2024 & 2028 Final LCR Study Results Sierra Area

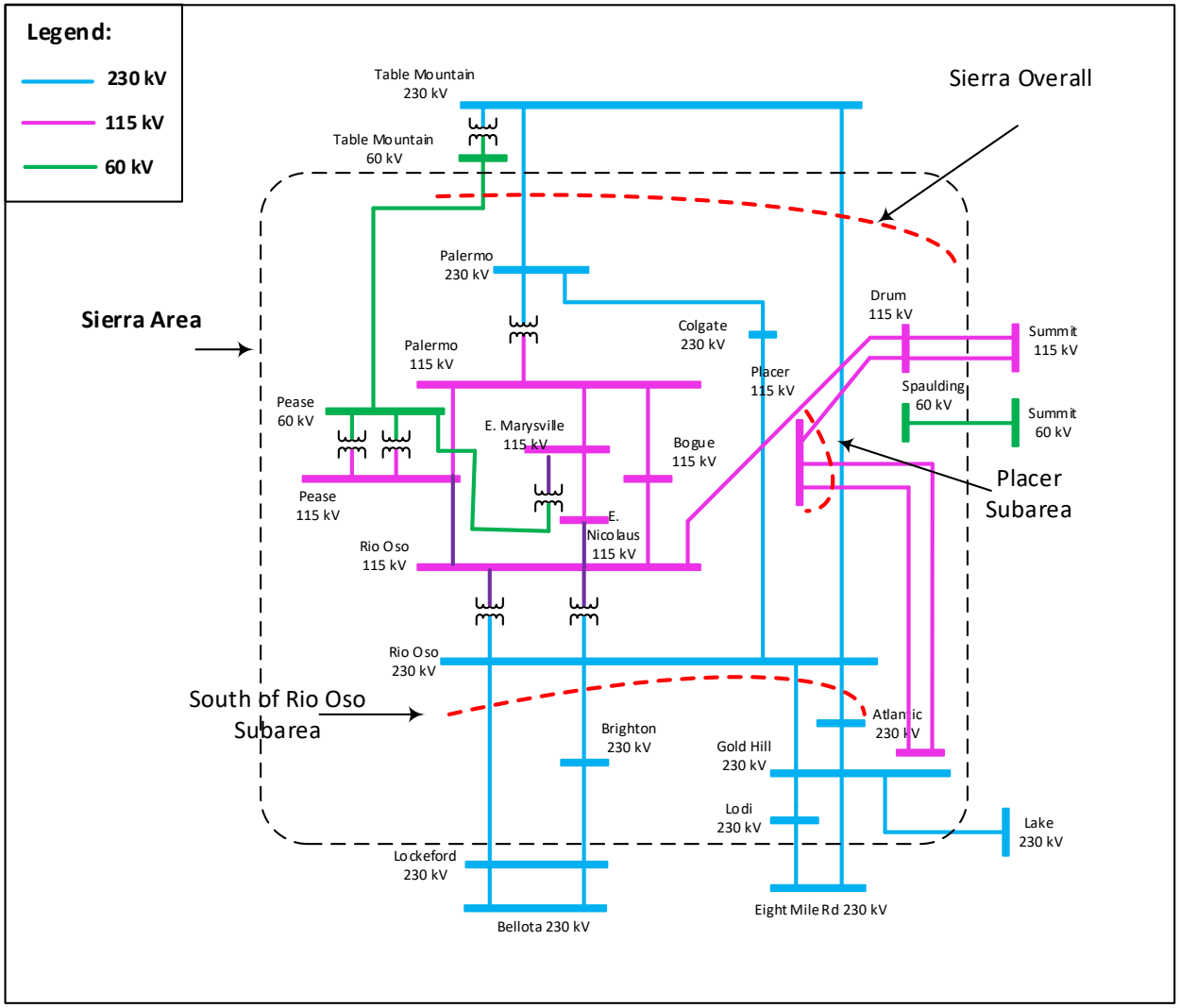
Subrina Sultana Noureen

Regional Transmission Engineer

Stakeholder Call

April 12, 2023

Sierra Area Transmission System & LCR Sub-areas



New major transmission projects

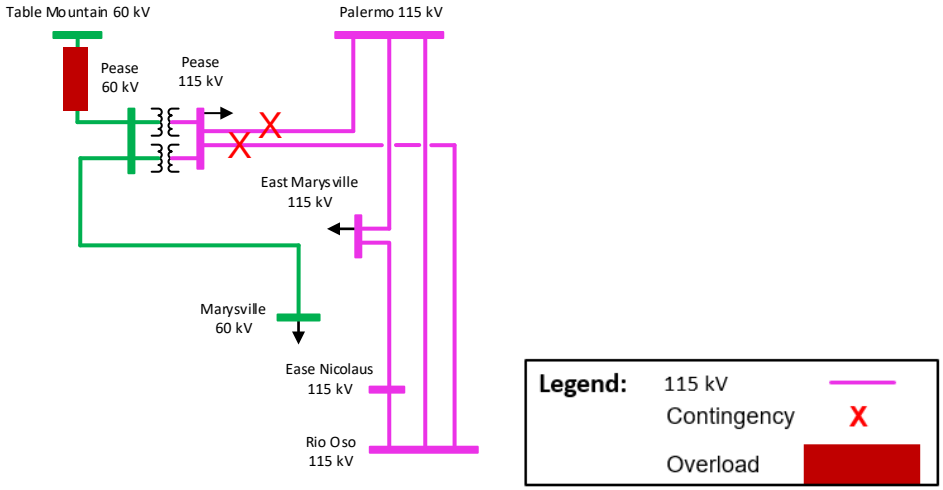
Project Name	Expected ISD
Rio Oso 230/115 kV Transformer Upgrades	Apr-24
Rio Oso Area 230 kV Voltage Support	Oct-24
East Marysville 115/60 kV	Nov-27
Gold Hill 230/115 kV Transformer Addition	Jun-28
Reconductor Rio Oso–SPI Jct–Lincoln 115kV line	2028
Atlantic 230/60 kV transformer voltage regulator	2026

Sierra Area Overall: Load and Resources

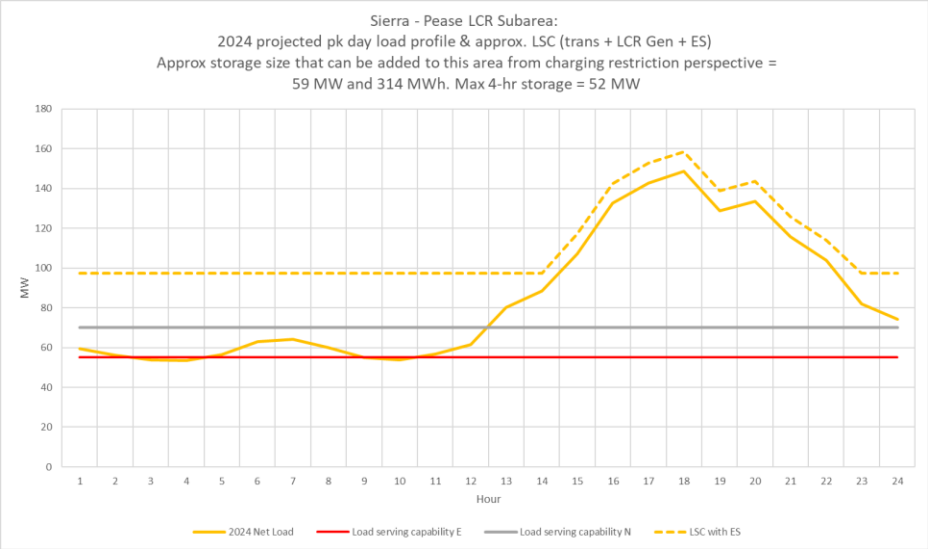
Load (MW)	2024	2028	Generation (MW)	2024	2028
Gross Load	1703	1787	Market/Net Seller	681	681
AAEE	-11	-11	Battery	5	5
Behind the meter DG	0	0	MUNI/QF	1197	1197
Net Load	**1692**	**1776**	Solar	0	0
Transmission Losses	66	67	Existing 20-minute Demand Response	0	0
Pumps	0	0	Mothballed	0	0
Load + Losses + Pumps	**1758**	**1843**	**Total**	**1883**	**1883**

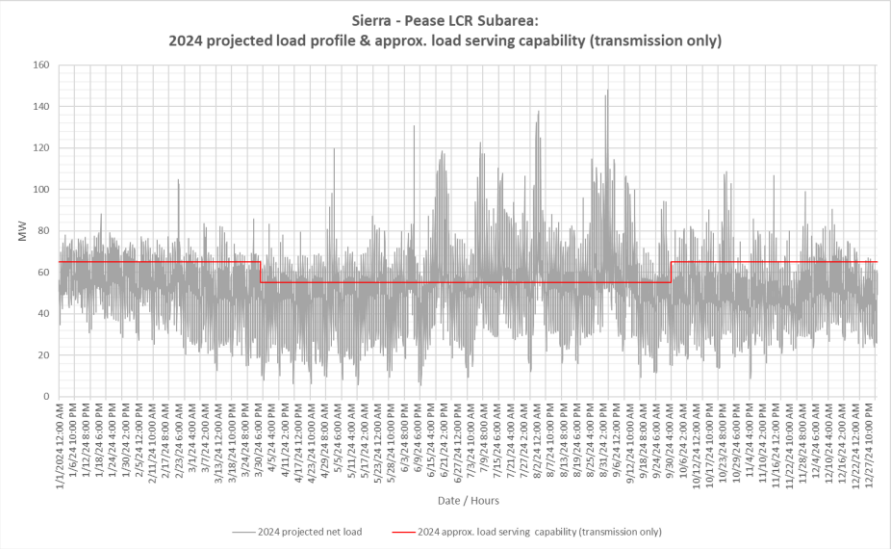
Pease Sub-Area: Requirements

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2024	P6, P7	Table Mountain – Pease 60 kV line	Palermo – Pease 115 kV and Pease – Rio Oso 115 kV	86
2028	No LCR due to implementation of East Marysville 115/60 kV Project			No requirements



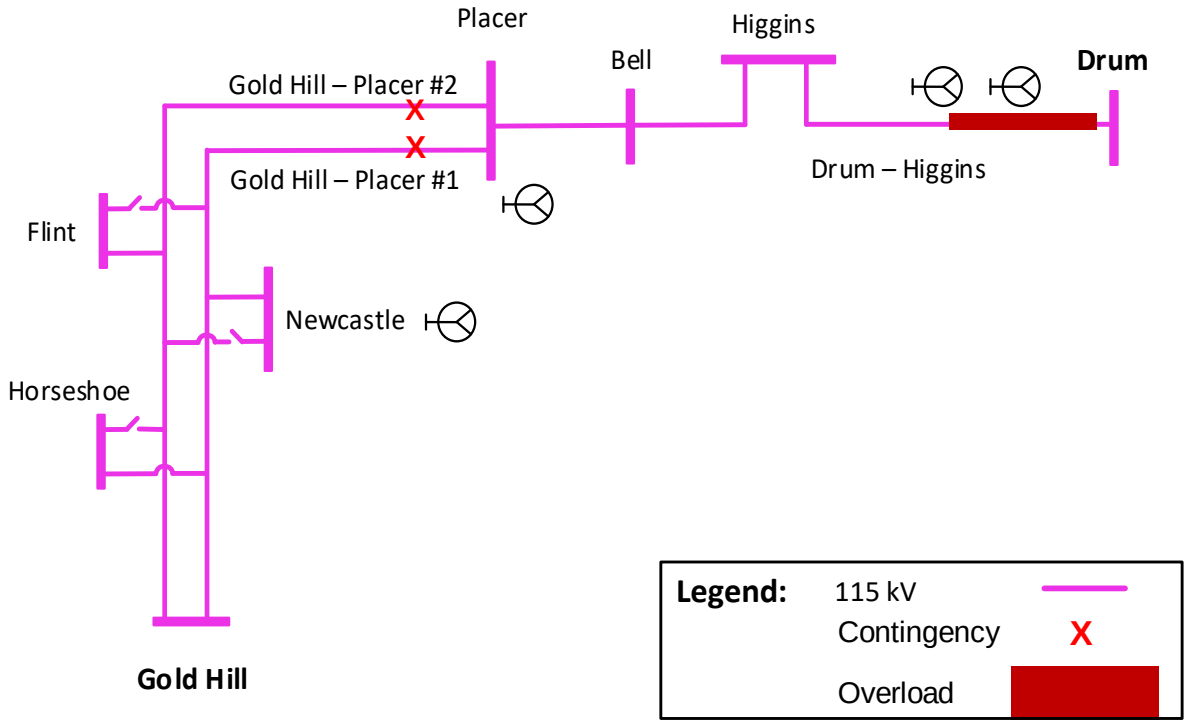
Pease Sub-area: Load Profiles



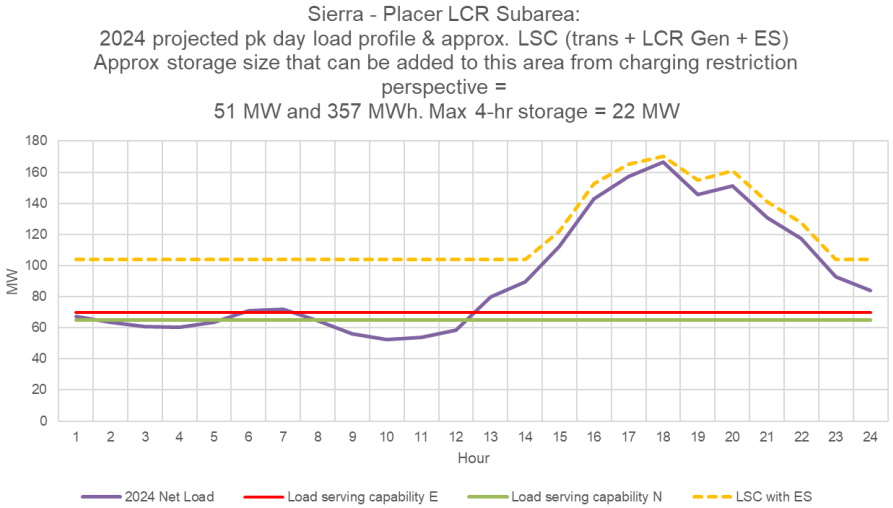


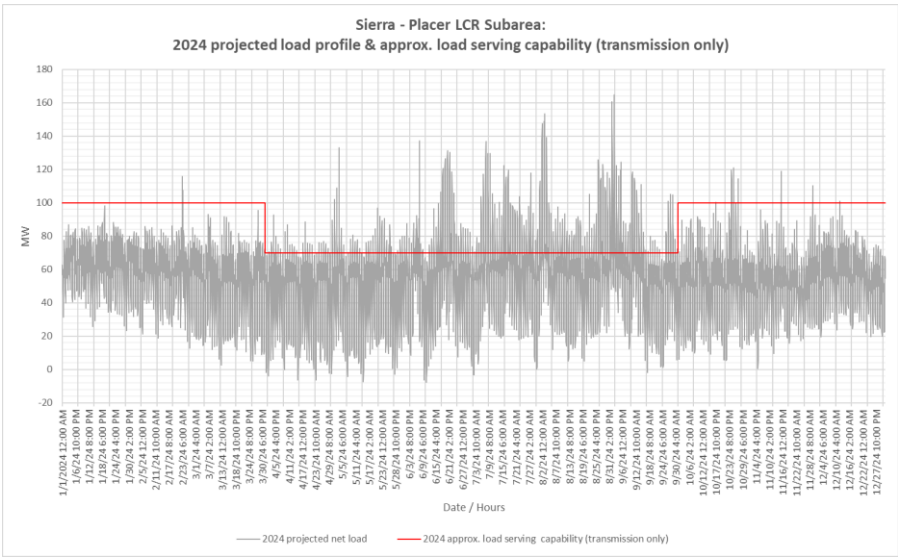
Placer Sub-Area: Requirements

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2024	P6, P7	Drum – Higgins 115 kV line	Gold Hill – Placer #1 and #2 115 kV lines	90 (30)
2028	P6, P7	Drum – Higgins 115 kV line	Gold Hill – Placer #1 and #2 115 kV lines	107 (47)

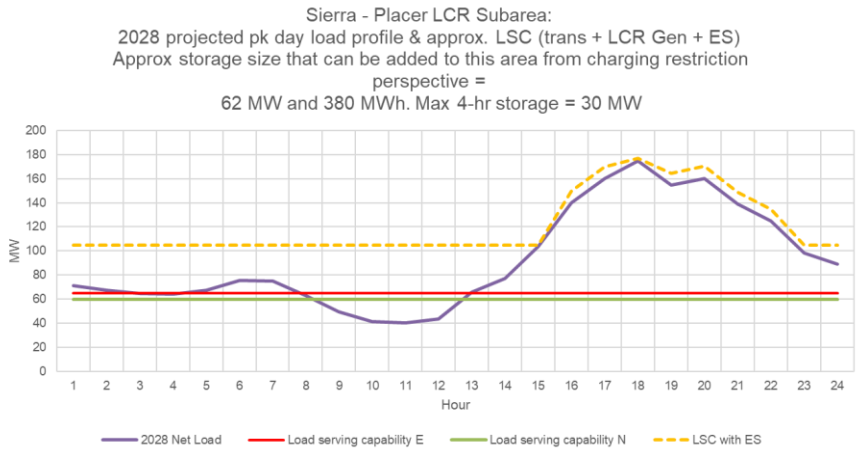


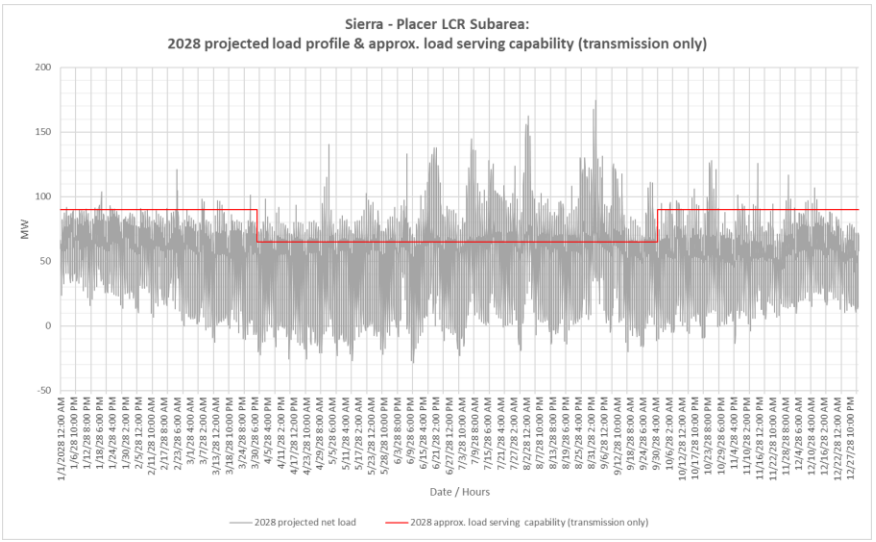
Placer Sub-area: Load Profiles





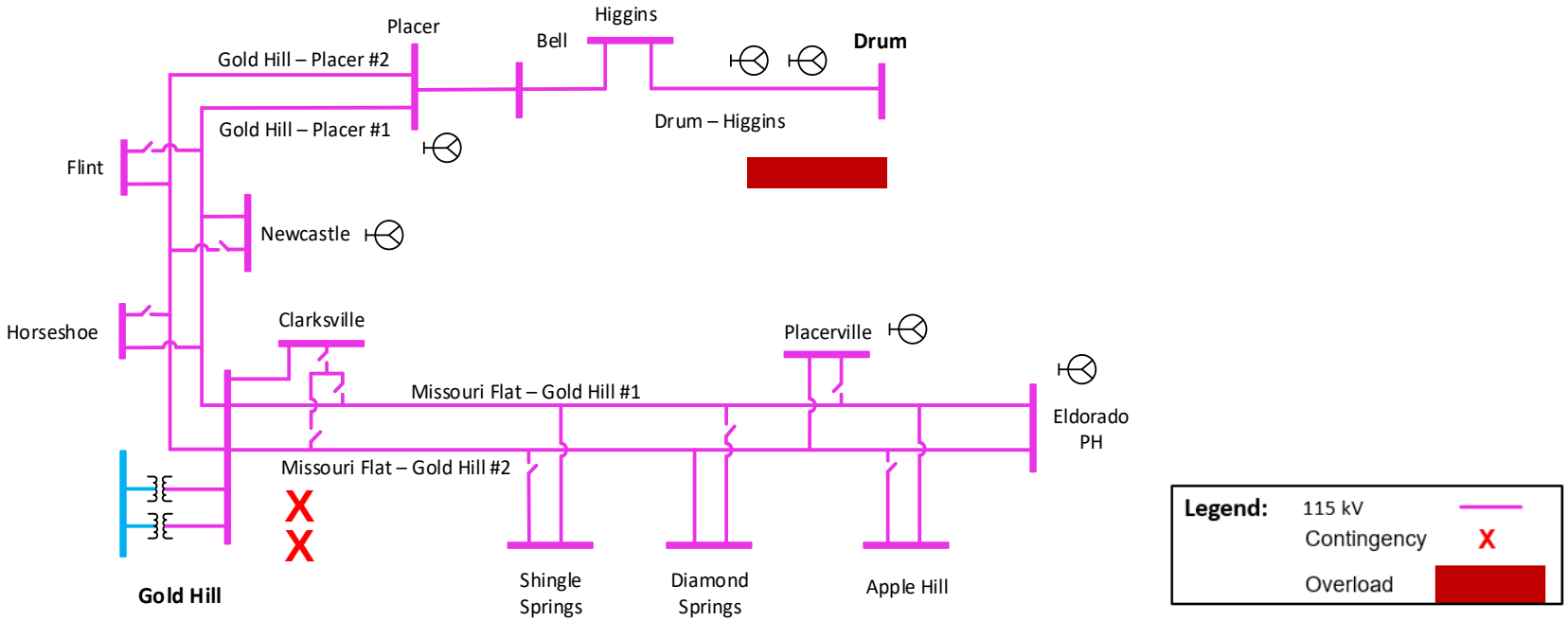
Placer Sub-area: Load Profiles



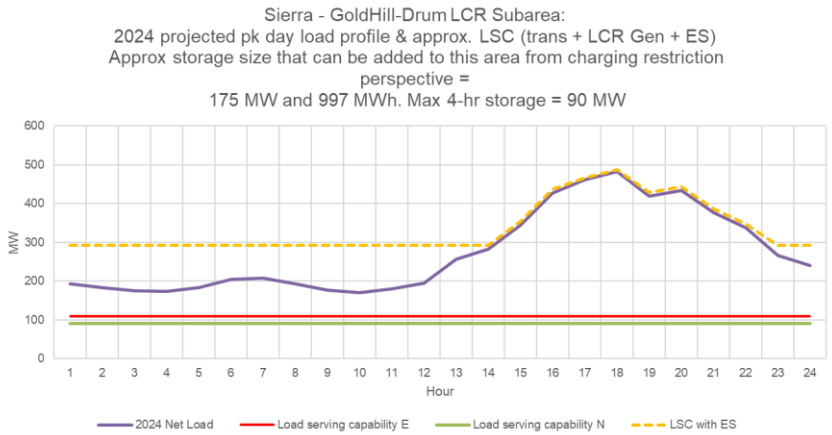


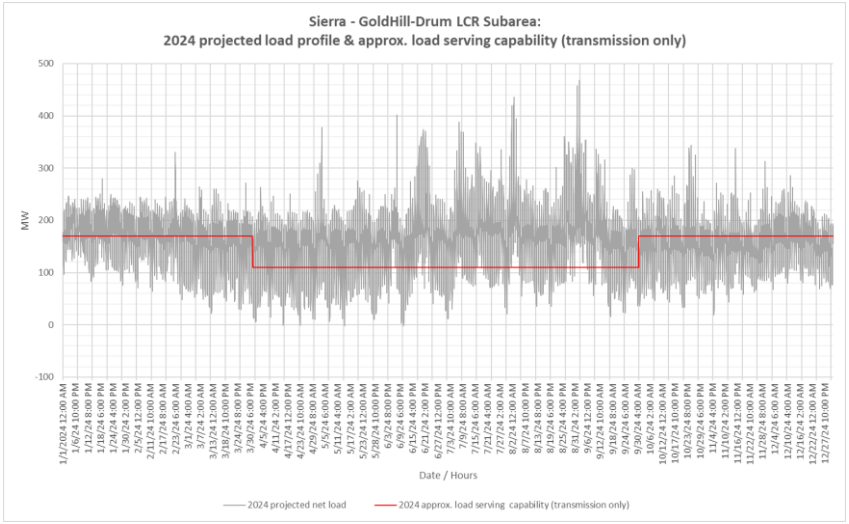
Gold Hill - Drum Sub-Area: Requirements

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2024	P6	Drum – Higgins 115 kV	Gold Hill 230/115 kV #1 and Gold Hill 230/115 kV #2 Transformers	377 (307)
2028	P6	Drum – Higgins 115 kV	Gold Hill 230/115 kV #1 and Gold Hill 230/115 kV #2 Transformers	397(327)

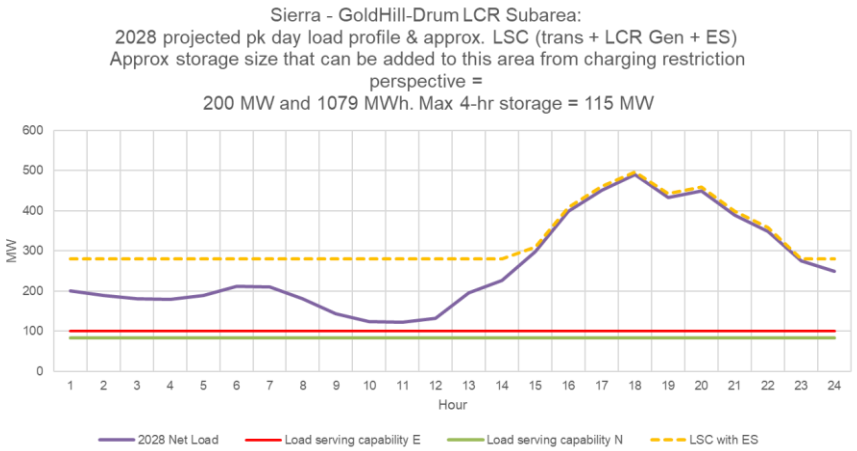


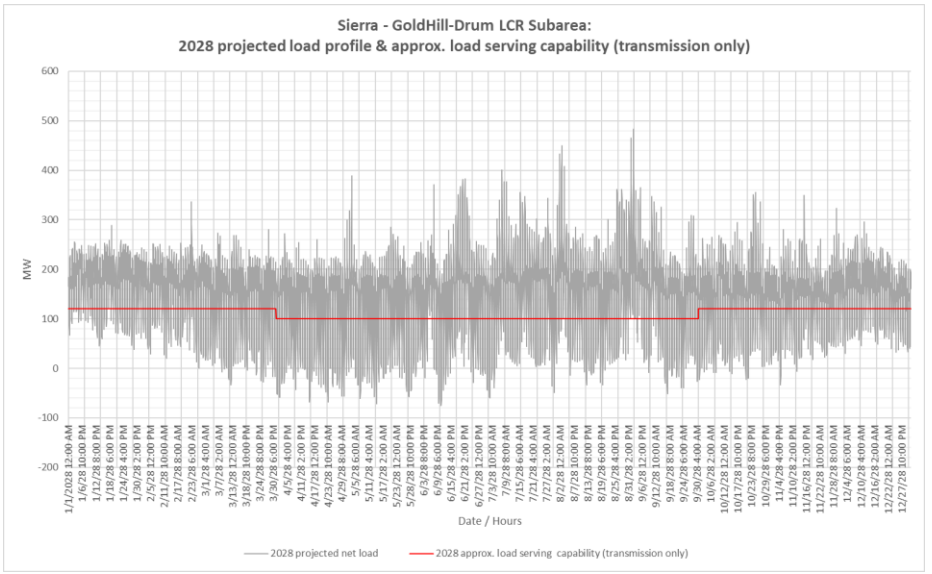
Gold Hill - Drum Sub-area: Load Profiles





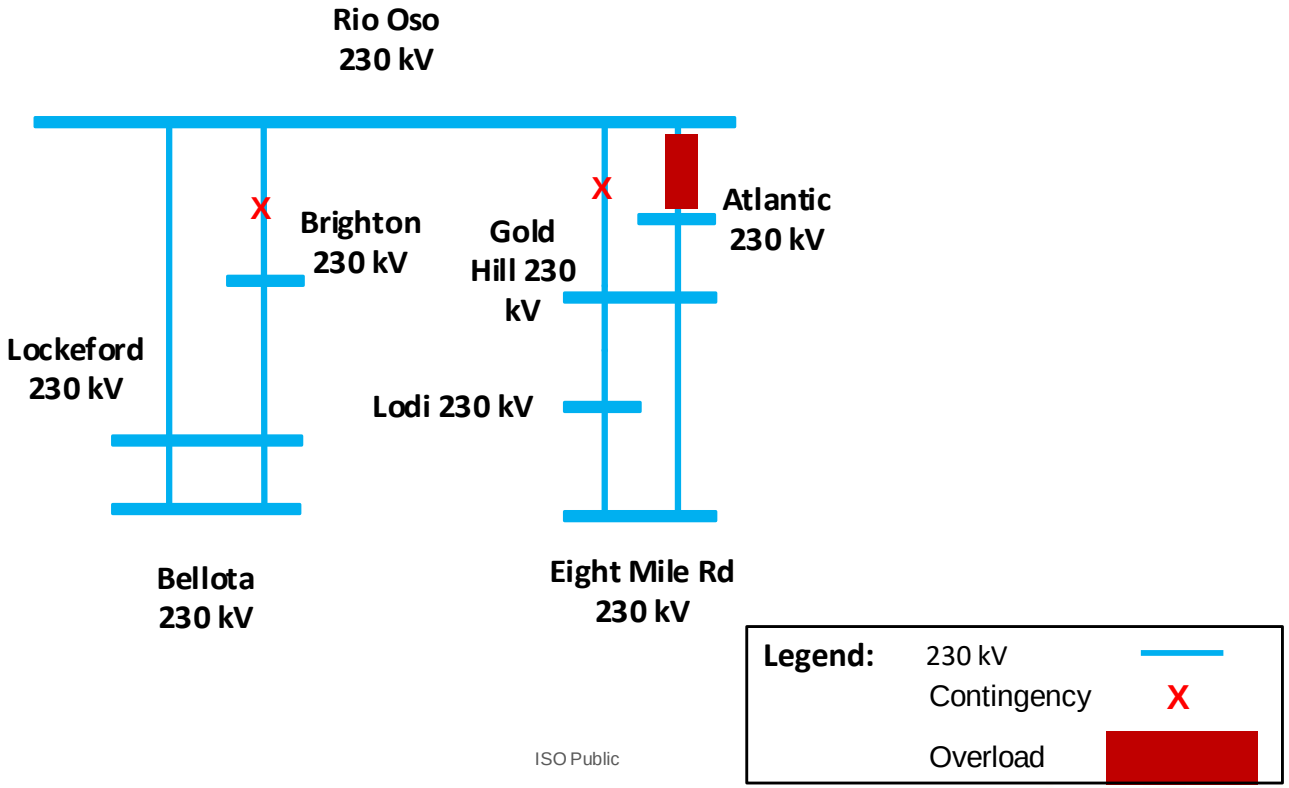
Gold Hill - Drum Sub-area: Load Profiles





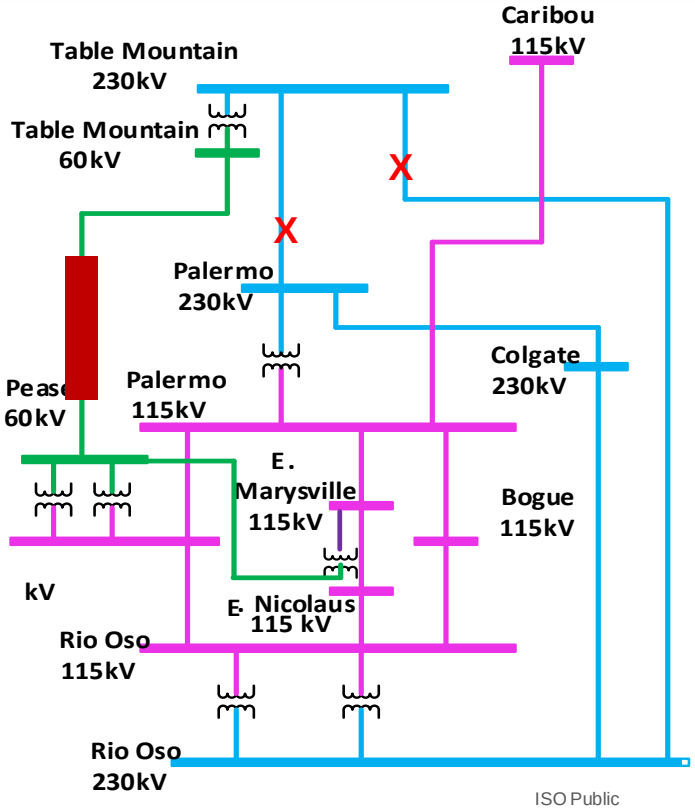
South of Rio Oso Sub-Area: Requirements

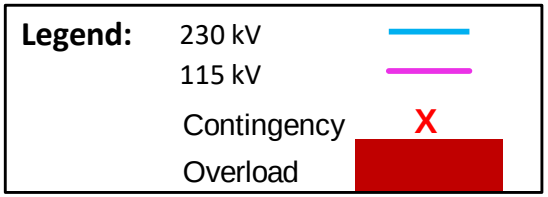
Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2024	P6	Rio Oso – Atlantic 230 kV Line	Rio Oso – Gold Hill 230 kV Rio Oso – Brighton 230 kV	375
2028	P6	Rio Oso – Atlantic 230 kV Line	Rio Oso – Gold Hill 230 kV Rio Oso – Brighton 230 kV	369



Sierra Overall: Requirements

Year	Category	Limiting Facility	Contingency	LCR (MW) (Deficiency)
2024	P6, P7	Table Mountain – Pease 60 kV Line	DCTL of Table Mtn. – Palermo and Table Mtn. Rio Oso 230 kV lines	1212
2028	P6, P7	Table Mountain – Pease 60 kV Line	DCTL of Table Mtn. – Palermo and Table Mtn. Rio Oso 230 kV lines	1415





Changes from 2023 to 2024

Sub-area	2023		2024	
	Load	LCR	Load	LCR
Pease	148	80	150	86
Placer	181	95 (32)	168	90 (30)
Drum - Rio Oso	N/A	750 (192)	N/A	N/A
Gold Hill - Drum	506	400 (327)	474	377 (307)
South of Rio Oso	N/A	306	N/A	375
Sierra Overall	N/A	1150	N/A	1212
Total	1812	1495 (345)	1758	1519 (307)

The load forecast for the overall area has slightly decreased between years 2023 and 2024 and the overall LCR requirement has slightly increased due to change in resources NQC values and due to the flow-through nature of the area.

N/A=Flow-through area. No defined load pocket.

Changes from 2027 to 2028

Sub-area	2027		2028	
	Load	LCR	Load	LCR
Pease	163	92	N/A	N/A
Placer	191	115 (52)	175	107 (47)
Gold Hill - Drum	528	425 (352)	491	397 (327)
South of Rio Oso	N/A	353	N/A	369
Sierra Overall	N/A	1345	N/A	1415
Total	1901	1707 (362)	1843	1742 (327)

The load forecast for the overall area has slightly decreased between years 2027 and 2028 and the overall LCR requirement has slightly increased due to change in resources NQC values and due to the flow-through nature of the area.

N/A=Flow-through area. No defined load pocket.

Sierra Area Total LCR Need

Study Year	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Need
2024	1212	307	1519
2028	1415	327	1742