2012 Final LCR Study Results
San Diego Local Area

Sushant Barave
Regional Transmission - South

Stakeholder Meeting
April 14, 2011
San Diego Area Load and Resources (MW)

<table>
<thead>
<tr>
<th>Total 1-in-10 Load + losses</th>
<th>4844</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generation</strong></td>
<td></td>
</tr>
<tr>
<td>Market Gen*</td>
<td>2925</td>
</tr>
<tr>
<td>Muni Gen</td>
<td>0</td>
</tr>
<tr>
<td>Wind Gen</td>
<td>6</td>
</tr>
<tr>
<td>QF Gen</td>
<td>156</td>
</tr>
<tr>
<td><strong>Total Qualifying Capacity</strong></td>
<td>3087</td>
</tr>
<tr>
<td>SDG&amp;E Non-Simultaneous Import Capability with a segment of SWPL out</td>
<td>3500</td>
</tr>
</tbody>
</table>

* 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. LGIP Upgrades associated with Bullmoose Generation Project
3. Retirement of South Bay Power Plant
4. Eastgate – Rose Canyon 69kV (TL6927) Reconstructor
5. Otay – Otay Lake Tap 69kV (TL649) Reconstructor

*Study results are subject to change if these new projects are not in service and proven successful operation by June 2012*
Areas and sub-areas studied

- El Cajon sub-area
- Rose Canyon sub-area
- Mission sub-area
- Bernardo sub-area
- Border sub-area
- San Diego area
- Greater IV-San Diego area
Critical SDG&E Area Contingencies

El Cajon Sub-area

- Contingency: loss of the El Cajon-Jamacha 69 kV line (TL624) followed by the loss of Miguel-Granite-Los Coches 69 kV line (TL632)

- LCR: 35 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 is eliminated due to recently approved transmission project, TL6927, Eastgate-Rose Canyon 69kV reconductor

- If reconductor project is delayed beyond June 2012
  - Contingency: loss of Imperial Valley – Miguel 500kV line (TL50001) followed by the loss of Rose Canyon – Miramar - Penasquitos 69kV line (TL664A)
  - LCR: 53 MW (includes 0 MW of QF and 0 MW of deficiency)
  - Limiting Component: Thermal overload on Eastgate – Rose Canyon 69kV line (TL6927)
  - Effective Units: All Kearney GTs
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)

- LCR: 233 MW (includes 3 MW of QF and 0 MW of deficiency)

- Limiting component: Thermal overload on Mission - Clairmont 69kV line (TL670)

- Effective Units: Miramar Energy Facility units and Miramar GTs (Cabrillo Power II), Miramar Landfill unit and Kearny peakers
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)

- LCR: 105 MW (includes 0 MW of QF and 65 MW of deficiency)

- Limiting component: Thermal overload on the Felicita Tap – Bernardo 69 kV line (TL689)

- 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, 2012
  - Contingency: Loss of Border – Miguel 69kV line (TL6910) followed by the loss of Imperial Beach – Otay – San Ysidro 69kV line (TL623)
  - LCR: 27 MW (includes 0 MW of QF and 0 MW of deficiency)
  - Limiting Component: Thermal overload on Otay – Otay Lake Tap (TL649)
  - Effective Units: Border Calpeak, Larkspur and Bullmoose
Critical SDG&E Area Contingencies (contd)

**Esco Sub-area**
- Contingency: the loss of Poway-Pomerado 69 kV line (TL6913) followed by the loss of Bernardo-Rancho Carmel 69kV (TL633)
  - LCR: 74 MW (includes 44 MW of QF and 30 MW of deficiency)
  - Limiting component: Thermal overload on the Esco-Escondido 69kV line (TL6908)
- Effective Unit: Goal line
Critical SDG&E Area Contingencies (contd)

San Diego Area

- 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)

  - LCR: 2849 MW (include 162 MW of QF/Wind)

  - Limiting component: Sunrise Power Link (SRPL) rating of 1000 MW

  - Effective Units: All units in San Diego area
San Diego Area
(in case Sunrise Powerlink is delayed beyond June, 2012)

- 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)

- LCR: 2989 MW (include 162 MW of QF/Wind)

- Limiting component: South of SONGS (P44) limit of 2500 MW (N->S)

- Effective Units: All units in San Diego area
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

- LCR: **2804** MW (include 162 MW of QF/Wind)

- Limiting component: South of SONGS (P44) limit of 2500 MW (N->S)

- Effective Units: All units in San Diego area
San Diego Area LCR

Assumes existing 1000 MW WECC rating for Sunrise is in place during 2012; therefore boundary stays the same as 2011.

<table>
<thead>
<tr>
<th></th>
<th>QF (MW)</th>
<th>Wind (MW)</th>
<th>Market (MW)</th>
<th>Max. Qualifying Capacity (MW)</th>
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</thead>
<tbody>
<tr>
<td>Available generation</td>
<td>156</td>
<td>6</td>
<td>2925</td>
<td>3087</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Existing Generation Capacity Needed (MW)</th>
<th>Deficiency (MW)</th>
<th>Total MW LCR Need</th>
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<tbody>
<tr>
<td>Category B (Single)</td>
<td>2849</td>
<td>0</td>
<td>2849</td>
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<tr>
<td>Category C (Single)</td>
<td>2849</td>
<td>95</td>
<td>2944</td>
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Changes since last year

1) Load forecast went down by 182 MW
2) Addition of Sunrise Power Link and a few other transmission projects
3) Identified Mission sub-area with LCR requirements
4) Total existing capacity needed for LCR decreased by 297 MW

Changes Since the Last Stakeholder Meeting

1) Updated NQC numbers
2) Total load + losses number was rectified
3) LCR need for San Diego area was computed in case Sunrise Powerlink is delayed beyond June 2012

Your comments and questions are welcome.
For written comments, please send to: RegionalTransmission@caiso.com