



# 2013 Draft LCR Study Results San Diego Local Area

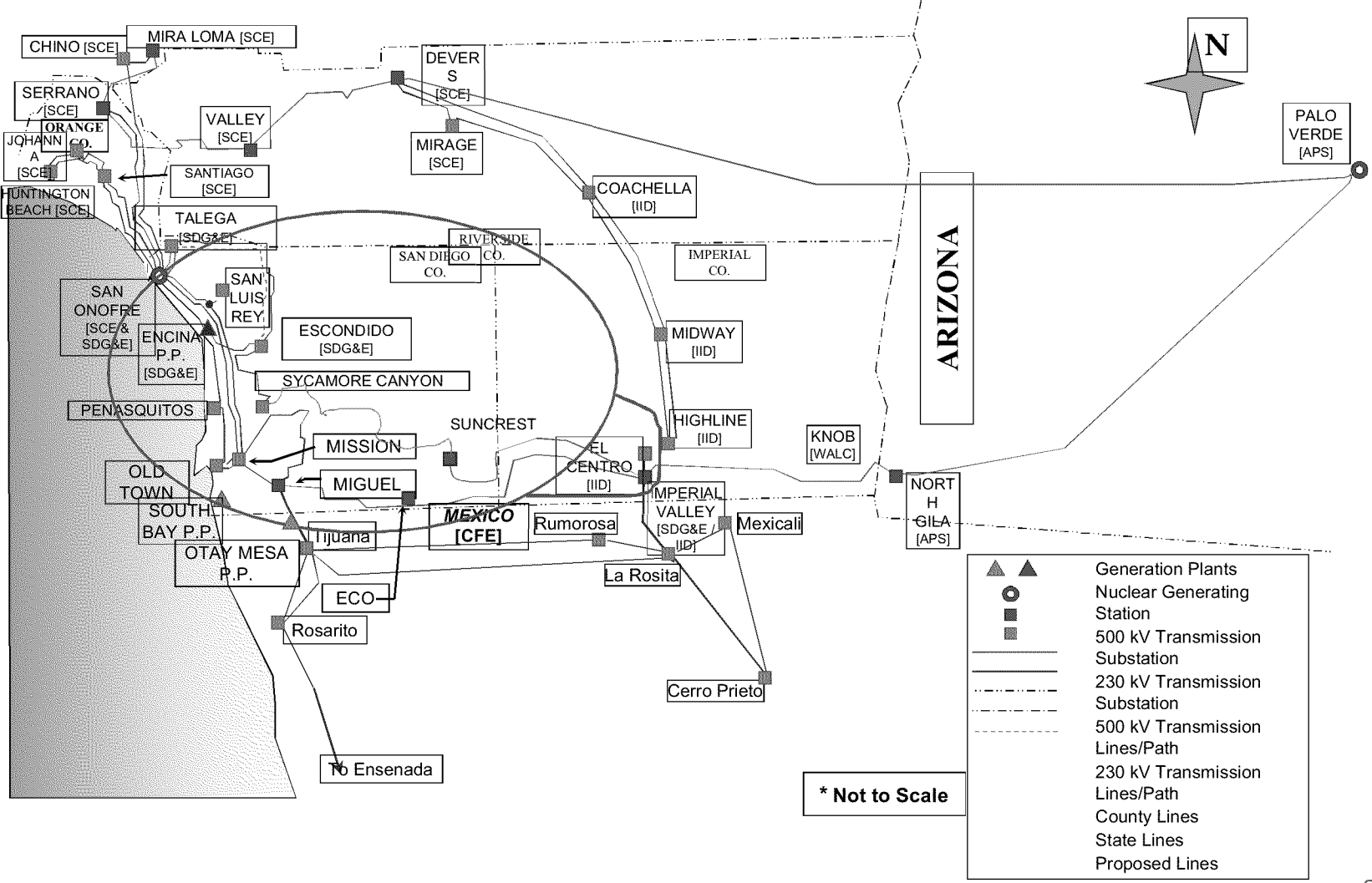
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Stakeholder Meeting

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# San Diego LCR Area



## San Diego Area Load and Resources (MW)

|   |             |
|---|-------------|
| <b>Total 1-in-10 Load + losses (Local San Diego Area)</b> | <b>5072</b> |
|   |             |
| <b>Generation</b>   |             |
| Market Gen*   | 2925        |
| Muni Gen  | 0           |
| Wind Gen  | 6           |
| QF Gen  | 156         |
| <b>Total Qualifying Capacity**</b>                        | <b>3087</b> |

\* Includes new peaking capacity (see next slide)

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



## Major New Projects / Changes

1. Sunrise Power Link Project (Southern Route)
2. Eastgate – Rose Canyon 69kV (TL6927) Reconductor



## Areas and sub-areas studied

- El Cajon sub-area
- Mission sub-area
- Bernardo sub-area
- Esco sub-area
- Pala sub-area
- Miramar sub-area
- San Diego-ECO area
- Greater IV-San Diego area

# Critical SDG&E Area Contingencies

## El Cajon Sub-area

### Category B:

- Contingency: loss of Miguel – Granite – Los Coches 69 kV line (TL632)
- Limiting component: Thermal overload on the El Cajon – Los Coches 69 kV line (TL631)
- LCR: 5 MW (includes 0 MW of QF and 0 MW of deficiency)

### Category C:

- Contingency: loss of the El Cajon – Jamacha 69 kV line (TL624) followed by the loss of Miguel – Granite – Los Coches 69 kV line (TL632)
- Limiting component: Thermal overload on the El Cajon – Los Coches 69 kV line (TL631)
- LCR: 83 MW (includes 0 MW of QF and 0 MW of deficiency)
  
- Effective Units: El Cajon GT, Calpeak El Cajon and new peaker at El Cajon 69kV

\*\*\* Reconductor of the limiting component is recommended for approval in 2011-2012 ISO Transmission Plan

## Critical SDG&E Area Contingencies (contd)

### **Mission Sub-area**

- Contingency: Loss of Mission – Kearny 69 kV line (TL663) followed by the loss of Mission – Mesa Heights 69kV line (TL676)
  
  - Limiting component: Thermal overload on Mission – Clairmont 69kV line (TL670)
  
  - LCR: 126 MW (includes 3 MW of QF and 0 MW of deficiency)
  
  - Effective Units: Miramar Energy Facility units and Miramar GTs (Cabrillo Power II), Miramar Landfill unit and Kearny peakers
- \*\*\* Reconductor of the limiting component was approved in 2010-2011 ISO Transmission Plan

## Critical SDG&E Area Contingencies (contd)

### **Bernardo Sub-area**

- Contingency: Loss of Artesian – Sycamore 69 kV line (TL6920) followed by the loss of Poway-Rancho Carmel 69 kV line (TL648)
- Limiting component: Thermal overload on the Felicita Tap – Bernardo 69 kV line (TL689)
- LCR: 110 MW (includes 0 MW of QF and 70 MW of deficiency)
- Effective Unit: Lake Hodges



## Critical SDG&E Area Contingencies (contd)

### **Esco Sub-area**

- Contingency: the loss of Poway – Pomerado 69 kV line (TL6913) followed by the loss of Esco – Escondido 69kV (TL6908)
- Limiting component: Thermal overload on the Bernardo – Rancho Carmel 69kV line (TL633)
- LCR: 114 MW (includes 44 MW of QF and 70 MW of deficiency)
- Effective Unit: Goal line



## Critical SDG&E Area Contingencies (contd)

### **Pala Sub-area**

- Contingency: the loss of Pendleton – San Luis Rey 69 kV line (TL6912) followed by the loss of Lilac – Pala 69kV (TL6908)
- Limiting component: Thermal overload on the Melrose – Morro Hill Tap 69kV line
- LCR: 43 MW (includes 0 MW of QF and 0 MW of deficiency)
- Effective Unit: Orange Grove Peakers

# Critical SDG&E Area Contingencies (contd)

## Miramar Sub-area

### Category B:

- Contingency: the loss of Otay Mesa – Miguel Tap – Silvergate 230 kV line (TL23042)
- Limiting component: Thermal overload on the Sycamore – Scripps 69kV line (TL6916)
- LCR: 38 MW (includes 0 MW of QF and 0 MW of deficiency)

### Category C:

- Contingency: the loss of Otay Mesa – Miguel Tap – Silvergate 230 kV line (TL23042) followed by the loss of Sycamore 230/138kV Bank #60
- Limiting component: Thermal overload on the Sycamore – Scripps 69kV line (TL6916)
- LCR: 97 MW (includes 0 MW of QF and 0 MW of deficiency)
  
- Effective Unit: Miramar Energy Facility units and Miramar GTs (Cabrillo Power II), Miramar Landfill unit

# Critical SDG&E Area Contingencies (contd)

## San Diego-ECO Area

### **Category B (G-1/N-1):**

- Contingency: Loss of Southwest Power Link with the Otay Mesa Combined Cycle power plant out of service (RAS will trip all the generation at IV)
- Limiting component: Voltage deviations
- LCR: 2093 MW (includes 162 MW of QF/Wind)

### **Category C (G-1/N-2):**

- Contingency: Loss of Southwest Power Link and Sunrise Power Link with the Otay Mesa Combined Cycle power plant out of service (RAS will trip all the generation at IV)
- Limiting component: Voltage collapse
- LCR: 2863 MW (includes 162 MW of QF/Wind)
- LCR: 2454 MW
- Effective Units: All units in San Diego area

Assuming no load shed SPS for N-2

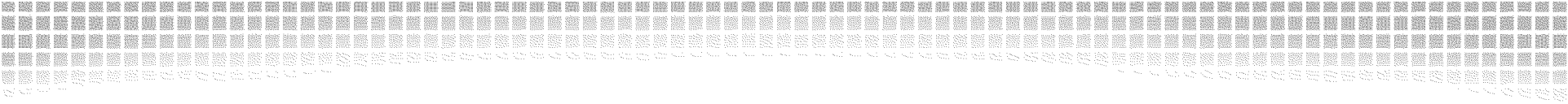
Assuming approx. 400 MW load shed SPS for N-2



## Critical SDG&E Area Contingencies (contd)

### **Greater IV-San Diego Area**

- Contingency: Loss of Imperial Valley – North Gila 500kV line (TL50002) with the Otay Mesa Combined Cycle power plant out of service
- Limiting component: South of SONGS (P44) limit of 2500 MW (N->S)
- LCR: 2832 MW (includes 162 MW of QF/Wind)
- Effective Units: All units in San Diego area and IV generation



# Critical SDG&E Area Contingencies (contd)

# San Diego Area LCR

|                      | QF<br>(MW)                                  | Wind<br>(MW) | Market<br>(MW) | Max. Qualifying<br>Capacity (MW) |                      |
|----------------------|---|--------------|----------------|----------------------------------|----------------------|
| Available generation | 156   | 6            | 2925           | 3087                             |                      |
|                      |   |              |                |                                  |                      |
|                      | Existing Generation Capacity<br>Needed (MW) |              |                | Deficiency (MW)                  | Total MW LCR<br>Need |
| Category B (Single)  | 2863  |              |                | 0                                | 2863                 |
| Category C (Single)  | 2863  |              |                | 140                              | 3003                 |



## Changes since last year

- 1) Load forecast went up by 228 MW
- 2) Elimination of 1000 MVA path rating on Sunrise Power Link
- 3) No load shedding SPS assumed for N-2 contingency of Southwest Power Link and Sunrise Power Link
- 4) Identified Esco, Pala and Miramar sub-areas with LCR requirements
- 5) Total existing capacity needed for LCR increased by 14 MW

**Your comments and questions are welcome.**

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