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Shaping a Renewed Future

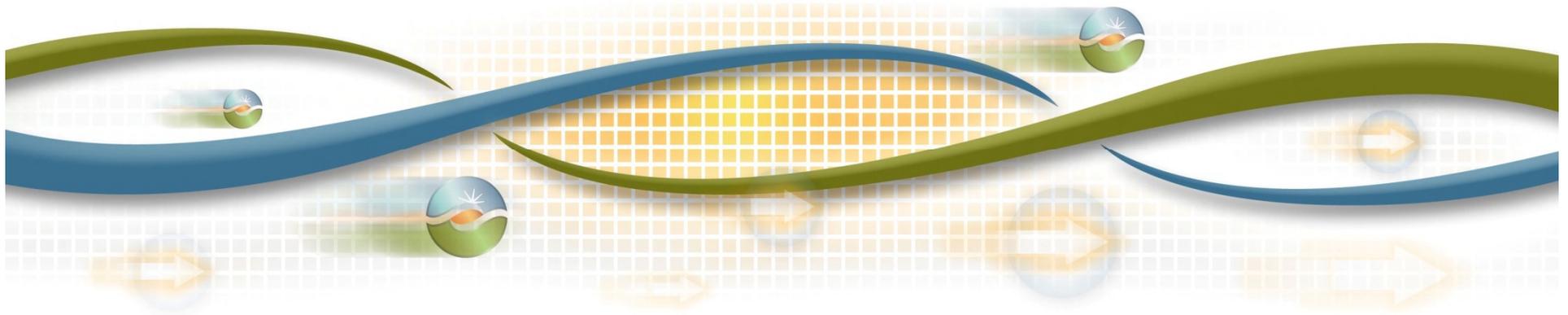
2013 Final LCR Study Results Sierra and Stockton Local Areas

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Stakeholder Meeting

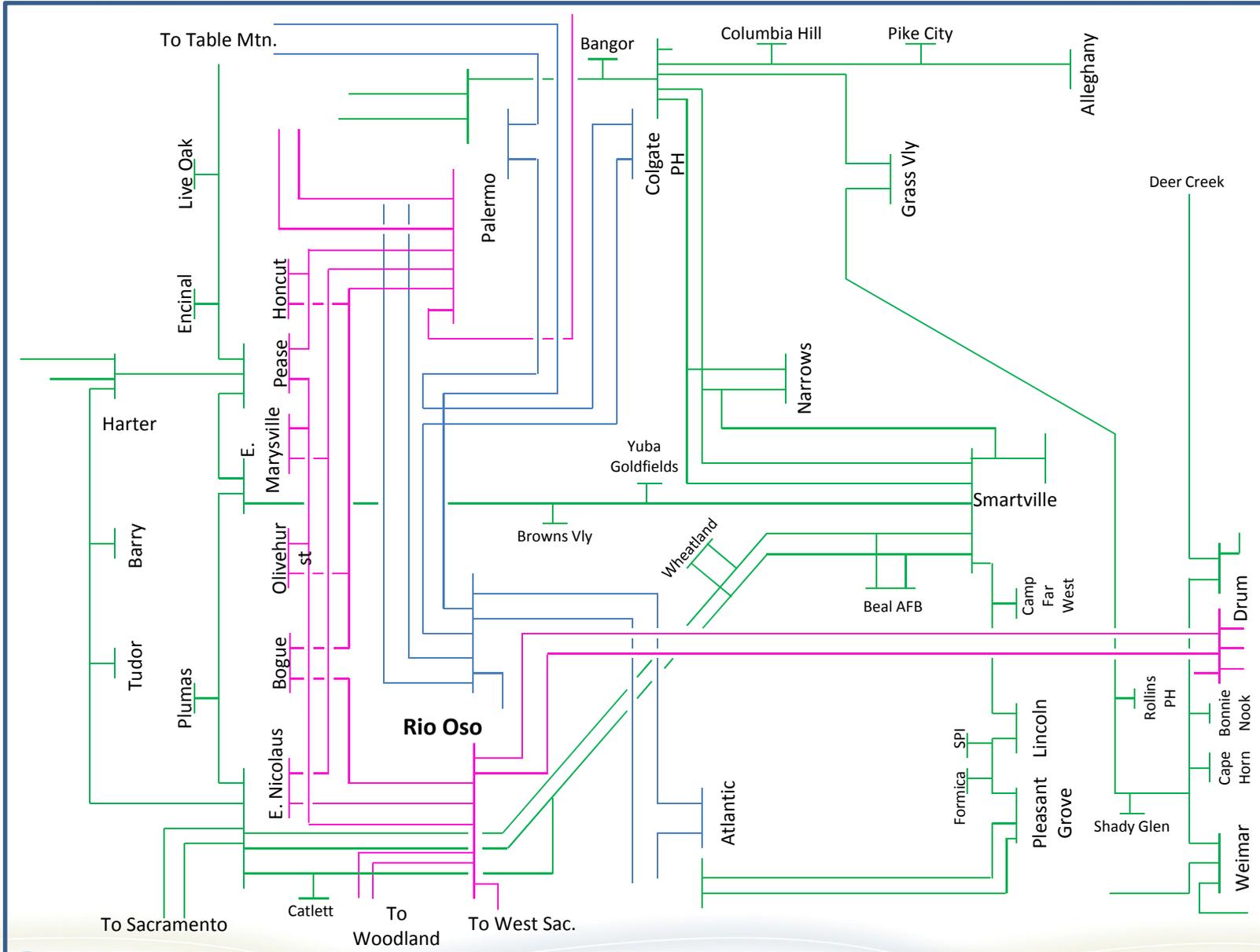
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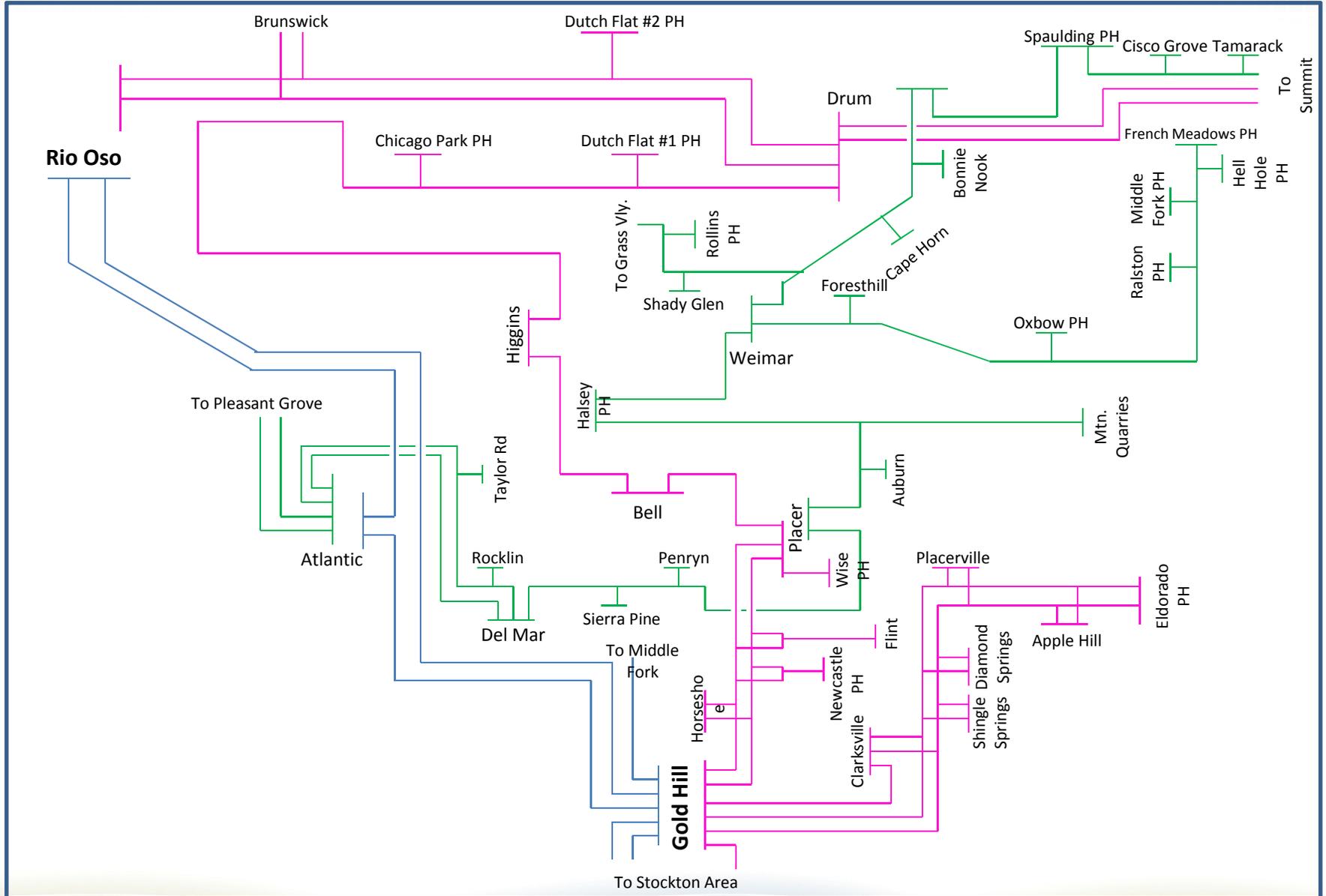
Sierra Area Load and Resources (MW)

		2013
Load	=	1639
Transmission Losses	=	99
Total Load	=	1738
Market Generation	=	765
Muni Generation	=	1103
QF Generation	=	171
Total Qualifying Capacity	=	2039

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. Gold Hill – Horseshoe 115 kV line Reconductoring
4. Palermo-Rio Oso 115 kV Reconductoring

New Generation projects modeled:

1. Lodi Energy Center (280 MW) connecting to Lodi STIG 230 kV substation.

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: 1376 MW (includes 171 MW of QF and 1103 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: 52 MW (includes 59 MW of QF)

Bogue Sub-area

No requirement due to the Palermo-Rio Oso Reconductoring Project.

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 Pease-Rio Oso 115 kV line

LCR need: 1568 MW (includes 59 MW of QF and 639 MW of Muni generation as well as 204 MW of Deficiency)

South Of Palermo Sub-area – Category B

Contingency: Palermo-E. Nicolaus 115 kV line with Belden unit out of service

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

LCR need: 1247 MW (includes 59 MW of QF and 639 MW of Muni generation)

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: 522 MW (includes 171 MW of QF and 198 MW of Muni generation)

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: 226 MW (includes 171 MW of QF and 198 MW of 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: 500 MW (includes 31 MW of QF and 593 MW of Muni generation)

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: 333 MW (includes 31 MW of QF and 593 MW of Muni generation)

Critical Sierra Area Contingencies

Placer

Placer Sub-area – Category C

Contingency: Gold Hill-Placer #1 115 kV line followed by loss of the Gold Hill-Placer #2 115 kV line or vice versa

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

LCR need: 81 MW (includes 38 MW of QF and Muni generation as well as 2 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: 59 MW (includes 38 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: 72 MW (includes 0 MW of QF and Muni generation as well as 48 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	171	1103	765	2039

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
Category B (Single)	1408	0	1408
Category C (Multiple)	1712	218	1930

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 stakeholder meeting:

- 1) Updated NQC
- 2) Some sub-area requirements changed slightly due to the NQC update. However, the overall Sierra requirement remains unchanged.

Since last year:

- 1) Load forecast went down by 78 MW.
- 2) Overall LCR need has decreased by 44 MW.

Your comments and questions are welcome.

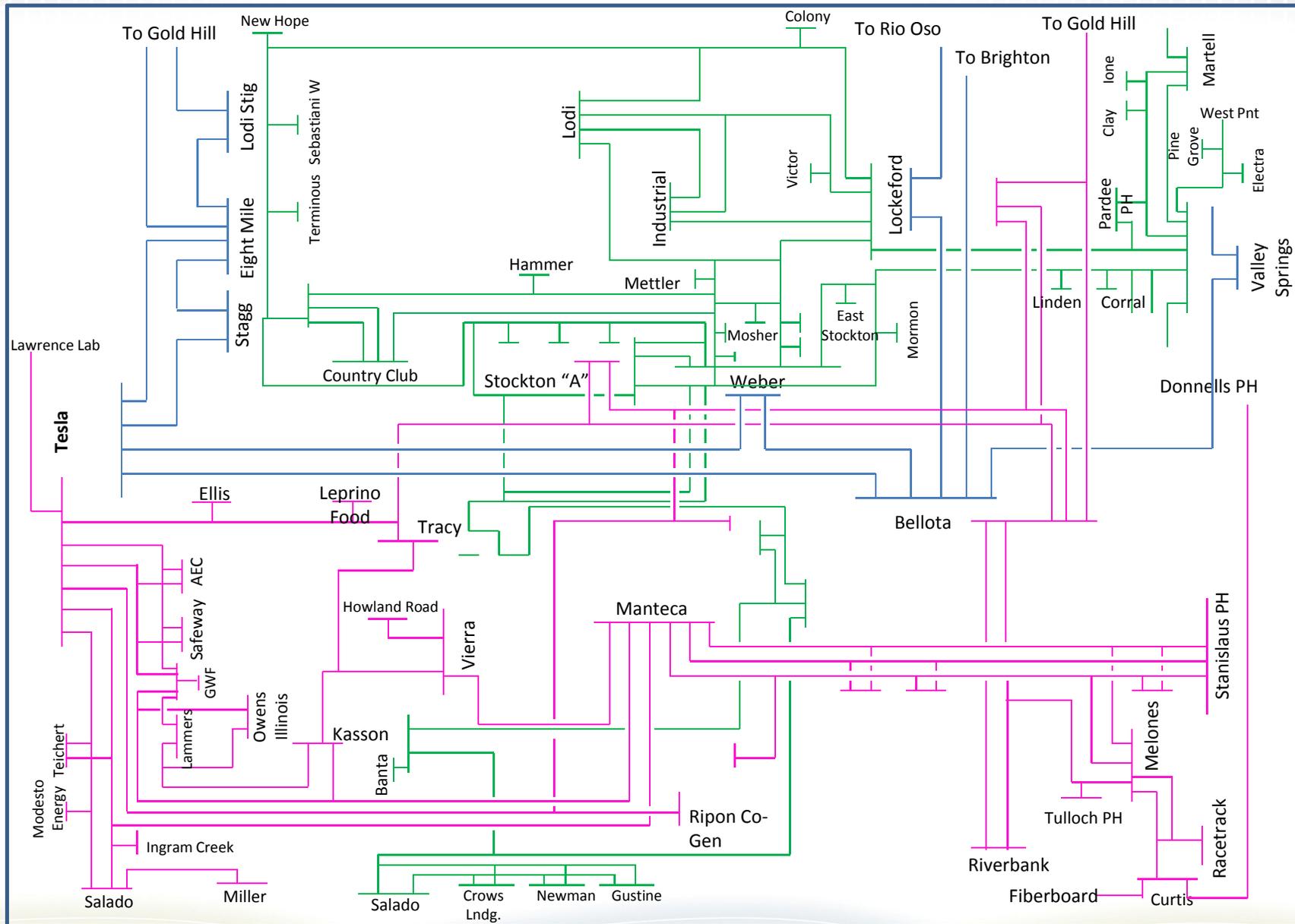
For written comments, please send to: RegionalTransmission@caiso.com

Stockton Area Load and Resources (MW)

2013

Load	=	1090
Transmission Losses	=	19
Total Load	=	1109
Market Generation	=	404
Muni Generation	=	142
QF Generation	=	74
Total Qualifying Capacity	=	620

Stockton Area





New transmission projects modeled:

1. Weber 230/60 kV Transformer Replacement
2. Weber-Stockton A #1 & #2 60 kV lines Reconductor
3. GWF Tracy Expansion – Loop in Tesla-Manteca 115 kV line to Schulte switching station.

New Generation projects modeled:

1. GWF Tracy (145 MW) connecting to Schulte 115 kV switching station.

Critical Stockton Area Contingencies

Tesla-Bellota Sub-area

Tesla-Bellota Sub-area – Category C

Contingency 1: Schulte-Lammers and Schulte-Kasson-Manteca 115 kV lines.

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

LCR Need: 412 MW (70 MW of QF and 119 MW of Muni and 130 MW of deficiency).

Contingency 2: Tesla-Tracy 115 kV line and Tesla-Schulte #2 115 kV line.

Limiting component 2: Thermal overload on the Tesla-Schulte #1 115 kV line.

LCR Need: 388 MW (includes 70 MW of QF and 119 MW of Muni generation).

TOTAL LCR Need: 518 MW (70 MW of QF and 119 MW of Muni and 130 MW of deficiency)

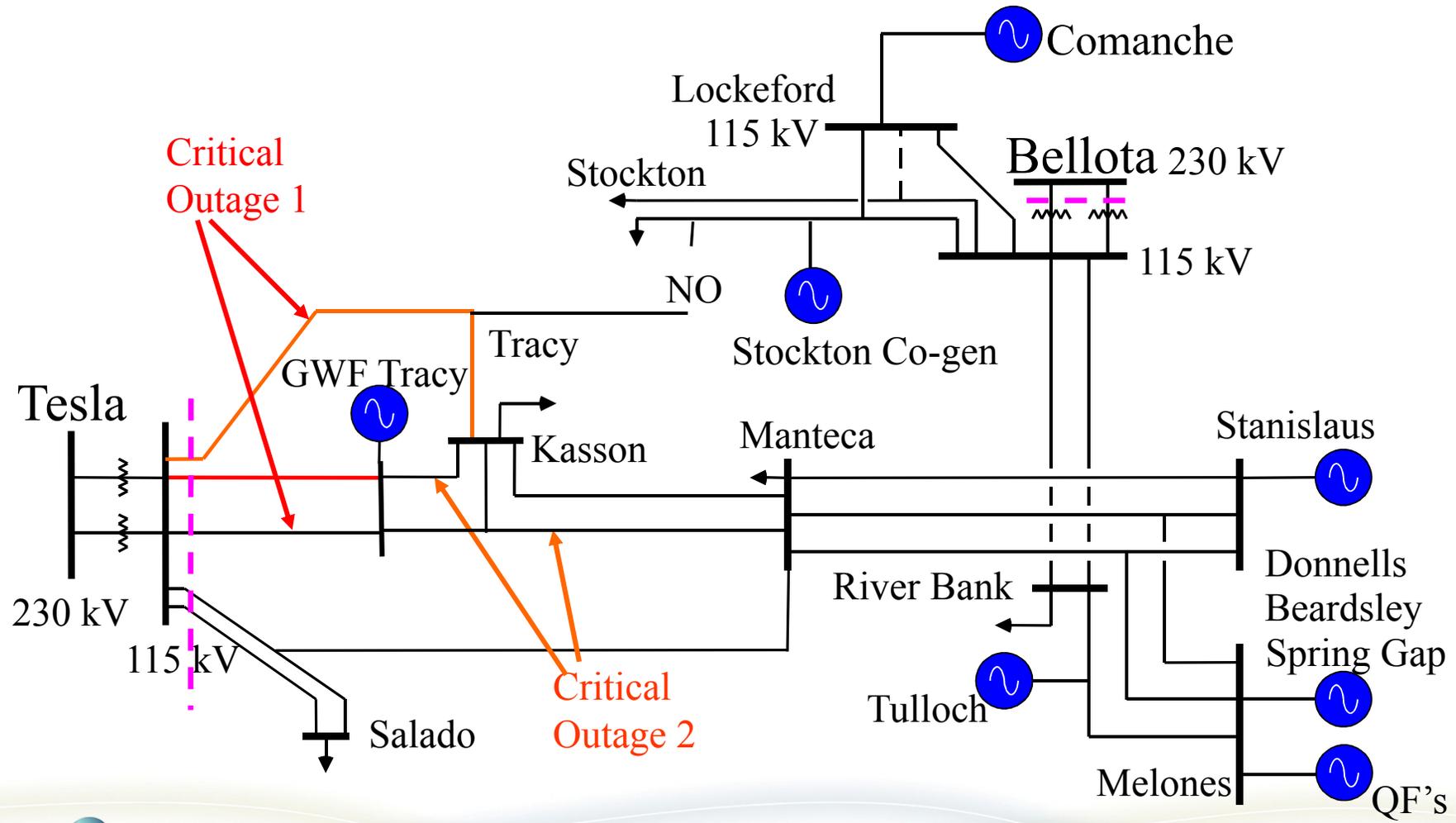
Tesla-Bellota Sub-area – Category B

Contingency: Tesla-Tracy 115 kV line and the loss of GWF Tracy #3.

Limiting component: Thermal overload on the Tesla-Schulte #1 115 kV line.

LCR Need: 242 MW (includes 70 MW of QF and 119 MW of 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: 49 MW (includes 2 MW of QF and 23 MW of Muni generation as well as 24 MW of Deficiency)

Lockeford Sub-area – Category B

No category B requirement.

Critical Stockton Area Contingencies Weber Sub-area

Weber Sub-area

No requirement due to the Weber 230/60 kV Transformer Replacement and Weber-Stockton A #1 & #2 60 kV lines Reconductor projects.

Critical Stockton Area Contingencies Aggregate

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	74	142	404	620

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
Category B (Single)	242	0	242
Category C (Multiple)	413	154	567

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 stakeholder meeting:

- 1) Updated NQC.
- 2) The Tesla-Bellota sub-area Category B requirement went up by 145 MW due to finding of a new limiting contingency.
- 3) Other sub-area requirements also changed slightly due to the NQC update.
- 4) The overall Stockton requirement went up by 17 MW.

Since last year:

- 1) Load forecast went up by 23 MW.
- 2) Weber sub-area eliminated because of new transmission upgrade.
- 3) New generator (145 MW) modeled.
- 3) As a combined effect, the overall Stockton LCR remained unchanged.

Your comments and questions are welcome.

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