6 DSM program types that benefit from AMI

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Utilities typically install advanced metering infrastructure (AMI) to reduce operational costs. But AMI can also enable or enhance demand-side management (DSM) programs.

In some DSM programs, AMI plays an essential role. For example, dynamic pricing programs require granular data from smart meters to correctly bill customers. In others, such as home energy report (HER) programs, AMI is a nice-to-have that provides additional details about customers' energy usage, but the information comes at a hefty price and offers little benefit.

Take your AMI data even farther

Building on your AMI dataset, E Source OneInform helps you target customers to increase program participation, reduce demand on specific feeders, and tap customer resources to avoid costly system upgrades.

Let's explore how six DSM program types can benefit from AMI:

- Time-variant pricing (TVP)
- Pay-for-performance (P4P)
- Prepay
- Real-time feedback
- HERs
- Demand response (DR)

TVP programs

With TVP, utilities charge customers different rates at different times of day based on energy supply and demand. Without AMI, these TVP programs wouldn't even be possible:

- Time of use
- Critical peak pricing
- Peak-time rebate

- Variable peak pricing
- Real-time pricing

As a load management strategy, AMI-enabled time-based rate programs work. The ACEEE report Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency (PDF) provides a thorough discussion of the energy savings and demand reductions associated with time-based rates. The authors noted an average reduction in overall consumption of 2.1% and an average peak demand reduction of 16% across 50 programs with various rate structures.

Plus, customers generally like them. After its SmartPricing Options pilot, SMUD surveyed participants and learned that those on a TVP rate thought their pricing plan enabled them to save money. They also thought their plan was more equitable than the standard rate plan; whereas members of the control group, who stayed on the standard tiered rate, thought their plan was less equitable. SMUD also surveyed nonparticipants and learned that nearly 60% preferred TVP to standard tiered rates.

P4P programs

Historically, P4P programs, in which utilities pay participants for saving energy over a period of time, have been limited to large commercial and industrial (C&I) projects. But AMI has enabled a new P4P model for residential and small and midsize business customers, called aggregator P4P.

Aggregator P4P uses AMI data to pay an aggregator for the performance of a portfolio of projects, rather than paying a large C&I customer for a single project. It allows:

- Utilities to transfer risk to aggregators
- Aggregators to try innovative approaches, since their success or failure hangs in the balance

Prepay programs

Prepay programs require customers to pay a deposit of $20 to $30 to start an account balance. As they use energy, the utility draws from the balance. And when customers reach a low-balance threshold, they reload their account.

AMI is integral to this program type because the utility charges customers based on real-time usage information. Customers can monitor their own energy use, and they can sign up for usage and account balance alerts by phone, text, or email.

Real-time feedback programs

Real-time, or direct, feedback relies entirely on AMI data. Via in-home displays, web portals, or mobile apps, customers can watch their moment-by-moment energy usage. Mobile apps and web portals have been shown to produce short-term savings of 5% to upward of 20%.

HER programs

HER programs are possible to run without AMI, as you can display historical energy usage and peer comparisons based on monthly meter data. We've seen many successful HER programs that don't include AMI, and it could be a good option for a utility that doesn't have the technology installed.

However, AMI does allow for deeper detail in HERs, and it facilitates the addition of highly recommended customer features, including:

- Midcycle bill alerts
- Usage disaggregation
- Personalized tips
- More-relevant next-step suggestions

We don't have thorough data yet on how AMI impacts energy savings in HER programs. We're aware of one evaluation that compared the energy savings of two customer groups within the same HER program: those who had AMI and those who didn't. It revealed that AMI customers had slightly lower but not statistically significantly different savings results compared to non-AMI customers.

DR programs

AMI can play a central role in DR programs because it enables utilities to meet the requirements of load management programs:

- Two-way communication
- Near-real-time visibility of available load
- Reliability
- Ability to communicate with multiple devices
- Integration with utility systems
- System availability

Many utilities opt to use Wi-Fi-enabled thermostats and other devices for tracking data in DR programs, but AMI can also provide this functionality.

Put your AMI data to work

E Source OneInform levels up your AMI data. It combines hundreds of unique data points, starting at the AMI level, and uses proprietary algorithms to help you:

- Identify the right programs for the right customers
- Simulate program and grid impacts
- Craft messaging to encourage program enrollment
- Implement automation to continuously learn and improve results

Check out our OneInform case study to learn how a Pacific Northwest utility used OneInform to find the best customers for its DR program by fusing E Source data with smart meter data to create a rich, artificial intelligence–ready dataset.

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