

An Approach for Resolving Overlapping Interconnection Impacts

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ISO, many stakeholders, and FERC agree: disqualifying new generation from the FCM based on queue position is “not ideal.”

- Least-cost resources may not be selected in FCM.
- May create inefficient use of scarce interconnection resources.
- Resources not selected in the FCM risk incurring costs that may not be recouped, regardless of queue position.

The CT DPUC recognizes the complexity of the issues.

- Current queue system reflects stakeholder efforts to ensure fairness and transparency.
- FCM creates significant potential conflicts with queue.
- No solution is likely to satisfy all stakeholders.
- CT DPUC's proposals are the beginning of the discussion – not the end – and important questions remain.
- We solicit constructive suggestions for improvement or alternatives that will permit market allocation of interconnections.

The FCM needs to operate in sync with Interconnection Standards.

- The FCA assumes primary importance for interconnection decisions.
- Only FCA winners are capacity resources.
- The value of the interconnection drops materially for FCA losers.

FCA qualification standards should mesh with interconnection criteria.

Coordination required to

- enhance review and approval efficiency
- minimize conflicts
- facilitate transparency
- level the playing field

Interests that need to be addressed

- Load – FCA Clearing Prices that reflect a competitive CONE based on reasonable risk.
- ISO – Reliable incremental new capacity.
- New generation suppliers – Interconnections allocated based on a project's merits.
- Queue position holders – Recovery of out-of-pocket costs incurred to obtain and hold queue positions.
- TOs – Cost recovery for interconnections; system safety and operability.

Objectives

- Minimize queue conflicts
 - Weed out or penalize projects that are not progressing adequately
 - Identify and implement transmission upgrades to reduce overlapping interconnection impacts
- Allocate scarce interconnections on the basis of costs and efficiency
- Coordinate and streamline FCA qualification and interconnection request procedures
- Protect legitimate interests of existing queue holders

Proposed Approach

Accommodates situations when:

- Constrained grid can accommodate only 1 project during Commitment Period;
- Grid can accommodate ≥ 1 project, but there are more new plants than available connections; and
- Grid can accommodate ≥ 1 project, and the per MW cost of connecting the second plant is higher than the cost of connecting the first plant.

Implementing Competition for Interconnections

- All potential resources with overlapping interconnection impacts participate in the FCA and assume the same “base” interconnection costs.
- Only the MWs that can be connected count toward meeting ICR.
- The descending clock auction determines which projects remain in supply at the Capacity Clearing Price.
- If necessary, those remaining projects continue a descending clock sub-auction to allocate the interconnection to the resource that can use it best and to set the price.
- Any premium above base interconnection costs reimburses unsuccessful projects for their queue-related costs.

Example 1:

200 MW interconnection available

Base Cost: \$1.00

Gen A higher queue position

<u>Auction Price</u>	<u>Gen A (200 MW)</u>	<u>Gen B (200 MW)</u>
\$8.00		
\$7.50	Out (+ costs)	
\$7.00 (Clearing Price)		\$7.00 (-\$1.00)

Example 1 (cont.):

- Gen A drops out when FCA reaches \$7.50
- Gen B remains in FCA at \$7.00 Clearing Price
- Gen B pays interconnection cost of \$1.00
- Gen A reimbursed for out-of-pocket queue costs

Example 2:

200 MW interconnection available

Base Cost: \$1.00

Gen A higher queue position

<u>Auction Price</u>	<u>Gen A (200 MW)</u>	<u>Gen B (200 MW)</u>
\$8.00		
\$7.50		
\$7.00 (Clearing Price)		
\$6.50		
\$6.00	Out (+ costs)	\$5.99 (-\$1.00)

Penalties calculated on \$7.00 Clearing Price

Example 2 (cont):

- Gen A and Gen B remain in FCA at \$7.00 Clearing Price
- Sub-auction continues for Gen A and Gen B
- Gen A drops out at \$6.00
- Gen B selected and pays interconnection costs plus amount below Clearing Price
- Gen A reimbursed for out-of-pocket queue costs
- Gen B's performance penalties calculated based on \$7.00 Clearing Price

Example 3:

300 MW interconnection available

Base cost: \$2.00

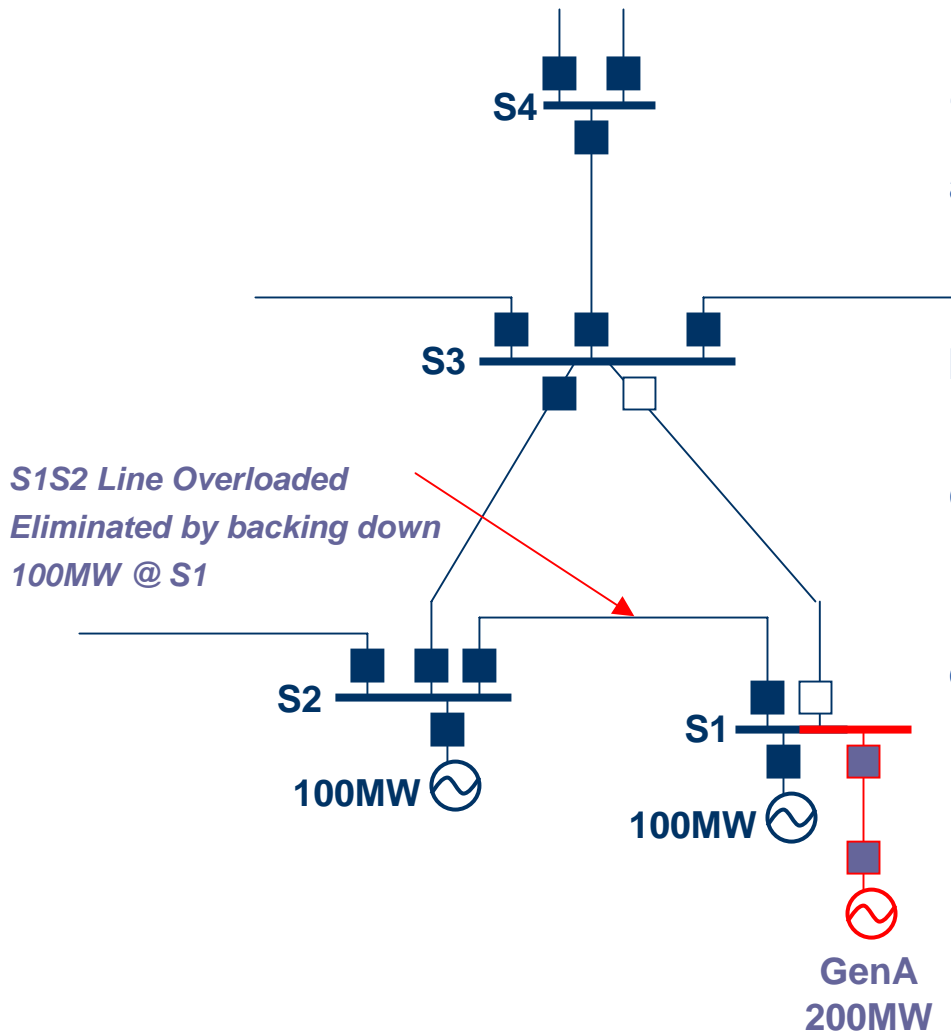
Gen A higher queue position

<u>Auction Price</u>	<u>Gen A</u> <u>(200 MW)</u>	<u>Gen B</u> <u>(200 MW)</u>	<u>Gen C</u> <u>(100 MW)</u>
\$8.00			
\$7.50	Out (+ costs)		
\$7.00 (Clearing Price)			
\$6.00		\$5.99 (-\$2.00)	Out \$6.00 (-\$2.00)

Example 3 (cont):

- Gen A not selected in FCA
- Gen B and Gen C remain in FCA at Clearing Price and sub-auction continues
- Gen C drops out at \$6.00
- Gen C pays higher interconnection cost and Gen B pays lower interconnection cost
- Gen A reimbursed for out-of-pocket queue costs
- Gen B's and Gen C's performance penalties calculated based on \$7.00 Clearing Price

Example 4: ISO's Overlapping Impacts Example

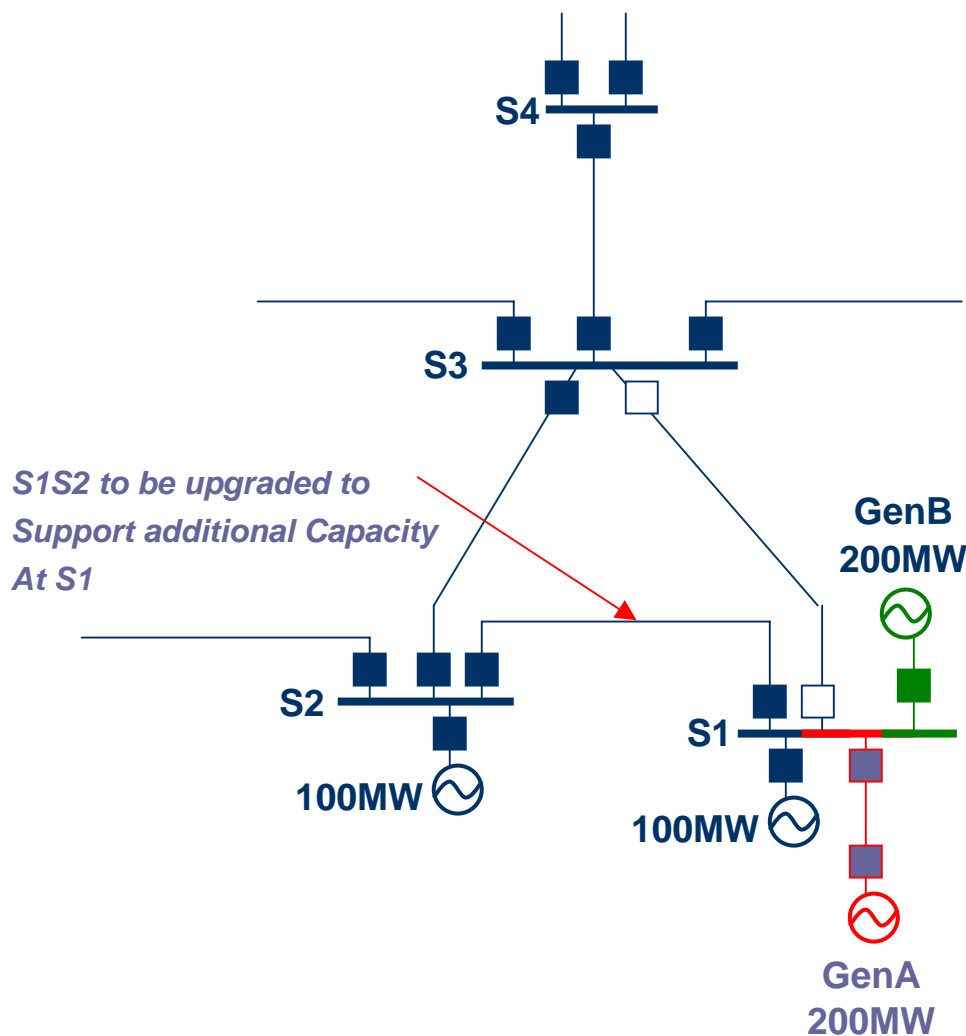


Overload of Line S1S2

- 300 MW of generation at S1, but only 200 MW can run without upgrading S1S2 line.
- Should Gen A be qualified for only 100 MW or for more?
- Should Gen A and the existing 100 MW generator compete for capacity payments up to 200 MW?
- What protection should the existing generator have for its interconnection investments?

Example 5: ISO's Overlapping Impacts

Example, cont.



Gen B has lower queue position than Gen A

- Both compete for interconnection in the FCA
- If only one clears, it receives interconnection regardless of Queue Position
- If both clear, they compete for interconnection in sub-auction
- If Gen B wins sub-auction, it pays interconnection costs and difference between sub-auction price and Clearing Price
- If Gen A not selected in FCA, it is reimbursed for its out-of-pocket queue costs

Some Remaining Questions

- How to facilitate long-lead time projects' competition for interconnections
- Whether and how to consider clusters of projects
- What costs are reimbursable for higher-queue projects not selected in the FCM
- How to establish base costs
- Whether to distinguish between large and small generators or intermittents and traditional generation
- How to address material modifications
- How to streamline FCA qualification and interconnection procedures
- Whether and when an FCA loser is removed from queue