



California ISO  
Your Link to Power

California Independent  
System Operator Corporation

## **RA Deliverability Issues**

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**Market Surveillance Committee Meeting**  
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## Presentation Overview

- **Purpose of the deliverability study**
- **Deliverability study methodology**
- **Provide a summary of Phase IIA Study Results**
- **Discuss ISO responses to stakeholder comments**



## The Purpose of the Deliverability Assessment

- **Deliverability Assessment required in CAISO generation interconnection procedures**
- **Resource Adequacy deliverability requirements**
  - CPUC has adopted CAISO deliverability study methodology for resource counting purposes
- **Deliverability does NOT ensure dispatch:**
  - Deliverability does not mean 100% congestion elimination for all load levels.

## **- How We Got to this Point -**

- **2004/2005 - ISO proposes generation deliverability methodology to CPUC for Resource Adequacy purposes and to FERC for generation interconnection purposes**
- **2005 – ISO completes Phase I Baseline Generation Deliverability assessment of all generation expected to be in operation during summer 2006**
- **2005 - CPUC and FERC approve methodology for use in Resource Adequacy and Generation Interconnection processes**
- **2006 - ISO begins Phase II baseline study of new generation projects in the generation interconnection queue**

## Phase I Study

- The Bottom Line -

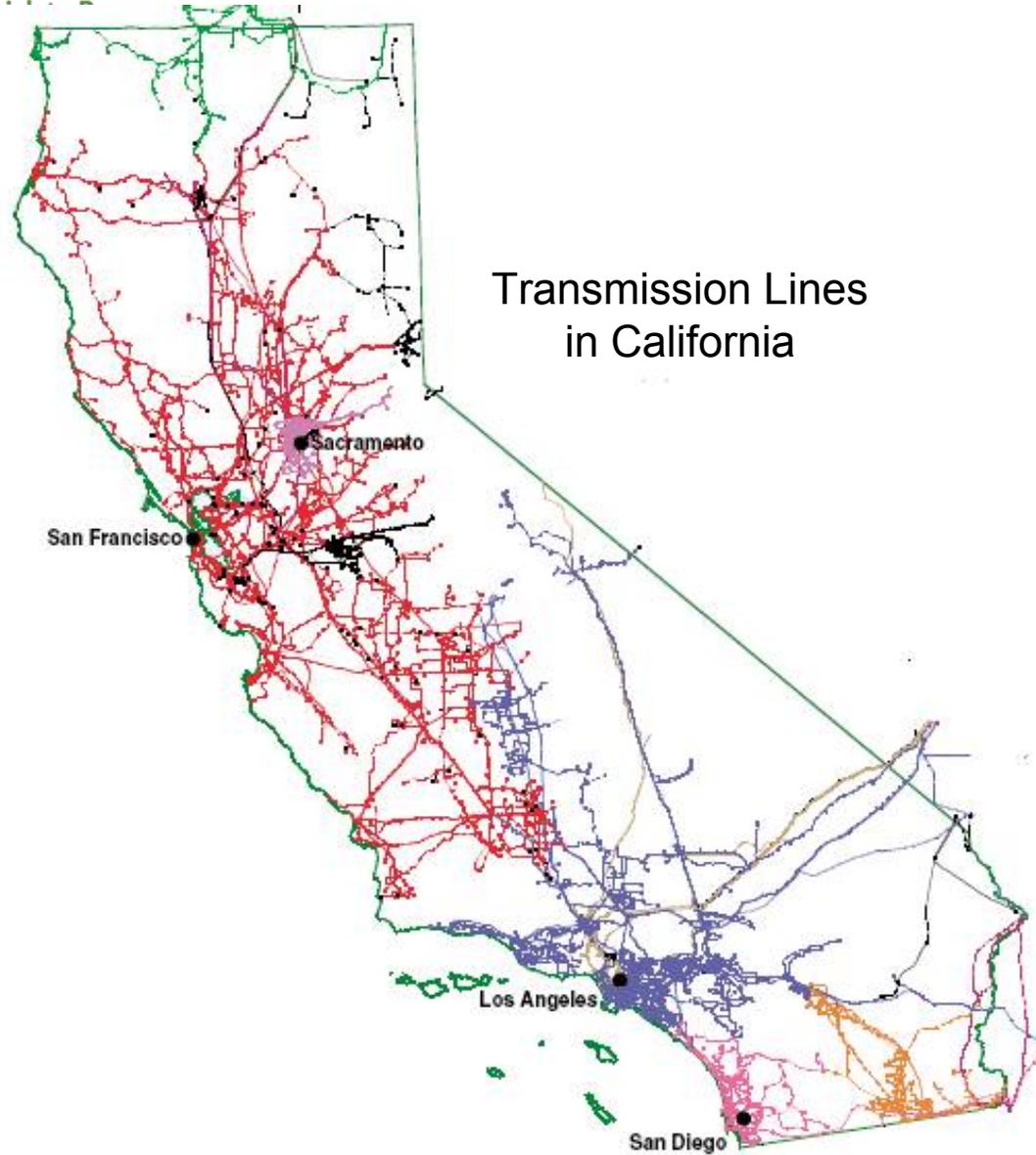
- **The Phase I Baseline Generation and Import deliverability study confirmed that:**
  - historical summer peak imports levels are deliverable.
  - **most** of the existing generating units in the ISO Control Area are deliverable.
- **Some transmission upgrades are needed over the next few years to make all existing generating units fully deliverable to load using this methodology.**
- **ISO is working with the PTOs to identify and implement the necessary transmission upgrades.**
- **The ISO is treating all existing generators as fully deliverable until at least 2007**

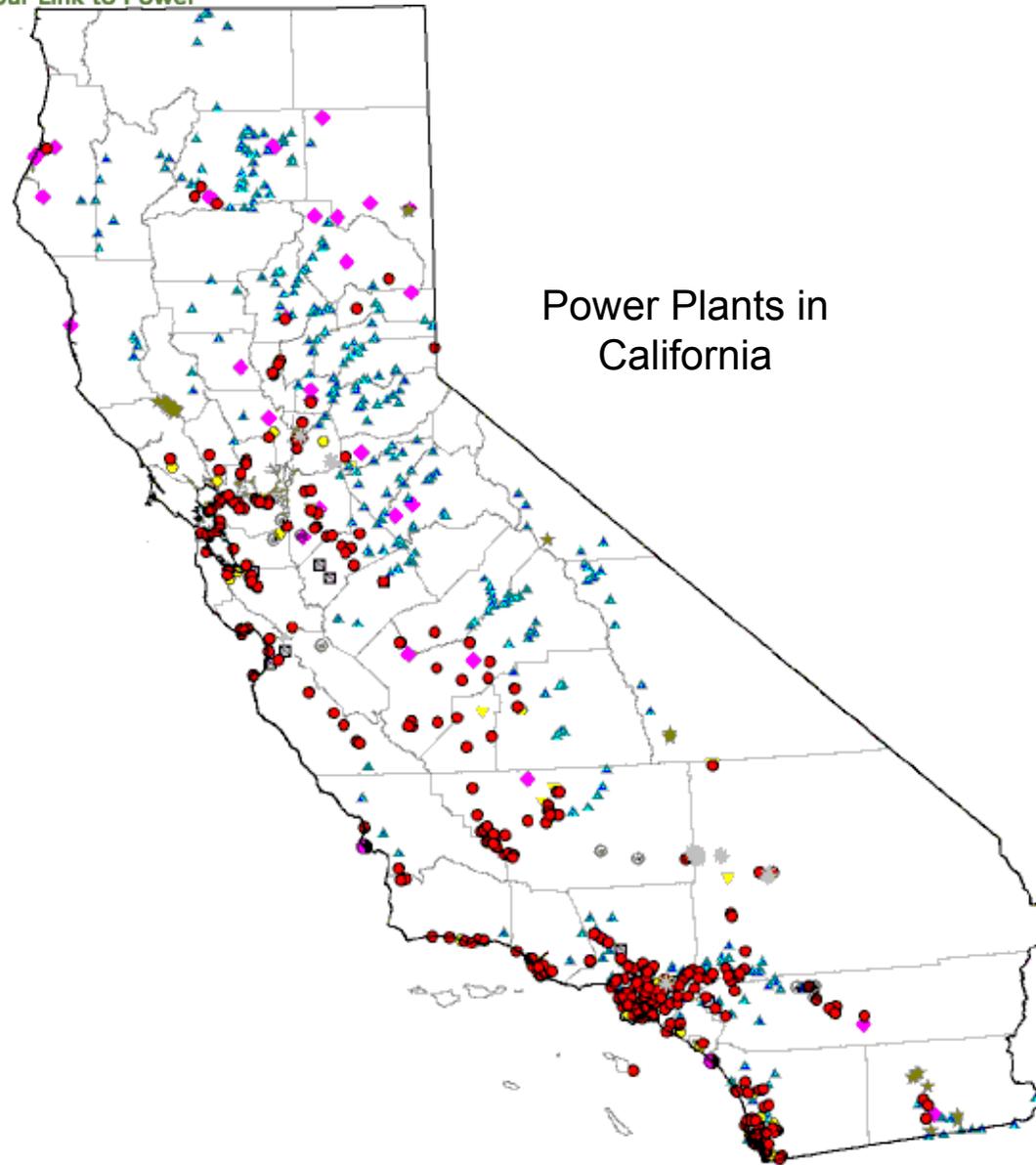
## Deliverability of Generation: Methodology

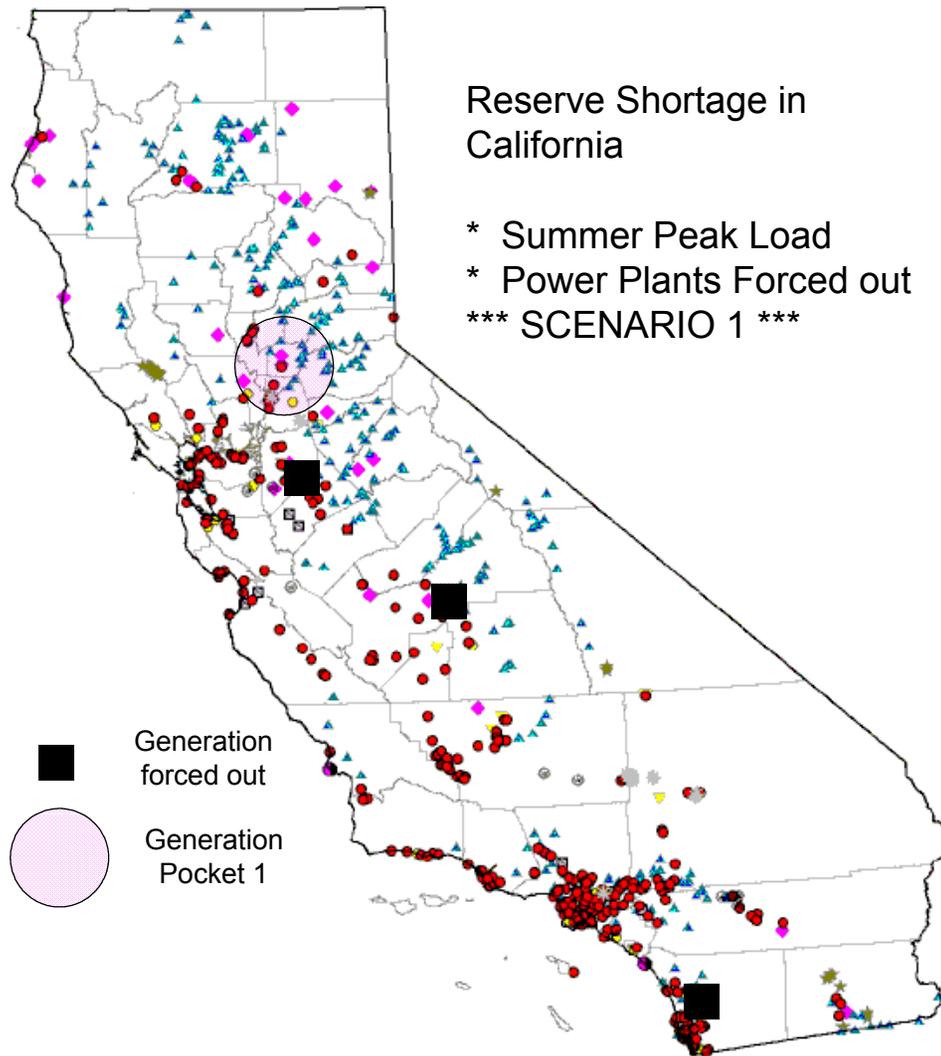
- **A deliverability assessment is applied to existing and planned generation located in the control area.**
  - Phase I baseline study covered all generation expected to be in operation in 2006.
  - Phase II baseline study covers existing generation and all generation in the interconnection queue
  
- **Developed from PJM Methodology (MISO uses a similar methodology)**
- **Peak load conditions**
- **Aggregate of generation can be transferred to aggregate of the ISO Control Area Load**

## Study Methodology

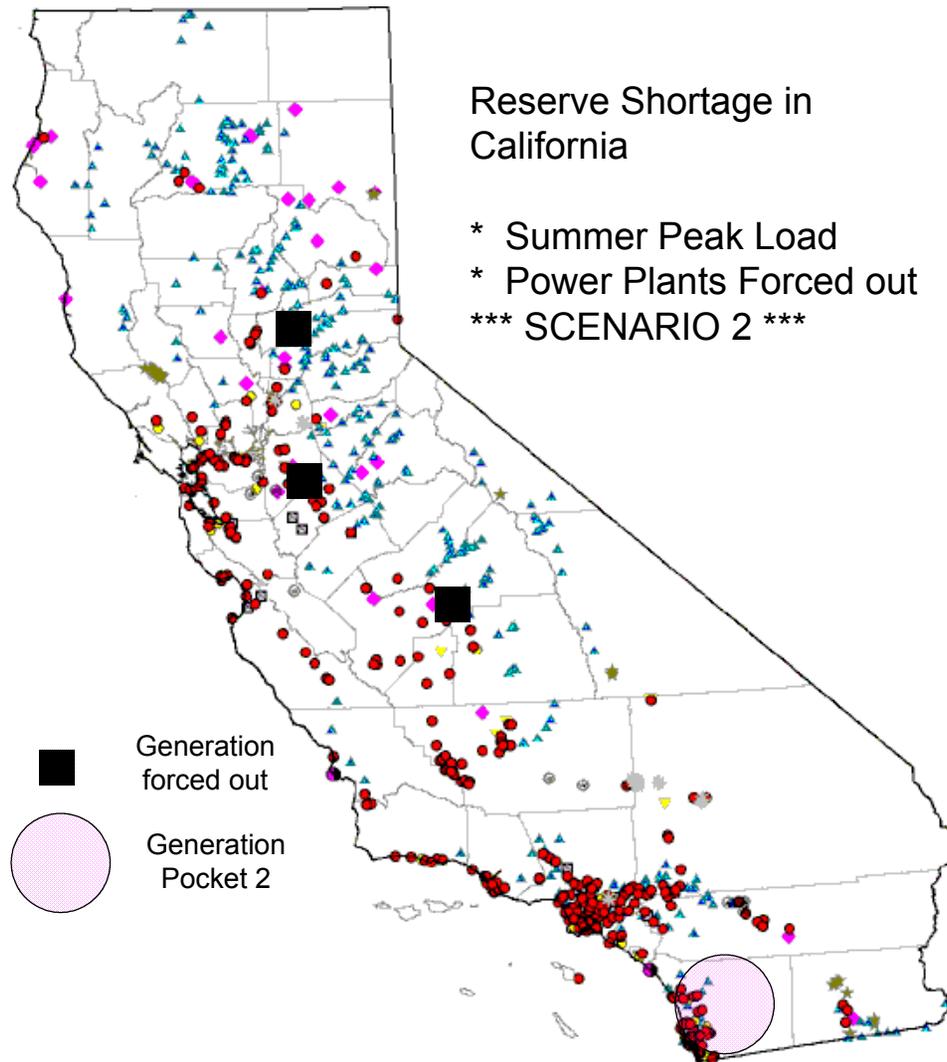
- **Available capacity resources within a given sub-area must be able to be exported to other parts of the Control Area experiencing a resource shortage due to forced generation outages.**







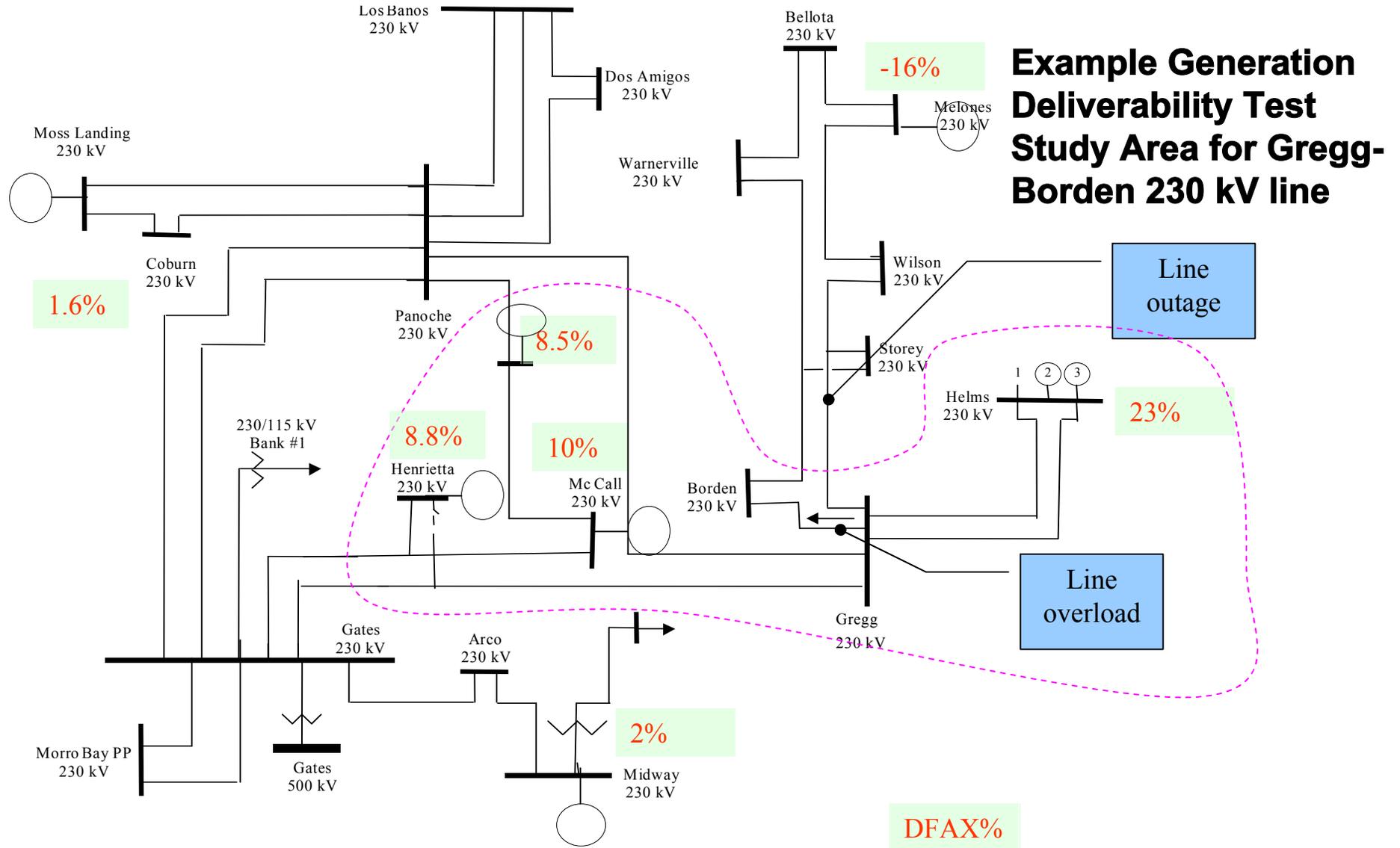
- All available generation capacity in the CAISO control area is dispatched to avoid interrupting customer service
- All generation in Pocket 1 is available and needs to be dispatched at full output to serve all customers in the CAISO control area



- All generation in Pocket 2 is available and needs to be dispatched at full output to serve all customers in the CAISO control area
- The deliverability assessment methodology is designed to ensure that available generation in the various generation pockets, for all reasonable generation availability scenarios, will not be constrained by transmission limitations during resource shortages

## Study Areas (Generation Pockets)

- **A study area is established around an overstressed line or transformer that includes all generation with a 5% distribution factor or greater on the particular line or transformer.**
- **The units with the highest flow impact inside the study area are fully dispatched to determine the maximum potential loading on the line or transformer.**
  - Not all generation capacity in each pocket is turned on – a reasonable amount is assumed forced out and not available.
- **Generation outside the study area is proportionally decreased a small amount to balance the load and resources.**





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# Summary Phase IIA Study Results

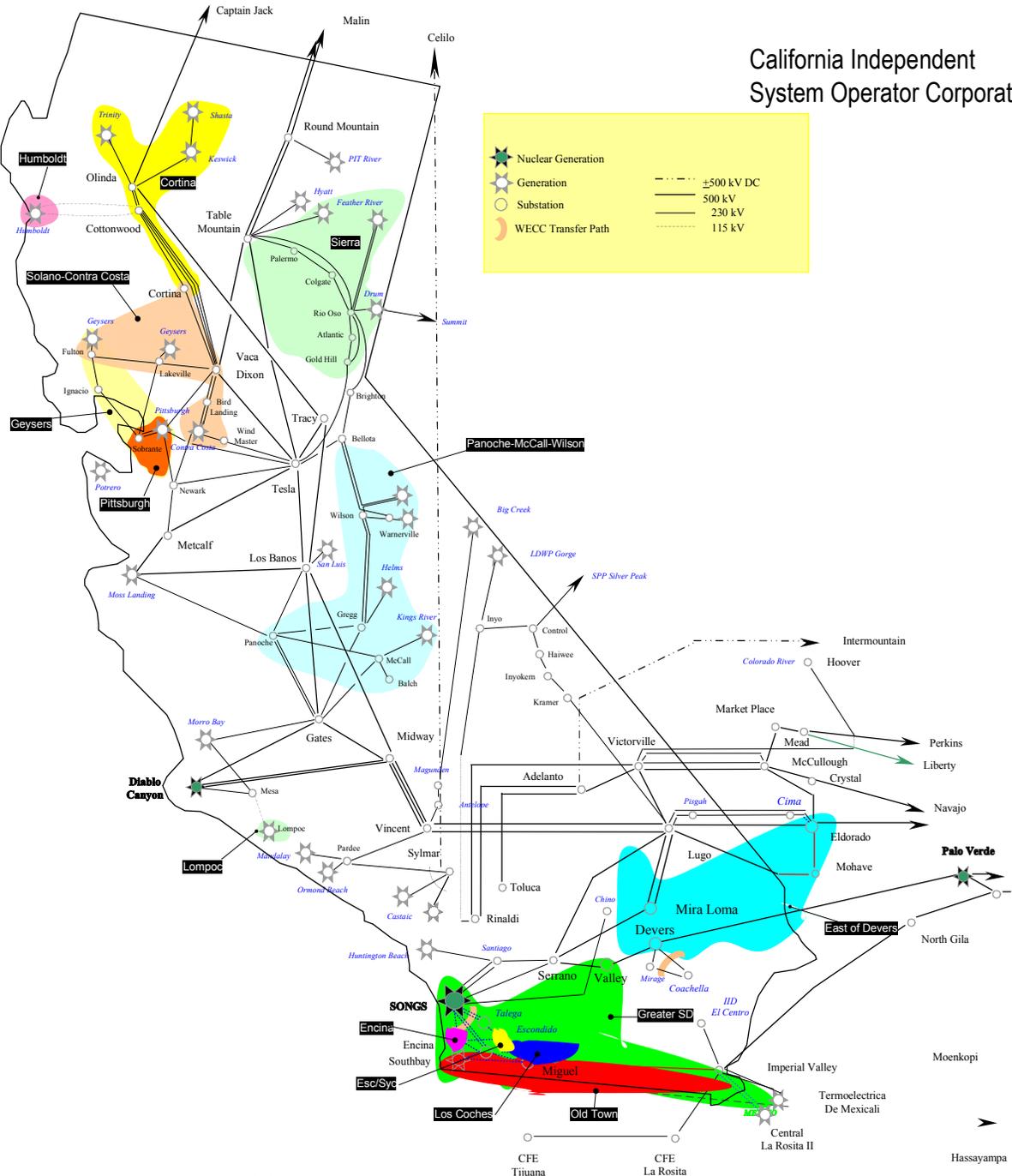


Figure 1

## Southern System

- **The addition of approximately 3000 MW of additional generation in the San Diego Area would cause the need for significant deliverability network upgrades.**
  - Approximately 1000 MW could be accommodated with minimal deliverability network upgrades
  
- **The addition of approximately 5000 MW of additional generation in the SCE area could be accommodated with minimal deliverability network upgrades**

## Northern System

- **The addition of approximately 7000 MW of additional generation in the PG&E area could be accommodated with minimal deliverability network upgrades**
- **Approximately \$8 Million of deliverability network upgrades would be required to ensure the deliverability of 750 MW of proposed generation in the Solano-Contra Costa County area.**
- **Approximately \$25 Million of deliverability network upgrades would be required to ensure the deliverability of 800 MW of proposed generation in the Greater Fresno area.**



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# **Selected CAISO Responses to Stakeholder Comments**

## Extremity of Results

- **The intent of the study is to provide an estimated cost exposure**
- **Transmission investments would need to be timed with actual generation development dates**
- **The estimated cost exposure of deliverability network upgrades for generation in PG&E RFO appears to be minimal**

## Preservation of Deliverability

- **The deliverability of a new generation project must be assessed on the same basis as all other existing resources. From a capacity deliverability perspective, new facilities must be treated the same as old facilities.**
- **A new generator cannot reduce the deliverability of an existing generator just because it is old and inefficient**
- **However, a new efficient generator can be expected to be economically dispatched before an old inefficient generator and force uneconomic generators out of the market, into retirement, and allow room for the construction of more efficient generation capacity**