



March 19, 2008

**Re: Voltage Profile in Loss Factor Base Cases
2008-03-27 Loss Factor Stakeholder Meeting**

Loss Factor Stakeholder Group

Preamble:

Some stakeholders are requesting the ISO to improve the bus voltage accuracy used in the loss factor base cases. The AESO attempts to maintain the maximum possible accuracy with the given loss factor resources. In order to address the request, the following analysis provides the ISO's current process and offers a possible future modification showing benefits and drawbacks. Other options may also exist.

Current Process:

The voltage levels in the loss factor base cases for year Y (the next year) at buses equal to or more than 69 kV in base cases are compared with actual voltage profile in the SCADA system. The process is –

- Obtain the voltages for all buses in base cases for 69 kV or more.
- Obtain a historical seasonal similar load scenario from Year Y-1 and obtain the voltages for all buses of 69 kV or more.
- Compare the historical voltages with the base case voltages.
- Adjust bus voltages if they are not within acceptable limit.
- The acceptable limit for bus voltage comparison is $\pm 5\%$ of the historical bus voltage.

The current process allows AESO to check and adjust about 600 buses per case in the model to historical accuracy. To check and adjust (an iterative process) all twelve cases takes about two to three weeks. The ISO believes better data, including voltage profiles, will result in better loss factor accuracy. By changing the existing voltage profile process, some stakeholders will see loss factors rise and others will see loss factors be reduced.

One Possible Future Process:

The process would be same except for the acceptable limit for bus voltages. It may be changed to 1% or 2.5%.

Pros:

1. It will improve the quality of the base cases.
2. It will improve the accuracy of the loss factor calculation.

Cons:

1. It will take significant amount of resources (time and manpower) to achieve the goal. It takes about 1 week to fix the voltage to within 2.5 kV for operational cases for about 100 buses. For loss factor cases, the ISO would have to adjust about 600-700 buses for 12 cases. The AESO estimates it would take about 15 weeks to perform the voltage profiling.
2. The timeframe doing the loss factor base cases is extremely compact (roughly 6 weeks to finalize the 12 cases) and it is almost impossible to achieve even 2.5% voltage error level.
3. Currently, the loss factor group resourced to deliver > 5% accuracy.
4. The AESO estimates the improvements would result in a decrease in loss factors at large volume buses.

Action:

Stakeholders are requested to provide input on the issue by April 10 2008. The input should reflect some level of engineering analysis as to why a different course of action should be taken. The ISO will quantify the responses and provide a recommended course of action by April 21, 2008. Please note the AESO holds the right of determining a course of action regarding this issue.

Sincerely,

Original signed by

Robert Baker, P.Eng.
AESO, Operations Forecasting