

Appendix A

Examples of Programs and Measures Implemented by SCE to Reduce Overall Greenhouse Gas Emissions in California

(April 2018)

This Appendix provides examples of programs and measures implemented and proposed by Southern California Edison Company (SCE) to reduce overall GHG emissions⁹. These include: programs developed to meet California's greenhouse gas (GHG) emission goals, measures to increase renewable energy in SCE's generation portfolio, and conservation actions and energy efficiency programs.

Programs Developed to Meet California's GHG Emission Goals

In accordance with Executive Order S-3-05, AB 32, SB 350, SB 32, AB 398, CARB-Proposed Scoping Plan and related regulations, SCE has developed and implemented programs that focus on reducing GHG emissions. Examples of programs currently implemented by SCE include:

- SCE currently has more than 600 electric or electrified vehicles in its fleet ranging from hybrid-electric cars to non-electric trucks that use lithium-ion batteries to power their lifts, air conditioning, lights and two-way radios while the engine is turned off.
- To meet California's goal to reduce greenhouse gases and air pollution, the state will have to significantly increase the electrification of cars, buses, medium-duty and heavy-duty trucks and industrial vehicles and equipment. SCE recommends a Clean Power and Electrification Pathway that puts more than 7 million electric vehicles and more than 200,000 electric trucks and buses on California's roads and in its freight yards. SCE's 2017 transportation plan and 2018 priority pilot programs address early steps to increase electric vehicle adoption.
- A number of proposed pilot programs that cover a wide range of activities including Clean Fuel Rewards Incentive (\$450 LCFC funded) for SCE customers with qualifying PHEV and BEV registered vehicles. Charge Ready Phase I pilot where SCE will have installed 1,000 EV charge ports helping to transform the ICE to EV market. SCE is filing for Charge Ready Bridge Funding for an additional 1,000 ports and Charge Ready Phase II (significantly more charge ports) in 2019. SCE has also received approval for the Transportation Electrification priority review projects including Residential charging installation incentive, Direct Current Fast Charge (DCFC) infrastructure incentive, Transit Bus infrastructure incentive and 2 Port of Long Beach projects. SCE is awaiting approval to file on the medium and heavy-duty transportation electrification market segment. All of the above-mentioned projects/pilots are focused on contributing towards the CA 2030 GHG reduction goals. There are several other corporate strategies including building electrification and customer energy storage that also play a significant role in SCE's GHG reduction focus/goals.
 - **Charge Ready Pilot** - The \$22-million Charge Ready program is installing electric vehicle charging stations in locations where people park their cars for extended periods of time. For example, at workplaces, campuses, recreational areas and apartment and condominium complexes. The Charge Ready program is a partnership in which SCE installs and maintains the supporting electrical infrastructure, the cost of which is covered by the program, while participants own, operate and maintain qualified charging stations. As an incentive to participate in the program, SCE provides rebates

⁹ Additional information is available on SCE's website at: <https://www.edison.com/home/innovation.html>

to cover some or all of the cost of the charging stations and their installation, depending on location and type of establishment. At the conclusion of the pilot, SCE will seek authority from the CPUC to expand the program to bring thousands more charging stations into our service area. Up to 10 percent of the qualified charging stations are being located in communities that suffer most from the impacts of air pollution. The program also provides funding for education and outreach to develop awareness about the benefits of electric vehicles and charging from the power grid.

- **Clean Energy Access Working Group** – is developing pilots and regulatory and legislative initiatives focused on electric vehicles and sustainable, scalable, and affordable community solutions for healthy air and climate.
 - **Customer rebate for residential charging station installation.** SCE will provide rebates to residential customers living in single-family residences or smaller multi-unit dwellings to install the electrical infrastructure required in a garage or at a dedicated parking space to support electric vehicle charging. The rebates would alleviate the cost of installing a new circuit and, for some customers, the cost of a new panel.
 - **Transit bus electrification.** SCE will install infrastructure and provide rebates toward the purchase of the charging stations for buses. This one-year project will focus specifically on progressive transit agencies that are already preparing to receive electric buses and will provide charging infrastructure to speed adoption of electric transit buses.
 - **Port electrification projects.** At the Port of Long Beach, SCE will install necessary infrastructure for the electrification of equipment used to unload and move goods containers from ships to off-port transportation vehicles currently powered by diesel engines.
 - **Urban DC Fast Charger (DCFC) clusters.** SCE will work with program participants to install five DC fast-charge sites in urban areas. Each site will have up to five dual-port charging stations for a total of 50 DC fast-charge ports. The sites will be located in publicly accessible urban locations — for example, downtown or near high-density apartments.
- The SCE Auberry Forest Tree Nursery produces over 20,000 native pine seedlings to be planted throughout SCEs shareholder and project lands, resulting in the sequestration of approximately 300 tons of CO₂ per year.
 - The interplay of past management practices, higher temperatures, extended drought, and insect outbreaks has resulted in unprecedented levels of tree mortality across the southern Sierra Nevada Mountains of California. Bark beetle populations within the region reached unprecedented levels impacting SCE project lands in varying degrees. Fortunately, Southern California Edison’s project lands have undergone repeated treatments focused on promoting forest health and resiliency since 1979, and subsequently have not displayed the level of

mortality impact per acre as neighboring USFS lands. SCE Forestry has reacted by harvesting dead, dying, and infested trees throughout the project lands. Salvage and sanitation operations have focused on life safety, protecting infrastructure, wildfire hazard mitigation, as well as the protection of residual live trees. Follow up treatments have focused on the treatment of fire prone stands and fuels and the thinning residual stands to increase vigor. These ongoing treatments significantly reduce the threat of the release of substantial amounts of CO₂ as well as volatile and semi volatile organic material and nitrogen oxide emissions associated with wildfire. SCE Forestry's use of multi age disturbance regime guided silvicultural practices results in the increase of forest carbon sequestration and stocks while promoting and maintaining a native forest comprised of multiple ages and mixed native species at multiple landscape scales. This results in over 3,000 tons of CO₂ sequestered per year on SCE project lands, and over 74,000 tons of CO₂ sequestered on SCEs Shaver Lake and Dinkey Creek forestlands.

Measures to Increase Renewable Energy in Generation Portfolio

In accordance with the goals of SB 350, SCE expects to procure 50% of its retail energy from renewable energy source by the end of 2030. These renewable resources produce no or low GHG emissions and offset power generation from sources with higher GHG emissions. SCE is the nation's leading purchaser of renewable energy and currently has sufficient contracts in place that, when delivered, will meet 50% or more of customer energy demand. In 2016, renewable energy accounted for 28% of SCE's power procurement portfolio. SCE's renewable energy was generated by geothermal (26%), wind (36%), biomass (2%), solar (34%), and small hydro (2%).

Recent measures implemented by SCE to increase its renewable generation portfolio include:

- SCE's renewable portfolio increased from 19% in 2010 to 28% in 2016; total energy deliveries increased 44% from 14.4 billion kWh in 2010 to 20.7 billion kWh in 2016.
- Since June 2015, SCE executed 20 contracts for approximately 2,450 MW of renewable energy capacity from its 2014 and 2015 RPS solicitations.
 - Of these 20 contracts, twelve have since come online for a total capacity of approximately 1,320 MW. The largest project to come online was with El Cabo Wind for 298 MW. In December 2017, El Cabo Wind achieve commercial operation and began delivering energy to SCE's customers.
- The West of Devers Upgrade Project will improve transfer capability from the renewable-rich east Riverside County and Arizona. It will add 3,000 megawatt incremental capacity. Expected completion in 2021. The project intends to upgrade existing transmission lines within an existing transmission corridor to provide more capacity for renewable power to be delivered to the power grid.
- The Eldorado-Lugo-Mohave 500kV Series Capacitor Upgrade Project will improve transfer capability from the renewable-rich Southern Nevada and Ivanpah Valley areas. It will add 1,500 megawatts incremental capacity. Expected completion in 2021. The project intends to

deliver electricity from renewable and conventional generation resources outside of California to help meet growing electricity demand in the region, as well as to reduce greenhouse gases.

- The Mesa 500kV Upgrade Project will connect the central Los Angeles Basin to the CAISO 500kV bulk power grid. This will enable the retirement of coastal once-through cooling plants by delivering more renewable energy from wind and solar resource areas to the load. Expected completion in 2021.

Conservation Actions and Energy Efficiency Programs

SCE continues to build upon its leadership role through the delivery of a diverse, innovative, and cost-effective Energy Efficiency (EE) portfolio designed to meet the needs of its customers, help ensure the reliability of the grid, and meet the State of California's clean energy goals. In 2016, SCE programs collectively achieved over 1.48 billion kilowatt-hours (kWh) of annualized energy savings and 288 megawatts of peak demand reduction. These savings are equivalent to the amount of power required annually for over 222,000 standard residential homes, or the removal of over 220,000 cars from the road. Examples of programs currently implemented by SCE include:

- Statewide Program for Residential Energy Efficiency
 - Home Energy Advisor (HEA) – The Home Energy Advisor (HEA) Program continued to offer and refine the Enhanced Energy Audit Tool (EEAT), designed to help customer's complete online audits of their homes and receive customized EE recommendations to help them reduce their energy usage and engage in utility incentive programs. Home Energy Advisor continued behavioral program pilots (such as Home EE Survey (HEES) Enhancement, Energy Pledge, and 10-10-10+ Multifamily Behavior) to explore ways to test behavioral effectiveness and impacts for homeowners, renters, and multifamily property owners.
 - Multifamily Energy Efficiency Rebate Program (MFEER) – In 2016, SCE continued to serve multifamily customers through the Multifamily EE Rebate Program (MFEER), focusing on close coordination with the Energy Savings Assistance (ESA) Program. This created an integrated approach to providing market-rate and income qualified customers with EE measures in a way that continues to simplify processes, eliminate duplicative functions, and deliver an improved customer experience. SCE continued to provide single-point-of-contact (SPOC) account executive services to help streamline property owner engagement. The SCE SPOC works directly with property owners to guide them through available services based on qualifications, needs, and ability to make EE investments.
 - Energy Upgrade California (EUC) – The Energy Upgrade California® (EUC) Home Upgrade Program continued to encourage comprehensive residential upgrades, completing over 3,700 projects in 2016, and once again continuing to reach the highest number of home retrofit projects since the program's inception. EUC Home Upgrade also partnered with the Residential HVAC Quality Installation Program to drive deeper retrofits and educate customers about right-sizing and quality installation of their HVAC equipment. SCE worked directly with program participants for the purpose of making

all residential programs and the customer experience simpler, faster, and more efficient. SCE also collaborated with trade organizations and distributors to recruit a diverse array of contractors, and now has representation in multiple trades, including HVAC, insulation, plumbing, electrical, and general contracting.

- Residential New Construction Program (RNC) – SCE’s Residential New Construction Program supported California’s progress towards Zero Net Energy homes, including support for the development of the Master Builder Program and the Workforce Instruction for Standards and Efficiency (WISE) Program.
- Residential Heating, Ventilation, and Air Conditioning Program
- Statewide Commercial, Industrial and Agriculture Energy Efficiency Programs – SCE’s nonresidential statewide programs include the statewide Commercial, Industrial, and Agricultural EE Programs and the Commercial Midstream Point of Purchase (MPOP) Program, providing nonresidential audits and related services, deemed and calculated (“customized”) incentives, new construction support, direct installation, HVAC programs, and continuous energy improvement (CEI) offerings to customers. These programs delivered EE measures to over 21,000 nonresidential customer service accounts in 2016.
 - Direct Install Program – SCE’s Commercial Direct Install Program continued its outreach to small business customers, helping more than 13,000 customers in 2016. In order to increase participation, the program expanded its market reach to national chains that met eligibility requirements. It also introduced new measure offerings such as LED High Bay/Low Bay, commercial variable pool pumps, and LED Tubes replacing 4-foot T8 lamps for customers in the eligible Aliso Canyon/Preferred Resources Pilot (PRP) zip codes.
 - Nonresidential HVAC Program – In 2016, SCE’s Nonresidential HVAC Program was recognized by the U.S. Department of Energy for leadership in rooftop unit efficiency, as part of the Better Buildings Alliance Rooftop Unit Campaign (ARC) to make buildings 20 percent more energy-efficient by 2025. The program enrolled four (4) new contractors in the “Early Retirement” subprogram, which assisted customers in identifying replacement, and/or replacing, over 11,000 tons of inefficient equipment. The HVAC Early Retirement, Quality Maintenance (QM), and Quality Installation (QI) subprograms continue to coordinate with the Workforce Education & Training (WE&T) Program to align available trainings with program objectives.
- Statewide Lighting Program – The Statewide Lighting Program supported both the commercial and residential market sectors. SCE’s Primary Lighting Program continued to transition the market to LEDs that meet CEC standards and to choose only CFLs that have no qualifying LED equivalent, such as 3-way and very bright lightbulbs. LEDs accounted for 58 percent of the total program incentive dollars, up from 41 percent in 2015. The Lighting Innovation Program continued its successful implementation of the Advanced Lighting Control Systems (ALCS) Pilot Program (begun in January 2015) to explore the qualitative attributes and energy savings of leading-edge lighting system controls in various commercial settings. ALCS continued through 2016 and at year’s end 40 customer projects were participating in the pilot.

- Statewide Finance Program
 - On-Bill Financing Program – SCE’s On-Bill Financing Program funded 194 projects in 2016, representing \$12.99 million in loans, thus enabling businesses, local governments, and institutional customers to pursue additional EE projects. SCE also worked with the other investor-owned utilities (IOUs), the CPUC, and the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to develop a suite of new finance pilot programs to leverage third-party capital and provide EE and DSM project financing options to single-family, multifamily, small businesses and other nonresidential customers. The Residential Energy Efficiency Loan (REEL) pilot launched in 2016, and other Finance pilots are expected to launch in the future.
 - The ARRA-Originated Financing Program
 - New Finance Offerings (Pilots)
- Statewide Codes & Standards (C&S Program)
- Statewide Emerging Technologies Program – The Emerging Technologies Program (ETP) continued to implement its three (3) subprogram and engagement strategies: supporting development of new technologies, increasing market supply, and supporting program measure readiness through assessment and introduction of new measures.
- Statewide Workforce Education & Training Program – WE&T provided training, seminars, and workshops to over 12,500 industrial professionals in 2016 through SCE’s Energy Education Centers.
- Statewide Marketing, Education & Outreach (SW ME&O) Program
- Statewide Integrated Demand Site Management (SW IDSM) Program
- Local Government and Institutional & Government Partnerships – In 2016, 134 cities and 10 counties participated in SCE’s Local Government Partnerships, including participation from six (6) new partners. Seven (7) partners also moved up a tier in SCE’s Energy Leader Partner (ELP) model through demonstrated EE achievements and commitment to the partnerships, including participation in EE retrofits and demand response (DR) enrollment. These advancements include one (1) partner advancing to Platinum Level, three (3) to Gold Level, and three (3) to Silver Level.
- Third Party Programs - Through third-party implementers, SCE continued to enhance its outreach to the community and extend its program offerings to a wide variety of customer segments including businesses, industrial customers, health care facilities, universities, and schools. In 2016, the Third-Party Programs focused on consolidating programs, optimizing resources, and improving overall cost-effectiveness. Much effort has been done to evaluate vendor performance and review existing third-party pay-for-performance contract structures as it prepares for competitive solicitations in future years.

- Water-Energy Nexus (WEN) Activity - On December 15, 2016, D.16-12-047 ordered the integration of the Water-Energy Nexus (WEN) calculator and the current Cost-Effectiveness Tool (CET). When the tools' integration is complete, current EE projects that result in water savings will be able to include gallon savings to claim the embedded energy. As these tools are refined, the visibility of coordinated program offerings will be improved.

SCE continues to lead the way in delivering both cost-effective and innovative EE solutions to meet State reliability and clean energy policy objectives. SCE continues to work closely with multiple stakeholders to improve both the delivery and value of EE, and to maximize ratepayers' benefit from these resources through portfolio optimization, exploration of new procurement methods, and advanced measurement and verification of energy savings. In 2017 and beyond SCE will continue working to achieve cost-effective energy savings, expand innovative EE solutions, and drive toward market transformation. To realize this vision, SCE will continue to refine and adapt its energy efficiency portfolio and will employ several strategies across the portfolio:

- To achieve cost-effective energy savings, SCE will aim to reduce costs and increase EE adoption by simplifying and streamlining offerings. This will include increased use of upstream and midstream offerings and self-service delivery channels, and will also entail reducing the number of customer touchpoints in certain sectors.
- SCE also plans to increase EE adoption by providing customers with greater access to and greater understanding of their energy usage, as well as providing expanded behavioral interventions.
- For non-residential customers, SCE plans to increase adoption and decrease costs by tailoring EE services based on customer energy usage and demand.

Literature Cited

Southern California Edison Company (SCE). 2017. Southern California Edison Company's (U 338-E) 2017 Annual Report for Energy Efficiency Programs. May 1, 2017.