ENERGY EFFICIENCY PROGRAMS ARE HARD TO SCALE

AND HERE'S WHAT YOU CAN DO ABOUT IT.

By the end of this paper you will be able to:

➤ Understand why it is so challenging to scale an energy efficiency program
➤ Learn what it takes to improve and scale an existing program
➤ Discover why you need technology to move your team forward

Introduction

The energy efficiency industry has undergone dramatic changes in the last 20 years. What began as a few states mandating appliance standards grew into utilities implementing comprehensive demand side management programs. During the same period, ASHRAE developed building energy codes for commercial buildings, and these codes are becoming the standards in states and cities across the U.S. (source: the history of energy efficiency). Twenty years ago, the volume of energy efficiency projects was manageable. Nowadays, the technology and data available to energy efficiency providers drives significant energy savings, but with the influx of technologies and data the programs are difficult to navigate and scale.

My name is Lily Li. I understand this struggle because I founded an energy efficiency software company called Hancock Software. We provide energy efficiency program management systems for more than 13 statewide energy efficiency programs. These clients have at one time or another, like every energy efficiency program in this county, struggled to reach economies of scale. This paper covers the top challenges faced by energy efficiency programs today, and provides insights to build and scale in the future.
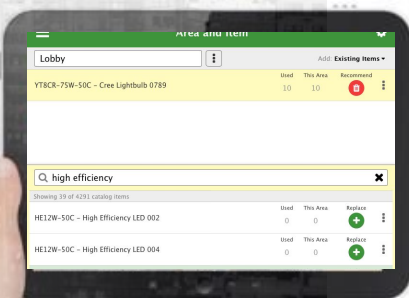
The Challenges that Programs Face Today

Scalability Problem 1: Programs require many industry experts, with different areas of expertise, and these people have little access to existing building data

Most building data today is collected and provided on paper or across multiple programs that have no communication amongst them. Participation in each of these programs requires an array of experts for each major area of consumption. For example, when designing, auditing or retrofitting buildings with efficiency measures, not all HVAC engineers will understand heating and cooling systems and airflow requirements for all types of buildings. It takes a knowledgeable lighting designer to design the system for illumination and to understand the energy savings at the same time, especially in buildings where energy codes must be met.

This makes it hard to work effectively on the same project. It's not just the lighting designer and the HVAC engineer that will need access, think of project downstream: the installer, inspector, reviewer, EM&V consultant and so on. Unorganized, unstructured data makes it challenging for anyone to see the big picture energy footprint of a single building. Scale that concept to a portfolio of buildings and the problem multiples.

In order for a building to undergo the optimal energy efficiency experience, a project's complete information needs to be presented in a digestible format. For skilled engineers to make the right wholistic design changes, they need to leverage all related data. Once that data is readily accessible and structured for insight and meaning, the expert can make more effective recommendations.

Scalability Problem 2: Programs spend millions researching the best energy efficiency measures, how do they enforce them?

Only 60 percent of a program's budget goes toward the actual incentives and rebates. The rest is used administration, marketing, design, evaluation, research and other activities (source: CEE 2017 State of Energy Efficiency Industry). If you're in the industry, you understand the significant investment put toward energy efficiency education and deciding what types of improvements are cost effective. By necessity, policies for energy efficiency have focused on product standards, fiscal energy savings, investment calculators and building codes. As a way to enforce these standards, gas and electric utilities introduced the concept of an energy efficiency measure (source: the history of energy efficiency). Measures are used to define in what kind of condition what should be done that will make the building more energy efficient in a cost effective way.

Utilities hire program design firms, EM&V firms, consultants, research firms to help define program guidelines, allowable measures, and proper incentives for those measures. Energy modeling tools along with technical resource manuals are mandated as a way to measure and control fuel savings. However, even with the measures and the protocols in place, how can programs perform the energy efficiency cost effectively? How can programs make sure program protocols are followed? How can you tell your funding source, your building owners, your financing firms with confidence that your projections are accurate? How do you know that your field auditor made the right call? It's evident that continual education and automated measure enforcement on-site are missing in most programs.

Scalability Problem 3: Technologies do not talk to one another, making communication & reporting difficult

It is common to see an electric or gas utility build or seek out a tracking or reporting system to manage the large amount of incoming data. But, in spite of this effort, programs continue to face the following issues:

1. While centralized databases do exist, there continue to be silos of information. This is a result of data collection being performed in different locations -- from paper to excel to online applications. The majority of centralized program management technologies do not enable stakeholders to wholistically analyze a building's upgrade.
2. Programs require comprehensive data sets that are constantly changing.
3. Insight into the data is inadequate. Many people look into the same type of data with different purposes and needs. There are few ways to access the data and evaluate information for all user types.

Program staff are often overwhelmed with the coordination and management of the large number of parties it takes to implement a cost effective retrofit . Reporting happens in silos and remains under the control of one program is and is isolated from other participants. This can cause missed deadlines, expense overruns, and inefficient utilization of funds.

Scalability Solutions

There are solutions that exist that can eliminate or reduce all of the issues above, and can still be cost-effective.   The key elements to solving the scale challenges and building a successful energy efficiency program system are:

● Fully integrated, comprehensive solution with automated communication and management
● User friendly interfaces that use technology all users are familiar with, such as support for any kind of mobile device
● Flexible reporting and data

Scalability Solution 1: Integrated and comprehensive solution with built-in automation

Program implementations must encompass all program participants. The most cost-effective and successful programs of today use a single, fully-integrated software solution designed from the beginning to end to ensure a smooth and streamlined process that saves both time and money. An ideal solution includes all of the tools needed for success throughout the program management chain --- from program design to data collection, application, approval, and evaluation. Finding a single solution to meet your full range of requires solid researching, but solutions do exist and are successful. Select an easy-to-maintain solution flexible enough to be used by those managing the day-to-day program activities, companies and individuals participating in the program including applicants, vendors supplying auditing and implementation services, inspectors, and funding source owners.

Look for a system that has already been developed. These systems include many years of experience from many different users. Put your effort into running the business, not building a software system at your own cost. Pick a solution to digitally transform your energy efficiency program and help define, manage and automate your programs and projects to meet your exact needs. Look for a vendor to supply a full-program solution with a user-friendly mobile application that works offline and automatically synchronizes audit data to the a centralized cloud. As a result, you could double the energy savings and triple the participation across your programs without increasing resources.

Scalability Solution 2: User-friendly solutions that support mobility

As technology grows, mobility becomes more important and popular. But, this is not the main reason we need mobility in this industry. Because most of the key information about the building needs be collected onsite while the person walk through the building, it is very important to have a system that can run on mobile devices.

Auditors and vendors should be able to use an integrated data collection solution on a mobile device or tablet while in the field. Programs that need engineering level-audits should have the ability to collect full audit data. Programs requiring only a Level I audit should have required fields noted. Ideally, your solution will have a list of common items available for selection. By having an integrated data collection capability that is linked to the cloud and automates synchronization, audit data will not have to be re-entered when applying for incentives or measure funding.

Photos, videos, notes, drawings, and catalog item libraries and strategies are all important features that should be included in any mobile implementation. Working offline in the field is also very important since most building may not have reliable internet connections. Look for a solution that works on multiple platforms, such as iPad, Windows tablet and Android pad.
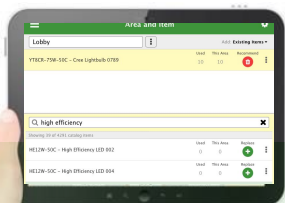
One of the key adoption to use mobile device in the field is user friendliness. Since they have to move fast in the field, it is extremely important that the software is very easy to use and will be adopted by field auditors. Otherwise, they will be very frustrated and will not use it in the field.

Scalability Solution 3: Comprehensive, standardized measure enforcement & protocols

A list of all available program measures should be easily accessible to applicants, auditors, and inspectors. The solution should provide automated ways to ensure that the measure implemented meets the program requirements and any savings calculations are instantly available and shown to the users. Programs that need engineering level-audits should have the ability to collect full audit data. Programs requiring only a Level I audit should have required fields noted. Ideally, your solution will have a list of common items available for selection. By having an integrated data collection capability that is linked to the cloud and automates synchronization, audit data will not have to be re-entered when applying for incentives or measure funding.

Ensure that the solution chosen includes support for a wide range of measure types. These can include lighting, appliances, HVAC systems, solar, control technology, insulation, air infiltration and more. Each of them can be quick, simply low hanging fruits, such as ASHRAE LeveL I audit. It also can be more detailed such as Ashrae Level II or III energy audit. Sometimes, it includes energy modeling for a entire building or a special area such as computer room energy modeling etc. A system that can only serve one type of specific audit / need will not meet today's energy efficiency need.

Choose a solution that enables changes in the middle of a program without losing historical data. Be able to roll-out mid-program changes without losing original data.

Scalability Solution 4: Flexible reporting and data

Each program has special requirements for reporting on the activity and savings within a program. Solutions with flexible reporting implementations will save significant analysis time by supplying configurable, repeatable reports supplying the data your evaluation requires without countless hours of manipulating spreadsheets.

HERE'S WHAT YOU CAN DO ABOUT IT.

Hancock Software has been supplying complete end-to-end energy program solutions for more than 10 years. Hancock Software can digitally transform your energy efficiency program and help define, manage and automate your programs and projects to meet your exact needs. Hancock is the only vendor to supply a full-program solution with a user-friendly mobile application that works offline and automatically synchronizes audit data to the Hancock Cloud. As a result, you can double the energy savings and triple the participation across your programs without increasing resources.

Define, manage and automate your programs and projects to meet your exact needs.
Call or email today for your no-obligation demo
info@hancocksoftware.com.

ABOUT HANCOCK SOFTWARE

Hancock Software Inc. has more than a decade experience in the commercial and residential energy auditing industry helping energy efficiency programs excel to the top. The platform has helped thousands of users and hundreds of organizations process 250,000+ energy efficiency projects and has had a measured impact on the communities in the US. Within the last 5 years alone, the Hancock platform has tracked and processed $800 million in energy efficiency measures and has helped account for more than 640,000 of mWh saved, 631,000 tons of CO_2 abated and $78 Million saved on energy bills.

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