Energy Storage Canada Written Submission to the Distribution System Inquiry

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Table of Contents

1. Introduction

1. Energy Storage Canada ("ESC") has prepared the following material to advance the Alberta Utilities Commission's ("the Commission") understanding of the issues surrounding energy storage resources in Alberta's electricity market. Section two of this document outlines the principles and objectives that ESC recommends be used by the Commission in assessing potential changes to the regulatory framework with regards to Storage. Section three discusses the current state of tariff charges as applied to energy storage and presents an alternative to the current tariff structure. Section four explores issues surrounding the use of storage as a non-wires alternative by distribution facility owners, transmission facility owners and the AESO. Section five discusses issues specific to Electric Vehicles ("EV").
2. The following table identifies the issues addressed in this submission and the section that contains further details.

Table 1 – Sections and Issues Addressed

Connection Scheme	Comment
Small Micro-Generation	A small micro-generation resource that adds an energy storage resource should continue to be treated as a small micro-generation resource. (Section 2.1)
Large Micro-Generation	A large micro-generation resource that adds an energy storage resource should continue to be treated as a large micro-generation resource. (Section 2.1)
Distribution Connected Generator (DCG) with no load	A DCG with only station service load, that adds an energy storage resource should be permitted to withdraw energy from the grid to charge the energy storage resource using the new storage-specific interruptible tariff rate. (Section 2)
DCG for own use	A DCG that consumes generation on site that adds an energy storage resource should be permitted to supply energy to the grid. (Section 2)
Self-supply and export not otherwise enabled by enactment	Facilities that self-supply and export that subsequently add an energy storage resource should be permitted to both charge and export energy to the grid. (Section 2)
Industrial Site Designation (ISD)	An ISD that adds an energy storage resource should continue to be treated as an ISD. (Section 2.1)
Electric Vehicle Charging Stations	An EV charging station should be treated as any other load. An EV charging station that adds an energy storage resource should be permitted to withdraw energy from the grid and supply energy to the grid. (Section 5)
Energy Storage Resources	Standalone energy storage resources should be permitted to both withdraw energy from the grid and supply energy to the grid. (Section 1). Standalone energy storage resources should be subject to a new storage-specific interruptible tariff rate. (Section 3)

Other configurations: energy storage as a non-wires alternative.	DFOs, TFOs and the AESO should be required to evaluate energy storage as a non-wires alternative for any significant infrastructure investment (Section 1.3). DFOs and TFOs should be permitted to own an energy storage resource that only operates as a non-wires alternative and should not be permitted to participate in the energy and ancillary services market directly or through a third party. The AESO, DFOs and TFOs should be allowed to contract for grid services from privately owned energy storage resources. (Section 4).

2. Principles

3. The Commission has stated that a goal of the Inquiry is to identify "steps that might be taken by the Commission to enable or facilitate greater competition in the supply on energy of a technology-neutral basis".[1] Energy Storage Canada (ESC) submits that, as a governing principle, electrical energy should be allowed to be supplied or withdrawn from the distribution system at any point. This approach represents a change from the current regulatory context in the electric system in which the electric system is divided into "generating units", "customers", "electric distribution systems", and "transmission facilities".[2] The change in context is necessary to reflect the technological changes that were discussed in module one, namely:

    - Increased deployment of small-scale generation, which can be installed at a much greater geographic diversity than large-scale generation, and
    - The leaps forward in energy storage technology which do not fit nicely into any of the four existing resource classifications.

4. At this time, there are four primary specific impediments to energy storage participation in the Alberta electricity market:

    - Limitations on the ability of a resource to self-supply electricity and export electricity to the grid,
    - The current treatment of energy storage in the AESO and DFO tariffs,
    - Lack of a process for the consideration of storage as a non-wire's alternative, and
    - Lack of clarity on the rules for Utilities to "own" storage as a rate base asset.

5. In the 2018 tariff, the AESO decided to split the classification of an energy storage resource into "generation" while power was being supplied to the grid, and "load" while power was being withdrawn from the grid.[3] Since that time, the AESO has, in the announcement of the

[1] Exhibit 24116-X439, paragraph 6.
[2] EUC Sections 1(1) (h), (m), (u) and (bbb)
[3] Exhibit 22942-X0002.01, PDF page 79, paragraph 366.

energy storage roadmap, acknowledged that "The unique attributes of energy facilities are not the same as loads or generators as currently contemplated in the AESO Authoritative Documents"[4] energy storage is a different type of asset that does not fit into the existing classifications.

6. The AESO has proposed a definition of energy storage as "a resource that withdraws electrical energy from the grid for the purpose of reinjecting electrical energy to the grid at a later time."[5] ESC supports the principle of a novel classification for energy storage resources and agrees with the definition proposed by the AESO. Since energy storage represents a novel classification of resource, ESC submits the principle that a new tariff rate class should be created for both the transmission and distribution systems that reflects an appropriate contribution to transmission and distribution system costs based on cost causation principles. Further details are discussed in Section 3.

2.1: General Principles Affecting Energy Storage Resources

7. ESC has reviewed the work of the Pembina Institute (Pembina) while coordinating with other parties for this inquiry. In its paper, Pembina reviewed and outlined the principles included in various sections of legislation. Pembina included a proposed flowchart of Principles outlining how the key legislative principles interrelate. ESC has participated in conference calls to discuss the Principles with Pembina, Community Generation Working Group (CGWG) and others. ESC is generally in alignment with the key principles outlined.
8. At the top of the Principles listed is Public Interest which has a prominent role in electricity statutes. ESC believes that an overriding goal of this inquiry should be the eventual creation of rules and tariffs that will allow all technologies to connect to the grid, compete on a level playing field and create value for consumers, and that this will in turn meet the Public Interest mandate.
9. More specifically, ESC proposes that the following principles should be considered in regard to energy storage.
    a. Technologies that provide significant benefits to the grid and therefore value to consumers should be enabled to connect to the grid. An energy storage resource should therefore be able to connect to the distribution system (and transmission system) as a standalone facility or in combination with other resources in a variety of configurations. Storage may be located with a generation resource. The tariff treatment of the combined facility will depend on whether energy may be withdrawn from the grid to charge the storage facility. Until regulations and/or legislation are changed to allow self-supply and export from any facility, storage should be allowed to be co-located with load so long as no energy is delivered to the grid. Facilities that may self-supply and export are currently

[4] AESO Energy-Storage-Roadmap-Report.pdf, PDF page 3.
[5] AESO Energy-Storage-Roadmap-Report.pdf, pdf page 8.

limited to micro-gen sites and those with an Industrial Site Designation (ISD). From the perspective of a DFO or the AESO, the addition of an energy storage resource does not change the range of behaviours of the facility. Therefore, the addition of an energy storage resource to what would otherwise qualify as micro-generation or an ISD should not change the eligibility for the respective qualification.[6]

b. A non-discriminatory tariff rate should apply to specific technologies that will enable projects to proceed and create consumer value. ESC recommends that the AESO and DFOs implement a new storage-specific tariff rate for energy withdrawn from the grid for the purpose of charging an energy storage resource. The new tariff rate is needed since the existing tariff structure is an unfair impediment to the development of energy storage.[7] Energy storage offers many benefits to the grid and to the energy market as discussed in Phase 1[8] of this inquiry and as highlighted in Appendix A. The new rate needs to be implemented at the transmission level by the AESO, and at the distribution level by the DFOs. This rate would include the right of the AESO, or respectively the DFO, to interrupt energy delivered to the storage resource in order to reduce the risk of an imminent Energy Emergency Alert or avoid congestion on the wires network or other system issues. Only standalone storage or storage installed with a co-located generation resource (with only station service load) would qualify for the new rate. The rate should be lower than Demand Opportunity Service (DOS) as storage charging would be curtailed first.[9] As an interruptible service, which is curtailed before DOS or Exports, the AESO and/or DFO are not required to plan for the storage resource nor expand infrastructure and will retain the option to curtail charging. Further discussion of the proposed storage-specific interruptible storage rate is contained in section 3.

c. All suppliers that provide value to the grid and therefore to consumers, should be enabled to export energy to the grid. Eventually, any facility should be allowed to self-supply and export energy. This market evolution may require regulatory and/or legislative changes or a reinterpretation of existing regulations. The Commission should consider whether a Ministerial Order would be sufficient to affect a change in the consideration of applications such as EPCOR: E.L. Smith 12-MW Solar Farm and Interconnection application.[10] Specifically, ESC wonders whether the Minister could direct the Commission to interpret existing legislation and regulations such that self-supply and export are allowed for any facility. Further discussion is contained in Section 2.2.

d. The regulatory governance of Utilities should facilitate efficient use of new technologies to create consumer value. ESC supports the use of a Performance-Based Regulation

[6] Micro-Generation Regulation, AR 27/2008, Section 1(h), HEEA Section 4.

[7] 22942_X0011, pages 12-15
[8] 24116_X0159 pdf page 6.
[9] I. ISO Rule 202.2 Section 3 (2)(b) in the case of a supply shortfall, ISO Rule 302.1 Section 2(1) (C) and (d) in the cast of a transmission constraint.
[10] 23418-D01-2019.

structure to allow DFOs to earn a fair return on investment while being incented to reduce costs. Similarly, TFO's should be allowed to earn a rate of return on investments in energy storage for non-wires solutions, or to capitalize lease payments for non-wires alternatives should the AESO choose to not direct assign a storage resource directly to a TFO.

2.2: Self Supply and Export

10. Currently, the ability to self-supply electrical energy and export electrical energy to the grid is limited to sites that are designated as micro-generation or ISD.[11] In principle, this limitation should be changed to allow self-supply and export from a larger group of facilities which will result in more efficient use of the electricity system and in many cases will directly benefit consumers with more competitively-priced energy being offered to the grid. ESC understands that this change requires a reinterpretation of existing regulations or changes to regulations, and potentially legislation, both of which are beyond the direct scope of the Commission mandate.

11. ESC is concerned with how the current interpretation of the limit on self-supply and export will be applied to energy storage resources. ESC recommends that standalone energy storage resources should be allowed to charge by withdrawing energy from the grid and discharge by delivering energy to the grid. To limit charging behaviour would be to prevent the fundamental function of an energy storage resource and would limit the deployment of energy storage technologies and would not be consistent with the Commission's goal of increasing competition on a technology-neutral basis.

12. For a storage resource located at a generation facility, the storage resource should be allowed to both charge from the grid and from the co-located generation facility. Charging from the grid should be treated in a similar fashion as a standalone resource since it offers similar benefits as described above. Charging from the co-located generation resource should not be interpreted as "self-supply" since the storage resource will, by definition,[12] supply electrical energy to the grid at a later time. The energy storage resource is behaving in a different manner than a load resource and therefore should not be constrained by the current limitation on self-supply and export.

13. At this time, an energy storage resource that is co-located with load can charge from the grid but may not export to the grid. Ideally, facilities with a combined load/storage configuration should be able to export to the grid, but ESC understands that regulatory and/or legislative changes may be required. ESC is not proposing that energy storage co-located with load should be allowed to use the proposed interruptible tariff rate. Load can use an energy storage resource to reduce load tariff costs under the current tariff structure, which is

[11] AUC Bulletin 2019-16, PDF page 1.
[12] AESO definition of Energy Storage includes delivering energy back to the grid, https://www.aeso.ca/assets/Uploads/Energy-Storage-Roadmap-Report.pdf, pdf page 8.

different from the current situation for a standalone storage resource where the current tariff structure is an impediment. Therefore, there is no need to further incent the adoption of storage at a load resource by offering an even less expensive tariff rate.

2.3: Timeliness

14. The AESO forecasts spending $1.4 Billion in the next five years on transmission development.[13] In 2018, ENMAX invested $228 million in transmission and distribution infrastructure, a rate consistent with an investment of $1.8 billion over the last ten years[14].

15. Energy storage should be examined by the AESO for the potential to reduce or defer these costs. Timely remediation of impediments to storage development is essential to enable the AESO to consider energy storage resources for the potential to reduce near-term transmission development costs. ESC recommends that the AESO strongly consider using a bid process for storage resources as opposed to direct assigning all storage projects to the TFO. To participate in an RFP for energy storage non-wires solutions, it will be important that the private storage participants understand the rate structure that will be in place in order to value other revenue streams such as time arbitrage. Section 4 contains further details on acceptable ownership structures to allow a storage resource to provide grid services and participate in the energy market.

3. Tariff Treatment

16. The Commission included several IR questions related to tariff treatment.[15] Participant responses can be grouped into three categories:

    a. Current tariff structures are suitable.[16]

    b. Treat storage as a generator.[17]

    c. New tariff is required at the AESO and DFO level.[18]

17. The AESO has stated, "the AESO will ensure that the unique characteristics of energy storage are considered in ISO tariff applications submitted to the AUC for approval"[19] ESC supports the AESO direction because the current tariff regime is an impediment to energy storage resource development in Alberta. ESC further submits that DFO tariffs should be reviewed to ensure consistency with the AESO transmission tariff so that there is not a market distortion to favour one type of connection over the other.

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[13] AESO-2020-Long-termTransmissionPlan-Final.pdf, pdf page 7.
[14] https://www.enmax.com/AboutUsSite/Reports/2018-Enmax-Annual-Highlights.pdf, pdf page 5
[15] 24116_X0470, IR 013 (C)(i), (G)(i), (I)
[16] 24116_X0522 pdf page 47, 24116_X0529 pdf page 80, 24116_X0531 pdf page 53.
[17] 24116_X0528 pdf page 48, 24116_X0507 pdf page 23.
[18] 24116_X0505 pdf page 12, 24116_X0511 pdf page 83, 24116_X0523 paragraph 48 pdf page 11, 24116_X0510 pdf page 11.
[19] AESO Energy-Storage-Roadmap-Report.pdf, pdf page 18.

18. Several participants argued in their IR responses that energy storage is a generator because the legislated definition of a generating unit,[20]

> "means the component of a power plant that produces, from any source, electric energy and ancillary services, and includes a share of the following associated facilities that are necessary for the safe, reliable and economic operation of the generating unit, which may be used in common with other generating units:
>
> (i) fuel and fuel handling equipment;
>
> (ii) cooling water facilities;
>
> (iii) switch yards;
>
> (iv) other items;"

19. The consequence is that a standalone storage resource is a "generating unit" and would pay only STS tariff charges on energy supplied to the grid and would pay no DTS charges on energy withdrawn from the grid. While ESC can accept this interpretation of the Act as applied to an energy resource, ESC also acknowledges that it is appropriate for an energy storage resource that withdraws energy from the grid to contribute to grid infrastructure costs. However, the energy storage resource contribution should be at a reduced rate compared to load resources if the energy storage resource qualifies for the storage-specific interruptible rate.

20. Currently the AESO is engaged in a Tariff redesign process and an Energy Storage Roadmap process. The AESO tariff process involves several stakeholder meetings, starting in March 2020, with the goal of submitting a tariff application to the Commission by the end of September 2020. This tariff effort is focused on approximately 2/3 of the AESO tariff charges covering regional and bulk tariff categories. For the sake of properly evaluating non-wires solutions and facilitating energy storage participation on a technology neutral basis, it is essential that the tariff submitted in September includes an appropriate rate for energy storage resources.

21. The next step of the Energy Storage Roadmap is the initiation, by the AESO, of the Energy Storage Industry Learnings Forum (ESILF). The scope of the ESILF is to "provide expertise and key learnings to the AESO on targeted matters related to the integration of energy storage in Alberta".[21] The ESILF is expected to operate for between 12 and 24 months.[22] While ESC applauds the AESO efforts to engage industry expertise, it is essential that the current, punitive tariff rate that applies to energy storage resources be changed to an appropriate rate with the next tariff filing.

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[20] *EUA*, 1(1)(u).
[21] https://www.aeso.ca/assets/Uploads/Energy-Storage-Industry-Learnings-Forum-TOR-Feb-20-2020-FINAL.pdf, pdf page 1.
[22] https://www.aeso.ca/assets/Uploads/Energy-Storage-Industry-Learnings-Forum-TOR-Feb-20-2020-FINAL.pdf, pdf page 3.

22. Removing the tariff barrier to energy storage development will in turn create future opportunities for quick and efficient processes for non-wires alternatives. Once standalone energy storage resources are developed, should a non-wires solution be required in the future, these existing resources may provide the solution at a very reasonable and competitive cost, potentially in a timely manner.

23. The cost of a new storage-specific interruptible tariff rate should be based on the following principles:

    a. The purpose of an interruptible rate is to allow DFOs, TFOs and AESO to hold an option to interrupt the flow of energy to an energy storage resource. This optionality has value and therefore the energy storage resource owner should be compensated via a lower tariff rate compared to standard load tariff rates.

    b. Since the flow of energy to the storage resource is interruptible, cost causation principles dictate that there is no contribution of the storage resource to the DFO and/or TFO infrastructure costs, and therefore a lower tariff rate is reasonable compared to standard load tariff rates.

    c. Energy withdrawn from the grid by an energy storage facility will, by definition, be re-injected into the grid. This is different from other load resources that use the withdrawn electrical energy for an industrial, commercial or residential purpose. From the grid perspective, energy storage behaviour is similar to intertie behaviour: at different points in time energy is either injected or withdrawn from the grid and the energy is not consumed for other purposes. Since energy storage withdrawals of energy will be curtailed before exports are curtailed, the tariff rate for energy storage resources should be no more than intertie tariff rates.

24. ESC believes that this new interruptible rate fits within the existing FEOC framework since it addresses a current market bias that negatively impacts energy storage technologies.

4. Storage as a Non-wires Alternative, Participation in the Energy Market and Ownership of Energy Storage

25. The Commission included IRs related to regulated entity ownership of energy storage resources.[23] Participant responses contained various opinions on these issues. The table below summarizes the fifteen options described by Inquiry participants with respect to which energy storage services should be allowed as a condition of the type of entity that owned the energy storage resource.

Table 2: Energy Storage Ownership vs. Provided Service

Energy Storage Service	Privately Owned Resource	DFO Owned Resource	TFO Owned Resource

[23] 23116_X0470 IR 013 (a), (e)

Energy & AS Market Participation	1. Generally Accepted	2. Not Allowed 3. Controlled by Balancing Pool 4. Contracted to 3rd party	5. Not Allowed 6. Controlled by Balancing Pool 7. Contracted to 3rd party
Distribution Services	8. Not allowed 9. Contract w/ DFO	10. Generally accepted	11. Generally, not allowed
Transmission Services	12. Not allowed 13. Contract w/ AESO	14. Generally, not allowed	15. Generally allowed AESO – directed

26. The options in different cells of a column are not mutually exclusive. For example, option #10, a DFO owned resource that is utilized for distribution services could be combined with option #4, contracting energy and ancillary services market participation to a third party.

27. There was consensus among participants that cross subsidization between regulated activities and non-regulated market activities must be avoided. There was also consensus that the deployment of an energy storage resource to provide transmission or distribution system services should be allowed and considered by utilities because it could reduce costs to consumers.

28. Fundamental to efficient operation of the electricity market is the principle that cross subsidization between regulated and non-regulated activities must be avoided. Cross subsidization could result in a distortion of market prices and/or a distortion in utility customer costs. One way to guarantee this principle would be to prohibit the ownership of energy storage resources by DFOs and TFOs. However, ESC submits that a blanket prohibition on energy storage resource ownership by DFOs and TFOs limits the potential for cost savings that could benefit consumers.

29. To capture cost savings while avoiding market distortions, DFOs and TFOs could be allowed to own energy storage resources that are restricted to providing grid services. The storage resource would be charged or discharged by the DFO, TFO or AESO without participation in the energy market. ESC would expect that these solutions would not take or provide significant energy to the grid, therefore impact on the energy market will be minimal.

30. To reduce customer costs further, DFOs, TFOs and the AESO should be permitted to contract for grid services from a privately-owned storage facility. This is permitted for Transmission facilities by section 24.2(1) of the Transmission Regulation. The benefit for customers is that the regulated entity may be able to obtain the grid services from a privately-owned energy storage facility at a fraction of the cost compared to owning the facility themselves. Initially, such contracts could specify the separation of a portion of the facility, either by capacity or by time period, such that there is no conflict between the provision of

grid services and other commercial activities. Transmission Must Run,[24] LSSi, and [25]Black-start contracts are examples of grid services provided by privately owned resources under contract to the AESO.

31. To allow for cost savings while avoiding the risk of cross-subsidization, ESC suggests the following principles:

    a. Regulated entities be allowed to own an energy storage resource so long as it is used solely for transmission or distribution system services with minimal levels of charging and discharging. Operational oversight will be required to ensure use of the energy storage resource by the regulated entity can be justified for grid-services purposes and is not being used to inappropriately earn income from the energy market.

    b. Regulated entities should contract for grid services from a privately-owned energy storage resource where this is viewed as the most efficient outcome.

    c. To minimize cross-subsidization, the contract for grid services should be for a specific capacity of the energy storage resource for a specific time period. Several examples are illustrated in the table below:

Type of Contract	**Example Contract Terms**	**Justification**
Portion of Installed Capacity	DFO access to 50% of storage energy and delivery capacity during all hours.	A private developer can install a larger facility at a lower cost per installed MW resulting in savings to the regulated entity compared to a utility-owned facility.
Seasonal Grid Services	DFO access to 100% of storage energy and delivery capacity for all hours between November 1 and March 31.	The need for grid services may be limited to seasonal periods of high demand. By allowing the private storage resource owner to earn energy market revenue in months when the storage is not needed by the utility, the cost to the utility will be reduced.
Time-of-Day Services	DFO access to 100% of storage energy and delivery capacity between 3 pm and 10 pm each day.	The need for grid services may be limited to hours in the day with significant demand change. By allowing the private storage resource owner to earn energy market revenue in hours when the storage is not needed by the utility, the cost to the utility will be reduced.

32. A potential delineation between direct assign and RFP type processes to contract with a third party, may be the level of required storage service. If the storage facility will be required by the Utility for most of the time, then a direct assign contract is likely the most appropriate. If a storage facility is only required for defined periods, such as those described in the examples

[24] https://www.aeso.ca/market/ancillary-services/transmission-must-run-service/
[25] https://www.aeso.ca/market/ancillary-services/load-shed-service-for-imports/

above, then an RFP or contracting process will likely lead to the best outcome. It will be incumbent on the AUC to ensure that the Utility is prudently choosing the best course of action for energy storage.

33. ESC acknowledges that the principles described above are not sufficient to finalize a contract and further details will need to be specified. For example, the state of charge of the storage resource when access is transferred from the private owner to the contracting utility may need to be specified.

34. Other participants[26] have suggested that energy market activities from a utility-owned resource could be managed by a third party. ESC submits that this structure is subject to inappropriate consequences.

35. First, a DFO may propose to include the full capital cost of the energy storage resource in their cost base, which would make storage less competitive as a non-wires solution. Second, the treatment of energy market revenue could be subject to interpretation. For example, would energy market revenue be treated in a manner that appropriately offsets the capital cost as included in the rate base?

36. By contrast, for a privately-owned resource, the cost of the grid service contract is transparent and the value of the contract can be clearly included in the rate base perhaps as a capitalized lease payment. The opportunity for inefficient cost allocation is greatly reduced when the resource is privately owned and contracted by the utility compared to owned by the utility and contracted by a private entity.

37. ESC proposes that the Commission require DFOs, TFOs and the AESO to examine the use of a non-wires alternative, including energy storage, during the planning process when any major infrastructure investment is considered. Further the AUC should test the prudence of this analysis with the TFO or DFO tariff application.

5. Electric Vehicles

38. There are currently 149 public Electric Vehicle (EV) charging facilities within 15 km of Calgary.[27] At this time, EV charging should be treated as any other load. The provincial Government could direct the implementation for a reduced tariff for EV charging to stimulate the deployment of electric vehicles.

39. It will be difficult to predict how tariff structure will impact EV charging behaviour at commercial locations. This is because the cost of charging that is paid by the EV charging customer will be determined by the EV charging station owner, who will choose from a range of pricing structures based on market forces. For example, 69 of the existing public charging stations are free.[28]

[26] 24116_X0512, pdf Page 13, 24116_0522, pdf Page 54.
[27] chargehub.com/en/countries/canada/alberta/calgary.html?city_id=1981
[28] chargehub.com/en/countries/canada/alberta/calgary.html?city_id=1981

40. In the near future, EVs may be able to supply energy to the grid, effectively behaving as a mobile energy storage resource in that the location of supply to the grid may differ from the location of withdraw from the grid. At this time, ESC is unaware of significant use of supplying energy to the grid from electric vehicles, however this is an activity that could be adopted rapidly since the technology already exists.[29] Current barriers to EV supply to the grid include consumer awareness and regulatory uncertainty. ESC submits that the Commission encourage DFOs and electricity retailers to prepare appropriate technical and tariff structures to allow for the supply of energy to the grid from EVs once consumers are prepared to engage in the activity.

41. ESC also supports the efforts of DFOs to better understand the load pattern of EV charging facilities, such as the ENMAX Charge Up Pilot Program.[30]

42. In summary, ESC recommends the Commission maintain a flexible disposition towards the treatment of EVs in order to respond effectively and fairly to the rapidly changing technology and customer behaviour.

6. Conclusion

43. In summary, ESC recommends that the Commission use this distribution inquiry to enable the development of storage to the benefit of consumers which is in the public interest. Storage should be treated as separate technology and current impediments need to be rectified to enable adoption. With the AESO and DFO's planning system wires projects, it is important that these impediments be alleviated as soon as possible in order to capture value in a timely manner.

[29] www.mobilityhouse.com/usa_en/vehicle-to-grid
[30] https://www.enmax.com/ev#

APPENDIX A: Summary of Energy Storage Benefits