

2021 Long-term Outlook Scenarios – December, 2020

2021 Long-term Outlook Stakeholder Feedback



Period of Comment: December 15, 2020 through January 15, 2021
Comments From: Chapman Ventures
Date: 2021/01/25

[Redacted]

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
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><i>The proposed LTO scenarios suggest some prospective scenarios; however, we believe that the most plausible future outcomes are not adequately captured in these scenarios. The primary foundational concern is related to the Reference Case, as the Reference Case serves as a basis for all comparisons and a source of inputs for many of the key economic drivers and assumptions for the alternative scenarios. The Reference Case table on page 9 critically underestimates the 2030 and 2040 values for solar and energy storage.</i></p> <p><i>The Clean-Tech Scenario is the most likely, but there are other elements that deserve consideration, such as:</i></p> <ul style="list-style-type: none"> - <i>Carbon Price to align with Federal announcement.</i> - <i>Significantly higher values for utility-scale solar, DER and DCG solar, renewable corporate PPAs, and energy storage deployment for both 2030 and 2040.</i>
2.	Does the “Clean-Tech” scenario focus on the appropriate technologies and policies?	<p><i>The “Clean-Tech” scenario narratives on Slide 13 seem directionally reasonable. It is difficult to either validate or deny whether the oilsands outlook would remain intact, as per the reference case.</i></p> <p><i>Although difficult to model, increasingly smart and flexible technologies across the electricity production and delivery chain (from generation through consumer) are likely to support technical and transactional flexibility, removing bottlenecks to increase electrification of the electric grid and other energy intensive sectors (i.e. transportation).</i></p>
3.	Are there different scenarios that warrant inclusion?	<p><i>Climate change policy direction at the global, North American, and Canadian levels suggest that clean tech (including renewable generation, energy storage, alternative transportation, DERs, and smart grid solutions) will be deployed in significantly</i></p>

greater volumes and broader applications than suggested by both the status quo and the AESO's current 2021 LTO Reference Case.

It is our belief that the Clean Tech (Energy Transformation) scenario is inevitable and should therefore serve as the Reference Case for the 2021 AESO LTO. Consideration should be given to the recent Federal carbon tax increase, \$50/tonne in 2023 followed by incremental annual increases of \$15/tonne from 2023 until the tax hits \$170/tonne in 2030. Such a reference case should contain much higher assumptions for utility-scale solar, energy storage, and rooftop PV. The following are some Generation Capacity quantities that deserve consideration for the base case. Please note that these are not aggressive assumptions in our opinion.

- *Solar: 2,000 MW (2030), 4,000 MW (2040)*
- *Energy Storage: 1,500 MW (2030), 4,000 MW (2040)*
- *Rooftop Solar: suggest engaging with some local experts in the space for an indication of prospective provincial growth (i.e. Skyfire Energy, Kuby, etc.)*

With this Clean-Tech scenario serving as the reference case, it would be reasonable to include the following alternative cases:

- 1. Clean Tech – Low AB Load Growth / Stagnating Global Oil and Gas Demand*
- 2. Clean Tech – Oil Status Quo (using the oil and gas industry related assumptions from the AESO's current proposed 2021 LTO Reference Case)*
- 3. Clean Tech – Aggressive Robust Clean Tech Growth. This would include significantly higher deployments of renewable generation, energy storage, electric and autonomous vehicles, smart grid devices and networks, etc.*

4.	What long-term hydrocarbon demand projections do you think are reasonable for the Robust and Stagnant Global Oil & Gas Demand scenarios?	
5.	Are there additional generation technologies that warrant inclusion in the 2021 Long Term Outlook Scenarios?	<p><i>It is not entirely clear what energy storage technologies were included in the AESO's 2021 LTO Scenarios slide deck. Based on the Reference Case generation forecast values for 2030 and 2040 (on slide 9), one could assume that limited deployments of lithium-ion batteries and pumped hydro are assumed. If this is the case, it would be worth considering some other long duration energy storage technologies, such as CAES and flow batteries. It may also be worth considering prospective impacts of the growth of clean hydrogen and other zero-GHG (or low GHG) combustion fuels.</i></p>
6.	Do you disagree with any of the assumptions in Slide 4 for any of the scenarios? If so, what would you propose?	<p><i>It is assumed that this question is referring to the assumption in slide 14 rather than slide 4.</i></p> <p><i>It does not seem prudent to assume that the carbon price will remain at current levels, reaching \$50/tonne and then remaining at that level in perpetuity. This is the assumption in the current AESO Reference Case.</i></p> <p><i>It is of our opinion that the Reference Case should reflect the announced government carbon tax plans, which is to apply incremental annual increases of \$15/tonne from 2023 until the tax hits \$170/tonne in 2030.</i></p> <p><i>Please refer to our response to Question 3 for further commentary regarding the scenario assumptions. The foundational point is that the AESO Reference Case should reflect a Clean Tech scenario.</i></p>
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?	<p><i>It is our opinion that the existing AESO 2021 LTO Reference Case is not realistic, and thus using it as a point of reference for the alternative scenarios does not serve to provide productive feedback to the AESO. The Reference Case should reflect a Clean-Tech case. Please see the comments provided in the response to Question 3.</i></p>

		<p><i>Chapman Ventures would be happy to engage further with the AESO (outside of this matrix feedback) to provide constructive input regarding a new Reference Scenario and new associated alternative scenarios. In the meantime, here are some general comments:</i></p> <p><i>Reference Case:</i></p> <ol style="list-style-type: none"> <i>1. Carbon Policy: Consider announced Federal carbon tax.</i> <i>2. Generation Capacity:</i> <ul style="list-style-type: none"> <i>- Solar: 2,000 MW (2030), 4,000 MW (2040)</i> <i>- Energy Storage: 1,500 MW (2030), 4,000 MW (2040)</i> <i>- Rooftop Solar: suggest engaging with some local experts in the space for an indication of prospective provincial growth (i.e. Skyfire Energy, Kuby, etc.)</i> <i>3. Renewable Capital Cost – wind/solar: Can the AESO please share the AWS Truepower estimates for 2021-2030? How is the AESO forecasting capex beyond the AWS Truepower estimate, from 2030 to 2040? What are the capacity factor assumptions, particularly for wind?</i> <i>4. Renewable corporate PPAs. Suggest increasing to 500 MW by 2030 and 1500 MW by 2040.</i> <i>5. Energy Storage – Utility Scale. Explosive growth is highly probable both this decade and out to 2030. This is reflected in the assumptions of 1500 MW (2030) and 4000MW (2040).</i> <i>6. DERs and DCGs. Historical trends are likely to underestimate the deployment growth of these resources, particularly solar.</i> <i>7. Electric Vehicles. Deployment growth should be higher based on combined impact of technological advances, increased carbon tax, and cost reductions.</i>
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