Why Alberta Decided to Stick with its Energy-Only Electricity Market

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This past April the United Conservative Party (UCP) was elected in Alberta. Since then, the new government has taken a number of steps to implement its election platform and to undo many of the policies that the prior New Democratic Party (NDP) government implemented during its term in office. The electricity sector has not been spared from this undoing. Among other things, the UCP recently announced that it would shelve the planned overhaul of Alberta's electricity market that would have changed it from an energy-only electricity market to a capacity market.

This decision has significant implications for all stakeholders, including existing generators, project developers, lenders and shareholders. It will also impact residential and industrial consumers that ultimately pay for the electricity, and that count on receiving a reliable and competitively priced supply of the stuff.

What is the difference between an "Energy-Only Market" and a "Capacity Market"?

Since 1996, Alberta has operated Canada's only truly competitive wholesale electricity market through which all electricity, whether generated in Alberta or imported into the province, is bought and sold. It is called the Power Pool.

The Alberta Electric System Operator (AESO) operates the Power Pool. Every minute of every day generators offer their power into the Power Pool at the prices they must receive before they are prepared to generate and deliver power into the grid. Generally, that price is at least enough for them to cover their variable generation costs (fuel, carbon, etc.). The price is also currently capped under Power Pool rules at $999.99 per MWh. These offers by generators to sell electricity in the Power Pool are called supply offers. The AESO sorts all of the supply offers from the lowest to the highest price to create something called an economic merit order list. The supply offers from the generators with the lowest prices are then dispatched by the AESO (told to generate and deliver power to the grid) in real time (each minute of every day) until the electricity demand in Alberta for that minute is satisfied. This economic dispatching (based on lowest price) is used to calculate a price per MWh for each hour of a day that is called the Pool Price. Each generator that dispatched power into the grid in an hour is paid the

Pool Price for that hour regardless of the price specified in its supply offer. Customers also pay that Pool Price for the power they consume in that hour.

For our purposes, the important thing to note is that a generator only earns revenue if it gets dispatched by the AESO. If market demand can be satisfied using power offered by other generators at cheaper prices then the generator sits idle, and is not paid anything.

Described as being an “energy-only market”; a generator only earns revenue when its supply offer price is low enough for it to be dispatched, such that it generates and delivers energy to the grid.

Unlike an “energy only” market, in a “capacity market” generators are also compensated for having the capacity/ability to generate electricity, even when they are not actually dispatched by the AESO. The idea is that generators should also be compensated for their capacity or ability to quickly generate power if and when needed. Some investors in generation projects, especially those owning thermal projects with higher fuel and carbon costs but that are able to generate power on demand, like a capacity market because they can earn some revenue even if those projects are not dispatched because Pool Prices are too low for them to generate economically. Kind of like a standby fee.

Why did the prior Alberta government and the AESO decide to introduce a capacity market?

In late 2016, Alberta announced, based on a recommendation by the AESO, that it would transition to a capacity market in 2021. In this new market generators would be able to earn revenues from the electricity they generate and deliver to the grid (energy revenues) and also for the capacity they have to generate electricity when needed (capacity revenues). Why was that decision made?

In short, the conclusion back then was that the current energy-only market would not ensure that Alberta had a reliable electricity system in the future because of a reluctance by equity investors and project financiers to invest in new power projects in energy-only electricity markets. This is because the energy-only market is seen to provide less revenue certainty and stability to generators that are at risk that Pool Prices will be lower than needed for them to recover their fixed and variable costs as well as earn a reasonable return over the life of their new plants. As the AESO stated in its recommendation to transition to a capacity market:

“The current EOM [Energy-Only Market] will not ensure the investment in new generation that Alberta will need in the future. Therefore, the AESO has concluded that Alberta must adopt a different electricity structure to meet its objectives for the electricity system.”

It is important to note that this capacity market decision was made at a time when the NDP government was focused on implementing its Climate Leadership Plan which included a commitment to provide financial support for 5,000 MW of new renewable power generation in Alberta, such that renewable power would account for at least 30% of Alberta’s power generation by 2030. Because this renewable generation was going to get government financial support and had minimal variable generation costs (wind is free, no carbon costs) it was predicted to reduce the future Pool Prices that all generators (including gas-fired generators) would receive.

This 5000 MW of new renewable generation would also be intermittent, and therefore need to be firmed, often by new gas-fired generation. Throw in the need for new gas-fired generation to replace the coal plants in Alberta that are to be phased out by 2030, and one understands why the Province and the AESO were worried that the needed new gas-fired generation would not be developed in its energy-only electricity market. The conclusion then was that developers of the needed new gas-fired generation would only be able to finance and build this new generation if a capacity market was introduced in Alberta.

There were also some political concerns that influenced the capacity market decision. Any new gas-fired power plants that are needed to firm renewables and to replace coal when Alberta's coal plants are phased out in 2030 will only be built when the energy-only market sends the necessary price signal, i.e. higher Pool Prices. The politicians concluded that this will only occur after power supply in Alberta became tight, such that there was a reliability risk, i.e. a risk of brown outs. Also, as the power supply became tight there would be more price volatility, with Pool Prices spiking higher during peak hours of consumption and at certain times of the year when demand is high. This was something the NDP government concluded Alberta's electricity consumers/voters would not accept.

Why did the new Alberta government decide to kill the capacity market?

On July 24th, the UCP announced that, after three years of spending money and time on studies, consultations and capacity market rules, including holding regulatory hearings on the proposed capacity market rules, Alberta would no longer proceed with the transition to a capacity market. Why?

The cynics will say that they killed the capacity market because it was not their idea. Publicly, the government stated that maintaining the energy-only market had the overwhelming support of stakeholders. It also suggested that the energy-only market is simpler, has a proven track record of providing affordable and reliable electricity to Albertans and is already in place and understood by investors. Unlike what the prior government and the AESO thought in 2016, the UCP concluded that the existing energy-only market will attract any needed investment in new generation projects in Alberta. As is often stated by energy-only market supporters, since 1996 there has been over $20 billion dollars invested to develop over 10,000 MWs of new generation in Alberta's energy-only electricity market. The past predicts the future, right? Time will tell.

The energy-only market, when compared against a capacity market, is also a more laissez-faire competitive form of electricity market that aligns with the UCP ideology of less central planning by government generally. A big criticism of the proposed capacity market has always been that the government would overestimate the need for new generation, procure more generating capacity than needed, and therefore saddle consumers with unnecessary capacity payment costs. In essence, there was a risk that the capacity market would shift the financial risk of overbuilding new generation from project developers (under an energy-only market) to consumers (under a capacity market).

It should also be noted that the UCP also killed the NDP's Climate Leadership Plan after its election, which, as mentioned above, was going to provide financial support for 5000 MW of new renewable generation projects. So, the argument may have also been that if renewable power development slows in Alberta then we will need less new gas-fired generation to firm that power. Plus, because capacity markets are not generally great for renewable projects because of the intermittency of their generation, killing the Climate Leadership Plan and bringing in a capacity market would have been a double whammy for new renewable development.

Finally, fundamentally changing an electricity market structure is never easy to do, especially if, as is the case today in Alberta, there is no power crisis or imminent threat of brown outs and the market is resulting in reasonable power prices for consumers. As one market commentator put it in a recent opinion piece in the Calgary Herald, if Alberta's electricity market is not broken, don't fix it. The UCP agreed.

What to look for next?

The focus in the coming months will now shift from a new capacity market to whether or not there needs to be changes in the current design of the energy-only market to make sure that it continues to send the timely price signals necessary to incent new generation in Alberta. One important issue that the AESO has been asked to review is whether the Pool Price cap in Alberta needs to be increased from the current $999.99 per MWh. Interestingly, in 2016, when it recommended a capacity market, the AESO modelling came up with $5000 per MWh as the Pool Price cap needed to ensure that there continues to be sufficient generation to reduce the risk of future brown outs under Alberta's energy-only market. Such an increase would allow generators to capture higher peak revenues in hours when there is a shortage of electricity. After all, if the energy-only market is to be a truly competitive market, should there be a cap at all on the Pool Price and, even if there is to be a cap, should it continue to be an unindexed cap that was set for Alberta over twenty years ago? Generators and consumers will have different answers to this important question.

Large industrial consumers will also look to manage their future electricity price exposure and supply risk because the government will no longer manage the need for new capacity through a capacity market. Some will conclude, like the NDP and the AESO did in 2016, that we will see more price volatility going forward in the Alberta energy-only market. So we should see more liquidity in the Alberta electricity market as the demand side (consumers) look to manage their electricity pricing volatility and lock in future prices through bilateral financial contracts with generators. This will, of course, also provide generators with a better opportunity to hedge their future revenues. That includes new renewable project developers who may now be better able to get some hedges through contracts with commercial and industrial consumers to help finance their new projects.

Finally, the decision to kill the capacity market will impact the types of power generation that we will see in Alberta. As TransAlta advised the market on its investor call in August, an energy-only market favours machines that run at really high capacity factors (get dispatched a lot) because they have low heat rates (produce more power from less fuel) and have lower carbon costs. TransAlta acknowledged that it was therefore re-evaluating the form that some of its proposed coal-to-gas conversions would take at Sundance and Keephills. Previously, TransAlta announced that its coal-to-gas conversions would be done quickly and cheaply and enable the plants to maximize capacity payments when that market opened. It is expected to announce at its Investor Day this week that it will change some of the coal unit conversions to a hybrid (combined cycle) option, which takes longer and costs more money to complete than a simple conversion, but that would result in lower fuel and carbon generation costs and could be more economic over all in the energy-only market.

AlbertaPowerMarket.com will continue to monitor and update you on electricity market design issues in Alberta, including changes that are likely to be made to the energy-only market in the coming months to make sure that the structure of Alberta's electricity market continues to encourage the development of new generation. We will also update you as other ramifications of the UCP decision to kill the capacity market play out.

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