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Southern California Edison Energy Efficiency Business Plan

Public Sector Chapter

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I. Executive Summary

The public sector is defined as the portion of society served by national, state, or local governments providing basic government services. The public sector is comprised of local, state, and federal government agencies and k-12 and higher education entities. The public sector is unique in that public sector customers are in a position to influence their communities, adhere to a unique public decision-making process, possess a vast amount of institutional knowledge, and are inherently considered permanent entities. This chapter highlights the key barriers and opportunities to drive increased energy efficiency savings in the public sector.

Traditionally, the public sector has been classified as part of the commercial sector. However, due to its unique attributes, the California Public Utilities Commission (CPUC or Commission) has ordered that the public sector should be treated in a separate chapter in the business plan.¹ Overall, the public sector makes up approximately 15% (8,200 GWh) of total electricity usage in SCE's territory. While no studies have been conducted that specifically call out public sector energy savings potential by territory, a rough estimate determined that averages of 78.7 GWh and 13.9 MW of annual incremental EE savings potential exists in SCE territory.²

SCE's vision for the public sector in EE is to cost-effectively increase customer adoption of EE improvements and simplify program participation for customers. SCE will deploy programs that provide financial and procurement solutions, relevant energy usage information, and customer education that enables customers to participate in EE and DSM programs. A diverse offering of programs and services will be utilized to target the variety of needs of each segment, sub-segment, and individual customer. This will help public sector customers contribute to the state goals of reducing greenhouse gas (GHG) emissions and help SCE increase grid reliability and reduce the need to build new energy infrastructure.

A number of drivers affect public sector EE adoption. Among the most prominent regulatory drivers are the framework established under the California Long Term Energy Efficiency Strategic Plan (Strategic Plan) and the passage of recent legislation, including Senate Bill (SB) 350, Assembly Bill (AB) 802, AB 758, and CA Governor's Executive Order B-18-12. These policies have the goal of driving down GHG emissions and doubling EE. Some of the key market drivers include Property Assessed Clean Energy (PACE) financing, the declining cost and increased adoption of solar and battery storage, the proliferation of electric vehicles (EVs), and the state's cap and trade marketplace.

The public sector faces many barriers to further adoption of EE, including the following challenges identified to date:

- Financing and procurement hurdles that challenge adoption of integrated demand-side management (IDSM) projects and create long project timelines;
- Lack of technical resources to identify, develop, and implement projects; and
- Inadequate data about building level performance, making identification of potential energy savings difficult.

¹ Decision (D.)15-10-028, Pg. 47.

² For more detailed information, see *Section II.A.3* (for sector potential) and *Appendix B* (for sector potential methodology).

The public sector, however, also has many unique opportunities to increase EE savings. This sector has substantial influence on the community and can adopt policies and programs to support EE measures. The sector also has a unique role in the development and enforcement of building and appliance codes that increase the efficiency of energy use.

As discussed in *Section III.B*, SCE's 2017 EE goals for the public sector are to drive 31.3 GWh and 3.9 MW of EE savings. Until the California Energy Commission (CEC) goals analysis (due in 2018) is complete, SCE proposes a savings goal of 46.5 GWh and 4.59 MW in 2018, growing to 49.3 GWh and 4.87 MW by 2027. The programs and strategies that will be used to meet these goals are discussed in *Section III.B.2*. Additionally, SCE will be tracking several sector-level metrics to determine its success in overcoming the market barriers identified previously.

The public sector encompasses many partners working closely together to further the State's GHG emission and EE goals. Development of program Implementation Plans will require close coordination with public sector partners such as other Program Administrators (PAs), cross-cutting programs, third-party implementers, and public sector customers.

The public sector, as a newly defined sector, will require conducting a number of Measurement & Verification (M&V) studies and performance analyses. Additionally, SCE will be pursuing several pilot programs, including a Public Sector Performance-Based Retrofit program and a ZNE "roadmap" through the K-12 Accelerator program.

II. Sector Profile

This portion of the public sector chapter describes the public sector characteristics, drivers, and market barriers. The characteristics section outlines the customer landscape, electricity consumption, and an estimated sector potential. The drivers section outlines the key regulatory drivers, market trends, and key EM&V findings that impact the sector. The market barriers section outlines the three main barriers to public sector EE.

A. Characteristics

The public sector is comprised of government agencies (local governments, special districts, and state and federal agencies) and education entities (colleges, universities, libraries, and K-12 schools). Table 1, following, identifies many of the differences between the public and commercial sectors.

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Table 1: Public Sector vs. Commercial Sector Customers

Public Sector Customer	Commercial Sector Customer
For public good	For profit
Risk-averse	Calculated risk
Investments based on benefits to public good	Investment based on ROI
Long approval process, often requiring council and/or board approvals	Approval granted when business case is proven
Complex financing mechanisms	Financial tools are easier to access
Perpetual maintenance	Replace on business case
Tax-based revenue generation	Sales-based revenue generation
Subject to political changes	Insulated from political changes

A commercial building can take on more financial risk, has private sources to generate revenue, and is run for profit. Commercial buildings will inherently be farther along in their energy management practices than public buildings that are intended to serve the public and to minimize risk, and which require approval of councils or boards for all financial decisions.

Currently, Industry Standard Practice (ISP) is applied to the public sector in the same way that it is applied to the commercial sector. However, the technical and financial resources available to public sector energy management systems (EMS) also do not compare to those of the commercial sector. For example, a public building's kitchen or computer server system is usually less advanced than it would be in a commercial building. Additionally, public sector investments are based on public good and on providing essential services at a minimal cost. But minimizing costs often leaves more advanced EE work for the public sector unrealized because it is expensive, while the commercial sector is not bound by the same spending restrictions.

Previously, baselines were Title 24 standards, which are increasingly higher than the standards met by existing buildings in both the commercial and public sectors. However, due to the prevalence in the public sector of deferred maintenance and of continued use (rather than replacement) of existing buildings, public sector buildings are often even more below Title 24 standards than commercial sector buildings are. For example, according to California State University's (CSU) "Support Budget 2015-2016," there is a backlog of \$1.8 billion in deferred maintenance in the CSU system.³ Consequently, the financial difficulty of bringing these buildings up to code and beyond continues to increase as Title 24 standards aggressively ramp up to meet California's clean energy policy goals, such as Zero Net Energy (ZNE). Utilities have not had much to offer such customers beyond financing solutions, leaving public

³ "Support Budget 2015-2016," California State University, Nov 2014. Pg. 25. Found at: <https://www.calstate.edu/budget/fybudget/2015-2016/executive-summary/documents/2015-16-Support-Budget.pdf>.

agencies with heavy financial burdens, aging and inefficient infrastructure, and a great deal of stranded potential. In order to assist public sector entities to meet or exceed Title 24 code requirements, PAs need to be able to offer incentives and services. Implementation of AB 802 will capture some of the stranded EE potential through the incorporation of meter based savings, but additional work should be done to modernize and improve the efficiency of public sector buildings.

1. Customer Landscape

As mentioned above, the public sector is comprised of government agencies and education entities. Public healthcare facilities (hospitals, clinics, and medical offices) and water agencies (water districts and wastewater agencies) are considered sub-segments of the public sector.

Table 2: Public Sector Segments and Sub-Segments

Local Government	State	Federal	Education
<ul style="list-style-type: none"> • Cities • Counties • Special Districts • Solid Waste Facilities • Water/Wastewater Facilities • Hospitals • Correctional Facilities 	<ul style="list-style-type: none"> • State Buildings • State Park Facilities • Hospitals • Correctional Facilities 	<ul style="list-style-type: none"> • Federal Buildings • US Postal Service • Hospitals • Ports • Military Bases • Correctional Facilities • Tribes 	<ul style="list-style-type: none"> • K-12 Schools (Schools, Admin Buildings) • Higher Education (UC/CSU, Community Colleges, Hospitals)

The Local Governments (LG) segment consists of cities, counties, special districts, solid waste facilities, water and wastewater agencies, local government hospitals (for example, county hospitals), and local government correctional facilities (for example, city and county jails).

The state government segment consists of state agencies and departments that operate buildings, parks and park facilities, correctional facilities, and state-run hospitals. The Department of General Services, Department of Corrections and Rehabilitation, Department of Motor Vehicles, and California Highway Patrol are a few of the largest.

The federal government segment consists of U.S. Government agencies and departments and Native American tribes occupying and operating federal buildings, hospitals, ports, military bases, and correctional facilities. The U.S. Postal Service, Defense Department, Department of Justice, Department of Veterans Affairs, and National Park Service are some of the largest federal agencies.

The education segment consists of K–12 schools and higher education facilities. The K–12 sub-segment includes both primary and secondary schools as well as school district facilities. The higher education segment includes all public

colleges and universities. The primary public colleges and universities in California are the California Community Colleges, CSU, and the UC. For the purposes of this business plan, both public and private K–12 schools will be considered a part of the public sector, while private colleges and universities will remain as part of the commercial sector.

2. Electricity Consumption

Public sector customers represent more than 75,000 service accounts spanning eight climate zones in SCE's service territory. Although the public sector collectively comprises a small absolute number of service accounts, it represents 15% of SCE's total Nonresidential energy usage (as shown in *Figure 1*)⁴.

Figure 1: SCE Annual GWh Usage by Nonresidential Sector

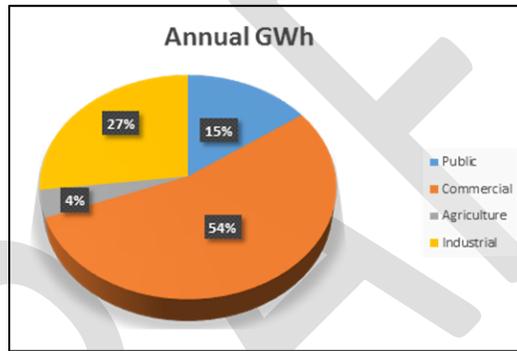
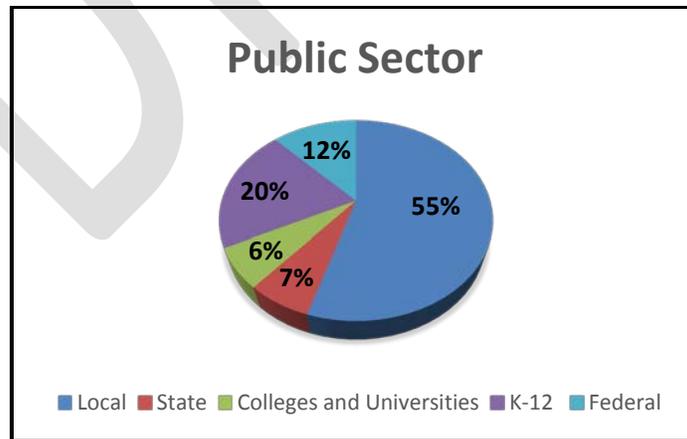


Figure 2 shows the public sector usage by segment (local government, state government, federal government, and education).

Figure 2: Public Sector Usage by Segments⁵



⁴ SCE Internal Usage Data.

⁵ SCE Internal Usage Data. The usage figures of Statewide public institutions, such as the California Community Colleges, California State University, and University of California, are considered separate from the State's energy usage figures.

The local government segment is responsible for the majority (55%) of energy consumption within the public sector and includes diverse customers, from cities to water and wastewater districts. Within the local government segment, municipalities (*i.e.*, cities and counties) use the largest percentage of energy, more than 50%, with water agencies comprising the remaining half of usage. Collectively, the local government segment represents more than 4.4 billion kWh of electricity usage.

The state government segment represents 7% of the total public sector energy usage. The State's facilities are comprised of a mixture of building types, with a significant portion of the energy consumption occurring in a relatively small percentage of facilities. This unique factor allows the vast majority of energy usage to be addressed by a focus on specific and targeted accounts, but requires the ability to offer a variety of DSM support and solutions to meet unique needs. Ongoing changes in public sector DSM offerings will be required as new customers of varying sizes and sophistication appear.

K–12 schools, colleges and universities (the UC System, the California State College System, and the California Community College System), and educational health care facilities (such as teaching hospitals) comprise the education segment of the public sector. This segment represents 26% of the public sector's total energy usage, with K–12 schools consuming 1.8 billion kWh alone.

The federal government segment is also comprised of diverse building types, ranging from military bases to post offices. Federal energy usage is nearly one billion kWh and represents 12% of the energy consumption in the public sector. Federal departments' energy usage and bills may be managed by regional offices located outside of SCE's California service territory or in other states.

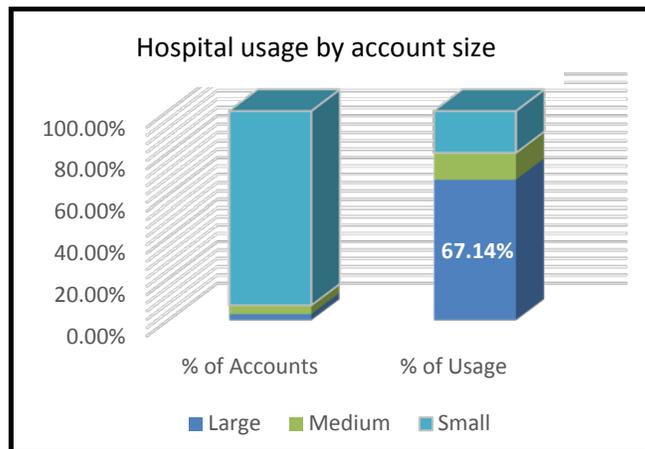
For many public sector customers, energy usage is in very large facilities, which tend to be master-metered. This allows a concentrated effort toward providing DSM applications to these facilities, but presents challenges for managing and monitoring site or building specifics. An example of the disproportionate energy use by larger accounts is shown in **Figure 3**, below.

In this figure all public hospital sub-segments (from state, local, federal, and education) are shown together.⁶

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⁶ SCE Internal Usage Data.

Figure 3. Hospital Usage by Service Account



Public sector accounts include building types such as offices, schools, colleges, universities, and hospitals that also exist in the commercial sector. Because of this, a solid foundation of documentation and characterization for these building types is available to help define the market, EE potential, and relative scale of opportunity. However, while these types of public sector facilities are relatable to their commercial counterparts, the EE adoption habits and participation rates of public sector customers are different from those of traditional commercial customers, making them hard to compare to one another. Also, building types, such as correctional facilities, that are unique to the public sector and its segments present further challenges and opportunities.

3. Sector Potential

As discussed above, the public sector has been considered a portion of the commercial sector. As a result, a comprehensive study has not been conducted for the California market that specifically addresses public sector energy savings or market saturation in order to develop market potential by territory. New studies may help refine savings potential estimates for public sector areas of opportunity. In order to begin developing the market potential for the sector, SCE proposes the calculation methodology discussed in **Appendix B**. Using this methodology as a rough estimate determined the following figures showing the EE savings potential that may exist for public sector customers in SCE territory.

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Figure 4: Public Sector GWh Potential

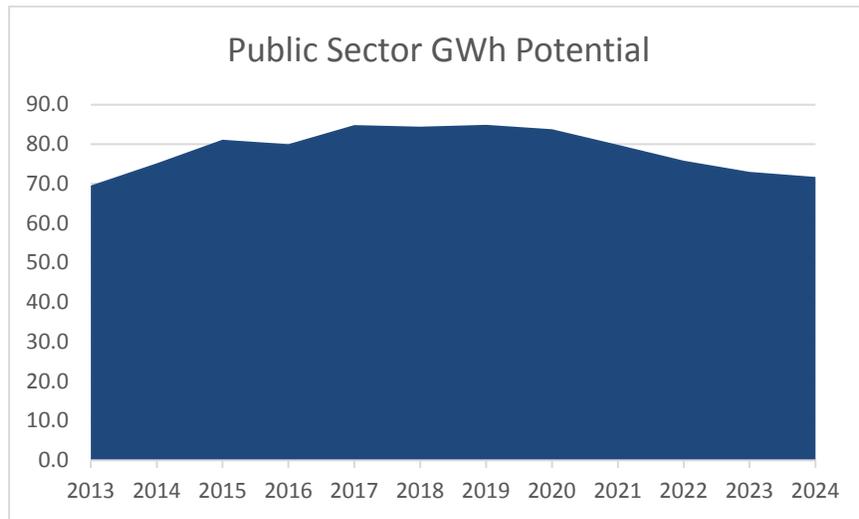
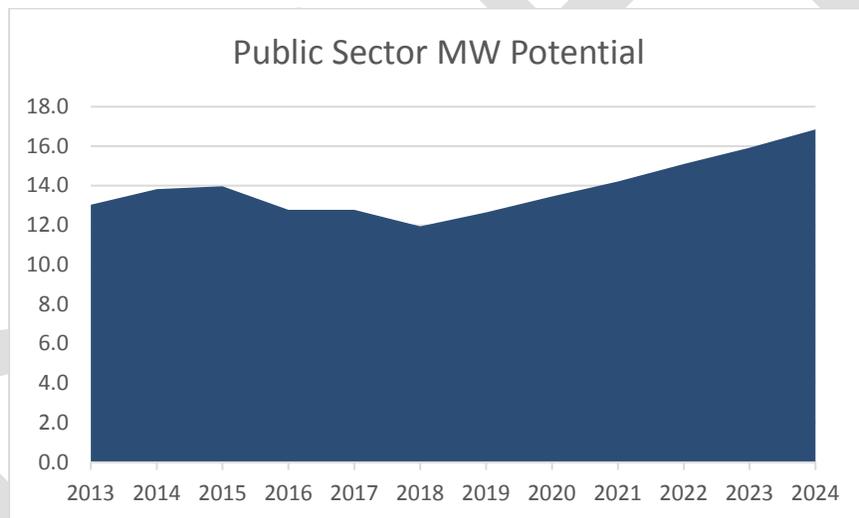


Figure 5: Public Sector MW Potential



While these savings allow for a directional understanding of the EE potential, the EE savings goals should remain at the portfolio level. This will allow for portfolio flexibility in managing cost effectiveness and help to avoid the false perception of precision. Further studies will help refine these savings potential estimates and assist with setting savings goals.

B. Drivers

There are a number of drivers in the public sector that shape the landscape of EE. Public sector PAs must identify these drivers and a path to meet defined EE goals.

1. Regulatory and Legislative Drivers

A number of regulatory drivers shape the public sector landscape. Among the most prominent is the framework established under the Strategic Plan, passage of recent legislation, including Senate Bill (SB) 350, Assembly Bill (AB) 802, and AB 758, AB 793, Proposition 39, and state Governor's Executive Orders (specifically, B-18-12).⁷

The Strategic Plan identifies five goals focused on the LG segment of the public sector. These goals focus on leveraging the LGs' authority and leadership roles to:

- Lead adoption of higher EE standards or "reach codes"
- Lead energy code compliance enforcement
- Lead by example in their facilities
- Lead their communities with innovative EE programs, and
- Ensure that LG energy efficiency expertise becomes widespread.

Many of the goals and strategies for the LGs can also apply more broadly to all public entities, which can leverage their jurisdictional authority to lead and facilitate the implementation of EE plans in order to meet state goals as outlined in state legislation and executive orders.

AB 32, the California Global Warming Solutions Act, enacted in 2006, required California to reduce its GHG emissions to 1990 levels by 2020, a reduction of approximately 15 percent below the emissions expected under a "business as usual" scenario. The California Air Resources Board (CARB) is responsible for implementing the bill, which includes developing GHG emission reduction standards for the state. Local governments define how they comply with such standards in their Climate Action Plans, which are comprised of many EE program offerings, and can leverage many strategies proposed in this business plan to better serve their communities.

AB 32 has recently been expanded by the passage of SB 32, approved in September 2016, which extends the carbon emission reduction goal to 40 percent below 1990 level by 2030. CARB remains the agency responsible for implementation of the program, and LGs remain responsible for expanding the GHG emission reduction plans in their Climate Action Plans.

SB 350, the Clean Energy and Pollution Reduction Act of 2015, doubles EE goals and establishes targets in electricity and natural gas end uses by 2030 for all entities in California, with the savings coming from investor-owned utility (IOU) programs playing a key role. Leads from public-facing entities (local, state and

⁷ Energy efficiency-related CPUC proceedings will also be discussed in relation to the public sector in *Section II.D.3*, below.

federal governments and education) will serve both as examples (by meeting their goals) and as facilitators for their communities (in meeting state goals).

AB 758 is the Comprehensive Energy Efficiency Program for Existing Buildings. This bill establishes requirements for PAs to offer a full range of energy and complementary services. This includes energy assessments, building benchmarking, energy rating, cost-effective EE improvements, financing options, public outreach and education, and green workforce training efforts.

AB 793 established the requirement for Energy Management Technology Program for home and small / medium businesses, with a January 1, 2017 deadline for IOUs. The public sector will make these program offerings available to those who are qualified in the sector, as well as assist with communication and outreach to those in the sector's jurisdiction.

AB 802, the Buildings Energy Savings Program, authorizes IOUs to recover in rates the reasonable cost of programs providing incentives and/or rebates, and to count all energy savings achieved thereby toward overall EE goals and targets established by the CPUC. The bill also authorizes the CPUC to adjust EE goals to reflect the energy savings achieved in meeting EE requirements in existing buildings. PAs can now receive credit for energy savings from, and provide incentives and support for, EE projects that help public sector entities *meet* code requirements ("get up to code"), whereas previously, PAs could only count the energy savings for projects where the improvements *exceeded* code requirements. The passage of AB 802 helps address the significant issues of deferred maintenance and building upgrade backlogs in the public sector.

Proposition 39 (Prop 39), the California Clean Energy Jobs Act, gives public schools in California funds to complete clean energy projects, subject to cost effectiveness requirements. Public sector works with public schools by providing technical expertise and information about the program offerings from the IOU that can enhance the types and scale of projects a school is able to complete (that is, via types of projects to include or coupling Prop 39 funds with IOU incentive dollars).

Executive Order B-18-12, signed by Governor Jerry Brown in 2012, directs state agencies to reduce grid-based energy purchases for state-owned buildings by at least 20% by 2018. Additionally, state-owned buildings must participate in demand response (DR) programs, use clean on-site power generation (>10,000 sq. ft.), and incorporate building commissioning processes. State agencies must also identify and pursue available financial and project delivery mechanisms to achieve these goals. The Executive Order also includes GHG abatement and ZNE goals for state buildings. State buildings must be ZNE by 2025, public sector can provide information on IOU offerings to help achieve this goal and other technical services.

As described below, other regulatory drivers that stem from CPUC policy (rather than the legislative offices or the governor's office) include calculations for the Total Resource Cost (TRC), the steady reduction in available offerings in EE,

uncaptured and unquantified savings due to "spillover," and how unfunded mandates are captured in Net-to-Gross (NTG) calculations.

The TRC methodology is the rubric for evaluating cost-effectiveness in EE. A more mature clean-energy market and reductions in the cost of other energy sources (such as natural gas) have reduced the cost of avoided energy in the TRC calculation, driving down overall benefits. This reduction in avoided energy costs translates to a reduction in EE benefits, thus lessening the perceived value of EE. Although this decrease is a portfolio-wide problem, it is more prominent in the public sector because energy savings are not easily realized in that sector⁸ and because of the sector's additional cost burdens of outreach and strategic planning. A re-evaluation of the TRC standard to better reflect the value of EE in meeting the state's ambitious SB 350 goals will be key to ensuring participation in EE programs, particularly in the public sector.

In SCE's existing portfolio, much of what is easy to do and cost-effective in the public sector has already been done in the EE marketplace.⁹ This has reduced savings values associated with current EE measures and the number of offerings available to the public sector and has placed pressure on the remaining EE portfolio. As mentioned above, the value of EE needs to be reassessed in light of decreasing TRC, increasing ISP, and higher Title 24 and Title 20 standards.

"Spillover" is influence from a partner in the public sector (such as a local government) upon the community it serves. Spillover is currently counted for EE projects in the public sector the same as for the commercial sector. However, spillover is likely to be greater for the public sector because of the influence governmental entities have on the community. Additionally, spillover could help more accurately capture savings attributed to the public sector for their work with strategic plan activities. To accurately give credit to PAs and their associated partners for energy savings, SCE recommends that the CPUC give special consideration to quantifying public sector spillover.

Most public sector customers are also under mandates to achieve EE, GHG reduction, or other sustainability goals. Although unfunded, the presence of these mandates is calculated into the Net-to-Gross ratio as a major influence on retrofit decisions that cannot be attributed to PA programs. This lowers the amount of savings that PAs can claim from projects.¹⁰ This type of reasoning, while perhaps more appropriate for commercial customers, counters the spirit of private / public partnerships, which is to encourage the leveraging of private funds for public improvements. If ex-post impact evaluations of public sector programs do not

⁸ See *Section I.C, Market Barriers*, below.

⁹ For example, T-12s fluorescent lightbulbs and compact fluorescent lightbulbs (CFLs) package units have reached market maturity and are no longer incentivized.

¹⁰ *2014 Custom Impact Evaluation Draft Report Industrial, Agricultural, and Large Commercial Report*, Itron, Inc., March 2016. On pp. 4-10, this report states that corporate standard practice contributes to a "lower level of program influence." Available at: <http://www.energydataweb.com/cpucFiles/pdaDocs/1475/IALC%202014%20Draft%20Report%20March%202016.pdf>.

account for the prevalence of unfunded mandates and the critical role that ratepayer funds play in realizing much-needed public projects, public sector programs will not be viable under traditional metrics of cost-effectiveness.

2. Market Trends

One of the main market drivers for public sector EE adoption is GHG reduction goals.¹¹ The state's carbon reduction goals have driven the entire state, and the public sector in particular, to adopt EE. Additionally, public sector customers have adopted climate action plans that outline how they should move toward reducing carbon emissions. Several of the measures that climate action plans chart, such as reach codes, point-of-sale codes, and streamlined permitting for ZNE, are driving the market toward greater EE all across the jurisdictional territory.

Property Assessed Clean Energy (PACE) is a financing mechanism for the purchase and installation of clean technologies through which the loan is collateralized on the affected property and the loan is paid through property taxes. PACE financing is traditionally only allowed for clean EE technologies such as renewables, energy storage, and EV charging equipment, but may sometimes be used for other beneficial retrofits, such as seismic or hurricane preparedness. The public sector can partner with PACE financing agencies to provide PACE financing to its constituents, receiving a potential source of revenue as a result. One example of this is the Western Riverside Council of Governments' partnership with Renovate America to provide Home Energy Retrofit Opportunity (HERO) PACE financing.

The banking industry has begun to make new financing mechanisms available that make it more feasible for public agencies to obtain financing for energy projects.¹² In addition, the U.S. Department of Energy provides a number of financing and grant opportunities to assist energy projects on a federal level; the CEC makes one percent loans for public agencies that provide additional funding for EE projects; and the utilities deliver programs for both on-bill and third-party financing.

The declining cost and increased adoption of solar and battery storage is making a great impact on the EE marketplace. Over the last six years the price of solar photovoltaics has dropped dramatically, from an average cost of \$7.50/watt in 2009 to less than \$2.50/watt in 2015.¹³ Additionally, the cost of lithium ion

¹¹ For example, the University of California system has a goal of becoming carbon neutral by 2025. For more information, visit <https://www.universityofcalifornia.edu/initiative/carbon-neutrality-initiative/our-commitment>.

¹² The Energy Network Energy Project Lease Financing is one option for accessing private lender project financing. For more information see: <http://action.theenergynetwork.com/home/showdocument?id=970>.

¹³ *Solar Energy Industries Association (SEIA) U.S. Solar Market Insight Report, 2016 Q2*, SEIA GTM Research, 2016. Available at: <http://www.seia.org/research-resources/solar-market-insight-report-2016-q2>.

energy storage has dropped from \$1250/kWh in 2009 to less than \$225/kWh in 2013.¹⁴ This dramatic drop in lithium ion costs is the result of growth in the demand for EVs. Each of these technologies is cannibalizing the funds the public sector would have spent on EE. While EE is the first item that the CPUC would like customers to consider,¹⁵ public sector customers are driven to these technologies due to their high visibility and constituent demand.

The State has developed a cap-and-trade program in order to meet the GHG reduction goals outlined in AB 32. Cap-and-trade is a market-based solution where a limit is placed on GHG emissions, and then, each quarter, GHG credits are auctioned to the public for those wishing to use technologies that produce GHG emissions. Credits may be sold, purchased, and traded, which provides a funding source for public sector entities wishing to pursue EE projects; they may use some of the funds generated from the sale of credits through grants from the state to install clean technologies.

Public agencies in California realize the importance of reducing their energy usage as the first step towards greater resilience, so they are focusing upon increasing the resilience of their infrastructure by evaluating different opportunities for energy usage reduction, including self-generation, storage, and micro-grids.¹⁶ Utilities, as well as state, federal, and local agencies, play a vital role in helping make the infrastructure not only safe and reliable, but flexible enough to meet times of varying needs.

Many public sector customers are also working with the building industry to promote ZNE new construction in their communities and to leverage stakeholders so as to promote reductions in energy usage towards the LGs' ultimate carbon reduction goals.¹⁷

3. Past EM&V Evaluation Findings

The public sector is new and, as mentioned above, there have been no evaluation studies or recommendations for this sector as a whole. Within the sector, SCE has offered "partnership" programs to LGs and statewide institutions

¹⁴ "The Lithium Ion Battery Market, Supply and Demand," Sam Jaffe, Navigant, Jan. 2014. Available at:

https://www.arpa-e.energy.gov/sites/default/files/documents/files/Jaffe_RANGE_Kickoff_2014.pdf

¹⁵ California loading order: "The loading order consists of decreasing electricity demand by increasing energy efficiency and demand response, and meeting new generation needs first with renewable and distributed generation resources, and second with clean fossil-fueled generation. The loading order was adopted in the 2003 Energy Action Plan" from "Implementing California's Loading Order for Electricity Resources Staff Report", California Energy Commission, July 2005. Available at: <http://www.energy.ca.gov/2005publications/CEC-400-2005-043/CEC-400-2005-043.PDF>.

¹⁶ For example, US Department of the Navy approved MOU-16-002 with the CEC to collaborate on energy-related issues for the goal of energy assurance and resiliency.

¹⁷ One such example is the Division of State Architects Report, "Grid Neutral: Electrical Independence for California Schools and Community Colleges", CA Department of General Services, Feb 2009. Available at: <https://www.documents.dgs.ca.gov/dsa/pubs/gridneutralpub.pdf>.

since 2003. Currently, Local Government Partnerships (LGPs) promote three categories of activities:

- Municipal retrofits of government buildings,
- Strategic Plan support activities, and
- Core program coordination.

Recent evaluations across two different studies have found that participating LGs are "heterogeneous and not easily categorized."¹⁸ While most recommendations from past process evaluations are specific to the LG segment, four types of recommendations speak to persistent market barriers that may well also apply to the entire sector:

1. Recommendations to help LGs find supplemental funding sources,
2. Recommendations to help LGs overcome challenges due to not having enough internal staff,
3. Recommendations to help LGs use or share their building usage data, and
4. Recommendations for more technical support to LGs.

Most recently, a 2016 process evaluation¹⁹ (in its final phases at the time of this writing) provided more actionable details about the specific types of technical assistance needed: calculation of energy savings, implementation of energy management systems, and job order contracting of retrofit projects.

The Institutional Partnerships, such as the California Community Colleges Partnership or the State of California Partnership, have a different set of challenges. While there have been no recent evaluations of these partnerships, past evaluations (by PA Consulting²⁰ and Navigant²¹) have found that most barriers to EE were due to the administrative structure of these entities. Entities with distributed leadership had difficulties planning and executing projects, while entities with a centralized leadership, such as the U C System, were highlighted for their superior achievements in energy efficiency.

¹⁸ *Program Assessment Study: Local Government Partnership Programs –Final Report*, Evergreen Economics, 2013 (available at: http://calmac.org/publications/LGP_Program_Assessment_Report_-_final.pdf), and *Targeted Process Evaluation of the Local Government Partnership Programs* (working title), Research Into Action, 2016, in progress.

¹⁹ *Targeted Process Evaluation of the Local Government Partnership Programs* (working title), Research Into Action, 2016, in progress.

²⁰ *Southern California Edison Summary Report: Process Evaluation of the 2006–2008 Local Government and Institutional Partnership Programs—Final Report*, PA Consulting, 2009. Available at http://calmac.org/publications/06-08_SCE_Local_Govt_Inst_Partnerships_Process_Evaluation_Report.pdf.

²¹ *Program Assessments Study: Statewide Institutional IOU Energy Efficiency Partnership Programs*, Navigant Consulting, 2013. Available at <http://www.energydataweb.com/cpuc/deliverableView.aspx?did=908&uid=0&tid=0&cid=>.

SCE also reviewed the two studies that were conducted regarding Southern California Regional Energy Network (SoCalREN): a value and effectiveness study²² and a program impact assessment.²³ The value and effectiveness study was focused primarily on REN effectiveness and did not apply across PAs, but there were a couple takeaways that could apply: (1) public agencies indicated that the technical services that were provided reduced the time to implement the project, (2) the expertise provided exceeds that of the local agency. Learnings from this study indicate that public agencies often lack technical knowledge and find value in technical assistance. The program impact assessment was focused on the REN's Single-Family and Multifamily Programs specifically and did not have any key takeaways for the public sector as a whole.

C. Market Barriers

The public sector faces many barriers to further adoption of EE, from lack of technical resources, to limited capital budgets for EE retrofits, to procurement and vendor selection challenges. The key challenges facing this sector include:

- Financing and procurement hurdles challenge adoption;
- Lack of technical resources to identify, develop, and implement projects; and
- Inadequate data about building level performance makes identification of potential energy savings difficult.

Market barriers outlined and defined in Eto, Prael and Schlegel's scoping study on "Energy Efficiency Market Transformation by California Utility DSM Programs,"²⁴ and associated definitions, will be used when analyzing the barriers affecting public sector EE. More detailed definitions can be found in the paper. However, for the purposes of this chapter, SCE uses definitions²⁵ that have been modified for clarity and brevity.

²² "PY 2013–2014 Regional Energy Networks Value and Effectiveness Study Final Report", (Value and Effectiveness Study), conducted by Opinion Dynamics Corporation (ODC), January 5, 2016. Available at: http://www.energydataweb.com/cpucFiles/pdaDocs/1394/Regional%20Energy%20Networks%20Value%20and%20Effectiveness%20Report_Draft_2015_10_11_clean.docx.

²³ "2013-14 Regional Energy Networks and Community Choice Aggregator Programs Impact Assessment Final Report" (Impact Assessment), prepared by Itron, Apex Analytics and DNV-GL January 7, 2016. Available at: http://www.calmac.org/publications/REN_CCA_Impact_Assessment_Final_Report_NoAppendicesES.pdf.

²⁴ Eto, Prael, Schlegel, "A Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs, The California Demand-Side Measurement Advisory Committee, July 1996. Can be found at: <https://emp.lbl.gov/publications/scoping-study-energy-efficiency>.

²⁵ For more detailed definitions, see *Appendix C*, below.

1. Financing and Procurement Barriers

Financing and procurement barriers challenge adoption of EE measures and create longer-than-usual project timelines. While the same challenges exist for customers across the portfolio, the public sector is unique in that projects must go through a lengthy public approval process. Additionally, several of the traditional commercial means of financing EE projects are either unavailable to this sector or require separate, lengthy approval processes.

The financing & procurement market barriers²⁶ are:

1. **Access to Financing**
2. **Performance Uncertainties**
3. **Asymmetric Information and Opportunism**
4. **Hassle or Transaction Costs**
5. **Hidden Costs**
6. **Bounded Rationality**
7. **Organizational Practices or Custom**
8. **Misplaced or Split Incentives**
9. **Externalities**

These financing and procurement market barriers manifest in the public sector in the following ways:

- Limited capital budgets to spend on EE projects.²⁷ EE projects compete for capital budgets with other necessary and higher-visibility projects. While the benefits of EE may be clear, public sector entities must satisfy constituent and customer needs first. Public sector customers are focused on public safety and regulatory compliance, often giving EE projects lower priority.
- Procurement and vendor selection challenges are common in this sector.²⁸ Except in certain circumstances, public sector customers must put all contracted work out for public bids, creating a longer lead time. Additionally, vendors selected must often meet more stringent hiring and pay requirements than those presented by commercial sector customers.

²⁶ For more detailed definitions, see *Appendix C*.

²⁷ For example, 62 percent of California school districts underspend each year on facility maintenance and operations. "Going it Alone: Can California's K-12 School Districts Adequately and Equitably Fund School Facilities?", Vincent, Jeffrey M, Liz S. Jain, UC Berkeley, November 2015. Available at: http://citiesandschools.berkeley.edu/uploads/Vincent__Jain_2015_Going_it_Alone_final.pdf.

²⁸ Local government procurement challenges are outlined in the "Local Government Energy Efficiency Resources Guidebook 4: Project Procurement", The Energy Coalition, September 2013. Available at: <http://publicagencies.theenergynetwork.com/home/showdocument?id=38>.

- Public sector customers, in general, are risk-averse and hesitant to try unproven or unprovable products or services.²⁹
- With limited capital resources, public sector customers operate equipment until it fails. Proactive upgrades of equipment are rare, resulting in fewer opportunities for EE upgrades.³⁰
- The public sector customer internal decision-making process can be lengthy and burdensome, resulting in increased costs and project delays.
- Some public sector customers are limited in the amount of financing and/or funding they can receive because of lender requirements for payback periods. As a result, the scope of some projects must be reduced to meet those requirements.
- Public sector entities may not allocate funding that will support both the operational budget of a project and the necessary capital needed to fully implement the project. They may see these costs as two separate budget line items, so in some cases first cost becomes their only criterion for evaluation.
- The IOUs plan programs on a calendar-year basis, while public sector customers plan for the fiscal year. This means that they may not receive funding for projects until the start of their fiscal year — six months into the calendar year. This can be problematic, especially if program changes are made on a calendar basis.
- All governmental entities must adhere to legal requirements for hiring project implementers (building and electrical contractors, architects, etc).³¹ These requirements are often inflexible and can make meeting EE program project timelines and requirements difficult.
- Some public sector customers are not allowed to make multi-year debt commitments, such as loans through the On-Bill Financing Program.³² In addition, all governmental entities must adhere to a debt ceiling, which limits their ability to take advantage of certain financing sources and does not allow them to borrow additional capital.

²⁹ "Public servants tend to be generally risk averse in their behaviors and personal preferences". "Toward and Entrepreneurial Public Sector", Clark, Anna Fountain, *Public Personnel Management*, September 2016. Available at: <http://ppm.sagepub.com/content/early/2016/07/28/0091026016669169.abstract>.

³⁰ For example, a Cal State University Facility Condition Assessment analysis found that nearly 90% of equipment is beyond its expected useful life. Analysis provided from Facilities Management Division at CSU Chancellor's Office.

³¹ *State Contracting Manual*, Chapter 2: The Basic Contracting Process.

³² For example, the Counties of Los Angeles, Riverside, and San Bernardino are unable to access certain financing mechanisms such as On-Bill Financing.

In addition to the financing and procurement barriers addressed above, several additional financing and procurement challenges facing the public sector affect different segments within the sector differently:

- State government customers face a challenge of scale. Many of the buildings are smaller than 20,000 square feet, such as California Highway Patrol (CHP) stations, Department of Motor Vehicle (DMV) offices, and CALTRANS maintenance facilities.
- Water and wastewater agencies face challenges in development of EE projects because on-site generation facilities unfavorably affect the amount of EE savings that can be incentivized.³³ They are also seeing decreasing water sales and associated revenue, which can hamper the amount of capital available for EE.³⁴
- K–12 and community college customers now have access to Proposition 39 funding, a major source of EE funding. However, the approval process can be lengthy and complex.

2. Technical Resource Barriers

The public sector lacks technical resources to identify, develop, and implement projects. While technical resource challenges can be found across the portfolio, the public sector is unique in that the procurement of qualified technical resources can be significantly more costly and time-consuming than for commercial customers.

The technical resource market barriers are:

1. Information or Search Costs
2. Performance Uncertainties
3. Asymmetric Information and Opportunism
4. Hassle or Transaction Costs
5. Hidden Costs
6. Inseparability of Product Features

These technical barriers manifest in the public sector in the following ways:

- While some larger public sector customers have in-house expertise, it is often concentrated in a central location and specific site knowledge may

³³ An example of the segments push for on-site generation and self-sufficiency can be seen in the "Energy and Water Resources ACWA Policy Principles", Association of California Water Agencies, Oct 2015. Available at: <http://www.acwa.com/sites/default/files/post/energy/2015/11/acwa-energy-and-water-resources-policy-principles.pdf>.

³⁴ "Declining Water Sales and Utility Revenues: A Framework for Understanding and Adapting," National Water Rates Summit, August 2012.

be limited.³⁵ Meanwhile, smaller or more financially challenged public sector customers such as cities or school districts often lack in-house EE expertise entirely.³⁶

- The Public Contract Code (PCC) requires public sector entities to meet certain requirements in order to procure goods and services.³⁷ These requirements include specific timelines and protocols for every project, and public sector customers must have in depth knowledge of these requirements and follow them strictly. For instance, the PCC specifies advertising requirements for soliciting contractors and timeline expectations in order to ensure that legitimate contractors submit bids. Other factors, such as prevailing wage requirements, Disadvantaged Business Enterprise (DBE), Veteran Business Enterprise (VBE), and Women & Minorities Business Enterprise (WMBE) goals and statutes, and "green procurement" requirements, may create additional barriers for public sector customers.
- With limited capital resources, public sector customers operate equipment until it fails. A proactive upgrade of equipment is rare, resulting in fewer opportunities for EE upgrades.³⁸

In addition to the technical barriers addressed above, there are several additional technical challenges facing the public sector that affect different segments within the sector differently. The higher education segment possesses some of the most qualified technical specialists in the field, but the sector often procures or pilots innovative EE technologies that are difficult for even the most knowledgeable specialists. Higher education customers also face the challenges of maintaining high-end laboratories with specialized energy usage needs and new technologies' potentially interfering with their work. K-12 customers are often hesitant to install new EE technologies because of the lack of end-use training and the potential for vandalism.³⁹

3. Data Challenges and Barriers

Inadequate data on building level performance makes identification of EE potential difficult. While there are data challenges across the portfolio, the public sector is unique in that many public sector facilities are master-metered.

³⁵ For example, the UC and CSU systems have dedicated energy management teams dedicated to reducing energy usage and meeting their GHG reduction goals.

³⁶ For example, many of the Local Government Partners have an assigned energy champion on staff, but that person is often working part time on energy related issues and is not a dedicated energy manager.

³⁷ California Public Contract Code, for more exact language visit: <http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=pcc>.

³⁸ For example, a Cal State University Facility Condition Assessment analysis found that nearly 90% of equipment is beyond its EUL. Analysis provided by Facilities Management Division, CSU Chancellor's Office.

³⁹ FBI crime statistics show that there are roughly 65,000 incidents of crime against property each year including vandalism, theft, and burglary (2000-2004). FBI, National Incident-Based Reporting System "Crime in Schools and Colleges", available at: <https://ucr.fbi.gov/nibrs/crime-in-schools-and-colleges>.

Additionally, programmatic, EM&V, and historical savings and usage data is not widely available because this is the first time the public sector has been considered as a separate sector.

The data challenge market barriers are:

1. **Information or Search Costs**
2. **Performance Uncertainties**
3. **Asymmetric Information and Opportunism**
4. **Product or Service Unavailability**

These data barriers manifest in the public sector in the following ways:

- Many public sector customers are master-metered and therefore do not have insight into building level usage. For example, over 75% of high schools are master-metered, and for local governments, while only four percent of municipal *accounts* are master-metered, over 58% of their total *usage* is master-metered.⁴⁰
- Building controls and enterprise-wide energy management systems may address some data needs. However, many public sector customers lack access to adequate building controls.⁴¹ Sites that are master-metered (such as campus facilities) often are not sub-metered, which inhibits an enterprise management system. At smaller facilities, such as DMV offices or CHP stations, the scale prevents the procurement of cost-effective building controls.
- The public sector has historically been a part of the commercial sector. As a result, data about the sector's EE potential and about key areas within the sector need to be developed.

In addition to the data barriers addressed above, several additional data challenges facing the public sector affect different segments within the public sector differently. For example, local government customers require community data for climate action plans and GHG inventories, but data aggregation and anonymization rules prevent access to detailed site level data⁴².

III. SCE's Approach to Achieving Sector Goals

This portion of the Public Sector chapter describes SCE's approach to achieving sector goals including the sector vision, budgets and metrics, coordination, and future needs. The sector vision outlines what SCE expects the sector to look like over the next ten years. The sector goals section outlines the overall energy savings goals for the public sector and the products, services, and intervention strategies that will be used to meet those goals. Next, a budget and metrics

⁴⁰ SCE internal program data, 2016.

⁴¹ For example, EMS is now a recommendation in the "California Community Colleges Energy Project Guidance", California Community Colleges Chancellor's Office, May 2013. Available at: http://web.peralta.edu/pbi/files/2010/11/CCC_Prop-39_Guidance-May-29th.pdf.

⁴² CPUC Decision D.14-05-016, a decision adopting data sharing procedures and guidelines.

section describes the public sector budget and key metrics to monitor progress toward meeting these goals. Coordination with key partners, including coordination among PA's, with cross-cutting programs, and with associated proceedings are discussed in the next section. Lastly, future M&V needs and proposed pilots are discussed in the future needs section.

A. Sector Vision

As stated above, SCE's vision for the public sector is to cost-effectively increase customer adoption of EE improvements, and simplify customer program participation. Customers are demanding, more than ever before, the power to decide how they interact with their service providers. SCE's public sector EE programs will focus on enhancing the customer experience and simplifying program processes to better align with their needs.

SCE will deploy programs that provide financial and procurement solutions, relevant energy usage information, and customer education that enables customers to participate in EE and DSM programs. A diverse offering of programs and services will be utilized to target the variety of needs of each segment, sub-segment, and individual customer.

According to the American Council for Energy Efficiency Economy (ACEEE), "the term *market transformation* is the strategic process of intervening in a market to create lasting change in market behavior by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice."⁴³ With the exception of complex or novel projects, public sector customers should no longer be reliant on utility support and incentives to develop and implement EE projects, and should be able to finance their own EE projects and/or leverage utility finance programs. Additionally, public sector customers should also be well on their way toward developing and retrofitting existing structures to be ZNE in ten years.

The public sector should have the financial and technical means to determining energy usage at all buildings by 2027. For projects that require incentives, meter-based savings should be the primary means of incentivizing and calculating EE savings. Public sector customers should have an in-depth knowledge of their facilities and the data analytics capabilities to determine required retrofits and retrocommissioning needs.

While the Strategic Plan has not been updated since 2011 and was developed for only one segment of the public sector, several of the goals will remain applicable for the public sector into 2027. Public sector customers should continue to leverage their position in their communities to continue to promote higher EE standards, promote code compliance and lead by example. Additionally, SCE's public sector programs will have a greater focus on codes and standards compliance over incentives.

⁴³ ACEEE, "Market Transformation." Available at: <http://aceee.org/portal/market-transformation>.

SCE will continue to focus on providing integrated energy management solutions for public sector customers, incorporating EE, DR, energy storage, electric vehicles, renewables, or other types, as appropriate. SCE will also work to provide more cost-effective programs through efforts such as regionalization of partnerships, consistency of program offerings, a transition of certain programs to statewide implementation, and the solicitation of third party programs.

B. Sector Goals

D.16-08-019 states that "Future energy efficiency goals analysis should be done in coordination with the CEC, through the JASC and the DAWG, and should incorporate cumulative goals in addition to the annual goals in time for the beginning of 2018."⁴⁴ Additionally, these goals will be based on net savings (as opposed to gross savings).⁴⁵ For this reason, near-term, mid-term, and long-term energy savings goals are estimates and will be revised upon completion of the EE goals analysis by the CEC.

The 2017 savings estimate is the goal for the existing public sector partnership programs. The 2018-2027 savings estimates take into account full implementation of the Public Sector High Opportunity Projects or Programs (HOPPs) Program (discussed below) and the additional new segments, such as water / wastewater, K-12, and public healthcare.

Table 4 identifies the overall EE goals for the public sector.

Table 3: Public Sector Savings Goals

Metric	Near-term⁴⁶ 2018–2020	Mid-term⁵³ 2021–2024	Long-term²² 2024–2027
GWh	TBD	TBD	TBD
MW	TBD	TBD	TBD

1. Existing Products and Services

Though it was not a defined sector, SCE has been working with the public sector on EE and DR for many years and has developed a robust portfolio of products and services that address this sector.

The flagship public sector offerings are LG and institutional EE partnerships. SCE currently has 21 LGPs, focused on driving these entities to pursue EE at their

⁴⁴ D.16-08-019, Conclusions of Law #11, p. 99.

⁴⁵ D.16-08-019, p. 19.

⁴⁶ A preliminary assessment will be made for the Jan., 2017 filing. For finalized goals, awaiting the results of CPUC and CEC goals analysis due in early 2018, as ordered in R.13-11-005.

facilities, promote EE to their constituents, and develop policies, procedures, and codes that further the Strategic Plan. SCE also is a partner in four Institutional Partnerships (IPs) that span the whole state and is dedicated to driving greater EE in higher education and state-owned buildings. The partnerships provide technical assistance to partners in identifying, developing, and verifying EE projects.

For 2017, SCE's Partnership Program Portfolio underwent a concerted effort to optimize budget and resources in order to achieve a more cost effective portfolio.⁴⁷ One area of focus is through better leveraging of internal, lower cost resources for technical support (e.g., energy audits, project identification, and application support). SCE is also pursuing opportunities to move to a regional approach for facilitation of Local Government Partnerships. In doing so, the benefits include: more opportunities for best practice sharing, leveraging of resources across the region, and targeted regional outreach. SCE has also worked with Energy Division Staff to streamline the Strategic Plan process and contracting of Strategic Plan technical assistance with the goal of cost-effectively increasing short-term and long-term EE savings while continuing to provide value to partners. Lastly, SCE sought to align budgets more closely with the perceived energy savings potential and resource needs of our partners.

Additionally, the Statewide Energy Efficiency Collaborative (SEEC) is a joint partnership of the four statewide IOUs and three non-profits — ICLEI-Local Governments for Sustainability, Institute for Local Governments (ILG), and the Local Government Commission (LGC) — with the goal of promoting sustainability and sharing EE best practices with LGs throughout the state.

a. Public Sector Facility Retrofits

This section highlights the programs that are directed toward increased EE at public sector facilities. Deemed and customized rebates are designed to help public sector customers acquire and install EE measures. Deemed rebates are pre-set incentives for well-established measures that have had their savings verified through workpapers. Customized rebates, on the other hand, are available for projects that are novel and/or complex, where energy savings must be calculated, measured, and verified before incentives can be paid.

One of the major challenges for public sector customers is the ability to finance EE measures. LG and institutional partners receive enhanced incentives through the partnership program. SCE also provides on-bill financing, making loans available to customers so they can finance EE projects and make monthly repayments via their electricity bills.

Several third party-implemented programs work with the public sector to promote EE. One of the most popular is Direct Install, a program that installs EE measures in small commercial and LG facilities (with usage < 200 kW).

⁴⁷ See SCE Advice 3465-E.

Another program, the Schools EE Program (SEEP), provides EE services to private and public schools, including preschools, K–12 schools, colleges, universities and trade and technical schools in SCE's service territory.

SCE also offers a third party-implemented program designed for water customers called the Water Infrastructure Systems Efficiency Program (WISE). WISE is a DSM program designed to provide EE solutions to water production, distribution, and treatment systems. The program serves water agencies, special districts, and local governments with a focus on water treatment, wastewater treatment, and pumping facilities and systems.

SCE's Water-Energy Nexus work focuses on saving water as a means of saving energy. Water-Energy Nexus offerings include providing water utilities and cities expertise on pressure management and active leakage control. A Continuous Energy Improvement (CEI) program targeting the water and wastewater utilities is offered to drive increased energy savings.

Title 24 training for public sector customers has been beneficial in encouraging and educating the sector about EE technologies and requirements. More information about workforce education and training (WE&T) is discussed later in this chapter.

The Pump Test Services Program tests and services agricultural and water pumps, with a focus on interaction with the associated pumping systems to drive energy savings.

The following table outlines the barrier(s) that each program tries to help overcome in order to drive increased EE savings.

Table 4: SCE Current Programs and Barriers to Be Overcome

SCE Offerings	Public Sector Components	Barrier(s) to Overcome
Partnerships	<ul style="list-style-type: none"> Local Government Partnerships Institutional Partnerships 	Financial/Procurement Technical
Direct Install	<ul style="list-style-type: none"> Opportunity for cost-sharing 	
Third Party	<ul style="list-style-type: none"> Coordination with applicable 3rd-party programs (for example, the WISE Program) 	
Water-Energy Nexus	<ul style="list-style-type: none"> Automated Meter Infrastructure (AMI) for water metering Joint program offerings with water agencies, where applicable 	Financial/Procurement Technical
Deemed Rebates	<ul style="list-style-type: none"> Enhanced rebates 	Financial
Customized Retrofit Rebates	<ul style="list-style-type: none"> Enhanced rebates 	
On-Bill Financing	<ul style="list-style-type: none"> Special considerations 	

SCE Offerings	Public Sector Components	Barrier(s) to Overcome
Technical Assistance	<ul style="list-style-type: none"> • Internal engineering resources • Building analytics • Water systems assessment 	Technical
Workforce Education and Training	<ul style="list-style-type: none"> • DSM Training • Code Compliance / Enforcement Training • Title 24 Training 	
Pump Testing	<ul style="list-style-type: none"> • Pump Test Services 	

b. Core Program Coordination

SCE also works with the public sector in community outreach for a variety of EE activities:

- Through its LGPs, SCE presents co-branded marketing with the LGs to promote EE in general and EE programs such as the Energy Savings Assistance (ESA) program. The LGPs also promote EE at community events throughout the territory, make presentations on the benefits of EE to city councils, and meet with local elected officials to explain and promote EE benefits, technologies, and programs.
- Higher education partnerships have promoted IDSM at events on campuses, such as student orientation ("move-in day").
- Traditionally, SCE has worked with water and wastewater agencies both as customers in need of their own DSM support and also as partners in delivering efficiency products and programs to a diverse set of joint customers, ranging from industrial processes to residential customers.

c. Strategic Plan Support

In addition to facility EE and outreach to communities, SCE has been working with the public sector on policies, codes, and plans to help promote the goals outlined in the Strategic Plan. Over the past seven years, SCE has overseen \$29 million in Strategic Plan work that was accomplished through a solicitation to LGs, including:

- Utility management systems,
- Energy Action Plans (EAPs),
- EE chapters of Climate Action Plans,
- Building code trainings, and
- Reach codes that set standards higher than in existing building codes.

Additionally, the SEEC is a joint partnership with the goal of promoting sustainability and sharing EE best practices with LGs throughout the state. This partnership helps LGs with Strategic Plan goals through sharing best practices and the ICLEI ClearPath GHG Inventory Tool.

In addition, LGPs have completed less complex Strategic Plan tasks through their partnership budgets. Lessons learned from the work accomplished to date have helped develop a new Strategic Plan process. Additionally, SCE has developed a Best Practices document for LGs to use when interested in pursuing new Strategic Plan tasks. In this new process, SCE has worked with Energy Division staff to develop a framework for innovative Strategic Plan activities to be proposed by local governments.

2. Intervention Strategies

Implementation plans will use the intervention strategies described below to tailor programs for the various segments and sub-segments of the public sector. While not every strategy will be used in every public sector program, the following list provides an overview of the various strategies that will be employed in future programs to overcome the market barriers and achieve SCE's 10-year vision for the public sector. As discussed above, financing and procurement remain a major market barrier for the public sector. Table 5, following, outlines the key intervention strategies and tactics designed to overcome the public sector's financing and procurement barrier.

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Table 5: Intervention Strategies vs. Financing Barriers& Procurement Barriers

Problem Statement	Program Intervention	Timing	New, Modified or Existing	Program Intervention Strategies Descriptions	Objective	Tactics
1. Financing and procurement hurdles challenge adoption	Financing	Near-term	M	Tailor financing programs to the public sector's unique needs (for example, longer repayment periods, higher caps on funding, etc.) and develop revolving funds	Assist customers in acquiring the capital necessary to procure and install EE measures.	<ul style="list-style-type: none"> Extended OBF payback periods Establish best practices and assist in developing revolving EE funds to help provide a sustainable source of funds for EE projects or Energy Positions Leverage REN financing program offerings including Job Order Contracting
	Partnering	Near-term	M	The opportunity for public sector customers to access financing resources for EE projects and Strategic Plan activities.	Provide financial assistance with EE projects	<ul style="list-style-type: none"> Regionalization for LGPs for greater collaboration / best practice sharing and cost-efficiency Streamline delivery of LGPs through modified Energy Leader Partnership model and Strategic Plan process Statewide implementation of Institutional Partnerships Partnering with key industry stakeholders to develop / deliver novel EE approaches Develop quick start guide for new Partners
	Midstream	Near-term	E	A program providing financial incentives directly to vendors to buy down the cost and increase the sales of energy-efficient products. Midstream programs provide an opportunity for customers to access EE incentives without the need for an application or lengthy approval process.	Eliminate customer application process, saving time and resources to process such incentives.	<ul style="list-style-type: none"> Provide "point of sale" incentives through midstream vendors.
	Upstream	Near-term	E	A program providing financial incentives directly to manufacturers or distributors to buy down the cost and increase the sales of efficient products. Like midstream programs, upstream programs provide an opportunity for customers to easily access incentives without an application.	Eliminate customer application process, saving time and resources to process such incentives.	<ul style="list-style-type: none"> Provide financial incentives to upstream manufacturers or distributors to buy down equipment costs and/or ensure equipment is available when needed
	Direct Install/ Turnkey	Near-term	M	A program to install EE measures in eligible customer facilities at low or no cost to the customer. While not all public sector customers are able to access this type of program due to internal limitations, this program type is	Provide and install EE measures at low or no cost, removing procurement burden from customers	<ul style="list-style-type: none"> Provide opportunities through Direct Install / Turnkey Programs

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Problem Statement	Program Intervention	Timing	New, Modified or Existing	Program Intervention Strategies Descriptions	Objective	Tactics
				particularly useful for those who can take advantage of it, as it removes the procurement burden.		
1.Financing and procurement hurdles challenge adoption	Third-Party Implemented	Near-term	E	A program in which a firm contracted by the utility provides EE services to a customer. Third-party programs may provide EE project identification (e.g., audits, technical assistance), project development, application assistance, and/or installation services. Like direct install, third party-implemented programs may remove procurement challenges for public sector customers.	Provide third-party program offerings, and remove procurement challenges	<ul style="list-style-type: none"> • Solicitation for innovative third-party offerings
	Customer Incentives	Near-term	E	Payments designed to buy down equipment/project costs encouraging customers to adopt and install EE measures. Customer incentives will continue to be available to public sector customers.	Provide financial incentives to customers for EE installations	<ul style="list-style-type: none"> • Provide customer incentives for public sector customers

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Public sector customers are often unable to pursue energy efficiency because of a lack of adequate technical knowledge about particular energy efficiency technologies or processes. The following table outlines the key intervention strategies and tactics designed to overcome the public sector's technical resource barrier.

Table 6: Intervention Strategies vs. Technical Resource Barriers

Problem Statement	Program Intervention	Timing	New, Modified or Existing	Program Intervention Strategies Descriptions	Objective	Tactics
2. There is a lack of technical resources to identify, develop and implement projects.	Technical Assistance	Near-term	E	Professional assistance with EE project identification (e.g., audits and virtual audits), development, and management that will facilitate the implementation of EE and IDSM projects.	Provide technical assistance with EE project identification	<ul style="list-style-type: none"> Utilize in-house BCD field engineering for greater cost-efficiency Leverage REN technical assistance program offerings Provide vendor support for complex projects
	Partnering	Near-term	M	The opportunity for public sector customers to access technical assistance for EE projects and Strategic Plan activities.	Provide technical assistance with EE project identification	<ul style="list-style-type: none"> Regionalization for Local Government Partnerships for greater collaboration/best practice sharing and cost-efficiency Streamline delivery of Local Government Partnerships through modified Energy Leader Partnership model and Strategic Plan process Statewide implementation of Institutional Partnerships Partnering with key industry stakeholders to develop/deliver novel EE approaches Develop quick start guide for new Partners
	Direct Install/ Turnkey	Near-term	M	While not all public sector customers are able to access Direct Install or Turnkey Programs due to internal limitations, customers who can access them benefit because these programs remove the technical burden by providing vendors that have already been vetted by the utility.	Reduce technical burden for more (and smaller) customers	<ul style="list-style-type: none"> Provide direct install program opportunities
	Third-Party Implemented	Near-term	M	Third-party programs may provide EE project identification (e.g., audits, virtual audits, energy benchmarking), development, and/or installation services. Like direct install, third party-implemented programs may remove technical challenges for public sector customers.	Provide third party program offerings, and remove procurement challenges	<ul style="list-style-type: none"> Solicitation for innovative third-party offerings
	Strategic Energy Management	Near-term	N	A comprehensive review of a customer's energy usage to identify, prioritize, plan, install, review, and track	Provide a strategic approach to EE solutions,	<ul style="list-style-type: none"> Leverage customer data to benchmark facilities and provide a roadmap for EE retrofit opportunities

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Problem Statement	Program Intervention	Timing	New, Modified or Existing	Program Intervention Strategies Descriptions	Objective	Tactics
2. There is a lack of technical resources to identify, develop and implement projects.				IDSM activities. This process is repeated to continue to drive greater and greater energy efficiency.	getting more and deeper savings	
	Strategic Plan Support	Near-term	M	Assistance to public sector customers in developing policies, procedures, and codes that advance their pursuit of the Strategic Plan and other legislative sustainability mandates	Provide support to best meet policy mandates	<ul style="list-style-type: none"> Modified Strategic Plan process that uses tiers of strategic plan support and a streamlined application and contracting process
	Integrated Customer Experience	Near-term	N	An end-to-end assessment of program processes with the goal of improving customers' abilities to self-serve, while enhancing a positive customer experience and overall satisfaction.	Provide a strategic approach to EE solutions, increasing and deepening savings	<ul style="list-style-type: none"> Simplifying the process to allow customers with less programmatic knowledge to be able to participate in EE programs
	Intelligent Outreach	Mid-term	M	A targeted marketing approach using analytic tools to deliver specific messages to specific customer groups in order to increase EE adoption. Public sector customers have conducted co-branded EE marketing campaigns with SCE in the past. With intelligent outreach, future co-branded marketing campaigns should have a greater impact with less cost	Co-brand with public entities in hopes of increasing EE adoption	<ul style="list-style-type: none"> Leverage customer data to target core program coordination and outreach to the community
	Rural and Disadvantaged Community Outreach	Near-term	M	Targeted marketing to traditionally "hard to reach" communities and/or communities outside of metropolitan areas with low population density. Many of the rural and disadvantaged communities in SCE territory have had difficulty accessing resources. As public sector customers are often one of the most respected institutions in a community, partnering with them will allow SCE to have more successful outreach efforts	Co-brand with public entities in hopes of increasing EE adoption in hard-to-reach communities	<ul style="list-style-type: none"> Leverage customer data to target core program coordination and outreach to rural and disadvantaged communities Relax certain program parameters that hinder rural and disadvantaged community participation
	Small Business Outreach	Near-term	M	Targeted marketing for small business customers (less than 200 kW maximum demand). SCE will work with public sector customers to promote and assist small businesses' access to EE programs and services, such as the Direct Install Program	Co-brand with public entities in hopes of increasing EE adoption amongst small businesses	<ul style="list-style-type: none"> Leverage LGPs to market core programs (such as Direct Install) to small businesses in their community

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Public sector customers are often unable to pursue energy efficiency because of a lack of access to usage data. The following table outlines the key intervention strategies and tactics designed to overcome the public sector's data access barriers.

Table 7: Intervention Strategies vs. Data Access Barriers

Problem Statement	Program Intervention	Timing	New, Modified or Existing	Program Intervention Strategies Descriptions	Objective	Tactics
3. Lack of visibility of building level performance data makes identification of potential difficult	Customer Data Access	Near-term	E	The process for providing public sector customers (or authorized third parties) with facility billing and/or energy usage data for buildings in their communities. Green Button is a national standard for customer data access.	Leverage new technology solutions for usage data	<ul style="list-style-type: none"> Green Button "Download My Data" function for access to usage from individual accounts. Green Button "Connect My Data" function to send their energy usage and billing data to registered third parties
	Community Data Access	Near-term	E	The process for providing LGs with community energy usage data, which they need for planning and policy development.	Leverage new technology solutions for usage data	<ul style="list-style-type: none"> Energy Data Request Program (EDRP) to allow public sector customers can access community usage data. Participate on Energy Data Access Committee to provide public sector perspective
	Building Energy Benchmarking Data Access	Mid-term	N	IOUs are developing a web-based tool to help building owners define and obtain energy usage data for a building in support of AB 802 building energy benchmarking	Leverage new technology solutions for usage data	<ul style="list-style-type: none"> Leverage customer data to benchmark facilities and provide a roadmap for EE retrofit opportunities Allow sub-metering costs to be included in project costs Identify EMS solutions to help identify potential and manage energy use
	Water-Energy Nexus	Mid-term	M	Water and energy have an intertwined relationship, as it takes electricity to move water and it takes water to make electricity. The water-energy nexus means that saving water will also save electricity. Water and wastewater agencies, as well as public entities that provide retail water to their customers, can greatly benefit from access to EE incentives to drive increased water savings. Additionally, SCE may be able to count the energy savings associated with saving water towards its overall EE goals	Strategically target EE incentive offerings to water, wastewater agencies, and public entities that provide retail water to their customers	<ul style="list-style-type: none"> Provide new technologies or processes to help water customers conserve energy Longer-term: provide incentives for water savings
	Integrated Customer Experience	Mid-term	N	As in the effort to overcome the technical resource barrier described above, this should assist public sector customers by simplifying the process of obtaining and giving access to energy usage and billing data	Leverage new technology solutions for usage data	<ul style="list-style-type: none"> Simplifying the process to allow customers with less programmatic knowledge to be able to participate in EE programs

Cross-cutting programs will continue to be used as strategies for overcoming public sector market barriers. These cross-cutting programs will be discussed in more detail in **Section III.D.2**, below. The following paragraphs provide definitions of the cross-cutting programs:

- **Codes and Standards (C&S):** A program promoting the development and adoption of state and local building codes and state federal appliance standards to drive greater energy savings. The program can also provide cost-effectiveness studies and technical data to help support decision-makers.
- **Emerging Technology:** A program focused on the development, testing, and promotion of cutting-edge equipment and technology to drive further advancements in IDSM.
- **Workforce, Education & Training (WE&T):** A program to promote IDSM through educating key stakeholders and present and future industry professionals. WE&T provides trainings on building code changes, technologies such as heating, ventilation, and air conditioning (HVAC) or lighting, and the value of EE.

C. Budget and Metrics

Table 8 highlights SCE's planned budget for the public sector over the next 10 years. As stated above, near-term, mid-term, and long-term budgets will simply be estimated and will be revised upon completion of the EE goals analysis by the CEC. The 2018–2027 budget takes into account full implementation of the Public Sector HOPPs Program⁴⁸ and additional new segments, such as water / wastewater, K–12, and public healthcare.

Table 8: Public Sector Budget 2018–2027 (in millions)^{49, 50}

Year	2018	2019	2020	2021	2022	2023	2024	2025-2027
Public Sector Total	TBD							

Table 7 provides the metrics for the public sector. These are preliminary short-, mid-, and long-term targets for these metrics with the caveat that SCE plans to refine these after more analyses are completed. SCE will need to review each segment's historical program participation rate and energy savings from those programs. SCE will then estimate the budget that had been expended to drive those energy savings. That estimate will be used to project energy savings for each sector given the level of funding that SCE requests for this business plan. If historical data on these sectors does not exist or is too sparse, then SCE will update these metrics targets after sector-specific evaluations have been completed.

⁴⁸ The Public Sector HOPPs Program (full title: Public Sector Performance-Based Retrofit High Opportunity Program) will be discussed further in **Section II.E.2.a**, below.

⁴⁹ Subject to change for final draft submission to CPUC.

⁵⁰ As ordered in R.13-11-005, awaiting the results of CPUC and CEC goals analysis due in early 2018.

**Table 9:
Public Sector Problem Statements, Desired Sector Outcome, Intervention Strategies, and Metrics**

Problem Statement	Desired Sector Outcome	Intervention Strategies	Sector Outcome Metrics	Metric Source	Metric Baseline	Short Term Target (1-3 years)	Mid Term Target (4-7 Years)	Long Term Targets (8-10 Years)
1. Financing and procurement hurdles challenge adoption	1. Simple, no-hassle, low-cost program transaction that encourages greater customer investment in EE.	Financing Partnering Core Program Midstream Upstream Direct Install/Turn-Key Third Party Customer Incentives	Number of customers in each segment participating in EE programs.	Program Participation Data	2015 Participation Levels.	5% increase in each segment	10% increase in each segment	15% increase in each segment
2. There is a lack of technical resources to identify, develop and implement projects.	2. Permanently modify practices to have organizations naturally consider and adopt EE solutions.	Technical Assistance Partnering Direct Install/Turn-Key Third Party Strategic Energy Management Strategic Plan Support Integrated Customer Experience Intelligent Outreach Rural and Disadvantage Community Outreach Small Business Outreach	Energy savings in each segment	Program Participation Data	2015 Participation Levels.	5% increase in each segment	10% increase in each segment	15% increase in each segment
3. Lack of visibility of building level performance data makes identification of potential difficult.	3. Increased building level data to provide greater EE adoption levels across all public segments.	Customer Data Access Community Data Access Integrated Customer Experience	Number of projects in each segment that receive an incentive	Program Participation Data	2015 Participation Levels.	5% increase in each segment	10% increase in each segment	15% increase in each segment

D. Coordination with Key Partners and Associated Proceedings

The public sector contains many partners working closely together to further the State's GHG emissions and EE goals. The primary partners are the public sector customers: local, state, and federal government entities, higher education customers, and K–12 schools.

Key Partner	Partner Details	Relationship
Joint Powers Authority (JPA)	Joint powers authorities (JPAs) and special districts are both considered a form of LGs and are crucial to the success of the public sector. JPAs include Councils of Governments (COGs) or Associations of Governments (AGs) representing local jurisdictions on policies such as transportation and, increasingly, climate and energy policy.	JPAs are both a customer and a key partner in public sector energy efficiency. Several JPAs act as implementing partners in LGPs.
Special District	Special districts have a defined area and are tasked with a special purpose, such as vector control districts or regional transportation agencies.	Special Districts are both a customer and a key partner in public sector EE.
Non-profit Organizations (NPOs)/Non-governmental organizations (NGOs)	Organizations set up for public good that has a primary focus on promoting sustainability and EE.	NGOs/NPOs act as a key partner in public sector EE. Several NPOs act as implementers for several LGPs. Additionally, the SEEC is a group of IOUs and NGOs that work to promote energy efficiency in the state. SEEC includes all of the state IOUs and ICLEI, ILG, and LGC.
Regulatory Agencies	Governmental agencies tasked with overseeing compliance with regulations.	Regulatory agencies provide the regulatory guidelines and rules for EE.
Program Administrators/Regional Energy Networks (REN)	Organizations that oversee/manage EE programs.	A partner in the development, coordination, and implementation of programs. More details on PA coordination can be found in Section III.D.1.a .
Intervenors	Agencies or organizations that represent a particular perspective before any CPUC proceedings	Key stakeholders in EE in the state that help shape the programs and guidelines.
Trade Industry	Companies and trade organizations that provide services to implement EE in the state.	Trade industry provides necessary technical and implementation services and are key stakeholders in EE in the state.

Several working groups deal with EE-related issues:

- The Rural Hard-to-Reach Work Group (RHTR) is a joint body of local governments studying issues and possible solutions to challenges associated with rural areas of California.
- The California Technical Forum (CALTF) is a panel of technical experts who help produce unbiased technical information about demand-side management technologies.
- The Energy Data Access Committee is a group of stakeholders working to develop policies around energy data to strike a balance between the benefits of access to data and privacy concerns.

Finally, SCE's public sector programs work closely with other PAs (IOUs and RENs) across the state and with SCE's internal cross-cutting programs (C&S, ETP, and WE&T). These key partners will be discussed further in the next sections.

1. Program and Statewide PA Coordination

Several statewide institutional partnerships will be managed as a statewide program by a lead PA. Close coordination with the lead PA and with cross-cutting EE programs will be critical to the success of this sector.

a. Program Administrator Coordination

The public sector provides a unique opportunity for collaboration and coordination across PAs and municipalities. LG and institutional partnerships have been working across PA territories for several years. This close coordination will continue in the coming years to deliver DSM solutions more efficiently and effectively to public sector customers.

SCE has several partnerships that span multiple PA territories:

- SCE has a joint LGP with SoCalGas in 17 partnerships: Community Energy Partnership (CEP), Desert Cities, Gateway Cities, Los Angeles County, North Orange County Cities, Orange County Cities, Redlands, Riverside County, San Gabriel Valley, San Bernardino County, San Bernardino Regional, Santa Ana, South Santa Barbara, South Bay, Ventura, West Side, and Western Riverside.
- Two LGPs are jointly administered by SCE, SoCalGas, and PG&E: Kern County and San Joaquin (aka VIEW, Valley Innovative Energy Watch).
- The SEEC is a group of IOUs and NGOs that work to promote EE in the state. SEEC requires close collaboration of all of the state IOUs and ICLEI, ILG, and LGC.

To facilitate the sharing of best practices across IOU territories, SCE facilitates/participates in the annual SEEC Forum⁵¹, the Central California Local Government Partners⁵² annual meeting. Further discussion of statewide collaboration and statewide consistency of LGPs is discussed further in Section III.D.1.b.i.

Additionally, SCE works with all of the statewide IOUs on Institutional Partnerships (IPs). These programs and their transition to statewide administration are discussed further in the next section.

Lastly, SCE continues to work closely with the CPUC ED staff through quarterly conference calls, as well as ad hoc meetings as necessary. SCE will continue to work closely with all PAs and with the CPUC ED in the development of new public sector EE programs.

b. REN Coordination

SCE has worked closely with the SoCalREN in their delivery of the Southern California Regional Energy Center (SoCalREC), Finance, and Energy Upgrade programs. SoCalGas is the lead PA for contract oversight and SCE provides additional fiscal oversight. The three PAs have also established protocols for proper engagement to help customers avoid confusion and provide clarification on roles. SCE and SoCalGas also have monthly coordination calls and other meetings as needed.

SCE will also support the REN's work on advancing ZNE in the public sector. This may include coordination with C&S in the development of ZNE roadmaps and demonstrations.

SCE, SoCalGas, and SoCalREN will continue to work together to ensure that SoCalREN's programs are complementary and not competitive to IOU programs. SCE will work to provide support to SoCalREN for their residential, public agency, cross-cutting programs.

2. Statewide Program Coordination

As ordered in D.16-08-019, the institutional partnerships ("IPs") will be managed by a lead PA. They are:

⁵¹ The SEEC Forum is a venue for partners from across the state to share and discuss best practices and lessons learned to help further energy efficiency in the state. All PAs, partners, and implementers, as well as CPUC ED staff and outside entities are invited to this conference.

⁵² The Central California Local Government Partners meeting is a venue for California state partnerships located in central California to discuss key partnerships issues with Southern California Edison, Southern California Gas Company, and Pacific Gas & Electric Company.

- Two statewide higher education partnerships: the University of California and CSU EE Partnership and the California Community Colleges EE Partnership; and
- Two statewide partnerships with departments of the state government: the State of California EE Partnership (which works with the Department of General Services and other agencies), and the California Department of Corrections and Rehabilitation (CDCR) EE Partnership.

The PAs are currently working with the statewide IP customers to determine the statewide program details. The final version of the Business Plan will include: statewide PA lead, how lead PA will operate, and IOU/PA lead coordination.

a. Local Government Statewide Consistency

Over the last 10 years, California's four IOUs have closely collaborated with local partners to make LGP programs operate more effectively and efficiently for customers and the communities served. This includes making program offerings, where possible, more consistent across the state. There have been a number of LGP activities that have aligned statewide over the past several years including the statewide Strategic Plan menu, the streamlined statewide Strategic Plan Semi-Annual Reporting template, and LGP performance management metrics. Other activities have aligned across multiple IOUs and are progressing toward becoming consistent statewide, such as expanded direct install program offerings and a move to regionalize partnerships.

The IOUs, however, realize that there is still room for improvement. Over the next few years, the IOUs will work closely with local partners to drive toward greater consistency across the state, while allowing partners to retain their ability to tailor programs to their local needs.

One opportunity for improving consistency across IOUs is in regions where multiple IOUs are administering a single LGP. While all IOUs operate a model that focuses on the three pillars of municipal retrofits, strategic plan support, and core program coordination, each IOU offers its own set of LGP program guidelines resulting in some inconsistency in the delivery of EE resources within a given county or region. Moving forward, IOUs will adopt consistent program approaches within these multi-IOU partnerships. For example, the IOUs are exploring adopting SCE's Energy Leader tiered incentive model and are also considering adopting PG&E's Direct Install model for LGPs. In addition to aligning programs, the IOUs are considering other strategies to improve the consistency of LGP administration across multi-IOU LGPs, such as developing consistent reporting requirements, offering similar contract terms and duration, and establishing a lead IOU for each LGP to coordinate joint-program activities within a region.

The IOUs are also working on aligning statewide across Strategic Plan activities. Currently, there is a statewide menu for Strategic Plan Activities as well as a statewide template for Strategic Plan Semi-Annual Reporting. Going forward, the IOUs will look to SCE's new Strategic Plan model for opportunities to be more consistent statewide.

Supporting LGs' access to non-EE funding sources provides another opportunity for statewide consistency. The IOUs would work with the Statewide Best Practices Coordinator or another third party entity to identify and promote alternative funding sources (both internal and external to IOUs). These sources could be used to strengthen and supplement the work that local governments are already pursuing (*e.g.*, providing broader GHG reduction funding). Funding opportunities could be documented and managed in a database that will be made available to all LGs statewide. In addition, IOUs will explore leveraging LGP resources such as the SEEC Forum and All Partner meetings to provide information and support for alternative funding opportunities (such as Cap and Trade Funding, CEC Grants, Federal Grants, etc.).

As Core programs ordered to statewide implementation continue to transition, IOUs anticipate that LGPs will benefit from these changes as partnerships actively leverage these Core programs statewide, such as Commercial HVAC, Savings by Design, Primary Lighting, and Emerging Technology.

In support of continuous improvement of statewide consistency, the IOUs will use the California Energy Efficiency Coordinating Committee (CAEECC) Public Sector Sub-committee on an on-going basis to discuss opportunities to improve program administration, share best practices, and provide a venue to determine whether a given solution should be adopted across the state. Other future opportunities for greater statewide consistency include contracting, core program coordination, and transitioning partnerships to an IDSM focus.

The ultimate goal of EE market transformation programs is to drive the market to a point where the adoption of all cost-effective EE is a standard practice. To that end, over the coming years the IOUs will work closely with key stakeholders to evolve the existing partnership model to more effectively transform LGs to become self-sustaining leaders of EE. Some potential ideas may include adopting EE revolving funds, encouraging a self-funding model for energy managers, and leveraging other sources of funding. These are just a few of the potential options that would be considered by IOUs and stakeholders throughout the state as we work towards the goal of market transformation.

3. Public Sector Third Party Program Transition Plan

As discussed in **Section II.B.1.a**, SCE's current public sector customers currently utilize a number of third-party programs. D.16-08-019 states, "The utility program administrators should be required to present in their business plan filings a plan to transition to a majority of third party or 'outsourced' programs by the end of 2020. Within this transition, a minimum of 60 percent of the portfolio should be required to be third party designed and implemented, up from the previously 20 percent requirement."

SCE will use a robust procurement strategy and process to meet or exceed its EE Portfolio goals in support of the 60% by 2020 requirement.⁵³ The process will enable bidders to submit unique proposals across all sectors and key intervention strategies (both those identified in SCE's Business Plan and others). SCE will encourage potential bidders to use the Business Plan as a key input to their proposals to ensure that SCE provides a comprehensive suite of offerings for our customers while providing the maximum level of benefits to the grid and our customers for the lowest possible cost. Please refer to the Portfolio chapter section labeled "Procurement Strategy" for more details on our general approach to procurement.

4. Cross-Cutting Coordination

SCE's public sector programs will continue close coordination with cross-cutting EE programs:

- The C&S Program will work with the public sector to promote reach codes and provide code compliance training and code impact analysis, while driving the sector towards ZNE goals. (See **§D.2.a** and Cross Cutting Chapter).
- The ETP will continue to work with the public sector on piloting and testing the next generation of EE technology. (See **§D.2.b** and Cross Cutting Chapter).
- The WE&T Program will help the public sector expand the reach of trainings on the value of EE, on building codes, and on EE-related technical skills. (See **§D.2.c** and Cross Cutting Chapter).

a. The Codes and Standards Program

i. Reach Code Program Activities

The local government segment of the public sector is a leader in addressing climate change and is well-positioned to reduce emissions from certain sources, especially by reducing the demand for electricity and natural gas through adopting local "reach codes" that exceed the State's energy code

⁵³ More details will be included in the Jan., 2017 filing.

requirements. Reach codes allow LGs to aggressively pursue the CPUC's goal of achieving ZNE: for all new residential construction by 2020, and for all new nonresidential construction by 2030. PG&E, SCE, SDG&E and SoCalGas are collaboratively offering technical assistance statewide to local governments that wish to develop and implement local ordinances designed to reduce energy use, energy costs, and GHG emissions.

SCE will prepare cost-effectiveness studies for all climate zones in California and will make them available for all jurisdictions at no cost, as follows:

- Performance-based cost-effectiveness studies will be prepared pursuant to CalGreen Tiers 1 and 2⁵⁴ for both nonresidential and residential uses, and pursuant to CalGreen Tier 3 for residential uses only.
- Prescriptive-based cost-effectiveness studies will be prepared for cool roofs, lighting, and water efficiency systems.⁵⁵

SCE will also work collaboratively with RENs and local jurisdictions to:

- Leverage voluntary measures incorporated in CalGreen Tiers as primary sources for prescriptive-based reach code ordinances. This will enhance regional consistency and eliminate the current CEC reach code application process.
- Develop tools to track, quantify, and report energy savings and GHG emissions reduction for both performance-based and prescriptive-based reach code ordinances.
- Help explain to local elected officials the process for developing and adopting a legally enforceable reach code, pursuant to CEC requirements.

ii. **Code Compliance**

As building code requirements evolve to focus on increased energy savings in support of California's aggressive ZNE goals, local governments and jurisdictions face challenges when pursuing the adoption and implementation of these compliance requirements.

SCE's C&S and WE&T programs and offerings will continue targeted offerings to plan examiners, building inspectors, and other decision makers on

⁵⁴ CalGreen, short for California Green Building Standards Code, is a statewide building code that establishes standards for environmental impact. CalGreen Tier 1 buildings have a 15percent or greater reduction in its Energy Building component. CalGreen Tier 2 exceeds that standard by more than 30percent. CalGreen Tier 3 is not yet an official tier, but instead is referred to as zero net energy design..

⁵⁵ Other measures may be added at a later date.

baseline code awareness and expected changes in future code, while encouraging the adoption of voluntary or measure-specific reach codes.

Energy Code Ace is a tool that was developed and provided by the Statewide C&S Program to provide energy code training, tools, and resources for those who need to understand and meet the building codes, including:

- Tools to help identify the proper forms, installation techniques, and standards,
- Classroom and online trainings, and
- Resources such as sheets and checklists to understand how to comply with the code.

The Statewide C&S Program has also developed a Compliance Improvement (CI) Collaborative. The CI Collaborative allows relevant stakeholders, including those developing, those implementing, and those enforcing statewide building standards, to have a forum to discuss issues and "real world" implications of building energy codes.

For more details on C&S Program, please refer to the Cross-Cutting chapter.

b. The Emerging Technology Program

The statewide ETP has a number of long-running partnerships with the public sector that have proven to be beneficial for both parties and have moved statewide initiatives forward. ETP has collaborated with schools and universities, public hospitals, water and wastewater treatment facilities, military bases, and federal, state, county, and local government agencies. The ETP supports these entities by:

- Evaluating new technologies,
- Identifying energy-saving technologies that are economically viable, and
- Exploring innovative solutions which some public buildings are uniquely positioned to adopt.

The statewide ETP helps to advance the state's GHG reduction goals by evaluating commissioning solutions and offering support for technologies that can decrease overall public sector energy expenditures, such as LED street lighting and municipal water distribution leak analysis.

The traditional ET support for legacy EE programs that lessen financial obstacles to adopting energy-saving technologies is critical. Consequently, even as the ET portfolio diversifies over the coming years to include new and innovative types of solutions, the statewide ETP is also committed to

maintaining a robust set of "traditional" measures in the ET portfolio. This approach will help program implementers maintain a suite of measures that can benefit any public sector customer.

Conversely, the economics of the public sector sometimes allows facilities to explore EE upgrades with a payback period that would be out of reach for financially challenged customers. For these public sector customers, ETP can offer expertise and support for pilot demonstrations. The ETP also works to accelerate the time-to-market period for emerging solutions that may be too new or difficult to justify for smaller customers, but may be a good fit for some public facilities.

For more details on the ETP, please refer to the Cross-Cutting chapter.

c. The Workforce Education & Training Program

In the public sector, IOU WE&T programs continue to support the education of decision makers and staff positions on upcoming code changes and the value of EE, expand access and availability of educational offerings, and continue to look for ways to enhance cross-sector collaborations throughout the EE value chain.

i. Educate Public Sector Decision Makers and Staff

As building code requirements evolve and focus on increased energy savings in support of California's aggressive ZNE goals, LGs and jurisdictions face challenges when pursuing the adoption and implementation of these compliance requirements. Traditionally, these local jurisdictions are more focused on understanding current baseline codes and updates than on upcoming changes and efforts needed to exceed Title 24.

SCE will continue to focus public sector code awareness efforts through targeted offerings to plan examiners, building inspectors, and other decision makers in government on baseline code awareness and expected changes in future code, while encouraging the adoption of voluntary or measure-specific reach codes.

ii. Expand Access and Reach of Programs and Offerings

SCE will continue to forge new types of collaborations in an effort to expand the accessibility and reach of workshops and seminars targeted to high-potential public sector decision makers and staff. Expansion of current in-field educational offerings can be accomplished through the partnerships, and the delivery of additional, targeted workshops and seminars using public sector facilities where many of these market actors work.

Online and on-demand workshops and seminars will also be leveraged to provide additional access in hard-to-reach areas, or where in-person delivery is inefficient or unnecessary. SCE seeks to expand online and on-demand

offerings to include targeted seminars in the public sector on code awareness and compliance improvement.

In the areas of post-secondary, adult continuing education, and higher education, SCE will continue to expand influence and activities in the following areas:

- EE and DSM train-the-trainer activity, targeting teaching professionals who work with students in technical, energy-related, and building trades-focused curriculum tracks.
- EE and DSM new curriculum development and existing curriculum infusion, targeting technical, energy-related, and trades-focused tracks.

SCE will continue to enhance its collaborations and partnerships with other public sector entities, specifically with the higher education sub-segment, to offer specialized tours, demonstrations, and other targeted offerings through the Energy Education Centers in Irwindale and Tulare..

SCE will also collaborate with industry stakeholders to convene industry-specific forums, conferences, and education sessions that seek to bring awareness of both regional energy-related challenges and opportunities to implement integrated customer end-use solutions to overcome these challenges. One such example of these collaborative initiatives is the Annual Water Conference, hosted by SCE's Energy Education Centers in Irwindale and Tulare. This annual forum is a venue for public sector stakeholders such as cities, municipalities, regional water districts, and private industry to discuss strategies and opportunities to solve critical water and energy challenges.

For more details on the WE&T Program, please refer to the Cross-Cutting chapter.

5. Coordination with Associated Proceedings

Many active proceedings that may have an impact on EE⁵⁶ are currently in progress at the Commission. They span a wide range of activities, including renewables portfolio standards, alternative fueled vehicles, energy storage, ME&O, and Energy Assistance Programs (EAP) as well as the integration of these activities through proceedings such as Integrated Distributed Energy Resources (IDER). Because the public sector is a gateway to a multitude of communities in the commercial, residential, industrial and agricultural sectors, public sector customers can help advance the directives and goals arising from these proceedings in their communities by acting as conduits to relay information to their constituents, serving as trusted sources of information.

⁵⁶ Renewables: R.15-02-020; AFV:R.13-11-007; ES: R.15-03-011; ME&O: R.12-06-013; EAP: A.15-02-001, et al.; IDER: R.14-10-003; and DR: R.13-09-011.

a. Demand Response

The public sector can, in general, support participation in DR programs. Many public sector entities cannot participate in DR programs because their facilities are "Essential Use Buildings" (such as hospitals and correctional facilities), because their buildings are not in use during DR program windows, or because other state or federal laws preclude them from program participation (such as educational facilities). Public sector entities are also highly risk-averse, with a desire that any program they participate in will deliver benefits with no possible negative repercussions for non-performance. Certain DR programs depend on participation and payment for non-performance, which does not fit the public sector profile.

In the LG segment of the public sector, LG Partnerships have made DR participation part of the requirements for LG advancement within the Energy Leader Partnerships' tier model. DR participation can include installing automated DR technologies, such as Energy Management Systems (EMS), so that the LGs are DR-enabled and ready. LGs also facilitate AB 793 by serving as an example to their community about the adoption of automated DR/EMS systems.

b. Rate Proceedings⁵⁷

Many changes are currently taking place in the rate proceedings, especially for migration to time-of-use rates. EE offerings can help offset some of the impacts by:

- Helping to reduce load during peak periods, and
- Providing customers with information and tools on their usage and how best to manage their activities in light of anticipated rate profile changes.

Existing public sector programs can make this information and offerings available to customers in their jurisdictions and can develop tools to monitor behavior that can inform customer choices. They are in a unique position to empower their communities with key information, provided by SCE, so changes in rate structure will not negatively affect them.

c. Marketing, Education and Outreach

Marketing, Education and Outreach (ME&O) plans for residential rate reform, including the default of residential customers to expected time-of-use rates in 2019, will be filed by the IOUs in November 2016. These ME&O plans will include an overarching marketing strategy and integrated approach that addresses all the residential rate reform activities, including providing information on rate structure changes and increases, and on the migration to

⁵⁷ R.12-06-013.

time-of-use. ME&O efforts will align rate reform marketing with other rate-related programs such as California Alternate Rates for Energy (CARE) and California Climate Credit, as well as EE and DR programs.

ME&O will also align local marketing activities with a broader statewide mass media campaign including ME&O efforts under the brand Energy Upgrade California. The public sector will play a critical role in providing a framework for messaging to their communities and constituents on the changes in rate structure, leveraging information developed in the November 2016 filing.

d. Alternative Fueled Vehicles, Energy Storage, Low Income, Energy Assistance Programs, and other proceedings.

As discussed throughout this chapter, public sector entities act as advisors and thought leaders in their communities, especially those with the means to facilitate change. Public sector customers can advocate for alternative fuel charging stations, find locations where such stations can be installed, and encourage business customers to install them and all consumers to use them. They can perform the same functions to promote energy storage and distributed energy resources. In partnership with SCE, public sector customers are in a position to influence and support their communities in meeting goals defined by the Commission and by legislators.

E. Future Needs

The public sector is a newly defined sector, which will require conducting several M&V reports and internal performance analyses. In addition to these activities, SCE will be pursuing several pilot programs outlined below.

1. M&V Anticipated Needs & Internal Performance Analysis

A series of market characterization studies to support the current, newly classified public sector is needed as soon as possible in order to:

- Document industry standard practices specific to the public sector, particularly in operations, maintenance, and early replacement or "indefinite repair" practices, which may differ in different segments within the sector.
- Conduct an end-use saturation survey. Due to the fact that many government buildings are not subject to code requirements, it is important to understand the saturation of measures in the public sector.

For Local Government and Institutional Partnerships, implementers have experience in including data collection activities in their program design. For example, core programs usually wish to collect contact information from

customers who attend a core program coordination event. However, in practice, these data collection activities are costly and subject to self-selection biases, and often rewards must be offered to persuade implementers to ask for and customers to submit their contact information.

The Implementation Plans for the public sector will contain details of data collection activities that will strike a balance between costs and benefits, and these data collection activities will be closely tied to both program metrics and to planned evaluation activities.

SCE and the other IOUs have begun exploring ways to use automated meter infrastructure (AMI) billing analyses to show normalized energy consumption at the meter. The Implementation Plans will also include data collection activities to support these billing analyses. Although some factors need to be addressed, it is hoped that AMI billing analyses, supplemented by data collection activities embedded in program design, will allow internal performance analysis during deployment.

2. Proposed Pilots

a. Public Sector Performance-Based Retrofit High Opportunity Program

SCE'S proposed Public Sector Performance-Based Retrofit High Opportunity Program is designed to leverage smart meter investments and bring the benefits of Normalized Metered Energy Consumption (NMEC) to public sector buildings. The program will support the requirements provided in the December 30, 2015, "Assigned Commissioner and Administrative Law Judge's Ruling Regarding High Opportunity Energy Efficiency Programs and Projects" (ACR), and the climate objectives outlined by the Legislature and the Governor's Office in bills such as AB 32, SB 350, and AB 802.

AB 802 and HOPPs offer new opportunities in California to capture energy savings data, using NMEC for measuring and tracking the savings, primarily at a whole-building level, outside of traditional deemed and calculated energy savings offerings. These data can then be used to calculate appropriate incentives for additional EE work. The Public Sector Performance-Based Retrofit Program is designed to leverage the ability of NMEC to measure energy savings within public sector buildings classed as hard-to-reach and/or having unique characteristics. The program seeks to help address market barriers unique to the public sector and encourage persistent energy savings through ongoing feedback and measured performance. SCE will target buildings in the public sector that are susceptible to and/or have suffered delayed improvements and indefinitely repaired equipment. The program also supports the targeted customers' economic goals and Climate Action Plans (CAPs) by allowing participants to track savings to ensure the performance of their long-term EE investments.

Performance-based M&V of savings through NMEC will encourage greater energy savings, while incentivizing only the savings actually achieved. As energy performance is monitored and provided to contractors and customers, it will empower their decision-making and enable them to take corrective action.

b. Proposition 39 Zero Net Energy (ZNE) Pilot Program

Proposition 39, the California Clean Energy Jobs Act of 2012 (Prop 39), provides up to \$550 million per year to improve EE and increase the use of clean energy in public schools. Local Educational Agencies (LEAs) and community colleges are able to apply for the five-year program by submitting an energy expenditure plan application to the CEC. The CPUC identified Prop 39 as an opportunity to expand California's progress on deep retrofits and ZNE retrofits.

The Pilot will assist schools and community colleges in retrofitting existing facilities to ZNE by leveraging Prop 39 funding. The goal of this activity will be to establish a "proof of concept" that ZNE retrofits of schools is feasible across California. The IOUs are targeting approximately 13–18 projects in 13–18 school districts or community colleges with this effort.

To serve the schools community more broadly, the IOUs will disseminate learnings, processes and materials germane to ZNE to the education segment. These efforts would involve training classes and webinars, publications, design guides and recognition events as dissemination vehicles. Finally, the IOUs will use learnings from the pilot to explore the feasibility of a full-scale program. Taken together, the pilot efforts are intended to address ZNE needs in schools on a comprehensive and sustainable basis though the duration of Prop 39 and beyond. The scope of the pilot aligns with Prop 39 by encompassing both K–12 public institutions and community colleges.

c. K-12 Zero Energy Building Accelerator Program

The K–12 Zero Energy Building Accelerator Program is a Department of Energy program that is designed to drive schools toward construction and market adoption of ZNE buildings. This program, run by the National Renewable Energy Laboratory, is part of DOE's Better Buildings Initiative.

As part of this program, SCE will partner with one school district, and relevant school facility and industry stakeholders, to develop a roadmap for the district to cost-effectively achieve ZNE. This roadmap will identify best practices, resources, technologies, and solutions to overcome potential barriers to ZNE adoption. The goal of the roadmap is to provide a foundation upon which the school district can plan for future capital projects and to provide a framework for adoption by other school districts.

IV. Appendices

A. CPUC Checklist

Staff Comments	Indicate Complete	Business Plan Element
	<input type="checkbox"/>	Public Sector Summary: How the proposal meets portfolio guidance for this sector. <ul style="list-style-type: none"> • Summary Table for cost effectiveness w/TRC, PAC, RIM, Emissions, Savings
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Historical sector performance and evaluation takeaways. <ul style="list-style-type: none"> • Compare/contrast this proposal with past program cycles • Analysis of PA and CPUC evaluation reports for this sector within context of this proposal • How this proposal addresses performance issues within the sector
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Overarching goals, strategies, approaches for sector: How the sector approach advances the goals, strategies and objectives of the Strategic Plans and other Commission policy guidance: <ul style="list-style-type: none"> • Near-term (year one) strategic initiatives and expected outcomes • Mid-term (years 2-3) strategic initiatives and expected outcomes • Long-term (years 4-5+) strategic initiatives and expected outcomes
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Proposed Programs: Resource, Non-resource, and Pilots <ul style="list-style-type: none"> • Resource Program Strategies • Non-Resource Program Strategies • Pilot Program Strategies
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Proposed Budget Forecast <ul style="list-style-type: none"> • Near-term (year one) strategic initiatives and expected outcomes • Mid-term (years 2-3) strategic initiatives and expected outcomes • Long-term (years 4-5+) strategic initiatives and expected outcomes
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Projected savings (resource programs) <ul style="list-style-type: none"> • Near-term (year one) strategic initiatives and expected outcomes • Mid-term (years 2-3) strategic initiatives and expected outcomes • Long-term (years 4-5+) strategic initiatives and expected outcomes
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Performance Metrics (Non-resource programs) <ul style="list-style-type: none"> • Near-term (year one) strategic initiatives and expected outcomes • Mid-term (years 2-3) strategic initiatives and expected outcomes • Long-term (years 4-5+) strategic initiatives and expected outcomes

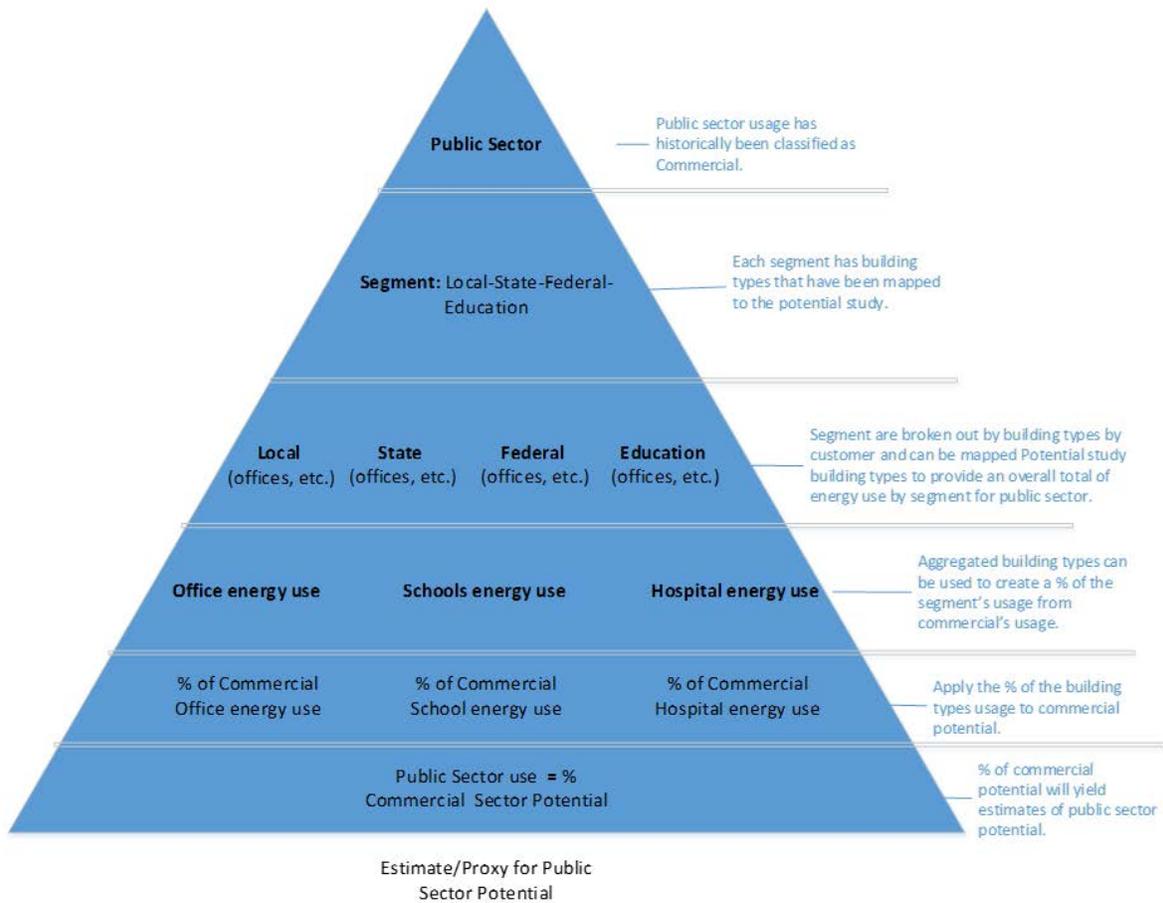
Staff Comments	Indicate Complete	Business Plan Element
	<input type="checkbox"/> <input type="checkbox"/>	<p>Supporting Functions:</p> <ul style="list-style-type: none"> • EM&V Efforts: <ul style="list-style-type: none"> • Anticipated study needs • Internal performance analysis / feed-through during program deployment • Marketing and Outreach: Strategies, approaches and outcomes • Workforce Development, Education and Training: Strategies, approaches and outcomes • Coordination with other state agencies and initiatives <ul style="list-style-type: none"> • Demand Response • Residential Rate Reform • Integrated Demand Side Resources • Zero-Emission Vehicles (EVs) • Energy Savings Assistance (Multi-family Focused)

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B. Sector Potential Methodology

In order to begin developing the market potential for the sector, SCE proposes the following calculation methodology. The Navigant Energy Efficiency Market Potential Study⁵⁸ developed for the CPUC to calculate technical, economic, and achievable potential sets each PA's overall EE goal. This study does not break out the potential by sector. Additionally, the proposed methodology below will only focus on building types and usage that have been included in the Potential study. As a result, SCE will set public sector targets based on additional factors, such as historical participation, as opposed to a market potential estimation.

Figure 6. Calculation Method (Estimate/Proxy) for Determining Public Sector Energy Savings Potential



⁵⁸ *Energy Efficiency Potential and Goals Study for 2015 and Beyond*, Prepared by Navigant Consulting, Inc., Sept. 2015. Available at: <http://www.cpuc.ca.gov/General.aspx?id=2013>.

C. Barrier Definitions

Market barriers are outlined and defined in Eto, Prael and Schlegel's scoping study on "Energy Efficiency Market Transformation by California Utility DSM Programs."⁵⁹ The definition are used when analyzing the barriers affecting public sector EE in *Section II.C Market Barriers*, above. More detailed definitions can be found in the published paper; however, for the purposes of this chapter, we will apply the following definitions which have been modified for clarity and brevity.

1. **Access to Financing:** The difficulties associated with the lending industry's historic inability to account for the unique features of loans for EE projects, reflecting lenders' uncertainty about the reliability of future savings. Generally, public sector customers are limited to certain types of financing, and even when allowed to access more options, the approval process is considerably more complicated than for commercial customers.
2. **Performance Uncertainties:** The difficulties consumers face in evaluating the claims about future benefits made for many EE-related investments and activities. Building level usage data and ongoing monitoring can assist with evaluating these claims and verifying savings.
3. **Asymmetric Information and Opportunism:** The difficulties consumers face in evaluating sellers' claims because sellers of EE products or services typically have more and better information about their offerings than consumers have.
4. **Hassle or Transaction Costs:** The indirect costs of acquiring energy efficiency, including the time, materials, and labor involved in obtaining or contracting for an energy-efficient product or service. These costs are particularly high in the public sector because of the lengthy approval process.
5. **Hidden Costs:** Unexpected costs associated with reliance on or operation of energy-efficient products or services.
6. **Bounded Rationality:** The behavior of an individual during the decision-making process that may seem inconsistent with the individual's goals. For example, while most public sector customers have the goal of lowering GHG emission levels, EE is often a lower priority because it may not be easy to publicize its benefits.
7. **Organizational Practices or Custom:** Organizational behavior or systems of practice that discourage or inhibit cost-effective EE decisions. The public sector is by nature risk-averse. Changes to practices or customs can take a long time.
8. **Misplaced or Split Incentives:** The incentives of an agent charged with purchasing EE that are not aligned with those of the persons who would benefit from the purchase. This is particularly true in the public sector, where

⁵⁹ Eto, Prael, Schlegel, *A Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs*, The California Demand-Side Measurement Advisory Committee, July 1996.

building maintenance and capital projects departments often do not receive the benefits of lower energy costs.

9. **Externalities:** Costs that are associated with transactions, but which are not reflected in the price paid in the transaction. Many of the externalities associated with energy procurement and EE benefits, such as GHG emission reduction, health benefits, and grid cost deferrals, are not factored into the financial approval process.
10. **Information or Search Costs:** The costs of identifying energy-efficient products or services or of learning about energy-efficient practices.
11. **Inseparability of Product Features:** The difficulties consumers sometimes face in acquiring desirable energy efficiency features in products without also acquiring (and paying for) additional features that increase the total cost of a product.
12. **Information or Search Costs:** The costs of identifying energy-efficient products or services or of learning about energy-efficient practices. Access to building level usage data and advanced data analytics may help reduce the costs of identifying potential EE measures, if a facility has building level energy usage data.
13. **Product or Service Unavailability:** A market barrier created by product manufacturers and distributors and/or service providers that inhibits consumer demand and may result in higher prices reflecting the fact that supplies are limited.

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D. Response to Public Comments

In the final version of this document, this appendix will address all public comments about this BP Chapter and explain SCE's response to the comments. The following table shows a sample of the content that will be supplied.

Sample Table of Public Comments and Responses

All Issues Identifier Number (Index)	0001			
Issue	Key Issue			
Date Entered	2/22/2016			
Status	Issue Closed			
Issue Source Code	2/22 CC Mtg			
SCE Resolution Type	Adopted			
SCE Resolution Discussion	Worthwhile addition			