

Technical Meeting on Loss Factor Activities in Proceeding 790

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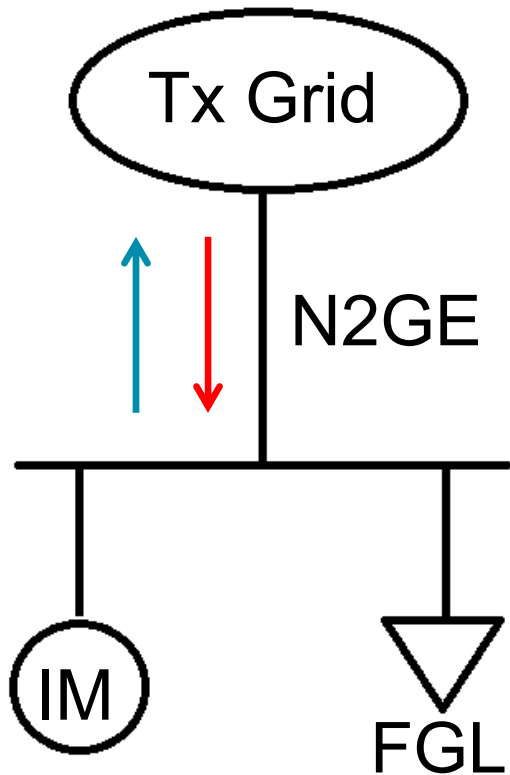
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- Introductions
- Matters raised with respect to 2018 loss factors
- Update for Module C compliance filing
- Module C loss factors and related information posted on AESO website prior to meeting
- Update for Module C loss factor calculations
- Update for loss factor rule amendment
- Schedule for loss factor activities during remainder of 2018, including 2019 loss factor development

Please ask questions during presentation

Modelling the Net-to-Grid Loads with Gross Generation



$$IM = GAC - OoM$$

Quantity in [MW]	Historical Year	Current Approach	Revised Approach
Gross Available Capability (GAC)	181	181	181
Out of Merit (OoM)	67	17	17
Dispatched or In Merit (IM)	114	164	164
Net to grid Exchange (N2GE)	(1)	(1)	49
Forecasted Gross Load (FGL)	(115)	(165)	(115)

- Outcomes

- The AESO has determined that a more appropriate assumption is that **gross** load will remain constant from the historical year to the forecast year
- This revised approach will be implemented for locations that have both material load and on-site generation, where generation is offered in the energy market on a gross basis
- This approach affects the load forecast on 22 out of 124 locations in 2018
- The AESO estimates that about 10 sites will see a material impact from revising the modelling assumption in 2018
- The loss factor calculation software must be modified to revise the modelling assumption for the 22 potentially affected sites

- The issue

It is related to locations with on-site generation that offer on a gross basis. The current approach is to assume, in the load data for that site, that all offered energy is consumed behind-the-fence whenever there is a net to grid load

- Modelling challenge

Source asset FH1 came online in October 2017 and since then it has resulted as a net-to-grid generation in 80% of the hours in the month. However, during 2016 load MPID FHEC20005C was always a net-to-grid load

- Conclusion

After reviewing several alternative and their pros and cons it was concluded that the current estimate is the best option

Hourly raw loss factors for imports (1)

Through its on-going efforts to optimize and monitor the software solution developed to implement the process described in the Loss Factor Rule, the AESO found an incorrect approach to calculating hourly raw loss factors for imports

The current approach is incorrect in hours when there are both scheduled imports and scheduled exports; thus, the current approach is inconsistent with the Loss Factor Rule

Cases [hours with]	Current Approach	Revised Approach
Imports = 0 & Exports \geq 0	No imports LF calculated	No imports LF calculated
Imports > 0 & Exports = 0	Import LF based on Import	Import LF based on Import
Imports > 0 & 0 < E < I	Import LF based on net, I-E	Import LF based on Import
Imports > 0 & 0 < I < E	No import LF calculated	Import LF based on Import

Hourly raw loss factors for imports (2)

- Outcomes

- The impact on import loss factors is expected to be small, based on less than 10% of hours used in the impact assessment
- The impact on non-import loss factors is expected to be very small, as import loss factors account for a small portion of total losses
- The loss factor calculation software must be perfected
- The AESO has taken measures to reduce the effect of these findings on the schedule of the Module C work

Next steps for the 2018 ILF

- The AESO will continue using the current 2018 ILF for billing purposes
- Loss factors will be recalculated for 2018, 2017, 2016, and 2015
 - The loss factor recalculations will be performed after completing the 2019 ILF calculations
- Recalculated loss factors will be implemented for 2018, 2016, and 2015
- A decision whether to implement recalculated loss factors for 2017 will be based on the materiality of the impact on 2017 loss factors

Module C methodology compliance filing will be submitted in near future



- AESO continues to plan two-part filing approach
 - Methodology compliance filing for methodology and procedures for calculating final loss factors for historical period
 - Payment plan compliance filing for structure, terms, and eligibility criteria for proposed payment plan
- Investigation of issues with 2018 loss factor development delayed finalization of methodology compliance filing
 - Needed to assess whether issues impacted methodology during historical period
- Methodology compliance filing draft is in final review and is expected to be filed in near future

Import loss factor issue would impact calculations in historical period

- Historical period is not affected by modelling issue related to net-to-grid loads when on-site generation is offered on a gross basis
 - Issue arises due to treatment of differences between forecast and historical merit orders
 - Module C methodology involves only historical merit orders
- Historical period is affected by import loss factor issue
- Methodology compliance filing will reflect revised calculation
 - Revised calculation software will be applied to calculation of loss factors in Module C
 - Requires revision to Procedure document
- Methodology compliance filing will discuss both issues

Other issues raised by stakeholders will be discussed in compliance filing

- Exception provisions will be included in Module C methodology as in subsections 8(7) and 8(8) of currently approved loss factor rule
 - AESO acknowledges differing opinions of stakeholders whether exception provisions should be revised to reduce the number of hours excluded for all locations
 - AESO acknowledges that further examination of the currently approved rule will occur and an amendment may be proposed
 - However, AESO considers the loss factor rule as currently approved to be the basis for the Module C methodology
 - AESO also notes that exclusion of hours occurs late in calculation process and can be changed with reasonable effort if a revision is directed

Other issues raised by stakeholders will be discussed in compliance filing (cont'd)



- Actual average system loss factor will be used in determining loss factor compression limits for 2006 to 2008
 - For 2006 to 2008, loss factor compression limits are a charge of two times the average system loss factor and a credit of one times the average system loss factor
 - Some stakeholders have commented that the average system loss factor as original forecast should be used to determine those compression limits
 - AESO considers that using actual average system loss factor accords with the Commission’s finding that the AESO should use “actual data whenever possible”

AESO will publish Procedure document for each year of historical period



- No modification to *Procedure to Determine Transmission System Losses for Loss Factor Calculations* are required to calculate loss factors for 2016
- Procedure will be modified to remove steps for adjusting flows on high-voltage direct current lines for 2015 and earlier years
- No other material revisions to Procedure are expected for years in the historical period
- Procedure document will be published by AESO for each year of historical period
- Procedure document does not require approval of Commission

Compliance filing will summarize consultation and implementation activities



- Filing will mention technical meeting held on February 8
- Filing will provide updated schedule of implementation activities
 - Similar to information provided later in this presentation
- Filing will discuss consultation during period of publication of loss factors for historical period
- Filing will discuss proposal to provide a Settlement Procedure document in conjunction with payment plan compliance filing
 - Settlement Procedure document will address questions asked by stakeholders related to settlement process

AESO published loss factors for 2016 on July 25



- Recalculated 2016 loss factors and additional information were published on AESO website on July 25
 - Calculated using proposed methodology, subject to approval of Commission in Module C compliance filing process
 - Does not correct import loss factor issue; 2016 loss factors will be republished after correction is implemented
- Accessible at www.aeso.ca ► Grid ► Loss factors ► Loss factors recalculation for 2006-2016 ► Recalculated loss factors ► 2016 recalculated loss factors
- Does not yet include calculation of losses charges for 2016

Loss factors are reasonably stable for 2016-2018

- Only 2.1% of hours are excluded in 2016
 - About 12,000 hours excluded out of potential 568,000 hours

Progress continues on Module C work



- Hourly energy market merit order data has been completed for 2016 back to 2011
- Hourly load data has been completed for 2016 back to 2013
- System topologies have been created for 2016 back to 2013
- Loss factors have been calculated for 2016 and 2015
 - 2016 loss factors have been posted
 - 2015 loss factors are currently being reviewed
- Working on effective way to publish annual and cumulative losses charges
- Module C work will slow down while software is revised to address issues discussed in previous slides

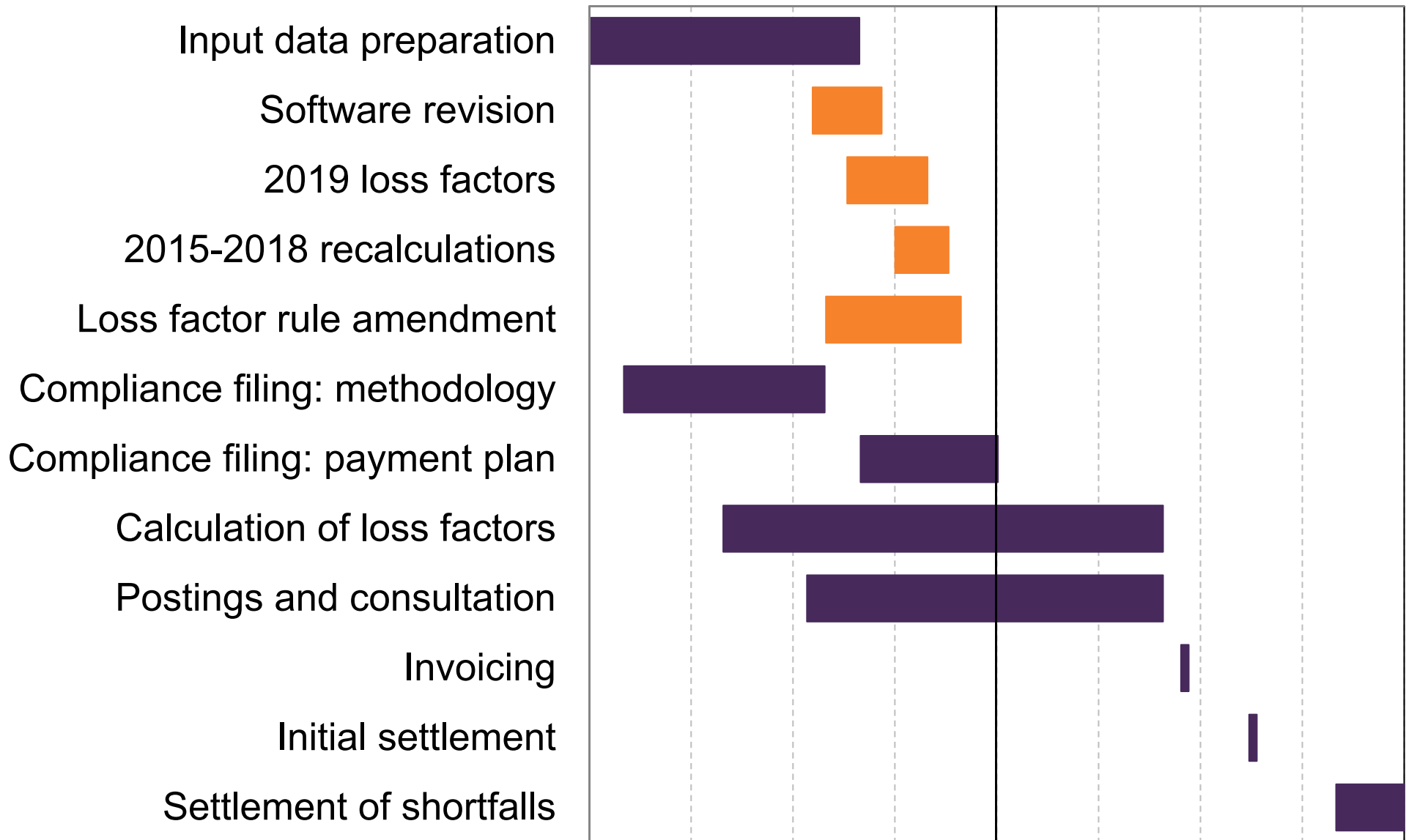
Rule amendment will be proposed after methodology compliance filing is submitted

- Rule amendment will be developed in August
- Amendment will include finalization of project selection criteria
- Amendment will include conclusion from examination of exclusion provisions in subsection 8(7) and 8(8) of Loss Factor Rule

Module C methodology compliance filing has been delayed



Jan 18 Apr 18 Jul 18 Oct 18 Jan 19 Apr 19 Jul 19 Oct 19 Jan 20



Correction: Fourth activity corrected from "2015-2017 recalculations"

- The AESO does not expect to provide written responses to questions asked during meeting

For more information

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- Loss factors, stakeholder consultation information, and related documents are posted on AESO website
 - [Grid](#) ▶ [Loss factors](#) ▶ [2018 loss factors](#)
 - [Grid](#) ▶ [Loss factors](#) ▶ [2017-2018 loss factor development](#)
 - [Grid](#) ▶ [Loss factors](#) ▶ [Loss factors recalculation for 2006-2016](#)

Thank you