

The Itron logo is located in the top left corner. It consists of the word "Itron" in a white, sans-serif font, with a yellow lightning bolt symbol above the letter "o". The logo is set against a red rectangular background.

Itron

A man with glasses and a beard, wearing a blue zip-up sweater over a plaid shirt, is shown in profile from the chest up. He is holding a black smartphone in his right hand and looking at the screen with a slight smile. The background is a blurred indoor setting with a staircase and a light fixture.

Bring Your Own Device Demand Management Programs

Maximizing the Benefits of Third-Party Devices

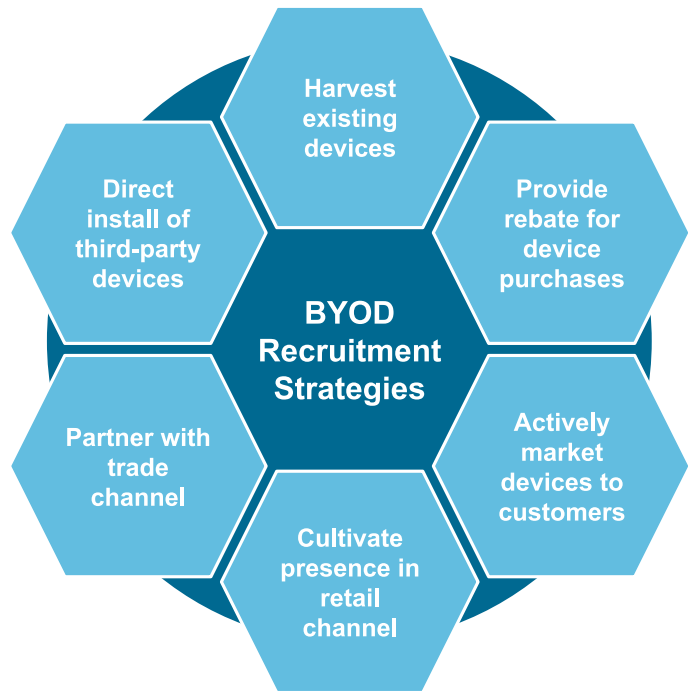
With Wi-Fi™-connected thermostats growing in popularity, bring your own device (BYOD) demand response—wherein utilities enroll customer-purchased and installed devices into direct load control programs—is gaining momentum. The allure of BYOD relative to direct install programs for utilities is twofold. First, avoiding the device and installation costs may enable utilities to acquire demand response capacity at lower upfront cost. Second, utilities may be able to reach new customers who are not well suited for direct install programs.

The allure for customers is the financial incentive—and the opportunity to contribute to a greener and more reliable grid.

These are real benefits, but there are also drawbacks to BYOD: (1) at current penetration levels of Wi-Fi-connected devices, BYOD is limited in the scale it can achieve; (2) by ceding control, utilities might have less opportunity to engage with their customers; and (3) event opt-outs are typically easier with BYOD, leading to less reliable capacity. Fortunately, most of these drawbacks can be mitigated with the right program design.

Considering the pros and cons of both BYOD and direct install, many utilities will find that a mix of the two approaches will yield the most cost-effective and scalable demand response resource.

In this piece, we discuss a few of the perceived drawbacks of BYOD and how to mitigate them as well as offer a few criteria that utilities should consider when choosing a software system to enable BYOD.



BYOD PROGRAM GROWTH AND SCALE

When most people hear BYOD today, they think about enabling demand response on existing thermostats that are already installed in customers' homes. This "harvesting" approach to BYOD, to date, has yielded very low participation in BYOD programs. Navigant Research data shows current BYOD programs have rarely exceeded 5,000 participants. This is thanks in part to the relatively low penetration of Wi-Fi-connected thermostats in customers' homes today and could change considerably over the next several years as that penetration increases.

Fortunately, even at today's level of Wi-Fi thermostat penetration, there are ways to grow BYOD programs more aggressively. Utilities might consider a mix of: offering connected thermostats through utility marketplaces; proactively marketing rebates through bill inserts, emails or outbound calling; and incentivizing local retailers and HVAC contractors to sell and enroll connected thermostats.

Still, if a utility has an urgent or substantial need for demand response capacity, whether to meet a regulatory mandate or successfully defer an infrastructure upgrade, it may need to consider supplementing its BYOD program with a direct install option. Direct install demand response programs have reached over 400,000 participants at many utilities and achieved more than 50% penetration of eligible customer bases.

ENGAGEMENT OPPORTUNITY

Most utilities want their customers to see them as their trusted energy advisor. Since the thermostat typically controls about 50% of a home's energy use, the proliferation of smart thermostat vendors who are regularly in contact with these customers could jeopardize the utility's status as that trusted advisor. BYOD could risk accelerating this trend to the extent it encourages more adoption of these devices.

But there's a smarter way to do BYOD—and that's through a utility-branded thermostat portal. With the right BYOD partner, utilities can enable control and programming of third-party thermostats through their own (the utility's) branded mobile app or website.

Through that portal, utilities can leverage multiple data streams to engage customers with meaningful energy insights to drive behavior change. They can use meter data, telemetry data and real-time weather data to turn a simple, connected thermostat into a smart device that automatically adjusts to deliver greater energy savings and bill savings for customers.

CONTROL EVENT PERFORMANCE

In a traditional demand response program, the customer contracts with the utility to allow control of their HVAC system under certain conditions in return for an incentive, often a yearly payment plus free installation of the control device (thermostat or switch). And, since the delivery of program megawatts can impact system reliability, all parties assume that the program will deliver when called.

For this reason, customer flexibility in opting out of events is restricted, often by requiring the customer to call the program call center prior to or during a control event. Under these conditions, historical results show opt-out rates below 1%.

In contrast, BYOD programs are based on the customer having purchased and installed the thermostats themselves. Therefore, the common offer here is that the customer maintains ultimate flexibility in controlling their HVAC settings

regardless of control event status, often allowing them to opt out with the touch of a button. Under these circumstances, opt-out rates in excess of 20% are not uncommon.

In time and with enough data, the industry will arrive at performance parameters for BYOD devices. But for now, utilities whose programs have reliability implications should exercise caution and, where possible, implement incentive structures or other barriers that discourage opt outs.

SOFTWARE

The foundation of any successful BYOD program is software that can help implement and administer the program. The software should provide the following capabilities:

- » Integrate with Wi-Fi connected devices that collectively represent a large share of the existing market
- » Establish a secure connection with devices from numerous vendors without requiring multiple ad hoc integration projects
- » Forecast and dispatch diverse devices taking into account different device capabilities, program restrictions and equipment behavior
- » Manage asset lifecycle, including marketing, enrollment, branding and settlement
- » Allow customer service personnel to provide an exceptional customer experience
- » Integrate energy efficiency capabilities to leverage customer energy use, demographics, customer feedback and billing data to deliver relevant, personal and actionable energy efficiency insights and tips to consumers

If a utility is deploying a BYOD program along with a direct install program, the software should also be able to seamlessly aggregate devices across all programs to provide a single system of record for dispatch that is optimized across device types, as well as forecast.

BYOD vs. BYOT

Itron uses the term "Bring Your Own Device" (BYOD) versus a commonly heard other term, BYOT because the program model isn't limited to just the connected thermostats with which it is currently most often associated. Wi-Fi connected water heaters, pool pumps, EV chargers and batteries all have the potential to be harnessed for demand-side management programs.

CONCLUSION

BYOD demand response programs are increasingly being discussed by electric utilities as a low-cost alternative to traditional demand response programs. We urge those utilities considering BYOD to recognize the following when considering these programs:

- » Many utilities will find that they need to aggressively market their BYOD programs and, in some cases, offer a direct install option if they need to meet timely, targeted goals.
- » BYOD programs are tremendous engagement opportunities that can increase customer satisfaction with the utility if designed to do so.
- » BYOD programs often come with increased risk for event opt-out, but this can be managed.
- » Finally, the most important part of any BYOD strategy is the software that ties all of the device and programs together into one single system of record.



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