

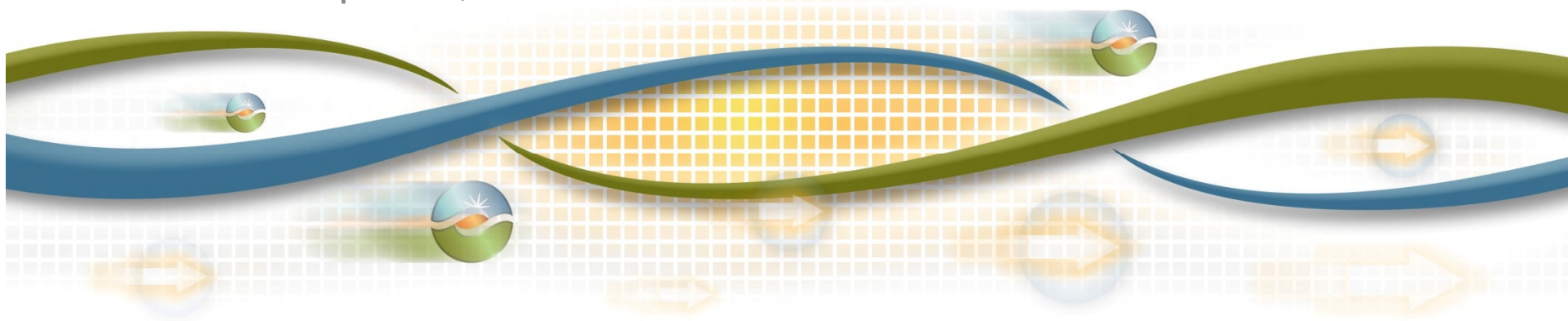
2012 Final LCR Study Results Humboldt and North Coast/ North Bay

Irina Green

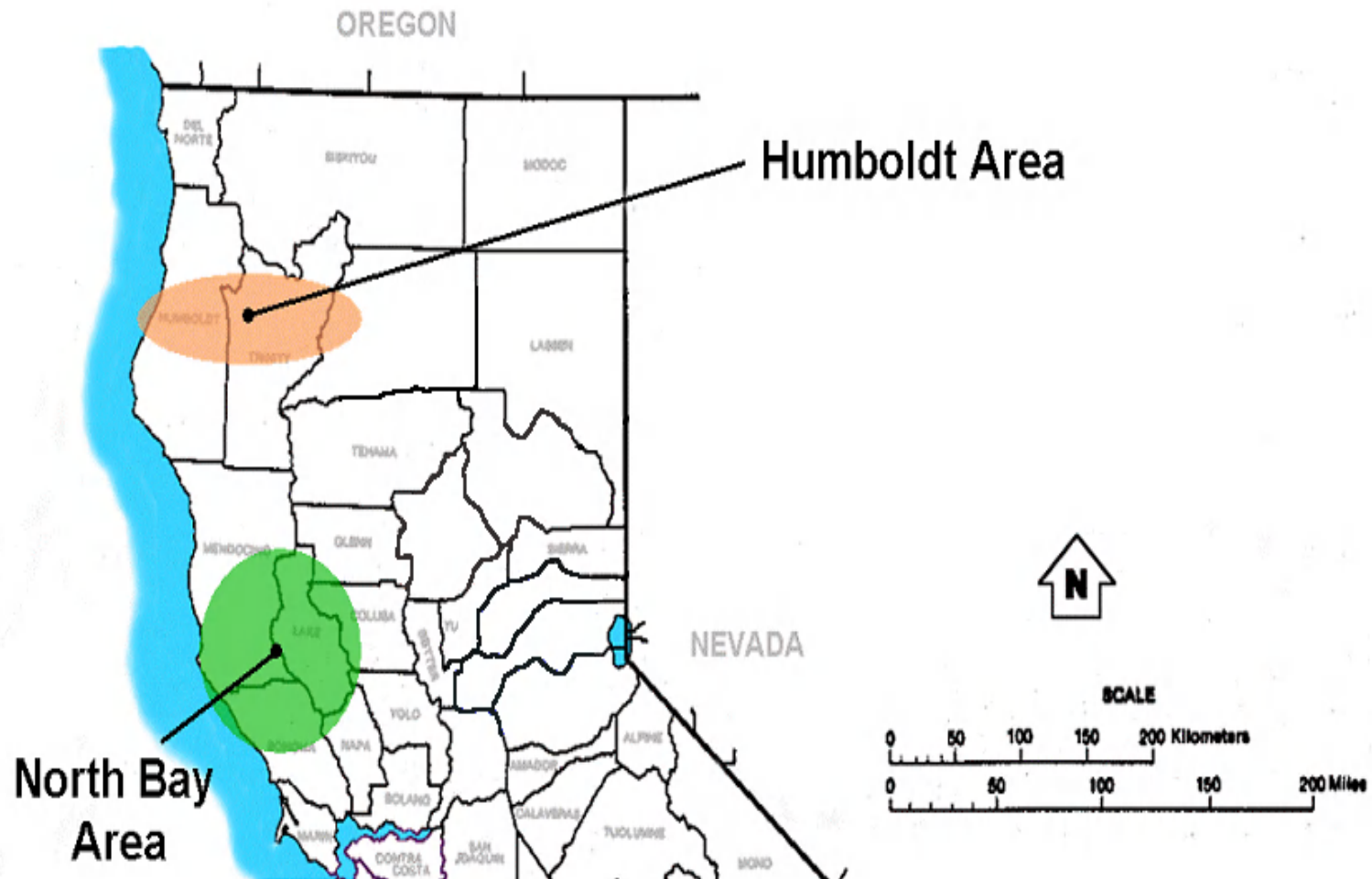
Senior Regional Transmission Engineer

Stakeholder Meeting

April 14, 2011



Humboldt and North Coast/North Bay



Humboldt Load and Resources (MW)

2012

Load = 200

Transmission Losses = 10

Total Load = **210**

Market Generation = 168

Muni Generation = 0

QF/Self-Gen Generation = 54

Total Qualifying Capacity = **222**

The diagram illustrates the Humboldt Bay area power system, showing the following components and connections:

- Humboldt Bay:** The central hub, connected to Pacific Lumber and Garberville. It has a 115 kV bus and a 60 kV bus.
- Trinity:** Connected to Humboldt Bay via a 115 kV line. It has a 115 kV bus and a 60 kV bus.
- Bridgeville:** Located between Humboldt Bay and Trinity on the 115 kV line. It has a 115 kV bus and a 60 kV bus.
- Low Gap:** Located between Bridgeville and Wildwood on the 115 kV line. It has a 115 kV bus.
- Wildwood:** Located between Low Gap and Cottonwood on the 115 kV line. It has a 115 kV bus.
- Cottonwood:** The southernmost substation on the 115 kV line. It has a 115 kV bus.
- Garberville:** Connected to Humboldt Bay via a 60 kV line. It has a 60 kV bus.
- Kekawaka:** Connected to Garberville via a 60 kV line. It has a 60 kV bus.
- Laytonville:** Connected to Kekawaka via a 60 kV line. It has a 60 kV bus.
- Maple Creek:** Connected to Humboldt Bay via a 60 kV line. It has a 60 kV bus.
- Ridge Cabin:** Connected to Maple Creek via a 60 kV line. It has a 60 kV bus.
- 60 kV System:** A separate 60 kV system connected to Humboldt Bay via a 60 kV line.

The diagram uses color-coding to distinguish between voltage levels: green lines for 60 kV and red lines for 115 kV. Blue arrows indicate the direction of power flow.

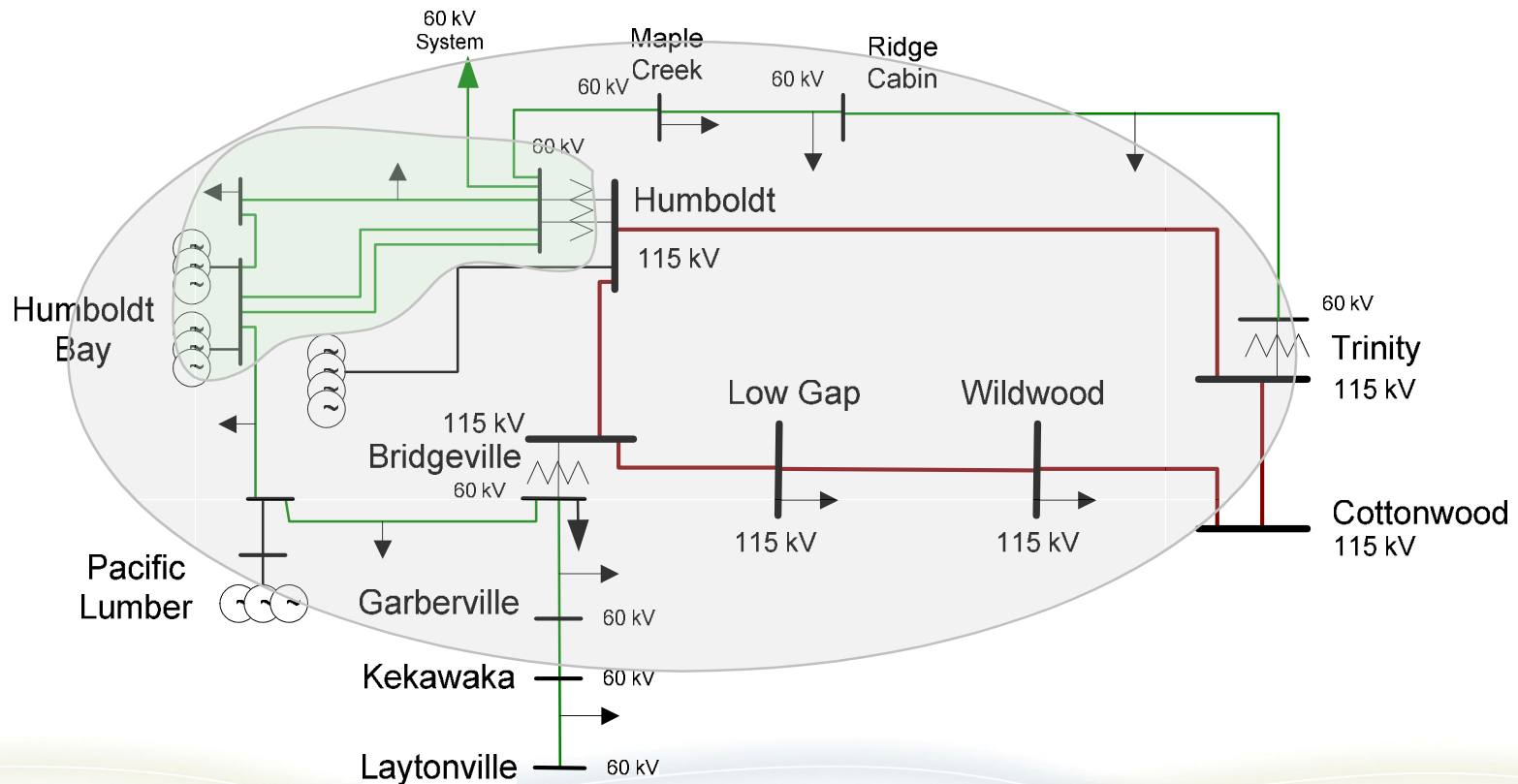
Critical Contingencies

Humboldt Area

Two types of requirements:

Humboldt 60 kV Pocket

Entire Humboldt area



Critical Contingencies

Humboldt 60 kV Sub-area

Humboldt 60 kV Sub-area – Category B

Contingency: An outage of one Humboldt 115/60 kV Transformer

LCR need: 129 MW (including 54 MW of QF/Self generation)

Limiting component: Thermal overload on the parallel Humboldt 115/60 kV Transformer

Humboldt 60 kV Sub-area – Category C

Contingency: An outage of one Humboldt 115/60 kV Transformer and one of the 60 kV tie-lines connecting Humboldt Bay units

LCR need: 177 MW (including 54 MW of QF/Self generation and 22 MW of deficiency)

Limiting component: Thermal overload on the parallel Humboldt 115/60 kV Transformer

Critical Contingencies Humboldt Area

Humboldt Overall – Category B

Contingency: An outage of Cottonwood-Bridgeville 115 kV line
with one of the Humboldt pp units out of service

LCR need: 159 MW (including 54 MW of QF/Self generation)

Limiting component: Thermal overload on the Humboldt
-Trinity 115 kV line

Humboldt Overall – Category C

Contingency: An outage of Cottonwood – Bridgeville 115 kV
line overlapping with an outage of the 115 kV
tie-line connecting the Humboldt Bay Units

LCR need: 190 MW (including 54 MW of QF/Self generation)

Limiting component: Thermal overload on the Humboldt –
Trinity 115kV Line

Changes

Since last year:

1. The new Blue Lake generation project connected to Essex Jct-Arcata-Fairhaven 60 kV line is modeled, however it is SGIP energy only (NQC = 0 MW).
2. Humboldt area load is 4 MW higher than last year.
3. LCR need is similar to the need of 2011. Total Existing Capacity needed for LCR is 2 MW higher.

Your comments and questions are welcomed

Please send written comments to:
RegionalTransmission@caiso.com

North Coast/Bay Load and Resources (MW)

2012

Load = 1386

Transmission Losses = 34

Total Load = **1420**

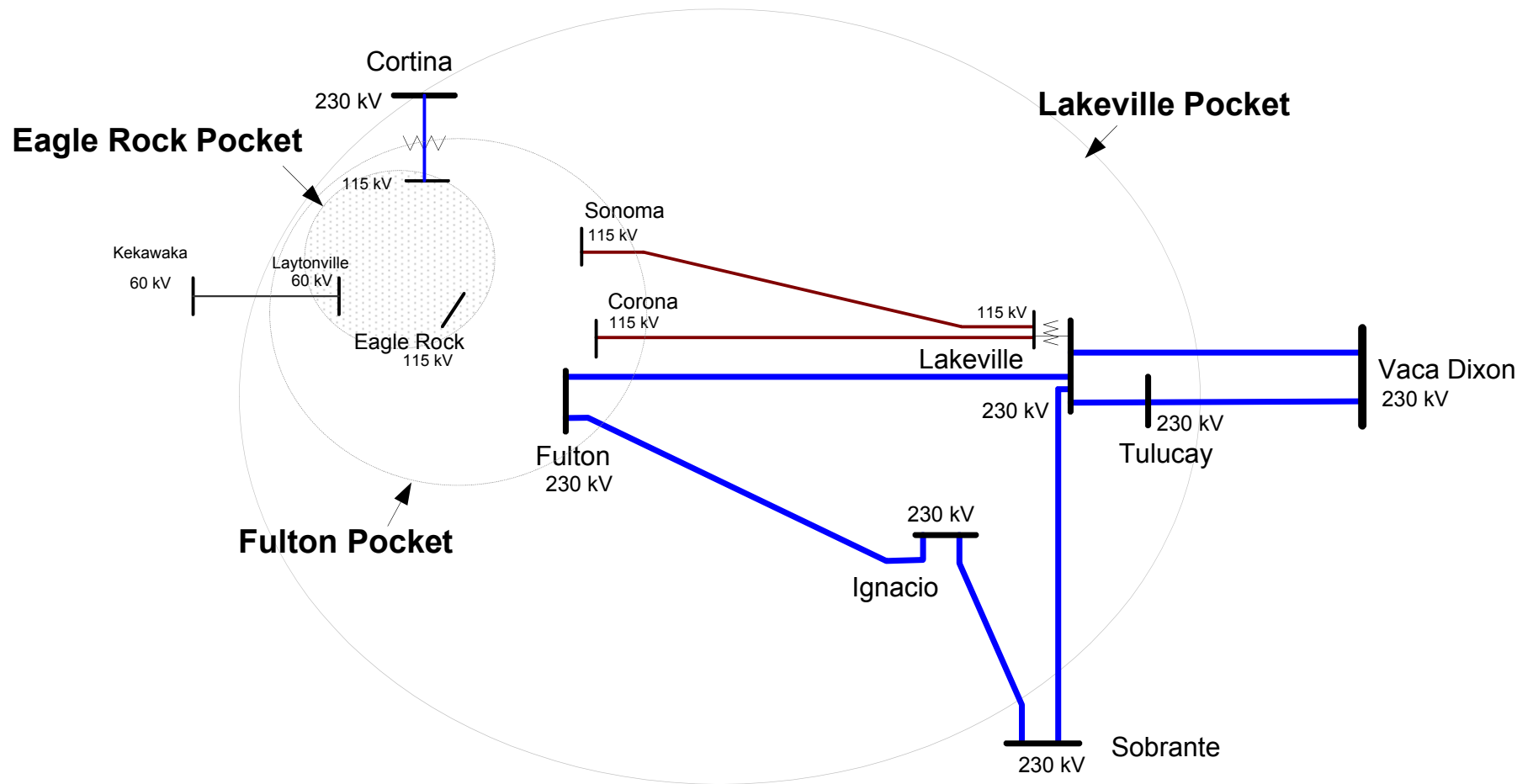
Market Generation = 728

Muni Generation = 113

QF Generation = 18

Total Qualifying Capacity = **859**

North Coast and North Bay



Eagle Rock Sub-Area

Eagle Rock Sub-area – Category B

Contingency: Cortina-Mendocino 115 kV

LCR need: 166 MW (includes 1 MW of QF/Muni generation)

Limiting component: Thermal overload on Eagle Rock-Cortina
115 kV line

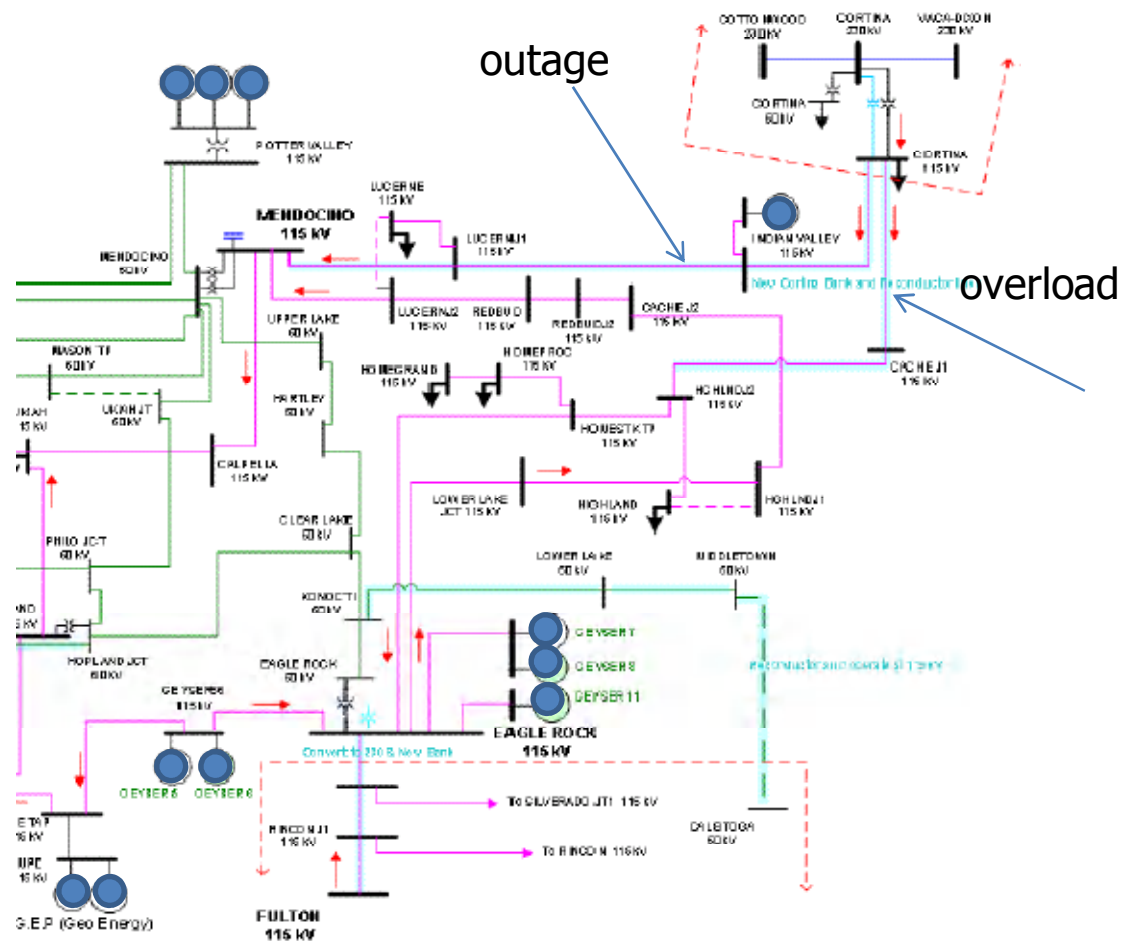
Eagle Rock Sub-area – Category C

Contingency: Cortina-Mendocino 115 kV and Fulton-Lakeville
230 kV line

LCR need: 207 MW (includes 1 MW of QF/Muni generation)

Limiting component: Thermal overload on Eagle Rock-Cortina
115 kV line

Eagle Rock Sub-Area



Fulton Sub-area

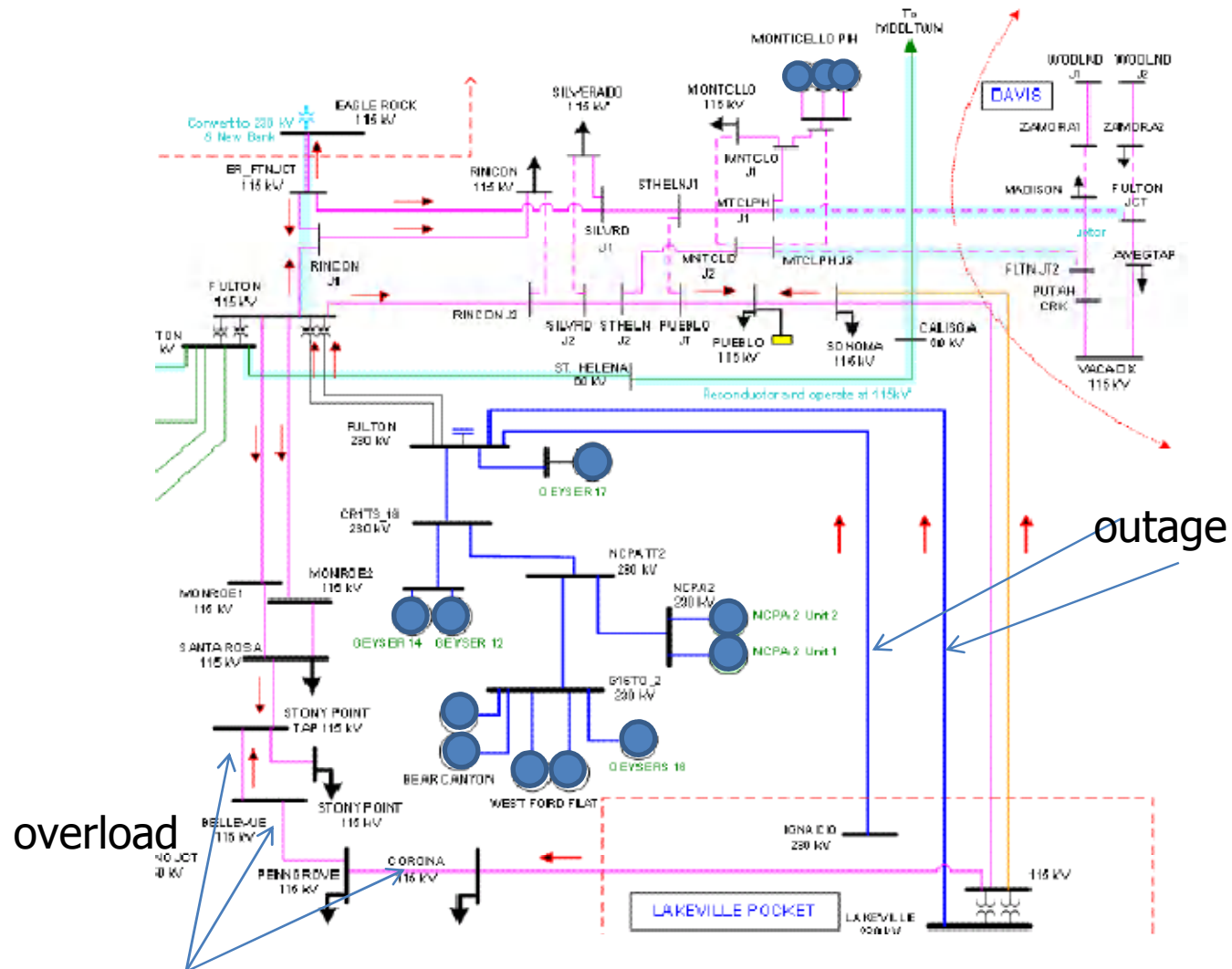
Fulton Sub-area – Category C

Contingency: Fulton-Lakeville 230 kV and Fulton-Ignacio 230 kV

LCR need: 293 MW (includes of 16 MW QF and 54 MW of Muni generation)

Limiting component: Thermal overload on Santa Rosa-Corona 115kV line

Fulton Sub-area



Lakeville Sub-area

Lakeville Sub-area (NC/NB Overall) – Category B

Contingency: Vaca Dixon-Tulucay 230 kV line and DEC power plant out of service

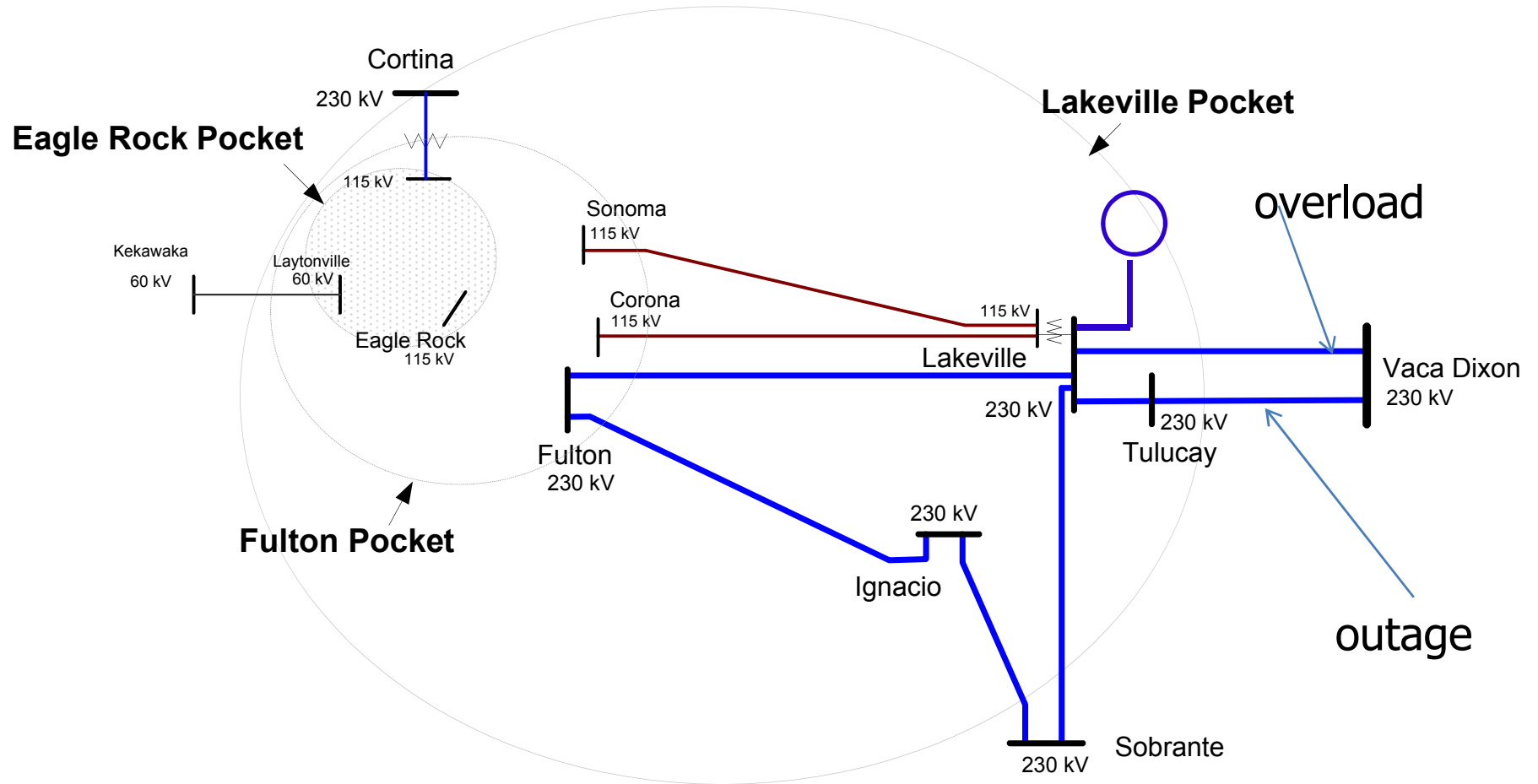
LCR need: 613 MW (includes 18 MW QF and 113 MW of Muni generation)

Limiting component: Thermal overload on the Vaca Dixon-Lakeville 230 kV line

Lakeville Sub-area (NC/NB Overall) – Category C

Not binding

Lakeville Sub-area



Changes

Since last year:

1. North Coast and North Bay area load is 154 MW (9.8%) lower than last year
2. Total LCR need has decreased by 121 MW

Since last stakeholder meeting:

1. Updated NQC
2. Bay Area and Pittsburg/Oakland area LCR increased due to correct modeling of CEC load forecast

Your comments and questions are welcomed

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