

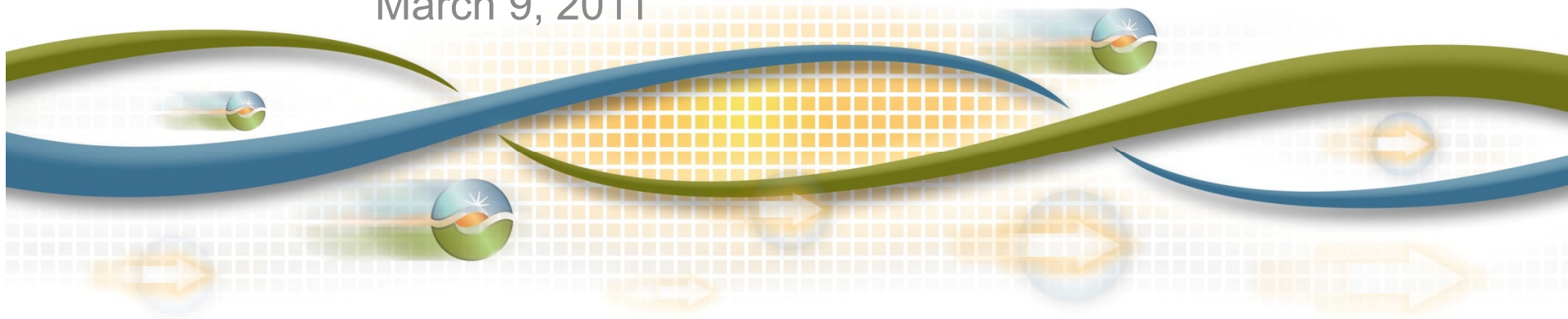
2012 Draft LCR Study Results San Diego Local Area

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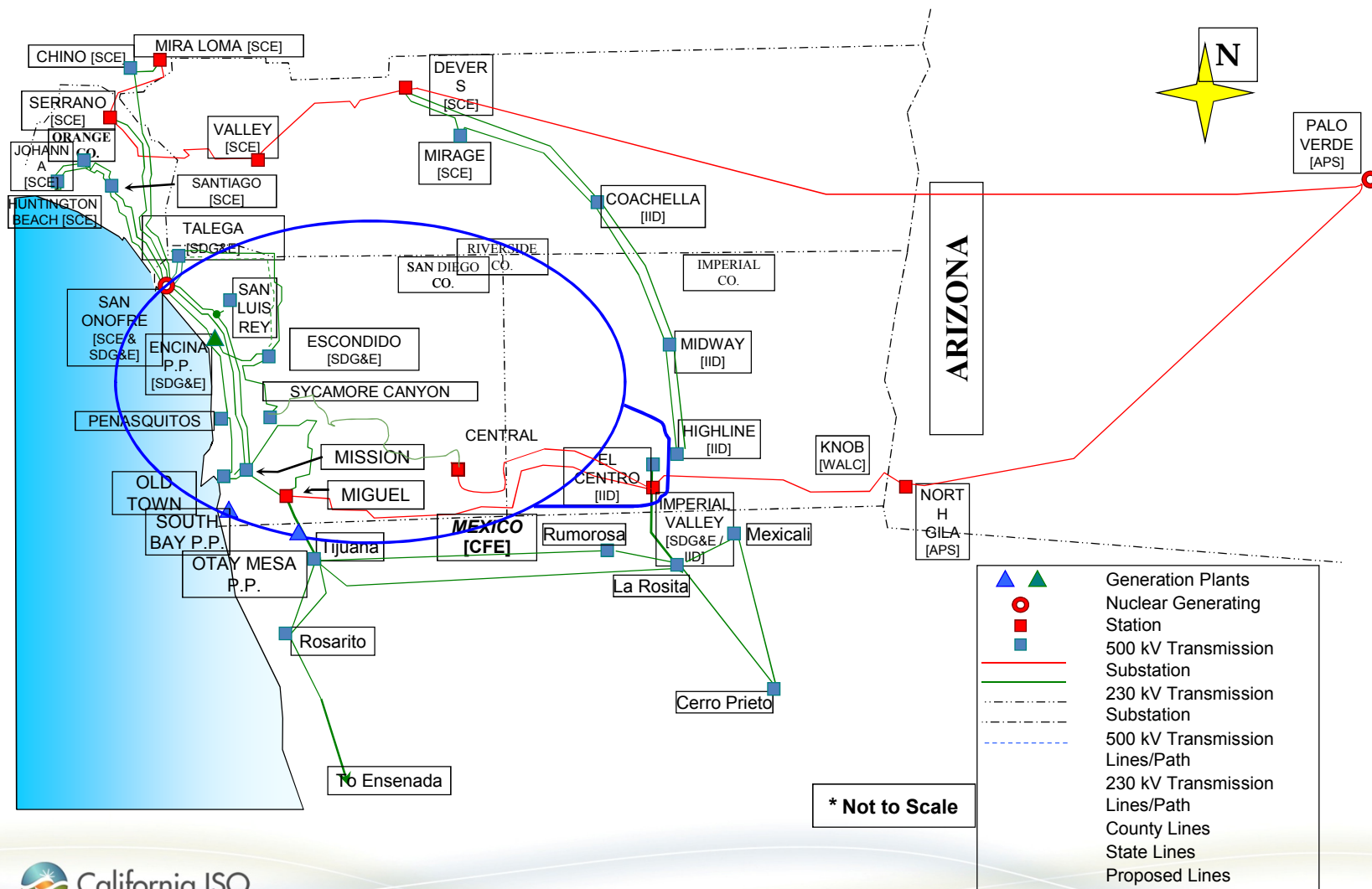
Regional Transmission - South

Stakeholder Meeting

March 9, 2011



San Diego LCR Area



San Diego Area Load and Resources (MW)

Total 1-in-10 Load + losses	4886
Generation	
Market Gen*	3227
Muni Gen	0
Wind Gen	6
QF Gen	188
Total Qualifying Capacity**	3421
SDG&E Non-Simultaneous Import Capability with a segment of SWPL out	3500

* 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) Reconductor
5. Otay – Otay Lake Tap 69kV (TL649) Reconductor

*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 or sub-area
 - 2 scenarios pertaining to TL50001 RAS and the rating of Sunrise Power Link
- 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

Critical SDG&E Area Contingencies (contd)

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 0 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

Critical SDG&E Area Contingencies (contd)

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)

Escondido 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 47 MW of QF and 27 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

- **Scenario I: Loss of IV-Miguel + Otay Mesa + IV gen trip (no CFE cross-trip)**

San Diego Sub-Area

- **Scenario II: Loss of IV-Miguel + Otay Mesa + IV gen trip (no CFE cross-trip) → Assuming a higher rating on Sunrise Power Link**

Critical SDG&E Area Contingencies (contd)

San Diego Area Scenario I:

IV-Miguel + Otay Mesa + IV gen trip (no CFE cross-trip)

- Contingency: 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
- LCR: **2849** MW (include 194 MW of QF/Wind)
- Limiting component: Sunrise Power Link (SRPL) rating of 1000 MW

Critical SDG&E Area Contingencies (contd)

San Diego Sub-Area Scenario II:

IV-Miguel + Otay Mesa + IV Gen trip (no CFE cross-trip) and Sunrise re-rated to beyond 1000 MW (1200 MW)

- Contingency: 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
- LCR:
 - **1574** MW (include 194 MW of QF/Wind) (1200 SRPL rating)
 - **1984** MW (include 194 MW of QF/Wind) (3500 import limit)
- Limiting component: SDG&E import limit of 3500 MW when TL50001 is out

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
- Power flow and post-transient studies did not identify any voltage or reactive margin violations
- LCR: **2804** MW (include 194 MW of QF/Wind)
- Limiting component: South of SONGS (P44) limit of 2500 MW (N->S)

Overall San Diego and Greater San Diego-IV LCR

Area	Contingency	Assumptions	Limiting Element	LCR (MW)
Local San Diego	TL50001 + Otay Mesa PP RAS to trip IV gen (no CFE cross-trip)	SRPL rated at 1000 MW	SRPL Rating	2849
		SRPL rated at 1200 MW	SRPL Rating (SDG&E Import goes to 3806 MW. Does it need to be restricted to 3500 MW?)	1574
		- SRPL rated at 1200 MW - SDGE Import limit of 3500 MW (With TL50001 out)	SDGE Import of 3500 MW	1984
Greater IV-San Diego	TL50002 + Otay Mesa PP		Path 44 limit of 2500 MW	2804

San Diego Area LCR

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

	QF (MW)	Wind (MW)	Market (MW)	Max. Qualifying Capacity (MW)	
Available generation	188	6	3227	3421	
	Existing Generation Capacity Needed (MW)			Deficiency (MW)	Total MW LCR Need
Category B (Single)	2849			0	2849
Category C (Single)	2849			92	2941

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 150 MW, total existing capacity needed for LCR decreased by 297 MW
- 2) Addition of Sunrise Power Link resulted in different limiting conditions for overall San Diego area
- 3) Identified Mission sub-area with LCR requirements

Your comments and questions are welcome.

For written comments, please send to: RegionalTransmission@caiso.com