



External Generation in Load Deliverability Analysis

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What is Load Deliverability

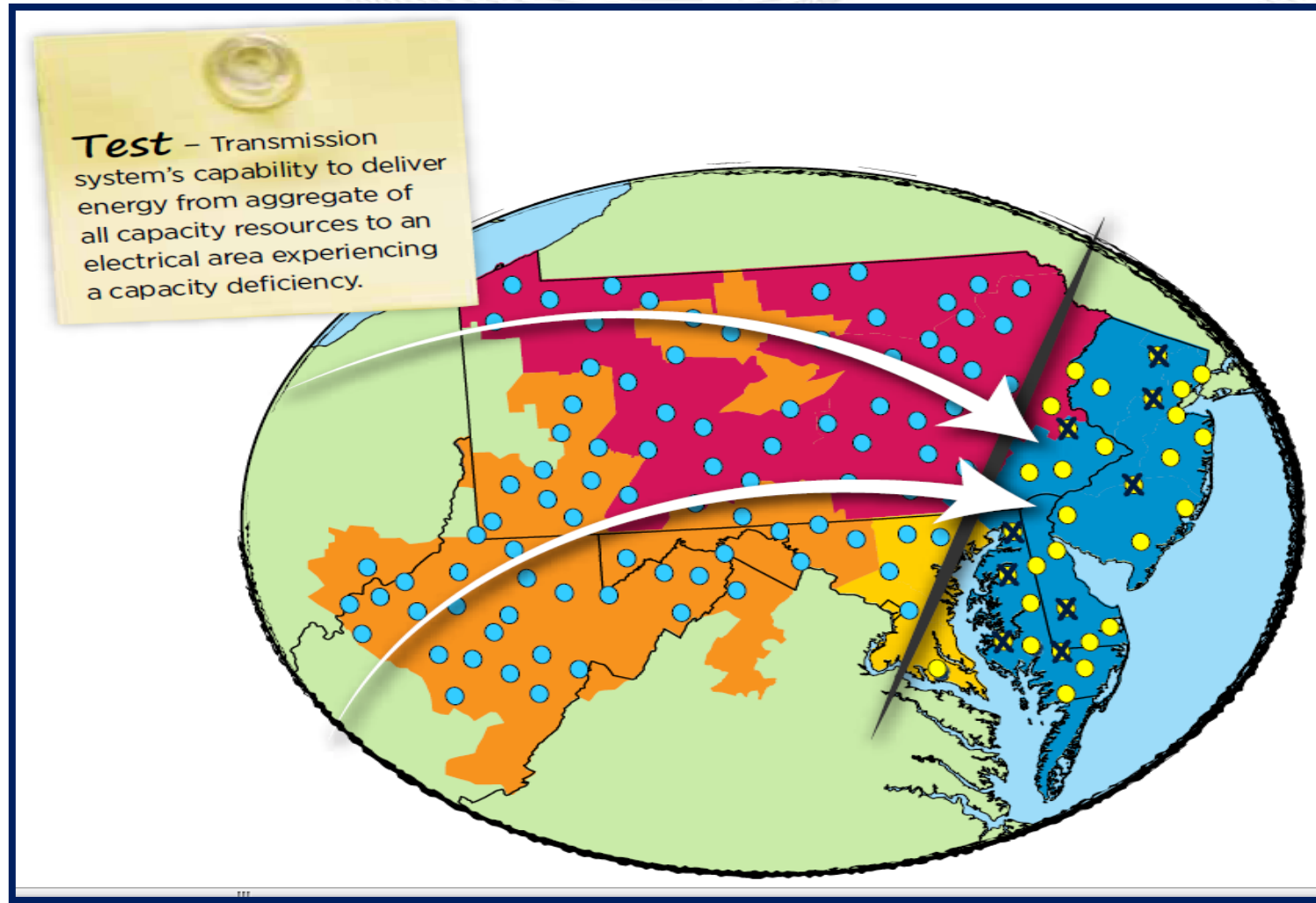
Transmission system's capability to deliver energy from aggregate of all capacity resources to an electrical area experiencing a capacity deficiency and higher than expected load levels (90/10)

- ✓ **CETO:** Amount of import capability under peak load emergency conditions into a defined area to maintain a 1-event-in-25-years reliability criteria index
 - Peak load per PJM Load Forecast
 - PJM is divided into 27 “electrically cohesive” Load Deliverability Areas (LDAs). Each LDA is evaluated separately.
 - 1-in-25 reliability criteria index refers to the frequency with which the LDA should shed load due to insufficient import capability only.

- ✓ **Capacity Emergency Transfer Limit (CETL)** measured against CETO to determine system ability to import capacity into LDA under peak load emergency conditions

Load Deliverability Test

- ✓ Transmission system's capability to deliver energy from aggregate of all capacity resources to an electrical area experiencing a capacity deficiency and higher than expected load levels (90/10)
- ✓ Test failure...load is "bottled" inside a defined area; sufficient capacity cannot be "delivered" to serve load as a result of limiting transmission constraints
- ✓ Maintain CETO in defined area to achieve LOLE of 1-event-in-25 years...import capability needed to keep lights on with sufficient generating capacity...with all its size diversity and outage characteristics...probabilistic techniques
- ✓ Area tested for its expected import capability up to established transmission facility limits...CETL...how much an area can actually be expected to import
- ✓ **If $CETL < CETO$, test fails, additional transmission capability is needed**



(Arrows in direction of constraint)

- Generator contributes to problem for red constraint
- Generator helps problem for purple constraint
- Generators in external areas less likely to be consistently a help in the LDA

