



# 2024 & 2028 Final LCR Study Results San Diego Non-Bulk Sub-Areas

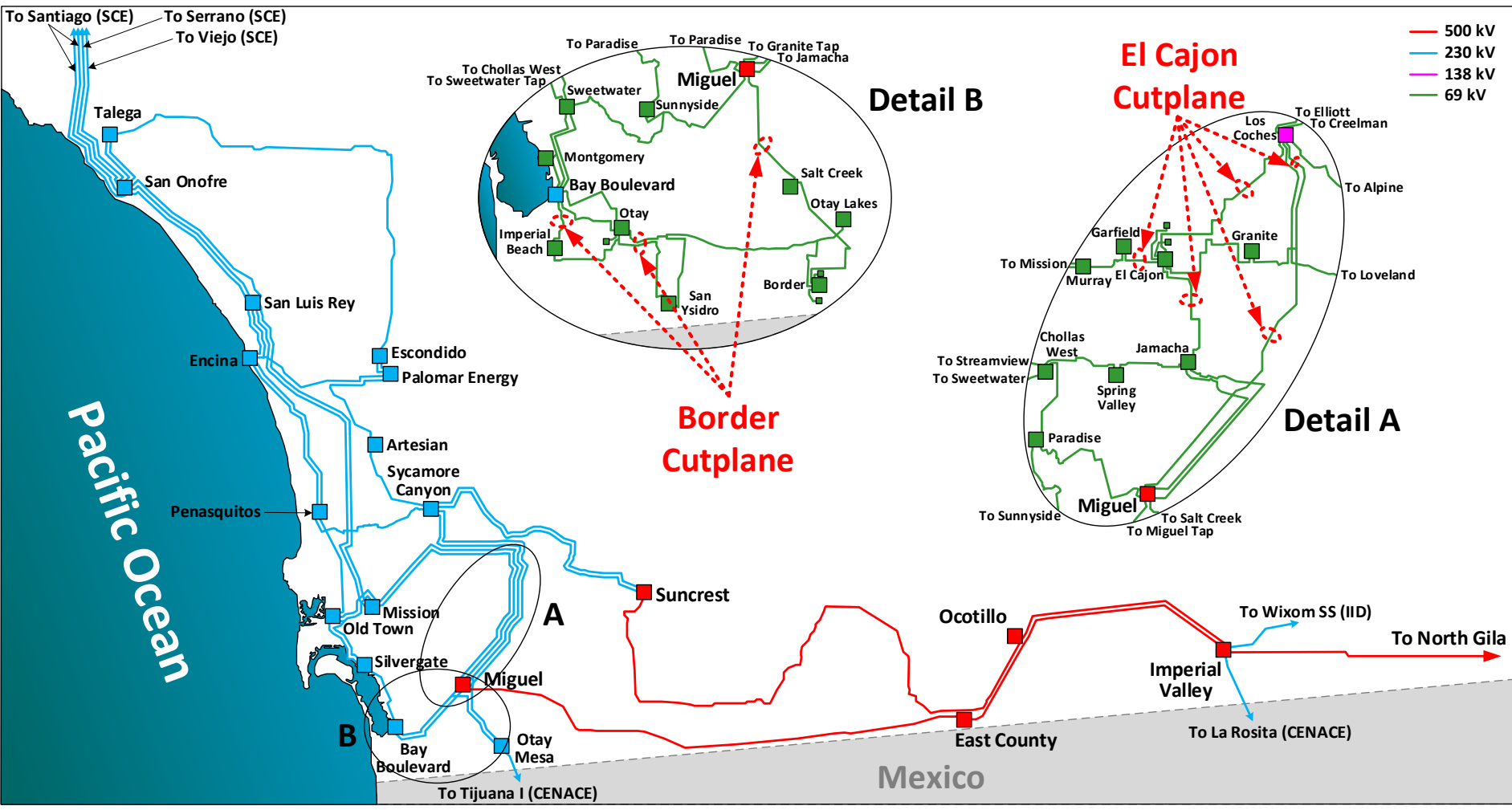
Rene Romo de Santos

Senior Engineer, Regional Transmission – South

Stakeholder Call

April 12, 2023

# San Diego Area



# Major Network Upgrades Modeled in 2024

Project Name	In-service Date
Reconductor TL692: Japanese Mesa - Las Pulgas	Nov-21
TL644, South Bay - Sweetwater: Reconductor	May-22
TL674A Loop-in (Del Mar - North City West) & Removal of TL666D (Del Mar - Del Mar Tap)	Nov-22
Artesian 230 kV Sub & loop-in TL23051	Dec-22
Rose Canyon - La Jolla 69 kV T/L	Dec-22
2nd Escondido - San Marcos 69 kV T/L	Feb-23
TL695B Japanese Mesa - Talega Tap Reconductor	Feb-23
IID S-Line Upgrade	2023
Reconductor TL 605 Silvergate - Urban	Jun-24

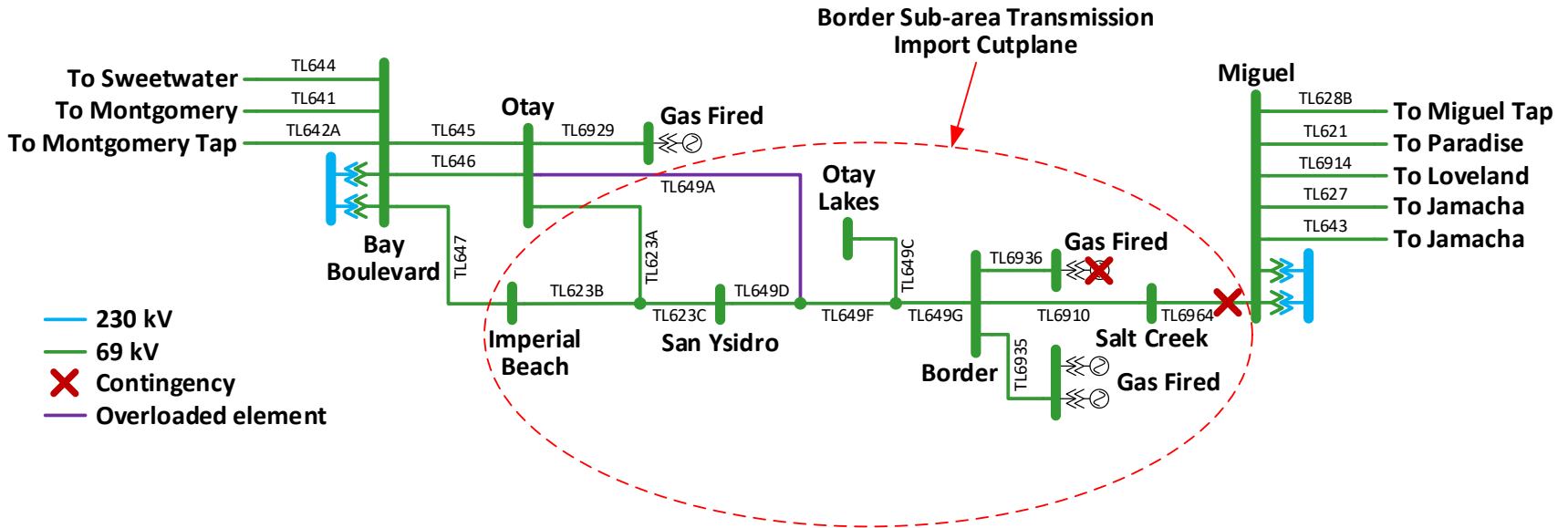
# Additional Network Upgrades Modeled in 2028

Project Name	In-service Date
Southern Orange County Reliability Upgrade Project – Alternative 3 (Rebuild Capistrano Substation, construct a new SONGS - Capistrano 230 kV line and a new 230 kV tap line to Capistrano)	Nov-24
TL649D Reconductor (San Ysidro - Otay Lakes Tap)	Dec-24
TL632 Granite Loop-In and TL6914 Reconfiguration	Jun-26
TL690E, Stuart Tap - Las Pulgas 69 kV Reconductor	Nov-26
Sweetwater Reliability Enhancement	Nov-27

# Border Sub-area: Load and Resources

Load (MW)	2024	2028	Generation (MW)	NQC
Gross Load	153	170	Market/Net Seller	149
AAEE	-2	-2	Battery	0
Behind the meter DG	0	0	Wind	0
<b>Net Load</b>	<b>151</b>	<b>168</b>	Solar	0
Transmission Losses	2	2	Muni/QF	0
Pumps	0	0	Future preferred resource and energy storage	0
<b>Load + Losses + Pumps</b>	<b>153</b>	<b>170</b>	<b>Total Qualifying Capacity</b>	<b>149</b>

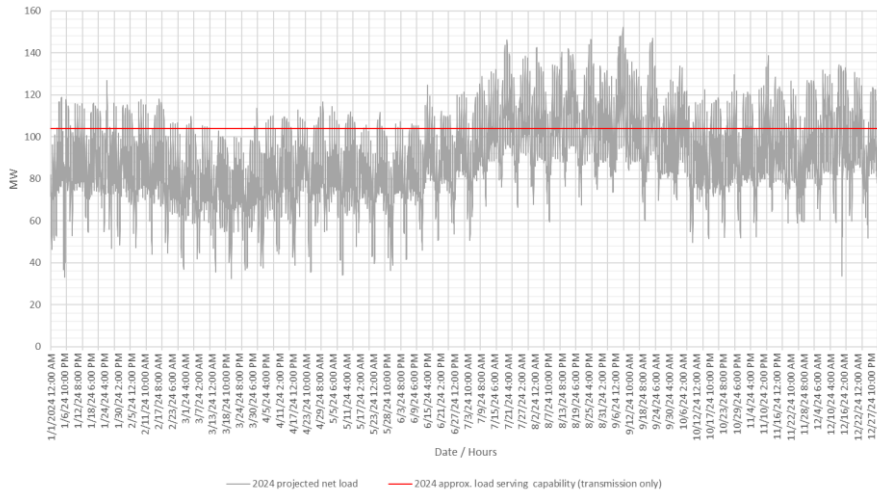
# Border Sub-area: One-line diagram and LCR Requirement



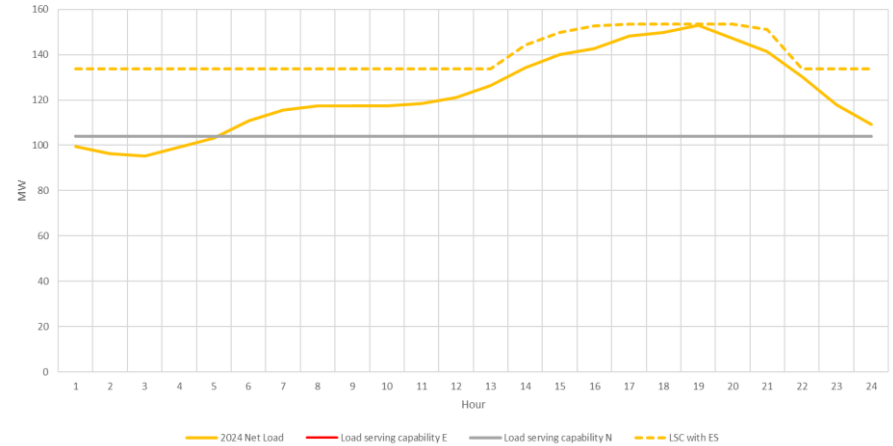
Year	Cat	Limiting Facility	Contingency	LCR (MW)
2024	P3	Otoy - Otoy Lakes Tap 69 kV (TL649A)	Border unit out of service followed by the outage of Miguel - Salt Creek 69 kV (TL6964)	82
2028	P3	Otoy - Otoy Lakes Tap 69 kV (TL649A)	Border unit out of service followed by the outage of Miguel - Salt Creek 69 kV (TL6964)	94

# Border Sub-area Load Profiles

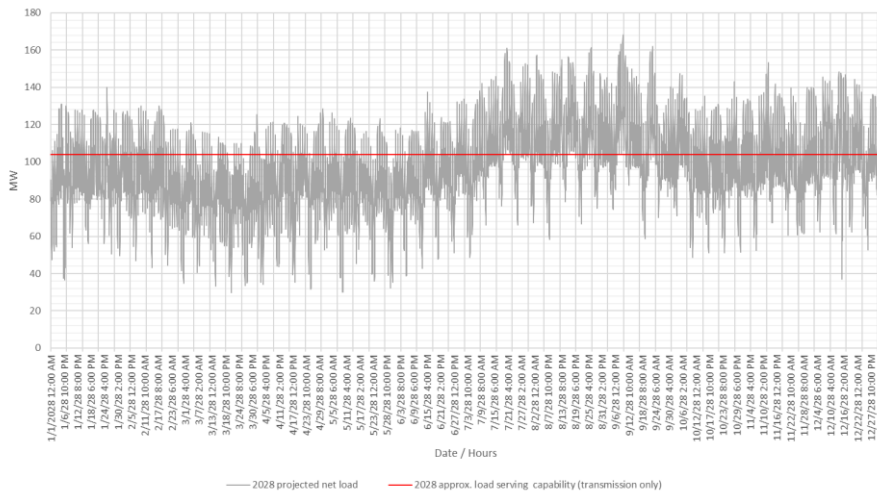
**Border LCR Sub-area:  
2024 projected load profile & approx. load serving capability (transmission only)**



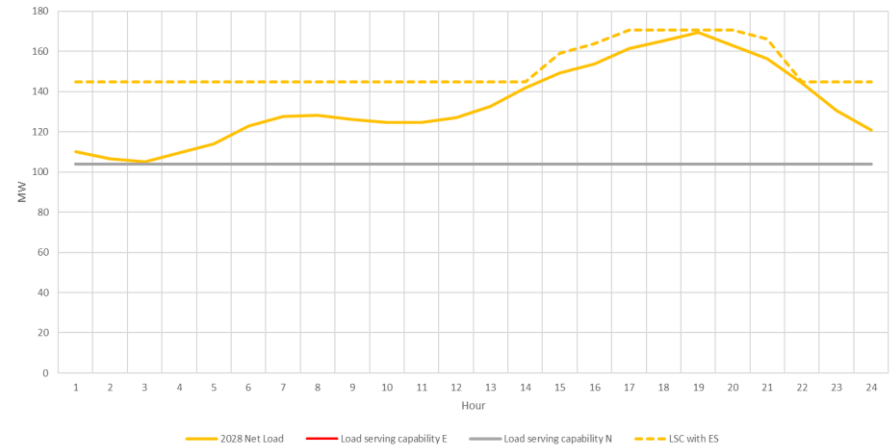
**Border LCR Sub-area:  
2024 projected pk day load profile & approx. LSC (trans + LCR Gen + ES)  
Approx storage size that can be added to this area from charging restriction perspective =  
20 MW and 144 MWh. Max 4-hr storage = 10 MW**



**Border LCR Sub-area:  
2028 projected load profile & approx. load serving capability (transmission only)**



**Border LCR Sub-area:  
2028 projected pk day load profile & approx. LSC (trans + LCR Gen + ES)  
Approx storage size that can be added to this area from charging restriction perspective =  
26 MW and 159 MWh. Max 4-hr storage = 14 MW**



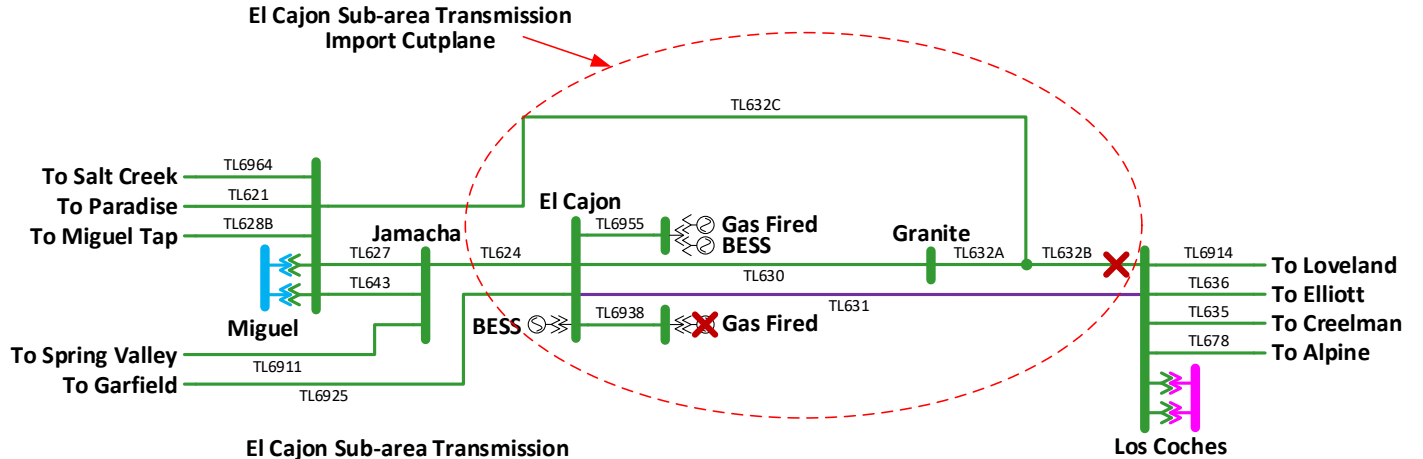
# El Cajon Sub-area: Load and Resources

Load (MW)	2024	2028	Generation (MW)	NQC
Gross Load	180	192	Market/Net Seller	94
AAEE	-2	-3	Battery	7
Behind the meter DG	0	0	Wind	0
<b>Net Load</b>	<b>178</b>	<b>189</b>	Solar	0
Transmission Losses	0	0	Muni/QF	0
Pumps	0	0	Future preferred resource and energy storage	0
<b>Load + Losses + Pumps</b>	<b>178</b>	<b>189</b>	<b>Total Qualifying Capacity</b>	<b>101</b>

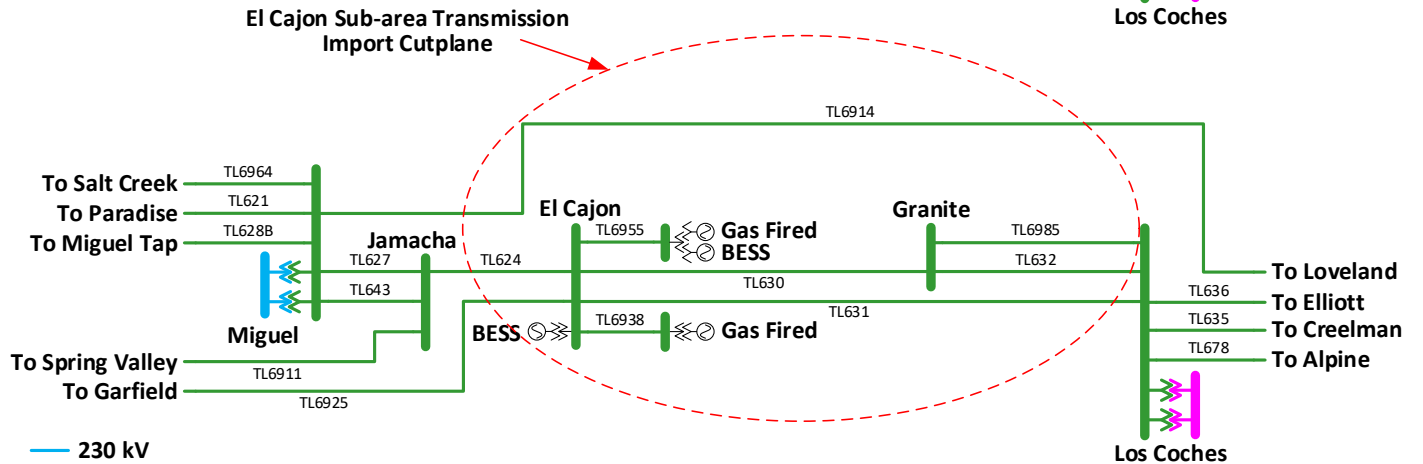


# El Cajon Sub-area: One-line diagram

Current



2028



- 230 kV
- 138 kV
- 69 kV
- ✗ Contingency
- Overloaded element

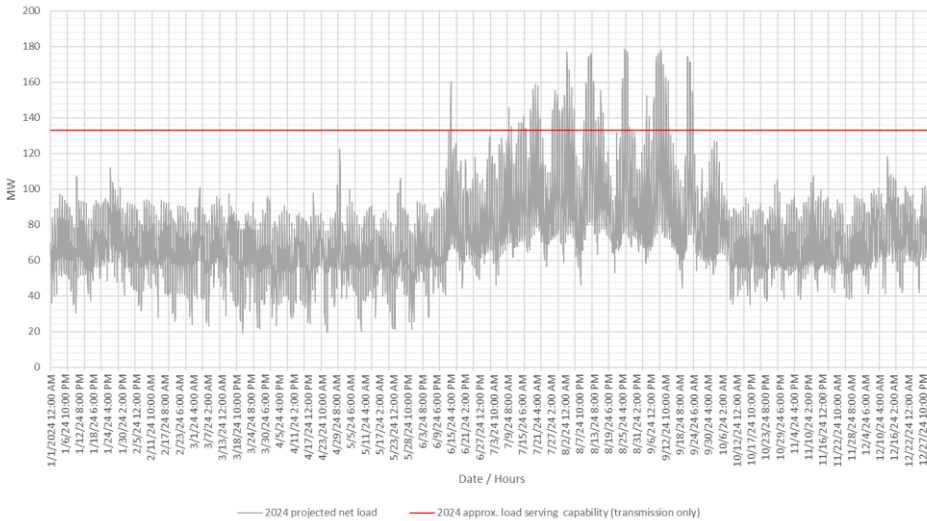
# El Cajon Sub-area: LCR Requirement

Year	Cat	Limiting Facility	Contingency	LCR (MW)
2024	P3	El Cajon – Los Coches 69 kV (TL631)	El Cajon unit out of service followed by the outage of Granite – Los Coches – Miguel 69 kV 3-terminal line (TL632)	96

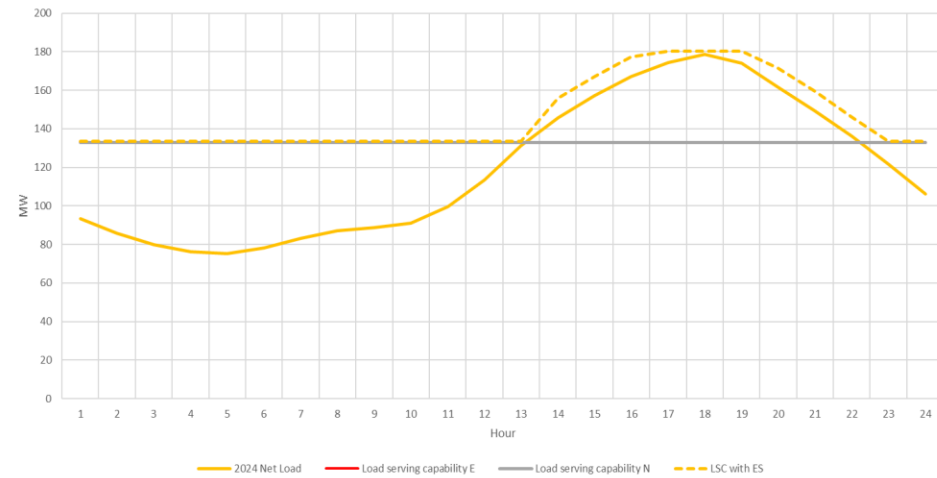
There is no LCR requirement in 2028 since project “TL632 Granite Loop-In and TL6914 Reconfiguration” will be in service in June 2026.

# El Cajon Sub-area Load Profiles

El Cajon LCR Sub-area:  
2024 projected load profile & approx. load serving capability (transmission only)



El Cajon LCR Sub-area:  
2024 projected pk day load profile & approx. LSC (trans + LCR Gen + ES)  
Approx storage size that can be added to this area from charging restriction perspective =  
47 MW and 318 MWh. Max 4-hr storage = 19 MW



# Changes Compared to Previous LCR Requirements

Sub-Area	MW								Major Reason for LCR Change
	2023		2024		2027		2028		
	Load	LCR	Load	LCR	Load	LCR	Load	LCR	
Border	141	69	153	82	156	80	169	94	Load forecast increase
El Cajon	184	86	179	96	191	106 (5)	190	0	2024→Forecasted load distribution in San Diego Sub-area substations 2028→TL632 Granite Loop-In and TL6914 Reconfiguration