

# Assessment and Benchmarking of CPS Energy's STEP Program

## *Executive Summary*

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# 1- STEP Overview and Significance

*This section provides an overview of the STEP program to date, achievements of the program and its relevance given the current industry trends*

# STEP is an important “customer-facing” initiative to keep up with the changing times

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### **We are witnessing several key trends in the industry:**

- Clean energy goals and aspirations
- Transportation and building electrification
- Increasing need for load flexibility to integrate renewables and mitigate infrastructure investments
- Pressure to maintain affordability in the face of these macro developments
- Increasing customer energy awareness and interest in distributed generation and clean energy
- Increasing threats of dis-intermediation by third parties (if the incumbent utility falls behind in innovation, other market participants will fill-in the void)
- Increasing need for customer empowerment through new programs and innovative rates

**Save for Tomorrow Energy Plan (STEP) is one of the ways CPS Energy is keeping up with these trends shaping the industry**

# Public Perception of the STEP Initiative

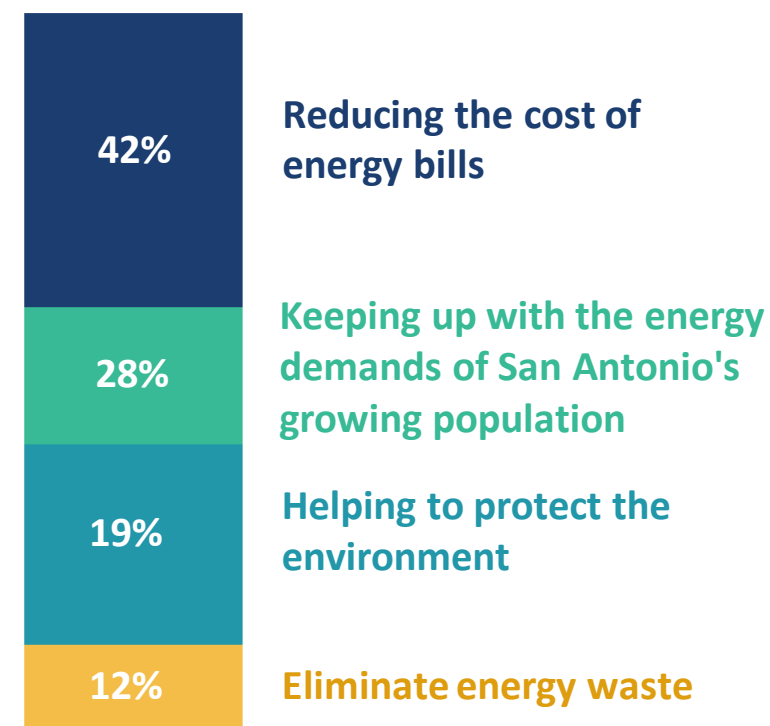
## CPS Energy residential and business customers broadly support measures to make their home or business more energy efficient

- 95% of residential customers and 93% of business customers indicate it is important to know their home/business is energy efficient
- Of these residential customers, the majority (71%) cite “saving on their utility bill” as the primary benefit of energy efficiency

## There is a general lack of awareness of the STEP program, but customers display interest in using STEP to reduce energy bills and meet energy reduction goals

- Only 54% of residential customers and 50% of business customers are aware of the STEP program
- Of the residential customers who haven’t participated in the STEP program, 72% have not participated because of “lack of awareness of programs”
- Nearly 40% of customers are willing to pay the current price of \$3-\$5/month to continue the STEP program, even without being prompted of the program’s cost-saving benefits

### Survey Respondents’ Take on the Primary Benefit of the STEP program



Sources and Notes: Survey of 801 CPS Energy residential customers, original question: “What do you feel should be the primary benefit of the STEP program?”

## 2- STEP Cost-Effectiveness

*This section reviews the cost-effectiveness of the STEP program and its impact on reducing customer bills*

# Break Down of Fuel Adjustment Charge for Electric Bills

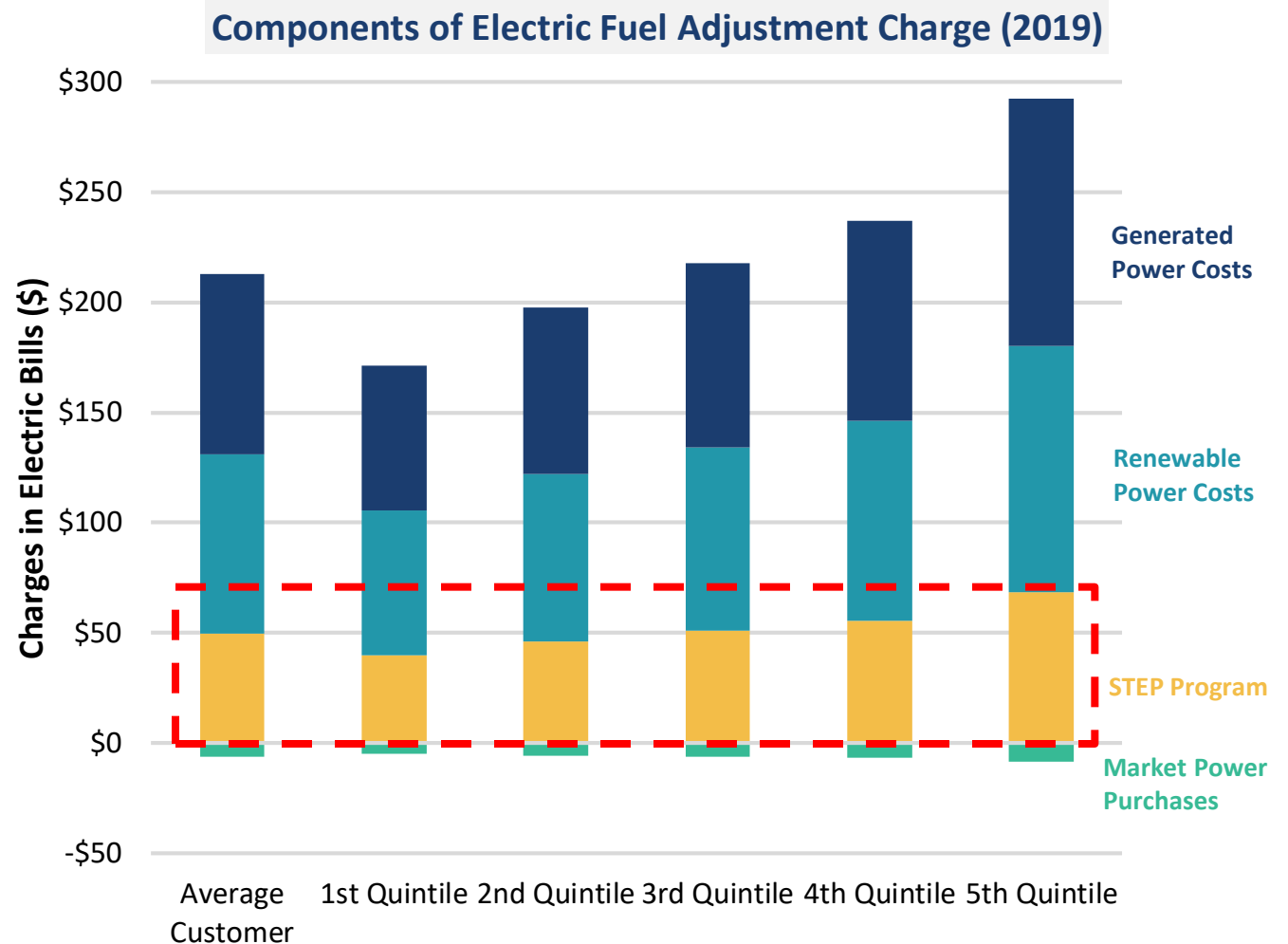
The STEP program cost is recovered from a portion of the **Fuel Adjustment Charge**

- The average Fuel Adjustment Charge was **\$0.016/kWh** for electricity customers in the residential rate class in 2019

Program Description	Average Electric Fuel Adjustment Charge Distribution (2019)
Generated	39.5%
Renewable	39.5%
Market Power Purchases	-3.0%
STEP	24.0%

In 2019, the average customer paid about **\$207** annually to cover the fuel adjustment charge, comprising 15% of their electric bill

- 1<sup>st</sup> income quintile customers paid 27% less towards STEP programs compared to the 5<sup>th</sup> quintile customers



Sources and Notes: The estimated average electric fuel adjustment charge and program share is provided by CPS Energy for 2019. Negative Market Power Purchases represent credits from ERCOT.

# Summary of Widely Used Cost-Effectiveness Tests

**TRC and PAC Test are the most commonly used cost-effectiveness tests**

- A Benefit/Cost Ratio of 1 and above indicates a cost effective portfolio

Cost-Effectiveness Test	Perspective	Key Question	Benefits	Costs
Participant Cost Test (PCT)	Participants	Is the participant better off?	<ul style="list-style-type: none"> <li>• Bill Decrease</li> <li>• Customer Incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Program Costs (Participant)</li> <li>• Participation Fees</li> </ul>
<b>Total Resource Cost (TRC) Test</b>	Customers and utility	<b>Are the system costs lowered?</b>	<ul style="list-style-type: none"> <li>• Avoided supply-side costs</li> </ul>	<ul style="list-style-type: none"> <li>• Program Costs (Participant and Utility)</li> </ul>
Ratepayer Impact Measure (RIM) Test	Non-participants	Are rates lowered?	<ul style="list-style-type: none"> <li>• Avoided supply-side costs</li> <li>• Participant Fees</li> </ul>	<ul style="list-style-type: none"> <li>• Revenue loss</li> <li>• Customer Incentives</li> <li>• Program Costs (Utility)</li> </ul>
<b>Program Administrator Cost (PAC) Test</b>	Utility	<b>Are revenue requirements lowered?</b>	<ul style="list-style-type: none"> <li>• Avoided supply-side costs</li> <li>• Participant Fees</li> </ul>	<ul style="list-style-type: none"> <li>• Customer Incentives</li> <li>• Program Costs (Utility)</li> </ul>
Societal Cost Test (SCT)	Society	Are societal costs lower?	<ul style="list-style-type: none"> <li>• Avoided societal costs, inclusive of supply-side costs and social externalities</li> </ul>	<ul style="list-style-type: none"> <li>• Program Costs (Participant and Utility)</li> </ul>

Source: For further discussion of the cost-effectiveness tests, see: California Public Utilities Commission, "California Standard Practice Manual," October 2001.

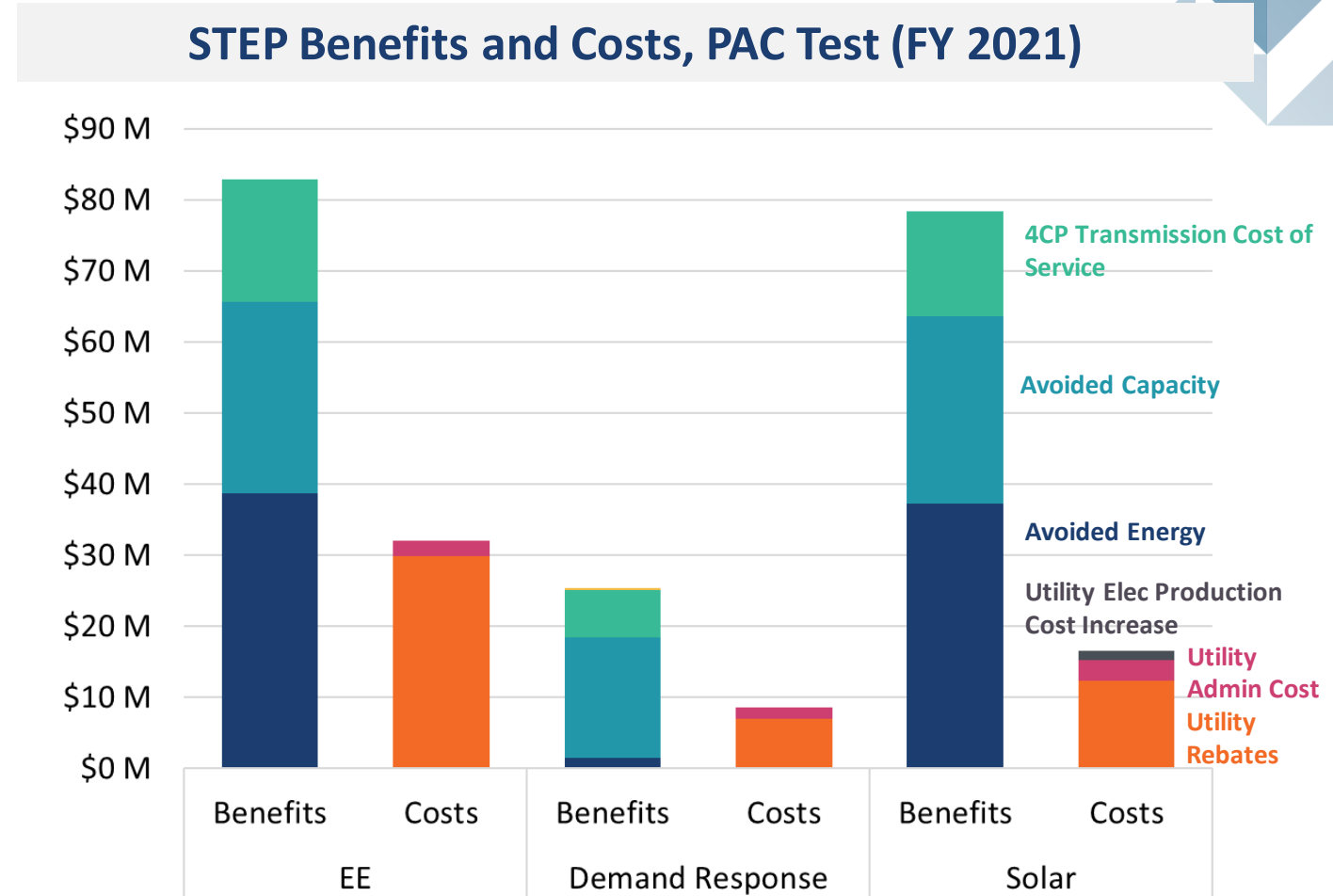


# STEP Program According to the PAC Test

**STEP benefits exceed the costs for each of the EE, DR and Solar programs, based on the PAC Test**

- **Benefits:** EE produces the largest avoided energy, avoided capacity, and 4CP transmission cost of service benefits, followed by solar
- **Costs:** Utility rebates represent the highest share of costs

**The solar program provides the highest benefit-to-cost ratio (4.7) compared to EE (2.6) and Demand Response (3.0)**



Sources and Notes: Data provided by Frontier.

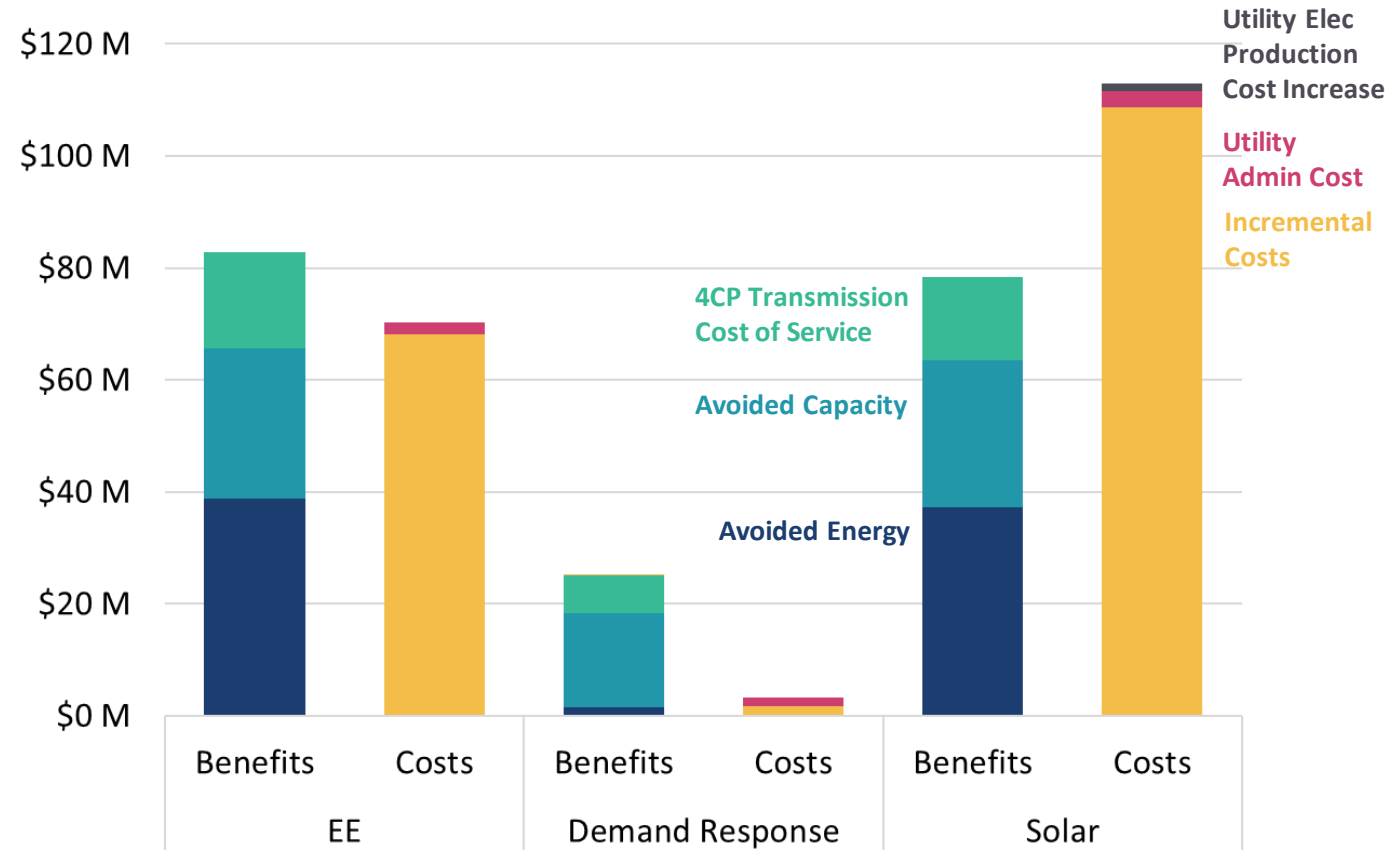
# STEP Program According to the TRC Test

**STEP benefits exceed the costs for EE and DR programs but not the Solar program, based on the TRC Test**

- **Benefits:** EE again produces the largest avoided energy, avoided capacity, and 4CP transmission cost of service benefits
- **Costs:** Incremental Costs represent the highest portion of costs, and outweigh benefits for the Solar program

**The DR program provides the highest B/C Ratio (7.6), followed by EE (1.2) and Solar (0.7)**

**STEP Benefits and Total Resource Costs (FY 2021)**



Sources and Notes: Data provided by Frontier. Solar costs are net of the Investment Tax Credit.

# 3- Peer Utility Benchmarking

*This section reviews a group of peer utilities' customer-side programs and benchmarks STEP to these programs*

### 3- PEER UTILITY BENCHMARKING

## What programs are being offered by CPS Energy's peer utilities?

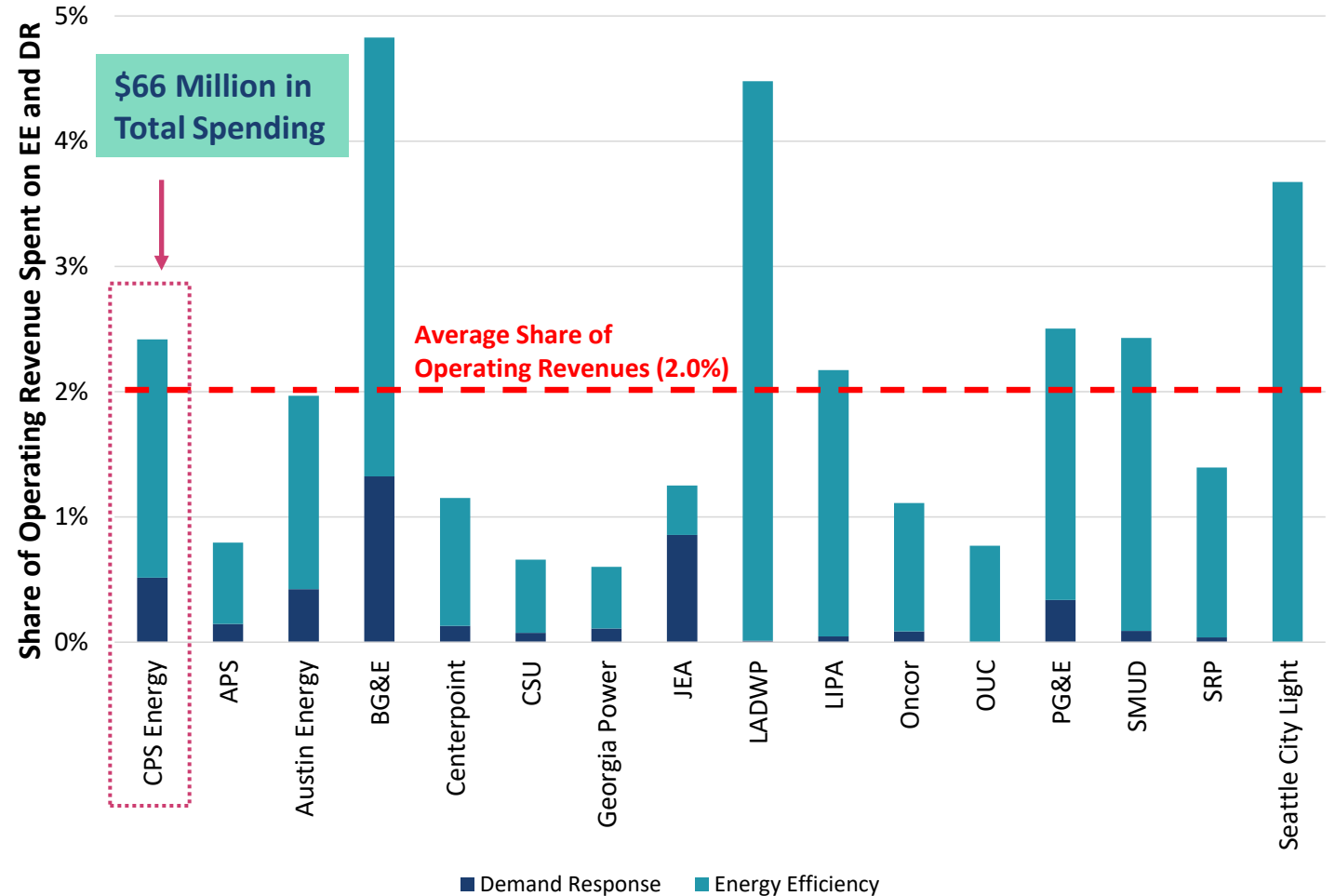
Utility	Type	Energy Efficiency	Demand Response	Rooftop and Community Solar Incentives	Energy Efficiency Programs for LMI Customers
<b>CPS Energy</b>	<b>Municipal</b>	✓	✓	✓	✓
Arizona Public Service (APS)	IOU	✓	✓	-	-
Austin Energy	Municipal	✓	✓	✓	✓
Baltimore Gas & Electric (BG&E)	IOU	✓	✓	✓	-
Centerpoint Energy	IOU	✓	✓	-	✓
Colorado Springs Utilities (CSU)	Municipal	✓	-	✓	-
Georgia Power	IOU	✓	✓	✓	✓
Jacksonville Electric Authority (JEA)	Municipal	✓	Residential Pilot	✓	✓
Los Angeles Department of Water and Power (LADWP)	Municipal	✓	✓	✓	✓
Long Island Power Authority (LIPA)	Municipal	✓	✓	✓	✓
Oncor Electric Delivery	IOU	✓	✓	✓	✓
Orlando Utilities Commission (OUC)	Municipal	✓	-	✓	✓
Pacific Gas & Electric (PG&E)	IOU	✓	✓	✓	✓
Sacramento Municipal Utility District (SMUD)	Municipal	✓	✓	✓	-
Salt River Project (SRP)	Municipal	✓	✓	✓	✓
Seattle City Light	Municipal	✓	-	-	✓

## The share of revenue spent on EE and DR programs varies widely

**In 2019, CPS Energy spent the equivalent of 2.4% of its operating revenue on EE and DR programs compared to 2% by average of its peers**

- BG&E, LADWP, Seattle City Light spent more than **4%** of their operating revenue on customer facing programs in 2019
- APS, CSU, Georgia Power, and OUC spent less than **1%** of their operating revenue on customer facing programs in 2019

Share of Operating Revenue Spent on EE and DR Programs (2019)



Sources and Notes: Annual Operating Revenues data was pulled from the 10-Ks for each utility. Demand Response and Energy Efficiency Program costs was pulled from the [Annual Electric Power Industry Report](#). To calculate the share of operating revenue spent on EE and DR programs for each utility, we added the combined costs of the Demand Response and Energy Efficiency Programs and divided the resulting figure by the utility's Operating Revenue in 2019.

# Recap of Findings

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- 1- STEP has delivered in its original mission to avoid a power plant over the past decade and continues to deliver energy and capacity savings beyond that initial goal**
- 2- Every major and innovative utility in the country is maintaining or expanding their customer-facing programs (comparable to STEP) given the clean energy transition, mitigating the grid impacts of electrification and affordability concerns**
- 3- CPS Energy customers' awareness of STEP programs is low and can be improved**
- 4- STEP portfolio is cost effective based on the PAC test, meaning that the benefits to the system are higher than the expenses incurred by CPS Energy and its customers to support these programs**
  - Individual programs in the STEP portfolio, EE, DR and Solar, also pass the PAC test
- 5- STEP portfolio also passes the TRC test; however solar program reduces the portfolio cost effectiveness when viewed from a total resource cost perspective**
- 6- We compared CPS Energy's portfolio of customer-facing programs to those from 15 peer utilities and found that the CPS Energy compares favorably to its peers:**
  - Rich portfolio of programs covering EE, DR, solar and low-income program offerings
  - CPS Energy allocates roughly 2.4% of its revenues to finance its EE and DR programs, slightly higher than the average of its peers (2%)

## 4- Recommendations for STEP

*Having reviewed the performance of the STEP program in terms of its energy and capacity savings; cost-effectiveness and comparison to similar programs administered by CPS Energy's peer utilities, this section provides recommendations for the evolution of STEP*

## Brattle Recommendations for STEP

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### **1- Maintain the momentum of the STEP program as the realities of the new grid will require more flexibility**

- Customer-facing programs cannot be built overnight when needed; CPS Energy built a successful portfolio over the past decade which delivered in its core mission
- STEP can evolve and expand in the areas CPS Energy system requirements indicate
- Assess the STEP program performance at the end of each planning cycle, and refresh the portfolio in a way to meet the impending system needs (e.g. winter peak reduction or carbon reduction)
- Each of CPS Energy's peer utilities have sizable customer program portfolios with rich and diverse programs addressing EE, DR and emerging technologies

### **2- CPS Energy may want to reevaluate the solar program and whether it meets its program objectives**

- Shift spending towards community solar projects where renters and LMI customers are more likely to participate
- Shift rebate and incentive spending towards more cost effective programs from a total system perspective, such as solar+ BTM storage, where the storage system can be controlled by CPS Energy for system emergencies
- Consider expanding the focus on the electrification of the transportation sector



# Brattle Recommendations for STEP (cont'd)

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### **3- Improve STEP program awareness and cost-saving benefits of the STEP program and perform more community engagement**

- Despite a lack of community awareness, CPS Energy has met its capacity savings goals and can achieve more in the future
- Increased efficiency and demand response are likely to become more important as CPS Energy retires its coal fleet

### **4- Expand the scope of the LMI programs in the STEP portfolio to include financing for efficient appliances and community solar with LMI-specific rates**

- Peer utilities also offer a variety of programs targeting LMI customers, above and beyond the weatherization programs

### **5- Continue to explore low-cost initiatives to achieve energy savings**

- Invest in low-cost behavioral energy efficiency initiatives (e.g. customer-facing web/phone apps and targeted messages) to better educate customers on EE programs and to promote behavioral changes in support of energy conservation
- Explore implementing time-of-use (TOU) rates to shift peak demand for customers

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# Appendix

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