



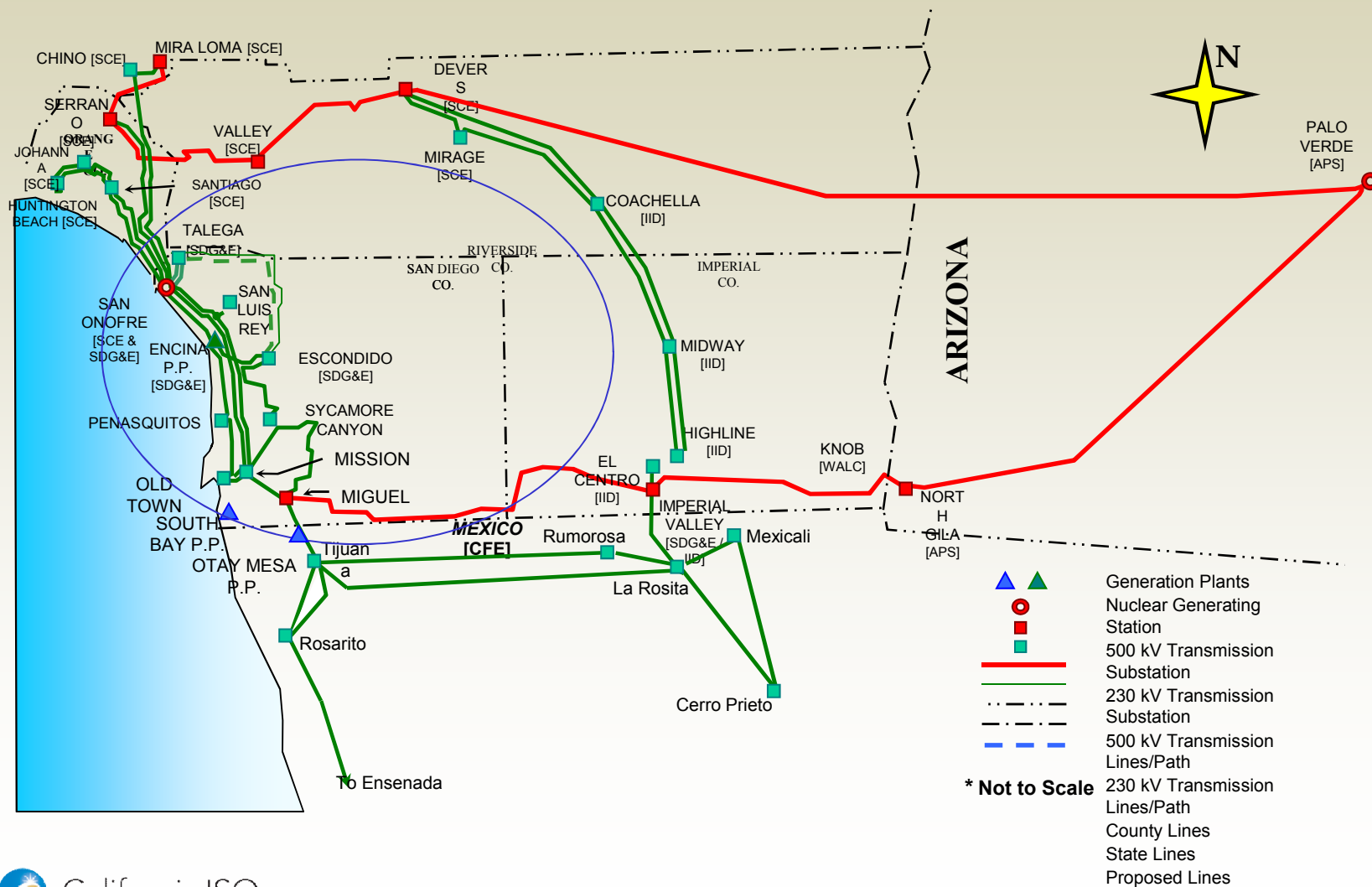
# 2011 Final LCR Study Results San Diego Local Area

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# San Diego LCR Area

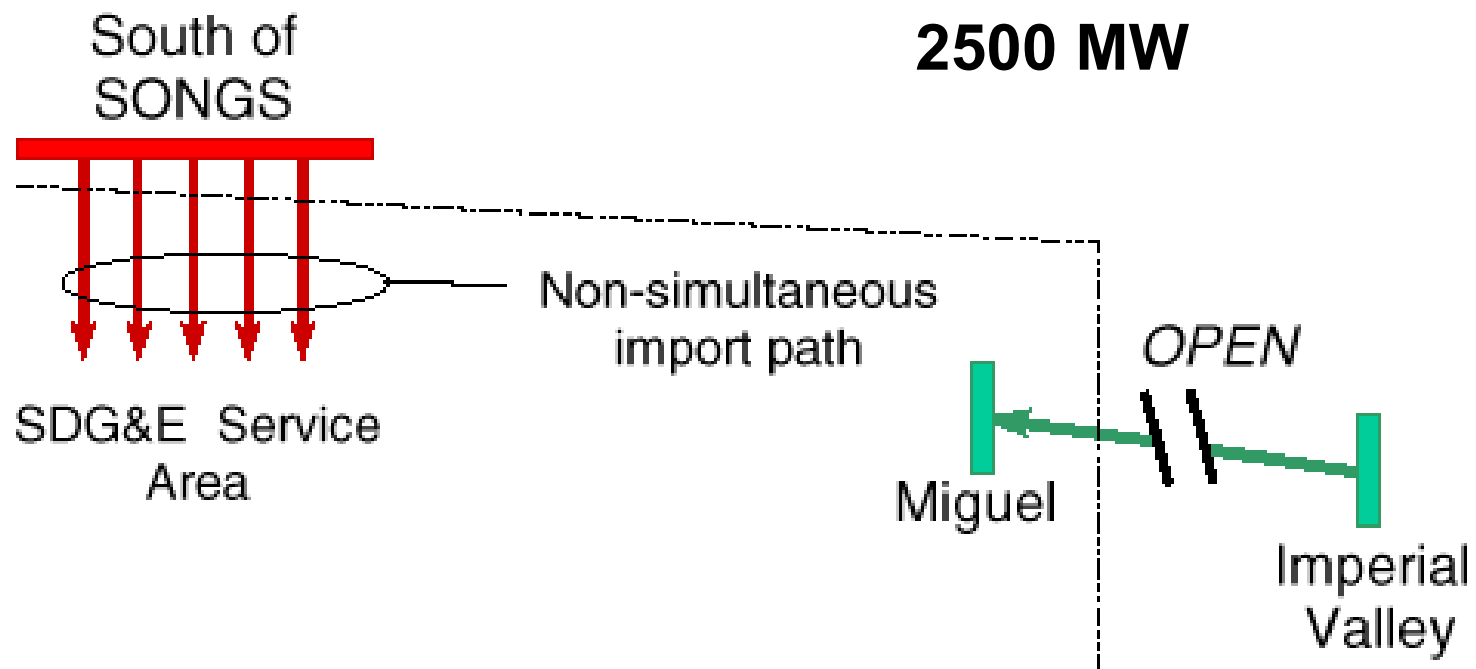


# San Diego Area Boundary Transmission Lines

- 1) Imperial Valley – Miguel 500 kV Line
- 2) Otay Mesa – Tijuana 230 kV Line
- 3) San Onofre - San Luis Rey #1 230 kV Line
- 4) San Onofre - San Luis Rey #2 230 kV Line
- 5) San Onofre - San Luis Rey #3 230 kV Line
- 6) San Onofre – Talega #1 230 kV Line
- 7) San Onofre – Talega #2 230 kV Line

# SDG&E Non-simultaneous Import Capability

## Non-Simultaneous



# San Diego Area Load and Resources (MW)

|  |             |
|--|-------------|
| <b>Total 1 in 10 Load + Losses</b>                                     | <b>5036</b> |
|  |             |
| <b>Generation</b>  |             |
| Market Generation*   | 3227        |
| Muni Generation  | 0           |
| Wind Generation  | 6           |
| QF Generation  | 188         |
| <b>Total Qualifying Capacity **</b>                                    | <b>3421</b> |
|  |             |
| SDG&E Non-simultaneous Import capability<br>with a segment of SWPL Out | 2500        |

\* Includes South Bay Units 1, 2 and GT as well as new peaking capacity (see next slide)

\*\* Does not include Demand Side Management (DSM)

## Major new projects modeled

1. Otay Mesa Power Plant (603 MW)\*
2. New peaker at Miramar 69 kV substation (47.9 MW)\*
3. New biomass unit at Border 69 kV substation (27 MW)\* and its associated transmission upgrade, reconductor TL649A, Otay-Otay Lakes Tap 69kV
4. New peaker units at Pala 69 kV substation (94 MW)\*
5. New peaker unit at El Cajon 69kV substation (49 MW)\*
6. New generating units at Escondido 69kV (40 MW)\*
7. Transmission project\* to reconductor TL6927, Eastgate-Rose Canyon 69kV

\*Study results are subject to change if these new projects are not in service and proven successful operation by June 2011

## Major new projects modeled, con't

8. New and/or upgrade\* of 69kV capacitors at Lilac, Rincon, Santa Ysabel and Warners 69kV substations
9. Advancement of Sunrise capacitors\* at Southbay 69kV and San Luis Rey 230kV substations
10. TL13802D, Encina-Calavera Tap 138 kV project\*: Upgrade and re-arrange Cannon-Calavera Tap (TL13802D) to create two new 138kV transmission lines: Encina-Calavera Tap-Shadowridge (274 MVA) and Cannon-Calavera Tap-San Luis Rey (204 MVA); re-energize existing Escondido Bank 50

\*Study results are subject to change if these new projects are not in service and proven successful operation by June 2011

# Critical SDG&E Area Contingencies

## El Cajon Sub-area

- Contingency: the loss of El Cajon-Jamacha 69 kV line followed by the loss of Miguel-Granite-Los Coches 69 kV line
- LCR: 66 MW (includes 0 MW of QF and 0 MW of deficiency)
- Limiting component: Thermal overload on the Garfield-Murray 69 kV line
- Effective Units: El Cajon GT, Calpeak El Cajon and new peaker at El Cajon 69kV

## Rose Canyon Sub-area

- Sub-area eliminated due to recently approved transmission project, TL6927, Eastgate-Rose Canyon 69kV reconductor



# Critical SDG&E Area Contingencies

## Bernardo Sub-area

- Contingency: the loss of Artesian - Sycamore 69 kV line followed by the loss of Poway-Rancho Carmel 69 kV line
- LCR: 66 MW (includes 0 MW of QF and 26 MW of deficiency)
- Limiting component: Thermal overload on the Felicita Tap – Bernardo 69 kV line
- Effective Unit: Lake Hodges

## Border Sub-area

- Sub-area eliminated due to new generation project upgrade, reconductor TL649A, Otay-Otay Lakes Tap 69kV
- If reconductoring project is not completed by June 1, 2011
  - LCR: 31 MW (includes 0 MW of QF and 0 MW of deficiency)
  - Limiting component: Thermal overload on the Otay-Otay Lakes Tap 69 kV line
  - Effective Units: Border Cal Peak, Larspur and Bullmoose

# Critical SDG&E Area Contingencies

## Escondido Sub-area

- Contingency: the loss of Poway-Pomerado 69 kV
  - LCR: 10 MW (includes 47 MW of QF)
  - Limiting component: Thermal overload on the Esco-Escondido 69kV line
  - Effective Unit: Goal line
- 
- Contingency: the loss of Poway-Pomerado 69 kV followed by the loss of Bernardo-Rancho Carmel 69kV
  - LCR: 82 MW (includes 47 MW of QF and 35 MW of deficiency)
  - Limiting component: Thermal overload on the Esco-Escondido 69kV line
  - Effective Unit: Goal line

# Critical SDG&E Area Contingencies

## San Diego Overall

- Contingency: the loss of Southwest Power Link with the Otay Mesa Combined Cycle power plant out of service
- Power flow and post-transient studies did not identify any voltage or reactive margin violations
  - South Bay Units 1, 2 and CT are modeled and dispatched on-line in the study case
- LCR: 3146 MW (include 194 MW of QF/Wind)
- Limiting component: South of San Onofre (Path 44) non-simultaneous import capability of 2500 MW

# San Diego Area LCR

|                      | QF<br>(MW)                                  | Wind<br>(MW) | Market<br>(MW)  | Max. Qualifying<br>Capacity (MW) |                      |
|----------------------|---|--------------|-----------------|----------------------------------|----------------------|
| Available generation | 188   | 6            | 3227            | 3421                             |                      |
|                      |   |              |                 |                                  |                      |
|                      | Existing Generation Capacity<br>Needed (MW) |              | Deficiency (MW) |                                  | Total MW LCR<br>Need |
| Category B (Single)  | 3146  |              | 0               |                                  | 3146                 |
| Category C (Single)  | 3146  |              | 61              |                                  | 3207                 |

## Changes since last year

In addition to new generation and transmission projects from previous slides, the following changes occurred since last year's LCR study results:

- 1) Load forecast went down by 91 MW, LCR decreased by the same amount
- 2) New Otay Mesa Power Plant's NQC increased from 573 to 603 MW, increasing the LCR by 30 MW
- 3) Losses increased by 7 MW post SWPL out contingency, causing LCR to increase by the same amount

## On-going studies

Results may change due to the following on-going studies in the timeframe before Sunrise Power Link Project becomes operational:

- Interim deliverability of Encina generation
- Maximum import limit on Path 44 under SWPL out condition

**Your comments and questions are welcome.**

**For written comments, please send to: [RegionalTransmission@caiso.com](mailto:RegionalTransmission@caiso.com)**