

TPP 12: Review of ESA Program Savings Estimation Methods



CALIFORNIA
TECHNICAL FORUM

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Agenda

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- CPUC Directives for Energy Savings Assistance (ESA) Program
- Subcommittee Participants/Objectives
- ESA Program Background
- Subcommittee/Cal TF Staff Review
- Conclusions
- Recommendations

CPUC Directive

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- In D. 16-11-022 the ED directed the ESA program to:
 - Move to deemed measures

In an effort to move towards more seamless and integrated energy efficiency program offerings...we have become increasingly aware that our continued reliance on billing analyses may have limitations...beginning in 2018, the ESA Program will utilize deemed savings values for all program measures, in alignment with mainstream EE program activity. (pp. 229-230)

- Coordinate with Cal TF

We direct the IOUs to coordinate with the California Technical forum to recommend prospective savings values and revisions to its EM&V methodologies for the low-income program; (pg. 398)

Low Income Subcommittee

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- Participants/Organizations:
 - Cal TF Staff (T. Melloch, J. Barnes)
 - Cal TF Members (S. Shahinfard, L. Kotewa, P. Landry, A. Saiyan, T. Eckhart)
 - IOU ESA Administrators (PG&E, SCE, SDG&E & SoCalGas)
 - CPUC Staff as observers only
 - NRDC

Timeline

- Kick off: April 4th
- Monthly subcommittee meetings & shorter status updates:
 - May, June, August & September
 - TPP Draft developed in July
 - Continued refining TPP based on subcommittee feedback

Subcommittee Objectives

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- The original objectives of the Low-Income (LI) subcommittee were to:
 - Recommend prospective deemed savings values for the measures of the statewide ESA program administered by the IOUs
 - Recommend any necessary revisions to the EM&V methodologies upon which the ex ante values of the ESA deemed measures are based
- Upon further review & LI subcommittee discussion, these were revised to:
 - Outline recommendations for developing deemed savings values for the ESA program

Background on ESA Program

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- Statewide Energy Savings Assistance (ESA) Program
 - Formerly known as Low Income Energy Efficiency (LIEE) Program
- Eligibility for program based on income & feasibility
 - Feasibility based on on-site home assessment
- Direct install measures, no cost to participant
- Beginning in PY2017 the following were eliminated:
 - Three Measure Minimum Rule (3MM)
 - The Go-Back Rule (the “freeze” on re-treating households since 2002)
 - Measure caps that limit the number of measures deployed at a location
- ESA goals:
 - Conserve energy
 - Reduce low income customer energy costs
 - Provide non-energy benefits (NEB) such as improving health, comfort & safety

“Improve the lives of low income customers”

Background on ESA Program

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- Not all measures result in energy savings
- Low income savings measured from existing baseline, not from code
- Installed equipment not necessarily the same efficiency levels as mainstream EE programs
- Usage patterns of low income households may differ from general population
 - May use less before program treatment because cost is high
 - May use more after program treatment because more affordable or program replaced nonworking equipment
 - Hours of use/equipment use may be different

Current ESA Evaluation Methods/Results

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- Historical program evaluation
 - Whole house billing analysis, meter based
 - Many customers results excluded based on “inadequate” historical data on account (i.e. customer hasn’t lived there long enough)
- Results for some measures suggest further analysis should be performed
 - Negative savings for significant measures in the program
 - Examples include:
 - ✦ Furnace Repair/Replacement
 - ✦ Room AC

Cal TF Staff Literature and Data Reviews

- Literature Review
 - Past impact evaluations, CPUC decisions, program manuals
- ESA Measure Mapping
 - ESA measures mapped to:
 - ✦ Statewide consolidated measures
 - ✦ IOU workpapers (active or retired)
 - ✦ POU Technical Reference Manual
 - ✦ DEER
 - There are existing sources for all previously included program measures except the following:
 - ✦ Furnace clean & tune
 - ✦ Minor home repairs
 - ✦ Water heater blanket
 - ✦ Torchiere (LED)
 - ✦ LED night lights
 - ✦ Second refrigerators
 - ✦ Microwaves

Conclusions

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- It is feasible to develop deemed savings values using the same methods as the mainstream EE program
- Will require scaling of base & measure cases
 - LI programs use existing baseline
 - ESA measures not necessarily the same efficiency levels as mainstream EE
- Other parameters, such as hours of use, need to be reviewed
- May need to further align measure definitions
 - Furnace repair/replacement
 - Water heater repair/replacement

Recommendations

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- Gather/mine program data
 - Data on removed/base case equipment
 - Working condition of old units
 - Information on equipment use
 - ✦ Especially hours of use
- Conduct further investigation into negative savings
 - Furnace repair/replacement (gas)
 - Room AC (electric)
- Measure Standardization

SDG&E Refrigerator Sizes	SCE Refrigerator Sizes
15 cf Refrigerator	10 cf Refrigerator
17 cf Refrigerator	15 cf Refrigerator
18 cf Refrigerator	18 cf Refrigerator
21 cf Refrigerator	21 cf Refrigerator
23 cf Side-by-Side	22 cf Side-by-Side
26 cf Side-by-Side	19 cf Bottom Freezer Refrigerator

Recommendations

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- Consider a hybrid approach to developing deemed estimates
 - Program measures direct installed by trained program implementers, therefore collect & use actual “as found condition” for baseline
 - Would address issue of lack of information about low income population
- Conduct a pilot to assess benefits/drawbacks of different approaches to estimating deemed savings
 - Develop deemed estimates for 3-5 measures
 - Advantages/disadvantages of using billing analysis vs. DEER/WP/engineering estimates
 - Assess the cost and impact to the ESA program of any additional data collection requirements

Next Steps

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- TPP is posted on the website
 - Demonstrates responsiveness to CPUC decision
- This work is **not** part of Cal TF's 2020 Business Plan
- Could be considered for Cal TF's 2021 Business Plan, but more vetting would be needed before moving forward
 - Low income stakeholders, including CPUC low income staff (who are different from EE staff) to see if timing in 2021 would be appropriate and work would be valued
 - Funding for work **cannot** come from EE funds, must be funded through low income budgets