

# Evaluation Project Updates

September 2021





## COVID-19 Coronavirus Considerations

We understand the difficulties utilities, utility staff, businesses and customers are experiencing during this pandemic. Please know that we continue to consider the current environment in all evaluation activities on an ongoing basis. We recognize that in-person customer contact needs to be avoided or thoroughly considered before undertaken. We are coordinating with utilities to ensure all evaluation activities are conducted in accordance with each utility's current operating procedures.



## Process Evaluation Activities

BPA recently contracted with Evergreen Economics, in partnership with Apex Analytics, to develop a strategic approach to process evaluation for BPA programs. Process evaluation uses a variety of data collection and analysis techniques including surveys, interviews, focus groups, logic model development and literature reviews to assess how programs are designed and implemented. These evaluation efforts are critical to understanding and improving program performance.

BPA will begin these process evaluation efforts in the fall of 2021 with a process evaluation of the Strategic Energy Management offering. The evaluation will include interviews with program staff, stakeholders, utility staff, and customers participating in the program.

## Impact Evaluation Activities



### OPTION 1 & 2 CUSTOM INDUSTRIAL PROJECTS

BPA kicked off our impact evaluation of custom industrial projects for Option 1 utilities in late 2020. In partnership with our evaluation consultants, we developed a research plan for Option 1 Custom Industrial (the study's first Domain), that can be found at [www.bpa.gov/EE/Utility/Evaluation/Documents/2020-21\\_Custom\\_Industrial\\_Evaluation\\_Research\\_Plan.pdf](http://www.bpa.gov/EE/Utility/Evaluation/Documents/2020-21_Custom_Industrial_Evaluation_Research_Plan.pdf). Our contractors are currently collecting data on a sample of projects.

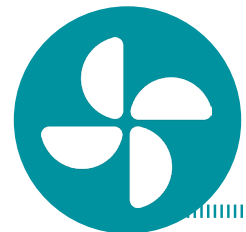
BPA is currently planning the second phase of impact evaluation of custom industrial projects, for Option 2 utilities. Data collection will begin in the fall of this year.



### STRATEGIC ENERGY MANAGEMENT

BPA launched Strategic Energy Management, or SEM, research planning activities earlier this year, with a focus on persistence assessment to inform measure life. Our contractors are about to begin data collection on a sample of projects. A second phase of SEM research focused on how capital measures affect SEM savings launches at the end of 2022.

# Impact Evaluation Activities



## RESIDENTIAL HVAC SAVINGS ANALYSIS

Our residential HVAC savings analysis, which was completed in early 2021, can be found at [www.bpa.gov/EE/Utility/Evaluation/Documents/2018-19\\_BPA\\_Res\\_HVAC\\_Impact\\_Evaluation\\_Final\\_Report.pdf](http://www.bpa.gov/EE/Utility/Evaluation/Documents/2018-19_BPA_Res_HVAC_Impact_Evaluation_Final_Report.pdf).

Evergreen Economics conducted the billing analysis for BPA's residential HVAC program. They found that participants used less electricity on average after installation; however, the degree of reduction differed considerably among the measures. Customers that installed a VSHP with duct sealing experienced the greatest average reduction in electricity use (5,473 kWh per year), while customers that installed VSHP without duct sealing experienced annual savings of only about 1,200 kWh in heating zone 1 and 776 kWh per year in heating zones 2 and 3. Customers that installed a DHP to replace zonal heating experienced a reduction in electricity use of 912 kWh for heating zone 2 and 827 kWh for heating zone 3.

Evergreen conducted a mail survey in February 2020 with a sample of residential customers drawn from BPA program data on customers in heating zones 2 and 3 who installed a DHP to replace their old zonal heating system. A total of 131 surveys were completed, with a 73 percent response rate.

Most households reported that they use the DHP to heat and cool most or all of their home, and around one-quarter increased the square footage of their home that is heated and/or cooled.

There were high rates of reported non-energy benefits from DHPs: nearly all reportedly noticed an increase in overall comfort; the majority noticed increased safety (over their older heating system) and increased air quality.

These survey results suggest that there is a complex set of changes in usage as a result of DHP installations that would lead to both energy savings and increased electricity usage.

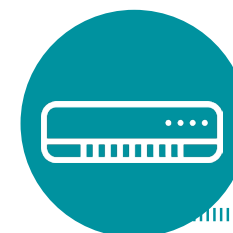
Energy savings may result from:

- Increased heating efficiency over older heating system (47% replaced their old heating system); and
- Increased cooling efficiency over older system (17% replaced their old cooling system).

Increased usage (or negative energy savings) may result from:

- Wider and greater use of heating and/or cooling in the home (e.g., more rooms conditioned, increased comfort); and
- Added air conditioning where none was present before (66% did not have air conditioning prior to installing the DHP).

However, if compared to what customers reported they would have done in absence of buying the DHP, over one-third who did not have existing air conditioning said they would have bought a different cooling system (most commonly a window AC unit) that may have been less efficient at cooling than the DHP.



## COMMERCIAL DUCTLESS HEAT PUMP SAVINGS ASSESSMENT

The 2020-2021 commercial ductless heat pump savings assessment was completed last fall. The tool and summary results are available at [www.bpa.gov/EE/Utility/Evaluation/Documents/BPA\\_Commercial\\_DHP\\_Analysis\\_Tool.html](http://www.bpa.gov/EE/Utility/Evaluation/Documents/BPA_Commercial_DHP_Analysis_Tool.html).

BPA also contracted with Evergreen Economics to conduct the savings analysis. The commercial savings assessment evaluated savings at commercial building sites that installed a ductless heat pump through BPA's commercial program. They found that sites that installed a DHP experienced electricity savings of 19.3 kWh per day (7,036 per year) in the year following installation compared to commercial sites that did not install a DHP over that period. Evergreen developed a data visualization tool that shows the similarity in electricity use between each participant site and its three best comparison site matches.

# Current schedule

| Evaluation Activity                              | FY2021 |    | FY2022 |    |    |    | FY2023 |    |    |    |
|--|--------|----|--------|----|----|----|--------|----|----|----|
|  | Q3     | Q4 | Q1     | Q2 | Q3 | Q4 | Q1     | Q2 | Q3 | Q4 |
| Custom and C/I/Ag Lighting                       |        |    |        |    |    |    |        |    |    |    |
| Option 1 Custom Industrial                       |        |    |        |    |    |    |        |    |    |    |
| Option 2 Custom Industrial                       |        |    |        |    |    |    |        |    |    |    |
| SEM Evaluation – Persistence                     |        |    |        |    |    |    |        |    |    |    |
| SEM Evaluation – Capital                         |        |    |        |    |    |    |        |    |    |    |
| BPAQ Commercial HVAC- Completed                  |        |    |        |    |    |    |        |    |    |    |
| (FY2019) Residential HVAC Evaluation - Completed |        |    |        |    |    |    |        |    |    |    |

