

Public Sector

BUSINESS PLANNING STAGE 2

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Agenda

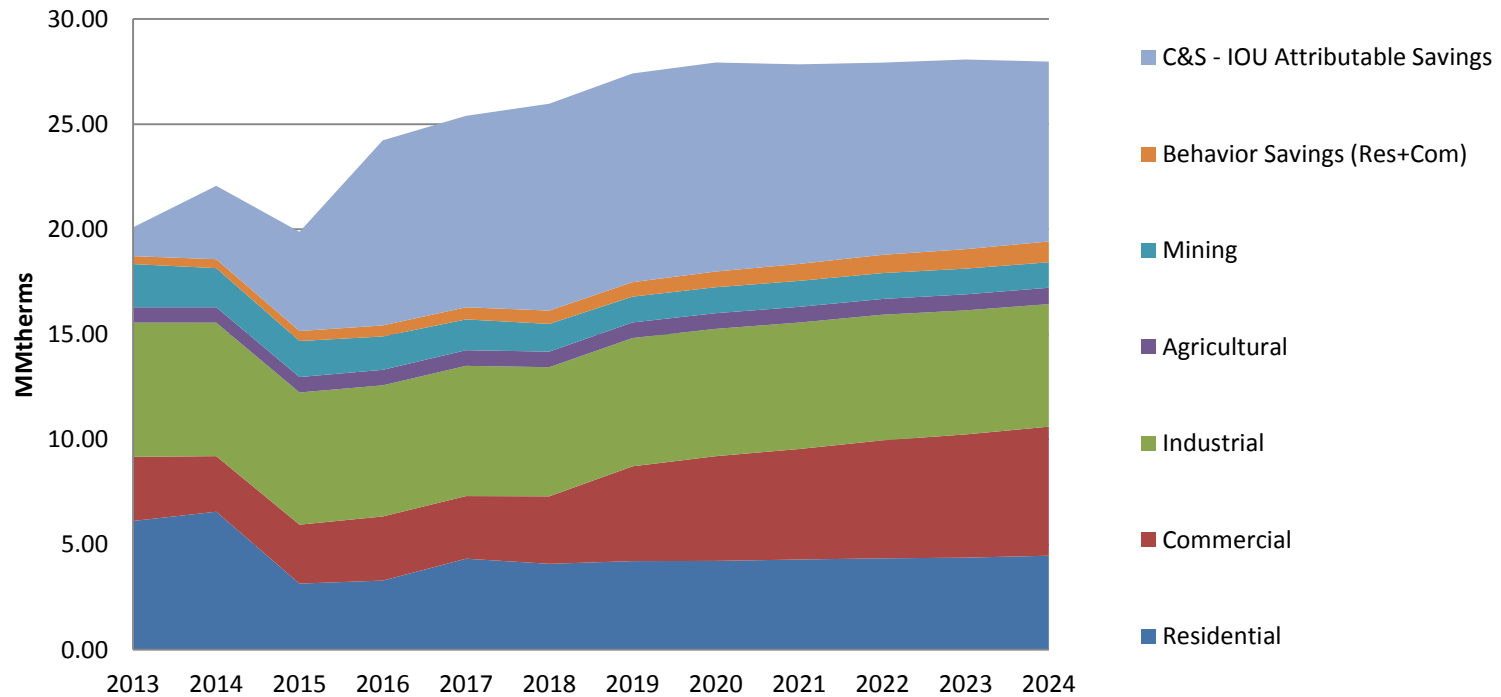
- Public Sector Market Characterization
 - Overview
 - Segments and Sub-Segments
- Sector/Segment Graphs
- Perceived Gaps & Barriers
- Problem Statements
 - Observations
 - Proposed Solutions
 - Partners

Public Sector Overview

- » Lack of staff, resources, and limited in-house technical expertise;
- » Diverse array of building types (e.g., office, correctional facilities, police stations, hospitals, maintenance facilities, and classrooms);
- » Prescribed contracting requirements for vendor selection and payment (e.g., prevailing wage guidelines);
- » Permanent entities with regular changes in leadership;
- » Diverse communities including urban, suburban, and rural areas in varying climate zones;
- » Unique relationship with communities served;
- » Long and bureaucratic decision-making processes; and
- » Providing public services can compete with other priorities including energy efficiency (EE).

SoCalGas Overall

Figure 1: SoCalGas Market Potential



Source: Navigant Potential Study for SoCalGas

Segments and Subsegments

Local Government

- Cities
- Counties
- Special Districts
 - Water
 - Waste
 - Transit
 - Fire
 - Police
 - Etc.



State Government

- Correctional Facilities
- Hospitals
- State Agencies
- State Departments



Federal Government

- Military
- Hospitals
- Native American Tribes
- Other Agencies



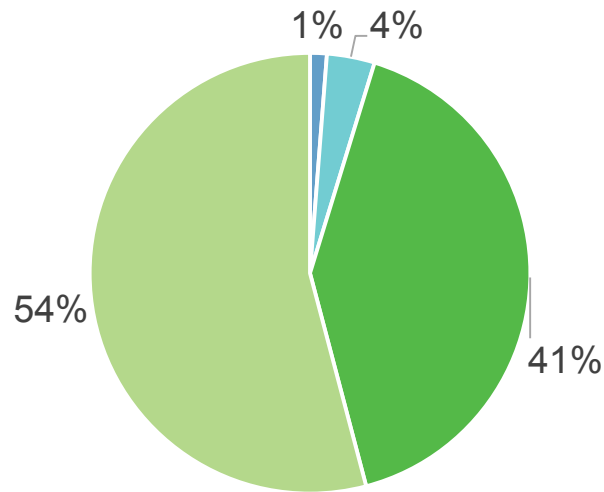
Education

- K-12 Schools
- Higher Education
 - CCC
 - UC
 - CSU
 - UC Hospitals



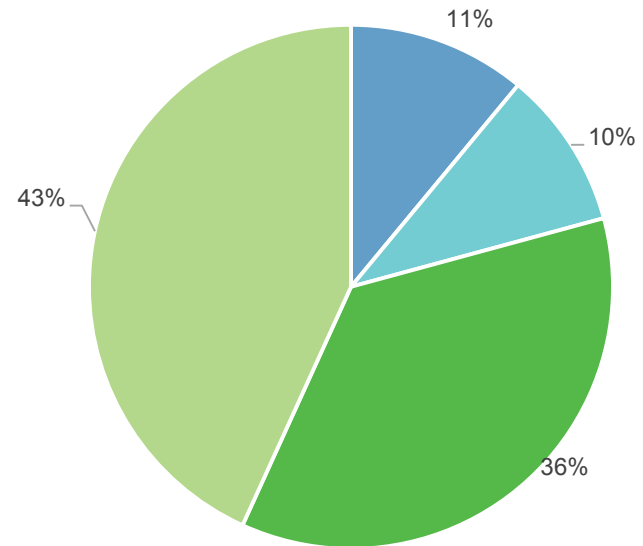
Public Sector Segments

Figure 2: Accounts by Segment



- Federal
- State
- Local Government
- Education

Figure 3: Average Consumption 2010-2015

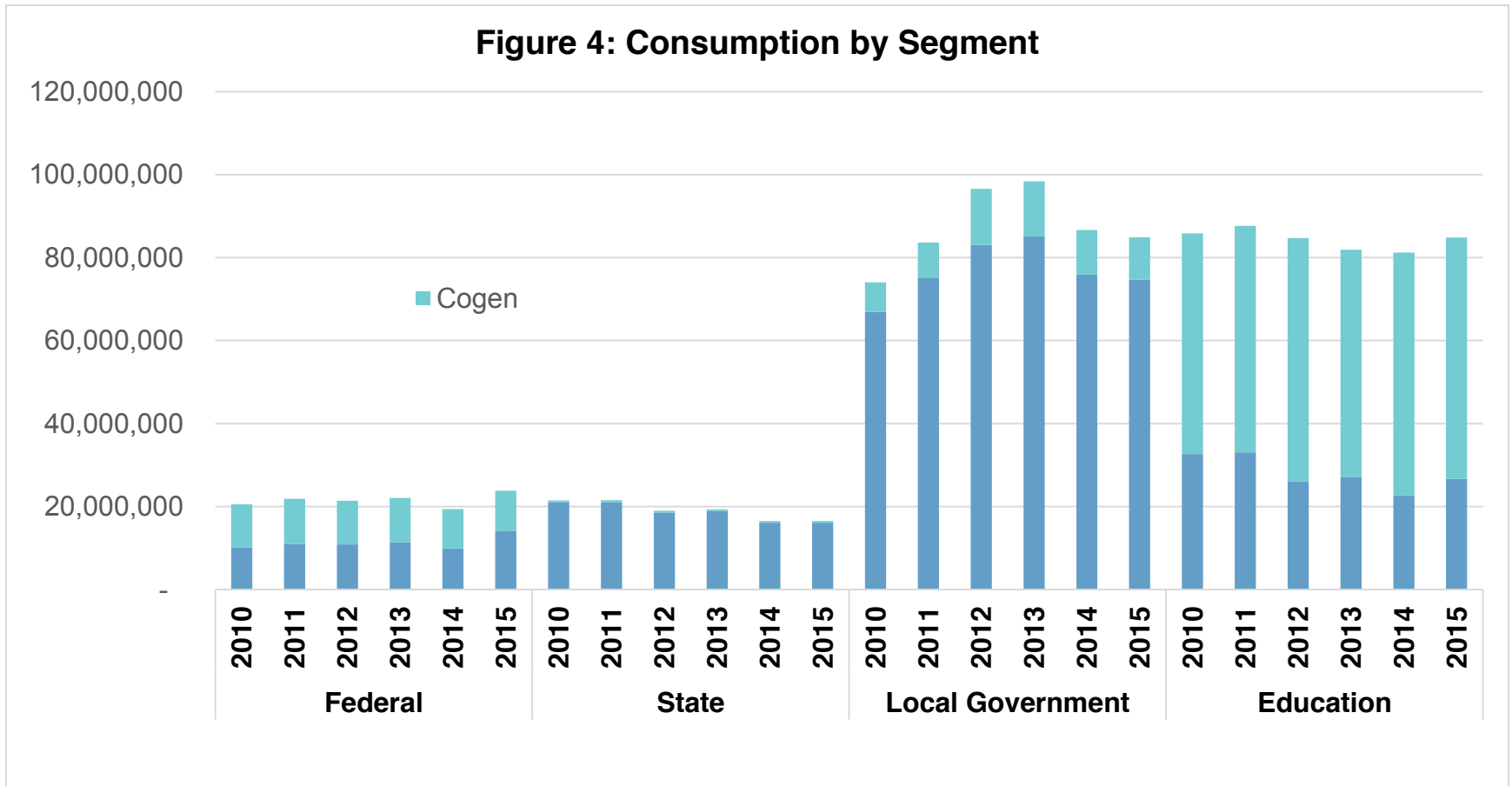


- Federal
- State
- Local Government
- Education

Source: SoCalGas Customer Data

Public Sector Annual Consumption

Figure 4: Consumption by Segment



Source: SoCalGas Customer Data

Local and State Government

Figure 5: 2010-15 Savings By End Use - Local Government

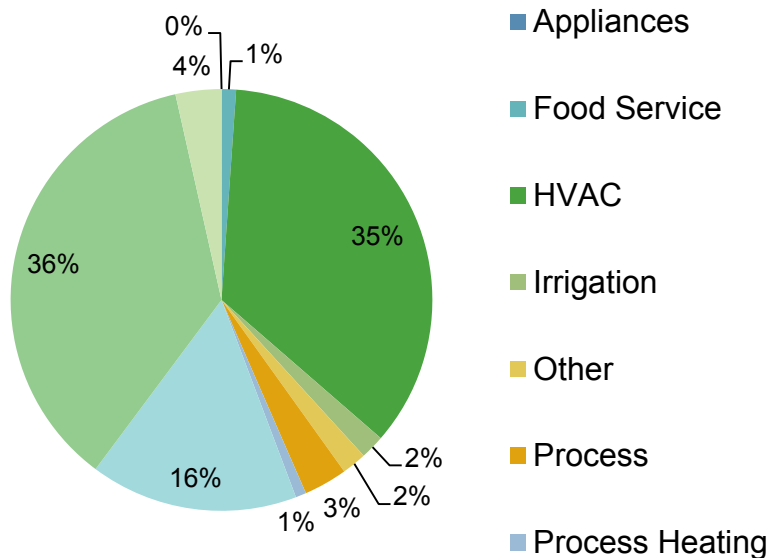
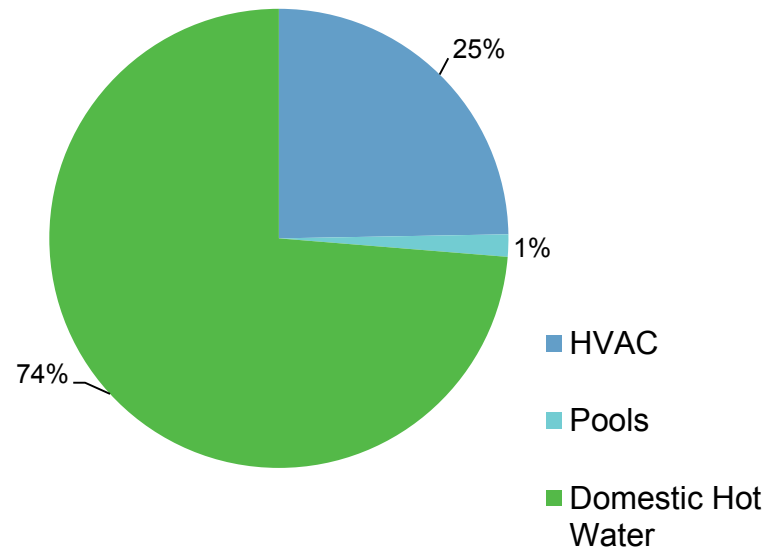


Figure 10: 2010-15 Savings by End Use - State



Source: SoCalGas Customer Data

Education: Higher Education

Figure 6: Consumption By End Use - Higher Education

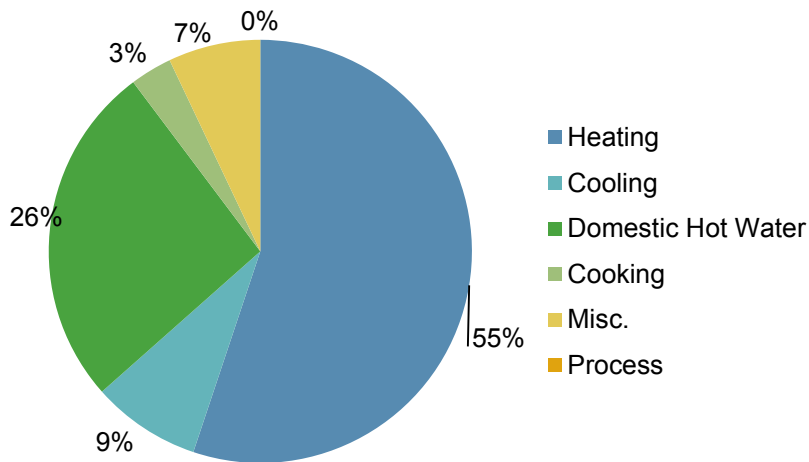
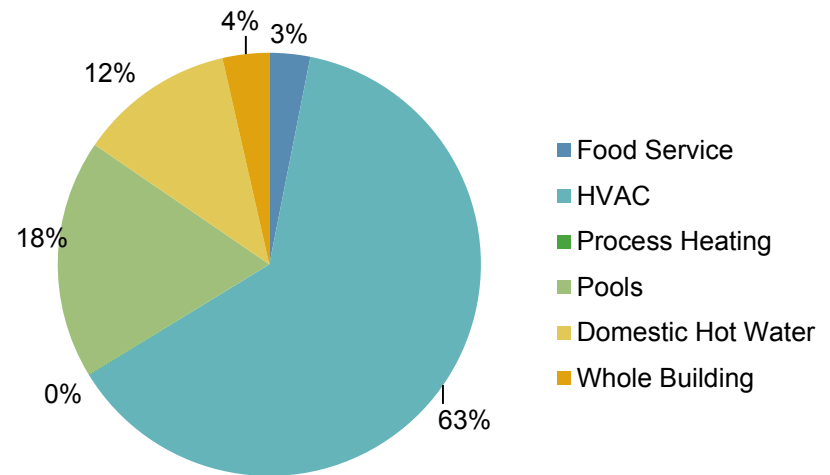


Figure 7: 2010-15 Savings by End Use - Higher Education



Sources: 2006 Commercial End Use Survey and SoCalGas Customer Data

Education: K-12 Schools

Figure 8: Consumption By End Use - K-12

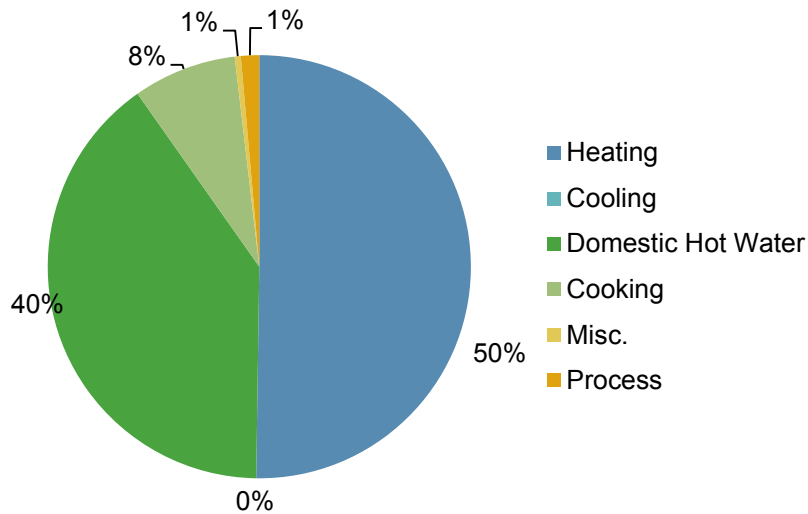
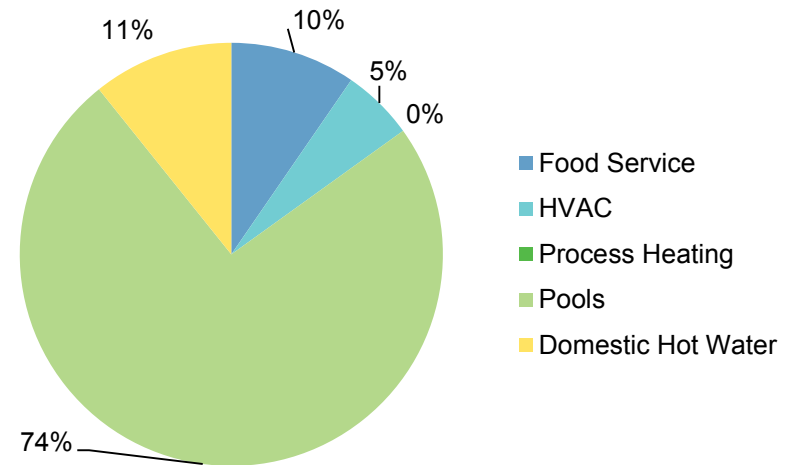


Figure 9: 2010-15 Savings By End Use - K-12



Sources: 2006 Commercial End Use Survey and SoCalGas Customer Data

Perceived Gaps/Barriers

Funding

- Public sector customers lack funding to develop technical knowledge and implement EE projects.
- Comprehensive and advanced projects with greater barriers
- Complexity of funding gaps prevents one solution from addressing everyone's gaps.

To Code Savings

- Public sector buildings are of older vintage and upgrading beyond code is not a feasible option given existing incentive structure and baselines versus the incremental cost increase to qualify for rebates or incentives.

Measure Eligibility

- EE savings from distributed energy technology not recognized

Implementation Challenges

- Program implementation is challenging due to required coordination through Partnership across PA's municipalities, and other public agencies which work together in overlapping territories.

Zero Net Energy (ZNE)

- Unclear as to how ZNE applies and how to advance towards its implementation

Problem Statements

1

Limited funding, competing priorities, limited staff resources, and continuous changes in leadership make it difficult for Public sector customers to invest in energy efficiency and represent themselves as leaders in energy efficiency.

2

Public sector-specific requirements (e.g. public contract code, sustainability goals, centralized energy billing practices), are unique barriers (as compared to commercial customers) to pursuing and supporting efficiency efforts.

3

Rural and Hard to Reach Public sector customers are particularly impacted by challenges to achieve energy efficiency goals.

Problem Statement #1: Observations

Limited funding, competing priorities, limited staff resources, and continuous changes in leadership make it difficult for Public sector customers to invest in energy efficiency and represent themselves as leaders in energy efficiency.

Observations:

- **Limited Funding**
 - Public funding has been unable to keep up with the projected growth capacity and maintenance & repair needs; large capital investments are needed to modernize existing buildings.
 - “Un-funded mandates” are common.
 - While many Public entities have access to Bond funds, those funds are usually limited and have their own investment constraints; related rules create limits on the ability to incur other debt.
 - While Public sector customers have access to grants and other similar funds, they are limited, and there are limits to access traditional financing.
- **Competing Priorities**
 - Energy efficiency competes with many other priorities in the Public sector. Safety and services are the priority.
- **Limited Staff Resources**
 - Public sector customers lack technical resources and staff to develop/ implement EE projects
- **Changes in Leadership & Policy**
 - Elected official turn-over often presents a shift in political (and EE) priorities:
 - Re-directing project funds to “new” priorities.

“One of the major challenges for many local governments is the lack of consistent funding sources for sustainability activities.”

Source: California Energy Commission. 2015. 2015 Integrated Energy Policy Report. Publication Number: CEC-100-2015-001-CMF. p. 21

\$64 billion in total capital investment needed over next decade for K-12 school new construction and modernization of existing buildings

Source: Vincent, Jeffrey M. (2012). California's K-12 Educational Infrastructure Investments: Leveraging the State's Role for Quality School Facilities in Sustainable Communities. Berkeley: Center for Cities & Schools, University of California. See p. vi

The LTEESP needs to be updated and modified to reflect the new Public sector category; supporting data is lacking.

Source: Energy Division, California Public Utilities Commission. 2016. Local Government Partnerships Value and Effectiveness Study Final Report. Publication Number: CPU0115.02. p. 67

Proposed Solutions: Problem Statement #1

Proposed Solutions

- Continue to offer a K-12 school-focused program that can navigate and overcome the challenges of implementing EE projects at the schools.
- Offer Commercial Direct Install Program that can support public sector customers (currently pending)
- Provide Training
- Provide enhanced incentives for customers who participate and use more advanced technology
- Leverage Cap and Trade Funding
- Connect customers with existing and new financing options for this sector
- Continue to leverage partnership efforts that provide resources for partners to find and implement EE opportunities.

Partners

CPUC Staff & appropriate stakeholders to update the CLTEESP to better represent the public sector

Rural Hard to Reach working group

Continue partnering with SoCal REN to support project implementation

California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) for financing

Collaborating with local advocacy organizations to identify solutions specific to region

Institutional & LG Partners

Problem Statement #2: Observations

Public sector-specific requirements (e.g. public contract code, sustainability goals, centralized energy billing practices), are unique barriers (as compared to commercial customers) to pursuing and supporting efficiency efforts.

Observations:

- **Procurement differences**
 - Public sector customers budget based on a fiscal year (or their academic calendar), compared to IOU/CPUC planning (calendar year), which can create confusion, planning mismatch, and create implementation window challenges.
 - Budgets are zero-based; planned in “general fund” type budgets.
 - Incentives, Rebates and EE savings from implementation of projects typically go back to general fund and not the department that implemented the project.
- **Issues due to aging building stock**
 - Many public sector buildings are of older vintage and upgrading beyond code is costly and often not feasible; existing EE programs have limited impacts on whole building upgrades.
- **Failing infrastructure**

Riverside County owned buildings: approximately 27% older than 1978

Los Angeles County buildings: approximately two thirds of buildings older than 1970

Source: Data provided by Riverside County & LA County Partners.

“Of current CA Community College building stock system wide, 63% of buildings are over 25 years old, and 49% are over 40 years old.”

Source: <http://extranet.cccco.edu/Portals/1/CFFP/Facilities/ReferenceMaterials/Reports/2016-17%20Five-Year%20Capital%20Outlay%20Plan.pdf> . p. 17, 18

“UCs must maintain and upgrade its facilities, more than 50% of which are at least 35 years old.”

Source: <http://www.ucop.edu/capital-planning/files/capital/201525/2015-25-capital-financial-plan.pdf> . p. 4

“CSU has a differed maintenance budget of over \$2 billion for academic buildings with additional \$700 million for critical infrastructure repairs.”

Source: The California State University, 2016-2017 Capital Outlay Program Capital Improvement Plan: 2016-2017 through 2020-2021, p. 12, 219

Problem Statement #2: Observations Con't

Public sector-specific requirements (e.g. public contract code, sustainability goals, centralized energy billing practices), are unique barriers (as compared to commercial customers) to pursuing and supporting efficiency efforts.

Observations:

- **Natural gas EE projects have many barriers:**
 - Low average consumption per meter in this sector, coupled with the high cost to retrofit older buildings makes EE investments difficult e.g., the average K-12 consumption is 5,860 therms/year
 - The relatively low cost of natural gas, coupled with the high cost of efficient natural gas equipment results in lengthy paybacks.
 - Projects are increasingly burdened with new/changing rules (e.g. baseline) to qualify.
- **Lack of technical resources and staff to develop/ implement EE projects.**
- **Benchmarking is highly desired, but it has not generated many projects, and providing data has been a challenge.**
- **Greenhouse gas reduction goals are driving business/EE decisions.**

“IOU incentives/rebates are not available for equipment that is beyond its defined effective useful life (EUL), or has been designated as “Industry Standard Practice.” Given established maintenance budgets, absent an incentive or rebate, there is little driving customers to replace in place inefficient but working equipment.”

Source: Navigant Consulting, Inc., AB802 Technical Analysis Potential Savings Analysis, March 2016 page 17. [<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K986/159986262.PDF>]

“UC’s goal is to achieve carbon neutrality by 2025 and CSU is committed to reducing its carbon emissions 80% below 1990 levels by 2040.”

Source: University of California and California State University Response; Input Template for Respondents to Pre-Stage 2 Presentation Input Opportunity.
http://media.wix.com/ugd/0c9650_c6c73755ceca43a1af197c26325c5f04.pdf

Problem Statement #2: Observations Con't

Public sector-specific requirements (e.g. public contract code, sustainability goals, centralized energy billing practices), are unique barriers (as compared to commercial customers) to pursuing and supporting efficiency efforts.

Observations:

- **The Public sector is a fairly large user of cogen technologies and EE savings from Distributed Energy technologies are not recognized/eligible for EE incentives:**
 - Cogen accounts for over 60% of average Higher Education annual load.
- **Zero Net Energy (ZNE): There is a lack of unified stakeholder understanding of the implementation of ZNE in new construction and retrofit for all non-residential buildings, and the Public sector has some unique barriers. Varieties of building/occupant types and climate zones add to complexity of ZNE.**
- **Bulk purchasing policies along with EE program eligibility rules often limit this otherwise effective approach to certain segments (K-12 and LG).**
- **Prop 39 has only been able to support a small fraction of facility needs and funding requirements have made low hanging fruit measures more attractive; more costly deep energy saving measures have been more difficult to pursue.**

“Campuses/facilities that have cogen plants have more limited EE opportunities due to eligibility constraints (e.g. administrative revisions to eligibility tests (annual vs. hourly).”

Source: University of California and California State University Response: Input Template for Respondents to Pre-Stage 2 Presentation Input Opportunity.
http://media.wix.com/ugd/0c9650_c6c73755ceca43a1af197c26325c5f04.pdf

Proposition 39 (K-12) Program Approved Energy Measures

Proposition 39 (K-12) Program Approved Energy Measures (as of 4-24-16)

Energy Measure Category	Total Number of Measures Approved	Percentage of Total Measures Approved	# Approved for Fiscal Year 2013-2014	# Approved for Fiscal Year 2014-2015	# Approved for Fiscal Year 2015-2016
Lighting	5127	47%	1237	2473	1417
Lighting Controls	1254	12%	226	676	352
HVAC	1817	17%	388	1007	422
HVAC Controls	1081	10%	219	555	307
Plug Loads	617	6%	138	357	122
Generation (PV)	284	3%	59	125	100
Pumps, Motors, Drives	261	2%	64	115	82
Building Envelope	161	1%	22	88	51
Domestic Hot Water	144	1%	39	75	30
Kitchen	44	0%	8	18	18
Energy Storage	39	0%	3	8	28
Electrical	15	0%	0	13	2
Pool	6	0%	3	2	1
Power Purchase Agreements (PPA)	5	0%	0	4	1
Irrigation	3	0%	0	1	2
TOTALS:	10858	100%	2406	5517	2935

California Community Colleges Chancellor's Office Proposition 39 Project Types as of January 2016

Project Type	Year 1		Year 2		Year 3	
	Count	Percentage of Year 1 Projects	Count	Percentage of Year 2 Projects	Count	Percentage of Year 3 Projects
Lighting	167	56.40%	98	42.60%	63	52.90%
HVAC	55	18.60%	72	31.30%	36	30.30%
Controls	45	15.20%	35	15.20%	11	9.20%
Other	11	3.70%	5	2.20%	2	1.70%
RCx	13	4.40%	6	2.60%	0	0.00%
Technical Assistance	3	1.00%	0	0.00%	0	0.00%
Self- Generation	2	0.70%	2	0.90%	1	0.80%
MBCx	0	0.00%	12	5.20%	6	5.00%
Total Projects	296	100%	230	100%	119	100%

Proposed Solutions: Problem Statement #2

➤ High Opportunity Programs and Projects (HOPPs)

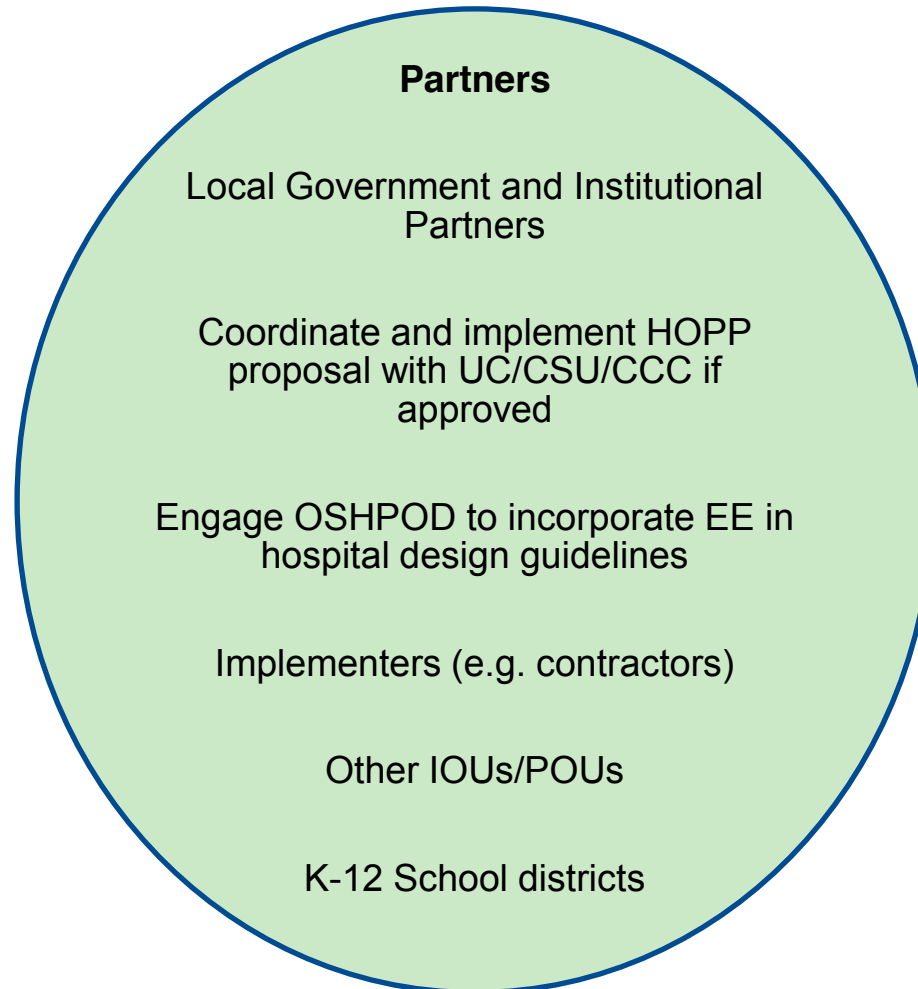
- ❑ SoCalGas' HOPPs proposal, Metered and Performance-Based Retrofits (MPBR) program, address the overarching principles outlined in AB 802:
 - The proposal addresses high opportunity
 - Greatly increases savings in existing older vintage buildings
 - Reaches stranded savings potential by utilizing new approaches
 - Enlists interventions that could not be previously done.

➤ Implement AB802:

- ❑ Provide a robust Retro-Commissioning (RCx) and Monitoring Based Commissioning (MBCx) solution
- ❑ Allow PAs to provide incentives that address equipment replacements that, while beyond the “effective useful life” as defined, operate reliably but inefficiently with new efficient equipment for customers left stranded.
- ❑ There is value in bringing facilities up to code by offering incentives and greater value in incenting customers to go beyond code through enhanced incentives.

- ❑ Need to provide more flexible programs to address unique challenges of Public sector customers:
 - Create sector-specific work papers and custom-calculated guidelines
 - Encourage revolving funds; create seed funds
- ❑ Enhance data tools
- ❑ Develop consistent approach to address segments for which codes do not apply. Title 24 does not currently cover Type I buildings (e.g., Correctional Facilities and hospitals).
- ❑ K-12: Consider one-stop shop

Problem Statement #2: Partners



Problem Statement #3: Observations

Rural and Hard-to-Reach Public sector customers are particularly impacted by challenges to achieve energy efficiency goals.

Observations:

- **Diverse array of building types across customers requiring diverse and unique EE solutions.**
- **PA's struggle to maintain consistent engagement and coordination strategies.**
- **EE infrastructure upgrades are more costly (e.g. lack of local vendors).**
- **K-12: Low income areas- significant budgets spent on repairing equipment due to theft.**
- **Public sector customers prefer consistency among PA program offerings, but "local" flexibility is also desired.**

"One of the complicating factors in dealing with government customers is the diversity of building types, which range from warehouses and county clerk's offices to laboratories and post offices. The management structures also vary across jurisdictions and from agency to agency."

Source: Bryan Jungers, "Government Administration Buildings: United States; Sector Snapshot," ESource, February 19, 2013. Accessed April 18th, 2016.

"Small rural local governments often do not have the capacity to take on additional activities that are beyond critical activities that ensure minimal/required services are sustained."

"Rural areas and governments do not have the same "access" to information as urban areas."

Source: Rural Hard to Reach Working Group Public Sector Business Plan Recommendations March 4, 2016

The largest barriers to Strategic Plan Project completion are 1) a lack of subject-matter expertise, and 2) technical support for projects. While the IOUs generally provide this service directly to LGs, there remains an unmet need for greater access to technical staff and resources."

Source: Energy Division, California Public Utilities Commission. 2016. Local Government Partnerships Value and Effectiveness Study Final Report. Publication Number: CPU0115.02. p. 67

Proposed Solutions: Problem Statement #3

Proposed Solutions

- Increase outreach to rural and hard to reach areas, leveraging existing Partnerships and relationships.
- Implement the new direct install program.
- Consider specific program enhancements
- Provide local training



QUESTIONS?