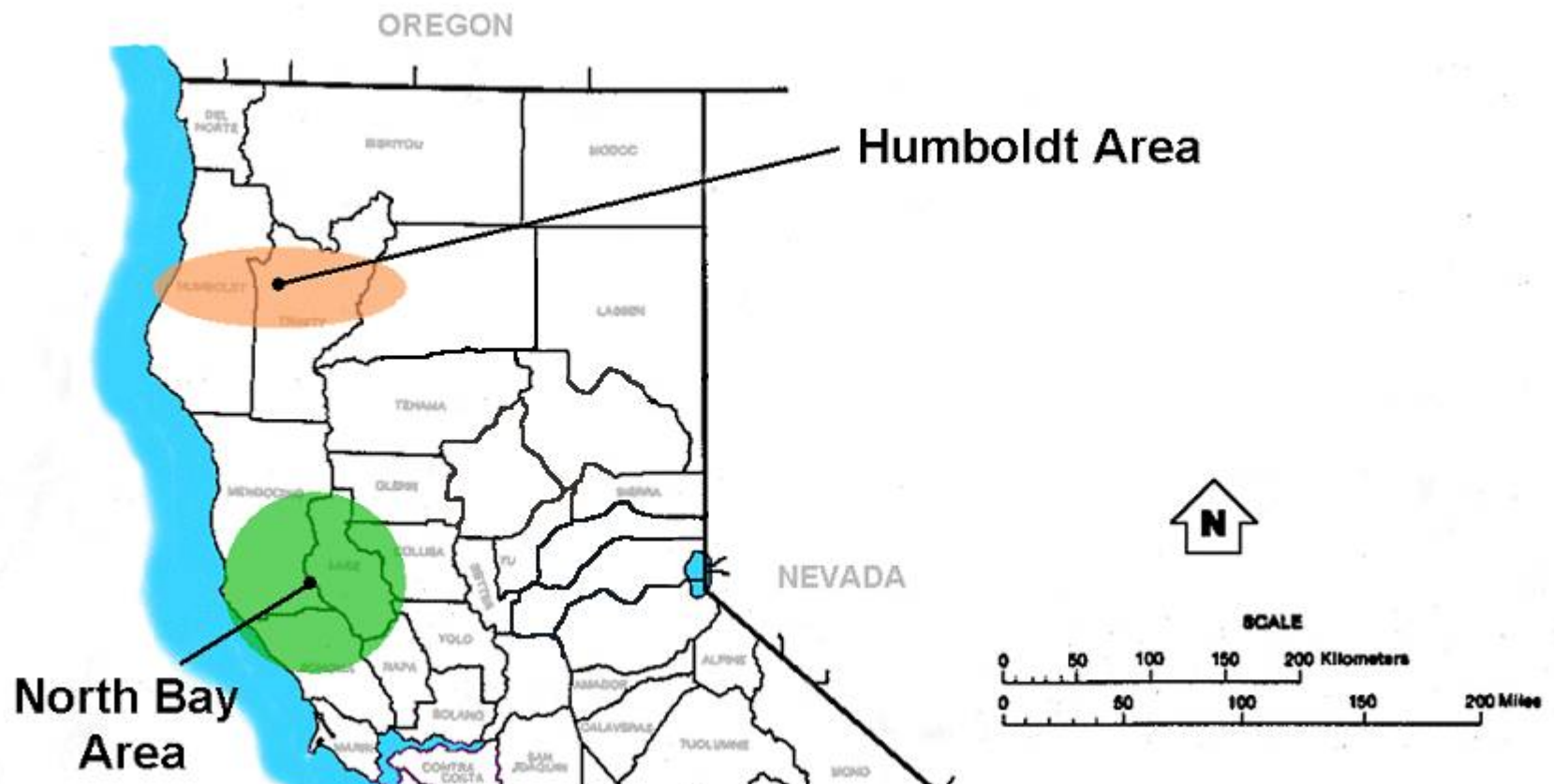


Year 2007 LCR Study

Humboldt, North Coast and North Bay in PG&E System

Summary of Findings

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April 26, 2006

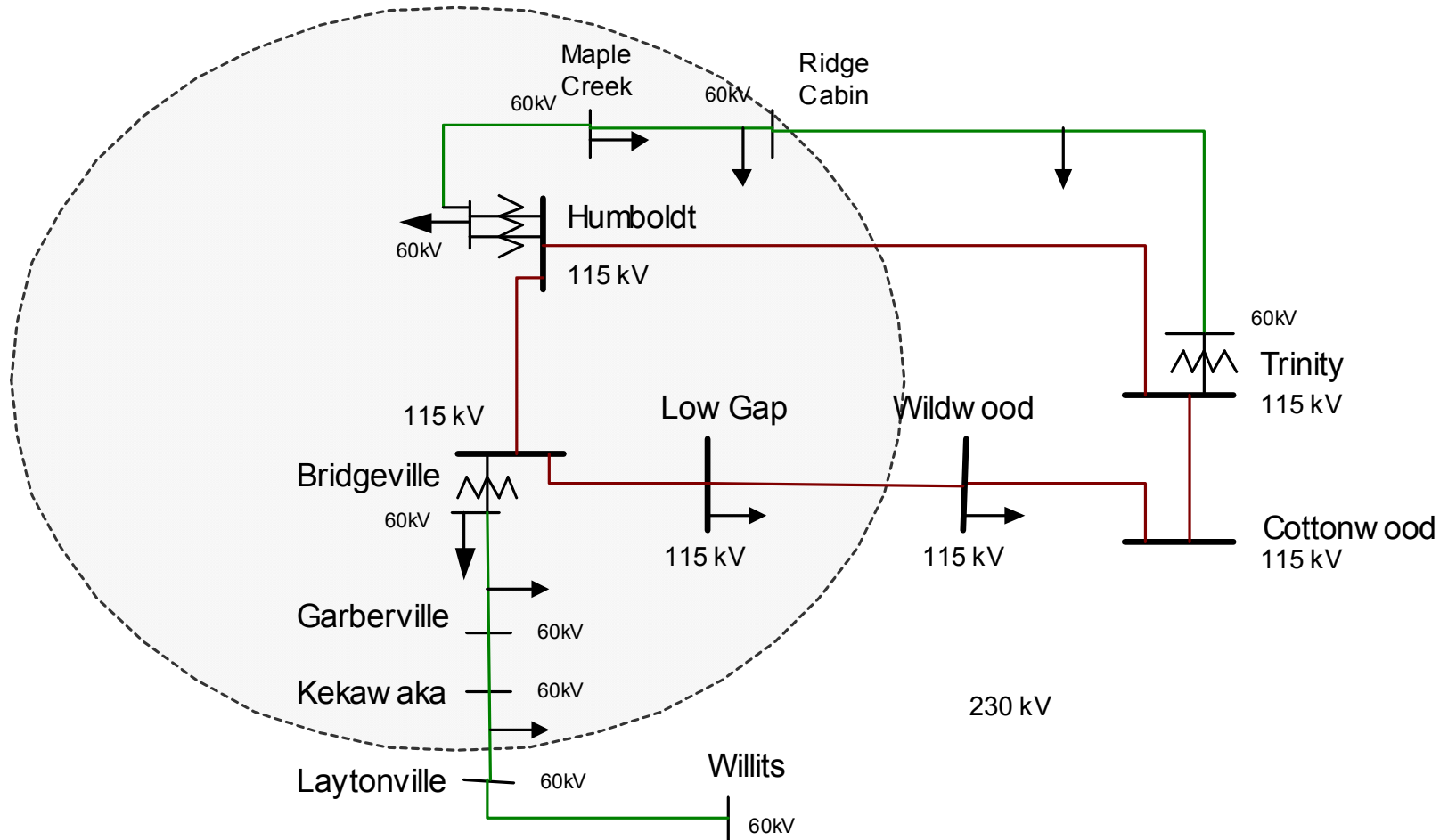


Humboldt Area Load and Resources

(MW)

		2007
Load	=	191
Transmission Losses	=	6
Total Load	=	197
Market Generation	=	133
Muni Generation	=	0
QF/Self-Gen Generation	=	73
Total Qualifying Capacity	=	206

Humboldt



Humboldt Area

Critical Contingency

Contingency of Cottonwood-Bridgeville 115 kV line and one of Humboldt Bay Power Plant.

Limitation

Limited by reactive margin in the area

Local Capacity Requirement

LCR of 202 MW (QF/Self Gen generation 73¹ MW)

¹Qualified capacity of QF/Self Gen in the area which is higher than the historical MW dispatched in the base case.

Critical Humboldt Contingencies

	QF (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	73	0	133	206

	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Requirement
Category B (Single)	202	0	202

Changes since the 2006 LCR study

2006 Study

Since the information of qualify capacities for QG/Self-gen was not available at that time, the requirements for QF/Self-gen in 2006 was represented by the historical output of these units.

2007 Study

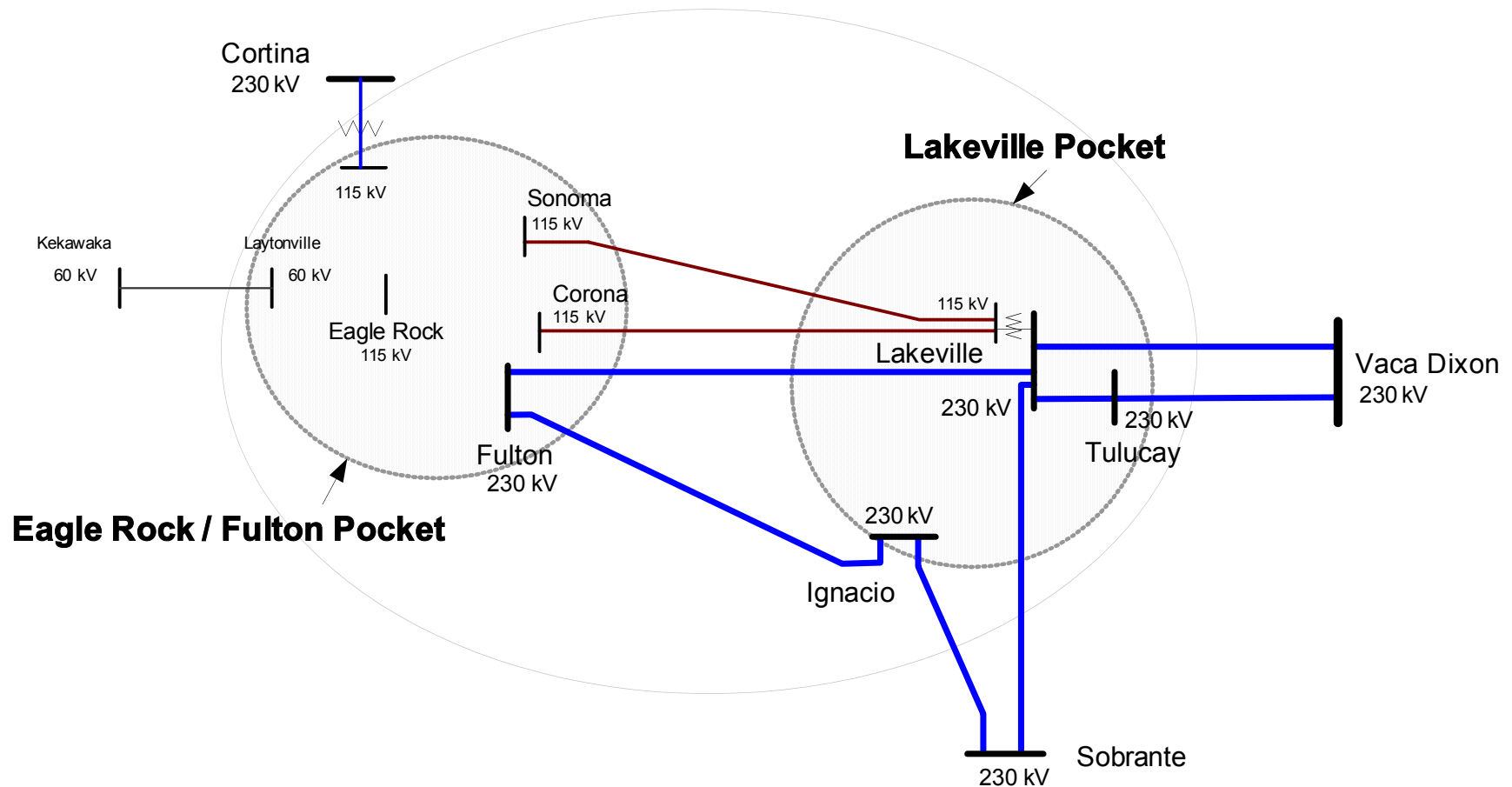
Information of the qualify capacity now become available and the requirements for QF/Self-gen units are represented by qualify capacity of these units. Table below compares the historical dispatch of QF/Self-gen units in Humboldt area with their qualify capacities.

Unit	Historical Dispatch (MW)	Qualifying Capacity (MW)
Kekawaka	0	5.3
Pacific Lumber	10	25
LP Samoa	12	25
Fair Haven	15.9	17.2
Total	37.9	72.5

North Coast/North Bay Area Load and Resources (MW)

		2007
Load	=	1457
Transmission Losses	=	56
Total Load	=	1513
Market Generation	=	861
Muni Generation	=	0
QF Generation	=	158
Total Qualifying Capacity	=	1019

North Coast / North Bay



Critical North Coast/Bay Area Contingencies

Eagle Rock/Fulton Sub-area

Critical Contingency: The outage of Fulton-Ignacio 230 kV line #1 followed by Fulton-Lakeville 230 kV line #1

Limitation: Thermal overload on Sonoma-Pueblo 115 kV line #1

Local Capacity Requirement: 371 MW (QF generation 80¹ MW). Out of this amount, 182 MW is required among the units connected directly to the Eagle Rock substation (includes 21¹ MW of QF generation).

¹Qualified capacities of QF units are now available and these numbers are used instead of historical generation.

Lakeville Sub-area (LCR requirement for the overall North Coast/North Bay area¹)

Critical Contingency: The outage of Vaca Dixon-Tulucay 230 kV line #1 and Geysers 13

Limitation: Thermal overload on Lakeville-Vaca Dixon 230 kV line #1

Local Capacity Requirement: 766 MW (QF and Muni generation 158² MW)

¹ LCR requirement for Eagle Rock/Fulton pocket can be counted toward the requirement of Lakeville pocket

² Qualified capacities of QF units are now available and these numbers are used instead of historical generation.

Changes since the 2006 LCR study

2006 Study

Since the information of qualify capacities for QG/Self-gen was not available at that time, the requirements for QF/Self-gen in 2006 was represented by the historical output of these units.

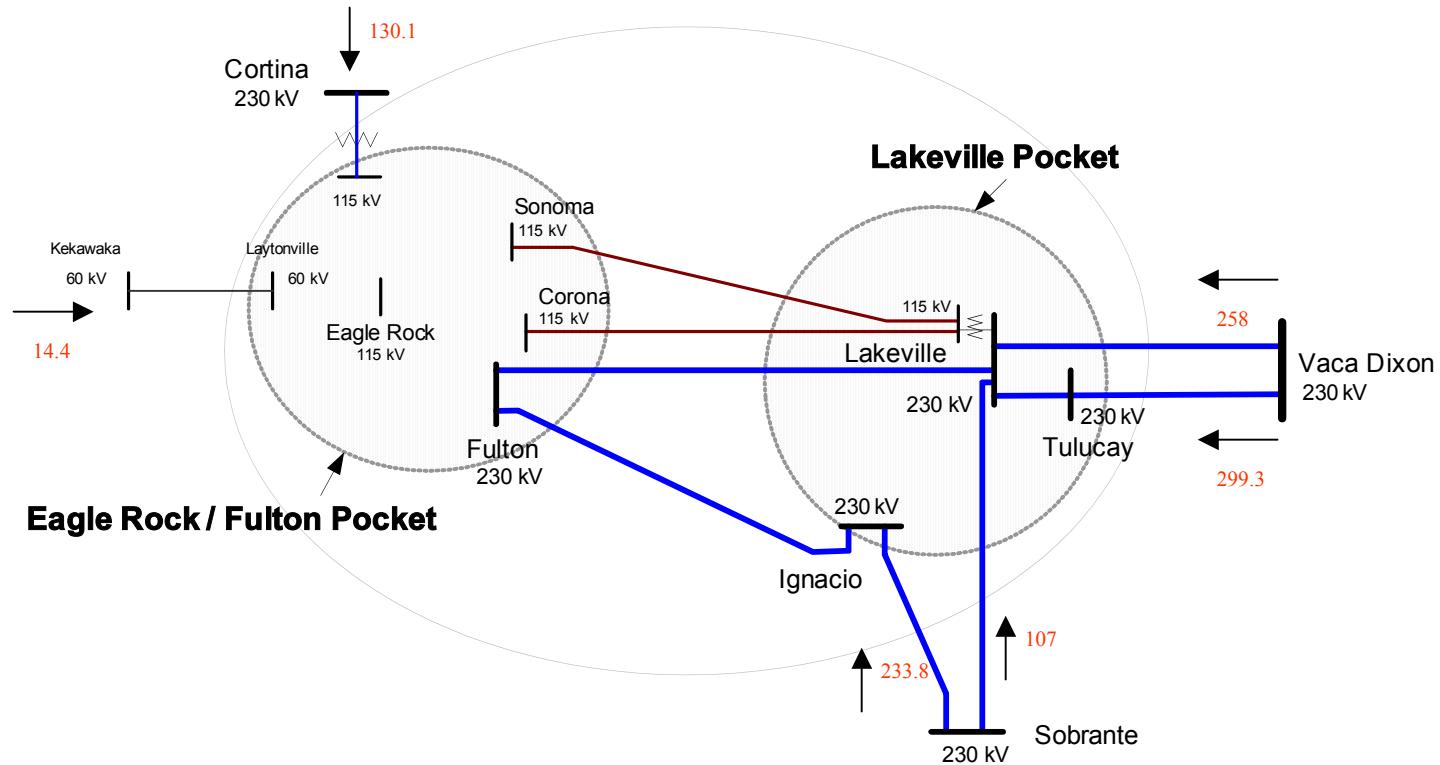
2007 Study

The following are the changes in this area for 2007 study:

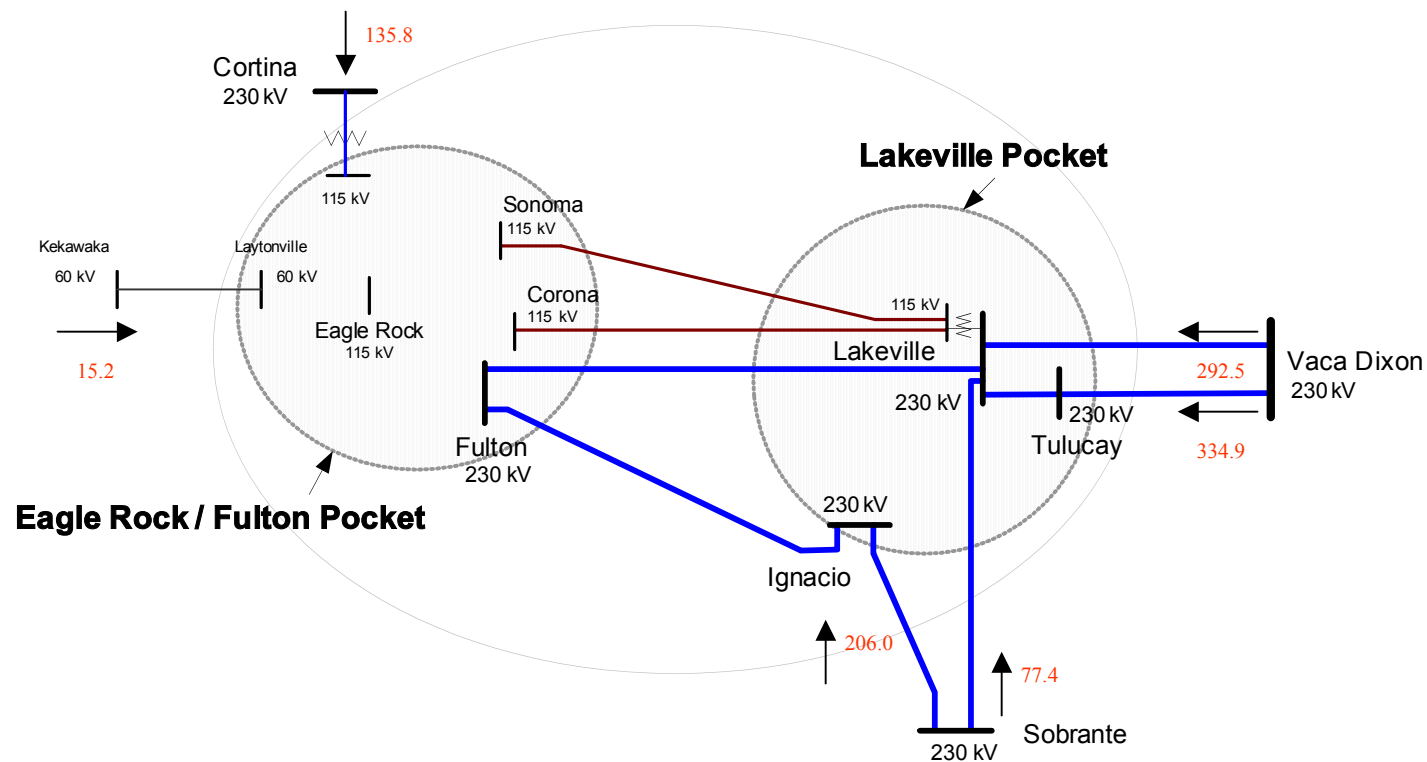
- 1) Load growth in the area is approximately 38 MW higher than last year.
- 2) Revisions of the impedance of transmission lines in the area associated with the new Fulton-Lakeville 230 kV line.
- 3) Changes in system conditions result in slightly higher flow to the area from Vaca-Dixon through Vaca-Lakeville and Vaca-Tulucay 230 kV lines.
 - A shift of limiting conditions to a new normal overload caused by L-1/G-1.
 - No operating procedure currently available for this contingency/overloaded facility.
- 4) For this limiting conditions, effectiveness factors of units in the area to mitigate the overload are much lower than last's year N-2 limiting conditions (22-25% comparing to 82-85%) →
More MW requirements to back off each MW flow on the overloaded facility.

BACKUP SLIDES

Normal Flow – 2006 base case

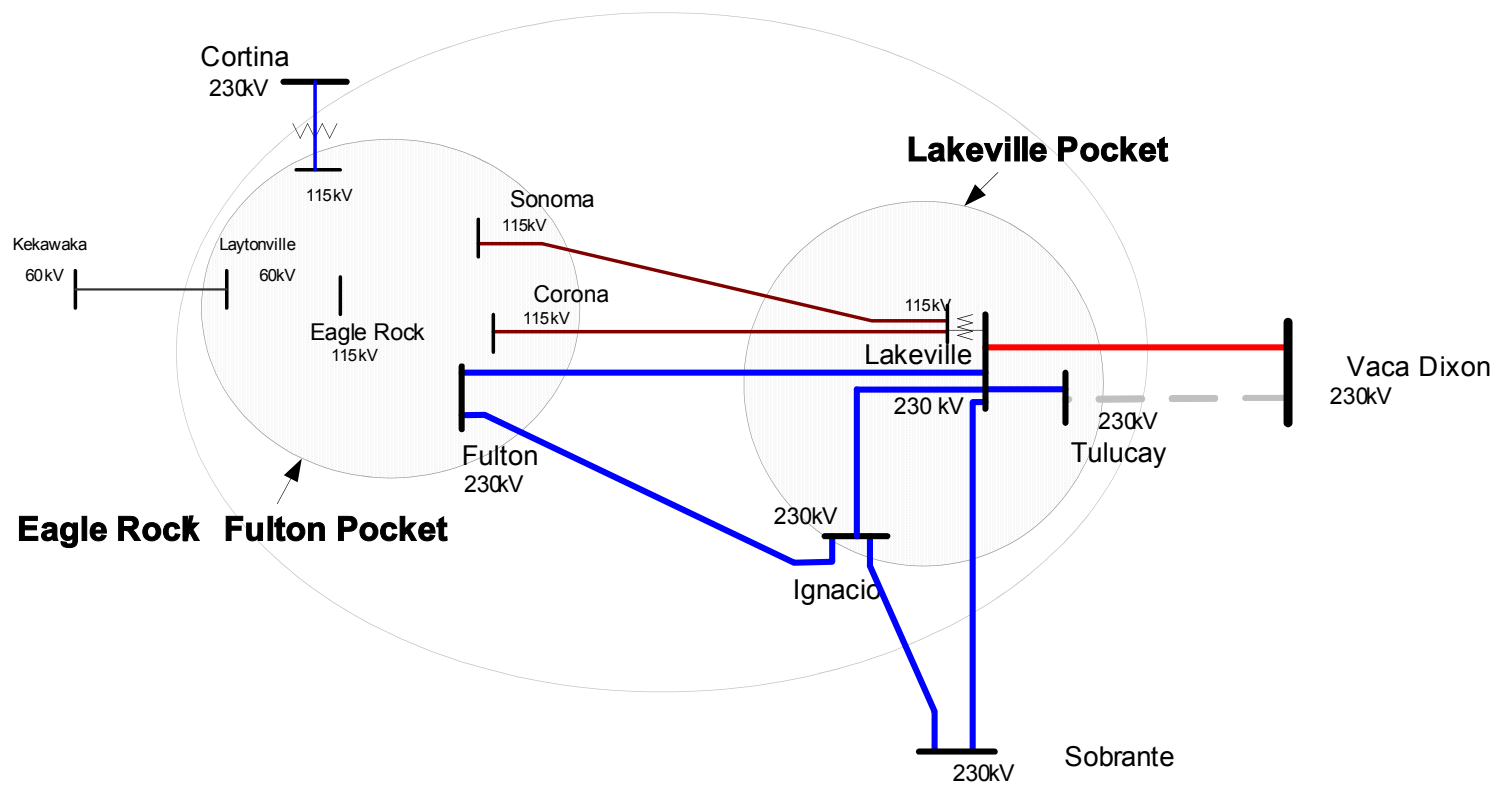


Normal Flow – 2007 base case



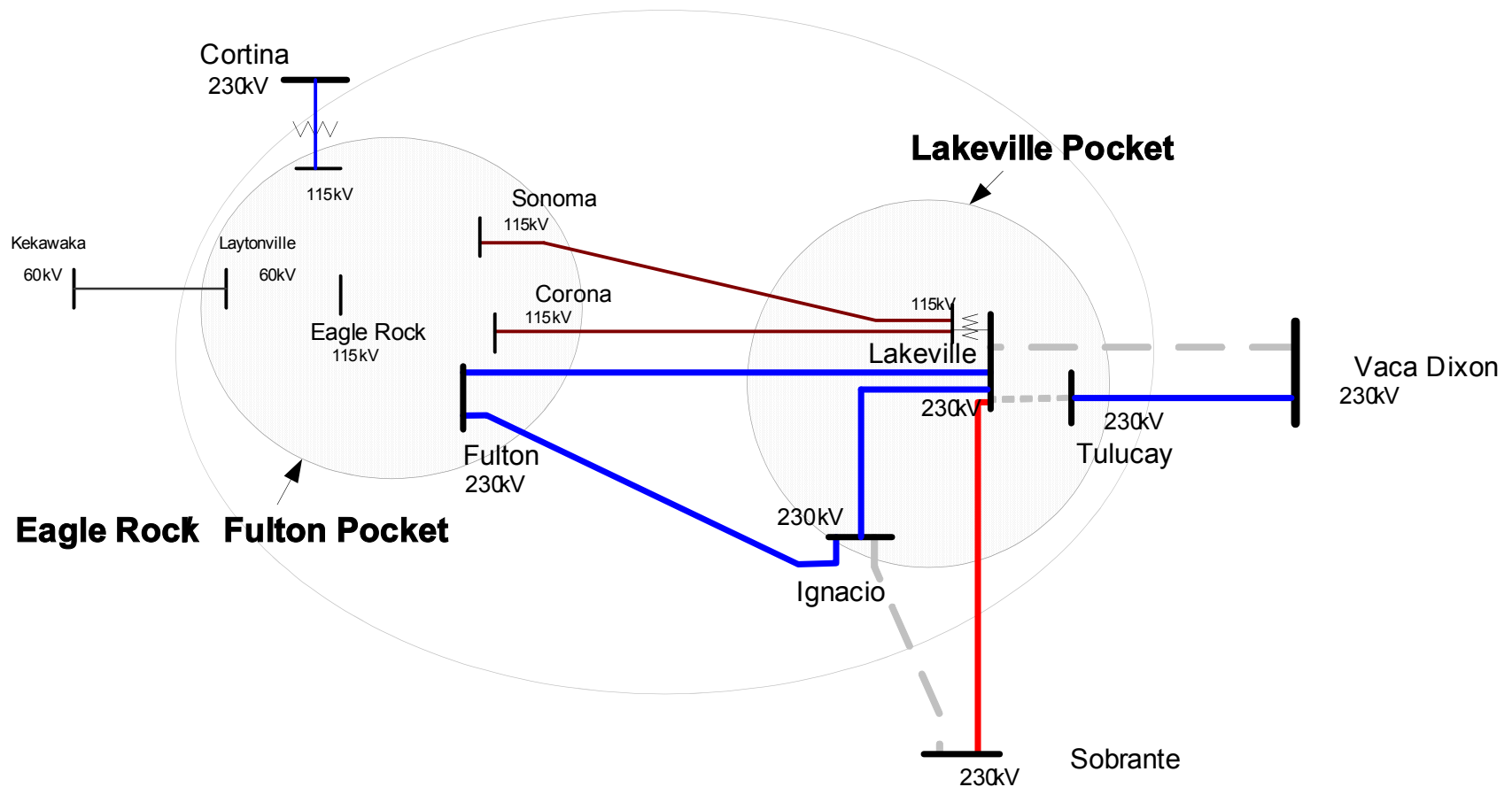
Approx 70 MW higher from Vaca-Dixon

B Contingency



Fulton-Lakeville Eff Fctr 22-25%

C-Contingency + Operating Procedure



Fulton-Lakeville Eff Fctr 85-88%