2011 Final LCR Study Results
Sierra and Stockton Local Areas

Binaya Shrestha

Regional Transmission Engineer

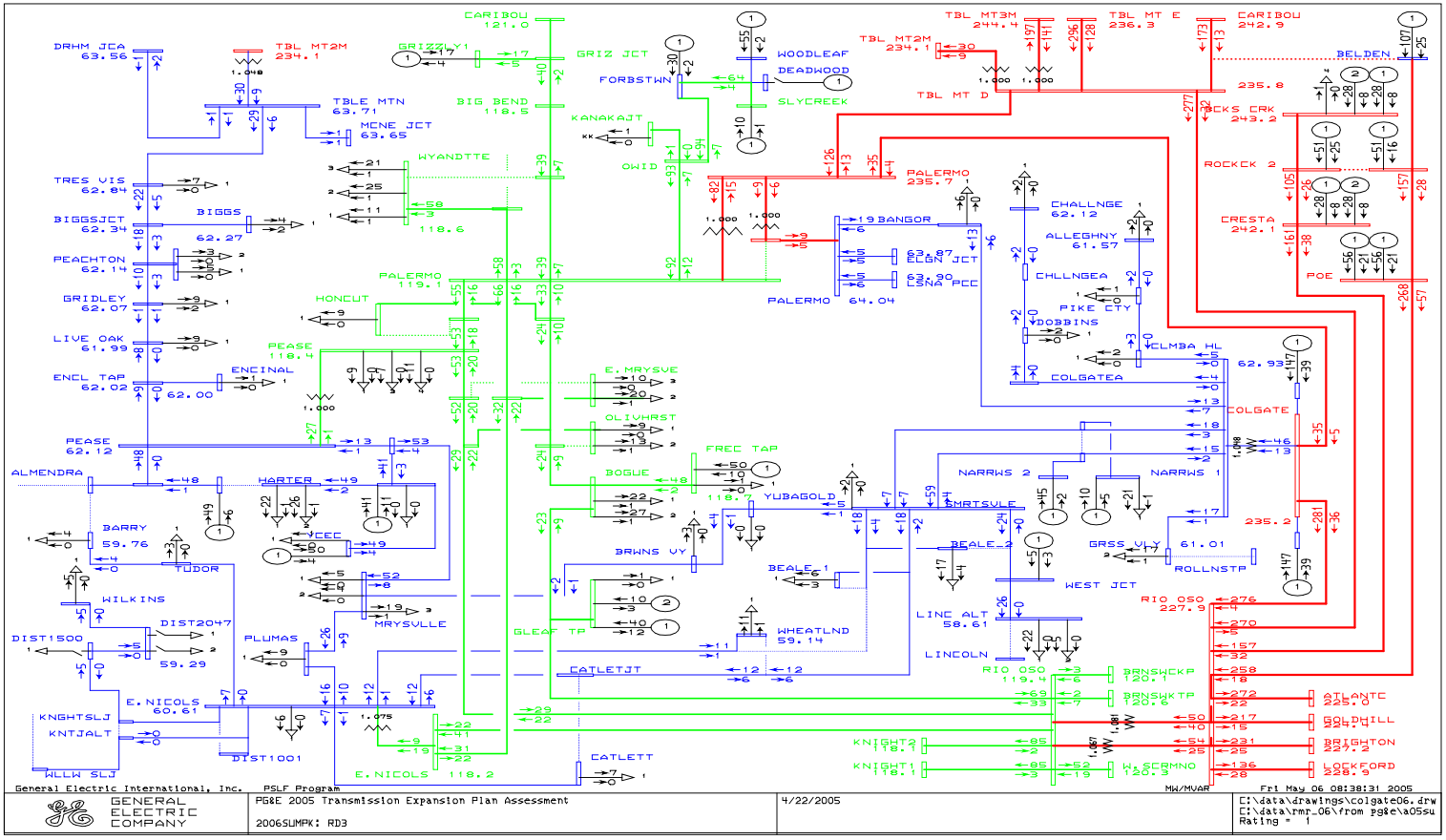
Stakeholder Meeting

April 15, 2010

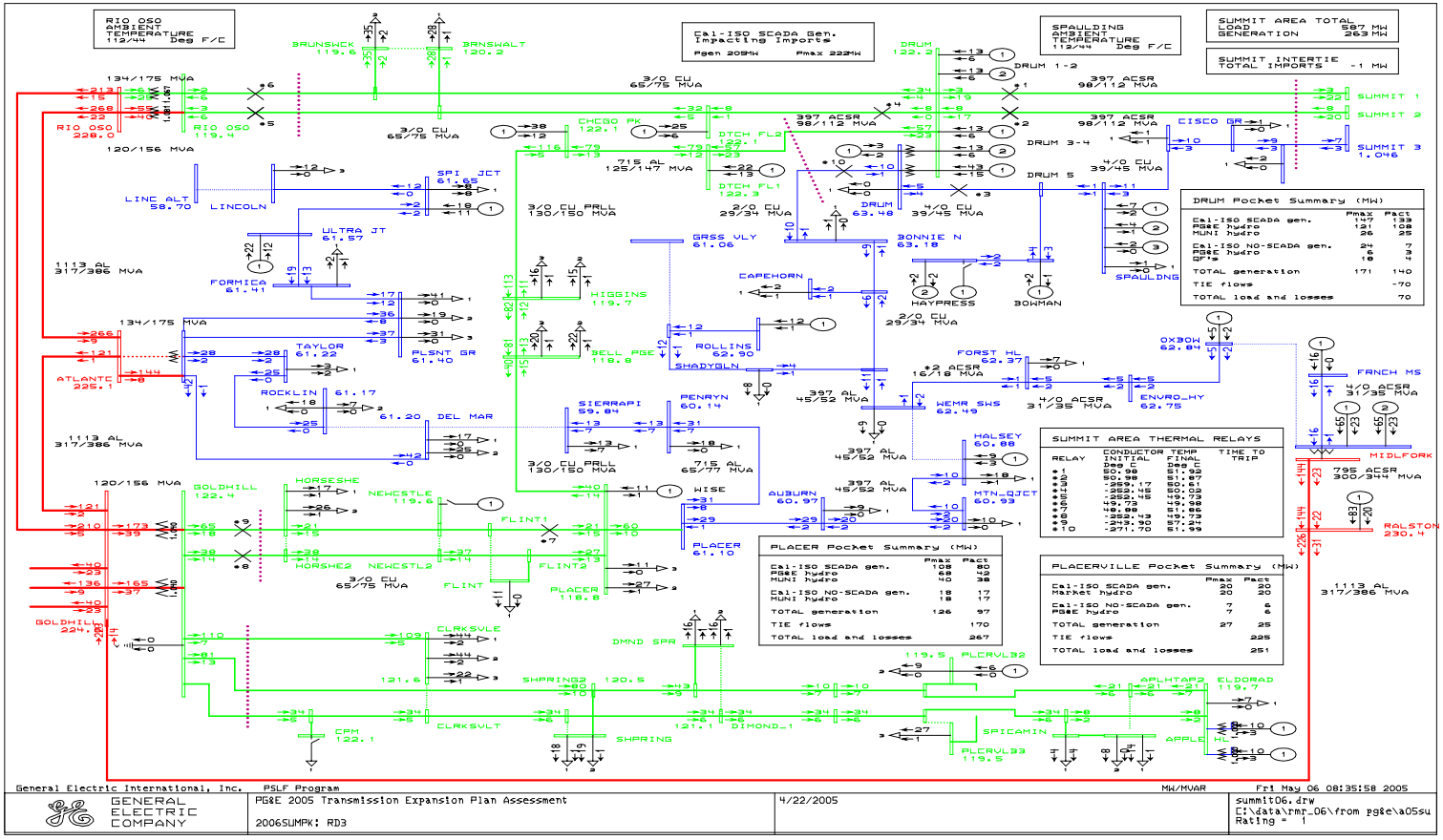
Sierra Area Load and Resources (MW)

		2011
Load	=	1858
Transmission Losses	=	119
Total Load	=	**1977**
Market Generation	=	759
Muni Generation	=	837
QF Generation	=	220
Total Qualifying Capacity	=	**1816**

Northern Sierra



Southern Sierra



New transmission projects modeled:

1. Table Mountain-Rio Oso 230 kV Reconductoring and Tower Upgrade
2. Atlantic-Lincoln 115 kV Upgrade
3. Pease-Marysville #2 60 kV Line
4. Palermo 115 kV Circuit Breaker and Switch Replacement

Critical Sierra Area Contingencies
South of Table Mountain

South of Table Mountain Sub-area – Category C

Contingency: Table Mountain-Rio Oso 230 kV and Table Mountain-Palermo 230 kV DCTL outage

Limiting component: Thermal overload on the Caribou-Palermo 115 kV line

LCR need: 1510 MW (includes 220 MW of QF and 837 MW of Muni generation)

South Of Table Mountain Sub-area – Category B

No additional category B requirement. Units required for South of Palermo satisfy the category B requirement for this sub-area.

Critical Sierra Area Contingencies
Pease & Bogue

Pease Sub-area

Contingency: Palermo-East Nicolaus 115 kV line with Green Leaf II Co-gen unit out of service

Limiting component: Thermal overload on the Palermo-Pease 115 kV line

LCR need: 124 MW (includes 91 MW of QF)

Bogue Sub-area

Contingency: Pease-Rio Oso 115 kV line with Green Leaf #1 Co-gen unit out of service

Limiting component: Thermal overload on the Palermo-Bogue 115 kV line

LCR need: 137 MW (includes 47 MW of QF and 45 MW of deficiency)

Critical Sierra Area Contingencies
South of Palermo

South Of Palermo Sub-area – Category C

Contingency: Double Circuit Tower Line Table Mountain-Rio Oso and Colgate-Rio Oso 230 kV lines

Limiting component: Thermal overload on the Palermo-East Nicolaus 115 kV line

LCR need: 1630 MW (includes 417 MW of QF and Muni generation as well as 546 MW of Deficiency)

South Of Palermo Sub-area – Category B

Contingency: Palermo-Pease115 kV line with Belden unit out of service

Limiting component: Thermal overload on the Palermo-East Nicolaus 115 kV line

LCR need: 1407 MW (includes 417 MW of QF and Muni generation as well as 313 MW of deficiency)

Critical Sierra Area Contingencies
Colgate

Colgate Sub-area

No requirements, because of the following projects:

1. Second Pease-Marysville 60 kV line

2. Atlantic-Lincoln 115 kV upgrade.

If this project is not operational by June 1, 2011 then all the units in this area Narrows #1 and #2 as well as Camp Far West are needed.

Critical Sierra Area Contingencies
Drum-Rio Oso

Drum-Rio Oso Sub-area – Category C

Contingency: Rio Oso #2 230/115 kV transformer followed by loss of the Rio Oso-Brighton 230 kV line or vice versa

Limiting component: Thermal overload on the Rio Oso #1 230/115 kV transformer

LCR need: 687 MW (includes 418 MW of QF and Muni generation as well as 12 MW of Deficiency)

Drum-Rio Oso Sub-area – Category B

Contingency: Rio Oso # 2 230/115 kV transformer

Limiting component: Thermal overload on the Rio Oso #1 230/115 kV transformer

LCR need: 296 MW (includes 418 MW of QF and Muni generation)

Critical Sierra Area Contingencies
South of Rio Oso

South of Rio Oso Sub-area – Category C

Contingency: Rio Oso-Gold Hill 230 line followed by loss of the Rio Oso-Lincoln 115 kV line or vice versa

Limiting component: Thermal overload on the Rio Oso-Atlantic 230 kV line

LCR need: 488 MW (includes 343 MW of QF and Muni generation as well as 77 MW of Deficiency)

South of Rio Oso Sub-area – Category B

Contingency: Rio Oso-Gold Hill 230 line with the Ralston unit out of service

Limiting component: Thermal overload on the Rio Oso-Atlantic 230 kV line

LCR need: 473 MW (includes 343 MW of QF and Muni generation as well as 62 MW of Deficiency)

Critical Sierra Area Contingencies
Placer

Placer Sub-area – Category C

Contingency: Drum-Higgins 115 kV line followed by loss of the Gold Hill-Placer #2 115 kV line or vice versa

Limiting component: Thermal overload on the Gold Hill-Placer #1 115 kV line

LCR need: 111 MW (includes 0 MW of QF and Muni generation as well as 32 MW of Deficiency)

Placer Sub-area – Category B

Contingency: Gold Hill-Placer #2 115 kV line with the Chicago Park unit out of service

Limiting component: Thermal overload on the Drum-Higgins 115 kV line

LCR need: 66 MW (includes 0 MW of QF and Muni generation)

Critical Sierra Area Contingencies
Placerville

Placerville Sub-area – Category C

Contingency: Gold Hill-Clarksville 115 kV line followed by loss of the Gold Hill-Missouri Flat #2 115 kV line or vice versa

Limiting component: Thermal overload on the Gold Hill-Missouri Flat #1 115 kV line

LCR need: 116 MW (includes 0 MW of QF and Muni generation as well as 91 MW of Deficiency)

Placerville Sub-area – Category B

No requirements because of decrease in load.

Critical Sierra Area Contingencies Aggregate

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	220	837	759	1816

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
Category B (Single)	1330	313	1643
Category C (Multiple)	1510	572	2082

Each unit is only counted once, regardless in how many sub-areas it is needed.

In order to come up with an aggregate deficiency, where applicable the deficiencies in each smaller sub-area has been accounted for (based on their effectiveness factors) toward the deficiency of a much larger sub-area.

Changes

Since last year:

1) Load forecast went down by 149 MW.

2) Existing generation capacity need decreased by 207 MW.

3) Magnitude of deficiency increased significantly because of delay in implementation of the Palermo-Rio Oso 115 kV Reconductoring project.

Your comments and questions are welcome.

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

Stockton Area Load and Resources (MW)

		2011
Load	=	1141
Transmission Losses	=	22
Total Load	=	**1163**
Market Generation	=	259
Muni Generation	=	141
QF Generation	=	126
Total Qualifying Capacity	=	**526**

Critical Stockton Area Contingencies
Tesla-Bellota Sub-area

Tesla-Bellota Sub-area – Category C

Contingency 1: Tesla-Tracy 115 kV line and Schulte-Lammers 115 kV line.

Limiting component 1: Thermal overload on the Tesla-Kasson-Manteca 115 kV line.

LCR Need: 447 MW (201 MW of QF/Muni and 153 MW of deficiency).

Contingency 2: Tesla-Tracy 115 kV line and Tesla-Kasson-Manteca 115 kV line.

Limiting component 2: Thermal overload on the Tesla-Schulte 115 kV line.

LCR Need: 394 MW (includes 201 MW of QF and Muni generation).

TOTAL LCR Need: 547 MW (201 MW of QF/Muni and 153 MW of deficiency)

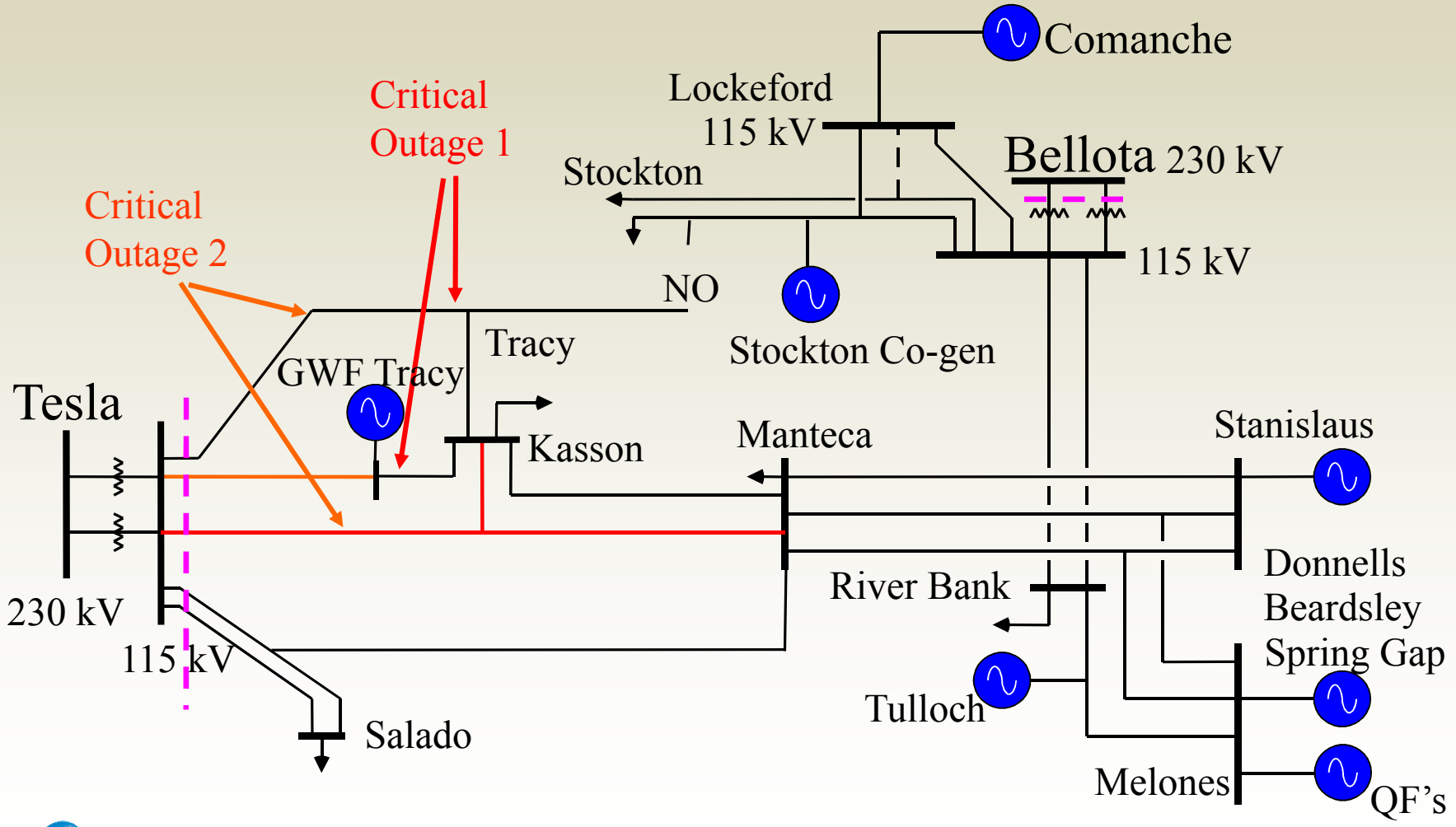
Tesla-Bellota Sub-area – Category B

Contingency: Tesla-Tracy 115 kV line and the loss of Stanislaus #1.

Limiting component: Thermal overload on the Tesla-Schulte 115 kV line.

LCR Need: 344 MW (includes 201 MW of QF and Muni generation).

Tesla-Bellota 115 kV Area Transmission



Critical Stockton Area Contingencies
Lockeford Sub-area

Lockeford Sub-area – Category C

Contingency: Lockeford-Industrial followed by Lockeford-Lodi #2 60 kV line or vice versa

Limiting component: Thermal overload on the Lockeford-Lodi Jct. section of the Lockeford-Lodi #3 60 kV line

LCR need: 63 MW (includes 25 MW of QF and Muni generation as well as 38 MW of Deficiency)

Lockeford Sub-area – Category B

No category B requirement.

Critical Stockton Area Contingencies
Weber Sub-area

Weber Sub-area – Category C

Contingency: Weber 230/60 kV Transformer #1 and the loss of Cogeneration National

Limiting component: Thermal overload on the Weber 230/60 kV Transformers #2 & #2a

LCR need: 72 MW (includes 40 MW of QF and Muni generation as well as 32 MW of Deficiency)

Weber Sub-area – Category B

Contingency: Weber 230/60 kV Transformer #1

Limiting component: Thermal overload on the Weber 230/60 kV Transformers #2 & #2a

LCR need: 30 MW (includes 40 MW of QF and Muni generation)

Critical Stockton Area Contingencies Aggregate

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	126	141	259	526

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
Category B (Single)	374	0	374
Category C (Multiple)	459	223	682

Each unit is only counted once, regardless in how many sub-areas it is needed.

In order to come up with an aggregate deficiency, where applicable the deficiencies in each smaller sub-area has been accounted for (based on their effectiveness factors) toward the deficiency of a much larger sub-area.

Changes

Since last year:

1) New Weber sub-area added.

2) Load forecast (in Tesla-Bellota & Lockeford sub-areas) went down by 35 MW.

3) As a combined effect, the overall Stockton LCR stayed fairly constant.

Your comments and questions are welcome.

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