

Measured Savings: Why It Matters for Behavior-Based Approaches

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Convened by:

What we'll cover today

- What is HOMES and Measured Savings
- Meter-based savings measurement
- The aggregator role
- Let's discuss!



The HOMES Rebates Measured Pathway

Supporting Behavior-Based Approaches

Behavior, Energy & Climate Change (BECC) 2023 Conference

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AnnDyl Policy Group is a Washington, DC-based policy strategy firm that focuses on energy efficiency, renewable energy, and climate change policy, programs, financing, and technology.

We represent clients from across the energy efficiency and clean energy industries, including technology and financial sector companies, energy trade associations, and non-profit organizations.

www.anndyl.com

flex coalition

- ▶ **The Flex Coalition** is a project of Smart-On-Smart, a 501(c)(3) non-profit dedicated to providing policy-driven solutions, research, and education to advance a smart, resilient, and clean energy future.
- ▶ **Mission:** The Flex Coalition provides educational support for policies that advance performance-based demand flexibility to enable markets for Virtual Power Plants (VPPs) as a grid resource, and is dedicated to educating policymakers and stakeholders on the benefits of VPPs as a tool for promoting grid reliability, greenhouse gas reduction, and energy equity.
- ▶ **Policy Principles:** www.flexcoalition.org/policy-principles/



Flex Coalition Members

flex
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Inflation Reduction Act (IRA): Big Picture

- ▶ Signed into law on **August 16, 2022**.
- ▶ Estimated **\$370 billion** in support of clean energy and energy efficiency.

Program	Funding	Released	Application Deadline
Home Energy Performance-Based, Whole- House Rebates (HOMES)	\$4.3B In statute	\$4.171B open to state applications	January 31, 2025
High-Efficiency Electric Home Rebate Program (HEEHR)	\$4.5B In statute	\$4.146B open to state applications	January 31, 2025
Training for Residential Energy Contractors (TREC)	\$200M In statute	\$150M open to state applications	January 31, 2024
25C Tax Credit	\$12.4B CBO estimate	Credit available since Jan 1, 2023	N/A (available through 2032)
Greenhouse Gas Reduction Fund	\$27B In statute	Initial Application Period Closed for CCIA, NCIF, and SFA	October 12, 2023



DOE Program Requirements & Application Instructions

Details released

July 27, 2023 (V1)

October 13, 2023 (V1.1)

Details on how IRA Sections
50121 (HOMES) and 50122
(HEEHR) Programs are to be
implemented.

August 16, 2024

Deadline for SEOs to
indicate they will apply

January 31, 2025 SEOs
applications due to DOE

Guidance for Program
Administrators

HOMES - Modeled Energy Savings Pathway

- ▶ Projects using the **modeled** energy savings pathway must be calibrated to historical energy usage for a home **consistent** with BPI 2400.

Energy Savings	Single-Family	Multifamily
20 – 34 percent	\$2,000 or 50 percent of the project cost (whichever is less).	\$2,000 per dwelling unit, with a maximum of \$200,000 per multifamily building.
	DOUBLE for low- and moderate-income (LMI) individuals: \$4,000 or 80 percent of the project cost (whichever is less).	
35 percent and over	\$4,000 or 50 percent of the project cost (whichever is less).	\$4,000 per dwelling unit, with a maximum of \$400,000 per multifamily building.
	DOUBLE For LMI individuals: \$8,000 or 80 percent of the project cost (whichever is less).	

HOMES - Measured Energy Savings Pathway

- ▶ Program path using a DOE-approved **open-source measurement and verification (M&V) methodology** to measure home energy savings post-installation of the upgrades, providing rebates for homes or a portfolio of homes that achieve measured energy savings of at least 15%.

Energy Savings	Single-Family & Multifamily
15 percent and over	<p>\$2,000 payment rate per kilowatt hour saved equal to a 20 percent reduction for the average home in the state, or 50 percent of project cost.</p> <p>DOUBLE for LMI individuals, \$4,000 payment rate per kilowatt hour saved equal to a 20 percent reduction per home or dwelling unit, or 80 percent of project cost. For multifamily buildings to qualify, at least 50 percent of residents must be LMI.</p>

Aggregator: An entity that engages with multiple single-family homes and/or multifamily buildings for the purpose of combining or streamlining projects as allowed by the State.

Measured HOMES Rebates – Key State Requirements

Utility Data Access	Develop a Utility Data Access Plan.
Aggregator Eligibility	Approve entities to serve as aggregators. (State Plans will need to explain how the State will identify eligible aggregators or contractors.)
60-day payout requirement	Provide rebates to the eligible rebate recipient for measured programs within 60 days of submitting invoice to the State.
Corrective Action	Take corrective action if actual savings results are less than 70% of estimated savings.
\$200 Installer Benefit	Provide \$200 Contractor/Aggregator Installer Benefit for underserved households (per unit).
Home Assessments	Establish requirements for home assessments of every home/multifamily building receiving a HOMES rebate in line with BPI-1100 (per DOE Guidance v1.1, Blower Door tests and cost-benefit analyses are not required).
3 rd Party Certification	Provide a post-installation project certificate to the household that has been certified by a qualified third party to confirm quality monitoring and accurate valuation of the upgrade.
ENERGY STAR	Ensure heating, cooling, and water heating products meet ENERGY STAR.

Other Home Energy Rebate Flex Opportunities

- ▶ **Home Electrification and Appliance Rebates Program (HEAR or HEEHR)**
 - ▶ Electric heat pump for space heating and cooling (max. rebate of **\$8,000**)
 - ▶ “Costs eligible for rebate include all materials for installation, including **smart thermostats and other grid-enabling technologies**”
 - ▶ Income eligibility:
 - ▶ Low-income households (less than 80% AMI)
 - ▶ Moderate- income households (80%-150% AMI)
 - ▶ Individual or entity that owns a multifamily building not less than 50% of the residents of which are low- or moderate-income (LMI)

Program Stacking Overview

Allowed

Prohibited (as of October 13, 2023)

Clarification Needed: HOMES + 25C

**HOMES Modeled +
HEEHR**
(for separate upgrades)

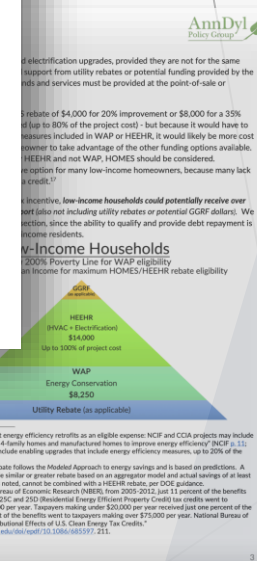
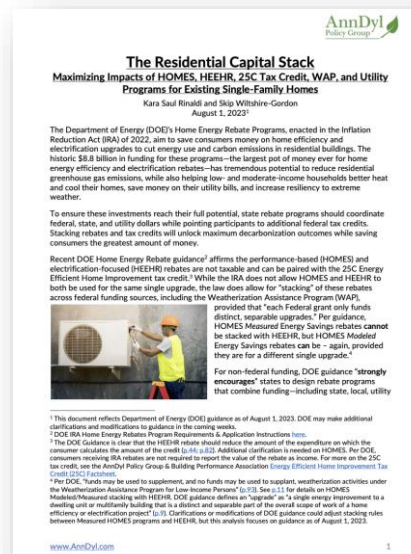
**HOMES Measured +
HEEHR (for HEEHR
energy saving upgrades
only)**

25C + HEEHR

**HOMES Measured +
HOMES Modeled**

**Stacking either rebate
with other federal funds**
(for separate upgrades)

**Stacking rebates with
other federal funds**
(for The SAME single
upgrade)



Questions?

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For news and updates from the Flex Coalition on IRA
Home Energy Rebate programs and other demand
flexibility issues:

flexcoalition.org/flex-news

Follow us: twitter.com/flexcoalition

To discuss how you can become a member, or other
questions, contact: info@flexcoalition.org

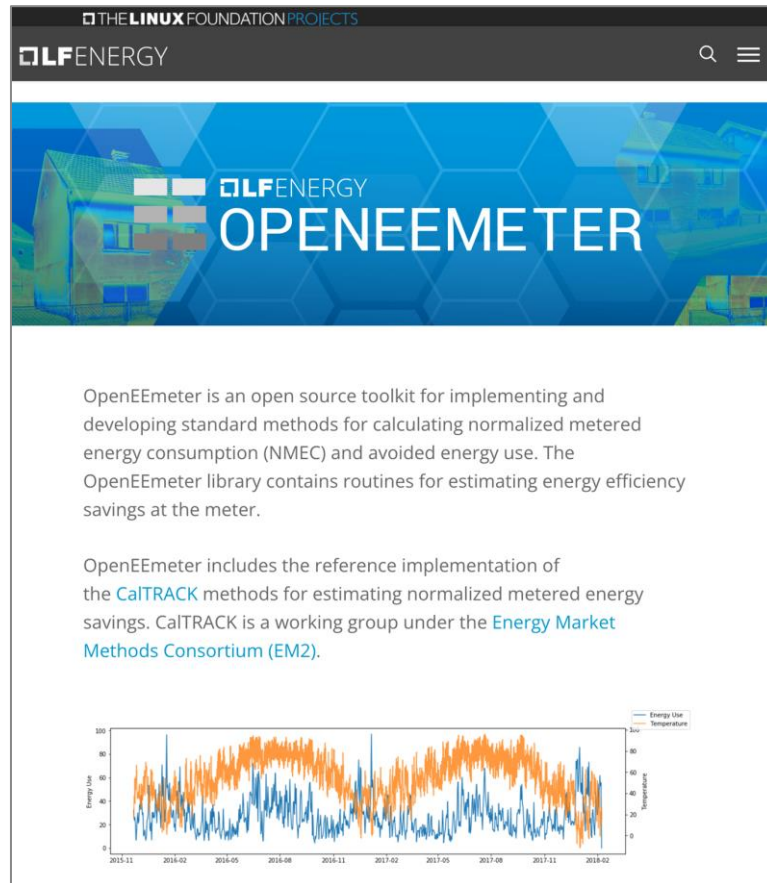
The background is a solid blue gradient. Overlaid on this are several thin, white, curved lines that flow from the left side towards the right, creating a sense of motion and energy. These lines vary in curvature and density, some forming a wave-like pattern that dips in the center and rises towards the right.

RECURVE

SHAPE THE FUTURE OF ENERGY

Open-Source M&V at the Meter

Proven, accurate methods and publicly available codebase.



THE LINUX FOUNDATION PROJECTS
OLFENERGY

OPENEEMETER

OpenEEmeter is an open source toolkit for implementing and developing standard methods for calculating normalized metered energy consumption (NMEC) and avoided energy use. The OpenEEmeter library contains routines for estimating energy efficiency savings at the meter.

OpenEEmeter includes the reference implementation of the [CalTRACK](#) methods for estimating normalized metered energy savings. CalTRACK is a working group under the [Energy Market Methods Consortium \(EM2\)](#).

Energy Use
Temperature

2015-11 2016-02 2016-05 2016-08 2016-11 2017-02 2017-05 2017-08 2017-11 2018-02

Measured

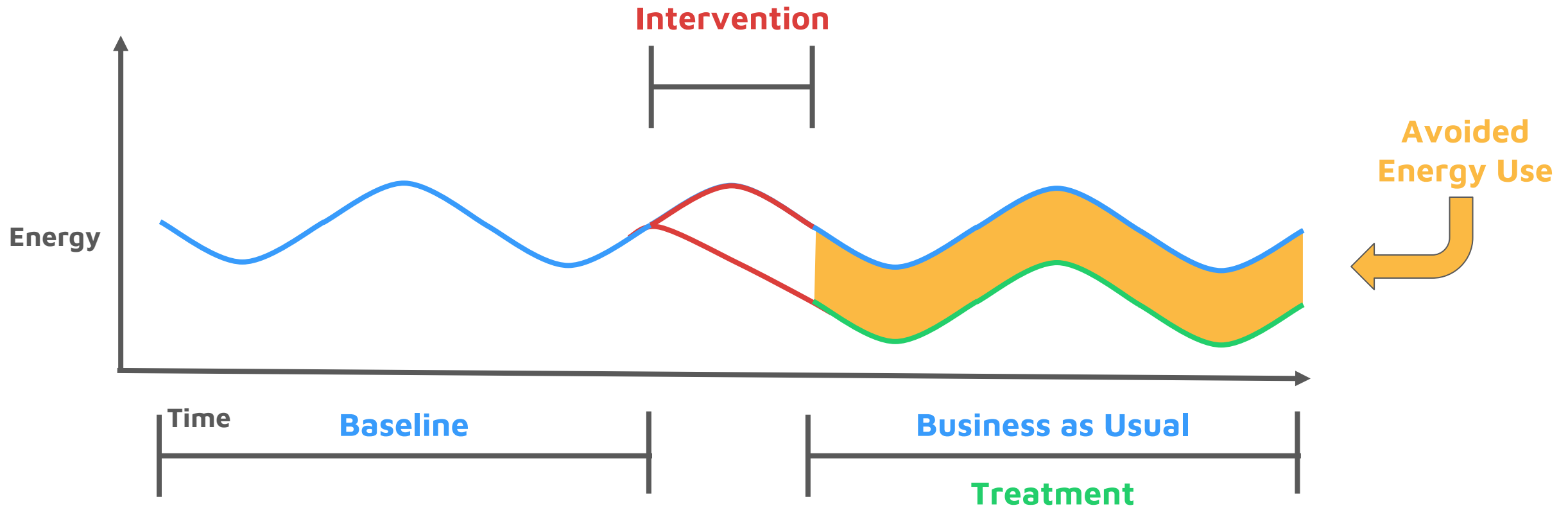
- Requires open-source, weather-normalized, **meter-based M&V**.
- Can be achieved via **OpenEEmeter** and the **Recurve Platform**
- DOE Guidance Compliance Requirements
 - 70% realization rate
 - 15% savings at the **portfolio**
 - Anticipate Program Evaluation



U.S. DEPARTMENT OF
ENERGY

NREL

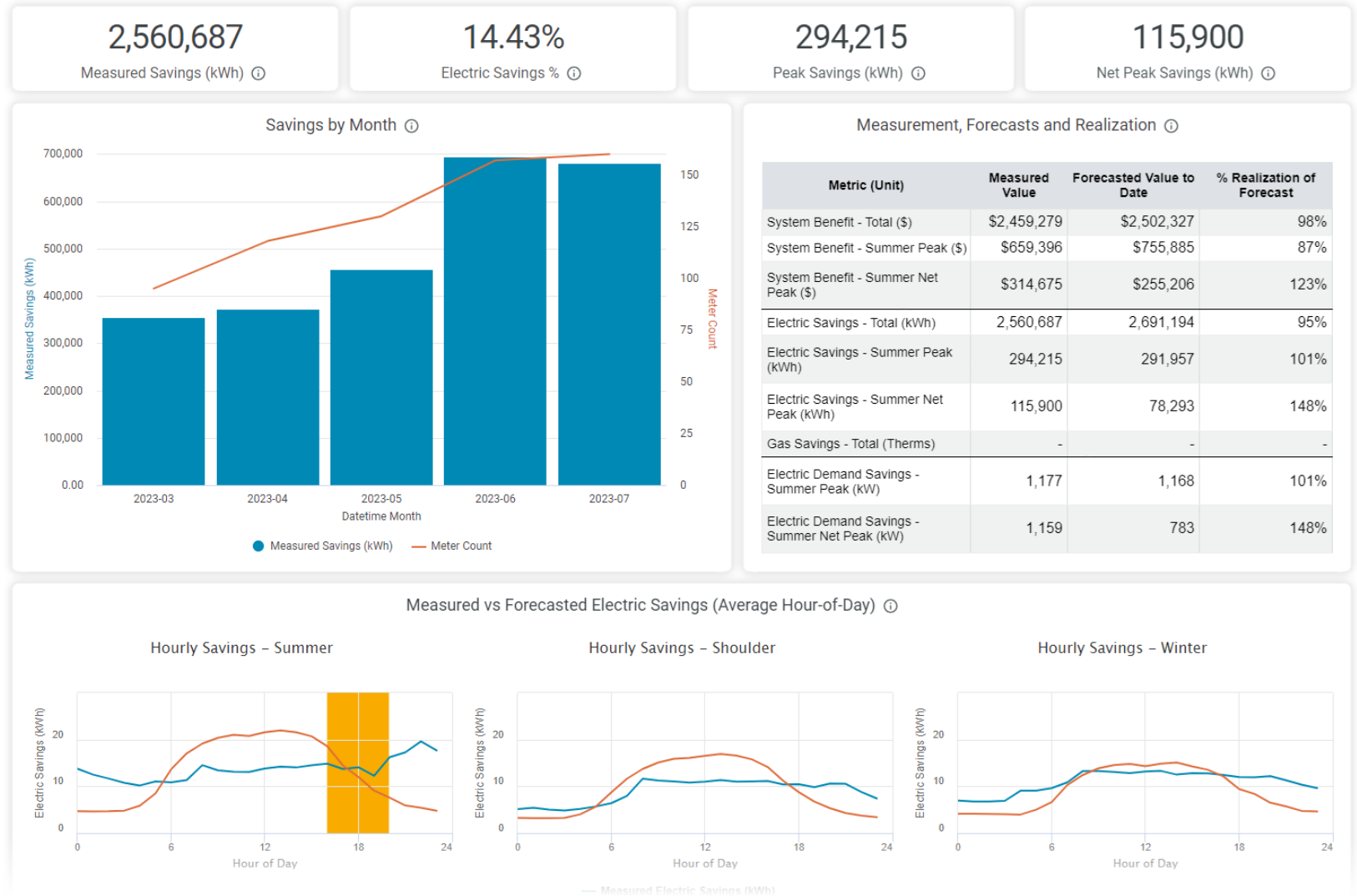
Common Sense Algorithm



Why Does Measured Matter for Behavior Programs?

Behavior best practices mean better results. Let's pay for it!

- The BECC community has been proving these methods enhance outcomes for 15+ years
- IRA HOMES measured and modeled approaches can reward their value.
- Performance matters in the fight to save our climate





Appendix

CONTACT

IRA-HOMES Deep Dive - Specific Rules

Modeled

- Requires home energy simulation software, **calibrated to historical energy usage** consistent with BPI 2400.
- OpenEEmeter not required - but likely will be basis of DOE impact evaluation
- DOE Guidance Compliance Requirements
 - 70% realization rate
 - 20% savings at the **site-level**
 - Anticipate Program Evaluation

Measured

- Requires open-source, weather-normalized, **meter-based M&V**.
- Can be achieved via **OpenEEmeter** and the **Recurve Platform** (on list of DOE approved software tools)
- DOE Guidance Compliance Requirements
 - 70% realization rate
 - 15% savings at the **portfolio**
 - Anticipate Program Evaluation

3.2.4.2 Calculating Measured Energy Savings

Key Expectations & Requirements

- Uses **open-source advanced M&V software** as approved by DOE that includes capabilities for determining and documenting **weather-normalized energy use** of a home or portfolio of homes **before and after** the implementation of home energy upgrades.
- **Defines, calculates, and reports** energy savings for the purposes of the rebate threshold as kWh or kWh equivalent as defined in Section 2.1.
- Calculates **actual** home- or portfolio-level savings **no less than 9 months** after the final installation in the home or portfolio [to ensure capturing seasonality]
 - If aggregators are providing rebates based on estimated savings, **the risk of recovering costs based on actual reported savings** must be borne by the aggregator.
- **Collects and reports the data** and information required in the [Data & Tools Requirements Guide](#).

Sealed is a climate tech company on a mission to stop home energy waste and electrify all homes.

We are an [aggregator](#) in energy efficiency programs.



Aggregators are market actors that streamline energy efficiency programs

Aggregators...

Modeled

Measured

Provide upfront rebates to contractors



Calculate projected energy savings



Submit required program data



Provide other value to contractors (marketing, financing, etc.)



Take on the performance risk



Our focus is on software and services for contractors

1 **Qualification**
Real-time qualification of project eligibility across programs based on simple inputs.

2 **Calculation**
Provide upfront and precise rebate quote based on the project's expected energy savings.

3 **Processing**
Handle administrative work and process rebate based on simple inputs provided by the contractor.

4 **Payment**
Pay contractors and households at the speed of business and get paid back at the speed of government.

