Remotely: A Virtual Energy Audit Solution

With home energy performance awareness on the rise, there is need for a low-cost tool to encourage homeowners to take steps to invest in efficiency improvements. In recent years, virtual audits have appeared as an alternative solution to identify opportunities for efficiency upgrades in ways that reduce time, effort, and in-person contact. The importance of virtual audit capabilities became more evident as COVID-19 made in-home energy audits more difficult during social distancing. As states continue their efforts to revitalize and upgrade the energy performance of homes and stimulate efficiency workforce activity, virtual energy audits provide a flexible, scalable solution to keep efficiency moving forward.

Project Outline

Northeast Energy Efficiency Partnerships (NEEP) and its partners are launching a two-part solution to virtual home energy audits. Step 1 utilizes Energy Estimator, a joint tool developed by NEEP and ClearlyEnergy, to provide virtual pre-assessments to identify homes that qualify for Step 2. During Step 2, a customer uses Signetron's customized app to walk through the house and collect relevant data. The app uploads information on the home's energy features to Energy Estimator where an energy model is created automatically. The solution features an online platform accessible by the customer and contractor. Homeowners can view savings estimates from individual upgrade options and contractors can manage their customer pipeline, collect data, and model projects to streamline the sales workflow.

Step 1: Virtual Pre-Assessment (Energy Estimator)

This no-cost, easy–to-use tool can create a custom home energy profile in four easy steps. Users create a label by registering a login, claiming their home, and reviewing and editing their home features (Figure 1). This simple process of filling out the tool to generate a home energy profile takes 10-20 minutes.

To generate the profile, Energy Estimator combines automated energy modeling capabilities from ClearlyEnergy with data from publicly-available tax assessor databases and the Home Energy Labeling Information eXchange (HELIX) – a secure database that stores home energy labels, certifications, and solar PV data. The generated label displays projected annual energy usage and costs, energy highlights, recommended measures, and includes the option to supplement with utility bills and information about in-home assets to refine the cost estimate. The tool normalizes for weather, occupancy, and thermostat settings – factors that may cause the baseline estimate to not accurately reflect what has been entered into the tool.

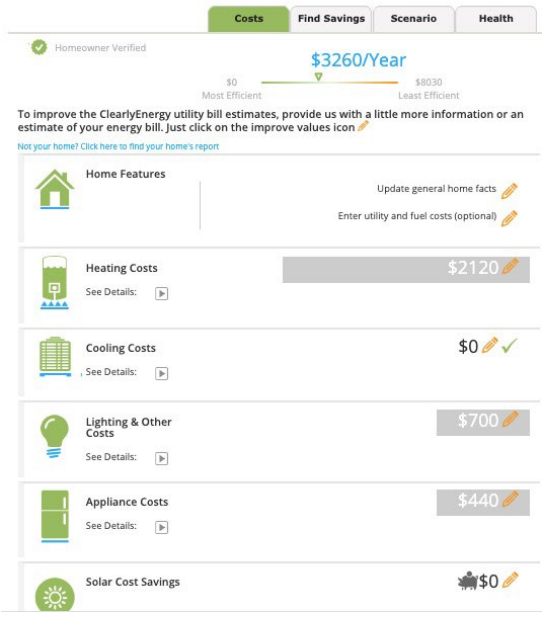

Figure 1: Energy Estimator Interface

Using the Energy Estimator tool, Step 1 will walk the homeowner through a virtual pre-assessment. With home energy characteristics and/or utility bill information, homes with significant savings opportunity will be identified to move on to Step 2.

Step 2: Customized Walkthrough App (Signetron)

Using the Signetron app, the walkthrough will record structural elements, measurements of the conditioned space, and photos. Users are guided through the structural element component, which asks for details about their whole home. This information includes the number of stories, the home's orientation, and materials used for the window frames, walls, and roof. Next, users watch a brief walkthrough tutorial video that shows how to collect measurements from each conditioned room in the home. After collecting measurements, the user will take photos of their home's energy systems. This information will be hand-examined by an energy professional to obtain estimates of the age and efficiency of the systems.

Once all components of the audit are complete and the user taps the 'Submit Audit' button, the Signetron app will verify that all of the necessary information has been provided, and then upload it to ClearlyEnergy. This upload will trigger a re-run of the energy model on the user's home with the new data, producing an updated energy usage estimate.

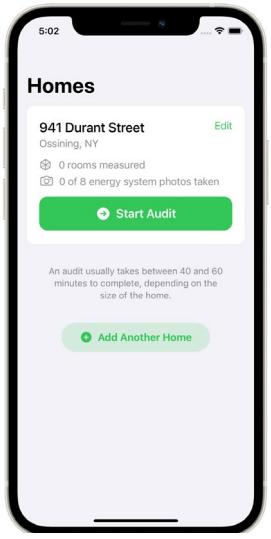

Figure 2 Signetron Interface

Project Timeline

Date	Summary
July 1, 2021	Remote/Virtual Audit Challenge Kickoff: Remotely Project Start
July – December 2021	Tool Development and Enhancements: The project team will work to expand user interface, home data collection, and compatibility with the tools provided by ClearlyEnergy and Signetron.
December 2021 – December 2023	Partner Management: The project team will host Pilot Advisory Committee meetings to gain stakeholder feedback and inform project efforts. The project team will also develop plans and materials for contractor and customer engagement (e.g. recruitment, training, and marketing).
April 2022 – December 2023	Remotely Project Delivery: The project team will enroll and guide homeowners and contractors through each phase of the pilot project.

Project Partners

For more information, contact Remotely Project Lead: Bryan Evans at remotely@neep.org