



# 2025 CBSA Webinar #3

---

**Mike Psaris**

*Senior Program Manager, NEEA*

**Ben Spearing**

*Senior Program Coordinator, NEEA*

**Michelle Ruddick**

*Vice President, Westat*

06/27/2024





# *Agenda*

1. Background
2. Westat Update
3. Ways to engage
4. Q&A



# *Background*



# ***NEEA's Business Plan: Stock Assessments***



***Commercial***



***Multi-family***

“This will be the first cycle that **natural gas funding** supports the stock assessments.”



# ***CBSA Workgroup***

**Purpose:** The Commercial Building Stock Assessment (CBSA) Work Group will provide NEEA with decision support and coordination on key components of the study's design and implementation.

- Avista
- Bonneville Power Administration
- Cascade Natural Gas
- Clark PUD
- Energy Trust of Oregon
- Idaho Power
- Northwest Natural Gas
- Northwest Power and Conservation Council
- Portland General Electric
- Puget Sound Energy
- Regional Technical Forum
- Seattle City Light
- Snohomish County PUD

# ***Commercial Building Stock Assessment (CBSA)***

## **Vision Statement:**

“Support the region's energy efficiency, resource planning, and utility objectives through a regionally representative, statistically rigorous, and comprehensive assessment of commercial and multi-family buildings.”



# *Westat Update*



# Study Planning

	2023	2024				2025				2026			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Study planning													
Building characteristic data collection (site visits)													
Billing data collection													
Data preparation, weighting, analysis, and reports													
Data and reports published on neea.org													

- Instrumentation
- Recruitment prep
- Data collection prep





# *Instrumentation*



## ***2025 CBSA: two complementary instruments***



### Web Survey

- Respondent(s) at building use their own device to access and complete survey
- Self-administered questionnaire with items formatted as standard Q&A
- Web survey must be completed before site visit is scheduled



### In-Person Site Visit

- Field technician visits the building and collects information using a tablet or smart phone
- Questionnaire is formatted more like an electronic form
- Select web survey data will be preloaded/confirmed during site visit, or be can referred to when preparing for site visit



# *Assigning content to appropriate instrument*



## Web Survey

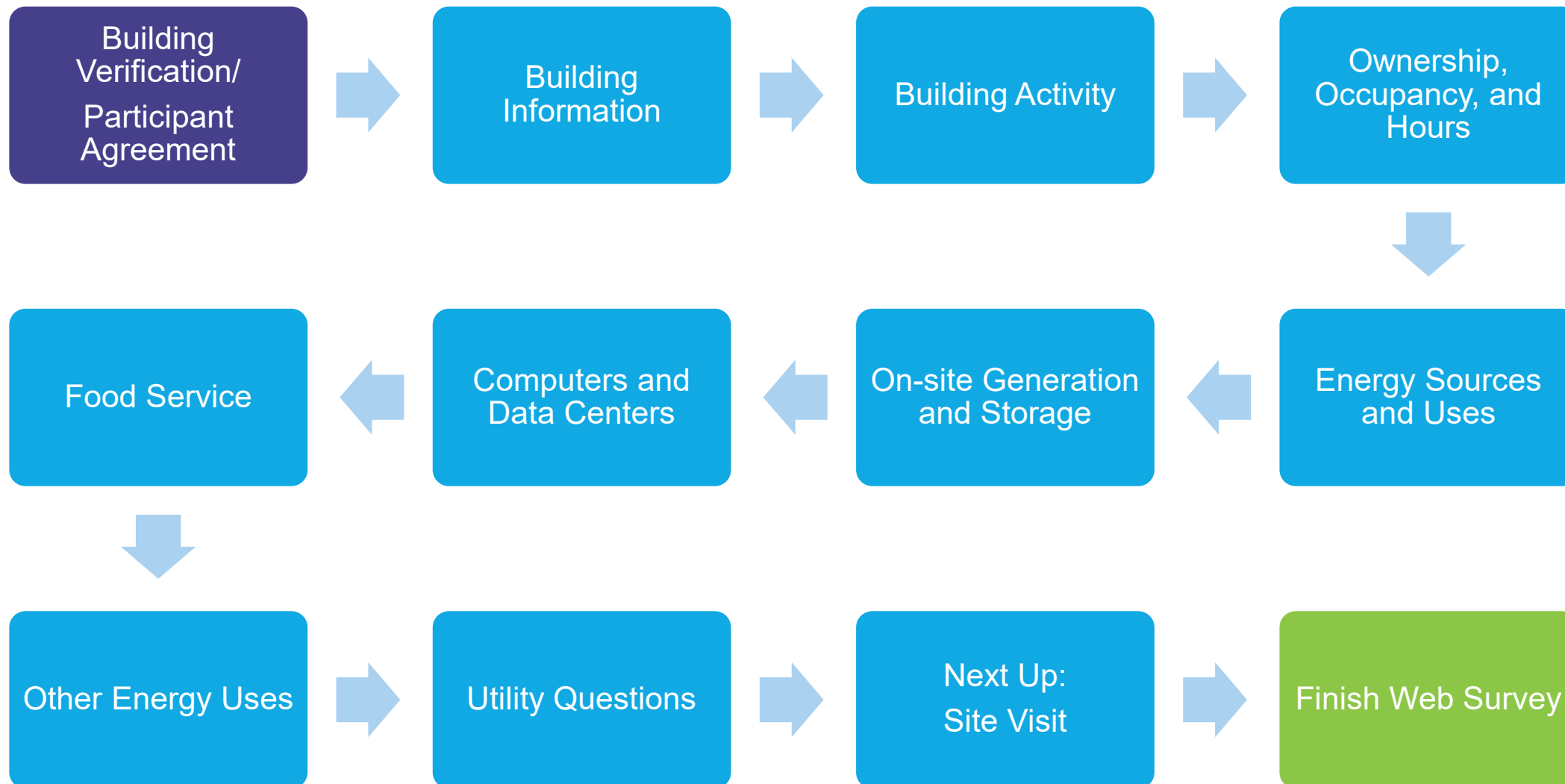
- Characteristics of the building/businesses likely to be known by someone like a building manager or property manager
- Background information that would be useful to prepare for site visit
- May not be easily observable



## In-Person Site Visit

- Technical information about building systems/equipment
- Information needed for HVAC model matching task
- Photos
- Straightforward to observe and collect consistently

# *Web Instrument Flow*



# Web Survey Example 1



970021800 BD7

**Save and Exit**

4%

## Building Information

**What is the total conditioned (heated and/or cooled) square footage in this building?**

*If you're not sure of the exact square footage, select "Don't know" to choose from a category instead.*

square feet

☒ Don't know

**Back**

**Next**

**Questions?**

Please contact Westat at 1-855-662-5694 or CBSA2025@westat.com.

# Web Survey Example 2



970021800 BD9

**Save and Exit**

4%

## Building Information

**Which category best describes the share of the building that is conditioned (heated and/or cooled)?**

- ☐ 0% to 24%
- ☐ 25% to 49%
- ☐ 50% to 74%
- ☐ 75% to 99%
- ☐ 100%

**Back**

**Next**

# Web Survey Example 3



970021800 BD12

Save and Exit

6%

## Building Information

**Have any of the following renovations been done to this building in the past 5 years?**

*Please select all that apply.*

- ☐ Interior lighting upgrade  
*At least 50% of the lighting was upgraded or replaced to be more energy efficient; do not include routine replacement of bulbs or fixtures for burnouts*
- ☐ HVAC (Heating, ventilation, or air conditioning) equipment upgrade  
*New equipment was added or majorly upgraded*
- ☐ Window upgrade  
*At least 50% of the windows were upgraded or replaced*
- ☐ Full interior rebuild  
*The inside of the building was completely removed to studs/columns and installed as new construction*
- ☐ Other major renovations or upgrades

# Web Survey Example 4



970021800 CH15

Save and Exit

50%

## Energy Sources and Uses

**What is the typical heating temperature setpoint in degrees Fahrenheit (F) for this building for times when it is occupied?**

*If it varies, please use the typical temperature setpoint for the majority of the building based on square footage.*

☐ Don't know

**What is the typical heating temperature setpoint in degrees Fahrenheit (F) for this building for times when it is unoccupied?**

*If it varies, please use the typical temperature setpoint for the majority of the building based on square footage.*

☐ Don't know





# Site Visit Instrument Flow



- Envelope (floors, roofs, windows, walls)
- HVAC systems, ventilation, heat rejection
- Boilers and chillers
- HVAC controls
- Water heaters
- Pumping systems
- Food service equipment
- Refrigeration equipment
- Indoor and outdoor lighting
- Miscellaneous



# Site Visit Example 1

## General Building Information

The web survey respondent reported the primary building activity is:

Retail

Is this correct?

No



Which one of these activities accounts for the majority of the floorspace in this building?

- ☐ Office/Professional  
Examples: administration; bank; brokerage/securities firm; consulting; government; insurance; law; mixed professional; non-profit; real estate; research and development; sales or leasing.
- ☐ Warehouse/Storage  
Includes non-refrigerated and refrigerated warehouses, distribution or shipping centers, other storage buildings, and public rental storage units.
- ☐ Health care  
Includes both inpatient (services involving overnight care) and outpatient services. Examples: medical care hospital; substance abuse rehabilitation center; veterinary facilities; physical therapy center; dental clinic/office; medical clinic/office; mental health/psychiatric clinic; urgent care clinic; women's health clinic.
- ☐ Nursing  
Includes skilled nursing facilities, assisted living centers, or other residential care buildings.
- ☐ Laboratory  
Buildings equipped for scientific or technological research, experiments, or measurements.
- ☐ Education  
Buildings for academic or technical classroom instruction. Other activities that occur on school campuses (e.g., gyms, dormitories, libraries, laboratories) should be reported in their respective categories.



# *Site Visit Example 2*

## On-Site Visit

- ▶ Floors
- ▶ Roofs
- ▶ Walls
- ▶ Windows
- ▶ Web Survey HVAC Review
- ▶ HVAC Systems
- ▶ Ventilation
- ▶ Boilers
- ▶ Chillers
- ▶ Heat Rejection



# Site Visit Example 3

## ▼ Boilers

Are there any boilers in this building?

Yes

### ▼ Add a separate record for each make/model of boiler

Boiler type

Fuel type

Capacity control

Number of identical units

Rated input capacity (kBtu/hr)



# Site Visit Example 4

## ▼ Boilers

Are there any boilers in this building?

Yes



### ▼ Add a separate record for each make/model of boiler

Boiler type

Steam



Fuel type



- ☐ Natural Gas
- ☐ Propane
- ☐ Fuel Oil
- ☐ Electric
- ☐ Wood

Capacity control





## *Added/Revised Content*

*Reviewed suggestions from CBSA stakeholder workgroup for relevance, priority, feasibility*

- Building owner details, such as organization type, purchase year
- Windows: secondary glazing and characteristics
- ENERGY STAR certification for building, equipment
- Pumps, including recirculation pumps
- Energy storage and microgrids





## *Instrument status*



### Web Survey

- ✓ Content specifications
- ✓ Programming
- ✓ Iterative review
- ✓ Stand-alone testing
- ☐ *Integrated testing*
- ☐ Final instrument



### In-Person Site Visit

- ✓ Content specifications
- ✓ Programming
- ✓ Iterative review
- ☐ Stand-alone testing
- ☐ Integrated testing
- ☐ Final instrument

A faint, light blue geometric logo consisting of several overlapping chevron-like shapes forming a diamond pattern is centered in the background.

# *Subsampling*





## *Types of Subsampling*

- Within-site subsampling
  - Businesses within buildings
  - Rooms/spaces within buildings
    - Could have both types in one building
- Building subsampling on campuses





## ***Why Subsample?***

- Efficiencies in the field
  - Control data collection costs
  - Control length of site visit
    - At large, complex buildings
- Reduce participation burden on respondents
  - Increase likelihood of gaining cooperation
    - For large, complex buildings
    - For campuses with many buildings sampled

## ***Reasons to Minimize Subsampling***

- Takes data collectors time in the field
  - Takes time away from main data collection tasks during site visit
- Takes time to train data collectors and QC their work
- Makes weighting more complex



# ***Within-site Subsampling***

Large buildings unable to fully inspect in allotted time

- All buildings: Collect building-level data
  - Central systems
  - Common rooms/areas
- Lodging (hotels)
  - Guest Rooms – 1 of each room type
- Office buildings
  - Businesses
  - Rooms/floors/spaces
- Other types of large buildings
  - Rooms/floors/spaces as needed





## *Within-site Subsampling (cont.)*

### Shopping Malls

- Strip shopping centers
  - Establishments
    - Anchor stores
    - Smaller establishments
- Enclosed malls
  - Similar to strip malls





# ***Buildings on Large Campuses***

- Campus =
  - Two or more buildings
  - Clustered together in a well-defined geographic area
  - Operated as a unit
  - Examples: universities, hospitals, airports, office/industrial parks
- Large Campus = 10 or more sampled buildings
  - Subsample buildings to reduce respondent burden
  - Case-by-case basis
  - Number of buildings subsampled depends on number sampled, number respondent willing to complete, other factors
  - Negotiated with respondent by Westat recruiting staff and statistical team in advance of site visits



# *Billing Data*



## *Billing Data Collection*

- After site visits are completed, collect billing data directly from EL/NG utilities
- Identify utility name(s) in web questionnaire
- Collect account number and consent after web survey completion





## ***Billing Data Authorization Process***

- Manually send authorization form to identified building contact upon completion of web survey
- Using DocuSign to record electronic signatures for billing data authorization form





A faint, light blue geometric logo is centered in the background. It consists of several interlocking diamond shapes that form a larger, complex pattern.

# *Location and Timing for Initial Recruitment*



# Recruitment Timeline

	2023	2024			
	Q4	Q1	Q2	Q3	Q4
Preparing recruitment materials					
Reviewing sample					
Regional utility communication					
Remote locating					
Initial recruitment					



## ***Recruitment Preparation Activities***

- Recruitment materials
- Reviewing sample
- Regional utility communication
- Remote locating

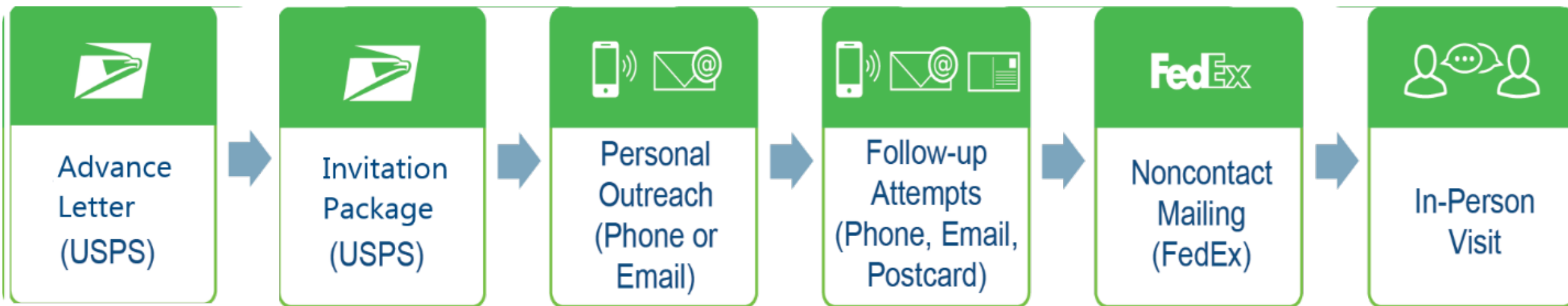


## ***Recruitment Activities***

- Train recruitment specialists
- Recruit respondent(s) in each building

# *Rolling Recruitment*

Make contact





# ***Rolling Recruitment***



Make contact

Determine  
eligibility



# ***Rolling Recruitment***





## ***Rolling Recruitment***

Make contact

Determine  
eligibility

Gain  
cooperation

Set up data  
collection



# *Recruitment Monitoring and Troubleshooting*





# *Initial Site Visits*

## *Wave 1 Site Visits*

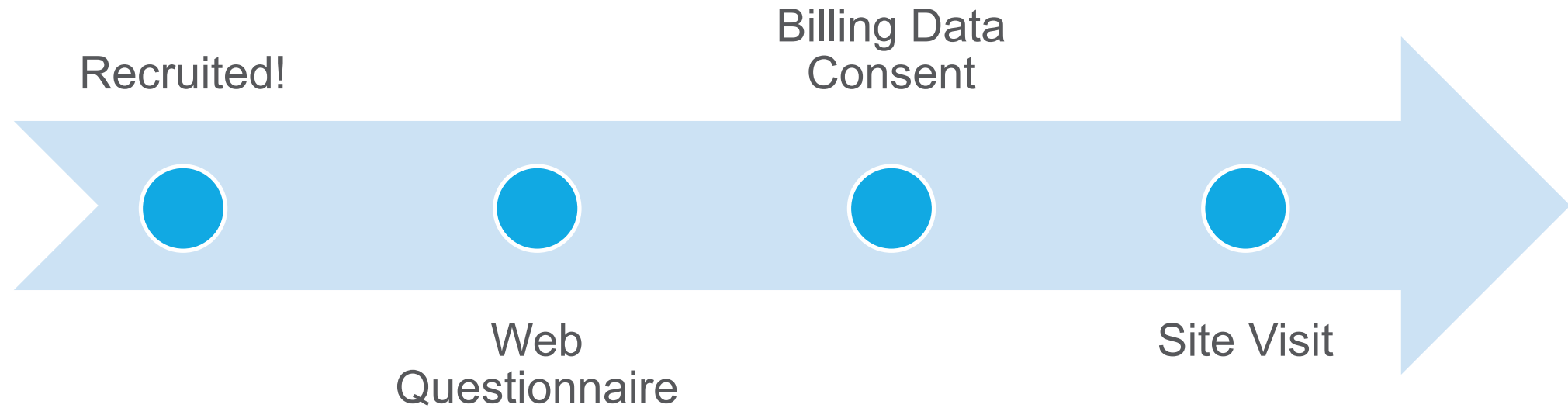


SEATTLE



PORTLAND

# ***Data Collection Process***



## *Field Techs and Training*

- Identify field techs
- Develop training materials
  - Site visit protocols
  - Survey 123 instrument
  - Administrative procedures
- Train field techs



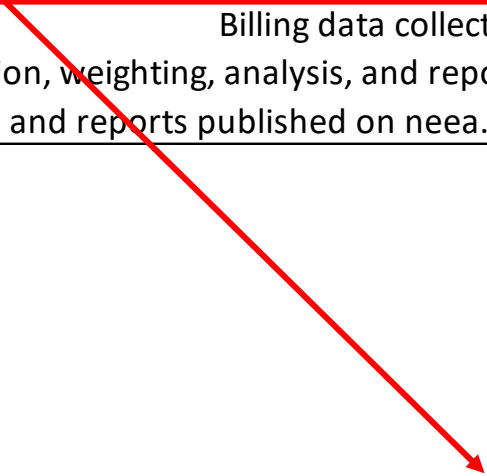
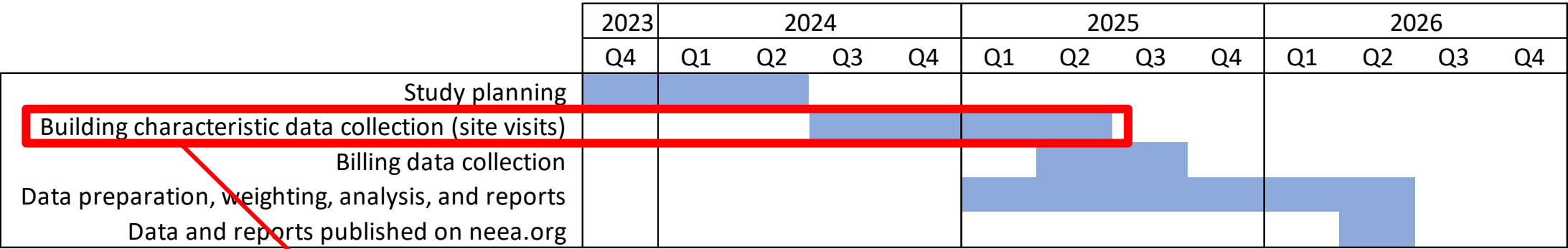
## ***Systems and Monitoring***

- Developing IT solutions for case management and flow
- Developing monitoring reports
- Ensuring QC throughout





# Data Collection



- Recruitment
- Data Collection

## Wave 1 By the Numbers

Total buildings  
to contact  
**1300**



Utility  
territories  
**5**



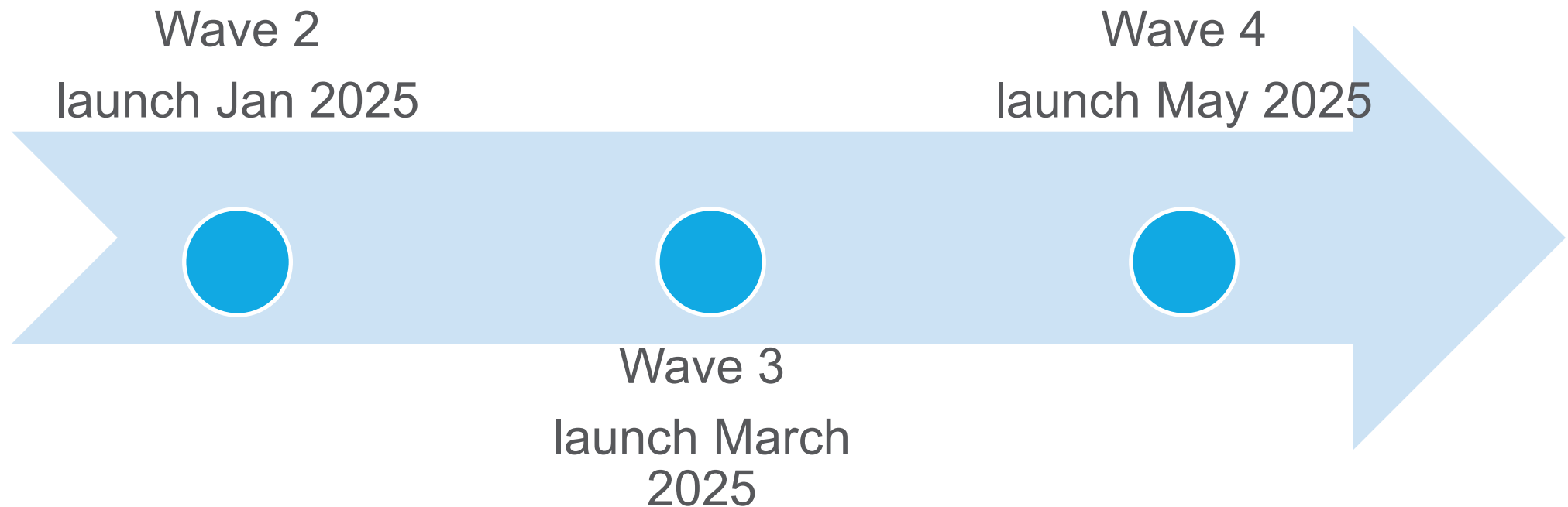
Total  
completes  
**220**





## *Wave 2 and Beyond*

- Move East
  - Other areas in Washington & Oregon
  - Idaho
  - Montana



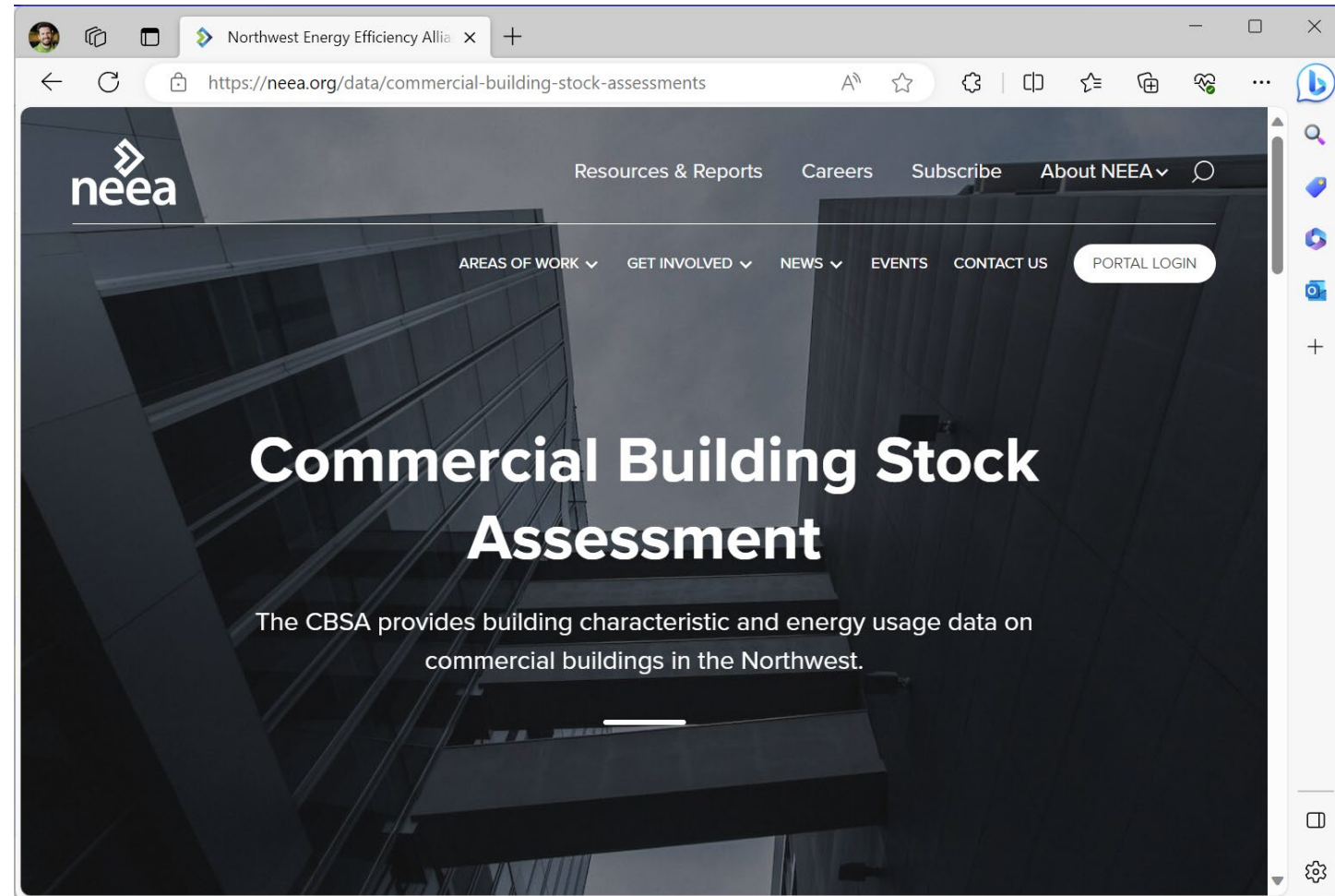


# *Ways to Engage*



# Ways To Engage

1. Webinars
2. List serve:  
[neea.org/subscribe](https://neea.org/subscribe)
3. [neea.org/cbsa](https://neea.org/cbsa)
4. [neea.org/cbsa2025](https://neea.org/cbsa2025)



# Ben Spearing

Senior Program Coordinator  
bspearing@neea.org

# » Mike Psaris

Senior Program Manager  
mpsaris@neea.org

# Michelle Ruddick

Vice President, Westat  
michelleruddick@westat.com

