

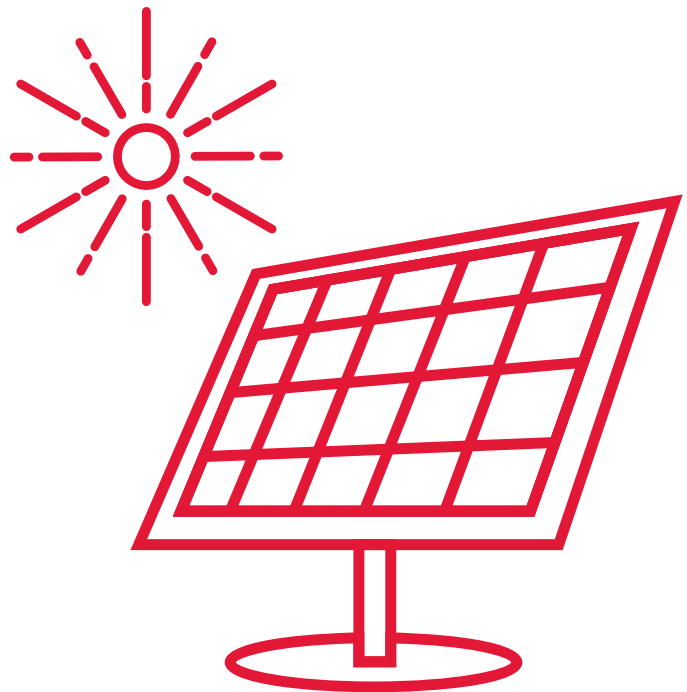
Predictions for Alberta's Renewable Electricity Program

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In March 2016, the Alberta government tasked the Alberta Electric System Operator (AESO), the independent system operator for Alberta's electricity system, with developing and implementing a plan to significantly increase renewable electricity generation capacity in the province from 11 per cent to 30 per cent of Alberta's total generation capacity by 2030.

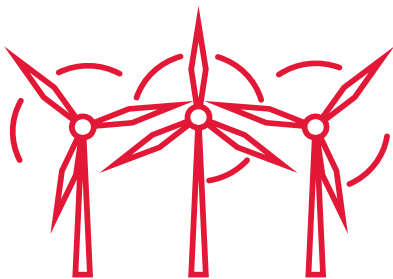
The AESO recently provided its recommendations regarding its proposed renewable electricity program (REP) to the Alberta government. Although the AESO's recommendations remain confidential and subject to government review, the AESO has provided some hints as to what the electricity industry may expect to see when the details of the REP are ultimately announced.

This article provides a brief background on Alberta's existing electricity market and the REP, and sets forth a summary of policies and approaches to renewable electricity procurement policies that the AESO is likely to recommend as part of the REP.



BACKGROUND

In November 2015, the Alberta government signalled a major shift in provincial energy policy with the announcement of its Climate Leadership Plan (Plan). One of the key initiatives of the Plan is to phase out emissions from coal-generated electricity by retiring all coal-fired plants by 2030. This phase-out came as a surprise to Alberta's electricity industry as it significantly accelerates the deadline set by Canada's existing federal regulations that require coal-fired power plants to either meet greenhouse gas standards or be phased out after 50 years of operation. Although the federal regulations would have resulted in 12 of Alberta's 18 existing coal-fired power plants being retired by 2030, the remaining six would not be retired until several years later, with the last one not due to be retired until 2061.



The phasing out of coal-fired electricity generation in Alberta will be a significant undertaking because the province's electricity system depends heavily on coal-fired generation

to meet its baseload capacity needs. Currently, coal-fired plants provide 38.5 per cent of the province's capacity. The Alberta government intends to replace a significant portion of this decommissioned generation capacity with capacity provided by renewable electricity generation facilities.

It is most likely that the province will rely on wind generation and, to a lesser extent, solar generation as the preferred methods of increasing renewable energy generation capacity in Alberta. Although large-scale technologies such as hydroelectric and geothermal generation could be used to support Alberta's baseload power growth, such generation facilities have very large capital costs and challenging regulatory processes that will make them difficult to develop in a timely manner to replace coal-fired capacity by the 2030 target.

However, it is important to note that per MWh, electricity produced through wind and solar power generation is still quite costly. In order for wind power generation facilities to be economically viable, producers require average revenues of C\$60-\$80/MWh. Revenues above C\$100/MWh are currently required to sustain a large solar power generation facility (see the Alberta government's *Climate Leadership Report to Minister*). These revenues are substantial when compared to the average pool price of electricity in Alberta over the past 10 years of approximately \$64/MWh (see AESO's *2015 Annual Market Statistics*).

Due to such low market prices, it is apparent that incentives are necessary to encourage producers to develop and invest in renewable electricity generation projects in the province. Therefore, as part of the 2016 provincial budget, the Alberta government earmarked C\$3.4-billion generated from Alberta's new carbon levy—another major initiative announced as part of the Plan—to be invested in large-scale renewable energy over the next five years. Establishing a process for allocating certain of these funds is likely to be an important element of the REP.

THE ANTICIPATED RENEWABLE ELECTRICITY PROGRAM

At this stage, the AESO has not disclosed specific details of the REP; however, three key points have been made clear: (1) it will be a fuel-neutral competitive process with the first competition for renewable energy projects to be held in late 2016; (2) the REP is intended to fit within the existing deregulated competitive electricity market of Alberta; and (3) the AESO's recommendations regarding the REP will generally follow those set forth in the Alberta Climate Leadership Panel's Climate Leadership Report (Report), originally released in conjunction with the Plan.

1. FUEL-NEUTRAL APPROACH

The Report recommends that a "clean power call mechanism" be adopted; whereby the government will set a target annually for new renewable generation capacity and interested parties will submit proposals in

respect of the same. Unlike the recently announced renewable energy procurement process for Saskatchewan—which has set capacity targets for specific types of renewable electricity generation to be constructed (for example, 100-200 MW of wind and 10 MW of solar)—the Report recommends, and the AESO agrees, that a fuel-neutral approach be taken. As proposed, the Alberta government would evaluate proposed renewable generation projects to determine which projects offer the best-value electricity and award funds to those projects requiring the least subsidies relative to the project’s generation capacity.



2. COMPETITIVE MARKET STRUCTURE

As part of the Plan, the Alberta government indicated that the proposed REP will be accomplished through policies designed to work in Alberta’s competitive electricity market; an approach that has been supported by the Report and the AESO. In particular, the Report does not recommend any specific modifications to Alberta’s existing competitive electricity market structure. Accordingly, it is likely that the AESO’s recommendations regarding the REP will operate within the context of the current market structure, rather than propose any fundamental changes to how electricity is bought and sold in the province.

The AESO has confirmed that in developing its recommendations for the REP it has considered mechanisms currently employed in a number of jurisdictions; however, it is unlikely that it will propose a concept similar to Ontario’s feed-in tariff, or “FIT,” program. The FIT program was the provincial government’s incentive program formerly used in Ontario to procure the construction of large-scale renewable energy generation projects (subsequently replaced by the competitive bid system known as the “Large Renewable Procurement” program). The FIT program was a standard offer program whereby producers were able to enter into direct sales agreements to sell electricity generated from renewable

sources to the province’s Independent Electricity System Operator at a guaranteed price for a fixed contract term (for example, 20 years).

Although implementing a program similar to FIT in Alberta would likely provide additional comfort to lenders looking to invest in undercapitalized renewable energy producers in the province, the Report is not supportive of this approach. Accordingly, it is unlikely that the AESO would recommend that the Alberta government adopt a feed-in tariff system similar to that of Ontario. The Report provides the following reasons as to why a feed-in tariff system would not be appropriate for Alberta’s electricity market:

- i. **Contrary to Competitive Market.** A feed-in tariff system is contrary to the competitive nature of the Alberta electricity market. Obtaining project financing for new market entrants and small businesses is difficult in all sectors. There is no reason for the Alberta government to assume the downside risk of market price fluctuations through government-backed fixed-price direct sales agreements with renewable energy generation projects, where it does not do the same in other competitive markets.
- ii. **Not Necessary.** Two major market participants have already constructed and financed renewable generation facilities in Alberta without government support provided through a feed-in tariff system. In particular, the Report sites two large-scale wind power generation facilities that were financed through the sale of the RECs (discussed in more detail below) associated with their generation, rather than direct sales agreements for the electricity produced by such facilities.
- iii. **Removal of Market Incentives.** A FIT-type program would remove the incentives provided by the merchant market to build renewable facilities which generate the highest value power, not simply the most power.

3. RENEWABLE ENERGY CERTIFICATES

In furtherance of maintaining the existing Alberta electricity market structure, whereby electricity is sold to and purchased from the power pool at competitive market prices, the Report proposes that “Renewable Energy Certificates” (RECs) be used as a means of funding new renewable energy projects in the province. RECs are financial vehicles that “uncouple” the renewable energy attributes from renewably generated electricity so that a producer may sell these attributes separate from the associated electricity. In the context of Alberta, the AESO could enter into agreements to purchase RECs from a renewable electricity generation facility and the renewable electricity producers could sell the associated electricity into the Alberta power pool at market prices in the same manner as any other electricity producer. This approach would encourage the construction of new renewable energy generation capacity by increasing the amount of income that producers may derive from each MWh of electricity generated by their facility. Without such an incentive, producing electricity from renewable sources would likely not otherwise be supported by the current electricity market prices in Alberta.

In order to limit the Alberta government’s exposure to high costs of support, the Report recommends that the government set a ceiling price for RECs of, at most, C\$35/MWh, which is roughly equivalent to a C\$90/tonne CO₂ premium over natural gas generation under the current system in Alberta. By purchasing the RECs of newly constructed renewable energy generation facilities, the government intends to provide producers with the support that they require to bring their production costs (per MWh) more in line with those of electricity producers using lower-cost, non-renewable fuel sources.

CONCLUSION

If the AESO determines that the REP proposals set forth in the Report will adequately balance the needs of the Alberta electricity market with the targets set by the Plan, it is likely that its recommendations to the government will rely heavily on a system of competitive bidding for government-backed REC contracts. The sale of RECs by electricity producers will subsidize the construction of renewable energy projects to replace the capacity lost from coal-fired generation retired in accordance with the Plan.



If the AESO does recommend a REC-based incentive program, the specific impacts on Alberta’s generation supply mix are still unclear. Ultimately, the price that the government is willing to pay producers for the RECs that they produce would determine the size and type of renewable energy projects that will be

developed. However, it can be assumed that—irrespective of pricing—wind generation will likely make up the majority of new renewable generation capacity, as it is currently the lowest cost renewable technology.

The government continues to evaluate the AESO’s recommendations regarding the REP and is expected to finalize the details and announce the program in Q3 of 2016. Based on this timeline, it is anticipated that the first auction for renewable energy projects will be held in Q4 of 2016, with the first REP projects starting in early 2019.

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