

WHITE PAPER

The Future of Home Energy Reports

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Reimagining Home Energy Reports

A Home Energy Report (HER) is a proven tool in a utility's toolbox to encourage energy-efficient behavior from customers. Various studies have found HERs can typically bring about utility-wide energy savings on the scale of 1-3%, doing so at an operational price that's much more attractive than having to build out 2% more generation capacity.

However, not all HERs are created equal, with some key characteristics proving more influential at controlling consumer behavior than others. When determining the overall HER program, energy providers benefit from leveraging the methods that have proven most effective, while also learning successes, and predicting what innovative and emerging approaches can be used in the future. Whether that means embracing state-of-the-art smart home technologies or tapping into demand management strategies, HERs are evolving alongside the utility sector while improving efficiency, minimize peak loads, and strengthening the grid.

Typical HERs

HERs are offered by some utilities as a method to help customers understand their energy usage with the goal that this information will help and encourage them to find ways to minimize energy use. These custom reports are sent to homes with a wealth of data on household energy usage and advice on ways to increase efficiency. The typical HER will include month-to-month energy trends, some sort of comparison with energy used by similar neighboring homes and relatively generic savings tips.



1-3% Savings

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The Four Keys to Effective HERs

When looking across the utilities, there are a number of characteristics that the most effective HERs have. They are:

1

Easy to Understand

Customers don't want to feel like they're opening a legal document or suffering through a math exam when looking at their HER. It must be concise, with simple charts and graphs—all while retaining the most important details.

2

Contextualized

Most reports will analyze the energy use of homes that share approximate size and location in order to grade the customer's home compared with that sample of equivalent homes. They identify the average power use in such homes as well as outline how the highest performing homes use energy to give consumers a realistic goal. Despite fears of customers perceiving such comparisons as a form of 'energy shaming,' studies show this contextualization or benchmarking is one of the most effective ways to influence behavior.

3

Actionable

If HERs are thought of as the 'report cards' for home energy use, a vital inclusion to affect behavior change is to also include a 'study plan,' or actionable advice for how customers can improve their savings. By offering specific tips to improve energy efficiency, customers can start catching up to their more efficient peers.

4

Personalized

The most effective HER program will make every effort to personalize the context and actions. While all reports will typically personalize based on publicly available information (size and type of home), more advanced HERs will incorporate characteristics like the age of the home, heating source, and the number of occupants and other appliance-level insights. This data can then be personalized by the homeowner to account for errors and updates, but the inclusion allows the analysis to be more fine-tuned—resulting in more positive changes.

The Future of HERs

Utilities must always be thinking several steps ahead if they want to retain the attention of the customer and find innovative ways to influence energy-efficient behavior. The industry is going through the most significant evolution in its history thanks to rapid advances in technology, such as artificial intelligence, data collection and processing, automation, electric vehicles, and more. Because of these changes, the optimal HER of tomorrow may, and perhaps should, look quite different than the HER of today.

How can industry leaders continue to innovate the strategies and enhance the results from their HER programs? Some of the following cutting-edge approaches lay out the possibilities:

Disaggregation

An emerging method to use in calibrating the accuracy and usefulness of HERs is to take advantage of the treasure trove of data available through meter disaggregation, sometimes known as non-intrusive load monitoring. Disaggregation breaks energy-use data into more granular parts, and can identify energy used, for example, for air conditioning versus for lights and appliances. By integrating this new level of detail, advice can truly get personal and result in more specific and impactful recommendations.

Early results have shown that HERs that utilize disaggregation have been higher performers than their more traditional counterparts, both in helping customers understand their energy use and following the advice on how to reduce future power bills.

Time-of-Use

Time-of-Use (TOU) pricing is a rate structure increasingly implemented by utilities where the amount charged per kWh varies based on a predefined schedule. Typically, utilities apply TOU by charging a premium for energy used during peak demand so customers are incentivized to switch energy-intensive activities to other times.

For utilities engaging in TOU pricing, data are readily available to show patterns of each household's typical energy use over 24-hours. HERs can tap into this dataset and present more detailed findings, such as what time of day customers are using more energy than their

peers or by combining disaggregation and TOU, highlight how the A/C being run during peak hours is costing them how much extra per month.

Demand Response

Another growing strategy to fight excessive peak energy load is in demand response (DR) programs. Rather than a preset schedule like TOU pricing, DR enables utilities to send signals in real time to customers that rates will be temporarily increased to relieve strain on the grid. In response, customers can turn off devices that are unnecessarily adding to that demand.

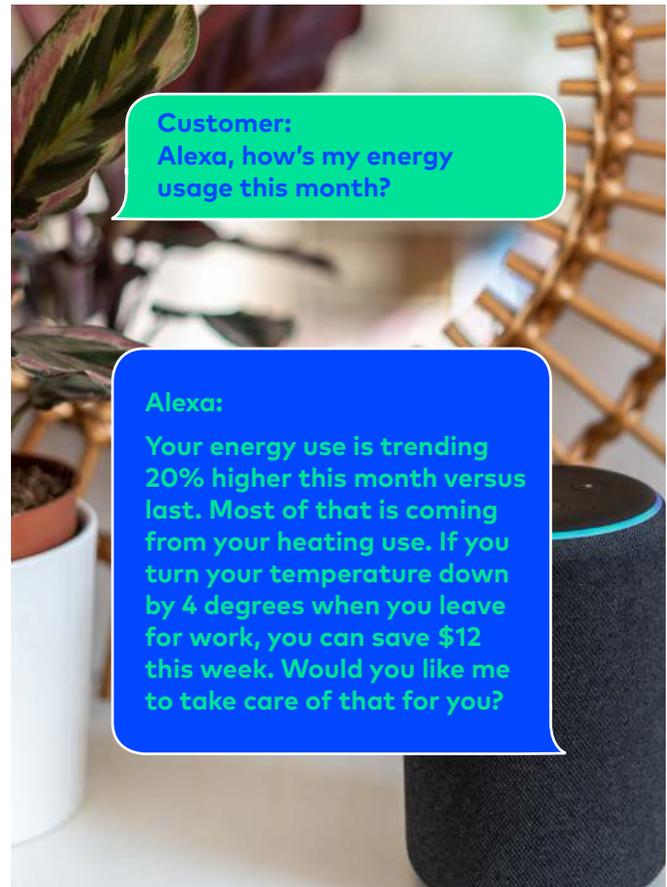
However, forward-looking utilities could consider adding DR information to HERs. For example, monthly reports could display the average amount a customer decreased their energy use during DR events, show a comparison of the number of DR events to which a household responded vs. not, and comparing these figures with neighbors to push the gamification of HERs further.



Smart Home Products

In households across the nation, the long-awaited smart home revolution appears to be underway. The rapid adoption of Internet of Things (IoT) devices adds multiple layers of data from sources like smart thermostats, smart lights, irrigation, as well as electric vehicles, opening opportunities for deeper insights, real-time customer feedback, and ultimately more efficient energy use. Incorporating data from these IoT devices will be key to providing a whole home picture for the consumer.

While many add these smart home products for convenience (or even just the 'cool factor' of feeling like they're living like the Jetsons), many smart devices can be boons to household energy efficiency—such as smart lights that dim or turn off when not needed or eliminating unnecessary heating/cooling energy use with smart thermostats. These efficiency functions can be tapped into via automation, manually through a mobile app, or even through smart voice assistants. Voice assistants, such as Amazon Alexa or Google Home, create the possibility for added customer interaction via HER programs. Organizations can create, for example, an Amazon Alexa Skill with which customers can interact. Some utilities use this to allow homes to ask billing or outage questions, but leading solutions can tap into HER data.



The immediacy of interaction and reaction opens up a world of possibilities for efficiency. While HER data can be presented in real time on a web portal or mobile app, tapping into the future of the smart home will see consumers more excited to engage with their utility.

Omni-Channel Distribution

Embracing multi-faceted customer channels and journeys is critical for utilities wanting to create a seamless and engaging customer experience. Developing an omni-channel distribution strategy with consistent messaging over paper, email, newsletters, web portals, mobile, and voice assistants, is key to delivering a successful program and deliver energy savings.

Once an omni-channel distribution strategy is in place, the next step is to optimize the strategy through A/B testing in order to deliver the right message, to the right customers, at the right time, through the right channels. With an email HER campaign, for example, you can easily and cost effectively split test to find the optimal sending days and times, subject lines, calls to action, fonts, colors and images.



The Home Energy Report of Tomorrow

HERs have become widespread and somewhat standardized over the past few years, which has been beneficial to the market as a whole. Utilities are able to learn from both the winning and the less-than-successful tactics their peers have employed in a large-scale trial and error across the industry. However, depending on what works today is short-sighted given the massive changes taking place across the energy industry. Energy efficiency is more important now than ever, with utilities and consumers alike buying in to whatever strategies may work.

Enterprising energy providers are trying to anticipate the trends of tomorrow, testing and implementing innovative messages over multiple channels. Versions of the 'Future of HERs' have been piloted and successfully implemented, while others are still in the ideation stage. By keeping their pulse on the industry and on the needs of the customers, utility managers can innovate and capture these future savings, as well.



About Uplight

Born from the merger of Tendril and Simple Energy, and the acquisitions of FirstFuel, EEme, EnergySavvy and Ecotagious, Uplight is the leading provider of end-to-end customer-centric technology solutions dedicated solely to serving the energy ecosystem. Uplight provides software and services to more than 75 of the world's leading electric and gas utilities, with the mission of motivating and enabling energy users and providers to accelerate the clean energy ecosystem.

Uplight is the leader in Demand Side Management, Energy Analytics, Utility Marketplaces, Utility Personalization, and Home Energy Management. Together, these solutions form a unified, end-to-end customer energy experience system that's proven at enterprise scale, yet nimble enough to deliver innovative solutions quickly. Utility leaders at all levels rely on Uplight and its customer-focused digital energy experiences to improve customer satisfaction, deliver energy and capacity outcomes, reduce service costs, increase revenue, and reduce carbon emissions.

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Interested in learning more about how Uplight can help you accelerate the clean energy ecosystem? Send us a note research@uplight.com or visit www.uplight.com

