



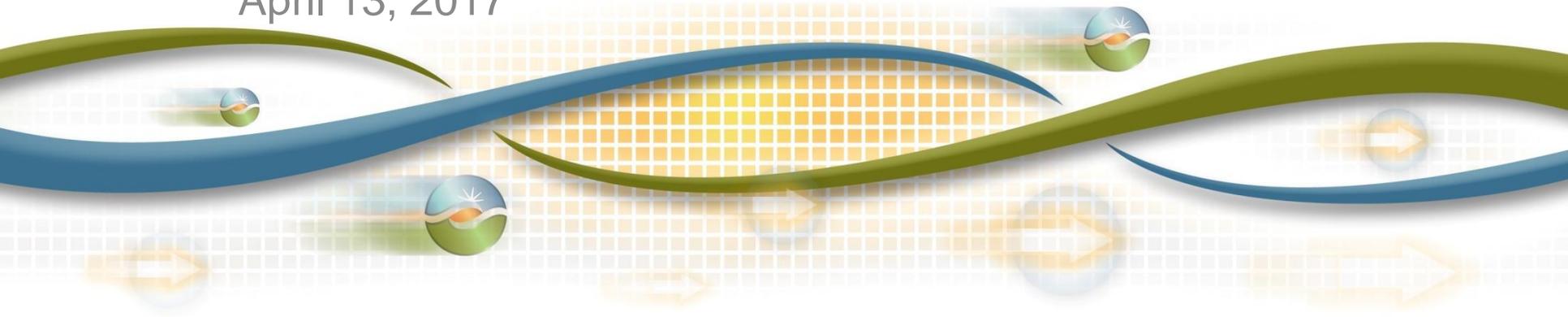
2018 & 22 Final LCR Study Results Greater Bay Area

Bryan Fong

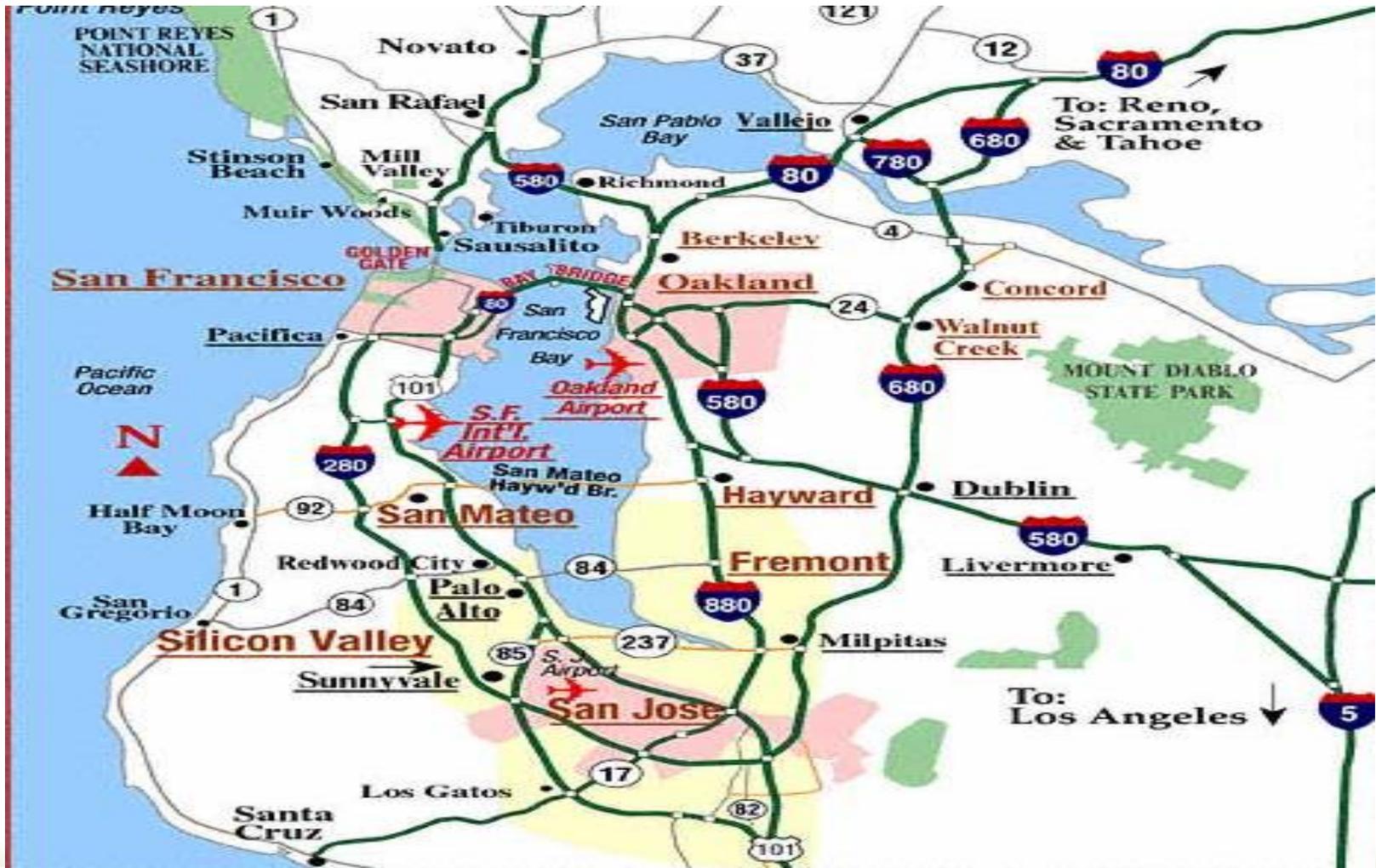
Senior Regional Transmission Engineer

Stakeholder Call

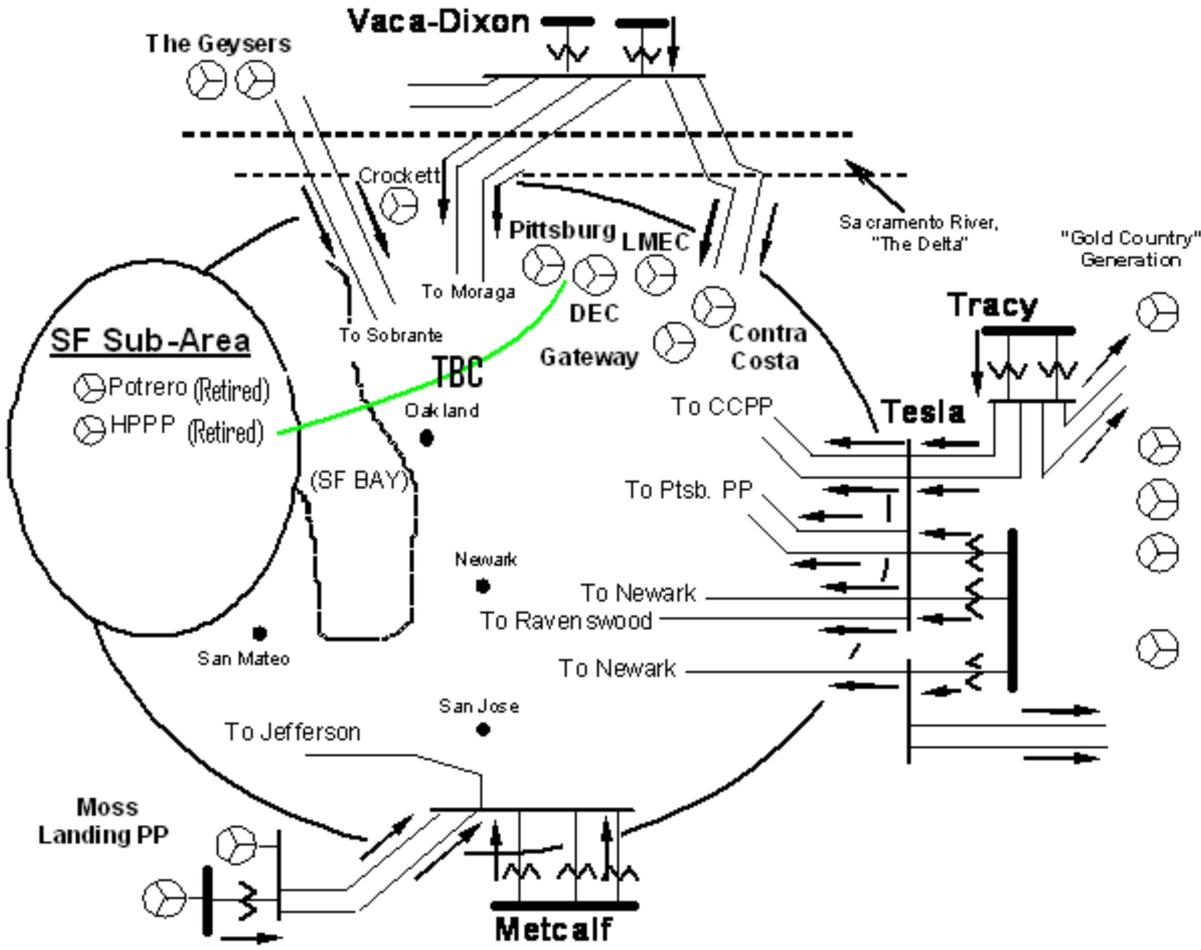
April 13, 2017



Greater Bay Area Map



Greater Bay Area Transmission System



New major transmission projects

2018:

- None

2022 Additional:

- Morgan Hill Area Reinforcement (New 420MVA Spring 230/115kV Bank#1)
- Metcalf-Evergreen 115 kV Line Reconductoring
- Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade
- East Shore-Oakland J 115 kV Reconductoring Project
- Vaca Dixon-Lakeville 230 kV Reconductoring
- Tesla-Newark 230 kV Path Upgrade

Power plant changes

Additions:

- A few small renewable resources

Retirements:

- Pittsburg Power Plant
- Moss Landing Units 6 & 7

Bay Area Load and Resources (MW)

		2018	2022
Gross Load	=	10,309	10,629
AAEE	=	-207	-424
Behind the meter DG	=	-328	-483
Net Load	=	9,774	9,722
Transmission Losses	=	209	194
Pumps	=	264	264
Load + Losses + Pumps	=	10,247	10,180
Market Generation	=	6,095	5,871
Wind Generation	=	320	320
Muni Generation	=	411	411
QF Generation	=	277	277
Total Qualifying Capacity	=	7,103	6,879

San Jose Sub Area

San Jose Sub-area – Category B

2018 LCR need: No requirement.

2022 LCR need: No requirement.

San Jose Sub-area – Category C

Contingency: Metcalf-Evergreen #2 115kV Line overlapped with Metcalf-EI Patio #1 or #2 115 kV Line

Limiting component: Metcalf-Evergreen #1 115kV Line

2018 LCR need: 488 MW

Contingency: Metcalf-EI Patio #1 115 kV Line overlapped with Metcalf-Evergreen #2 115kV Line

Limiting component: Metcalf-EI Patio #2 115 kV Line

2022 LCR need: 111 MW

Llagas Sub Area

Llagas Sub-area – Category B

Contingency: Metcalf D-Morgan Hill 115 kV with one of the Gilroy peakers off line

Limiting component: 5% voltage drop at the Morgan Hill substation

2018 LCR need: 105 MW

2022 LCR need: No requirement.

Llagas Sub-area – Category C

2018 LCR need: Same as Category B

Contingency: Metcalf D-Morgan Hill 115 kV overlapped with outage of Spring 230/115kV Bank#1

Limiting component: Morgan Hill-Llagas 115 kV Line

2022 LCR need: 24 MW

South Bay-Moss Landing Sub Area

South Bay-Moss Landing Sub-area – Category B

2018 LCR need: No requirement.

2022 LCR need: No requirement.

South Bay-Moss Landing Sub-area – Category C

Contingency: Tesla-Metcalf 500 kV and Moss Landing-Los Banos 500 kV

Limiting component: Thermal overload of Las Aguillas-Moss Landing 230 kV

2018 LCR need: 2221 MW

2022 LCR need: 2346 MW

Resources in San Jose and Llagas sub-areas are also included in this sub-area.

Oakland Sub Area

Oakland Sub-area – Category B

2018 LCR need: No requirement

2022 LCR need: No requirement

Oakland Sub-area – Category C

Contingency: overlapping C-X #2 and C-X #3 115 kV cables

Limiting component: Thermal overload on the Moraga – Claremont #1 or #2 230 kV Line.

2018 LCR need: 56 MW

2022 LCR need: 50 MW

2015-2016 real-time operational data shows a need of at least 98 MW for a 1-in-3 heat wave.

Ames/Pittsburg Sub-Area

NCNB Sub-area – Category B

Contingency: Vaca Dixon-Tulucay 230 kV line with Delta Energy Center power plant out of service

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

Ames/Pittsburg Sub-area – Category C

Contingency: DCTL Newark-Ravenswood & Tesla-Ravenswood 230 kV

Limiting component: Thermal overload on the Newark-Ames #2 115 kV line

2018 LCR need:

NCNB: 634 MW

Ames: 596 MW

Pittsburg: 1182 MW

Ames/Pittsburg Sub-Area

NCNB Sub-area – Category B

Contingency: Vaca Dixon-Tulucay 230 kV line with Delta Energy Center power plant out of service

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

Ames/Pittsburg Sub-area – Category C

Contingency: DCTL Newark-Ravenswood & Tesla-Ravenswood 230 kV

Limiting component: Thermal overload on the Newark-Ames #2 115 kV line

2022 LCR need – Vaca Dixon-Lakeville 230 kV lines not reconducted:

NCNB: 628 MW

Ames: 596 MW

Pittsburg: 1162 MW

Ames/Pittsburg Sub-Area

NCNB Sub-area – Category C

Contingency: Vaca Dixon-Tulucay and Vaca Dixon-Lakeville 230 kV line

Limiting component: Thermal overload on the Moraga-Sobrante 115 kV line

Ames/Pittsburg Sub-area – Category C

Contingency: DCTL Newark-Ravenswood & Tesla-Ravenswood 230 kV

Limiting component: Thermal overload on the Newark-Ames #2 115 kV line

2022 LCR need – Vaca Dixon-Lakeville 230 kV lines recondored:

NCNB: 440 MW

Ames: 596 MW

Pittsburg: 1232 MW

Contra Costa Sub Area

Contra Costa Sub-area – Category B

Contingency: Kelso-Tesla 230 kV with the Gateway off line

Limiting component: Thermal overload on the Delta Switching Yard-
Tesla 230 kV Line

2018 LCR need: 1063 MW

2022 LCR need: 1043 MW

Contra Costa Sub-area – Category C

Same as Category B.

Greater Bay Area Overall

Bay Area Overall – Category B

Contingency: Tesla-Metcalf 500 kV line with Delta Energy Center out of service

Limiting component: Reactive margin within the Bay Area

2018 LCR need: 3910 MW

2022 LCR need: 4257 MW

Bay Area Overall – Category C

2018 LCR need: Sum of Category C from sub-area needs: 5160 MW

2022 LCR need: Sum of Category C from sub-area needs: 5315 MW

Greater Bay Area

Available Generation

Year	QF (MW)	Muni (MW)	Wind (MW)	Market (MW)	Max. Qualifying Capacity (MW)
2018	277	411	320	6095	7103
2022	277	411	320	5871	6879

Total LCR need

	Existing Generation Capacity Needed (MW)		Deficiency (MW)		Total MW Need	
	2018	2022	2018	2022	2018	2022
Category B (Single)	3910	4257	0	0	3910	4257
Category C (Multiple)	5160	5153	0	162	5160	5315

Changes

Since last year:

- 1) 2018 load forecast is lower by 230 MW vs. 2017
- 2) LCR need has decreased by 457 MW vs. 2017 – due to load forecast decrease and new transmission projects
- 3) 2022 load forecast is higher by 536 MW vs. 2021
- 4) LCR need has increased by 121 MW vs. 2021 – due to load forecast decrease

Since last stakeholder meeting:

- 1) Updated NQC.

Your comments and questions are welcome.

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