

Local Capacity Requirements (LCR) for Year 2009 Study Results for the Sierra and Stockton Areas



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



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Changes since last Stakeholder meeting

Sierra:

- Updated NQC data
- Atlantic-Lincoln 115 kV Upgrade - on-line changed from 5/2009 to 12/2009 – not modeled
- South of Palermo Reconductoring - on-line changed from 5/2009 to 5/2010 – not modeled
- Rio Oso #1 and #2 230/115 kV Transformer Bank Replacement - on-line changed from 5/2009 to 5/2011 – not modeled

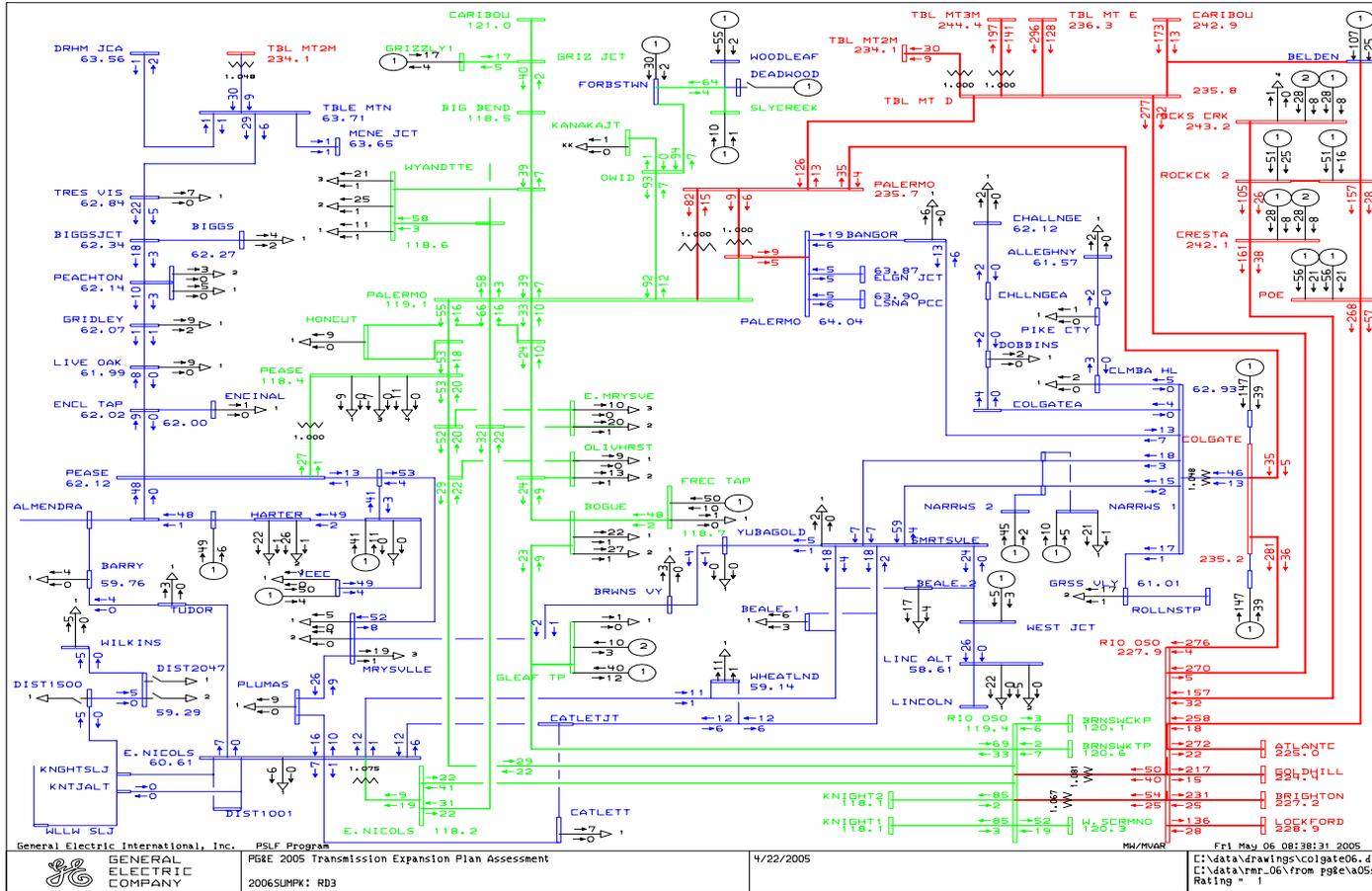
Stockton:

- Updated NQC data

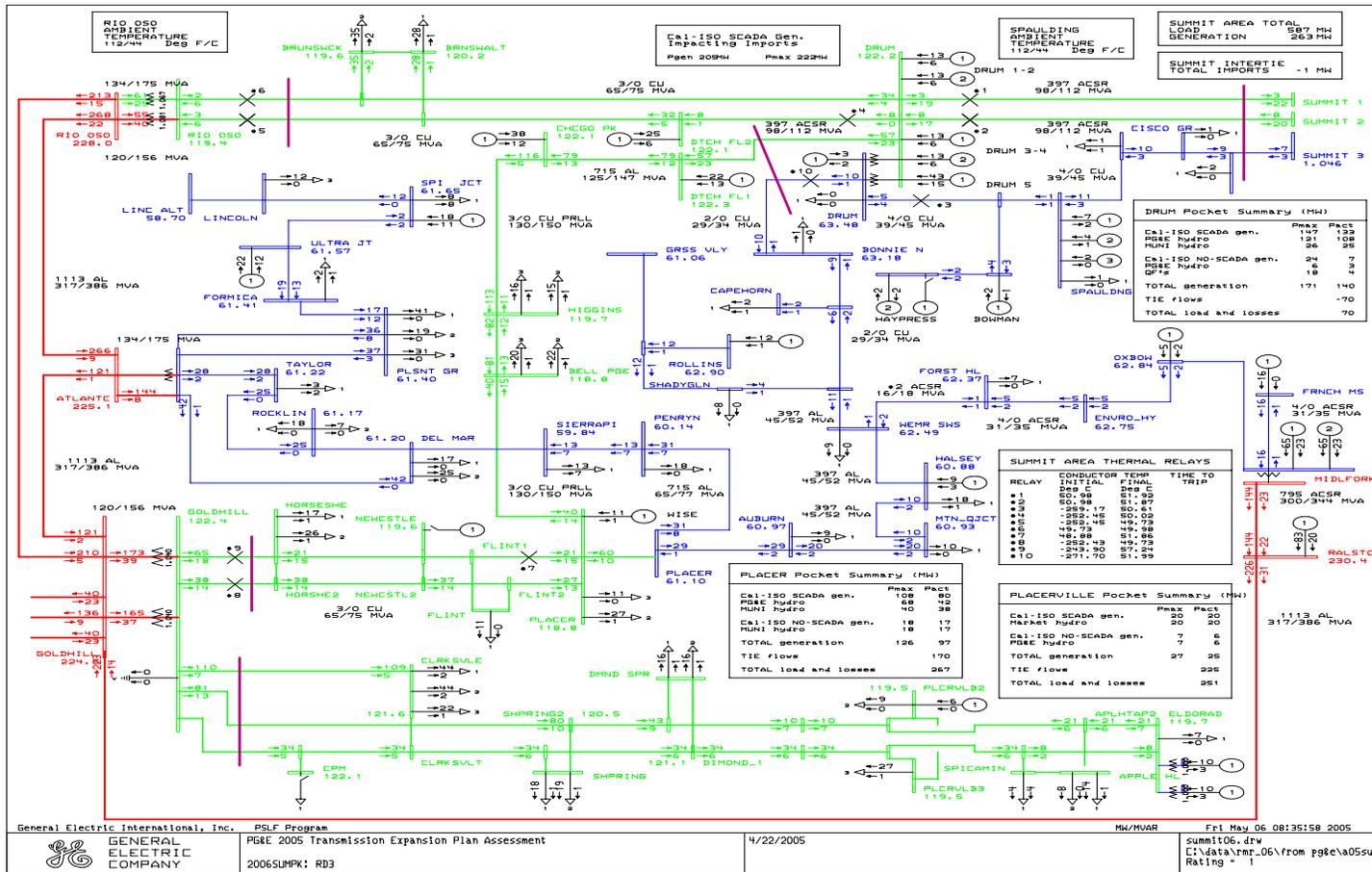
Sierra Area Load and Resources (MW)

		2009
Load	=	2019
Transmission Losses	=	107
Total Load	=	2126
Market Generation	=	768
Muni Generation	=	796
QF Generation	=	216
Total Qualifying Capacity	=	1780

Northern Part of Sierra



Southern Part of Sierra



Critical Sierra Area Contingencies

South of Table Mountain

South of Table Mountain Sub-area

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

LCR: 1617 MW (includes 216 MW of QF and 796 MW of Muni generation)

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

LCR has decreased due to the Table Mountain-Palermo 230 kV line Upgrade (part of the Table Mountain-Rio Oso 230 kV Reconductor and Tower Upgrade Project). If this project is not operational by June 1, 2009 then requirement is higher than 1780 MW the total available resources in the area.

South Of Table Mountain Sub-area – Category B

Contingency: Table Mountain-Rio Oso 230 kV line with Colgate #1 unit out of service

LCR: 1159 MW (includes 1012 MW of QF and Muni generation)

Limiting component: Thermal overload on Table Mountain-Palermo 230 kV line

Critical Sierra Area Contingencies

Pease & Bogue

Pease Sub-area

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

LCR: 154 MW (includes 90 MW of QF and 20 MW of Deficiency)

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

Bogue Sub-area

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

LCR: 136 MW (includes 47 MW of QF and 44 MW of Deficiency)

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

Critical Sierra Area Contingencies South of Palermo

South Of Palermo Sub-area

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

LCR: 1632 MW (includes 364 MW of QF and Muni generation as well as 584 MW of Deficiency)

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

South Of Palermo Sub-area – Category B

Contingency: Palermo-Pease 115 kV line with Belden unit out of service

LCR: 1191 MW (includes 364 MW of QF and Muni generation as well as 143 MW of Deficiency)

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

Critical Sierra Area Contingencies

Colgate

Colgate Sub-area

Contingency: Colgate 230/60 kV transformer followed by Pease-Marysville 60 kV line

LCR: 114 MW (includes 41 MW of QF and Muni generation as well as 73 MW of Deficiency)

Limiting component: Thermal overload on the Palermo-Colgate 60 kV line

Colgate Sub-area – Category B

Contingency: Colgate 230/60 kV transformer

LCR: 55 MW (includes 41 MW of QF and Muni generation as well as 14 MW of Deficiency)

Limiting component: Thermal overload on the Palermo-Colgate 60 kV line

Critical Sierra Area Contingencies

Drum-Rio Oso

Drum-Rio Oso Sub-area

Contingency: Rio Oso #2 230/115 kV transformer followed by Rio Oso-Brighton 230 kV line

LCR: 676 MW (includes 418 MW of QF and Muni generation)

Limiting component: Thermal overload on the Rio Oso #1 230/60 kV Transformer

Drum-Rio Oso Sub-area – Category B

Contingency: Rio Oso #2 230/115 kV transformer

LCR: 461 MW (includes 418 MW of QF and Muni generation)

Limiting component: Thermal overload on the Rio Oso #1 230/60 kV Transformer

Critical Sierra Area Contingencies South of Rio Oso

South of Rio Oso Sub-area

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

LCR: 434 MW (includes 291 MW of QF and Muni generation as well as 67 MW of Deficiency)

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

South of Rio Oso Sub-area – Category B

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

LCR: 293 MW (includes 291 MW of QF and Muni generation)

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

Critical Sierra Area Contingencies

Placer

Placer Sub-area

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

LCR: 140 MW (includes 0 MW of QF and Muni generation as well as 116 MW of Deficiency)

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

Placer Sub-area – Category B

Contingency: Drum-Higgins 115 kV line with the Halsey unit out of service

LCR: 37 MW (includes 0 MW of QF and Muni generation as well as 13 MW of Deficiency)

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

Critical Sierra Area Contingencies

Placerville

Placerville Sub-area

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

LCR: 118 MW (includes 0 MW of QF and Muni generation as well as 89 MW of Deficiency)

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

Placerville Sub-area – Category B

Contingency: Gold Hill-Clarksville 115 kV line with one of the El Dorado units out of service

LCR: 34 MW (includes 0 MW of QF and Muni generation as well as 5 MW of Deficiency)

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

Critical Sierra Area Contingencies

Aggregate

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	216	796	768	1780

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW LCR
Category B (Single)	1453	226	1679
Category C (Multiple)	1617	703	2320

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 the 2008 LCR study

Total Sierra LCR has increased

- Load forecast is up by 35 MW
- New project Table Mountain – Rio Oso Reconductor and Tower Upgrade has reduced the resource needs (therefore lowered procurement)
- Overall the procurement needed has decreased by 163 MW
- Deficiency has increased mainly because some project that were originally modeled in the 2008 base cases now have been delayed after summer 2009. These projects are:
 1. Atlantic-Lincoln 115 kV Upgrade
 2. South of Palermo 115 kV Reconductoring
 3. New Pease-Marysville # 2 60 kV line
- Overall the LCR has increased by 228 MW

Stockton Area Load and Resources (MW)

		2009
Load	=	1409
Transmission Losses	=	27
Total Load	=	1436
Market Generation	=	265
Muni Generation	=	188
QF Generation	=	88
Total Qualifying Capacity	=	541

Critical Stockton Area Contingencies

Tesla-Bellota Sub-area

Tesla-Bellota Sub-area

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

LCR: 524 MW (includes 201 MW of QF and Muni generation as well as 57 MW of Deficiency).

Limiting component: Thermal overload on the Manteca-Ingram Creek section of the Tesla-Salado-Manteca 115 kV line.

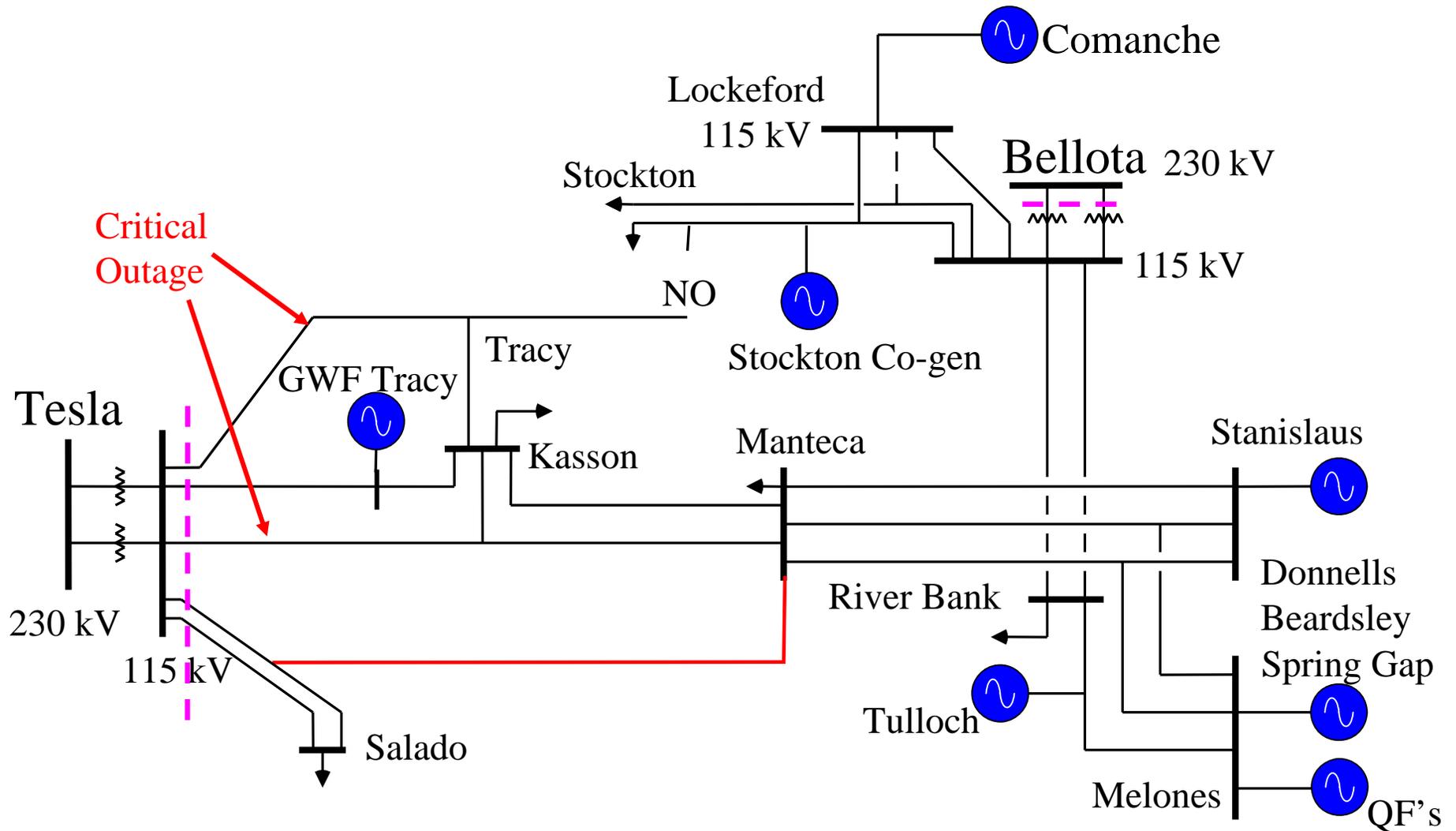
Tesla-Bellota Sub-area – Category B

Contingency: Tesla-Kasson-Manteca 115 kV line and the loss of Stanisls #1.

LCR: 496 MW (includes 201 MW of QF and Muni generation as well as 29 MW of Deficiency).

Limiting component: Thermal overload on the Manteca-Ingram Creek section of the Tesla-Salado-Manteca 115 kV line.

Tesla-Bellota 115 kV Area Transmission



Critical Stockton Area Contingencies

Lockeford Sub-area

Lockeford Sub-area

Contingency: Lockeford-Industrial 60 kV line and Lockeford-Lodi #2 60 kV line

LCR: 88 MW (includes 25 MW of QF and Muni generation as well as 63 MW of Deficiency)

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

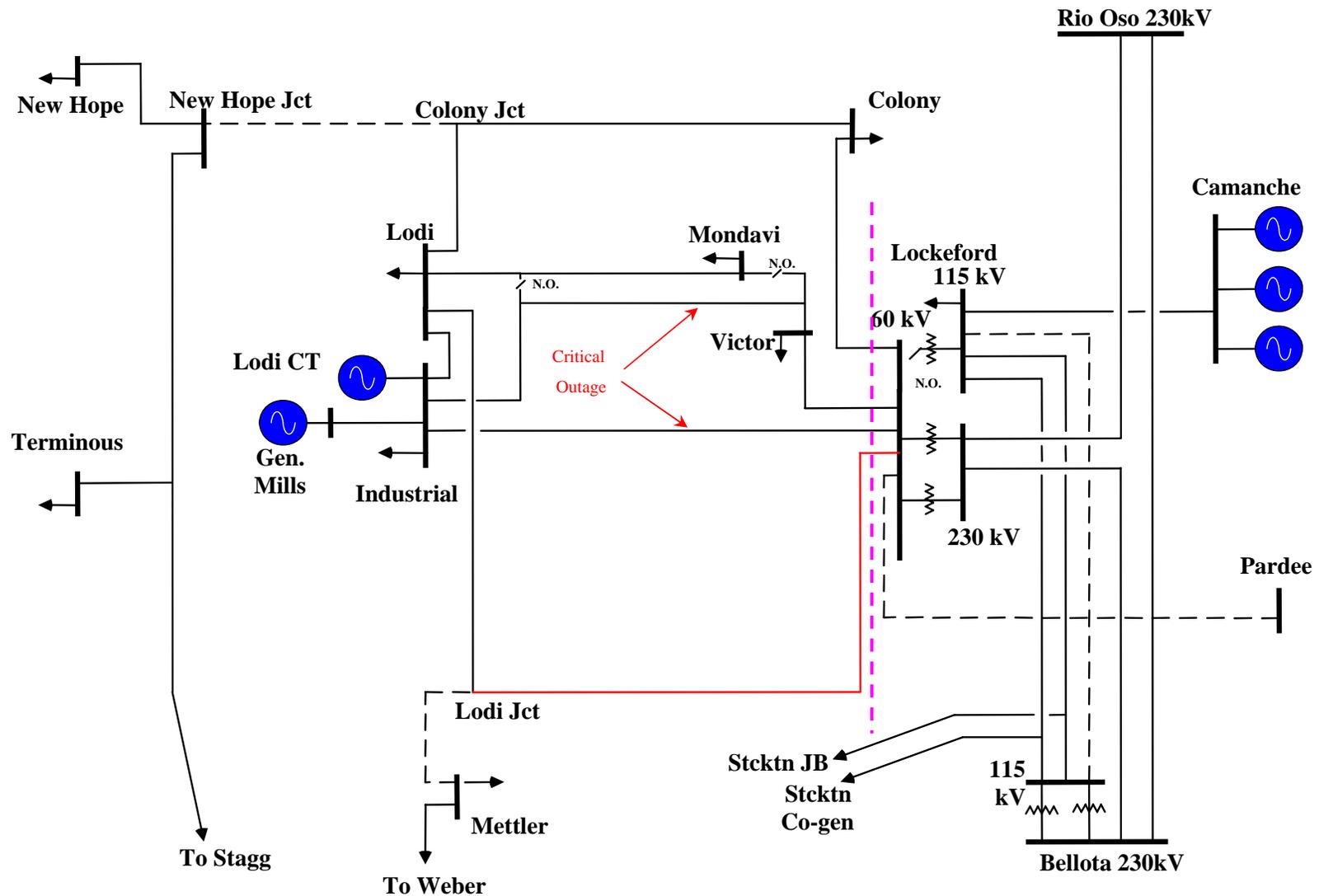
Lockeford Sub-area – Category B

Contingency: Lockeford-Industrial 60 kV line with Lodi CT out of service

LCR: 30 MW (includes 25 MW of QF and Muni generation as well as 5 MW of Deficiency)

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

Lockeford 60 kV Area Transmission



Critical Stockton Area Contingencies

Stagg Sub-area

Stagg Sub-area

Contingency: Tesla-Stagg 230 kV line and Tesla-Eight Mile 230 kV line

LCR: 115 MW (includes 50 MW of Muni generation as well as 65 MW of Deficiency)

Limiting component: Post-contingency steady-state voltages less than 0.92 p.u. at Mosher 60 kV bus

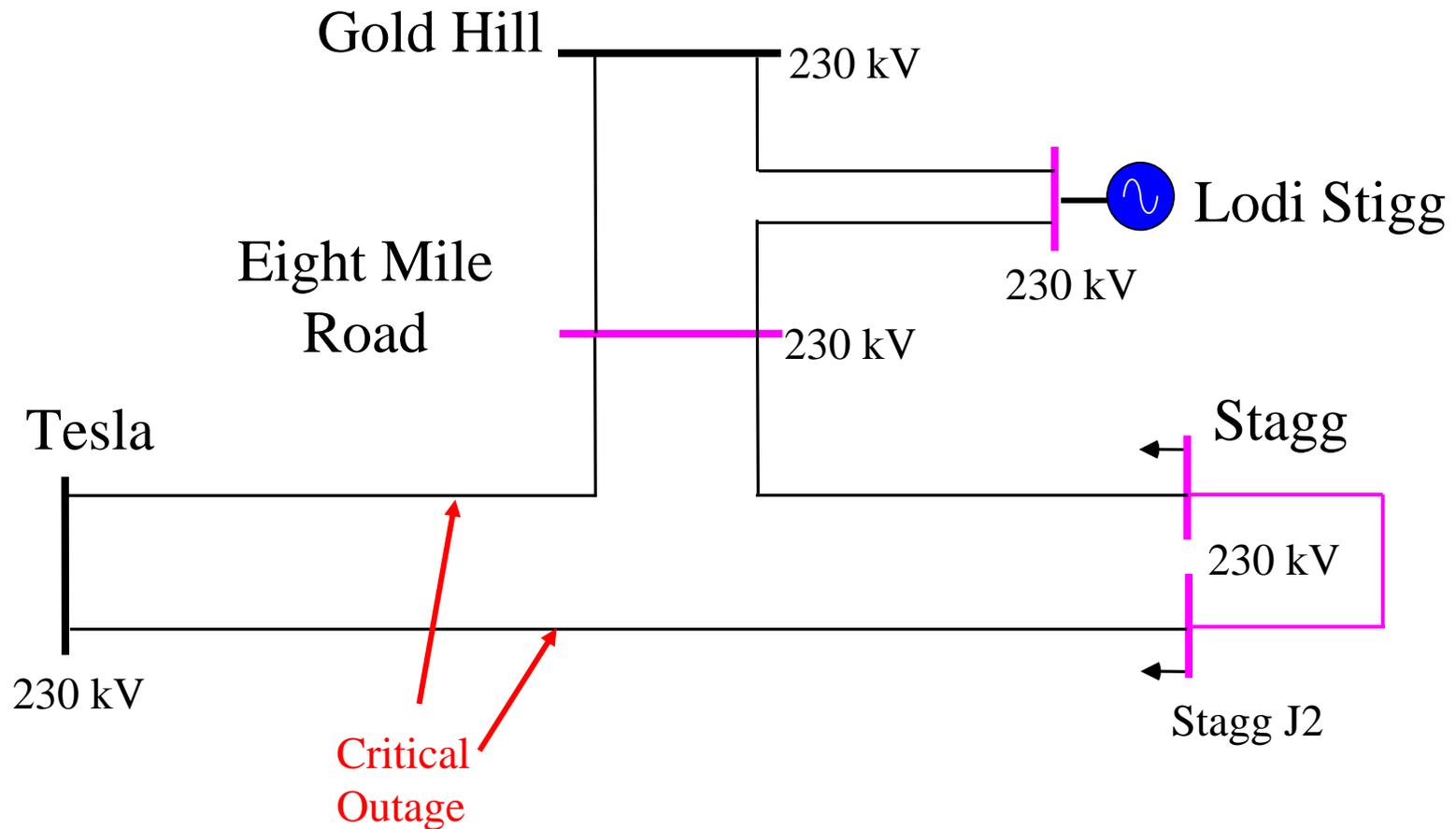
Stagg Sub-area – Category B

Contingency: None

LCR: 0 MW

Limiting component: None

Stagg 230 kV Area Transmission



Critical Stockton Area Contingencies Aggregate

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	88	188	265	541

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW LCR
Category B (Single)	491	34	525
Category C (Multiple)	541	185	726

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 the 2008 LCR study

Total Stockton LCR has increased

- Load forecast is up by 106 MW
- All the resources were needed in 2008 and there is no change in 2009 as such procurement will not change
- The Deficiency has decreased significantly due to an updated model for the capacitors connected directly to the distribution banks at Stagg 230 kV bus
- Overall the total LCR has decreased by 60 MW

Stakeholder Comments



Your comments and questions are welcome

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