Session 5B (DOS) – May 20, 2021 Comments

Stakeholder comments on Session 5B (DOS) [Posted June 1, 2021]

1. Alberta Direct Consumers Association (ADC)
2. AltaLink Management Ltd.
3. Canada West Ski Areas Association (CWSAA)
4. Canadian Renewable Energy Association (CanREA)
5. Capital Power Corporation
6. Consumers Coalition of Alberta (CCA)
7. Dual Use Customers (DUC)
8. Energy Storage Canada (ESC)
9. ENMAX Corporation
10. Greengate Power Corporation
11. Heartland Generation Ltd.
12. Industrial Power Consumers Association of Alberta (IPCAA)
13. RMP Storage Canada
14. Solas Energy Consulting
15. Suncor Energy Inc.
16. TC Energy
17. TransAlta Corporation
18. Turning Point Generation
19. Utilities Consumer Advocate (UCA)
20. West Fraser Mills Ltd.

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Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 31, 2021	**Contact:**	Colette Chekerda
Comments From:	Alberta Direct Connect - ADC	**Phone:**	780-920-9399
Date:	[2021/05/31]	**Email**:	Colette Chekerda

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was valuable in that DOS required it's own session, however clearer examples and description of how the DOS is expected to work would have been helpful.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	The ADC supports the initiative of moderninzing DOS, however the AESO proposal for DOS apears unnecessarily complicated and will continue to be underutilized in it's proposed form. The energy market compliance requirement to reduce the total block of DOS energy, even where that means to interrupt "firm" DTS load is not consistent with the intention of the tariff design. The dispatch should be a "down to" DTS contract level – similar to what the capacity market envisioned for load resources. The AESO's additional information may suggest this is how it would work in practice, but customers would need to be clear on compliance requirments. Further, the basis for the 20% load factor seems arbitrary. It is unclear what the purpose of the load factor requirement even is. If the participant meets the eligibility criteria for DOS, then it would be in the best interest of other rate payers that the volume be maximized to provide incremental revenues.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	ADC recommends the following modifications: *1. Remove the maximum load factor requirement* If the opportunity meets the eligibility criteria, and would be foregone revenue if the DOS is not granted, then it is in the best interest of ratepayers to maximize the use of DOS. *2. Eligibilty criteria should include a. a credible by-pass opportunity and b. should be extended to price responsive load.* First: If a load can demonstrate they would exit the grid in the absence of DOS, then DOS should be granted in this circumstance. This would keep more load on the grid, and delay grid defections, hopefully to the point where CTI projects have been depreciated and DTS costs become more attractive than a bypass option. Once a load makes the decision to defect from the grid, they are not coming back and their future revenue contribution is gone. Most loads do not want to be generators and are only doing so to remain competitive in Alberta. Although many parties/agencies are going to extreme lengths to hold loads hostage to an overbuilt transmission system (self-supply and export restrictions, adjusted metering practice that would move existing net metered sites to gross metered sites with a SASR change, the proposed DTS tariff), these restricitons will only lead energy intensive loads to more extreme measures to remain competitive. This includes moving production to other more attractive provinces or completely defecting from the grid. This result will be detrimental to Alberta ratepayers, the Alberta economy, jobs and future investment in the province. Second: Loads that demonstrate consistent CPD and energy market response should have that portion of their load eligible for DOS. This would result in several key benefits to all ratepayers. • Load retention and revenue enhancement: Energy intensive and trade exposed loads respond to price signals in order to remain competitive in Alberta. The proposed DTS tariff renders these loads uncompetitive. The mitigation solution needs to be a permanent rate option. An interruptible tariff is preferrable, however DOS could serve as a proxy with changes. Having qualified price responsive load granted DOS will keep these loads on the grid and continuing to contribute to the transmission revenue requirement. • Energy market stability: The 400 MW of price responsivle loads are aggressively responding to coincident peaks. This response is not

		confined to one 15 minute interval, but happens many hours each month. This creates several inefficiencies in both productivity for industrial facilities designed to maximize output, and inefficiencies in the energy market. • Productivity improvement: Having price responsive loads operate under a DOS tariff instead of DTS will enhance productivity and economic output of manufacturing facilties. This may increase the revenue contributed from these customers compared to the current DTS tariff while keeping their facilties viable in Alberta. 3. Allow a standing DOS bid in the energy market for 7 min DOS with a down to DTS contract level requirement under tx constraints or EEA events. Loads paying for firm DTS service should not have to remove a block of energy to below this level. Energy market rules would need to be developed such that compliance is not an issue if the site load level was at or below the DTS contract level. This appears to be the direction the AESO is moving based on the recent published examples, further exploration of the standing bid concept is required for DOS not used for planned generation outages. 4. Remove the loss factor charge. Losses are the responsibility of Generators, it is unclear what the AESO would do to publish and determine the loss factor for qualifying DOS load.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	The AESO DX-TX meeting of May 26, 2021 indicated that the AESO is intending on publishing transmission and substation capability maps to assist generators in deciding where to connect. This same work could be used for DOS customers to understand the capability in their area as well as a future outlook.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	No further questions
6.	Additional comments	DOS could provide an opportunity to grow into Alberta's transmission system. Using DOS with some certainty allowing customers to continue contributing revenue requirement. ADC would appreciate a response to the suggestions as to whether the AESO will consider and provide an explanation of why not. The ADC has provided several prior comment matrices on the proposed tariff and have not received any feedback on our comments or concerns.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 28, 2021	**Contact:**	Hao Liu/Rob Senko
Comments From:	AltaLink Management Ltd.			**Phone:**	403-710-1247 / 403-874-6762
Date:	[2021/05/31]			**Email**:	Hao.liu@altalink.ca / rob.senko@altalink.ca

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was valuable in that the AESO presented their existing and proposed DOS tariff.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	See response below.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	The transmission system should be used efficiently and where possible, an opportunity service makes sense – but only if customers find the rate easy to use and there is an overall benefit to the system.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	No.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	No.
6.	Additional comments	None.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Rick Cowburn
Comments From:	CWSAA			**Phone:**	(403) 397-8785
Date:	2021/05/31			**Email**:	rcowburn@vidya.ca

Instructions:

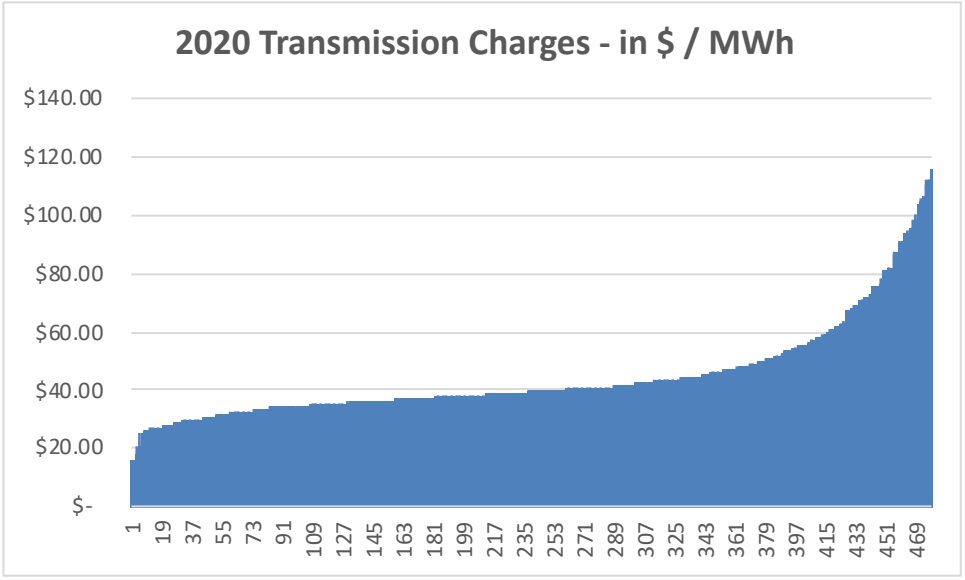
1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	Yes, the session was valuable, and the AESO's presentation made the proposal reasonably clear for present purposes.

2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	No, this DOS recommendation cannot be supported as its paucity of clear, objective qualification criteria appears likely to further accelerate transmission revenue erosion and bring little if any net gain to customers. The original and enduring purpose of DOS is: "Available to customers who could clearly demonstrate that their use of the transmission system would not be economically viable at the rates otherwise applicable." [slide 16] As the Commission stated: "Consistent and reliable application of qualification criteria is essential to the success of opportunity rates. To improve the chances of the accrual of benefits to other customers, effective screening criteria and regular audits are required." [slide 17] What is the test for economic viability fundamentally about? < *Simplified Generator-Based Analysis* > Rather than getting lost in a theoretical ratemaking fog, consider a conceptual, simplified situation in which a customer has an inefficient generator that typically costs (say) $100 / MWh to operate (its capital costs are sunk and irrelevant to operations). We assume for discussion purposes that operating that generator would reduce transmission charges by $40 / MWh, for a net cost of $60 / MWh. If the Pool Price is over $60 / MWh, then it's cheaper to run the generator; if the pool price is under $60 / MWh, then it's cheaper to buy power from the pool and pay the transmission charges. The pool price determines when it is economically sensible to run the unit, as the market design intends. Now suppose that a DOS discount of $30 / MWh is offered on transmission charges, taking the marginal transmission cost down to $10 / MWh. The unit still costs $100 / MWh to operate, but doing so only saves $10 / MWh of transmission costs, for a net cost of $90 / MWh. So the effect of DOS is to move the pool price point at which the customer's generator would be operated. Without DOS, prices would have to be below $60 / MWh to turn on; with DOS, below $90 / MWh. In this simple situation, whether or not DOS has an overall customer benefit depends entirely on the pool price. When the pool price is in that $60 - $90 / MWh range, the DOS discount will turn off a unit that would otherwise have operated. Outside of that range, the DOS discount would have no impact on whether the unit should run.

		< Question: Overall Market Impact of DOS ? > Now comes an interesting question, which does not appear to have been recently considered: what is the **total** impact of DOS on customers? If the pool price is in the $60 - $90 / MWh range, the DOS discount could in effect shut down a unit which would otherwise have been run,and lead to taking more power from the pool (which after all is the whole point of DOS – to increase use of transmission, and hence to increase generation moving through the pool). Taking more power from the pool creates upward pressure on the pool price, so all Albertans taking power from the pool will tend to pay more as a result of the DOS discount. If this was a 10 MW generator, then using DOS to shut it down would add 10 MW X $13 / MWh = $130 per hour of additional transmission revenue. If shutting the unit down moved the pool price up by (say) $1, then the increase in pool prices could be on the order of 10,000 MW X 1 = $10,000 per hour. From a pool perspective, turning an on-site generator off has the same effect as turning a load on, and vice versa. A generator's economics are simpler than the economics of incremental customer production, but the question is the same. Seen holistically, it is not clear that DOS would bring an overall benefit to customers. It would be helpful if the AESO could consider this question and put the matter to rest – or raise it to consciousness. *< DOS Opportunities in a Market Context >* In practice, what is the magnitude of the DOS discount? Is it really significant enough to drive customers' production decisions, or is it just a subsidy? "The DOS rate is estimated to change from ~$5/MWh to ~$13/MWh under the preferred rate design." [slide 49] Analyzing the 2020 POD charge data provided by the AESO in Exhibit "25175_X0009_AppendixF-2020 Bill Impact Analysis", the average cost per MWh is distributed as follows:

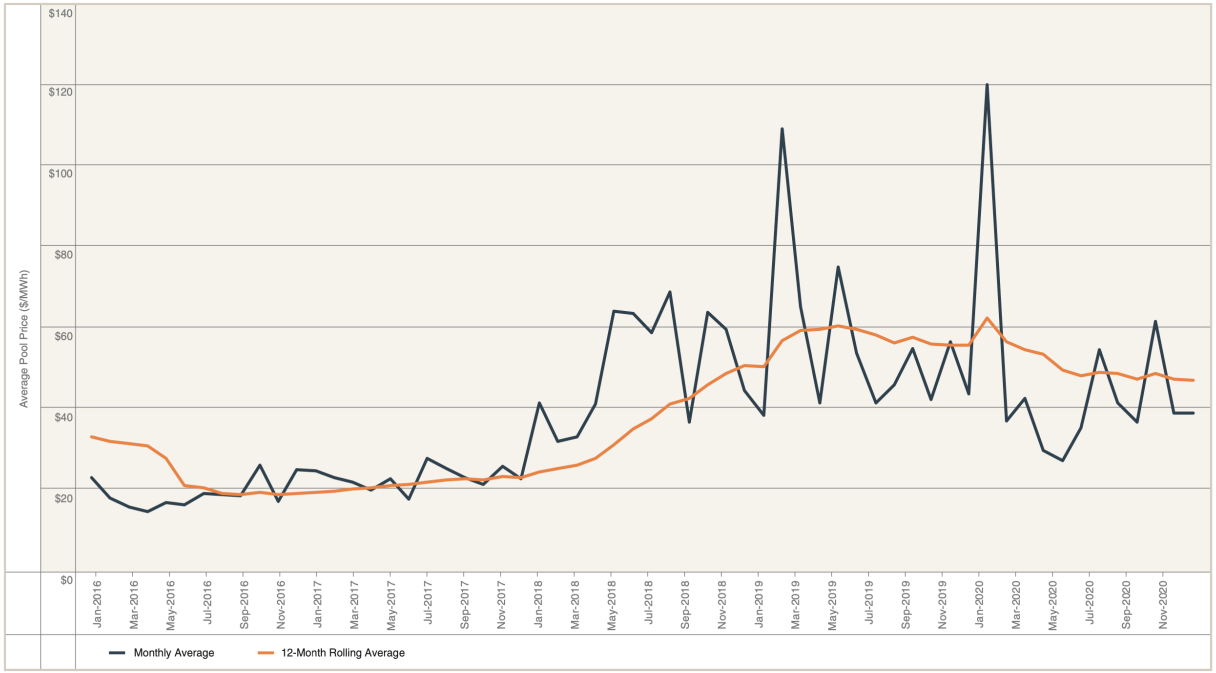


The median value is about $ 40 / MWh (omitting charges < $20/MWh and > $120/MWh), a rough high-level indicator of potential transmission savings. Of course in a real-world situation, the effective DOS discount could be much higher – or lower.

If DOS costs $13 / MWh, and transmission costs $ 40 / MWh, then DOS is providing a customer discount on the order of $ 27 / MWh.

The AESO's 2020 Annual Market Statistics report provides a context to consider such a DOS discount:

FIGURE 1: Monthly average pool price



It appears that month-to-month variations in pool price are often of the same order of magnitude as the example's DOS discount of roughly $27 / MWh.

"The original EAL* tariff application described opportunity service as

- A short-term temporary service, provided on an as-available basis
- Available to customers who could clearly demonstrate that their use of the transmission system would not be economically viable at the rates otherwise applicable
- Used for short periods, in order to avoid the impact of contract demand or ratchet charges that would otherwise result" [slide 16]

DOS is looking for situations in which a $27 / MWh short-term discount determines whether additional product will be produced – or not. Such situations will likely be very rare, as production which would be curtailed by a $27 / MWh transmission charge would presumably also be curtailed if pool prices increased by $27 / MWh. It is therefore not surprising that DOS has been little used over time, as in the

		scheme of things the discount offered is not that large and the economic qualification criteria will seldom be met. < *DOS Qualification Criteria* > It bears repeating that "the Energy & Utilities Board agreed and went further to state - Consistent and reliable application of qualification criteria is essential to the success of opportunity rates - To improve the chances of the accrual of benefits to other customers, effective screening criteria and regular audits are required" [Slide 17] The AESO has proposed a three-part qualification framework: i. Technical assessment, ii. Business case assessment and iii. Limited use. i. **Technical Assessment:** As a result of past government policy decisions, Alberta has a large, long-term surplus of bulk and regional transmission capacity. Physical supply will seldom constrain DOS; this test provides little if any protection against revenue erosion. It is good to know that DOS will not be considered in future system planning, but the problem is with the existing system, not future builds. ii. **Business Case Assessment**: It is profoundly concerning that this "will remain a qualitative assessment", that is to be "plausible" and "a convincing case." Determining whether a DOS discount really drives a production decision will generally be a profoundly difficult exercise, not unlike the analysis required in a rate regulatory proceeding. Where a facility produces a commodity whose prices are publicly visible, the **revenue** side of the business case can be objectively assessed, and should be a major driver of the qualification calculations. When commodity prices are low, there will be a flood of applications – but if commodity prices rise, will the AESO be watching, and rescind DOS 'deals' that are no longer economically necessary to justify additional production? Should the DOS discount not move when commodity revenues move? The **cost** side is much messier, as regulatory analysts know only too well. To objectively determine incremental productions costs requires 'picking out' all the incremental cost items and assessing them against reasonable norms. This is hard enough to do in the electric industry where business operations and costs are very well and publicly understood; in unfamiliar industries with multi-national reach and a broad range of activities, it would be extremely difficult except in rare, clear cases. The business case assessment also raises questions of competitive fairness. Facility A has high internal costs, and at current market revenues cannot operate its idle capacity without the DOS discount. But facility B down the road has lower internal costs,

		and does not really need the DOS discount to operate its idle capacity at a profit. So does the inefficient operator get the subsidy, while the efficient operator does not? Or do we subsidize an entire industry segment, treating all alike? And do we care at all about and seek to monetize the environmental impact of bringing old, inefficient facilities back into production? The fundamental premise of DOS is that customers maintain idle production capacity, ready to leap into action when a discount is offered. Really? The infrequent use of DOS suggests that this is a rare situation, as one would expect. There is no evidence that there are a substantial number of unrealized DOS-applicable situations. The anticipated increase in DOS applications has every appearance of a being a discriminatory 'giveaway' program whose specific qualification criteria are currently quite unknown. iii. **Limited Use:** The 20% load factor constraint supports the concern that there will be a "potential increase in the number of applications" [Slide 46] One would anticipate the appearance of a new cottage industry focused on fabricating credible DOS applications, leading to widespread and embedded dependence on this discount. (And to the same problems now being experienced in weaning customers off of the 12CP discount…) Rather than providing customers with reassurance that DOS 'giveaways' will be 'effectively secreened' with 'regular audits', this constraint highlights the potential for DOS to become a 'giveaway' program to provide relief from Alberta's high transmission rates. There may be merit in providing discounted transmission rates to certain types of customers – but that is a policy and legislative question, not a rates matter.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	Whether or not DOS brings any customer benefits is entirely dependant on the qualification, screening and audit processes. Until and unless those processes are clearly defined, customers not using DOS cannot have confidence that DOS will not devolve into back-room deals designed to placate major users, and customers using DOS do not know the case they have to meet. Much attention has been given to the back end AESO administrative processes like dispatch, and comparatively little attention appears to have been paid to the critical up-front qualification processes. Meaningful, detailed analysis of production costs and product revenues will be vigorously resisted by customers, as it would imply disclosure of highly confidential competitive data. Vague, 'qualitative' assessments that open the door to transmission revenue erosion will be vigorously opposed by customers paying the bills, and would doubtless be of concern to the Commission. Difficult as it is, this impasse needs to be addressed in consultation, not brushed over until litigation begins.

4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	It is not clear how DOS modernization meaningfully addresses the specific situation of storage providers. Storage should be dealt with as a separate issue.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Increasing transmission system use will necessarily place upward pressure on the pool price, offsetting customer benefits from increased DOS revenue. An assessment of overall impacts would be most useful in assessing in what circumstances DOS is indeed of overall benefit to customers. The detailed specifics of the DOS qualification process need to be clearly set out so that both prospective applicants and customers paying the bills are aware of the requirements and their required rigor (or lack thereof…).
6.	Additional comments	The AESO's efforts to develop this most challenging tariff application are recognized and appreciated. Onward!

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 28, 2021	**Contact:**	Leonard Olien
Comments From:	Canadian Renewable Energy Association	**Phone:**	587-971-0049
Date:	2021/05/31	**Email**:	lolien@renewablesassociation.ca

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was helpful. It would have been more helpful if the AESO had prepared several examples to help focus the discussion on key issues and to illustrate how the modernized DOS will interact with the proposed market rules for energy storage. The examples provided by the AESO on May 26 may have reduced some of the confusion for load customers, however, examples specific to energy storage are required.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	In general, CanREA is supportive of the AESO recommendation for a modernized DOS as it may reduce the barrier to participation that results from the current DTS treatment. As detailed below, further details need to be discussed before CanREA can give unqualified support to the proposal, but there is the potential for the modernized DOS framework to result in a workable tariff treatment that would apply to energy storage technologies.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	1) Qualification: The removal of the yearly qualification is very helpful for the participation of energy storage through a modernized DOS tariff. Regarding the need to submit a business case for storage, based on the AESO's own analysis, storage is eligible because storage projects will not be built under a DTS contract. CanREA suggests that there should be a simple, standard business case for storage qualification 2) DTS: The AESO stated in the session that they expected an asset using DOS to also have a DTS contract. This expectation is contrary to the rule that, to qualify for DOS, the asset must have a business case that the opportunity would not be economic under DTS. DTS is universally uneconomic in the case of energy storage technology. If having a DTS contract is essential for settlement reasons, then the minimum required DTS contract size needs to be less than 0.1 MW. 3) Must bid requirement: While we understand the motivation for the must bid obligation, there is considerable uncertainty about how this would work in practice. For example: a. For a stand-alone storage facility that does not want to charge in a given hour, is a bid still required? b. Are bids required to be submitted at T-2? CanREAS requests that the AESO provide a examples of expected bid behaviour for an energy storage facility that is participating in the ancillary services markets. 4) Hybrid Assets: The AESO stated that for facilities with a DTS and DOS contract, energy withdrawn from the grid would count towards DTS first and DOS second. A hybrid installation may require DTS capacity for station service, however using the DTS volume for energy storage may be un-economic. CanREA recommends that market participants with a hybrid installation be allowed to choose between adding DOS capacity to the station service DTS capacity or have DOS service as a separate asset within the AESO system. 5) Annual Capacity Factor: While CanREA recognizes the motivation for including a capacity factor limit, we are concerned that 20% is too low, especially for longer duration energy storage technologies, and is based on analysis of historical data that does not represent how energy storage technologies will operate. Long duration energy storage technologies, with the ability to store several days' worth of energy or more, will be

		increasingly useful as the penetration of wind and solar generation increases. CanREA requests that the AESO re-assess the need and level of the proposed capacity factor including an analysis of potential behaviour of long duration energy storage technologies.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Global energy storage investments are experiencing exponential growth. CanREA is concerned that the proceeding to approve the Bulk & Regional tariff application could take considerable time and would result in delays to potential investments in energy storage technologies, with negative implications to both system reliability and system costs. The AESO should consider strategies that will allow for earlier approval of the modernized DOS. For example, the AESO could consider a separate submission to the AUC for modernized DOS or could ask for expedited consideration and ruling on DOS.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	The AESO indicated that DOS volumes are not used for transmission system planning purposes because DOS loads can be curtailed if needed to manage system stability. The naïve conclusion is that there should always be "room" on the system for a particular DOS resource with the risk for curtailment carried by the market participant. However, the AESO has indicated that an assessment of available transmission capacity will be undertaken for a DOS application. CanREA would like to understand how the assessment will be made and what considerations will be used. CanREA would also like to understand the interaction between ancillary services participation and the must bid requirement. For example, if a 1-hour battery is providing spinning reserve, and is dispatched for one half of the capacity in a given hour, how would the facility manage bid volumes so as to be able to charge in the next hour so that the full facility capacity will be available for the remainder of the day?
6.	Additional comments	On May 26, the AESO provided several useful examples. Further storage specific examples would be useful to illustrate: 1) How the must-bid requirement for DOS operates with both full-range and half-range market participation for energy storage assets 2) How the must-bid requirement for DOS operates for hybrid assets that utilize the variable block mechanism.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Matthew Davis
Comments From:	Capital Power			**Phone:**	403.540.6087
Date:	2021/05/28			**Email**:	mdavis@capitalpower.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was valuable but would have benefited greatly from additional examples as much of the session was spent addressing industry understanding of the proposal. While the AESO's publishing of some examples on May 26th provided additional details, it did not provide sufficient details on many aspects of the AESO's proposal and fails to fully alievate the various questions that were posed in the stakeholder session.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	At this time, Capital Power is supportive of the general direction the AESO is taking with DOS modernization but believes that several details will require substantial review and consideration. These include, but are not limited to: • The 20% load factor limitation appears limiting for longer duration energy storage applications and those that may have frequent charge / discharge cycele. The following table illustrate this.

Figure 1 – illustrative comparison of load factors for different storage configurations

		"Typical" Daily Cycling 4:1 energy to capacity	"More Frequent Cycling" Twice Daily Cycling 4:1 energy to capacity	"Longer Duration" Daily Cycling 6:1 energy to capacity
Capacity	*MW*	1	1	1
Energy	*MWh*	4	4	6
Efficiency	*%*	20%	20%	20%
Cycles per year	*#*	365	730	365
Charging Energy	*MWh*	1752	3504	2628
Load Factor	*%*	20%	40%	30%

Notes: charging energy = energy x (1+efficiency) x cycles per year; load factor = charging energy ÷ (capacity x 8760)

While it appears that the AESO has based this only on past behaviour, in this instance, this is highly unlikely to be result in a good predictor on how new asset classes and use cases may utilize a modernized DOS framework. Capital Power would suggest that the AESO evaluate how future DOS users may use the tariff prior to determining a specific limit. Further, Capital Power requires more information around how the AESO would evaluate a load factor measurement across a year while settlement is performed monthly.

- The AESO has yet to present details on how DOS applications will be assessed. For Capital Power to better understand the proposal, the AESO needs to clarify at what stage of the connection process DOS will be assessed. The AESO also needs to articulate what is required in the business case, how it plans on assessing them in a consistent manner, and what recourse is available in the event of a disagreement. To reduce red tape, Capital Power suggests that the AESO's test be simple and clearly codified.
- Capital Power is concerned with AESO statements made in the May 20th session that energy storage assets must take out a DTS contract as well as a DOS contract. For no other generator does the AESO require a certain level of fuel supply reliability. The AESO should clarify its intent around requiring energy storage assets to also have a DTS contract, when one of the reasons for being granted a DOS contract, is that operating under DTS is infeasible for the project.

	Questions	Stakeholder Comments
		• The AESO's proposal appears to support a "may-bid" requirement for DOS. While this is in-line with current load requirements, the AESO did not clearly articulate how this would effectively work. Further, the examples provided on May 26th appear to indicate that the AESO could expect DOS units to submit a bid and move MWs into the bid and get dispatched when they elect to take DOS. More carification on how the AESO intends DOS participants to bid and how related market rules such as restatements and load outage reporting would assist market participants in better understanding the proposal. • The AESO appears to indicate that DOS capacity would be given its own bid capacity and will be able to participate in the operating reserve markets. Capital Power would like to better understand how this will work if only a portion of the load that participates in the operating reserves markets qualifies for DOS. • Further, given the importance of this rate for energy storage, Capital Power suggests that the AESO clearly articulate how its ES market participation rules will align with rules around DOS. The use of DOS appears to tangentially align with the AESO's full-range market participation option, in that charging under DOS would require a bid, but a full explanation would be useful to fully assess. Overall, while the AESO has identified the DOS framework as one that could be used for opportunity service, significantly more detail on the mechanics of DOS modernization will be implemented in the market is required for it to be fully tested by stakeholders. This includes additional clarity on qualification processes, energy and operating reserve market participation rules, and compliance and settlement procesess .
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	Please see Capital Power's response to question #2.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Capital Power appreciates the AESO's description of how it accounts for controllable loads in its transmission planning. While useful, it is important that the AESO further explore how these loads would participate in the market and what level of transmission service they require so that the AESO can better reflect these

	Questions	Stakeholder Comments
		in their planning studies. Based on the interest in leveraging DOS modernization by both energy storage, and other loads that can be curtailed there appears clear interest in more than just a single firm service level for transmission access. While the AESO has stated that it will not "be prioritizing" development of additional information of location and available transmission capacity for DOS, Capital Power believes that the AESO should, at a minimum, provide a plan on when it intends to do so as it would be inconsistent with a technology neutral approach to provide a renewable capacity availability assessement while not providing a similar type of assessment for energy storage and other interruptible loads.
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Capital Power has appreciated that the AESO has published prospective rates for DOS and DTS. To fully understand the DOS proposal relative to export opportunity service (XOS), Capital Power requests that the AESO publish a prospective XOS rate as well.
6.	Additional comments	While Capital Power is supportive of the AESO's timeline extension request, it is concerned that the AESO's presentation of materials at session 6B will be insufficient to properly engage stakeholders on the DOS modernization before preparing and submitting an application in front of the Commission. Given the expected timelines that the AESO presented, Jan. 1, 2024, Capital Power would be supportive of the AESO treating DOS modernization through a separate application so that changes to DOS do not get delayed with other changes.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Raj Retnanandan
Comments From:	CCA			**Phone:**	Contact Phone Number
Date:	[2021/05/31]			**Email**:	

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was helpful

2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	We estimate that the DOS rate of $13 per MWh would amount to about a 67%($39.6/MWh-13.0/MWh)/$39.6/MWh) discount relative to average transmission costs of about $39.6/MWh (calculated). The above noted discount may be higher for industrial customers to the extent their firm rates are lower than average. As long as the customer's cost of production (say $100) exceeds the DOS rate of $13 plus pool price, the customer would buy energy from the pool. Conversely, if the DOS rate ($13) plus pool price (say $90) exceeds the customer's cost of production the customer would self generate. The threshold point the customer would curtail DOS would be when pool price is at $87 ($100-$13), in this hypothetical example. Assume the customer has a billing capacity of 100MW. To the extent the customer needs standby energy, that requirement is presently covered under the existing billing capacity. Under this scenario the customer pays no incremental transmission charges, on a $/MWh basis, for use of standby energy. Therefore the threshold point the customer would curtail the use of system energy would be when pool price equals or exceeds cost of self generation. In this example the thresholdpoint would be $100. Assume that the customer opts for the proposed DOS and assume that the customer chooses to reduce the billing capacity by 20 MW (MW reduction corresponding to 20% load factor DOS energy) in order to serve its standby requirements. In effect the customer would have replaced its firm billing capacity associated with standby load, with the non firm DOS. The intent of DOS however, is to facilitate incremental use of system energy. Would the customer draw incremental energy from the system as a result of the DOS rate? The answer appears to be no. This is because the pool price threshold point now drops to $87 and the customer would stop drawing energy from the system when pool price reaches $87. Compare this with the situation with no DOS, where the pool price threshold point of the customer was $100.00. In summary, the proposed DOS while contributing to erosion of firm billing determinants is unlikely to result in incremental use of energy as contemplated. For the above reasons CCA does not support the proposed DOS.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	For a DOS rate to serve its intended purpose the customer must demonstrate that the DOS consumption is truly incremental and the short term transaction would not occur if not for the DOS rate. The AESO has not established suitable criteria that would help identify and screen incremental use as above. Unless such criteria are established and implemented, the proposed DOS would contribute to erosion of firm DTS billing determinants. Shifting billing capacity associated with standby use to opportunity use would be contrary to the principles of cost causation because the fixed connection costs that have been put in place in order to accommodate a level of standby use are not going to be recovered by the heavily discounted DOS rate.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Please refer to 3

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	
6.	Additional comments	

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 31, 2021	through	May 31, 2021	**Contact:**	Dale Hildebrand
Comments From:	Dual Use Customers			**Phone:**	403 869 6200
Date:	2021/05/31			**Email**:	dale.hildebrand@desirataenergy.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	It would have been useful for the AESO to explicitly outline how a modernized DOS helps interruptible loads whose use of the transmission system under the AESO proposed tariff re-design is no longer economically viable.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	DUC is supportive of the concept of modernizing DOS; however, DUC has concerns with regards to the actual plan to do so. This modernization proposal may work for some energy storage (ES) facilities, but it does not work for price responsive load and does not work for co-generators. The AESO should set out what it is trying to achieve with this DOS proposal. Is this supposed to be a tariff solution for price responsive load and/or co-generators? Optimally, DOS should help optimize wires utilization in Alberta, and contribute to lowering the wires costs for Alberta consumers, regardless of the end use customer characteristics. Are there metrics to determine whether DOS is successful? It would be helpful to communicate this in advance.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	The AESO is excluding high load factor loads, presumably because they are concerned that the use of DOS will simply be about tariff avoidance. Opportunity service was described as: *"Available to customers who could clearly demonstrate that their use of the transmission system would not be economically viable at the rates otherwise applicable".* The AESO's proposed tariff re-design is effectively creating a class of industrial customers whose use of the transmission system is no longer economically viable. The AESO should acknowledge that they are creating this issue via their proposed tariff design, it is not being created by industrial customers trying to avoid their transmission cost commitments. The AESO's proposed 20% load factor limit is excluding the use of opportunity service by the very consumers who are now faced with an uneconomic transmission system. The DUC's main concern is that DOS continues to be unavailable for unplanned generation outages. Few cogenerators utilize DOS for planned outages due to the program's inflexibility. There may be opportunities for increased transmission tariff revenue that is currently foregone. Since the AESO is looking to optimize utilization of the existing transmission infrastructure, why would the AESO not study available transmission capacity and publish it? We need more load on the system. This is a good opportunity to acquire more load.

4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Alberta has a transmission system that is over-built. In its Long-term Outlook (LTO) of 2014, the AESO forecasted an AIL demand of 15,033 MW in 2021. In 2019, the AESO forecasted an AIL demand of 12,414 MW in 2021. Historical AIL Peak demand to date is 11,729 MW. There is over 3,000 MW of difference between forecast and actual which could be used to accommodate DOS. If we assume the current Alberta transmission system is designed to accommodate at least 17,000 MW of AIL (AESO's 2014 LTO forecast of 2027 AIL), there is at least 5,000 MW of difference available - a substantial portion of which can be used for DOS. The AESO needs to consider how to both retain existing load and attract new load investment to Alberta, without the need for additional large transmission build. Proper implementation of DOS can be a method to achieve both retention and expansion of load. The AESO is partially responsible for the transmission overbuild; we would like the AESO to propose solutions to utilize the excess transmission capacity available, even in the short to medium term. The DOS eligibility rules in 2021 may need to be different from 2010 and 2030. In addition, The DUC is concerned with how this proposed rate will translate from the AESO tariff level through to the distribution tariffs. If it is not a direct translation, we will be sending different price signals to ES facilities, in particular, connected at different voltage levels. This will create an unlevel playing field and possibly perverse outcomes. Does the AESO have a plan on how to resolve this?

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Please see comments above re: examples. Settlement between DTS and DOS is confusing. The dispatch tolerance introduces another level of complexity. Market participants will need better explanations. It would help to show settlement.
6.	Additional comments	DUC is concerned that the AESO has not studied the stress conditions with and without the price responsive load. In the absence the study of the with and without the PRL at times of system stress, how can the value of the DOC charges be adequately determined? What is the AESO's rationale of charging any load a loss factor? In the Alberta design, losses are paid by generation.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 28, 2021	**Contact:**	Justin Rangooni
Comments From:	Energy Storage Canada			**Phone:**	647-627-1815
Date:	2021/05/28			**Email**:	jrangooni@energystoragecanada.org

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	Energy Storage Canada (ESC) found the Session 5B valuable. The AESO appropriately provided an overview of the DOS rate, the modernization recommendations, provided responses to stakeholder comments and further details on the modernization recommendations. The session could have been more helpful if the AESO had provided insight and commentary on how DOS modernization recommendations linked with broader Alberta electricity market decisions. For example, including DOS in the energy merit order has impacts and interactions with the Alberta market design.

2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	ESC is encouraged that the AESO is proposing an opportunity service type for energy storage resources. A core function of energy storage resources is to seek opportunities to increase the utilization of the electricity system. Practically this means that energy storage will consume from the transmission system during hours when load customers use the system the least. There are a number of issues and outstanding clarifications that must be addressed before ESC can support the DOS modernization recommendations. • During the 5B session the AESO stated an assumption that energy storage under the modernized DOS must retain a certain amount of capacity under DTS for charging "to ensure capacity is available to charge". Energy storage participating under an opportunity rate must be willing to accept the risk that the transmission system may not have capacity available to allow the energy storage resource to charge. If energy storage resources require capacity to be available to charge (i.e., firm transmission service), then that energy storage resources should request DTS service for that capacity. The modernized DOS service should not arbitrarily mandate energy storage to reserve DTS capacity under an opportunity rate design. In previous sessions the AESO stated that they expect energy storage resource auxiliary service and/or station service should be covered under DTS rate. ESC agrees with this approach since this station service load is consistent and required to operate the energy storage system. The cycling of energy storage resources is performed for market opportunities and the cycling would not occur without unconstrained transmission system access. • The AESO has stated a concern of DTS cannibalization from DOS if a maximum annual load factor is not used. This approach may be appropriate for end-use customers but is not appropriate for energy storage resources. Energy storage will not cannibalize DTS since a requirement for firm capacity through DTS is a significant barrier to market participation in Alberta. In other words, without changes to bulk & regional rate design it is unlikely that significant energy storage facilities will be developed. AESO should be encouraging participation of energy storage since any payment through a DOS modernization rate would provide cost reduction for other customers. • The AESO has recommended a business case assessment to determine if a new connection can fairly use the opportunity service. The AESO admits that the business case application is subjective and increases the uncertainty of acceptability. The business case application for energy storage resources will be very similar regardless of technology type or market conditions.

		Assessing the business case each energy storage resource application is a barrier for energy storage development and unneeded administrative requirement. The AESO should provide a direct application path for energy storage resources recognizing that energy storage participation will not change and therefore has a common business case. ESC does support the following components of the DOS modernization recommendations • Removal of the term limit for DOS rate which provides certainty to energy storage assets that could operate for 20+ years • The capability of energy storage resources to offer ancillary services under DOS rate • Retaining the technical assessment for connection; any resource connecting to the Alberta transmission system should be assessed to determine if there are any negative impacts on reliability or system stability.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	• The DOS modernization recommendations create a dispatchable DOS that would have market participants bid for their energy consumption under the DOS rate. ESC is not opposed to exploring participation of energy storage resources in the energy merit order as ESC recognizes the benefits to system operation for the AESO (e.g., full range participation). Participation in the energy merit order carries additional risks and costs for energy storage that does not appear to have been considered in the DOS modernization recommendations. • Further, there are many additional considerations with respect to including energy storage in the energy merit order that are beyond the bulk & regional tariff design. Inclusion in the energy merit order requires an immediate and prompt review and assessment of Alberta electricity market design by the AESO and stakeholders to determine how storage participation may influence market outcomes and objectives. • In many ways energy storage resources are similar to interties for import and export purposes. ESC is interested in exploring XOS rate participation with similar modernization updates as the DOS rate (i.e., indefinite term, energy merit order participation, technical assessment for connection, etc.). It is not clear to ESC if the XOS rate will increase similar to the DOS rate increase or whether there are other barriers for energy storage participation.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	• The preferred rate design proposed by the AESO shifts a significant amount of transmission system costs to load on an energy basis. This increase in energy basis should not apply to the opportunity rate. The opportunity rate does not get firm transmission and the system is not built for opportunity rate participants. The transmission costs that have been shifted to be functionalized on an energy basis should not be included in the DOS rate. The system is designed to allow the flow of in merit energy and not for the flow of opportunity rate energy. Only costs associated with the flow of DOS energy should be included and these are not transmission costs (other than losses and variable O&M) by definition.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	See above discussion points
6.	Additional comments	None at this time.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Mark McGillivray
Comments From:	ENMAX Corporation			**Phone:**	
Date:	2021/05/31			**Email**:	MMcGillivray@enmax.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was valuable to understand how the AESO envisions expanding the eligibility of DOS to include other resources such as energy storage. ENMAX appreciates the additional examples provided by the AESO to illustrate DOS load bidding into the energy market. We are currently reviewing the document in more detail and anticipate we will have further questions. One main question we have is how would DOS work for an under 5 MW energy storage project and what controls and visibility would the AESO require on smaller energy storage projects?
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	At this stage, it would be helpful to understand what other options the AESO has considered outside of the proposal to modernize DOS and the justification behind its preferred option. Is there analysis available to compare the costs and benefits between the AESO's proposal versus other options such as creating a non-firm interruptible rate over the long-term? Are there examples of options in other jurisdictions that the AESO considered and reasons why they should not be pursued? It does not appear that DOS was that well received or utilized in the past and while it could be modernized regardless, it may not be the best long-term solution for energy storage.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	ENMAX is currently reviewing the "DOS bid examples document" which was recently posted on the AESO's website. If the AESO were to move forward with having DOS load bid into the energy market, more consultation would be needed to understand how the market rules would work and address any secondary impacts. Given the various ways in which energy storage can be configured, the recommendation may not necessarily work in all circumstances and could be overly burdensome for smaller energy storage projects and participants. ENMAX is concerned that the AESO may be unintentionally creating challenges for stand-alone energy storage applications.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	As noted in our previous bulk and regional comments to the AESO, the potential for changes to be made to the transmission policy and regulation could help facilitate proper rates for energy storage.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	See comments above.
6.	Additional comments	None.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 28, 2021	**Contact:**	Jordan Balaban
Comments From:	Greengate Power			**Phone:**	403-630-4581
Date:	[2021/15/28]			**Email**:	jordan@greengatepower.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	Greengate Power appreciates the AESO's continued attempts to address stakeholder concerns related to the DOS modernization, and specifically its proposed use as a tariff for energy storage charging purposes.

2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	Overall, Greengate is supportive of a modernized DOS tariff and many of the recommendations proposed by the AESO. It is our opinion that modernizing DOS is a significant improvement to the existing alternative of DTS as the only charging option for energy storage assets; however, we have some specific concerns with AESO's proposed DOS Tariff: 1. **DTS Contract Amount.** There was a discussion worth noting from the AESO's May 20th DOS session. It is understood and accepted that an energy storage facility will have a DTS contract for the auxiliary loads required to operate an asset, which is common practice for generating facilities interconnecting into the AIES. However, the AESO verbally stated that there is an expectation, or potentially a requirement, for energy storage assets to include a portion of the energy storage asset's charging volume under the asset's Rate DTS contract. Chapman Ventures raised a question and subsequent concern that an energy storage asset, that qualifies as eligible for the DOS rate, should not be mandated to incorporate a portion of the charging capabilities under Rate DTS. The decision to include a portion of the charging capabilities for an energy storage asset under Rate DTS is a commercial and operational decision; therefore, this decision should be left to the discretion of the project proponent. Greengate acknowledges and accepts that DOS is an opportunity service and does not secure firm load service, as would be achieved through Rate DTS. However, Greengate requests that an assessment is conducted during the SASR process that identifies the quantity of additional rate DTS load that could be added prior to impacting the Rate DOS capacity request. Greengate respectively requests that the AESO clarifies its position regarding this topic in writing. 2. **DOS Price and Recall Rate.** The AESO concluded that there are neither drivers for a reduction in the 7-Minute DOS Rate cost nor exploring a faster responding DOS product. We would like to see the AESO explore both of these items more fulsomely. Greengate is not supportive of assigning variable cost to the DOS rate, with the exception of the variable costs associated with the provision of ancillary services. Fixed sunk transmission costs should not be recovered from Rate

		DOS customers. Because investments in the transmission system are not, and will not be, driven by Rate DOS capacity, a significant portion of the AESO's proposed Rate DOS costs (approximately $10/MWh) should not be assigned through Rate DOS. With this in mind, it is Greengate's position that the cost for Rate DOS should solely contain the ancillary services cost of approximately $5/MWh. Greengate supports the following DOS modernization modifications presented by the AESO: 1. **Annual Term for DOS**. We agree with the AESO's proposed change to remove the annual term requirement for DOS. We also agree with AESO's rationale that introducing dispatchable DOS removes the need for DOS to have a limited term. We agree that in order to qualify for DOS a participant must actively manage their assets through the offer / bid process. It is worth noting that this requirement (and the removal of the take-or-pay requirement) would force an energy storage asset to abide by "Full Range Participation" requirements; therefore, this would negate the "Half Range Participation" alterative proposed as optional under the AESO's Energy Storage Market Participation framework. 2. **DOS Take-or-Pay Requirement**. We agree with the AESO's proposed change to replace the take-or-pay requirement with an energy market bid. It is worth noting that this requirement (and the removal of the annual term requirement) would force an energy storage asset to abide by "Full Range Participation" requirements; therefore, this would negate the "Half Range Participation" alterative proposed as an optional under the AESO's Energy Storage Market Participation framework. 3. **Ancillary Services Provision**. We agree with the AESO position that DOS load would not be excluded from providing ancillary services.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	1. **DTS Contract Amount**. Greengate requests that the AESO permits all energy storage charging capacity to be classified under Rate DOS, assuming that the asset meets the eligibility criteria to qualify for DOS. The amount of Rate DOS requested by the project proponent, for a Rate DOS eligible energy storage asset, should be left to the discretion of the project proponent. It is understood and accepted that an energy storage facility will have a DTS contract for the auxiliary loads required to operate an asset, which is common practice for generating facilities interconnecting into the AIES. 2. **DOS Eligibility – Business Case**. Greengate supports a rigorous business case and quantification to test and approve Rate DOS eligibility. We support that the AESO implements fulsome requirements driving a quantitative business case for Rate DOS. A purely qualitative "rubber stamp" approval does not reflect the importance of a careful assessment to ensure ensuring that DTS contract amounts are properly maintained and not circumvented via Rate DOS. We recognize that there will be effort required to develop suitable business case requirements; however, quantitative standards and processes are necessary to ensure that the rate is neither misused nor terminated. If a Business Case is to be required to qualify for DOS, it is requested that the business case criteria for an energy storage asset is evaluated once (to determine eligibility) and is not revisited over the operating life of the asset, unless there is a revision to the DOS application. We support administration of DOS applications through the SASR process and request further clarity on how the DOS applications will be studied in the SASR process.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	**Timeline to finalize and approve modernized DOS Tariff**. Greengate is concerned that the proceeding to approve the Bulk & Regional tariff application could take considerable time and would result in delays to potential investments in energy storage projects. The AESO should consider strategies that will allow for earlier approval of the modernized DOS. For example, the AESO could consider a separate submission to the AUC for modernized DOS or could ask for expedited consideration and ruling on DOS. For additional considerations, please see the responses provided to Question 2 and Question 3.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Yes. **DTS Contract Amount**. As expressed in our responses to Question 2 and Question 3, Greengate requests clarification and rationale regarding the AESO's comment that a portion of an energy storage asset's charging capacity would be required to fall under Rate DTS. If the AESO still stands behind this comment, it would be essential to understand whether the AESO's position is that an energy storage asset "should" or "must" allocate a portion of the charging capacity to Rate DTS. If this is proposed to be a requirement, we request that the AESO specifies what portion of the charging capacity (as a MW value, percentage value, or other stipulated measurable quantity) would be required under Rate DTS. However, Greengate reiterates our position that determination of whether a portion of the charging capacity is to be applied under Rate DTS should be left to the discretion of the project proponent. **DOS Applications via SASR**. As per our response to Question 3, we request clarity regarding how DOS applications will be administered and studied though the SASR process.
6.	Additional comments	We appreciate the continued stakeholder engagement and opportunity to provide feedback to this important process.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 31, 2021	**Contact:**	Kurtis Glasier
Comments From:	Heartland Generation Ltd. (“Heartland Generation”)	**Phone:**	(587) 228-9617
Date:	[2021/05/31]	**Email**:	Kurtis.Glasier@heartlandgeneration.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The presentation on May 20, 2021 could have been improved by including the examples (published on March 26, 2021) during the presentation itself. The explanation of the DOS modernization recommendation was not complete during the session.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	Heartland Generation is supportive of the intent to include bids from loads in the energy market merit order, and as proposed this change does not seem to affect the actual functioning of those customers. Further, Heartland Generation supports the simplification of rate DOS to a single type, with the removal of differentiated types (1 hour, 7 minute, and term) and the take-or-pay requirement. The AESO's intent of publishing available transmission capacity on the grid will be helpful for future citing decisions for both loads and generation.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	Heartland Generation is unsure if the DOS modernization proposal will address the need for a differentiated rate classes, as expressed by multiple parties during the consultation. Customers have asked for an "interruptible rate" or "opportunity service" which would allow for the purchase of a lower level of reliability than a firm DTS rate customer; this opportunity service would impose less future transmission costs on the system and commensurately have less transmission costs allocated to the rate class. This opportunity service would be mutually beneficial in ensuring that transmission planning only incorporates those requesting firm service (i.e., rate DTS), and customers rate classes would be tied directly to cost causation principles. Heartland Generation understood that DOS modernization would include discussion on the formation of a new rate definition. Re-defining rate DOS should be the focus of forthcoming stakeholder consultation efforts. The AESO should work with stakeholders to modernize rate DOS, such that it will allow customers greater choice in determining their level of service (specifically how energy storage and price responsive load customers can benefit from a different rate class from DTS).

	Questions	Stakeholder Comments
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	As proposed, the administrative changes to the DOS rate seem straightforward to implement. Given the desire for more changes to the DOS rate to allow for greater flexibility and customer choice, the AESO should explore how an overhauled rate class for interruptible service could be implemented.
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Asides from those concerns identified elsewhere in this document, Heartland Generation does not have any additional clarifying questions regarding the proposed DOS modernization recommendation.

	Questions	Stakeholder Comments
6.	Additional comments	Heartland Generation takes issue with the current and proposed eligibility criteria for DOS rate. The AESO includes an "economic test" to evaluate the opportunity, whereby a project only qualifies for DOS rate treatment if the opportunity would be uneconomic under rate DTS. This is an inappropriate consideration for the AESO, as sole seller of electricity, to require free market participants to disclose information in order to assess the economics of their business or operations. The AESO should not require an economic evaluation for a load customer to qualify for a DOS rate (or by extension any other System Access Service rate). Once the services are defined, the individual customer is in the best situation to assess the feasibility of that service for themselves, including any applicable terms and conditions of that agreement. **The AESO should remove all consideration of an economic test or evaluation from qualification for rate DOS**. The current DOS rate also includes a limitation on the ability of DOS energy to replace the energy provided by an on-site self-supplying generating unit on an unplanned outage or derate. The AESO has not provided sufficient justification for this limitation. It appears arbitrary for the AESO to prevent the usage of DOS energy if the transmission capacity on the line is otherwise unconstrained and DOS energy is available. If there is no constraint or otherwise limiting system condition, the effect from the load consuming DOS energy is the same regardless of the reason for the generator outage (planned vs. unplanned). The availability of DOS energy should be one of the only restrictions on when a load customer has access to the service. The AESO needs to look at the opportunity service currently being offered and how introduction of an opportunity service with a lower level of reliability could benefit the tariff design. Alberta electricity customers represent a diversity of load needs and flexibility, which is not currently reflected in the tariff rates offered. In general, customers wanting a lower level of reliability should receive an associated decrease in rate as the customer does not require firm service to the same extent as a DTS customer; on the flip side, the AESO would be required to reflect this desire for a lower level of reliability in its transmission planning and real-time constraint management. Once the opportunity service has been clearly defined, each customer can assess the correct balance of services (between DOS and DTS) that it will purchase from the grid.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 28, 2021	**Contact:**	Vittoria Bellissimo
Comments From:	Industrial Power Consumers Association of Alberta (IPCAA)	**Phone:**	403 966 2700
Date:	2021/05/28	**Email**:	Vittoria.Bellissimo@IPCAA.ca

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was somewhat useful; however, it is very clear that we are at the beginning of a DOS design, not anywhere close to resolving outstanding issues or gaining market participant understanding of the DOS design. Loads, in particular, are very confused about how the 20% load factor works as well as how DOS can be used and how settlement works between DOS and DTS. It would be useful for the AESO to explicitly outline how a modernized DOS helps interruptible loads whose use of the transmission system under the AESO proposed tariff re-design is no longer economically viable. The explanations provided during the webinar were confusing. It would have been useful to have several load-only examples during the webinar. IPCAA appreciates that the AESO posted examples after the webinar; however, reviewing them live with stakeholders would be beneficial. This would be a welcome addition to the June 24th stakeholder session.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	IPCAA is supportive of the concept of modernizing DOS; however, IPCAA has concerns with regards to the actual plan to do so. This modernization proposal may work for some energy storage (ES) facilities, but it does not work for price responsive load. The AESO should set out what it is trying to achieve with this DOS proposal. Is this supposed to be a tariff solution for price responsive load? Is this supposed to be a tariff solution for ES? What does success look like for this DOS design? Optimally, DOS should help optimize wires utilization in Alberta, and contribute to lowering the wires costs for Alberta consumers. Are there metrics to determine whether DOS is successful? It would be helpful to communicate this in advance.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	The AESO is excluding high load factor loads, presumably because they are concerned that the use of DOS will simply be about tariff avoidance. Opportunity service was described as: *"Available to customers who could clearly demonstrate that their use of the transmission system would not be economically viable at the rates otherwise applicable".* The AESO's proposed tariff re-design is effectively creating a class of industrial customers whose use of the transmission system is no longer economically viable. The AESO should acknowledge that they are creating this issue via their proposed tariff design, it is not being created by industrial customers trying to avoid their transmission cost commitments. The AESO's proposed 20% load factor limit is excluding the use of opportunity service by the very consumers who are now faced with an uneconomic transmission system. IPCAA's main concern is that the 20% load factor condition effectively renders price responsive loads ineligible for DOS. IPCAA understands that the 20% level is based on historical information. Using historical behaviour as a predictor for the future, when the DOS design is changing, is not a recipe for success. This is particularly true when historical usage of DOS has been minimal. In addition, the 20% load factor is an annual condition, whereas settlement is monthly. On the ES front, ES investment is based on arbitrage, i.e., the price it can charge at versus the price it can sell at. This is good for the market and for consumers. Has the AESO modelled how this DOS rate would work for ES and how the AESO's proposed dispatch to gain the DOS rate would provide the flexibility ES needs? How does this serve consumers and optimize the delivered price of electricity? Since the AESO is looking to optimize utilization of the existing transmission infrastructure, why would the AESO not study available transmission capacity and publish it? We need more load on the system. This is a good opportunity to acquire more load. The AESO's preferred DTS rate design is uneconomic for many of the sites currently targeted for mitigation. Can the AESO provide more information on how this DOS rate will be modified for these sites? Will the 20% load factor requirement be lifted? Also, the must bid requirement is overly burdensome for consumers. Have any alternative options been considered?

4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Alberta has a transmission system that is over-built. In its Long-term Outlook (LTO) of 2014, the AESO forecasted an AIL demand of 15,033 MW in 2021. In 2019, the AESO forecasted an AIL demand of 12,414 MW in 2021. Historical AIL Peak demand to date is 11,729 MW. There is over 3,000 MW of difference between forecast and actual which could be used to accommodate DOS. If we assume the current Alberta transmission system is designed to accommodate at least 17,000 MW of AIL (AESO's 2014 LTO forecast of 2027 AIL), there is at least 5,000 MW of difference available - a substantial portion of which can be used for DOS. The AESO needs to consider how to both retain existing load and attract new load investment to Alberta, without the need for additional large transmission build. Proper implementation of DOS can be a method to achieve both retention and expansion of load. In addition, IPCAA is concerned with how this proposed rate will translate from the AESO tariff level through to the distribution tariffs. If it is not a direct translation, we will be sending different price signals to ES facilities, in particular, connected at different voltage levels. This will create an unlevel playing field and possibly perverse outcomes. Does the AESO have a plan on how to resolve this?

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Settlement between DTS and DOS is confusing. The dispatch tolerance introduces another level of complexity. Please see comments above re: examples at the June 24th session.
6.	Additional comments	IPCAA is concerned that the AESO has not studied the stress conditions with and without the price responsive load. In the absence of the study both with and without the PRL at times of system stress, how can the value of the CP charge be adequately determined? What is the AESO's rationale of charging any load a loss factor? In the Alberta design, losses are paid by generation.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Robert Stewart
Comments From:	RMP Energy Storage Inc.			**Phone:**	587-920-4833
Date:	[2021/05/29]			**Email**:	Robert.stewart@rockymountainpower.ca

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	It was unclear what the AESO was doing for load customers vs. energy storage participation. Load and energy storage are different as the business of energy storage is to provide the electricity back onto the grid at a later date and generates all revenue from energy market participation.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	We are supportive of discussions around removing tariff barriers for energy storage participation in the energy market. The DOS modernization as proposed does address a key issue with the current DOS rate namely the term changing from one year to indefinite but adds additional complexity, uncertain and cost to the DOS user. Therefore, significant modifications to the AESO's proposed DOS modernization would be required for us to it.. The modernization did not state explicitly that energy storage would be viewed as an acceptable business case for the DOS rate. This should be clearly stated to remove uncertainty for all market participants. The additions that the AESO has proposed including adding a load factor limit and an energy market participation requirement lack supporting information. The load factor limit appears arbitrary and should not be applied as the DOS rate already allows for interruption when the system is stressed. Unwarranted DOS applications should be screened using the business case. The exact load factor recommended does not clearly align with the system constraints outlined nor the available transmission in the future. Finally, the modification to having DOS customers participate in the energy merit order has implications beyond the tariff in the energy market. We note that current DOS customers are not required to bid a price for determining curtailment. Curtailment is related to system constraints only. Why the change? While we are open to discussing this, particularly for energy storage participation, it should be under a curtailable opportunity rate under a similar tariff to generation as the assets system impact, dispatch performance and obligations are the same as generation.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	The changes in billing functionalization percentages means the DOS rate is expected to increase significantly. Our understanding on the justification for shifting transmission costs into the energy functionalization in the DTS tariff is based on allocating a portion of the transmission cost to the flow of in-merit energy. This cost is incurred from a transmission requirement to alleviate a transmission constraint caused by in-merit energy flow. We note that the system planning used to determine transmission constraints does not include DOS customers. We also note that DOS customers do not cause a system constraint, either demand or energy flow related, as they would be curtailed prior to a constraint occurring. Therefore, allocation of these transmission costs for in-merit energy flow are not justified for DOS customers. This suggests that the DOS customer should pay for AS, losses, administration as it is not adding any other costs to the system. This tariff should be similar to STS + AS + Losses. The AESO should consider changing the DOS recall to 5 minutes to align with system marginal price intervals. This would allow for greater flexibility for the operators and energy storage asset participation.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	If a non-firm load has a must offer must comply within the energy market and is curtailable when transmission is constrained, then it is providing the same service as a generator in ensuring the lowest cost energy to firm load customers. This is particularly important to consider with increasing levels of intermittent generation. For example, if demand with firm and non-firm load energized intersects the merit order at $90/MWh and this non-firm load bid $30/MWh into the merit order, then dispatching this load off reduces the price towards $30/MWh for all other customers. This is the same as a generator of the same size bidding in $30/MWh. Consequentially, this non-firm load that is being treated the same as a generator and providing the same service to load customers should pay for the same transmission service as a generator (plus losses and appropriate AS). If this non-firm load is charging an energy storage asset then there are additional consumer benefits from increased competition when there are no additional non-firm loads to dispatch off.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	
6.	Additional comments	If there is no room for accommodating the modifications to the DOS rate as per items above we would recommend an energy storage rate based on Administration costs + losses + AS which should be equivalent to STS + AS + Losses be submitted in this tariff application for suitability to be determined by the AUC.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Paula McGarrigle
Comments From:	Solas Energy Consulting			**Phone:**	403-875-4593
Date:	2021/05/31			**Email**:	Pmcgarrigle@solasenergyconsulting.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments

1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	On May 20, 2021, the DOS 101 discussion was valuable in ensuring everyone had the necessary background information and context. There were a number of inconsistencies that created confusion. At the start of the presentation, AESO members mentioned that a motiviation for modernizating the DOS was to expand eligibility, "including energy storage". The purpose of including energy storage was not clearly stated. However, during the modernization discussion, AESO acknowledged that: • it was made clear in the market participation engagement that energy storage has difficulty in bidding into the Alberta market, and • The load factor was assessed based on historical use and no modeling was done for the different energy storage technologies and how their charging/discharging characteristics (short versus long duration storage) might be affected by the 20% limit. • DOS should only be used as an opportunity service so any load (i.e energy storage) should have a base DTS. • The AESO has historically confirmed that the current DTS/STS costs create a barrier for investors of energy storage and deployment of energy storage. The comments noted above, illustrate the inconsistences in what AESO is saying is the motivation for the DOS modernization and where the proposed modernization has landed. The AESO has also confirmed that they have not completed any cases for economic evaluation of Energy Storage to determine if the new DOS proposed removes the identified barriers. How does the proposed DOS reduce the barriers identified by the AESO? Could AESO complete economic evaluation to determine if the proposed DOS for energy storage will alleviate the problem for Energy Storage identified by the AESO? The AESO appears to be focused on updating DOS rather than addressing the barriers for Energy Storage. AESO tried to provide examples of how the new DOS modernization would work related to bidding into the market, these examples created more confusion so a follow up on the bidding process for load and how this compares/differs from generation offers is needed. Further guidance on the business case assessment is also needed as this was explained as being quite subjective. Also it is concerning that the Energy Storage

		owner would be required to provide the AESO with commercially sensitive information. In no other case is commercial strategy required to be provided to the AESO for their adjudication.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	No, as illustrated above, there is inconsistencies in what AESO is saying is the motivation for the DOS modernization and the proposed modernization. It is not clear if the proposed DOS modernization solves the issue it was intended to.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	Yes, modelling of charging/discharging behaviors of different energy storage technologies for short and long duration should be completed to help inform the load factor percent and the economics of Energy Storage. If DOS is still intended to be only an opportunity service and not a solution to the current economic challenges that energy storage faces, then additional work on how energy storage can participate in the market is needed.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	As acknowledged by AESO, the DOS modernization only supports the connection of energy storage on the transmission system, so more work on the impact this modernization will have on distributed connected energy storage is needed. Energy storage can provide a multitude of benefits to Alberta, including supporting the integration of greater amounts of renewable energy into the electric grid, deferring the need for new fossil-fueled power plants and transmission and distribution infrastructure, and reducing dependence on fossil fuel generation to meet peak loads. The AESO's role is to lower barriers and and enhance the ability of transmission grid-connected energy storage in the Alberta market given the barriers AESO has identified. The AESO's role is to provide a less restrictive market for energy storage participation. The AESO needs to provide a clear path for energy storage participation. For regulated assets, the AESO should ensure greater certainty of cost recovery for investments in energy storage technologies by developing a valuation method to help monetize the benefits provided by energy storage.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	1. What is the AESO trying to achieve by modifying DOS? 2. How does the proposed DOS reduce the energy storage barriers identified by the AESO? 3. What is the proposed DOS design based on? How does it compare with other jurisdictions? 4. How competitive is the overall DTS/DOS/STS rate compared with other jurisdictions for Energy Storage? 5. How does the process of dispatching charge/discharge compare with other jurisdictions for Energy Storage? 6. Why does the AESO require commercially sensitive information? Can access to DOS be provided without this information? 7. How does DOS rate fit with Energy Storage used for transmission and distribution deferral? 8. Can Energy Storage be seen by the AESO as a supercapacitor? (i.e. equipment used in a substation?) 9. Why is load now part of the market requiring bidding? 10. Does the AESO see energy storage moving to distribution and behind the meter transmission connection as a result of this proposed DOS approach? What will the impact to overall DTS revenues be as a result? 11. Could AESO complete economic evaluation to determine if the proposed DOS will alleviate the problem for Energy Storage identified by the AESO?
6.	Additional comments	Energy Storage is not generation and is not load. The current approach is shoehorning Energy Storage into a rate structure that is not suited for it. A new and fresh approach is required. The AESO has indicated that Alberta Energy needs to direct the AESO to create a new approach and the AESO will not create a new approach until this direction is given. Given that changes to tariffs and regulation require multiple stakeholder engagement and consultation, it is recommended that this is done specifically for Energy Storage rather than in a unsystematic approach where changes to regulations are limited to legacy structures.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 31, 2021	**Contact:**	Horst Klinkenborg
Comments From:	Suncor Energy Marketing Inc	**Phone:**	(403) 819-7125
Date:	2021/05/31	**Email**:	horst.klinkenborg@suncor.com

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	Suncor does not believe that the session was particularly valuable because in hindsight, participants and the AESO had different objectives and expectations for the session. See Q&A 6 for further details.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	Suncor is not supportive of the fundamental premise of the current DOS. While the AESO's proposed modernization recommendation would likely improve DOS, it does not address the fundamental concern with the current DOS. See Q&A 6 for further details.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	Suncor believe that the fundamental premise of DOS should be revised. See Q&A 6 for further details.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Suncor believe that the fundamental premise of DOS should be revised. See Q&A 6 for further details.
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	In hindsight, a lot of confusion in Session 5B arose from a mismatch in expectations and objectives between the AESO and participants. Suncor understands the AESO's proposal, but believes that the proposal does not address the concerns of market participants. See Q&A 6 for further details.

	Questions	Stakeholder Comments
6.	Additional comments	The ISO is the sole provider of system access service (SAS) on the transmission system, and must provide SAS in a manner that gives all electricity market participants wishing to exchange electric energy and ancillary services a reasonable opportunity to do so. Further, the ISO must develop a tariff setting out the rates for each class of SAS, and the terms and conditions that apply to each class of SAS. The AESO currently provides system access service (SAS) by dividing customers into various groups, with each customer falling exactly into one group. For each customer group as defined by the AESO, the AESO offers exactly one SAS class. Customers within each class have the choice to accept that level of service and the associated costs or to not receive SAS at all. For example, if a customer wants to import power into Alberta, the customer has to take IOS, if a customer wants to supply power from a generating unit, the customer has to take STS; in either case, the customer's only choice is to take it or leave it. At first glance it might look like demand customers fare slightly better by having a choice between DTS and DOS, however, there is actually no choice. A customer either can afford DTS or not and this is what drives the outcome, not the customer's choice. If the customer can afford DTS, the customer must take DTS, and if a customer can't afford DTS, the customer inherently can't take DTS but *may* qualify for DOS. Not only does DOS not provide an additional rate choice, fundamentally it is an inappropriately delineated customer class. The AESO should not be concerned with a customer's economics. That is outside of the AESO's mandate and the AESO is not qualified to do so. This has been previously brought up in the Mothball Outage Reporting Rule consultation – a customer's economics are solely that customer's concern. The customer knows its assets, knows the industries they are involved in and make their decisions accordingly. At no point is it appropriate for the AESO to request and for a customer to have to provide any kind of information on the economics of the customer's operation. In short, the current DOS customer class should not exist. This gets to the heart of the issue: customers want the AESO to provide them with actual options. They are not interested in paying the price for a service level they do not want. Instead they want a service level that better reflects their needs and that they believe could be provided at a lower cost. In the current discussion there are various customer groups (notably price responsive loads, storage operators and customers with self-supply) asking for additional options. (In the past, some suppliers also made the case for additional options.) These groups have a broad range of flexibility and quite diverse needs with regard to their system access service. What they have in common, is the belief that their needs can be met at a lower cost and that such options should be pursued in order for them to then be able to also pay a commensurate lower price. Whether a single option could be sufficiently flexible to satisfy all these customers isn't clear yet. However, at least a single actual option is what customers expected to discuss in Session 5B. In summary, the AESO needs to abandon the current premise of DOS as a class of SAS available only to customers that "pass" an utterly inappropriate economic test and then the AESO needs to develop at least one SAS option for demand customers that reflects a lower level of service, therefore incurs less costs, and accordingly has a lower associated rate.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Mark Thompson
Comments From:	TC Energy Corporation (TCE)			**Phone:**	403-589-7193
Date:	2021/05/31			**Email**:	markj_thompson@tcenergy.com

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	TCE appreciates all opportunities for stakeholder consultation. The bid examples published after the stakeholder session on May 26, 2021 were helpful. Ideally these examples would have been provided before the session, which would have allowed for a discussion to allow stakeholders to ensure the examples were understood. Further bid examples, particularly with respect to hybrid battery facilities that may choose to charge from the grid, would be helpful.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	TCE continues to support the application of an opportunity service rate for charging energy storage facilities. The AESO's recommended DOS modernization rate comes fairly close to meeting this objective. More specifically, there are certain elements of the AESO's DOS modernization recommendation that TCE supports and others for which we have concerns. TCE supports the removal of the annual term for DOS as it would have created a barrier to entry for energy storage. TCE also supports the provision that an energy storage facility operating under Rate DOS would not be excluded from providing ancillary services. In this regard, we request that the AESO clarify whether the DOS rate would be charged during the time when an energy storage facility is dispatched to provide ancillary services.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	<u>DOS Eligibility – Business Case Assessment</u> TCE is concerned that the AESO is proposing to administer a business case assessment for all Rate DOS applicants. We expect this would include all energy storage facilities. While we understand and agree with the AESO's objective to find an appropriate balance to enable DOS while ensuring that Rate DOS does not cannibalize Rate DTS, we expect the business case justifying Rate DOS for all energy storage facilities to be virtually the same. The effect will create unnecessary red tape and a barrier to entry. The AESO's proposal is subjective and lacks transparency, which could lead to inconsistent and discriminatory outcomes. For these reasons, TCE recommends that Rate DOS acknowledge that the business case justifying the use of Rate DOS has been met for energy storage facilities. <u>Load Factor</u> The AESO has proposed that Rate DOS incorporate a maximum annual load factor of 20 per cent to replace the current temporary and short-term use requirements. Energy consumed over the 20 per cent maximum would be charged at the DOS Term rate. The AESO arrived at the 20 per cent threshold based on historical load assessments of Rate DOS customers. TCE recognizes the concern that Rate DOS may cannibalize Rate DTS revenues and that high load factors may be an indicator for inappropriate use of Rate DOS. TCE requests that the AESO clarify why this threshold is needed in addition to the business case assessment. To the extent that the AESO concludes that this threshold is necessary, TCE recommends that the AESO not rely too heavily on the historical load assessments of Rate DOS customers when setting the threshold as it may not apply reasonably to future Rate DOS customers such as energy storage facilites. Care should be taken to ensure the load factor threshold is not too stringent such that it may restrict legitimate energy storage activities. TCE recommends that the AESO implement a more lenient load factor restriction in the range of 25 to 30 per cent. TCE anticipates that a threshold in this range would still satisfy the original need for the threshold. <u>Dispatchable DOS / DOS Transaction Request / Take-or-Pay</u>

		The AESO recommends that Rate DOS require full-range participation in the energy market and that this will replace the current transaction request requirement and the take-or-pay provision. For some parties, such as those that already actively participate in the market, this tradeoff may be worthwhile. For others, including current Rate DOS ratepayers, this tradeoff may preclude their ability to utilize Rate DOS. For this reason, TCE recommends that the AESO provide dispatchable DOS as an option. This would also be consistent with the AESO's prior recommendation that full-range participation be optional. <u>Minimum DTS Capacity</u> During the stakeholder session, the AESO stated it would require a Rate DOS ratepayer to contract for a Rate DTS capacity that was in excess of the facilities station load to ensure that the facility could charge in the event its transmission access was recalled. TCE strongly encourages the AESO to remove this requirement for several reasons. First, this requirement is inconsistent with the business case assessment that has already demonstrated that Rate DTS does not work for this facility. Second, the level of Rate DTS service is a business decision that should be at the discretion of the ratepayer. If the transmission access for the customer is insufficient, it should be up to the customer to determine whether it needs more Rate DTS capacity. Third, this requirement is discriminatory. No other Rate STS customer is required to have firm transmission service for its fuel delivery, nor should it.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Rate Export Opportunity Service (Rate XOS) is another opportunity service that warrants consideration for energy storage facilities. In some ways the charging of energy storage facilities is more similar to exports than the current loads under Rate DOS. This would include the timing of the load. Like exports, the charging of an energy storage facility is expected to occur when the system is not under stress. The same cannot be said for the current DOS load. TCE requests that the AESO explain why Rate XOS is not being considered as an alternative for energy storage facilities. TCE further requests that the AESO publish what Rate XOS would be under its preferred bulk and regional rate design. This is needed by stakeholders not only for comparison purposes with Rate DOS, but also for stakeholders that are Rate XOS ratepayers.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	At slide 54 of the presentation, the AESO stated that it would not be prioritizing the publication of the location and availability of transmission capacity for Dos as part of the DOS modernization. TCE recognizes that the AESO may not have the time to include this information within the timeframe permitted for DOS modernization. Nevertheless, the publication of this information could improve the efficiency of the transmission system and significantly reduce future costs. Would the AESO agree to include this in future consultations?
6.	Additional comments	TCE has no additional comments at this time.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 28, 2021	**Contact:**	Luis Pando
Comments From:	TransAlta Corporation			**Phone:**	403-267-3627
Date:	2021/05/28			**Email**:	Luis_Pando@transalta.com

Instructions:

1. Please fill out the section above as indicated.
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3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	**A better (more comprehensive) set of examples would be helpful and more information is required to fully understand the AESO's proposal.** TransAlta considers the session was valuable, particularly the discussion of the history of the current DOS process and requirements. However, some of the examples used during the presentation were very simplistic and it was evident that more analysis is required.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	**TransAlta is supportive of DOS modernization but has concerns with some elements of the recommendation.** TransAlta considers the modernized framework that incorporates interruptibility is an important advancement in the tariff, particularly the treatment of energy storage technologies. However, we need to understand the details of the implementation of this proposal before we can fully support it.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	**The business case requirement for DOS is not necessary and should be removed.** TransAlta considers that the condition of interruptibility (and this risk) is enough for the DOS applicant to make the decision to choose between DOS versus DTS. We do not agree that the AESO should have a role in reviewing this business case under a modernized design and the AESO should endeavor to remove this unnecessary requirement under its existing, administratively burdensome, process. **TransAlta is concerned that the penalty for exceeding DTS and DOS contract capacity is introducing a ratchet of the DOS rate.** It seems the AESO has designed two penalties as the DOS customer that consumes above the rate is curtailable/interruptible, and then also incurs the same cost as a DTS customer. Charging the customer DTS and making the customer curtailable would make this rate design discriminatory. **The AESO should providing details about its rationale and calculation of the maximum load factor.** It is unclear how this historical assessment of low usage of DOS is relevant to the conclusion that a 20% maximum load factor should apply. The historical data does not reflect the current market conditions or broader application of DOS under its modernized design. We are concerned that there have not been a lot of historical users of DOS and, consequently, the data set is not representative. As such, we struggle with historical data being useful or reliable enough to determine a maximum load factor. For example, we do not think that a 20% maximum load level is indicative of the load factor for energy storage. Moreover, we question how using an maximum load factor calculated annually can be applied on DOS settlements which are calculated on a monthly basis. We simply do not have enough information to have any confidence in the AESO's proposed maximum load factor or fully understand how it will be applied.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	While we see potential benefits behind a dispatchable DOS and the idea of moving the operation of DOS from the tariff to the energy market rules, the recommendation adds extra requirements regarding bid submissions.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	The AESO stated that historically very few customers on DOS, which raises questions about the robustness of the dataset of DOS customers historically and how big is that sample size. In addition, TransAlta questions the relevance of the historical DOS load in a period of time when no energy storage providers were present. The AESO is recommending that a participant can only get the DOS rate if they bid. Clarity is required on the must bid requirement and whether it applies to all circumstances or only when the intent is to use DOS. Clarity is also required about the ability to restate the bid within T-2. TransAlta also questions why the AESO is concerned about a load customer dispatch compliance and why is it an issue if the customer doesn't consume their full DOS.
6.	Additional comments	TransAlta considers that more discussion is needed about DOS participation on the energy market, with better examples that assess the impact on different types of load, including treatment of different energy storage configurations.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Kipp Horton
Comments From:	Turning Point Generation			**Phone:**	(403) 233-2259
Date:	2021/05/31			**Email**:	Kipp.horton@windriver.ca

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	Turning Point Generation (TPG) appreciates the continued engagement opportunity provided by the AESO on this matter. We continue to believe this is a valuable process for all stakeholders.
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	TPG has been supportive of AESO's development to date of an opportunity-type service for energy storage resources. However, based upon the details provided in the latest Engagement Session 5B (DOS), TPG is not supportive of the AESO's current DOS modernization recommendation. The two most problematic issues with the recommendation from an energy storage perspective are a) the Annual Maximum Load Factor provision, and b) the Business Case eligibility test. In both cases, the AESO has not provided enough analysis to warrant their application and therefore these items appear to be arbitrary and subjective in nature.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	The AESO should exclude the two concepts noted above, being a) the Annual Maximum Load Factor provision, and b) the Business Case eligibility test. TPG believes that these concepts combine arbitrary and subjective aspects which will result in added uncertainty. TPG suspects that this added uncertainty will render the DOS modernization impractical and therefore limit energy storage market participants use of this rate class. In TPG's view, these proposals do not support a "red tape reduction" strategy nor due they adhere to fundamental FEOC principles.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	Through the DOS modernization, the AESO is proposing that energy storage resources be included as full-range participation in the energy merit order. The AESO has previously engaged on the question of full-range participation with the energy storage stakeholders outside of this current Bulk & Regional Tariff engagement. There are many additional considerations with respect to including energy storage in the energy merit order that are beyond the Bulk & Regional tariff design. Inclusion in the energy merit order requires a review and assessment of Alberta electricity market design to determine how storage participation may influence market outcomes and objectives.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	None at this time.
6.	Additional comments	

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021 through May 28, 2021	**Contact:**	Megan Gill
Comments From:	The Office of the Utilities Consumer Advocate	**Phone:**	
Date:	2021/05/28	**Email**:	

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 28, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was a valuable review of the original intent and purpose of DOS and considerations of the pros and cons of any changes to the structure and conditions of access to this opportunity service.

2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	While the UCA is generally supportive of the intent of the proposed changes to DOS and the cost benefits it could theoretically yield to residential, farm, and small business consumers, we remain concerned about the potential for revenue loss and future DTS rate increases. This DOS was initially designed to address the following key objectives: 1. To maintain a clear *distinction* between the *regulated* tariff for using the "wire' system based on *cost recovery*, and the separate price-offer based *market* arrangements for energy and ancillary services.This translates into paying for the use of a pre-agreed amount of wire capacity regardless of load factor or the economics of market based energy consumption or supply of other services. 2.To provide reliable safeguards against the cannibalization of DTS revenues by attracting *only* incremental (or avoided decremental) use that would not otherwise have occurred in the absence of DOS. Limited terms are an important part of these safeguards. 3.Comparison with extra-provincial exports and import procedures is not relevant as inter-provincial tie-line transactons are *inherently* market based opportunity transactions where DTS would never have been applicable in the first place. In UCA's view, any changes to DOS must be carefully considered so that the door to revenue loss is not opened any wider than necessary. In our opinion the modernization reccomendations result in an uneccessarily complex rate that fails to meet the crucial objectives of an opportunity service and obscures the potential for revenue losses. The modernization would increase the risk of revenue loss as: 1.Linking DOS to offers in the energy markets and achieved load factors bases the rate on energy market dynamics instead of regulated transmission costs and Bonbright pricing principles. This change introduces unnecessary complexity and obscures the clarity of DOS purpose, increasing the risks of revenue losses. 2.The proposed energy market linkage and the removal of limited terms weakens the protections built into the existing DOS to lower the risks of revenue losses through cannibalization of DTS and opens the door to future increases in DTS. 3.Comparisons with import and export trading arrangements on interconnectors, and the provision of ancillary services used to justify the linkage to the energy or ancillary service markets are invalid and confuse the purpose of DOS and the very different purpose and basis of tie-lines and import/export transactions.

		The UCA is supportive of the intent behind the combination of qualitative and quantitative measures to evaluate DOS eligibility while avoiding DTS cannibalization, which is hoped to be achieved through increased oversight that will come from annual technical and business case assessments.
3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	If the intent of DOS modernization is to encourage energy storage developments we would recommend the introduction of a separate rate or arrangement. That is specific to new energy storage installations only. If the use of DOS is limited to recognized energy storage developments the potential to cannibalize DTS revenues could be limited. It will be increasingly important to have sufficient AESO oversight and scrutiny of DOS eligibility requirements to ensure the opportunity rate is being used as intended.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	Did the AESO consider restricting the use of DOS to specifc new energy storage installations? How will the AESO ensure transparency of DOS utilization and potential impacts on revenue loss? What metrics will the AESO use to determine if the changes to DOS eligibility needs to be reassessed?
6.	Additional comments	NA

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.

Stakeholder Comment Matrix – May 13, 2021

Bulk and Regional Tariff Design Stakeholder Engagement Session 5B (DOS)

Period of Comment:	May 13, 2021	through	May 31, 2021	**Contact:**	Colette Chekerda
Comments From:	West Fraser Mills Ltd.			**Phone:**	780-920-9399
Date:	[2021/05/31]			**Email**:	Colette Chekerda

Instructions:

1. Please fill out the section above as indicated.
2. Please respond to the questions below and provide your specific comments.
3. **Please submit one completed evaluation per organization.**
4. Email your completed comment matrix to tariffdesign@aeso.ca by **May 31, 2021**.

The AESO is seeking comments from Stakeholders on its DOS modernization recommendation. Please be as specific as possible with your responses. Thank you.

	Questions	Stakeholder Comments
1.	Please comment on Session 5B hosted on May 20, 2021. Was the session valuable? Was there something the AESO could have done to make the session more helpful?	The session was valuable in that DOS required it's own session, however clearer examples and description of how the DOS is expected to work would have been helpful. **The consultation and feedback timelines are very tight for this process. We do not believe that we have been given adequate time to review and respond to the consulation and the materials that have been provided.** **West Fraser (WF) is a forestry company, and does not employ tariff design professionals. As such, we must defer at our own expense to subject matter experts in this process. Loads pay for all of the transmission in Alberta, yet do not qualify for cost recovery as part of tariff consultations and proceedings. WF is both exposed to the cost of the tariff re-design and the cost to defend our company against this cost increase. This process is not fair, efficient or economic in our opinion.**
2.	Are you supportive of the AESO's demand opportunity service (DOS) modernization recommendation? Why or why not?	WF supports the initiative of moderninzing DOS, however the AESO proposal for DOS apears unnecessarily complicated. The dispatch should be a "down to" DTS contract level – similar to what the capacity market envisioned for load resources. The basis for the 20% load factor appears arbitrary and restricts usage by highly impacted loads. To mitigate increasing costs of rate DTS, DOS volumes should be based on economic necessity. If the participant meets the eligibility criteria for DOS, then it would be in the best interest of other rate payers that the volume be maximized to provide incremental revenues. WF sees the DOS modernization in it's current form as not being a good fit for the load type that is most affected by the tariff modernization. Price responsive loads must respond to price signals to mitigate costs to remain competitive. If DOS volumes are combined with DTS volumes for price responsive loads, then the price signal relating to coincident metered demand is affected.

3.	Are there considerations that the AESO should include, exclude and/or modify in its DOS modernization recommendation? Please specify and include your rationale.	WF requires the following modifications to support the DOS tariff proposal: *1. Removal of the maximum load factor requirement* If the opportunity meets the eligibility criteria, and would be foregone revenue if the DOS is not granted, then it is in the best interest of ratepayers to maximize the use of DOS. *2. Eligibilty criteria should include a. a credible by-pass opportunity and b. should be extended to price responsive load.* First: If a load can demonstrate they would exit the grid in the absence of DOS, then DOS should be granted in this circumstance. This would keep more load on the grid, and delay grid defections, hopefully to the point where CTI projects have been depreciated and DTS costs become more attractive than a bypass option. Once a load makes the decision to defect from the grid, they are not coming back and their future revenue contribution is gone. Most loads do not want to be generators and are only doing so to remain competitive in Alberta. It appears as though loads are being held hostage to an overbuilt transmission system (self-supply and export restrictions, adjusted metering practice that would move existing net metered sites to gross metered sites with a SASR change, the proposed DTS tariff), these restricitons will only lead energy intensive loads to more extreme measures to remain competitive. This includes moving production to other more attractive juristictions or completely defecting from the grid. This result will be detrimental to Alberta ratepayers, the Alberta economy, jobs and future investment in the province. Second: Loads that demonstrate consistent CPD and energy market response should have that portion of their load eligible for DOS. This would result in several key benefits to all ratepayers. • Load retention and revenue enhancement: Energy intensive and trade exposed loads respond to price signals in order to remain competitive in Alberta. The proposed DTS tariff renders these loads uncompetitive. The mitigation solution needs to be a permanent rate option. An interruptible tariff is preferrable, however DOS could serve as a proxy with changes. Having qualified price responsive load granted DOS will keep these loads on the grid and continuing to contribute to the transmission revenue requirement. • Energy market stability: WF's price responsivle loads are aggressively responding to coincident peaks. This response is not confined to one 15

		minute interval, but happens many hours each month. This affects facility performance, energy efficiency and output but improves stability of the grid. Since the Alberta system peaks in the winter and summer, having flexible loads respond in the shoulder months reduces WFs productivity without a commensurate benefit in the transmission system. • Productivity improvement: Having price responsive loads operate under a DOS tariff instead of DTS will enhance productivity and economic output of WFs flexible loads. This may increase the revenue contributed compared to the current DTS tariff while keeping WF's facilties viable in Alberta. 3. Ensure that PODs are maintained despite having DOS loads. Consider a modification to DOS 7 minute where POD charges are separated out and billed according to the import requirement at the site (DTS + DOS MW). In exchange for this consideration, WF's operations would have assurance that our substations continue to be maintained and repaired when required. Further, a reasonable expectation of period of DOS availability (i.e. 5 year notice to exit or return to DTS). This will allow WF's high load factor facilities to continue to plan their business in Alberta with a reasonable period to pivot to on-site generation or move production out of province when the system no longer has opportunity capacity. 4. Allow a standing DOS bid in the energy market for 7 min DOS with a down to DTS contract level requirement under transmission constraints or EEA events. Sites paying for firm DTS service should not have to remove a block of energy to below this level. Energy market rules would need to be developed such that compliance is not an issue if the site load level was at or below the DTS contract level.
4.	Do you have any additional implementation considerations for the DOS modernization the AESO should consider?	The AESO DX-TX meeting of May 26, 2021 indicated that the AESO is intending on publishing transmission and substation capability maps to assist generators in deciding where to connect. This same work could be used for DOS customers to understand the capability in their area as well as a future outlook.

	Questions	Stakeholder Comments
5.	Do you have additional clarifying questions that need to be answered to support your understanding?	No further questions
6.	Additional comments	DOS could provide an opportunity for high load factor flexible loads to continue to remain competitive in Alberta, even with the very high cost of delivered power. The forestry industry plans to operate it's facilities for 40 – 80 years, so a DOS or interruptible rate is required with enough certainty to allow WF to plan for the future, mitigate delivered power costs and continue paying for Alberta's overbuilt transmission system is needed.

Thank you for your input. Please email your comments to: tariffdesign@aeso.ca.