

Date: April 29, 2021

Time: 8:30 p.m. – 12:30 p.m.

Location: Zoom Meeting

Companies Represented by Attendees:

Company
The Alberta Electric System Operator (“AESO”)
Best Consulting Solutions Inc. (“Best Consulting”)
Capital Power Corp. (“Capital Power”)
DePal Consulting Ltd. (“DePal Consulting”)
Direct Energy Ltd. (“Direct Energy”)
ENMAX Corporation (“ENMAX”)
EPCOR
Heartland Generation Ltd. (“Heartland”)
Independent Power Producers Society of Alberta (“IPPSA”)
Kineticor Resource Corp. (“Kineticor”)
Lionstooth Energy Inc. (“Lionstooth”)
The Market Surveillance Administrator (“MSA”)
Matt Ayres Consulting (“Matt Ayres”)
NextEra Insights Inc. (“NextEra”)
NorthPoint Energy (“NorthPoint”)
Suncor Energy Inc. (“Suncor”)
TransAlta Corp. (“TransAlta”)
TransCanada Energy Ltd. (“TransCanada”)
Versorium Energy Ltd. (“Versorium”)

Proposed Amendments to Section 306.7 of the ISO Rules, *Mothball Outage Reporting* (“Mothball rule”)

Introduction

The AESO initiated the session explaining that the intention of the session was to review and discuss the items that have been established as in-scope for this engagement and present the AESO’s recommendations and rationale for select topics, and to provide Stakeholders with rationale for out of scope items.

The AESO discussed the following information as part of the presentation¹:

- The AESO provided a recap of Session #1 that took place on December 1, 2020.

¹ Details of the information presented can be found in the April 29, 2021 power point presentation posted on the AESO website.
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- The AESO provided an update on the economic test and retirement notification topics discussed in Session #1, and informed Stakeholders that the AESO has determined these items to be out of scope for the Mothball rule review.
- The AESO reviewed and discussed the following in-scope items with Stakeholders:
 - transmission access issues & alternatives;
 - maximum duration;
 - subsequent mothball outages;
 - mothball outage cancellation;
 - mothball outage notification;
 - mothball outage reporting; and
 - Long lead time and planned outages.

Updates: Economic Test and Retirement Notification

Update on Economic Test

- Suncor raised concerns regarding the inclusion of an economic test in the Mothball rule and maintained that a generator should be able to determine its own availability without economic justification. Suncor stated that the economic test is inconsistent with the fundamental design of the Alberta energy market, which does not pay a generator for its availability. However, the economic test effectively conscripts the capacity of a generator by forcing them to prove that they could not run that generating unit economically. Therefore, Suncor disagreed with removing the economic test from the scope of the Mothball rule review.
- The AESO and Suncor discussed the “must offer must comply” component of the Alberta market design. The AESO noted that not offering available generating capacity for an extended period of time based on an economic decision, without taking a mothball outage, does not align with the “must offer must comply” obligations. Planned outages and long lead time outages are based on physical constraints of an asset preventing it from offering its capacity. When a market participant is removing generating capacity for a 2-year period, the AESO needs visibility of this decision and to understand why the capacity is being removed from the market.
- IPPSA questioned whether the MSA and AESO had formal correspondence regarding the removal of the economic test from the scope and whether the MSA or AESO has considered the red tape implications of the economic test requirement. TransAlta also provided comments regarding the roles and responsibilities of the MSA vs the AESO in implementing an economic test. The AESO confirmed that an official letter from the MSA was not provided to the AESO on this topic. The MSA noted that they had been engaged with the AESO throughout the mothball stakeholder engagement process. The MSA informed participants that they believe the avoidable costs and forecasts market prices and market conditions are still the appropriate inputs for the economic tests. The MSA confirmed that they will continue to enforce the economic test and the information contained in the 2020 Q3 quarterly report remains relevant.
- NextEra noted support for the economic test indicating that while the framework should not force an uneconomic generator to participate in the market, as the transmission system is built in advance of generation and load pays the cost of that build, there needs to be a high bar to the must offer must comply obligations in the Alberta framework.
- Heartland indicated full support for Suncor’s comments. In response to the AESO’s comment that planned outages are due to a physical limitation of a generator and not an economic decision not to run, Heartland suggested that all outages, with the exception of a forced outage are economic outages as well as physical limitation outages. Heartland further stated that the timing of when a participant chooses to take a planned outage is an economic decision and therefore sees them as akin to a mothball outage. However, there is no requirement for an economic test for planned

outages. Heartland also discussed that for all other outage types the AESO does not have a requirement to return to service. Heartland stated that a participant can choose to keep a generator on an extended maintenance outage if it is not economic for them to perform the maintenance work and questioned why the AESO does not have transmission access concerns with those types of decisions. Heartland suggested that the mothball outage requirements should be relaxed to better align with other outage types in the Alberta framework.

- TransAlta echoed comments from Suncor and noted its support for Suncor's position regarding the economic test.
- The AESO commented that while the scheduling of a planned outage will be determined by a participant based off economic considerations, the trigger for the outage is due to maintenance or some sort of technical operational reason. Whereas a decision to take a mothball outage is because an asset is uneconomic. Due to these differences in drivers for taking different outages, the AESO believes it appropriate that there are different considerations to take into account when removing an asset from the market for a period of time because of economics versus regular maintenance.

Transmission Access

- TransAlta noted that the principle of stability documented in the presentation does not accurately represent the function of mothball outages in the market. TransAlta stated that mothball outages do not cause market instability, on the contrary, mothball outages are caused by market instability or uncertainty. The AESO acknowledged TransAlta's comment and clarified that the intent of the stability principle was to take transmission access uncertainty into consideration, however the AESO acknowledged TransAlta's comment that market instability was a driver of mothball outages.
- Heartland noted that transmission access is a fundamental concept to the Mothball rule discussion. The whole concept of the ability to take a mothball outage falls apart should a generator lose market access. Additionally, consideration of how future market conditions, such as an increase in renewables on the system, may impact the market needs to be taken into account. Heartland further stated that transmission access and mothball outages need to be carefully considered together.
- Capital Power noted that it would be very useful for Stakeholders to understand one of the use cases of a mothball type outage that the AESO is concerned with in relation to transmission access. Capital Power agreed with Heartland, that as we look to the future, mothball duration and frequency depending on when a participant sees an opportunity could vary. For instance, units that mothball for nine months of the year and are only available for winter peak months or summer peak months. These seasonal types of mothball outages may be a potential use case for multiple mothball outages. However, there is also the use-case of a participant taking a long duration mothball outage due to market uncertainty. There are plenty of ways that a participant can choose to use a mothball outage and it would be helpful to understand what the use cases are that the AESO is concerned about in terms of transmission access and what level of certainty is needed?
- The AESO stated that where they see concern is in extended mothball outages where a generator has not flowed any megawatts onto the system in years, and it's been uneconomic for those years. At what point do we need a retirement signal? Or, if there are other generators looking to connect to the system; we don't want loads to pay for new system costs in order to build up the transmission system to facilitate new entrants, while we have several, or even just one, generator that is on a long term extended outage, and there is no certainty that the generator(s) is ever going to run economically in the future.
- TransAlta raised a question regarding what criteria the AESO used in determining the potential impacts [detailed on slide 31 of the session presentation material] a generator on a mothball outage may have on a connection project, in particular what type of assessment was used to

determine a barrier to entry may exist. The AESO responded that the potential impacts were determined in coordination with the AESO's connection studies team. The AESO evaluated the issues identified by the connections studies team against the guiding principles found on slide 29 of the session presentation.

- Suncor proposed an additional alternative to the alternatives presented by the AESO on slide 34 of the session presentation. Suncor's proposal is that the maximum term length be removed from the Mothball rule and if a generator goes on a mothball outage, they lose the STS contract capacity for the generator effective on the date of the mothball outage. However, if another generator wants to connect in the area and would use all, or a part of, the STS capacity given up by the mothballed generator, the mothballed generator would get a right of first refusal to, at that point, decide whether they want to return to service and get the STS contract capacity or whether they want to continue to mothball and determine in the future if they want to return to service and request new STS capacity. Suncor stated that it believes this proposed alternative would resolve most of the issues identified around transmission access as the generator on a mothball outage would no longer be blocking the access.
- TransCanada raised support for aspects of Suncor's proposal and noted it was similar to the AESO's proposed Alternative 2. However, TransCanada stated that if there are no new entrants in the connection queue for the region where the generator on a mothball outage is located, then there isn't clear reasoning to not allow the mothball outage to be extended without any STS reduction. TransCanada noted its understanding that if there is a new entrant in the region it becomes an issue and questioned whether there is any room to add some flexibility into Alternative 2? The AESO noted that one challenge that has been identified with adding flexibility into Alternative 2 is the lack of certainty in terms of whether a new generator is actually going to connect at the time of the AESO's connection studies. This lack of certainty during the connection study process creates difficulties in terms of timing. However, the AESO will take it away to consider further.
- Capital Power indicated support for the points raised by Suncor and TransCanada and stated that a right of first refusal clause might provide the certainty needed. However, timing considerations on when it is appropriate in the connection process to trigger a right of first refusal needs to be determined.
- Heartland raised a question regarding how the AESO uses STS contract capacity values in the connection study models. The AESO explained that the connection study models do not use the full STS contract capacity as that would reflect the full output from all facilities. The AESO stated that several scenarios are considered in these studies and various sensitivities are also studied due to all the unknown variables such as the potential for changing market prices, and decisions that are made by market participants that are outside of the AESO's control.
- TransAlta questioned whether the AESO had discussed transmission issues with any particular owner of a generating unit on a mothball outage, or are the concerns and considerations theoretical? The AESO confirmed that specific discussions had not been had with any owners of generating units on a mothball outage; however, the conversation would more likely be with a connection participant that is reviewing connection studies based on the anticipated operation of a mothballed generator in the future. The current Mothball rule does not clearly consider the transmission access issue and it is a gap flagged within the AESO that mothball generators can impact a new entrant's costs and the connection alternatives that are available to a new entrant. The AESO wants to create a structure that ensures that signals are clear for those on mothball outages and for customers that are looking to connect to the system.
- Suncor raised concerns with the administrative aspects of the three alternatives proposed by the AESO. An alternative that provides flexibility but does not create transmission access issues is needed and if designed appropriately will remove the need for a maximum duration, extending a mothball outage and restrictions on when a participant can take a subsequent outage.
- TransAlta expressed agreement with Suncor.

- The AESO noted that the proposed alternatives and recommendations on other related requirements within the Mothball rule are intended to try and find a balance between ensuring generators have the flexibility to mothball when they are uneconomic and providing a level of transparency and certainty for any new connection projects, and the market in general, on when a generator on a mothball outage will return to service. The AESO reiterated that if Stakeholders have other alternatives to propose to please include them in their written comment matrices.
- TransCanada and Capital Power questioned whether the AESO had considered what mechanism generators on a mothball outage would take to return their generator to service under the proposed alternatives 2 and 3. It was noted that there should be no construction for the return to service for these generators and the AESO's connection process involves a significant amount of red tape and regulatory burden. The AESO stated that it believes the typical connection process would be used. However, implementation details such as whether there would be any carve outs or changes for a mothball generator have not been discussed internally.
- DePal Consulting noted that based on the connection process requirements, a mothballed generator would have to make the decision to keep their capacity or let it go in a reasonable timeframe to ensure that the connection project isn't unnecessarily delayed in completing its connection studies and selecting a connection alternative. Therefore, there is a need for a set term or limit on the time taken to make the decision.

Maximum Duration

- Best Consulting noted that the determination of the correct maximum duration will be based on whether there is a penalty for taking an STS contract away or not. Therefore, maximum duration and transmission access solutions cannot be dealt with independently.
- Best Consulting and the AESO discussed the rationale behind why 24 months was originally determined to be an appropriate maximum duration for a mothball outage. The AESO stated that 24 months was viewed as what seemed to be a reasonable maximum duration that balanced competing principles. The AESO indicated a quantitative assessment on that maximum term had not been completed.
- Suncor reiterated discussion points made earlier in the transmission access discussion. Many of the components being discussed at the session, including the maximum duration, are administrative solutions for issues that arose when it was decided generators on mothball outage maintain their transmission access. Suncor further stated that a solution to ensure a generator on mothball outage is not blocking transmission access would remove the need for a maximum term. A participant should be able to mothball its generator for as long as they wish, and if transmission access becomes an issue, then it should be dealt with, as discussed in the previous section.
- TransCanada, Suncor, TransAlta and the AESO discussed removing the maximum duration from the Mothball rule in relation to the transmission access proposal raised by Suncor:
 - TransCanada noted that it agrees with much of what Suncor is stating. However, the maximum duration ensures a generator on mothball outage has access to the transmission system for those 2 years. Once the 2-year term is over the right of first refusal [which was discussed as an alternative in the transmission access discussion] comes in. At that point, if there is another generator in the connection queue, the generator on mothball outage has to decide to return to service or not, but not until after the two years. TransCanada questioned whether in the alternative transmission access scenario raised by Suncor, would the generator on mothball outage not get the 2 year, or whatever the maximum duration is, leeway period, or if they're on mothball for 1 month, for instance, and a new generator enters the queue would that automatically trigger the right of first refusal?
 - Suncor stated that under its proposed transmission access alternative an arbitrary maximum duration timeline is not needed. It would be an unusual circumstance if an existing participant determines that it is no longer economic to operate a generator and a new participant decides it is economic for them to enter the market and is looking for transmission access.

However, if a situation like this arises then yes, the participant whose generator is on mothball outage should revisit its decision and either return to service or continue its mothball outage knowing if it wants to return later it will be required to go through the AESO connection process. The existing participant should make such a commitment at the time the new entrant is ready to commit and choose a connection alternative.

- The AESO questioned how the timing in the connection process would work for a mothballed generator deciding to return or not. Suncor responded that there would likely be extra connection studies that include and exclude the mothballed generator. The mothballed generator should be made aware of the new connection project at the time the studies are starting. Once the new entrant is ready to commit, the mothballed generator should make its commitment on whether it will return to service or not.
- The AESO questioned whether Suncor believes there should be a specific period of time that the mothball generator will need to return to service if they decide to end their mothball outage? Suncor agreed that yes, as they would be essentially denying the new entrant transmission access, there should be some requirements on the mothball unit to return and remain in the market for a period of time. There should be some consequences with regard to their commitment to come back.
- TransCanada stated that the timing of triggering the right of first refusal is a key consideration in this proposal. TransAlta questioned whether Suncor had thoughts on the alternative proposed, if the new entrant ultimately decides not to connect, would they have any obligations in relation to the generator on mothball outage who didn't trigger its right of first refusal?
- TransAlta inquired why the AESO had dismissed ERCOT as a good example. The AESO responded that ERCOT does not have the same obligation to plan an unconstrained transmission system and they allow congestion in their market, which is why the maximum duration conversation is different in Alberta.
- TransAlta inquired whether the new generation project would have obligations to bring themselves into service and utilize the capacity. Suncor stated that it didn't think there needs to be any obligations on the new generator because if it were to cancel the project or decide not to proceed, the mothballed generator could return to the market and there shouldn't be any access issues.

Subsequent Mothball Outages

- TransAlta raised a concern that the requirements in the current Mothball rule oversimplify the market conditions and decision making a participant is considering when looking to take multiple outages. The requirements to return to service for a designated amount of time prior to taking another outage largely assumes that the generator returning to service is a more efficient outcome in some way, and that may not be the case. TransAlta would like more clarity on the drivers as to why the ISO rule contains the requirements relating to subsequent mothball outages. Additionally, TransAlta noted the possible arbitrary nature of the timelines associated with the subsequent mothball outage requirements.
- The AESO noted that the requirements in the Mothball rule are trying to balance flexibility for the mothball generator with also providing certainty to the market and the AESO connection studies process which is where some of these different timelines come in.
- Suncor noted its agreement with TransAlta regarding the arbitrary nature of the timelines associated with subsequent mothball outages. Additionally, Suncor reiterated how many of the components being discussed at the session are administrative solutions for issues that arose when it was decided generators on mothball outage maintain their transmission access. Suncor stated that a solution to ensure a generator on mothball outage is not blocking transmission access would remove the need for the administrative layers in the Mothball rule. Administrative solutions are all inherently arbitrary and inefficient.

- Best Consulting also stated its agreement with TransAlta and Suncor regarding the seemingly arbitrary nature of the timelines associated with the subsequent mothball outages. The 3 months return to service requirement between mothball outages aligns with the mothball outage notification requirement and almost implies gaming, that a participant can bring its generator back online and immediately give notice and then go back onto mothball. Therefore, the 3-month return to service between mothball outages is far too short. These requirements need to be more serious and legitimate, for instance, perhaps the return to service time could be tied to the length of the mothball outage. Therefore, a participant who takes a two-year mothball outage would have to return the generator to service for at least two years before they would be able to take another mothball outage for that generator. Capital Power provided a follow up comment that making the return to service the duration of the mothball itself may not work for seasonal type mothball outages or other potential use cases other than long term extended mothball outages. The AESO needs to consider what aspects of the Mothball rule the AESO is very concerned about and what aspects it is not.
- TransCanada agreed with Suncor in that really the problem that we are trying to solve is the transmission access. There is nothing wrong with someone taking an extended mothball, presuming they meet the economic test. However, we need to balance that with the transmission access issues. Many of the components being raised at this session can be solved if we properly address transmission access. TransCanada suggested that instead of discussing maximum duration and subsequent mothball outages, a workshop could be held where organizations can bring their connection people and figure out the best solution for the transmission access questions.

Outage Cancellation

- Suncor expressed its support for aligning the cancellation notification timeline with the return to service period. However, Suncor noted that a set minimum and maximum return to service time was not needed and recommended removing the maximum return to service timeline. The AESO responded that it sees value in the 6-month maximum return to service timeline as it provides certainty for the AESO if a reliability issue arises. If the maximum return to service timeline is removed and participants extend their return to service, the generator becomes less useful to the AESO in the event of a reliability concern. Suncor agreed with this concern, however noted the AESO would have visibility of the timeline as stated at the beginning of the outage. Suncor also noted that there would not be many situations where a generator would require more than 6 months, therefore a binding maximum seems unnecessary.
- TransCanada questioned whether it would be of value to include a provision in the Mothball rule that would allow participants to change the return to service timing if an unforeseen circumstance occurs while on mothball outage that makes their originally stated return to service timeline unfeasible. The AESO indicated that revisions to the return to service timeline is permitted under the current Mothball rule to allow for some of this flexibility. However, revisions to return to service timelines are required to be submitted to the AESO 3 months prior to the day the revision takes effect, therefore a generator cannot return to service in less than 3 months.
- Best Consulting noted its support of aligning the cancellation notification timeline with the return to service period. However, Best Consulting raised concerns with the requirement to notify the AESO as soon as practicable if the return to service timelines change. The phrase “as soon as practicable” is ambiguous and could be subject to different interpretation between the market participant, AESO and MSA. Best Consulting suggested a more clearly defined timeframe for return to service update notification would be of value for certainty.
- Suncor stated that the 3 months minimum notification for a mothball outage cancellation is not required. If a generator can return to service in less than 3-months it should not be kept out of the market. However, Suncor cautioned making an ISO rule change that would allow a participant to game their notice period.

- TransCanada indicated that they did not have an issue with the minimum notification for mothball outage cancellation being reduced to 30 days.

Mothball Outage Notification

- Suncor and the AESO discussed the alignment of mothball outage notification timelines with other outage notification timelines. Suncor agreed with the alignment but suggested 90 days may not be the appropriate length of time for outage notification if only 30 days are required for outage coordination. The AESO stated that in addition to reliability and transmission system studies, the AESO needs to consider supply adequacy. When the AESO receives notification that a generator is returning to the market there is not the same adequacy and reliability assessment required. Therefore, a shorter notification timeframe may not be appropriate. Suncor stated that the AESO may be trying to close off a number of eventualities that really are unnecessarily restrictive instead of just dealing with general good practice. There is the concern that the framework is becoming too complex and increasing red tape in order to cover situations that may not occur. The AESO acknowledged Suncor's comments and noted that the waiver provision allows for flexibility for a participant and that keeping the requirements will allow the AESO to complete the needed studies prior to a generator taking a mothball outage.
- TransAlta noted that the AESO's principles seem focused on open competition and stability at the expense of fairness.

Reporting

- TransAlta questioned whether a change to the reporting of mothball outages would replace the kind of outage information provided on the AESO website currently. The AESO confirmed that it is considering having the volume of capacity that is on mothball outage differentiated in the outage reports.
- Capital Power noted that they required more time to consider all the implications of making this reporting change, particularly with the inclusion of reported time to return to service.

LLT and Planned Outages

- Suncor raised a discussion point made earlier in the meeting that they believe the AESO is making an arbitrary distinction between what is a physical outage decision and what is an economic outage decision. Suncor is of the view that there is no difference and the decision to be a long lead time asset is an economic choice to turn off the unit, which then creates a physical constraint because you can't return immediately. Suncor recommended that the AESO reconsider their perspective that a mothball outage is unique in the Alberta framework. A participant should be provided the flexibility to decide when to make its generator available and notify the AESO in real time about the availability status and required return to service timeframe which could be anywhere from 36 hours to 2 years, as an example.
- The AESO responded that it is of the view that there are key differences between long lead time assets and mothball outages, reiterating that a long lead time asset is designated due to a physical limitation with the asset during normal operating conditions. If a long lead time generator has to go offline, it is going to take them more than one hour to synchronize and the generator will not be able to meet the requirements in our dispatch rules where you have to be able to ramp within a certain timeframe. Whereas the decision to take a mothball outage is based on a review of forward market prices and a determination by the participant that it will be uneconomic to run a generator until market prices adjust which results in removing the generator physically from the market for that time. It is not a temporary removal from the market based on physical constraints during normal operating conditions. Additionally, a long lead time asset is still subject to the must offer must comply obligations whereas a generator on a mothball outage is not. Suncor reiterated their disagreement that there should be a distinction between a long lead time asset and a mothball outage, and that there is only a difference because the AESO created one.

- Heartland noted its support for Suncor's comments. Heartland stated that all the outages that are being discussed are based on economic conditions that lead to a physical limitation. For a long lead time asset, it was an economic decision to shut down a generator's cycle and then there is a physical limitation affecting its ability to come back online in 36 hours. Heartland believes there are gaps that need to be addressed between mothball outages and the 36-hour long lead time . The current framework is unclear for generators that may take longer than 36-hours but less than one month, which is the minimum notification for a mothball outage that was discussed earlier, to come back online. These configurations do not cleanly fit into any of the outage types defined by the ISO rules. Therefore, Heartland thinks that long lead time is very analogous to a mothball outage, just on a different timeline. Suncor stated their agreement with Heartland noting there are is a seams issue for outages between 36-hours and the minimum mothball outage timeframe.
- Capital Power and the AESO discussed the must offer and must comply obligations for long lead time assets. Even if a generator on a mothball outage is not subject to the must offer and must comply obligations, they are still required to provide the AESO availability information. The AESO agreed but noted that generators on mothball outages are not subject to the same availability requirements as other generators such as continually updating their available capability.
- Capital Power also noted that with the generator fleet changing in the near future there may be more units cycling more. Therefore, Capital Power suggested a more fulsome discussion on the long lead time requirements should be had.
- TransAlta stated that it believes there are a number of requirements related to mothball outages that do not align with aspects of the Alberta framework. For instance, to retire a generator a participant is not required to provide 3 months' notice, however a mothball outage cancellation does. Retirement of a generator has the same system impact. TransAlta suggested a careful review of the ISO rules for consistency and indirect consequences of requirements should be done. TransAlta noted that flexibility is necessary and that if stringent requirements are in place stronger justification as for why is required.
- Suncor suggested that due to unique aspects in the Alberta market design there is no incentive to physically withhold generation; therefore, some of the safeguards against physical withholding implemented in other jurisdictions are not required in the Alberta framework.
- Suncor suggested that there is nothing that forces a generator to undertake maintenance on a unit, and no requirements as to how quickly maintenance/repair work will be completed.

Next Steps

- The AESO closed out the session with the next steps for the Stakeholder engagement on the Mothball initiative.