



# 2019 & 23 Final LCR Study Results Fresno Area

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Stakeholder Call

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# Fresno LCR Area



ISO Public

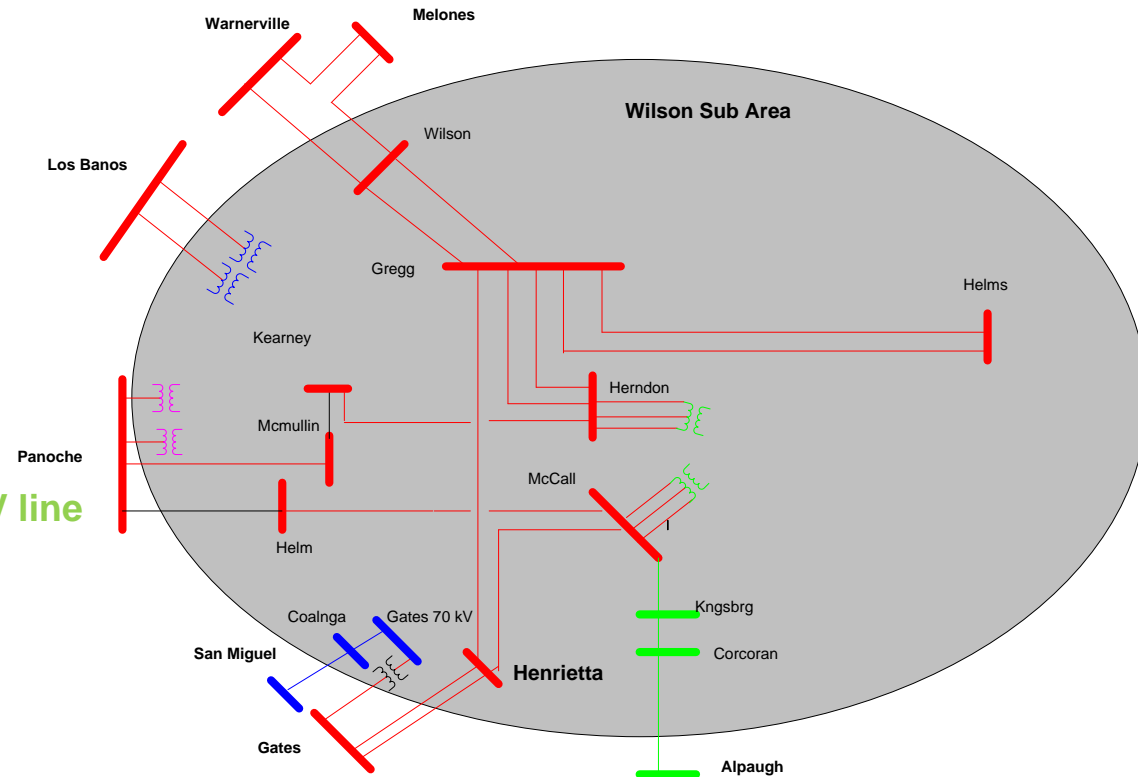
# Greater Fresno Area

## Electrical Boundaries and LCR Sub-Areas

### Electrical Boundaries:

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

### LCR Sub-Areas:



# Fresno Area Load and Resources (MW)

		<b>2019</b>	<b>2023</b>
Gross Load	=	3165	3276
AAEE	=	-33	-114
DG	=	-158	-35
<b>Net Load</b>	=	<b>2974</b>	<b>3127</b>
Transmission Losses	=	95	104
<b>Net Load + Losses</b>	=	<b>3070</b>	<b>3231</b>
Market Generation	=	3177	3177
Muni Generation	=	312	312
QF Generation	=	28	28
<b>Total Qualifying Capacity</b>	=	<b>3517</b>	<b>3517</b>

## New transmission projects modeled:

1. Leemore 701kV Disconnect Switches Replacement (Jun 2018)
2. Los Banos-Livingston Jct-Canal 70kV Switch Replacement (Jun 2018)
3. Gates 500/230 TB#12 addition (Dec 2019)
4. Kearney-Caruthers 70kV reconductoring (2019)
5. Borden 230kV Voltage Support (2019)
6. Kearney-Herndon 230 kV Line Reconductor (2019)
7. Wilson 115kV SVC(2020)
8. Northern Fresno 115kV Reinforcement (Revised scope- 2020)
9. Wilson-Legrand 115 kV Reconductoring (2020)
10. Panoche-Oro Loma 115 kV Reconductoring (2020)
11. Oro Loma 70kV Reinforcement (2020)
12. Reedley 70 kV Reinforcement Projects (2021)
13. Herndon-Bullard Reconductoring Projects (2021)

# Fresno Area LCR

## Hanford Sub-Area

### Limiting Contingencies:

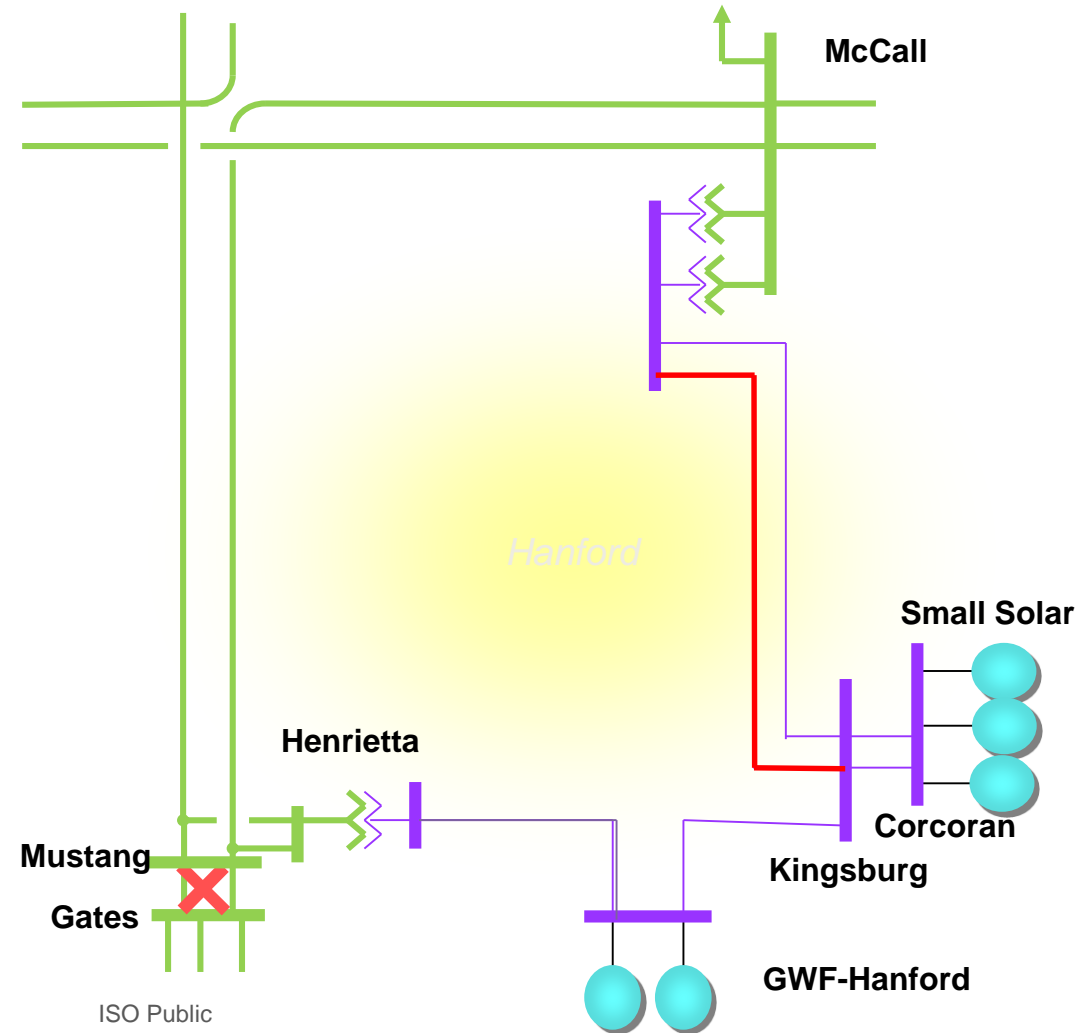
#### Category P7:

- L-2 Gates-Mustang #1 and Gates-Mustang #2 230kV Lines
- Constraint McCall-Kingsburg #1 115kV line

#### Category P1: No LCR need

#### LCR Results (MW):

Contingency	Cat. P7. P15 S-N
2019 LCR	56
2023 LCR	107



# Fresno Area LCR

## Coalinga Sub-Area

### Limiting Contingencies:

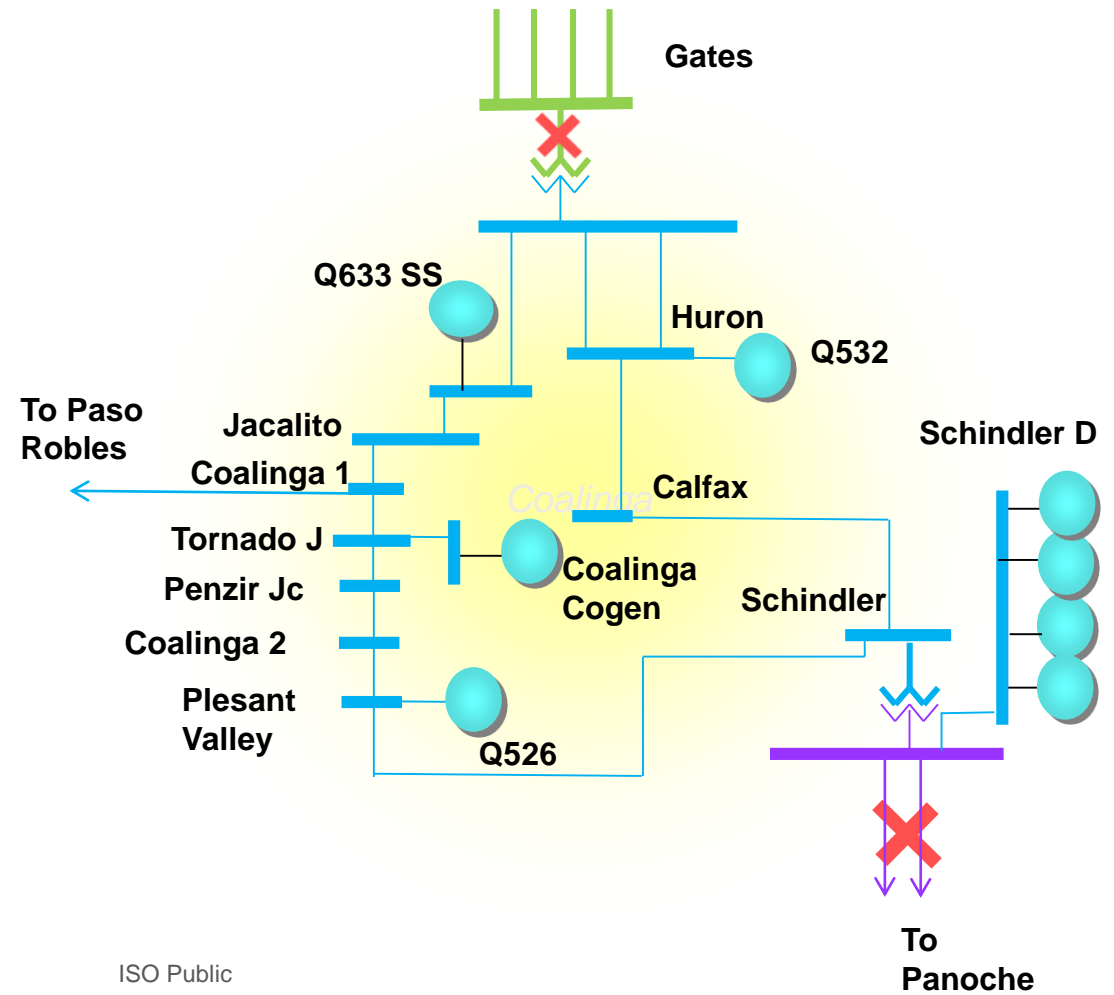
#### Category P1-P7:

- T-1/L-2: Gates 230/70kV TB #5 and Panoche-Schindler #1 & #2 115kV common tower lines
- Constraint: Voltage instability

#### Category P1: No LCR need

#### LCR Results (MW):

Contingency	Cat. P1-P7 N-S
2019 LCR	19
2023 LCR	16



# Fresno Area LCR

## Borden Sub-Area

### Limiting Contingencies:

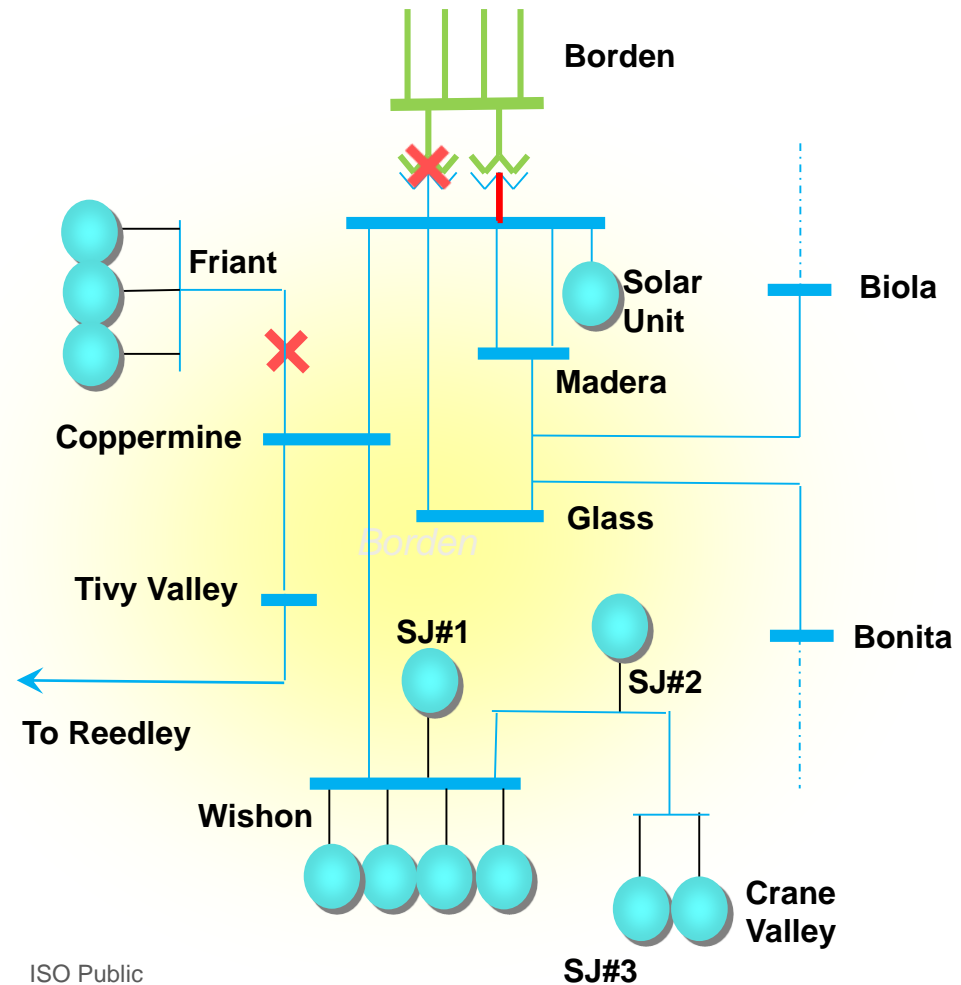
Category P1: No LCR need

Category P6:

- L-1/T-1: Friant - Coppermine 70 kV and Borden 230/70 kV # 2
- Constraint: Borden 230/70 kV # 1

LCR Results (MW):

Contingency	Cat. P6
2019 LCR	1
2023 LCR	8





# Fresno Area LCR

## Reedley Sub-Area

### Limiting Contingencies:

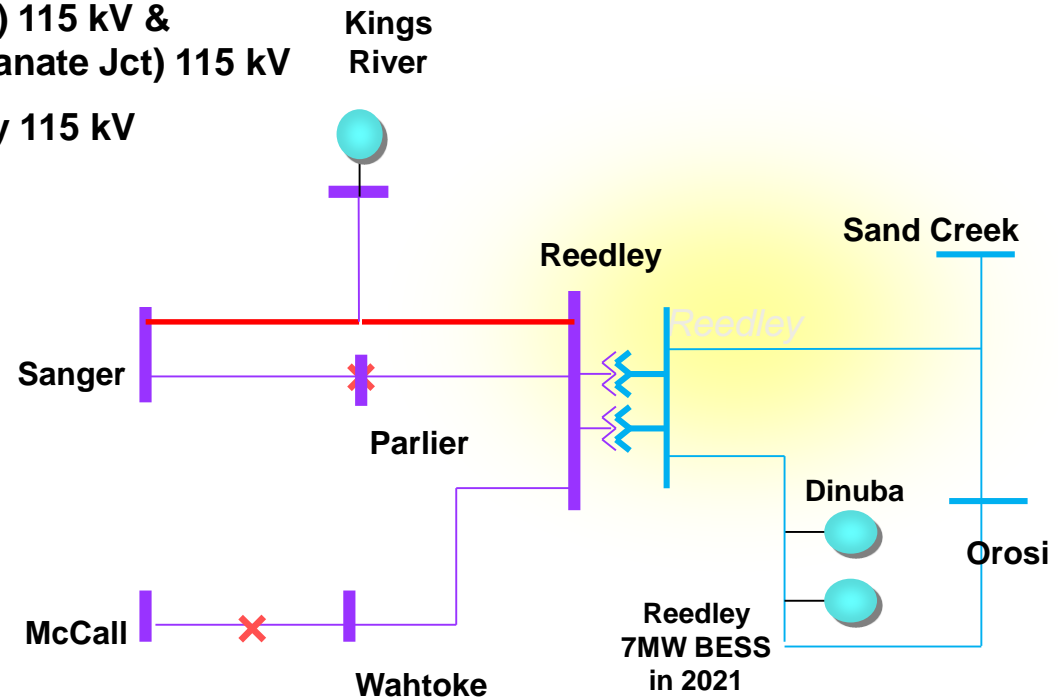
#### Category P6:

- L-1-1: McCall-Reedley (McCall-Wahtoke) 115 kV & Sanger-Reedley (Pomegranate-Pomegranate Jct) 115 kV
- Constraint: Kings River-Sanger-Reedley 115 kV

#### Category P1: No LCR need

#### LCR Results (MW):

Contingency	Cat. P6 S-N
2019 LCR	5
<b>2019 Deficiency</b>	<b>1</b>
2023 LCR	12
<b>2023 Deficiency</b>	<b>1</b>



# Fresno Area LCR

## 2019 Herndon Sub-Area

### Limiting Contingency:

#### Category P3:

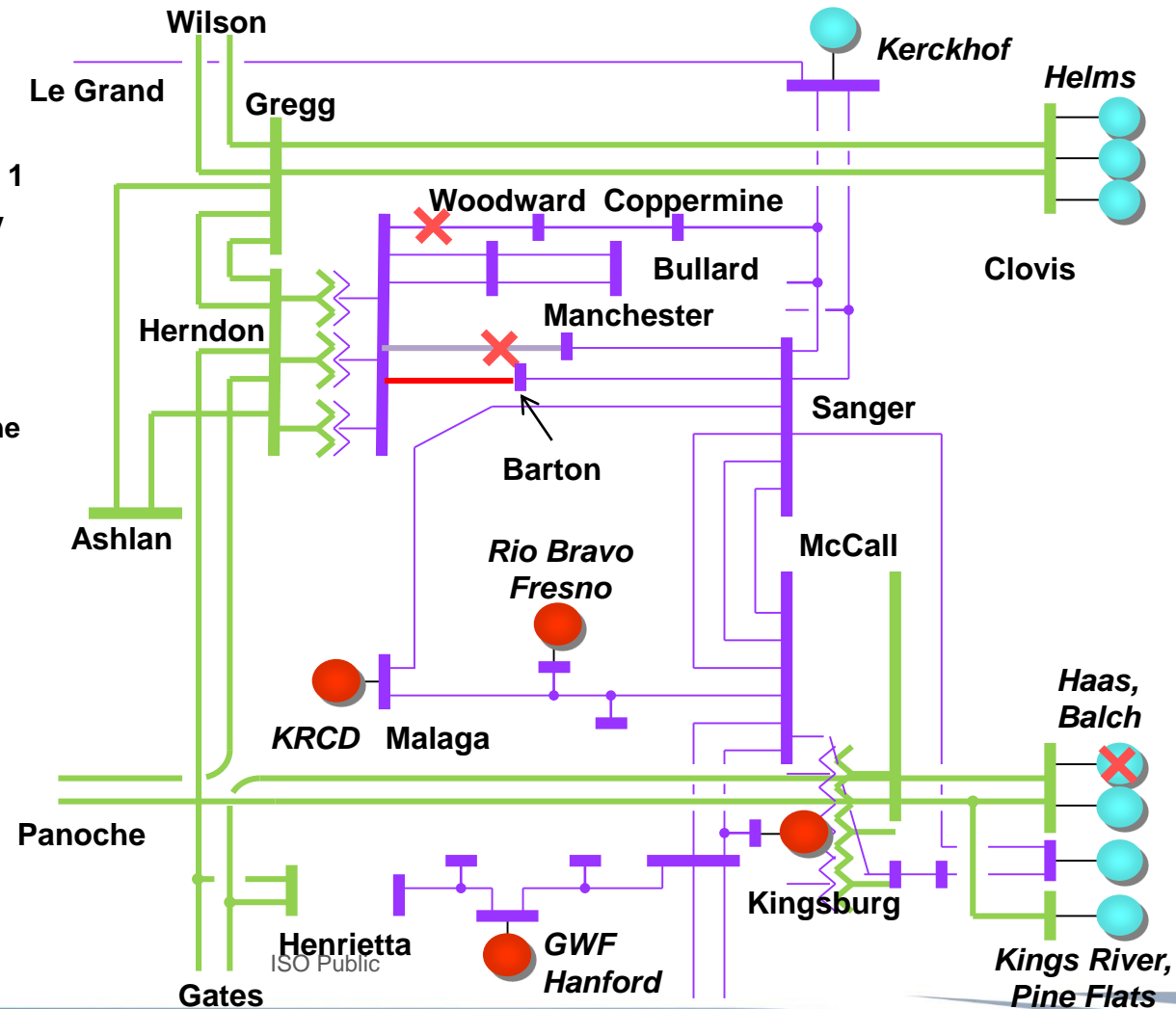
- G-1/L-1: Herndon-Barton 115kV & Balch 1
- Constraint: Herndon-Manchester 115 kV

#### Category P6:

- L-2: Herndon-Woodward 115kV line and Herndon-Barton 115kV
- Constraint: Herndon-Manchester 115kV line

### LCR Results (MW):

Contingency	Cat. P3 N-S	Cat. P6 N-S
2019 LCR	267	792



# Fresno Area LCR

## 2023 Herndon Sub-Area

### Limiting Contingency:

#### Category P3:

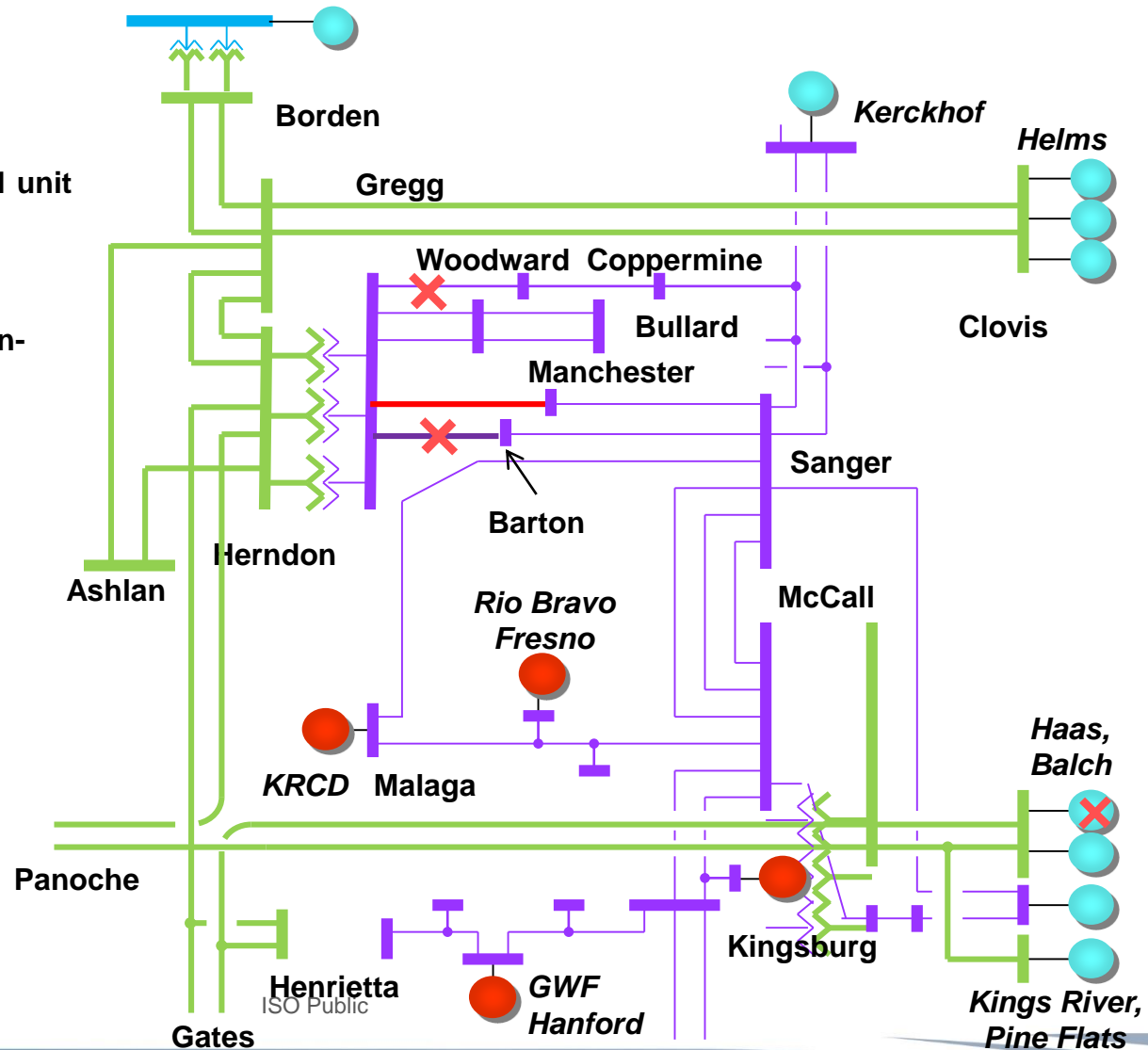
- G-1/L-1: Herndon-Barton 115 kV line and Balch 1 unit
- Constraint: Herndon-Manchester 115 kV line

#### Category P6:

- L-2: Herndon-Woodward 115kV line and Herndon-Barton 115kV
- Constraint: Herndon-Manchester 115kV line

### LCR Results (MW):

Contingency	Cat. P3	Cat. P6
2023 LCR	293	821



# Fresno Area LCR

## 2019 Overall (Wilson Sub-Area)

### Limiting Contingencies:

#### Category P3:

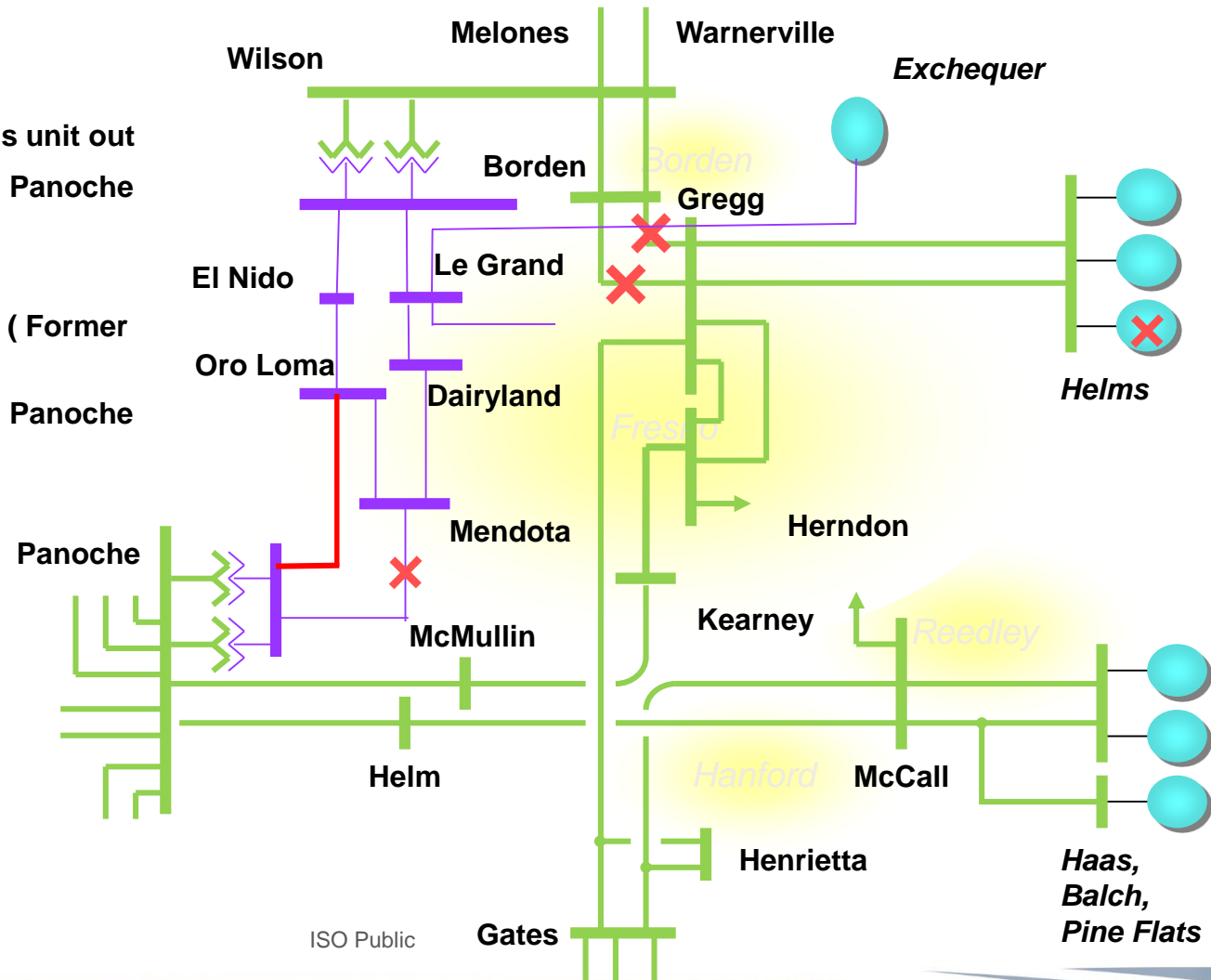
- L-1: Panoche-Mendota 115 kV line & one Helms unit out
- Constraint: Panoche-Oro Loma 115 kV- (From Panoche Jn To Hammonds)

#### Category P7:

- L-2: Borden-Gregg 230kV line #1 and #2 DCTL ( Former Wilson-Gregg 230kV line and Borden-Gregg)
- Constraint: Panoche-Oro Loma 115 kV- (From Panoche Jn To Hammonds)

### LCR Results (MW):

Contingency	Cat. P3 S-N	Cat. P7 S-N
LCR	1406	1670



# Fresno Area LCR

## 2023 Overall

### Limiting Contingencies:

#### Category P3:

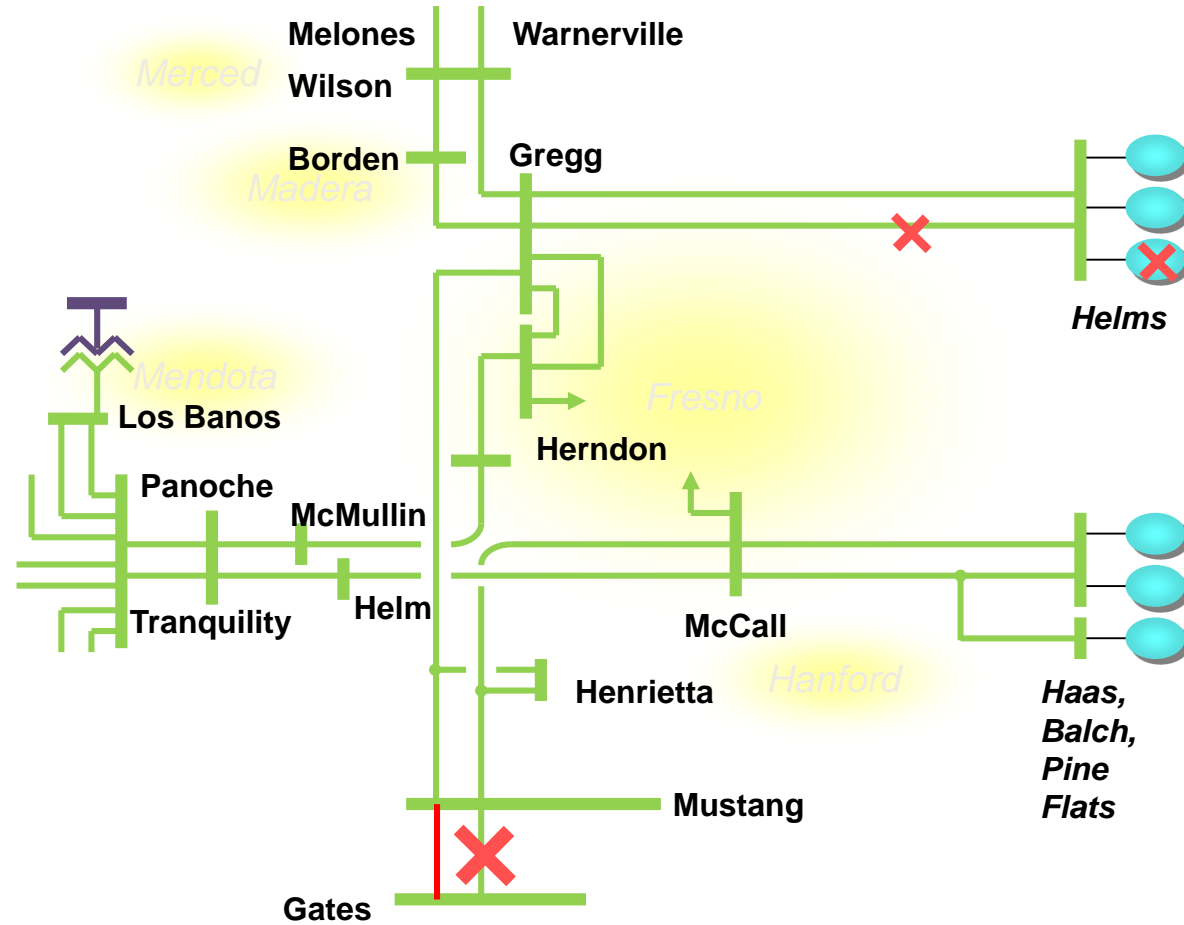
- G-1/L-1: Gates-Mustang 230kV #1 or #2 line and one Helms unit out
- Constraint: Remaining Gates-Mustang 230kV line

#### Category P6:

- L-2: Gates-Mustang 230kV #1 or #2 line and Helms-Gregg 230kV line
- Constraint: Remaining Gates-Mustang 230kV line

### LCR Results (MW):

Contingency	Cat. P3 S-N	Cat. P6 S-N
LCR	1688	1688



# Changes

## **Since last year:**

- 1) Updated NQC
- 2) 2019 load decreased by 220 MW vs. 2018
- 3) LCR has decreased by 410 MW due to load decrease.
- 4) 2023 load decreased by 121 MW vs 2022
- 5) LCR has decreased by 172 MW due to load decrease and the new transmission projects.

## **Since last stakeholder meeting:**

- 1) Updated NQC

# THANK YOU

Your comments and questions are welcome.

For written comments, please send to: [RegionalTransmission@caiso.com](mailto:RegionalTransmission@caiso.com)

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