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To: Power Advisory LLC Clients and Contacts

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RE: Alberta REP 1 Results – Summary and Commentary

Yesterday, the Alberta Electricity System Operator (AESO) announced the results and contract awards from their first Request for Proposals (RFP) under their new Renewable Electricity Program (REP), known as REP 1. The results and contract awards are available on the AESO's website: https://www.aeso.ca/market/renewable-electricity-program/rep-round-1-results/.

This announcement is a culmination of efforts that began in 2015 following the release of the Government of Alberta's (GOA's) Climate Leadership Plan (CLP), which called for the addition of 5,000 MW of new renewable generation capacity by 2030 as part of a plan to supply 30% of Alberta's electricity needs from renewable energy.

By all accounts, REP 1 was expected to be a highly competitive procurement – and the results of yesterday's announcement has delivered on that expectation. Exceeding the REP 1 procurement target by nearly 200 MW, a total of just under 600 MW of wind generation was procured, with a weighted average contract price of just over $37/MWh:

- Capital Power's 202 MW Whitla;
- EDP Renewable's 248 MW Sharp Hills;
- Enel Green Power's 115 MW Riverview; and
- Enel Green Power's 31 MW Phase 2 of Castle Rock Ridge.

With contract prices ranging between $30.90/MWh to $43.30/MWh, the energy industry in Alberta, and across Canada, will take note and time to reflect on what these results mean going forward. These prices are record setting for Canadian wind generation projects.

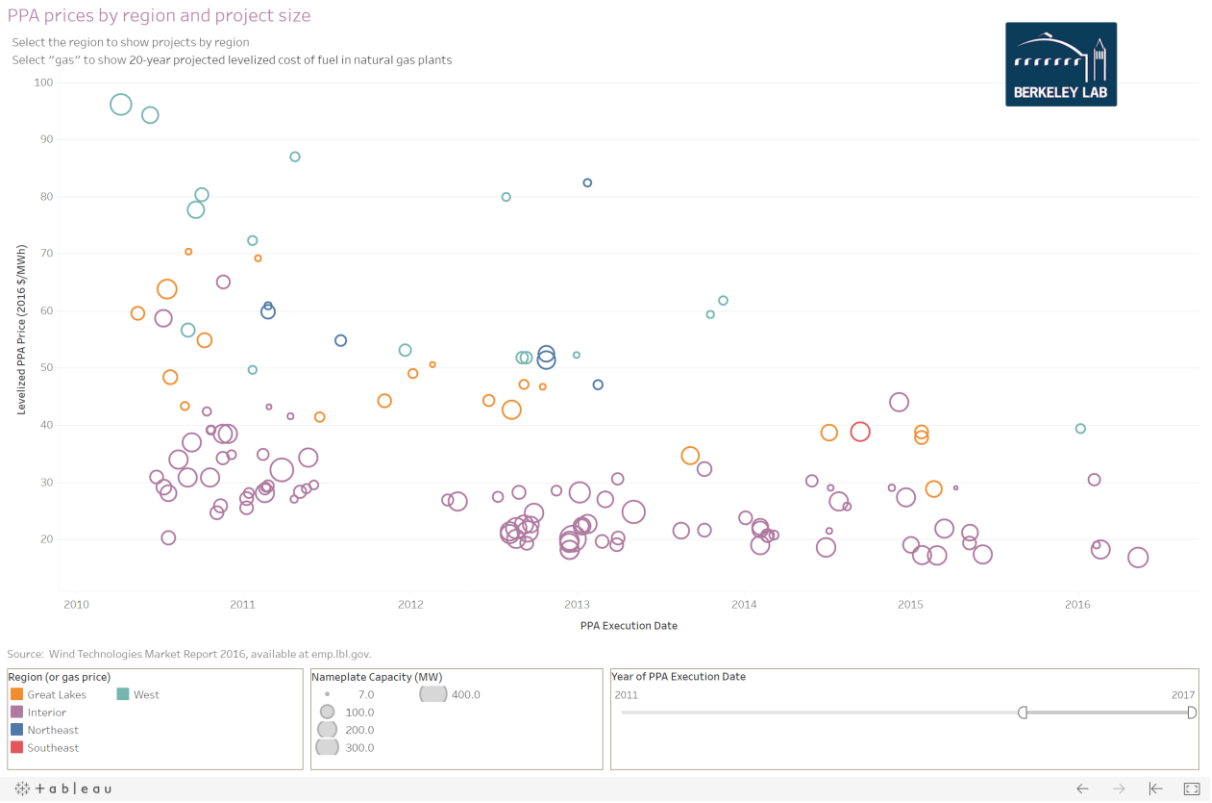
The following summary and commentary reflects on the outcomes of yesterday's announcement by providing background on the competition and reflects on the next steps the AESO may consider for future rounds of the REP.

Contract Price

Originally the CLP called for a cap of $35/MWh for Renewable Energy Credits (RECs). At the start of the consultation with industry regarding the design of the REP in 2016, the AESO had initially considered a simple, fixed-price contract approach for RECs. In other words, the proposed a fixed-price REC would be paid on top of wholesale energy market revenues. While the approach was considered to address the objective of maintaining the impact of market price signals and would be compatible with a price collar (i.e. the cap), the AESO ultimately adopted an Indexed-REC approach as outlined in their recommendation report to the GOA in May 2016. Given the variability in predicting cash-flows from wholesale market revenues, an Indexed-REC was adopted to help ensure that the overall unit price for contracted renewable generation was as low as possible. The Indexed-REC provides a predictable revenue stream, which unlocked wide-ranging industry participation by enabling broader debt-financing options. This approach also provides protection to Alberta's electricity customers, who would see a benefit if pool prices are greater than the contract price.

The resulting weighted average contract price of $37/MWh is indictive of the Indexed-REC price approach and the ability to put downward pressure on the costs for renewable energy projects. The decision to move to a 'contract-for-difference' approach not only achieved low prices by attracting relatively low-cost capital, but also reduced ratepayer exposure to higher future payments (i.e., the average contract price is lower than 2018 forward energy prices and in-line with expected wind realized prices).

Indeed, the contract prices achieved in REP 1 are notable from a national perspective. The prices are significantly lower than the Ontario Independent Electricity System Operator's (IESO's) Large Renewable Procurement (LRP) in 2016 (299.5 MW of wind generation contracted at an average price of approximately $86/MWh) and Hydro Quebec Distribution RFP results from December 2014 (446.4 MW of wind generation contracted at an average price of approximately $76/MWh). The Alberta result is more aligned with recent Power Purchase Agreement (PPA) prices in U.S. jurisdictions as illustrated the figure below from Berkley Lab.



Source: Berkley Lab, Wind PPA Prices (https://emp.lbl.gov/wind-ppa-prices)

Successful Proponents

Two incumbents and one new entrant to Alberta's electricity market were successful – each with an aggressive approach.

As one of Alberta's largest electricity generators, with a fleet consisting primarily of fossil-fuel generation, Capital Power clearly made a push towards achieving their wind generation development goals for 2017. Enel Green Power, relatively new to the Alberta market, expands upon their existing Castle Rock Ridge wind generation project which was completed in 2012, and moves forward with a new sizable project.

New to Alberta, EDP Renewables competed and won against a strong incumbency as well as other competitive would-be new entrants.

Both EDP Renewables and Enel Green Power are building upon recent successes in North American renewable generation procurements; EDP Renewables being successful in IESO's LRP I

RFP, and Enel Green Power setting a record-breaking low price of $17.70/MWh in Mexico's most recent renewable energy auction.

What's Next?

The GOA and the AESO will reflect on the results and success of REP 1 as they move forward with the design of future rounds. With these Canadian record-setting contract prices, any proposed changes to REP will need to be weighed against the potential for putting upward pressure on future contract prices. That said, the AESO has been clear that the Indexed-REC approach would be used for REP 1, leaving it open for discussion in future rounds.

As more renewable generation is procured, the AESO will need to consider broader system impacts. The REP 1 wind generation projects will be built with no new transmission requirements. The AESO had previously stated that the existing as-built transmission system can accommodate approximately 2,600 MW of new renewable generation. However, all the REP 1 projects are located in southern Alberta; incremental generation proposed in this region may give rise to congestion issues in future rounds. Inevitably, the AESO will likely need to consider new transmission investments to achieve the 5,000 MW renewable generation target.

As the industry analyzes the results and contract awards from REP 1, we should anticipate that the AESO may move quickly to launch the next procurement rounds. For this reason, Power Advisory encourages interested proponents to use this time to prepare by considering the needs or interests for proposed changes to the REP procurement process. For example, should the REP consider mechanisms to promote regional diversity? A benchmarked-approach to provide benefit to solar resources? How might future rounds consider Aboriginal support? These questions should be considered in context of the success of this first round to deliver low contract prices.