Intelligence MEMOS

From: Blake Shaffer

To: Alberta's Electricity Consumers

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Re: WHAT A CAPACITY MARKET MEANS FOR ALBERTA, AND WHY?

Alberta has just announced a significant change to its electricity market: the introduction of a capacity market. But what does this mean? And why are they making this change?

Broadly speaking, electricity systems are either market-based or centrally planned. In preparing to massively overhaul its system—by phasing out coal and quadrupling renewables—the Government of Alberta faced two choices.

The first was whether to remain with a market-based system or manage the transition by taking a centrally planned approach.

Under central control, the planner determines the supply needs of the system and meets them by procuring generation under either a cost-of-service model at regulated rates or through long-term contracts.

Neither of these are good options. In the cost-of-service model, generators have incentive to add overly expensive generation. Long-term contracts lock Alberta into today's technology for 20 years; a costly outcome, as Ontario's experience reminds us.

Both also place considerable onus on the planner getting it right.

Alberta has rightly chosen not to go this route. They are remaining with a market-based system.

The second choice was whether to remain with the current market design or make changes.

Alberta is one of only a few places in the world that has an energy-only market. In an energy-only market, supply and demand meet every hour to set a price. Most of the time, this price is only sufficient for generators to recoup their operating costs (eg. fuel). However, in periods of high demand or limited supply, prices can soar and generators recover the fixed costs of their investment.

An energy-only market is notoriously volatile. Prices can go from $20 per megawatt-hour to $1,000 the next. This volatility comes at a cost. Generators require a higher expected price to invest if their year is made or lost in a matter of hours.

An increasing share of renewables also has implications. More renewables depresses prices for more hours of the year. For other generation to be viable, the price cap of $1,000 would likely have to be raised in order to capture sufficient revenue during price spikes to cover their investment costs. This is the path that Texas chose, recently raising their price cap to nearly $10,000. But mercy to the politician defending their efficient electricity system while prices ping $10,000!

For these reasons, many electricity systems around the world have added a capacity market. A capacity market is typically an annual auction that pays generators for their ability to generate, rather than simply their energy generated. For example, wind power provides energy but has limited ability to participate in capacity markets because of its intermittency, whereas a natural gas power plant offers reliable energy and capacity.

A capacity market shifts the benefits generators get from brief periods of high prices into annual capacity payments determined by competitive auction. This reduces price volatility and lowers investment costs and risks to reliability.

As the share of intermittent generation on the grid increases, having two markets that recognize the capacity and energy that different generators provide—and values them explicitly—is sensible policy.

The Alberta government made the right move by maintaining but improving their market-based electricity system and not following Ontario's mistakes of long-term contracts.

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