



Verifying DSM Program Impacts during the COVID-19 Pandemic

Delaware EEAC Meeting – July 8, 2020

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Agenda

1. M&V during COVID-19 Pandemic
2. Summary of M&V Activities
3. Engineering Desk Reviews
4. On-Site Inspections
5. Measurement & Metering
6. Billing Analysis
7. Impacts on the TRM
8. Process Evaluation Data Collection
9. Takeaways

1. M&V during COVID-19 Pandemic

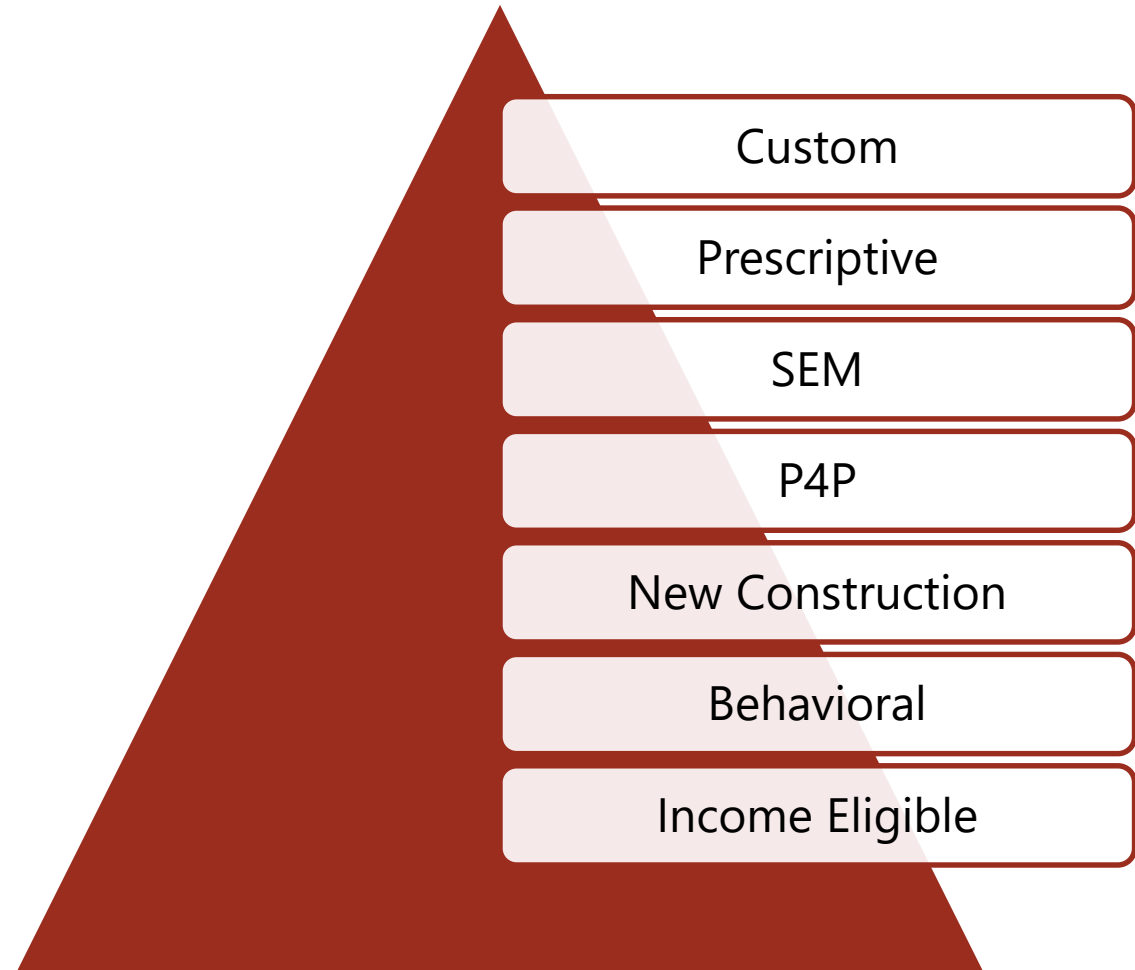
- Conducting M&V during the COVID-19 pandemic?
- Why is it important to continue M&V during the pandemic?
- What does the future look like for M&V?
- What impacts does the pandemic have on the TRM?



Source: Bell Davis Pitt: <https://www.belldavis pitt.com/blog/covid-19-resources/covid-19-relief-small-and-mid-sized-businesses>

1. M&V during COVID-19 Pandemic

What programs can you evaluate using the alternative M&V methods?



2. Summary of M&V Activities

Engineering Desk Reviews

- Detailed and thorough review of project documentation and savings calculations to verify technical inputs and energy savings calculations

On-Site Inspections

- Evaluators complete a site visit with the customer to visually inspect equipment, interview the customer, and obtain measurements of equipment operation if needed

Measurement & Metering

- Taking spot measurements of critical equipment or installing loggers to trend data over time in order to gain a deeper understanding of equipment operations

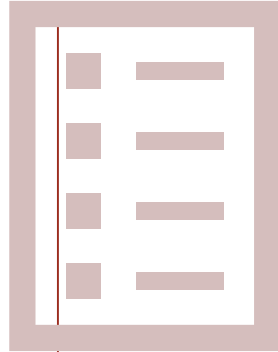
Billing or AMI Analysis

- Utilizing customer billing data or interval data to model the customers energy usage before and after an energy efficiency intervention

Process Evaluation Data Collection

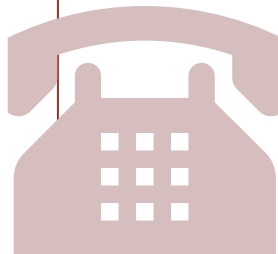
- Interviews with program staff, trade allies, customers, or other market actors to inform a wide variety of program and market studies

3. Engineering Desk Reviews



Leverage Project Documentation

- Equipment specifications
- Data extracts
- Installation reports
- Applications



Utilize Phone Interviews

- Project insights
- Screenshots
- Trend data

4. On-site Inspections

In-Depth Interviews

- Discuss project details
- Request information

Video Calls

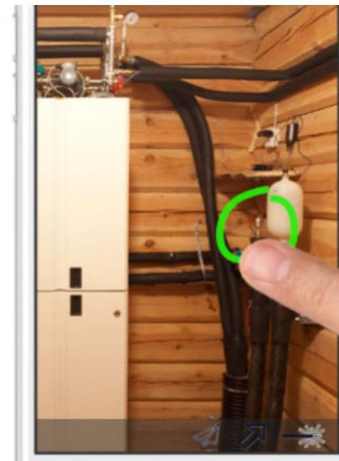
- Visual verification
- Real-time measurements

EMS/BAS

- Confirm setpoints/schedules
- Gather trend data



Source: QA Graphics. <http://www.automatedbuildings.com/>



Source: Portland Business Journal: <https://www.bizjournals.com/portland/news/2017/10/19/portland-startup-wants-to-bring-augmented-reality.html>

5. Measurement & Metering



Remote Access

- Trends from EMS/BAS
- Instantaneous measurements

Participant's Staff

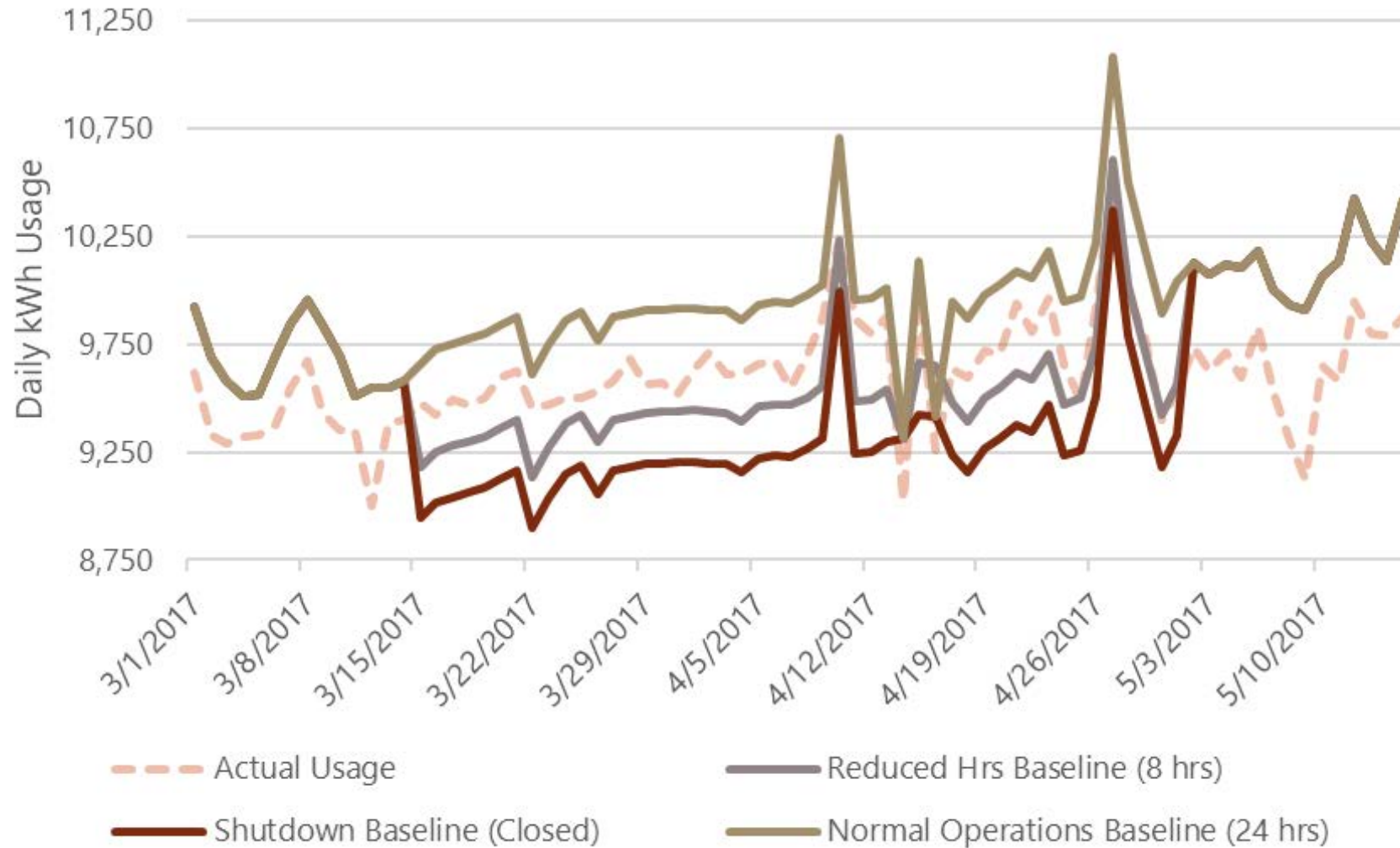
- Skilled technicians on site
- Spot measurements

6. Billing Analysis

There are three general COVID-19 whole building performance period savings measurement approaches. The approaches are applicable for both individual site level and aggregate M&V for residential and non-residential projects. The three approaches are:

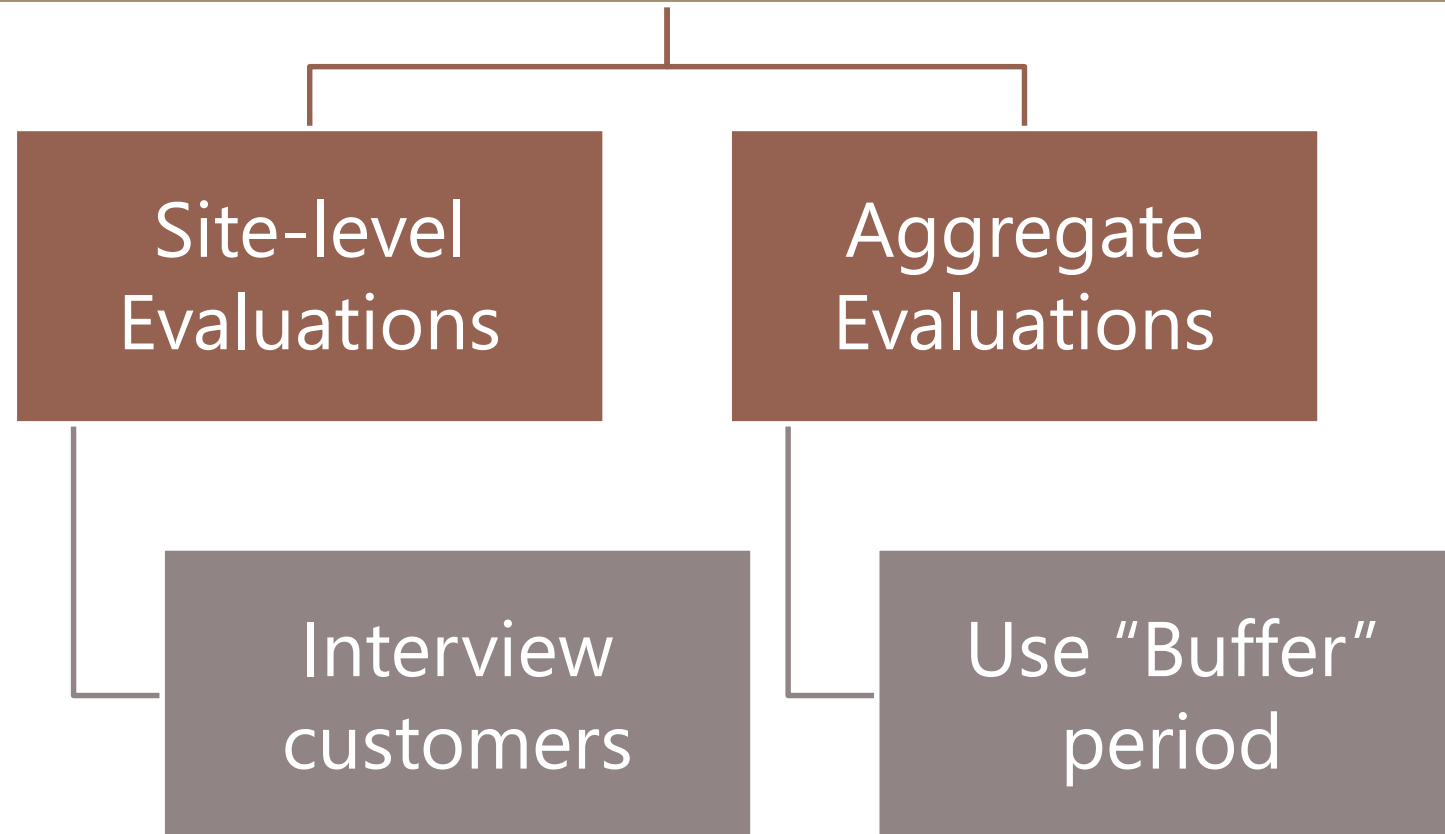
1. Model Based Baseline Adjustments
2. Past Program Participant Temporal Adjustments
3. Future Program Participant Temporal Adjustments

6. Billing Analysis: Model Based Baseline Adjustments



6. Billing Analysis: Past Program Participant Temporal Adjustments

What happens if operating variables do not explain energy usage or there inadequate operational data is available?

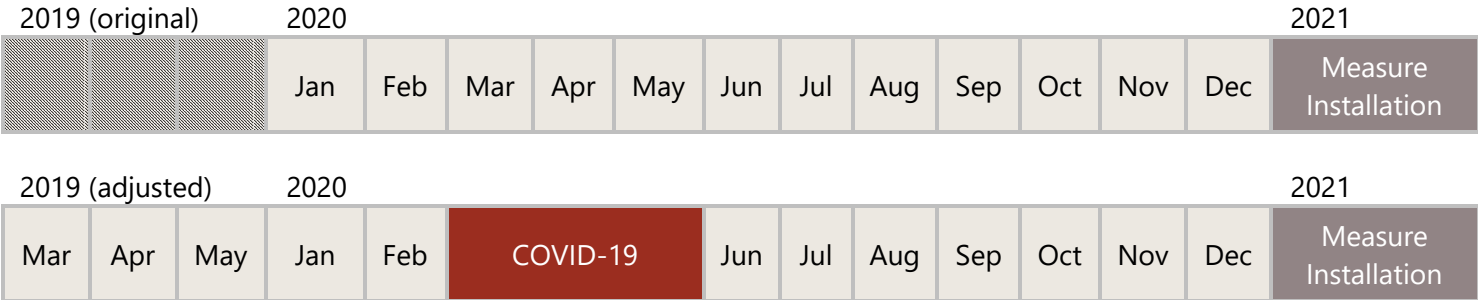


6. Billing Analysis: Future Program Participant Temporal Adjustments

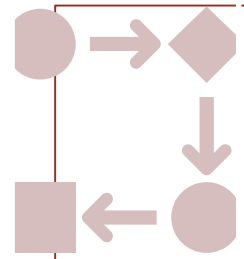
Future 2020 program participant baseline period adjustment



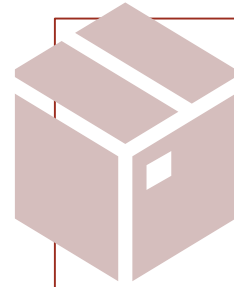
Future 2021 program participant baseline period adjustment



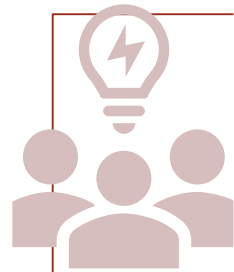
7. Impacts on the Technical Reference Manual (TRM)



Adjust stipulated
algorithm inputs



Repackaging of
existing measures



Develop new
measures

8. Process Evaluation Data Collection



Telephone Interview



In-Depth Interviews



Web Surveys

9. Takeaways



Accurate and reliable M&V is achievable



Reduce customer burden and intrusiveness of M&V



Programs continue to operate and distribute valuable incentive dollars

Questions?

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