Smart Home Energy Management Systems (SHEMS)

Building Toward a Future Vision

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E Source

2019 ENERGY STAR Partner Meeting

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Why now?

61% of people in the US and Canada think smart homes are a good investment.

© E Source (2016 Residential Utility Customer Survey)

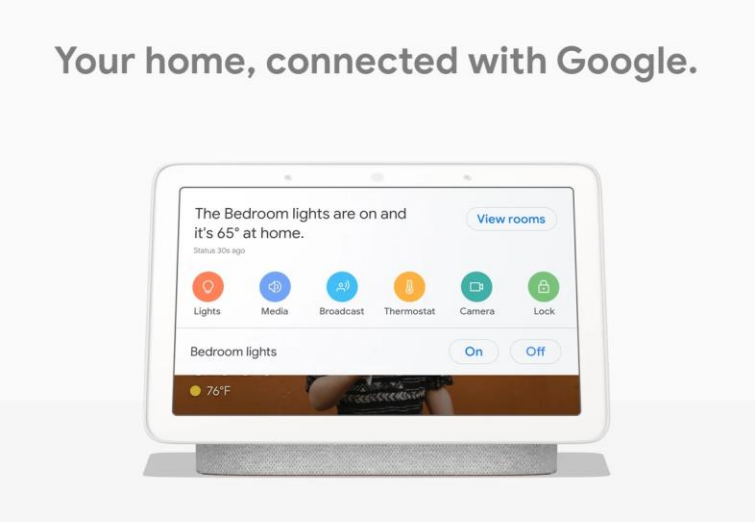
63% of people in the US say they are somewhat or very familiar with home energy management systems.

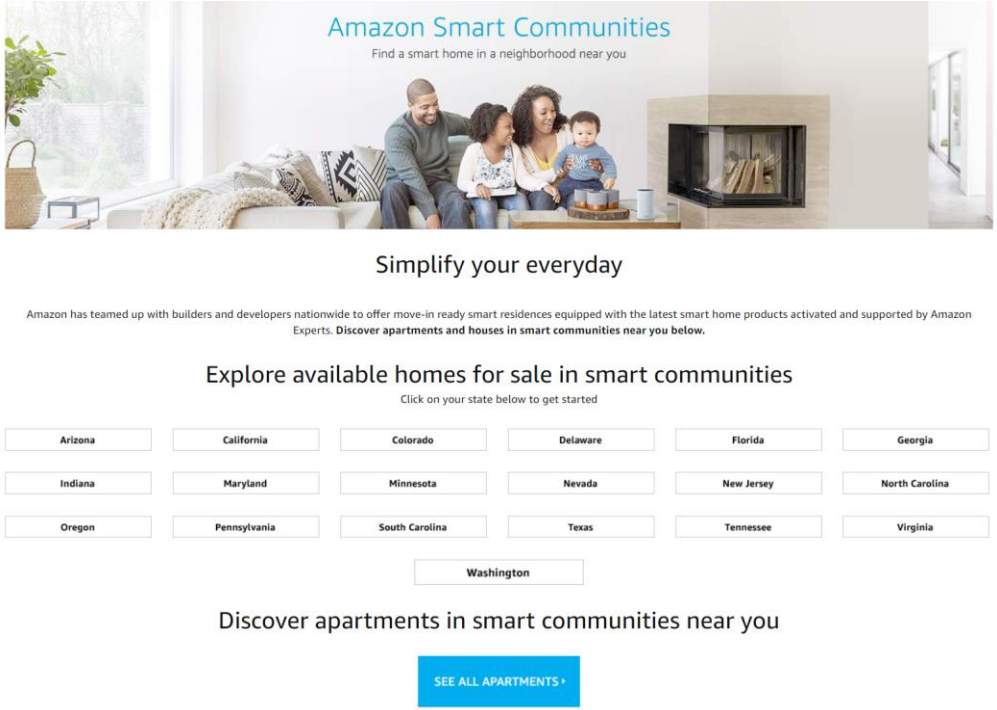
© E Source; data from the 2018 Claritas Energy Behavior Track survey

Smart home tech is finally taking off, and competition is ramping up

ADT

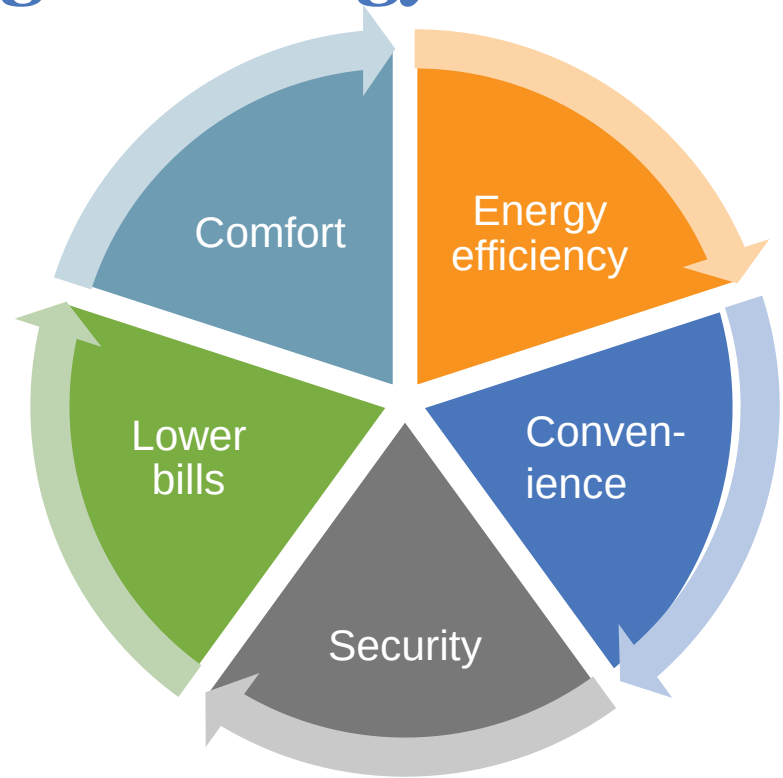
XFINITY® HOME
SECURITY · CONTROL · ENERGY



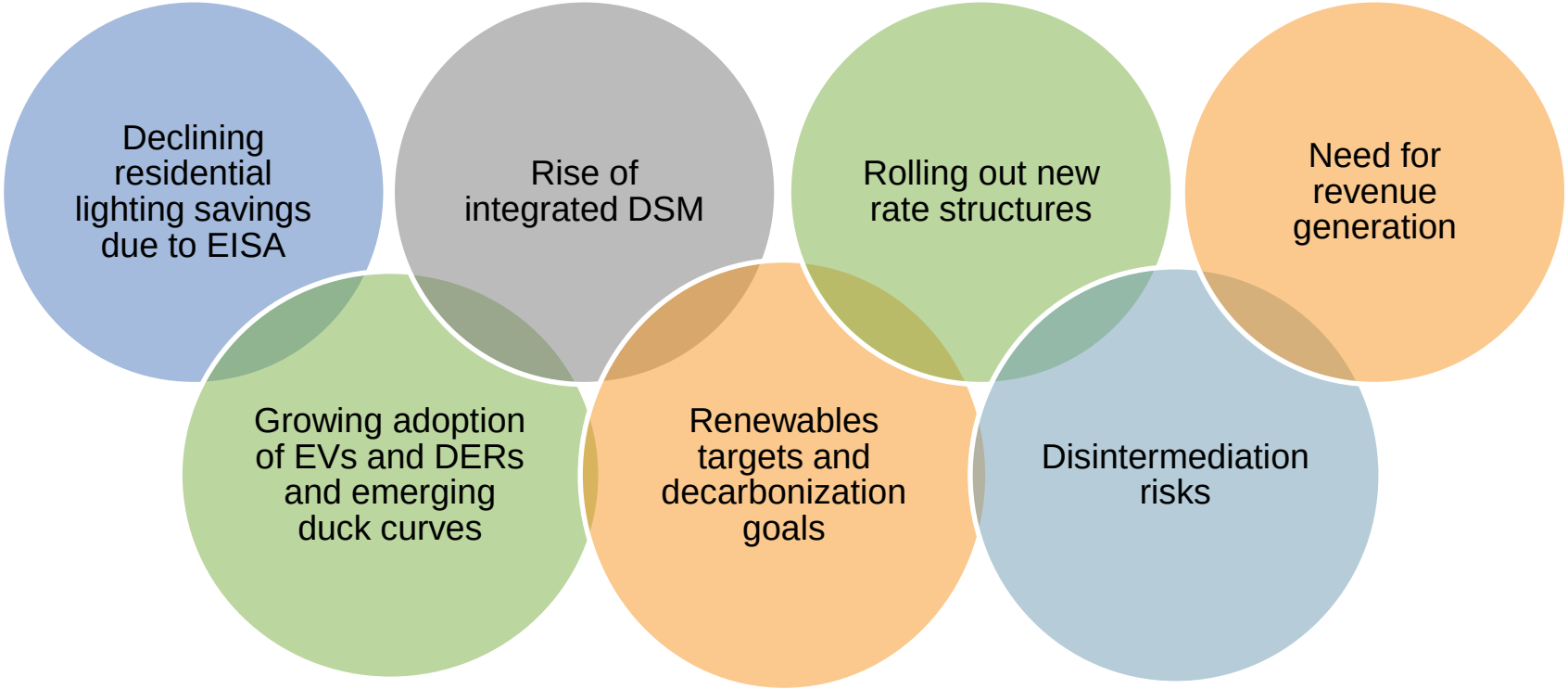


Sources: ADT, Xfinity, Amazon, Google

ENERGY STAR can encourage vendors to keep focusing on energy



Utilities are facing unique challenges



How do we quantify energy benefits?

Current M&V isn't well-suited to evaluating smart home devices

Control-based measures that rely largely on automation and behavior change are challenging to evaluate

ENERGY STAR can help support, centralize, and standardize evaluation efforts

What energy savings can an ENERGY STAR–qualified SHEMS actually deliver?

Some results from previous studies of smart home device savings

Device	Energy-saving strategies	Energy-savings potential
Smart thermostat	Schedule-setting, occupancy-sensing, geofencing, maintenance notifications, HVAC system adjustments, automation using weather data or input from home security components, education, behavioral prompts	5%–19% of HVAC energy consumption
Smart plug	Schedule-setting, occupancy-sensing, geofencing	8%–21% of connected load
Smart appliance	Education around energy use	3%–6% of appliance energy consumption
Smart lightbulb	Dimming, schedule-setting, geofencing	~30% savings over a non-connected lightbulb
Energy-use information	Education, some behavioral prompts	4%–15% of whole-home energy consumption

What about vampire loads?

What are utilities doing?

Five common utility approaches to smart home initiatives

- Focus only on specific smart home technologies
- Install and study smart home technologies in new-construction projects
- Create a custom smart home system
- Partner with third-party smart home vendors for programs
- Use existing third-party platforms

DTE Energy's app

- Able to claim deemed behavioral savings of 1.6% per app download
- Currently piloting Powerley's newest app

Get the Whole Picture

The DTE Insight app and Energy Bridge take the guesswork out of home energy use. The app syncs with your home's smart meter to show you what's going on inside your home – what's using the most energy and how efficiently your appliances are running. You decide if you want to conserve in the moment, or not. You can also set energy targets, get tips on how to save money, and more.

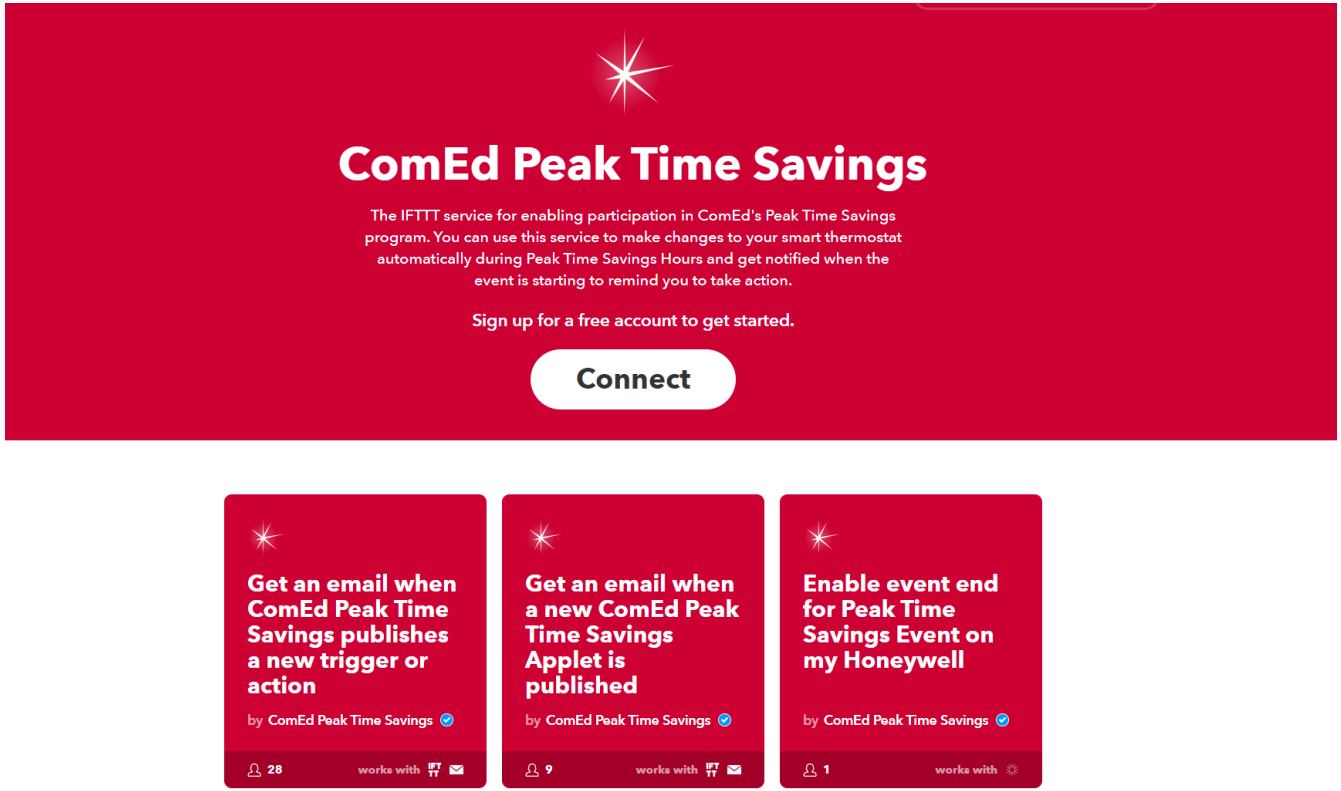
A Powerful Combo

Some things work better together. When you use the Insight app and bridge together you know exactly how much energy you're using and when. You see your energy usage in real time so you can make on-the-spot decisions.

In addition to a fresh new look and improved navigation, you'll enjoy these enhanced features:

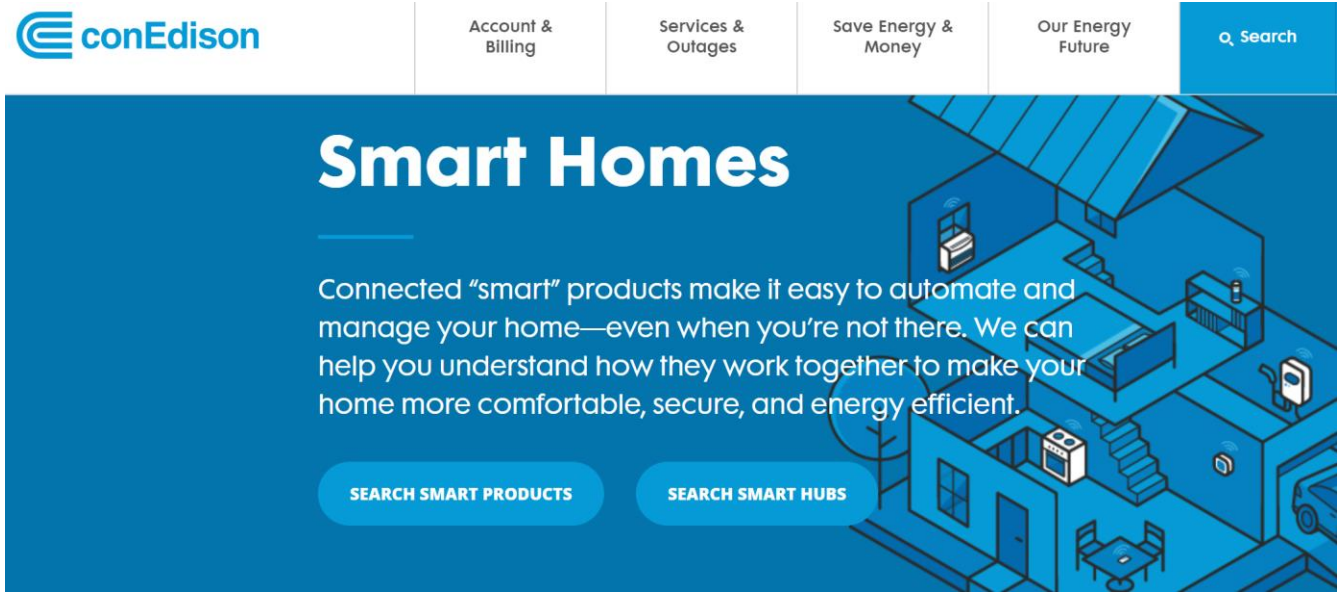
Source: DTE Energy

ComEd's IFTTT pilot



Source: ComEd

Con Edison's online resources and new smart home rate structure



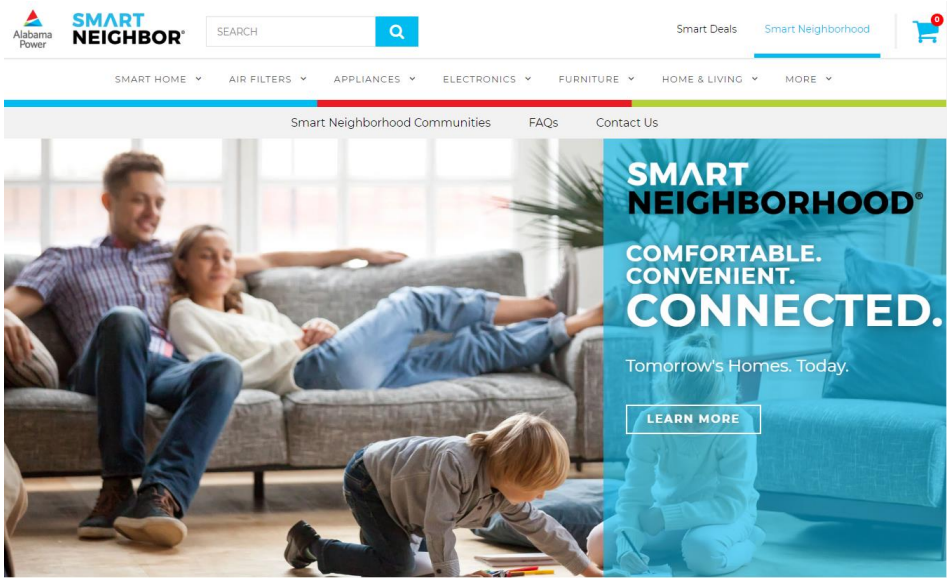
www.coned.com/smarthome

Source: Con Edison

Southern Company's Smart Neighborhood initiatives

Building cutting-edge communities

- Both single family homes and apartments
- Smart home devices
- Distributed energy resources
- Multiple partners (ORNL, Vivint, local homebuilders)
- Responsive microgrids



Source: Alabama Power

More utilities are creating marketplaces to sell smart devices

Xcel Energy℠

SMUD™
Sacramento Municipal Utility District

SOUTHERN CALIFORNIA EDISON®

FirstEnergy®

FPL®

FirstEnergy's Smartmart

SMART HOME

Keep your home running smarter, more comfortable and more energy-efficient. Our products and plans put you in control.

ELECTRIC VEHICLE CHARGER LEASE

Our Electric Vehicle Charger Lease brings you the power of a Level 2 EV charger without the huge up-front ex...

MORE DETAILS ›

CONNECTED HOME PLAN

Our Connected Home Plan gives you the comfort, convenience and control you need from a smart thermostat. Wit...

MORE DETAILS ›

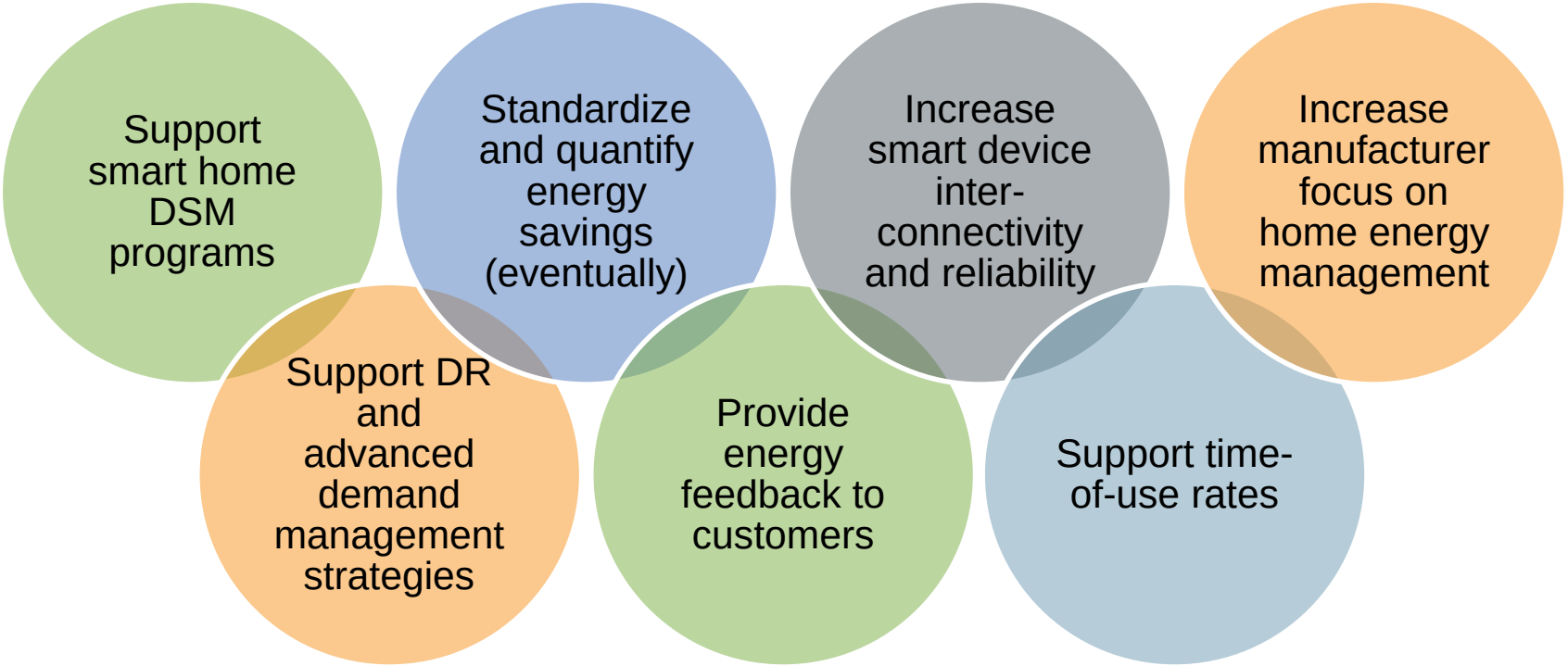
SENGLED PULSE PAIR STARTER KIT

A dimmable LED light with the high quality audio of a JBL Bluetooth speaker. Simply twist Pulse into any sta...

MORE DETAILS ›

Source: FirstEnergy

The new SHEMS specification can help utilities meet a variety of goals



What’s next?

Gather clear data on energy benefits so utilities can promote SHEMS

Expect the ENERGY STAR specification for SHEMS to evolve over time

Data collection	Robust savings metric
TOU support	Full dynamic pricing responsiveness
Demand response	Dynamic load building, ancillary grid services, etc.
Initial minimum set of devices	Expanding range of supported or required products
Meeting current needs	Meeting evolving customer expectations

Keep up with the broader smart home market

Sources: Amazon and Google

Thank you! Questions?

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