# Local Capacity Requirements (LCR) for Year 2009
## Study Results for the Big Creek/Ventura and LA Basin Areas

**LCR Stakeholder Meeting, April 10th, 2008, Folsom CA**

California ISO
Your Link to Power

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# Changes since last Stakeholder meeting

- **Big Creek/Ventura:**
  - Change the Antelope-Pardee sub-area need into second worst for BC/Ventura. Update QF units in Ventura.
  - ATP (Antelope Transmission Project) Segments 1, 2 and 3 modeled. (Includes the opening of the existing Antelope-Vincent and Antelope-Mesa 230 kV lines)
- **LA Basin:**
  - New sub-area El Nido
  - Change  Barre LCR in order to correctly account for the NQC available.

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# Big Creek/Ventura Boundary Transmission Lines

- Vincent-Antelope #1 230 kV Line (out of service)
- Vincent-Antelope #2 230 kV Line (new)
- Mesa-Antelope 230 kV Line (out of service)
- Sylmar-Pardee #1 230 kV Line
- Sylmar-Pardee #2 230 kV Line
- Eagle Rock-Pardee #1 230 kV Line
- Vincent-Pardee 230 kV Line
- Vincent-Santa Clara 230 kV Line

# Big Creek/Ventura Area 2009 Load & Resources

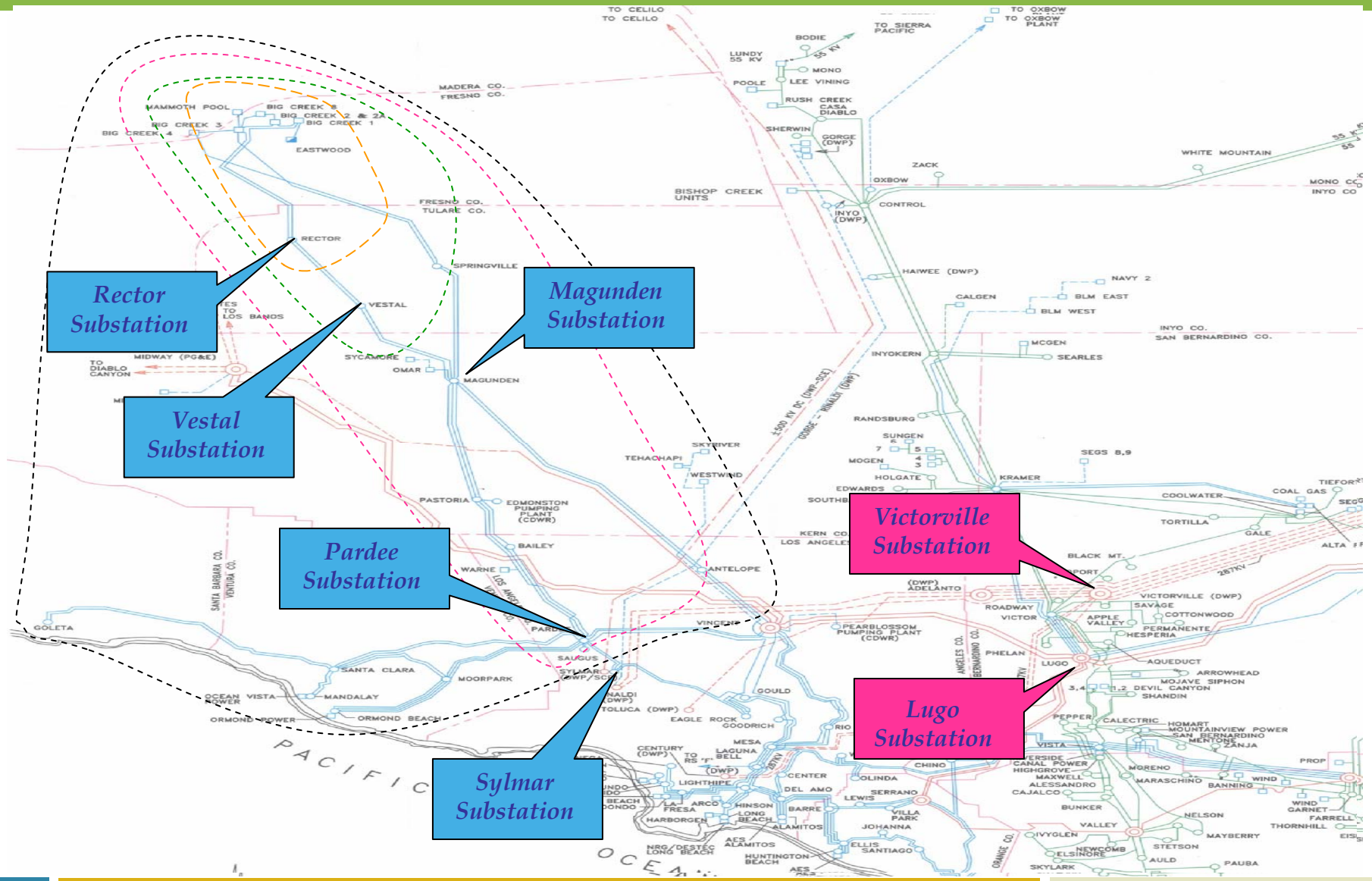
## *Load*

| Load (MW) | Pump Load (MW) | Transmission Losses (MW) | Total (MW) |
|---|---|---|---|
| 4415 | 405 | 151 | 4971 |

## *Available Generation*

| | QF/Wind (MW) | Muni (MW) | Nuclear (MW) | Market (MW) | Max. Qualifying Capacity (MW) |
|---|---|---|---|---|---|
| Available Gen | 909 | 22 | 0 | 4201 | 5132 |

# Big Creek/Ventura Area



# Rector Sub-area LCR Study

- Most critical contingency:
  - The loss of one of the Vestal-Rector 230kV lines followed by the loss of Eastwood generation
- Limiting components:
  - Thermally overload the remaining Vestal-Rector 230 kV line.
- LCR:
  - 603 MW (includes 15 MW QF/Wind generation)

# Vestal Sub-area LCR Study

- Most critical contingency:
  - The loss of one of the Magunden-Vestal 230kV lines followed by the loss of Eastwood generation
- Limiting components:
  - Thermally overload the remaining Magunden-Vestal 230 kV line.
- LCR:
  - 733 MW (includes 122 MW of QF/Wind generation)

# Big Creek/Ventura Area LCR Study (Worst constraint)

- Category B LCR:
  - Most critical contingency:
    - The loss of Ormond Beach #2 unit followed by the loss of Sylmar-Pardee #1 or #2 230 kV line
  - Limiting components:
    - Thermally overload the remaining Sylmar-Pardee #1 or #2 230 kV line (emergency rating 1195MVA/3000 Amps modeled in the base case).
  - LCR:
    - 3178 MW (includes 836 MW of QF, 22 MW of Muni and 73 MW of wind generation)

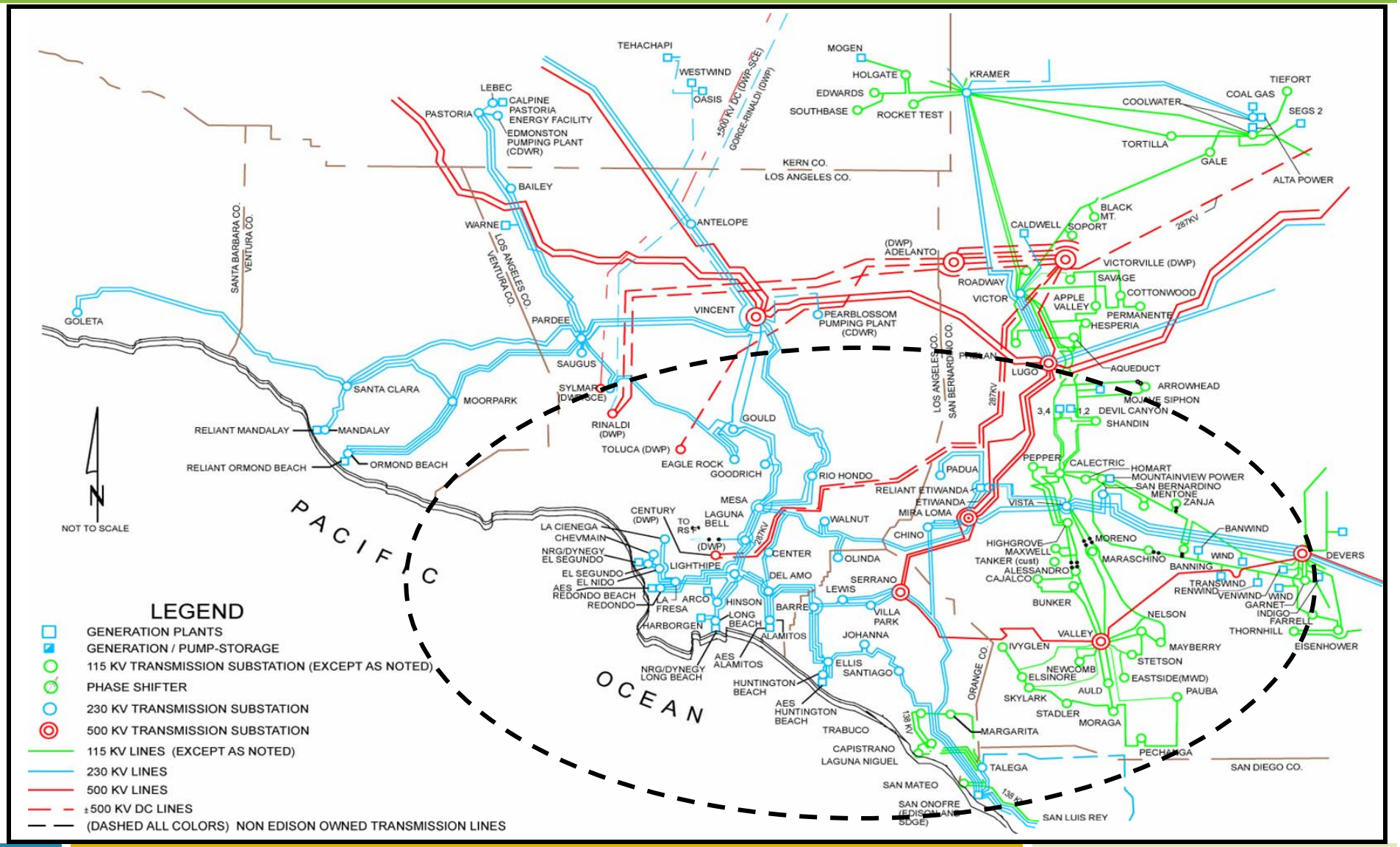
- Category C LCR:
  - Second Most critical contingency:
    - The loss of Lugo-Victorville 500 kV followed by the loss of Sylmar-Pardee #1 or #2 230 kV line
  - Limiting components:
    - Thermally overload the remaining Sylmar-Pardee #1 or #2 230 kV line (emergency rating 1195MVA/3000 Amps modeled in the base case).
  - LCR:
    - 3136 MW (includes 836 MW of QF, 22 MW of Muni and 73 MW of wind generation)

# Changes since the 2008 LCR study

## Total Big Creek/Ventura LCR has decreased

- Load forecast is up by 26 MW
- Detailed sub-area analysis has been presented
- One new peaker modeled in the area
- New project Antelope Transmission Project (New Segments 1, 2 and 3 plus the opening of the existing Antelope-Vincent and Antelope-Mesa 230 kV lines) has reduced the LCR
- Overall the LCR has decreased by 480 MW

# LA Basin Area



# LA Basin Area Boundary Transmission Lines

- San Onofre - San Luis Rey #1, #2, & #3 230 kV Lines
- San Onofre - Talega #1 & #2 230 kV Lines
- Lugo - Mira Loma #1, #2 & #3 500 kV Lines
- Sylmar - Eagle Rock 230 kV Line
- Sylmar - Gould 230 kV Line
- Vincent - Mesa Cal 230 kV Line
- Antelope - Mesa Cal 230 kV Line
- Vincent - Rio Hondo #1 & #2 230 kV Lines
- Eagle Rock - Pardee 230 kV Line
- Devers - Palo Verde 500 kV Line
- Devers - Coachelv 230 kV Line
- Mirage - Ramon 230 kV Line
- Mirage - Julian Hinds 230 kV Line

# LA Basin Area 2009 Load & Resources

## *Load*

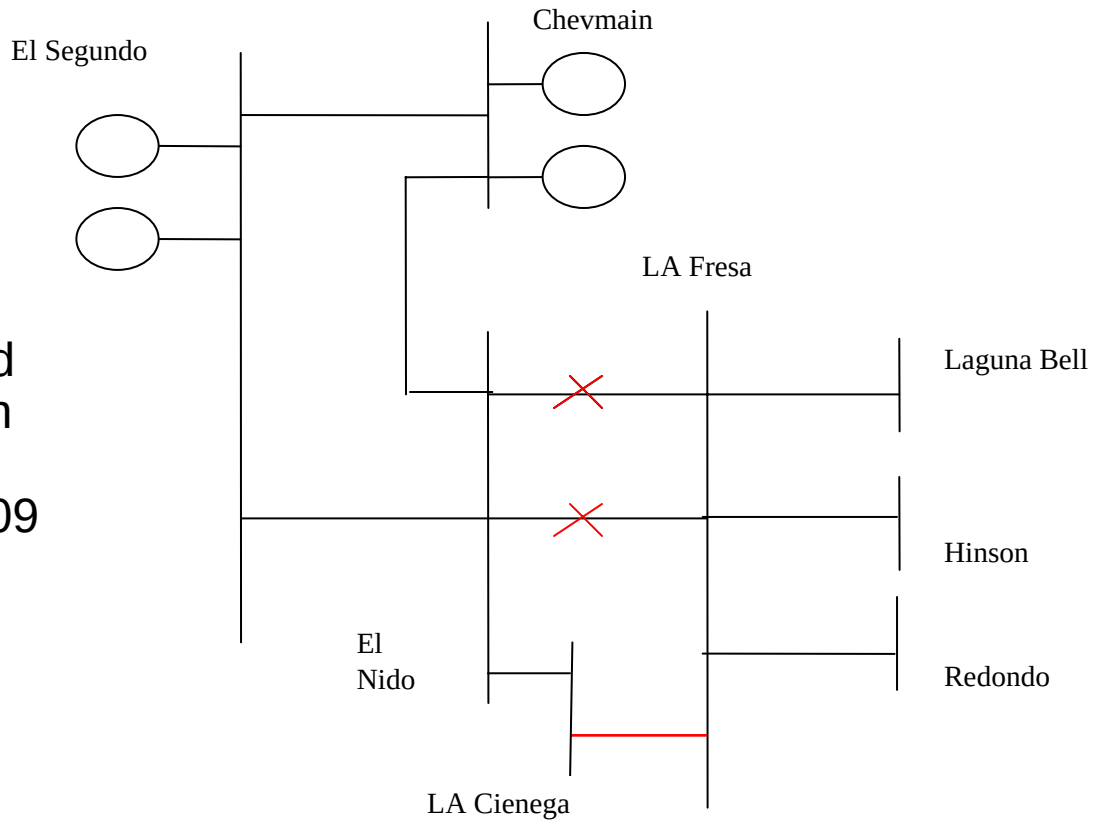
| Load (MW) | Pump Load (MW) | Transmission Losses (MW) | Total (MW) |
|---|---|---|---|
| 19612 | 22 | 202 | 19836 |

## *Available Generation*

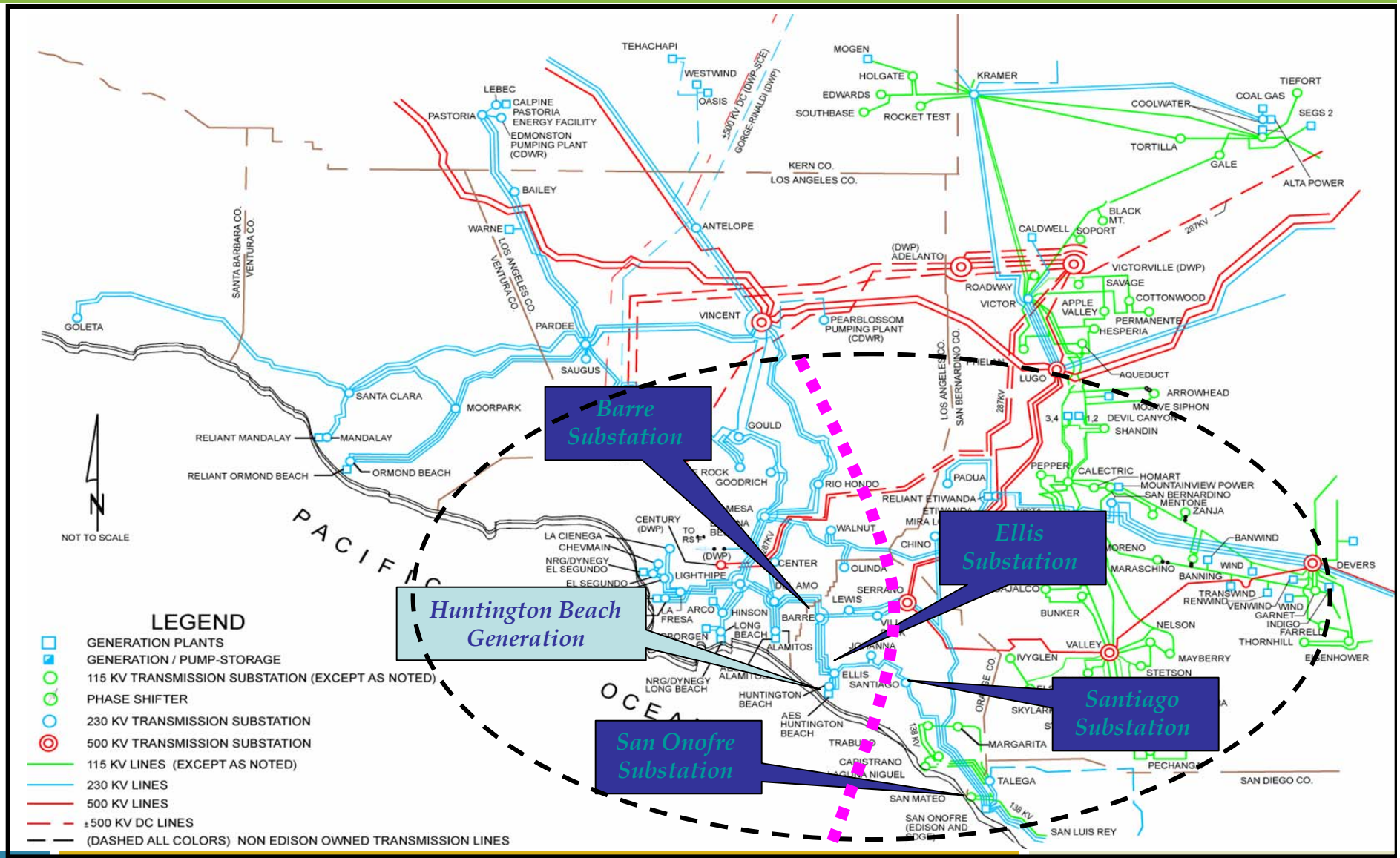
| | QF/Wind (MW) | Muni (MW) | Nuclear (MW) | Market (MW) | Max. Qualifying Capacity (MW) |
|---|---|---|---|---|---|
| Available Gen | 908 | 788 | 2246 | 8222 | 12164 |

# El Nido Sub-area

- Critical contingency:
  - The loss of La Fresa-El Nido #1 and #2 230 kV
- Limited component:
  - La Fresa-La Cienega 230 kV line
- LCR:
  - Assumed that firm load shed can be done manually within 15 minutes after the contingency: 297 MW in 2009 (includes 1 MW of QF generation)
  - If the load shed is not possible: 347 MW in 2009 (includes 1 MW of QF generation).



# Barre Sub-area



# Barre Sub-area LCR Study

- Most critical contingency:
  - The loss of the Ellis-Barre 230kV line followed by the double line outage of Songs-Santiago 230kV lines
- Limiting components:
  - Voltage collapse in the Barre sub-area
- LCR:
  - 4173 MW (includes 491 MW of QF/Wind, 383 MW of Muni and 0 MW of nuclear generation)

# LA Basin LCR Study

- Most Critical Contingency:
  - The loss of one of the SONGS units, followed by the loss of Palo Verde-Devers 500 kV line
- Limiting Components:
  - South of Lugo operating rating (6400 MW with new Rancho Vista 500kV substation)
- LCR:
  - 10225 MW (includes 908 MW of QF/Wind, 788 MW of Muni and 2246 MW of nuclear generation)

# Changes since the 2008 LCR study

## Total LA Basin LCR has slightly increased

- Load forecast is up by 188 MW
- New sub-area analysis El Nido presented
- Two new peakers modeled in the area
- New project Rancho Vista 500 kV Substation
- Voltage collapse in the Barre area (a non-linear problem) has increased substantially (about 1000 MW) for a rather small change in load and as a result resources in that sub-area need to be on-line when the LA Basin calculation is done. They displace some resources that would otherwise be much more effective to the overall problem the South of Lugo constraint
- Overall the LCR has increased by 95 MW

# Stakeholder Comments

**Your comments and questions are welcome**

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