Commentary on Alberta MSA Offer Behaviour Guidelines Response – Charles River Report

Prepared for:

Independent Power Producers Society of Alberta

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Power Advisory LLC

poweradvisoryllc.com

1 Introduction

The Alberta Market Surveillance Administrator ("MSA") issued Offer Behaviour Enforcement Guidelines ("OBEG") in 2011 to promote a fair, efficient and openly competitive market. A key element of the OBEG was that unilateral economic withholding was allowed in order to allow long term investment signals. The OBEG were withdrawn in 2017 with the announcement that Alberta was transitioning to a capacity market. The stated rationale was that the capacity market would replace the long-run investment signal sent by the OBEG. As a result, there are currently no specific guidelines in place to guide acceptable behavior in the market.

The MSA retained Charles River Associates (CRA) to provide an expert opinion on the need for new Guidelines to replace the OBEG. Specifically, CRA was asked to address three questions[1]:

- Could there be a problem with offer behaviour that would need to be addressed during the transition period?
- If so, could the problem identified be addressed in whole, or in part, through MSA guidelines and what form could those guidelines take?
- If guidelines were made and market participants did not follow those guidelines what remedies should the MSA seek from the Alberta Utilities Commission ("Commission") in an enforcement proceeding?

The CRA Paper was released December 10, 2018[2] and the MSA has requested comments from the industry. The Independent Power Producers Society of Alberta (IPPSA) retained Power Advisory LLC to comment on the findings in the paper.

2 Summary of CRA Commentary on Interim Offer Behaviour Guidelines

The CRA report is organized to answer the three questions posed by the MSA and stated in the previous section. CRA largely focused on the first question and at a high level indicated that there is not currently an issue that requires the development of new behavior guidelines. Further, based on challenges CRA identifies with developing guidelines, they recommend that the MSA should not develop interim guidelines. However, CRA does suggest the use of benchmarks such as long-run marginal cost (LRMC) or the cost of new entry should be used to evaluate price outcomes. Short-run marginal cost (SRMC) is indicated numerous times as a potential benchmark based on economic theory, though the report does acknowledge this is a departure from historical practice and creates equity issues.

[1] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-09-27%20Notice%20re%20OBEG%20guidelines.pdf
[2] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-12-10%20MSA%20CRA%20Guidelines%20Report%20FINAL%20.pdf

Overall, Power Advisory is not aware of why a new 'problem' with offer behavior would exist during the current period prior to the capacity market start where there was no problem in prior periods, per the MSA's first question. While CRA appears to come to a similar conclusion, the natural question that is not addressed is whether continuing the prior OBEG is a reasonable approach in the current period, rather than consulting on new guidelines and/or proposing new benchmarks. Power Advisory notes that in reality nothing has changed in the market for 2017 through November 2021 and market participants continue to operate under an energy only market design. It is not a transition or interim period as there have been no changes to the market and participants continue to operate in an energy only market context.

Current Market Conditions

CRA identifies a large number of indicators suggesting that the market is not likely to observe problematic offer behavior.

- While prices in 2018 trended upwards and exceeded $50/MWh for the year, these prices are still well within historical norms.
- A number of factors such as reduced supply, increased carbon costs and a reduction in the Balancing Pool's portfolio are fundamental factors in recent price increases.
- Supply cushion remains at relatively high level compared to historical experience.
- Reserve margins are high compared to historical experience.
- Market shares of the largest players other than the Balancing Pool are expected to be below historical levels until the remaining PPAs expire at the end of 2020.
- Supply adequacy appears very reasonable through 2021 even with very conservative assumptions for generation development

These key factors are identified as rationale for suggesting there is not a problem with offer behavior that would need to be addressed during the current period. Power Advisory agrees with the CRA assessment that current market conditions do not raise concerns. In Power Advisory's view, competitive forces will continue to discipline price outcomes during the interim period as they have during previous periods in the energy only market.

Recommendations

CRA suggests that previous benchmarks such as measures of LRMC, or cost of new entry, remain useful indicia. CRA indicates in a footnote that a transition to using SRMC as a benchmark are a departure from historical practice in Alberta, and are therefore not as desirable from an equity standpoint. CRA suggests that during the transition period, on an ex post basis, pool prices that exceed reference levels should be scrutinized by the MSA to determine whether there is a reasonable basis for the excess. Possible factors that could be taken into consideration include expected and unexpected outages (in generation and transmission), shifts in offer control (particularly on the margin), changing fuel prices, seasonal effects, and unusual weather conditions. CRA notes that the period following the end of the Balancing Pool PPAs in early 2021, should receive particular attention.

CRA does not suggest developing replacement OBEG, primarily due to administrative burden and short time lines. For example, CRA outlines a range of challenges associated with calculating LRMC and establishing appropriate benchmarks against the criteria. CRA does not strongly address whether or not the previous OBEG could simply be reinstated, other than to suggest that the relatively short time frame from now until the capacity market is in place create a challenge for long-term metrics. Further, CRA indicates that the development of the capacity market challenges the concept of OBEG that long-run efficiency requires prices rise high enough to incent new investment.

On the one hand, LRMC has been the primary historical metric, as the focus has been on promoting dynamic efficiency. However, a central purpose of the forthcoming capacity markets will be to provide incentives for adequate investment in future facilities. Thus, the dynamic efficiency argument in energy only markets, as previously conceived, is substantially weakened. Furthermore, it would appear that there is sufficient capacity during the transition period, so it may not be necessary to promote energy prices at a level sufficient to incent new investment, particularly as we anticipate that capacity markets will serve this purpose.[3]

In Power Advisory's view, the argument that LRMC is may no longer be the relevant metric for evaluating market outcomes is misplaced. As will be outlined in the remainder of the report, the alternative of using SRMC is neither acceptable nor straight forward for the current market design. Further, the use of SRMC raises a large number of issues that are not addressed in the CRA report. CRA does indicate a concern with equity as a reason to choose LRMC over SRMC as the appropriate benchmark, but this understates the rationale and the potential for harm associated with an SRMC benchmark.

3 Equity and Investor Confidence

As noted, CRA suggests that using SRMC as the benchmark for competitive outcomes raises equity issues. The essential point is that investors historically understood that the intent of the overall market was to return LRMC over time. In other words, there was a reasonable expectation that an investment would deliver competitive returns on average over time. This is not the case in an energy only market if prices are held near SRMC through offer mitigation, particularly in the case where SRMC are narrowly construed as largely driven by fuel costs.

Evaluating the market against SRMC is particularly problematic given both the historical guidance and experience as well as the design intent of a capacity market. Historically, prices have been allowed to rise to levels that signaled the need for new capacity, i.e.

[3] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-12-10%20MSA%20CRA%20Guidelines%20Report%20FINAL%20.pdf, Page 17.

prices have reflected LRMC on average over time. As noted in the CRA report[4], historical 12 month rolling average prices have ranged from roughly $20/MWh to $90/MWh. These price levels roughly coincided with SRMC to somewhat higher than LRMC on a 12 month basis. This is reasonable; if prices are expected to deliver LRMC on average their will be periods where they are above LRMC.

As with the energy only design, the expected capacity design is intended to deliver LRMC on average. The use of a capacity demand curve tied to the Cost of New Entry (CONE) is designed to allow generators to recover efficient investment costs on average. As an example of this intent, the AESO published several studies showing expected revenue on average for a market participant under the capacity market design.[5] As with the current design, there is an expectation that year over year total energy and capacity prices will be both above and below LRMC, but on average prices will track LRMC over time.

The use of SRMC as a benchmark does not make sense in the context of competitive outcomes in an energy only design where the energy price must cover both variable costs and fixed costs. This is consistent with views in other markets and remains true for the interim period in Alberta where there is no capacity revenue in place to cover fixed costs. For example, Brattle examined market power mitigation in the Western Australian market and suggests[6]:

"Where there is a capacity market it is reasonable to target SRMC-based prices in the energy market. It therefore makes sense to develop ex post mitigation that is more specific than general competition law principles (unlike, for example, in the NEM, where there is no capacity mechanism and where therefore it is not desirable to target SRMC-based prices)."

The use of SRMC as a competitive benchmark in the interim period simply does not fit with the history or future of the market. In effect, the prior design targeted LRMC through the OBEG in order to allow competitive forces to meet investment needs, and the future capacity design has a similar intent through the capacity demand curve. Establishing an interim period targeting SRMC is not equitable to existing investors and provides reason for pause for future investors in the capacity market. Exposing investors to a price shock merely due to the existence of an 'interim' period where the original design is still in place with no transition mechanisms but the new design is under development serves no rational policy goal.

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[4] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-12-10%20MSA%20CRA%20Guidelines%20Report%20FINAL%20.pdf, Page 23.

[5] https://www.aeso.ca/assets/Uploads/Summary-of-Integrated-Capacity-and-Energy-Revenue-Modelling.pdf, Page 12.

[6] https://www.treasury.wa.gov.au/uploadedFiles/Site-content/Public_Utilities_Office/Industry_reform/Market-Power-Mitigation-Mechanisms-for-the-Wholesale-Electricity-Market-and-Brattle-Group-Report.pdf, Page 22.

4 Short-Run Marginal Cost in an Energy Only Market

Alberta's current energy only market design has a number of design features that strongly indicate SRMC are not an appropriate measure for competitive outcomes. The CRA report notes how an energy only electricity market would work in a perfect world.[7]

"In a perfectly functioning market – including, in particular, a participatory demand side willing to accept load shedding under certain circumstances – short-run marginal cost pricing should lead to recovery of long-run marginal costs, in aggregate. Short of this "perfect" market, missing money manifests for a number of reasons and additional revenue is required in excess of solely short-run marginal price signals."

Alberta does not have this perfectly functioning market, and in fact relative to most US markets Alberta is likely to systematically understate SRMC. The key issue is that Alberta has not implemented scarcity pricing and has a price cap of $1000/MWh. The large majority of other markets[8,9,10,11,12] have attempted to recognize that prices should rise during scarcity and shortfall events, while Alberta does not have this feature. These markets have taken a variety of approaches, but the key is that when resources are scarce, the price is allowed to rise above the offer price of the marginal generator. It should also be noted that in none of these markets is the offer price strictly limited to SRMC of incremental generation because there is always uncertainty around this value.

The key point is that in some cases, such as shortages or near-shortages, SRMC is not limited to the marginal cost of dispatching generation to meet incremental load; it must also reflect the impact of that additional load upon reliability. In effect, in a perfectly functioning market SRMC can produce revenue over the longer run that is, on average, equal to LRMC. Capacity pricing can fill in the remaining gap that results if (1) shortage prices or offer caps have been understated; (2) capacity requirements exceed economically efficient amounts of capacity; or (3) the volatility associated with the efficient outcome is not acceptable to policy makers.

The most common example of allowing scarcity pricing into the market is through an Operating Reserve Demand Curve (ORDC). An ORDC allows prices to increase whenever there is a shortage of capacity such that the system operator has less than the targeted amount of operating reserves. This serves as an administrative function of the value of adequacy, i.e. as the risk of lost load increases due to insufficient reserves, the price is allowed to increase. This aspect of SRMC is entirely absent in Alberta, but FERC Order

[7] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-12-10%20MSA%20CRA%20Guidelines%20Report%20FINAL%20.pdf, Page 17.
[8] MISO: https://www.misoenergy.org/legal/business-practice-manuals/
[9] ERCOT: https://www.aeso.ca/assets/Uploads/4.3-Brattle-Paper-Shortage-Pricing.pdf
[10] NYISO: Section 6.8 Ancillary Services Manual https://www.nyiso.com/documents/20142/2923301/ancserv.pdf/df83ac75-c616-8c89-c664-99dfea06fe2f
[11] ISO-NE: https://www.iso-ne.com/static-assets/documents/2018/06/2018-06-14-egoc-a4.0-iso-ne-fcm-pay-for-performance.pdf
[12] PJM: *https://www.pjm.com/directory/manuals/m11/index.html> Section 2.3.2*

825 has mandated US ISOs to include this aspect of SRMC in the price setting mechanism.[13]

Another key issue for the use of SRMC in the Alberta context is that there is only a real-time energy market and units must self-commit. Self-commitment requires that any units with start costs and/or a lead time must commit to the market with no guarantees they will recover all costs. Most US markets have 3 part bidding (incremental energy, start cost and no-load costs) that allow centralized unit commitment and energy prices that generally reflect incremental energy costs. SRMC in Alberta must not only reflect incremental energy, but all costs including the risk that start costs will not be recovered by the energy price.

The US is also systematically moving to allowing energy prices to more fully reflect the magnitude and range of SRMC. While not all elements of these changes are applicable to the Alberta context, the key is that SRMC as defined merely by incremental generator costs are not an appropriate measure for competitive markets. For example, FERC proposed a rule that would have required all US ISOs to include all real-time commitment costs when determining locational marginal prices.[14] While FERC later terminated that rulemaking, FERC simultaneously initiated proceedings pertaining to individual ISOs that would require them to include those costs in locational marginal prices.[15] Similarly, FERC requires that all ISOs to describe in their tariffs the circumstances under which transmission constraint penalty costs can affect real-time prices.[16]

The net impact of existing Alberta market design is that SRMC will need to be adjusted upward just to reflect actual SRMC properly defined. The current rules and structures in place artificially cap the real-time costs and some costs are not accounted at all. In effect, LRMC as calculated by the cost of incremental generation consistent with the historical approach is likely to be a truer representation of full SRMC.

5 Inefficient Retirement Signal

The Alberta generation fleet has a large number of assets that will be within 5 to 10 years of retirement or need for reinvestment during the remaining energy only period. SRMC are very likely to be below the LRMC for energy from these resources[17]. In effect, if prices are too low due to competitive benchmarks tied to SRMC, there is a risk some assets will retire prematurely. While the amount of capacity at risk cannot be known with

[13] FEDERAL ENERGY REGULATORY COMMISSION, Docket No. RM15-24-000; Order No. 825, June 16 2016.
[14] FEDERAL ENERGY REGULATORY COMMISSION, Docket No. RM17-3-000; December 15, 2016.
[15] See, e.g., FEDERAL ENERGY REGULATORY COMMISSION, Docket No. EL18-33-000; Dec. 21, 2017.
[16] FEDERAL ENERGY REGULATORY COMMISSION, Docket No. RM17-2-000; Order No. 844, April 19, 2018.
[17] LRMC of existing resources can also be termed Go Forward Costs. In essence, these are the costs that can be avoided by shutting down capacity, either temporarily or permanently.

certainty, Alberta has recently seen capacity exit the market prior to its mandated timeframe due to very low pricing in the market.

Power Advisory does not agree with CRA's claim that SRMC might be reasonable for the remaining energy only period due to a focus on static efficiency. It is premised on the view that nothing will retire in the short term and therefore there is no need to send a long-term signal until the capacity market is in place. The problem with this logic is that it can always be resurfaced. In effect, the view appears to be if prices are constrained to SRMC today, nothing is immediately going to retire. If a market is to provide efficient incentives for entry and exit over the long term, it cannot arbitrarily decide whether to implement them for the next day, week, month or year while looking only at the incentives that will provide in the short term. Investor confidence and sustainability is negatively impacted by the incremental risk added by this arbitrary change in market conditions.

The concern for early retirement can be summarized as market conditions where LRMC > Go Forward Costs > SRMC. In this instance, a resource may be forced out of the market if prices approach SRMC, yet that resource would be profitable if prices approached LRMC. This concern has been seen in US markets, particularly in the context where units are not able to recover all operating costs (even in the context of a capacity market). For example, Exelon indicated it would retire several units in ISO-NE, though some units were later given out of market contracts to ensure continued operation.[18]

6 Conclusions

The key conclusions of the CRA paper are reasonable in that the MSA should continue to publish benchmarks and metrics for the performance of the market, and that market outcomes should be assessed against changes to market fundamentals.[19] In Power Advisory's view, Long Run Marginal Cost remains the metric against which market outcomes should be evaluated against over time. Periodic short-term excursions in prices above or below these levels are expected and have been observed historically.

The use of Short Run Marginal Cost as an evaluation metric is invalid both due to equity issues as noted by CRA, as well as the fact that SRMC is likely to be systematically understated in Alberta due to existing rules. In other markets with both capacity prices and scarcity value, SRMC may be a more reasonable anchor for assessing competitive outcomes. However, even in this context, Power Advisory notes that no market it is aware of exhibits the theoretical 'competitive' outcome where the energy price is a narrowly defined version SRMC, i.e. generator production costs. Given this, it would be necessary to establish an interim multiple of SRMC to assess outcomes during the

[18] http://www.exeloncorp.com/newsroom/exelon-generation-files-to-retire-mystic-generating-station-in-2022.

[19] https://albertamsa.ca/uploads/pdf/Archive/000000-2018/2018-12-10%20MSA%20CRA%20Guidelines%20Report%20FINAL%20.pdf, Page 20.

remaining energy only period, taking into account the known issues with SRMC in the Alberta context.

In general, Power Advisory's view is that the term 'interim period' is misplaced. The energy only market is still in place, and investments made in this market are still subject to the exact same dynamics as existed prior to the capacity market announcement. There are no interim or transition measures in place prior to November 2021. The move to a capacity market, when in place, will alter the dynamic but in the current context this is theoretical and does not impact current returns on investment. As such, competitive outcomes should be judged in a very similar, or identical, manner as prior to the capacity market announcement by using LRMC as an anchor.