2017 Final LCR Study Results Greater Bay Area

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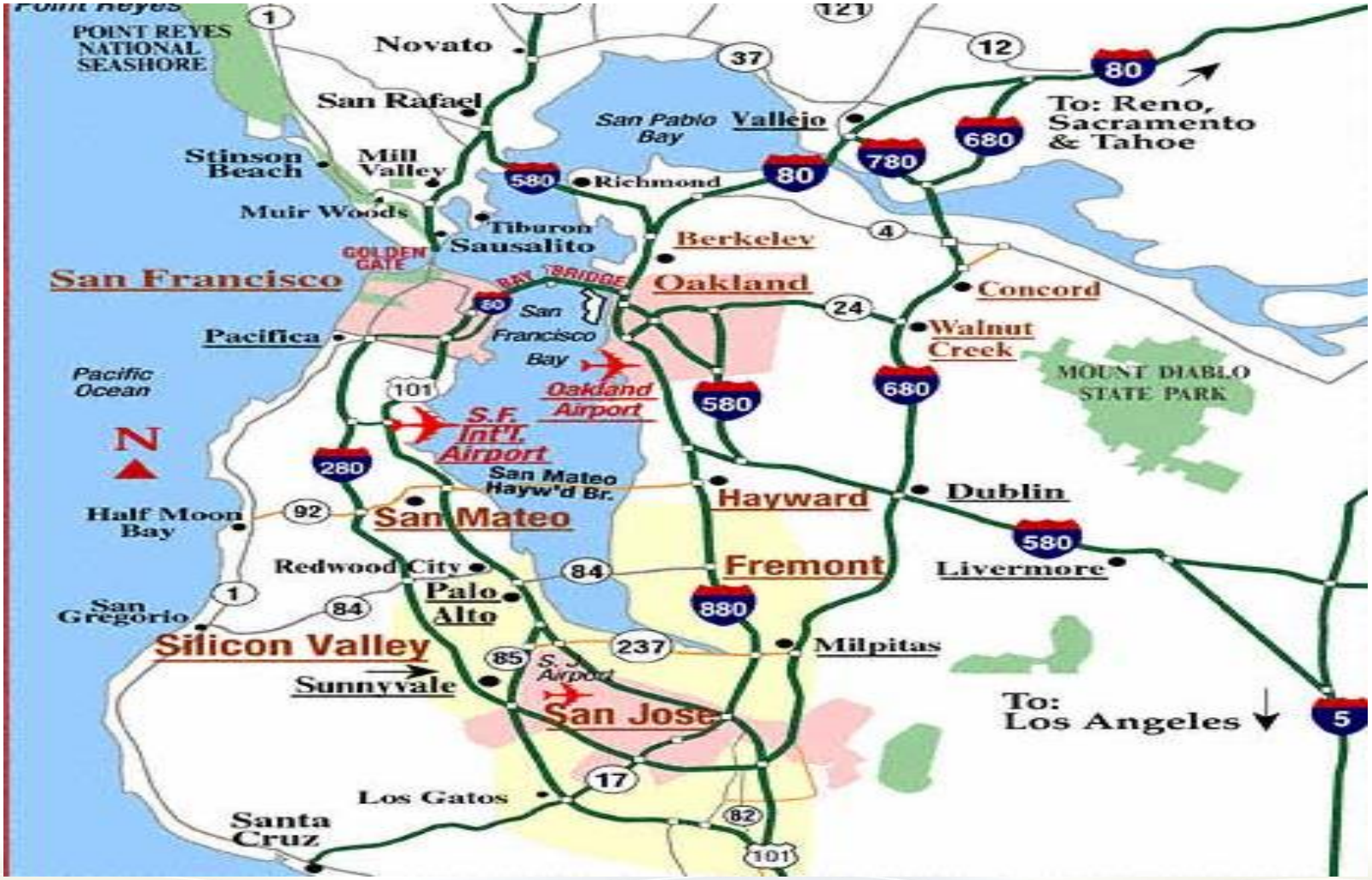
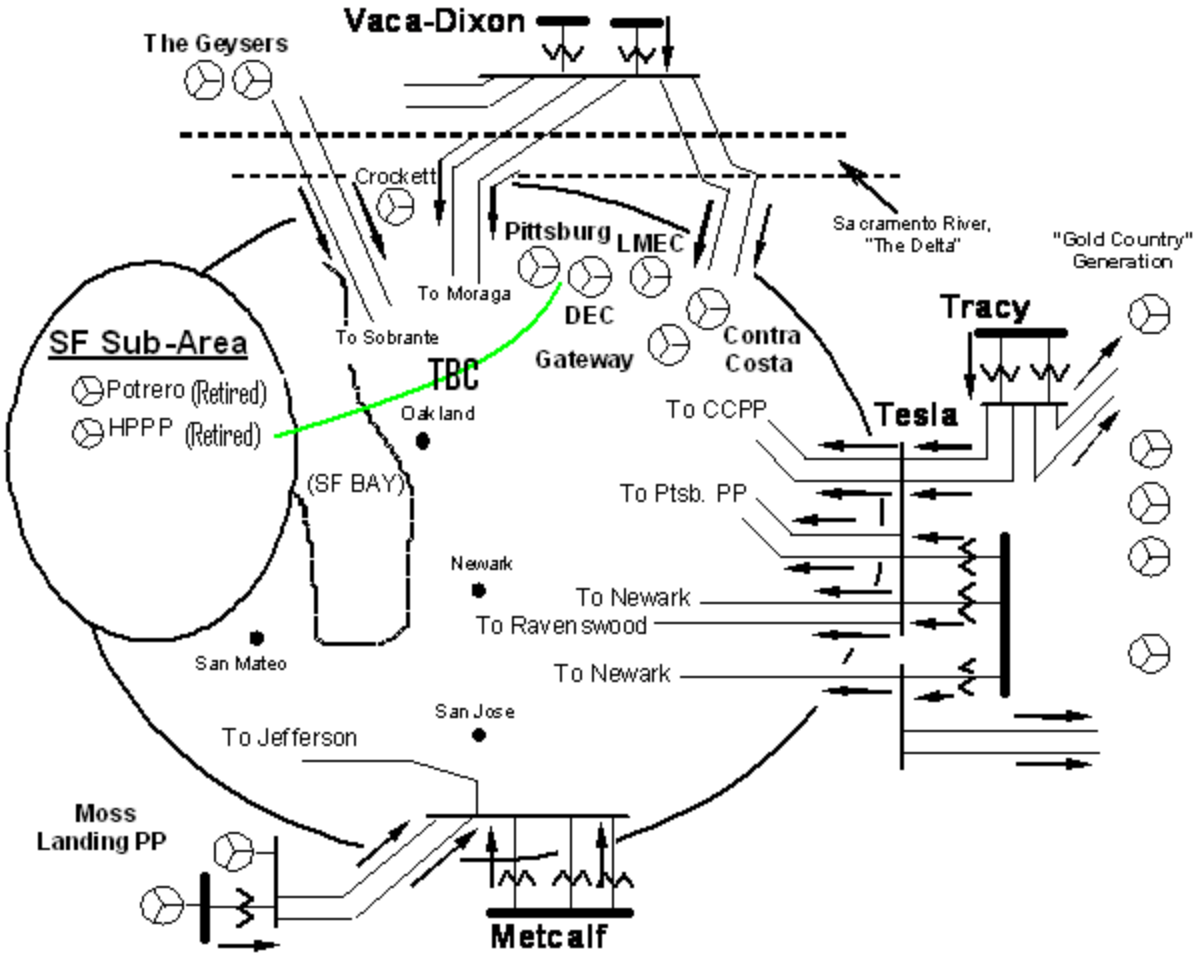
Stakeholder Call

April 14, 2016

Greater Bay Area Map



Greater Bay Area Transmission System



New major transmission projects

- Contra Costa – Moraga 230 kV Line Reconductoring – 06/16
- Embarcadero-Potrero 230 kV Transmission Project – 04/16
- Moraga Transformers Capacity Increase – 10/16
- Pittsburg – Tesla 230 kV Reconductoring – 10/15

Bay Area Load and Resources (MW)

		2017	M-L	Total
Load	=	9,543	595	10,138
AAEE	=	-135	-11	-146
Transmission Losses	=	191	30	221
Pumps	=	264	0	264
Total Load	=	**9,863**	**614**	**10,477**
Market Generation	=	6,262	2,530	8,792
Wind Generation	=	291	0	291
Muni Generation	=	547	0	547
QF Generation	=	232	0	232
Total Qualifying Capacity	=	**7,332**	**2,530**	**9,862**

San Jose Sub Area

San Jose Sub-area – Category B

Contingency: North Receiving Station-Scott Receiving Stations115 kV Line #2 (NRS300-SRS#2) with Duane PP out of service

Limiting component: Thermal overload of North Receiving Station-Scott Receiving Stations115 kV Line #1 (NRS300-SRS #1)

2017 LCR need: 788 MW (includes 5 MW of QF and 230 MW of generation as well as 232 MW of deficiency)

San Jose Sub-area – Category C

Contingency: Same as Category B

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

2017 LCR need: 131 MW (includes 0 MW of QF/Muni generation)

Llagas Sub-area – Category C

2017 LCR need: Same as Category B

South Bay-Moss Landing Sub Area

South Bay-Moss Landing Sub-area – Category B

2017 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

2017 LCR need: 2178 MW (includes 5 MW of QF and 230 MW of Muni generation)

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

Oakland Sub Area

Oakland Sub-area – Category B

2017 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.

2017 LCR need: 45 MW (includes 49 MW of Muni generation)

This requirement does not include the need for the Pittsburg/ Oakland sub-area

Pittsburg/Oakland Sub Area

Pittsburg/Oakland Sub-area – Category B

2017 LCR need: No requirement.

Pittsburg/Oakland Sub-area – Category C

2017 LCR need: No requirement.

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

2017 LCR need:

NCNB: 721 MW (includes 14 MW of QF and 114 MW Muni generation)

Ames: 596 MW (includes 0 MW of QF and Muni generation)

Pittsburg: 1485 MW (includes 200 MW of QF and Muni generation)

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
2017 LCR need: 1,081 MW (includes 289 MW of Wind generation and 264 MW of MUNI pumps)

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

2017 LCR need: 4260 MW (includes 232 MW of QF, 547 MW of MUNI and 291 MW of wind generation)

Bay Area Overall – Category C

Sum of Category C from sub-area needs: 5385 MW (includes 232 MW of QF, 547 MW of MUNI and 291 MW of wind generation)

Greater Bay Area

Available Generation

Year	QF (MW)	Muni (MW)	Wind (MW)	Market (MW)	Max. Qualifying Capacity (MW)
2017	232	547	291	8792	9862

Total LCR need

2017	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
Category B (Single)	4260	232	4492
Category C (Multiple)	5385	232	5617

Changes

Since last year:

1) 2017 load forecast is higher by 394 MW vs. 2016 (due to expanded Bay Area)
2) Additional 614 MW of load in the Moss Landing area
3) LCR need has increased by 1,268 MW vs. 2016 – due deficiency increase in the San Jose sub pocket and new requirement in the South Bay-Moss Landing sub-area
4) The “Existing Generation Capacity Needed” has increased by 1,167 MW
5) Area definition expanded to include Moss Landing resources and load

Since last stakeholder meeting:

1) Updated NQC.
2) Updated studies after load was increased by 520 MW (load behind the meter) in order for the base case to correlate well with CEC forecast.

Your comments and questions are welcome.

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