



California ISO
Shaping a Renewed Future

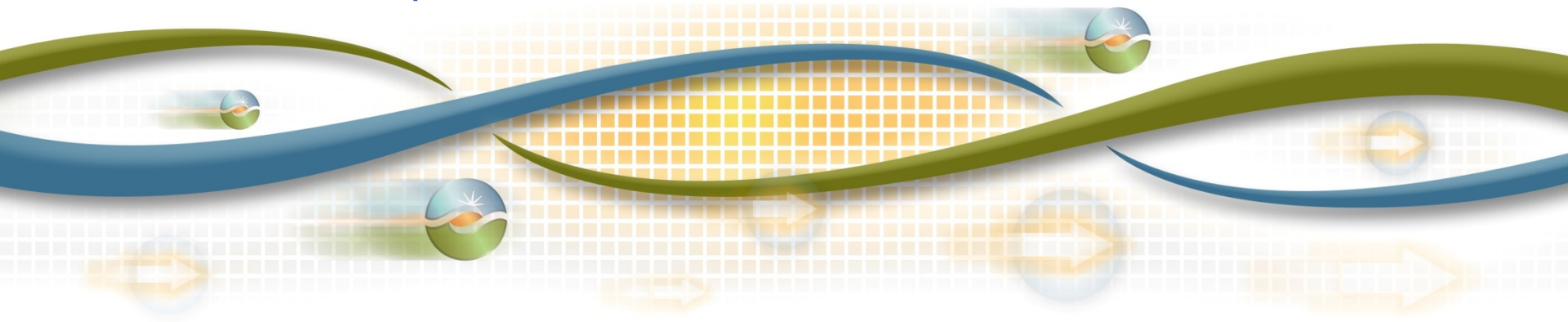
2012 Final LCR Study Results Fresno and Kern Local Areas

Abhishek Singh

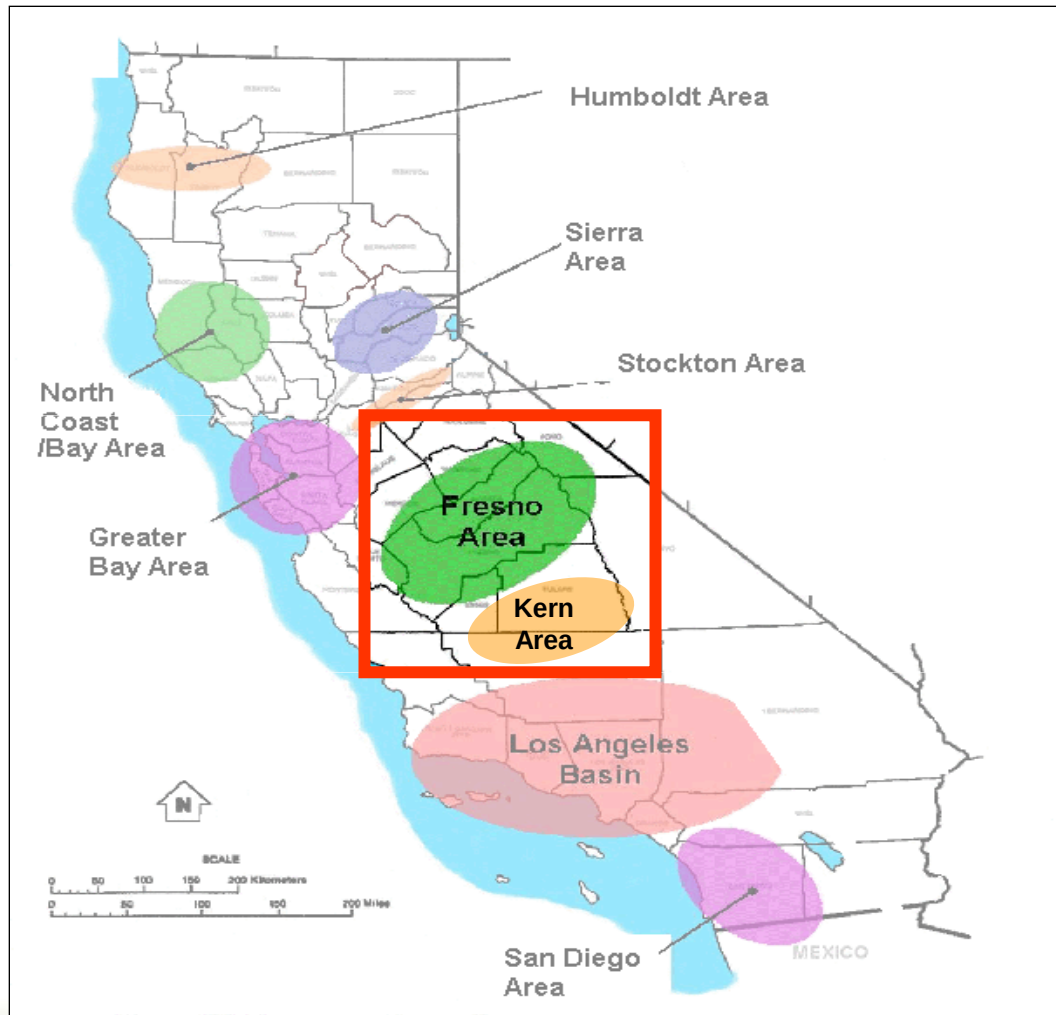
Senior Regional Transmission Engineer

Stakeholder Meeting

April 14, 2011



Fresno and Kern LCR Areas



Kern Area Overview

Area Generation, Load and Transmission

Kern LCR Area

Total Generation and Load:

- Generation (NQC): **611 MW**
- Load (1-in-10 Summer-Peak): **1110 MW**

Transmission Upgrades:

- Kern 3, 3a banks have been replaced by Kern Bank # 3

New resources:

- Three small generators (Energy only NQC=0 MW)

Kern Area LCR

Kern PP Sub-Area

Limiting Contingencies:

Category B:

- T-1: Kern PP 230/115 kV bank #5/#3

Category C:

- T-1: Kern PP 230/115 kV bank #5/#3
- L-1: Kern PP – Kern Front 115 kV line

Constrained Elements:

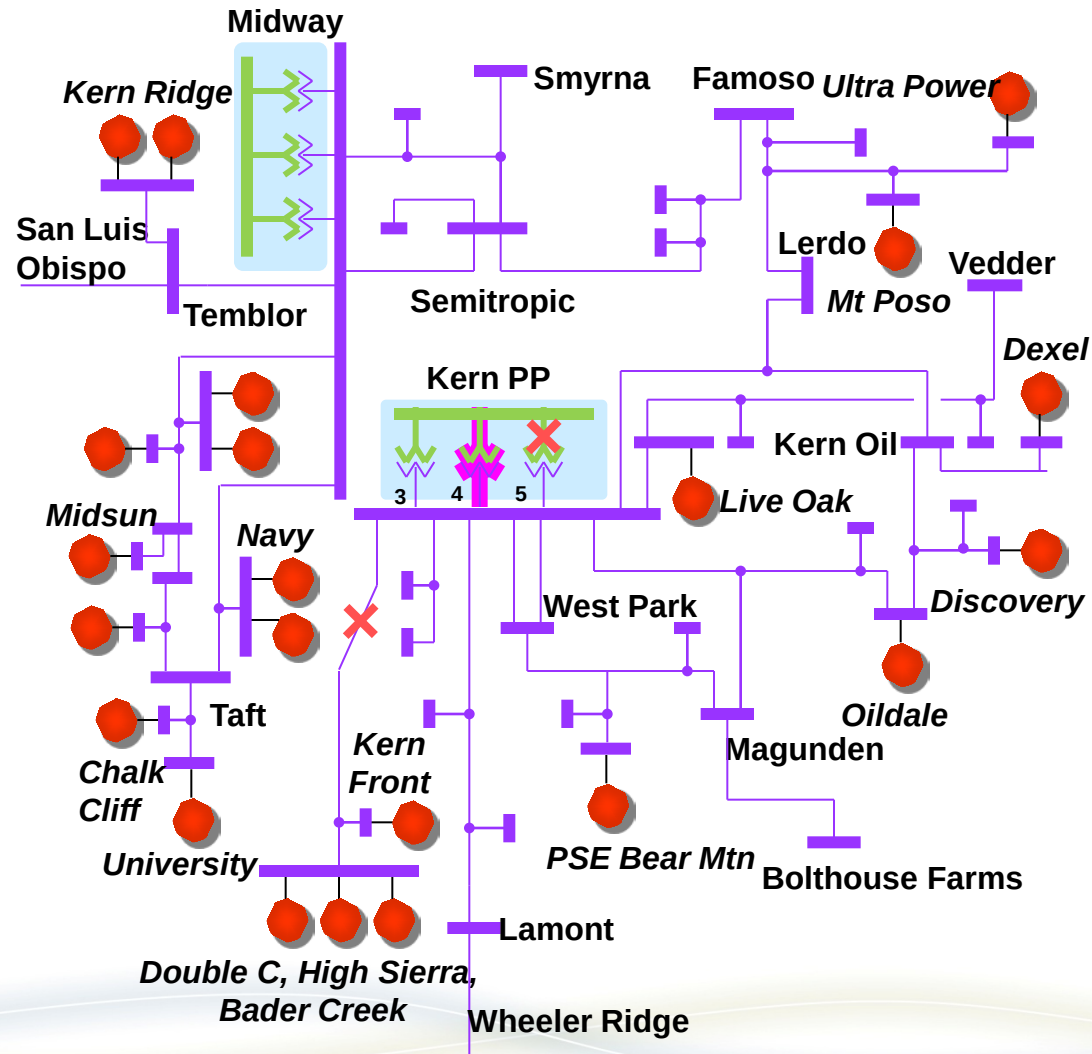
- Kern PP 230/115 kV bank #4

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	180	296

Including:

QF	596	596
Muni	0	0
Deficiency		0



Kern Area LCR

West Park Sub-Area

Limiting Contingencies:

Category B:

- None

Category C5

- L-1: Kern West Park # 1
- L-1: Kern West Park # 2

Constrained Elements:

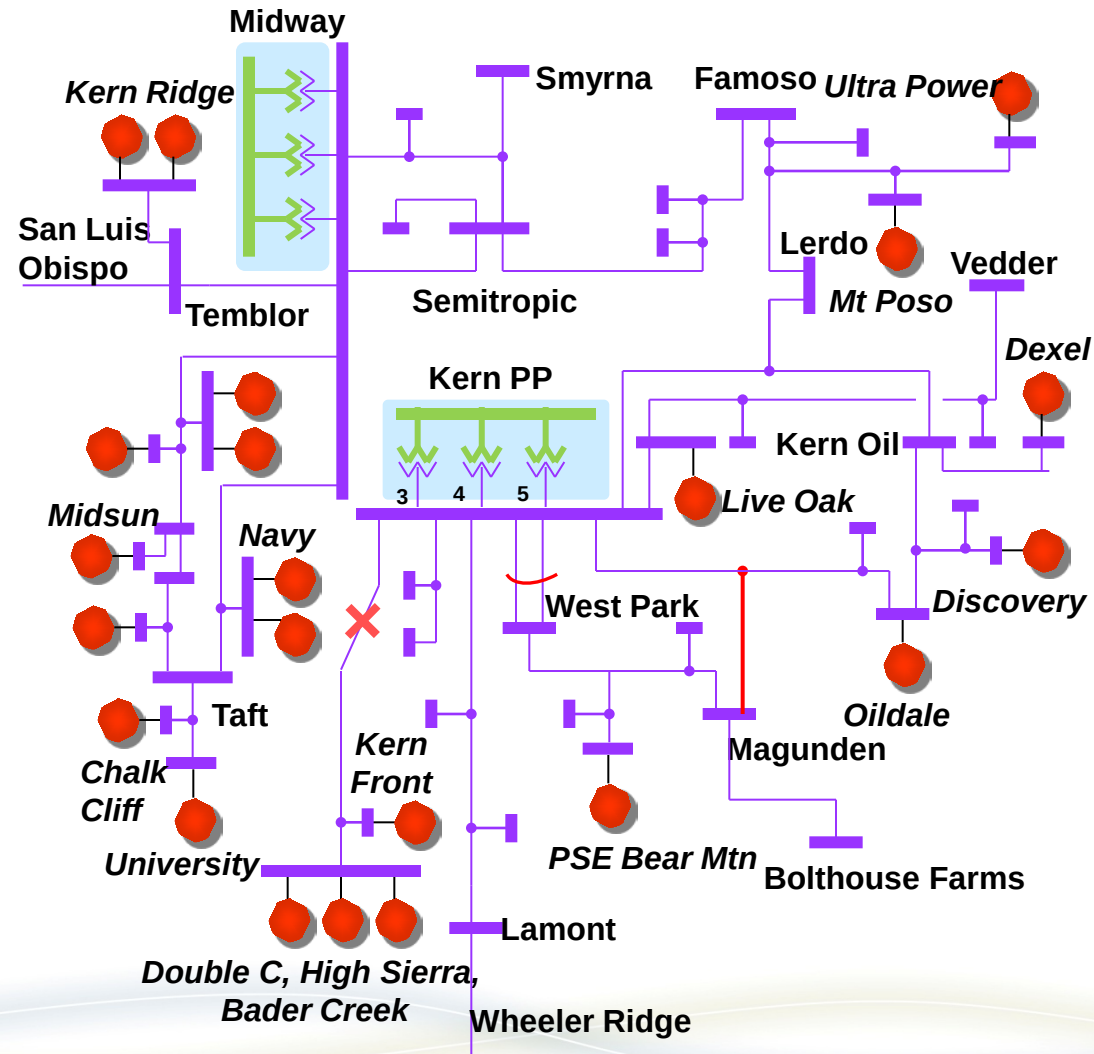
- KERN-MAGUNDEN-WITCO - From 6/42 To Magunden Sub

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	0	60

Including:

QF	46	46
Muni	0	0
Deficiency	0	14



Kern Area LCR

Weedpatch Sub-Area

Limiting Contingencies:

Category B:

None

Category C:

- L-1: Wheeler Ridge – San Bernard 70 kV line
- L-1: Wheeler Ridge – Tejon 70 kV line

Constrained Element:

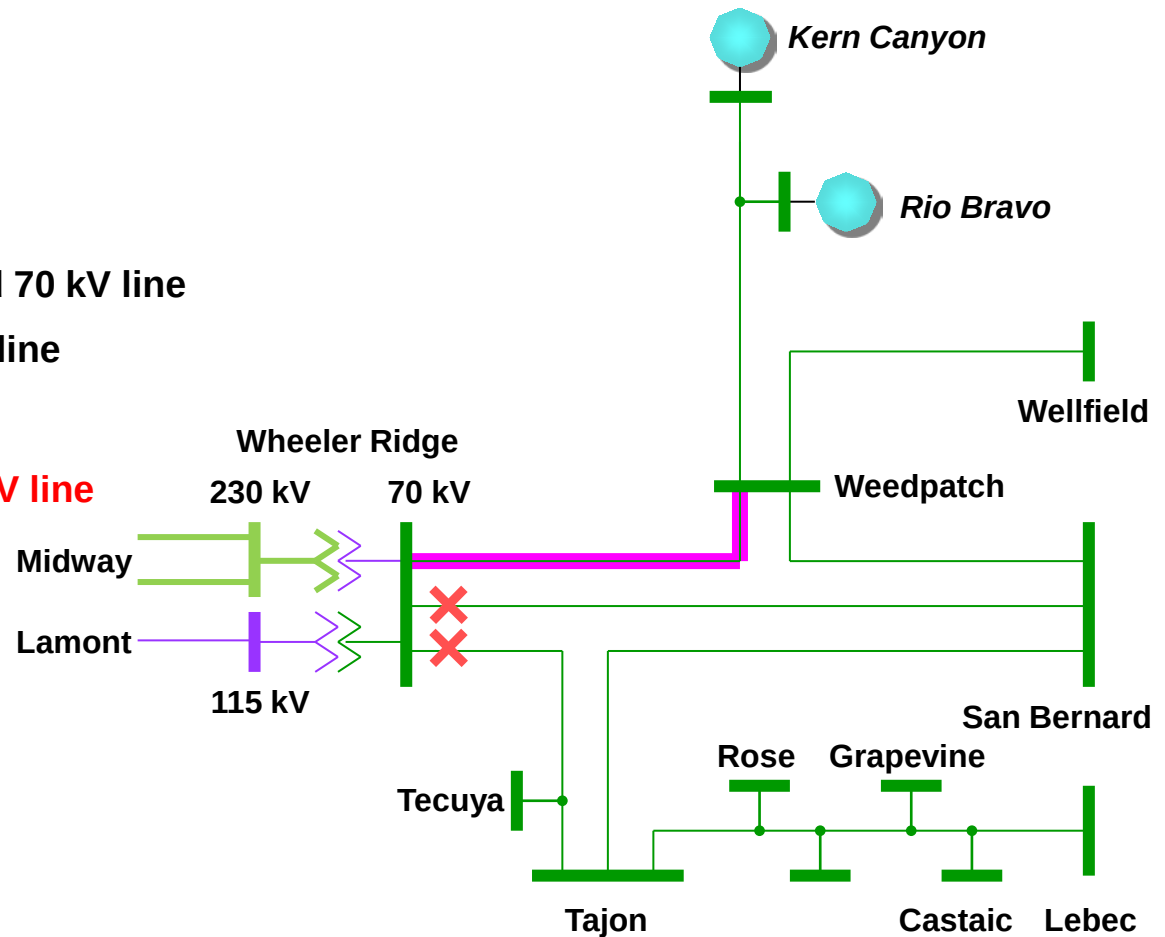
- Wheeler Ridge – Weed patch 70 kV line

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	0	30

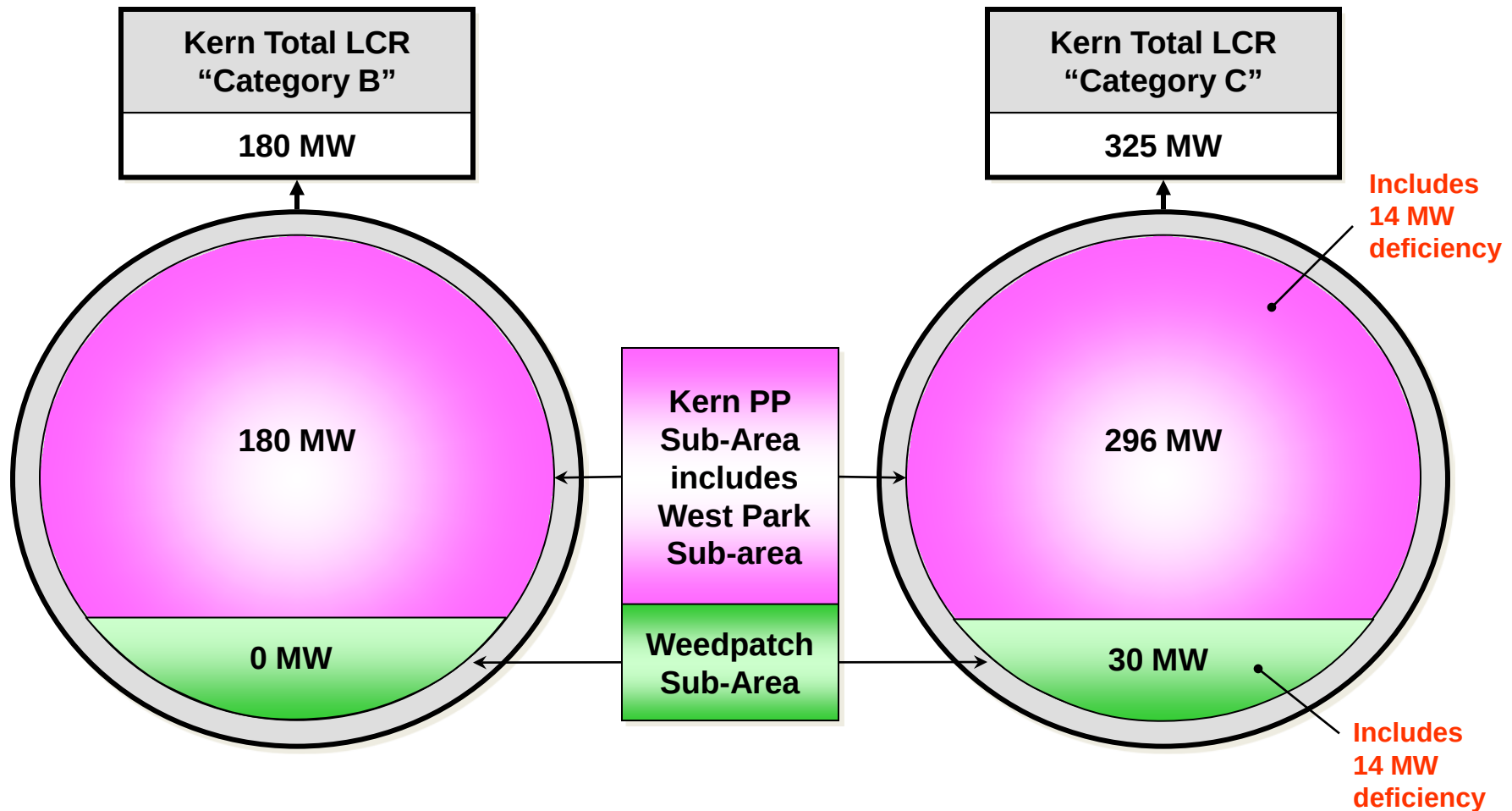
Including:

QF	0	7
Muni	0	0
Deficiency	0	14



Kern Area LCR

Summary of 2012 LCR



Changes

Since last stakeholder meeting:

- 1) Updated NQC

Since last year:

- 1) Load forecast is lower by 277 MW
- 2) Overall the LCR needs have decreased by 138 MW
- 3) New (small) West Park sub-area

Your comments and questions are welcome.

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

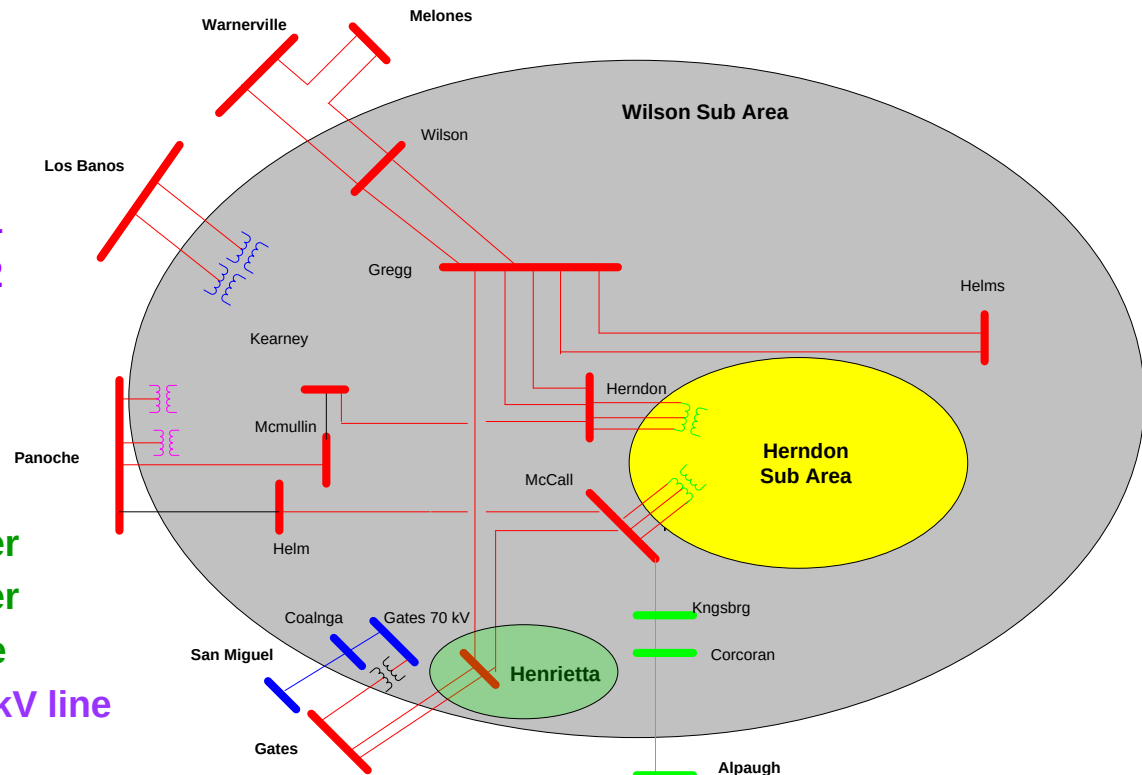
Greater Fresno Area

Electrical Boundaries and LCR Sub-Areas

Electrical Boundaries:

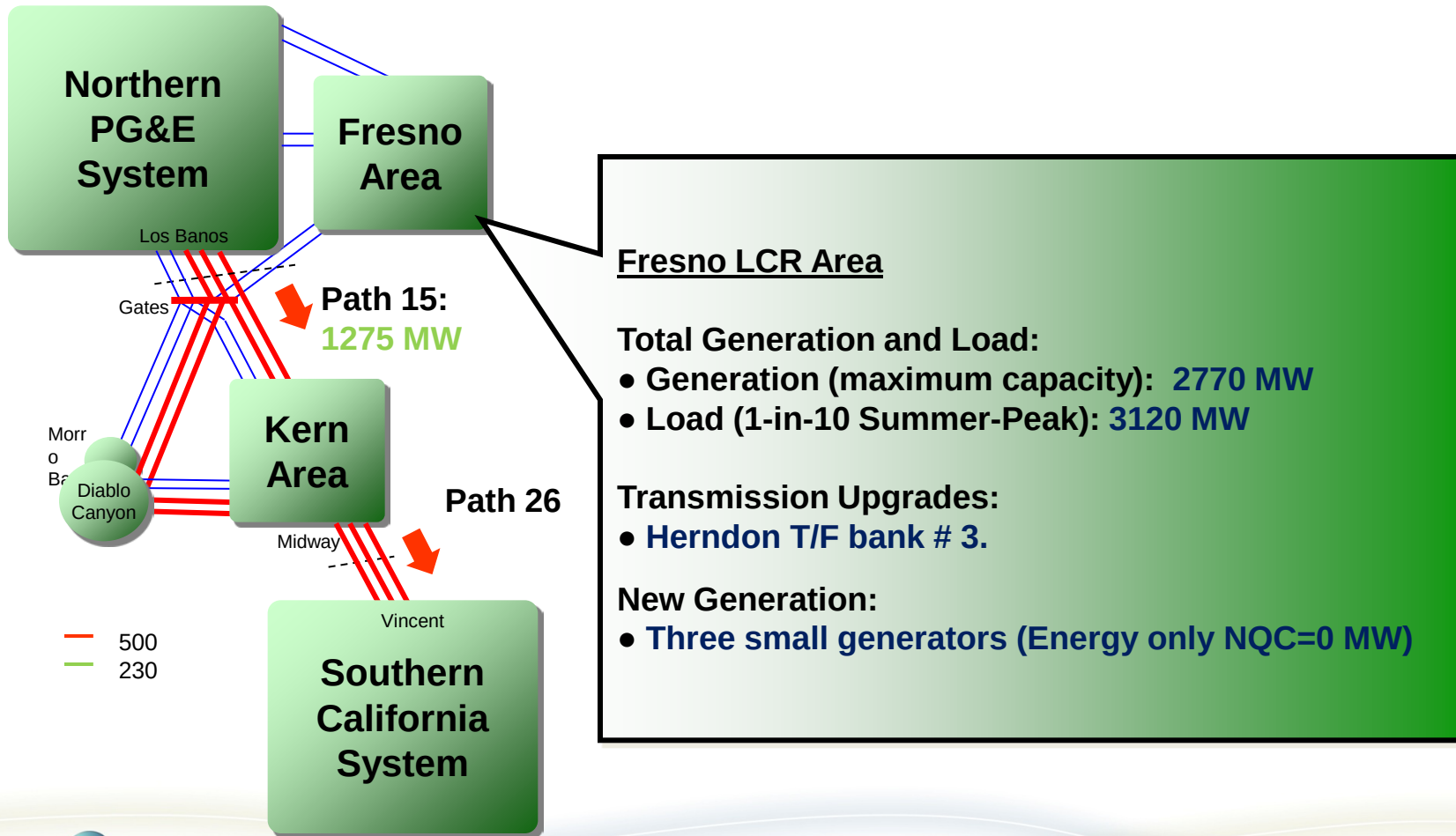
- Gates – McCall 230 kV line
- Gates – Gregg 230 kV line
- Gates 230/70 kV transformer #1
- Panoche 230/115 kV transformer #1
- Panoche 230/115 kV transformer #2
- Panoche – Kearney 230 kV line
- Panoche – Helm 230 kV line
- Warnerville – Wilson 230 kV line
- Melones – Wilson 230 kV line
- Los Banos #3 230/70 kV transformer
- Los Banos #4 230/70 kV transformer
- San Miguel – Coalinga #1 70 kV line
- Smyrna – Alpaugh – Corcoran 115 kV line

LCR Sub-Areas:



Fresno Area Overview

Area Generation, Load, Transmission and Path Flows



Fresno Area LCR

Wilson Sub-Area

Limiting Contingencies:

Category C:

- L-1: Melones – Wilson 230 kV line
- G-1: Helms unit #3

Category B:

- G-1: Helms unit #3
- L-1: Melones – Wilson 230 kV line

Constrained Elements:

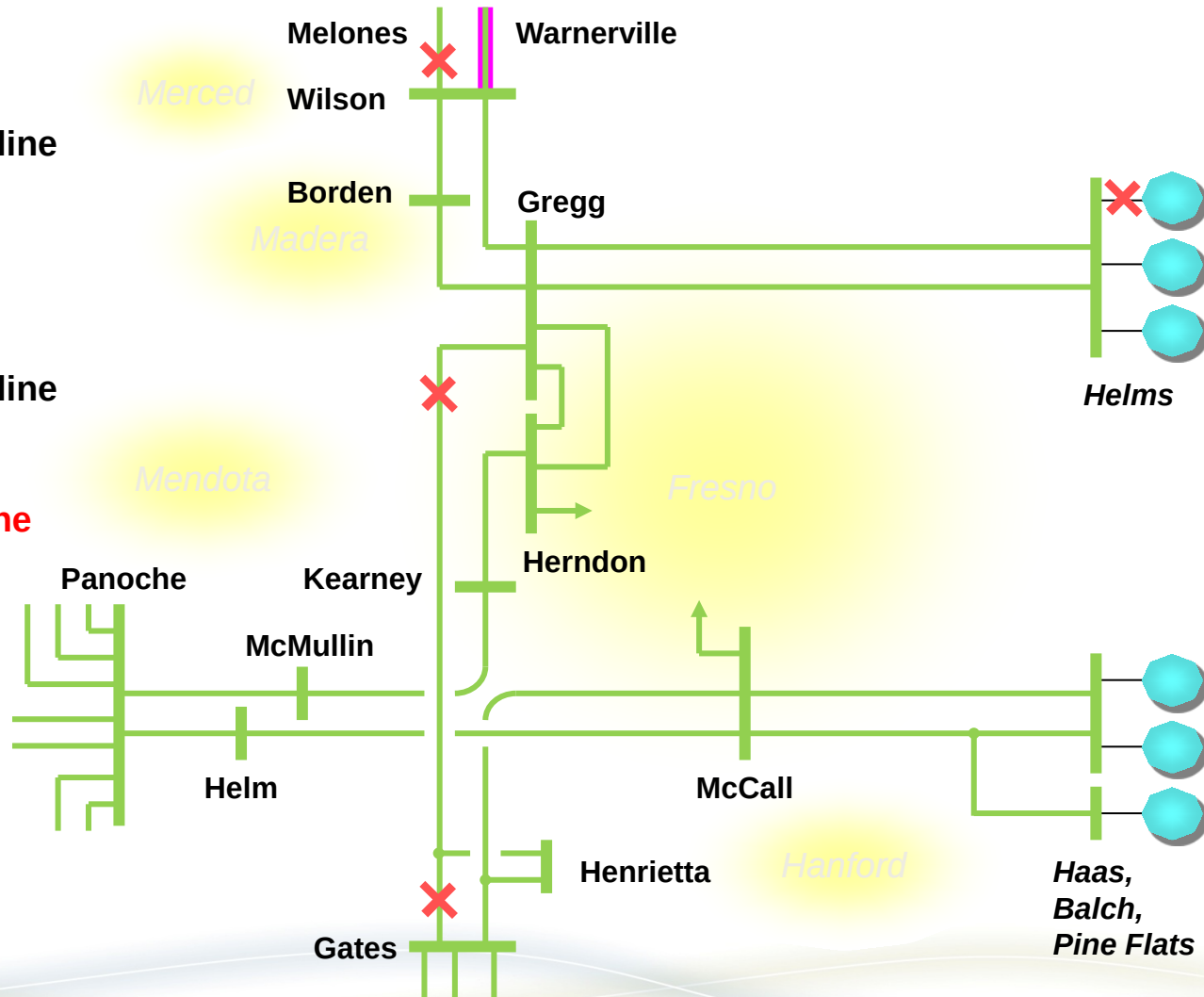
- Warnerville – Wilson 230 kV line

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	1873	1873

Including:

QF	189	189
Muni	167	167
Deficiency	0	0



Fresno Area LCR

Herndon Sub-Area

Limiting Contingency:

Category B:

- None

Category C:

- L-1: Herndon-Barton 115 kV line
- L-1: Herndon-Woodward 115 kV line

Constrained Element:

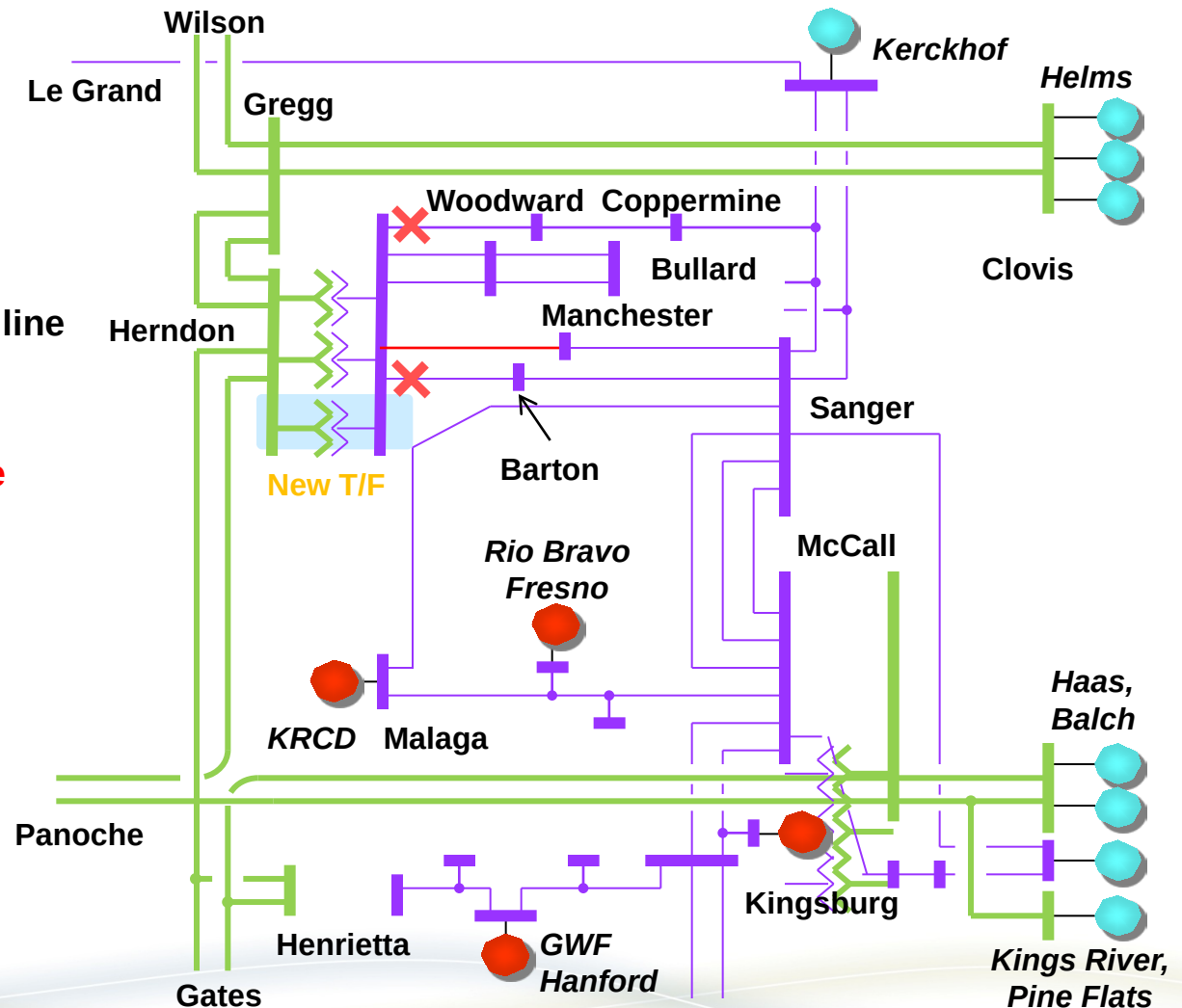
- Herndon-Manchester 115 kV line

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	0	275

Including:

QF	41	41
Muni	99	99
Deficiency	0	0



Fresno Area LCR

Henrietta Sub-Area

Limiting Contingencies:

Category B:

- T-1: Henrietta 230/70 kV bank #4

Category C1:

- T-1: Henrietta 230/70 kV bank #4
- G-1: GWF Power Unit

Category C2:

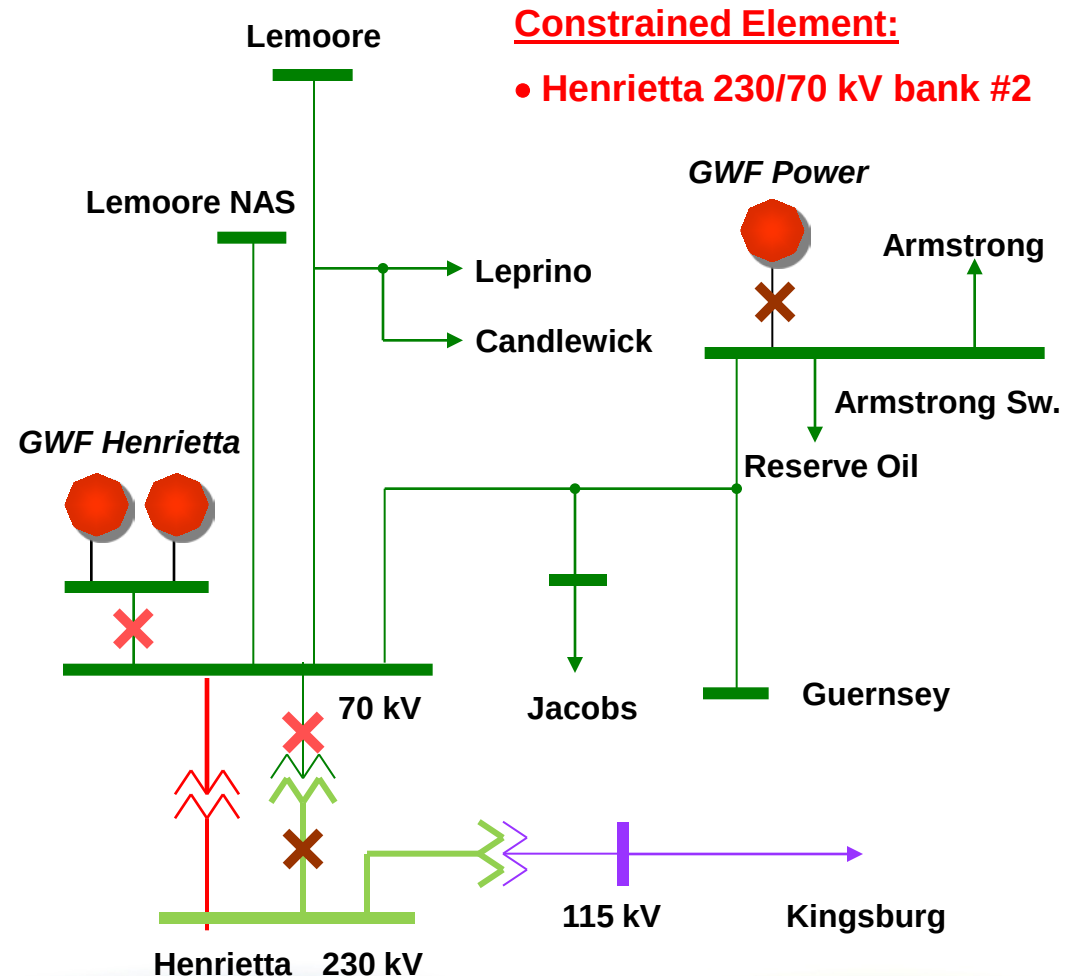
- T-1: Henrietta 230/70 kV bank #4
- L-1: Henrietta – GWF Henrietta line

LCR Results (MW):

Contingency	Cat. B	Cat. C
LCR	35	68

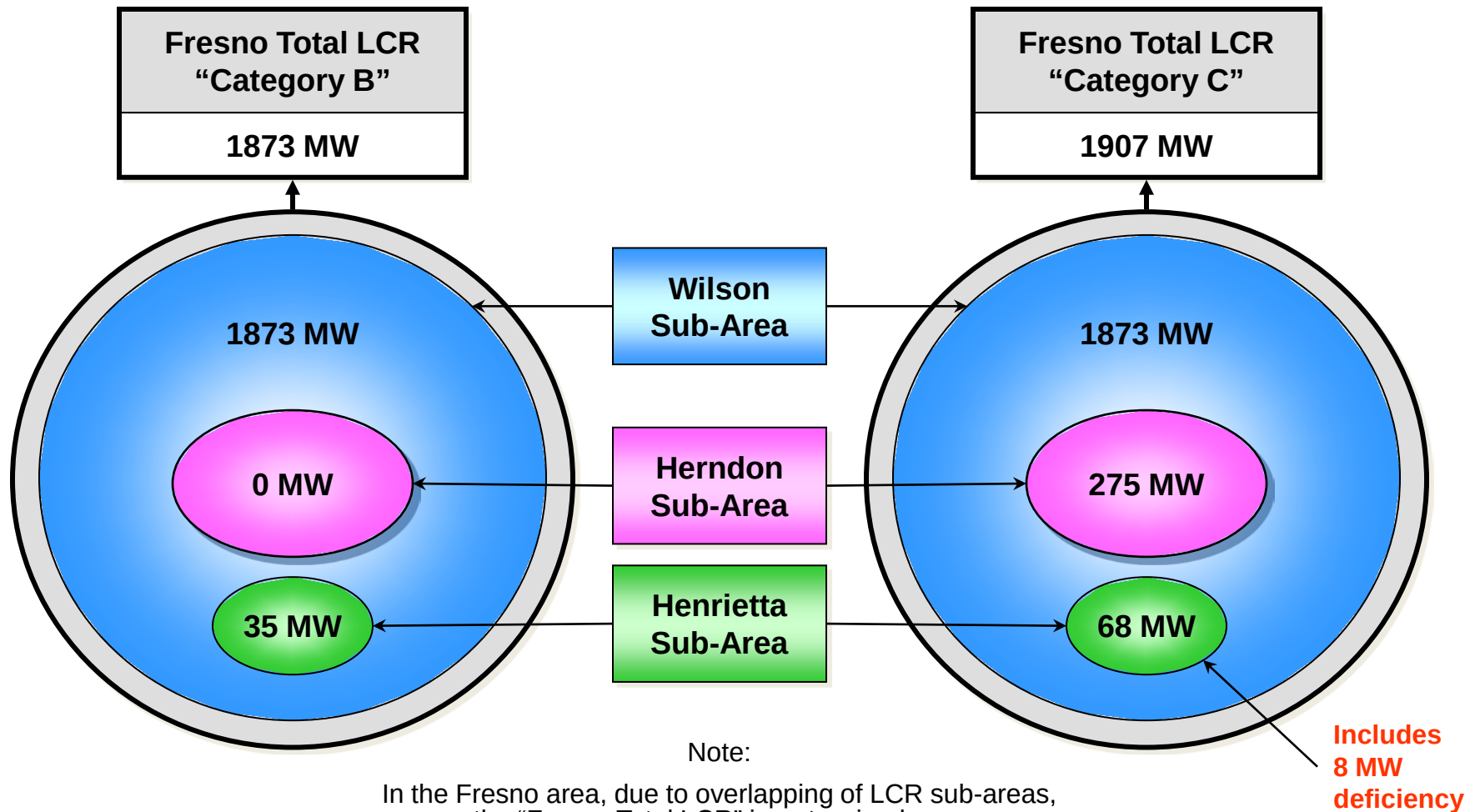
Including:

QF	24	24
Muni	0	0
Deficiency	0	8



Fresno Area LCR

Summary of 2012 LCR



Note:
In the Fresno area, due to overlapping of LCR sub-areas,
the "Fresno Total LCR" is *not* a simple sum,
but rather an aggregated sum of LCR in individual sub-areas.

Changes

Since our last stakeholder meeting:

- 1) Updated NQC

Since last year:

- 1) Load has decreased by 186 MW
- 2) Three new small peakers (energy only NQC=0 MW)
- 3) New Herndon T/F bank
- 4) Overall LCR reduced by 542 MW.

Your comments and questions are welcome.

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