

## **METHOD OF SAVINGS ANALYSIS FOR DCSEU PAY FOR PERFORMANCE**

*Last Updated 1/31/2019*

This document describes the method by which the DCSEU will calculate the savings used to determine a final incentive paid to a customer enrolled in the DCSEU's Pay for Performance (P4P) program. The DCSEU's Method of Savings Analysis described herein will follow the International Performance Measurement & Verification Protocol (IPMVP)<sup>1</sup> methods of analysis.

Before the customer is officially enrolled in P4P and an Incentive Agreement is developed, DCSEU must be able to create a statistically significant "Baseline Energy Model" using historical energy, weather (Heating Degree Days and Cooling Degree Days) and possibly other independent variables (occupancy, events, etc.) relevant to how energy is used at the facility. The baseline model is created via a multivariate regression analysis in accordance with the IPMVP. Once DCSEU is satisfied with the Baseline Energy Model, and the included Efficiency Improvements and Energy Reduction Plan are agreed upon, an Incentive Agreement may be issued.<sup>2</sup>

As stated in the Incentive Agreement, DCSEU will determine a time period over which the DCSEU will compare post-implementation energy use to the energy use calculated using the Baseline Energy Model. Subject to the DCSEU's discretion and IPMVP standards, if the actual energy use is persistently less than the baseline model expects it to be, savings exist. Each month's savings value will be summed together cumulatively to determine a final total savings for the period evaluated.

By way of illustration, the below scenario reflects an actual, historical project in which persistent savings were achieved.

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<sup>1</sup> <https://evo-world.org/en/products-services-mainmenu-en/protocols/ipmvp> - an internationally recognized standard that provides best practice techniques available for verifying results of energy efficiency, water efficiency, and renewable energy projects

<sup>2</sup>If the IPMVP changes subsequent to the date that an Incentive Agreement is fully executed, the revised IPMVP will not apply to the Incentive Agreement unless the agreement is amended to reflect the revised IPMVP.

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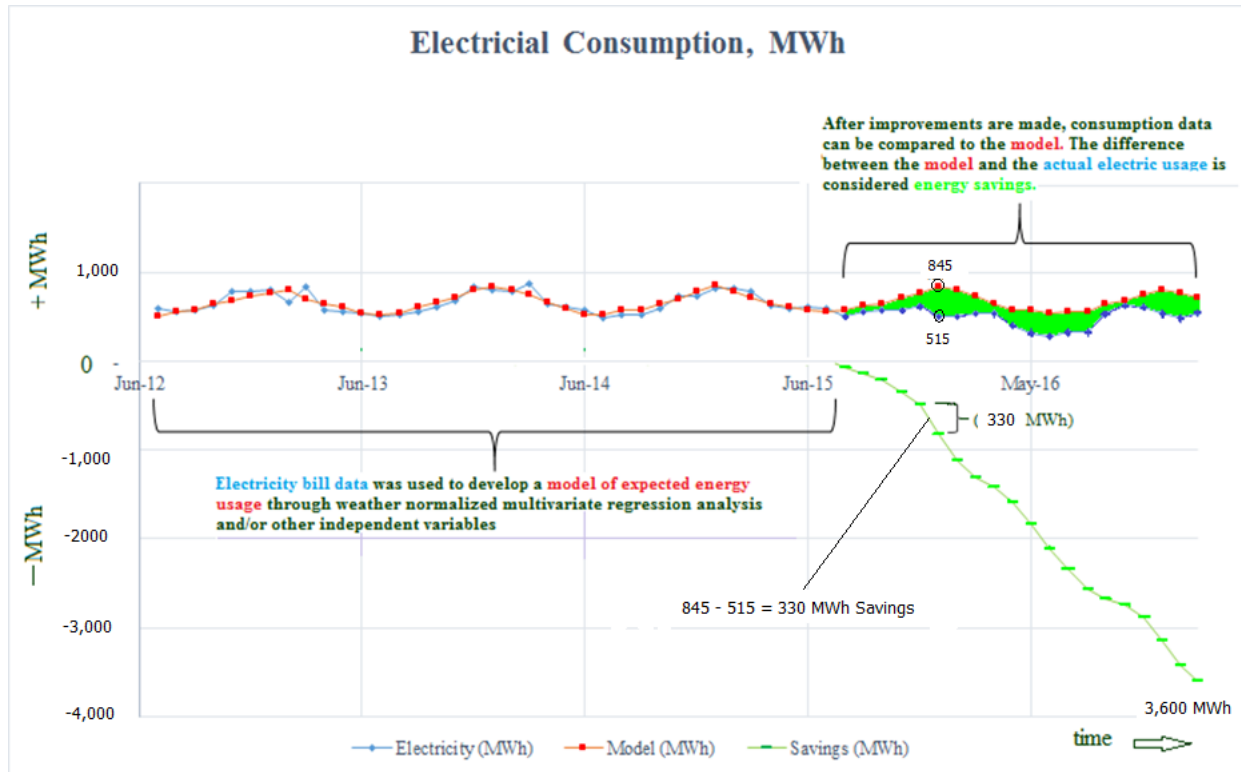


Figure 1

Figure 1. shows:

- ✓ A baseline energy model with a 3-year baseline (June 2012 – June 2015)
- ✓ A 2-year post-retrofit example (June 2015 – June 2017)
- ✓ A data point illustrating that the model expected the facility to use 845 MWh for the month, but the actual electricity usage that month was 515 MWh. The difference between the two values is the estimated “savings” (330 MWh).
- ✓ That the facility has saved (cumulatively) approximately 3,600 MWh since improvements were made. This is the value on which the customer’s incentive is based.

If the actual energy use is equal to or greater than the Baseline Energy Model, then savings are not persistent. This can occur if set points are changed back to original values (as in the below hotel guest room example), or if an efficiency effort did not have the expected result (ex. a VFD installed on a pump that must run at full speed during all hours of operation). Note: the persistence of savings, following IPMVP standards, will be considered on a case-by-case basis and at the ultimate discretion of the DCSEU data analyst and with full disclosure to the customer.

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By way of illustration, the below scenario reflects an actual, historical project in which the customer confirmed that setpoints had changed back to original values after it was found that the guestroom HVAC system was not capable of reaching an acceptable guestroom comfort level in a reasonable amount of time. The customer acknowledged that persistent savings were not proven. In this case, an incentive was not provided, and the customer understood why.



Figure 2

Figure 2. shows:

- ✓ A baseline energy model with a 10-month baseline (Jul-15 – Apr-16) – not ideal, longer term baselines are preferred.
- ✓ A 6-month post-retrofit example (Jul-16 – Dec-16)
- ✓ That the facility saved energy during the month of installation (Jun-16, 61,000 kWh), went back to expected use for one month (Jul-16, 0 Savings), saved energy again for 1 month (Aug-16, 168,000 kWh) but has returned to pre-retrofit operation/condition for the remaining data provided (3 months)