanSIA
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Maria Baitoiu
Lead Application Officer, Market Oversight and Enforcement
Uploaded electronically to the Alberta Utilities Commission (AUC) eFiling System

May 30, 2017

Dear Ms Baitoiu,

RE: Evidence Submission (3/4) on "Retail & Rate Design" to AUC DCG Review (22534)

The Canadian Solar Industries Association (CanSIA) is the national trade association that represents the solar energy industry throughout Canada. We applaud the Government of Alberta's decision to undertake a review of Distribution Connected Generation (DCG) in Alberta and welcome the opportunity to participate as an Intervenor therein.

Our vision for electricity in Alberta in 2030 is one with the following four characteristics: i) more energy efficiency, demand-side management and local electricity generation; ii) delivered by a cleaner and smarter grid; with iii) greater choice for consumers; and iv) more resilience to the impacts of climate change.

This Evidence Submission provides our response to the questions posed by the Alberta Utilities Commission (AUC) to registered participants in the Distribution Generation Review (Proceeding 22534) in Appendix B of the Process Letter on "Retail & Rate Design" issues relevant to Solar Distribution Connected Generation (SDCG) in the province. Answers are provided in the context that Alberta's electricity market is changing rapidly and that many policies, regulations and rules are inter-dependent. CanSIA appreciates the opportunity to continue to participate as a stakeholder in the on-going consultations as decisions are made and directions evolve.

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The questions responded to herein are listed as follows in the order that they are answered:

> ***22. Does the availability of the RRO depress demand for the adoption of SDCG?***
>
> ***19. Please comment on whether the features of the distribution companies', RRO providers' and the AESO's rate design and tariff structure enable or create barriers for the development of alternative and renewable DCG. For example, please comment on the effect that the rate design has on promoting long-term innovation which may be critical to the increased deployment of alternative and renewable DCG.***
>
> ***20. Please comment on whether new SDCG customer classes, with their own tariffs, should be introduced. Please explain.***
>
> ***21. Considering your responses to questions 19 and 20, what recommendations would you make to alter the rate design and structure of any of the distribution companies', RRO providers' or AESO tariffs? How would any changes in rate design that you recommend balance the interests of non-alternative and non-renewable customers and alternative and renewable DCG customers?***

Evidence Submissions detailing our responses to the questions relevant to Status & Outlook (1/4), Community Solar (2/4), and Wires & Wires Owners (4/4) have also been submitted in parallel.

Question *22: Does the availability of the RRO depress demand for the adoption of SDCG?*

The impact of the availability of the Regulated Rate Option (RRO) on demand for the adoption of SDCG manifests in two ways: i) for Direct-Connect SDCG, RRO Providers do not demand electricity at the length of term required (see 22.1); and ii) for Behind-the-Meter SDCG, consumer protection measures distort price signals (see 22.2).

Answer 22.1 The marginal cost of electricity generation from a solar electricity generation facility is close to zero as virtually all of its costs are incurred before the facility is brought in-service. This is fundamentally different to thermal electricity generation whose marginal costs are defined by variable fuel costs (and soon to an extent by Carbon Pricing). As a result, the need for solar electricity generation facilities to have a high proportion of their revenues captured under long-

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term fixed-price contracts to provide revenue certainty is greater than that which has been the case for thermal generators.

The absence of long-term offtake agreements in Alberta's electricity market has been amongst the reasons that investment in capital-intensive renewable electricity generation has not been occurring to date. Given the cost declines of solar electricity in recent years, an absence of long-term offtake agreements in Alberta's electricity market would be a primary reason that investment in capital-intensive solar electricity generation would not occur in future.

As the proportion of coal in Alberta's electricity supply-mix transitions from approximately half to zero by 2030, and as natural gas and renewable energy sources grow, the electricity available in the market will have fundamentally different revenue needs to that which is the case currently. As a result, more long-term offtake agreements will be required in future to meet the needs of the new generation fleet.

In conclusion, the availability of the RRO in its current form does not create demand for the adoption of Direct-Connect SDCG.

Answer 22.2 If passed, "Bill 16: An Act to Cap Electricity Rates", would cap the RRO such that the majority of Albertans would pay no more than $68/MWh for electricity From June 2017 to June 2021. This would be the case even in the event that the delivery of the RRO is determined to be higher than that rate. Reassuring consumers that the transition from coal-fired electricity to natural gas and renewable energy sources will not result in unmanageable rate hikes is important. However, in the event that retail electricity prices exceed the Cap, this measure may eliminate price signals that the market would otherwise send to consumers to adopt Behind-the-Meter SDCG (or to adopt other technologies or change their behaviour to use electricity more efficiently). In conclusion, the RRO Cap could negatively impact the economics of using less electricity from the grid by reducing the price that consumers pay for it regardless of its cost.

In conclusion, the introduction of the RRO Cap as proposed could limit the adoption of Behind-the-Meter SDCG.

Question 19: Please comment on whether the features of the distribution companies', RRO providers' and the AESO's rate design and tariff structure enable or create barriers for the development of alternative and renewable DCG. For example, please comment on the effect that the rate design has on promoting long-term innovation which may be critical to the increased deployment of alternative and renewable DCG.

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Question 20: Please comment on whether new SDCG customer classes, with their own tariffs, should be introduced. Please explain.

Question 21: Considering your responses to questions 19 and 20, what recommendations would you make to alter the rate design and structure of any of the distribution companies', RRO providers' or AESO tariffs? How would any changes in rate design that you recommend balance the interests of non-alternative and non-renewable customers and alternative and renewable DCG customers?

Aggregated Answers to 19, 20 and 21: *"Rate design is important because the structure of prices — that is, the form and periodicity of prices for the various services offered by a regulated company — has a profound impact on the choices made by customers, utilities, and other electricity market participants. The structure of rate designs and the prices set by these designs can either encourage or discourage usage at certain times of the day, for example, which in turn affects resource development and utilization choices. It can also affect the amount of electricity customers consume and their attention to conservation. These choices then have indirect consequences in terms of total costs and benefits to society, environmental and health impacts, and the overall economy*."[1]

"Smart" rate designs, encourage electricity customers to change their consumption patterns and/or adopt technologies to achieve targeted societal and system benefits. In Alberta, rate designs should encourage behaviour and the adoption of technologies that delivers system benefits including i) reducing strain or deferring T&D facilities and avoiding line losses; and ii) making the grid more resilient to the impacts of climate change; and societal benefits including: iii) GHG emissions displacement; and iv) meeting or exceeding the goal of 30% of electricity from renewable sources by 2030.

CanSIA's response to questions 19, 20 and 21 are categorized by rate design for: A) Electricity; B) System Benefits; and C) Environmental Attributes.

<u>A) Rate Design for Electricity</u>

At present, Behind-the-Meter SDCG (<150 kW) is compensated at their retail rate for electricity generated whether consumed on-site or exported to the grid[2] and Behind-the-Meter SDCG (150

[1] Regulatory Assistance Project (2015) "Smart Rate Design for a Smart Future"
[2] These facilities may choose to have an interval meter installed and receive the hourly pool price.

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kW ≥ 5 MW) is compensated at the wholesale price for electricity generated and exported to the grid. As previously discussed (in CanSIA's response 3.4 in Evidence Submission "Outlook & Status (1/4)"), solar captures a premium over average wholesale (and retail) pricing and should thus be compensated at a representative level. **CanSIA recommends that under the Micro-Generation Regulation, Behind-the-Meter SDCG is compensated at a rate that takes into account the premium of the solar generation profile over average wholesale prices.**

At present, Direct-Connect SDCG is compensated at wholesale rates. As previously discussed (in CanSIA's response 22.1 in this Evidence Submission), long-term revenue certainty is a critical contributor to build signals. Policy mechanisms that could deliver long-term offtake agreements include: i) a Shared Solar Program (e.g. as defined in CanSIA's Evidence Submission "Community Solar" (2/4); or ii) a Standard Offer Program (SOP) (e.g. BC Hydro's SOP or SaskPower's SPP). **CanSIA recommends that Direct-Connect SDCG (both "Merchant" and "Shared" as defined in Evidence Submission "Outlook & Status (1/4)) receives a guaranteed level of long-term revenue certainty provided at minimum by a "floor" price beneath which wholesale price capture cannot drop.** In today's market, build signals could be sent with a floor less than the RRO Cap of $68/MWh for many medium and large SDCG facilities provided that the measures in "B" and "C" below are also (and the extent to which) maintained and/or introduced.

B) Rate Design for System Benefits

SDCG provides system benefits by reducing strain or deferring T&D facilities and avoiding line losses and by making the grid more resilient to the impacts of climate change.

For Direct-Connect SDCG, rate design values these system benefits in two ways:

i) The "Distribution Transmission Service" (DTS) Credit flows-through savings realised by a wire service provider (WSP) for their reduced strain on the transmission network. It is paid monthly on a substation basis (based on interconnection location) and by how closely its profile matches the grid's coincident peak).
ii) FortisAlberta's "Option M" and Enmax's "Tariff D600" flows-through AESO credits for reduced line losses (and charges as the case may be).

Today, these revenue streams are an important component of the build signal for Direct-Connect SDCG. In addition, they encourage generation (and/or storage and demand response) in the locations that need it most thus making best use of existing infrastructure. **CanSIA**

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recommends that these "Distributed Generation Credits" are maintained as an important driver for DCG and that they are reviewed to determine whether greater certainty over revenue amounts and terms can enhanced and available more consistently across the province for Direct-Connect SDCG (and Storage).

For Behind-the-Meter SDCG, system benefits are currently less clearly accounted for in rate design:

I. Behind-the-Meter SDCG does not receive the DTS Credit nor tariffs such as Option M or Tariff D600 etc. (However, customers do get the limited benefits from avoiding variable distribution and transmission charges due to lower consumption from the grid).
II. For Medium Commercial and Large Commercial customers, peak load is a determinant of Non-Energy Charges. These "Demand Charges" and are typically measured on the basis of the individual customer's peak, regardless of whether it coincides with the peaks on any portion of the system, and thus inevitably results in a mismatch between the costs incurred to serve the customer and the prices charged if the customer's peak is non-coincident with the system peak. This means a customer's Demand Charges are typically the same whether they use power in times of high demand (adding to system peak and utility costs) or low demand (when utility costs are correspondingly lower). In addition, by determining the customer's "peak" on a monthly basis (or higher frequency of time interval), the number of hours that that consumer is contributing to or alleviating the system peak is not considered. As a result, the benefits of SDCG (or storage in some instances) are not valued.

As Behind-the-Meter SDCG (and/or consumer behaviour, storage, demand response etc.) becomes a more significant contributor to system reliability and supply, the system benefits that it provides should be valued through rate design. **CanSIA recommends that a "system benefit" adder be paid to Behind-the-Meter SDCG for all electricity generated to compensate for the system benefits provided and that Demand Charges be amended so that Medium Commercial and Industrial Behind-the-Meter SDCG can be compensated for the system benefits provided.**

<u>C) Rate Design for Environmental Attributes</u>

Both Behind-the-Meter and Direct-Connect SDCG displace GHG emissions. There are two common market-based mechanisms for compensating renewable electricity generators for their

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Environmental Attributes: “Offsets”; and “Renewable Energy Certificates” (REC’s). Both RECs and Offsets can be sold and traded or bartered, and the owner can claim to have purchased renewable energy.

Carbon Offsets represents a one Tonne reduction or removal in greenhouse gas (GHG) emissions from an independently verified GHG project that compensates an equivalent amount of emissions made elsewhere. An offset is created when one party receives credits for reducing their greenhouse gas emissions and these credits can then be purchased by another party to "offset" their emissions levels.

In Alberta, one option for a large emitter to comply with reduction obligations defined under the Province’s Specified Gas Emitters Regulation (SGER) is to purchase credits from non-regulated activities that have voluntarily created emission reductions. These offsets are commercialized at a rate that is approximately five to ten percent less than Alberta’s alternative compliance unit pricing ($/Tonne CO_{2e}). This pricing will increase to $30 per Tonne in 2017. There are two quantification protocols that are applicable to solar electricity generation projects[3].

No Behind-the-Meter nor Direct-Connect SDCG projects have been registered to date. The level of regulatory rigour and administrative burden (i.e. project registration and verification, in addition to the legal and verification barriers associated with offset sales) are far in advance of that which can be expected to be manageable for individual SDCG facilities. (It is not known at this time how SDCG will be treated in the province’s new Output Based Allocation (OBA) mechanism).

Given that solar electricity generation can be metered precisely, and that facilities comply with many provincial rules and regulations that verify their existence, and that the existing Offset Protocols allow for an emissions intensity factor of grid electricity displacement, a simple and straightforward Solar REC (SREC) would be an ideal mechanism to compensate Behind-the-Meter and Direct-Connect SDCG for the GHG emissions that they displace.

CanSIA recommends that an SREC be introduced for SDCG funded by the Carbon Levy (as is the case for utility-scale renewable electricity generation in the Renewable Electricity Program). SREC pricing could be increased or decreased to account for various policy objectives associated with expenditures from the Carbon Levy (i.e. higher

[3] The first protocol was published in 2008 to provide guidance for projects >1MW (Alberta Quantification Protocol for Solar Electricity Generation, Version 1.0, May 2008, Specified Gas Emitters Regulation). Projects <1MW have a different protocol published in 2013.

to support Albertans to adapt to climate change and lower to attract private sector investment and job creation).

In summary,

We look forward to participating in the oral proceedings and to responding to additional questions that you may have throughout this process. Thank you for your consideration.

Best regards,

Patrick Bateman

Patrick Bateman

Director of Policy & Market Development

Canadian Solar Industries Association (CanSIA)