

Technical Meeting on Loss Factor Activities

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- Introductions
- Findings from investigation of volume discrepancies in loss factor calculation results
- Status update on 2019 loss factor calculations
- Status update for Module C loss factor calculations
- Summary of potential amendments to the Loss Factor Rule
- Review of schedule for loss factor activities posted on AESO website
 - Question list has not yet been posted
- Discussion

Please ask questions during presentation

AESO has identified four implementation issues with loss factor calculations

- AESO has identified four implementation issues that have affected loss factor calculations
- Two issues were discussed at technical meeting on July 26
 - Incorrect modelling of net-to-grid loads when on-site generation is offered on a gross basis
 - Incorrect approach to calculating hourly raw loss factors for imports
- Two additional issues have been identified since then
 - Incorrect dispatch of exports within PSS/E simulation
 - Incorrect modelling of two industrial sites relating to gross generation basis for merit order offers

Issues identified on July 26 have been corrected

- For net-to-grid loads with on-site generation offered on a gross basis, gross load will be held constant when moving from two-year-prior data to forecast loss factor year
 - Previously net load was held constant, which produced unreasonable results when merit order shifted significantly
 - Only affects loss factors calculated for a forecast year
- In an hour when both imports and exports are scheduled on an intertie, only imports will be reduced when calculating hourly raw loss factors for imports
 - Previously net flow on intertie was reduced to zero
 - Affects loss factors calculated for both forecast and historical years

Dispatch of exports within PSS/E simulation has been corrected



- Further investigation has determined that exports were not dispatched in PSS/E simulation until procedure required exports to be curtailed
- As a result, total demand on the transmission system and merit order dispatch of source assets were underrepresented in hours when exports were scheduled
 - Losses on the transmission system are also expected to have been underrepresented in those hours
- Loss factors will be impacted in hours in which exports are scheduled (on the order of in half the hours in a year)
 - Impact will depend on level of exports in hour

Dispatch of exports within PSS/E simulation has been corrected (cont'd)



- PSS/E simulation has been corrected so that, in an hour when exports are scheduled on an intertie, those exports are now dispatched whenever load and losses can be balanced without curtailing exports
 - Affects loss factors calculated for both forecast and historical years

Modelling of all sites with generation and on-site load is being re-confirmed

- Two industrial sites that offer generation on a gross basis in merit order had been modelled as offering on a net-to-grid basis
- Modelling is being corrected for those two sites
 - Modelling of all other sites with generation and on-site load is also being re-confirmed
- Loss factors will be impacted in almost all hours in a year
 - Impact will depend on offers from corrected sites in hour
- Software is being updated to implement corrected modelling
 - Affects loss factors calculated for both forecast and historical years

AESO has prepared input data for 2019 loss factor calculations



- Master loss factor location list for 2019 has been posted on AESO website
- System topologies have been prepared for 2019
- Merit order data for 2017 has been compiled
 - Creation of 2019 merit order data currently on hold during rule amendment exploration
- Load data for 2019 has been prepared
- Software update is nearing completion
- AESO is currently investigating options for schedule of activities to optimize work while accommodating rule amendment process

AESO continues to make progress on Module C input data preparation



- System topologies complete back to 2013
 - System topologies in process for 2012
- Merit order data complete back to 2011
 - Anomalies with 2006-2008 and 2009-2010 data identified and being resolved
- Load data complete back to 2012
 - Anomalies being identified and addressed as earlier years or data are prepared
- AESO currently investigating options for schedule of activities to optimize work while accommodating rule amendment process

AESO is initiating consultation on five amendments to Loss Factor Rule



- Two amendments are substantive
 - One will be discussed with stakeholders during today's session
 - One has been discussed with stakeholders previously
- Three amendments are clarifications
 - All three clarifications have been discussed with stakeholders previously
- None of the amendments affect the Module C methodology
 - All five amendments relate to developing forecast loss factors

Substantive amendment for source asset returning from extended outage

- Being discussed with stakeholders for first time today
- Loss Factor Rule excludes a source asset that is expected to be subject to a mothball outage or planned outage
- Loss Factor Rule does not address a source asset returning from a mothball outage or planned outage
 - For example, H R Milner generating unit went on mothball outage in August 2017, returned from that outage in June 2018, and is expected to operate through 2019
- Loss Factor Rule requires merit order data from two years prior to be used for an existing source asset
 - This requirement would result in H R Milner being excluded for August-December for 2019 loss factor calculations

Substantive amendment for source asset returning from extended outage (cont'd)



- AESO considers a rule amendment is needed to ensure the merit order data used for loss factor calculations is consistent with the expected operation of a source asset returning from an extended outage
- AESO proposes to amend subsection 6(1) to accommodate the return to service of a source asset after an extended outage

Substantive amendment for increases or decreases for existing assets

- Previously discussed with stakeholders during 2017 and 2018 loss factor development activities
- Loss Factor Rule requires data from two years prior to be used for an existing source asset or an existing sink asset
 - This requirement would result in known or expected changes (after the historic year) to the capacity of a source asset or sink asset being excluded for forecast loss factor calculations
- Loss factor calculations for 2017 and 2018 included changes to capacities of source assets and sink assets
 - Based on comparability to additions of new assets
- AESO considers a rule amendment is needed to ensure the data used for loss factor calculations is consistent with the expected capacities of existing assets

Substantive amendment for increases or decreases for existing assets (cont'd)

- AESO proposes to amend subsections 6(1) and 6(2) to accommodate increases or decreases to capacities of existing assets
- AESO considers that stakeholders have supported the inclusion of increases or decreases to capacities during the development of loss factors for 2017 and 2018

Clarifying amendment to confirm project inclusion criteria

- Previously discussed with stakeholders during 2017 rule amendment process
- Project inclusion criteria in subsection 7 were amended in 2017 to better reflect realistic likelihood of project being placed in service during the forecast loss factor year
- Consultation on project inclusion criteria was condensed and AESO included requirement in subsection 7(5) to replace criteria after further consultation
- Subsection 7(5) requires subsection 7 to be replaced in November 2018, unless the replacement subsection is subject to a Commission proceeding

Clarifying amendment to confirm project inclusion criteria (cont'd)



- AESO proposes to adopt project inclusion criteria as permanent and to remove requirement to replace provision
 - Project inclusion criteria has resulted in reasonable inclusion of projects for 2017 and 2018 loss factors
- AESO considers that stakeholders have supported the project inclusion criteria during development of loss factors for 2017 and 2018

Clarifying amendment to align inclusion of asset data and inclusion of projects

- Previously raised by stakeholder during 2017 rule amendment process
- Stakeholder suggested that incorporation of new asset data and exclusion of terminated asset data in subsection 6 should align with inclusion and exclusion of transmission projects in subsection 7
 - Changes were proposed to only subsection 7 during 2017 rule amendment process
- AESO considers a rule amendment should now be included to ensure asset data is included in subsection 6 on the same basis that transmission projects are included in subsection 7

Clarifying amendment to align inclusion of asset data and inclusion of projects (cont'd)



- AESO proposes to include in subsection 6 references to subsection 7 to ensure alignment between in-service dates used for assets in subsection 6 and in-service dates used for facilities in subsection 7
 - Asset data has been aligned with facility in-service dates in this manner during 2017 and 2018 lossfactor development
- AESO considers that stakeholders have supported the alignment of in-service dates in subsections 6 and 7 during development of loss factors for 2017 and 2018

Clarifying amendment for hours excluded from loss factor calculations

- Previously discussed with stakeholders during 2017 and 2018 loss factor development activities and in Module C methodology compliance filing
- Subsection 8 requires the calculation of hourly loss factors for each location for system access service under Rates STS, IOS, or DOS
- Subsection 8(7) excludes an hour from the calculations **for all locations** if an hourly loss factor cannot be calculated for any location in that hour for any reason
- Subsection 8(8)(c) also excludes an hour from the calculations **for a single location** if transmission system losses cannot be calculated for that location in that hour

Clarifying amendment for hours excluded from loss factor calculations (cont'd)

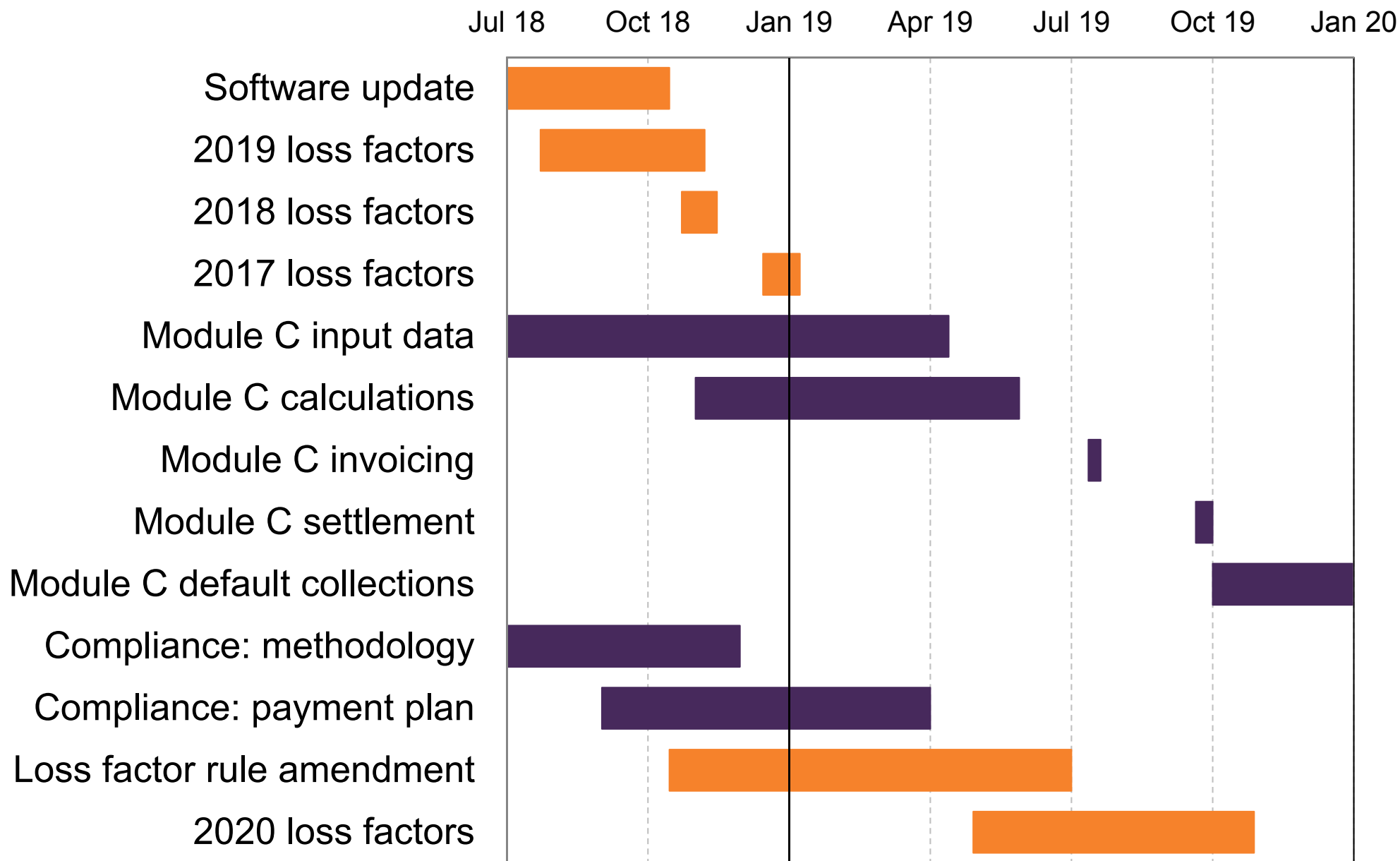
- Subsection 8(8)(c) can never apply given the “for any reason” language in subsection 8(7) and is therefore redundant, resulting in potential confusion about the intended operation of subsections 8(7) and 8(8)
- AESO considers a rule amendment is needed to clarify the operation of these provisions
- AESO proposes to delete subsection 8(8)(c) to remove the redundancy
- AESO acknowledges that stakeholders have divergent views on this matter and has considered all views expressed to it in proposing this amendment

AESO proposes to conduct written comment process following technical meeting



- Notice and request for written comments expected to be posted in near future
- After comment process, AESO will determine how to proceed with application for rule amendments

Schedule of activities has been posted on AESO website



- Questions will be summarized in question list on AESO website

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](#) ▶ [Stakeholder engagement](#)
 - [Grid](#) ▶ [Loss factors](#) ▶ [Loss factors recalculation for 2006-2016](#)

Thank you