AI-Powered

Hyper-Personalization, AMI Analytics and Unlocking New Utility Business Models

Introduction

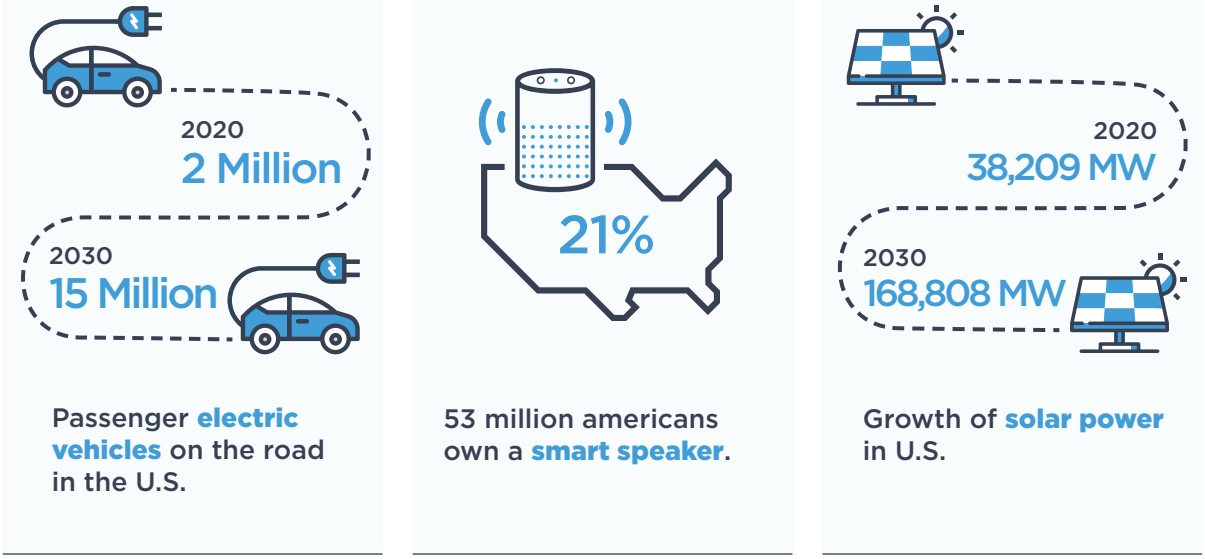
The narrative of the utility death spiral, which was ubiquitous five years ago, has now died out. But that is not because the pressures on traditional energy companies have diminished as they adapt to markets increasingly driven by decarbonization, decentralization and digitalization.

According to a 2018 Consumer Reports survey, the number of people who agree with the statement "I want to be able to choose my electricity provider" is an order of magnitude larger than those who disagree with it (70 vs. 7 percent).

The ongoing decline in costs of distributed solar and energy storage, paired with the expanding options for customers in some states to get their power through third parties and community-choice aggregators, is pushing traditional energy providers to adapt at an unprecedented pace.

From distributed energy providers to community-choice aggregators (CCAs), there are plenty of entities willing to step in and own the role of trusted energy provider if utilities cannot capitalize on their incumbent position. For example, the California Public Utilities Commission estimates that 85 percent of that state's load could depart investor-owned utilities for CCAs, direct access and distributed generation by 2030.

Distributed Energy Trends Driving Hyper-Personalization



Passenger **electric vehicles** on the road in the U.S.

53 million americans own a **smart speaker**.

Growth of **solar power** in U.S.

Source: Wood Mackenzie, National Public Media

Ripe for Innovation

Customer satisfaction is more important than ever under changing regulatory rules, more extreme weather and the growth of self-generation options and alternative players in the market. Utility brands – not just the core service they provide – must be more fully integrated into their customer's lives than ever before.

As a specific example, millennials are the largest generational cohort in the history of the U.S. and provide utilities with a unique opportunity to reinvent themselves. They are concerned about climate change, hungry for clean energy and readily embrace smart home technology. Consultancy Accenture has found that if utilities can't rise to the challenge, the millennial generation is more likely than any other age group to take their energy business elsewhere without a second thought.

Accenture further estimates that in Europe alone, the market for connected energy products and services overall could represent a potential $57 billion to $80 billion in revenue in 2030 across three areas: e-mobility, behind-the-meter distributed energy resources (DERs) and flexibility services.

41%

Utilities in 2018 that viewed DERs as an opportunity, not a threat.

Source: Greentech Media, West Monroe Partners

To maximize the opportunity that DERs offer, utilities must meet customers where they are – that is, primarily via digital and mobile channels and by offering tailored services based on data the utility already has access to.

The result is hyper-personalization that allows for:

- A segment of one
- Personalized interactions and touchpoints
  - Unlocking a truly digital engagement strategy
- Targeted load shaping
- EV capacity planning
- High-quality lead generation with deep energy profiles

A Segment of One

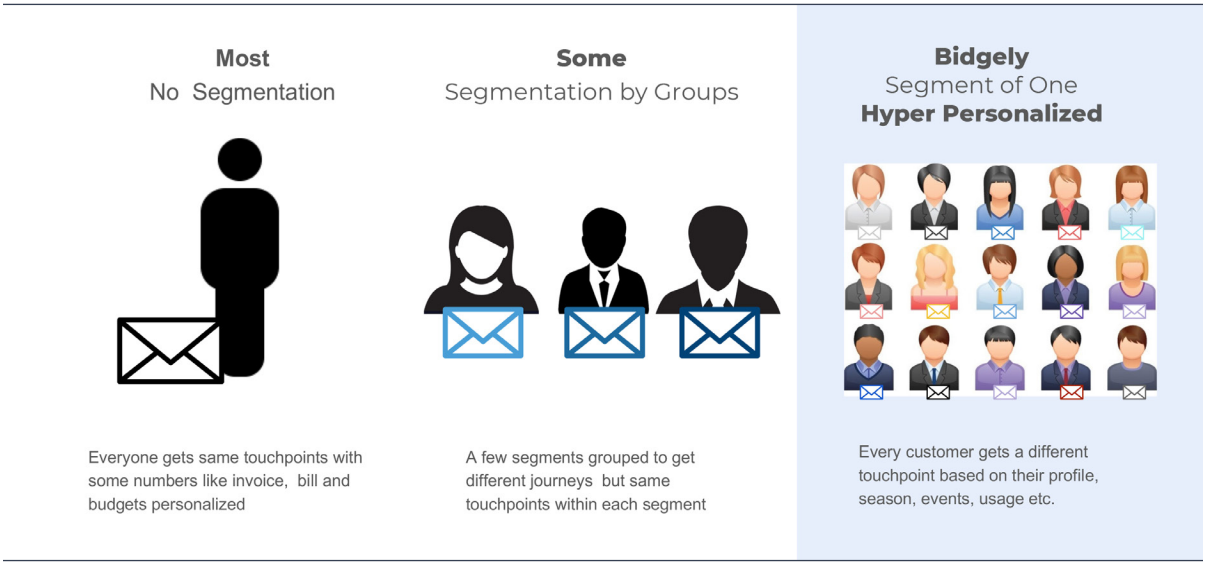
How many segments does your utility use to categorize and serve its residential customers? If the answer is not the same as the number of residential customers that it serves, there is still work to be done.

Advanced metering infrastructure (AMI) now makes up the majority of electric metering in the U.S. Utilities that have already made that substantial investment or are planning to do so can wring far more value out of the process by layering on artificial intelligence that delivers hyper-personalization based on disaggregation technology.

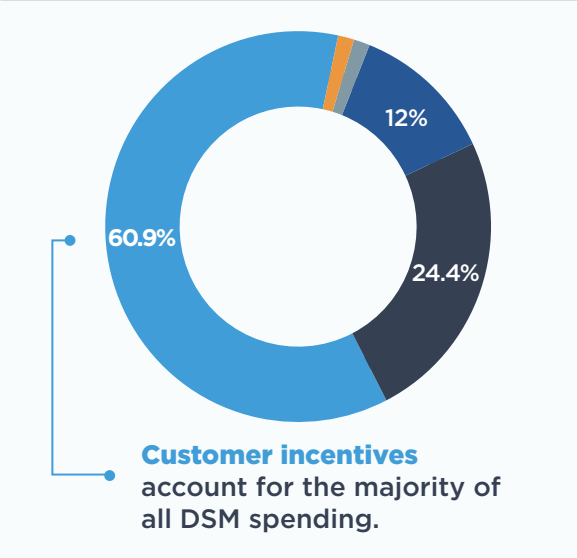
Along with foundational AMI investments, many utilities have made further investments in programs to help customers shop for solar, procure smart thermostats or better understand their bills, but these interactions still are not as advanced as they could be.

Consumers without central air conditioning might get an offer for a discounted smart thermostat, and some may take advantage of that offer only to turn around and sell that on the secondary market. Other customers may be told repeatedly in monthly mailings they can save money with Energy Star appliances or LED bulbs although their home is already filled with those items. The result is not only wasted dollars – customer incentives are the largest cost of demand-side management programs – but a missed opportunity to go deeper. What's more, it can lead to a distinct sense on the part of customers that their utility doesn't know them the way their Netflix account does.

What Is Hyper-Personalization?



Source: Bidgely



Source: Bidgely

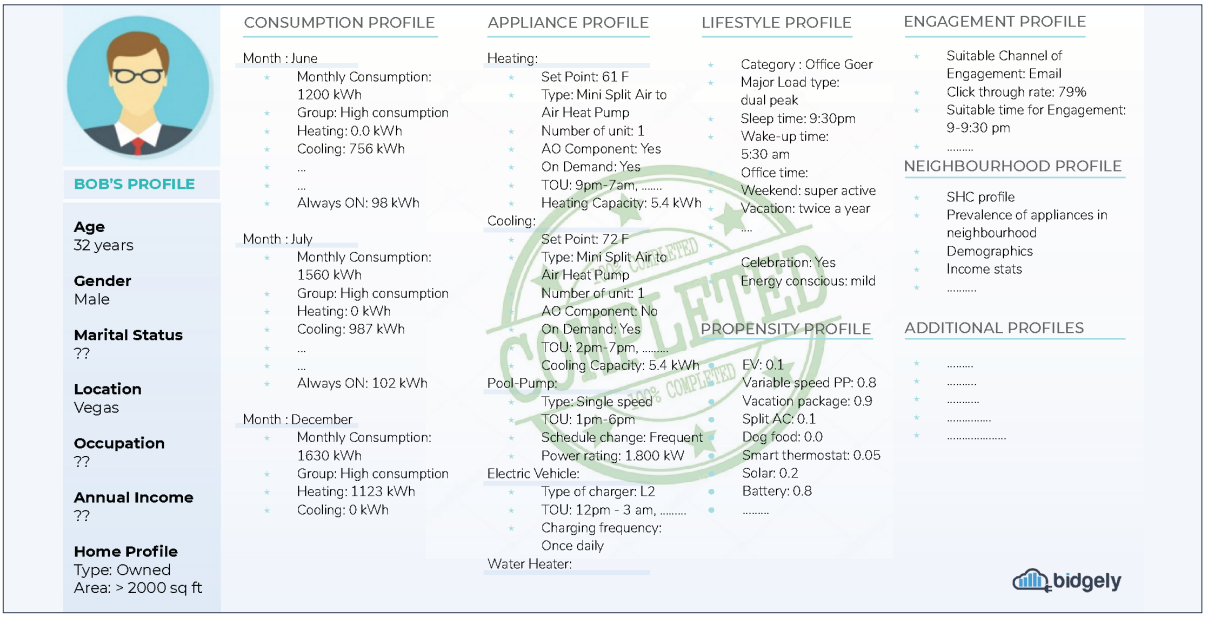
Bidgely's artificial intelligence technology is based on 14 patents for processes that discern the unique electronic signatures of appliances and other resources in the home. This type of capability is vital to delivering the next level of hyper-personalization.

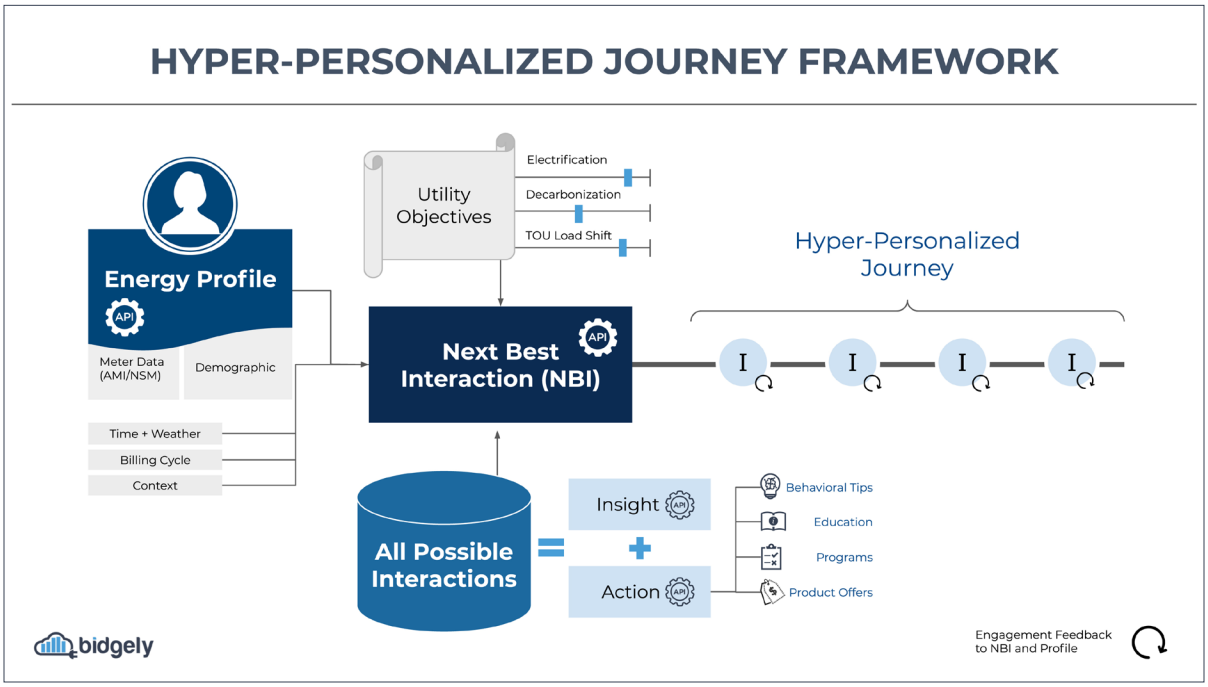
AI-based disaggregation allows utilities to create a segment of one by teasing out details in three main ways:

1. **Appliance itemization.** At a basic level, AI can identify the appliances and distributed energy assets (such as solar, EVs and energy storage) operating in each home.
2. **Energy consumption.** The next level is how much energy is being used and which appliances and electronics are using it. This can inform a profile such as a stay-at-home parent or night owl (potentially both at once depending on the age of the children).
3. **Attributes.** The last piece blends AMI data with third-party and publicly available data and then applies AI to create a 100-point profile of a household based on demographics and personalized energy use, encapsulating every aspect of a home's energy use and the patterns of those who live there, such as a single, cost-conscious office-goer with central AC and a Level 2 EV charger.

AI-based disaggregation then enables a Hyper-Personalized Journey Framework for utilities, where the following components come together that leverage AI-based disaggregation outcomes to reach utility objectives:

1. **Energy Profile** (attributes)
2. **Insights** (appliance itemization + energy consumption)
3. **Utility Objectives** (Ex: Electrification, Decarbonization, TOU Load Shift)





These three components then feed into the Next Best Interaction (NBI) Engine which uses AI to determine what are the best combinations and interaction touch points for utilities to deliver a hyper-personalized journey for their customers.

The potential use cases for information with this level of granularity are broad, and the integration process is painless. Once Bidgely has the AMI data, it can identify who has an EV or which customers have energy-intensive assets, such as single-speed pool pumps, in just weeks or even days.

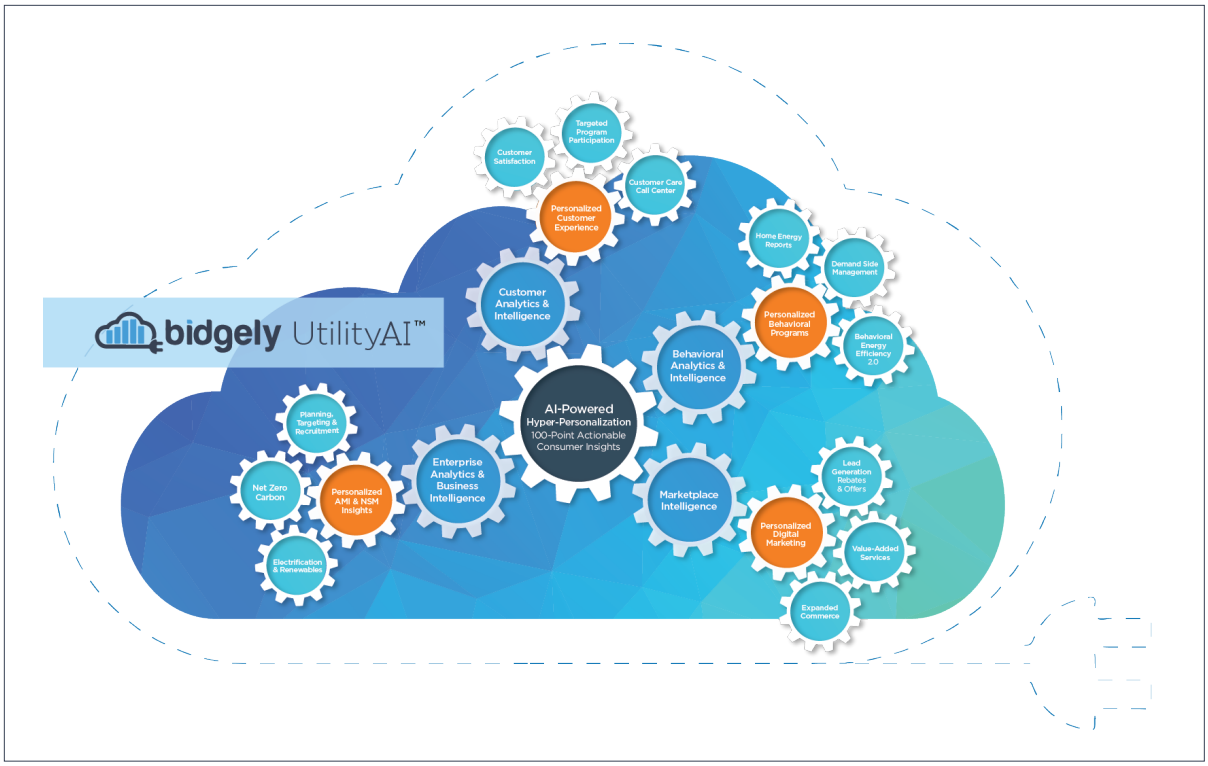
Utilities with large in-house AMI analytics teams can feed the findings into the data lake for data scientists to do everything from more informed load-capacity planning to more finely targeted bring-your-own-thermostat programs.

The power of AMI data allows for hyper-personalization, but interval AMI data is not required to get started. Bidgely has worked with traditional monthly usage data to help utilities such as Rocky Mountain Power better understand their customers while building the business case for AMI.

The blending of AMI data with other sources is also critically important. It's not just data such as real estate and local demographic information that is a key part of the process – other publicly available data is also necessary to provide a utility with a fuller picture of its customers that can lay the groundwork for more meaningful interactions.

No matter what regulatory structure a utility works within, hyper-personalization drives three main outcomes that every energy provider should be focused on:

1. **Digital engagement.** Utilities have no idea whether someone reads a bill insert unless that person contacts the utility. J.D. Power has found that proactive digital communication is a driver of high engagement scores, and while other channels can be included, every interaction should be firmly rooted in the digital sphere to own the mindshare of the customer.



2. **Decarbonization.** One in three Americans lives in a city or state that has committed to 100 percent clean electricity, according to a 2019 study by the UCLA Luskin Center for Innovation, a trend that is also strong in Europe, Australia and elsewhere. Utilities are a vital part of meeting these goals and developing a range of solutions to decarbonize power generation and transportation. This undertaking will also require utilities to reach behind the meter more frequently than ever before.
3. **Clean energy.** Higher levels of efficiency and clean, distributed energy will be necessary to achieve ambitious decarbonization goals. Hyper-personalization allows utilities and third-party clean energy providers to decrease program and customer-acquisition costs to engage the right customers with the right messages.

Personalized Interactions and Touchpoints: Outcomes for Today and Tomorrow

At a basic level, hyper-personalized data can catapult utilities from simply doing much better than they were even five years ago to offering the same sort of interactions customers have with other brands in their lives every day, such as banks, retailers, airlines and streaming services.

Digital engagement must be the cornerstone of interaction, not an add-on. Layering on data as utilities leverage digital touchpoints can transform the customer experience in areas such as:

Increased J.D. Power Scores. A 2019 J.D. Power Digital Utility Experience Study found that

The utility industry scores an average of 512 on a 1,000-point scale, a near 60-point decline from 2018 to 2019. The retail sector, in comparison, scores 694.

Source: J.D. Power

"[w]hen benchmarked against other consumer-facing industries, utilities continue to offer one of the worst digital experiences."

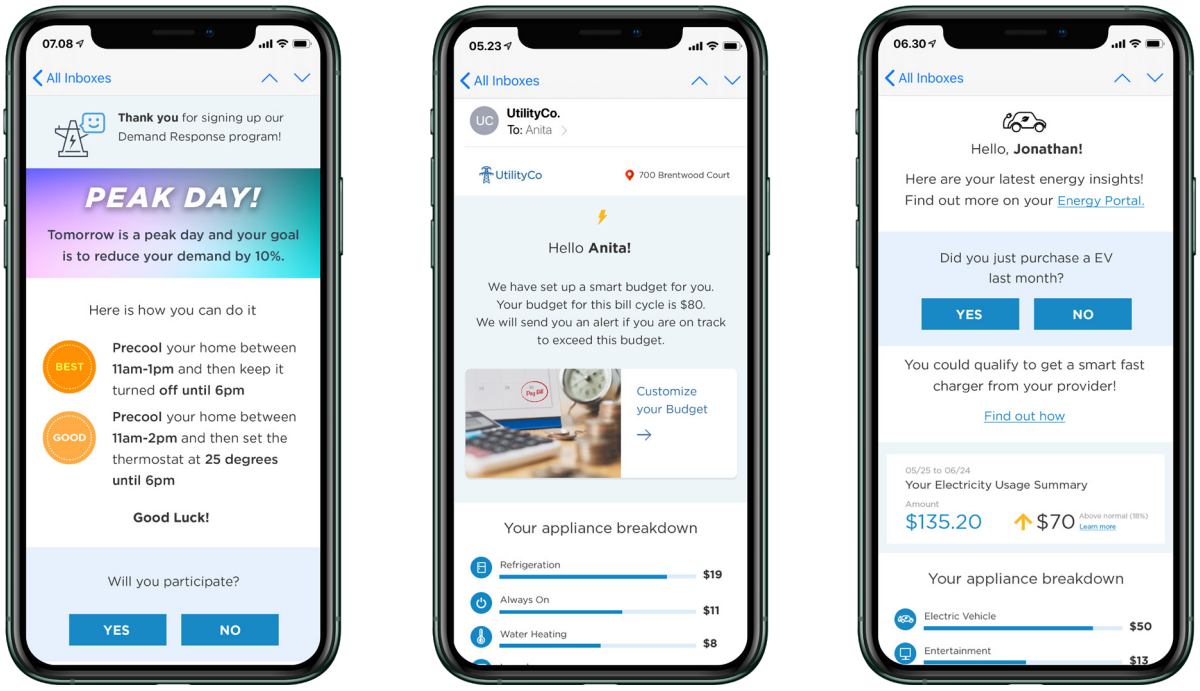
Customer Likes. Tracking customer "likes, " when customers respond that they liked the content they were served through an email, app or text, provides an instantaneous snapshot of customer satisfaction with each digital interaction. Bidgely's AI-powered hyper-personalization averages more than 90 percent customer likes.

Repeat Open Emails. Several years ago, Accenture found that customers were spending an average of six minutes per year interacting with their utility. This statistic must be buried for good in today's digital world. Engaging customers often and with proactive and positive information is critical. Leveraging the company's proprietary technology, Bidgely's utility clients average a 45 percent email open rate.

Savings per Kilowatt-Hour. Customers want to save money. Personalized data can help them go beyond measures already taken such as switching to LEDs or Energy Star appliances, empowering them to save more money in a manner that fits their lifestyle. Bidgely delivers an average 30 percent savings per kWh for its customers.

Call-Center Efficiency. Proactive bill projections and high bill alerts are essential for customers to manage their energy spend. Bidgely has found that these two applications alone, part of its AI-powered call center solution CARE, can reduce call-center volume by 50 percent when they are delivered to clients in the most tailored digital format.

Hyper-Personalization in Action



Source: Bidgely

Targeted Load-Shaping

Regulators are increasingly asking utilities for "all-of-the-above" resource capacity planning that considers DERs in addition to centralized generation to meet future capacity needs. Hyper-personalization offers a chance not just to check a box for regulatory compliance by including it in the request for proposals, but to truly understand the unique load shape of residential customers on a feeder-by-feeder basis and how they may contribute to capacity planning compared to other resources, especially as part of hyper-local non-wires alternatives projects.

As more utilities grapple with the duck/armadillo/emu curve, where wind and solar produce excess generation that is non-coincident to peak loads, hyper-personalization can help utilities craft incentives for solar or EV customers to help shift or flatten those loads. Programs can include electric heat and batteries or variable-speed pool pumps for solar customers, or time-of-use rates for EV customers to better pair with renewables coming on the system.

EV Capacity Planning

In recent years, only a handful of utilities have been forced to grapple with the problem of too many EVs on a single feeder. Today, however, that is starting to change. WoodMac forecasts nearly 40 percent of the global car market will be EV or hybrid by 2040. But peak oil will come much sooner according to the firm's forecast, with global oil demand beginning to decline in 2025.

Given the rise in the number of EVs available to consumers, clusters will soon begin to appear everywhere. Hyper-personalization can tell utilities where EVs are popping up, what kind of charging equipment they are using, and help inform proactive outreach strategies for current and potential EV owners. As noted, a more detailed picture of EV adoption informs not only the burgeoning e-mobility groups within the utility but also grid planners and operators.

Hyper-personalization can enable customers to calculate the costs of EVs based on their lifestyle and rates. New Zealand retail utility Mercury takes it even further, offering a subscription service that allows customers to choose from a range of EVs – including Teslas, Volkswagen e-Golfs and Nissan Leafs – for a monthly fee.

High-Quality Lead Generation With Deep Energy Profiles

Energy is more integrated into our lives than ever before as digital connections are ingrained in both our personal and professional lives. This provides utilities, both regulated and deregulated, with a massive opportunity to better serve their customers by bringing relevant brands directly to those customers through hyper-personalization with AMI data. Bidgely has identified a $10 billion market opportunity based on automakers, smart home services and other companies that want to help residential customers make smarter energy decisions.

This is not merely a futuristic exercise. Utilities can leverage their reach to be a digital marketing platform and provide brands, from appliance and auto manufacturers to solar installers, targeted leads based on the customers likely to be most interested in their offerings.

For energy retailers or deregulated arms of regulated energy companies, the proposition is a simple one: get paid based on a cost-per-lead model and better serve customers. Even for regulated utilities, targeted offerings with top-tier brands can help meet pay-for-performance efficiency standards or funnel money back into programs, creating an overall lower cost for rate-based programs.

In some cases, it may be a joint offering for bundles that are already being offered, primarily in deregulated markets, such as:

- **Energy + internet.** Some retailers are teaming up to offer internet and cable deals to retail energy providers, along with add-ons such as free premium channels or streaming services.
- **Energy + smart home.** Electricity may be paired with smart thermostats, door locks, voice assistants and more to provide convenience to customers while saving energy.
- **Energy + EVs.** More utilities are providing EV-specific rates to customers, but some are also going further by offering charging services directly or even supplying the vehicles on a lease model.

Although bundles are increasingly popular in deregulated markets, utilities do not need to build out marketplaces or develop entirely new offerings to capture this opportunity. They can simply put personalized offers in front of customers and allow them to take it to their retailer of choice, such as Home Depot or Amazon, and complete the transaction there.

Transformation Is Possible Today

In the field of computer science, the concept of 'garbage in, garbage out' is so prevalent it has an acronym: GIGO. Although data quality improvements can always be made, the vast majority of utilities are sitting on more than enough quality data to unlock hyper-personalization that can transform how they are viewed by their customers. By focusing on hyper-personalization first, utilities are ensuring the information feeding into the data lake is not garbage.

Through AI-powered hyper-personalization, utilities can effortlessly own the relationship with their customer while also being emboldened to partner with other brands to enhance offerings on an individualized basis.

Unlock New Revenue Via Lead Generation

Source: Bidgely

At the same time, the data can be used across business divisions to preserve existing revenue streams while also diversifying into new ones, especially as regulatory rules shift.

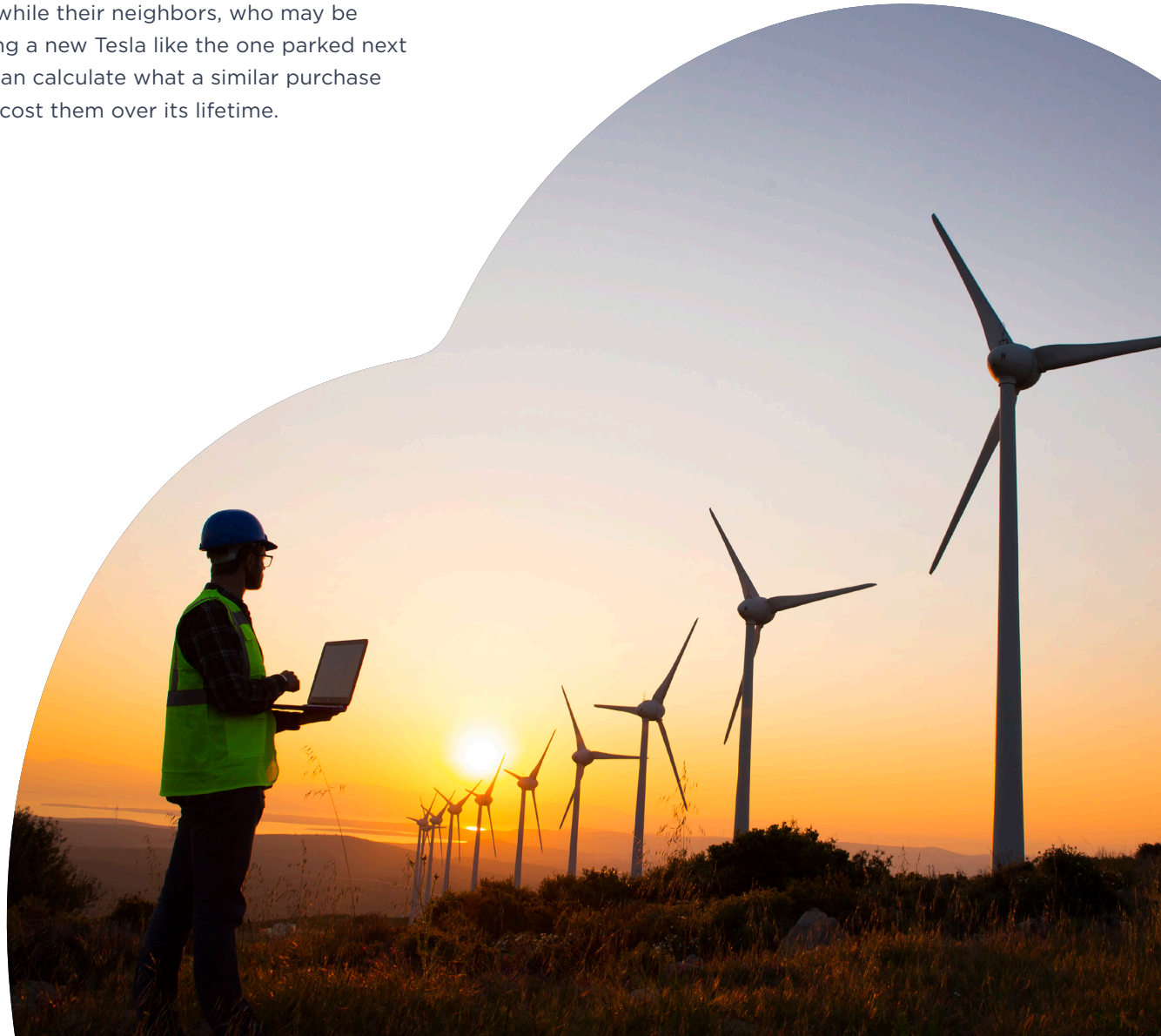
Imagine, in the year 2030, a utility that serves a city with a 100 percent carbon-free electricity goal for 2040 is well on its way to helping the municipality realize that goal five years ahead of schedule.

Its customers are routinely offered deals for more efficient goods such as windows and weatherization services, as well as solar-plus-storage, and internet discounts with free Disney+ and Hulu subscriptions when they sign up for time-of-use rates that suit not only their lifestyle but also the utility's needs. In neighborhoods where EVs are popular, customers with those cars are offered online calculators to assess which rate is right for them, while their neighbors, who may be coveting a new Tesla like the one parked next door, can calculate what a similar purchase would cost them over its lifetime.

By owning the relationship with its customer, this utility no longer has to worry about losing customer mindshare to other brands. Rather, it knows it can serve as a conduit to connect its customers with the other services they're seeking as it relates to energy use.

Grid planners at this utility have truly embraced an all-of-the-above resource strategy, tapping EVs and behind-the-meter storage, including batteries and hot water heaters, to balance the increasing load of intermittent renewables. Non-wires alternatives are no longer alternatives, just the status quo when it comes to balancing supply and demand.

Most of these options are available today for utilities, with more capabilities being added as AI enables increasingly deeper insights.



AI-Powered Hyper-Personalization, AMI Analytics And Unlocking New Utility Business Models

To find out more about how hyper-personalization can transform your energy business, download the **UtilityAI Platform Brief for AI-Powered Hyper-Personalization**.

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