

2021 Long-term Outlook Scenarios – December, 2020

2021 Long-term Outlook Stakeholder Feedback



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| Period of Comment: December 15, 2020 through January 15, 2021 |
| Comments From: Utilities Consumer Advocate (UCA) |
| Date: 2021/01/15 |

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Keeping with the mandate of providing safe, reliable and economic operation of the Alberta electricity system while facilitating a fair, efficient and competitive market for electricity, the AESO is developing the 2021 Long-term Outlook (LTO).

Given the challenges faced as a result of the COVID-19 pandemic and the low oil price, feedback provided to the AESO will be an important input into how we forecast Alberta's the near to long-term electricity. The AESO will use scenarios as a means of stress testing various market, technological, consumer behaviour, policy and economic outcomes, to assist stakeholders in understanding potential long-term future outcomes in the Alberta electricity market.

Please fill email your completed questionnaire to forecast@aeso.ca by January 15, 2021.

We value stakeholder input and thank you for sharing your perspective. In alignment with our Stakeholder Engagement Framework ([link](#)) all stakeholder submissions, in their original state with personal information redacted, will be published online at www.aeso.ca

Further stakeholder engagement on LTO scenarios and preliminary results can be expected as the AESO makes progress toward the anticipated publication date in Q2 of 2021.

Preliminary results will be based in part from stakeholder feedback received in June 2020.

The AESO thanks you for your time and appreciates your input.

The AESO is seeking comments from Stakeholders with regard to the following matters:

| | Questions | Stakeholder Comments |
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| 1. | Do the proposed LTO scenarios cover a reasonable range of plausible future outcomes? Which scenario do you think is more likely? Which one is less likely? | <p>The UCA appreciates the publication of the preliminary results for the 2021 Long-Term Outlook (LTO) and introducing scenarios that the AESO is considering for the next LTO. This will allow discussing the main drivers of Alberta's future electricity market from the early stage.</p> <p>The UCA supports the inclusion of the Clean-Tech scenario and considering higher penetration of distributed energy resources (DER) at both the distribution and transmission levels. Because of the fast-paced changes in the market, including various ongoing policy reviews, it is hard to anticipate the most likely LTO scenario for Alberta's future electricity market. However, the global movement toward the clean energy policy, reducing the cost of DER technologies, and increasing burden of the delivered energy costs in Alberta are sending signals to shift to a higher level of DER in the future and to encourage customer classes to install economic generation options to reduce their overall bills.</p> |
| 2. | Does the "Clean-Tech" scenario focus on the appropriate technologies and policies? | <p>The AESO's "Delivered Cost of Electricity" report published in May 2020 indicated the continuation of the DER growth driven by technologies' cost competitiveness. Given the significant increase in the delivered costs of grid-supplied electricity during the past decade driven mostly by the distribution and transmission costs, the DER solution would be the more cost-effective option for the consumers.</p> <p>In order to have an accurate load/generation forecasting for Alberta, the AESO may need to clearly outline which technologies will be included in the Clean-Tech scenario and which ones are more plausible in Alberta's future electricity system. Providing data regarding the forecasted MW of capacity for each technology at both levels of distribution and transmission will be critical for the distribution and transmission systems</p> |

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| | <p>planning.</p> <p>In addition to some of the technologies mentioned in these preliminary results document, the AESO may include information regarding the level of existing and forecasted demand response at the distribution/transmission levels. Advanced demand response (DR) can use the flexibility of customer-owned technologies to meet the balancing challenges of the changing supply mix and be a cost-effective solution for the system's reliability. According to a study by The Brattle Group regarding the U.S. potential for load flexibility, technologies such as adjustable smart thermostats for air conditioning (A/C) and heating, grid integrated water heating, and managed electric vehicle (EV) charging will be gateways to a DR market that adds residential DER to traditional commercial/industrial customers' DR.</p> <p>https://brattlefiles.blob.core.windows.net/files/16639_national_potential_for_load_flexibility_-_final.pdf.</p> <p>Energy Efficiency (EE) is also another forms of DER available for reducing demand and consumption growth and related infrastructure expenditures. More information regarding the level of EE potential in Alberta for reducing the demand would be beneficial.</p> <p>Furthermore, in a scenario with growing renewables, clean hydrogen may play a key role in the world's transition to a sustainable energy future. It can be used to reduce carbon emissions from industry and heavy transport and also to provide long-term energy storage at scale. The clean or green hydrogen is generated by renewable energy sources without producing carbon emissions in the first place. It has the potential to help with variable output from renewables, such as solar and wind, whose availability is not always well matched with demand. Clean hydrogen can become one of the leading options for storing energy from renewables.</p> <p>Currently, there are many interrelated engagements and consultations that could change the way of responding to the DER evolution, such as:</p> <ol style="list-style-type: none"> 1- In 2019, the AUC submitted that the statutory scheme limits |
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| | | <p>self-supply and export and, through the Bulletin 2019-16, asked stakeholders to comment on three options for addressing the issue in the future, including status quo, limited self-supply and export, and unlimited self-supply and export. The AUC shared these submissions with the Department of Energy (DOE) for further discussion with the parties. The decision that comes out from this consultation will impact the integration of DER, overall demand, and generation development scenarios.</p> <p>2- The ongoing Bulk and Regional tariff design and DER market participation stakeholder engagements by AESO will have a critical impact on the level of DER adoption in Alberta's electricity system. Especially, the outcomes of DER market participation engagement regarding the opportunities for increase DER aggregation, changing the market participation threshold (5MW), and specifications for hybrid projects (e.g., variable energy sources and storage) need to be monitored as these will have effects on DER development.</p> <p>3- Any eventual policy changes or new tariff treatment that come out of the AUC's Distribution System Inquiry (DSI) may alter the incentives to adopt more DER in the system. Currently, stakeholders are waiting for the final AUC's report on the DSI and possible suggestions for further investigation or initiating some policy changes.</p> <p>4- Review and update of the transmission regulation, which may include an update on the treatment of the technologies as a tool for transmission deferral, may impact the deployment of DER, especially energy storage in Alberta.</p> <p>5- The AUC is considering whether distribution-connected generation (DCG) credits should continue to be included in a distribution utility's tariff. The AUC's decision in this regard will affect the distributors, customers, and the owners and operators of DCG units that receive benefit from DCG credit mechanisms set out in each of those utilities' distribution tariffs.</p> |
| 3. | Are there different scenarios that warrant inclusion? | It may be worthwhile that the AESO monitor and include information regarding the existing and forecasted level of hybrid projects such as wind and storage, solar and storage, wind and |

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| | | <p>solar, or solar and wind and storage included at one site. The outcome from energy storage and DER market participant rules engagement held by AESO could encourage more hybrid projects in addition to stand-alone energy storage developments.</p> |
| 4. | <p>What long-term hydrocarbon demand projections do you think are reasonable for the Robust and Stagnant Global Oil & Gas Demand scenarios?</p> | <p>According to the Conference Board of Canada report published in January 2021, waves of COVID-19 pandemic and returning strict measures across the world are hurting the gasoline demand. The oil producers will have to deal with lower prices, at least for the near future when the pandemic waves are contained. The report emphasized that oil production will not fully recover until late 2022, and investment in new projects will be postponed as producers are trying to recover and carrying out maintenance activities that had been delayed. The risk of changing policy regarding the KXL project from the U.S. new government would be another barrier for the oil producer as it limits access to other markets.</p> <p>In the long-term, changes in consumer behavior for utilizing energy-efficient technologies, electrification of transportation, including the popularity of electric vehicles (EV), and adopting strong climate policies globally may reduce the hydrocarbon demand and production in the future. As a large portion of Alberta's oil supply contains expensive and carbon-intensive productions, it may not remain competitive to supply the market in the long-term.</p> <p>The growing use of grey and blue hydrogen as a cleaner source of energy around the world may increase the demand for natural gas as the main input to produce the hydrogen. The grey and blue hydrogen are mainly produced industrially from natural gas, but in the cleaner version, blue hydrogen, the carbon emissions are captured and stored, or reused. Among the wide usage of hydrogen in refining petroleum and treating metals, it can also be used in fuel cells to produce electricity or as a transportation fuel.</p> |
| 5. | <p>Are there additional generation technologies that warrant inclusion in the 2021 Long Term Outlook Scenarios?</p> | <p>See question 2.</p> |

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| 6. | Do you disagree with any of the assumptions in Slide 4 for any of the scenarios? If so, what would you propose? | The UCA agrees with the presented scenario assumptions; however, the ongoing consultation/engagements that are mentioned in question 2 should be monitored closely as their outcomes may change these assumptions. |
| 7. | The AESO has not yet determined the quantum of change in the scenario variables. Do you agree directionally with the scenario assumptions? Do you have insights regarding the magnitude of scenario changes? | The AESO may provide information regarding how the Clean-Tech scenario will be modeled as most of these technologies can be used either for self-generation, which reduces the system demand and new transmission/distribution infrastructures, or exporting the excess energy back to the grid that may require expansion of the grid to accommodate these generations. |