

Summary of ISO Capital Expenditure Forecast - Non-Incentive Projects
(\$000)

						Project Total (ISO & non-ISO)				ISO Portion				
PIN	Project Title	C-WBS	Order #	High/Low Voltage	OD	Prior	2016	2017	Total	Prior	2016	2017	Total	
Non-Incentive Transmission Projects includes Direct Installation and Removal Expenditures														
Other Transmission														
06694	Devers: Upgrade the Devers RTU	CET-ET-TP-RN-669400	900504611	High	Jun-15	9,665	15	-	9,680	9,665	15	-	9,680	
06694	Vista Sub: Upgrade line protection at the Devers #1 220kV T/L position.	CET-ET-TP-RN-669407	900512922	High	Jun-15	749	1	-	750	749	1	-	750	
06694	El Casco Sub: Install one SEL-2407 satellite synchronized clock and two N6	CET-ET-TP-RN-669402	900512925	High	Jun-15	388	1	-	389	388	1	-	389	
06694	Total CPV Sentinel Project - Sentinel-Devers 220kV						10,802	17	-	10,819	10,802	17	-	10,819
07556	Del Sur: Install equipment for network upgrade	CET-ET-TP-RL-755600	901130177	High	Jun-16	-	700	-	700	-	700	-	700	
07691	Antelope (NU): Equip 1 220kV CB position	CET-ET-TP-RN-769100	901355205	High	Oct-16	65	800	-	865	65	800	-	865	
07733	Whirlwind (Plan of Service): Equip one 220 kV position to terminate the Ted	CET-ET-TP-RN-773300	901432580	High	Nov-16	25	1,400	-	1,425	25	1,400	-	1,425	
Total Other Transmission						10,892	2,917	-	13,809	10,892	2,917	-	13,809	
TSP Projects														
06107	Pardee Sub: Install new double breaker 220 kV CB's in position 11 to termir	CET-ET-LG-TS-610705	900290530	High	Jun-15	5,047	181	-	5,228	5,047	181	-	5,228	
06824	La Fresa Sub (Phase 2 Scope): Install new MEER building and cut over exis	CET-ET-LG-TS-682400	900522611	High	Dec-17	7,824	556	555	8,935	7,824	556	555	8,935	
06670	Valley Sub:Construct 10 position CB&1/2 AIS 115 kV switchrack to the north	CET-ET-LG-TS-667000	800440341	High	Feb-17	663	552	123	1,339	663	552	123	1,339	
06263	Vestal Sub: Equip 220 kV A-Bank Positions (Positions 3 and 4) with circuit b	CET-ET-LG-TS-626302	900312889	High	Dec-16	7,222	2,440	-	9,663	7,222	2,440	-	9,663	
07113	El Nido: Install 230 kV (63 kA) double breakers on No. 1 A bank at position :	CET-ET-LG-TS-711300	901241164	High	Dec-17	352	3,500	2,000	5,852	352	3,500	2,000	5,852	
Total TSP Projects						21,109	7,229	2,678	31,016	21,109	7,229	2,678	31,016	
Transmission Project Reliability														
07460	Victor Sub: Equip Position to terminate the new Victor-Aqueduct 115 kV line	CET-ET-TP-RL-746000	901110214	High	Mar-17	388	174	227	790	388	174	227	790	
07460	Aqueduct Sub: Equip Position to terminate the new Victor-Aqueduct 115 kV	CET-ET-TP-RL-746001	901110215	High	Mar-17	400	174	227	802	400	174	227	802	
07460	Total Reconductor Victor Leg of Victor-Aqueduct - Hesperia						788	349	455	1,591	788	349	455	1,591
07518	Springville Sub: Redesign high side feed from bank on bus to double CB at :	CET-ET-TP-RL-751800	901007168	High	Dec-17	1,331	1,380	1,620	4,331	1,331	1,380	1,620	4,331	
04956	Big Creek #3-Springville 220-kV: Construct approx. 23 miles of new double-r	CET-ET-TP-RL-495601	800062215	High	Jun-15	-	890	2,000	2,890	-	890	2,000	2,890	
04956	Rector: Equip Positions 1 & 2 220kV switchrack to terminate the new Rect	CET-ET-TP-RL-495603	800062646	High	Jun-15	-	50	-	50	-	50	-	50	
04956	Vestal: Install necessary protective relays on Rector-Vestal No. 1 and Recto	CET-ET-TP-RL-495606	800194054	High	Jun-15	-	10	-	10	-	10	-	10	
04956	SJXVL ---- ACQ / FERC San Joaquin Cross Valley	CET-RP-TP-RL-495600	800522916	High	Dec-15	-	150	-	150	-	150	-	150	
04956	Total San Joaquin Cross Valley Rector Loop (SJXVL)						-	1,100	2,000	3,100	-	1,100	2,000	3,100
06154	N of Magunden : Install a 2nd set of Bushing Current Transformer's on 220k	CET-ET-TP-RL-615405	800062630	High	Oct-16	415	650	-	1,065	415	650	-	1,065	
06154	Vestal - Install a second set of BCT's on 220kV CB's #1 and 2 on position 1	CET-ET-TP-RL-615409	800062682	High	Jun-15	568	50	-	618	568	50	-	618	
06154	Total North of Magunden Redundant Bushing Current Transformer (BCT) Upgrades						983	700	-	1,683	983	700	-	1,683
06415	Mirage Sub: PHASE 2 - Replace two (2) 2000A 220kV CB's at positions 2S	CET-ET-TP-RL-641502	900512642	High	Jun-15	-	18	-	18	-	18	-	18	
06415	Devers-Mirage #1 230kV T/L: Build 15 mil (Path 42) Double Circuit 220kV T	CET-ET-TP-RL-641500	900512643	High	Sep-15	-	155	-	155	-	155	-	155	
06415	Devers Sub: PHASE 1 - Install relays, meters and logic controllers as neces	CET-ET-TP-RL-641503	900566042	High	Jun-15	433	13	-	446	433	13	-	446	
06415	Mirage Sub: PHASE 1 - Install relays, meters and logic controllers as neces	CET-ET-TP-RL-641504	900566043	High	Jun-15	327	12	-	339	327	12	-	339	
06415	Devers Substation: PHASE 2 - The Mirage No. 1 terminates at position 2N -	CET-ET-TP-RL-641501	900512641	High	Jun-15	-	19	-	19	-	19	-	19	
06415	PHASE 2 - Coachella Valley-Mirage 220kV: Reconductor SCE-owned portio	CET-ET-TP-RL-641505	900603771	High	Sep-15	-	2	-	2	-	2	-	2	
06415	Total Path 42 and Devers-Mirage 220kV Upgrades						760	220	-	980	760	220	-	980
07241	Eldorado: Install (2) 500 kV CBs, (3) 500 kV gang operated disconnects and	CET-ET-TP-RL-724100	900713966	High	Jun-16	10,355	1,542	-	11,897	10,355	1,542	-	11,897	
07248	Ivanpah Sub: Install a dedicated 220 kV double-breaker line position on a br	CET-ET-TP-RN-724802	900635394	High	Nov-15	-	10	-	10	-	10	-	10	
07248	Eldorado: Install (1) 500 kV Switchyard Operating Bus extension, (8) bus de	CET-ET-TP-RN-724800	900692364	High	Nov-15	-	8,651	-	8,651	-	8,651	-	8,651	
07248	Eldorado-Lugo: Rotate the A and C phases of the transmission line conduct	CET-ET-TP-RN-724801	901192486	High	Nov-15	105	5	-	110	105	5	-	110	
07248	Ivanpah Sub (NU): Update the GE-N60 RAS relay settings at Ivanpah sub tr	CET-ET-TP-RN-724803	901134039	High	Nov-15	-	10	-	10	-	10	-	10	
07248	Power Systems Control (PSC) (POS NU) Eldorado RTU	CET-ET-TP-RN-724804	900651518	High	Nov-15	-	10	-	10	-	10	-	10	
Total Eldorado AA Bank						10,460	10,228	-	20,688	10,460	10,228	-	20,688	

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						Prior	2016	2017	Total	Prior	2016	2017	Total
07376	Eldorado-Install fire mitigation for 4AA	CET-ET-TP-RL-737601	901024431	High	May-16	329	1,440	-	1,769	329	1,440	-	1,769
07426	Primm (Plan of Service Network Upgrade (POS NU)): New 220kV substation	CET-ET-TP-RN-742600	900635397	High	Oct-15	-	1,000	-	1,000	-	1,000	-	1,000
07426	Eldorado-Ivanpah #1 (NU): Loop into Primm	CET-ET-TP-RN-742601	900753368	High	Oct-15	1,383	100	-	1,483	1,383	100	-	1,483
07426	Total New 220kV Primm Substation - Network Upgrade					1,383	1,100	-	2,483	1,383	1,100	-	2,483
07645	Loop Kramer-Lugo 230 kV #1 & #2 lines into Victor substation	CET-ET-TP-RL-764500	901254013	High	Dec-16	3,965	12,011	-	15,975	3,965	12,011	-	15,975
07645	Lugo Sub: Perform Protection upgrade	CET-ET-TP-RL-764501	901254014	High	Dec-17	5	-	25	30	5	-	25	30
07645	Kramer Sub: Perform Protection upgrade	CET-ET-TP-RL-764502	901254015	High	Jun-15	79	2	-	81	79	2	-	81
07645	Kramer-Lugo lines: Loop into Victor Sub	CET-ET-TP-RL-764503	901254016	High	Dec-17	0	2	-	2	0	2	-	2
07645	Total Victor Loop-In Project					4,049	12,015	25	16,089	4,049	12,015	25	16,089
07374	Serrano Sub - No. 1, No. 2, and No. 3 AA banks: * Install fire walls between	CET-ET-TP-RL-737499	900772537	High	Dec-16	-	2,699	-	2,699	-	2,699	-	2,699
07559	Colorado River Sub (NU): Terminate the Colorado River- Black Creek 220kV	CET-ET-TP-RN-755900	901100957	High	May-15	-	(3)	-	(3)	-	(3)	-	(3)
07050	Colorado River 500/220kV Substation (NU): Terminate the Colorado River- I	CET-ET-TP-RN-705000	900636419	High	Jun-15	1,204	0	-	1,204	1,204	0	-	1,204
07806	Kramer Substation: Install two (2) tertiary bank reactors, 45MVAR each (1A	CET-ET-TP-RL-780600	901580758	High	Jun-16	315	3,999	-	4,314	315	3,999	-	4,314
07806	Kramer Substation: Install One (1) 220kV, 45MVAR Bus Shunt Reactor at P	CET-ET-TP-RL-780601	901580779	High	Dec-17	11	200	695	906	11	200	695	906
07806	Total Kramer Tertiary Bank Reactors and Shunt Reactor					326	4,199	695	5,219	326	4,199	695	5,219
07602	Windhub Substation (DU): (i) Equip a 66 kV position for the Windhub-Sunsp	CET-ET-TP-RN-760200	901189682	High	Sep-16	545	900	-	1,445	545	900	-	1,445
07758	REMOVE equipment associated with the Valley Direct Load Trip (VDLT) RA	CET-ET-TP-RL-775800	901456682	High	Dec-16	-	17	-	17	-	17	-	17
07758	REMOVE equipment associated with the VDLT Remedial Action Scheme (F	CET-ET-TP-RL-775801	901456683	High	Dec-16	-	34	-	34	-	34	-	34
07758	Total Serrano 500/220 (T) and Valley Bulk 500/115 (T)					-	51	-	51	-	51	-	51
06468	Victor Sub: Upgrade protection and install 4 SEL-351 relays	CET-ET-TP-RL-646800	800063610	High	Jun-16	657	250	-	907	657	250	-	907
07112	Devers: Equip the 230 KV A-Bank positions (3 & 4) with circuit breakers	CET-ET-TP-RL-711200	900305114	High	Dec-16	935	800	-	1,735	935	800	-	1,735
07116	Villa Park: Equip the 230 KV A-Bank positions (no. 1 & 2) with circuit breakers	CET-ET-TP-RL-711600	900645440	High	Jun-15	5,478	50	-	5,528	5,478	50	-	5,528
07466	Big Creek 3: Build Mechanical Electrical Equipment Room (MEER) Building	CET-ET-TP-RL-746601	901390235	High	Sep-15	-	25	-	25	-	25	-	25
	Total Transmission Project Reliability					29,228	37,503	4,795	71,525	29,228	37,503	4,795	71,525

Infrastructure Replacement

04211	Replace Bulk Power Circuit Breakers	CET-ET-IR-CB-421100		High	Blanket Specifics	-	5,279	5,876	11,155	-	5,279	5,876	11,155
03138	LADWP DC electrode replacement	CET-OT-OT-ME-313802		High	Nov-17	4,672	10,500	18,663	33,835	4,672	10,500	18,663	33,835
03138	Miscellaneous Equipment	CET-OT-OT-ME-313800		High	Blanket Specifics	-	95	-	95	-	95	-	95
06197	On-line Dissolved Gas Analysis of Bulk Power Transformer Banks	CET-ET-IR-ME-619700		High	Blanket Specifics	-	2,033	2,078	4,111	-	2,033	2,078	4,111
04343	Non-Bulk Relay Replacement Program ("SRRP")	CET-ET-IR-RP-434301		Low	Blanket Specifics	-	6,002	723	6,725	-	6,002	723	6,725
05089	Bulk Power 500kV Line Relay Replacement	CET-ET-IR-RP-508900		High	Blanket Specifics	-	2,224	7,502	9,726	-	2,224	7,502	9,726
04756	Substation Equipment Additions & Betterment	CET-ET-IR-ME-475600		High	Blanket Specifics	-	10,744	10,982	21,726	-	10,744	10,982	21,726
05210	Substation Transformer Bank Replacement Program (AA-Bank & A-Bank)	CET-ET-IR-TB-521001		High	Blanket Specifics	-	31,172	15,932	47,104	-	31,172	15,932	47,104
07681	NERC/CIP-14 (Physical Security)	CET-ET-IR-ME-768101		High	Dec-17	19,961	10,358	6,634	36,953	19,961	10,358	6,634	36,953
07681	NERC/CIP-14 (Physical Security)	CET-ET-IR-ME-768102		High	Blanket Specifics	-	-	743	743	-	-	743	743
	Total Infrastructure Replacement					24,634	78,405	69,133	172,172	24,634	78,405	69,133	172,172

Grid Applications

06446	Phasor Measurement System Installations	CET-ET-GA-EM-644600		High	Blanket Specifics	-	834	939	1,774	-	834	939	1,774
	Total Grid Apps					-	834	939	1,774	-	834	939	1,774

PWRD Blankets

03363	Substation Planned Maintenance Replacements	CET-PD-IR-SP-SUBSNW		High	Blanket Specifics	-	2,150	2,198	4,348	-	2,150	2,198	4,348
03363	Substation Unplanned Maintenance Replacements	CET-PD-BM-SU-SUBSNW		High	Blanket Specifics	-	767	784	1,550	-	767	784	1,550
03363	Facilities- Operational	CET-PD-OT-FO-FACOP		High	Blanket Specifics	-	8,537	-	8,537	-	8,537	-	8,537
03363	Substation - Storm	CET-PD-ST-SS-SUBSNW		High	Blanket Specifics	-	86	88	175	-	86	88	175
03363	Substation Equipment Additions & Replacements					-	11,540	3,070	14,610	-	11,540	3,070	14,610
03364	Transmission Breakdown Maintenance Planned	CET-PD-IR-TP-TREAST		High	Blanket Specifics	-	5,549	5,673	11,222	-	5,549	5,673	11,222
03364	Transmission Breakdown Maintenance Unplanned	CET-PD-BM-TU-TREAST		High	Blanket Specifics	-	551	563	1,114	-	551	563	1,114

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03364	Transmission Pole Replacement	CET-PD-IR-TR-TREAST		High	Blanket Specifics	-	6,790	6,092	12,882	-	6,790	6,092	12,882
03364	Pole Remediation Transmission	CET-PD-IR-PT-TREAST		High	Blanket Specifics	-	722	1,506	2,228	-	722	1,506	2,228
03364	Transmission Equipment Additions & Replacements					-	13,613	13,834	27,447	-	13,613	13,834	27,447
07298	Transmission Line Rating Remediation	CET-PD-OT-PJ-TRSJAC		High	Blanket Specifics	-	64,201	115,846	180,047	-	64,201	115,846	180,047
03362	Critical Infrastructure Spare	CET-PD-CI-CI-CRINSP		High	Blanket Specifics	-	11,779	-	11,779	-	11,779	-	11,779
03367	Substation Claim	CET-PD-CL-SC-SUBSNW		High	Blanket Specifics	-	32	33	65	-	32	33	65
03367	Transmission Claim	CET-PD-CL-TC-TREAST		High	Blanket Specifics	-	86	88	175	-	86	88	175
03367	Transmission Storm	CET-PD-ST-TS-TREAST		High	Blanket Specifics	-	886	906	1,792	-	886	906	1,792
03367	Transmission Storm & Claims					-	1,005	1,027	2,032	-	1,005	1,027	2,032
Total PWRD Blankets						-	102,138	133,777	235,915	-	102,138	133,777	235,915
Total Non-Incentive Transmission Projects						85,862	229,027	211,322	526,211	85,862	229,027	211,322	526,211
Total Forecast Expenditures (Closing by December 2017)						85,862	68,507	32,770	187,138	85,862	68,507	32,770	187,138
Total Forecast Blanket Expenditures (Closing by December 2017)						-	160,520	178,552	339,072	-	160,520	178,552	339,072