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# EXPERIENCE THE ENERGY MOVEMENT

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# Approaches and Best Practices for Evaluating New Managed Charging Applications

Opinion Dynamics is serving as the research partner for the Distribution-Optimized EV Managed Charging to Enhance Grid Flexibility Project with O&R and WeaveGrid

We will discuss evaluation best practices for New Managed Charging Applications including:

- Assessing Data Requirements and Availability
- Baseline Approach Selection
- Considerations for Assessing Benefits

# New Applications of Managed Charging

	Traditional Applications	New Applications
Types of Benefits	Peak Load Reduction	Peak Load Reduction, Distribution System Impact Mitigation, Renewable Integration, GHG Emissions Reduction, Resilience, Customer Bill Savings
Benefit Optimization	Single Benefit	Multiple or Stacked Benefits
Customer segments	Residential	Residential, Commercial, Fleet, Workplace, “Away from Home Charging”



Customer bill savings



Distribution System Impacts



GHG emissions impacts

### Define Treatment and Evaluation Approach

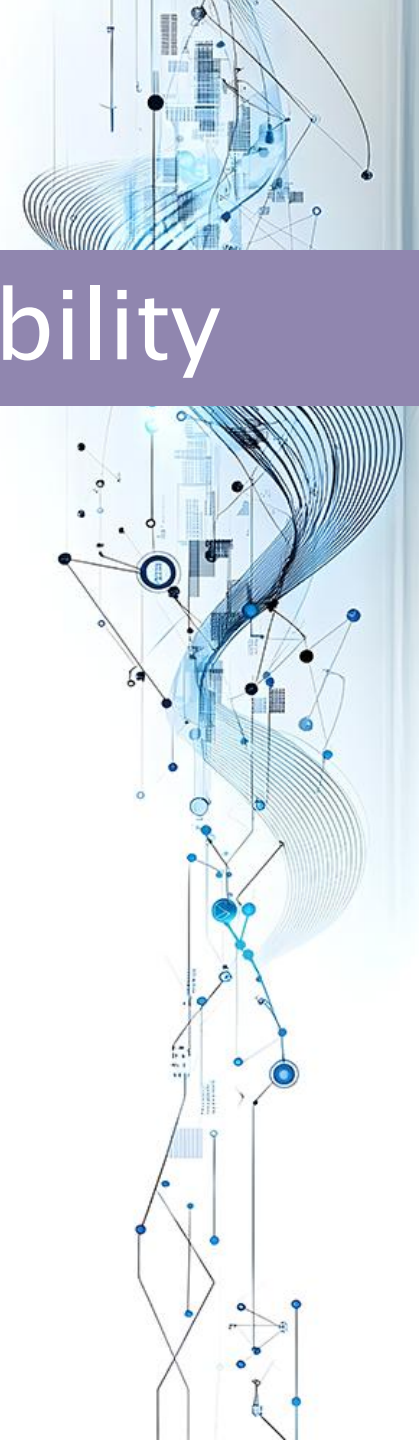
- Assess Data Requirements and Availability
- Select Baseline and Calculation Approach
- Define Desired Program Benefits

Apply Baseline and Calculation Approach to Assess Load Impacts



# Assessing Data Requirements and Availability

- **Charging Data:** EV charging interval data enables assessments of load impacts for participants
- **Customer data:** Provides rate information, date of participation, demographics, etc.
- **Bulk System Data:** Bulk system price or wholesale market price signals
- **Distribution System Data:** Historical 8760 load profiles at the distribution system level
- **GHG emissions:** Hourly Emissions Rates



# Baseline Selection Key Considerations

## Leveraging' Participants Charging Behaviors as a Baseline

- Risk of biased results
- Easiest to implement

## Recruit Customers and Delay Treatment

- Requires a delayed start to optimization
- Provides an understanding of typical charging behaviors in absence of the program

## Identifying a Control or Comparison Group of EV drivers without Treatment

- Gold Standard
- Provides an understanding of typical charging behaviors in absence of the program
- Potential feasibility and budget limitations

# Considerations for Assessing Benefits

- **Isolating interventions:** For programs that include optimizing for multiple benefits it is important to have a counterfactual for each intervention/benefit
- **Supporting advancements on cost-effectiveness regulatory requirements:** Assessing the full suite of benefits of new managed charging applications can support advancements of demand flexibility valuation



# Best Practices

- Consider the selection of baseline approaches as soon as possible, ideally during the program or pilot design phase
- If baseline charging data or “unmanaged” charging data is available, work to match customers that have the most potential to shift load in alignment with the benefit(s) the program is seeking to optimize
- New managed charging applications can be complex and multifaceted, but at the end of the day it is still important to understand the “drivers” behind load shift results

