



# 2020 & 2024 LCR Study Draft Results North Coast & North Bay Area

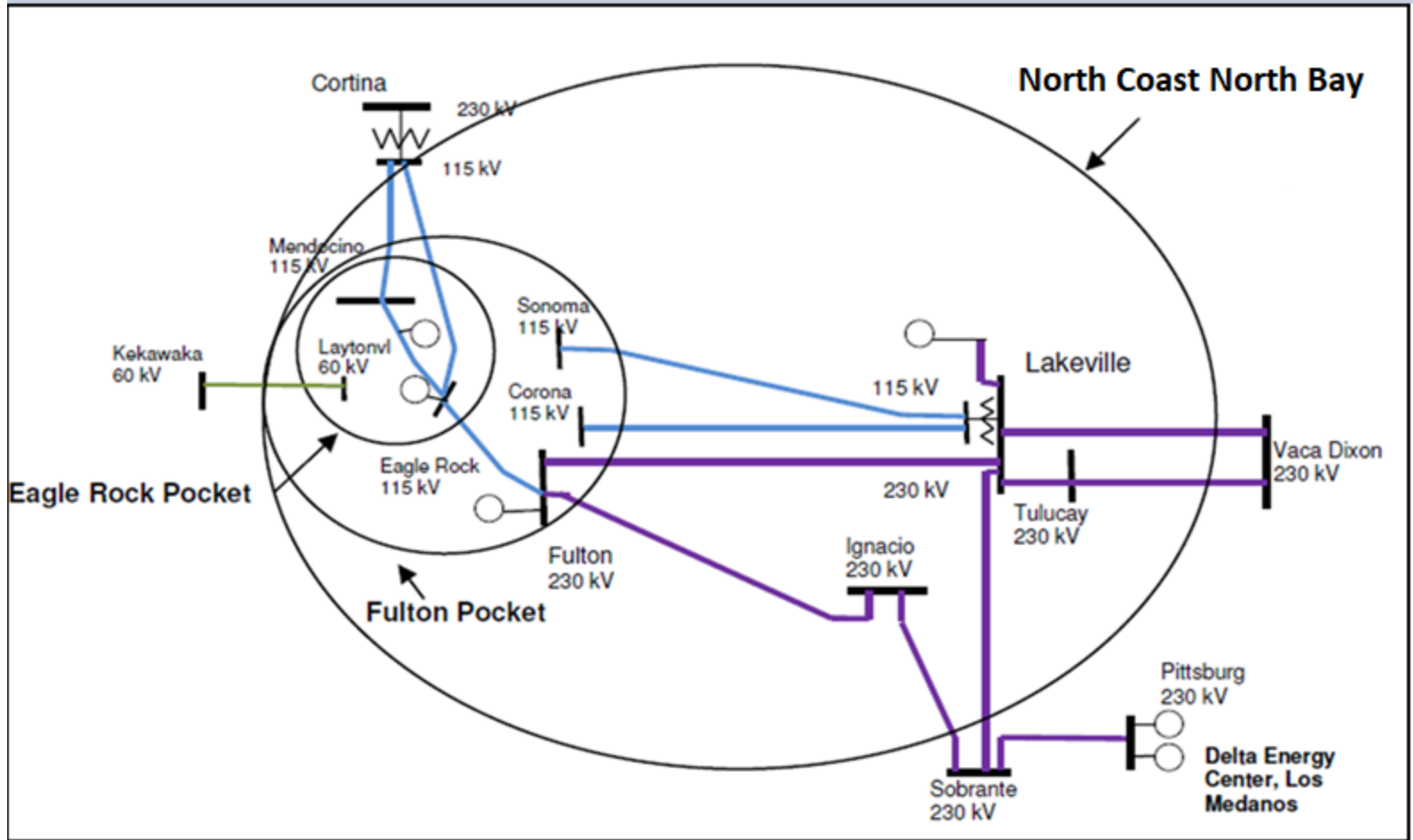
Bryan Fong

Senior Regional Transmission Engineer

Stakeholder Meeting

March 14, 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

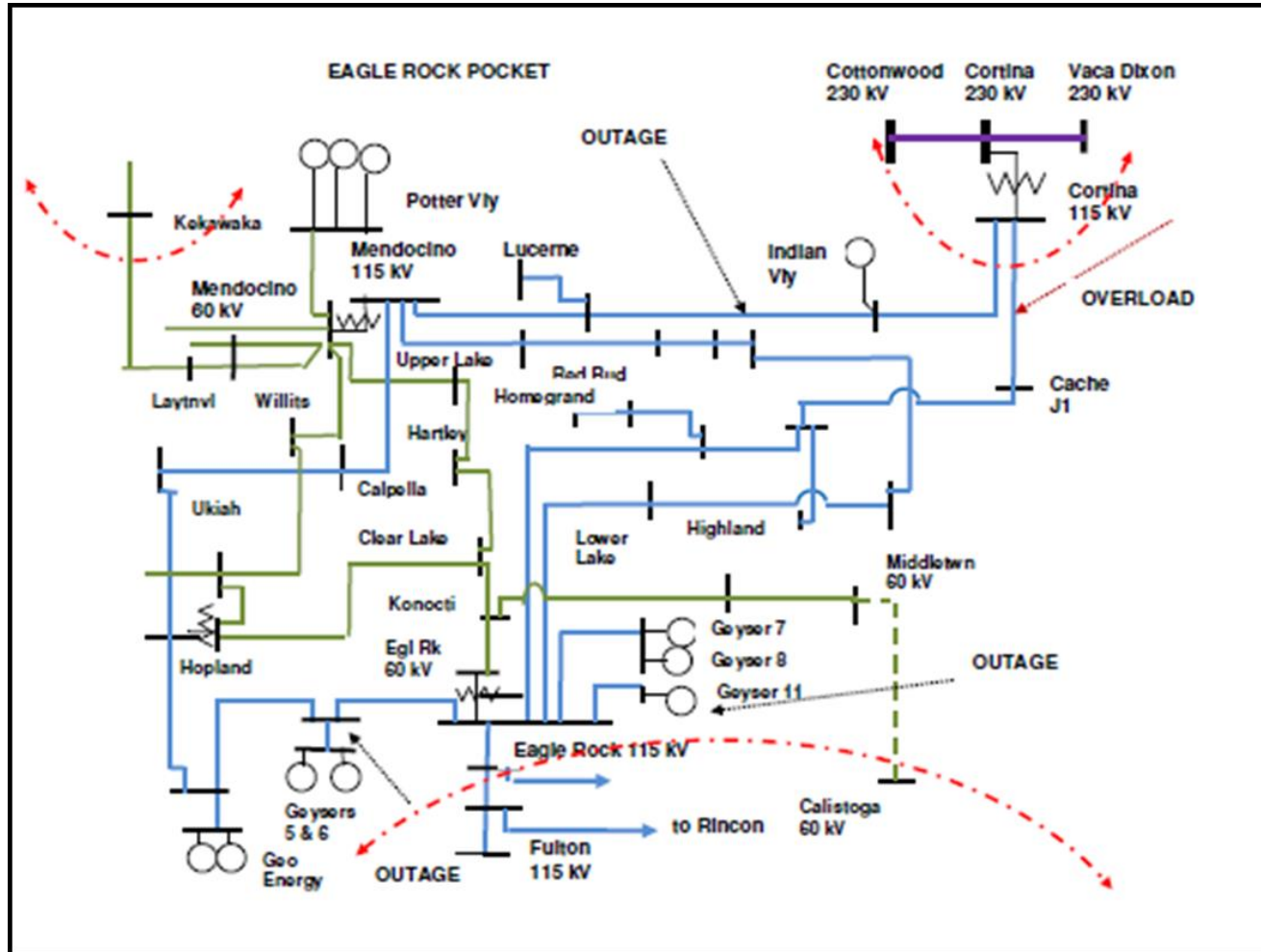
## Resource Retirements:

- No new retirements

## Eagle Rock Subarea: Load and Resources

Load (MW)	2020	2024	Generation (MW)	2020	2024
Gross Load	257	261	Market	249	249
AAEE	-3	-10	Wind	0	0
Behind the meter DG	-7	-1	Muni	2	2
<b>Net Load</b>	<b>247</b>	<b>250</b>	QF	0	0
Transmission Losses	12	13	Future preferred resource and energy storage	0	0
Pumps	0	0	<b>Total Qualifying Capacity</b>	<b>251</b>	<b>251</b>
<b>Load + Losses + Pumps</b>	<b>259</b>	<b>263</b>			

# Eagle Rock Sub Area : One-line diagram

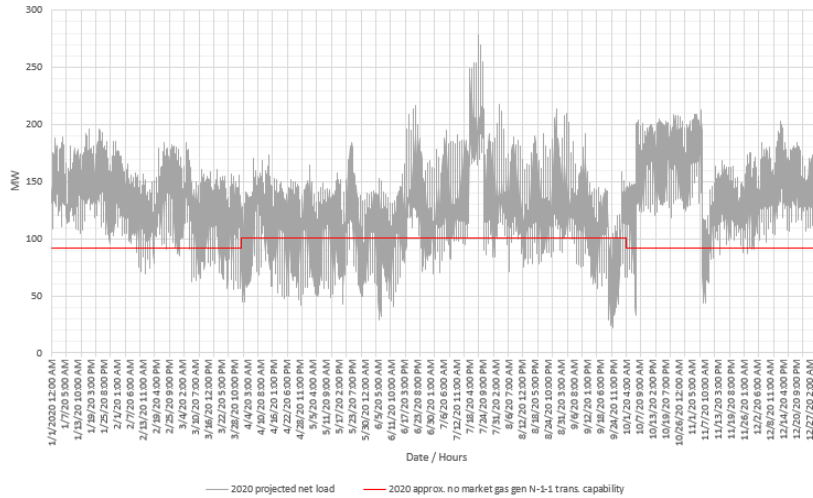


# Eagle Rock Sub Area : Requirements

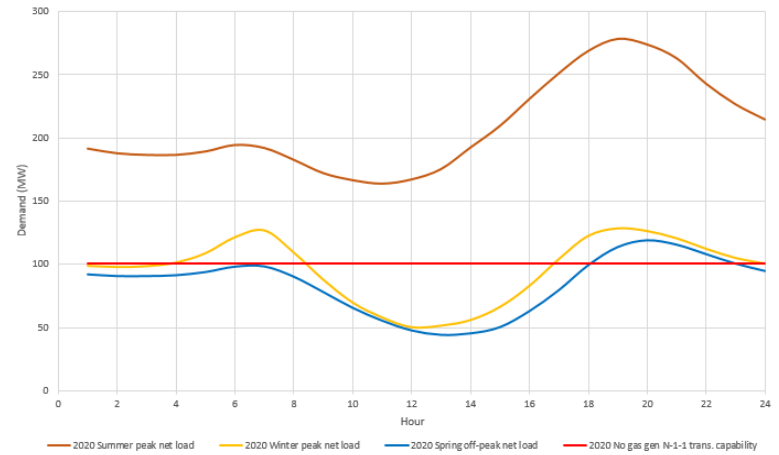
Year	Limit	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	First Limit	B	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino 115 kV line with Geysers #11 unit out of service	210
2020	First Limit	C	Thermal overload on Eagle Rock-Cortina 115 kV line	Cortina-Mendocino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

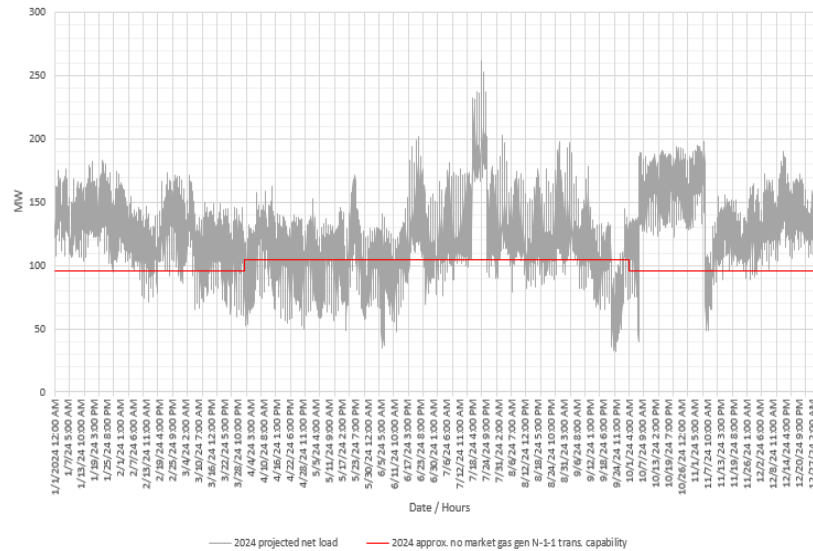
NCNB - Eagle Rock LCR Subarea:  
2020 projected load profile & approx. no local gas gen N-1-1 trans. capability



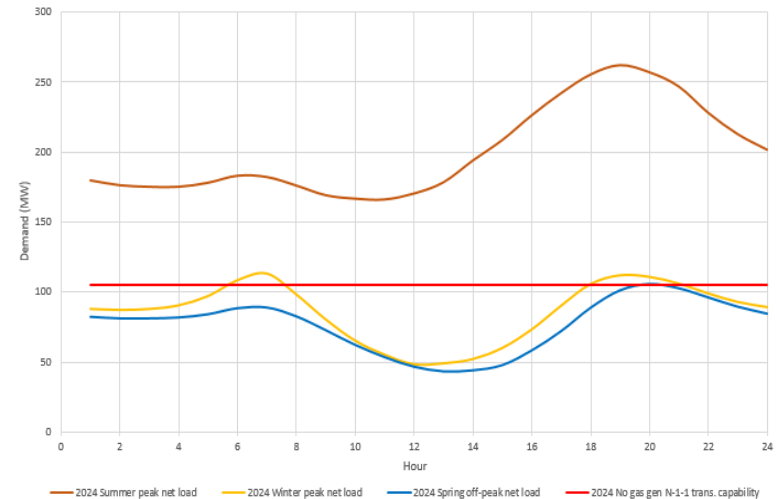
NCNB - Eagle Rock LCR Subarea:  
2020 projected daily profiles & approx. no local gas gen N-1-1 trans. capability



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	461	461
AAEE	-10	-31	Wind	0	0
Behind the meter DG	-33	-4	Muni	54	54
<b>Net Load</b>	<b>852</b>	<b>873</b>	QF	5	5
Transmission Losses	23	25	Future preferred resource and energy storage	0	0
Pumps	0	0	<b>Total Qualifying Capacity</b>	<b>520</b>	<b>520</b>
<b>Load + Losses + Pumps</b>	<b>875</b>	<b>898</b>			



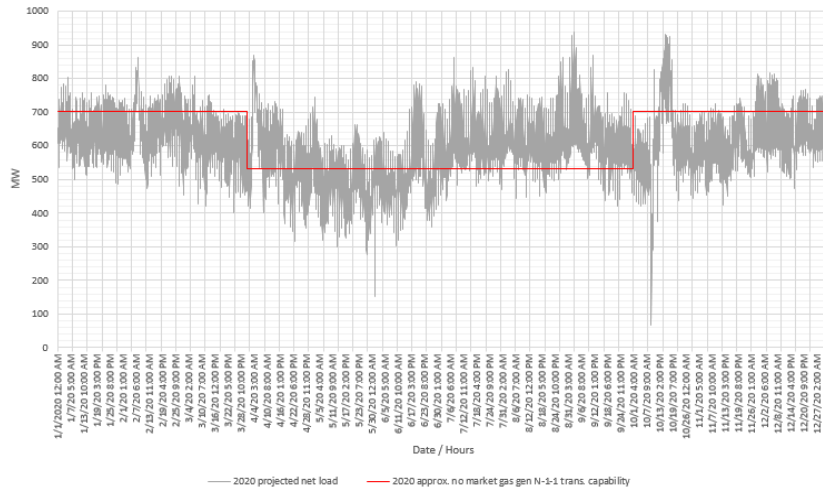


# Fulton Sub Area : Requirements

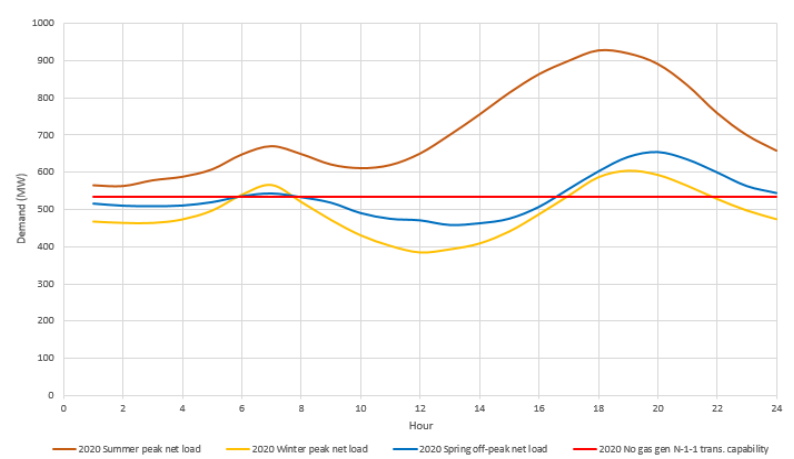
Year	Limit	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	First Limit	C	Thermal overload on Lakeville# 2 60 kV line (Lakeville-Petaluma-Cotati 60 kV)	Fulton-Lakeville and Fulton-Ignacio 230 kV lines	456
2024	First Limit	C	Thermal overload on Lakeville# 2 60 kV line (Lakeville-Petaluma-Cotati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

# Fulton Subarea: Load Profiles

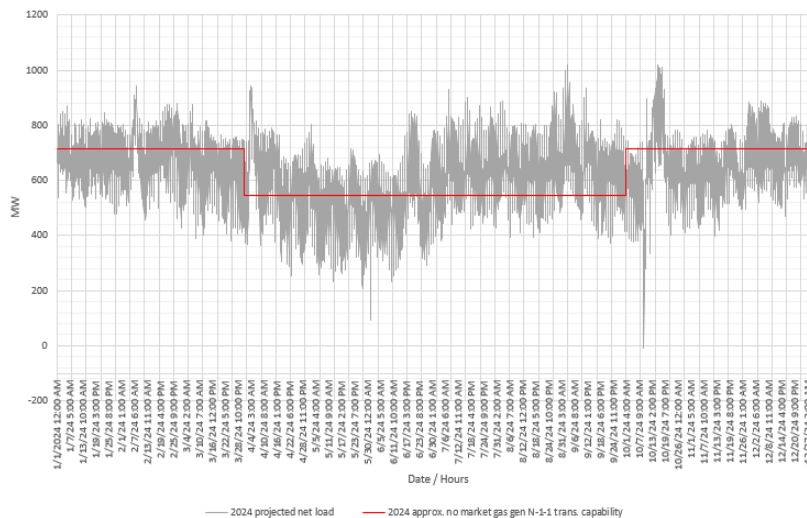
NCNB - Fulton LCR Subarea:  
2020 projected load profile & approx. no local gas gen N-1-1 trans. capability



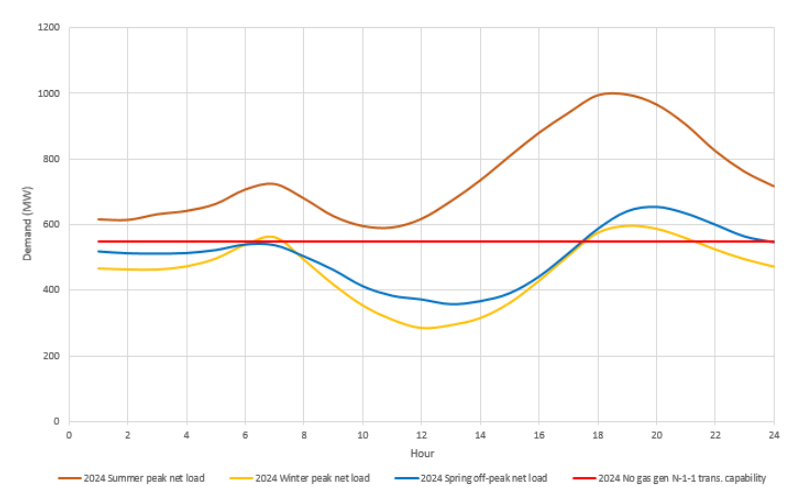
NCNB - Fulton LCR Subarea:  
2020 projected daily profiles & approx. no local gas gen N-1-1 trans. capability



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



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



## 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	Wind	0	0
Behind the meter DG	-58	-7	Muni	113	113
<b>Net Load</b>	<b>1451</b>	<b>1493</b>	QF	5	5
Transmission Losses	41	44	Future preferred resource and energy storage	0	0
Pumps	0	0	<b>Total Qualifying Capacity</b>	<b>833</b>	<b>833</b>
<b>Load + Losses + Pumps</b>	<b>1492</b>	<b>1537</b>			

# 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

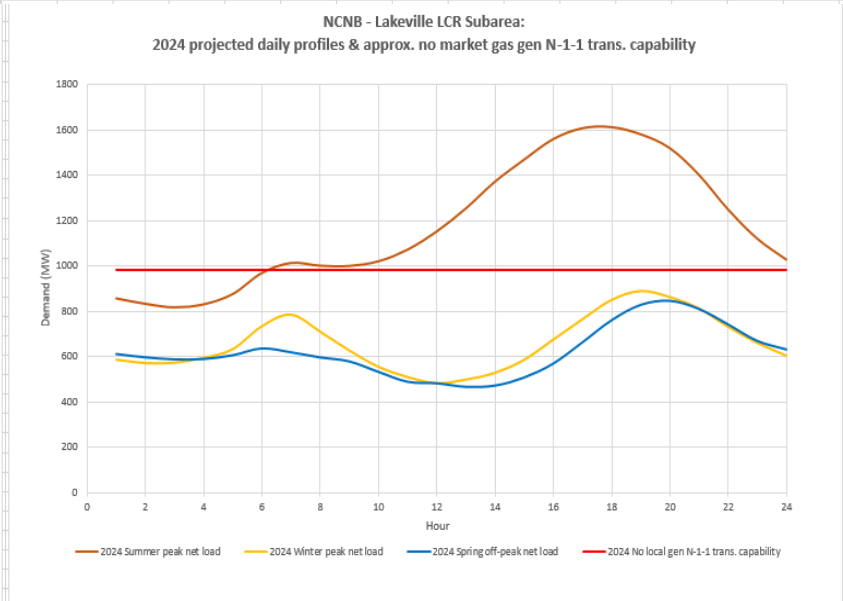
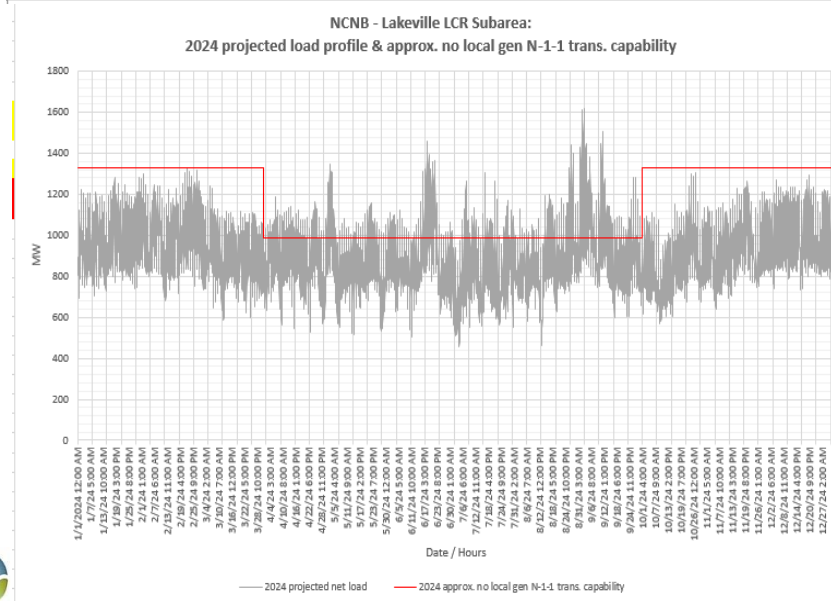
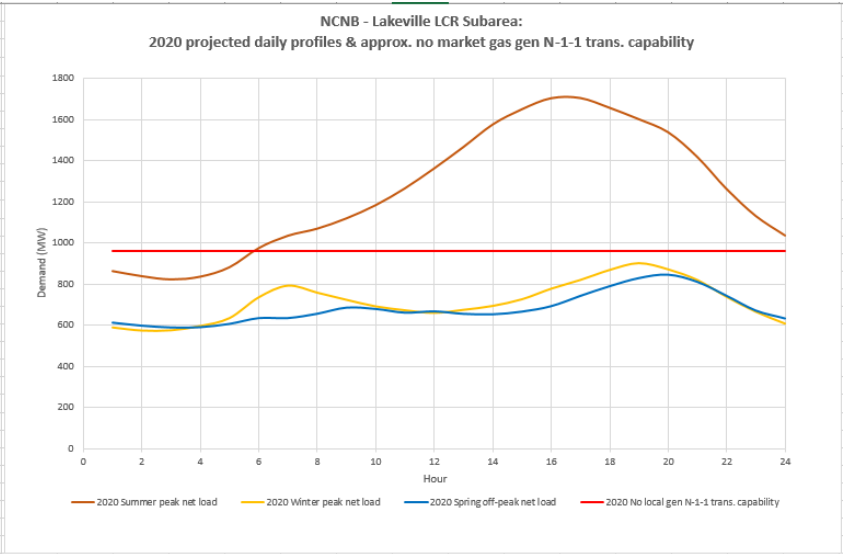
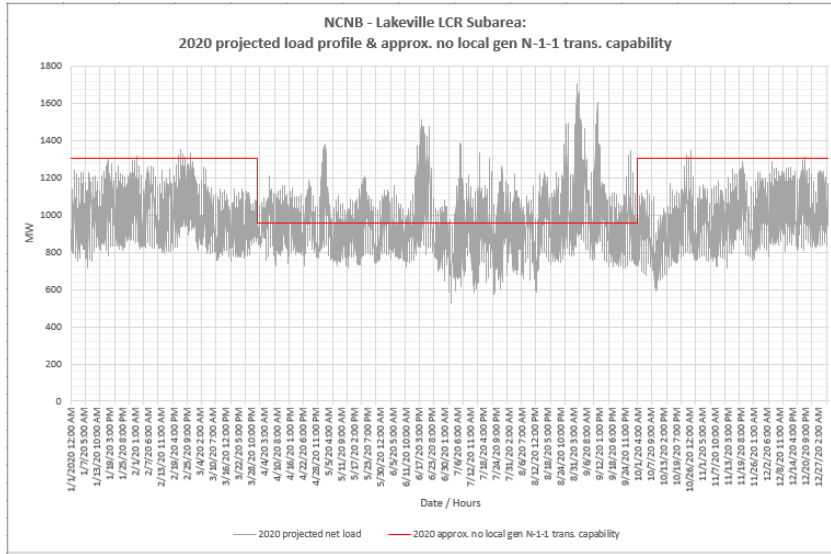
Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2020	B	Non-binding requirement		
	C	Ames-Ravenswood #1 115 kV line	Newark-Ravenswood & Tesla-Ravenswood 230 kV lines	1614
		Moraga-Claremont #2 115 kV line	Moraga-Sobrante & Moraga-Claremont #1 115 kV lines	
2024	B	Non-binding requirement		
	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)	Wind (MW)	Muni (MW)	QF (MW)	Total MW
2020	715	0	113	5	833
2024	715	0	113	5	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
<b>Eagle Rock</b>	256	228	259	227	262	257	263	240
<b>Fulton</b>	887	525	875	456	919	553	898	316
<b>Overall</b>	1465	689	1492	742	1524	553	1537	706