



CO-OP BENEFITS OF SMART HOME TECHNOLOGIES

While users may be seen as the primary beneficiary of smart home technologies, electric co-ops have much to gain as well.

With the help of two-way communication and open communication standards, co-ops can harness smart home technologies to strengthen the reliability and efficiency of the electric power grid while supporting their members in innovative ways.

Many smart home and related devices, such as Wi-Fi-enabled thermostats, grid-interactive water heaters, electric vehicle (EV) charging stations and battery storage, can be utilized to support demand response and load management initiatives. This capability isn't necessarily new – forms of it have been around for decades – but with advancements in technology, co-ops now have more control and information, and can minimize impacts to members.

BENEFITS OF SMART HOME TECHNOLOGIES FOR CO-OPS

- Unlock novel opportunities to support grid optimization through renewable energy integration, demand response and load management that help reduce costs for all
- Open value streams that benefit co-ops and members
- Improve member satisfaction and engage with a new member segment that wants to help its co-op enhance the grid
- Grow participation in time-of-use programs with easier-to-manage smart home devices



PROGRAM EXAMPLES

Smart Thermostats: Smart thermostat programs are flexible and able to leverage devices from multiple manufacturers to maximize program effectiveness and member satisfaction. Tapping into smart thermostats can help reduce or shift load by offsetting temperatures or cycling heating and cooling equipment on and off during anticipated peak events. Here are some considerations:

- **Incentives:** Different forms can be offered: for purchasing, upfront participation, ongoing participation or a combination.
- **Participant Capabilities:** Can members opt out of demand response events or override their devices? How often? Is there a penalty?
- **Program Structure:** Common variations include bring-your-own-thermostat, in which members self-install qualified devices; direct-install, in which the co-op provides members with and installs a specific thermostat model; or buy-down, in which a co-op partners with a manufacturer to buy down the cost of a device that can then be self-installed or direct-installed.

Water Heating: Grid-interactive water heaters (sometimes called grid-integrated or grid-enabled water heaters) can seamlessly improve grid operation without affecting performance for members. This technology can be a boon for demand response and load shifting, allowing co-ops to delay or disable water heating equipment during peak events. Units can either be manufactured or retrofitted with grid-interactive controls that enable a co-op or third party to manage the water heater as a flexible electric load. In addition to grid optimization, a primary goal of any water heater program should be that users do not notice any change in hot water temperature during control events.

EV Charging: Co-ops are already beginning to plan and implement strategies to manage EV charging, and as more vehicles arrive, this need will only grow. Because charging is often flexible, co-ops can use incentives, such as time-of-use rates, to encourage it during off-peak hours. Active demand response efforts are also being piloted, allowing co-ops to more directly manage when charging stations operate and stagger them if needed. These approaches may be paired with member perks, such as monthly credits or a rebate for a home Level 2 charging station.

Battery Storage: Like EVs, residential battery storage is becoming more popular and starting to be incorporated into co-op pilots. Calling upon battery storage through demand response can help strengthen the reliability and resiliency of the grid and improve operational flexibility by shaving peak demand. The storage system can either be owned by the co-op or by the homeowner, and it can also be paired with renewable energy for additional benefits.

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