

Loss Penalty Factors

Intertie Trading Standing Committee
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Penalty Factors

- Are intended to represent the transmission losses associated with each resource (generator, dispatchable load, source and sink).
- Transmission losses are a natural occurrence when moving power from one point to another and are the result of heating, energization, magnetization, size and type of cable.
- Penalty factors are the incremental transmission losses based on the location of the resource with respect to the reference bus and the flow of power on the grid.
- Are used in both the pre-dispatch and real-time constrained sequences, by the Dispatch Scheduling Optimizer (DSO).

Use of Penalty Factors

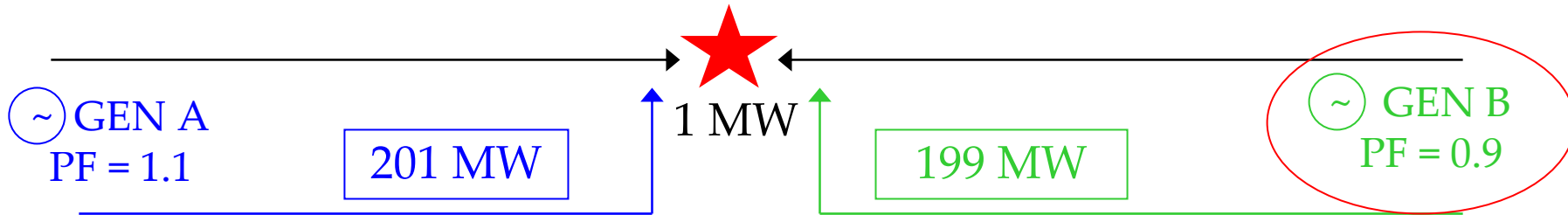
- Can be looked at in two ways:
 - The amount of power (MW) that needs to be generated/consumed at the resource bus in order to consume/supply one MW at the reference bus (Richview).
 - The factor that the DSO multiplies the offer and bids by to come up with a value of those offers and bids relative to the reference bus.

Absent of constraints

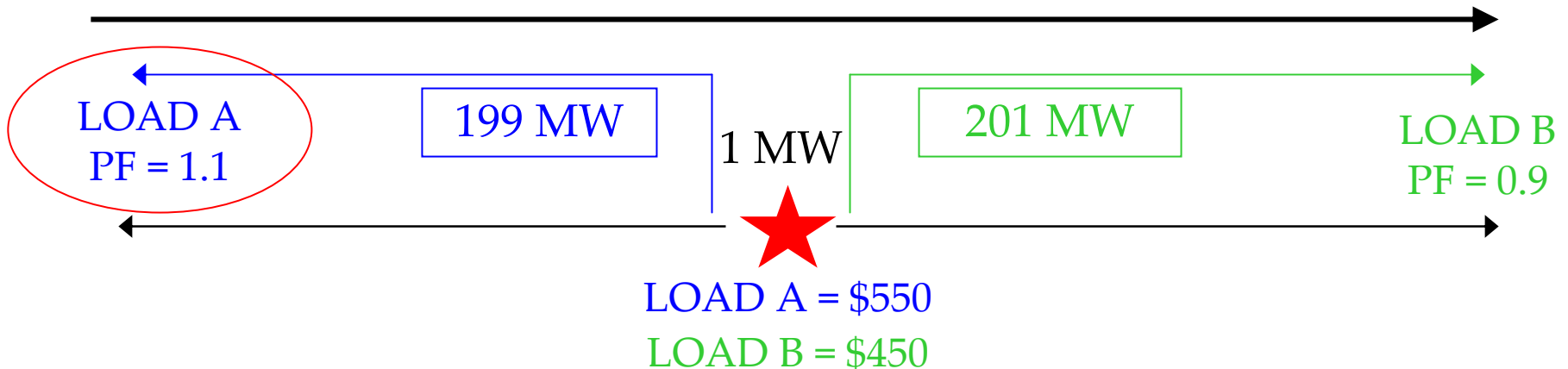
IF ALL OFFERS AND BIDS = \$500/MWh

GEN A = \$550

GEN B = \$450



SYSTEM POWER FLOW = 200 MW



Absent of constraints the generator with the lower PF and the loads with the higher PF will be scheduled.

Current Static Penalty Factors

- Current static penalty factors
 - Loads = 0.873 to 1.53
 - Dispatchable Loads = 1.000
 - Generators = 0.890 to 1.57
 - Exports (sinks) = 1.000
 - Imports (sources) = 0.97 to 1.11
- Penalty factors have not been updated since market opening.

Ongoing work

- All penalty factors are currently being recalculated to reflect existing conditions.
- All sources and sinks at each intertie will be assigned the same penalty factor.
- A stakeholder engagement process will be undertaken to look at updating penalty factors:
 - Seasonally
 - Daily
 - Off Peak and On Peak
 - Dynamically