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December 2, 2019

**ADVICE 4120-E  
(U 338-E)**

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA  
ENERGY DIVISION

**SUBJECT:** Southern California Edison Company's Reports on Possible Off Ramps Pursuant to the Guidance Decision on 2019 Wildfire Mitigation Plans

Southern California Edison Company (SCE) hereby submits for approval by the California Public Utilities Commission (Commission or CPUC) its Reports on Possible Off Ramps for its 2019 Wildfire Mitigation Plan (WMP) (Off Ramp Report).

**PURPOSE**

In compliance with Commission Decision (D.) 19-05-036 (Guidance Decision) Ordering Paragraph (OP) 1, SCE hereby submits this Tier 3 advice letter (AL) that describes its proposals to modify, reduce, increase, or end wildfire mitigation measures in SCE's 2019 WMP that are not working, or that otherwise require modification.

**BACKGROUND**

On September 21, 2018, then California Governor Brown signed Senate Bill (SB) 901, which set in motion wide-ranging activities to strengthen California's ability to prevent and recover from catastrophic wildfires. In addition to measures directed at other entities, SB 901 requires electric utilities to prepare and submit WMPs that describe the utilities' plans to prevent, combat, and respond to wildfires. The Commission opened Rulemaking (R.)18-10-007 (SB 901 OIR) on October 25, 2018 to implement this provision of SB 901.

On June 3, 2019, the Commission issued D.19-05-036, addressing issues that are common to all the respondent electrical corporations' WMPs. This Guidance Decision ordered all respondent electrical utilities to file, via a Tier 3 advice letter, "Reports on Possible Off Ramps" describing any concerns about the effectiveness of any program in the WMP. Despite the nomenclature of the report, the scope of activities to be included here is not limited to activities that will cease. Rather, the Guidance Decision recognizes

that “[i]t is essential that there be a process for *modifying*, reducing, *increasing*, or ending mitigation measures that are not working, or [that] otherwise require modification.”<sup>1</sup> The Guidance Decision further describes how the reports shall clearly describe the concern, contain a specific proposal for action, including if applicable a recommendation to modify, reduce, increase, or end a specific mitigation identified, and include any expert or other authoritative information available on the efficacy of the mitigation.

SCE has limited this Off Ramp Report to modified, altered, enhanced or expanded activities that have been implemented or will begin implementation in 2019. As SCE explained in its 2019 WMP, efforts to improve its wildfire risk reduction programs and strategies will continue to evolve based on new information and analysis. This filing does not include changes to programs that are still being evaluated and/or anticipated in year 2020 and beyond. For example, SCE anticipates significantly expanding its weather station network beyond previous estimates, given how granular weather data has improved SCE’s ability to target specific circuits and circuit segments for potential de-energization events and improved its risk modeling. Enhancements or modifications to existing activities and/or new activities that are anticipated to begin no earlier than 2020 will be included in SCE’s 2020 WMP and subsequent filings.

## **OFF RAMP REPORT**

SCE’s Off Ramp Report is organized by the major programs described in its 2019 WMP and subsequent reports provided on the status of its activities. The major program subheadings start with either the section in the 2019 WMP that describes the affected program or the specific activity that has been modified, reduced, increased or ended. These are followed by the section or activity descriptions included in the 2019 WMP. A reference name is included in the subheading that outlines the enhancement, change or modification. Each program and activity include a description of the background, lessons learned, action taken, and efficacy of the change.

### **A. Operational-related Activities**

#### **1. Section 4.6.4.1: De-Energization Notifications – Zip Code-based Alerts**

- a. Background:** Southern California is a travel destination for business and leisure. Access to Public Safety Power Shutoff (PSPS) alerts is important for the safety of visitors and people who are not permanent residents with SCE’s service territory. SCE’s current outage alert system is managed through preferences and contact information provided by account holders. Non-SCE account holders, however, have limited access to formal PSPS notifications.

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<sup>1</sup> Guidance Decision, p. 29 (emphasis added).

Additionally, customers outside of SCE's High Fire Risk Area (HFRA) are not typically notified of PSPS events and may need to be informed if traveling into a HFRA. As such, SCE is developing a Zip Code-based alert system that allows anyone to sign up for PSPS notifications.

- b. Lessons Learned:** SCE was searching for a method to communicate with its Access and Functional Needs' (AFN) population<sup>2</sup> and area visitors who are not account holders. Through benchmarking, relationships and conversations with other IOUs and its current notification vendor, SCE learned about push alerts by Zip Code. An SCE team reviewed and determined that push alerts by Zip Code could further assist SCE in reaching the AFN population. In addition, anyone in the service territory can register for notification in areas other than their home or business account, such as work, or for a caregiver, or school area. This service will provide for greater outreach and communication to customers and non-customers alike.
- c. Action Taken:** SCE has implemented two phases of its Zip Code-based alert initiative where anyone can sign up for PSPS notifications. The initial phase set up enrollment via Short Message Service (SMS) text from mobile devices and was implemented on November 8, 2019. The second phase, implemented on November 25, 2019, enables voice enrollment from a landline or mobile phone.<sup>3</sup> SCE is developing the last phase which will set up a new web-based portal system where anyone will be able to enroll in email, voice and SMS text alerts for PSPS notifications by Zip Code and is expected to go live by the end of 2019. The web-based portal system has been named ZIPalerts; SCE also plans to include information regarding its ZIP Code-based alerts initiative in future customer outreach and education.
- d. Efficacy of the Change:** Zip Code-based alerts provide a simple, direct, and geographical method for meaningful alerts to reach anyone in Southern California, by Zip Code. This initiative expands the notification population to include anyone who visits the current landing page and signs up for text and/or voice alerts for the Zip Code they are interested in.<sup>4</sup> This also expands notification services for account holders who may work or have a family member in a different Zip Code than the account holder. While the alert is not as specific as current PSPS notifications which are made at the circuit level, by using the existing and future tools SCE expects to reach a larger number of people, which should provide additional time for preparation and outage readiness to those who otherwise would not have been directly

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<sup>2</sup> Access & Functional Needs – Cal OES – State of California, <https://www.caloes.ca.gov › cal-oes-divisions › access-functional-needs>

<sup>3</sup> Text and voice enrollment are currently located at the following SCE webpage: <https://www.sce.com/safety/wildfire/pmps/pmps-alerts>

<sup>4</sup> The current SCE webpage will be replaced with SCE.com/ZIPalerts once the new web-based portal system is implemented.

notified.

## 2. Sections 4.6.4.1 and 5.2.3.1: De-Energization Notifications and Communications and Education about Wildfire / Emergency Preparedness – MICOP Partnership

- a. **Background:** SCE is modifying its existing outreach and PSPS program to partner with the non-profit organization Mixteco/Indigena Community Organizing Project (MICOP) to develop public service announcements (PSAs) and conduct outreach efforts to educate community members in Ventura County about preparedness and PSPS in the indigenous languages of Mixteco and Zapoteco.
- b. **Lessons Learned:** As SCE implemented measures to address the needs of vulnerable populations during PSPS, discussion and analysis expanded to the needs of all individuals with AFN, including those with limited English proficiency. In the case of Mixteco and Zapoteco, communication is primarily through a spoken indigenous language, and this segment of our customers can be isolated from important public safety and preparedness information made available through traditional channels. This was reaffirmed in the June 2019 edition of the CPUC monthly newsletter where Commissioner Guzman Aceves discussed Mixteco and the utilities' role in ensuring that critical information reaches all populations.<sup>5</sup> While SCE has a longstanding partnership with MICOP, that partnership has historically focused on educational programs and college scholarships. Understanding the new challenges presented by PSPS, SCE reached out to MICOP to seek recommendations on how best to proceed.
- c. **Action Taken:** SCE's initial outreach to MICOP was largely exploratory to better understand the needs and in-language resources available in the community. SCE learned that MICOP's programs extend beyond community engagement and education and that the organization also specializes in indigenous language services. Based on the discussion, MICOP and SCE entered into an agreement for MICOP to develop PSAs and conduct community outreach specific to preparedness and PSPS.
- d. MICOP will be utilizing their local radio station, Radio Indigena 94.1 FM, to deliver PSAs on preparedness and PSPS in-language for those living and working in the Oxnard area. Pursuant to the agreement, approximately four

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[https://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Website/Content/About\\_Us/Organization/Divisions/News\\_and\\_Outreach\\_Office/June%202019%20newsletter%20-%20v2.pdf](https://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/About_Us/Organization/Divisions/News_and_Outreach_Office/June%202019%20newsletter%20-%20v2.pdf)

radio spots will air Monday through Friday from 6 a.m. to 7 p.m. for three months, which began in November 2019. This schedule is subject to change based on ongoing analysis and any emergent needs. PSAs will be delivered in Mixteco and Zapoteco. MICOP will also coordinate direct outreach and educational interactions with community members including farm workers in agricultural fields, and through events such as MICOP's monthly community meetings, health fairs, and local school events. This direct outreach is expected to begin in Q4 of 2019 and culminate in Q1 of 2020.

- e. **Efficacy of the Change:** According to MICOP, there are approximately 20,000 Mixtecs in Ventura County, and many are only fluent in their indigenous language of Mixteco, as well as other indigenous languages such as Zapoteco. As this program is in its nascent stages, its efficacy has yet to be determined. However, partnering with a community-based organization helps ensure that materials will be translated accurately. Just as importantly, the information will be disseminated through culturally appropriate methods, in some cases through one-on-one outreach, materially increasing the likelihood that the information will be received and trusted.

Additionally, it is expected that this partnership will serve as a pilot program as discussions with MICOP have already resulted in the identification of, and introduction to, other indigenous communities in and around Los Angeles and Orange Counties. SCE will report on any potential future wildfire mitigation outreach efforts to indigenous communities in R.18-12-005 or its 2020 WMP, as appropriate.

### 3. Section 4.6.5.2: Critical Care Customers – Income Qualified Critical Care Customer Battery Backup Incentive Program

- a. **Background:** Among the most vulnerable customers during de-energization events like PSPS are those reliant on medical devices for life-sustaining purposes and who cannot afford certain critical items to support their resiliency during emergencies.
- b. **Lessons Learned:** As part of cross-utility collaboration, SCE and the other IOUs have discussed the needs of this population regularly since 2018 and learned that all three of the IOUs were working on developing similar programs to address these customers' needs through development of the program SCE determined that it would be appropriate to offer a full subsidy for a battery back-up solution for income-eligible, Critical Care residential customers. The intent of the program is to provide back-up batter power to

these customers to facilitate 24 hours of resiliency.<sup>6</sup> On October 2, 2019, Governor Newsom signed SB 167 into law, which authorizes electrical corporations to deploy backup electrical resources or provide financial assistance for backup electrical resources to those customers receiving medical baseline allowances and who meet specified requirements.<sup>7</sup>

- c. **Action Taken:** After identifying the population of relevant vulnerable customers (e.g., Medical Baseline CARE customers), SCE modified its existing PSPS program. Specifically, SCE identified a preliminary count of eligible customers and the types of medical equipment customers use, and developed cost estimates. SCE is in the process of identifying vendors to implement this program in 2019, but implementation may not occur until early 2020. SCE will report on further progress in its 2020 WMP filing. This modification to SCE's existing PSPS program is anticipated to deliver the backup generators using a direct-install vendor selected through either a competitive bid process or by modifying the purchase order for one of SCE's multiple direct-install partners. The vendor would order, store as inventory, and install the equipment, and educate customers about the battery back-up solution, its operation and safe use.
- d. **Efficacy of the Change:** This program is expected to increase resiliency for vulnerable customers during de-energization events.

#### 4. Section 4.6.5.6: Community Outreach Vehicles – Customer Resiliency Equipment Incentive Pilot

- a. **Background:** SCE is in the process of piloting a customer resiliency equipment incentive program that provides financial support to customers within HFRA willing to increase resiliency. This pilot effort is intended to inform the establishment of a customer resiliency equipment incentive program targeting customers that already have solar and storage, or will be adding such capabilities to their sites, and are willing to island, and redirect, the energy in the storage battery to a designated building on site for use during PSPS and/or other emergencies. Most customers that have these features at their sites are larger entities such as schools, local government facilities, and large retailers. The islanding allows the use of the designated building as a powered Community Resource Center (CRC) in HFRA. SCE is currently in the process of setting up a pilot for this program based on two types of customers: one that has already installed solar and storage capabilities (retrofit design) and one that has solar and is in the process of

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<sup>6</sup> Actual duration of battery backup is dependent on the type and number of medical devices connected to the battery. SCE is additionally proposing to make available Community Resource Centers to these customers to charge medical devices and batteries.

<sup>7</sup> Senate Bill No. 167, Chapter 403, page 1 of chapter.

adding storage (new design). The pilots are expected to provide valuable learnings associated with the complexity of the islanding design, costs, and participant willingness.

- b. Lessons Learned:** In planning the pilot, SCE anticipated customer interest to participate in this pilot would be high and customer identification and acceptance would be faster. While customers have showed interest, they are cautious given the responsibility associated with being an emergency resource center.

SCE has also determined that identifying customers in the solar plus storage design stage allows SCE to assist with the islanding design early, potentially reducing costs.

- c. Action Taken:** In initiating this pilot, SCE identified customers in its HFRA and primarily Tier 3 areas that have solar and storage capabilities or just solar capabilities and who have a large facility such as a gymnasium or community building that could accommodate customers during a PSPS or other emergency event. SCE began engaging these customers about participating in a pilot. One customer, a school with solar and storage, elected to participate in the pilot as a resiliency center for emergencies, but not for PSPS events. Although the program will require the customer to make its facility available during a PSPS event, SCE and the customer agreed to pilot this capability in order to assess functionality, costs, and customer acceptance. SCE contracted with a vendor to complete a battery retrofit design and selected a third party to manage implementation, which is expected to begin in late Q4 2019. SCE is still engaging customers for a second pilot and is targeting customers that have solar and are in the market for storage in order to test a new battery design (which is different than the retrofit design described above). SCE has also completed emergency training with site staff and plans to support the site during emergency events once the pilot is ready to be activated.
- d. Efficacy of the Change:** While this modified program includes complex processes, technology, and customer agreements, SCE anticipates this program could be very beneficial to customers in HFRA during emergencies. SCE has received interest in the concept and it expects to refine the process as it moves forward with piloting the retrofit design and finalizes a second participant to pilot the new design.

## 5. Section 4.6.5.6: Community Outreach Vehicles – Community Resource Centers

- a. **Background:** In Section 4.6.5.6 of the 2019 WMP, SCE explained its plan to deploy Community Outreach Vehicles (branded Community Crew Vehicles (CCV)) equipped with back-up power so that customers can charge their personal mobile devices and receive information/updates from SCE about an extended outage, such as PSPS, that they are experiencing. These vehicles are proactively offered to County Offices of Emergency Services (OES) for deployment to impacted areas across SCE's service territory. Since that time, SCE has decided to augment its mobile Community Crews by partnering with facilities around its service territory and establishing CRCs. These centers will provide customers improved convenience and access to services during a PSPS event.
- b. **Lessons Learned:** In planning its customer outreach program during a PSPS event, SCE anticipated that there would be weather events impacting various areas across its service territory simultaneously. During such events, logistical challenges could arise that would make deploying Community Crews to all impacted areas a difficult task. In such cases, it was determined that having pre-established CRC agreements in place and established permanent structures could improve its CCV and be beneficial to customers in impacted areas. CRCs allow SCE to quickly and efficiently provide needed services to customers, especially during times of extreme weather conditions (e.g., when it is extremely hot or cold).
- c. **Action Taken:** To date, SCE has established 13 CRCs, 11 of which are in Sears and Kmart locations and two of which are sites that county governments have made available to SCE. In addition to managing the existing CCV and CRCs, SCE is exploring ways to further expand its CCV and CRC coverage to address larger scale / impact of PSPS events that require more flexibility. These include standing up CRCs that do not require a long-term agreement through ad-hoc "pop up" CRCs with county volunteer sites, and other flexible methods for existing contracted CRCs such as quickly modifying the list of CRCs in agreement with retailers to meet PSPS needs.
- d. **Efficacy of the Change:** Past PSPS events have provided valuable learning opportunities and SCE is adapting to better meet customer needs. The additional centers will be beneficial to customers during PSPS events by providing basic services and information during PSPS events.



## B. Inspection-related Activities

### 6. **Activities IN-1 and IN-2: Enhanced Overhead Inspections and Remediation – Aerial Inspections**

- a. **Background:** To further improve its ground-based enhanced overhead inspections (EOI) effort, described in Section 4.2.3.1 of its 2019 WMP, SCE launched a comprehensive and complementary aerial inspection effort. Aerial inspections provide a more comprehensive inspection of pole tops, wooden crossarms, steel structures, and all conductor/hardware that may not be easily visible from the ground. This function is performed by helicopters and/or drones hovering and taking high-quality digital photographs of each overhead structure in HFRA. Subsequently, each photograph is examined by a team of qualified resources (e.g., journeymen lineman and experienced engineers). If issues are identified during the aerial inspections, the team submits repair notifications based on the severity of the findings. The aerial inspections are generally in addition to – not in lieu of – the ground-based inspection.<sup>8</sup>
- b. **Lessons Learned:** In March 2019, an SCE crossarm failed resulting in a downed powerline which appears to have caused a small fire in Irvine, California (in Bommer Canyon). The fire burned a quarter acre of what was mostly fire access roads and a series of hiking and mountain biking trails. Upon further inspection, it was determined that the bottom of the crossarm as viewed from the ground in a recent ground-based inspection was in good condition, but the top of the crossarm showed significant deterioration. SCE quickly and strategically expedited determined that aerial inspections should be undertaken on all transmission and distribution assets in its HFRA to inspect pole tops, wooden crossarms, integrity of steel structures, and all conductor/hardware.
- c. **Action Taken:** SCE's transmission and distribution organizations developed a plan to prioritize, schedule, and conduct aerial inspections in HFRA within a few months. SCE onboarded vendors to take high-quality aerial photographs from different angles of SCE's overhead structures in HFRA. The process of Qualified Electrical Workers (QEWs) assessing the asset conditions from these photographs and identifying necessary remediation was also implemented by April 2019.
- d. **Efficacy of the Change:** Since the start of aerial inspections in April 2019, SCE has aerially inspected over 70,000 distribution structures and over

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<sup>8</sup> In limited circumstances due to access issues, SCE carried out inspections via helicopter only.

28,000 transmission structures in HFRA. Of these, more than 250 “Priority 1” notifications were identified. A “Priority 1” notification indicates that the equipment in question was in a state of potential imminent failure. These issues were expeditiously remediated to reduce potential ignition threats. The most common issue identified by the aerial inspection enhancement to EOI was deteriorated crossarms. QEWs have also created additional lower-priority notifications that would require resolution within 6-12 months of identification. Because of certain customer noise concerns, SCE continues to work with local agencies and the public to ensure customers are aware of these aerial inspections being conducted by helicopters and drones.

## **7. Activities IN-1 and IN-2: Enhanced Overhead Inspections and Remediation – Generation Inspections**

- a. Background:** In March 2019, SCE initiated an effort to help ensure all applicable electrical assets co-located with utility-owned generation assets were being inspected through the transmission and distribution EOI efforts. Enhanced inspections were determined to be necessary for a subset of generation assets located in HFRA. These inspections included assessments of low-voltage ancillary assets and their associated overhead lines, supporting structures, any exposed wiring and/or threats from vegetation that pose potential ignition risks. In addition, high-voltage facilities were inspected to help ensure all overhead connections from the last transmission and distribution structures to the generation switchyards, substations, buses, powerhouses, etc. were evaluated (using similar processes and tools utilized for transmission and distribution EOI).
- b. Lessons Learned:** SCE had not conducted a specific evaluation of generation assets that may be in HFRA prior to starting its EOI efforts. SCE subsequently implemented generation-specific EOI efforts to review generation assets in HFRA. Our analysis validated that most of the high voltage assets in proximity to generation assets were already included in transmission and distribution EOI efforts. However, some additional assets were identified and incorporated into the transmission and distribution EOI scope. In addition, some unique aspects of the generation assets at issue (e.g., age of hydro facilities, locations in heavily-forested areas, etc.) warranted additional review to inspect all equipment for potential ignition risks and keep free from vegetation threats.
- c. Action Taken:** GIS data for generation assets in HFRA was compiled and then a desktop review was conducted to verify which known high voltage facilities were already included in the transmission and distribution EOI datasets. Generation-related HFRA assets that were not included as

transmission or distribution voltage assets were added to the transmission and distribution EOI datasets for inspection. In addition, since a small fire had occurred in 2018 which appears to have been caused by low voltage generation-related facilities, SCE evaluated the ancillary low voltage assets as well as the corresponding terminal points beyond the last transmission and distribution structure to the generation switchyards, substations, buses, powerhouses, etc. that were not covered in the transmission and distribution EOI efforts. SCE subsequently developed similar protocols and tools as the transmission and distribution EOI efforts for generation EOI. Training was also developed and conducted for the appropriate personnel who inspect these generation assets. Inspections were then conducted and mostly completed by the end of May 2019 (with a few sites extending into July 2019 due to access constraints from weather/snow in high elevations). SCE documented and reviewed findings through a gatekeeping process to determine appropriate remediation efforts. Remediation work is still underway and SCE plans to remediate most of the Priority 2 issues by the end of 2019.

- d. **Efficacy of the Change:** The generation EOI findings uncovered some immediate issues that required correction, although the overall incidence of Priority 1 findings was very low (<1%). Most notifications were vegetation related. SCE is also remediating Priority 2 notifications and has put in place plans to create enhanced vegetation-free buffers around generation facilities, especially those located in Tier 3 areas to reduce wildfire risk. Conducting generation EOI also helped facilitate consistency across all inspection efforts.

**8. Activity IN-5.1: Infrared Inspection, Corona Scanning, and High Definition Imagery of Energized Overhead Transmission Facilities and Equipment / Complete IR, Corona, and HD Image Scanning of All Overhead Transmission Lines in HFRA that are Loaded to 40% of Rated Capacity or Higher – IR Inspections on All Overhead Transmission Lines in HFRA Loaded Below 40% of Rated Capacity**

- a. **Background:** In Section 4.2.3.4 of its 2019 WMP, SCE described its transmission Infrared (IR) and Corona inspection effort focused on subtransmission and transmission lines. This effort, which started in the first quarter of 2019, sought to perform an IR and Corona scan of all overhead transmission facilities and equipment located in HFRA. Specialized infrared and ultraviolet (Corona) light cameras are typically mounted on helicopters to scan the lines, with special attention paid to splices, conductor connection/attachment points, and insulators. The IR scan detects temperature differences and heat signatures of components, which may indicate problems not visible to the naked eye that could result in potential component/conductor failure. The Corona scan detects the degree of electric discharge or “leakage” due to the ionization of air

surrounding high voltage electric components, which, if substantial enough, could result in an arc flash or mechanical component failure. In addition, a high-definition camera takes pictures of anomalies found for review. SCE developed a remediation plan for anomalies which integrated any needed repair or replacement with other EOI notifications.

**b. Lessons Learned:**

- i. Rated Capacity Threshold:** When the 2019 WMP was submitted, SCE planned to scan the transmission assets when they were operating at or above 40% of their rated line capacity to adequately identify anomalies. Unfortunately, such operating conditions are intermittent and are often correlated with hot weather. After evaluating additional data, SCE identified that due to NERC/FERC reliability standards and because of seasonal loading variations, most of the transmission system operates well below 40% of rated line capacity for much of the year. Accordingly, SCE evaluated the ability to take IR images on lines operating at lower rating capacities and discovered that such images effectively captured anomalies on lines operating well below the initially set 40% load threshold.
- ii. Ground Temperature Impacts:** In addition to the line rated capacity issue identified above, SCE discovered an additional challenge through implementation of this program. Aerially scanning the transmission system is the most efficient and effective way to capture Infrared and Corona data due to the location and terrain surrounding a high percentage of SCE's transmission assets. On hot days, customer demand increases line loading, and at the same time the ground temperature underneath the lines also tend to increase. As the ground temperature increases to the point where it is similar to the conductor temperature, temperature anomalies on the line are nearly impossible to detect because scans cannot distinguish between line and ground temperature.
- c. Action Taken:** Given that the IR technology proved useful in capturing anomalies on lines operating well below the 40% loaded line capacity threshold and the fact that the technology is not effective when ground temperatures are high, SCE elected to conduct these inspections on lines loaded at lower than 40% of their rated capacity and in months with lower ground temperatures.
- d. Efficacy of the Change:** The IR and Corona scanning (including at operating conditions of less-than-40% of rated line capacity) has identified approximately 20 Priority 1 notifications that have been expeditiously remediated to reduce potential ignition threats. This program also identified approximately 50 Priority 2 and 120 Priority 3 notifications that are being remediated within their compliance timelines. Without making the criteria modifications listed above to perform these scans, SCE would have been unable to discover these potential ignition threats.

## C. System Hardening Activities

### 1. **Activity SH-5: Remote Controlled Automatic Reclosers Installations – Remote Controlled Switches**

- a. Background:** As described in Section 3.4.1.1 of its 2019 WMP, SCE deploys certain protective devices, such as remote-controlled automatic reclosers (RAR) and circuit breaker (CB) relays, on overhead systems in HFRA in accordance with SCE's System Operating Bulletin (SOB) 322 and the operational restrictions contained therein. These protective devices are programmed to enable RAR/CB recloser blocking and fast curve settings in response to weather events such as Red Flag Warnings (RFWs) declared by the National Weather Service (NWS), a Fire Weather Threat (FWT), a Thunderstorm Threat (TT) as declared by SCE's Incident Management Team (IMT), and other high wildfire risk conditions.

At the onset of SCE's system hardening efforts, as described in Section 4.3.3.5 of its 2019 WMP, the goal was to install RARs, where feasible, just outside the HFRA boundaries to provide fast curve setting capabilities to reduce fault energy, PSPS sectionalization abilities, and reliability benefits by allowing SCE to maintain reclose functionality for portions of circuits outside of the HFRA.

- b. Lessons Learned:** During the scoping effort, SCE identified several scenarios where RARs are not the best devices to achieve the desired outcome. For example, RARs are intended to protect lines and equipment downstream of where they are installed. For situations where a line is underground entering into HFRA and then rises to overhead, installation of an RAR at that transition point only mitigates fire risk for the overhead line *downstream* from the RAR. It would not effectively mitigate fire risk associated with the overhead equipment (disconnect switches, jumpers, OH conductor) that are *upstream* to the RAR itself. Additionally, many circuits were primarily located outside the HFRA and only crossed into HFRA for a handful of spans. In these cases, the RAR would provide limited to no ability to de-energize conductors on portions of circuits traversing HFRA during a PSPS event.
- c. Action Taken:** In response to the issue described above, SCE installed a mix of overhead and underground remote-controlled switches (RCS) instead of RAR. These actions facilitated additional "sectionalization," which is key to eliminating all energized conductors within impacted HFRA during a PSPS event. In these locations, fast curve protection settings were applied at the substation CB to provide fault energy reduction. In total, SCE's 2019 sectionalizing device scope was modified to include 92 devices – 25 new

RCS, 53 new RAR and 14 relocated RAR.

- d. **Efficacy of the Change:** By installing RCS in lieu of RAR in locations where RAR was not the best device to achieve the desired outcome, SCE is able to both minimize the number of customers affected and eliminate energized conductors within the impacted HFRA during a PSPS event.

## 2. Section 4.3.3.5: Protection and Isolation – Circuit Modifications to Limit Customers Affected by PSPS

- a. **Background:** In Section 4.3.3.5 of its 2019 WMP, SCE described its protection and isolation plans to minimize fault energy, improve PSPS sectionalization abilities, and improve reliability, such as the work described in Activity SH-5 above. SCE has identified additional opportunities to further sectionalize its circuitry. Because of the diverse geography of SCE's service territory, circuitry often traverses both HFRA and non-HFRA, improving sectionalizing capabilities reduces the number of customers impacted during future PSPS events.
- b. **Lessons Learned:** As a result of recent PSPS events, SCE identified opportunities to reassess and potentially modify circuit configurations to reduce the number of customers affected during a PSPS event. This can be accomplished by replacing small segments of bare conductor with covered conductor, small undergrounding projects, and/or adding switching devices (and potentially circuit ties) to allow for load transfers. These circuit modifications help minimize the impact to customers located in non-HFRA that are fed from circuits that also serve HFRA. In addition, there are potential opportunities to sectionalize and restore certain underground areas in HFRA that are fed from circuitry that also contains overhead facilities.
- c. **Action Taken:** Once it was determined that additional circuit modifications could further improve circuit sectionalization, SCE began a scoping effort to identify locations in its system that would most benefit from installation of these modifications. To date, SCE has identified approximately 40 locations where additional circuit modifications will improve sectionalization capability within HFRA. Design and execution of this work has recently been initiated. SCE is continuing its scoping efforts to identify other locations that could also benefit from circuit modifications and will continue to design and execute on these as additional locations are identified.
- d. **Efficacy of the Change:** The scope of this effort is driven by a desire to reduce the number of customers impacted experienced during future PSPS events. By modifying circuit configurations as described above, SCE can reduce the number of customers impacted by future PSPS events.

## D. Situational Awareness Activities

### 3. **Activity SA-2: Fire Potential Index Phase II – Fuel Sampling Program**

- a. Background:** Physical samples of living vegetation in SCE's service territory are collected by various fire agencies to determine the degree of fuel combustibility. Due to the sporadic nature of that sampling, both spatially and temporally, SCE initiated its own fuel sampling program as part of its enhanced situational awareness capabilities described in the 2019 WMP to fill in existing gaps. This modification facilitates a more comprehensive understanding of localized vegetation conditions and the potential for an ignition to lead to a major wildfire.
- b. Lessons Learned:** Proactively identifying and closing wildland data gaps is critical to SCE's success in wildfire mitigation. In this case, there was a lack of comprehensive and updated field information within fire prone regions of SCE's service territory regarding vegetation conditions.
- c. Action Taken:** With the help of the Los Angeles County Fire Department (LACFD), SCE conducted a three-month pilot study to determine the feasibility of modifying its enhanced situational awareness capabilities to include a fuel sampling program. The study consisted of a vendor physically sampling native vegetation at three locations across Los Angeles County. The sampling and lab methodologies were refined throughout the study period so that the results matched those from the Los Angeles County Fire Department. The pilot study produced improved vegetation condition data and SCE subsequently launched its fuel sampling program.
- d. Efficacy of the Change:** The fuel sampling program provides enhanced situational awareness of vegetation conditions and wildfire potential and can help inform PSPS decision-making. Most of the necessary calibration with LACFD was completed during the pilot program, which allowed for the establishment of a more productive and cost-effective program. The information collected will also help develop and improve SCE's wildfire risk models.

## E. Alternative Technology Activities

### 4. **Activity AT-1.2: Alternative Technology Pilots / Pilot Meter Alarming for Downed Energized Conductor**

- a. **Background:** As described in Section 4.7.2.1.2 of its 2019 WMP, SCE started a pilot in 2018 for a Meter Alarming for Downed Energized Conductor (MADEC) program. The MADEC is a machine learning software system that uses existing SCE Smart Meter data to detect downed, energized conductors. This program reduces public safety hazards associated with down energized conductors and ignition risks associated with down wires. SCE's 2019 WMP goal was to complete the MADEC system pilot in 2019.
- b. **Lessons Learned:** Prior to implementation of the MADEC program, SCE's operating practices required a visual patrol and confirmation of the hazard for the circuit to be de-energized. The MADEC pilot proved that the MADEC algorithm is effective at detecting high impedance faults,<sup>9</sup> which often lead to energized wire down events, and enabled SCE to de-energize a circuit without the need for a field resource to visually confirm the potential hazard. This significantly improves the time necessary to remove an electrical hazard. With every incident when the algorithm generates an alarm, the machine learning model is retrained with new data, which is expected to continue to drive better results over time.
- c. **Action Taken:** Following a successful pilot, SCE broadly operationalized this MADEC algorithm across its service territory, with the only exception being where certain types or older vintages of meters exist. SCE also increased the sensitivity of the algorithm so that over time the technology should successfully identify additional wire downs.
- d. **Efficacy of the Change:** By operationalizing this algorithm, SCE has reduced the average amount of time a wire down stays energized on the ground. The MADEC program has been able to de-energize a wire down, from the incident start to when it is de-energized, within approximately 20 minutes on average. Prior to widespread use of this algorithm, detection of a wire down required an initiating event such as a relay operation or a customer call. This could take up to hours before the incident was reported. Once reported, SCE's field resources would then respond typically within an hour to secure the area. Although, the MADEC program does not currently capture every instance of wire down happening in the field, it is continually being updated with new data. SCE anticipates that this new data will enhance the

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<sup>9</sup> Impedance is the effective resistance of an electric circuit or component to alternating current.



machine learning capabilities of the program and increase the effectiveness of the algorithm over time.

## 5. Activity AT-3.3: Alternative Technology Evaluations / Evaluate fire retardant barrier for wood poles

- a. **Background:** In early 2019, the availability of composite poles became constrained. As described in section 4.7.2.3.3 of SCE's 2019 WMP, one of SCE's goals was to assess fire protectant barriers for wood poles to act as a "sacrificial layer" when exposed to fires to minimize post-fire rebuild impact and improve resiliency of SCE's poles in HFRA. SCE evaluated different fire-resistant alternatives for protecting wood structures and the associated resiliency benefits, and discovered that certain alternative materials could provide added post-fire resiliency and rebuild benefits.
- b. **Lessons Learned:** Through fire testing and technical evaluations, SCE learned that the fire-resistant wrap is capable of withstanding temperatures exceeding 2,100 degrees Fahrenheit. Based on this technical evaluation, SCE determined that this pole-wrapping technology was a beneficial alternative solution to composite poles for protecting poles against fires in certain situations and that meets SCE fire-protection requirements.<sup>10</sup>
- c. **Action Taken:** SCE evaluated products based on performance when exposed to a fire, accelerated life and conductivity testing, durability and handling, and crew work methods. SCE installed a demonstration product at a training yard followed by a small-scale field pilot. Based on the results of these tests, SCE standardized and made available fire-resistant wrapping technology for deployment in the field.
- d. **Efficacy of the Change:** Fire-resistant wrap was identified as a viable product for protecting wood poles during fires. In certain situations, this will eliminate the need to replace wood poles with composite or other fire-resistant poles, reduce the impact on SCE's infrastructure and restoration costs during and after fire events.

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<sup>10</sup> The fire-resistant wrap is not as effective as composite or other fire-resistant poles in situations such as poles with attached equipment and in areas that have had historical woodpecker issues.

## F. Emergency Preparedness Activities

### 6. Section 5.1.1.1: Incident Command System – PSPS Execution IMT

- a. **Background:** Execution of the PSPS protocol is overseen by a specialized Task Force in the Incident Command Structure (ICS), which in turn is overseen by a PSPS Incident Management Team (IMT). The Task Force reports to the Operations Section Chief and includes representatives from key internal stakeholders to manage the necessary public safety notifications regarding Critical Care, Essential Use, residential and business customers and local governments potentially affected by a PSPS event. The PSPS IMT is responsible for monitoring and considering conditions and relevant information before recommending the de-energization of any SCE circuit(s).
- b. **Lessons Learned:** SCE's PSPS IMT initially included only four teams. Due to the frequency and duration of PSPS activity in 2019, SCE identified the need to expand the number of teams and number of positions on each team to improve overall operations and balance workload and fatigue. With approximately 1,100 circuits in scope, SCE also identified a need to have a dedicated team in place to continually monitor, assess, track and report out on circuit integrity and environmental conditions to inform PSPS decision making.
- c. **Action Taken:** SCE expanded the PSPS IMTs from four to six teams and added one additional position to each role on the team. SCE also developed an Advanced Circuit Evaluation (ACE) team to support further analysis of environmental and circuit health conditions on a more frequent and detailed basis. This team plays an important role in monitoring system conditions daily and providing recommendations to the on-duty PSPS IMT. The ACE team's responsibilities include, but are not limited to the following:
  - Provide information on real-time system risk under PSPS, including consideration of environmental risk;
  - Identify areas for patrol, mitigation, and potential de-energization;
  - Further inform remediation strategy for high priority mitigations from EOI reports (collaborate with EOI remediation team to assess circuits frequently impacted by PSPS to prioritize remediation of issues); and
  - Advance tools to improve data usage and tracking of field conditions.
- d. **Efficacy of the Change:** By adding two additional teams, each team is expected to be on-duty once every six weeks, as opposed to once a month. This allows for better balancing of workload and fatigue by reducing the number of days each team member is activated. Additionally, a well-rested team is critical to sharp decision-making. The ACE team has proven valuable

in continuously monitoring real-time conditions and improving consistency of risk assessment and knowledge transfer between IMT activations.

## 7. Section 5.2.3.1: Communications and Education about Wildfire / Emergency Preparedness – Statewide Preparedness Education Campaign

- a. **Background:** Beginning in May 2019, to coincide with Wildfire Preparedness Week, SCE and the other California IOUs played an integral role in the creation of a coordinated Statewide Preparedness Education campaign. In conjunction with the CPUC, Cal OES and CAL FIRE, the statewide “Power of Being Prepared” campaign is jointly led by SCE, San Diego Gas & Electric (SDG&E) and Pacific Gas and Electric Company (PG&E). This multimedia, multilingual campaign includes radio advertisements, preparedness resources and a new webpage ([www.prepareforpowerdown.com](http://www.prepareforpowerdown.com)) which encourages a call to action for all Californians to take important steps to prepare for the 2019 wildfire season and beyond. Visitors to the webpage are encouraged to develop a thorough emergency plan, update their contact information with their respective utility and sign up for alerts. Special emphasis was placed on reaching difficult-to-reach customers (Medical Baseline, those with disabilities, low-income, the elderly and non-English-speaking customers).

SCE began running its local mass media awareness and education campaign in August 2019, building on the statewide campaign. SCE’s campaign features radio, digital (search, banners, video) and social media advertisements as well as direct mail focused on encouraging customers to sign up for PSPS outage alerts and prepare emergency plans.

- b. **Lessons Learned:** The collaboration among the IOUs, CPUC, Cal OES and CAL FIRE has served as a platform to share resources and best practices as well as to establish consistent messaging, terminology and visual elements to create continuity and to mitigate potential confusion for Californians who live in and travel across the state.
- c. **Action Taken:** Stakeholders from the IOUs, CPUC, Cal OES and CAL FIRE met frequently to develop the campaign strategy and to create the creative assets for its launch. Stakeholders continue to participate in bi-weekly meetings and a sub-group focused on individuals with AFN continues to meet weekly.
- d. **Efficacy of the Change:** SCE is tracking metrics and anticipates providing a report to the Commission in Q1 2020. As of October 27, 2019, the radio advertisements have generated nearly 277 million impressions within the combined IOU territories and traffic to the Statewide webpage has resulted in more than 510,000 page views. The digital advertising – which includes

search, animated and still banner advertisements, video pre-roll and social media – has generated more than 118 million impressions. Awareness of PSPS messaging among SCE customers was approximately 45% in September 2019, on par with SCE’s multi-year Public Safety messaging on staying safe around electricity. Awareness has increased each month since the launch of the campaign in May which is expected to improve customer safety and resilience, and overall customer perceptions of SCE’s commitment to emergency preparedness have similarly improved. For example, since May and through October 2019, positive perception of SCE taking proactive measures to protect communities from the risk of wildfires increased by nine percentage points (53% to 62%) based on customer survey results.

**8. Activity DEP-1.1: Customer Education and Engagement / Conduct a Direct Mail Campaign to Inform Customers in HFRA – Direct Mail Campaign to Inform Customers in non-HFRA**

- a. Background:** SCE has increased customer and community communication and education about wildfire awareness in its HFRA as described in Section 5.2.3.1 of its 2019 WMP. In Section 5.2.3.1.1, SCE committed to an annual wildfire awareness direct mailer with important wildfire-related information as a proactive customer communication targeting specific areas of its territory. SCE sent a direct mailer that focused on SCE’s wildfire mitigation efforts, Public Safety Power Shutoff (PSPS), emergency preparedness tips, and guidance on where to go for additional information. SCE sent the direct mailer to approximately one million customers who reside in HFRA in September 2019.
- b. Lessons Learned:** In the course of developing the annual mailer for customers in HFRA, SCE determined that additional wildfire awareness for customers in its non-HFRA was appropriate as PSPS events associated with subtransmission or transmission lines may impact customers residing beyond HFRA. Moreover, customers traveling from non-HFRA to HFRA would benefit from this information. Expanding SCE’s outreach on wildfire-related information would improve customer awareness and safety.
- c. Action Taken:** To expand its outreach effort, SCE designed and produced a second Wildfire Customer Direct Mailer to reach non-HFRA customers. SCE began sending this mailer out to customers in non-HFRA in November 2019.
- d. Efficacy of the Change:** SCE believes this additional mailer will increase awareness for all customers by providing information about its wildfire mitigation efforts, PSPS, and emergency preparedness. This will also facilitate the Statewide Preparedness Education campaign.

No cost information is required for this AL.

This AL will not increase any rate or charge, cause the withdrawal of service, or conflict with any other schedule or rule.

### **TIER DESIGNATION**

Pursuant to D.19-05-036 and General Order (GO) 96-B, Energy Industry Rule 5.3, this AL is submitted with a Tier 3 designation.

### **EFFECTIVE DATE**

SCE requests that this AL be made effective pending approval of resolution.

### **NOTICE**

Anyone wishing to protest this AL may do so by letter via U.S. Mail, facsimile, or electronically, any of which must be received no later than 20 days after the date of this advice letter. Protests should be submitted to:

CPUC, Energy Division  
Attention: Tariff Unit  
505 Van Ness Avenue  
San Francisco, California 94102  
E-mail: [EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov)

Copies should also be mailed to the attention of the Director, Energy Division, Room 4004 (same address above).

In addition, protests and all other correspondence regarding this AL should also be sent by letter and transmitted via facsimile or electronically to the attention of:

Gary A. Stern, Ph.D.  
Managing Director, State Regulatory Operations  
Southern California Edison Company  
8631 Rush Street  
Rosemead, California 91770  
Telephone: (626) 302-9645  
Facsimile: (626) 302-6396  
E-mail: [AdviceTariffManager@sce.com](mailto:AdviceTariffManager@sce.com)

Laura Genao  
Managing Director, State Regulatory Affairs  
c/o Karyn Gansecki  
Southern California Edison Company  
601 Van Ness Avenue, Suite 2030  
San Francisco, California 94102  
Facsimile: (415) 929-5544  
E-mail: [Karyn.Gansecki@sce.com](mailto:Karyn.Gansecki@sce.com)

There are no restrictions on who may submit a protest, but the protest shall set forth specifically the grounds upon which it is based and must be received by the deadline shown above.

In accordance with General Rule 4 of GO 96-B, SCE is serving copies of this AL to the interested parties shown on the attached GO 96-B and R.18-10-007 service lists. Address change requests to the GO 96-B service list should be directed by electronic mail to [AdviceTariffManager@sce.com](mailto:AdviceTariffManager@sce.com) or at (626) 302-4039. For changes to all other service lists, please contact the Commission's Process Office at (415) 703-2021 or by electronic mail at [Process\\_Office@cpuc.ca.gov](mailto:Process_Office@cpuc.ca.gov).

Further, in accordance with Public Utilities Code Section 491, notice to the public is hereby given by submitting and keeping this AL at SCE's corporate headquarters. To view other SCE advice letters submitted with the Commission, log on to SCE's web site at <https://www.sce.com/wps/portal/home/regulatory/advice-letters>.

For questions, please contact Ryan Stevenson at (626) 302-3613 or by electronic mail at [ryan.stevenson@sce.com](mailto:ryan.stevenson@sce.com).

**Southern California Edison Company**

/s/ Gary A. Stern, Ph.D.  
Gary A. Stern, Ph.D.

GAS:rs:jm



# ADVICE LETTER SUMMARY

## ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.:

Utility type:

- ELC       GAS       WATER  
 PLC       HEAT

Contact Person:

Phone #:  
E-mail:  
E-mail Disposition Notice to:

### EXPLANATION OF UTILITY TYPE

ELC = Electric      GAS = Gas      WATER = Water  
 PLC = Pipeline      HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #:

Tier Designation:

Subject of AL:

Keywords (choose from CPUC listing):

AL Type:  Monthly  Quarterly  Annual  One-Time  Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #:

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL:

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested?  Yes  No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required?  Yes  No

Requested effective date:

No. of tariff sheets:

Estimated system annual revenue effect (%):

Estimated system average rate effect (%):

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed<sup>1</sup>:

Pending advice letters that revise the same tariff sheets:

<sup>1</sup>Discuss in AL if more space is needed.

**Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:**

CPUC, Energy Division  
Attention: Tariff Unit  
505 Van Ness Avenue  
San Francisco, CA 94102  
Email: [EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov)

Name:  
Title:  
Utility Name:  
Address:  
City:  
State: Zip:  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email:

Name:  
Title:  
Utility Name:  
Address:  
City:  
State: Zip:  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email:



## ENERGY Advice Letter Keywords

|                           |  |                                |
|---------------------------|--|--------------------------------|
| Affiliate                 | Direct Access                          | Preliminary Statement          |
| Agreements                | Disconnect Service                     | Procurement                    |
| Agriculture               | ECAC / Energy Cost Adjustment          | Qualifying Facility            |
| Avoided Cost              | EOR / Enhanced Oil Recovery            | Rebates                        |
| Balancing Account         | Energy Charge                          | Refunds                        |
| Baseline                  | Energy Efficiency                      | Reliability                    |
| Bilingual                 | Establish Service                      | Re-MAT/Bio-MAT                 |
| Billings                  | Expand Service Area                    | Revenue Allocation             |
| Bioenergy                 | Forms                                  | Rule 21                        |
| Brokerage Fees            | Franchise Fee / User Tax               | Rules                          |
| CARE                      | G.O. 131-D                             | Section 851                    |
| CPUC Reimbursement Fee    | GRC / General Rate Case                | Self Generation                |
| Capacity                  | Hazardous Waste                        | Service Area Map               |
| Cogeneration              | Increase Rates                         | Service Outage                 |
| Compliance                | Interruptible Service                  | Solar                          |
| Conditions of Service     | Interutility Transportation            | Standby Service                |
| Connection                | LIEE / Low-Income Energy Efficiency    | Storage                        |
| Conservation              | LIRA / Low-Income Ratepayer Assistance | Street Lights                  |
| Consolidate Tariffs       | Late Payment Charge                    | Surcharges                     |
| Contracts                 | Line Extensions                        | Tariffs                        |
| Core                      | Memorandum Account                     | Taxes                          |
| Credit                    | Metered Energy Efficiency              | Text Changes                   |
| Curtable Service          | Metering                               | Transformer                    |
| Customer Charge           | Mobile Home Parks                      | Transition Cost                |
| Customer Owned Generation | Name Change                            | Transmission Lines             |
| Decrease Rates            | Non-Core                               | Transportation Electrification |
| Demand Charge             | Non-firm Service Contracts             | Transportation Rates           |
| Demand Side Fund          | Nuclear                                | Undergrounding                 |
| Demand Side Management    | Oil Pipelines                          | Voltage Discount               |
| Demand Side Response      | PBR / Performance Based Ratemaking     | Wind Power                     |
| Deposits                  | Portfolio                              | Withdrawal of Service          |
| Depreciation              | Power Lines                            |                                |