Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS) hosted on May 20, 2021

I. Purpose and objectives of the session

The purpose of this session is to engage stakeholders in a discussion of the AESO's demand opportunity service (DOS) modernization recommendation to allow expanded eligibility (e.g., energy storage).

The session objectives include:

- Present additional background on the AESO's demand opportunity service – what it is, the service it provides, and how it operates today
- Share our learnings on DOS modernization stakeholder feedback
- Present and discuss the AESO's DOS modernization recommendation for the purpose of seeking takeholder feedback on the recommendation

II. Session agenda

Time	Agenda Item	Presenter
8:00 – 8:15	Welcome, introduction, purpose, and session objectives including extension requestion on engagement and filing schedule	AESO / Stack'd
8:15 – 9:00	DOS 101 – describes how the current DOS rate works today • Origins of DOS • How the current DOS rate is derived • How DOS works ○ How to apply for it, use it, curtail it, how is it charged and what happens if you misuse it • Q&A	AESO
9:00 – 9:20	Recap of AESO conclusions on non-firm rates • Q&A	AESO
9:20 – 9:35	Break	
9:35 – 9:45	Key highlights of AESO's DOS modernization recommendation • Opportunity rate design principles • Proposed key changes to DOS	AESO
9:45 – 10:05	What we heard • DOS rate under preferred rate design • Fast recall rate • Annual term for DOS • DOS take-or-pay requirement • Provision of ancillary services as a DOS customer • Availability of capacity	AESO

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Time	Agenda Item	Presenter
10:05 – 11:30	AESO's DOS modernization recommendation • DOS Eligibility • DOS Connections • DOS Transactions • Suspension of DOS • DOS Rates Streamlined	AESO
11:30 – 12:00	Break	
12:00 – 12:50	Q&A Period • What we heard • AESO's DOS modernization recommendation	AESO
12:50 – 1:00	Session close-out and next steps	AESO / Stack'd

III. Attendees

Company
Alberta Direct Connect Consumers Association ("ADC")
Alberta Electric System Operator ("AESO")
Alberta Energy
Alberta Newsprint Company ("ANC")
Alberta Utilities Commission ("AUC")
AltaLink Management Ltd.
AltaSteel
Arcus Power Corporation
ASCENT Energy Partners Ltd.
ATCO Electric Ltd.
Best Consulting Solutions Inc.
BluEarth Renewables Inc.
Boost Energy Ventures
Brubaker & Associates, Inc., on behalf of ADC
Canadian Renewable Energy Association ("CanREA")
Capital Power
Chymko Consulting, on behalf of Cities of Lethbridge and Red Deer
Consumers Coalition of Alberta ("CCA")
Cenovus Energy
Chapman Ventures Inc.

Company
CNRL
Customized Energy Solutions
DePal Consulting Limited
Enbridge Pipelines Inc.
Enel NA
Energy Storage Canada
ENMAX Corporation
EnPowered Inc.
EPCOR Distribution & Transmission Inc.
EQUS
ERCO Worldwide
FortisAlberta Inc.
Heartland Generation Ltd.
Imperial Oil
Industrial Power Consumers Association of Alberta (“IPCAA”)
Lionstooth Energy Inc.
Mercer Peace River Pulp
Millar Western Forest Products
NextEra Insights Inc.
Northern Sunrise County
NRGCS
Power Advisory LLC
RMP Energy Storage
Rodan Energy Solutions
Solas Energy Consulting Inc.
Suncor Energy Inc.
TC Energy
The Office of the Utilities Consumer Advocate (“UCA”)
TransAlta Corporation
Turning Point Generation
URICA Asset Optimization
VIDYA Knowledge Systems, on behalf of Canada West Ski Areas Association (“CWSAA”)
West Fraser

Company
Weyerhaeuser
Stack'd Consulting, Inc.
Attendees by phone
14034636639
14038284900
15878894627

IV. Overall outcomes from the day

The main objective of the session was for the AESO to present its recommendations for DOS modernization. Participants engaged in discussion and overall, stakeholders agreed that more clarity was needed to achieve a better understanding of the modernized DOS.

V. Session highlights

Captured below are the highlights of the questions and discussion on a topic-by-topic basis. For a detailed review of the session, please refer to the session recording, posted at www.aeso.ca.

Topic 1: DOS 101 – how the current DOS rate works today

i. Stakeholder Commentary

- Clarifying comments:
  - *Solas Energy:* Does the AESO use economic thresholds for any other connection load or generation?
  - *ERCO:* Could you provide the timing of the AESO's review of the DOS application? Days? Weeks?
  - *AltaSteel:* Does the AESO have any historic numbers of MW applied for and granted in the DOS?
  - *Best Consulting:* On Slide 27 (Current DOS usage request process), how are there only two reasons for denial listed when there is supposed to be an economic case?
  - *CanREA:* Are there other services where a lack of compliance can result in loss of access to the service?
  - *TransAlta:* If the AESO disqualifies a DOS customer as a consequence of an audit, is there a dispute resolution mechanism in place?

ii. AESO Clarification

- Response to clarifying comments:
  - DOS is the only rate that requires economic thresholds.

- Regarding application review, the AESO takes 30 days from receipt of the application to approval.
- Regarding the historic numbers of MW of applied for DOS, these numbers can be found on Slide 90 (Historical DOS statistics) of the presentation.
- Regarding Slide 27, this slide is not about eligibility, it is about transaction requests.
- Regarding lack of compliance within other services, there are provisions within the ISO tariff that allow the AESO to terminate Demand Transmission Service (DTS).
- The AESO has a process for dispute resolution set out in the ISO rules.

Topic 2: Recap of AESO conclusions on non-firm rates

i. Stakeholder commentary

- Clarifying Questions:
  - *ADC:* Has the AESO studied the stress conditions with and without the response of the price responsive load?
  - *IPCAA:* Is the AESO forecasting load on the system or is the new issue forecasting generation on the system? In 2014 the AESO was forecasting for 2025, 16,318 MW of Alberta Internal Load (AIL) on the system, in 2019 it was forecasting 12,803 MW of AIL on the System, a decrease of over 3500 MW of AIL.
  - *Weyerhaeuser:* Can the AESO provide their information for load forecasting at an individual point-of-delivery (POD)?
  - *Alberta Newsprint:* After listening to the AESO, there's a stronger case for an interruptible rate. What I'm hearing is that the AESO did not build the system for the average load during stress conditions. Then, the argument is that some loads should not be paying the average transmission charges because the AESO did not build the system for the average load.
  - *Solas Energy:* Does the extreme conditions include 24x7 solar production at max. capacity and wind at max. from all facilities on an 8760 basis?
  - *ADC:* It seems like the AESO is aligned with the concept of coincident peak (CP); the concern is then the value. In the absence the study of the system with and without price responsive load at times of system stress, how can the value of the CP charge be adequately determined? There is some real value that happens in real time with the behaviour of particular loads. What would happen without these price responsive loads behaving as they do today?
  - *Suncor:* The AESO takes into account the diversity of load and does not stack DTS capacities, which implies that some customers add to the transmission system stress more than others independent of their contract capacity or total energy consumption. Coincidence/correlation among customers is clearly a system planning driver and should therefore be a cost driver and be appropriately reflected in rates.

ii. AESO clarification

- Response to clarifying questions:
  - The AESO continues to forecast both load and generation. Looking forward, we are not going to be seeing load growing as much. The reinforcements to serve load are very small regional developments.
  - One aspect of DOS is that there is mirror-type behaviour and capability on the system – customers will want to use that capability at peak.
  - Regarding POD level forecasting, the AESO provides some high-level details of POD level forecasting when we release the long-term outlook. However, at the level of individual PODs, there is some commercially sensitive information – that is why the AESO has not historically released POD information.
  - The AESO creates study conditions for a range of planning activities to drive longer term plans. The AESO sees interruptible rates as being locationally driven. If an interruptible rate was provided in a specific region, it would be locationally specific where providing the rate would relieve the constraint. The specificity of an interruptible rate does not align with the postage stamp constraints that the AESO is trying to operate within.
  - In creating study conditions, the likely output of solar and wind are included. We have to identify what the right combination for solar and wind snapshot conditions are.
  - Under the current embedded cost allocation method and the one the AESO is recommending, there are a set of costs that have been deemed prudent to recover. It is a construct that is looking to align cost recovery with billing determinants and rates that get as close as possible to cost causation principles.

Topic 3: Key highlights of AESO's DOS modernization recommendation

i. Stakeholder commentary

- Clarifying comments:
  - *CanREA:* On Slide 16 (The origins of DOS circa 2001), can the AESO explain using "Cost Causation" to determine the rate when the original principle was that the rate should be based on value not costs?
  - *Power Advisory:* On Slide 51 (Annual term for DOS) – any customer using DOS rate would have to have a must bid requirement. But your proposal for market participation said you could choose either to bid or not.
  - *ADC:* I would like to understand the second last bullet on Slide 51. If your load is 29 MW, would your load not be compliant?

ii. AESO clarification

- Response to clarifying comments:
  - Regarding Slide 16, this slide references that DOS is supportive of cost causation principles. DOS does not cause costs and therefore having a rate that is based on value, aligns with cost causation principles.

- Regarding Slide 51, the AESO's proposal for energy storage market participation said customers could choose either to bid or not. But we believe the best way to modernize the transaction portion of DOS is to have DOS moved into real time operations.
- Regarding the second last bullet on Slide 51, what the AESO was trying to highlight here is that if your load was at 20 MW, the settlement of DOS relies on metered volume. So, if your metered volume never got up to your DTS contract capacity, that energy would still be charged under DTS. When responding to a bid, the dispatch instruction is based on where your load is currently at and where you were dispatched from a compliance perspective.

Topic 4: AESO's DOS modernization recommendation

i. Stakeholder commentary

- Some participants were concerned with the AESO's use of historical data:
  - *Capital Power:* Has the AESO looked at different energy storage configurations? There's a bit of concern with always using historical behaviour to predict what future behaviour will look like.
  - *ADC:* Given the lack of historical use of DOS, how is the historical assessment of usage relevant?
  - *TransAlta:* What relevance does historical DOS load have if there weren't any energy storage providers under DOS in this historical period?
- Some participants were concerned with the perceived penalization within the AESO's modernized DOS recommendation:
  - *TransAlta:* It seems like the AESO has designed two penalties – the DOS customer that consumes above the rate is curtailable/interruptible and then also incurs the same cost as a DTS customer. If you charge the customer DTS, why would they be curtailable today (isn't this rate design discriminatory)?
  - *TransAlta:* Why is the AESO concerned about load customer dispatch compliance (why is it an issue if the customer doesn't consume their full DOS)? I'm not understanding the penalty on the customer's ability to get DOS in the future if they have already been ratcheted in the past.
  - *ADC:* With respect to meeting the dispatch requirements, this is problematic because if you're paying for DTS service for 20 MWs, you are offered 10 MWs and only use 5 MW, why would you have to dispatch below your DTS capacity? You shouldn't be required to interrupt below your firm level.
  - *ASCENT Energy:* Regarding the energy market versus DOS tariff charge – is it fair to say that one can only get the DOS rate (and avoid a DTS ratchet) if they bid (rather than give notice)? In the current DOS tariff, you have to give notice that you're planning to access your DOS – that's being replaced by the bidding process. If you fail to bid, you'll just run over your DTS limit, set a new ratchet and your bill will be bigger?
- Clarifying comments:

- *TC Energy:* On the business case piece, what I worry about is the subjectivity associated with it. Two parties might submit business cases that are similar and one might end up being eligible for DOS and the other might not be. How does the AESO plan to address that?
- *TC Energy:* If a new revenue stream becomes available for a facility that bumps you above 20 per cent, they might now get pushed off DOS to DTS, which means you'll have to forego the new revenue stream. Can the AESO bump it up to 25 per cent to allow for more flexibility?
- *Best Consulting:* What would your bid be at various points on the graph on Slide 63 (DOS maximum load factor – Example)?
- *Capital Power:* Given the 20 per cent load factor is an annual measure, and settlement is monthly. How will this be performed? Will the AESO have to retroactively adjust its billings if load exceeds the 20 per cent?
- *Solas Energy:* Would you expect energy storage to use Supply Transmission Service (STS) and DOS or would DOS be used for charging and discharging?
- *Capital Power:* At what stage in the AESO's connection process would it assess a DOS request?
- *CCA:* Given that DOS capacity is not planned, what is the mechanism for recall in the event of transmission stress situations? I note that energy market dispatchability is purely an energy market issue and not a transmission one.
- *Solas Energy:* What is the AESO trying to achieve with DOS? What's the design based on (i.e., other jurisdictions)? Why do you need the application with commercially sensitive information? Are you bidding in the rate of change of charge or are you bidding in the absolute?
- *Chapman Ventures:* If there was a limitation on the system that wasn't just related to having firm capacity, there would be instance where STS wouldn't be available as well. All things equal, would that be a decision left to the project proponent?
- *ATCO:* Looking for clarification on the maximum annual DOS limit of 20 per cent. For a load contracted at 10 MW DTS, is the maximum annual 20 per cent load factor calculated as: (a) 10 MW x 20% x 8760 = 17,520 MWh or (b) 10 MW x 80% x 8760 x 0.2 = 14,016 MWh? Is the annual DOS limit applied monthly as the above number divided by 12?
- *Alberta Newsprint:* We're making it very cumbersome on the load – we'll end up with a similar issue that we have now that not a lot of people will take to DOS.
- *ADC:* The DOS tariff was presented as a potential opportunity for the most impacted customers. But now that the AESO has introduced the 20 per cent load requirement, it would put DOS out of eligibility for those customers. Where did the 20 per cent come from?
- *ADC:* Would there be any possibility just for the DOS to be a standard bid in the energy market? Could you just not have the 10 MW bid in and when you use it you use it?
- *Best Consulting:* As DOS is an opportunity service and transmission won't be built for it, what would you do if a firm load showed up and wanted to use the capacity and are willing to pay DTS for it?

- *Lionstooth Energy:* From a quick scan of the AESO's project list, there are about 14 storage projects in the queue. Over half (~eight) of these appear to be connecting via the Distribution system. Has the AESO had discussions with distribution facility owners (DFOs) for how DOS concepts would flow through to the DFO tariffs? Is there a concern that there will continue to be different tariff signals sent between ISO and DFO tariffs?
- *DePal Consulting:* It sounds like a storage proponent might want to have a certain level of DTS because that protects them. If that's the case, that's really up to the project proponent on how much risk they want to take?
- *Suncor:* Concerned about a subgroup of industry discussing rate alternatives, as rates classes should principally be open to everyone. Further, if there is financial mitigation, it will have to be financed by other ratepayers, so those ratepayers should be allowed to be at the table. Asked the AESO to consider opening up for participation outside of the targeted mitigation customers?

ii. AESO clarification

- Response to comments regarding the perceived penalization for DOS users:
  - The AESO is not going to force customers to consume their dispatch level.
  - If a customer doesn't bid and runs over their DTS, then their bill would be bigger.
  - Regarding the perception of "double penalties", when a customer is dispatched to provide the DOS and if they exceeded their 20 per cent, there would be no impact to their contract capacity for DTS, but the AESO would charge that portion to the DTS rate. If the customer is consuming above the DTS contract capacity outside of the DOS, that is a different assessment covered by other provisions in the ISO tariff.
- Response to clarifying comments:
  - The business case was always there for DOS. The AESO understands it is a qualitative assessment with some subjectivity. The current DOS heavily relied on the business case. We think that by adding the load factor, goes a long way to assessing the overall application and there's less emphasis based on the business case.
  - DOS is not a rate for only energy storage.
  - For energy storage there are a wide range of energy storage implementations and the AESO would have to consider these in the assessment of the business case.
  - The current bidding rules would allow you to submit the bid whenever you choose to bid. If you weren't above your DTS line and you submitted a bid, you would still have to respond to the dispatch even though it's not technically your DOS load. Settlement and dispatch aren't closely coupled because it allows customers to control both load and bid.
  - Regarding time periods, the load factor was to be an annual load factor and the settlement done on a monthly basis. There would be an adjustment made to the monthly bill to calculate that on a go forward basis.
  - The expectation is that you have to demonstrate you can operate the asset without DOS energy, under DTS. If you didn't have DOS energy, how would you ever charge your asset.

- DOS is using capacity that is deemed excess, that capacity is recallable. You could not operate a site without at least some capability to charge and we think there's a minimum that should be chargeable by DTS if DOS was unavailable.
- The minimum charge to DTS is part of our assessment to determine whether you're relying on DOS completely.

- Regarding transmission stress situations, even for energy market assets, there is the possibility for constraint and the AESO has the ability to constrain down assets. We would apply the same tools to DOS loads if a local constraint were to happen.
- There's a distinction between dispatching and settlement. The way dispatching works today is on a merit order. The controller is looking for a delta change between the time you were dispatched and the time when they expect you to change your load. That load may or may not be DOS load.
- Regarding the targeted mitigation engagement, the AESO will be asking what parts of this proposal work and don't work for mitigation.
- The 20 per cent load requirement is included in the proposal here so we can find the right balance between DOS and DTS in order to avoid DTS cannibalization.
- Regarding the how DOS concepts would flow through to the DFO tariffs, the AESO hasn't completely thought through all of that, but depending on the right metering and ability to respond by the energy storage distribution connected, don't see major issues right away. There is more work to be done by the AESO on this.