EnergyHub®

The Future of BYOT

How demand response is evolving in the digital age



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Summary

The future of Bring Your Own Thermostat (BYOT) demand response hinges on the willingness of utilities to work with a continually growing ecosystem of devices and vendors. No matter the industry, customers demand choices, and thermostat hardware is no different. Millions of customers already have connected thermostats in their homes, and utilities that do not take the necessary steps to access those devices to provide grid services are missing an important opportunity.

This paper outlines how the digital age has accelerated the necessity of BYOT demand response programs, how digital marketing will play a role in helping those programs reach scale, and how launching BYOT programs now will prepare utilities for the inevitable expansion to Bring Your Own Device (BYOD) programs.

BYOT: The future of demand response

Growing access to broadband internet service is playing a significant role in the adoption of connected thermostats. In 2016, 73 percent of U.S. adults used broadband internet in their home, compared to only 65 percent in 2012[1].

As broadband has expanded into American homes, so too have connected thermostats. More than 40 percent[2] of thermostats sold to homes with broadband are internet-connected, and Parks Associates research estimates there will be connected thermostats in more than 40 million households by 2020[3].

Considering the proliferation of connected thermostats, the growing number of people with affordable internet access, and the increasing penetration of digital technology in everyday life, a demand response strategy that builds on these trends is vital for any utility looking to achieve programmatic success. Utilities must accept that BYOT programs don't simply *have a role* in the future of demand response – launching and sustaining BYOT programs *is the future* of residential demand response.

BYOT demand response is already having an impact at scale for utilities today. In 2016, Southern California Edison unveiled a plan using a BYOT demand response program that aimed to supply up to 50 MW of demand response in order to combat the effects of the Aliso Canyon gas shortage[4]. This is a clear indication that major utilities see BYOT programs as a reliable resource in the face of grid emergencies.

How will BYOT evolve from its early success? Utilities should plan for three realities:

- The dominance of the smartphone in digital marketing makes connecting with customers easier and more cost-effective than ever before
- The continual expansion of device choice for customers greatly reduces the appeal of direct install programs that offer only one device choice
- The inevitable impact of residential customer-owned distributed energy resources (DERs), and the Internet of Things (IoT), will expand the types of customer-owned devices that utilities want to control beyond thermostats

[1] Pew Research Center, "Internet/Broadband Fact Sheet." Pew Research Center. January 12, 2017

[2] Parks Associates, "Over 40% of thermostats sold in 2015 will be smart thermostats." Parks Associates Research. July 15, 2015

[3] Parks Associates, "More than 100 million U.S. households do not have a smart home device." Parks Associates Research. May 3, 2017

[4] Walton, Robert, "SCE, Nest partner on virtual power plant to mitigate Aliso Canyon gas shortage." Utility Dive. September 16, 2016

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The impact of the smartphone on BYOT

Nearly two-thirds[5] of Americans own a smartphone. A recent study[6] from the mobile analytics firm Flurry shows the average consumer spends nearly five hours per day looking at their mobile device, with that figure steadily growing since 2013. This growth has created a unique opportunity for utilities to directly reach digitally inclined customers with BYOT demand response program offers.

A smartphone-focused marketing campaign gives utilities launching BYOT demand response programs access to multiple advertising avenues including email, in-app offers, paid search, and social media. These platforms have the potential to engage utility customers in ways that have been unavailable to utilities in the past.

In particular, in-app offers and social media show strong signs that they can drive recruitment and enrollment for BYOT demand response programs.

The advantages of in-app advertising

One effective way to get in front of customers is through in-app offers within a connected thermostat's native app – commonly referred to as an interstitial. An interstitial is a full-screen advertisement (sometimes including a form) that populates on a user's screen based on certain criteria – in most cases the location of the user (by zip code) and the type of thermostat the customer is using.

The highest-functioning interstitials typically require no more than one click for a customer to sign up. Bringing a BYOT demand response program offer directly to the customer through a native thermostat app is valuable for several reasons:

- Connected thermostat owners open their thermostat app about once a day, on average, according to internal EnergyHub data
- The customer who has opened their native thermostat app is thinking about their energy use at that exact moment – they are fully engaged and more likely to accept an energy-related offer from the utility
- The utility is offering the customer something of value that is likely to create a positive feeling for the customer
- The offer requires little additional information and effort from the customer, so it is easy for them to click through to accept and get back to the app



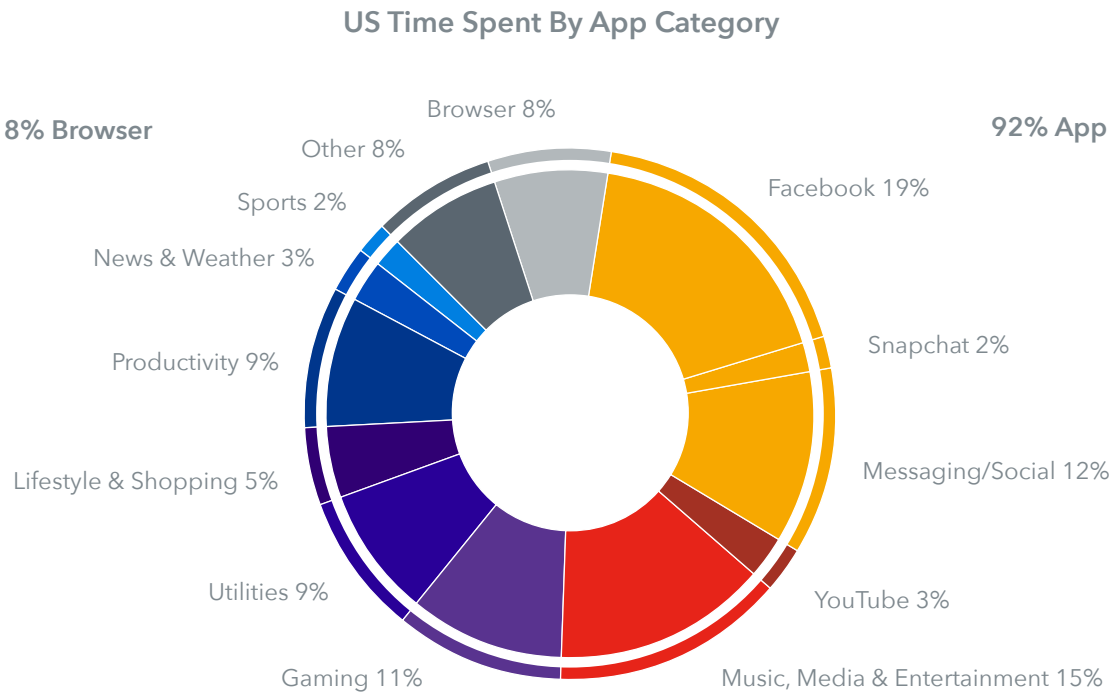
[5] Smith, Aaron, "U.S. Smartphone Use in 2015." Pew Research Center. April 1, 2015

[6] Kesiraju, Lali; Khalaf, Simon, "U.S. Consumers Time-Spent on Mobile Crosses 5 Hours a Day." Flurry Analytics Blog. March 2, 2017

The ease of this process, and the ubiquity of app use for connected thermostat owners, has led to mobile signups accounting for as many as two-thirds of enrollments in some of EnergyHub's BYOT demand response programs.

Leveraging social media for BYOT demand response program enrollment

As seen in the graphic below, nearly 20 percent of a typical consumer's smartphone time is on the Facebook[7]. Given the dominance of Facebook as a social media platform, wise utilities will construct and implement social media marketing campaigns to acquire customers for BYOT demand response programs.



Research by Flurry; March 2, 2017

Facebook enables utilities to target users based on age, gender, zip code, interests ("Likes" on Facebook), and more. This granular targeting capability provides an opportunity for utilities to create relevant advertisements for customers that specifically appeal to each customer's interests when recruiting for BYOT demand response programs.

Paid advertisements on Facebook often look very similar to common user posts on the network, which gives them an authentic look, as opposed to banner ads, which are placed off to the side of the Facebook timeline and often ignored[8]. Facebook ads that offer consumers an incentive on a thermostat or a credit on their utility bill have a great hook. EnergyHub has seen click-through-rates for social media advertising (the rate in which customers click on an ad and complete the associated action, known as CTRs) as high as 1.82 percent, better than the average CTRs in the technology (1.04 percent) and retail (1.59 percent) sectors[9].

[7] Kesiraju, Lali; Khalaf, Simon, "U.S. Consumers Time-Spent on Mobile Crosses 5 Hours a Day." Flurry Analytics Blog. March 2, 2017

[8] Nielsen/Sharethrough, "A neuroscience perspective: Assessing visual focus, message processing & the ability to strengthen associations through mobile native advertising." Nielsen/Sharethrough. 2015

[9] Irvine, Mark, "Facebook Ad Benchmarks for YOUR Industry [New Data]." The Wordstream Blog. Originally published Q1, 2017



The inevitability of choice

American consumers today benefit from increased choice across almost every consumer goods category. As markets have shown in recent history – telecom, for instance – when customers are presented with a diverse set of choices, they are no longer happy with limited options. The same is holding true for connected thermostats. As more connected thermostats come to market and the price of those devices decrease, consumers have unprecedented access and choices, and no longer find it appealing to have only one option.

Utilities looking to scale their demand response program need to respond to the customer's desire for choice by including many different types of thermostats in their program design. The concept of choice applies not only to types of thermostats, but to where consumers buy those thermostats. By ensuring a wide variety of thermostats are eligible for a BYOT program, utilities ensure consumers can purchase an eligible thermostat through the channel of their choice – whether it is through a retailer, an online store, a home security company, or an HVAC tradesperson.

Utilities with the most successful BYOT demand response programs across the country have already realized the importance of customer choice. Some programs, such as NYSEG/RG&E's Smart Savings Rewards program or El Paso Electric's eSmart Thermostat Program, offer customers as many as eight connected thermostat options.

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Expanding the BYO model into DERs and the connected home

As the cost of electric vehicles, residential solar panels, connected water heaters, and other distributed energy resources continue to decline, utilities should expect to see many of these technologies follow a similar adoption curve as connected thermostats. By 2020, industry researchers at Parks Associates estimate there will be more than 40 million connected thermostats installed in the United States[10] while experts at

[10] Parks Associates, "More than 100 million U.S. households do not have a smart home device." Parks Associates Research. May 3, 2017



Greentech Media project that domestic residential solar installations will nearly double from 2017[11]. Across all technologies, Navigant estimates[12] the global market of distributed energy resources (DERs) will expand from 132.4 GW in 2017 to 528.4 GW in 2026.

The transition from BYOT to Bring Your Own Device (BYOD) provides utilities with access to a wider portfolio of grid-edge assets for grid services. Flexible DERs, including electric vehicles, energy storage systems, grid-interactive water heaters, and other grid-edge devices, provide utilities with a variety of grid services, including frequency regulation, load shifting, and feeder congestion relief.

Utilities already managing successful BYOT programs are better equipped to launch BYOD programs that leverage the grid service potential of grid-edge DERs as these new grid-edge DERs become more prevalent. Processes and platforms put in place for BYOT, as well as program design and management experience developed in launching BYOT programs, can be easily leveraged to build successful BYOD programs.

A look into the future

A decade from now, a significant percentage of people in the United States will have some type of grid-edge device installed in their home – and the connected thermostat will be the most popular of those devices.

Customers will be able to easily enroll their devices in BYOT and BYOD grid service programs – some because they were served an advertisement on Facebook or another social media platform, and others because they received a solicitation in their device's app.

Leading utilities will be managing millions of customer-owned devices in BYOD programs, which will give utilities flexibility to provide various grid services, including demand response, solar monitoring, load shifting, and more.

Progressive utilities will have laid the groundwork through BYOT programs to use the BYO concept to create a two-way relationship with customers who have all types of DERs, allowing both parties to benefit.

[11] Perea, Austin; et al., "U.S. Solar Market Insight." Greentech Media. June 2016

[12] Rodriguez Labistida, Roberto; Feldman, Brett, "Global DER Deployment Forecast Database." Navigant. Q4 2017

EnergyHub as an informed voice on BYOT

EnergyHub designed, developed, and popularized the BYOT model with leading utilities and thought leaders 2012. Today, no company manages more BYOT programs than EnergyHub, with more than 30 utilities using EnergyHub's Mercury DERMS platform to manage their demand response program.

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