

PUBLIC UTILITIES COMMISSION

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SAN FRANCISCO, CA 94102-3298

Addendum – FINAL 2018 ESPI Ex-Post Savings Performance Statement
10th November 2020.

CPUC staff posted the 2018 ESPI Ex-Post Savings Performance Statement report on July 31, 2020. On September 15, 2020, staff released a revised draft of the 2018 Commercial, Industrial and Agricultural Custom (CIAC) Impact Evaluation. On October 27, 2020, CPUC staff notified the service list that the CIAC impact evaluation will not be finalized and thus CPUC staff will not adopt any of the draft study findings to adjust energy efficiency savings parameters in the program administrators' (PAs) energy efficiency portfolios.

As a result, this 2018 report uses the methodology used for the 2017 Ex-Post Savings Performance Statement earnings calculations. Specifically, the final evaluation results from the 2013-15 CIAC contract were summarized and applied, where appropriate, to the 2017 claims. The analysis team used the same methodology in applying these gross realization rates and NTG adjustments¹ to adjust 2018 program administrators' CIAC electrical and gas savings claims. Therefore, Table 1 in this report has been updated as shown below:

Table 1 – Adjusted PY2018 Savings Earnings

IOU	Ex Post Savings Incentive				Previously published Draft Earnings	Difference
	GWh	MW	MM Therm	Ex Post Earnings Subtotal		
	M	N	O	P (M + N + O)		
PG&E	\$3,901,482	\$1,905,630	\$704,652	\$6,511,764	\$7,132,241	-\$620,476
SCE	\$2,995,871	\$1,618,703	N/A	\$4,614,573	\$4,653,279	-\$38,706
SCG ²	N/A	N/A	\$1,083,309	\$1,083,309	\$980,096	\$103,213
SDG&E	\$1,255,640	\$652,966	\$69,286	\$1,977,891	\$1,849,154	\$128,737
Total Statewide	\$8,152,993	\$4,177,298	\$1,857,247	\$14,187,538	\$14,614,770	-\$427,232

The changes in earnings is presented in the table below;

IOU	ExPost earnings posted on 7/31/20	Updated Earnings 10/27/2020	Net Change
PG&E	\$7,132,241	\$6,511,764	-\$620,476
SCE	\$4,653,279	\$4,614,573	-\$38,706
SCG	\$980,096	\$1,083,309	\$103,213
SDG&E	\$1,849,154	\$1,977,891	\$128,737
Total	\$14,614,770	\$14,187,538	-\$427,232

¹ See Appendix E [CPUC ESPI web page](#), 2017 Savings Performance Statement and Workbooks

² SCG is not included in Resolution E-5062, and thus values presented in this table are subject to change based on CPUC decision



2018 Ex Post Efficiency Savings and Performance Incentive (ESPI) **Final Performance Statement Report**

July 31, 2020

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1. Executive Summary

The Efficiency Savings and Performance Incentive (ESPI) mechanism rewards the success of energy efficiency programs implemented by California's four major investor-owned utilities (IOUs): Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SCG). The ESPI mechanism has components based on energy efficiency programs' reported energy savings, evaluated energy savings, and IOU expenditures. This Savings Performance Statement only pertains to the evaluated energy savings component of the ESPI mechanism. It proposes the 2020 ESPI award amounts, shown in the table below, for each IOU based on their evaluated program year (PY) 2018 energy savings. This statement also includes small adjustments to some payments from the last year's ESPI award.

IOU	PY2018 Evaluated Savings Awards
PG&E	\$7,132,262
SCE	\$4,653,279
SCG	\$916,934
SDG&E	\$1,845,106
Total Statewide	\$14,547,580

Section 3 of this report, Regulatory and Timeline Background, describes the ESPI mechanism's origin and annual schedule. Section 4, Earnings, describes the savings and resulting monetary earnings that comprise the PY2018 savings-based ESPI award. Section 5, Creation of PY2018 ESPI Database, describes how program energy efficiency data is cleaned, maintained, and adjusted to generate savings values, from which savings awards are calculated. Section 6, Biggest Drivers of Savings and Changes in Savings describes the evaluation and data review elements that had important impacts on the award amounts. Finally, Appendices A-D provide details on resources and methods used in this report, and Appendix E provides responses to the public comments received on the draft Savings Performance Statement.

2. Introduction

The ESPI mechanism rewards PG&E, SCE, SDG&E and SCG for their energy efficiency portfolio performance in four areas:

1. **Energy Efficiency Resource Savings:** A performance award for net lifecycle resource program³ energy savings measured in MW, GWh and MMTherm.
2. **Ex Ante Review (EAR) Process Performance:** A performance award for conformance to EAR standards, based on EAR performance scores and resource program expenditures.
3. **Codes and Standards (C&S) Advocacy Programs:** A management fee for C&S advocacy.
4. **Non-Resource Programs:** A management fee for implementing non-resource programs.⁴

This report relates only to the first component of the ESPI mechanism. For each program year, the ESPI awards energy efficiency resource savings for both reported savings, referred to as Ex Ante, and evaluated savings, referred to as Ex Post. Ex Post savings are used for custom⁵ energy efficiency projects and other technologies for which there is high uncertainty about their expected energy savings⁶. For these "uncertain measures", evaluations are conducted after the project has been installed and running for at least a year. The results of these evaluations are the "ex post" energy savings. ESPI awards are given for Ex Post savings two years after the program year.

This Savings Performance Statement (Performance Statement) provides CPUC Staff's proposed ESPI award earnings amounts for evaluated savings from "uncertain" measures and custom projects from PY2018. The earnings amounts reflect the following changes to the IOU-reported energy savings data:

- Application of impact evaluation results to investor-owned utilities' (IOUs') reported net lifecycle savings (see section 4)
- These savings all include the 5% increase in energy savings to account for market effects.⁷

This Performance Statement also includes adjustments to last year's ESPI award earnings amounts for PY2018 Ex Ante savings. This is based on the application of installation rates,

³ A resource program is an energy efficiency program that is intended to achieve and report quantified energy savings.

⁴ A non-resource program is an energy efficiency program to which energy savings are not directly attributed, but which supports the energy efficiency portfolio through activities such as marketing, training and education, or emerging technology. See D.07-09-043, Section 9.1.

⁵ Custom projects are energy efficiency efforts for which the customer financial incentive and energy savings estimates are determined using site-specific analysis of the customer's facility. See Section 7.4 of D.13-09-023: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M076/K775/76775903.PDF>

⁶ "Uncertain" measures are those included on the 'Final 2018 Efficiency Savings and Performance Incentive (ESPI) Uncertain Measures List', found at <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442455469..>

⁷ See D.13-09-023 at 27 and 36

found in impact evaluations to relevant records that earn ESPI awards for Ex Ante savings (see Appendix D).

The total ESPI awards earned by the four IOUs for their PY2018 evaluated measures amount to \$14,547,580. The energy savings values, adjustments, and results are contained in the PY2018 ESPI database, with more information on how to access the database in Appendix B and on the ESPI website⁸.

3. Regulatory and Timeline Background

D.13-09-023⁹ adopted the ESPI mechanism, and D.15-10-028¹⁰ modified the ESPI mechanism schedule to require the draft Performance Statement to be published by June 15 of each year. The draft report was published on June 15, 2020.

CPUC Staff (Staff) posted the draft PY2018 impact evaluation studies for all deemed measures on March 1, 2020 and held a series of in-person and public stakeholder webinars in mid-March 2020. CPUC Staff and its evaluation contractors reviewed the technical comments and made edits to the draft impact evaluation reports and data where necessary. The final PY2018 impact evaluation reports were posted for public access on April 1, 2020.¹¹

Additionally, Staff posted the draft PY2018 impact evaluation study for custom projects on April 1, 2020 and held a public stakeholder webinar on April 2, 2020. CPUC Staff and its evaluation contractors reviewed the technical comments and made edits to the draft impact evaluation report and data where necessary. The final PY2018 custom impact evaluation report was posted for public access on May 1, 2020.¹²

Schedule

A public input webinar was held on June 29, 2020. Interested parties had an opportunity to provide comments on the draft Performance Statement and any proposed values by July 8, 2020. Staff published this report on July 31, 2020 and the IOUs will file ESPI advice letters by September 1, 2020. The CPUC will then consider adopting the final awards via resolution.

⁸ See ESPI web page, <https://www.cpuc.ca.gov/General.aspx?id=4137>, under "2018 Ex-Post Savings Award"

⁹ <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M076/K775/76775903.PDF>

¹⁰ See Appendix 5 of D.15-10-028: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M155/K511/155511942.pdf>

¹¹ All draft and final deemed reports can be found at <http://www.energydataweb.com/cpuc/search.aspx>

¹² All draft and final custom reports can be found at <http://www.energydataweb.com/cpuc/search.aspx>

4. Earnings

Based on savings values from the PY2018 ESPI database and the IOUs' joint PY2018 earnings coefficients advice letter,¹³ Staff recommends the Ex Post savings earnings amounts for PY2018 uncertain measures and custom records shown in Table 1. The savings values reflect a 5% of gross lifecycle savings addition for market effects, this is consistent with what is reported via California Energy Data and Reporting System (CEDARS).

Table 1 also shows earnings resulting from adjustments calculated in the PY2018 ESPI database to the PY2018 Ex Ante savings portion of the ESPI award in Resolution E-5062.¹⁴ See Appendix D: Savings Incentive Adjustments for additional information. The earnings from (column D) Ex Post deemed measures, custom measures, and (column E) the PY2018 Ex Ante savings incentive adjustment sum to the total savings incentive (column F) hereby proposed for PY2018.

Table 2 – Proposed PY2018 Savings Earnings

IOU	Ex Post Savings Incentive				Ex Ante Savings Incentive Adjustment	Total PY2018 Savings Incentive
	GWh	MW	MM Therm	Ex Post Earnings Subtotal		
	A	B	C	D (A + B + C)		
PG&E	\$4,600,816	\$1,802,231	\$729,194	\$7,132,241	\$21	\$7,132,262
SCE	\$3,058,817	\$1,594,462	N/A	\$4,653,279	\$0	\$4,653,279
SCG¹⁵	N/A	N/A	\$980,096	\$980,096	-\$63,162	\$916,934
SDG&E	\$1,161,696	\$653,793	\$33,665	\$1,849,154	-\$4,049	\$1,845,106
Total Statewide	\$8,821,329	\$4,050,487	\$1,742,954	\$14,614,770	-\$67,190	\$14,547,580

The earnings are based on earnings coefficients and net lifecycle savings of electric consumption (GWh), peak electric demand (MW), and natural gas consumption (MMTherm).

Table 2 shows the Ex Post net lifecycle savings values and resulting earnings values (which correspond to those in Table 1) for uncertain and custom measures. Additional information on earnings coefficients, lifecycle savings, and evaluated savings results is provided below.

¹³

https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/EE_and_Energy_Savings_Assist/2018_ESPI%20Earnings_Coefficients_Caps_Substitute%20Sheet.pdf

¹⁴ See the ESPI webpage, <https://www.cpuc.ca.gov/General.aspx?id=4137>, "2019 ESPI (2017ex-post, 2018 ex-ante) Resolution Draft"

¹⁵ SCG is not included in Resolution E-5062, and thus values presented in this table are subject to change based on CPUC decision

Table 3 – ESPI Net Lifecycle Savings and Incentives for PY2018

IOU	Savings	Electric (GWh)	Demand (MW)	Natural Gas (MMTherm)	Total
PG&E	Lifecycle Net Deemed	616	121	7	
	Lifecycle Net Custom	1,069	138	29	
	Total Lifecycle Net (Including Market Effects)	1,685	259	36	
	Total Incentive (\$)	\$4,600,816	\$1,802,231	\$729,194	\$7,132,241
SCE	Lifecycle Net Deemed	729	166	N/A	
	Lifecycle Net Custom	391	64	N/A	
	Total Lifecycle Net (Including Market Effects)	1,120	229	N/A	
	Total Incentive (\$)	\$3,058,817	\$1,594,462	N/A	\$4,653,279
SCG	Lifecycle Net Deemed	N/A	N/A	35	
	Lifecycle Net Custom	N/A	N/A	14	
	Total Lifecycle Net (Including Market Effects)	N/A	N/A	48	
	Total Incentive (\$)	N/A	N/A	\$980,096	\$980,096
SDG&E	Lifecycle Net Deemed	295	67	-2	
	Lifecycle Net Custom	130	27	3	
	Total Lifecycle Net (Including Market Effects)	425	94	2	
	Total Incentive (\$)	\$1,161,696	\$653,793	\$33,665	\$1,849,154

* See the Evaluation Decision Tree section in Appendix C for how the savings values were calculated.

Earnings Coefficients

D.13-09-023 established earnings coefficients to be applied to each unit of savings achieved on an evaluated savings basis, and these were updated to the following in a 2019 joint advice letter.¹⁶

Electricity (\$/GWh)	\$2,731
Peak Demand (\$/MW – Yr)	\$6,953
Natural Gas (\$/MM Therm)	\$20,231

Staff applies these coefficients to the net lifecycle evaluated savings values for electric energy consumption, electric demand, and natural gas, which have been adjusted for market effects.

¹⁶

https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/EE_and_Energy_Savings_Assist/2018_ESPI%20Earnings_Coefficients_Caps_Substitute%20Sheet.pdf

Lifecycle Savings

Staff used data from the PY2018 impact evaluation reports to estimate lifecycle GWh, MW, and MM Therm savings. Per Attachment 2 of D.13-09-023, the following parameters may be updated:

1. Measure Installations/Measure Count
2. Unit Energy Savings
3. Gross Energy Savings (product of 1 and 2)
4. Net-To-Gross Ratios by Program Strategy and/or Measure
5. Net Energy Savings (product of 3 and 4)
6. Effective Useful Life
7. Load Factor or Daily Load Shape used to transform annual electricity savings estimates into peak savings estimates

Regarding custom projects, D.13-09-023's Attachment 2 states that all components of the projects will be subject to review.

PY2018 Impact Evaluation Results

The PY2018 impact evaluations are available on the Energy Division's Public Documents Area (PDA) website.¹⁷ Table 3 lists the ESPI evaluated savings classification grouping (ESPI evaluated savings custom/deemed), the PY2018 impact evaluations, and the uncertain measures studied in each impact evaluation. While some uncertain measures were not evaluated, approximately 96% of Ex Ante uncertain lifecycle kWh savings are included in the evaluated savings deemed impact evaluations.

Table 3 – PY2018 Impact Evaluation Reports and Corresponding Uncertain Measures

ESPI Group	Impact Evaluation Reports	Uncertain Measures
Deemed	PY2018 Small/Medium Commercial (SMB) Sector ESPI Impact Evaluation	Ag Irrigation, Process Pumping VFD, Refrigeration Case Lighting, Water Heating Boiler, Water Heating Controls, Water Heating Showerhead, Water Heating Storage Water Heater, Water Heater Tankless Water Heater
Deemed	CPUC Group A Lighting Sector: PY 2018 Nonresidential Deemed Lighting Impact Evaluation	Lighting Indoor LED Fixture, Lighting Indoor LED Lamp, Lighting Indoor LED Reflector Lamp, Lighting Outdoor LED Fixture
Deemed	CPUC Group A Lighting Sector: PY 2018 Upstream and Residential Downstream Lighting Impact Evaluation	Lighting Indoor LED Fixture, Lighting Indoor LED High Bay Fixture, Lighting Indoor LED Lamp, Lighting Indoor LED Reflector Lamp, Lighting Outdoor LED Fixture

¹⁷ Use the Advanced Search function to search for deliverable type "Final Evaluation Report" published between "01/01/2020" and "05/31/2020" on <https://pda.energydataweb.com>.

Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI

ESPI Group	Impact Evaluation Reports	Uncertain Measures
Deemed	Program Year 2018 (PY 2018) HVAC Sector Impact Evaluation	HVAC Chiller Water Cooled, HVAC Duct Sealing, HVAC Furnace, HVAC Motor Replacement, HVAC Rooftop or Split System
Deemed	Impact Evaluation Report Pool Pumps - Residential Program Year 2018	Pool Pump
Deemed	Water-Saving Fixtures: A Residential and Multifamily Survey to Inform Program Year 2018 Impact Evaluation z	Water Heating Showerhead
Deemed	N/A	Appliance Clothes Washer, HVAC Maintenance, HVAC Mini-Split System, HVAC RCA
Custom	CPUC Group A Residential Sector PY 2018 Home Energy Reports Impact Evaluation	N/A
Custom	2018 Custom Industrial, Agriculture, and Commercial (2018 CIAC) Final Impact Analysis	N/A

5. Creation of PY2018 ESPI Database

The PY2018 ESPI database is the source of the energy savings values used in this report. This section describes the decision tree Staff used to create the ESPI evaluated savings classification groupings and pass through reported values or apply evaluated savings results. Staff utilized the detailed PY2018 annual tracking data from the CEDARS¹⁸ as the foundation for prioritizing evaluation activities and applying updates from evaluations. Staff and evaluation contractors utilized the following options in making updates to the IOU savings claims¹⁹ used in this Performance Statement:

1. Pass through: Accept unchanged Ex Ante savings values for claims that do not fall within the frame of an impact evaluation; or
2. Evaluated: Apply claim-level results from the PY2018 impact evaluations to records included in the frame of an evaluation.
3. Claim Year: Zero out savings for claims with installation dates prior to 2018.

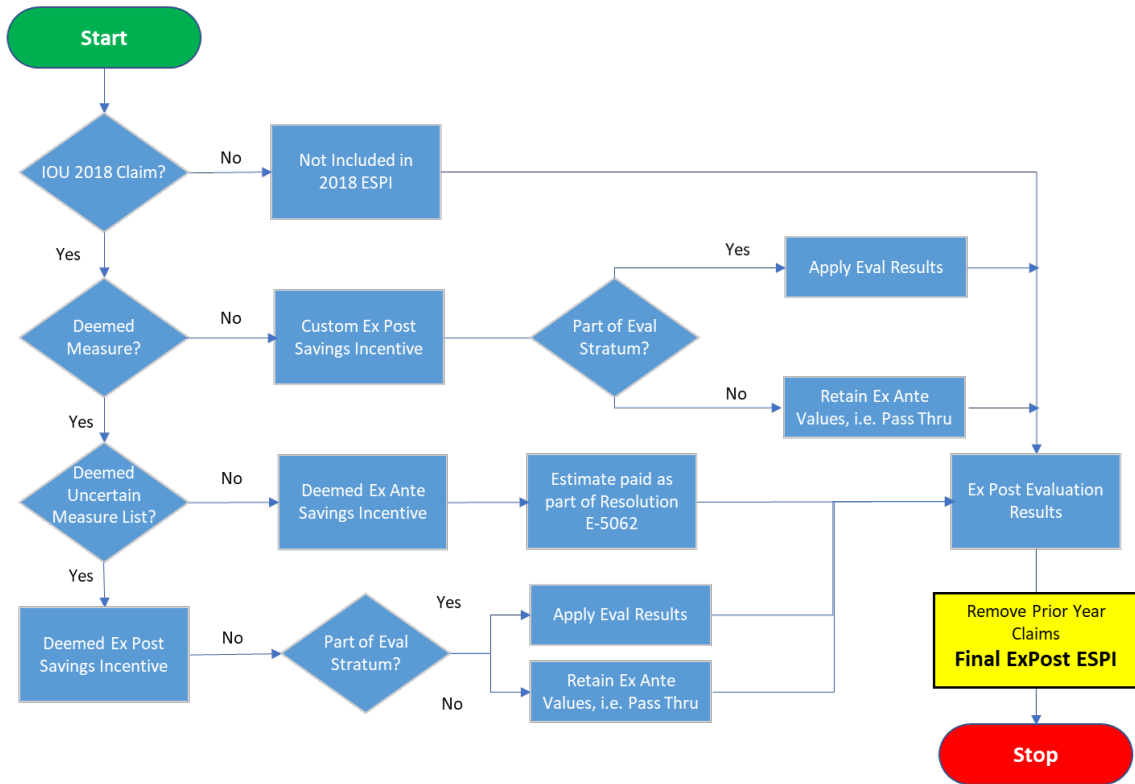
¹⁸ CEDARS is the Commission's online filing system for receiving various compliance filings.

¹⁹ CEDARS use the "ClaimID" as the unique identifier of records in the database, i.e., each record corresponds to one savings claim. Since the ESPI database is based on the CEDARS database, each ESPI database record also corresponds to one savings claim.

Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI

The decision tree in Figure 1 below illustrates how Staff updated IOU claims with results from the PY2018 impact evaluations. More detailed information regarding how the PY2018 ESPI database was created can be found in Appendix C.

Figure 1 – Savings Incentive Record Grouping Decision Tree – PY2018 ESPI



* Eval Stratum refers to the sample segmentation used for the evaluations.

6. Biggest Drivers of Savings and Changes in Savings

This section provides two views of the key drivers of evaluation updates for the portfolio based on the PY2018 ESPI process:

- Subsection 6.a. presents the relative effect of updates to each of the parameters on the overall Ex Ante savings. These waterfall graphics illustrate how the Ex Post parameters change the lifecycle savings from gross Ex Ante savings to net Ex Post savings. The methodology for these waterfall graphics was derived from a whitepaper written by PG&E and commented on by Staff and contractors.²⁰ The graphics illustrate which parameters had the biggest impact on evaluated net savings, i.e., whether it was the installation rate, unit energy savings (UES), effective useful life (EUL), or Net to Gross Ratios (NTGR) in either the Ex Ante savings or relative Ex Post savings updates.
- Subsection 6.b. presents what proportions of net lifecycle savings values were “Passed Through” versus “Evaluated” to highlight what percent of portfolio savings were updated based on an evaluation result.
- Subsection 6.c. presents the distribution of Ex Ante savings by ESPI measure group for measures that make up the PY2018 ESPI Ex Post savings of uncertain measures. These graphics reveal which measures had the largest contribution to savings.

a. Database Updates

The following graphics provide an illustration of the relative influence of each parameter update. The methodology from the above-mentioned whitepaper provides a normalized, order-independent method for calculation; however, there are still considerations to take when interpreting these waterfall graphics.

First, a parameter may have multiple factors within its calculation that can influence the value (e.g., hours of use within the UES) and this break-down is at the highest parameter level.

Second, the parameter gauging program influence, the NTGR, is estimated in the program plans, and in many cases updated with evaluated results. For this reason, we include both a “Gross” and “Net” waterfall graphic for the GWh and MW savings units.

The Gross waterfalls show the program influence of the combined reported and evaluated NTGR. However, the Net waterfalls break the program influence into its Ex Ante savings reported and Ex Post relative impact. The adjustments in the graphics are defined as follows:

- a) Installation Rate – the units were verified as installed and operating.
- b) Unit Energy Savings & Realization Rate Adjustment:

²⁰ https://pda.energydataweb.com/api/view/1958/Final%20Waterfall_Whitepaper_6Dec2017.pdf

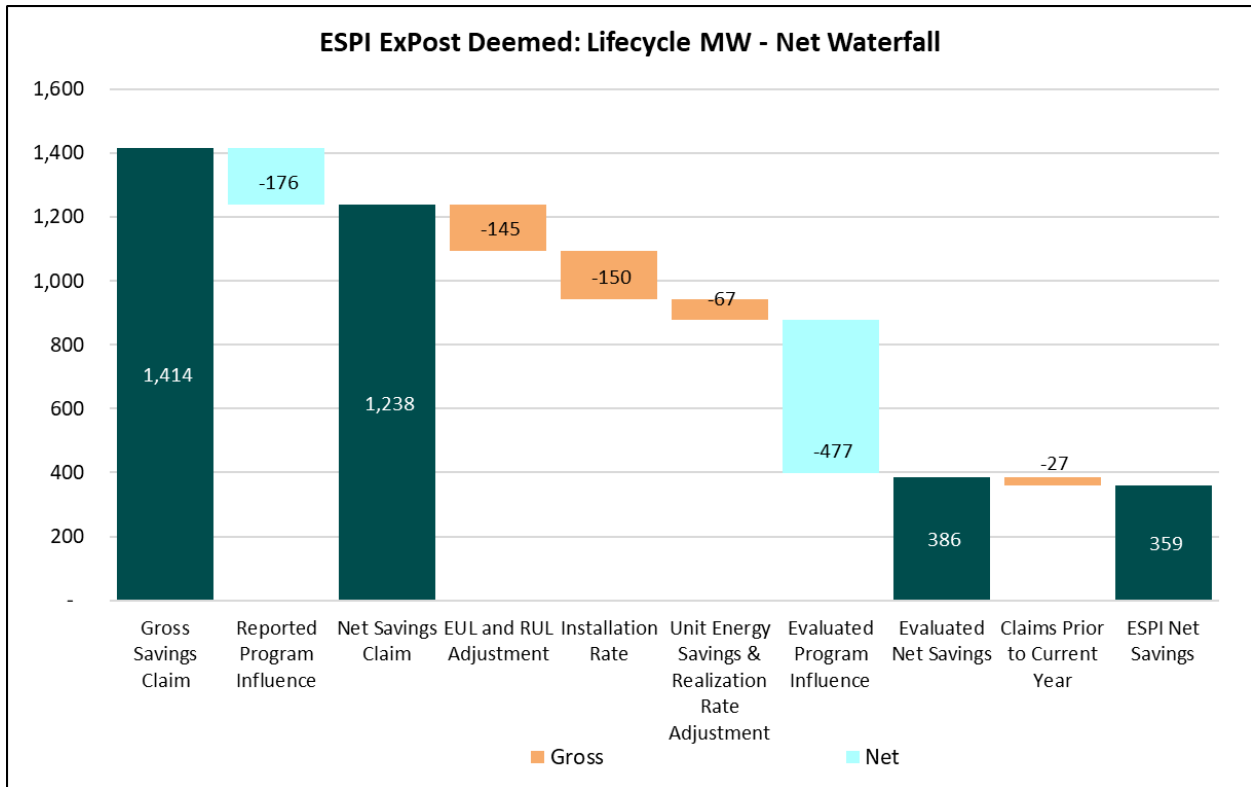
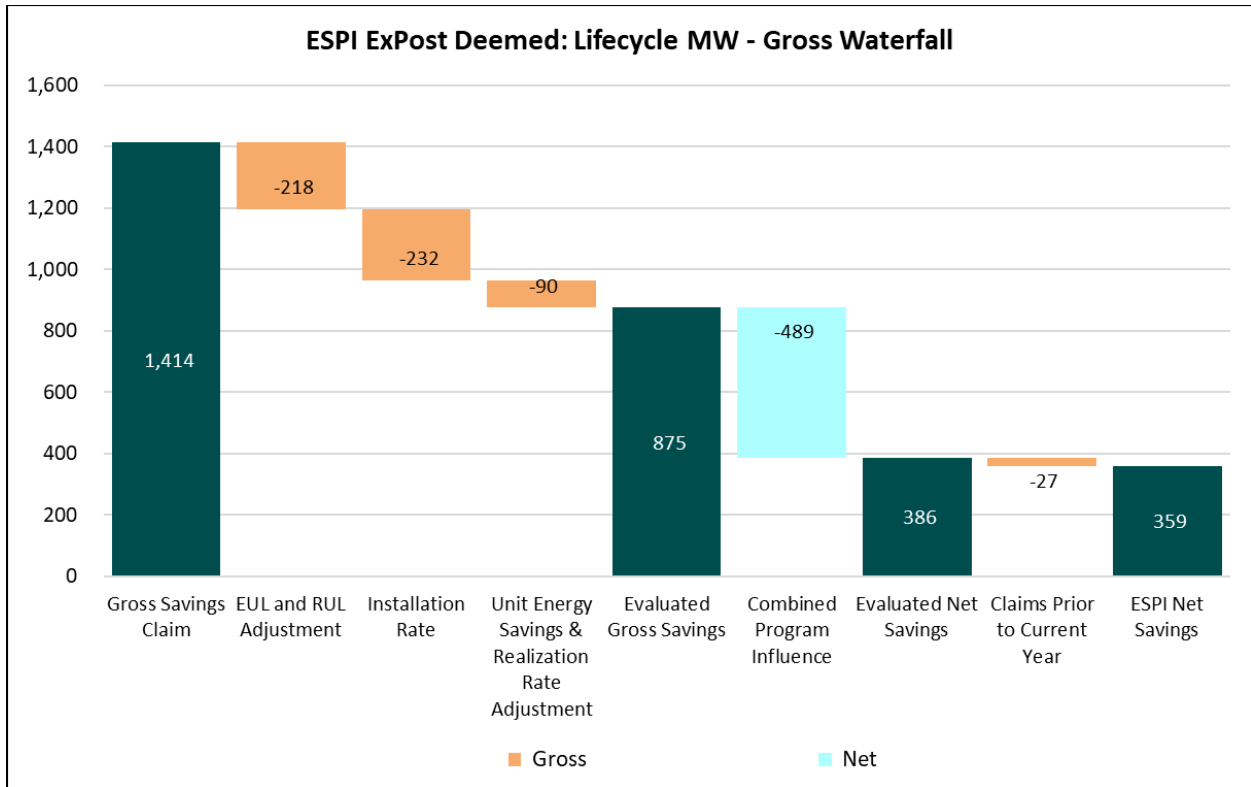
Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI

- i. Unit Energy Savings – savings per unit installed (primarily for Deemed measures).
- ii. Realization Rate – savings achieved versus reported
- c) Effective Useful Life/Remaining Useful Life Adjustment – adjustments made to EUL and RUL.
- d) Combined Program Influence – program influence from evaluated gross savings to evaluated net savings.
- e) Reported Program Influence – assumed program influence as reported in the Ex Ante savings, i.e., the difference from reported gross savings to reported net savings.
- f) Evaluated Program Influence – the impact of applying the evaluated savings NTGR after the reported savings has already been applied.
- g) Claims prior to Current Year – impact of removal of claims with installation dates prior to 2018.

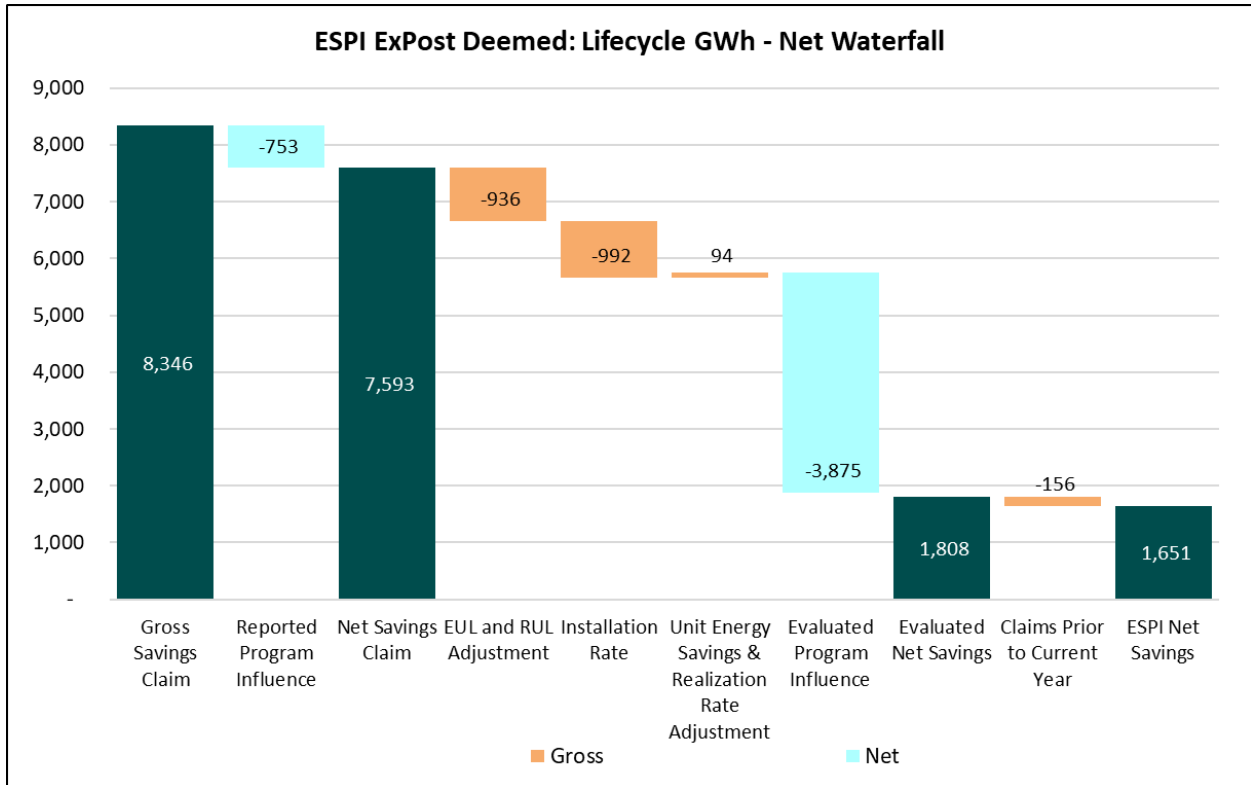
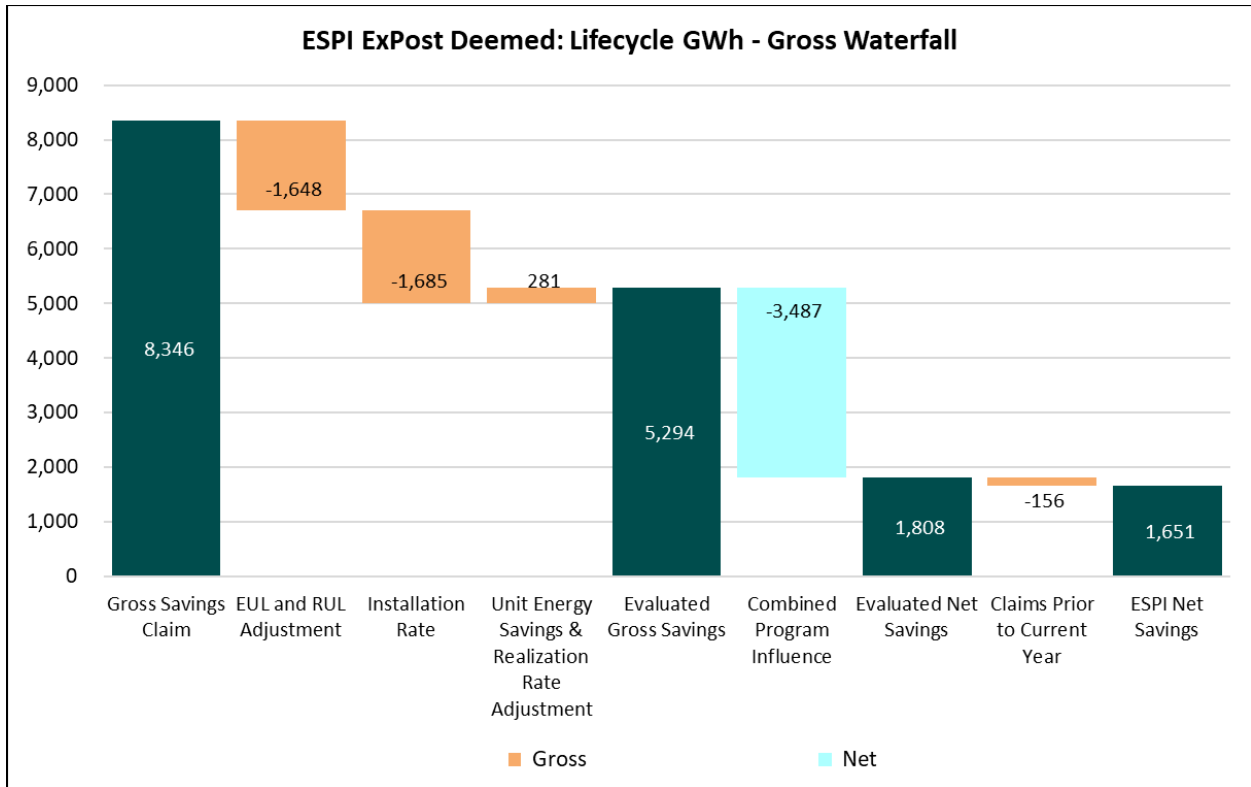
The statewide results are provided in the following series of graphics, while the IOU-specific results are presented in the IOU-specific workbooks found online²¹ with the statewide workbook from which these graphics were taken.

²¹ The workbooks can be found under the heading "2018 Ex-Post ESPI" at this URL:
<http://www.cpuc.ca.gov/General.aspx?id=4137>

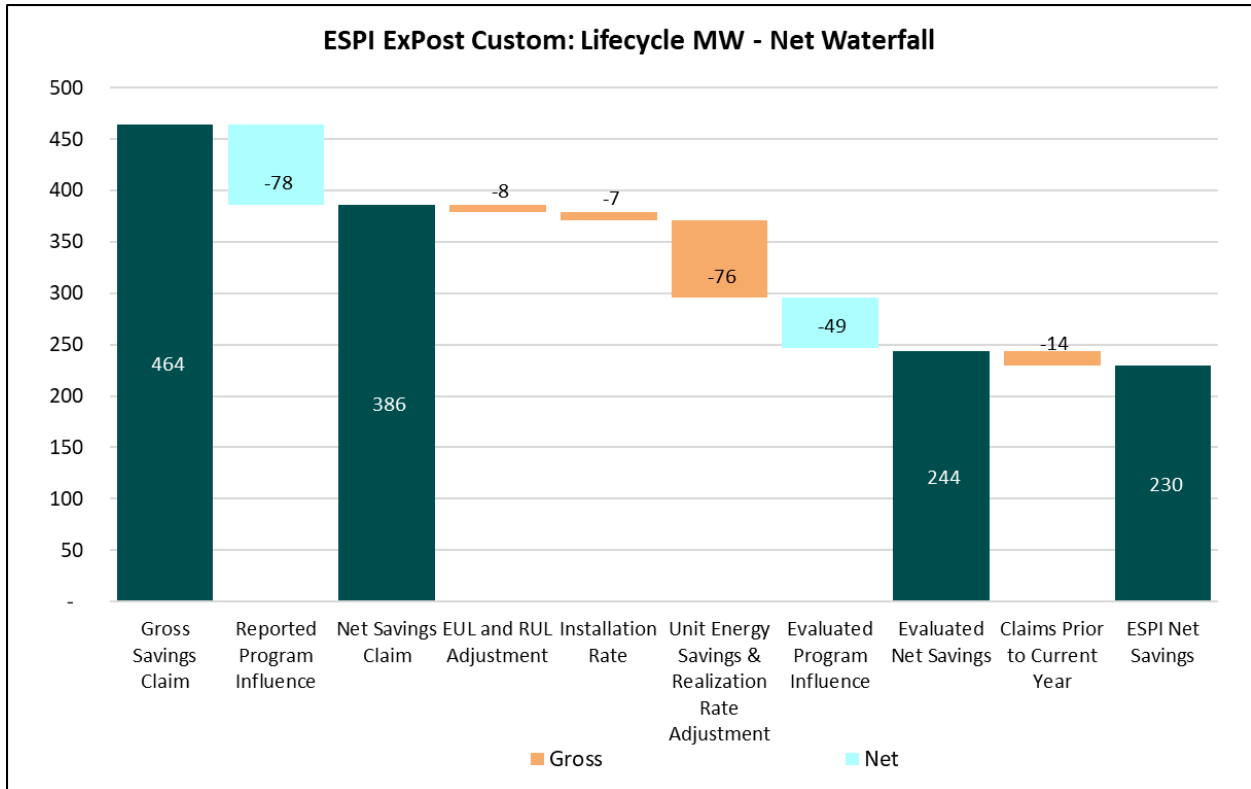
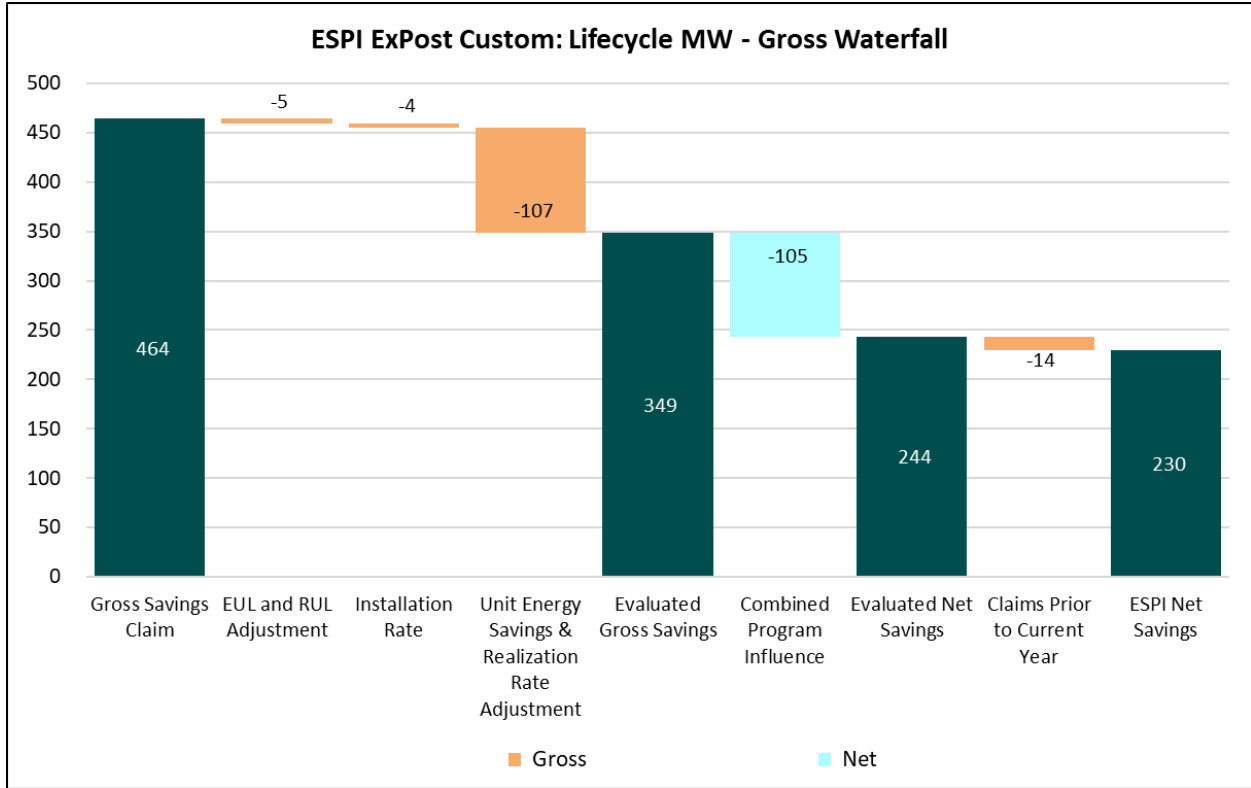
Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI



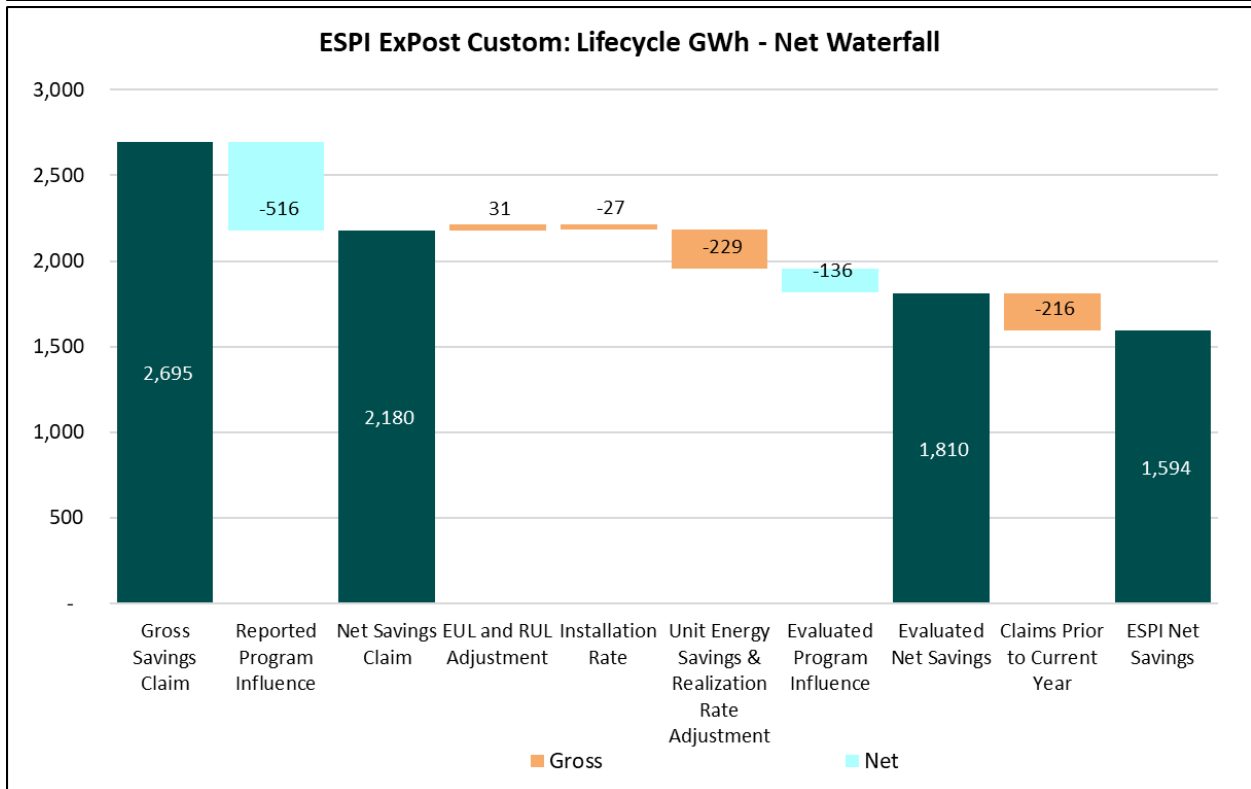
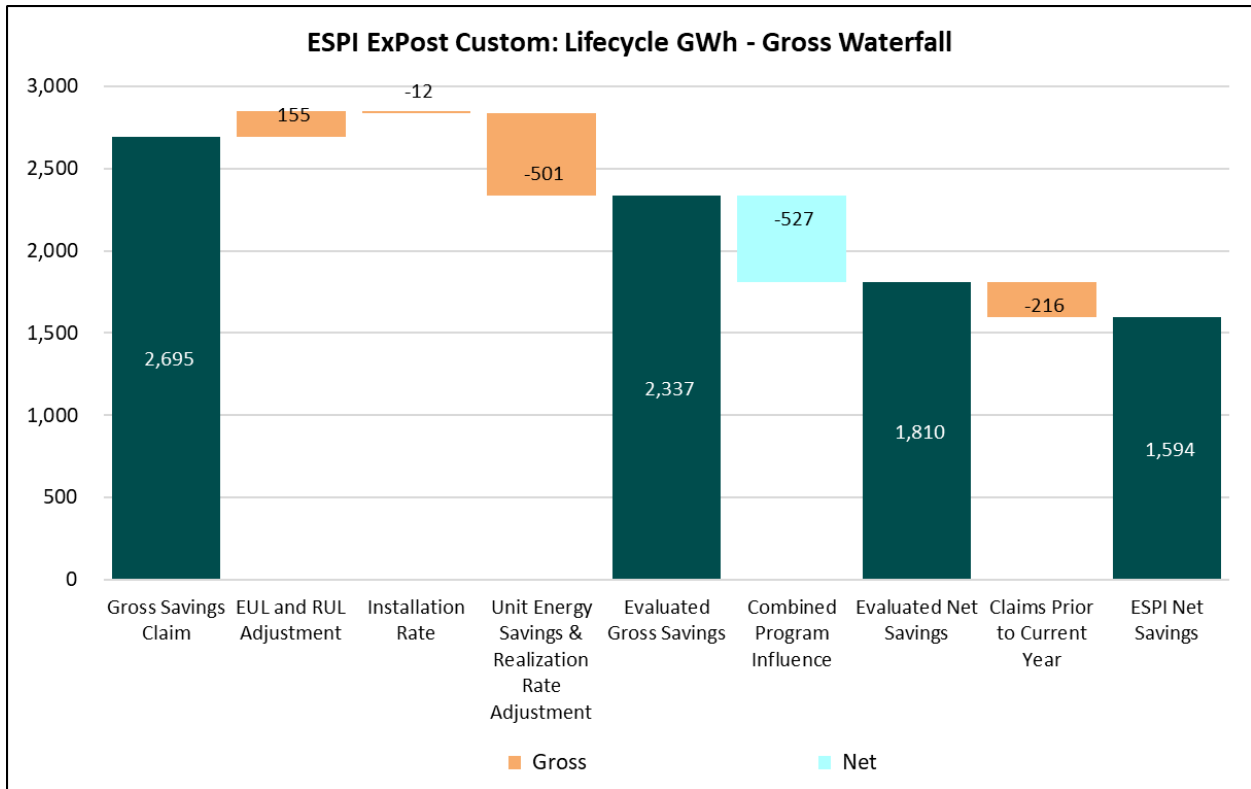
Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI



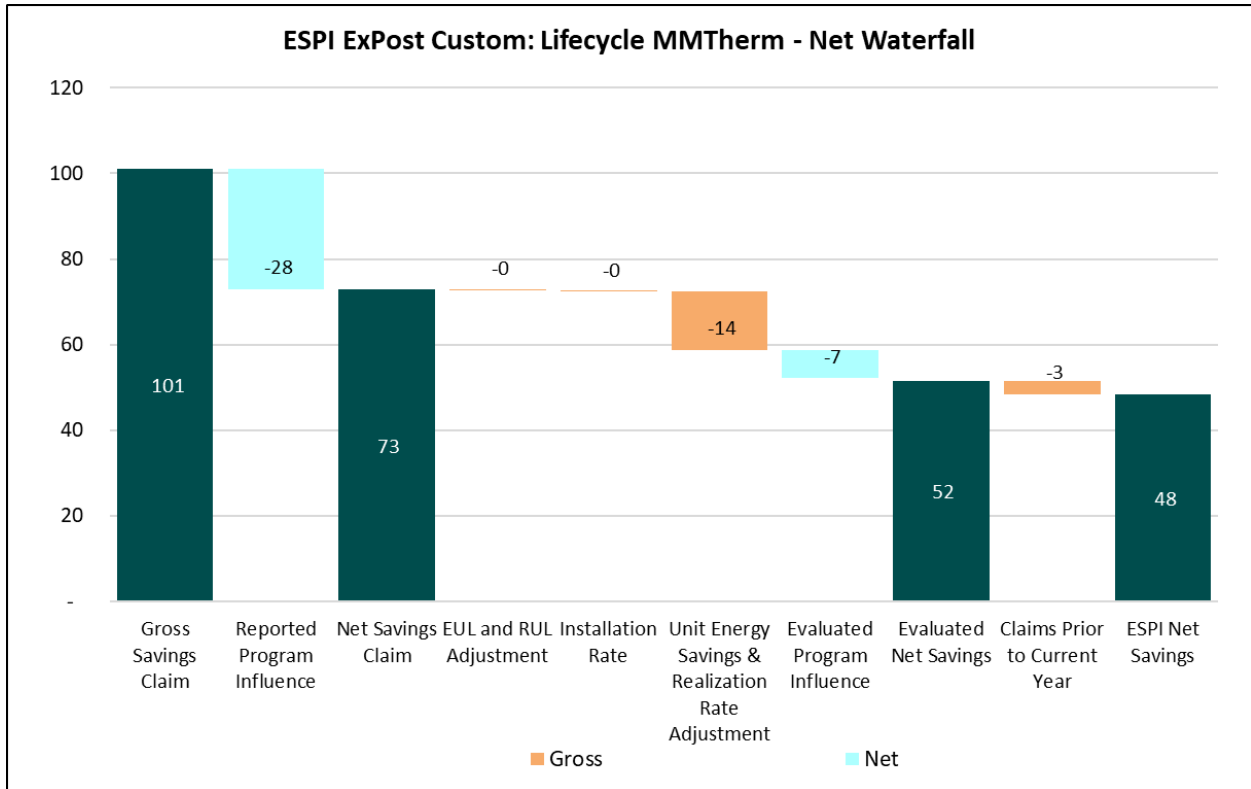
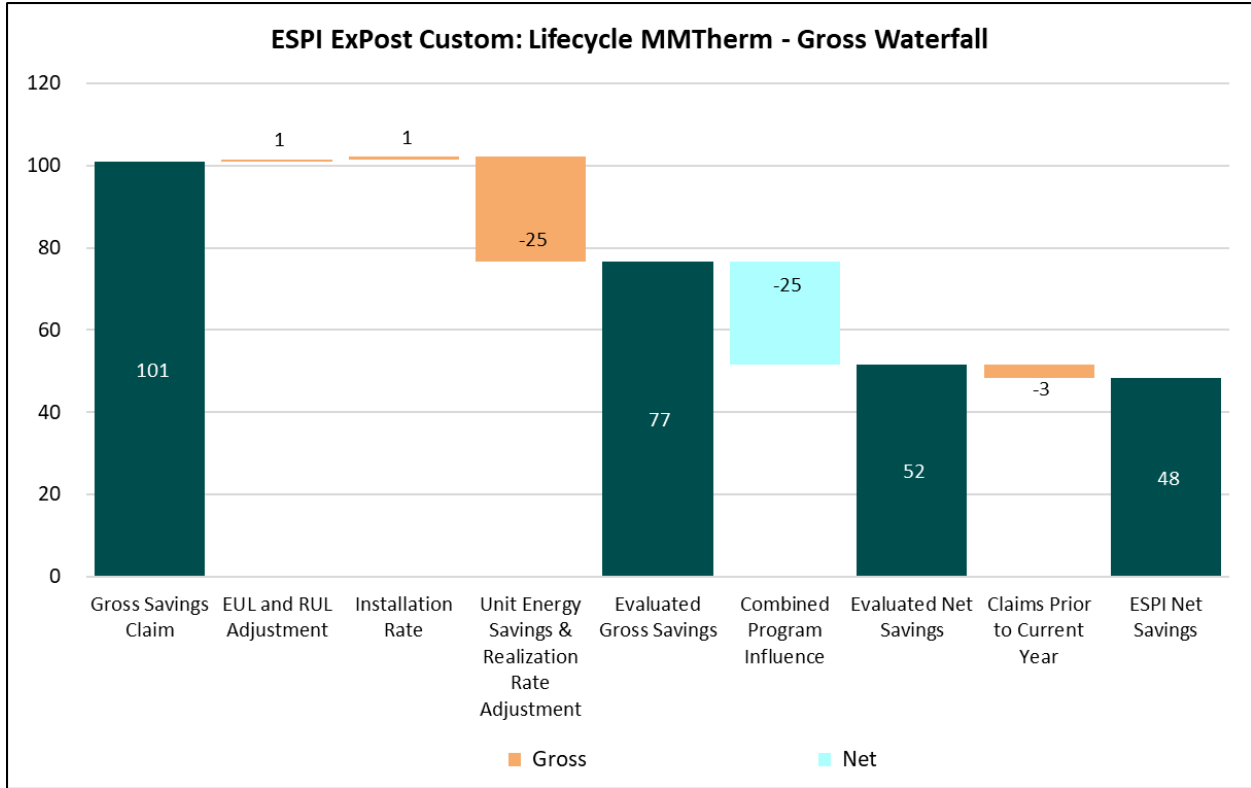
Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI



Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI

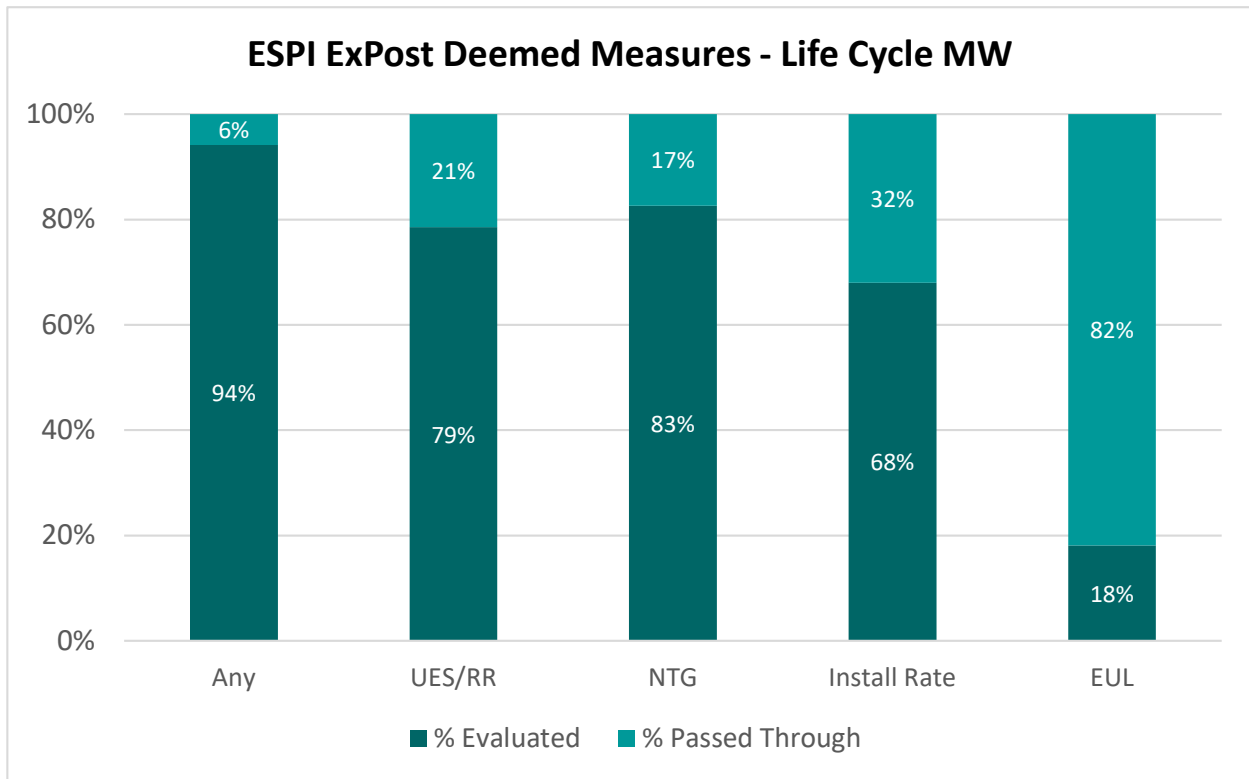


Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI



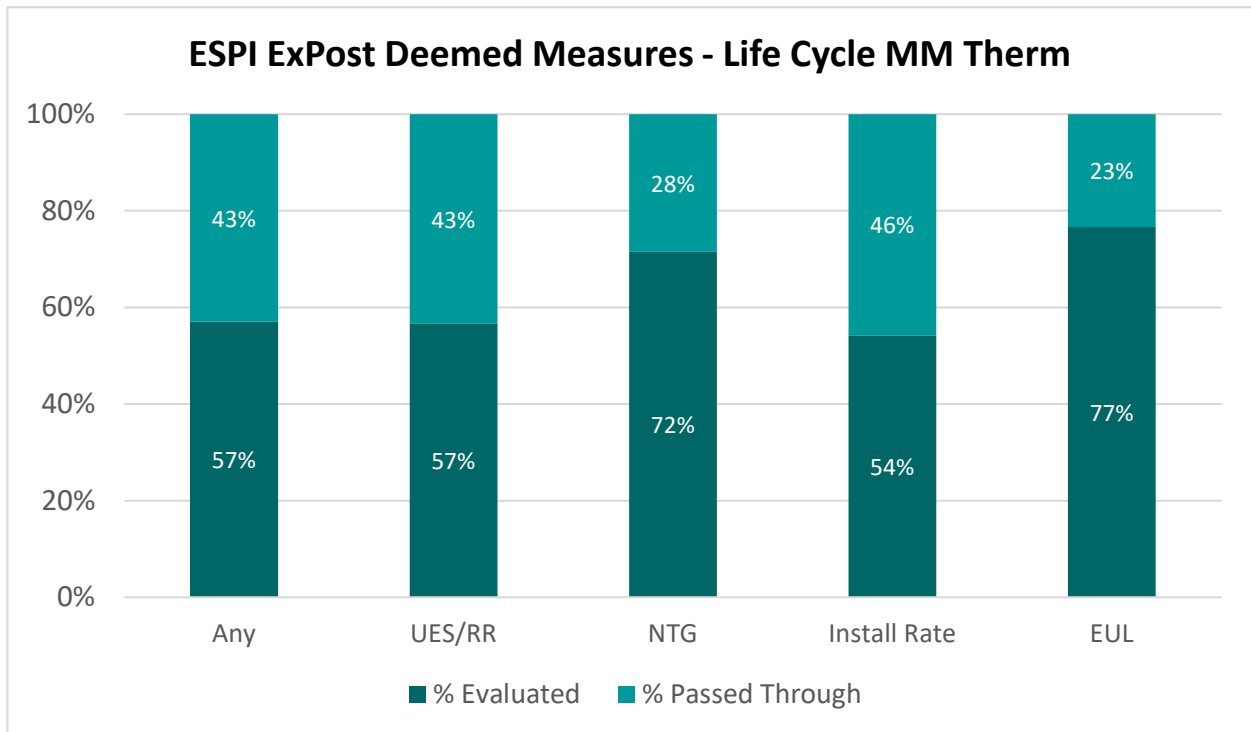
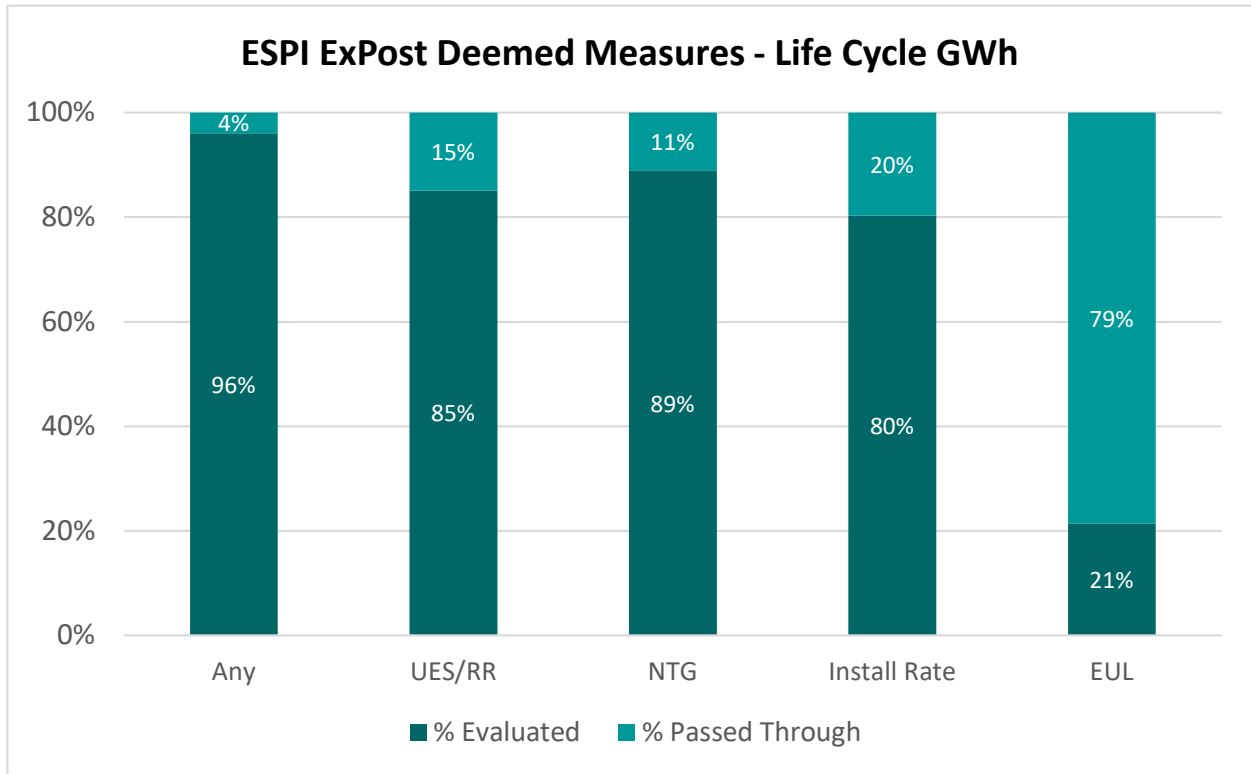
b. Pass-Through versus Evaluated Records

The following charts show the percentage of uncertain measure lifecycle savings values that were updated (whether or not the updated value was changed from the reported value) as the result of an evaluation for each of the parameters listed in section 6.a. Of the Ex Post uncertain measures, 94% of lifecycle MW savings, 96% of lifecycle GWh savings, and 57% of lifecycle MM Therm²² savings received some evaluation update. The impact evaluations focused on the parameters of interest per the uncertain measures list and therefore which values are pass-through and which values are adjusted depend on the parameter. IOU-specific charts are available on the ESPI website.²³



²² The therm chart illustrates calculations that used absolute values of savings, as lighting claims have negative therm savings.

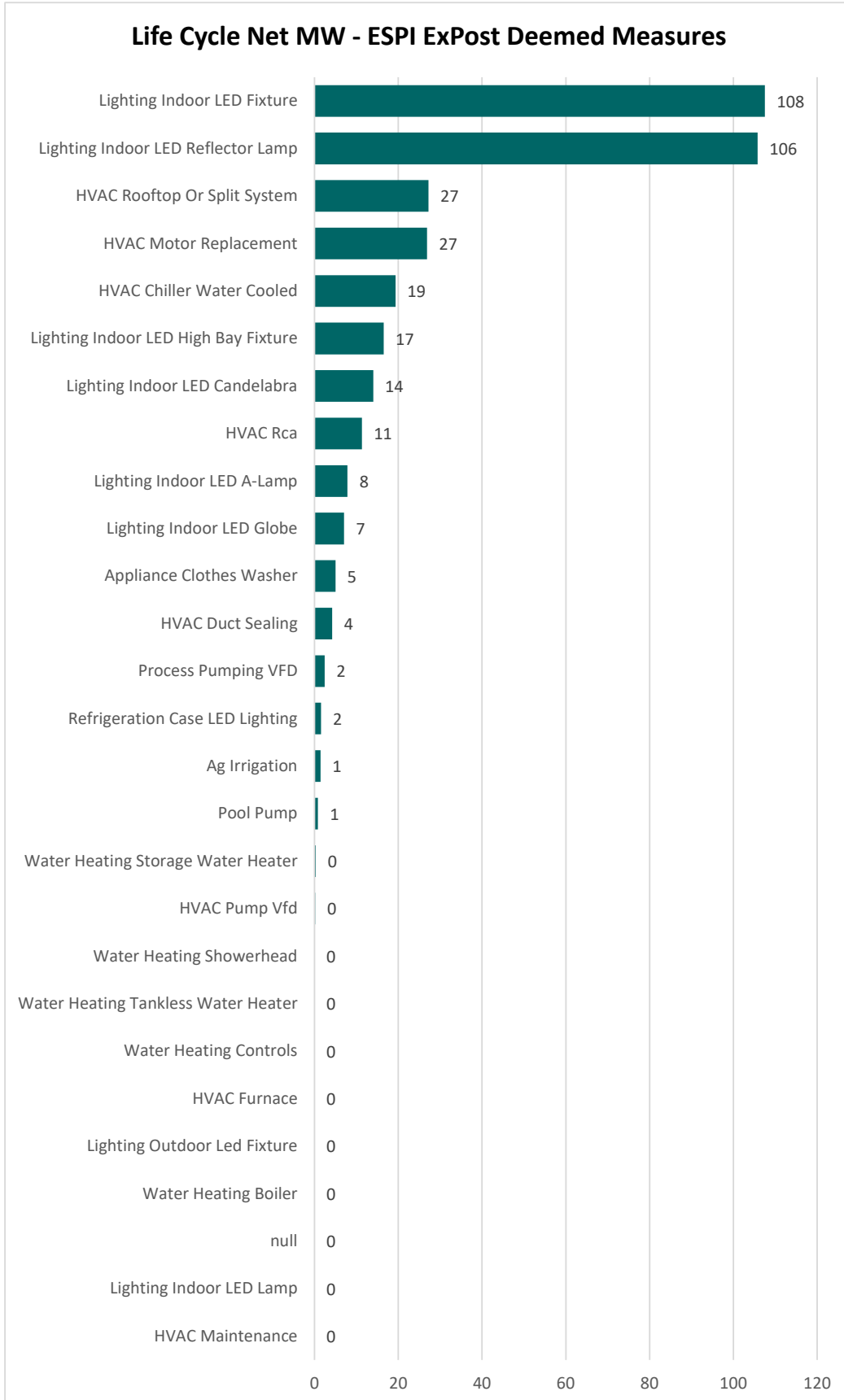
²³ <http://www.cpuc.ca.gov/General.aspx?id=4137>

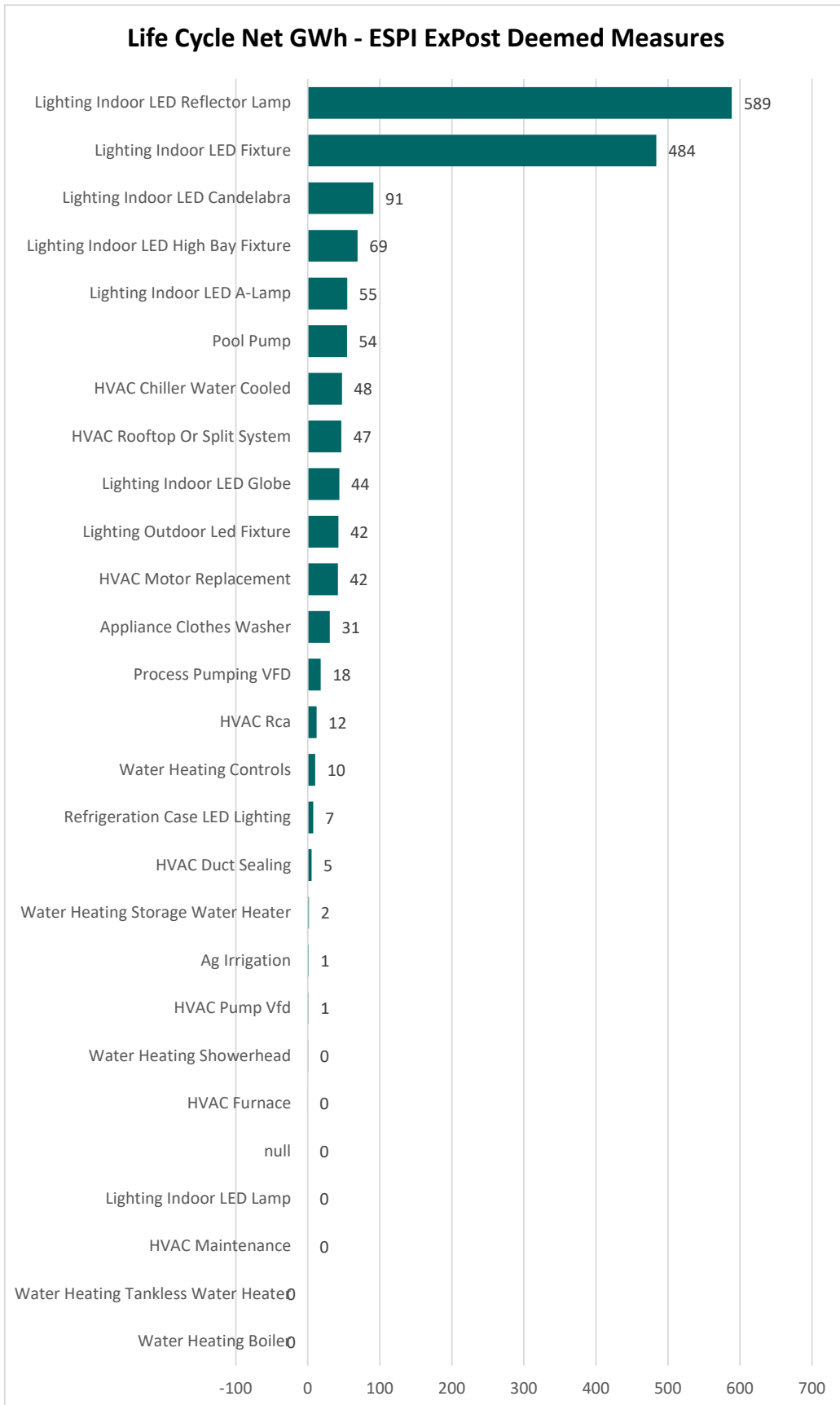


c. Largest Uncertain Measures

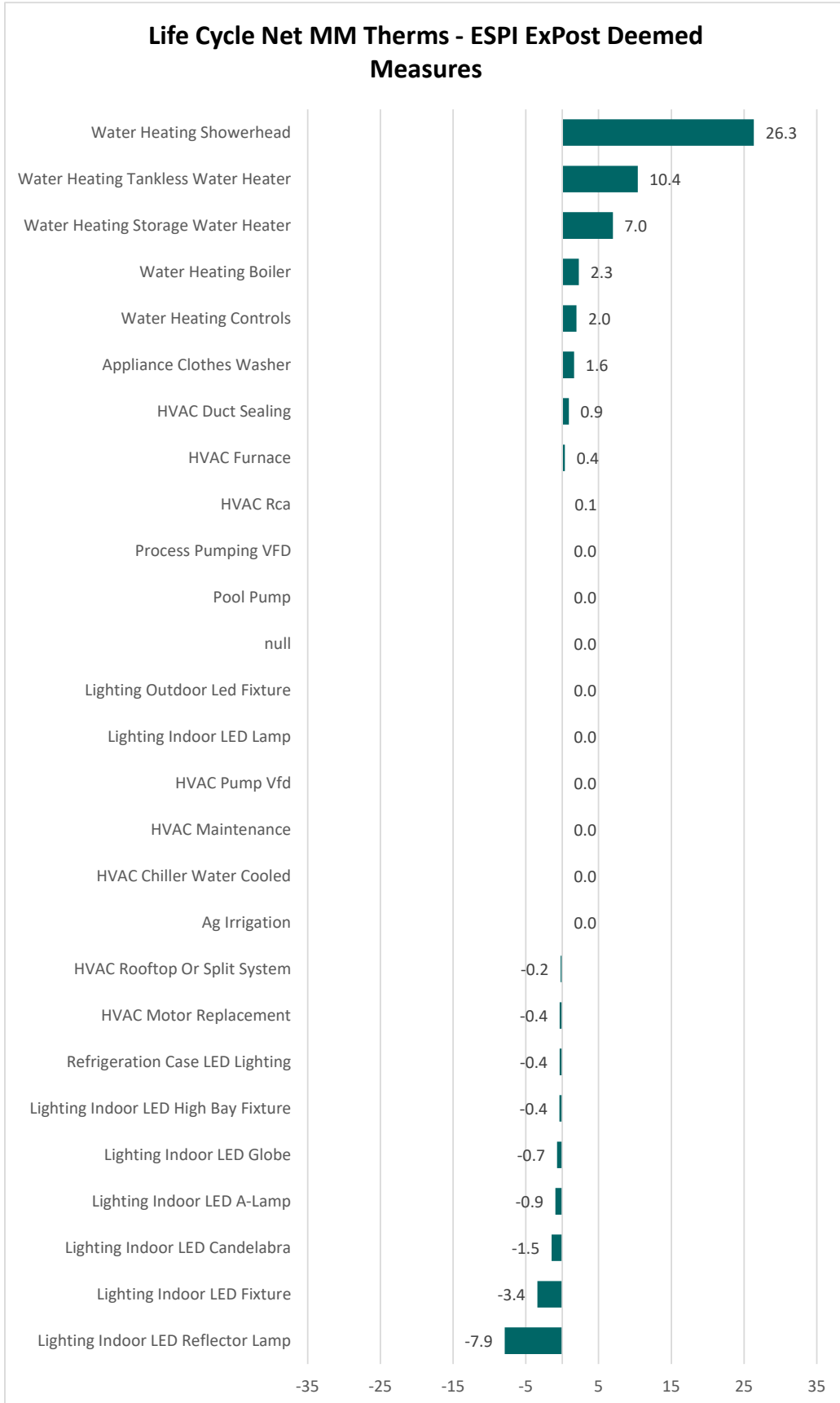
The following charts show the relative contributions of the uncertain measures to reported lifecycle electric consumption, peak electric demand, and natural gas savings. LED Reflector Lamps were the largest contributors of both lifecycle electric consumption and peak demand savings, accounting for approximately 80% of the statewide lifecycle kWh savings. Water heating measures were the largest contributors of lifecycle natural gas savings (within only the PY2018 deemed uncertain measure savings).

Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI





Savings Performance Statement on 2018 Evaluated Energy Savings for 2020 ESPI



7. Appendices

Appendix A: 2018 Performance Statement Workbooks

Appendix A describes and provides a link to the statewide workbook containing all the tables and charts used in this report.

Appendix B: 2018 ESPI Database

Appendix B describes and provides a link to a database containing all the measure-level data and queries used to build the tables in Appendix A.

Appendix C: Creation of Evaluated Savings Dataset

Appendix C includes detail on how the impact evaluation updates were implemented in the database.

Appendix D: Savings Incentive Adjustments

Appendix D provides a detailed explanation of the adjustments made to and the earnings values for the 2018 ESPI Ex-Ante Savings Incentive.

Appendix E provides responses to public comments.

Appendix A: 2018 Performance Statement Workbooks

The 2018 ESPI workbooks can be found on the ESPI website.¹ The statewide workbook was used to create all results tables and graphs presented in this report. This workbook's statewide results are presented separately from IOU-specific results (available at the same website), giving rise to five workbooks in total. Each workbook contains results data by Scenario, PA (Program Administrator), ESPI Group, ESPI Category, Uncertain Measure, having Evaluation Results, Measure Group, and RoadMap ID. The results include Record Counts, Quantities, and Gross and Net First Year and Lifecycle Savings and are generated directly from the 2018 ESPI Database. The subsequent tables and charts are derived from these data.

The workbooks contain tables and graphs not presented in this report. These are provided to allow the reader to interpret the results at a finer level of detail. Each workbook sheet has the functionality to be adjusted for different Scenarios, ESPI evaluated savings groups, uncertain measures, and IOUs, where appropriate. A webinar was held May 27, 2020 to educate all IOUs on the usage of these workbooks.

¹ See the ESPI webpage, <https://www.cpuc.ca.gov/General.aspx?id=4137>, under "2018 Ex-Post Savings Award"

Appendix B: 2018 ESPI Database

The 2018 ESPI database, which consists of an individual database for each IOU, can be found on the ESPI website.¹ The structure of the 2018 ESPI database is similar to that of the 2017 database, but not the 2016 database, as no impact evaluations were performed for PY 2016.

Each IOU has a specific database, which includes a table with the detailed claim-level data. For each record, the following values are available in the database:

- Reported savings values ("ExAnte"),
- Ex Ante Reviewed savings values as adjusted by Resolution E-5062² ("EARAdj"),
- Ex Ante Reconciled savings values³ after application of evaluated installation rates ("EARRec"),
- Impact evaluation savings values⁴ ("Eval"), and
- Evaluated savings values⁵ ("ESPIExPost"), including gross, net, first-year, and lifecycle savings.

In addition, there are "ExAnte," "EARAdj," and "Eval" fields for all parameters used in the savings calculations. This database table is the basis for this Performance Statement and the aggregated data presented in the Excel file in Appendix A.

Several summarization queries are provided in the database. The queries included in this database serve multiple purposes. Some are meant to verify and provide transparency towards the savings and records used originally as part of Resolution E-5062 for the PY2018 Ex Ante savings portion of the ESPI award. Others were developed to generate the aggregated data in the Performance Statement Workbooks (referenced in Appendix A), which were then used to produce all tables and graphics in this report. Finally, several queries are included that created the Impact Evaluation Standardized Reporting appendices⁶ found in the 2018 Impact Evaluation reports. The Database Contents file provides information detailing the contents of each query and identifies the Excel tables or impact evaluation report appendix table each is intended to match.

¹ See the ESPI webpage, <https://www.cpuc.ca.gov/General.aspx?id=4137>, under "2018 Ex-Post Savings Award"

² EARAdj values are zero for records not paid as part of Resolution E-5062 for the 2018 ESPI Ex-Ante Savings Incentive.

³ EARRec values are only non-zero for records determined after reconciliation to be part of the 2018 ESPI Ex-Ante Savings Incentive.

⁴ Eval savings values are filled in for all records. If a record was passed through, reported savings values are used. These fields contain impact evaluation results even if the record is not a part of the 2018 ESPI uncertain measure list.

⁵ Includes all changes made to claims for ESPI purposes including removing claims with prior year installation dates. .

⁶ Found on the ESPI webpage under 2019 References

Appendix C: Creation of Evaluated Savings Dataset

Claim Data

The IOU energy efficiency program tracking data form the basis for critical program reporting functions and for evaluation sampling and execution. The PY2018 annual tracking data from CEDARS¹ are the foundation for the values in this Performance Statement.

Claim Submission Processing

The following steps were followed to process the program tracking data:

1. IOUs upload energy efficiency program tracking data to CEDARS
2. CEDARS perform quality control (QC) and data validation
3. Download claims data from CEDARS
4. Minor cleaning of data.²

Validation and Quality Control

For information on data validation and quality control enforced via CEDARS, see its specification information: <https://cedars.sound-data.com/list/>.

Evaluation Data

Evaluation data provided in the final PY2018 impact evaluations form the basis for evaluated savings updates for this report. Evaluation data are reported by evaluation teams. For PY2018 ESPI, the evaluation teams provided claim-level results for each parameter and savings value. These fields are identifiable in the 2018 ESPI database by the prefix "Eval." The evaluation results are discussed in detail in the 2018 impact evaluations.³

Evaluation Data Processing

The following steps were followed to process the evaluation data:

1. Impact evaluation report specific databases posted to Energy Division Central Server (EDCS) Smartfile for evaluation teams
2. Evaluation teams fill out claim-level evaluation data; submit to Smartfile
3. Evaluation data read into SAS
4. Quality check individual data submissions and iterate with evaluation teams
5. Read together all evaluation results and create 2018 ESPI access databases.

¹ [CEDARS](#) is the Commission's online filing system for receiving various compliance filings.

² Including dividing claims into ESPI groups, measure groups, and evaluation teams.

³ Use the Advanced Search function to search for deliverable type "Final Evaluation Report" published between "01/01/2020" and "05/31/2020" on <https://pda.energydataweb.com>.

The following graphic provides a high-level overview of the processing of claim-level data from the IOU submissions, to creating *EDFilled*, to adding evaluation results and reading out information for the purposes of the PY2018 ESPI awards.

Evaluation Decision Framework

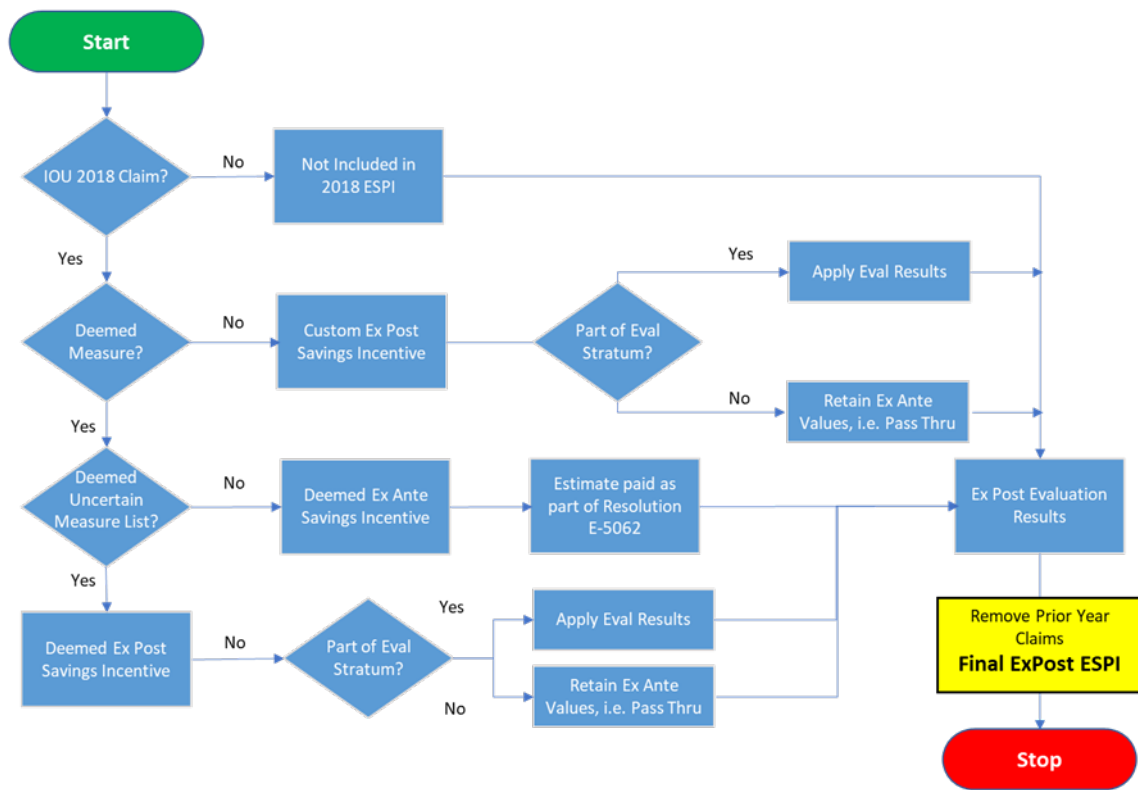
Staff utilized the detailed annual tracking data from CEDARS, described above under “Claim Data,” as the foundation for prioritizing evaluation activities and applying updates from evaluation work. Staff and evaluation contractors utilized the following options in making updates to the IOU savings claims for the aforementioned parameters:

1. Pass through: Accept unchanged reported savings values for claims that do not fall within the frame of an impact evaluation; or
2. Evaluated: Apply claim-level results from the PY2018 impact evaluations to records included in the frame of an evaluation.

Evaluation Decision Tree

The decision tree in the Figure 2 illustrates how Staff partitioned IOU claims for the purposes of resource program savings incentive earnings based upon section 7 of D.13-09-023.

Figure 2 – Evaluation Framework Decision Tree



* Eval Stratum refers to the sample segmentation used for the evaluations.

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PY2018 ESPI evaluation results were submitted by the evaluation teams in the form of impact evaluation reports. Each report was reviewed and vetted via the public review process, and the final numbers were provided to the data reporting team. Evaluation results were downloaded and processed into the CPUC contractor's local server and applied to claims in the ESPI Evaluated Deemed Savings Incentive groupings of claims. For the PY2018 impact evaluation results, there were two phases, which match those from the PY2017 ESPI process.

The first phase consisted only of partitioning the claims by impact evaluation report. Each claim was first identified with a RoadMap ID and each RoadMap lead was asked to group claims into evaluation reports, the result of which is stored in the EvalReportName field.⁴ In the second phase, each impact evaluation report team then received a Microsoft Access database with Ex Ante savings information and blank results fields to fill out with claim-level results.

The data reporting team worked closely with each evaluation team to help maintain consistency in claim-level reporting. The report-specific Microsoft Access databases were then returned to the data reporting team. Each report was put through an extensive quality check routine and any issues or discrepancies were reported to the evaluation teams for review and updates. Once claim-level results were finalized with impact evaluation information, all evaluation reports were combined. Finally, PY2018 claims were subset by IOU for the 2018 ESPI database.

⁴ Claims not associated with any impact evaluation report were assigned to a report name with a prefix of the RoadMap ID and suffix of "_2018_<RoadMap>None."

Appendix D: Ex Ante Savings Incentive Adjustments

As noted on page 5, there are differences in the Ex Ante savings incentive estimates presented in this Performance Statement compared to the earnings in Resolution E-5062. Table 5 and Table 6 below present the two sets of estimates, and Figure 3 illustrates the difference in the incentives between the two estimates.

Table 4 – PY2018 Ex Ante Savings Incentive Earnings in Resolution E-5062

IOU	GWh Incentive	MW Incentive	MM Therm Incentive	Ex Ante Savings Incentive
PG&E	\$919,978	\$388,360	\$537,512	\$1,845,851
SCE	\$801,003	\$214,628	N/A	\$1,015,631
SCG ¹	N/A	N/A	N/A	N/A
SDG&E	\$98,056	\$29,064	\$55,910	\$183,029
Total Statewide	\$1,819,037	\$632,052	\$1,650,610	\$3,044,511

Overview of Changes

The reason for the differences between the Ex Ante savings incentive earnings estimates between Resolution E-5062 and this Performance Statement is the application of impact evaluation-determined installation rates to previously paid 2018 ex-ante savings.² This is explained in more detail below, and further tables are also contained in the “Earnings_Detail_PrelimExAnte” tab in the statewide ESPI results workbook.³

Application of Installation Rates

Section 7.3 of D.13-09-023 directs that, where available, impact evaluation results for measure counts or installation rate should be applied to Ex Ante savings incentive-earning records for calculating ESPI earnings. These installation rates were not available at the time Resolution E-5062 was written and as such the application of such installation rates necessarily comes as part of the ESPI Ex Ante savings incentive adjustments made as part of this report.

After the reconciliation described previously, savings were recalculated for each record determined to be a part of the Ex Ante savings portion of the ESPI claim using “EARAdj” parameters where updated, the impact evaluation installation rate, and otherwise Ex Ante savings reported parameter values. Using field names from the 2018 ESPI Database, the formula for net lifecycle GWh⁴ savings is as follows:

¹ SCG’s earnings are not included in Resolution E-5062

² See page 51 of D.13-09-023: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M076/K775/76775903.PDF>

³ This workbook can be found at <http://www.cpuc.ca.gov/general.aspx?id=4137>

⁴ MW and MM Therms savings are calculated similarly, with the appropriate changes to unit specific parameters.

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If $RUL > 0$ then

$$\begin{aligned}
 &EARRecLifecycleNetkWh \\
 &= EvalIRkWh \cdot Quantity \cdot RRkWh \cdot EARAdjNTGRkWh \cdot (EARAdjRUL \\
 &\quad \cdot EARAdjUESkWh + (EARAdjEUL - EARAdjRUL) \cdot EARAdjUESkWh_{ER})
 \end{aligned}$$

Otherwise,

$$\begin{aligned}
 &EARRecLifecycleNetkWh \\
 &= EvalIRkWh \cdot Quantity \cdot RRkWh \cdot EARAdjNTGRkWh \cdot EARAdjEUL \\
 &\quad \cdot EARAdjUESkWh
 \end{aligned}$$

The database does not explicitly include fields housing ESPI Ex Ante savings incentive-earning savings values that do not include this evaluation installation rate application, but this information can be gleaned from the “EARAdj” fields using the *ESPI_Group* field. Table 6 shows the breakout of proposed ESPI Ex Ante savings incentives by resource type and IOU. The chart in Figure 3 shows the net change from the Ex Ante savings incentive paid by Resolution E-5062 to that proposed by this report.

Table 5 – Ex Ante Savings Incentive Earnings After Evaluated Savings Reconciliation

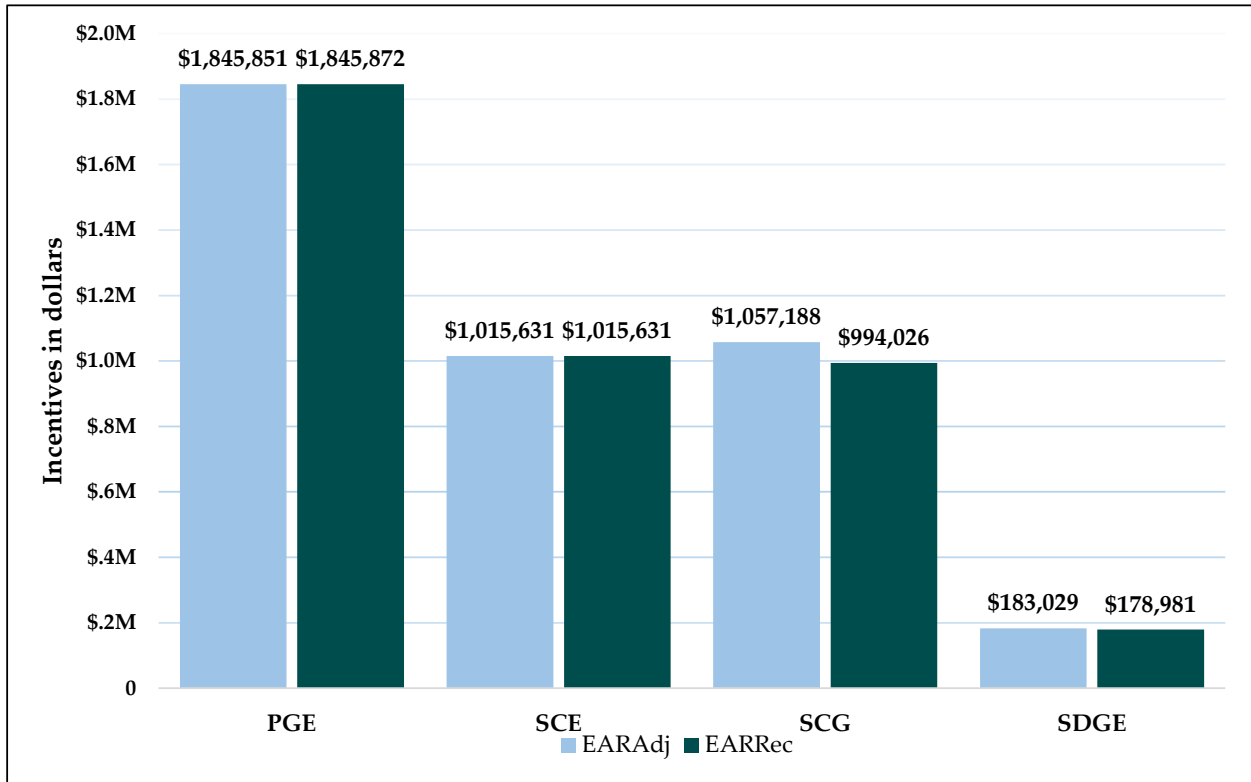
IOU	GWh Incentive	MW Incentive	MM Therm Incentive	Ex Ante Savings Incentive
PG&E	\$919,980	\$388,361	\$537,531	\$1,845,872
SCE	\$801,003	\$214,628	N/A	\$1,015,631
SCG ⁵	N/A	N/A	\$994,026	\$994,026
SDG&E	\$97,685	\$28,969	\$52,327	\$178,981
Total Statewide	\$1,818,669	\$631,957	\$1,583,884	\$4,034,509

As stated in Appendix A, the database fields shown in Figure 3 are defined as follows:

- **EARAdj:** Ex Ante savings incentive as adjusted according to Resolution E-5062; and
- **EARRec:** Ex Ante savings incentive as reconciled with evaluated savings.

⁵ The Ex Ante Savings Incentive for PY2018 is still pending for SCG, for this reason the values presented for SCG in this table are subject to change based on the finalization of this earnings value

Figure 3 – PY2018 Ex Ante Savings Incentive – Resolution E-5062 versus Evaluated Savings Reconciliation⁶



⁶ The earnings for SCG presented in this table are pending

Appendix E: Response to Public Comment

Comment Information	Comment or Question	Response:
<p>Commenter: PG&E</p> <p>Subject: 2018 Draft ESPI Savings Performance Statement Workbooks</p>	<p>"Waterfall charts do not to add up correctly, what is the reason for this?"</p>	<p>The waterfalls inadvertently did not include the removal of claims with dates prior to 2018 from the analysis. The following changes have been made:</p> <ul style="list-style-type: none"> • Added a bar to show the impact of removing pre-2018 claims. • Added a new bar that shows the correct Evaluated Net Savings (the draft showed the ESPI Net Savings value. • The previously named Evaluated Net Savings bar has been updated to show the true Evaluated Net Savings (as reported by the evaluators prior to removing the pre-2018 claims.
<p>Commenter: PG&E</p> <p>Subject: 2018 Draft ESPI Savings Performance Statement Workbooks</p>	<p>"In tabs "ExAnteSavings" and "ExPostSavings", the ESPI ExAnte Deemed Life Cycle savings are different even though the First Year Savings remain the same (rows 15 and 16). What is the reason for this?"</p>	<p>The ExAnte review team only adjusted the lifecycle savings values since those are the values used for the earnings. The First Year Savings were passed through.</p>