Survey Responses

17 April 2024 - 01 May 2024

REM Recommendation & Design Elements Survey | April 17 - 30, 2024

AESO Engage

Project: REM Technical Design

BANG THE TABLE engagementHQ

VISITORS
290

CONTRIBUTORS			RESPONSES		
40			40		
40	0	0	40	0	0
Registered	Unverified	Anonymous	Registered	Unverified	Anonymous

Submissions provided by:

1. Alberta Direct Connect Consumer Association (ADC)
2. Alberta Federation of Rural Electrification Associations (AFREA)
3. Alberta Municipalities
4. AltaLink, L.P.
5. ATCO Electric
6. ATCO EnPower (ATCO Renewables Ltd.)
7. BHE Canada Ltd.
8. BluEarth Renewables
9. Business Renewables Centre-Canada
10. Canadian Natural Resources Limited (CNRL)
11. Canadian Renewable Energy Association (CanREA)
12. Capital Power
13. Cenovus Energy
14. DePal Consulting for Beacon Data Centers Inc.
15. DePaoli & Associates Inc. (Big Marble Farms Inc.)
16. Direct Energy / NRG
17. EDF Renewables Canada Inc.
18. Enbridge
19. Energy Storage Canada
20. Enfinite
21. ENMAX Corporation
22. EPCOR
23. Evolugen by Brookfield Renewable
24. Federation Group
25. FortisAlberta Inc.
26. Heartland Generation Ltd.
27. Industrial Power Consumers Association of Alberta (IPCAA)
28. Kineticor
29. Lionstooth Energy
30. Maxim Power Corp.
31. Northland Power Inc.
32. Potentia Renewables Inc.
33. Power Advisory (Renewable Generator Alliance (RGA))
34. Power Wrangler
35. Suncor Energy Inc.
36. TC Energy
37. TransAlta Corporation
38. Utilities Consumer Advocate
39. Versorium Energy Ltd.
40. Voltus, Inc.

Respondent No: 1
Login: De Paoli & Associates Inc.
Email: anna@dpaconsulting.ca

Responded At: Apr 24, 2024 15:55:38 pm
Last Seen: Apr 24, 2024 21:39:00 pm

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** Load and generation
Q2.	**Name of Organization**	Big Marble Farms Inc
Q3.	**First and Last Name**	Anna De Paoli
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Medium term elements: ancillary services, optimal use of transmission infrastructure and price cap changes. We view these as very important in incentivizing future generation investments and helping to locate generation where it is most needed. Of particular interest to us are natural gas generators, which have flexibility of location. Locating them where they are needed helps to make a more efficient use of the transmission system and prevent unnecessary transmission and distribution build out. Ancillary services will become an increasingly important part of the future of reliability of our electric grid. Having a clear understanding of the economic model of this market will provide a business case for new peaking natural gas generation. Increasing the price cap will help generators to recover investments during times of peak demand. It is currently very challenging to bank finance natural gas generators for a variety of reasons so they typically have to be privately financed, this requires a greater risk tolerance and access to capital. Increasing the price cap helps to provide a greater possible reward in a market that may have shorter opportunities to achieve it. I.e. higher but less frequent high price events.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Adding transmission infrastructure is likely to be a multi billion dollar investment. This is a concern given that we are still dealing with the impacts of the last transmission build. How to recover this cost, i.e. through the rate base, or as a government investment will be very important to all load stakeholders.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Transmission - interties as above this is a concern for all load connections Price cap changes Ancillary services

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Have answered agree but we would welcome involvement and the opportunity to clarify our understanding

Q10. **Any additional comments**

Looking forward to being involved in the upcoming consultation and we are excited for the changes to come with the REM.

Respondent No: 2
Login: PowerWrangler-Richard-Penn
Email: penn6693@me.com

Responded At: Apr 28, 2024 10:42:05 am
Last Seen: Apr 28, 2024 02:18:52 am

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** Consultant
Q2.	**Name of Organization**	PowerWrangler
Q3.	**First and Last Name**	Richard Penn
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Please see note under additional comments

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Please see note under additional comments

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Please see note under additional comments

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Please see note under additional comments

Q10. **Any additional comments**

Comments Restructured Energy Market (REM) Please find attached my comments and recommendations on the proposed Restructured Energy Market (REM) design. I have tried to identify areas where I have major concerns with. It is clear to me that in the short period of time for consultation a key element that is being overlooked is the energy costs that loads will face as a result of the design choices. I have discussed the elements that I believe need the most significant focus. My main concern is the cost to consumers from the proposed design choices. From previous AESO market-facing proposals, the cost to consumers has been the most important element, yet somehow seems to be an accidental by-product of the present AESO processes. Day-Ahead Market The day-ahead market (DAM), while designed to provide a premium to fossil-based resources, poses significant challenges. The premium, in the form of a higher DAM price than the real-time price, is a cost that someone must bear. In this market design, loads are the ones who will pay the premium, facing higher DAM prices that must be paid versus significantly lower RT prices that cannot be accessed. The price differential between the DAM and RT results from the renewable uncertainty between offering in DA and being financially penalized if wrong and the certainty of

the renewable RT delivery. When markets are designed, often what is forgotten is who must pay those costs. In the case of the CAL ISO in the early 2000's the design led to loads paying a significant uplift due to the DAM versus RT design. We all saw the outcomes of the flaw in that design. The critical question for any design is not the design, but who pays and how much must be paid versus the benefit accrued. So far, the proposed discussions are silent on the money, and in the end, the cost and who pays is the critical question. Without that answered early in the discussions the design will founder on the high costs loads will face. If the designers believe that the cost premium loads face is not significant, then that explanation should be provided now. In my view, a significant cost premium will be attached to the day-ahead market, considering the considerable size of the renewable generation fleet compared to the total contestable load. The contestable load in Alberta (DTS) is in the order of 6,800 MW average versus a renewable segment that could be as high as 9,400 MW at peak. No other electricity market faces such an overwhelming concentration of renewable generation versus load in a two-settlement system, DAM and RT. The best solution would be a Day-Ahead unit commitment in combination with a single settlement real-time market. We can all agree that reliability must be achieved, and it is apparent from recent events that there is a need for unit commitment due to the uncertainty of the forecast for renewable generation. Unit commitment which is a reliability measure should be a DA process based on the following: • unit availability, • a demand forecast in the Alberta market, due to its industrial base, is highly accurate, and • a forecast of renewable generation. Based on the fundamental need to ensure reliability AESO can undertake an efficient DA unit commitment, using three-part bidding a solution used in every day-ahead market. That uplift cost is recovered from all loads that benefit from reliability. With reliability now grounded, the RT market can be used to provide a single price signal. In other jurisdictions, a generation cost guarantee (GCG) is offered in RT to generators not committed to DA but who wish to stay connected to the grid, again a measure to enhance reliability. While some may view those unit commitment costs and GCG costs as expensive, one must remember the alternative is even higher prices and load uncertainty. Some explain it as a DA unit commitment and GCG, ensuring reliability while generators pay for it themselves via lower realized prices. By retaining a one-settlement design, we can avoid the high DA to RT premium, offering a reliable, more efficient, and cost-effective alternative. This streamlined process, well within the AESO's capabilities, considers the problem's reality and the strict timelines proposed, instilling confidence in its feasibility and effectiveness. Under the proposed changes, the costs borne by loads, who ultimately pay the bills, would include the uplift associated with the DA unit commitment and the RT settled price, similar to the current system. This clarity on the potential cost implications ensures that the audience is well-informed and prepared for the transition. With enough time, it may be possible to evolve to the 'Standard Market Design (SMD), a market design that is widely used in the US and is known for its efficiency and reliability-favored in the US. But considering timing, the depth of the renewable portfolio in Alberta versus load a single-settlement process is implementable. Shorter Settlement Intervals Shorter settlement intervals are not a new concept and have been asked of the AESO by both loads and generation on many previous occasions. At its simplest, the AESO calculates and provides, for example, a posted 5-minute price. Downstream from the AESO, retailers, DFO's and consumers can make decisions about using this data and billing accordingly. Some, such as consumers in the EPCOR with smart meters can easily accommodate a 5-minute price and react to it via changes in consumption. Retailers may work with consumers to offer products to provide demand response, such as virtual generators, a technique used in many other jurisdictions. In past stakeholder sessions the AESO has confused and conflated what it needs to do with what others need to do. At its simplest, the AESO should publish shorter interval prices and leave those downstream to deal with the issue. Retailers and consumers are rational and can choose how to use the data to minimize bills. It is apparent from last winter's events that there is likely 300 to 400 MW of demand response that would reward consumers and enhance Alberta's reliability. Security Constrained Economic Dispatch (SCED) Unlike the present AESO tools, an efficient dispatch would account for generator constraints such as losses, transmission congestion, and ramp. In other jurisdictions, SCED is part of the dispatch algorithm in RT to take into account operational limitations. Moving to SCED in Alberta provides an efficient outcome, although it will be a large step change for the AESO. However, while other jurisdictions, as part of the SCED regime, have moved to nodal pricing for generators and zonal pricing for loads, this is one step too far for Alberta. The postage stamp price is simple and can provide a simple price signal for the Alberta Forward market. Some proponents say a nodal signal is essential for investment when accounting for transmission congestion. Still, elements like GUOC and the actual congestion generators face should provide a locational investment signal. An early decision on transmission regulation would also be helpful in incentivizing long-term locational and transmission investment. In periods where the dispatch cost of a generator is higher than the pool price, familiar uplifts such as Transmission Must Run (TMR) costs can be applied. Other elements to be considered. While the focus is on the REM design, some elements should not be delayed by the AESO that are part of any standard electricity marketplace: - More data transparency to market participants, including visibility on Long-Lead Time generation, - More transparent outage information on all the major generators. - Grid-

enhancing technologies such as dynamic line ratings and high-performance conductors to reduce congestion and increase transmission efficiency. I appreciate the opportunity to comment. Richard Penn PowerWrangler Ltd. 403-903-7693

Respondent No: 3
Login: Versorium Energy Ltd. Hnatyshyn
Email: murray@versoriumenergy.com

Responded At: Apr 29, 2024 10:12:58 am
Last Seen: Apr 29, 2024 16:02:03 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Versorium Energy Ltd.
Q3.	**First and Last Name**	Murray Hnatyshyn
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

In summary, we don't believe there's enough detail in the design to allow us to say that any of the Design Elements will meet the AESO's goals. Reliability: we believe the SCED could help the AESO in achieving reliability needs in the short term but we are of the opinion that the market design is still lacking detail to allow us to comment if the design elements will achieve reliability in the longer term. An efficient and reliable price signal is required in the long term to ensure reliability and there are elements of the design which we don't have enough information on and design elements that have us sufficiently concerned that the price signal may not achieve the reliably goal. As noted below, more detail is required on the ORDC and market power mitigation. We have very high concerns regarding the short term regulation that allows for unit commitment without price reconstitution and REM discussions regarding the contracting for strategic reserves. Both these activities continue the longevity of older, less reliable but more importantly – units which are operationally inflexible – attributes which are not aligned with the AESO's current or future needs. The subsidy of these units weakens the signal for replacement generation that can meet the flexibility needs of the future power system. Affordability: Affordability is a broad term and we aren't clear how the AESO is defining this. Affordability could be viewed at the retail end user level which would then need to include consideration for the affordability of transmission and distribution costs. Affordability could also be at the wholesale price level. At the wholesale price level, we believe affordability is best met by a market that promotes active competition and rewards participants that provide the flexible, efficient and reliable sources of power. Design elements of the REM that may allow for these signals include the ORDC, a sufficiently negative price level and a stable design. At this time there is not enough detailed information on these elements to assess whether the design will meet the affordability goal. Decarbonization: we don't understand how the REM will achieve a goal of decarbonization by 2050.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Inefficient Contracting: One of our key concerns about the REM is the continued discussion of short term and long term contracts. While often presented as a tool of last resort, we are concerned that the discussion of contracts will make them self-fulfilling. In the short term, the implementation of contracts to keep inefficient and inflexible assets online when owners have taken them offline either for market power or economic reasons, will provide financial benefit for these assets and continue to support the operation of inefficient and inflexible assets – asset attributes the AESO has said are not desirable generator attributes. Longer term, consideration of strategic reserve contracts to defer retirement decisions could prolong the life of assets which do not have the flexibility and reliability attributes the REM requires. DAM Load Participation: We feel it's very important for the Load serving entities to participate in the DAM. These entities would gain and lose according to their DA load forecasts. We feel if the AESO was responsible for procuring DA load obligations, there could be tendency, due to the AESO's reliability objectives, for the AESO to over procure in the DAM which would result in bearish impacts on the RT market. We also believe this approach would reduce the efficiency of the DAM as the AESO would not directly bear the costs and economic impacts associated with poor DA load purchase decisions. We feel those that bear the gains or costs of the DA procurement decisions would have a better incentive to make the best day ahead load volume decisions. It's possible that this risk could be mitigated if there was a financial virtual market administered by the AESO. Market Power Mitigation: There is a very real concern that the market power mitigation approaches, which have not yet been articulated but focus on customer affordability, will not result in a market that provides a reasonable opportunity for generation developers to earn a return on and of investment with the result that over time long term contracting with generation developers is required. ORDC in DAM: There was also discussion that the ORDC may not be a feature of the DA market. The principle of the ORDC is to ensure that scarcity pricing signals provide an economic incentive for supply and demand customers to alter behaviour. If the DA market is sufficiently constrained market participants should have the economic signal to alter their behaviour appropriately.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Market Power Mitigation: The competitive electricity market has met the electrical supply needs of Albertans for two decades. In order for the market to continue to do so an effective and reliable signal to build generation when needed is required. Key to ensuring this signal continues in the REM is a well designed market power mitigation framework. Key attributes of this framework that need careful consideration are: - What assets are required to submit offers in the DA and the RT markets - What are acceptable price levels for generator offers, especially for assets owned by market participants with a large percentage of installed capacity The ORDC: This is a new market element and not well understood by participants. The AESO needs to explain the principles of what the ORDC and what it is expected to accomplish, what will the pricing and volumetric levels of the ORDC and why and how (or if) participation in the ORDC will be available to market participants. A virtual market: the AESO should discuss the purpose of and how a virtuals market improves efficiency in a DA/ RT market design and be open to implementing a virtuals market if this would improve the efficiency of the REM.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

As noted in previous answers, more information regarding the practical implementation of all elements of the REM are required. The REM documents describes the design elements of a restructured energy market but the details are required to assess how effective the design may be for Albertans and participants in the Alberta power market.

Q10. **Any additional comments**

More change than required: In our opinion, the changes proposed by the AESO are broader than required to achieve the reliability, affordability and reasonable implementation goals. Rather than a full redesign of the energy only market, we believe tweaks to the existing model would have been sufficient. Over the last few years, the AESO has often articulated the need for real time system reliability due to increasing amounts of renewable energy generation. The reliability needs here could be likely be solved by the AESO defining and introducing additional market products to be procured (which the AESO has) as well as making operational changes to the real time operations of renewable generations (which they also have done). To the extent that additional requirements are needed in the future the AESO could again articulate those needs and hold a competitive process to obtain the requirements. Such a need might be a ramping product which the AESO could purchase on a day ahead basis which could replace the supply cushion regulation approach. A competitively purchased ramp product could be designed to provide the right incentives for reliable, efficient and most importantly, flexible generation, the economic signals for which are stifled through the supply cushion regulation. To meet the provincial power consumers' and the Minister's desires for a more affordable power system the AESO could have continued, in some form and on a more permanent basis, the recently passed market power mitigation regulation that caps market prices once a deemed profitability metric has been achieved over some period of time. This approach would reduce market prices in periods of high prices with minimal changes to the existing design. Long term affordability is also best achieved by ensuring that the market provides appropriate signals for the types of generation that add value to the power system. We have significant concerns regarding regulation that allows the AESO to provide short term cost recovery to units that may be needed for supply cushion management, especially when the operations of those units is not addressed through price reconstitution. Equally concerning to us is the use of strategic reserve contracting which seems to compensate otherwise old and inefficient assets from retiring. Both these actions will hinder the market signal for new generation that can better meet the reliable, efficient and flexible operational needs of AESO. The longer these competition stifling actions are allowed to occur, the longer Albertans will need to wait to have a power system that is affordable and meets the needs of the future power grid. Minimizing market changes to those that can be easily implemented under the existing design will also better help the AESO meet the reasonable implementation goal. Keeping the key attributes of the existing market design will result in fewer changes to operational systems for both the AESO and market participants.

Respondent No: 4
Login: EvolugenJW
Email: julien.wu@evolugen.com

Responded At: Apr 29, 2024 15:16:27 pm
Last Seen: Apr 29, 2024 21:13:02 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	Evolugen by Brookfield Renewable
Q3.	**First and Last Name**	Julien Wu
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

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Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Evolugen by Brookfield Renewable does not generally believe that the introduction of a binding Day Ahead Market would create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation. However, we note that intermittent resources do not have the ability to control their dispatch volume. Moreover, forecasting for intermittent resources—even when conducted by a centrally-planned regulator such as the AESO—is by nature inaccurate until one or two hours prior to actual dispatch. As such, requiring intermittent resources to offer into a financially binding Day Ahead Market would create a non-manageable risk to both market participants and the AESO. In this scenario, the MWs committed from intermittent resources in the Day Ahead Market could be wildly different than their actual dispatch in Real Time, which would: a) mislead the AESO's commitment planning process from Day-Ahead to Real Time, and b) cause market participants to unwittingly either over or under deliver their energy. This risk is especially important in Alberta, where intermittent facilities are generally operating on a merchant basis, with no contracts to protect against output deviations should the AESO impose a financially binding Day Ahead Market. As a result, investments in intermittent facilities—a significant contributor to help meet Alberta's energy needs and 2050 decarbonization goals —would be negatively affected and priced higher. This is an unfavorable outcome for both resource adequacy and ratepayer interests. Nevertheless, we note the introduction of a financially-binding Day Ahead Market and its interaction with intermittent asset owners was successfully resolved in Ontario between the IESO and existing wind asset owners. In this example, the IESO offers "make-whole" payment protection to wind assets that offer MWs in the Day Ahead Market in perfect accordance with the IESO's forecasted volume. In other words, wind owners have the choice to be protected from the Day-Ahead to Real-Time risk as long as they follow the IESO's forecast, or they can choose their own Day-Ahead commitment volume without said protection. This flexible approach allows risk-averse asset owners revenue certainty and operational simplicity, and risk-tolerant owners the possibility to deviate from forecast when they see fit. To be clear, market participants would be incentivized to participate in the Day-Ahead Market under this construct, which is an important consideration for the ISO's resource planning process. We recommend that the AESO consider this approach that would both help reliability and allow participants the option to follow market signals. The AESO could also move to a non-binding Day-Ahead Market first to ease the transition process. We believe that Negative Prices create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation. We understand that the AESO is considering Negative Prices as a market signal to discourage excess supply from being injected onto the grid. However, excess supply and the reliability/congestion issues it accompanies is typically a regional and location-specific phenomenon. At any given time, there could be intermittent facilities that are actively helping to meet load demand, while

other facilities' energy cannot be transmitted to load centers without causing congestion. In this example, a uniform and province-wide negative price would discourage both of their energy delivery arbitrarily and in an indiscriminate manner. As such, uniform negative pricing would be inefficient and ineffective, as it would not send accurate price signals on a locational basis. We also understand that locational energy pricing is not currently envisioned in the Restructured Energy Market design. As a result, negative pricing without a locational signal of sorts would distort the proper market signals needed to direct dispatch and investments. To be clear, Ontario's Market Renewal Program began its consultation in 2016, and its locational marginal pricing system will only come into force a decade later in 2025. It is therefore doubtful that the AESO can consult and design the relevant market rules and IT changes necessary to introduce locational pricing by 2027. Furthermore, while we appreciate the unique challenges that intermittent technology can bring to grid reliability, wind and solar assets remain the most affordable technology to add energy supply to help meet Alberta's long-term resource adequacy needs. In a situation where locational energy pricing is not immediately feasible, we recommend that the AESO consider Negative Pricing with caution as it could harm Alberta's long-term resource adequacy and energy supply needs. Finally, while the Transmission Policy is not a design element under consultation, we wish to reiterate that the energy market redesign and the Transmission Policy's amendment should happen hand-in-hand. Mechanisms that govern loss factors, curtailments, congestions, transmission planning, STS/DTS charges, as well as the Restructured Energy Market's design elements, are interdependent factors that influence investment and marketing decisions for our industry. In particular, moving to an average loss factor seems to be a low hanging fruit that not only enjoys broad industry support, but would significantly simplify the complex interactions of Transmission-side and Market-side mechanisms in the context of the Restructured Energy Market engagement. We recommend that the AESO support the move to an average loss factor for the province immediately.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

DAM, Negative Prices, Transmission Policy

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

We operate in various North American markets and jurisdictions, where variations of the recommended design elements are the norm. That said, it is still unclear how the REM will work as a comprehensive solution in Alberta.

Q10. **Any additional comments**

not answered

Respondent No: 5
Login: IPCAA - Paul Barry
Email: paul.barry@ipcaa.ca

Responded At: Apr 29, 2024 17:10:01 pm
Last Seen: Apr 29, 2024 23:05:19 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	IPCAA
Q3.	**First and Last Name**	Paul Barry
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

IPCAA recognizes the need for changes to the existing energy market design. Different jurisdictions address similar issues with various solutions, including those outlined in the AESO's REM Recommendation. This recommendation will likely achieve three of the four objectives: reliability, decarbonization by 2050, and reasonable implementation. However, IPCAA strongly believes that tackling affordability is much more challenging. The best approach is to allow the market to operate as freely as possible, with only essential administrative measures while at the same time implementing efficient and reasonable market power mitigation rules. This strategy aims to ensure long term affordability. It requires prices to reflect market conditions accurately and be volatile enough to send the right price signals to different types of generators while also addressing concerns around market power. For example, without adequate volatility in pool price, peaking facilities will be unable to recover adequate revenues during the limited hours they operate, as CER is expected to restrict their annual operating hours. IPCAA emphasizes the importance of not prioritizing lower prices in the short term at the expense of higher prices over the longer term. Investments in the electricity market and transmission system require lead times spanning many years. These include planning, permits, applications, approvals, construction, and commissioning. Unless fully regulated and centrally planned like the transmission system, this cycle leads to periods of higher and lower prices in the electricity market. Such fluctuations are the characteristics of a well-functioning market. The removal of price variations undermines market dynamics and compromises affordability, as demonstrated by regulated transmission costs in Alberta. The Clean Electricity Regulation (CER) is expected to impose administrative requirements that will be particularly challenging for Alberta to adhere to. Redesigning an energy market in Alberta burdened with unnecessary administration will further complicate compliance with the CER and make it less affordable. Conversely, an energy market thoughtfully and purposefully redesigned, with only necessary administration, will create an interface that best ensures affordability. IPCAA believes that scarcity pricing, particularly the operating reserve demand curve (ORDC) in the REM Recommendation, is an administrative design element that hinders affordability. This design requires the AESO to establish an out-of-market administrative pricing mechanism. This mechanism attempts to ensure an appropriate price signal for long-term affordability and reliability. However, IPCAA views this task as impossible due to the rapid changes in global energy markets, unless the AESO periodically adjusts the ORDC pricing mechanism to achieve its preferred long-term outcome. Such manipulation of the pricing signal will inevitably lead to uncertainty and erode trust in the long-term investment signal, which must be avoided. The AESO already faces significant challenges in the dynamic electric industry, operating, and planning the transmission system. Recommending a redesigned energy market that imposes additional burdens on the AESO, such as administering scarcity pricing - a fundamental aspect to the market – further challenges the organization. If the AESO sets ORDC pricing too high, it will unnecessarily subsidize generators and compromise affordability. On the other hand, if it sets ORDC pricing too low, it undermines the economics of generators. This situation threatens the reliability of the electric system and will lead to out-of-market administrative actions like long-term contracting, which compromises affordability. ORDC pricing requires the AESO to forecast how the energy market will compensate generators over the 8,760 hours in each year. It then establishes an administrative scarcity price that provides incremental compensation to generators, aiming

to ensure a desired level of compensation throughout the year. As a result, ORDC pricing consistently targets a specific outcome for all 8,760 hours each and every year. It is always “in play” and focused on ensuring administrative results and always prevents the market from operating freely. This inherent characteristic of scarcity pricing and ORDC, if included in REM, is unavoidable. This approach is inefficient and compromises affordability. IPCAA believes ORDC pricing is detrimental to affordability and should be removed as a design element. Instead, market power mitigation measures similar to the Market Power Mitigation Regulation, effective July 1, 2024, should be adopted as the administrative design element to ensure affordability. The Chief Executive Office of Canada’s biggest bank RBC, Mr. David McKay, has noted that Canada has some of the highest levels of regulation and administration in the world. This applies at the federal, provincial, and municipal levels. He discussed the impact of this on productivity and efficiency across the country and mentioned that it causes financial capital to flow to other countries with more reasonable levels of regulation and administration. This situation is detrimental to all of Canada. However, he remains somewhat hopeful as some efforts are being made to address what has been a growing problem. IPCAA is concerned that scarcity pricing is a prime example of the issue Mr. McKay is referencing. IPCAA members, some of the largest consumers of electricity and employers in Alberta, operate businesses in fully regulated industries like the gas pipeline industry or in deregulated commodity markets for oil and gas. IPCAA’s members are very uncomfortable with the REM Recommendation’s attempt to pilot a hybrid-type regulated market in Alberta for an essential utility.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Please see response to the question above (question 5).

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

IPCAA’s top three market design elements that need focus during stakeholder engagement are: 1. The removal of scarcity pricing as a design element of REM 2. The development of effective, efficient and reasonable market power mitigation rules 3. The treatment of co-generation, intermittent generation and interties Please see answer above for the removal of scarcity pricing. Instead of scarcity pricing, further development of the Market Power Mitigation Regulation, effective July 1, 2024, should be adopted as the administrative design element to ensure affordability. Industrial operations associated with co-generation assets form the economic backbone of Alberta. REM must ensure it does not create unmanageable operational issues for these assets. It appears that the recommendation paper successfully avoids creating such issues. The AESO continues to express concern with managing reliability in Alberta as levels of intermittent generation have increased. IPCAA supports the AESO’s initial thoughts on how intermittent generation should be treated in a day-ahead market to ensure reliability. The current Alberta energy market design has created limitations on utilizing the interties, due to seams issues with other jurisdictions’ markets. REM presents an opportunity to address these issues, which will aid in improving reliability and affordability.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

n/a

Q10. **Any additional comments**

not answered

Respondent No: 6
Login: AFREA
Email: al@afrea.ab.ca

Responded At: Apr 30, 2024 08:36:38 am
Last Seen: Apr 30, 2024 13:31:51 pm

Q1.	**Please indicate which category your organization predominantly represents**	DFO / TFO
Q2.	**Name of Organization**	Alberta Federation of Rural Electrification Associations (AFREA)
Q3.	**First and Last Name**	Al Nagel
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The AFREA is unsure how market design will improve Decarbonization. Some components such as replacing economic withholding with scarcity pricing could have conflicting impacts. While some level of revenue certainty could well increase investment and improve reliability, it may serve to produce higher costs. Conversely, more robust market mitigation efforts would do more to improve affordability, it may serve to reduce investment and lower reliability and availability.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

• The REM discusses shorter settlement periods. If shorter settlement periods lead to time of use billing, this will result in massive increase in data. Current monthly reads results in 12 data points per site per year. A move to 15-minute billing intervals this will result in approximately 35,000 data points per year per site, and a move to 5-minute billing intervals results in 105,000 data points per year per site. This will require a major upgrade to all billing, meter data management and load settlement systems causing a significant increase in costs. • The Day Ahead Market has the potential to improve price stability but uncertain if it will incent sufficient generation to ensure reliability. • Replacement of Economic Withholding with Scarcity Pricing. This may not achieve the desired results. There appears to be a desire to provide utility level revenue certainty in a competitive market. These may be conflicting objectives.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

• Replacement of Economic Withholding with Scarcity Pricing. • Settlement Period and how far this will move down to wholesale and retail contracts, and costs to achieve any shorter settlement period • Impact of market changes including additional services, settlement period, scarcity pricing and DAM will have on wholesale and retail contracts.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Not Applicable

Q10. **Any additional comments**

The AFREA is also interested to see that more appropriate locational cost signals be provided to new generation through the proper allocation of new and incremental transmission costs to new generation.

Respondent No: 7
Login: Federation Engineering-Dalila Caparroz
Email: DalilaC@federationengineering.com

Responded At: Apr 30, 2024 10:00:48 am
Last Seen: Apr 30, 2024 14:57:13 pm

Q1.	**Please indicate which category your organization predominantly represents**	Storage
Q2.	**Name of Organization**	Federation Group
Q3.	**First and Last Name**	Dalila Caparroz
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The REM recommendations can offer promising solutions to combat economic withholding, ensuring affordability, reliability, and decarbonization in the energy market. Long-term strategies, like the implementation of an administrative scarcity pricing curve, show potential in curbing market abuses. However, it's important to strike a balance that fosters fair competition and supports investment recovery. Crafting these measures carefully is crucial to foster stability and confidence in the market, thus creating an environment that encourages investment across a wide range of energy technologies.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The complexity and uncertainty surrounding the implementation of long-term changes, such as the REM and the Clean Electricity Regulations are posing challenges for stakeholders across the energy sector. Ensuring a technology-agnostic approach while implementing these changes will be particularly challenging. Without clear guidance and regulatory stability, project developers and power generators are already struggling to navigate the evolving market dynamics. This uncertainty is hindering investment decisions and delaying progress towards decarbonization goals. Additionally, the intricacies of mechanisms like administrative scarcity pricing may further complicate matters, requiring thorough stakeholder engagement and collaboration to ensure effective implementation while accommodating diverse technological solutions. In particular, we are concerned that the design of the administrative scarcity pricing mechanism (ORDC) may not provide enough revenue early enough to foster investment in dispatchable generation, forcing the AESO to lean on targeted procurements when physical scarcity becomes unavoidable.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

-Implementation of Administrative Scarcity Pricing Curve and Introduction of Day-Ahead Market: Stakeholder engagement should prioritize discussions on the implementation of the administrative scarcity pricing curve to address concerns related to market abuses and facilitate investment recovery. In particular, the ORDC must be designed so as to incent investment in dispatchable generation before the system experiences actual physical supply scarcity. Additionally, more clarity is needed regarding the mechanics of a day-ahead market to ensure effective operation and participation by market stakeholders. Security constrained dispatch, and long lead-time commitment in particular, must also be designed so as to limit the unintended (downward) impact of having excess unloaded generation capacity online. -Enhancement of Dispatch Optimization and the Integration of Ancillary Services: Discussions should prioritize enhancing dispatch optimization to minimize costs and improve reliability, including the case for long-duration energy storage. Co-optimizing the dispatch of energy and ancillary services is essential for enhancing grid efficiency and ensuring optimal resource utilization. Stakeholder engagement should also prioritize discussions on integrating ancillary services, and procuring strategic reserves. These elements are crucial for addressing supply intermittency, enhancing reliability, and ensuring adequate capacity to protect against supply shortfalls. -Optimization of Transmission Infrastructure: More clarity is needed on how locational marginal prices will work by modifying regulations and tariffs to send improved locational signals for siting generation and allocating costs based on cost causation.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

In a market with so many uncertainties, including the REM, the recently implemented cluster studies, the DOS tariff for energy storage requiring a business case, and the Clean Electricity Regulation, attracting investment and calculating the IRR becomes particularly challenging. Clear guidance and regulatory stability are essential to provide certainty and promote investment across diverse energy technologies.

Q10. **Any additional comments**

Ensuring the different technologies and the opportunity for energy storage to participate in the market during these discussions is crucial to accommodate various energy technologies and promote fair competition in the market.

Respondent No: 8
Login: Enfinite-Mike-Schoenenberger
Email: mschoenenberger@enfinite.com

Responded At: Apr 30, 2024 10:37:08 am
Last Seen: Apr 30, 2024 12:14:07 pm

Q1.	**Please indicate which category your organization predominantly represents**	Storage
Q2.	**Name of Organization**	Enfinite
Q3.	**First and Last Name**	Mike Schoenenberger
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Enfinite believes the proposed REM has the potential to address numerous issues facing the Alberta system. It is difficult under the current market design to incentivize the required reliability services. While the complete market needs to work together, the following design elements are beneficial to achieving the required outcomes: a) Day-Ahead Market Commitment: All units participating in the DAM take on responsibility of committing production in advance. Providing the AESO with greater certainty for committed resources. With the lack of any capacity contracting, the proposed offer pricing in this market needs to be reasonable to ensure the correct supply is being drawn to the market. Additionally, there needs to be alignment with the administrative scarcity pricing or there will be missing market signals to trigger the investment in dispatchable generation. b) Shorter Settlement: The introduction of shorter settlements creates opportunity for fast acting flexible assets in the market. Shorter settlements can send pricing signals for these resources to respond and provide valuable services such as ramping. Enfinite submits the AESO may still need to consider if there is a dedicated product required that receives the value in a shortened settlement. c) Administrative Scarcity Pricing and Market Power Mitigation: If the cadence and duration of scarcity pricing is sufficient to incentivize investment in dispatchable generation the grid will become more reliable. In addition, if generation can sufficiently cover their costs, overall affordability will be obtained through resulting bids that more accurately reflect costs.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Enfinite believes there are two key design elements that need to be carefully implemented to ensure the correct investment signals are maintained allowing for the objectives to be met. a) Day Ahead Market Administration i. The mandatory participation of flexible but limited assets such as storage needs to be carefully implemented. The assets should participate in the DAM with set operating bounds to provide the most impactful service for the lowest cost and in the most efficient way. This relies on a dedicated structure of commitment for assets of this type. Utilizing storage as both a load and supply in the market provides grid operators with a powerful tool to balance constraints in real time. ii. Need to ensure that interactions of DAM and real time market / administrative scarcity pricing reflect the need to encourage investment in dispatchable generation, particularly generation capable of providing ancillary services. iii. The ability to forecast the load requirements has a significant impact on this design. Over procuring in the DAM risks the elimination of a real time market and the effect of an administrative scarcity pricing curve which is difficult to invest in. b) Administrative Scarcity Pricing Design i. Cadence and duration of administrative scarcity pricing incentivizes investment in generation capable of improving reliability. The price impact needs to have a real signal attached with it to ensure the correct investment signal (Price Cap). ii. Fair and efficient distribution of scarcity pricing across all markets (DAM and Ancillary Services) to incentivize investment in assets capable of improving market reliability and to promote affordability in bids by dispatchable generating assets.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Enfinite believes all the market design elements are important and are required to work together. For criticality we believe the top three elements are: a) Day Ahead Market implementation: The change in unit commitment has a significant ripple effect through the remainder of the market. The implementation of the DAM will set the real time market and how investments will be maintained, and new ones considered. The structure of load forecasting and requirements for participation could unduly impact certain technologies if consideration is not given. b) Market Clearing/SCED/SCUC: In Enfinite's opinion this is one of the biggest departures from the current market. This can have a significant impact on operating and participating in the market. There can be new opportunities, but the details and tools used will be instrumental in understanding. c) Administrative Scarcity Pricing: Ensure that market conditions incentivize investment in generation capable of improving grid reliability.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Without details it is difficult to have a good understanding of the REM. For Enfinite the following areas of the REM require additional information and clarification: a) Interaction between DAM and Administrative Scarcity Pricing. More detail is required to understand the ability for a real time market to function with administrative scarcity pricing if the DAM functions as designed with mandatory participation and securing 100% of projected load. b) Interaction between Ancillary Services and Administrative Scarcity Pricing. Will resources committed to ancillary services in the DAM be exposed to the scarcity pricing or indexed based on the increasing value during times of supply shortfall. c) DAM commitments. Additional detail is needed on the mandatory participation for generators / supply. Specifically, around flexible assets such as simple cycle gas peakers and batteries. d) SCUC / SCED optimization by generation type and across energy and ancillary service market. How much will the chosen software system impact the ability to customize this area. This needs to be understood when working through consultation.

Q10. **Any additional comments**

There is significant change being proposed in a short period of time. At a high level and conceptually we understand the reasoning behind the change but submit that the details are critical. All the proposed changes must work together to ensure that all design elements work to build a grid that meets the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation. Notably, one minor change in the DAM can negatively impact the effectiveness of the remainder of the market. At this phase we believe the next step needs to be the presentation of a straw model of the entire package with options. From there, participants can review and model the impacts and provide feedback on areas of concern.

Respondent No: 9
Login: ABMunis-Alvin-Law
Email: alvin@abmunis.ca

Responded At: Apr 30, 2024 12:41:30 pm
Last Seen: Apr 30, 2024 18:25:18 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Alberta Municipalities
Q3.	**First and Last Name**	Alvin Law
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Very glad to see the recommendation maintain the foundation of an Energy-only Market. Day Ahead Market is beneficial: helps manage price volatility and provides greater certainty for supply. With separation from the real-time market, it also provides signals and ability for innovative new technologies and DSM to enter.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Market Power Mitigation: has already created shockwaves in investor confidence. Also, it has created questions of what incentives may be forthcoming or already may be committed to in terms of out of market payments to natural gas generators. Our key concern is what we are witnessing with futures pricing which has collapsed back to $50 levels. This is viewed as uneconomic for gas generators and signals either: 1) negative ROI (in which case we will swing the pendulum towards a supply shortfall in the future), or 2) out of market payments that may be being negotiated behind closed doors (which has the potential to add uncontrollable costs for load).

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Only one key area for our organization: 1) Would like to see more focus on settlement and market clearing. These are the items that impact costs for load and it appeared we brushed through them at our prior session. Need to think through how real-time market is paid and charged to load vs day ahead. Also need to think through how co-optimization costs/approaches impact load cost. Key concern is additional line-items of uncontrollable cost (ie. not attributed to consumption.) Preference is for a posted "equivalent energy only price" that is utilized for load settlement. AESO would calculate all day ahead, real-time, co-optimization costs and combine these into an "equivalent energy only price" that is then utilized by industry, loads, retailers for financial settlement.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Still learning about market clearing/SCED/SCUC.

Q10. **Any additional comments**

not answered

Respondent No: 10
Login: TransAlta Corporation
Email: Akira_Yamamoto@transalta.com

RespondedAt: Apr 30, 2024 13:06:38 pm
Last Seen: Apr 30, 2024 18:51:57 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	TransAlta Corporation
Q3.	**First and Last Name**	Akira Yamamoto
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

TransAlta recommends that the following three components of the AESO's proposed REM should be the key focus and priority for the detailed design work in 2024-2025 (these are presented in order of recommended priority and importance): 1) Pricing and Market Power Mitigation framework: negative pricing and administrative scarcity pricing with higher cap. 2) New reliability products to provide investment/dispatch signals for the reliability attributes required for net-zero electricity system. 3) Day-ahead market and unit commitment. The first priority is to develop a new pricing and market power mitigation framework. The pricing and market power mitigation framework reduces the role of market power in the price setting mechanism and limits concerns about political intervention in the market. However, care must be taken to ensure that the market power mitigation does not distorts the market, impede its ability to achieve efficient market outcomes, and result in the unintended consequence of discouraging investment and sending early retirement signals for existing assets. Additionally, we view the addition of an administrative pricing mechanism as a form of market power mitigation that removes the reliance on offer behaviour in the electricity market pricing framework. As a result, the AESO should not propose additional, market power mitigation on the market on top of implementing an administrative pricing mechanism. The second priority is ensuring the development of new reliability products that are needed to enable the transition to a net-zero electricity grid. This work needs to start with identifying critical reliability attributes that will be needed to ensure system reliability in the transition to a decarbonized electricity system. This plan needs to include details about how the AESO will develop and procure new reliability products to secure needed investment in the long term. This is a key component of the REM and the one mechanism that may allow the REM to work towards the goal of a decarbonized electricity grid by 2050. None of the other scope of the REM truly focuses on developing the pathway to transition to net-zero or achieve Alberta's decarbonization objective. The last priority should be replacing the interim Supply Cushion Regulation approach to unit commitment of long lead time assets with day-ahead unit commitment. Replacing the interim approach with a better, market driven approach is preferred given that the interim approach applies a crude design that was developed without any industry consultation and in a rushed manner. Overall, TransAlta notes that the REM does little to meet the Government of Alberta's objective to decarbonize the electricity system by 2050. This is a significant concern given the urgent need to take actions now to support the significant investment needed to develop a net-zero electricity grid. These investments are at a scale and urgency that are unprecedent for Alberta's market and are unlikely to be made in the REM in its current proposed design.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The AESO needs to ensure that the three priority areas emphasized by TransAlta in question 5 above are properly designed and implemented. Failure to implement sound designs in those priority areas will adversely impact the overall market and risks creating a faulty and unsecure foundation that will compound the reliability and affordability issues we have begun to see today. TransAlta recommends that the AESO reconsider the scope of the REM. The scope of the REM is too extensive to accomplish on the timeline proposed by the Government and AESO. Practically speaking, we see several areas that introduce unnecessary complexity, will take too long to implement, and lack tangible near-term (and potentially long-term) benefits that outweigh their costs/disadvantages, including: • Security Constrained Economic Dispatch and co-optimization of energy and ancillary services. • Shorter settlement windows. The Minister of Affordability and Utilities suggested that the Government of Alberta would announce changes to the Transmission Regulation changes in July 2024. This is too late to include in the detailed design, which is needed by mid-July under the AESO's schedule. Moreover, the changes to the Transmission Regulation may actually be more significant and impactful and more complicated to implement than the changes in the REM. Consequently, there is a high risk of significant impacts and delays on schedule if the detailed design includes security constrained economic dispatch. Furthermore, co-optimization of energy and ancillary services is far too ambitious given the significant complexity that it introduces for a relatively minor component (i.e., operating reserves) of the existing market design. This is an aspect of the design that does not need to be completed at the outset of the REM and should be considered over a long-term horizon after we have migrated energy trading systems and implemented a day-ahead market. Co-optimization also introduces another complexity - an opaque, black box- on top of the changes that already make the market less understandable to market participants such as security constrained economic dispatch. An approach that is more incremental and stages in co-optimization after the kinks of the pricing framework, market power mitigation, and day-ahead market have been worked out is a sounder and preferred path forward. Additionally, implementing shorter settlement windows is likely to be highly impactful, time consuming, and costly for market participants. We understand that it appears simple from the AESO's perspective but it drives significant changes, cost and resource requirements for all market participants that settle with the AESO. There are issues with system changes, higher data storage requirements, and process/practice changes for market participants. This includes distribution utilities that have just locked into the Performance Based Regulation plans, which do not contemplate changes to systems and resource requirements to support this change. TransAlta recommends that the REM process gather more information to better plan when a transition occurs but does not require this change out the outset of the REM.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Please see TransAlta's response to question 5. TransAlta understands each of the mechanisms/elements proposed that comprise the REM. We have a strong understanding of the conceptual designs and purposes of each of these elements and how they function in other jurisdictions. We also have a strong understanding of how Alberta has functioned without these design elements and how the implementation of these elements may impact Alberta's electricity system and market.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Not applicable.

Q10. **Any additional comments**

If designed correctly, TransAlta sees that the REM could provide helpful changes that address the reliability and affordability objectives for the province. However, we are concerned that the quality of the detailed design will be compromised by the overly ambitious scope that the AESO has proposed for the REM. We strongly encourage the AESO to reconsider and revise its REM proposal and to do so with a stronger focus on how the REM will achieve the decarbonization by 2050 objective. TransAlta wishes to be actively participate in the detailed design work and we are prepared to devote our staff resources to work closely with the AESO's team and other market participants to develop options, support analysis and recommendation reports, and assist with working groups/industry consultation.

Respondent No: 11
Login: jamie.walker_8033
Email: jamie.walker@cnrl.com

Responded At: Apr 30, 2024 13:13:38 pm
Last Seen: Apr 30, 2024 18:32:20 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Canadian Natural Resources Limited
Q3.	**First and Last Name**	Jamie Walker
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

We recognize the need for changes to the existing market design with the change in supply mix, reliability events and pricing over the past 3 yrs. While affordability is important to all residential, commercial and industrial loads we do think the best approach is to allow the market to operate as freely as possible with only essential administrative measures during extreme supply scarcity events. The interim market power mitigation rules that go into effect July 1, should be observed closely for effectiveness and then REM Design should incorporate a similar structure (if proven effective) to address the affordability concerns.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

One main concern is the implementation of scarcity pricing and ORDC. The specific concern is that if it's not implemented properly it will have administrative pricing correction far too frequent and the erode the effectiveness of a well functioning market. REM needs to allow the market to function on its own with relatively little intervention, only when we are forecasting extreme supply shortfall (EEA3's). While we understand this isn't always easy to forecast and implement but that is what leads to the concern, that we will need to do too many out of market adjustments.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

1.) Removal of scarcity pricing as a design element of REM 2.) Implement Market Power Mitigation - Similar to interim rules if proven effective 3.) Fair and Efficient treatment of all supply types - Cogen, Renewables, Peaker's, dispatchable Gas, interties

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

We need to see accurate modelling to prove that the REM recommended design elements will solve the reliability and affordability issues we've had. In particular run a model with new rules around the reliability events we've had recently (Jan 13, April 3, April 5 2024) and show how REM would have positively altered those events. We've seen some model results on 2023 pricing impact so that is helpful but would still like to understand that further.

Q10. **Any additional comments**

REM has to take into consideration the different design and functionality of the existing Cogen units in the province and attempt to ensure they are not impacted significantly different. For example some Cogen operations do not export any power and some export significant amounts of power but both scenarios their primary function is to provide heat/steam to the host site. We need to ensure REM doesn't force Cogen operators to adjust Cogen output and increase steam only equipment to avoid Power Market impacts. This would result in increased emissions and reduced energy efficiencies which is the reason they were installed in the first place.

Respondent No: 12
Login: Heartland Generation-Kurtis Glasier
Email: Kurtis.Glasier@heartlandgeneration.com

Responded At: Apr 30, 2024 13:16:30 pm
Last Seen: Apr 30, 2024 18:52:09 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Heartland Generation Ltd.
Q3.	**First and Last Name**	Kurtis Glasier
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Heartland Generation understands that a goal of the REM should be to enable participation with other WECC markets. Increased reliability, affordability, and decarbonization can be achieved through leveraging the experience and strength of the other markets. The AESO should begin immediately, both within the REM design and through other initiatives, to alleviate any seams issues between Alberta exports and the rest of WECC. The design elements of pricing (including market power mitigation, price cap/floor, and scarcity pricing), the day-ahead market, and potentially new reliability products have the most potential for benefits. Alberta can leverage the REM design to secure efficient price signals within Alberta and enable broader expansion of that market strength for the region. Heartland Generation is supportive of including specific metrics within the stated objectives in order to measure the success of the REM design. Additionally, a REM design that leverages competition should be able to achieve the goals of affordability through a reduction in administrative costs and/or increased efficiency. The operational costs required by various initiatives needs to be considered through an appropriate cost-benefit analysis, whereby an ISO's costs are decreased through efficiencies like automation and competitive offer behaviour.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Heartland Generation's overall concern is that the REM Recommendation and Design Elements do not sufficiently measure how they will meet the listed objectives. The objectives of reliability, affordability, and decarbonization should come with associated metrics to measure the "success" of the REM design. Therefore, it is difficult to lend industry support when it is unclear how the design elements will work together and at what threshold will the REM be deemed a failure and long-term contracting an inevitability. For example, the AESO has included several indications that it intends to suppress scarcity signals to meet the objective of affordability. The objective of affordability should be defined such that it includes a sufficient investment signal to achieve the politically determined level of reliability. This allows for further metrics within the objective to evaluate the success of the pricing framework, driven by competitive investment. The pricing design element includes affordability measures to "protect consumers from excessive prices" or from "prolonged periods of high prices." These terms are not defined, perhaps this level of detail is forthcoming, but currently industry is unable to evaluate what that means for overall investment and how to reconcile these statements with an increased reliance on scarcity pricing. The timeline aught to be reflective of the prioritization of design elements. While Heartland Generation understands the tight timelines for the REM design, this should be reflected in only pursuing the design elements that are required. This can be paired with an extended timeline for improvements to the REM over a longer period (e.g., next 5-10 years). By working to meet the investment signal (the pricing framework) and remove any seams issues with the WECC market, this will buy Alberta time to address some of the other market design issues. The REM recommendation and design elements create concerns of having a broad scope with very little time for industry collaboration.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Heartland Generation views the design elements of pricing, including market power mitigation, price cap/floor, and administrated scarcity adders, and the day-ahead market as being the highest priority and should be the focus of the stakeholder engagement. Currently, these are also the design elements with the most uncertainty or lack of detail. This has led to increased contention and misunderstanding. The stakeholder engagement would benefit from bringing stakeholders "onboard" sooner and allowing active participation in the creation of the detailed options. It is important to note that the pricing framework discussions are not done in a vacuum and the longer stakeholders go without a clear direction and understanding of the pricing signals the more potential harm to investor confidence can occur. Further, a specific priority within pricing and the day-ahead market needs to be removing barriers with other WECC jurisdictions. Inter-jurisdictional trade allows each region to leverage competitive market forces in meeting objectives of reliability, affordability, and decarbonization. These goals need to inform and guide the discussion on pricing and the day-ahead market. This will insure a lack of seams, open competition, and efficient price signaling within Alberta and WECC at large.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

There are outstanding questions around how the obligations in day-ahead market and the pricing framework will lead to an overall investment signal for Alberta. Heartland Generation believes engagement should be focused on the pricing and day-ahead market workstreams, and that there are remaining questions in each of these areas, outlined below: Pricing: level of price cap, level of price floor, appropriate market power mitigation schema for various markets, scarcity pricing curve, how "reserves" are defined and paid, relationship between spot, day-ahead, and scarcity pricing, how expected supply adequacy will be assessed. Day-Ahead Market: participation requirements (mandatory vs. voluntary), how obligations are calculated for different participants, level of load participation, equivalent obligations on load and generation participants, elements included in the demand forecast, binding mechanism for committed volumes, whether scarcity pricing will be accessible to committed volumes. Other: will REM eliminate barriers to participation in other markets (e.g., offering within T-2 for exports, fair treatment for imports, curtailments, resource adequacy products), whether or not some barriers can be addressed prior to REM implementation.

Q10. **Any additional comments**

Heartland Generation is looking forward to working collaboratively and constructively with the AESO to meet all the policy objectives as outlined by the Minister of Affordability and Utilities. Specifically, the objective for Alberta to stabilize its domestic market and become a valued net exporter of energy in the region. This will require necessary infrastructure and, germane to the REM design, a market design that enables participation. The regional goals of reliability, affordability, and decarbonization present a unique economic opportunity for Alberta investors and customers.

Respondent No: 13
Login: Direct Energy-Nicole-Black
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Responded At: Apr 30, 2024 13:45:48 pm
Last Seen: Apr 30, 2024 19:39:41 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Direct Energy / NRG
Q3.	**First and Last Name**	Nicole Black
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Administrative Scarcity Pricing, if properly implemented, could have a positive impact on Reliability: (i) In the short run, an extreme scarcity event with prices much higher than $999 should illicit a greater response from supply and demand to help mitigate the consequences of the supply shortage. However, we address concerns about the demand response in the next section. (ii) In the long run, an Administrative Scarcity Pricing scheme or ORDC could send price signals encouraging timely investment. This would require that, in a market also with Offer Price Mitigation, the ORDC takes effect before the market is on the brink of load shed, i.e., the ORDC takes effect before the AESO calls on operating reserves. When the supply cushion hits a pre-specified threshold, the ORDC supersedes the merit curve. This is the Texas design, and what we think might be the AESO's intent, but it isn't clear. (iii) Administrative Scarcity Pricing could be designed in conjunction with an Operating Reserves market that maintains extra capacity for reserves that would otherwise have been dispatched in the energy market, thereby creating an embedded capacity premium in the short-term and forward Energy Prices. (iv) ORDC is also a market power mitigation tool, which creates natural incentives that dampen the incentives for individual market participants to cause scarcity to occur through their individual bidding behavior (i.e., economic withholding), because when the physical system is actually approaching the minimal level of reserves, prices automatically escalate through the ORDC. In time this tool (and other conduct-and-impact tools) could replace the soon-to-be-effective market power mitigation regime that could create high prices in the early part of a given month, and low prices in the back part of a month—even when actual scarcity may occur at any time during the month. Market Power Mitigation (i) As described above, market-based approaches to mitigating market power during particular intervals, such as ORDC, are superior to monthly constructs. During times of ample supply, prices would be more reflective of short run marginal costs, and, as the market tightens, the offer-mitigated merit curve is superseded by an orderly administrative price setting mechanism. To the degree additional tools are necessary, they should be focused on conduct-and-impact methodologies, rather than structural approaches that restrain bidding ex ante. (ii) Whatever MPM scheme is implemented will depend on whether Alberta adopts nodal pricing, which we think is essential for the true optimal dispatch of generation. (iii) A MPM approach that keeps intact the dynamism of short-run prices will be essential for activating the demand side of the system to react to actually scarce conditions. Day Ahead Market (i) All North American ISOs have a Day Ahead Market. Even the bilateral markets in the Western US are traded and scheduled Day Ahead. A Day Ahead Market allow units to commit in response to prices, improving reliability with better assurance of having required units online. However, from a retailer's perspective, the Day Ahead Market may not provide the same benefits as in other jurisdictions which have more advanced retail metering infrastructure. We address this in the next section.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

ORDC/MPM Our concern with Administrative Scarcity Pricing in Alberta and the implementation of ORDC with a price cap much higher than $999 alongside MPM is the change in risk profile to retailers and customers. With the current price cap of $999, scarcity risk is already hard to manage. In a market where prices are mitigated to reflect short-run marginal costs most of the time, but in rare unpredictable instances prices are allowed to go much higher, the financial consequences to loads without the means to mitigate the risk could be dire. In Alberta, Advance Metering Infrastructure (AMI) is not widely deployed and is not frequently used to settle actual customer loads on a granular time interval for the purpose of billing. The result of this is a market for the distributed generation, demand response, and customer-sited storage resources that cannot develop because the metering platform does not exist to measure the economic benefits of load-shifting/curtailing activities. In short, during scarcity events retailers and customers will continue to be price takers, when in fact demand response could be an integral component in the solution to Reliability, Affordability, and Decarbonization, and also an important tool to help retailers and customers mitigate scarcity risk. The DFOs, the Alberta Government, the AESO, and retailers need to create a timeline for AMI and when interval usage data will become available in the Alberta market. Day Ahead Market For the initial REM implementation, the AESO plans to forecast demand. There are no obligations for load to participate, but they could participate to reduce price volatility. How loads might participate is unclear, at least for LSEs and retailers. On the other hand, the AESO envisions 100% mandatory participation in the Day Ahead market for all types of generators, and that variable generators will be scheduling 100% of their expected output on their own behalf. (i) We agree that the AESO should do the Day Ahead demand forecasting to facilitate a Reasonable Implementation to REM. LSEs, retailers, etc. simply don't currently have the same access to timely data as the AESO for accurate short-term forecasting, and this would be a particularly onerous task for retailers if locational or nodal pricing is a feature of REM. The AESO itself said at the stakeholder sessions that it didn't currently know how LSEs would perform this function. The ERCOT market, which like AESO features a substantial measure of retail competition, settles loads on a zonal basis while supply is priced nodally. This could be an important feature of this reform. (ii) We heard at the stakeholder sessions concerns from variable generators about the extra risk that a Day Ahead commitment creates for them, and that there may be a tendency for them to under schedule their expected generation. (iii) Forecasting errors of demand and variable generation will obviously create spreads between the Day Ahead and Real-Time prices, and if variable generation is persistently under scheduled, there could be a persistent positive spread with Day Ahead prices more frequently greater than Real Time prices than vice versa. The AESO should consider allowing virtual, or convergence, bidding in the market so that it is not exclusively left to resource owners and LSEs to attempt to rationalise the market. (iv) Assuming that LSEs underscheduling/underbidding the volume of load that AESO believes will plausibly need to be served, will AESO engage in extraordinary unit commitments on the day-ahead time-frame and, if so, how will those costs and the Real Time imbalance costs/gains be equitably allocated to loads? Similar to ORDC, the Day Ahead Market has the potential to unlock extra demand responsiveness. There are likely more participants who can reduce consumption on a day's notice than there are who can reduce consumption in real time. But in the absence of AMI and interval usage data, the market for load-shifting/curtailing products will remain untapped. Shorter Settlements We see the benefits of a shorter settlement period for generators allowing quick responses to price changes. At present, without AMI, retailers cannot benefit in a similar manner. For the initial implementation the settlement interval to loads in the REM must remain hourly to avoid incurring huge additional costs to change settlement and billing systems that can't currently accommodate the much larger volume of data associated with shorter intervals. Since the majority of the volumes will be Day Ahead, where settlement is already hourly, we feel aggregating the RT imbalance settlements into hourly intervals to align with the Day Ahead settlement should be preferred by all parties. At a later time, when AMI is adopted, load may be able to participate on the same interval as generation, and an assessment can be made then if that requires load settlement intervals to be shortened or whether it can continue to be aggregated into hourly periods. Preliminarily, a 15-minute settlement period seems appropriate, and will allow retailers to adopt measures such as a/c cycling as a demand response tool.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Day Ahead Market • How will 100% participation be enforced? o The stakeholder presentation contemplated penalties for DAM obligations. Is that just for generators, or would it be applied to load, which is likely going to be scheduled by the AESO? • We will continue to emphasize that untapped load participation exists in the absence of AMI and interval usage data. • A virtual market be a desirable feature at the initial implementation to smooth out any price oddities. • Allocation of load's RT imbalance costs? Administrative Scarcity Pricing / ORDC • At what level of scarcity does it take affect? • What does the curve look like? • Provide some examples of how it would play out in practice. • Backcast what would prices have looked like in 2021 and 2022 with ORDC and how do they compare with actuals? • If the expectation is 100% participation in the Day Ahead Market, then we think ORDC should be a feature of the Day Ahead Market. If participation were to be voluntary and/or there is a Day Ahead virtual/convergence market, then ORDC may only need to a feature in Real Time. Which market(s) will ORDC in Alberta apply to? Market Power Mitigation • More discussion required on how this would be implemented. • The AESO said MPM doesn't necessarily mean that prices would be driven to Short Run Marginal Costs, but how much room is there for prices above that level?

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Not applicable.

Q10. **Any additional comments**

No additional comments.

Respondent No: 14
Login: Northland Power-Brandon-Kelly
Email: brandon.kelly@northlandpower.com

Responded At: Apr 30, 2024 13:50:11 pm
Last Seen: Apr 29, 2024 14:07:39 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	Northland Power Inc.
Q3.	**First and Last Name**	Brandon Kelly
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The introduction of a day-ahead market will provide the system operator with increased certainty around the availability of supply for the next day, improving overall system reliability. Certainty for the system operator is achieved by providing additional operational and financial certainty to non-quick start resources, such as combined-cycle gas-fired generators, allowing them to plan and commit to a production schedule day-ahead. That said, there are limits to the certainty a day-ahead market can provide. No amount of advanced planning will allow intermittent resources to commit to firm hourly generation levels in advance of real-time. A day-ahead market that requires the mandatory participation of intermittent resources subjects these resources to financially binding settlement day-ahead, exposing them to significant financial risk. Facing the risk of having to buy back portions of an intermittent resource's unrealized day-ahead schedule in real-time creates significant price exposure for these resources. To mitigate this risk, intermittent resources will be inherently incented to materially understate their expected production day-ahead; When done in aggregate across all intermittent resources in the province, this paints a day-ahead picture that is structurally misaligned with reasonable expectations. This can lead to the costly over-commitment of other resources day-ahead, and the curtailment of significant generation in real-time, both of which unnecessarily increase system costs. This result is inconsistent with the AESO's rationale for implementing a day-ahead market in the first place, which is to "provide certainty and control to the AESO over the commitment of generation on a time-ahead basis, promoting reliability, stability and minimizing price volatility". Given a day-ahead market cannot improve the ability to forecast intermittent resources day-ahead, and the associated mitigation actions are costly, the day-ahead market design should not impose mandatory participation on intermittent resources. Instead, the system operator may modify the approach to include centrally forecasted output from these resources for the purposes of the day-ahead market, similar to the forecasting function it provides for small loads. This approach would have the further benefit of minimizing the impact on existing PPAs, all of which rely on real-time prices with no consideration for any day-ahead market participation or risk. Any risk that is presented in the REM that could potentially cause openers in the 3.5 GW of existing executed renewable energy PPAs will be an unattractive signal for future C&I buyers and renewable energy developers. The introduction of a security-constrained economic dispatch engine will help incorporate many of the complexities and physical limitations of the grid, resulting in the reliable dispatching of resources. Under such a system, and to maintain a uniform Alberta-wide price, a series of uplift payments will be required to incent resources to follow out-of-merit dispatch instructions (including curtailment of economic resources) and maintain the reliability and affordability of the grid. The benefits of a negative offer floor are less clear when its introduction would still require, "some form of rule-based/pro-rata curtailment" solution. As such, it's unclear as to how a negative offer floor would serve to increase reliability. The introduction of a negative price floor would come at a significant cost to resources with existing PPAs, whose risk profiles will be fundamentally altered under the specter of negative pricing. Market Power Mitigation and an Operating Reserve Demand Curve may serve to improve affordability in the short-term, but long-term affordability and reliability rely on the efficient entry and exit of resources, which will now be wholly reliant on these administrative processes. To that end, the outcomes of these administrative processes should not be so restrictive so as to prioritize short-term gain at the cost of long-term affordability and reliability. The approach to these processes should be regularly revisited to ensure the correct investment signals are being sent.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As outlined in the previous answer, while each design element has potential benefits, each also has the potential to work at cross purposes to the stated objectives, depending on the design details. A day-ahead market that levies buyback risk on intermittent generators will impact affordability as it incents inefficient commitment and curtailment. A security constrained economic dispatch without uplift payments to incent dispatch compliance will impact reliability. A negative price floor may serve little benefit while having an outsized impact on preexisting PPAs. Administrative pricing mechanisms like Market Power Mitigation and Operating Reserve Demand Curves can impact long-term affordability and reliability if too restrictive. More generally, market reforms that undermine the economics of wind and solar resources will impact investor confidence and challenge decarbonization efforts. This is especially true if market reforms with less than certain net benefits are adopted at the expense of resources with existing PPAs underpinned by the current market design.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

In order to assess whether the REM will meet the stated objectives, the design elements need to be considered as a whole, not in isolation. In many cases, the elements are directly interrelated. Nevertheless, we consider the introduction of a day-ahead market, security constrained economic dispatch, and a negative price floor to be amongst the most impactful proposed changes. These design elements will have significant impacts on the level of risk levied on market participants, including day-ahead to real-time pricing risk, curtailment risk, congestion risk, negative pricing risk, among other risks. Implementing these design elements without due consideration for these risks will necessitate risks adders and higher financing costs, increasing system costs and deteriorating the relative attractiveness of the Alberta market as a place to invest.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

The above is a qualified ‘Agree’. We have familiarity with all the design elements proposed as they exist in some form or another in other markets. That said, there are many different versions of all these design elements, and the devil will very much be in the details. For example, we have experience with Market Power Mitigation, and it can be an effective tool to drive efficient dispatch outcomes. However, understanding when and the extent to which mitigation occurs are fundamental to assessing its compatibility with long-term affordability and reliability goals. The same goes for an Operating Reserve Demand Curve. All the design elements must operate as a whole, they can’t be assessed in isolation. We would encourage the AESO to release different design detail options as soon as possible so that stakeholders may start assessing what combination of design elements will serve the stated objectives.

Q10. **Any additional comments**

We encourage the AESO to consider how it may best integrate storage into the REM. Jurisdictions across North America are designing new participation models for storage to ensure the most efficient use of these dynamic resources. All REM design changes should be made with an eye towards optimizing resources of the future.

Respondent No: 15
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Responded At: Apr 30, 2024 14:01:37 pm
Last Seen: Apr 30, 2024 19:58:51 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Potentia Renewables Inc.
Q3.	**First and Last Name**	Jennifer Tuck
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

All the REM Design Elements could help Alberta meet the objectives outlined above. The challenge will be in the details associated with each design element, how they interact with each other and how they change the risk profile for generators, developers, and investors. Ultimately, Alberta will want to retain a competitive energy market that continues to drive investment in the province. Clarity and certainty will be key in maintaining investment confidence. Throughout the engagement and design of the Restructured Energy Market (REM) the AESO should keep in mind that it's creating a market that all generators, regardless of fuel type, can participate in. The new design should not disadvantage renewable generation or energy storage relative to thermal generation as renewable generation itself will help the AESO meet the decarbonization and affordability objectives as wind and solar are the lowest-cost energy available right now.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As mentioned above, renewable energy already meets two of the four design objectives. The AESO should ensure that renewable energy is able to participate to its fullest extent in the market. This means that wind and solar should not be subject to significant curtailment. Curtailing energy from wind and solar in hours where gas-fired generators with higher operating costs and higher emissions are operating is inefficient, counter to decarbonization objectives, and at times more costly. We caution the AESO to avoid creating a market designed predominantly for gas fired generation. Additionally, wind and solar are providing ancillary services in several markets. Renewables should be able to provide ancillary services in Alberta as well to meet reliability goals. Finally, one of the objectives of the REM is reasonable implementation. The current consultation, design and regulatory approval timeline is being compressed into less than two years. Potentia believes that it will be nearly impossible to conduct a fulsome consultation, design and obtain AUC approval in that timeline. Potentia recommends that the timelines be reconsidered to ensure that enough time is taken to get the design elements right, otherwise Alberta risks losing out on investment dollars.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Potentia aligns with the Renewable Generator Alliance (RGA) that curtailment and congestion should be priority issues. To achieve the decarbonization and affordability goals, the AESO will want to minimize curtailment of wind and solar facilities to avoid over committing more expensive and GHG emitting plants. The Day-Ahead Market should also be a priority area for the AESO. The DAM design needs to strike a balance between the commitment of energy and ancillary services to ensure reliability while at the same time making sure that non-emitting energy sources are not unnecessarily curtailed to meet the affordability and decarbonization goals. Potentia also feels that strongly that the DAM should be voluntary rather than contain a must offer obligation. Must offer obligations are a feature of capacity markets in North America and the AESO is not considering a capacity market at this time. While the AESO is trying to achieve both reliability and affordability, the AESO needs to ensure they do not lean too much on affordability through strict marker power mitigation and an ORDC curve that is insufficient for generators to achieve expected rates of return. If they do so, the market will fail to bring on new generation when needed, and the AESO will be forced to bilaterally procure to achieve their reliability goal. Further, the AESO needs to integrate energy storage into its market design to ensure all resources are being used in the most efficient manner.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

N/A

Q10. **Any additional comments**

Potentia also supports the RGA's comments regarding how the REM will impact projects with corporate Power Purchase Agreements (PPAs). Many Independent Power Producers (IPPs) have made significant investments in wind and solar in Alberta over the years and those investments should be protected. The AESO indicated that impacts on corporate PPAs was out of scope of the REM initiative. Potentia encourages the AESO to rethink that position and create stakeholder sessions specifically to discuss how the REM and any new market rules will impact PPA contract terms and conditions.

Respondent No: 16
Login: Lionstooth-ErikaGoddard
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Responded At: Apr 30, 2024 14:43:18 pm
Last Seen: Apr 30, 2024 20:41:07 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Lionstooth Energy
Q3.	**First and Last Name**	Erika Goddard
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Reasonable Implementation must not impact orderly and timely development. We are concerned, and would like to better understand how the timing of REM is impacting / influencing Long-Term Planning and the Cluster Assessment Process. Both the LTO and the LTP are 2-3 years out of date. The Cluster 2 SASR deadline is EO-July 2024, followed by Cluster 1 GUOC evidence / payment due in September 2024. Both of these influential deadlines fall within Design Development and Engagement on Design phases of the REM. There should be alignment between REM decision points and the Cluster Assessment Process. While we appreciate the REM Recommendation and Design Elements were focused on changes to the wholesale market structure, it would be imprudent to dismiss the impact of, and resulting response to, these changes in other, foundational elements of our market and system. To meet the objectives of reliability and affordability, we must prioritize investment in and the connection of dispatchable, reliable power supplies, that are right-sized and sited in the right locations. Further, given the impact / influence of these changes, we do not feel that the AESO's timelines reflect Reasonable Implementation, especially when considering the necessary work required by the AESO, industry, and stakeholders to develop and engage on the design, and the subsequent rules and AUC proceedings. The IT system upgrades alone is a substantial undertaking, and extends beyond AESO systems, to include changes in individual market participant systems. Market change this significant was likely not contemplated when 2024 budgets and resource planning was approved, and we question if there are enough personnel and teams available to support this work.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

In order of importance: 1. Scarcity Pricing & Higher Price Cap to support investment in dispatchable, reliable power supplies; 2. Day-Ahead Market as this is an entirely new concept in the Alberta context; and, 3. More Sophisticated Tools to support power plant dispatch. Future working groups on these issues should include smaller, dispatchable developers, who are able to right-size, and locate in the right areas to provide reliable and affordable power.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Q10. **Any additional comments**

Respondent No: 17
Login: BluEarth-Roslyn_McMann
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Responded At: Apr 30, 2024 14:49:06 pm
Last Seen: Apr 30, 2024 20:43:41 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	BluEarth Renewables
Q3.	**First and Last Name**	Roslyn McMann
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

- BluEarth retains the view that we expressed during the fall EWG series that the existing competitive energy only market with small tweaks (such as competitive procurement of A/S, and addressing congestion constraints) will meet the above objectives. This view was also shared by the majority of the EWG members as summarized in a joint letter to the AESO on Nov 28, 2023. The REM, while technically still an energy only market is a wholesale market redesign. We are concerned that the myriad of design element changes AESO has recommended, the timeline for implementation and the pending changes the sector is anticipating in the Transmission regulation will be crippling to investment in the market in the short to medium term. How the REM meets these objectives in the long term will depend on the details that are worked out with stakeholders over the course of this consultation and how they interact with each other and other policy changes. - Of the elements that were presented, we see co-optimization of energy and ancillary services as well as shorter settlement intervals as the most likely to provide market efficiency while minimizing market disruption if designed appropriately.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

- Please see above. Additional concerns include: how DAM will be set up and settled, details on how wind and solar will be dispatched/curtailed in the new market as well as how scarcity pricing will be administered.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

- In addition to the three below, we think a session on how Transmission policy interacts w REM including congestion management/curtailment under existing rules and how to phase in design elements in REM to avoid market disruption will be necessary. - Co-optimization of energy and ancillary services. - DAM - Negative pricing - Security Constrained Economic Dispatch

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

- There are many interacting details of the 5 main design recommendations that we don't have enough information to model the implications. In addition, we need to understand the transmission regulation changes in order to digest the REM changes in context.

Q10. **Any additional comments**

- We suggest that the objective of "reasonable implementation" should directly acknowledge the need for sufficient rates of return and minimization of impact on existing market participants who have made investments and entered contracts in good faith. - BluEarth is also a member of CanREA and the Renewable Generator Alliance (RGA) and in general aligns with views expressed by those organizations.

Respondent No: 18
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Responded At: Apr 30, 2024 14:52:31 pm
Last Seen: Apr 30, 2024 20:42:34 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	Renewable Generator Alliance (RGA), whose membership of renewable and storage development companies, which may be subject to change, currently consists of: BluEarth, EDF, EDPR, Elemental, Northland, Pattern, Potentia, RES, Acciona, and Horizon/CIP.
Q3.	**First and Last Name**	Christine Runge
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The RGA suggests that the REM is overly focused on the objective of reliability and doesn't adequately prioritize the objectives of affordability and decarbonization. Part of this appears to be the desire to implement significant changes in a limited time period which has led the AESO to suggest potentially conforming to a standard US market design despite the fact that not all components may be necessary or beneficial. The RGA would further note that there are significant concerns with the level of risk created by this degree of change and that specifically power purchase agreements (PPAs) signed under the current market structure will face significant issues with changes such as a Day Ahead Market (DAM), negative pricing, and Locational Marginal Prices (LMPs). That being said, the RGA will work with the AESO to establish the details of the REM and hopes the AESO will focus on how the detailed design choices can best achieve the objectives of affordability and decarbonization, how the design choices interact with each other, and how the design choices change the level of risk for incumbent generators, project developers, and investors. The AESO should use the new tools to ensure that resources are available in real-time in an efficient way that supports long-term investments in flexible and low-carbon assets, including not uneconomically curtailing energy production from wind and solar generators and not over-committing gas-fired generators or artificially blunting price signals. Co-optimization of energy and ancillary services (e.g., operating reserve) will support reliability and affordability by improving dispatch efficiency and ensuring customers get the lowest cost energy and reliability products. This is a good example of a change that can improve allocative efficiency and result in better real-time price signals with little or no increase in risk to incumbent generators, project developers, and investors or resulting impacts on the provision of decarbonized, low-cost energy. The introduction of a DAM can support reliability by improving the ability of long lead time assets to participate in the energy market and providing greater operational certainty in the Real-Time Market (RTM). However, the AESO needs to be careful not to design a market that is overly punitive to wind and solar generators which can provide decarbonized, low-cost energy in the RTM, while respecting the operational capabilities of these generators.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The AESO needs to be careful not to unnecessarily add risk to the market and be careful to ensure each design element supports the objectives. For example, LMPs would layer on an investment risk that can be hard or impossible to mitigate. The AESO needs to ensure that its design doesn't result in significant curtailment of energy production from wind and solar generators. When available in the RTM, wind and solar energy jointly meet the objectives of affordability and decarbonization. Curtailing energy from wind and solar generators in hours where gas-fired generators with higher operating costs and higher emissions are operating is inefficient, counter to decarbonization objectives, and at times more costly. Accordingly, as the AESO focuses on the objective of reliability, it needs to also ensure it develops market rules that achieve reliability in an efficient and affordable manner by not discounting the energy value that wind and solar generators can provide to the grid. Further, in some markets (e.g., California, Southwest U.S., Ireland, etc.) wind and solar generators are providing ancillary services. The AESO should not overlook supply of ancillary services from wind and solar generators, which help meet system operability and reliability needs. The AESO's current proposal to replace economic withholding with an administrative scarcity pricing mechanism that will limit the ability of generators to earn profit to only during hours of system scarcity could put downward pressure on the received prices for wind and solar generators. Over time, this could result in less merchant investments in wind and solar generators which otherwise would bring decarbonized, low-cost energy resources to the grid. Absent persistent over-commitment, a DAM alone will not solve the real-time issues that have been raised by the AESO. Accordingly, it will be important to balance the energy market design with necessary ancillary service product procurement and optimization. At least some ancillary service products (e.g., operating reserve) will be better optimized from the DAM through subsequent pre-dispatch hours to the RTM to send the operational signals for resources that be available to meet system needs.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

The RGA recommends energy production curtailment and congestion management continue to be high priority issues. Without well designed curtailment rules, future development could be significantly reduced. Further, to reach the objectives of decarbonization and affordability, it will be important to design rules that minimize real-time curtailment of renewable energy at the expense of over committing more expensive and emitting gas-fired generators when not required. The DAM will also be key. The design needs to balance the commitment of energy and ancillary services to ensure operability and reliability without over committing resources resulting in curtailment of decarbonized energy resources. There are numerous fundamental details that will be very important in the design of a DAM and associated pre-dispatch hours falling between close of the DAM and start of the RTM. Co-optimization of energy and ancillary services is complex and will require discussion time in working group meetings. Importantly, the AESO needs to fully incorporate energy storage into the design to ensure new resources are used in the most efficient manner possible. Regarding energy storage, the AESO is encouraged to discuss with stakeholders any plans to enhance the integration of energy storage within Alberta's market, not just within the REM design and rules, but also from a system perspective relating to the network model the AESO uses as the 'blueprint' on which the capabilities of all transmission-connected resources are used to dispatch the system within the market. The introduction of negative pricing creates significant risk for renewables and issues for existing PPAs. Any introduction of negative pricing needs to focus on what is being achieved by the negative pricing and the floor should be set only as low as necessary to achieve that goal. Design decisions will directly inform whether Alberta is a viable market for future renewable generation development, which has a direct impact on the objectives of decarbonization and affordability. Overall, the AESO must engage on all issues, at least to some extent. It is important that stakeholders have an opportunity to provide comments on all the design elements as different elements will be important to different parties.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Based on the membership of the RGA and the deep experience operating within U.S. markets and the Ontario market of both the RGA and Power Advisory, we have a strong understanding as to how the design components considered within the REM could work for Alberta. This market knowledge outside of Alberta is combined with the RGA's members' and Power Advisory's continued experience of operating within Alberta's market. Nevertheless, it would be helpful for the AESO to release background information on complex aspects of its REM to level-set the discussions and allow for efficient consultation given the limited time period. However, this would only be a net-benefit if the creation of such documents would not delay the start of the stakeholder consultation given the fixed end date. Overall, the RGA would note that completing a design by fall to have draft rules filed with the Alberta Utilities Commission by March or April 2025 is an extremely fast timeline. The AESO should provide as much time as possible for multiple weekly working group meetings to ensure that stakeholders and the AESO have an opportunity to work through all the nuances of the design.

Q10. **Any additional comments**

Detailed stakeholder consultation is important. The AESO is proposing substantial changes. The AESO cannot do this consultation on a purely written basis. Detailed design conversations with stakeholders will be imperative to ensure the new design doesn't have negative consequences. The RGA notes that significant investments have been made in wind and solar generation projects in Alberta, where many projects have PPAs with off-takers or contracts with the AESO. While understandably not in scope for the REM initiative, decisions made regarding the REM design and market rules could impact PPA and contract terms and conditions. The RGA wishes to note at the outset that for incumbent generators, project developers, and investors, implications for their PPAs and contracts, among a range of other market and investment landscape considerations, are important when making REM design choices. We also recommend that AESO work with all stakeholders to gain a common and clearer understanding of terms and definitions of key REM design components. For example, there are many forms of DAMs (notwithstanding the standard design of DAMs in all US markets), including some which clear the majority of resources needed for operations in RTM in the DAM (rendering RTM as a balancing market) while others clear less. Another important example deals with unit commitment. AESO consistently uses Security Constrained Economic Dispatch (SCED) with linkages to unit commitment, whereas the linkage to unit commitment is more typically driven from Security Constrained Unit Commitment (SCUC). That is, within all other wholesale market designs, SCED and SCUC each have specific meanings. SCED refers to resource dispatch instructions (and LMPs, where they are produced for settlements) based on solving for market economics, not violating security limits and accounting for transmission congestion without unit commitment. SCUC refers to everything defined as SCED with inclusion of unit commitment (in DAM, pre-dispatch, and/or RTM). Lastly, we note that an understanding of the final Transmission Regulation is necessary to work through the market redesign to understand and evaluate impacts of design features. The AESO should communicate to the government that if it is delayed in passing a new Transmission Regulation, it will interfere with the ability to complete market design work on the currently mandated timelines.

Respondent No: 19
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Responded At: Apr 30, 2024 15:04:08 pm
Last Seen: Apr 30, 2024 14:46:31 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Cenovus Energy
Q3.	**First and Last Name**	Grant Pellegrin
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The Day ahead market should provide an increased level of unit commitment and therefore an increased level of reliability. Co-optimization should modestly lower the total cost of energy and A/S which will help the affordability of electricity as will negative prices and shorter settlement intervals. Decarbonization of the grid by 2050 is possible but will challenge the affordability and reliability goals without a technological advancement.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Administrative scarcity pricing places the burden of appropriate returns on investment on the AESO and an overly restrictive design or constant changes to the ORDC could be less attractive to investors than a more open market design, with appropriate market power mitigation tools, in which typical cycles in pricing and investment lead to the market creating a reasonable rate of return over time. Alberta's open electricity market design and industrial heat requirements have created a niche opportunity for Cogen development in the province that has provided a very affordable, reliable and low carbon source of power. To continue to see the benefits of Cogen the REM must be designed with the operational characteristics of Cogen in mind. The topic of strategic reserves and long-term contracts will weigh on investments in this market design, investors will be reticent to invest in a market that has resources that are available due to a long-term contract or invest in a market in which contracted resources may enter the market after the capital cost of an investment is made.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

The requirement of administrative scarcity prices vs appropriate market power mitigation should be of central focus. Effective market power mitigation rules may entirely avoid the need for the complexity and regulatory burden of administrative scarcity pricing. The day ahead market and obligations on participants whether they are generators, intermittent generators, Retailers, loads should also be designed with stakeholder engagement to best optimize the requirements of these markets. Co-optimization algorithms will need to accommodate the cogen fleet in order to allow operators to meet both the internal process needs and the requirement to supply electricity to the grid.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

N/A

Q10. **Any additional comments**

The details of the market design and how all the aspects of the market design work together will determine the success of the REM. Early engagement with stakeholders and active listening and incorporation of ideas from the market will be instrumental in industry supporting the ultimate REM design.

Respondent No: 20
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Responded At: Apr 30, 2024 15:04:36 pm
Last Seen: Apr 29, 2024 21:32:06 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Beacon Data Centers Inc.
Q3.	**First and Last Name**	Joe Shovlin - CEO
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Beacon is planning to construct five AI data hubs that will consume over 1,200 MW of power at a high load factor, with 3 of these projects already in the AESO queue. This demand will contribute towards transmission costs, lowering the Transmission expense for all Alberta power consumers. The Alberta grid went through a “big build” a decade ago, allowing the grid to accommodate such large loads. AI data centers will bring new technologies, significant job opportunities in AI research and development, construction, AI data management, maintenance, and a boost to Alberta’s tech ecosystem and inviting many indirect jobs. Alberta stands to gain economic growth and diversification through these substantial investments by providing the computing power to underpin AI development. Alberta is in a race with other jurisdictions for the investment opportunities from AI data centers. Under this context, Beacon advocates to minimize the market changes required to meet the market design objectives and to maintain or improve upon the implementation schedule. Of the five main market design changes, the most important are the market power mitigation framework including the potential use of administrative scarcity pricing along with a higher price cap and negative prices. However, the Government has approved legislation that will be in place by July 1, 2024 to deal with the market power concerns. A prudent step is to see how this new legislation deals with these issues before moving to redesign fundamental aspects of price discovery that has served Alberta well for the past 20 years. Proposing to fundamentally change the market design is sending a chilling signal to generation developers, drying up the PPA market until after the market design is set, understood, and operating. Beacon believes that new dispatchable generation and renewables will enable Beacon to reliably add new load to the Alberta grid. Limiting the market design process will allow the key elements to be implemented in a timely manner.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The use of a day ahead market can help to alleviate scheduling concerns for long lead generators but comes at a high cost. The Alberta market has run successfully on an hourly basis, changing to a day ahead market will bring added complexity and disassociation between past and future market pricing. This, in turn, will create significant uncertainty and likely lead to delays in constructing new generation, resulting in a potential for higher prices and pushing against the reliability and affordability objectives. For this reason, Beacon is sceptical that the benefits of the day ahead market justify the potential high cost. As an alternative, the AESO should consider a form of extending the current long lead regulation to enable the AESO to direct on units while leveraging the lessons that will accompany its implementation throughout the next year. Similarly, the SCED/SCUC optimization may lead to some efficiencies, however, will this change justify the significant IT costs for its implementation? Ancillary service costs are currently not high as compared to the energy market size, optimizing this smaller market likely has limited value. Similarity, the shorter settlement interval should be assessed again by the AESO, weighing its costs against the potential benefits.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

New generation and storage in Alberta will only be constructed if forecasted prices will provide an adequate long term economic signal to justify the investment. Given that prices are generally near variable costs of the marginal unit, until the system becomes tight from time to time, the price spikes form a major part of the investment signal. Given the potential proposed change from the use of market power to administrative pricing, this change will make or break the effectiveness of the market design. Again, Beacon believes that less change will bring benefits of consistency and predictability, essential for sending a market signal. Finally, the price cap and floor should be discussed. This combined with market power mitigation should form the key items for discussion.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Beacon has reviewed the AESO's EWG material and its consultants are very familiar with AESO market and transmission policy. Beacon has several questions on the specifics of each item; however, it is likely that these will be discussed in the consultation process.

Q10. **Any additional comments**

Beacon would welcome the opportunity to be part of the AESO's market consultation and would appreciate constructively voicing its unique point of view in the discussion of any proposed design and how it could be optimized. Beacon is optimistic that the Alberta market is in a good position to add AI data centers and receive all the benefits from this type of load growth. Beacon looks forward to working with the AESO on this important initiative.

Respondent No: 21
Login: BHECanada-MikeMorganton
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Responded At: Apr 30, 2024 15:13:44 pm
Last Seen: Apr 30, 2024 21:02:37 pm

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** Merchant Transmission Owner, Thermal Generator, Renewables
Q2.	**Name of Organization**	BHE Canada Ltd
Q3.	**First and Last Name**	Ed Rihn
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Consistent with the feedback given at the end of the Fall 2023 Executive Working Group process, BHE Canada believes that the Energy Only Market with the following specific enhancements is the best model to achieve the above objectives: • the introduction of a day-ahead market to differentiate dispatchable generation and reduce the short-term supply adequacy issues that come from unit self-commitment today. Optionality should be given in the day ahead market for generators to bid based on their portfolio of assets rather than individually to reflect the value of pairing the characteristics of dispatchable and intermittent assets. To maintain a level playing field and ensure a fair, efficient and openly competitive market that also complies with the Canada-United States Mexico Agreement (CUSMA), imports will need to be allowed to compete in the day-ahead market no different than domestic generation and there should be symmetry to the rules governing trade on both sides of the Alberta / US border; and • the introduction of a strategic reserve program to protect the market from rapid loss of capacity as uneconomic assets progress towards retirement BHE Canada continues to believe that a day ahead market can be designed in such a way as to support the given objectives, comply with all relevant legal obligations, and that the benefits of such an implementation will outweigh the costs.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Having reviewed the material provided in advance of the April 22nd and 23rd EWG sessions and considered the additional information provided by the AESO during the sessions, BHE Canada has concerns about whether the Design Elements for the Day-Ahead Market, Market Power Mitigation, and Market Clearing will meet the objectives listed above while also being compliant with the full range of legal obligations including those under the CUSMA. Within each of these three areas, there is the potential for the next level of design decisions to result in discrimination contrary to the CUSMA, such as restrictions on day ahead participation for imports or exports, asymmetrical rules, bid deadlines that are incompatible with participation in other markets, the co-optimization of ancillary services in a manner that precludes offers of these services from a deep and liquid ancillary service market outside of Alberta that would benefit Albertans, the mis-application of market power mitigation rules, or ‘black-box’ dispatch logic that favours Alberta-based generation. Taken together, BHE Canada is concerned that there is the potential for imports and exports to have less access to the Alberta and US markets under the Restructured Energy Market (REM). In the sessions, the AESO provided insufficient information that would allow a participant to evaluate whether the contemplated design would include such discrimination and the ability to question decisions that may result in discrimination is still pending. Furthermore, the commitment the governments made in the Side Letter on Energy to CUSMA was to enhance integration of North American energy markets. While a number of the high-level Design Elements in the Recommendation are commonly found in US markets and their adoption could improve Alberta’s integration with other

markets, representatives of the Brattle Group supporting the AESO in the design process confirmed that the particular combination of Design Elements the AESO prefers would be unique in North America. BHE Canada is concerned that, taken together, the Recommendation and Design Elements could result in continued, or worse, increased impediments to trading with other markets, which would be inconsistent with CUSMA and the push toward greater integration throughout North America. BHE Canada recommends the AESO, in future stages of the REM development, provide information and analysis to demonstrate that the REM proposal is compliant with a fair, efficient and openly competitive market, including the full range of commitments made in CUSMA. In addition, the AESO's Recommendation to the Minister included a statement that it may assign ancillary services costs to imports. BHE Canada cautions that this may be interpreted as duty against US energy exports and notes that the US does not assign ancillary services against Alberta electricity exports. Below is an extract of the stakeholder comments BHE Canada provided to the AESO on September 5th, 2023 on the Market Pathways Primer setting out the relevant CUSMA obligations that must be accommodated in the REM design: In particular, at 3.1, the AESO states that the objective is to "Maximize economic efficiency in Alberta's electricity market design subject to reliability and legal obligations" (emphasis added). BHE agrees that this is the objective, but wishes to ensure that when referring to "legal obligations", the AESO is not limiting this statement to its obligations under the Electric Utilities Act and the regulations thereunder, but also recognizes that Canada and Alberta have legal obligations under international trade agreements including the Canada-United States Mexico Agreement ("CUSMA"), which was implemented pursuant to the Canada–United States–Mexico Agreement Implementation Act, S.C. 2020, c. 1. Not unlike the domestic principles of non-discriminatory system access service found under the EUA, the CUSMA embodies a number of key principles intended to ensure fair and non-discriminatory international trade practices. These include: • Non-discrimination with respect to goods: under Article 2.3, both national and regional (e.g., provincial) level governments must treat imported foreign goods from another party the same as equivalent domestic goods. • Non-discrimination with respect to services: under Article 15.3, both national and regional (e.g., provincial) level governments must treat foreign services and service suppliers from another party the same as equivalent domestic services. • Non-discrimination with respect to investment: under Article 14.4, both national and regional (e.g., provincial) level governments must treat foreign investors and investments from another party the same as domestic investors and investments. • Side Letter on Energy: The CUSMA also specifically includes the Canada-United States side letter on energy, "Annex – Energy Regulatory Measures and Regulatory Transparency". Included in the side letter are: o Article 3 (Cooperation): The Parties recognize the importance of enhancing the integration of North American energy markets based on market principles, including open trade and investment among the Parties, to support North American energy competitiveness, security, and independence. The Parties shall endeavor to promote North American energy cooperation, including with respect to energy security and efficiency, standards, joint analysis, and the development of common approaches. o Article 4(2): "Each Party shall endeavor to ensure that in the application of an energy regulatory measure, an energy regulatory authority within its territory avoids disruption of contractual relationships to the maximum extent practicable, supports North American energy market integration, and provides for orderly and equitable implementation appropriate to those measures." o Article 5(1): "Each Party shall ensure that a measure governing access to or use of electric transmission facilities and pipeline networks: (a) accords access to those facilities and pipeline networks for the purposes of importation from another Party, that is neither unduly discriminatory nor unduly preferential; and (b) to the extent tolls, rates, or charges are set, assessed, approved, or subject to oversight by a Party, establish that any tolls, rates, or charges payable for that access are just, reasonable, and neither unduly discriminatory nor unduly preferential."

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Consistent with the concerns expressed in the answer to question 6, BHE Canada believes the Day-Ahead Market, Market Power Mitigation, and Market Clearing Design Elements require the most focus in the next stages of stakeholder engagement. BHE Canada also recommends that a workstream be added to consider in more detail the market integration questions that may get overlooked in the other proposed workstreams.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

The core of the current market design is market participant choice, with the participant controlling the selection of generation technology, plant location, range-bound offer prices and volumes, unit commitment and decommitment (subject to economic dispatch instructions based on market offers and the requirement to offer a plant's maximum physical capability in the market), and asset retirement, all subject to minimum standards designed by the AESO and approved by the AUC. While not perfect, including the systemic discrimination of imports BHE Canada has described elsewhere, the deregulated market has delivered significant amounts of new capacity from a variety of companies and technologies. The core of the REM Recommendation appears to be administrative control of assets, with range-bound offers adjusted by the AESO performing market power calculations, scarcity pricing based on an administratively determined valuation, unit commitment and decommitment scheduled in a mandatory day ahead market, and unit dispatch controlled by a black-box optimization model based on detailed constraints administratively determined. While all of these Design Elements are common in US markets, the majority of those markets are underpinned by capacity contracts that ensure plants can earn at least a minimum economic return and that investment in new generation continues. It is not clear to BHE Canada how the package of Design Elements in the Recommendation will successfully incent long term investment in Alberta's market. With such a wholesale departure from the current market, it is incumbent on the AESO to quickly get to a stage where they can show the next level of detail as well as analysis that supports the conclusion that all of the Design Elements are required to achieve the objectives and that the market will continue to attract new investment.

Q10. **Any additional comments**

While the AESO has suggested that the five Design Elements have to be considered as a consolidated package, it is not clear to BHE Canada that there is such a requirement or that proceeding in that manner would be advisable. In BHE Canada's view, the benefits of particular items, such as Security Constrained Economic Dispatch (SCED) to reduce the reliance on ancillary services, may not outweigh the cost and complexity of implementation, not just for the AESO, but also for all other market participants. Given the tight timelines required to come up with the detailed market design and follow-on rule development, including AUC approval, it would be more realistically achievable to focus on just those the Design Elements with the greatest benefit toward achieving the objectives and plan for a second stage should conditions following the initial implementation indicate that the remaining Design Elements are worth the additional complexity and implementation costs. In BHE Canada's opinion, the items of greatest benefit that should be focused on for initial implementation are the day ahead market and the adjusted approach to scarcity pricing and market power mitigation.

Respondent No: 22
Login: ATCO
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Responded At: Apr 30, 2024 15:16:03 pm
Last Seen: Apr 30, 2024 21:06:36 pm

Q1.	**Please indicate which category your organization predominantly represents**	DFO / TFO
Q2.	**Name of Organization**	ATCO Electric
Q3.	**First and Last Name**	Pete Bothwell, Vice President, Energy Transition & Industry Relations
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

From the lens of a TFO which is focused on ensuring reliability for its customers, it appears that the components of the REM can play a role in meeting the objectives outlined above, with the exception of decarbonization by 2050. However, considerations as details are developed for each element should include: • Ensuring proper/clear signals are being sent to the market. Including the consideration of existing investments (e.g., PPAs). • Consideration of the interplay and potential overlap between each element to avoid unintended consequences (e.g., investor confidence). • Alignment with the transmission regulation review and other relevant policies/regulations to ensure compatibility.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As mentioned in response to 5, from a TFO perspective the design elements, if implemented with caution, can play a role in achieving the objectives outlined. As discussed in the breakouts of the EWG sessions, a long-term view must be looked at that meets the needs of the system to ensure reliability, while adhering to FEOC principles. This long-term view must allow for flexibility to align with future changes in other areas of the market such as the possibility of future settlement frequency changes at the distribution level to apply Demand Response tools such as Time of Use Rates. Making these policies future proof to the extent possible when developing the details will be critical. As an example, the implementation of a well-established price signal for scarcity to market participants must also contemplate or allow for the secondary effects which would enable Albertans (other than T-connect customers) to receive an equivalent price signal to react. It is less clear at this time if the REM recommendations and design elements will suffice to achieve decarbonization by 2050. For now, this appears to be most directly dependent on technology availability and cost, and policy evolution with respect to the role of interties in Alberta's electricity market. It is ATCO Electric's opinion that the REM Recommendation and design details do not directly incent or deter decarbonization. In addition, as discussed in the workshop, proper consideration of interties in all Design Element workstreams must be contemplated. Increasing intertie capacity will play a vital role in enabling reliability, affordability and investment attraction by opening new markets for generators of all types. The critical role and need for further development of interties have been displayed in recent years. For example, during the cold snap in January 2024, the McNeil intertie (between Alberta and Saskatchewan) was utilized under an emergency mode to import a max rated capacity of 153 MW required to avoid rolling blackouts to Albertans. The 153 MW from McNeil was also supplemented by generation provided on the British Columbia/Alberta intertie during the same event.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

As a TFO, the top three market design elements that need most focus during the stakeholder engagement would be: Day Ahead Market – The interaction between generation and load participation (mandatory versus voluntary), treatment of existing investment and contracts (PPA's), allocation of commitment costs, and intertie participation. Market Clearing – Consideration of co-optimization, how interties play in the market clearing, technology requirement, link to settlement frequency in sending a proper price signal to end-use customers. Administrative Scarcity – Details around the scarcity curve (value of lost load) and probability factors (loss of load probability), frequency in updating the curve, testing requirements such as back casting to determine effectiveness and link to settlement frequency ensuring a proper price signal to end-use customers (including demand side management, Time of Use rates, dynamic rates).

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

However, the details need to be flushed out.

Q10. **Any additional comments**

N/A

Respondent No: 23
Login: Kineticor
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Responded At: Apr 30, 2024 15:24:41 pm
Last Seen: Apr 30, 2024 17:41:36 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Kineticor
Q3.	**First and Last Name**	Drew Surgeoner
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Overall, there are elements of REM that Kineticor could potentially support but design details are critical to secure this support, and REM is lacking these important details at this stage. That said, Kineticor could potentially support several elements pending details. 1. Kineticor believes that an increased price cap combined with negative pricing is required to encourage both imports and generation characteristics that will support decarbonization objectives and ensure reliability. 2. Kineticor can appreciate the desire for a Day-Ahead Market (DAM) given the increase in variable resources. However, support for DAM is contingent on a consistent pricing framework in both the Day Ahead Market and Real Time Market. In addition, if load participation is not mandatory then Kineticor believes that DAM needs virtual/financial transactions to ensure Day-Ahead operating conditions truly reflect Real Time conditions (convergence). The EWG Stakeholder presentation illustrates a timeline (slide 20) which indicates that generators will be required to submit 3 part offers “by noon Day-2”. Due to forecast errors associated with load and renewable generation combined with no active D-2 gas market Kineticor believes it is important to reduce this DAM timeline to no greater the D-1. Kineticor could support a Day-Ahead Market but a Two Day-Ahead Market will create more uncertainty for generators.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Kineticor agrees with the need to increase the price cap and can appreciate the desire to ensure that market power is not excessive. However, to severely limit the principles of the Energy Only Market at this juncture (i.e., at the top of the business cycle) by limiting economic withholding and the resulting dynamic efficiencies would be short sighted. Economic withholding plays an important role both in terms of signaling scarcity and smoothing out the bottom of a business cycle. Kineticor contends that a pricing framework overly dependent on administrative pricing will render the market more cyclical, negatively affecting investment decisions which will jeopardize reliability and affordability. Kineticor suggests that a revised version of the interim Market Power Mitigation regulations, coupled with negative pricing and a robust administrative scarcity pricing mechanism, has the potential to address market power concerns while restoring investor confidence. Kineticor endorses the principle and intent behind the interim Market Power regulations but argues that market power mitigation in REM should allow for a significantly higher return on investment than the interim regulations currently allow. The return on investment needs to be commensurate with the risk and unfortunately the Alberta power market is once again perceived to be a risky jurisdiction that is prone to uncertainty and interference. The REM pricing framework should focus on market efficiencies, restoring investor confidence and providing assurance that pricing mechanisms are free from interference. Affordability should be the by-product of an efficient, stable and competitive market, not an objective. Kineticor asserts that placing affordability before market efficiency and stability erodes investor confidence, which will ultimately undermine both reliability and affordability. 2. The AESO's ability to enter long term contracts and Strategic Reserves gives all investors cause for significant concern. Clearly defining parameters for which the AESO would resort to contracting will help minimize this concern, but unfortunately the concern will not be eliminated entirely unless these elements are removed. The lingering risk of long term contracts and Strategic Reserves is a serious threat to all investment decisions which is counterproductive with respect to the goals of reliability, affordability and decarbonization.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

#1 Pricing framework – The pricing framework which consists of Market Power mitigation, administrative pricing and negative pricing will determine the long run success of the REM. The pricing framework will drive all investment decisions and these investments are critical to achieving reliability, efficiency and decarbonization goals and as such this element should be prioritized accordingly. #2 Pricing framework – The AESO can postpone modifications with respect to most other elements of REM to later years and it will not materially impact investor confidence. Kineticor believes that the AESO should ensure the pricing framework element is addressed thoroughly and uncertainty regarding this element is removed from the market as quickly as possible. The interim regulations and introduction of REM has caused Kineticor to reevaluate all further investment decisions and it could be years before confidence in the Alberta power market is restored. #3 Pricing framework – Again, the other elements are important, but the long run success of REM will be determined by the pricing framework and resolving this issue is critical.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

The REM recommendation lacks critical details necessary for thorough comprehension.

Q10. **Any additional comments**

Kineticor understands the desire for Security Constrained Economic Dispatch (SCED) and Shorter Settlement intervals, but Kineticor believes both these elements would be costly for the industry and AESO to implement. As such, these elements should only be pursued following a cost-benefit analysis. Kineticor would like to emphasize a crucial point: high power prices during 2022 and 2023 was largely due to unforeseen market conditions. The HR Milner fire in the fall of 2022, AESO's unforeseen import capacity reduction in the first quarter of 2023, drought conditions across the Pacific Northwest, and delays to the Cascade Power Project, coupled with the highest natural gas prices of the decade and unprecedented strides in decarbonization, would have posed significant challenges to any market structure. Market power did indeed introduce inefficiencies in recent years; however, the presence of excess capacity, which arose precisely because these inefficiencies were allowed, ensured the markets ability to meet these unforeseen demands. The Energy Only Market functioned as intended. The Cascade Power Project, Suncor's cogeneration project and the Repowering of Genesee along with the forward market demonstrate that such market inefficiencies are transient, and the Energy Only Market is effectively yielding results.

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Responded At: Apr 30, 2024 15:25:29 pm
Last Seen: Apr 30, 2024 21:19:14 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Alberta Direct Connect Consumer Association (ADC)
Q3.	**First and Last Name**	Megan Gill
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

ADC supports several design elements proposed under the REM to enhance reliability and affordability in the transition towards net-zero by 2050. However, we have significant concerns about the extremely tight timelines set for designing and implementing these substantial changes. Considering that the Market Surveillance Administrator's (MSA) advice to the Minister recommended such a complex undertaking would require at least five years to fully develop and implement, it is unreasonable to assume that designing and implementing the proposed changes within two years will lead to a quality, sustainable market design and long-term affordability. We would like to understand to what extent a staged approach to developing and implementing the REM was considered to avoid unintended consequences of rushing the process. Moreover, the ambitious timelines could hinder meaningful stakeholder engagement, as there is insufficient time for stakeholders to thoroughly understand and evaluate the proposed mechanisms and their potential impacts. Meaningful consultation is necessary, and in our view, AESO needs to invest time in educating all interested parties, not just those within the Executive Working Groups, before initiating consultations. As a general comment, it would be helpful to understand what specific reliability attributes or affordability improvements each design element achieves to better understand the rationale. It would also be beneficial to clearly understand how each element of the proposed changes will enhance the role of Demand Response in achieving the objectives of affordability and reliability, and how the AESO will be considering the important role of Demand Response throughout its design and implementation phase of REM. Our comments in response to each of the questions below are based on our understanding at this stage and are subject to change with additional information provided. Day Ahead Market (DAM) ADC is generally supportive of moving to a DAM with the understanding that it is required to get the unit commitment needed to address specific reliability concerns. There are benefits of the DAM from our perspective as we understand it allows industrial consumers to better manage and predict their electricity costs, leading to more efficient operational planning and potentially cost reductions. It is our view that participation in the DAM should be optional for load customers, as proposed by AESO, to mitigate undue risk exposure for industrial consumers with respect to forecasting and complexities of market participation. The forecasting uncertainty error and its cost implications are important issues for further discussion. Cost allocation should be a high priority topic for discussion during the design phase, and there will need to be a high degree of transparency in how AESO administers the DAM and its forecasting. Market Clearing / Co-Optimization ADC supports enhancing market efficiency through the co-optimization of energy and ancillary services with the rationale that this method aligns the costs and dispatching of energy and ancillary services more effectively, promoting more precise and economically efficient operations within the grid. We are generally supportive of the adoption of advanced market mechanisms that ensure efficient grid operations, while minimizing complexity where possible. However, more information is needed to understand the expected costs of implementation and administration, along with the specific reliability and affordability benefits / expected value associated with this change. It will also be important that transparency is maintained and that changes to market clearing are easily understandable for all parties involved. Shorter Settlement ADC is highly supportive of the proposal for shorter settlement periods and the potential for negative pricing as it introduces enhanced price signals and encourages real-time market responsiveness and increased efficiency in the market. This is an important change for industrial consumers who can adjust their energy consumption in response to price signals, allowing them to minimize costs and benefit from lower or negative pricing periods. We support the transition to 15-minute settlement intervals, as all the necessary metering and data systems are already equipped for this change, ensuring a smooth and cost-effective implementation. While moving to 5-minute intervals could offer enhanced price signals, more efficient operations, and alignment with other markets, the potential benefits must be carefully weighed against the higher costs of implementation. A thorough analysis is needed to fully understand the trade-offs between 15-minute and 5-minute settlement intervals and ensure the best approach for Alberta. Market Power Mitigation ADC supports implementing market power mitigation measures within REM. We are highly supportive of initiatives that limit the undue influence of dominant market players. However, it will be important that the market power mitigation measures do not hinder investment and long-term affordability, and we have some concerns about the potential negative impacts that the proposed administrative pricing mechanisms introduces (see below).

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

While ADC supports many aspects of the proposed REM design, there are elements that raise concerns: Administrative Scarcity Pricing and Higher Price Cap We have concerns regarding the proposed administrative pricing element of the REM, primarily because it is unclear if the intended enhancement of affordability could be more effectively achieved through a market-based approach, driven by competitive forces rather than administrative pricing. Our concerns stem from the lack of clarity surrounding how the administrative pricing approach aligns with the stated objective of affordability, especially given the risks it poses to investment, and the long-term sustainability and affordability of the market. If administrative scarcity pricing and market power mitigation are implemented as proposed, it will need to be a key design element that needs focus during stakeholder engagement. It will be important to develop the pricing framework based on vetted analysis from Brattle / 'neutral' expert third party consultants to fully understand the expected impacts and to ensure that these measures do not deter investments or lead to unreasonable or excessive pricing. Additionally, there will need to be transparency in how scarcity pricing, market power mitigation, and market clearing mechanisms are implemented. Clear, understandable mechanisms are needed as complexities are added to the system. Overall, more clarity on how this design element aligns with AESO's approach to affordability, which we understand to be loosely defined as based on fostering as much competition as possible, is needed. In our view, the proposed administrative measures seem to conflict with this objective. Strategic Reserves ADC is seeking further clarification on the extent to which AESO has considered all viable options, including the integration of demand response, within its strategic reserves recommendation. Currently, the lack of detailed information regarding these alternatives makes it challenging for us to assess whether the proposed strategic reserves are the most cost-effective and beneficial solution for enhancing grid reliability in the interim. Although the AESO stated it was not looking for feedback on this item specifically, it is our view that more transparency and information of all potential solutions that were considered or included in this interim measure should be provided.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

• Day Ahead Market (see above) • Administrative Scarcity Pricing / Market Power Mitigation (see above) • Other: Ancillary Services, Cost Allocation (see below) It is ADC's view that discussions must include a thorough evaluation of whether new ancillary services products are necessary given the breadth of changes being proposed. We would like to better understand the reliability attributes that each design element aims to address and to explore how these might be effectively achieved through existing or new ancillary services. For example, we'd like to understand whether options such as voluntary curtailment contracts or emergency response services could offer a more cost-effective solution compared to other proposed design elements. This more comprehensive, holistic approach would ensure that we identify and implement the most economically efficient solutions. Cost allocation should be a central topic of the design and implementation discussions. Determining how costs will be distributed among different market participants is important for ensuring fairness and transparency in the new market structure.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

While I personally - as a participant of the latest EWG sessions - have a foundational understanding of the proposed Restructured Energy Market (REM), more education/information is required for ADC members and several key aspects require further clarification. Cost Implications I don't have any understanding of the anticipated costs associated with the REM implementation. This includes billing impacts to consumers, overall implementation and operational costs, and the pricing impact in the market. Participation for Loads I don't have clarity on how industrial loads are expected to participate in the REM. This includes the specific roles and responsibilities assigned to load participants, the mechanisms through which they are obligated (or not) to interact with the market, and any new system requirements or compliance risk that it might introduce. It helpful to more clearly understand how each element of the proposed changes will enhance the role of demand response in achieving the objectives of affordability and reliability, and how the AESO will be considering and integrating demand response mechanisms throughout its design and implementation of REM. Impact on Investments I am unclear on how the REM is expected to impact investment across various aspects of the energy market, including supply, demand, and grid infrastructure. Overall Market Dynamics It is not clear how the REM will change the overall market dynamics. More details on how each design element will enhance the overall efficiency, reliability, and decarbonization of the electricity market in Alberta would be helpful. Education Initiatives In general, it will be important for the AESO to ensure that all stakeholders understand what the changes will mean for different market participants and consumers. While many generators might have experience with day ahead markets from other jurisdictions, ADC would like to see more education provided to loads / consumer groups to ensure broad understanding of the new market structures and to help them in effectively responding to the changes. For example, with the introduction of a day a head market in addition to the real time market, how will this price translate for load consumers and how will it change billing and settlement for loads? In addition, given the increased complexity and participation required from loads with the proposed changes, it will be important for the AESO to provide education on the system interfaces and dispatching requirements throughout the design and implementation of REM. We recommend that AESO establish regularly scheduled workshops and forums as a dedicated platform for direct engagement with highly impacted stakeholders. These sessions should be designed to share expertise from other jurisdictions, provide insight into how it will work in Alberta, foster discussions on implementation, and clarify the more complex aspects of the REM.

Q10. **Any additional comments**

Clarification on how AESO defines and measures each of its stated objectives, including 'affordability' and 'lowest cost,' would be beneficial. While we recognize that these terms are challenging to define, without a clear understanding of the targets associated with these objectives, there is a significant risk that we may not achieve them—or we will have no way of knowing when we are off track. Therefore, more detailed information is required to ensure that we are effectively working towards these common goals. With respect to the ongoing transmission policy discussions, it is imperative that we have clarity on the congestion policy and cost allocation framework before we can effectively proceed with REM design and implementation discussions. Several proposed changes present significant complexity and high-cost implications. These complexities may pose considerable challenges for industrial consumers, particularly if the administrative burden and costs are high. This should be a primary consideration throughout the design and implementation of REM.

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Responded At: Apr 30, 2024 15:56:33 pm
Last Seen: Apr 30, 2024 21:41:21 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	ATCO EnPower (ATCO Renewables Ltd.)
Q3.	**First and Last Name**	Jennifer Rumas
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

There is insufficient design detail or information to suggest how any of the proposed REM design elements could support the desired objectives. However, the REM results in far greater market change than proposed by many generators during the fall 2023 executive working group sprints and than ATCO EnPower believes is required to achieve the optimal outcome for the desired objectives. To date, the elements proposed in the REM move Alberta away from a competitive energy market and its benefits, and toward an administratively controlled market, counter to the long-term interests of Albertans and overcorrecting for short-term market power and impacts from the rapid growth of renewables. The REM design and recommendation suggest to investors and potential investors that investment in Alberta's electricity market will have limited and price-controlled upside, uncapped downside, and the ongoing risk of interference with market, price and investment signals. These undermine investor confidence and without the ability to attract new investment in firm and dispatchable technologies, the proposed REM will be limited in any potential benefits for reliability, affordability, decarbonization or reasonable implementation in the medium and longer terms.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

There is insufficient design information or detail to describe the extent of concern with how the proposed REM design elements may impact the desired objectives. That said, without new investment sufficiently signaled by a functioning competitive market, there remains major concern with meeting any of the desired objectives. Both the large scope being proposed and the combination of elements creating the proposed pricing framework are significant concerns for the ability to meet the desired objectives. Regarding reasonable implementation, the magnitude of the REM's scope and its need to be considered as a package should negatively impact the ability to meet this objective. Combined with the highly compressed schedule, the ability to design a successful market structure may be limited. Further, what may work in various other markets should not be pieced together and packaged for Alberta's market enhancements. Most importantly, such a major restructuring will take at least three years to implement and investment in any new market will be delayed several additional years as investors evaluate the market's ability to function as required. At best, a five-year period before any meaningful investment decision in new firm or dispatchable generation is made will be too late to achieve the remaining objectives. Regarding affordability, while ATCO EnPower is in favour of improved market efficiency, a focus purely on affordability and away from market efficiency will ultimately create long-term reliability issues through a lack of investor confidence and insufficient price signals for new investment. The competitive electricity market in Alberta has long demonstrated that the required investment signal for additional capacity has resulted in supply adequacy and lower energy pricing. The cost of implementation of many new elements has also not been considered. Given the goal of affordability, a cost-benefit analysis may be warranted to ensure implementation costs of many design elements do not exacerbate affordability concerns. Further, the new interim market power mitigation measures are not a major concern in the short-term because prices are expected to be low for the coming years as the market cycle progresses. There is insufficient detail on the new proposed pricing framework yet sufficient concern that the new pricing framework will fail to attract new investment due to controlled scarcity pricing, limitations on needed and acceptable economic withholding, and the unmitigated downside risk being introduced into the market. Affordability objectives will be impacted in the long-term if there is a lack of visible price signal for new investment. Regarding reliability, the most effective tool for reliability will be the ability to attract new investment in firm and dispatchable generation in the medium and long terms. The proposed REM itself, with its administrative limits on upsides and unmitigated downside risk, as well as the time it will take to complete and then subsequently attract investment – if it does at all – may be most harmful to meeting reliability objectives. The continued risk of out of market contracts will also continue to negatively impact reliability in the long term. Further, a mandatory day ahead market leaves many generators concerned about being forced to offer into the DAM and then have offer restrictions imposed on them, removing or severely limiting their upside potential in tight supply and their exposure to scarcity pricing if the proposed operating reserve demand curve is not utilized in both the DAM and real time market. Should a DAM be ultimately implemented, it must ensure fidelity of the price signal. The competitive market benefits of a DAM would be best achieved if the DAM is voluntary and if the same pricing mechanisms exist in both the DAM and real time market. Regarding decarbonization, there are several competing interests which will be difficult to optimize. However careful consideration for access to other markets will need to be made when designing the REM. The ability to access other markets if price signals are not sufficient in Alberta, ensuring the REM design enables participation from Alberta generators in other markets (i.e., through exports) and efficiently incorporating imports into considerations within each workstream can support each of decarbonization, reliability and affordability. An effective scarcity pricing curve to account for the cost of dispatchable and firm generation (with increasing carbon pricing and the cost of new clean generation technologies) will be critical, as will the ability to attract additional gas generation into Alberta's generation mix as the energy transition progresses and until affordable alternatives are available at prices that can be withstood by consumers.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

The pricing framework will be the most important design component to maintain a competitive market, which we believe will result in most success for affordability, reliability and decarbonization into the future. Investor confidence relies on the belief that generators will realize a return on and of their investment and this requires exposure to price signals which are free from administrative or political interference. Even the perception of this interference will limit the investor confidence needed to enable ongoing investment. Elements within the pricing framework that will require the most focus during stakeholder engagement are: - Market Power Mitigation: the presence or even perception of the presence of a limit on investor upside with no concurrent limit on downside risk (and arguably increased downside risk) may be the single largest deterrent on any new investment in Alberta's electricity market. Improvement (through a higher secondary offer price cap) and extension of the Interim Market Power Mitigation rules should be considered in lieu of restructuring the entire electricity market. - Scarcity Pricing: Alberta's price cap has not changed since market deregulation over twenty-five years ago. Scarcity pricing will be fundamental to attracting new generation, particularly decarbonized generation, as well as providing confidence in returns for investors who expect to face increased price volatility. - Negative Pricing: if implemented, this market feature will have a significant impact on a variety of existing and new generation types, as well as create significant risk to the billions of dollars under contract in power purchase agreements and associated long term financing agreements already in place. This element warrants additional focus to ensure it is effectively designed within the context of the broader market changes. The new pricing framework, specifically the market power mitigation and administrative scarcity pricing features, are of largest concern to generators and potential investors. The administrative nature of the scarcity pricing framework, as well as the ability for non-market interference in that framework, and how this scarcity pricing ultimately interacts with the market power mitigation framework will be a key determining factor in whether the market redesign will be successful. The consequences for Alberta's electricity system from the asymmetric risk of insufficiently attracting new investment through a poorly designed pricing framework or over-mitigation of economic withholding, as compared to the alternative of attracting too much investment need to be well understood in designing the ultimate pricing framework. An effective and sufficient investment signal will be required for Alberta's competitive electricity market to function, including to attract new investment for ongoing reliability and provide the least cost power to consumers. The remaining elements proposed will not be relevant if the pricing framework is not effectively designed.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

As proposed, there is insufficient detail to determine how the REM will ultimately work in Alberta, however given the details provided to-date, how the various design elements are intended to function, and their interrelation with each other in a packaged design as proposed, we believe that the REM is an overcorrection and should be expected to negatively impact each of the desired objectives of the market review.

Q10. **Any additional comments**

ATCO EnPower supports enhancements to the energy-only market to mitigate the excessive use of market power and the effects of the rapid growth in renewable energy on the electricity system. However, in the last 5 years, when left to competitive market forces, Alberta's electricity market worked as intended and attracted over 2400 MW of new gas generation bringing the market cycle into a deep trough which was going to result in more affordable and more reliable power for Albertans into the next few years. At the same time, the new renewable generation that has entered the market has supported decarbonization. Suggesting that the market requires a major restructuring, particularly one that will result in the outcomes it is intending to prevent, is a major overcorrection for both the limited excessive market power exercised in a period between periods of very low relative power prices and the otherwise manageable impacts of the rapid growth in variable generation. This overcorrection can be expected to negatively impact each of the objectives of the market review, resulting in a longer than needed or otherwise hurried redesign period and a new market that will require years to see working before new investments are made, if they are. As proposed, the REM is negatively impacting investor confidence in Alberta's market and, given the combination of design elements being proposed, may provide inadequate price signals to attract new investment which will ultimately impact reliability and affordability in the longer-term. The continued threat of out of market contracts and of market interference and intervention will equally impede the ability to attract new investment. ATCO EnPower suggests that the desired objectives would be best achieved through improvement and extension of the interim market power mitigation rules, combined with enhancements to the energy-only market for reliability and to sufficiently attract long term investment, in lieu of the complex and unnecessary elements of the proposed REM. This would include a higher price cap combined with a less restrictive secondary offer cap to mitigate market power, continued use of the supply cushion regulations modified for appropriate price reconstitution, and the appropriate application of negative pricing for a market Alberta's size. Focusing the redesign and engagement on these elements would result in the optimal outcome for the combination of desired objectives.

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Responded At: Apr 30, 2024 16:09:28 pm
Last Seen: Apr 30, 2024 22:05:26 pm

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** Renewables and Energy Storage
Q2.	**Name of Organization**	Canadian Renewable Energy Association
Q3.	**First and Last Name**	Evan Wilson
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

- At this point, stakeholders do not have enough information to make a judgement regarding the possible impacts of the Design Elements. - Without additional information on transmission policy and cost allocation, it is not possible to evaluate the AESO's proposal. We recognize that the AESO is aware of this. The stakeholder engagement plan should include a re-examination of all REM Design Elements when transmission policy is reasonably certain. - During the CEO breakfast, the AESO committed to ensuring development of a market design where generators of all types should be able to earn a sufficient rate of return. Renewable energy and energy storage will be fundamental generation technologies in terms of the focus on Affordability and Decarbonization, and every measure should be taken to permit wind, solar and energy storage to earn these returns. As a result, the REM Design Elements must consider that the continuing viability of corporate PPAs are vital to renewable energy investment, and a reduction of market barriers and stackable revenue proposition are vital to energy storage.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

- As stated in our response to question 5, measures should be taken to ensure that corporate PPAs continue to be viable in Alberta. - CanREA also has concerns regarding the Reasonable Implementation of these market reforms. There are a lot of other choices that can be made to achieve reliability and market objectives without taking a heavy hand, without implementation of the suite of REM recommendations. - Not only are the timelines ambitious for such a significant list of reforms, but there are concerns that there may be some unintended consequences that have gone under-explored in the REM position paper. For instance, implementation of Security Constrained Economic Dispatch (SCED) typically requires a nodal pricing system. This pricing system is not contemplated by any of the documents to date. Understanding that the AESO is leaning towards uniform pricing, rather than nodal pricing, we are concerned that this introduces a disconnect. Further information is required regarding any price settlement methodology under consideration. - The AESO has posted a Request for Statement of Interest (RFI) seeking support for the introduction of "new tools that will be needed to implement the market design changes we are discussing." It would be very useful to understand what options are available, so that we do not design a market that "off the shelf" products cannot serve. - We would recommend that the AESO consider "right sizing" this initiative. If the AESO wants unit commitment, it would be helpful to understand why the AESO does not look at simply buying unit commitment and the reliability products required to run a reliable electricity system. - There are no initiatives in the REM Recommendation aimed at Decarbonization. The AESO has stated that it is relying on the carbon price, which is not a Design Element. We are seeking a more robust conversation regarding the AESO's considerations of Decarbonization.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

- Day Ahead Market (DAM): CanREA member concerns include mandatory nature of market for generation/voluntary for load (which Brattle explicitly stated is not optimal), and day ahead to real time risk. - Negative pricing and price formation: Several generators in the EWG expressed concerns that the proposed pricing mechanism with market power mitigation and administered scarcity pricing (ORDC) is un-investable, while others expressed concerns that an ORDC is not politically palatable. This is very concerning, and there needs to be some analysis (possibly conducted by Brattle) to respond to these concerns. - Transmission: Beyond specific REM Design Elements, we note that it is not possible for market participants to evaluate any of these Elements without understanding the transmission policy, which we understand will be updated during this consultation process. Many market participants are already seeing high costs associated with congestion.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

- To be clear, our choice of “neutral” relates to how the proposed Design Elements will work in Alberta, not how these elements of market design work elsewhere. - Stakeholders do not have enough information about the REM. There are still significant questions to be resolved, including voluntary/mandatory nature of the market, nodal pricing/locational marginal pricing (LMP) versus uniform pricing, treatment of virtual participants, whether an ORDC is politically palatable, what the ORDC will look like, etc. - We would like additional clarification on the implementation of the following issues: o Day Ahead Market calculations and reliability calculations o Calculation of uniform pricing in a system with SCED o Approach to be taken to evaluate the Reliability Unit Commitment to meet resource adequacy and operational needs o Measures to be taken to integrate scheduling and pricing across 3 time-frames, including DAM, Real Time, and between DAM and Real Time - It would be helpful if the AESO developed a “day in the life” for different types of market participants (solar, wind, energy storage, hybrid facilities, consumers… etc).

Q10. **Any additional comments**

- Following the completion of the EWG’s work in 2023, CanREA co-signed two letters with several other EWG members recommending enhancements to Alberta’s energy only market. During discussion of this REM design, the AESO has mentioned several times that the proposed approach aligns with feedback from the EWG. However, we would emphasize that our recommendation for an enhanced energy only market did not contemplate changes of this scale and our letter should not be seen as endorsement of this approach. - We request that the AESO release a “strawdog” of the full market design proposal for further industry consideration and comment. - We would also request that the AESO provide any modelling it has prepared to demonstrate that the REM, when implemented, would achieve the stated objectives of Reliability, Affordability and Decarbonization by 2050.

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Responded At: Apr 30, 2024 16:12:06 pm
Last Seen: Apr 30, 2024 21:32:16 pm

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	TC Energy
Q3.	**First and Last Name**	Joanne Tatham
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

TC Energy would like to reiterate our alignment with the recommendations made by the EWG. As outlined in the EWG letter to the AESO regarding the 'Summary of Executive Working Group Views as Part of the AESO's Market Pathways Engagement", dated November 28th, 2023, we believe that targeted enhancements to the energy-only market design would be sufficient to achieve the AESO's objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation. These enhancements include empowering the AESO with mandates to: - Procure services that ensure the attributes necessary to operate reliably are available, - Investigate, review, and implement if warranted, improvements to market dispatch, - Evaluate changes to settlement intervals encourage flexible load and generation resources, - Consider methods to further encourage active participation of customers in the wholesale market, - Address congestion management challenges resulting from constraints on the grid, and - Optimize energy and ancillary services markets while ensuring price fidelity. We believe that an enhanced market framework will continue to drive decarbonization, and enhancements to the existing market would be preferred over the proposed redesign to provide the foundation for investment certainty. Notwithstanding the above overarching position, our response to this survey question is as follows: The REM recommendation represents a significant change in the Alberta market structure, and while the overarching features being considered are understood, it is not possible to provide support or rejection of the elements before detailed design information is available for consideration. If properly designed, we feel that the following elements of the REM Recommendation could be beneficial to meeting the stated objectives of the AESO: - A day ahead market would support the objective of reliability by achieving certainty on unit commitment. This approach should also reduce price volatility, supporting the objective of affordability. Design elements that will influence whether these outcomes are considered beneficial include how the implementation of a mandatory day-ahead market in tandem with scarcity pricing as proposed by the AESO will create the desired investment signals. The design must be flexible enough to continue to incent participation by all generation types, including cogeneration, storage, and renewable energy projects. - The security constrained economic dispatch (SCED) system is a tool that efficiently optimizes the system and should be implemented in tandem with the day-ahead market to ensure optimal results. The SCED design should consider the value of flexibility in dispatch decisions to ensure that the appropriate market signals are created. The design should also contemplate how assets with multiple operating modes (e.g. cogeneration) will be dispatched most effectively. As previously mentioned, a better understanding of the detailed design of the market is needed to evaluate its merits and ensure there are no unintended consequences in its implementation.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

TC Energy is of the view that the detailed design of market power mitigation and the level of mitigation applied are critical to the success of the REM. A properly designed operating reserve demand curve (ORDC) can provide a positive investment signal if the design takes into account the frequency of scarcity and the level of cap without over or under valuing scarcity in a material way. In a mandatory day-ahead market, the ORDC adder should be applied to the day-ahead market to provide sufficient investment signal to dispatchable assets and is crucial in the real-time market to highlight the scarcity supply. Periodic reviews of the ORDC should be done to evaluate whether it appropriately calibrated to incent investment, and minor adjustments made as necessary. The AESO has indicated that they intend to develop an adjustment to the ORDC if prices are too high. The timeframe at which the AESO considers appropriate for revenue generation/ recovery must be sufficiently long to reflect business cycles, otherwise, there is a risk of impacting investment signals. In addition to the above, the implementation of the suite of changes described within the AESO recommendation in the timeframes provided will be challenging and may hinder the objective of reasonable implementation.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

1. Market Power Mitigation and Scarcity Pricing As detailed in the responses above, the detailed design of market power mitigation and the level of mitigation applied are critical to the success of the REM. A properly designed operating reserve demand curve (ORDC) can provide a positive investment signal if the design takes into account the frequency of scarcity and the level of cap without over or under valuing scarcity in a material way. In a mandatory day-ahead market, the ORDC adder should be applied to the day-ahead market to provide sufficient investment signal to dispatchable assets and is crucial in the real-time market to highlight the scarcity supply. 2. Day Ahead Market and SCED As detailed in the response above, a properly designed day-ahead market is needed to incent future investment. The design of the AESO's proposed mandatory day-ahead market in tandem with scarcity pricing requires detailed review to ensure it achieves the desired investment signals. The design must be flexible enough to continue to incent participation by all generation types, including cogeneration, storage, and renewable energy projects. The security constrained economic dispatch (SCED) system is a tool that efficiently optimizes the system and should be implemented in tandem with the day-ahead market to ensure optimal results. The SCED design should consider the value of flexibility in dispatch decisions to ensure that the appropriate market signals are created. The design should also contemplate how assets with multiple operating modes (e.g. cogeneration) will be dispatched most effectively.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

We have a reasonable understanding of the elements of the REM that are being proposed, however, without the details of how each feature will be implemented, it is not possible to have a good understanding of how the market will work in Alberta.

Q10. **Any additional comments**

We recommend that the AESO commence engagement on detailed design as soon as possible and allow market participants to participate in the short listing of options to consider for the market design. Market participants are best positioned to evaluate the impacts and whether the choices presented will continue to incent investment in reliable, decarbonized generation in Alberta. We recommend that the engagement sessions to be structured such that the AESO provides participants with pre-read and targeted objectives of each work group session a minimum of one week in advance so market participants come prepared to have informed discussions on the potential design options, and the discussions can be focused on those specific issues. This will allow a more efficient dialogue needed to achieve the objectives of each session.

Respondent No: 28
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Responded At: Apr 30, 2024 16:22:35 pm
Last Seen: Apr 30, 2024 21:26:53 pm

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Utilities Consumer Advocate
Q3.	**First and Last Name**	Chris Hunt
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

All five proposed market design changes should have beneficial impacts to meeting desired objectives. The Day-Ahead Market is likely the most foundational change by providing a mechanism that provides more certainty and to generators and load regarding prices for the majority of load volume. That increased certainty should help mitigate price volatility that then impacts a majority of customers in the majority of conditions. The other design changes also provide a price framework for the real-time market that addresses the need to provide robust price signals to more flexible generation and demand-response assets in times of supply scarcity and allows them to recovery their costs. As discussed, there are many details to work through with the proposed Restructured Energy Market, particularly how it will be aligned with proposed changes to transmission policy that are concurrently under development.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The administrative scarcity pricing with higher price cap may be a challenging topic with the broader public. It will be important to develop an approach that provides better transparency through the administrative scarcity pricing that reasonably offsets any higher price cap.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Market clearing (co-optimization of day-ahead and real-time markets) will require significant effort particularly to integrate in any changes to transmission policy. The comment, "Tools make Rules" was offered by participants that emphasizes information management tools used to administer market will be incredibly important. As mentioned previously, the day-ahead market is foundational to the overall design of the restructured energy markets and should be developed in a way that encourages maximum participation of generation that can meet its obligations. Finally, setting administrative scarcity pricing that provides predictable clear price signals will also allow both generators and load to make rational choices in periods of supply scarcity.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

N/A

Q10. **Any additional comments**

not answered

Respondent No: 29
Login: EPCOR-Amanda-Rosychuk
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Responded At: Apr 30, 2024 16:25:48 pm
Last Seen: Apr 30, 2024 02:52:27 am

Q1.	**Please indicate which category your organization predominantly represents**	DFO / TFO
Q2.	**Name of Organization**	EPCOR
Q3.	**First and Last Name**	Amanda Rosychuk
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As discussed at the kick-off meeting, clarity around market power mitigation and administrative scarcity pricing with an increased price cap will be important to ensure a market that continues to be investable. It will also be important to understand how the mechanics of the market will work, which will require an understanding of the day ahead market and how market clearing will operate including SCED/SCUC and co-optimization. Each of those components need to work in harmony within the redesigned market and should be considered together as one package. It is also important to consider the interdependence of industry changes outside of the REM Design. Regulated retailers in the province are now required to provide a fixed price for the Rate of Last Resort for a two-year period, with limitations on how much the price can change at the end of that period. An understanding of how the market will work will be imperative for regulated retailers if they are to fulfill that requirement. Although not driven by changes in regulation, clarity on the mechanics of the market will also be necessary for competitive retailers to continue to operate. This interdependency points to the need to design the mechanics, including market power mitigation, scarcity pricing, the day ahead market, and market clearing as a priority and as a package.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Shorter settlement periods will allow market participants to respond more quickly to real-time market conditions and would provide benefits for importing and exporting to/from other jurisdictions, this aspect must be carefully considered as it may jeopardize the “Reasonable Implementation” objective. This change may require changes to metering, communication systems, and IT systems (both software and hardware as it relates to data storage). These investments may also impact affordability if they are funded through rates, although there may be a role for grant funding to reduce the financial impact to utility customers. It will also be important to assess the benefits of such a change compared to the cost of implementing it. The challenges will be greater if shorter settlement periods are applied to all load, and if the settlement period is reduced to 5 minutes. EPCOR has AMI meters for all customer classes, but currently utilizes 15 minute data. A change to 5 minute intervals can be supported by the meters, but in addition to some work with Measurement Canada, this change would require upgrades to the communication system and multiple IT systems including the meter data management system and the settlement system. Many DFOs in the province do not have the metering infrastructure to support interval metering at all and will require some time to implement any metering changes required.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Market power mitigation and scarcity pricing should be combined into one design stream, resulting in three streams that cover: 1) market power mitigation and scarcity pricing, 2) day ahead market, and 3) market clearing. If time and resources permit, a shorter settlement period should also be addressed with as much advance notice as possible to market participants who may need to adapt their metering, communication, and/or IT systems to the new market design.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

I did not answer neutral, disagree or strongly disagree because I have read the report and attended the kick-off meeting, which provided good additional detail. That being said, I'm not sure that any participants really understand how the market will work until additional details are provided for each area under consideration. For example, in the kick-off meeting it was discussed that the day ahead market will have mandatory participation for generators, and it is currently contemplated that load will have voluntary participation. Voluntary participation for load has not yet been confirmed, and details around what voluntary participation looks like have not yet been developed. Until the details are further developed it is difficult to understand how the market will really operate.

Q10. **Any additional comments**

The effectiveness of this market design could vary significantly depending on the details that are not yet developed. While the timeline is tight, the stakes are high, and it is important to get this right. It is imperative that engagement with industry be thorough and cover all aspects of the design. Given the complexity of the market it is likely that market participants will see unintended consequences of decisions, or ways in which a decision on one stream will impact another stream, that are not obvious to everyone in the process. This market design this may require multiple rounds of information for review which will be challenging within the timeframe but are crucial to a successful market design. If it is not possible to have a thorough process within the current timeline then EPCOR would support taking longer to achieve the right end result.

Respondent No: 30
Login: BRC-Jorden-Dye
Email: jordend@businessrenewables.ca

Responded At: Apr 30, 2024 16:45:26 pm
Last Seen: Apr 30, 2024 21:43:21 pm

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	Business Renewables Centre-Canada
Q3.	**First and Last Name**	Jorden Dye
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

This question is difficult to answer with specificity, as the “REM Recommendation” is imprecisely defined. For reasons explained further in response to Questions #7 and #9, the January 31 REM Recommendation report currently contains contradictions. There are two places in the documentation that lay out a clear, concise list of market design changes that could be referred to as the “Design Elements,” but they are not the same: 1) the 12 “High Level REM Design Recommendations” listed in Table 4 (p. 27) of the January 31 REM Recommendation report, corresponding to sections 6.1.1 through 6.2.2 of the report (pp. 28-33); and 2) the five “main market design changes” listed on slide 16 of the April 22-23 EWG slide deck. Unfortunately, this survey does not specify the list to which it is referring. Among the comprehensive list of high-level design recommendations in Table 4 of the REM Recommendation report, only the first four items have enough precision to enable a specific rationale for an assessment of their impact on the “REM Objectives.” Each of these four items, if designed well, can be beneficial to meeting the objectives. Near-term resolution of tight supply on the system owing to new generation additions affords the opportunity to implement these short-term measures and observe their impact as an “enhanced energy-only market.” This should be undertaken before entering the electricity system into a restructuring that may harm investor expectations in the market. “Medium-term” measures that have the potential, depending on design details that have yet to be communicated publicly, to prove beneficial for meeting the objectives include items #5 (co-optimizing dispatch of energy and ancillary services) and part of #6 (shortening settlement intervals). These could be enabled through legislative and regulatory changes by this fall and feasibly implemented more quickly than the other more interventionist medium-term items.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Decarbonization by 2050 cannot be accomplished affordably without considerable new wind and solar investment. Every modelling exercise of which we are aware confirms that the lowest-cost and market-oriented outcomes for net-zero in Alberta, regardless of the timeline, include new wind and solar capacity additions that will be measured in multiple gigawatts (GWs) for each technology, particularly wind. This aligns with the experience of other similar jurisdictions. In Alberta's market, investment on this scale for these technologies has only been possible through corporate offtake agreements. Corporate and institutional buyers, such as businesses, public institutions and municipalities, can purchase energy directly from generators. The ability for load to forward contract for energy from specific generators has been part of the energy-only market design from its start and has been exercised by a variety of consumers with a variety of generation sources. PPAs are widely used for market-driven energy procurement because they provide assurance of funding for developers, help buyers with energy price volatility and exposure to the rising carbon pricing embedded in grid electricity and, in the case of PPAs for low- or non-emitting energy, help them meet their emission targets or obligations. For this reason, private sector actors have recently chosen to contract more with renewable energy. This market consumer choice to assume some of the merchant risk has been essential for investment in new lowest-cost non-emitting generation supply globally, where PPAs have contracted for 148 GW of renewable energy since 2008, and, in particular, in Alberta, where the vast majority of new wind and solar built since 2019 has been enabled by this type of agreement. Therefore, the stated objectives, particularly affordability and decarbonization by 2050, can only be attained if Alberta's electricity market framework continues to foster active corporate offtake agreements for the lowest-cost non-emitting generation available. Several of the REM Recommendation "Design Elements" threaten to interfere with that market choice and, if improperly designed, could inhibit it so detrimentally as to render an affordable 2050 decarbonization impossible. Negative pricing (part of item #6) could seriously undermine investor expectations and create legal challenges for existing and future PPAs, if not set properly. The day-ahead market (item #7) could create insurmountable risks for PPAs and preclude consumer choice in effect. Designs that create risks of curtailment or penalties that the generators cannot manage within reasonable bands could be fatal to the corporate offtaker PPA market. For instance, if discrepancy in day-ahead and real-time markets are not resolved administratively to ensure the lowest-cost supply is dispatched, the risk of penalties for forecast errors could cause generators to discount their day-ahead forecast, leaving some proportion of real-time supply to the whims of a small set of competitors with market power (supply is sufficiently uncompetitive that other regulatory regimes with market instruments, such as NOx and SO2 credits, have proven to be illiquid, resulting in inefficient market outcomes). Security Constrained Economic Dispatch (item #9) is complex and too little information has been shared about this approach to assess the risks it may pose. Again, however, along with the administrative scarcity pricing curve (items #10 and #11), these create additional complexity and additional administrative intervention in the market.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Taking only the list of five "main market design changes" from the EWG stakeholder deck (which aligns to some extent with the list of medium-term high-level REM design recommendations in Table 4 of the REM Recommendation report, but without the transmission policy changes), the top three are: day-ahead market (DAM); security-constrained economic dispatch (SCED); and negative prices. For reasons described in response to question #6, these are the three elements that create the greatest risk for existing and future PPAs, adding to the opportunity for non-market government interference in the market, and undermining investor confidence. These require the most focus during stakeholder engagement. However, two additional items in Table 4 of the REM Recommendation report deserve at least as much attention: transmission policy; and the long-term potential for long-term contracts or government ownership. Transmission policy reforms (item #8) carry at least as much risk across a broader array of potentially detrimental policy changes. For example, locational marginal pricing (LMP) would create more complex and interventionist involvement in determining revenues, undermining PPAs' reliance on a market-directed price against which to contract, and creating basis risk that may be too difficult to apportion in PPAs. We understand that the AESO has indicated that transmission policy reform is now out-of-scope for its REM consultation, as it is a policy decision for the government to make. Given the importance of transmission policy, its potentially detrimental impact on PPAs and consumer choices, and its inseparable entanglement with market framework design, it is difficult to proceed with market design consultation without discussing transmission policy further. If transmission policy reform remains on the table, good electricity framework outcomes require fulsome, comprehensive consultation that includes the electricity system framework policy elements that the AESO has apparently scoped out as "transmission policy." Indeed, among the 12 items in the REM Recommendations report Table 4, transmission policy arguably has the strongest potential negative impact on the system's ability to achieve the stated market objectives.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

BRC-Canada has a very strong understanding of the existing energy market in Alberta and the use of the PPA mechanism by private actors in that market. We also have access to world-class insight around private-sector PPAs in other market designs through our affiliation with the U.S.-based Clean Energy Buyers Alliance. However, the REM recommendation and subsequent materials are far from clear. For example, the term "SCUC" was used in the EWG slide deck (alongside "SCED") without definition and without any prior reference to that term. The REM Recommendation report refers to the DAM as "mandatory" and specifies that "all generation types would offer their expected available generation in the [DAM]", but then speaks to "other incentives" to "encourage additional participation." Has it already been decided that the DAM will be mandatory — or will there only be incentives to encourage participation? To continue on a central theme of our answer to Question #7, a key part of our confusion around the REM relates to the decision to remove some elements of the REM recommendation from the scope of this engagement: transmission policy and long-term contracting. As noted in our answer to question #7, the other REM recommendations cannot be assessed without understanding what transmission policy reforms will be undertaken. As one example, assessing the implications of the DAM design without knowing whether LMP will be instituted is not possible.

Q10. **Any additional comments**

BRC-Canada is concerned that the REM could be designed to support specific generation types that are not, in fact, beneficial for meeting the stated objectives. The REM Recommendation report recommended measures on the basis of providing “incentives for investments in dispatchable technologies.” Market changes that are focused on securing sufficient supply by, in part, ensuring fixed-cost recovery for long-lead time energy (LLTE) assets could be beneficial to reliability by ensuring that LLTE assets are available during supply constraints. However, to the extent that those market changes, particularly the day-ahead market, also provide a better investment signal for LLTE, the changes will undermine the attainment of a reliable, affordable and decarbonized grid. As noted in response to question #5, any scenario for affordable decarbonized electricity supply in Alberta will have a much higher penetration of variable renewable energy. What is precisely needed to ensure reliability in those affordable decarbonized scenarios is not dispatchability per se, but flexibility. A day-ahead market can make sense for improving reliability in the near-term by improving the availability of existing LLTE assets — making better use of what is already on the grid. But over the long-term, the investment that is needed is in more flexibility, and policy should avoid greater reliance on LLTE assets, which do not provide the flexible attributes the affordable decarbonized grid will need. In other words, LLTE are only “dispatchable” with a good deal of effort and special consideration in the market. It’s lack of flexibility is not contributing to the grid in the now inevitable high-variable-renewables scenario future. There is no reason to favour these generation types, particularly when there are new generation options available that are truly dispatchable and flexible and offer grid services that thermal generators do not. Other forms of dispatchable generation, particularly energy storage, see improved economics when the spread between low- and high-price hours increases. In other words, $0/MWh moments create additional arbitrage opportunity for energy storage. Moreover, unlike some thermal generation, storage is not only easily and instantly dispatched down during $0/MWh moments, but it additionally improves system performance and mitigates volatility by absorbing excess supply in these same moments. In that sense, it has stronger and more valuable “dispatchability” and “flexibility” than thermal generation. The existing energy-only market (with enhancements, such as stronger ancillary services and shortened settlement intervals) could provide the investment signal necessary for truly dispatchable technologies that will serve the grid objectives. Any market changes geared, instead, specifically toward LLTE assets and that, intentionally or accidentally, strengthen investment signals for LLTE could end up exacerbating reliability challenges. BRC-Canada recommends that before undertaking any market changes that might particularly be geared toward supporting the economics of LLTE, immediate action be taken to enable flexible resources. A suite of immediate policy initiatives should be on the table to achieve this outcome — including, but not limited to, actions that have been recommended, but unimplemented, since 2019 with the AESO’s Storage Roadmap. Only then should comprehensive market restructuring be considered.

Respondent No: 31
Login: ENMAX-Rose-Ferrer
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Responded At: Apr 30, 2024 16:50:49 pm
Last Seen: Apr 30, 2024 22:36:21 pm

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** ENMAX operates in Alberta focusing on two core business segments: ENMAX Power and ENMAX Energy. These operations cover all the categories listed above. ENMAX Power owns and operates electricity transmission and distribution assets within the Calgary service area. ENMAX Energy serves as ENMAX's competitive generation and retail business managing thermal and renewable generation fleets, load, and retail portfolios. ENMAX Energy is also active in the storage space.
Q2.	**Name of Organization**	ENMAX Corporation
Q3.	**First and Last Name**	Chris Joy and Erica Young
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

At this point, the AESO has not provided enough detail on the technical aspects of the REM design elements for ENMAX to determine whether these will meet the desired objectives listed above. As a first step, the AESO must present straw market models to allow stakeholders to assess the interdependencies of the proposed elements and the impacts they may have to the objectives, including possible tradeoffs. For instance, meeting design objectives of affordability and decarbonization by dispatching off thermal assets may conflict with the objective of reliability. In theory, having a day ahead market (DAM) may provide an opportunity to stabilize the market and make it more resilient to interference due to high prices. However, there may be other levers to effectively manage affordability for Alberta customers. That said, without further technical design specifications, ENMAX is unable to provide a comprehensive response to this question. Regarding reasonable implementation, the timelines proposed need to consider the scope of work being contemplated and give time for the market to react and assess if additional changes are needed. ENMAX expects a number of iterations to occur to the overall market design, which will take time, and this process should not be rushed. As much as possible, investment certainty needs to be maintained. Changes to the market design have secondary impacts on DFO/TFO and retailer systems which need to be understood when evaluating total system benefits. The AESO should engage fully with all stakeholders to understand the options available, including impacts to TFOs, DFOs and end use customers.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As expanded upon in our additional comments to Question 10, ENMAX is particularly concerned about the breadth of the recommendations from the AESO (in addition to other interrelated industry files) and the aggressive timeline set for design and implementation. It will be important to prioritize what design elements should be pursued based on overall benefits to the market and end use customers, and all design elements may not necessarily be worth looking at in the near term. For instance, including sub-hourly settlement in the initial scope of the REM would introduce significant complexity and costs and may not necessarily improve price fidelity to a level that justifies such a change today. Similarly, the inclusion of negative pricing poses challenges by discouraging current and future investment in flexible thermal generation and grid reliability and affordability in the province, both of which are two key objectives. Market stability needs to be maintained and design elements need to consider what investment signals will be sent to future generators and what the impact could be to overall economic growth in Alberta. It should be noted that changes will also have secondary impacts extending down to distribution and retail systems and operations which needs to be factored into the overall timeline for implementation. Only after the AESO has finalized its design elements and selected its IT tools can ENMAX start to assess the impacts to its systems and processes, perform the appropriate testing and make final investment decisions. The required changes to the distribution system may be costly and subject to AUC regulatory approval, with costs borne by ratepayers. Considering this, the current scope of work and proposed timelines is likely not feasible by November 2027, and therefore it is key to prioritize which changes should be pursued by the AESO in the near term.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

In our view, the top three design elements that should be focused on during the stakeholder engagement are: 1. Price formation mechanisms (scarcity pricing/ORDC, price cap/floor, market mitigation) 2. Day-ahead market (unit commitment) 3. Ancillary service product creation (inertia product, ramping, FFR, etc.)

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Disagree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

A lack of details and clarity on specific design elements, including transparent costs/benefit analysis and modeling from the AESO is greatly limiting ENMAX's understanding of how the REM will work in Alberta. The AESO has signaled that it intends to release its design details at the end of June. Without these details and clear straw market models outlining potential options to the REM (including transparency on inputs used in the AESO's models), ENMAX does not have a clear understanding of how the REM will work and whether the outcomes will be successful in the long term. With the compressed timelines, these details should be provided earlier than June, although even if these details are provided prior to June, the timelines will still be challenging to meet.

Q10. **Any additional comments**

ENMAX provides the following additional comments below. 1. The AESO needs to clearly define what its key priorities are for the REM and any solutions pursued must be supported by a clear benefit to the market and end use customers. It may not make sense or be feasible to pursue all of the design elements contemplated. We do not necessarily agree with the AESO statements that the design elements are a “package deal” and we view that all elements must be pursued on their own merits with a solid understanding of how they interact with each other. It is currently unclear to stakeholders what the main priorities are for the REM and what is a realistic timeframe for coming up with and implementing any potential solutions that are needed. Thought needs to be given on whether all of the REM design should be pursued or not. In all cases, a clear benefit to the market and end use customers will need to be demonstrated and weighed with the overall costs to implement. Clear and transparent criteria for prioritizing key design elements, and transparency on the anticipated costs will best position the market for successful outcomes in the future and mitigate unintended consequences from occurring. No solution should be pursued without transparency and the ability for stakeholders to comment and provide support. In general, details are lacking around the technical design elements and how the REM engagement process will be undertaken, which makes it challenging for ENMAX to assess and provide any detailed feedback at this stage. 2. The AESO’s compressed timelines will be extremely challenging to meet, especially given the number of interrelated policy files running concurrently with the REM. A robust and transparent consultation is favored above a rushed process. 2027 is not necessarily a required deadline for all market issues to be resolved. The breadth of issues being contemplated as they relate to the energy transition on both a provincial and federal scale are highly complex, interrelated and happening concurrently. That said, many of the same people are working on these overlapping files and the AESO needs to be mindful that market participants are dealing with real resource constraints. To our points above, efforts should be focused only on key priority items to ensure stakeholders are able to commit the appropriate time, resources and analysis to each issue. In cases, some issues will require more time to analyze, and the process should not be rushed. Overall, the current scope of work for the REM and proposed timelines do not appear feasible and ENMAX favors a more flexible approach in the interest of long-term market success. 3. Any changes to the market will need to support positive investment signals to future generators, as well as economic growth in the province. Any changes contemplated need to allow the market to work, especially during a time of rapid evolution in the Alberta electricity sector. Specifically, positive investment signals need to be provided to future generators to ensure the grid remains reliable and affordable, and the overall Alberta economy is not negatively impacted as a result. In addition, the AESO needs to work with participants on an implementation plan that causes the least amount of impact to existing commercial arrangements and investments made in good faith. The AESO should consider metrics by which to gauge the success of any final market design, so that changes can be assessed, and further changes can be implemented if required. 4. There is an opportunity to look at the system as a whole for potential solutions and impacts. There may be other workable solutions and pathways to meet the objectives listed above that extend beyond the scope of the AESO’s proposed market redesign. When considering the REM and customer impacts or TFO and DFO impacts, the AESO should engage fully with stakeholders to understand the implications of any proposed options for load participation and potential regulatory impacts of grid development (for example, changes to the load settlement process or metering enhancements to enable demand side participation).

Respondent No: 32
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Responded At: Apr 30, 2024 19:47:46 pm
Last Seen: May 01, 2024 00:34:03 am

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Maxim Power Corp.
Q3.	**First and Last Name**	Kyle Mitton
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Reliability: 1. Higher & lower price caps Higher price cap and lower (negative) price floor to economically incent the flexible generation required to manage intermittent generation. 2. Day Ahead Market (not necessarily unit commitment) to incent firm, dispatchable generation. 3. Shorter pricing intervals to incent highly flexible generation. Affordability: 1. Hard to comment given we do not yet know what the administrative price curve looks like. 2. Maxim believes allowing free-market competition (similar to the current and upcoming “temporary” energy-only markets) to set the price is the most economically efficient way to achieve the Affordability goal over the long-run. Decarboization: 1. This is best done through the continued use of TIER Carbon Pricing mechanism and free-market competition, which has to-date resulted in an exceptional decarbonization track-record in Alberta over the last 5+ years.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Reliability: 1. Administrative Scarcity Pricing – success of the REM will hinge on transparency as to how this curve is designed and thorough consultation on the implementation strategy. The risk of getting this wrong is already a significant barrier for our investment planning, which in and of itself could set the REM up for failure, leading to the very undesirable outcome for competitive generators such as Maxim, of long-term contracts (ie. Breaking the glass). Maxim’s view is that the price must be set through competitive, free market principles, which means competitive bidding behaviour (ie. Economic Withholding) must remain an element of the new REM. Economic Withholding has been a key component of the Alberta power market since deregulation, and has been shown to successfully work over the last several years as higher prices have encouraged an influx of new generation (both renewable and dispatchable) that is resulting in lower power prices and increased market reliability. Removing Economic Withholding and replacing it with an administratively set price curve is a challenging prospect, and if this is the path the AESO wishes to pursue, Maxim encourages extreme caution on the execution and implementation to ensure proper market signals remain in place to support the long term health of the Alberta power market. Affordability: 1. Unit Commitment – Maxim believes this adds a significant and unnecessary layer of complexity and cost to operate the grid – simply running a financial Day Ahead Market (that mimics the real-time market) should give participants sufficient notice as to whether they should self-commit, or not, and eliminates a significant administrative burden and cost on the AESO. Decarbonization: 1. With a competitive free-market and an appropriate carbon pricing regime (like the current TIER), decarbonization will happen naturally, as technology matures and market participants see value in making the required investment. 2. The potential for long-term contracts in the REM as a means to accomplish the decarbonization goal is already acting as a significant barrier for our investment planning.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

1. Administrative Scarcity Pricing – If implemented successfully this could be key to attracting future market driven investment and ensuring long term market reliability and health. 2. Price cap/floor – Again key to attracting investment, and what type of generation it attracts. Dispatchable, responsive and reliable generation will respond to a price cap and floor that benefit them. 3. Day Ahead Market – focus to try and simplify this to incent the right type of generation without adding regulatory oversight, red-tape and complexity to the market.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Strongly Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

n/a

Q10. **Any additional comments**

• The existing energy only market in Alberta has withstood multiple decades of technology change and demonstrated its ability to adapt and encourage investment. Maxim cautions that the majority of organized power markets have attempted to solve one problem, only to create another, resulting in a never-ending cycle of market re-design with significant regulatory oversight wrapped in red-tape. This path of continuous reactionary market design creates uncertainty, which is detrimental for attracting investment. • Maxim acknowledges improvements can be made to help the existing Alberta power market adapt to the rapid changes in the physical construct and make-up of the grid, but believes these can be accomplished by making tweaks around the edges, while maintaining the core foundation that underpins the existing robust market – free-market competitive bidding behaviour, otherwise known as economic withholding. Much of the REM provide exactly these “tweaks”, and Maxim believes there is a path forward to merge the existing power market with many of the concepts in the REM. • Maxim looks forward to working with the AESO to help design a robust market of the future.

Respondent No: 33
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Responded At: Apr 30, 2024 19:49:53 pm
Last Seen: Apr 30, 2024 14:51:20 pm

Q1.	**Please indicate which category your organization predominantly represents**	**Other (please specify)** Industrial Load with Cogeneration (thermal)
Q2.	**Name of Organization**	Suncor Energy Inc.
Q3.	**First and Last Name**	Horst Klinkenborg
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

New AS products, a higher price cap and an administrative price adder are the three components of the REM that further the stated objectives and are worth pursuing at this time. * Properly designed and procured AS products can increase reliability by contracting exactly those reliability attributes required. When procured competitively, they should be affordable. They could support decarbonization by helping to integrate “green” technologies. As incremental products, their implementation should be fairly straightforward. * A higher price cap could improve reliability by attracting incremental external supply during scarcity, and improve supply adequacy by reducing the missing money problem arising from any price cap. Since a price cap reduces efficiency, increasing the cap would increase efficiency and thereby affordability. It might help decarbonization by incentivizing incremental storage which allows for a better integration of intermittent resources. Implementation should be simple. * An administrative price adder could support supply adequacy by increasing the investment signal. While a market solution would likely be more efficient, the affordability risk from over-incentivizing investment is balanced with the reliability risk from under-incentivizing investment. Free market entry should still result in an affordable outcome. An administrative price adder has no bearing on decarbonization and as an incremental measure, implementation should be fairly straightforward. If the AESO proceeds with a day-ahead market, the price adder must be available in both markets to attract investment in efficient and reliable generation.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

All other elements of the REM besides those listed under 5 (new AS, price cap, price adder) create concerns. The biggest concern would be regarding the interplay between a day-ahead market, market power mitigation and the administrative price adder. To attract predictable and reliable generation, a stated goal, sufficiently high prices must be accessible in the day ahead market and uncertainty around implementation creates a concern for over-mitigated prices for these generators. Overall, the REM elements besides those referenced under 5, provide no apparent significant improvement to reliability relative to the current market, but some actively undermine supply adequacy. Many of the proposed components like SCED, day-ahead market or shorter settlement come with significant implementation costs to try and reduce some minor inefficiencies. It is unclear, and seems unlikely, whether the cost benefit trade-off is worth it. Neither element significantly supports decarbonization. The proposed elements are further complex and difficult to implement as apparent from tool scoping occurring ahead of finalizing the design.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

The elements listed under 5 (new AS, price cap, price adder) should receive the exclusive focus during stakeholder engagement as they further the stated objectives and, if implemented appropriately, support attracting investment in efficient reliable generation . To the extent other elements become mandated by government, they should be included in consultation with the goal to meet the mandated requirements in the most efficient way possible.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Given that all elements except for those listed under 5 (new AS, price cap, price adder) seem to run counter to the stated objectives, Suncor recognizes the potential that there may be information that Suncor is not aware of that could justify the inclusion of these components in the REM. Suncor would need that information in order to be supportive of including the components and allocating time and resources away from those elements that further the stated objectives.

Q10. **Any additional comments**

Most aspects proposed in the REM are misaligned with the stated objectives. The REM contains many components that previously failed to get support in their respective consultations. For example, a day ahead market, SCED, changes to the price cap/floor and shorter settlement have all previously been proposed and have been rejected after consultation for various reasons. In Suncor's view, it would be up to the AESO why now would be the appropriate time to bring back previously rejected market design elements that do not further the stated objectives. – Particularly, since the current reliability, supply adequacy, and affordability concerns would prevent proper consultation due to timing limitations, and the inclusion of these elements would allocate time and resources away from those elements that further the stated objectives.

Respondent No: 34
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Responded At: Apr 30, 2024 19:50:05 pm
Last Seen: May 01, 2024 01:46:06 am

Q1.	**Please indicate which category your organization predominantly represents**	Renewables
Q2.	**Name of Organization**	EDF Renewables Canada Inc.
Q3.	**First and Last Name**	David Thornton
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Generally, the proposed market design changes should support the objective of Reliability and Affordability, yet, at time of writing this survey, it is not clear how REM will address Decarbonization by 2050 and Reasonable Implementation. Overall, EDF Renewables seeks out more information and details on the design elements to fully understand the impacts and risks for generators and investors, and how they interact with each other. Establishing clarity of market rules and proposed changes to the Transmission Regulation (loss factors, congestion, etc.) will support reasonable implementation of the REM, and secure investor confidence. The introduction of a Day-Ahead Market (DAM) can support reliability by improving the ability for long lead time assets to participate in the energy market and providing greater operational certainty in the Real-Time Market (RTM). However, the AESO must ensure that they design a market where renewable generators can continue to earn a sufficient rate of return. It is also important that the design elements continue the viability of corporate power purchase agreements (PPAs) to support affordability and decarbonization. Co-optimization of energy and ancillary services (e.g., operating reserve), with real-time Reliability Unit Commitment (RUC) should support reliability and affordability by improving dispatch efficiency and ensuring customers get the lowest cost energy and reliability products. Shorter real-time settlement intervals (5 or 15 minutes) can also provide reliability benefits. At the same time, it can also provide a price signal for fast-ramping dispatchable resources such as energy storage. Management of market power via three-part bidding into a DAM, possibly with AESO validation of the bid parameters, should also support affordability because centralized dispatch with co-optimization of services has the ability to minimize cost. The implementation of Security-Constrained Economic Dispatch (SCED) without nodal pricing (i.e., continuing with a single system marginal price) will provide affordability benefits. Because SCED can make optimal use of the available transmission capacity, it may guide lower-cost, more targeted transmission expansion.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As mentioned in Question #5, EDF Renewables is concerned regarding the ability to Decarbonize by 2050 if proper measures are not taken by the AESO to ensure that renewable generators can continue to earn a sufficient rate of return. EDF Renewables is very concerned about the number of proposed market design changes given the tight timeline and scope of the changes. Not only are the timelines ambitious for such a significant number of changes, including a DAM, Reliability Unit Commitment (RUC), a re-design of the RTM, etc., while balancing to-date unknown Transmission Regulation changes, but there are concerns that there may be some unintended consequences that have gone under-explored in either the REM position paper or the EWG kick-off meeting presentation. We would therefore recommend a phased approach and prioritizing the 'must-have' market rule changes to mitigate schedule risk and unintended consequences. However, if the planned implementation of changes to the REM market structure and, let us not forget the Transmission Regulation is clearly laid out, then resource developers can plan their investments effectively. Overall, AESO should be mindful so as not to unnecessarily add new or greater risks to the energy-only market, which can negatively impact other objectives. For example, nodal pricing (Locational Marginal Prices, or LMPs) would layer on an investment risk that can be hard or impossible to mitigate. EDF Renewables encourages the AESO to be mindful in its detailed design considerations to avoid significant curtailment of energy production from wind and solar generators. When available in the RTM, wind and solar energy jointly meet the objectives of Affordability and Decarbonization. Curtailing energy from wind and solar generators in hours where gas-fired generators with higher operating costs and higher emissions are operating is inefficient, counter to Decarbonization objectives, and at times, more costly. Accordingly, as the AESO focuses on the objective of Reliability, it needs to also ensure it develops market rules that achieve reliability in an efficient and affordable manner by not discounting the energy value that wind and solar generators can provide to the grid. The final REM design needs to balance the commitment of energy and ancillary services to ensure operability and reliability without over committing resources resulting in curtailment of decarbonized energy resources.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

As explored previously, EDF Renewables recommends the following to be high priority issues: 1. Day-Ahead Market (DAM) 2. Negative Pricing and Administrative Scarcity Pricing 3. Curtailment and Congestion Management (Transmission Regulation) A DAM is a new construct to Alberta and Canada. As a result, it is very difficult for wind and solar generators to quantify the transitional risks of adding a mandatory DAM where previously one did not exist. In addition, without historical data and operations it is extremely difficult to assess the potential for day-ahead (DA) to real-time (RT) risk. To address this concern, EDF Renewables proposes deeming revenues for renewable resources based on RT prices instead of DA prices such that we aren't forced to take a risk we are unable to quantify adequately. The introduction of negative pricing creates significant risk for renewables and issues for existing PPAs. Any introduction of negative pricing needs to focus on what is being achieved by the negative pricing and the floor should be set only as low as necessary to achieve that goal. Design decisions will directly inform whether Alberta is a viable market for future renewable generation investment, which has a direct impact on the objectives of decarbonization and affordability. The AESO's current proposal to replace economic withholding with an administrative scarcity pricing mechanism could put downward pressure on the received prices for wind and solar generators. Over time, this could result in less investments in wind and solar generators which otherwise would bring decarbonized, low-cost energy resources to the grid. Energy production curtailment and congestion management will also be key. Without well designed curtailment rules, future development and investment in renewable energy could be significantly reduced. Further, to achieve the objectives of decarbonization and affordability, it will be important to design rules that minimize real-time curtailment of renewable energy at the expense of over committing more expensive and emitting gas-fired generators when not required. Co-optimization of energy and ancillary services is complex and will require discussion time in working group meetings. Importantly, the AESO needs to fully incorporate energy storage into the design to ensure new resources are used in the most efficient manner possible. The AESO must engage on all issues and give stakeholders the opportunity to provide comments on all the design elements as different elements will be important to different stakeholders.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

Based on EDF Renewables' experience operating within U.S. markets (e.g., ERCOT) and the Ontario market (IESO), we have a good understanding how the design elements considered within the REM could work for Alberta. However, it would be helpful for the AESO to release background information on complex aspects of its REM (e.g., DAM calculations and reliability calculations) to level-set the discussions and allow for efficient consultation given the tight timeline. We would also note that completing a design by Fall 2024 to have draft rules filed with the AUC by March or April 2025 is an extremely aggressive timeline. The AESO should provide as much time as possible for multiple weekly working group meetings to ensure that stakeholders and the AESO have an opportunity to work through the details of the design.

Q10. **Any additional comments**

Significant investments have been made in wind and solar generation projects in Alberta, where many projects have PPAs with offtakers or contracts with the AESO. While not in scope for the REM initiative, decisions made regarding the REM design and market rules could impact PPA and contract terms and conditions. EDF Renewables would note that for generators and investors, implications for their existing PPAs and contracts, among a range of other market and investment landscape considerations, are important when making REM design choices. We also recommend that the AESO work with all stakeholders to gain a common and clearer understanding of terms and definitions of key REM design components such as DAMs, SCED, Security Constrained Unit Commitment (SCUC), etc. In addition, we note that an understanding of the final Transmission Regulation is necessary to work through the market redesign to understand and evaluate impacts of design features. We would therefore encourage the AESO to communicate to the government that if it is delayed in passing a new Transmission Regulation, it will interfere with the ability to complete market design work on the current timeline. Lastly, we request that the AESO release a "strawman" of the full market design proposal for further industry consideration and comment. We would also request that the AESO provide any modeling it has prepared to demonstrate that the REM would achieve the stated objectives.

Respondent No: 35
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Responded At: Apr 30, 2024 20:11:42 pm
Last Seen: May 01, 2024 00:06:50 am

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Enbridge
Q3.	**First and Last Name**	Youguo Guan/Lei Xiong
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

The recommendations draw on elements from other markets with higher renewables to address current concerns in AB. These concerns include excessive market power leading to economic withholding, high price volatilities, challenges in maintaining real-time reliability, and the timely dispatchable replacement of CTGs. The recommendations are intended to implement as a package, but the scope is significant and complexity. The compressed implementation timeline will hinder their effectiveness of these recommendation and may not happen to the extent that they are hope for. Also, the objectives are not equally weighted in the recommendation. The design prioritizes reliability over other targets, and affordability is considered as the minimum cost to serve all other targets which is concerning. There are clear incentives only for reliability attributes such as dispatchability and flexibilities with limited consideration to renewables. This limited consideration could impede the market from achieving the right mix of renewable and dispatchable resources needed for sustainable affordability and decarbonization.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

We will need more detailed information to assess the effectiveness of the REM design. Based on the shared high-level information, our key concerns including: • Fairness in Day ahead market: different treatment for generation and load; lack of level playing field for different technologies to optimize the sustainability and cost; existing market with limited players to ensure the needed trading liquidity for effective DAM; • Blend market forces with administrative intervention and out of Market Rules: There are The Counter effects between market power intervention and administrative scarcity pricing . There would be risks of over-reliance on administrative interventions could undermine effectiveness of market-based mechanism; this also creates uncertainties to foster long-term investment decisions, which could impact the long-term reliability and affordability. Concerns with adequate compensation paid to generators to ensure reliability and make efficient use of existing generating sources. Overall, AESO would play too heavy role in the market where free market with limit intervention would drive investment to deliver affordable electricity. Transparency would partially mitigate some intervention risks. • The ambitious nature of the changes, coupled with the tight timeline, raises doubts about their successful execution and ability to achieve the intended outcomes

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

1. Day ahead market: the concept is sound as it aims to mitigate real time uncertainty, enhancing reliability. Its effectiveness in AB hinges on detailed and In-depth engagement. It's crucial to consider different generation technologies and their attributes on a level playing field, as well as the dynamic between load and generation from a holistic perspective, to promote sustainable reliability and affordability for all market participants. Given the large market share from the limited number of players in this market, unique day-ahead designs might be needed to ensure reasonable liquidity and convergence between day ahead and real time markets. Phased-in and iterative implementations will likely be necessary to learn by doing to address complexities. 2. Market power mitigation and administrative scarcity pricing: REM attempts to blend market forces with administrative intervention which could raise concerns regarding the effectiveness of the power market and viability of long-term investment. This attempt to merge two different approaches in one suite, adding complexity and uncertainty to the over success of implementation and requires in-depth engagement and testing. 3.Co-optimization of dispatch of energy and ancillary services: the concept is sound. However, it's unclear about the relationship among strategic reserve, additional ancillary services, ramp-up services, and its associated volume determination and cost allocation. In-depth engagement is required to avoid over-procurement of out-of- market products, which would simplify reliability obligation with the price of affordability and efficiency of the market. Others: For SCED & shorter settlement, the AESO needs to justify the benefits of the tool overweighing the costs and bringing imminent benefit for the markets. Otherwise, the implementation would be deferred. SCED implementation requires clarity of transmission policies regarding congestion management, transmission need identification and cost allocation, etc. Also, the market needs a sufficient percentage of technologies with high flexibility to benefit from shorter settlement and justify the implementation cost. Also, for the negative pricing: AB has high load factor and significant price taker from cogeneration, renewables and minimum run components, in depth design discussion is needed on how this design benefits reliability and contributes to the overall investment viability for affordability. It's noted that the immediate threat to the grid is not increased intermittent generation but rather a lack of dispatchable generation to support intermittent generation integration. This feature would be deferred.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

• Provide more detailed information early on, including specific parameters for each design, Numerical examples for load and different technology examples; BAU vs REM; how the system prices would evolve • Cost of IT implementation with the breakdown of key components• • What policies will stay and how different technologies will be treated • Identify the aspects that are beyond the scope of the designs • Clarity in how Tx policy work with REM, if there will be zones with renewables or integration capabilities • How other markets trades, day-ahead, scarcity pricing, and why they operate in this manner and why there are different designs for AB

Q10. **Any additional comments**

We recommend that the AESO shares the specific details of the design and commence engagement early on.

Respondent No: 36
Login: AltaLink - Cayla Saby
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Responded At: Apr 30, 2024 20:56:25 pm
Last Seen: May 01, 2024 02:51:53 am

Q1.	**Please indicate which category your organization predominantly represents**	DFO / TFO
Q2.	**Name of Organization**	AltaLink, L.P.
Q3.	**First and Last Name**	Cayla Saby
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

AltaLink believes several REM elements will improve short-term market operation, which, in general, improves reliability and affordability relative to current market design. Specifically: • Day-ahead market (DAM). The DAM provides certainty and incentives to flexible generators. It also affords the AESO more control over the unit commitment. As such, the implementation of DAM is expected to improve reliability and improve affordability by reducing price volatility. • Market Clearing (SCED, Co-optimization). The improved dispatch tools are designed to simultaneously optimize overall costs of energy, ancillary services, congestion and losses while taking into account transmission constraints, asset availability and ramp rates. As such the proposed tools are expected to improve reliability and affordability. • Shorter Settlement. A 5-minutes settlement interval provides price signals that better align with system conditions in real time. It incentivizes flexible resources such as flexible load, controllable generation, storage, and imports/exports to respond to real time system conditions and to support balancing of the demand/supply. In addition, 5 minutes settlement interval aligns with markets in other markets and facilities exchanges between Alberta and other jurisdictions in a more seamless manner. As such, a shorter settlement interval (i.e. 5 minutes) will help affordability and reliability.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

There are concerns on several proposed REM elements in terms of meeting the design objectives of reliability, affordability, decarbonization by 2050 and reasonable implementation. Specifically: • Administrative Scarcity Pricing and long-term investment. During the EWG session, AltaLink heard concerns regarding the REM's ability to attract sufficient new generation capacity to meet reliability requirements. Given the Texas electricity market moved away from a ORDC based design raises a question on whether or not the proposed administrative scarcity pricing is capable of attracting sufficient new generation to meet future load requirements while maintaining affordability and price stability. Although the REM recommendations include mechanisms such as Strategic Reserve and the potential for Long-term Contracts, there are no details in terms of the criteria that would trigger the use of these mechanisms, and the terms under which the contracted assets could be used. • Cost Allocation. The REM proposal contemplates the need for potential new products, often being called new ancillary service products. Currently, ancillary services costs are recovered from load through the Demand Transmission Service tariff on a $/MWh basis. As such, additional ancillary costs are likely to artificially inflate transmission costs, resulting in cost shifting and affordability concerns. To ensure fair and efficient cost recovery, it is imperative that the AESO conduct necessary analysis to assess the cost causation study, and determine a fair cost allocation and appropriate cost recovery mechanism. • Interrelationship between changes in Transmission Policy and the REM design. AltaLink agrees with the AESO that changes in transmission policy will impact the design of an effective and efficient electricity market. Until there is a clarity on the changes to transmission policy regarding planning, congestion management, and cost allocation, it is difficult to ascertain the impact of the proposed REM against its design objectives.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

From the TFO perspective, AltaLink believes the top three market design elements are: • Cost allocation. As discussed in our response to Question 6, ensure appropriate cost allocation of costs arising from the new REM elements. This is critical to minimize cost shifting, support affordability, and protect market integrity. • Intertie participation. The participation of imports/exports in DAM and real-time markets are critical to an effective and efficient market to support reliability and affordability. This is particularly true in a future whereby the internal supply/demand balance is exposed to more volatility with the increased penetration of intermittent generation. • Shorter settlement interval. As discussed in our response to Question 5, a 5-minute settlement interval sends appropriate pricing signals to incent flexible resources to participate in the market. In addition, it aligns with market design in other jurisdictions, and therefore it facilitates the exchanges between Alberta and other markets. As such, a 5-minute settlement interval will enable significant benefits such as improved reliability and affordability.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

The AESO's REM proposal provides a high level description of the restructured market design. Stakeholders raised a variety of questions and concerns during the EWG engagement sessions. The AESO is expected to provide more details on the proposed REM and address questions/concerns raised by the stakeholders in the coming months. This additional information will help stakeholders to better understand the effectiveness of the proposed REM in meeting the design objectives of reliability, affordability, decarbonization by 2050 and reasonable implementation.

Q10. **Any additional comments**

AltaLink appreciates the opportunity to participate in the survey and looks forward to working with the AESO on the REM design and implementation.

Respondent No: 37
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Responded At: Apr 30, 2024 21:01:32 pm
Last Seen: May 01, 2024 02:24:14 am

Q1.	**Please indicate which category your organization predominantly represents**	Generation (thermal or diversified fuel mix)
Q2.	**Name of Organization**	Capital Power
Q3.	**First and Last Name**	Matthew Davis
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Working from the AESO's Design Elements from their April 22/23 presentation, Capital Power would organize the Design Elements into two distinct packages, first "Pricing" which would be comprised of Market Power Mitigation and Administrative scarcity pricing. The second, "Market Operations" would be comprised of Day Ahead Market, Market Clearing, and Shorter Settlement. Most beneficial to meeting the objectives of reliability, affordability, decarbonization, and reasonable implementation will be ensuring a market design that is consistent with commitments made by the Minister of Affordability and Utilities to maintain an energy-only market structure in Alberta and to maintain robust opportunities for investors to compete for a return on and of capital. In this sense, Capital Power believes that the broad changes outlined in the AESO's Market Operation enhancements (subject to further details and modelling) are beneficial but the AESO's proposed Pricing framework is not as we believe it is misaligned with these commitments. The Market Operation enhancements generally align with the overall feedback from the AESO's Executive Working Group (EWG) that indicated that certain enhancements to the energy only market are necessary to address reliability needs. These enhancements will support the reliable operation of the market and assist in addressing the complexities of the evolving grid as it decarbonizes. As discussed in response to the following question (6), Capital Power does not support the AESO's Pricing framework proposal as described in REM. We believe that the proposed Pricing framework is fundamentally inconsistent with the Minister's commitments in that it clearly moves from a market founded on competition to an administrative construct. Capital Power proposes consulting on the framework introduced by the Market Power Mitigation Regulation as an alternative approach to the AESO's more substantive Pricing framework changes. We believe that such an approach would build off of Alberta's already well-established and successful pricing framework and work well work with the Market Operations enhancements to meet the objectives of reliability, affordability, decarbonization, and reasonable implementation. Focusing on less substantive changes to the pricing framework would be beneficial for investor confidence and would enable industry to spend more time addressing the important Market Operation changes required to address reliability needs. At this point, very few specifics have been given on the Market Operations design elements. Without further details, there is a need to reserve overall support for the AESO's proposed Market Operation changes. Further Capital Power would highlight that while the AESO's timelines are ambitious, there is concern that the significant changes to how the market operates will challenge the ability to implement in a reasonable timeframe given the complex nature of these systems and downstream systems in industry.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As mentioned above, Capital Power is most concerned with the AESO's proposed Pricing framework including market power mitigation measures and moving towards an increased reliance on administrative-based scarcity revenues to dictate recovery of fixed costs. The REM contemplates changes to the Pricing framework which would significantly alter the role of competition in Alberta's market by introducing an administrative construct, under which return of and on investment would be dictated instead of relying on competitive forces to determine dispatch and prices. Moving to an administrative construct introduces new regulatory and market intervention risks on long-lived assets, many of which have only recently been invested in. It would take significant time for investment to gain an appreciation of this construct – and pricing outcomes would have to be realized for there to be any comfort (i.e. any disruption may last longer than just the implementation timelines suggested in the REM). Finally, an administrative pricing framework would face continued uncertainty in the form of regulatory proceedings every few years which would have material impacts on the stability of the market not to mention adding significant amounts of red tape to the market design. The changes the AESO envisions to the Pricing framework pose a threat to the continued success of Alberta's electricity market. Electricity remains a backbone for the provincial economy and will offer opportunities for further economic growth and diversification. Ensuring investor certainty for power generation will not only keep the lights on, but it will also be help attract new investment to Alberta. Given the growing importance of electricity in the economy through electrification, and new consumers such as generative AI, Alberta's electricity market needs to maintain investor's confidence in the market in order to secure future supply needs. The framework introduced by the Market Power Mitigation Regulation creates a policy tool to address the risk of market power in the wholesale market and should be considered as an alternative to the AESO's more dramatic changes. This approach would preserve competitive forces for dispatch as the driver for determining investors' return of and on investment. Further discussions on the price cap can (and should) continue as they are distinct from the offer cap. This would support considerations on the attractiveness of Alberta's market relative to neighboring jurisdictions – particularly when competing for scarce supply as was experience in mid-January 2024; and to encourage market-driven responses by consumers that are flexible. The interim framework already ensures that consumers are protected from materially excessive price spikes; further, competitive contracts, the recently revised default retail rate, and hedging opportunities are all available to allow customers choice on how to manage their exposure to the wholesale market.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Given the importance to generator revenues and opportunities in the market, the Pricing framework will draw the most attention and focus unless the AESO changes their approach. By adopting and consulting on improving the framework outlined in the interim measures we believe that the objectives of reliability, affordability, and decarbonization in the REM can be met in a reasonable timeframe without disrupting the Pricing framework that has served Alberta well for over two decades. Pursuing Capital Power's proposed Pricing framework alternative allows for industry and the AESO to focus on reliability and implementing changes to the market that will modernize how it operates. This was generally agreed upon as the priority in the AESO's EWG by Capital Power and several other participants late last year. Within the Market Operation Design Elements, the design of any day-ahead market would require the most focus given its importance on revenues and cost allocation. Changes to the AESO's market clearing and settlement systems will require attention, particularly with respect to ambitious timelines to implement system changes.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

The AESO has introduced the concepts of strategic reserve and contracting should there be a need and has correctly identified these as last resort, or “break-glass” measures due to their impact on the market. Capital Power agrees with that assessment, but it is critical to understand what resource adequacy signposts the AESO is monitoring in considering these measures. The REM materials comment on making market design changes in parallel with potential policy changes with respect to Transmission Policy. Capital Power would highlight that both cost allocation and congestion policy can have significant impacts on the overall design of the market and therefor suggest that further consideration is required on timing of overall design, or at a minimum allowing for a re-examination once more certainty is available on the direction of Transmission Policy.

Q10. **Any additional comments**

Capital Power appreciates the opportunity to provide feedback to the AESO and also the AESO’s commitment to share industry’s views with Government. It is critical to settle on the approach planned for the Pricing framework quickly as discussed above. We remain available and keen to help create solutions that support a reliable grid and incent investment in our province which will be critical given increased pace of electrification and the enabling role electricity will have to economic development.

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Responded At: Apr 30, 2024 21:08:21 pm
Last Seen: May 01, 2024 03:03:52 am

Q1.	**Please indicate which category your organization predominantly represents**	Load
Q2.	**Name of Organization**	Voltus, Inc.
Q3.	**First and Last Name**	Anneliese Gallagher
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	No

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Voltus supports the medium-term goal of co-optimizing the dispatch of energy and ancillary services, which will increase the efficiency of market operations and price-setting. Co-optimization could have the impact of stabilizing pricing in ancillary services, which has historically been volatile. The REM should go further by recommending that load resources be compensated for energy provision so that load resources can meaningfully participate in a co-optimized market. Voltus also agrees with AESO's described need for increased controllable load resources and new ancillary services and technical requirements. In order to achieve the goal of a decarbonized grid by 2050 while maintaining a reliable and resilient electricity grid, the AESO will need a fleet of new resources that can ramp up or down quickly and often in response to fluctuations in supply and demand. Traditionally, load resources have primarily participated in the AESO grid by providing Supplemental Reserve, but the technical capabilities of demand-side resources today mean that we could also provide faster-response or more frequently called upon reserve products as well as energy if we are eligible and properly compensated. Demand side resources should be considered in the design of the contemplated new market products. New markets should be designed in a way that ensures that pricing scales appropriately with the value of new products, including that faster-response products should be paid more than less nimble products. Voltus also supports the introduction of a day-ahead energy market, so long as demand side resources are eligible to participate. Currently, demand side resources that buy energy and sell reserves have to decide if and when to participate in the reserve market with incomplete information. Some opt out of selling demand response into the reserve market if they project that a day's energy prices will make it uneconomical to maintain load (a requirement of reserve participation, because if load is not on it cannot be curtailed). With the clearer price signal that a day ahead market would provide, demand side resources could offer in more often. Voltus also supports the implementation of an administrative scarcity pricing curve. This progressive step addresses a critical inefficiency in the market, and will help curb market volatility by replacing economic withholding. The introduction of a higher price cap reflects the true value of electricity during scarcity events, providing appropriate incentives for generators to ramp up production or for load resources to curtail. Further, the MPM adds an additional layer of accountability, helping to prevent market manipulation and ensure that prices accurately reflect supply-demand dynamics. This fosters a more competitive and efficient marketplace for generators and load resources.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

As discussed above, the role of load resources should be considered in all elements of market design, including co-optimization, a new day ahead market, and new ancillary service products. Additionally, the timeline for implementing the recommendations could be accelerated to the near-term as opposed to a 2-5 year implementation timeline. Stabilizing the market has become an urgent need. Within the past year alone, AESO has experienced 22 emergency events at level EEA 2 or higher, while energy prices have been unacceptably high. Voltus urges AESO to expedite the REM plan wherever possible.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

Replacement of economic withholding: Voltus supports the AESO's stance that economic withholding is not sustainable as a recovery mechanism for generator fixed costs in the long run (2-5 years). Reducing this cost risk for consumers has to be replaced with a mechanism where investors can ensure they will recover costs without creating volatility in the market. The AESO has mentioned that other interim measures (including ORDC) will provide coverage of limited price spikes over the next few years before economic withholding changes go into full effect. Voltus supports these measures and would urge an accelerated timeline on a long-term scarcity pricing plan, and looks forward to continued involvement as a stakeholder. Design of the day-ahead energy market: as a DR provider, Voltus is interested in understanding the role of controllable loads in the day-ahead energy market and would like a timeline on its path to launch. As stated in question 6, it is critical that AESO involve DR stakeholders in this process in order to develop a market design that works for DR as well as for generation. This will need to include compensating load resources for providing energy to the market. SCR (Directives for long lead-time assets when the supply cushion dips below 932 MW) and MPM as temporary regulations: Voltus supports the MPM as a vehicle to improve market efficiency, but would recommend using the value of load lost (VOLL) rather than 25x the natural gas price as the price cap for load resources.

Q8.	**I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.**	Neutral

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

AESO mentions "Incentives for investments in dispatchable technologies and demand response in the medium term" as part of its recommended changes in REM. Voltus supports this recommendation but would like to know more about AESO's current thinking. We suggest targeting incentives to equip demand response to participate in spinning reserve, fast frequency response, and any new, fast response ancillary service products that emerge from the REM process.

Q10. **Any additional comments**

To achieve efficient and lowest-cost outcomes from its electricity framework, it will be essential for the AESO to empower demand-side flexibility to help mitigate certain issues identified in the Market Pathways initiative. Voltus encourages AESO to look into a broad range of ancillary service products as options for market participation for demand side resources.

Respondent No: 39
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Responded At: Apr 30, 2024 22:14:02 pm
Last Seen: Apr 30, 2024 17:50:01 pm

Q1.	**Please indicate which category your organization predominantly represents**	DFO / TFO
Q2.	**Name of Organization**	FortisAlberta Inc.
Q3.	**First and Last Name**	Miles Stroh
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

FortisAlberta is generally supportive of pursuing the design elements of a Day-Ahead Market, Market Power Mitigation, Administrative Scarcity Pricing and Market Clearing / Co-Optimization as being the design areas / workstreams for Industry to initially focus on, as these are the areas FortisAlberta believes are likely to be most beneficial to meet the AESO's stated objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation. The AESO's REM recommendations appear to be largely within the context of the current centralized, supply-only energy market (i.e. the Power Pool), leaving the entire load side of the energy market and the optimization value consumers (or prosumers) might provide largely untapped. That is, total distribution/retailer load is forecast by the AESO (rather than load serving entities) and considered firm, non-price responsive load, which makes load a price taker with no opportunity to bid potentially interruptible, price responsive load into the energy market. Industry should seek opportunities for greater load participation in the REM. While the AESO mentions possible load participation in some of its design streams, load-side participation in the REM should be a priority. As such, FortisAlberta would encourage the AESO to be much more deliberate to ensure that each of the design elements seriously considers load participation opportunities in whatever market mechanics are being designed in the day-ahead or real time market.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

FortisAlberta does have concerns with meeting the REM timelines with the design element of Market Clearing / Co-Optimization, as co-optimization will likely be interdependent with other policy considerations, which are also being developed in parallel, such as possible changes to transmission and distribution policy, ISO and distribution tariff development, cost allocation and ratemaking, etc. As such, complexity and uncertainty, around the timelines and scope for any parallel changes to transmission and distribution policy, may make the process of AESO co-optimization a difficult design element to reasonably implement by 2026. Notwithstanding, in the interest of supporting the objective of Affordability for consumers, FortisAlberta is generally supportive of seeking market mechanics and regulated tariff development that incent the optimization of system development across supply, transmission and distribution functions in the long term, and the Market Clearing / Co-optimization design element appears aligned with the AESO's stated objectives of Affordability, Reliability and Decarbonization by 2050. With respect to the design element of Shorter Real Time Settlement Interval, FortisAlberta does not believe it will ultimately support the objective of consumer Affordability, particularly without the ability of the load-side to participate in the energy market. Without load-side participation in the REM, and assuming that shorter intervals are extended to the load settlement side, FortisAlberta anticipates that Affordability for load-side consumers might be negatively affected. In other words, consumers will be responsible for both the direct costs associated with the large system / data requirements across market participants (distribution and retailer load settlement, meter data management and billing systems, etc.) and potentially higher energy market prices, which are being set exclusively by the supply-side.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

FortisAlberta suggests that the design elements of a Day-Ahead Market, Market Clearing / Co-Optimization and Administrative Scarcity Pricing to be the top three design elements upon which to focus, while looking for mechanisms that promote the efficient dispatch of flexible resources, whether that be supply or load.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

N/A

Q10. **Any additional comments**

Thank you for the opportunity to provide our initial feedback.

Respondent No: 40
Login: energystoragecanada-robert-tremblay
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Responded At: Apr 30, 2024 23:57:48 pm
Last Seen: May 01, 2024 05:01:31 am

Q1.	**Please indicate which category your organization predominantly represents**	Storage
Q2.	**Name of Organization**	Energy Storage Canada
Q3.	**First and Last Name**	Robert Tremblay
Q4.	**My organization is a member of the Market Pathways Executive Working Group (EWG)**	Yes

Q5. **What aspects of the REM Recommendation and Design Elements do you believe are beneficial to meet the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Overall, Energy Storage Canada is optimistic about the design elements of the REM. Energy storage resources are critical to each of the three goals of achieving a reliable, affordable and decarbonized (by 2050) electricity system, and many of the proposed REM elements will enable support for Allowing for increased bounds for the energy price, along with a shorter settlement interval, will allow for efficient market-based dispatch in more system conditions than the current energy only market (EOM). Moving to a Day Ahead Market could help value controllable supply. Price Cap and Floor Energy Storage Canada generally supports efforts to use administrative pricing mechanisms to increase the price cap beyond the current $1000/MWh cap. It is clear from a variety of analyses, such as technical evidence in AUC Proceeding 28541, that the current configuration of the EOM, including especially the price cap, is unlikely to facilitate investment in firm, flexible, and dispatchable electricity supply, such as that offered by energy storage resources, needed to maintain system reliability. In the EOM framework high prices in times of tight supply are the main means of compensating firm and flexible capacity. With the price cap remaining fixed for decades and an increasing amount of variable and non-dispatchable generation requiring, it is unsurprising to see increasing pressure on the price cap, resulting in the increasing frequency of energy emergency alert events. The market is signalling a need for higher priced hours to incent firm and flexible supply. ESC stresses, however, that administrative pricing is not a perfect tool and places a heavy burden on the AESO to properly calibrate the administrative pricing system. See the “Administrative Pricing” section of the answer to question 6 for more discussion on this point. ESC generally supports the proposed inclusion of administrative scarcity pricing in the REM design. Similarly, oversupply events are likely to become the norm over the coming decades as Alberta’s renewable energy resources continue to be developed and instantaneous capacity begins to exceed demand. With a market floor of $0/MWh, the current EOM does not allow for the market to dispatch off supply which may accept $0/MWh, requiring the AESO to centrally curtail generators in response. Allowing negative prices, via a negative price floor, will instead allow the market to dispatch off generation in reflection of economics, allowing for the lowest cost electricity to make it’s way to consumers. Similarly, the $0/MWh floor mutes the price signal to invest in flexible load and energy storage resources which could take advantage of below $0 incentivizes, leading to economic development and investment in controllable supply. Allowing for negative pricing will also provide a valuable input into more complex bids that may be allowed in the REM, enabling a more efficient dispatch. Comparable markets, such as ERCOT and AEMO each have significant negative price floors. Thus, ESC strongly supports the proposed inclusion a negative price floor in the REM design. Fundamentally, increasing price signals for controllable generation via an expanded floor and ceiling are needed to achieve reliability, and through the preservation of the market, affordability and decarbonization. Congruence with the existing EOM will allow for this part of the REM design to be highly reasonable to implement as well. Day Ahead Market ESC generally supports the implementation of a DAM as a means to create more unit commitment and a moderate price signal for more controllable supply. However, ESC has a variety of concerns with the detailed implementation of the DAM. See the “Day Ahead Market” section in the next section for more details. Shorter Settlement Interval ESC strongly supports the implementation of a shorter settlement interval. A shorter settlement interval will allow for faster ramping and more flexible assets, such as is provided by energy storage resources, to capture prices at a higher resolution. However, as elaborated on below, even a 5 minute settlement, as proposed in the REM design paper, may insufficiently signal ramping need.

Q6. **What aspects of the REM Recommendation and Design Elements do you believe create concerns for meeting the objectives of Reliability, Affordability, Decarbonization by 2050 and Reasonable Implementation? Please provide your rationale and be as specific as possible.**

Administrative Pricing Unlike the current EOM, which derives prices from market dynamics, and administrative pricing system will be centrally designed. This is by design to mitigate concerns of market power utilizing economic withholding to driving prices higher. Administrative pricing could allow for controllable supply to be rewarded while mitigating the impacts of market power on price. However, being centrally designed, the pricing mechanism must be well fit to function as intended. If the administrative pricing system is “too stringent” and undercompensates for the value of energy during times of tight supply, then the market will continue to be unable to incentivize requisite investment to maintain system reliability, putting both the market itself and reliability at risk. If the administrative pricing system is “too generous” then the market may overcompensate investments in controllable supply, negatively affecting affordability. Striking a balance between these two extremes will be a difficult challenge. ESC thus recommends that the AESO allow for a meaningfully high offer cap in combination with a higher administratively driven price cap. The offer cap could be possibly up to the current price cap, in which moderate amounts of economic withholding can still allow for price fidelity and some level of fixed cost recovery. Above the offer cap, administrative pricing can provide a signal during times of tight supply for supply that is coincident to that need. If needed to maintain market power mitigation, the offer cap could be further constrained for entities with assets above a certain market concentration of controllable supply. Other details, such as the supply cushion level at which the administrative pricing system initiates and the rate at which the administrative price adder increases (the shape of the ORDC) are critical to calibrate correctly, and will determine the success of failure of administrative pricing to ESC could also support alternative means of mitigating market power to mitigate concerns of economic withholding, such as a more stringent direct limit on market concentration or some continuation/evolution of the current market power mitigation measures. Getting administrative pricing wrong risks our market underinvesting in controllable supply, fundamentally compromising reliability, and if further intervention is pursued to mitigate reliability risks, and by extension affordability and reasonable implementation. Day Ahead Market The DAM must be designed thoughtfully with energy storage resources in mind. As a resource class that has historically been viewed as both a load and generator, such as with the tariff to problematic ends, reforms such as the move to a DAM could present issues if storage is continued to be considered simply both a load and generator. The design of the DAM must consequentially sufficiently allow for energy storage resources to value stack bids for ancillary services with bids in the DAM and RTM through co-optimization through the Security Constrained Economic Dispatch (SCED) system. ESC looks forward to continuing to engage on and substantiate this dynamic through the REM design. The design of the DAM should allow for a sufficiently vigorous RTM. A mandatory DAM for supply (combined with a voluntary DAM for demand) that procures 100% of predicted load may lead to weak RTM which does not allow for sufficient investment signal for flexible controllable supply. A strong RTM must be maintained to allow for investment signals to be sufficiently communicated to the market. ESC supports investigation into different configurations of the DAM, such as a voluntary DAM for both load and supply, a mandatory DAM for both load and supply, and/or consideration of whether storage should mandatory participate in an otherwise mandatory DAM for supply at all. Omissions of Ancillary Service Product Design While ESC understands that the intention of the REM design is to improve reliability as much as possible through reforms to the energy markets, such as the introduction of a DAM, increasing bounds to the price cap, and a shorter settlement, reliability attributes, such as ramping, will likely be difficult to address without explicit value place on them through ancillary service markets. ESC encourages the AESO to take an explicit view of reliability and include ancillary service product design into the REM workstreams. Exclusion of Ancillary Service design in the REM could lead to failing on the reliability objective, putting the integrity of the market at risk as well.

Q7. **What are the top three market design elements you believe need most focus during stakeholder engagement? Please provide your rationale and be as specific as possible.**

1. Administrative Pricing/Market Power Mitigation/Economic Withholding Administrative Pricing was among the most contentious items discussed at the EWG and more details need to be determined in detailed design such as what offer cap would exist, what supply cushion level would trigger the ORDC, what the shape of the ORDC is, and what the ultimate price cap is. 2. Day Ahead Market Design There are similarly, many details to be worked out in the design of a day-ahead market. 3. Ancillary Service Design Ancillary service product design should be completed as part of the REM design. It should not be forgotten that reliability was the ultimate trigger for many of the events that let to the current policy window for the REM design to occur in. These concerns need to be addressed head on, and where it is unlikely that even the REM energy market will incent needed reliability attributes, ancillary services, especially with precedent in comparable jurisdictions, should be included in the REM design.

Q8. **I have a good understanding of how the Restructured Energy Market recommendation will work in Alberta.** Agree

Q9. **If you answered neutral, disagree or strongly disagree to question 8, what aspects of the REM recommendation would you like additional information or clarification on? Please be specific.**

N/A

Q10. **Any additional comments**

Ramping Capability As identified in the Reliability Requirements Roadmap, ramping up and down supply to meet increasing volatility in net demand. Flexible supply will be increasingly critical to maintaining reliability as significant parts of load and supply become more variable. ESC understands that the intention of the proposed REM design is to acquire as incent as much reliability as possible out of the energy market and sees a shorter settlement time and an increased price cap via administrative pricing as a means to incentivize flexible and fast ramping supply. However, ESC stresses that ramping needs will likely be at a higher resolution than discussed 15 minute or even 5 minute settlement intervals. Thus a Ramping Reserve product should be considered for implementation as part of the REM designs and not left to be designed only once ramping needs become even more pressing.