APPENDIX E: Project Need and Description

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Name	**Tulucay-Napa #2 60 kV Line Capacity Increase**
Brief Description	Remove limiting elements on Tulucay-Napa #2 60 kV line to match the conductor rating of 1126 AMPS
Type	Reliability
Objectives	Mitigate P0 contingency driven overload
Project Need Date	2021
Expected In-service Date	2023
Interim Solution	Operational action plan
Project Cost	$5-10 Million
Alternatives Considered but Rejected	• Closing the normally open switch between Tulucay and Basalt Substation o Relieves the identified P0 overloads, but for P1 contingency results in overload. • Second Tulucay-Napa 60kV (new) line, estimated cost $21.00 million

Name	**East Shore 230 kV Bus Terminals Reconfiguration**
Brief Description	Reconfigure East Shore 230 kV bus
Type	Reliability
Objectives	Mitigate P2 contingency driven overload
Project Need Date	2021
Expected In-service Date	2024
Interim Solution	Operational action plan
Project Cost	$2-4 Million
Alternatives Considered but Rejected	None

Name	**Newark 230/115 kV Transformer Bank #7 Circuit Breaker Addition**
Brief Description	Add second high-side circuit breaker to Newark 230/115 kV transformer bank #7
Type	Reliability
Objectives	Mitigate P2 contingency driven overload
Project Need Date	2021
Expected In-service Date	2024
Interim Solution	Operational action plan
Project Cost	$3-6 Million
Alternatives Considered but Rejected	Install a 230/115 kV transformer bank connecting to Newark 230 kV bus section E

Name	**Moraga 230 kV Bus Upgrade**
Brief Description	Add sectionalizing breakers and a bus tie breaker to Moraga 230 kV bus
Type	Reliability
Objectives	Mitigate P2 contingency driven overload
Project Need Date	2021
Expected In-service Date	2024
Interim Solution	Operational action plan
Project Cost	$17 Million
Alternatives Considered but Rejected	None

Name	**Wilson-Oro Loma 115kV Line Reconductoring**
Brief Description	Reconductor ~9 circuit miles between Wilson and El Nido Substations
Type	Reliability
Objectives	Mitigate P2 contingency driven overload
Project Need Date	2021
Expected In-service Date	2026
Interim Solution	Operational action plan
Project Cost	$11.3-22.7 Million
Alternatives Considered but Rejected	• Re-rate • Energy Storage (20MW*4h)

Name	**Borden 230/70kV TB #1 Capacity Increase**
Brief Description	• Upgrade Bank Breaker CB 52 and associated switches • Upgrade Borden 70 kV Bus Section “D”
Type	Reliability
Objectives	Mitigate P3, P6 contingency driven overload
Project Need Date	2021
Expected In-service Date	2025
Interim Solution	Operational action plan
Project Cost	$11.5-23 Million
Alternatives Considered but Rejected	• Re-rate • Energy Storage (15MW*4h)

Name	**Salinas-Firestone #1 and #2 60 kV Lines**
Brief Description	Reconductoring of two 60 kV lines
Type	Reliability
Objectives	Mitigate P1, P3 contingency driven overload
Project Need Date	2021
Expected In-service Date	2024
Interim Solution	Operational action plan
Project Cost	$19-38 Million
Alternatives Considered but Rejected	Transmission reconfiguration

Name	**Pardee-Sylmar No. 1 and No. 2 230 kV Line Rating Increase Project**
Brief Description	The project involves replacing circuit breakers and other terminal equipment at SCE's Pardee Substation and LADWP's Sylmar Substation to increase the rating of the lines to match the rating of the line conductors.
Type	Reliability (with economic benefits)
Objectives	The project is proposed to mitigate overload under P1, P3 and P6 contingency conditions. The project has a benefit-to-cost ratio (BCR) of 10.3–13.6.
Project Need Date	May 2023
Expected In-service Date	May 2023
Interim Solution	Not applicable
Project Cost	$15.36 million
Alternatives Considered but Rejected	- Pacific Transmission Expansion (PTE) Project - Maintaining sufficient local capacity

Name	**Gamebird 230/138 kV Transformer Upgrade Project**
Brief Description	Upgrading VEA's existing 138 kV Gamebird substation by adding a new 230/138 kV transformer and looping GLW's Pahrump – Sloan Canyon 230 kV line into the upgraded Gamebird substation
Type	Reliability
Objectives	The proposed project would mitigate the Amargosa bank overloads, 138 kV low voltage issues and Pahrump 230/138 kV bank overloads described in Appendix B.
Project Need Date	Summer 2021
Expected In-service Date	May 01, 2021
Interim Solution	N/A
Project Cost	$4.9 million
Alternatives Considered but Rejected	A new Charleston – Vista 138 kV line Amargosa 230/138 transformer upgrade Carpenter Canyon – Charleston 230 kV project Energy storage at Sandy 138 kV substation