Request for expressions of interest

FOR THE LOAD SHED SERVICE FOR IMPORTS COMPETITION

CONTACT: WWW.AESO.CA/MARKET/ANCILLARY-SERVICES/LOAD-SHED-SERVICE-FOR-IMPORTS/

Contents

1. Introduction

1.1 PURPOSE

The Alberta Electric System Operator (AESO) is opening a competition to procure Load Shed Service for imports (LSSi) for 2022 and subsequent years (the "LSSi Competition"). The purpose of this Request for Expressions of Interest (REOI) is to assist the AESO in identifying those parties interested in participating in this competition, and provide information relating to the Request for Proposals (RFP) stage of this competition and key provisions of the Import Load Shed Agreement (ILSA).

1.2 BACKGROUND

The AESO's mandate is derived from the Electric Utilities Act and related regulations. The AESO is governed by its board which is comprised of individuals appointed by the Minister of Energy. Each Member must be independent of any person having a material interest in the Alberta electric industry.

The AESO is responsible for a broad range of duties, responsibilities and functions with respect to the electricity industry, including:

- Operating Alberta's fair, efficient and openly competitive energy-only market for electricity.
- Determining the order of dispatch of electric energy and ancillary services.
- Providing system access service on the transmission system.
- Directing the safe, reliable and economic operation of the interconnected electric system.
- Planning the capability of the transmission system to meet future needs.
- Administering renewable electricity programs.
- Administering load settlement.

Further information on the AESO and its legislative mandate is available at www.aeso.ca.

The AESO has a corporate credit rating of AA-/Stable from Standard & Poor's Global Ratings.

1.3 REOI: AN OPPORTUNITY TO DEMONSTRATE INTEREST WITH NO OBLIGATION

This REOI is not a request for qualifications, a request for proposals or a call for tenders. This REOI merely seeks to identify those who may have an interest in participating in the LSSi RFP described in this REOI and obtain feedback on key provisions of the ILSA (ILSA Key Provisions).

No person is obligated to respond to this REOI, and the AESO has no responsibility to reimburse or compensate any person for responding to this REOI.

1.4 COMPETITION OBJECTIVES

Key objectives for this competition are as follows:

- Utilize competitive market forces to determine the cost.
- Conduct a fair and transparent competition overseen by a fairness advisor.
- Minimize perceived or actual barriers to participation.
- Be straightforward and efficient.
- Allocate risk to those best able to manage it.

2. Load Shed Service for imports

2.1 OVERVIEW OF LSSI

LSSi is a transmission system reliability service developed as part of the AESO's efforts to fulfill its intertie restoration obligation as mandated by legislation. LSSi is provided by load customers that agree to be quickly taken offline following the sudden loss of imports across the interties.

LSSi loads will be armed to be ready for trip, as required by the AESO, based upon scheduled flows across the interties between Alberta and the neighbouring Western Electricity Coordinating Council (WECC) jurisdictions. The use of LSSi allows for additional scheduled imports to access the Alberta market without compromising system reliability.

During high import conditions, LSSi supports the rapid arrest and recovery from frequency decay, hence preserving system stability by reducing the risk of firm load shed on the Alberta Interconnected Electric System (AIES) should the intertie trip while operating above certain import levels.

The AESO currently has contracts in place with various loads in Alberta to provide this service.

2.2 COMPETITIVE PROCESS STAGES AND KEY FEATURES OF LSSI

The competitive process will consist of two stages:

- This REOI stage; and
- An RFP stage wherein each RFP proponent will submit a proposal.

In the RFP stage, the proponent's proposal(s) that meet all eligibility criteria will be selected based on lowest bid prices through a fair and transparent evaluation process. The evaluation criteria will be provided during the RFP stage. The selected proponents will enter into an ILSA with the AESO.

Key features of this competition include the following:

- **Volume:** The AESO is targeting to procure between 300 MW and up to 500 MW of LSSi.
- **Term:** The ILSA is for a term of three years and is expected to commence Jan. 1, 2022 and end Dec. 31, 2024.
- **Payment Mechanism:** The payment mechanism includes three components:

    1. **Availability Payment:** a service provider is compensated for making their load available for provision of LSSi. The availability price ($/MW) will be set by the AESO during the RFP stage of the LSSi Competition. The service provider will be compensated using the following formula for their load availability in each hour:

        *Availability Payment = Availability Price * volume available (MW) in that hour*

    2. **Arming Payment:** a service provider is given an additional payment when the under frequency relay associated with the LSSi load is armed. The arming price ($/MW) will be submitted by proponents during the RFP stage of the LSSi Competition. The service provider will be compensated using the following formula for each hour they are armed:

        *Arming Payment = Arming Price * volume armed (MW) in that hour*

    3. **Trip Payment:** a service provider is paid when their load is tripped due to an under frequency event.

        *Trip Payment at any given hour = $1000/MW * volume tripped (MW) in that hour*

- The relationship between the AESO and the successful proponent(s) will be governed by the ILSA.

2.3 IMPORT LOAD SHED AGREEMENT KEY PROVISIONS

The AESO is providing information regarding key provisions of the Import Load Shed Agreement (ILSA) and has included the ILSA Key Provisions as Appendix A to this REOI. Interested parties are responsible for reviewing the final version of the ILSA during the RFP stage of the LSSi Competition as it may have differences to the ILSA Key Provisions.

2.4 LSSI ELIGIBILITY AND REQUIREMENTS

The eligibility criteria and requirements that a proponent needs to fulfill in order to provide LSSi are included for information purposes as Appendix C. The eligibility criteria and requirements are subject to change and will be confirmed in the RFP document during the RFP stage of the LSSi Competition.

The AESO recognizes that there may be loads that currently do not have the capability to provide LSSi and may need capital investment or modification to meet the requirements to provide LSSi. The AESO will provide additional information in this REOI to assist loads with participating in the RFP stage of the LSSi Competition.

2.5 SCHEDULE

The AESO's anticipated schedule for the LSSi Competition is as follows:

AESO OPENS REOI	**September 17, 2020**
REOI information session	September 23, 2020 at 2:00 p.m. MDT
REOI concludes & EOI forms due	October 7, 2020 at 3:30 p.m. MDT
AESO OPENS RFP TO PROPONENTS	**October 28, 2020**
RFP proposals due	December 10, 2020
Selection of successful proponent(s) and execution of ILSA	Late Q1 2021
Certification of compliance to LSSi Requirements	October 1, 2021
OPERATIONAL READINESS & SERVICE TERM COMMENCES	**January 1, 2022**

The AESO may delete, modify or add to any of the above steps and timeline, or may choose not to pursue any further activities associated with this REOI.

2.6 COMMUNICATIONS

The mandatory method of communication between interested parties and the AESO is through LSSi@aeso.ca prior to the launch of the RFP stage. Other than the information provided at the REOI information session referred to in Section 3.5, information obtained verbally during any introductory and preliminary meetings prior to the LSSi Competition or from any other sources is not official and cannot be relied upon.

During the REOI stage, at the information session, and up to the start of the RFP stage of the competition, interested parties will be able to submit further questions or seek clarifications from the AESO by sending their questions to LSSi@aeso.ca.

2.7 REOI QUESTION SUBMISSION PERIOD

Questions regarding this REOI or other LSSi Competition questions may be submitted to LSSi@aeso.ca no later than 3:30 p.m. Mountain Daylight Time (MDT) on October 1, 2020, with the subject line "Question regarding the LSSi Competition." The AESO will make every effort to address these questions and provide a response through email.

No answers to any questions will be provided any earlier than the REOI information session. Questions received following the REOI information session may be submitted to LSSi@aeso.ca and the AESO may post answers to additional questions before the start of the RFP stage.

The AESO will not respond to any questions, inquiries, or provide information related to the current ILSAs in place with existing LSSi service providers.

Refer to the AESO's LSSi Procurement page at www.aeso.ca/market/ancillary-services/load-shed-service-for-imports/ for updates to the LSSi Competition. Updates will also be provided in the AESO's Stakeholder Newsletter which is published bi-weekly and can be found on the AESO's website at www.aeso.ca/stakeholder-engagement/newsletters/.

2.8 BONFIRE SITE

For the RFP stage of the LSSi Competition, the AESO will use a procurement site called Bonfire ("Bonfire Site") that can be accessed using a web browser. Registration for the Bonfire Site will commence following the REOI stage with parties that expressed interest in the LSSi Competition prior to commencement of the RFP stage.

Further information related to the use of the Bonfire Site, including registration, instructions and the agreement required to obtain access to it, will be provided on the AESO's LSSi Procurement page following the REOI submission deadline. Once interested parties obtain access to the Bonfire Site and the RFP stage opens, all communications with the AESO should be through the Bonfire Site. Prior to the RFP stage opening, please submit any questions to LSSi@aeso.ca.

The RFP documents will be accessed through the Bonfire Site. Interested parties are responsible for ensuring that they have received the RFP and any addenda issued by the AESO once they obtain access to the Bonfire Site and the documents have been posted.

The AESO will also be posting a link to the LSSi Competition on the Alberta Purchasing Connection, which is a tool that lets public and private sector users manage, advertise, distribute and download public purchasing opportunities in Alberta. Further information regarding the Alberta Purchasing Connection is available on the web at http://www.purchasingconnection.ca/.

3. Expression of interest

3.1 EXPRESSION OF INTEREST (EOI) FORM

Please complete and submit the Expression of Interest Form (EOI Form) as soon as possible, and no later than 3:30 p.m. MDT on October 7, 2020. The EOI Form should be submitted electronically via email to LSSi@aeso.ca with **"EOI Form – LSSi" and the interested party's name in the subject line of the email**. The AESO will confirm receipt of the EOI Form by responding to the email from which the EOI Form was received within 48 hours. See Section 3.3 for information about accessing the EOI Form.

Submissions in an EOI Form are not evaluated in any way and will neither exclude nor shortlist interested parties. Submitting an EOI Form is not a prerequisite to participating in the further stages of the LSSi Competition.

Please note this is an Expression of Interest only, not an RFP submission.

3.2 ILSA KEY PROVISIONS FEEDBACK FORM

Each interested party has the option to provide feedback on the ILSA Key Provisions using the ILSA Key Provisions Feedback Form, which is available to download from the AESO website. See Section 3.3 for information about accessing the ILSA Key Provisions Feedback Form.

Should any party wish to provide feedback on the ILSA Key Provisions, please complete and submit the ILSA Key Provisions Feedback Form as soon as possible, and no later than 3:30 p.m. MDT on October 7, 2020. The ILSA Key Provisions Feedback Form should be submitted electronically via email to LSSi@aeso.ca either accompanying the EOI Form in the same email, or if sent in a separate email, with **"ILSA Key Provisions Feedback Form – LSSi" and the submitting party's name in the subject line of the email**.

3.3 ACCESSING THE REOI DOCUMENT AND FORMS

This REOI is available to download from the AESO website. Each interested party is responsible for making appropriate arrangements to download the REOI and, if they so choose, submit the EOI Form via email to the AESO at LSSi@aeso.ca. A sample of the EOI Form is included in Section 4; however, interested parties should complete and submit the fillable form available on the AESO website.

A sample of the ILSA Key Provisions Feedback Form is included in Appendix B; however, interested parties that wish to submit feedback to the ILSA Key Provisions, should complete and submit the fillable form available on the AESO's website.

To download the REOI, EOI Form and ILSA Key Provisions Feedback Form, visit the AESO's LSSi Procurement page.

3.4 REVIEW OF EOI FORM AND ILSA KEY PROVISIONS FEEDBACK FORM

The AESO will review the EOI Forms, the ILSA Key Provisions Feedback Forms and other information to identify interested parties and may use the information it receives through the EOI Form or the ILSA Key Provisions Feedback Form to refine elements of the LSSi Competition.

3.5 INFORMATION SESSION

An REOI information session for this LSSi Competition is planned for **September 23, 2020 from 2:00 – 3:00 p.m. MDT.** The session will be held via webinar using Zoom. To register to attend via webinar, please click here. The presentation and webinar recording will be posted on the LSSi Procurement page for those unable to attend.

The information session will consist of a presentation providing context regarding LSSi and information regarding the LSSi Competition. There will also be a question and answer period in the information session to answer questions regarding the LSSi Competition. Questions and answers will be consolidated into a frequently asked questions document, which will be posted following the session.

3.6 COLLECTION OF INFORMATION FROM INTERESTED PARTIES

Profile information related to each EOI Form submission is being collected for the purposes of identifying interested parties who may wish to participate in the RFP stage of the LSSi Competition. The AESO intends to maintain a log of all the contact names and contact information of interested parties submitting an EOI Form or otherwise expressing an interest to the AESO in providing LSSi.

3.7 FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

The AESO appreciates that the information provided on the EOI Form may include some sensitive business information and accepts this information in confidence. Notwithstanding the forgoing, the AESO is a public body subject to the provisions of the Freedom of Information and Protection of Privacy Act (FOIP Act) and may be required to disclose such information pursuant thereto, in the absence of a mandatory exception (FOIP Act, Sections 16 and 17).

Should third party information held by the AESO be requested under the FOIP Act, the AESO is required to notify each affected party and request representations regarding disclosure.

3.8 ERRORS AND OMISSIONS

The information contained in this REOI is supplied solely as a guideline for interested parties. The information is not guaranteed or warranted to be accurate by the AESO nor is it necessarily comprehensive or exhaustive. Nothing in this REOI is intended to relieve interested parties from forming their own opinions and conclusions with respect to the matters addressed in this REOI.

3.9 NO OBLIGATION TO PROCEED

This REOI does not constitute an offer of any kind, including an offer to enter into any contract with any person. This REOI does not in any way commit the AESO to, or make the AESO responsible for, anything whatsoever, including proceeding with the RFP stage.

3.10 ADDITIONAL SOURCES OF INFORMATION

For additional information regarding LSSi, interested parties are encouraged to visit the LSSi Procurement page section of the AESO's website.

4. Sample expression of interest form

Expression of Interest (EOI) Form
Load Shed Service for Imports (LSSi)

Please complete and submit this EOI Form as soon as possible, and no later than **October 7, 2020 at 3:30 p.m. MDT**. The EOI Form should be submitted electronically via e-mail to LSSi@aeso.ca with the subject line containing "EOI Form - LSSi" followed by the interested party's name. No other documents, including supporting information, will be accepted. Please note this is an Expression of Interest only, not a Request for Proposals submission. The information provided through the EOI form will not be used to supplement any potential RFP proposal submission during the RFP stage of the LSSi Competition.

Interested party name (full legal name): _____

Contact name and title: _____

Contact phone: _____

Contact email: _____

Mailing address: _____

SECTION 1: EXPRESSION OF INTEREST

1. Describe your level of interest in participating in the LSSi competition. ☐ High ☐ Medium ☐Low
2. Does your company have previous experience as an LSSi service provider? ☐ Yes ☐ No
3. Does your facility or facilities that you are proposing have experience providing LSSi? ☐ Yes ☐ No
4. Please indicate why you are interested in providing LSSi:

5. Does your facility or facilities require capital upgrades to provide LSSi? ☐ Yes ☐ No
6. Is your proposed facility currently in service? ☐ Yes ☐ No

   If no, please state your anticipated in-service date. _____
7. The target timeline for the commencement of LSSi is January 1, 2022, requiring certification and testing to technical requirements by October 1, 2021. Do you foresee any issues with meeting this timeline? ☐ Yes ☐ No

   If yes, please state the issues:

8. Are there features of the LSSi competition such as schedule, payment mechanism, technical requirements or other factors that materially impact your level of interest in participating in the competition? ☐ Yes ☐ No

   If yes, 1) why and 2) can you recommend alternatives?

9. Do you have feedback to the ILSA Key Provisions? ☐ Yes ☐ No
10. If yes, have you completed and attached an ILSA Key Provisions Feedback Form? ☐ Yes ☐ No

11. Please describe the proposed LSSi facilities below:

Number of facilities/unit(s): _____

Name of facilities/unit(s): _____

Approximate geographic location (including nearest town or city): _____

For each facility, please provide the following:

Facility 1:

Average Load (MW): _____ Maximum Load (MW): _____ Minimum Load (MW): _____

Metering point ID: _____

Point of Connection to the Alberta Interconnected Electric System (indicate transmission or distribution, line or substation number as applicable): _____

Facility 2 (*if applicable*):

Average Load (MW): _____ Maximum Load (MW): _____ Minimum Load (MW): _____

Metering point ID: _____

Point of Connection to the Alberta Interconnected Electric System (indicate transmission or distribution, line or substation number as applicable): _____

Facility 3 (*if applicable*):

Average Load (MW): _____ Maximum Load (MW): _____ Minimum Load (MW): _____

Metering point ID: _____

Point of Connection to the Alberta Interconnected Electric System (indicate transmission or distribution, line or substation number as applicable): _____

Facility 4 (*if applicable*):

Average Load (MW): _____ Maximum Load (MW): _____ Minimum Load (MW): _____

Metering point ID: _____

Point of Connection to the Alberta Interconnected Electric System (indicate transmission or distribution, line or substation number as applicable): _____

Note: should you have more than four (4) proposed LSSi facilities, please enter the relevant information in each field under Facility 4, as a list with the facility number preceding the information applicable to each, such as "4:__; 5:__; 6: __; …"

12. What LSSi contract volume are you interested in submitting (MW)? _____

13. Will any facility's load change in the future? ☐ Yes ☐ No

14. If yes, specify which facility(ies), an increase or decrease, and volume (MW). _____

SECTION 2: CONFIRMATION, ACKNOWLEDGMENT AND AUTHORIZATION

By submitting this EOI Form, you:

- Confirm you have reviewed the REOI and are interested in receiving further information regarding this LSSi competition.
- Acknowledge that the REOI is an inquiry only and does not imply a commitment by the AESO to proceed with any competitive bidding process for the procurement of LSSi as discussed in the REOI; and
- Authorize the AESO to send further correspondence relevant to the REOI via the email address provided in this form.

On behalf of the Interested Party, this EOI Form is submitted by:

Name: _____

Title: _____

Company: _____

Date: _____

Appendix A

ILSA KEY PROVISIONS

APPENDIX A:
ILSA Key Provisions

AESO IMPORT LOAD SHED SERVICE AGREEMENT
KEY PROVISIONS

An Import Load Shed Service Agreement (the "**ILSA**") will be executed by the AESO and the party or parties successful in the AESO's Load Shed Service for imports procurement (the "**Service Provider(s)**"). A copy of the draft ILSA will be provided to respondents in the Load Shed Service for imports Request for Proposals ("**RFP**") and all respondents will be provided with an opportunity to provide comments on the draft ILSA. After reviewing these comments, the AESO will issue a final version of the ILSA which will be executed by the successful party or parties in the RFP.

This document contains a summary of proposed key commercial terms to be included in the ILSA.

Provision	Description
Parties	The AESO and the Service Provider.
Term	The service term of the ILSA will commence at 00:00 hours on January 1, 2022 and end at 24:00 hours on December 31, 2024. New and existing Service Providers will have from the time the ILSA is awarded in early 2021 until October 1, 2021 to complete any necessary upgrades to their facilities as required to comply with the LSSi technical requirements.
LSSi Services	The Service Provider must provide load shed service for imports ("**LSSi**") in accordance with the ILSA. For greater clarity: • **Offers.** The Service Provider may submit offers, in MW to one decimal place, up to the contract volume, in any given hour, with such offer received by the AESO on or before twenty-five minutes before the hour (XX:35). The Service Provider must submit at least one offer of at least five (5) MW in each consecutive thirty (30) day period during the service term, except when there is an event of Force Majeure or a Planned Outage that is in effect for the entire consecutive thirty (30) day period or longer. • **Arming.** Following a dispatch by the AESO, the Service Provider is required to arm its facility by enabling the functionality of LSSi such that it is continuously measuring system frequency and operates when the target frequency is reached or a SCADA trip signal is received. When armed, the actual volume must remain above ninety-five percent (95%) of the dispatched volume (the "**Lower Tolerance Limit**") at all points in time during the hour. A failure to remain above the Lower Tolerance Limit at any point during the hour will result in the Service Provider not receiving any availability payment and the Service Provider may not receive any arming or trip payment for that hour. Please refer to the section on Payment Calculation, below, for more information. • **Tripping.** o **Under Frequency Trip.** The Service Provider must disconnect, in accordance with the LSSi technical requirements, the armed volume that experiences the under frequency condition from the facility which is connected to the interconnected electric system, within zero point two (0.2) seconds (twelve (12) cycles) of the frequency reaching 59.50 Hz.

Provision	Description
	○ **SCADA Trip Signal.** Upon receiving a SCADA trip signal from the AESO, the Service Provider must disconnect, in accordance with the LSSi technical requirements, the armed volume from the facility which is connected to the interconnected electric system, within ten (10) minutes.
Testing	The Service Provider must provide the AESO with a certified test report provided by a Professional Engineer by October 1, 2021. The test must confirm that the facility meets the LSSi technical requirements. This will apply to all Service Providers, existing and new. Please refer to the LSSi technical requirements attached as Appendix C to the Request for Expressions of Interest ("**REOI**") for more information regarding testing.
Operational Requirements	• **Technical Requirements.** The Service Provider must comply with the LSSi technical requirements and dispatches. Please refer to the LSSi technical requirements attached as Appendix C to the REOI for more information. • **Annual Confirmation.** During the Service Term, the AESO will require the Service Provider to provide an annual confirmation of the Service Provider's compliance with the LSSi technical requirements.
Compliance	• **Recovery Plan.** The AESO may require the Service Provider to provide a recovery plan, in a form and substance satisfactory to the AESO, if the AESO believes that the Service Provider is not in compliance with the LSSi technical requirements. For clarity, the AESO may also request a recovery plan in the event of a Forced Outage, Tolerance Excursion, or Failure to Supply. • **Suspension.** The AESO may suspend a Service Provider from providing the LSSi services at any time if the AESO believes that the Service Provider is not in compliance with the LSSi technical requirements or fails to provide a recovery plan as requested, until such time as the Service Provider is in compliance with the LSSi technical requirements or has provided an acceptable recovery plan, as determined by the AESO.
Pricing	There will be a single monthly payment each month during the service term, which will be calculated based on the below prices. For more information regarding the payment calculation, please refer to the section below. • **Availability Price.** $6.00 per MW. • **Arming Price.** The price per MW bid by the Service Provider as part of the RFP. • **Trip Price.** $1,000 per MW.
Payment Calculation	• **Monthly Payments.** The AESO will pay the Service Provider a monthly payment which is the sum of: (i) the availability payment, (ii) the arming payment, and (iii) the trip payment, subject to the Service Provider's compliance with the ILSA. ○ **Availability Payment.** The availability payment is based on the availability volume multiplied by the availability price. The availability volume will be calculated as follows for each hour:

Provision	Description
	(i) the lesser of the actual volume and the offered volume in such hour when the dispatched volume is zero (0) MW in such hour, (ii) the greater of the offered volume and the minimum armed volume in such hour when the dispatched volume is greater than zero (0) MW in such hour, or (iii) the greater of the offered volume and the minimum armed volume and the trip volume in such hour when both the dispatched volume and the trip volume are greater than zero (0) MW in such hour. o **Arming Payment.** This payment is equal to the arming price multiplied by the arming volume. This payment is payable when the Service Provider is armed by the AESO. The arming payment is based on the arming volume, which is the total amount of real power (in MW) that is armed for LSSi following a dispatch by the AESO. o **Trip Payment.** This payment is equal to the trip price multiplied by the trip volume. This payment is payable when the Service Provider is tripped as a result of an underfrequency trip event or a SCADA trip signal is sent by the AESO. The trip volume is based on the lesser of the minimum armed volume, actual trip volume, or contract volume. In the event that the trip does not comply with the LSSi technical requirements, the trip volume is deemed to be zero (0) MW. • **Partial Payments.** If a Service Provider experiences a Forced Outage, the Service Provider will receive a partial hourly arming payment for the portion of the hour following a Forced Outage if the Service Provider: (i) notifies the System Controller, (ii) submits a revised lower offer, (iii) receives a revised dispatch from the AESO, and (iv) maintains compliance for the duration of the hour. In order to be eligible for a partial payment, the Service Provider must also submit a notification form to the AESO, with content and supporting evidence satisfactory to the AESO. The Service Provider will not receive any availability payments during a Forced Outage. • **No Payments.** The AESO will not pay the Service Provider for hours when: o a Failure to Supply occurs, o the actual volume that may be tripped falls below the Lower Tolerance Limit at any point in time during the hour, when the Service Provider is armed (a "**Tolerance Excursion**"), or o the combined available transfer capacities of the British Columbia and Montana interties is less than or equal to 65 MW. • In the event the Service Provider receives any other payments from the AESO as a result of providing the LSSi services, the AESO will deduct the amount of such other payments from the applicable monthly payment.
Outages	• **Forced Outage.** A "**Forced Outage**" is an outage which is not anticipated through regular maintenance, is caused by defective equipment, a system

<table>
<tr><th>Provision</th><th>Description</th></tr>
<tr><td></td><td>disturbance or any human element, and occurs as a result of any automatic action or operation, or as a result of any manual action or operation (deliberate or accidental), the purpose of which automatic or manual action or operation is to avoid risk of injury to personnel or the public, or damage to equipment or property.

• Planned Outage. A “Planned Outage” is an outage which is undertaken in respect of the planned maintenance schedule submitted by the Service Provider to the AESO. The Service Provider must submit their schedule of planned maintenance to the AESO each year.</td></tr>
<tr><td>Failures to Supply</td><td>• Failures to Supply. There is a performance adjustment to the monthly payment if one of the following events occurs (a “Failure to Supply”): (i) the Service Provider fails to respond to a dispatch in accordance with the LSSi technical requirements, (ii) the Service Provider fails to arm the LSSi facility in accordance with the LSSi technical requirements or arms the LSSi facility contrary to the LSSi technical requirements, or (iii) the Service Provider fails to trip in accordance with the LSSi technical requirements. A Failure to Supply does not include a Failure to Supply that results from an event of Force Majeure, Forced Outage, or Planned Outage.

• In the event of a Failure to Supply, the arming payment for the month will be multiplied by the corresponding Performance Adjustment Factor which shall reduce the arming payment for the month in which the Failure to Supply occurs. On each anniversary of the ILSA, the number of occurrences shall start again from zero (0).
<table>
<tr><th>Occurrence of a Failure to Supply per Calendar Year</th><th>Performance Adjustment Factor</th></tr>
<tr><td>First (1st) Failure to Supply</td><td>1.00</td></tr>
<tr><td>Second (2nd) Failure to Supply</td><td>0.95</td></tr>
<tr><td>Third (3rd) Failure to Supply</td><td>0.80</td></tr>
<tr><td>Fourth (4th) Failure to Supply</td><td>0.75</td></tr>
<tr><td>Fifth (5th) Failure to Supply</td><td>0.50</td></tr>
<tr><td>All subsequent Failures to Supply</td><td>0.50</td></tr>
</table>
• In addition, the Service Provider will not be entitled to any payments for the hour(s) in which a Failure to Supply occurs, as described above under the section on Payment Calculation.</td></tr>
<tr><td>Confidentiality</td><td>Confidential Information may only be used to fulfill the purposes of the ILSA and may not be disclosed except as permitted. “Confidential Information” includes non-public information designated as confidential or which, under the circumstances, would reasonably be known to be confidential. This does not include: (i) information already available to the public; (ii) information disclosed in</td></tr>
</table>

Provision	Description
	good faith by a third party; (iii) was already known; or (iv) information that was developed independently. For clarity, a party is prohibited from disclosing Confidential Information of the other party to any third party (including affiliates) without the prior written consent of the other party, except as required by applicable law or otherwise permitted by the ILSA. Notwithstanding the foregoing, the AESO may publish and make publicly available information relating to: (i) the average pricing and the range of pricing, (ii) the procured volumes, and (iii) the Service Provider's name.
Liability and Indemnification	• **Indemnity.** The Service Provider is liable for and will indemnify the AESO for any losses or damages related to: (i) any material breach of the ILSA, (ii) any breach of any representation or warranty made by the Service Provider, (iii) any payment or other obligation of the Service Provider to a third party, (iv) the negligence or wilful misconduct of the Service Provider, or (v) any loss or damage for the infringement of third party intellectual property rights. • **Limitation of Liability.** The Service Provider's liability for direct damages will not exceed: (i) one million dollars ($1,000,000), or (ii) the total amount of the payments received by the Service Provider under the ILSA, whichever amount is greater. This limit shall not apply to any damages caused by the Service Provider's gross negligence, wilful misconduct, or breach of its confidentiality obligations. • **Consequential Damages.** The Service Provider is not liable for consequential damages except in the case of a claim relating to personal injury, breach of its confidentiality obligations, third party intellectual property infringement, or the liquidated damages.
Financial Security	The Service Provider must provide financial security to the AESO in the amount of the liquidated damages ($40,000) for the duration of the term.
Dispute Resolution	• **Resolution by Representatives.** The representatives of the parties will use commercially reasonable efforts to resolve any dispute in good faith within twenty (20) business days. • **Resolution by Senior Officers.** If the representatives are unable to resolve the dispute within twenty (20) business days, each party will appoint a senior officer who will attempt to resolve the dispute in good faith within twenty (20) business days. • **Arbitration.** If the senior officers are unable to resolve the dispute within twenty (20) business days, the parties may proceed to binding arbitration.
Termination	• **AESO Termination for Service Provider Default.** The Service Provider will be in default if: o the Service Provider becomes insolvent, o there is an event of Force Majeure that lasts longer than one hundred and eighty days (180) days, o there are five (5) or more Failures to Supply in any calendar year, o the Service Provider has an availability of less than five (5) MW in any consecutive thirty (30) day period,

Provision	Description
	○ the Service Provider fails to trip in accordance with the LSSi technical requirements, or ○ the Service Provider fails to comply with any other terms of the ILSA and such failure is not cured within thirty (30) days of receipt of notice from the AESO. If the Service Provider is in default, the AESO may elect to terminate the ILSA, in its sole discretion, and the Service Provider will be obligated to pay $40,000 in liquidated damages to the AESO. • **AESO Termination for Change in Law.** The AESO may terminate the ILSA if there is a change in law which materially affects the LSSi services or results in all or a material portion of the LSSi services no longer being required by the AESO. • **Service Provider Termination for Change in Law.** The Service Provider may terminate the ILSA on notice to the AESO if there is a change in law which materially reduces or limits the liability protection of the Service Provider under the *Electric Utilities Act* (Alberta) and the *Liability Protection Regulation* (Alberta). The AESO has the option to fully indemnify the Service Provider by providing confirmation of such indemnity within ten (10) business days of receiving the Service Provider's notice, in which case the Service Provider's notice becomes void. • **Service Provider Termination for AESO Default.** The AESO will be in default if it fails to pay the Service Provider and such failure is not cured within thirty (30) business days of receipt of notice from the Service Provider.
Change in Law	If there is a change in law that occurs during the term and the Service Provider incurs or expects to incur additional net costs in excess of $50,000 as the result of such change of law, the AESO may: (i) pay the Service Provider the actual amount of such increase (to the extent it exceeds $50,000), or (ii) terminate the ILSA. The Service Provider must provide notice to the AESO within twenty (20) business days.
Force Majeure	Neither the Service Provider nor the AESO is liable for any failure or delay in complying with any of its obligations under the ILSA if the failure or delay arises from an event of Force Majeure. "**Force Majeure**" means any occurrence which is beyond the reasonable control of the party claiming relief, and which could not have been avoided through the use of good electric industry practice, or could not have been reasonably foreseen, including acts of God or the public enemy, flood, earthquake, storm, cyclone, tornado, hurricane, lightning, fire, explosion, epidemic, war, embargoes, riot or civil disturbances, sabotage, expropriation, confiscation or requisitioning of facility, change in federal or provincial policy or legislation affecting the AESO's conduct; and which the Service Provider or the AESO (as the case may be) could not have reasonably foreseen or taken reasonable measures to prevent, but which shall not include any lack of finances, any occurrence which can be overcome by incurring reasonable additional expenses, any Forced Outage, or any form of labour dispute or delay. The Service Provider must promptly notify the AESO no later than two (2) business days after becoming aware of the event of Force Majeure and use the form prescribed by the AESO.

Appendix B

ILSA KEY PROVISIONS FEEDBACK FORM

APPENDIX B:
ILSA Key Provisions Feedback Form

If you would like to provide feedback on the *Import Load Shed Agreement* (ILSA) Key Provisions, which are included as Appendix A to the *Request for Expressions of Interest for the Load Shed Service for imports Competition*, please submit this *ILSA Key Provisions Feedback Form* as soon as possible, and no later than **October 7, 2020 at 3:30 p.m. (MDT)**.

The *ILSA Key Provisions Feedback Form* should be submitted electronically via e-mail to LSSi@aeso.ca, either:

- accompanying the *Expression of Interest (EOI) Form* in the same email; or,
- if sent in a separate email, the subject line should read: *ILSA Key Provisions Feedback Form – LSSi* followed by the interested party's name.

No other documents, including supporting information, will be accepted.

When completing this form, please note the ILSA Key Provision to which you are referring in the ILSA Key Provision column and provide your feedback along with sufficient context in the Feedback column.

ILSA Key Provision	Feedback (including reasoning and context as applicable)

Appendix C

LSSI ELIGIBILITY AND REQUIREMENTS

APPENDIX C:
LSSi Eligibility and Requirements

This document outlines the eligibility criteria and requirements that a Service Provider needs to meet in order to provide LSSi.

1. Eligibility to Provide LSSi

1.1 The facility providing LSSi must be located within the Alberta Balancing Authority Area and be connected to the System.

1.2 The load must be able to provide a minimum of five point zero (5.0) MW of LSSi.

1.3 The load may be an aggregation of several individual loads from various facilities throughout Alberta that are connected to the System irrespective of whether the individual loads are electrically separated from each other via transmission or not.

1.4 Loads that are part of the Under Frequency Load Shedding (UFLS) program are eligible to provide LSSi except for the time-delayed blocks D1, D2 and D3. The AESO may need to evaluate the total volume of loads participating in LSSi that are also part of the UFLS program. The Service Provider needs to inform the AESO whether the load offered for LSSi is connected to a UFLS relay and if so, what the UFLS relay setting values are.

1.5 The AESO must be able to evaluate the maximum amount of load offered for LSSi in any one geographical location or by any one LSSi Facility if the Trip of this amount of load causes an adverse impact on System reliability in the area of the Service Provider.

Note: The term "System" means the "interconnected electric system" as defined in the *Electric Utilities Act* (Alberta).

2. Communication Requirements

2.1 The Service Provider must be able to receive and respond to SCADA signals received from the System Controller via the energy management system ("EMS") as primary communication for the purpose of Arming/Disarming the LSSi Facility, receiving and responding to the SCADA Trip Signal, and for load restoration. The Service Provider must install and maintain reliable telemetry signals to the System Controller in accordance with the ISO Rule 502.8 (SCADA technical and operating requirements) as amended, supplemented, replaced or otherwise modified from time to time. Both analog and status points shall have a latency as stipulated in the ISO Rule 502.8 (SCADA technical and operating requirements, Appendix 3 – SCADA Requirements for Industrial Complexes and Loads). The AESO will use (2) second exception and fifteen (15) second integrity data polling. Service Providers must provide GPS time synchronization, and time stamped accuracy as technically described in ISO Rule 502.8, The Lower Tolerance Limit requirement described in Schedule A are inclusive of any permissible SCADA accuracy tolerance as stated in ISO Rule 502.8. For greater clarity, the Service Provider shall use exception-based reporting and acceptable dead-bands without time delays, filtering, or averaging.

(a)The following analog SCADA data shall be provided:

i) From the Service Provider to the AESO:

A) the total amount of real power (MW) that is being consumed or is being consumed as an aggregated volume by the Service Provider that is subject to LSSi (the "Actual Volume"), a measured quantity;

B) the amount of real power offered by the Service Provider (in MW and recorded to one decimal point) (the "Offered Volume"), an entered quantity; and

C) the amount of real power (in MW) agreed by the Service Provider, to be Armed for LSSi following a Dispatch (the "Armed Volume"), an entered quantity;

ii) From the AESO to the Service Provider:

A) the Dispatched Volume, an entered quantity;

and

B) the Offered Volume;

(b) The following status SCADA data shall be provided:

i) From the Service Provider to the AESO:

A) A digital signal indicating Armed or Disarmed status of the service. This is a contact that is either open or closed, where open means "Disarmed" and closed means "Armed";

B) SCADA Trip Signal status confirmation; and

C) A digital signal indicating a portion of or the entire facility is experiencing a Forced Outage condition.

The SCADA Trip Signal will be a two (2) second momentary pulse signal from the AESO and the SCADA Trip Signal response will be a thirty (30) second momentary pulse returned to the AESO by the Service Provider.

ii) From the AESO to the Service Provider:

A) An Arm or Disarm Dispatch digital signal; and

B) SCADA Trip Signal status.

2.3 The Service Provider must be able to receive and respond to voice communication from the System Controller as backup communication. Voice communication for normal telephone service shall be in accordance with ISO Rule 502.4 (Automated Dispatch and Messaging System and Voice Communication System Requirements), Table 1, Column A, Market Participant Subcategory, Section 2. Note that access to the AESO Automated Dispatch and Messaging System ("ADaMS") is not required for the provision of LSSi.

3. Operational Requirements

3.1 The Service Provider must be able to Arm and Disarm the LSSi Facility.

3.2 A Service Provider may not Arm the LSSi Facility without receiving a Dispatch by SCADA or verbal instruction from the System Controller to do so.

3.3 The Service Provider must Arm or Disarm within fifteen (15) minutes in response to a SCADA Dispatch from the System Controller. The Dispatch may be verbal under emergency conditions or if the telemetry / SCADA system has failed.

3.4 Once Armed, the Actual Volume that will be Tripped must remain above the Lower Tolerance Limit.

3.5 Once a load volume has been Armed in accordance with a Dispatch, the Service Provider must maintain the Actual Volume while Armed above the Lower Tolerance Limit for at least the duration of the Scheduling Hour. If the Service Provider desires to change the Offered Volume, the change will be Dispatched by the System Controller as soon as reasonably possible and no later than end of the next Scheduling Hour. The Service Provider shall not change to the new Offered Volume unless Dispatched.

3.6 A Service Provider must have their Offered Volume for the next Scheduling Hour received by the AESO no later than twenty five (25) minutes prior to the start of the next hour. At that time the Offered Volume in place becomes a commitment for the next Scheduling Hour.

3.7 Once the LSSi Facility has been Armed it may not be Disarmed until a Dispatch or verbal instruction to that effect is received from the System Controller.

3.8 The Service Provider must ensure that their SCADA point for the Actual Volume is current and accurate at all times with the amount of LSSi load available from the LSSi Facility.

3.9 Any load participating in LSSi must be able to remain off the grid for up to sixty (60) minutes following a Trip Event.

3.10 After a Trip event and the load has been shed, the Service Provider can restore the load only when directed by the System Controller, or after a minimum of sixty (60) minutes have elapsed from the Trip event.

3.11 The Service Provider is not obligated to restore a load subject to a Trip event. However, the Service Provider must ensure that the Offered Volume telemetered to the AESO via SCADA is accurate and reflects the Service Provider's capability.

3.12 Any load that is Tripped must not be restored automatically or taken over by another feeder at any other point within the System and shall remain off the grid until the System Controller has directed the Service Provider that it is safe to restore their load or after a minimum of sixty (60) minutes have elapsed from the time of the event that caused the LSSi Facility to Trip. The System Controller will notify the Service Provider that it is safe to restore their load by sending the Service Provider a disarm signal. Phone communication will be used as a back-up to the Disarm signal.

3.13 The Service Provider must comply with the provisions of ISO Rule 303.1 “Load Shed Service”.

3.14 LSSi requires that the committed amount of load is disconnected from the System within ten (10) minutes of the SCADA Trip Signal being sent from the AESO. See Section 2.2 of Attachment 1 for further information regarding this requirement.

4. Technical Requirements – Under frequency Relay Scheme

4.1 When Armed, the under frequency relay scheme requires that the Armed Volume is disconnected at breakers configured under the LSSi scheme within zero point two (0.2) seconds (12 cycles) of the frequency reaching 59.50 Hz (+/- 0.02 Hz). The zero point two (0.2) seconds is the sum of the frequency measurement time plus any time required to Trip the load. See Section 2 of Attachment 1 for further information regarding these requirements.

4.2 The under frequency relay scheme shall be developed using digital under frequency relay(s) measuring frequency at the load facility. Each isolation device to be Tripped must be directly connected to the under frequency relay. A remote "central" measurement point with communications between the under frequency relay and the isolation device is prohibited.

4.3 A relay used in the UFLS program must not be used for the under frequency relay scheme.

4.4 The Service Provider must be capable of recording the frequency, timing and real power (in MW) for the Trip event that was triggered by the under frequency relay scheme. The Trip event record must be comprehensive enough such that the pre-Trip event and post-Trip event recording clearly demonstrates performance. The Trip event record to be provided to the AESO must include the following:

(a) Trip records measured at each isolation device;

(b) for any facilities with behind the fence equipment including, but not limited to, generation units and series reactors the Trip event record must be measured at the Point of Delivery as defined in the AESO's Consolidated Authoritative Document Glossary;

(c) the frequency observed by the relay at the site where the load is being shed;

(d) the RMS real power (MW) of the load (either total plant load or LSSi load) prior to the under frequency event and the RMS real power (MW) of the load (either total plant load or LSSi load) after the under frequency event; and

(e) demonstration that the load was shed in twelve (12) cycles (200ms) or less, once a frequency of 59.5 Hz is detected by the under frequency relay.

4.5 The Service Provider must be capable of providing the Trip event record in digital form, preferably in "csv" format. The record shall show the actual volume for sixty (60) seconds prior to the Trip event, during the Trip event and for sixty (60) seconds after the Trip event with the rate of at least 30 frames per second.

(a) Data file such as Disturbance Fault Recorder type data using sixty (60) Hz current and voltage sine wave traces are not acceptable.

(b) All required data shall be provided to the AESO within 5 business days of the Trip event.

4.6 The above record shall be retained by the Service Provider for a minimum of one (1) year after any Trip event.

5. Monitoring

5.1 The AESO will monitor the response of load assets to Trip events through the normal telemetry (SCADA) system. However, because the SCADA system does not provide sufficient detail for any given event, the AESO may request the Service Provider to provide a copy of the electronic record referred to in Sections 4.4 through 4.6 above following every Trip event.

6. Testing

6.1 The Service Provider must provide the AESO with a report certified by a Professional Engineer registered with the Association of Professional Engineers, and Geoscientists of Alberta (APEGA) of a test confirming that the load will disconnect from the System within zero point two (0.2) seconds following an event wherein the system frequency reaches fifty-nine point five (59.5) Hz.

6.2 Upon the AESO's request the Service Provider must schedule a test with the AESO for verification that the SCADA Trip Signal being sent from the AESO is received and that the proper response sent from the Service Provider is received by the AESO.

6.3 The AESO also requires a certified report demonstrating the data collection and retention ability that meets the requirements described in Sections 4.4 through 4.6 above.

6.4 The above certified test described in Section 6.1 above needs to be repeated any time there is a material change to the equipment providing LSSi and the report of the new test must be submitted to the AESO.

6.5 The functional test described in Section 6.1 above needs to be repeated after three (3) years of a previous test and the certified report submitted to the AESO, even if there has been no change to the equipment.

6.6 The Service Provider must provide written certification in the form of a letter, certified by a Professional Engineer registered with the Association of Professional Engineers, and Geoscientists of Alberta (APEGA), to confirm compliance with the requirements of this Appendix C with the exception of section 4.1 and to confirm that there has been no material change to the relay and its settings and/or any equipment configured for providing LSSi, within thirty (30) days of the start of each calendar year for the duration of Service Term.

6.7 Any time there has been a failure to comply with any of the foregoing requirements above, the AESO may require the performance of a test after corrective action has been taken in order to confirm the capability of the Service Provider and the LSSi Facility to provide LSSi, at the Service Provider’s sole cost.

6.8 The AESO will not require the LSSi Facility to be Tripped as part of any testing.

Attachment “1” outlines two loads being Armed, Tripped, and restored.

ATTACHMENT "1"

1. Illustration of LSSi SCADA communications for arming and offers

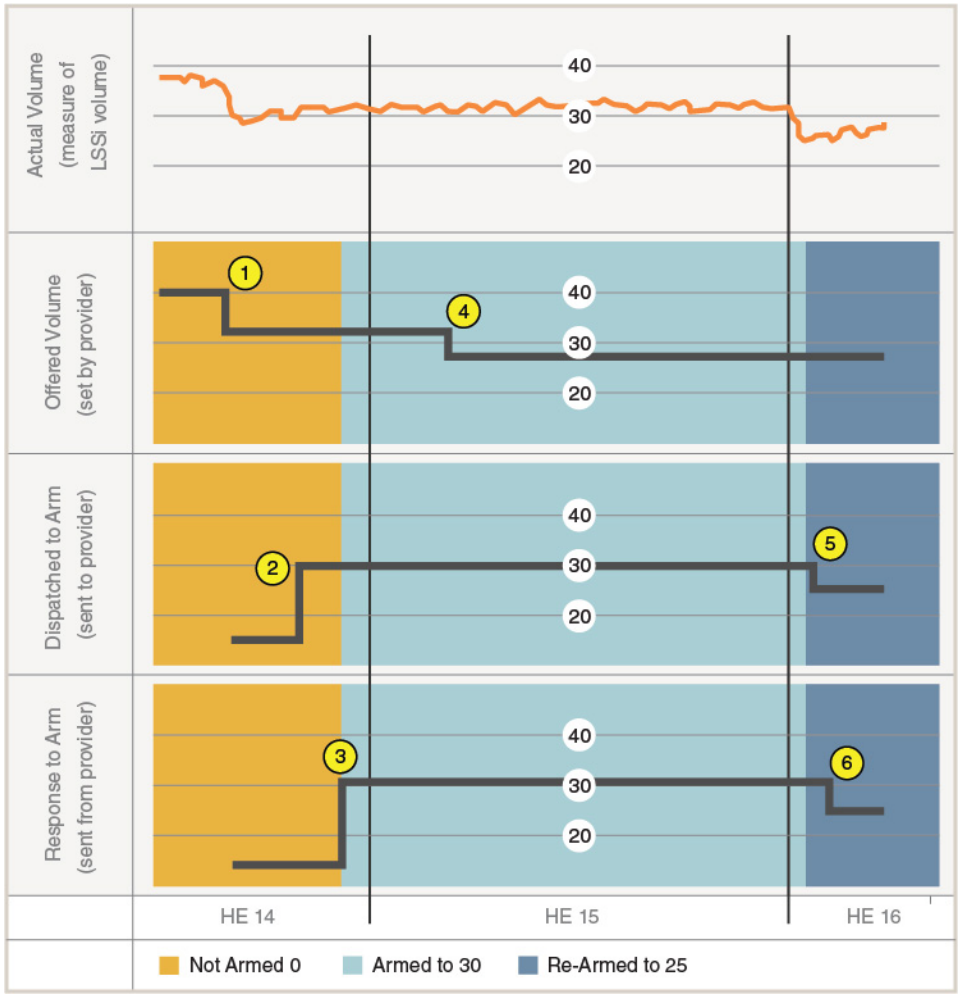

Figure 1: Illustration of the LSSi SCADA communication for arming and offers

The highlighted events above correspond to the following actions:

1.1 At 13:23 the Service Provider changes their Offered Volume from forty (40) MW to thirty (30) MW. The change is transmitted via SCADA to the System Controller indicating that the Service Provider can only offer thirty (30) MW of LSSi from this point forward. At this point the Service Provider is not Armed and does not have any volume obligations.

1.2 At 13:45 the System Controller determines that thirty (30) MW of LSSi are required from the Service Provider based on net import schedule and a merit order of Service Provider offers. The Dispatched Volume is transmitted by SCADA to the Service Provider, indicating that the System Controller will require the thirty (30) MW of offered LSSi to be Armed. The System Controller expects the Service Provider to comply with the Dispatch within fifteen (15) minutes of the Dispatch.

1.3 At 13:54 the Service Provider Arms the LSSi scheme and ensures that the load Armed to Trip reflects the Offered Volume. The state of the LSSi scheme (Armed or not Armed) and a confirmation of the thirty (30) MW Armed Volume are sent back to the System Controller indicating the site is Armed for thirty (30) MW, as Dispatched.

1.4 At 14:16 the Service Provider determines they only wish to provide twenty-five (25) MW of LSSi from this point forward and changes their Offered Volume to twenty five (25) MW. However, because the Service Provider was already Armed for thirty (30) MW, they are committed to provide that thirty (30) MW for at least the remainder of the current Scheduling Hour unless Dispatched otherwise by the System Controller.

1.5 At 15:10 the System Controller Dispatches the LSSi from thirty (30) MW to the new Offered Volume of twenty-five (25) MW. The System Controller may not always need the Service Provider to maintain the originally Armed Volume of thirty (30) MW due to a change in the intertie schedule, for example, but the Service Provider must be capable of maintaining the load until Dispatched by the System Controller. This new Dispatch is transmitted by SCADA to the Service Provider indicating that the System Controller will require the twenty-five (25) MW of offered LSSi to be Armed. The System Controller expects compliance to the Dispatch Volume within fifteen (15) minutes of the Dispatch instruction.

1.6 The Service Provider ensures that the Actual Volume reflects the Armed Volume. The state of the LSSi scheme (Armed or not Armed) and a confirmation of the twenty-five (25) MW Armed Volume are sent back to the System Controller indicating that the site is Armed for twenty-five (25) MW, as requested.

2. Guide to Meeting the LSSi Under Frequency Trip and SCADA Trip Signal requirements

2.1. The requirement to provide LSSi is that the committed real power (MW) amount consuming is disconnected from a facility that is connected to the System by tripping breakers configured under the LSSi scheme within zero point two (0.2) seconds of the System frequency reaching fifty-nine point five (59.5) Hz. It can be met by employing an under frequency relay set to fifty-nine point five (59.5) Hz and installing a fast breaker such that the total time used for measurement and breaker operation is zero point two (0.2) seconds or less. See Figure 2 below.

Under Frequency Trip response at 59.5 Hz

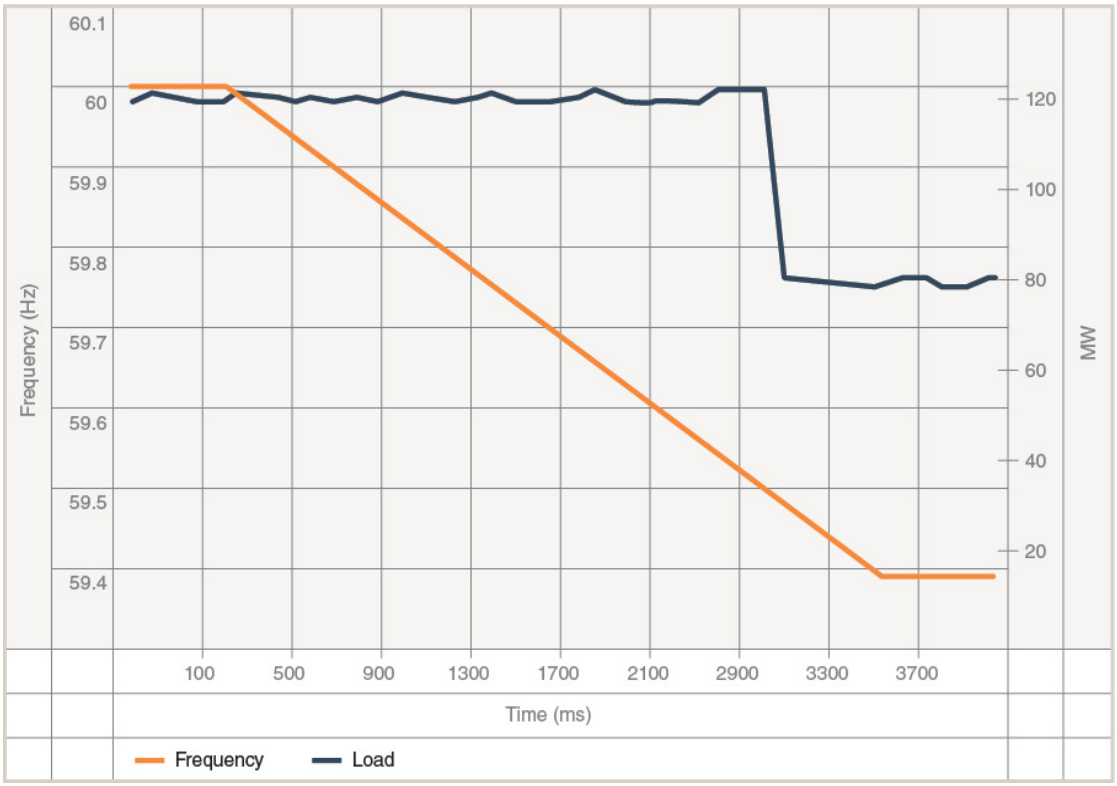

Figure 2: shows a load disconnecting from the System within 0.2 seconds after the System frequency reaches 59.5 Hz when the under frequency relay is set at 59.5 Hz. The amount of load shed is 40 MW as indicated by the right hand scale.

2.2. Additionally a SCADA Trip Signal may be sent from the AESO at any time. When the SCADA Trip Signal is sent by the AESO the Service Provider must remove the Armed Volume within ten (10) minutes.

SCADA Trip Signal response

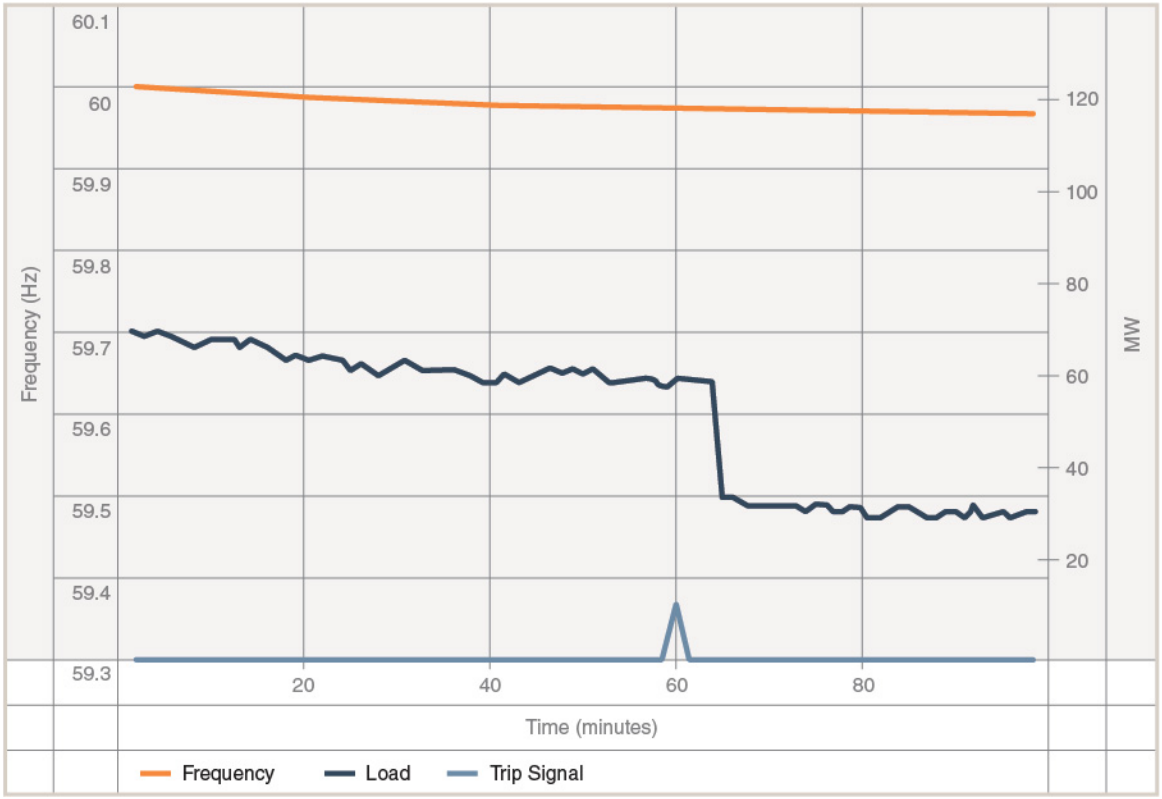

Figure 3: shows a load disconnecting from the System within 10 minutes of the AESO SCADA Trip Signal being sent to the Service Provider. The Service Provider needs to send a response to the AESO as confirmation of receipt of the SCADA Trip Signal. The amount of load shed is approximately 30MW as indicated by the right hand axis.

2. **LSSi Arming, Tripping and restoration sequence**

LSSi response

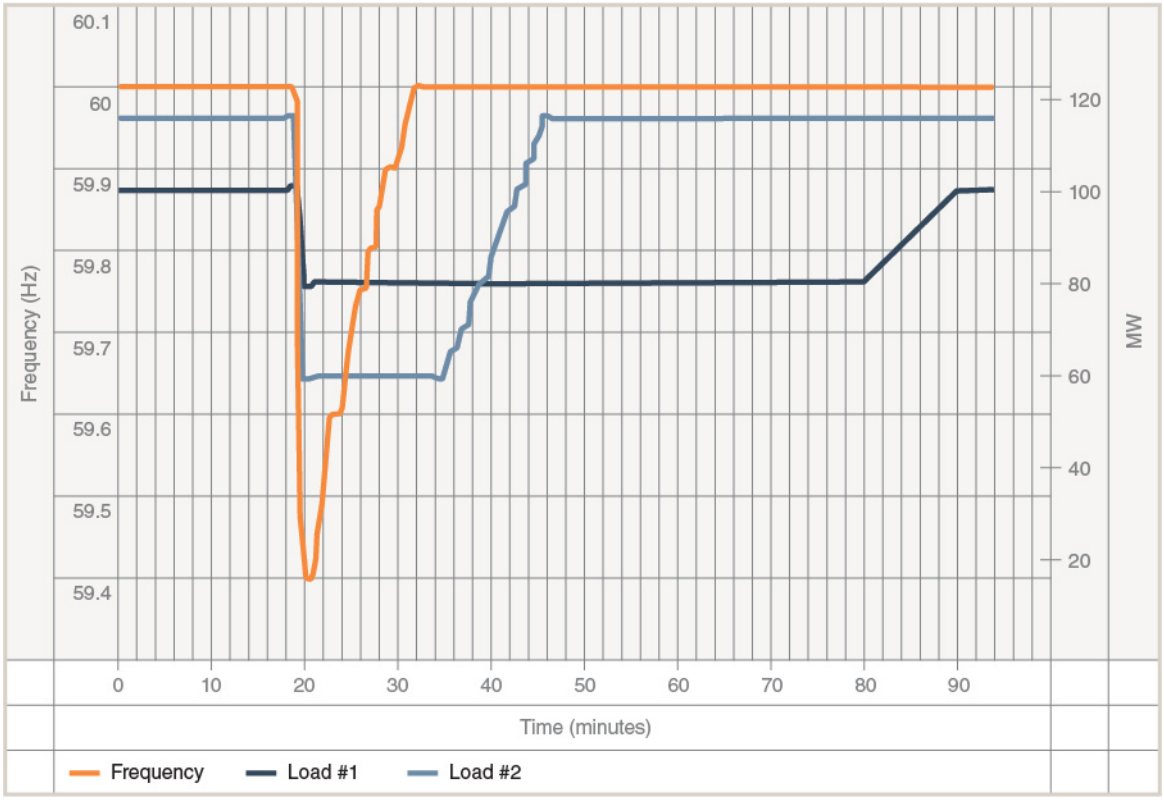

Figure 4: shows an example of two LSSi loads being Armed, Tripped and restored as follows (load MW shown in the right hand scale)

3. Timeline for a 59.5 Hz under frequency load shed on the System:

   3.1. at time t = 0 Load # 1 is Armed for 20 MW and Load # 2 is Armed for 55 MW;

   3.2. at time t = 19 minutes, a System Event takes place and the frequency drops to 59.4 Hz and Load # 1 sheds 20 MW and Load # 2 sheds 55 MW;

   3.3. at time t = 32 minutes the frequency is restored to normal;

   3.4. at time t = 35 minutes the System Controller releases the Trip Directive for Load # 2 and allows it to restore. However, the Directive for Load # 1 is not released so it remains at the reduced level; and

   3.5. at time t = 80 minutes (60 minutes after it Tripped) Load # 1 begins to self-restore even though the Trip Directive has not been released by the System Controller.