

During the period January 2025 through December 2026, SCE forecasts:

- \$702 million in ISO non-incentive network transmission projected to go into rate base (including \$354 million in ISO Blanket-Specifics),
- \$138 million in FERC incentive rate qualified CWIP expenditures, and
- \$273 million of CWIP Expenditures projected to go into rate base.

In addition to the numerous but relatively small transmission projects, there are 32 significant transmission projects (each \$5 million or greater in ISO-related costs) that are projected to go into rate base during the forecast period January 2025 through December 2026 – 17 Blanket-Specifics (items 1 through 17 below), 12 Specific non-incentive projects (items 18 through 29), and three Specific incentive projects (items 30 through 32 below). These projects will increase the reliability of the ISO transmission grid, increase access to new generation resources to serve the ISO market, and/or provide congestion relief. SCE's Formula Protocols, Section 3(a) specifies that SCE will provide work papers detailing specific information regarding its capital forecast.

**Table 1**  
**Forecast Direct Capital Expenditures Projected to Go into Rate Base between 2024 and 2025**  
*(Nominal \$Thousands)*

No.	PIN	Project	FERC CWIP	FERC Non-CWIP	Total
1	3138	Sylmar Convertor Station: Miscellaneous Capital Maintenance		10,940	10,940
2	3363	Substation Planned Maintenance Replacements		17,975	17,975
3	3363	Substation Unplanned Maintenance Replacements		18,605	18,605
4	3364	Transmission Grid-Based Maintenance		8,442	8,442
5	3364	Transmission Small Civil		8,567	8,567
6	3364	Transmission Tower Corrosion Program		7,814	7,814
7	3367	Transmission - Storm		9,682	9,682
8	4651	Palo Verde Switchrack: Miscellaneous Capital Maintenance		12,686	12,686
9	4756	Substation Miscellaneous Equipment Additions & Betterment		15,534	15,534
10	6424	Advanced Technology Capital IJA DOE		10,098	10,098
11	6957	WAMPAC Program		8,143	8,143
12	7298	Transmission Line Rating Remediation (Exempt from Licensing)		122,650	122,650
13	7392	Seismic Program - Transmission Substations		20,220	20,220
14	7637	Substation Facility Capital Maintenance		13,623	13,623
15	7713	Substation Switchrack Rebuilds (FERC)		7,081	7,081
16	7949	Protection of Grid Infrastructure Assets		29,657	29,657

17	8074	Corporate Real Estate Infrastructure Upgrades		6,588	6,588
18	7763	Lugo-Victorville 500 kV T/L SPS		43,576	43,576
19	7890	Pardee-Pastoria 220kV: Re-conductor (San Joaquin & North Coast)		67,834	67,834
20	7924	Substation Reliability Upgrades - Antelope		8,246	8,246
21	7956	Substation Reliability Upgrades - Pardee		5,163	5,163
22	8042	Physical Security Enhancement Projects (Tiers 2 & 3)		33,482	33,482
23	8077	Substation Protection Upgrades - San Joaquin Region		7,483	7,483
24	8342	Sanborn Hybrid 3		9,981	9,981
25	8448	Laguna Bell-Mesa No. 1 230 kV Line Rating Increase Project		39,339	39,339
26	8473	Devers 230 kV Reconfiguration Project		6,566	6,566
27	8474	Antelope 66 kV Circuit Breaker Upgrade		15,330	15,330
28	8519	Barre 230 kV Switchrack Conversion to Breaker-And-A-Half Project		28,946	28,946
29	8599	New Inyo 230 kV Shunt Reactor		21,552	21,552
30	6420	West of Devers	7,198	940	8,138
31	7546	Eldorado-Lugo-Mohave (ELM) Upgrade	221,573	11,019	232,592
32	8631	Lugo-Victor 230 kV Line Reconductor	40,350		40,350
33	Various	Less than \$5m each	4,108	74,704	78,812
		<b>Total</b>	<b>273,230</b>	<b>702,466</b>	<b>975,695</b>

## 1. Sylmar Converter Station: Miscellaneous Capital Maintenance (PIN: 3138)

The Sylmar Converter Station is the southern converter station of the Pacific DC Intertie (PDCI), an electric power transmission line which transmits electricity from the Celilo Converter Station outside The Dalles, Oregon to Sylmar in the northeastern San Fernando Valley region of Los Angeles, California. The station converts the  $\pm 500$  kV high voltage direct current (HVDC) coming from the northern converter station Celilo to alternating current (AC) at 60 Hz and 230 kV synchronized with the Los Angeles power grid. The station capacity is 3,100 megawatts and it is jointly owned by Southern California Edison (SCE) and the City of Los Angeles' Department of Water and Power (LADWP).

As a 50% joint owner of the PDCI, SCE is contractually obligated to cooperate with LADWP in any capital replacements, additions, and betterments related to the PDCI. LADWP submits its proposed capital project and obtains SCE approval. SCE is responsible for paying for its 50% share of PDCI's capital costs. The forecasted capital expenditures are for miscellaneous maintenance capital work activities, which include, but not limited to polymer insulators, removal of old electrodes, and bowed towers.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$10.940 million.

## **2. Substation Planned Maintenance Replacements (PIN: 3363)**

Substation Planned Capital Maintenance captures the labor, equipment, and other material costs to remove and replace assets not identified in other replacement programs. This is a programmatic approach that allows SCE to proactively plan work over a controlled schedule, perform any necessary engineering design activity, and allocate and manage resources effectively. Activities are predominantly like-for-like replacements and maintenance which are identified and planned for in advance. Examples of such work include replacement of power and current transformers, as well as Circuit Breakers, B-Banks and Disconnects that are not covered under another capital program.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$17.975 million.

## **3. Substation Unplanned Maintenance Replacements (PIN: 3363)**

Substation Unplanned Capital Maintenance captures the labor, equipment, and other material costs to remove and replace assets not identified in other replacement programs, on a reactive basis. Activities are predominantly like-for-like replacements and maintenance. Reactive equipment replacements must be completed in a timely manner because substation equipment failures may lead to prolonged outages, unsafe operating conditions, or more costly reactive solutions. Examples of such work include unplanned replacement of failed power and current transformers, as well as Circuit Breakers, B-Banks and Disconnects.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$18.605 million.

#### **4. Transmission Grid-Based Maintenance (PIN: 3364)**

SCE has a robust transmission inspection and maintenance program wherein circuits and equipment are inspected on a programmatic basis. Pursuant to CPUC requirements for inspection and maintenance programs, SCE inspects rights of ways, conductors, structures, and hardware components for “break/fix” items. Based on these inspections, capital replacements are then identified. Capital replacements may include pole replacement, tower replacement, switch replacement, overhead and underground conductor replacement, underground structures/conduit replacement and pothead/arrestor replacement.

Within this program, SCE workers review the identified equipment issue and classify the resulting work based on a prioritization scale: P1, P2 and P3. The first level of prioritization (P1) requires immediate remediation within 72 hours. The second level (P2) has two classifications: (1) Tier 3: remediation within six months and (2) Tier 2: remediation in 12 months. Additionally, within non-high fire risk areas with a (P2) classification, there can be a 12-month to three-year time frame depending on observations made by field personnel. The third level of prioritization (P3) requires remediation within five years from the date the issue is identified.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$8.442 million.

#### **5. Transmission Small Civil (PIN: 3364)**

Small Civil Capital Program (SCCP) is the deployment of non-electrical capital assets that support Transmission facilities. The program is comprised of projects that are either new construction or improvement of existing field conditions. Activities under the SCCP include:

- Installation/Improvement of new and existing Access Roads
- Installation/Improvement of Wet Crossings (Bridges) and Drainage
- Implementation/Improvement of Laydown/Material Yards
- Implementation/Replacement of Retaining Walls

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$8.567 million.

## **6. Transmission Tower Corrosion Program (PIN: 3364)**

By 2020, more than 90% of SCE's transmission towers will be at least thirty years old. Thirty years is the average age at which the first signs of tower corrosion, from minor to severe, generally begin to appear. If not identified and addressed, steel loss due to corrosion could lead to structure impairment or complete failure. Based on the severity of corrosion and the particular tower location, SCE can perform the following remedies: footing repair, footing replacement/rebuild, sandblasting, tower coating application, corroded steel lattice member replacement, or entire structure replacement.

SCE's forecast for this activity is based on unit costs and scope estimates from SCE's prior engineering efforts as well as from an internal pilot program, both for assessments of SCE's transmission towers and for planned remediation. Assessment and testing practices will take place on all of SCE's towers to identify further remediation needs. Assessment costs are for bore scope, ultrasonic, and engineering assessments. Bore scope and engineering assessments are performed on transmission towers, while ultrasonic testing is used for tubular steel poles (TSPs). For remediations, SCE has known project scope and anticipated scope that will arise from its forthcoming assessments and testing that are performed on each of its transmission towers.

SCE will also target high risk structures within SCE's High Fire Risk Areas (HFRA) to assess and remediate any transmission towers located in areas that pose the highest wildfire risk. To do this, SCE will leverage the various wildfire risk analysis tools SCE has developed in support of its broader wildfire mitigation efforts. Additional information on these tools and models can be found in SCE's 2020 Wildfire Mitigation Plan (WMP), as well as the annual WMP's, and other updates, that have been submitted subsequent to the 2020 WMP, including the 2026-2028 Wildfire Mitigation Plan dated May 16, 2025.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$7.814 million.

#### **7. Transmission – Storm (PIN: 3367)**

This activity includes costs associated with replacing transmission electrical facilities, structures, or equipment damaged during storm events. Storm events are driven by weather and other environmental factors outside of SCE's control.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$9.682 million.

#### **8. Palo Verde Switchrack: Miscellaneous Capital Maintenance (PIN: 4651)**

The Salt River Project (SRP) serves as the Operating Agent for the Arizona Nuclear Power Project (ANPP) High Voltage Switchyard (PIN 4651). As the Operating Agent, SRP bills for capital project costs, with Southern California Edison (SCE) responsible for its proportional share.

Several capital projects are currently underway at the ANPP High Voltage Switchyard. These include, but are not limited to, disconnect switch replacements, cable trench replacements, fire protection enhancements, and other capital maintenance-related services.

The estimated ISO-related direct capital expenditures projected to be added to the rate base during this period total approximately \$12.686 million.

#### **9. Substation Miscellaneous Equipment Additions & Betterment (PIN: 4756)**

The Substation Miscellaneous Equipment Additions & Betterment program includes planned capital maintenance that is typically driven by substation inspection and maintenance programs. Activity within this program is driven by the imminent failure of equipment or possible safety issues.

All equipment classes, including the major equipment categories (circuit breakers, transformers, and relays) can be replaced for reactive reasons in this category. These replacements are predominantly like-for-like replacement with limited engineering required.

Equipment that is identified as requiring replacement must be replaced in a timely manner because substation equipment failures may lead to prolonged outages, unsafe operating conditions, possible safety issues, or more expensive reactive solutions. This typically includes the installation and replacement of trench covers, potential transformers, current transformers, batteries, charges, as well as emergent circuit breakers, B-bank transformers and disconnect replacements that are not covered under a specific commodity capital program.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$15,534 million.

#### **10. Advanced Technology Capital IIJA DOE (PIN: 6424)**

California Harnessing Advanced Reliable Grid Enhancing Technologies for Transmission (CHARGE 2T) is a significant initiative aimed at enhancing California's electric grid resilience and reliability. It is part of the U.S. Department of Energy's Grid Deployment Office (DOE GDO) Grid Resilience and Innovation Partnership (GRIP) program. CHARGE 2T is a statewide partnership between the California Energy Commission (CEC), California Public Utilities Commission (CPUC), California Independent System Operator (CAISO), Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and the University of California, Berkeley.

CHARGE 2T focuses on increasing statewide electric transmission capacity by installing advanced conductors, dynamic line ratings (DLR), and other grid enhancing technologies (GETs). CHARGE 2T also includes enhancements to CAISO and individual utility interconnection portals and tools to improve and streamline California's resource interconnection process to the grid.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$10.098 million. These expenditures reflect SCE's portion of CHARGE 2T and include installing dynamic line ratings and short circuit duty monitoring (SCDM) on FERC-jurisdictional grid facilities and enhancements to SCE's interconnection portal and processes. Other SCE CHARGE 2T capital expenditures such as SCE's advanced conductor projects are captured and accounted for as separate project forecasts.

## **11. WAMPAC Program (PIN: 6957)**

The deployment of Wide Area Monitoring, Protection and Control (WAMPAC) capabilities is a new activity in SCE's 2025 General Rate Case (GRC) for the CPUC-jurisdictional portions of this Program. SCE has been deploying phasor measurement units (PMUs) across its bulk power system to meet NERC PRC-002, and these PMU measurements have provided SCE with vast quantities of data detailing the condition of the grid. However, robust tools are needed to transform this accurate high-rate measurement data into actionable information, so future PMUs can contribute even more to the efficient, safe, and reliable planning and operation of SCE's electric system. SCE has also deployed an initial visualization software that displays basic phasor measurement information to system operators and engineers, known as Wide-Area Situational Awareness System (WASAS). The advancement of sensor, communication, and information technologies will enable the deployment of the more robust and comprehensive WAMPAC to leverage existing PMUs and maximize the value of synchronized measurements.

In the 2025 GRC period, WAMPAC will primarily focus on building up key monitoring capabilities, including Model Validation, System Disturbance Monitoring, Oscillation Stability Monitoring, Power Quality Monitoring, Inertia Monitoring, Short Circuit Capacity Analysis, Power Angle Stability Analysis, Linear State Measurement, and Preventive Stability Assessment. Dedicated software (e.g., synchro-phasor analytics) and platforms integrated with SCE's Energy Management System (EMS) will process the data and provide operators and



engineers with real-time situational awareness, event prediction, and event analysis for the CPUC-jurisdictional portion of the Program. Presently, the locations and types of disturbances that occur are found by after-event analysis. WAMPAC, however, will quickly alert system operators about emerging threats to transmission system stability (e.g., phase angle separations) during the event, enabling faster preventative action to avoid wide-scale blackouts. The current proposal for WAMPAC is largely dependent on PMUs placed on the FERC-jurisdictional assets as the primary device to collect data. Though there are other technologies that may be able to monitor a subset of power quality metrics, a PMU-based strategy is optimal for SCE as it builds on and integrates best with existing grid infrastructure from previous investments.

With the dominance of inverter-based resources (IBRs) (e.g., intermittent solar, wind, and battery energy storage) and the projected retirement of natural gas plants that provide significant amounts of steady, controllable energy, grid operators will need to evolve their operations to maintain grid stability. The voltage, current, and frequency monitoring capabilities deployed through WAMPAC are crucial to sustaining grid stability through the transition to renewables. Due to the changes in the electric grid, this sensing will be used to identify issues that are not visible to the traditional monitoring techniques of the past because enhanced system visibility and understanding and faster response time are required for dealing with the performance of a grid supplied predominantly by IBRs.

Over the past years, SCE has observed an increase in IBR performance issues, as manifested by widespread IBR loss events that have been analyzed and documented by NERC with support and PMU data from SCE. More than six NERC events have occurred in SCE territory since 2016, leading to hundreds of MWs of generation tripping off. While SCE presently has the capability to monitor the electrical system and perform off-line event analysis, it does not have automated analytical capabilities such as real-time oscillation detection tools and real-time monitoring of phase angle difference as a measurement of grid security both pre- and post-contingency. System oscillations, including low frequency oscillations, forced oscillations, inter-area oscillatory modes, and phase angle differences (i.e., phase angle

difference between transmission line terminals and phase angle difference across the wider electrical system, which may escalate and become large-scale contingencies) may go unnoticed until it is too late. The capabilities deployed through WAMPAC will help mitigate these issues by identifying precursor signs of these events and/or these events in the early stage of occurring and notifying the system operator in time to prevent the larger scale event from happening. For example, WAMPAC will identify when oscillations are occurring and determine if the oscillations are limited locally within their footprint or are more widespread.

In addition, SCE's current engineering use for synchrophasor data is limited to event analysis. With WAMPAC, however, SCE's ability to perform post-event analyses and validate power plant and system models will be enhanced by the post-event analysis and model validations functionalities being provided by the system. Building these monitoring capabilities through WAMPAC is an essential first step in identifying effective mitigations to these events. With the new WAMPAC capabilities, SCE will improve its responses to the rising number of system disturbances and more effectively determine the next set of measures needed to minimize the occurrence and impact of future events. These measures may range from helping the IBR facilities tune their generation controls to identifying operator actions (e.g., reducing power transfer across transmission paths, making topological changes, etc.) to reduce the risk of the event.

In its 2025 GRC filing, SCE forecasted \$47 million in capital expenditures from 2023-2027 for WAMPAC. This cost primarily consists of the installation of 10 additional PMUs on FERC-jurisdictional assets and the synchro-phasor analytics software to process phasor data and perform event analysis. These additional PMUs are needed to fill in existing gaps in coverage on 220 kV transmission buses and will build on previous deployments of PMUs, which were installed to meet NERC PRC-002. NERC PRC-002, while setting the standard for NERC event analysis, does not guarantee observability of every electrical bus. Many IBRs are being connected to those non-observable bus, thus requiring the additional PMUs. The synchro-phasor analytics software is needed to process phasor data and perform event analysis. This forecast

also includes the costs for software implementation support, hardware for the expansion of Grid Data Center (GDC) and Grid Services Integration Lab (GSIL) environments to support the application, and the labor required to deploy the software and hardware. These costs support the integration, implementation, and testing of the system prior to deployment to the production environment. Also included in the 2024-2028 forecast are employee-led efficiency savings for an average of \$0.243 million per year related to optimizing the mix of supplemental versus SCE personnel.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$8.143 million.

## **12. Transmission Line Rating Remediation (Exempt from Licensing) (PIN: 7298)**

SCE conducted a rating assessment of its CAISO controlled and 115 kV radial lines built before 2005 to identify spans potentially not meeting CPUC's General Order (GO) 95 clearance requirements under certain operating and atmospheric conditions. SCE committed to North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) to remediate all identified potential clearance issues for the CAISO-controlled facilities by 2025 and the 115 kV radial lines by 2030. While not its original intent, to the extent this remediation program reduces risk related to transmission line discrepancies in High Fire Risk Areas (HFRA), it has important secondary wildfire risk mitigation benefits.

A Light Detection and Ranging (LiDAR) study was conducted to identify transmission lines potentially in violation of GO 95 Table 1,<sup>1</sup> which included building industry standard Power Line Systems-Computer Aided Design and Drafting (PLS-CADD) three-dimensional models to analyze each line for potential clearance discrepancies. Based on the results of the LiDAR study, SCE prioritized the transmission line discrepancies based on criteria such as line sag when operating at or above 130 degrees Fahrenheit and potential risk to public safety and

---

<sup>1</sup> Available at [http://www.cpuc.ca.gov/gos/GO95/go\\_95\\_table\\_1.html](http://www.cpuc.ca.gov/gos/GO95/go_95_table_1.html)

system reliability based on location of span, terrain, encroachment type, and extent of deviation from standards.

SCE has taken a programmatic approach to the remediation work by utilizing new technologies and construction methods to minimize overall project impacts. Aligning scope with other programs and initiatives minimizes redundant work, outage impacts, and resource constraints. Initially, the program prioritized discrepancies into six levels and the focus was to remediate in order of highest priority. A discrepancy is any condition found in the field requiring remediation to meet GO 95 requirements during peak loading conditions. Currently, all discrepancies are evaluated on an entire circuit basis to allow for a holistic and effective remediation strategy. There are two major categories of discrepancies SCE is mitigating: (1) Bulk Transmission – 500 kV and 230 kV; and (2) Non-Bulk or Sub-transmission – 161 kV, 115 kV, 66 kV, and 55 kV. The following factors are considered when reviewing the discrepancies:

- Geographic proximity and bundling of projects for construction efficiencies.
- Government land or land agency overlap.
- Permitting similarities and schedule impacts.
- Engineering design.
- Construction methods.
- Outage opportunities or restrictions with other TLRR and SCE projects.
- Material and procurement efficiency.
- Potential of remediating by working on a lower voltage; and
- Aligning scope with other programs and initiatives to minimize redundant work, outage impacts and resource constraints.

Each project is also reviewed under CPUC GO 131-D, which defines the rules relating to the planning and construction of electric facilities. Some projects fall under the exemptions listed in GO 131-D Section III.B.1, while others require full permitting and become licensing projects. The following corrective actions have been identified for majority of these discrepancies:

- Reconductor.
- Structure replacement.
- Structure raises.
- Retensioning.
- Reframing.
- Adding an interset structure.
- Lowering or relocating sub-transmission or distribution.
- Grading; or
- Lowering/removing object (such as a light pole).

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$122.650 million.

### **13. Seismic Mitigations for Transmission Assets (PIN: 7392)**

The Seismic Assessment and Mitigation Program, consolidated under SCE's Business Resiliency activities, is part of a larger, mostly CPUC-funded effort beyond just the FERC dollar portion of SCE's funding request. The broader seismic program centralizes and coordinates across organizational units to assess and perform mitigations as identified to increase safety, infrastructure reliability and maintain regulatory requirements surrounding the occurrence of earthquakes. The primary objectives of the Seismic Assessment and Mitigation Program are to: (1) assess SCE's electric infrastructure (transmission lines and substations), non-electric facilities, generation, and telecom infrastructure and identify what seismic mitigations are needed, and (2) mitigate risks by making the necessary retrofits and improvements in order to increase reliability and reduce the risk of harm to workers, customers and local communities due to a moderate or major earthquake in SCE's service territory.

Within this Formula Rate Annual Update, SCE addresses the seismic mitigation activities pertaining to SCE's transmission system assets, which include both transmission line infrastructure and substation assets which are all FERC-jurisdictional assets. Examples of

mitigations for these assets include bracing and anchoring electrical equipment in substations, improving conductor slack, structural work to reinforce building wall to roof connections, and replacing aged equipment with modern equipment designed to withstand greater levels of seismic activity. Other work includes more detailed assessments of significant transmission tower sites along the earthquake faults to determine possible landslide risk and mitigate said risk accordingly to ensure system reliability.

SCE conducts hazard and vulnerability assessments on its infrastructure in order to: (1) understand the seismic exposure and impacts of seismic events, (2) assess the functionality and stability of the existing electrical infrastructure if a seismic event occurred, and (3) identify applicable design standards and codes. Assessments utilize a combination of site surveys, seismic modeling, and geographic information systems.

Seismic mitigations are prioritized with a focus on keeping people (employees, contractors and citizens) safe and minimizing interruptions in electric service. Projects with the highest safety, reliability, and compliance impact will be executed first. This includes populated buildings as well as transmission, distribution, generation, and telecom infrastructure critical to maintaining business continuity and operational reliability. As mentioned in the criteria above, reviewing the data against the United States Geological Survey's probabilistic scenarios informs the prioritization of transmission infrastructure in terms of imminent failure should moderate to high seismic activity occur. In addition to the prioritization method used, some projects may be escalated to bundle work for cost efficiency purposes and to minimize outages. Projects related to high-hazards dams with pending FERC reviews will be prioritized accordingly.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$20.220 million.

#### **14. Substation Facility Capital Maintenance (PIN: 7637)**

SCE's Substation Capital Maintenance Program seeks to preserve the value of SCE's substation buildings, equipment, and grounds, making them as safe and productive as reasonably

possible and proper asset management requires a proactive capital maintenance program to repair or replace building systems and components that are damaged, degraded, non-operational, non-compliant, or have reached their end of useful life.

SCE uses Asset Management Methodology, to prioritize capital projects and program expenditures to support SCE's objectives to provide safe, reliable, and affordable electricity to its customers. One of the three main influencing factors under Asset Management Methodology is Facility Condition Index (FCI) that assesses conditions (e.g., age and wear of the building and its systems) and compares the cost to improve them against the cost to replace the building or site. The FCI score, expressed as a percentage, is the ratio of the cost of correcting identified deficiencies to the replacement cost for the facility as a whole. A low FCI score is more desirable than a high score. To be more specific, the FCI Score of 0-5.0% translates into Good; 5.1%-10.0% into Fair; 10.1%-29.9% into Poor; and >30% into Critical overall condition characterization. SCE's portfolio FCI score has improved from 23% (Poor condition) in 2013 to 16% in 2016 – an overall 30% improvement. , However, continued ongoing capital maintenance is required for additional and sustained improvement into the next score category. It would not be prudent or possible to replace all aged facilities, for a variety of reasons including excessive cost and disruptions to personnel. FCI is one of several indicators used by SCE in prioritizing investments. Other conditions and influencing factors must also be considered, as discussed below.

Asset Priority Index (API) rates the relative importance of a facility among the network of facilities required to serve SCE's customer base. A facility's API is used to define a facility's importance in meeting SCE's strategic business intent and operational performance. Periodically, SCE's Corporate Real Estate (CRE) department consults with SCE senior leadership from across various organizational units to rank SCE's facilities by the business units that utilize them. A site is prioritized by its importance and criticality to delivering safe and reliable services to SCE's customers. A lower API ranking (i.e., number) indicates a higher priority. For example, an API ranking of 3 shows a highly needed and important facility, as

compared to an API ranking of 98, which would be a non-essential asset. SCE deprioritizes investments in non-essential buildings, such as a general non-electric tool shed, with a Poor FCI condition and a high API ranking. Conversely, investments are prioritized for the most significant facilities, which have comparatively high operational purpose and, therefore, a low API rank. Last, where the FCI and API focus on the condition and criticality of a facility, SCE considers a facility's fitness for purpose, as a way to integrate evolving business conditions, and the ability of a facility to support these changes, into portfolio planning and capital prioritization. This factor considers the unique conditions of a facility and its ability to support current and future operations, such as:

- Changing work methods or equipment (e.g., T&D vehicles or IT data processing machines) and limitations or deficiencies of the current building infrastructure, building design, and site design, which can cause overburdened building systems, non-compliance with current building codes, or poor service reliability conditions.
- Regulations, such as building codes that cannot be achieved in old building or site designs, that pre-dated such regulations, and which conditions have become an increasing concern for safety and operational reliability.
- The current capacity and utilization of buildings or sites (e.g., of parking, office spaces, etc.) versus the forecast growth or contraction of its expected need to the Company, and the ability for the facility, to best support the change in need.
- The ability to consolidate or co-locate functions or uses, to continue to use facilities to their highest and best use, or to promote better collaborative work environments to advance work initiatives in customers' best interests.

The forecast for substation capital maintenance is a combination of historical expenditures and a zero-based budget, considering fluctuations in maintenance activity. The forecasted level of spending is needed for proper preventative maintenance to mitigate negative impacts from any deferred maintenance, including costly repairs and replacements.



The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$13.623 million.

## **15. Substation Switchrack Rebuilds (PIN: 7713)**

Substation Switchrack Rebuilds activity captures the capital expenditures related to rebuilding existing substation racks based on conditions found in the field, as well as through various analyses including structural and seismic analysis. A substation switchrack is the skeletal/structural system used to support substation assets such as circuit breakers, disconnects, and conductors. Substation structures degrade over time and need to be replaced and/or upgraded. The switchracks/structure needs are initially identified at the scoping job walk, typically driven by the circuit breaker and transformer replacement, and in some cases disconnect switch replacements.

At the scoping job walk the field personnel (operations, construction, maintenance, and others as necessary) and engineering personnel evaluate and determine the project scope. These workers evaluate the condition of foundations, equipment, structures, and working areas/to identify the need to potentially perform a switchrack rebuild project. Prior to pursuing a rebuild project, SCE also considers other potential solutions including, but not limited to, deferring a project, modifying a switchrack (i.e., structural modification in place or additional grading beneath a switchrack structure), and/or increasing maintenance activity for the circuit breakers and/or transformers.

Switchrack rebuild projects often result from the need to replace substation circuit breakers. SCE estimates the costs for each project based on the unique characteristics of each project, and not by using an average cost per project approach. This is because, unlike like-for-like replacements of circuit breakers and transformers, switchrack rebuild projects can vary and have unique site-specific challenges, including voltage class, geographic location, property size and footprint, non-SCE original construction, modification of construction standards, local city regulations, space constraints for construction, maintaining service during construction, and

geologic circumstances. As a result, using an average cost per project forecast is not meaningful and representative to the costs of such projects.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$7.081 million.

## **16. Protection of Grid Infrastructure Assets (PIN: 7949)**

The Protection of Grid Infrastructure Assets program (previously known as the Physical Security Systems – Electric Facilities Blanket) deploys and standardizes new security systems at SCE and corrects identified deficiencies with access control and monitoring of SCE entry/exit points, critical areas, and critical assets. Each year, SCE’s Corporate Security organization reviews emerging threats and security vulnerabilities to develop a prioritized list of electrical facilities designated for security system installations or security systems refreshments, upgrades and enhancements for the next year. Electrical facilities requiring a new security system or security system component will undergo a structured process to identify specific physical security needs and to develop a system design incorporating SCE security standards, installation and integration with the Edison Security Operations Center (ESOC), and personnel training and awareness. Each deployed security system will be standardized to improve management of replacement of these assets, lower and standardize maintenance costs, and provide consistent refresh cycles of security technology components across SCE’s territory.

To maintain the operation of existing alarms, access controls, and security systems at SCE, Corporate Security experts will first identify which facilities have security systems that are operating at a less than optional performance level. Corporate Security will evaluate each security system to be enhanced or refreshed considering their current operations, how the site is being utilized, types of assets requiring protection, access controls for the existing and expected population and types of individuals that are or will be present at the site, and the required protections associated with the security refresh/enhancement.

Since the completion of NERC CIP-014 Tier 1, the focus has shifted towards the subsequent Tiers starting with Tier 2 & 3 sites concurrently. The Tier Program supports the efforts of providing safe and reliable service to our customers by improving the protection of critical assets, buildings, and people around electric facilities. Performing security enhancements based on risk such as perimeter intrusion detection, integrated access control, alarm management, video surveillance, and radar. The Tier Program is an ongoing program where electric facilities are assessed yearly.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$29.657 million.

#### **17. Corporate Real Estate Infrastructure Upgrades (PIN: 8074)**

Infrastructure upgrade projects address deficiencies of existing facilities based on current operational requirements. Due to their age, these facilities typically have high FCI scores and have received poor Fitness for Purpose evaluations. For example, the Oak Hills Transmission Facility project involves the construction of permanent structures to replace three temporary trailers at SCE's Oak Hills site. This site serves transmission facilities in the Victorville, Barstow, Ridgecrest, Bishop, and Mammoth districts. Constructing permanent buildings on this 15-acre site is needed to accommodate a growing staff that will operate from this location and support expected and planned operations over this vast and diverse geographical area. This project replaces aged trailers and eliminates the need to annually renew the trailers' temporary permits. Additionally, material handling operations at this site have increased in recent years due to local wildfire mitigation activities, creating the need for more equipment and material to support this area's growth in electrical facilities and systems. The project includes construction of an approximately 11,000 square foot administration building (with work area, lunchroom, restrooms, and a conference room) for SCE staff that handle material flows at this laydown site. The project also includes construction of a warehouse building, a hazardous materials storage

area with canopy, a pole storage yard, a materials laydown yard, and parking areas for Company fleet and staff vehicles.

Customers' reliance on electricity is expected to grow to reach two to three times its current level by 2045 due to electrification of buildings and transportation and increases in construction to align with the State of California's Housing Future 2040 initiative requirements. SCE is upgrading the grid to meet rising demand and to provide resiliency that withstands the more frequent and severe weather conditions experienced due to climate change. SCE anticipates a substantial increase in staff, fleet, materials, equipment, and need for yard space at the Oak Hills transmission facility over the next few years to facilitate the aforementioned transition to electrification and grid infrastructure upgrades.

The Oak Hills transmission facility has been operating through the use of three construction-type trailers under temporary permits for an extended period of time. SCE pays a monthly lease fee to operate these trailers on the property and has accrued costs of approximately \$221,000 over the last five years. Life expectancy for these trailers is ten years, and these trailers have now exceeded their useful life. Additionally, the County of San Bernardino issues temporary permits that are valid for 12 months at a time and are subject to an annual review for continued renewals. Should the County deny future permit requests, SCE would be required to remove the trailers and vacate the site with no suitable alternative. No other SCE location possesses the capacity to even partially house or service SCE's anticipated transmission operations in the Oak Hills vicinity.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$6.588 million.

#### **18. Lugo-Victorville 500 kV T/L Special Protection System ("SPS") (PIN: 7763)**

The purpose of this project is to prevent overload conditions on the jointly owned Lugo-Victorville 500 kV transmission line. This SPS trips the Transition Cluster ("TC") generation projects for the N-1 loss of the Eldorado-Lugo 500 kV line and the N-2 loss of the Eldorado-

Lugo and Lugo-Mohave 500 kV transmission lines. This project was approved by CAISO in an executed LGIA.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$43.576 million.

#### **19. Pardee-Pastoria 220kV: Re-conductor (San Joaquin & North Coast) (PIN: 7890)**

The purpose of this project is to replace at-risk conductor on the Pardee-Pastoria 220kV line between San Joaquin and North Coast Grids to remediate wire down risks due to material failures along the circuit (total of ~39 miles; ~12 miles for San Joaquin Grid and ~27 miles for North Coast Grid).

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$67.834 million.

#### **20. Substation Reliability Upgrades - Antelope (PIN: 7924)**

The Substation Maintenance and Test Building program is designed to replace temporary and outdated facilities that are in need of a significant upgrade. Substation maintenance and test facilities co-locate electricians that perform maintenance and inspections on assets (e.g., circuit breakers, relays, transformers, etc.) critical to grid reliability. Initially, crews worked in buildings that were not constructed to adequately support this type of specialized work, and in trailers that were provided as temporary solutions. The updated or new buildings will improve crew productivity by providing adequate space for personnel and equipment, as well as for crucial maintenance and test activities.

The Antelope substation's Maintenance building is too small to support this level of maintenance and test staff operations, and a 1955 Test trailer that previously housed test staff has been removed. For the last four years, maintenance and test crews have been working in a double-wide trailer where space is limited, which impedes operations and reduces possible productivity of these personnel. SCE will construct a new Maintenance and Test building

(11,600 square feet) at this site and retain the existing Maintenance building for future equipment storage needs.

For this project, SCE will:

- Complete design and obtain permits and approvals;
- Remove existing double-wide trailer;
- Prepare the site (e.g., excavation and grading) for circulation, runoff and water management, and utilities;
- Add 480 kW, 3-phase electrical power services, concrete pad, transformer, and switchgear;
- Construct a Maintenance and Test building (approximately 11,600 square feet), to include maintenance shops, staff work areas, meeting areas, restrooms, and a break room;
- Repurpose the existing Maintenance building for equipment storage;
- Construct covered parking with solar panels for SCE trucks;
- Construct staff parking areas;
- Construct communication closets with data infrastructure, racks, cable and fiber trays; and,
- Install audio visual equipment and telecom.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$8.246 million.

## **21. Substation Reliability Upgrades - Pardee (PIN: 7956)**

The Substation Maintenance and Test Building program is designed to replace temporary and outdated facilities. Substation maintenance and test facilities co-locate electricians that perform maintenance and inspections on assets (such as circuit breakers, relays and transformers) critical to grid reliability. Initially, crews worked in buildings that were not constructed to adequately support current work, and in trailers that were provided as temporary

solutions. The updated or new buildings will improve crew productivity by providing adequate space for personnel and their equipment, as well as adequate space for the expected maintenance and test activities.

The Pardee test crew currently operates in the Operations building. However, future plans for equipment installation to support grid operations in this building will require the test crew to relocate. The maintenance crew currently occupies the Maintenance building. SCE will construct a new Maintenance and Test building and install additional power infrastructure to support it. Thereafter, operations will use the vacated space in the Maintenance building.

For this project, SCE will:

- Complete design and obtain required permits and approvals;
- Prepare the site (e.g., excavation and grading) for circulation, runoff and water management, and utilities;
- Relocate two 16-kilovolt lines underground;
- Construct a new Maintenance and Test building (approximately 11,600 square feet), with maintenance shops, test benches, staff work areas, meeting areas, restrooms, and a break room;
- Construct staff parking areas;
- Construct communication closets with data infrastructure, racks, cable and fiber trays; and,
- Install audio visual equipment and telecom.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$5.163 million.

## **22. Physical Security Enhancement Projects (Tiers 2 & 3) (PIN: 8042)**

The objective of this project is to provide the most useful, and increased level of security measures at SCE's most critical facilities based on the criticality of need and the potential impact of a security breach. The Tier Program supports the efforts of providing safe and reliable

service to SCE's customers by improving the protection of critical assets, buildings, and people around SCE's electric facilities. Deployment of security systems at these facilities is prioritized based on operational need and evolving area threats which can include incidences of theft, vandalism, or security breaches. Security enhancements include perimeter intrusion detection, integrated access control systems, alarm management with the Edison Security Operations Center and video surveillance systems. This program implements a set of standards to ensure that SCE undertakes a fiscally responsible decision-making process that is directly tied to risk mitigation efforts.

Although work associated with the Tier Program was scheduled to begin in calendar year 2018, SCE was able to test several new and more cost-effective security systems after the filing of its 2018 General Rate Case (GRC), prompting the rescheduling of implementation to 2019. The substation tiers are:

- Tier 1 – Substations identified in CIP-014 Risk Assessment (including Pre-CIP-014 Pilot Sites).
- Tier 2 – 500 kV with five or more Network Connections or load > 1,000 MW or Generation > 1,200 MW.
- Tier 3 – 500 kV with five or more Network Connections OR 220 kV with eight Network Connections, OR 220 kV and load > 1,000 MW or Generation > 1,200 MW.
- Tier 4 – Additional A & AA-bank substations identified by SCE and Substations not identified in Tiers 1-3.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$33.482 million.

### **23. Substation Protection Upgrades - San Joaquin Region (PIN: 8077)**

Install protection upgrades to comply with NERC TPL 001-4 (Transmission System Planning Performance Requirements), which went into effect January 1, 2016. NERC



Transmission Planning Standards 001-4 requires mitigations for the TPL violations and persistent faults identified as part of Annual Transmission Reliability Assessment (ATRA) 2016.

In coordination with CAISO's TPP, SCE performs an ATRA for its portion of the CAISO-controlled grid. This assessment is designed to:

- Evaluate the performance of the SCE transmission system under peak and off-peak conditions for near-term and long-term planning horizons.
- Determine transmission constraints under stressed system conditions.
- Identify upgrades needed to maintain the reliability of the transmission system and comply with the NERC Reliability Standards, the WECC Regional Business Practices, the CAISO Planning Standards, and SCE's transmission planning criteria.

SCE's ATRA is performed in parallel with the CAISO TPP under the CAISO's FERC jurisdictional tariff. SCE's Grid Reliability Projects are identified in the CAISO TPP and subject to review and approval by the CAISO's Board of Directors and cost recovery is conducted through the CAISO's Transmission Access Charge (TAC).

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$7.483 million.

#### **24. Sanborn Hybrid 3 (PIN: 8342)**

The purpose of the project is to construct interconnection facilities needed to interconnect the Sanborn Hybrid 3 Project which is a 1,400 MW solar photovoltaic and battery energy storage system (BESS) Project into the Windhub 500 kV bus. The project scope includes constructing two new 500 kV Line positions, two new 500kV transmission Lines approximately 2000 feet in total length, implement required environmental services, and pursue Tehachapi Centralized Remedial Action Scheme (CRAS) modifications.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$9.981 million.

## **25. Laguna Bell-Mesa No. 1 230 kV Line Rating Increase Project (PIN 8448)**

Reconductor Laguna Bell-Mesa 230 kV No. 1 Line to Aluminum Conductor Composite Core Fort Worth, or equivalent High Temperature Low Sag conductor. Upgrade the Laguna Bell-Mesa No. 1 230 kV Line terminal equipment in Position 11 and upgrade the 230 kV Bus at Laguna Bell Substation to achieve rating increase to 3250/4760 Amps SN/SE.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$39.339 million.

## **26. Devers 230 kV Reconfiguration Project (PIN: 8473)**

The purpose of the project is to upgrade the Devers 220 kV Bus configuration to improve operational flexibility and reduce the financial impact during a Devers 220 kV Bus outage. The project scope involves installing one (1) 220kV, 4000A, 63kA, SP6 gas type CB 5012; installing a dead-end structure for the 1AA bank conductor; replacing CB 4012 BCT with 5000/5 BCT; installing three (3) CCVT; installing two (2) 4000A line disconnects; install one (1) C60 for LBFB; install two (2) test relays; reconnect 1AA bank relay protection; remove two (2) 220kV, 4000A, 63kA, SP6 gas type CB 41X2 & 61X2; and remove SBC 99 relay, SEL 351 test relays and associated equipment.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$6.566 million.

## **27. Antelope 66 kV Circuit Breaker Upgrade (PIN: 8474)**

The purpose of the project is to upgrade 41 Antelope 66 kV Circuit Breakers and associated equipment from 40 kA to 50 kA Circuit Breakers. The scope of work also includes replacing 101 66 kV disconnect switches & 45 66 kV PTs, as well as removing 15 steel lattice structures and installing 15 dead-end structures. Project will also require relay upgrades at Antelope Substation as well as 5 other satellite substations.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$15.330 million.

## **28. Barre 230 kV Switchrack Conversion to Breaker-And-A-Half Project (PIN: 8519)**

The purpose of the project is to convert the existing Barre 230 kV switchrack from a double-breaker-double-bus (DBDB) to a breaker-and-a-half (BAAH) configuration. The scope of work includes relocating the south bus, adding a third Circuit breaker to 4 bay positions, adding sectionalizing circuit breakers and split Barre 230 kV to lower short circuit duty, and relocating lines/towers/other facilities within the current fence line.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$28.946 million.

## **29. New Inyo 230 kV Shunt Reactor (PIN: 8599)**

The purpose of the project is to Install a 25 MVar shunt reactor at Inyo 230 kV Substation to mitigate high voltages at Inyo 230 kV and alleviate the need to coordinate with CAISO on reducing area generation to maintain voltage.

This project addresses the high voltage levels that have been observed over several years under normal operating conditions. For illustration, the following Table 1 shows the maximum, minimum and average voltage values during the years 2018 to 2022.

Table 1: Voltages in kV during last 5-years at SCE 230 kV Inyo side

Year	Max Volt	Min Volt	Avg. Volt
2018	258.3	213.4	242.2
2019	270.2	242.2	256.3
2020	272.7	241.1	254.1
2021	272.7	239.4	255.0
2022	263.6	233.2	243.0

Following careful study and upon SCE's Engineering Operations & Analysis group (OP&A) recommendation to address the high voltage level concerns, the Regional Studies

Group initiated an assessment and performed multiple simulations to arrive at the proposal of the installation of the 25 MVar SR at Inyo 230 kV SCE side.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$21.552 million.

### **30. West of Devers Upgrade Project (PIN: 6420)**

The West of Devers Upgrade Project (WODUP) consists of upgrading and reconfiguring approximately 48 miles of four existing 230 kV transmission lines between the Devers, El Casco, Vista, and San Bernardino substations in order to increase the power transfer capabilities in this area of SCE's system. The WODUP is needed to integrate planned renewable generation resources, comply with executed Large Generator Interconnection Agreements (LGIAs) and signed Power Purchase Agreements (PPAs), comply with NERC and WECC transmission reliability planning criteria and facilitate compliance with California's renewable portfolio standards (RPS) goals.

In August 2016, the CPUC approved the construction of the WODUP. As a result of the delay in receipt of the WODUP's approval from the CPUC, SCE deferred the forecasted timing of project capital expenditures. Office of Ratepayer Advocates (ORA) filed an Application for Rehearing in September 2016 stating that the August 2016 decision failed to follow the California Environmental Quality Act (CEQA) when it approved the WODUP and should have approved an alternative project with an amended scope. In March 2017, the CPUC issued a decision denying ORA's September 2016 Application for Rehearing. This action confirmed SCE's proposed project. In December 2017, SCE awarded the competitive bid for transmission construction, which resulted in a decrease to the expected cost of the WODUP from \$1.075 billion to \$848 million. As a result of SCE's diligent efforts of working closely with this contractor, and CAISO's availability of outages, the project resulted in \$751 million in recorded amounts and was completed ahead of schedule.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$8.138 million.

### **31. Eldorado-Lugo-Mohave (ELM) Upgrade (PIN: 7546)**

CAISO approved the Lugo-Eldorado series capacitor and terminal equipment upgrade in its 2012-2013 Transmission Planning Process (TPP) and the Lugo-Mohave series capacitor and terminal equipment upgrade in its 2013-2014 TPP as policy-driven upgrades to relieve deliverability constraints in order to support achievement of California's renewable energy goals. This project will increase power flow through SCE's existing transmission lines from Nevada to Southern California, and will provide renewable integration, improved deliverability, and enhanced reliability benefits. CAISO identified reliability benefits of the project in that it relieves overloads on certain 500kV facilities in the neighboring LADWP's transmission system.

The ELM project would modify SCE's existing Eldorado, Lugo, and Mohave electrical substations to accommodate the increased current flow from Nevada to Southern California; increase the power flow through the existing Eldorado-Lugo, Eldorado-Mohave, and Lugo-Mohave 500 kV transmission lines for the purpose of increasing the amount of power delivered from California's Ivanpah Valley, as well as power delivered from Nevada, and Arizona to the Electrical Needs Area (ENA) through the SCE system in an effort to meet requirements associated with the California Renewables Portfolio Standard (RPS) by constructing two new 500 kV mid-line series capacitors (i.e., the proposed Newberry Springs Series Capacitor and Ludlow Series Capacitor) and associated equipment; raise transmission tower heights to meet ground clearance requirements; and install communication wire on SCE's transmission lines to allow for communication between existing SCE substations.

SCE has proposed an expedited schedule and a non-standard review process with the regulatory permitting agencies to meet the current in-service date. During September 2017, SCE awarded the competitive bid for the project which resulted in a decrease in the expected capital forecast for the project.

On May 2, 2018, SCE filed an application for a Permit to Construct (PTC) authorizing SCE to construct electrical facilities known as the Eldorado-Lugo-Mohave Series Capacitor Project.

On January 9, 2019, the CPUC directed SCE to file an amended application for a Certificate of Public Convenience and Necessity (CPCN). SCE submitted its amended application for a CPCN on April 19, 2019. The licensing process to file CPCN delayed the projected construction start date to third quarter of 2020.

A protest by the Public Advocates Office (PAO) resulted in CPUC ruling for an amended CPCN application to be filed (note SCE filed a PTC in May 2018, and then the amended CPCN application April 2019) and this licensing delay deferred construction start date to Q4 2020. Final Decision was voted at CPUC's at its August 27<sup>th</sup> Business Meeting, approving the project to move forward. BLM Nevada authorized SCE to proceed with construction under O&M conditions until ROW Grant is renewed. Eldorado and Mohave construction started on November 2, 2020. CPUC issued Notice to Proceed (NTP) #1 authorizing work to start at Lugo Substation on Jan 4, 2021. The 60-Day Department of Interior Temporary Suspension of Delegated Authority (SO3395) has been lifted for BLM CA and NPS. BLM CA issued an NTP allowing construction at Newberry Springs to commence. BLM Nevada issued ROW Grant Renewal for the 500kV Transmission Line.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$232.592 million.

### **32. Lugo-Victor 230 kV Line Reconductor (PIN: 8631)**

CAISO approved the Lugo-Victor 230kV upgrade in its 2022-2023 Transmission Planning Process (TPP) as a policy-driven upgrade to relieve deliverability constraints in order to support achievement of California's renewable energy goals. This project will increase power flow through SCE's existing transmission lines in the North of Lugo System and will provide renewable integration, improved deliverability, and enhanced reliability benefits. CAISO

identified reliability benefits of the project in that it relieves overloads on adjacent 220kV facilities.

The Lugo-Victor 230kV Upgrade project would increase the power flow through the existing Lugo-Victor Nos. 1-4 230 kV transmission lines for the purpose of increasing the amount of power delivered in the North of Lugo Area, to mitigate base case overloads on all four circuits and category P1 overloads on the remaining three circuits under the loss of one circuit as identified in the sensitivity scenarios.

The estimated ISO-related direct capital expenditures that are projected to go into rate base during this period are \$40.350 million.