



PJM-MISO
Stakeholder
JCM Briefing
June 30, 2005



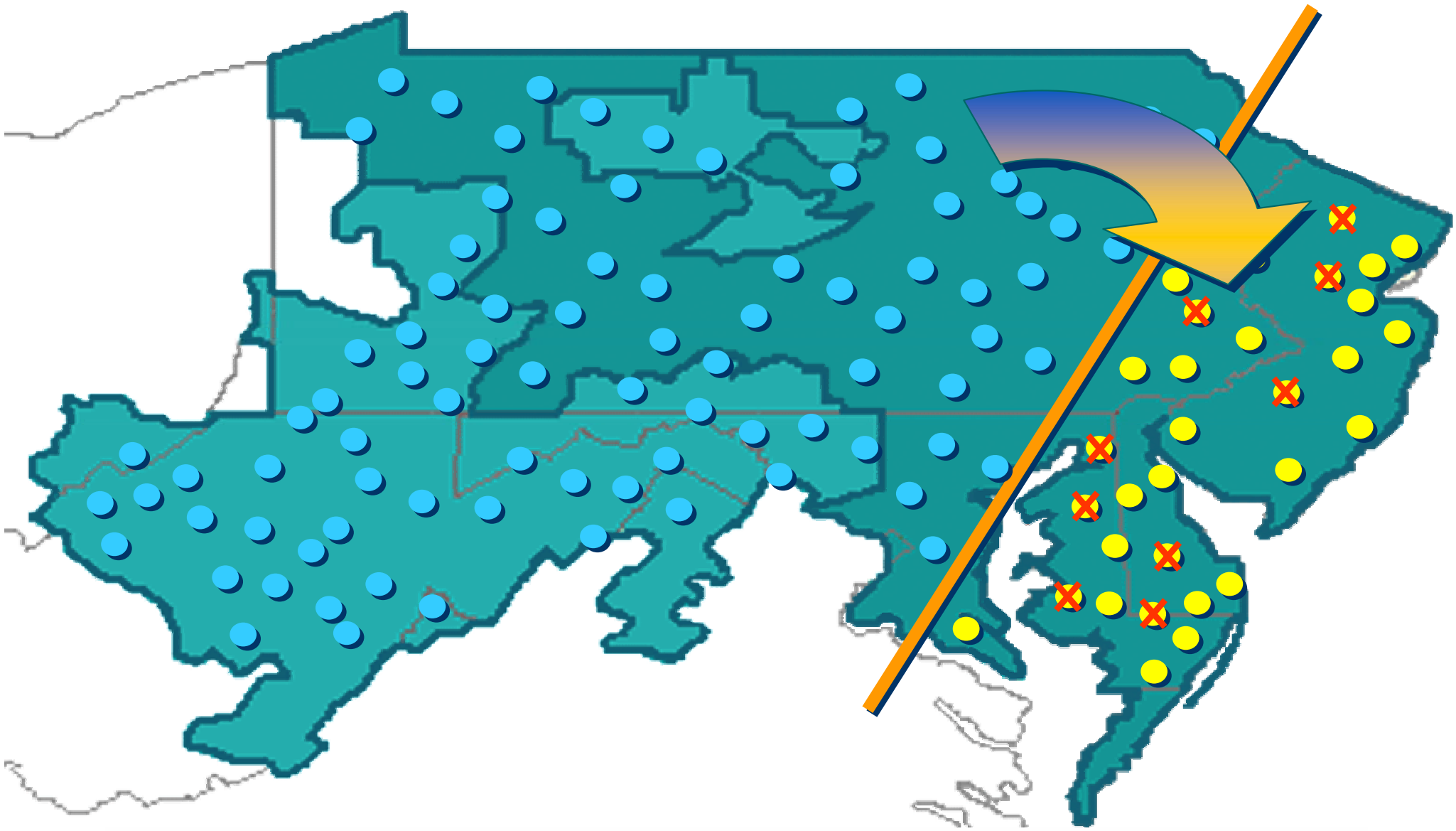
Coordinated Planning / Deliverability Studies

- Deliverability Study Processes in PJM and MISO
- Current Coordination of Generation Interconnect Studies under the JOA
- Additional Coordination via joint expansion planning
- Enhanced Coordination Possibilities and Issues

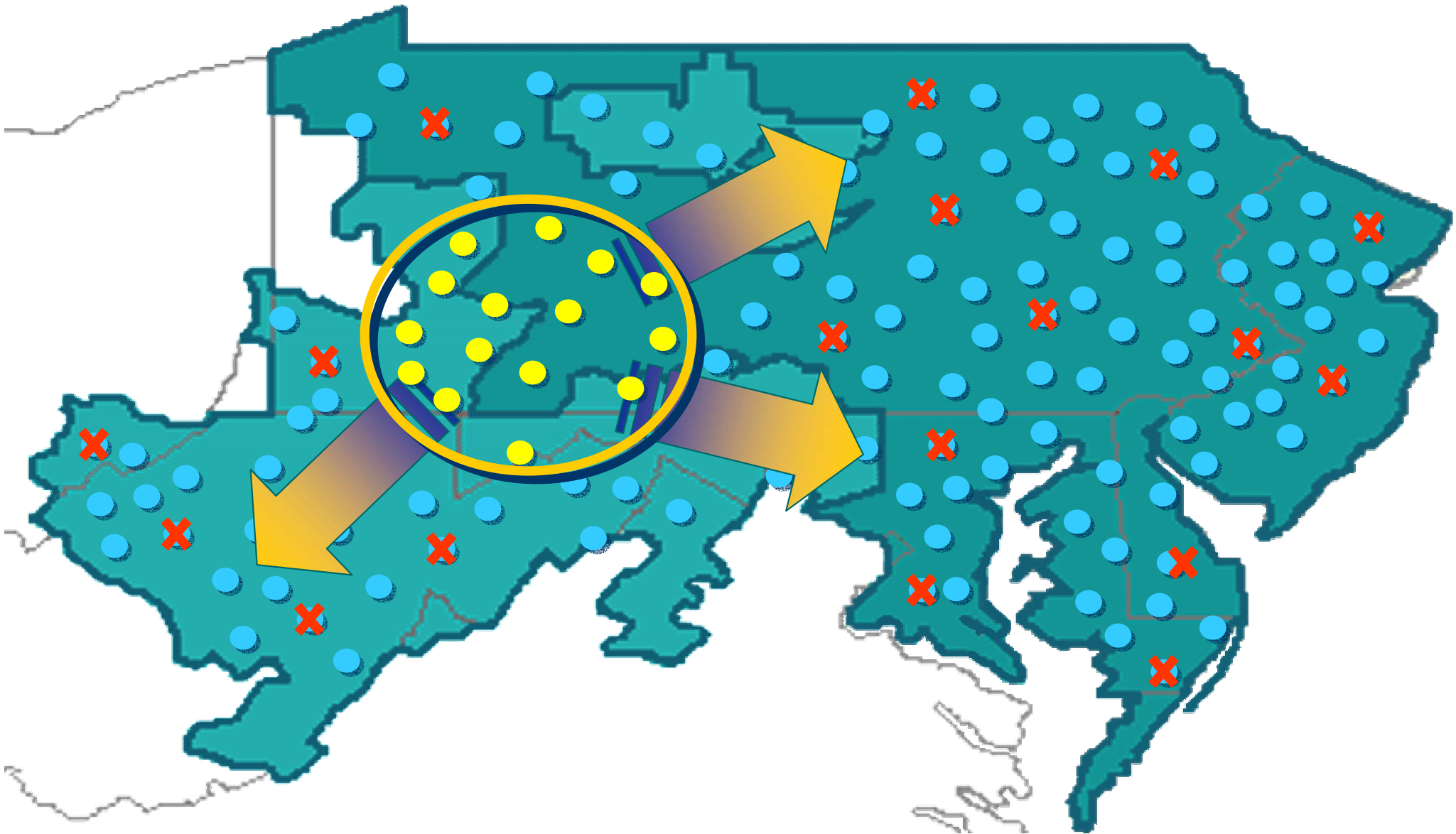
- Installed Capacity Requirement – assumes sufficient network transfer capability exists.
- Deliverability tests – ensure the sufficiency of network transfer capability such that the aggregate of capacity resources can be utilized to deliver energy to the aggregate of load.

- A LOLE of 1 day in 10 years is used to determine the Installed Capacity (Reserve) Requirements ...
Generation Adequacy.
- A LOLE of 1 day in 25 years is used to calculate the import objective for individual areas within PJM ...
Transmission Adequacy.
- The LOLE calculation accounts for load forecast deviations, load shape, and generator forced outage rates to determine the area import requirement such that load will not exceed generation in the area under study for more than 1 day in 25 years.

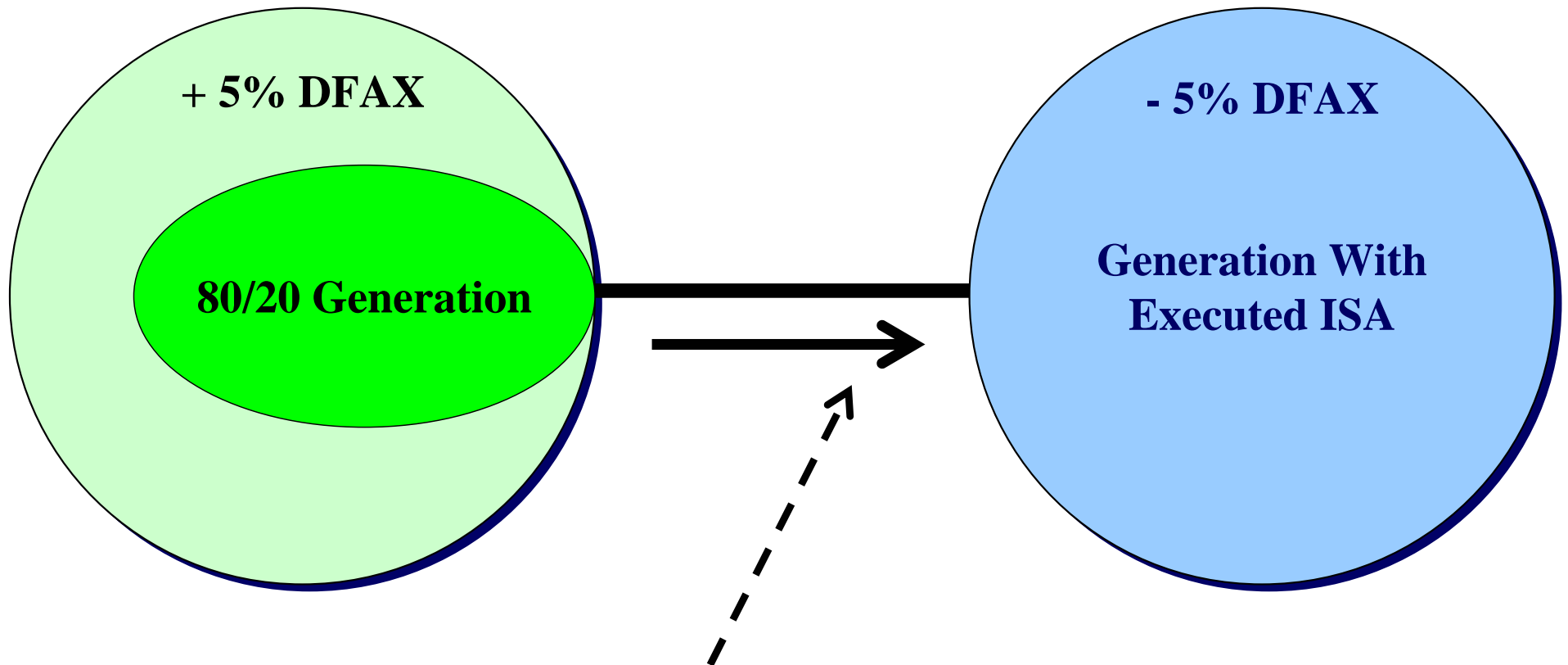
- A load flow case is developed using a 90/10 load forecast and sufficient generator outages in the area under study to meet the area import objective.
- 10,000 generator outage combinations are studied and the median facility flow is compared to the applicable rating.
- The system is tested under pre-contingency and n-1 conditions to determine if any reliability problems are identified.



Load Deliverability - the ability to deliver energy from the aggregate of capacity resources to an electrical area experiencing a capacity deficiency.

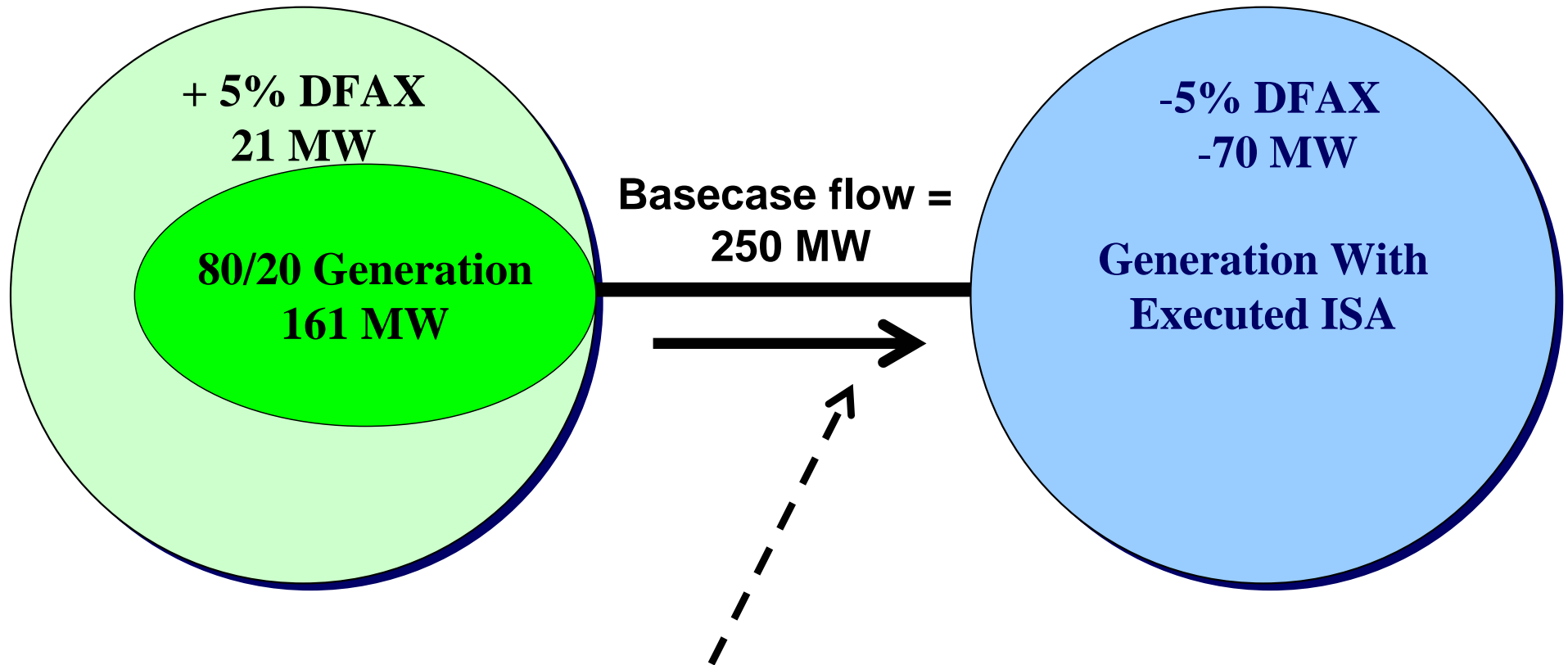


Generator Deliverability - the ability of an electrical area to export capacity resources to the remainder of PJM to ensure that bottled capacity conditions will not exist at peak load.



Direction of potential overload

- Generation ranked from highest DFAX to lowest DFAX.
- Generation is turned on in area under study until probability of all generators being available is $< 20\%$.
This defines the generation under study.
 - ✓ For 15 generators with a 10% forced outage rate, the probability of all 15 generators being available at one time is 21%.
- Impacts of remaining generation with a DFAX $> 5\%$ are included at de-rated value.



Direction of potential overload

$$\text{Final flow} = 250 \text{ MW} + 161 \text{ MW} + 21 \text{ MW} - 70 \text{ MW} = 363 \text{ MW}$$

- **MISO and PJM processes very similar**
 - Load Deliverability
 - Generator Deliverability

- PJM & MISO notify each other of interconnection requests that may be expected to impact the adjacent RTO
- Parties will coordinate with respect to studies performed minimizing costs associated with coordinated studies
- Studies performed in accordance with study time lines
- The direct connect system will coordinate all study costs
- Requirements for construction of any network upgrades will be under the terms of the applicable OATT

- JOA calls for joint plan every three years
- MISO and PJM currently scoping first joint plan for 2006 completion
- The first plan would focus on reliability issues
- Include a review of any issues impacting the deliverability of network resources in both RTOs

- Some stakeholders have requested development of a form of “Reciprocal” NRIS/Deliverability
- This could be limited to deliverability within certain sub-regions of the JCM
- MISO and PJM have discussed possibility only at a high level at this point

- **Some issues to be addresses before such process could be implemented**
 - Process to identify customer desire to be reciprocally Deliverable
 - Possibility and implications of “targeted” deliverability versus aggregate deliverability (implications for resource adequacy/reliability)
 - Cost allocation for Deliverability related upgrades (sorting out those for deliverability to MISO/PJM/both) and treatment of these upgrade costs
 - Treatment of Rights in each Market that go with being partially or wholly deliverable to more than one market
 - Capacity Rights, FTR
 - NR status for MISO RAR, CFTR, long-term FTR