



2020 & 2024 Final LCR Study Results North Coast & North Bay Area

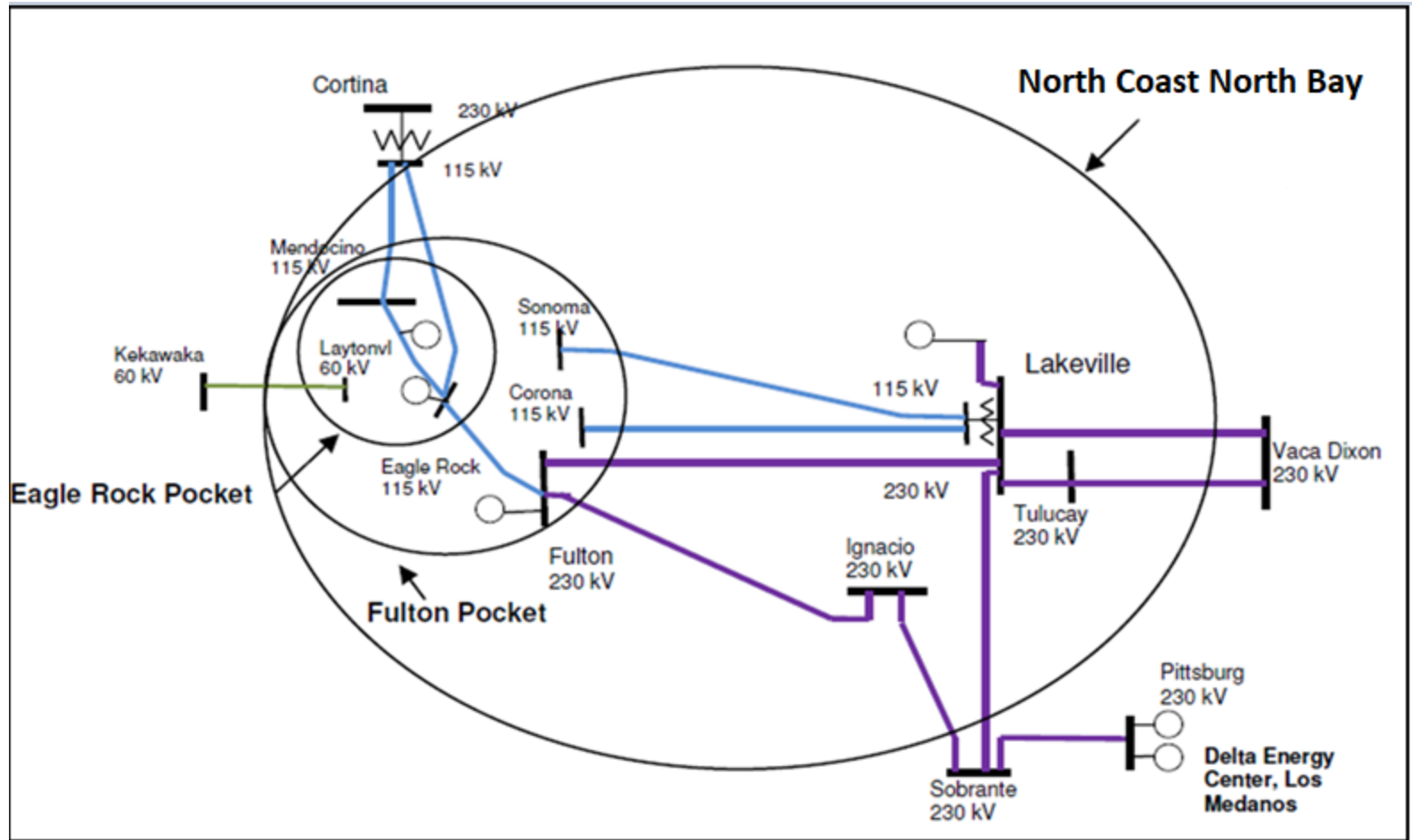
Bryan Fong

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Stakeholder Call

April 10, 2019

North Coast & Bay Area Transmission System



Topology changes

Project Name	Expected ISD
Fulton-Fitch Mountain 60kV Line Reconductor (Fulton-Hopland 60kv Line) Project – Revised Scope	2019
Clear Lake 60kV System Reinforcement - Revised Scope	2023
Ignacio-Alto 60kV Line Conversion - Revised Scope	2023
Lakeville 60kV Area Reinforcement	2021
Vaca-Lakeville 230kV Corridor Series Compensation	2020

Resource Additions:

- No new resource additions

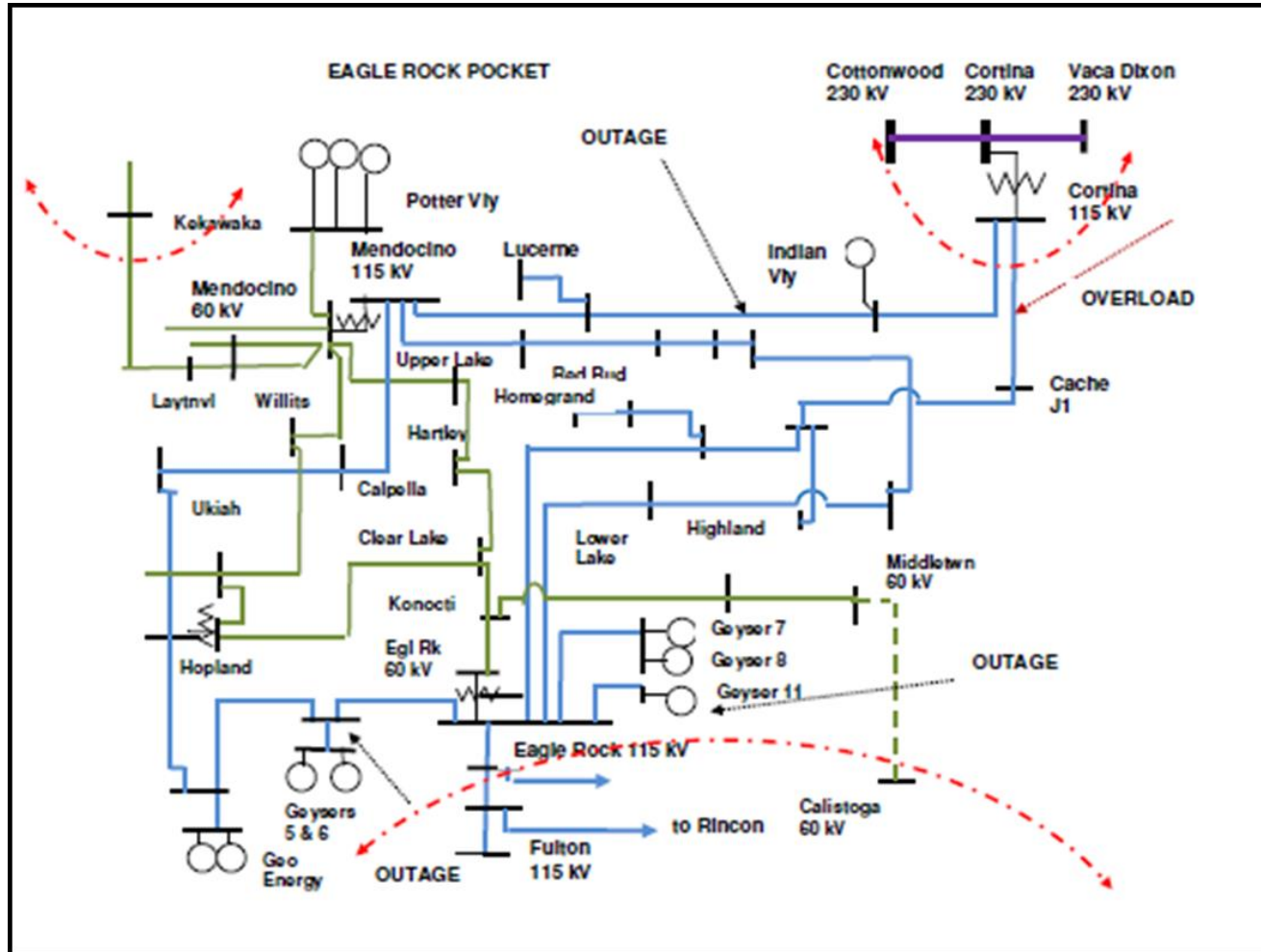
Resource Retirements:

- No new retirements

Eagle Rock Subarea: Load and Resources

Load (MW)	2020	2024	Generation (MW)	2020	2024
Gross Load	257	261	Market	248	248
AAEE	-3	-10	Solar	1	1
Behind the meter DG	-7	-1	Muni	2	2
Net Load	247	250	QF	0	0
Transmission Losses	12	13	Future preferred resource and energy storage	0	0
Pumps	0	0	Total Qualifying Capacity	251	251
Load + Losses + Pumps	259	263			

Eagle Rock Sub Area : One-line diagram

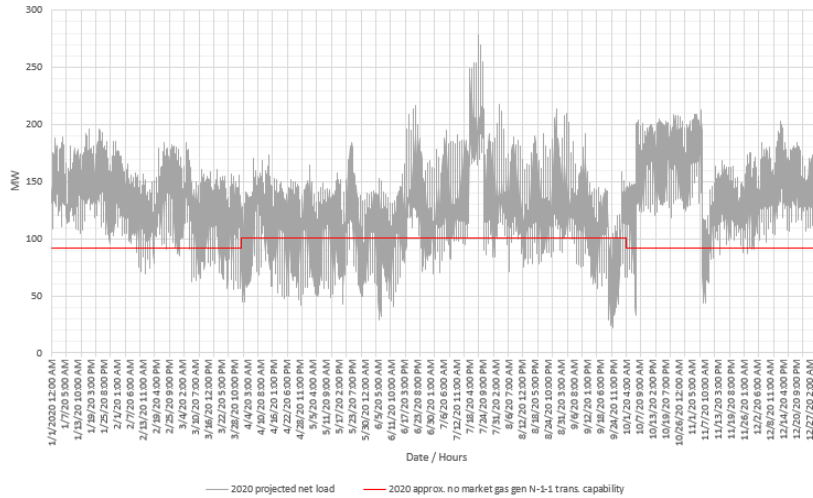


Eagle Rock Sub Area : Requirements

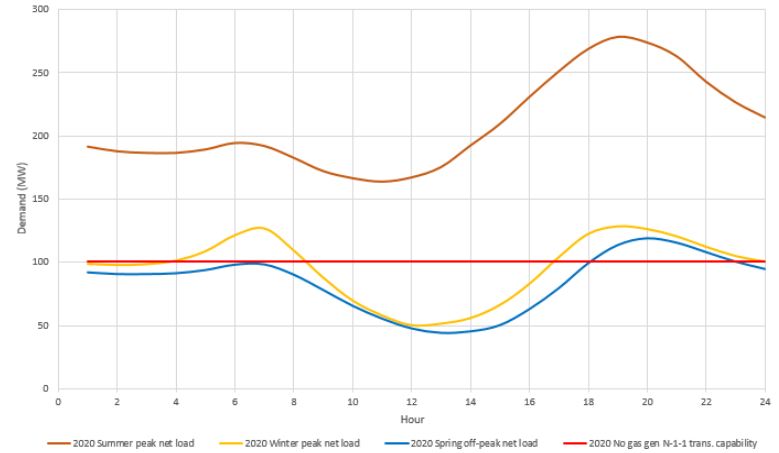
Year	Limit	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	First Limit	B	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino 115 kV line with Geysers #11 unit out of service	210
2020	First Limit	C	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino and Geysers #3-Geysers #5 115 kV lines	227
2024	First Limit	B	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino 115 kV line with Geysers #11 unit out of service	223
2024	First Limit	C	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino and Geysers #3-Geysers #5 115 kV lines	240

Eagle Rock Subarea: Load Profiles

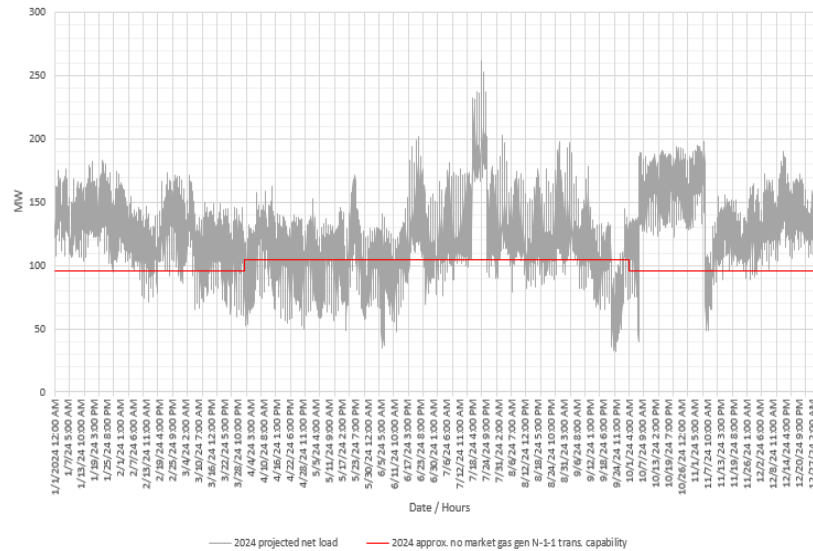
NCNB - Eagle Rock LCR Subarea:
2020 projected load profile & approx. no local gas gen N-1-1 trans. capability



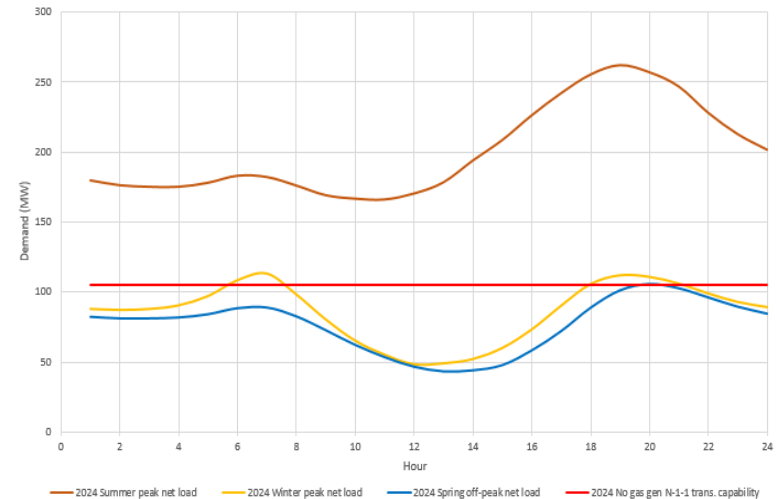
NCNB - Eagle Rock LCR Subarea:
2020 projected daily profiles & approx. no local gas gen N-1-1 trans. capability



NCNB - Eagle Rock LCR Subarea:
2024 projected load profile & approx. no local gas gen N-1-1 trans. capability



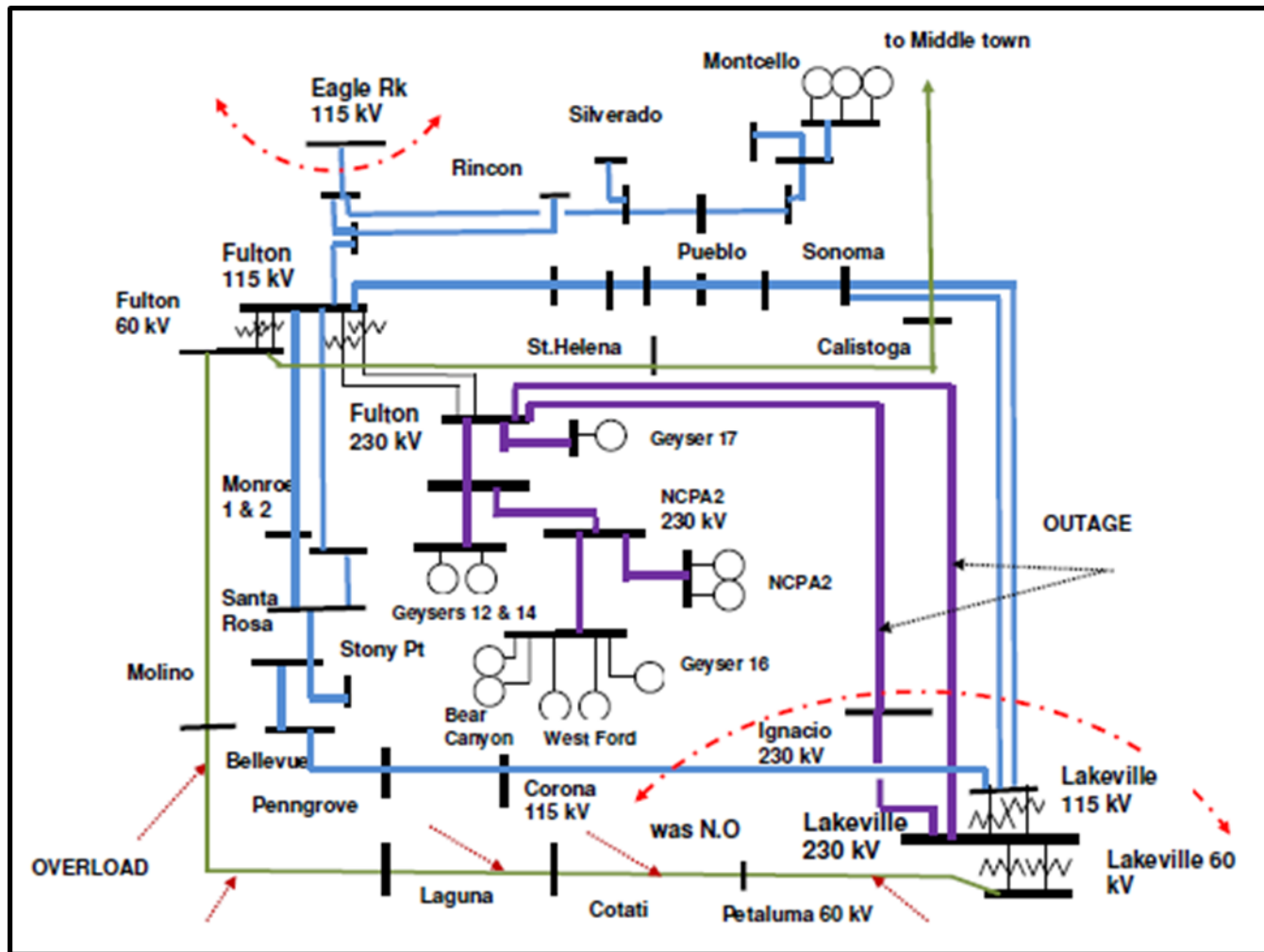
NCNB - Eagle Rock LCR Subarea:
2024 projected daily profiles & approx. no local gas gen N-1-1 trans. capability



Fulton Subarea: Load and Resources

Load (MW)	2020	2024	Generation (MW)	2020	2024
Gross Load	895	908	Market	460	460
AAEE	-10	-31	Solar	1	1
Behind the meter DG	-33	-4	Muni	55	55
Net Load	852	873	QF	4	4
Transmission Losses	23	25	Future preferred resource and energy storage	0	0
Pumps	0	0	Total Qualifying Capacity	520	520
Load + Losses + Pumps	875	898			

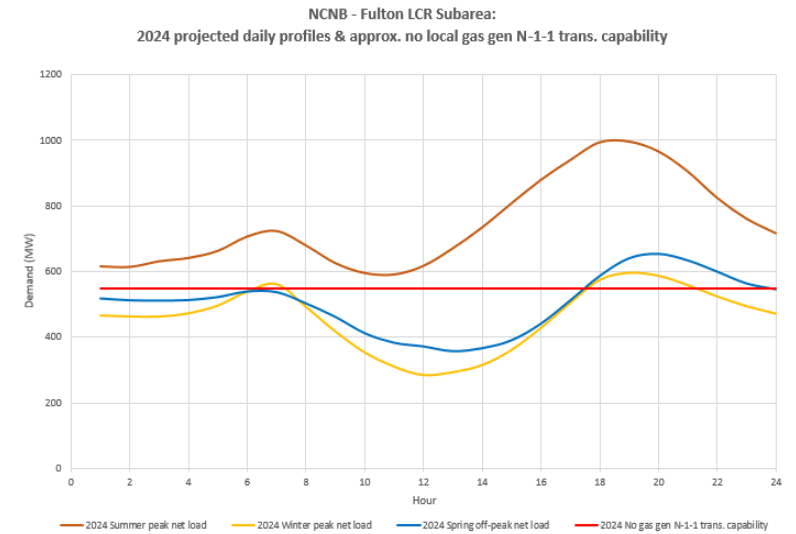
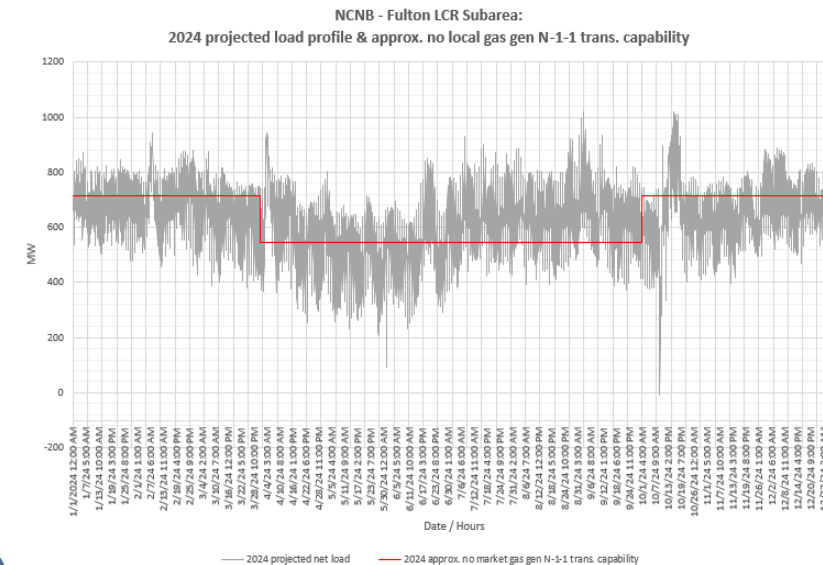
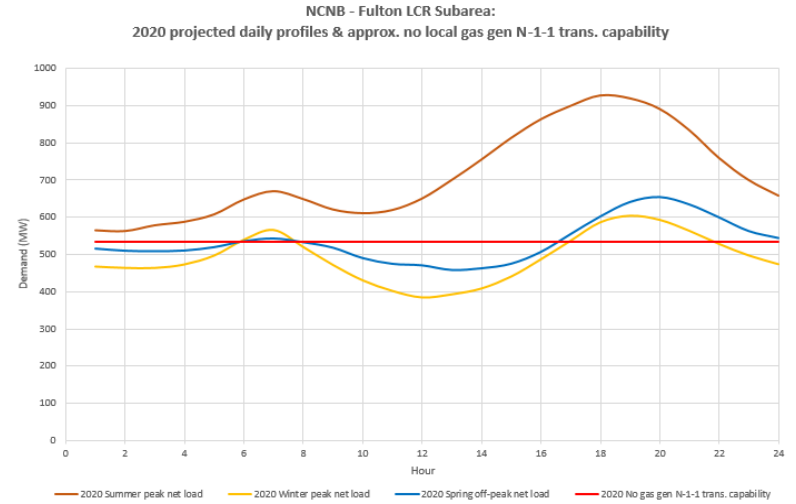
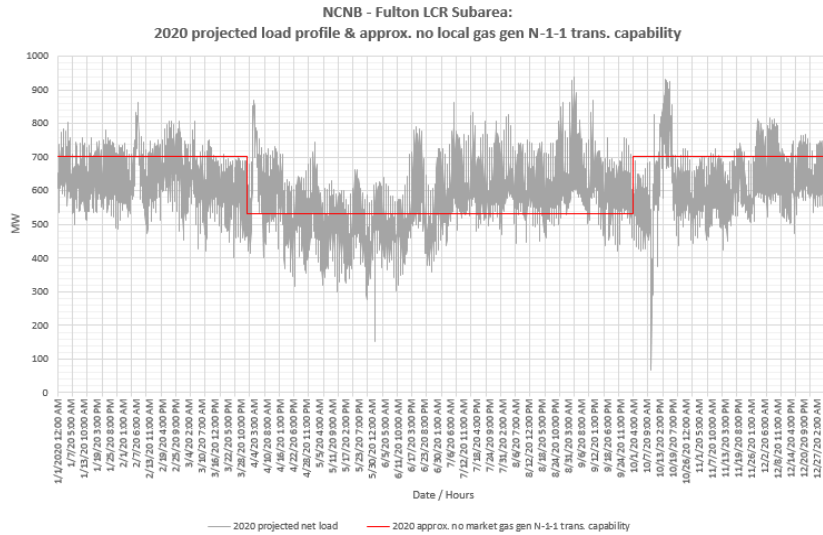
Fulton Sub Area : One-line diagram



Fulton Sub Area : Requirements

Year	Limit	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	First Limit	C	Thermal overload on Lakeville# 2 60 kV line (Lakeville-Petaluma-Cotati 60 kV)	Fulton-Lakeville and Fulton-Ignacio 230 kV lines	456
2024	First Limit	C	Thermal overload on Lakeville# 2 60 kV line (Lakeville-Petaluma-Cotati 60 kV)	Fulton-Lakeville and Fulton-Ignacio 230 kV lines	415

Fulton Subarea: Load Profiles



North Coast & North Bay Area Overall: Load and Resources

Load (MW)	2020	2024	Generation (MW)	2020	2024
Gross Load	1525	1550	Market	715	715
AAEE	-16	-50	Solar	1	1
Behind the meter DG	-58	-7	Muni	113	113
Net Load	1451	1493	QF	4	4
Transmission Losses	41	44	Future preferred resource and energy storage	0	0
Pumps	0	0	Total Qualifying Capacity	833	833
Load + Losses + Pumps	1492	1537			

NCNB Area : Requirement

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	B/C	Vaca Dixon-Lakeville 230 kV line	Vaca Dixon-Tulucay 230 kV line with Delta Energy Center power plant out of service	742
2024	B/C	Vaca Dixon-Lakeville 230 kV line	Vaca Dixon-Tulucay 230 kV line with Delta Energy Center power plant out of service	706

Associated Ames/Pittsburg/Oakland Subarea : Requirements

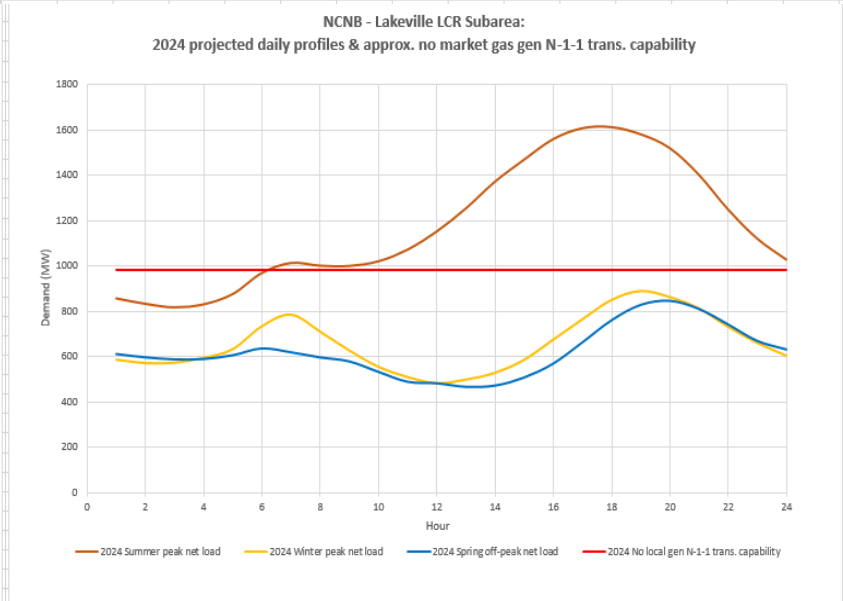
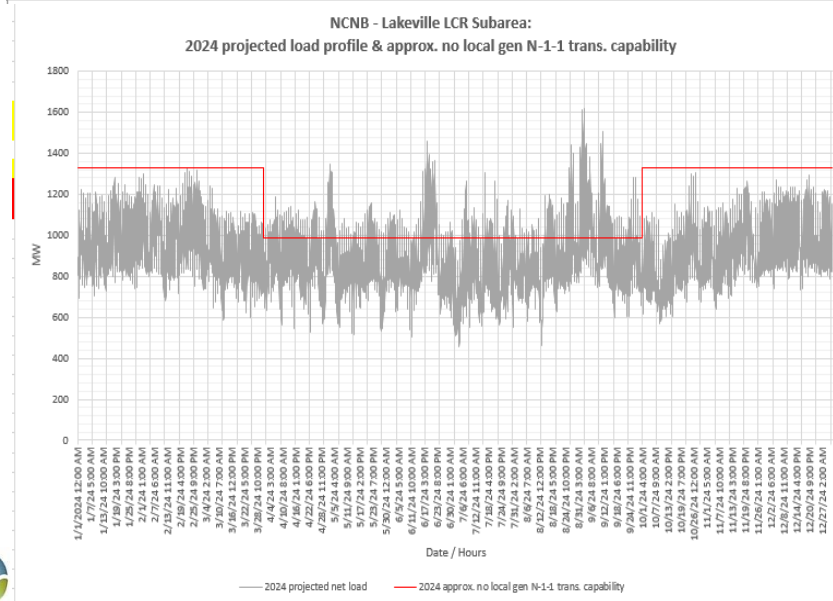
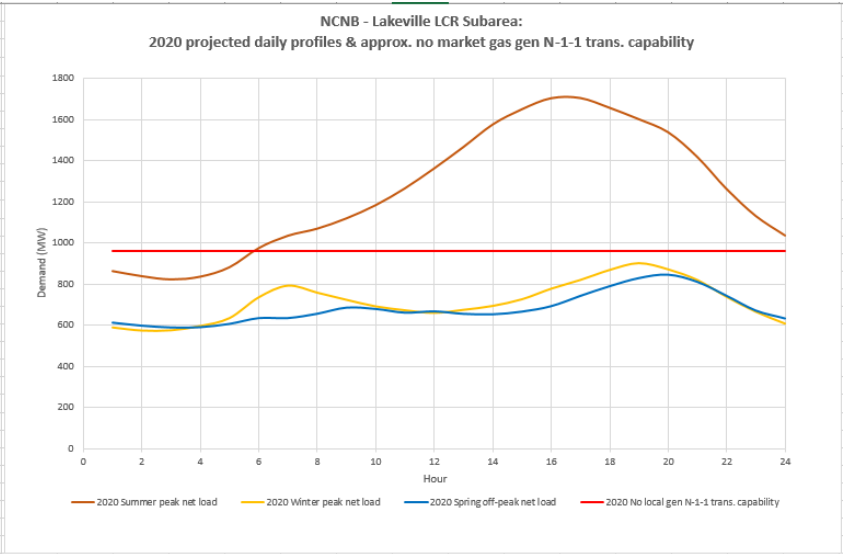
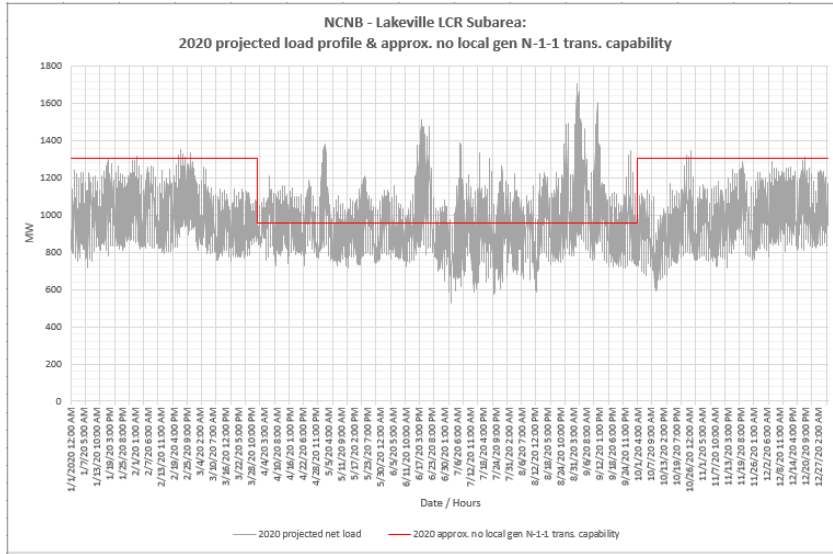
Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	B	Non-binding requirement		
	C	Ames-Ravenswood #1 115 kV line	Newark-Ravenswood & Tesla-Ravenswood 230 kV lines	1614
Moraga-Claremont #2 115 kV line		Moraga-Sobrante & Moraga-Claremont #1 115 kV lines		
2024	B	Non-binding requirement		
	C	Ames-Ravenswood #1 115 kV line	Newark-Ravenswood & Tesla-Ravenswood 230 kV lines	1563
Moraga-Claremont #2 115 kV line		Moraga-Sobrante & Moraga-Claremont #1 115 kV lines		

North Coast & North Bay Area Total Generation & LCR Need

Generation	Market (MW)	Solar (MW)	Muni (MW)	QF (MW)	Total MW
2020	715	1	113	4	833
2024	715	1	113	4	833

Year	LCR Need	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
2020	Category B (Single)	742	0	742
	Category C (Multiple)	742	0	742
2024	Category B (Single)	706	0	706
	Category C (Multiple)	706	0	706

North Coast North Bay Area: Load Profiles



Changes Compared to Previous LCR Requirements

Subarea	2019		2020		2023		2024	
	Load	LCR	Load	LCR	Load	LCR	Load	LCR
Eagle Rock	256	228	259	227	262	257	263	240
Fulton	887	525	875	456	919	553	898	316
Overall	1465	689	1492	742	1524	553	1537	706