

How Alberta achieved Canada's lowest renewable-electricity prices

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The Alberta government scored its Boxing Day bargains early. On Dec. 13, Premier Rachel Notley announced that Alberta set a new record by procuring the lowest priced renewable electricity in Canada. Alberta achieved these rock-bottom prices by establishing a competitive auction process to award renewable electricity contracts to low bidders as the centrepiece of its policy.

The results from this competition have implications for the development of renewable electricity in Alberta and across the country. Provinces and companies are taking a fresh look at locking in low renewable-electricity prices under long-term contracts in order to reduce their exposure to volatile electricity costs. Alberta will run an additional renewable-electricity competition next year as part of its Renewable Electricity Program (REP). The province will also face intense pressure to justify its nascent climate policies over the long term.

In November, 2015, the Alberta government announced its Climate Leadership Plan, which will phase out coal-fired electricity and replace it with renewable electricity and natural gas-fired electricity by 2030. By this time, renewable sources will account for up to 30 per cent of electricity generation in the province.

To meet Alberta's renewable electricity target, the government tasked the Alberta Electric System Operator (AESO) with development of the REP, which is a competitive process intended to encourage the development of 5,000 megawatts (MW) of renewable electricity generation capacity to the Alberta grid between now and 2030.

The use of a competitive auction process was key to Alberta's success. Under the REP, bidders submit their lowest acceptable price for their proposed renewable projects. The winning bidders are awarded a 20-year contract with the AESO for all electricity and renewable attributes generated by the projects in exchange for the fixed-bid price for the electricity.

If the bid price exceeds the Alberta power pool price (i.e., the electricity price), then the AESO pays the generator the difference. However, if the bid price is less than the Alberta power pool price, then the generator pays the difference to the AESO. This competition structure puts downward pressure on the cost of renewable projects.

The REP attracted significant interest from renewable energy developers from across Canada and abroad. Twelve renewable energy companies submitted bid prices for 26 projects in the first REP competition, representing 3,600 MW of renewable electricity.

The first REP competition awarded contracts for nearly 600 MW of wind generation, enough to power approximately 255,000 homes. A total of four wind projects developed by the following three companies were selected in the first REP competition: Capital Power Corporation, Enel Green Power Canada, Inc. and EDP Renewables Canada Ltd. The weighted

average bid price came in at \$37/MWh or 3.7¢ per kilowatt-hour (kWh). By comparison, other provinces have recently awarded wind projects long-term contracts for more than double this price.

The Alberta government is expected to announce details for an additional REP competition in the first half of 2018. The low prices demonstrate that the first REP competition was a success. However, key questions remain for future rounds regarding additional social, technological or environmental requirements that could be added to the REP. Such requirements could add certain benefits but also increase bid prices.

The first REP competition was technology-neutral among forms of renewable energy such as wind, solar and bioenergy. This helped to obtain the lowest possible prices among all forms of renewable electricity. However, as a result, no solar energy projects were awarded contracts in the first REP round. Although solar projects may involve higher initial costs, they offer unique benefits such as generating power closer to when and where people use it. The government will need to consider these factors if it intends to award contracts to solar projects in future REP competitions.

Other provinces have required some form of involvement from Indigenous groups in proposed projects. For example, Saskatchewan's electrical utility announced plans to award contracts for two 10-MW solar projects in partnership with the First Nations Power Authority. In order to incentivize more Indigenous participation in the REP, Alberta would likely need to require increased Indigenous engagement in REP bids.

The short-term forecast for renewable electricity in Alberta is bright, with scattered clouds in the years ahead. The long-term future of the REP largely depends on whether future Alberta governments continue the policy of incentivizing the development of renewable electricity to replace a portion of phased-out coal generation. The ultralow renewable electricity prices help to make the case for continuing the REP as well as similar competitions in other provinces. Corporations may also look to lock in low renewable-electricity prices through long-term agreements – particularly if Alberta's power pool price increases to more than the winning REP bid price, as it has in recent years.

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