2021 Incubatenergy Labs Challenge - Indow Demo Day

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Indow, EPRI, TVA, CLEAResult

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About the Need/Opportunity

Overview of specific challenge area being addressed in the demonstration

Utility energy efficiency programs need a cost effective solution for reducing energy loss through windows. There is also a strong need for EE programs which can extend benefits to underserved communities.

Indow Kit, our new energy-saving product line, will feature a dramatically lower entry-level price, making comfort and energy efficiency accessible to more people. Whereas current window solutions are expensive and difficult to order and install, Indow Kit is an affordable, long-term solution and easy to order and install.

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About the Technology

- Indow Kit arrives at a purchaser's home disassembled.
- All parts for a quick, easy assembly are included.
- Additional items to ensure a proper fit of the film in the frame include a hairdryer and an object with dull, flat surface, such as a butter knife.
- Indow Kit is quickly assembled using around 15 constituent parts.
- The aluminum frame with attached silicone compression systems provides a secure fit in the window frame while providing a tight air seal.
- A mechanical attachment system on the back of the aluminum frame holds our various glazing options in place.
- The system is upgradeable and fully field repairable.

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Project Scope

What do you aim to learn at the end of this project?

- Indow aims to increase experience with multiple elements of our value chain: window measurement, order submission, manufacture, shipping, assembly and installation of Indow Kit.
- Project collaborators intend to measure total energy savings of participant homes.
- We plan to measure quality of life and comfort improvements for homeowners.

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Project Scope

What is being tested / proven?

- The overall objective is to prove Indow Kit provides a highly scalable, cost effective, easily deployable solution to make dramatic improvements in comfort and reductions in energy expenditures for underserved communities.
- Indow aims to test the energy efficiency performance of the new Indow Kit. Energy savings should be measured by both power bill costs and kWh saved.
- Before and after blower door tests will be conducted to learn CFM reductions.
- Before and after qualitative surveys from the homeowners around the topics of comfort level in the home, quality of sleep, stress levels, and frequency of illness throughout the year will allow us to measure the effect of Indow Kit on the quality of life.

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Project Scope

What are you doing specifically in your demonstration, when and where?

- Indow is partnering with EPRI, TVA, and CLEAResult to equip homes in the Nashville area with the new Indow Kit window inserts
- The first round of windows for participant homes were shipped from Indow and received by TVA last week. Installation in the first six homes will take place soon.

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Project Scope

What are some key milestones where you'll make assessments of success/opportunities?

- Recruitment of customers and verification of frame compatibility
- Before and after blower door tests
- Shipping inserts for multiple homes in one bundle
- Assembly and installation of inserts performed by CLEAResult
  - Check accuracy of measuring & manufacturing by assessing fit of each window insert
- End-of-project check-ins and data analysis

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Project Scope

If successful, what would you want to happen after this demonstration is complete? In an ideal world, what would be the next path to further scale this technology?

- This pilot is going to build confidence in the Indow Kit value proposition for both utilities and home and business owners.
- We will complete a white paper documenting pilot results.
- We will seek to have Indow Kit included in more energy efficiency programs targeting all demographics.

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Learnings to Date

What have the team learned to date?

- Indow Kit training materials are easily understood.
  - Feedback from CLEAResult was positive, expressing confidence that they will be able to qualify and measure participants' windows.
- The most challenging part of the pilot has been the window qualification process.
- It's easy to train utility participants on how to measure and install our product, and can be done in a brief online meeting.
- Easy program to administer

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Learnings to Date

Are you on schedule?

- Indow has produced and shipped Indow Kit inserts for all homes identified and measured by CLEAResult.
- Global supply chain disruptions are affecting Indow Kit. However, Indow has enough materials on hand to fulfill our commitment in the 2021 Incubatenergy Labs Challenge.

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Learnings to Date

What are successes so far?

- Easy-to-understand training materials made for a smooth training of CLEAResult team members and preclude any need for presence of Indow staff for assembly and installation processes.
  - Measurements for all windows submitted were verified, indicating the ease of training for and executing measurements of window frames with the Indow system.

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Learnings to Date

What are the barriers so far?

- Frame compatibility caused by inadequate window frame depth has been a surprising issue, likely driven by a regional architectural style prevalent in the target demographic in the Nashville area.
- Supply chain issues delayed our initial delivery of the window inserts for participant homes but this has been resolved for the balance of the TVA pilot

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Learnings to Date

Has your scope changed since its inception? If yes, how so? How has the team made adjustments based on learnings (if applicable)?

- No changes in scope. The small number of houses without exterior storms in the pool of 94 potential participants may complicate our ability to measure the energy efficiency and comfort benefits of Indow Kit inserts.

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