

# C2201 – Commercial Baseline and Database

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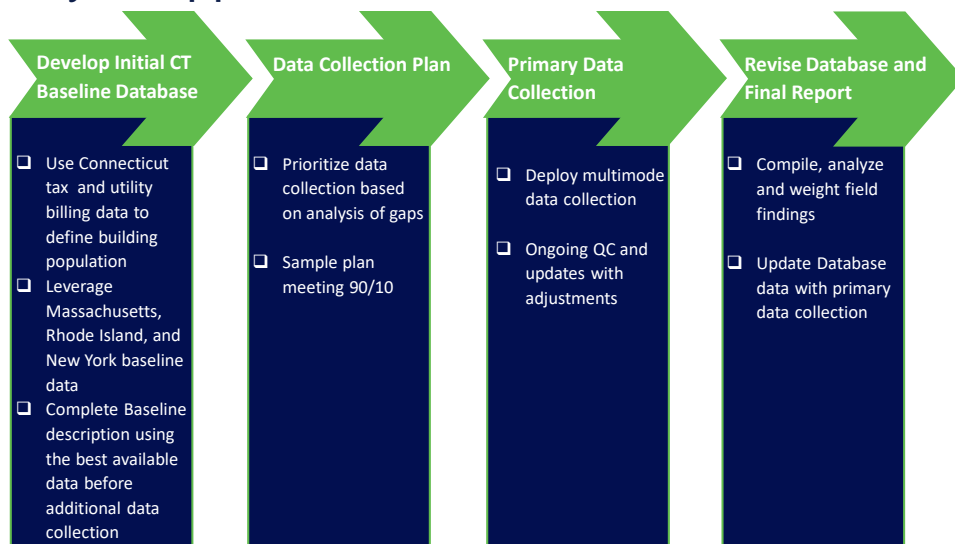
## Agenda

- Study Objectives
- Study Approach
- Deliverables
- Baseline Database
- Primary Research
- Analysis and Reporting
- Schedule & Budget
- Q&A

# Objectives

- **Provide a representative baseline for building characteristics and equipment efficiency** in the C&I sector which can be used for program planning, identifying efficiency gaps and opportunities, and making projections of current to future potential saturations for selected equipment types.
- **Generate population representative values** which can be utilized to update PSD deemed savings and input to state-wide market potential assessments.
- **Identify gaps and under-served market analysis** to support the C&LM plan goals of prioritizing equity, decarbonization, and underserved niches, as well as aid in program design and policy development.
- **Provide support for refining building prototype simulation models** used to estimate measure energy savings parameters in the CT PSD.

# Summary of Approach



## Deliverables

- ❑ Initial Baseline Database
- ❑ Final presentation of findings and recommendations
- ❑ Final report
- ❑ Final Updated Database



## Initial CT Baseline Database

1. Initial Database developed utilizing existing data sources
  - Utility customer billing data
  - Connecticut property tax records
  - Recent ISP studies completed in Connecticut
  - EIA CBECS New England and SEDS data Connecticut
  - CT-2014 lighting market model saturations and planned surveys of participants for control saturations
  - 2019 Connecticut HVAC Market Share Assessment
  - DOE CHP and Generation register
  - Connecticut record of solar installation from utility data
  - Massachusetts, Rhode Island and New York baseline studies
  - New York 22 prototypical models supporting the New York TRM
2. Develop a ready-to-use baseline dataset with the best available information without primary data collection and continue to improve it with local data

## Prioritizing Measures and Identifying Gaps

Flag measures/parameters where the likely range in values will have a large impact on program savings.



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Flagged measures associated with program objectives:

- Heat pumps (coordinated with HP research study)
- Refrigeration
- Weatherization
- Low Frequency Measures - Unlikely to have sufficient data points to yield sufficient resolution
  - Gas Driven Chillers
  - Industrial/Manufacturing Measures

## Sample Design for Primary Data Collection

- Population frame: 2017-2019 utility billing data with updated building types
  - Augmented with tax parcel data on square feet (about 50% of buildings)
- Segment by commercial building type
  - *20 prototypical building types used in the CT PSD*
  - *Likely aggregate to 8-10 types*
  - Stratified by annual usage

## Primary Data Collection

Data collection mode	Proposed sample points	Data collection focus
CATI surveys	400	Firmographics, space use, fuel mix, HVAC major equipment types, building construction type, COVID-19 behaviour
On-line technical surveys (subset of CATI)	150	Specific equipment characteristics using photos
Virtual surveys (subset of CATI)	70	Nameplate efficiencies, sizes, vintage. More detailed building construction parameters
Scheduled on-sites (additive to CATI)	15	Reserved for largest sites with diverse systems and space use as a campus or hospital *

\*For the largest customers, DNV would like to utilize the help of the utilities for recruitment

## Final Database and Reporting

- DNV will update the initial dataset to reflect the findings from primary data collection
  - Excel file with access to the data and analyses, including tables of data needed as inputs for potential studies and program planning.
  - Present overall findings and recommendations in-person or via webinar to the CT EEB and the public.
- DNV will structure the dataset so that it supports multiple purposes with straightforward manipulation
  - Technical potential studies
  - Population weighted averages
  - Building type distribution, sqft, annual usage, and EUIs
  - PSD updates

# Schedule and Budget

## Schedule

- Database Development: December 2022 - March 2023
- Primary Data Collection: March 2023 - October 2023
  - Coordination with Heat Pump Study
- Analysis and Reporting: September 2023 – March 2024
- Final Database and Report Issued - April 2024 (*Before TRM cut-off*)

## Budget

Task	Budget
Study Planning, Kick-off and Dataset Development	\$135,840
Data Collection	\$495,080
Analysis, Final Database Delivery and Reporting	\$123,790
<b>Total</b>	<b>\$754,710</b>

## Discussion

Questions, comments?

# Contacts

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