ENGAGING CONSUMERS:
Home Energy Management Solutions

A Parks Associates Whitepaper

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DESPITE **CONSUMER INTEREST IN ENERGY-SAVING SOLUTIONS**…

selling products and services—*and*—engaging consumers in demand response programs **continue to be challenges** for service providers, utilities, and device manufacturers.

Consumer energy-saving activities such as turning off unused lights and monitoring A/C usage peaked in 2010, and as the economy has slowly recovered, consumers' energy consciousness has diminished.

ENERGY MANAGEMENT DEVICES
ENGAGING CONSUMERS

Parks Associates'
Energy Management Devices:
Engaging Consumers
consumer project shows:

Consumers' energy-saving activities have remained flat from 2011 to 2012, much lower than the heights of 2010.

Energy management solutions create value for consumers by providing them the means to reduce their energy consumption and the convenience to control connected devices in the home.

While consumers have high price sensitivity to energy-related solutions and are resistant to new monthly service fees, they are showing interest in individual connected home control components with a one-time purchase price. Parks Associates asked consumers about their interest in specific energy-related devices that they would be able to automate, monitor, and control through the Internet using a computer, mobile phone, or tablet.

·········· OF U.S. BROADBAND HOUSEHOLDS ··········

44% *are willing to purchase* a connected lighting control module for $39.99

39% *are willing to purchase* a connected thermostat for $129.99

29% *are willing to purchase* a connected energy reader for $99.99

Consumers appreciate the value of connected home systems and devices, but they don't want to constantly monitor their home's energy consumption.

PARKS ASSOCIATES FINDS   OF U.S. BROADBAND HOUSEHOLDS

12% have access to a website that shows their daily energy consumption patterns

but nearly

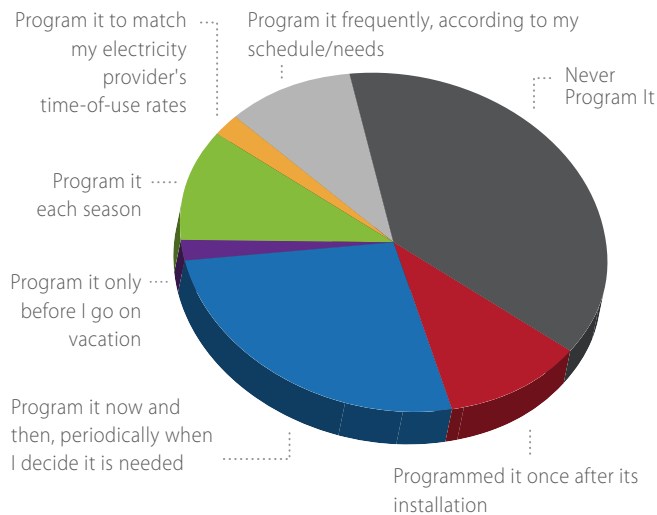**90%** use it less than once per week.

NEARLY **50%** with a thermostat either have never programmed the device or done so only once, when it was installed.

Cost savings is an important factor influencing consumer interest and adoption of energy solutions, but **it is only one** of many factors.

Thermostat **Programming Habits**
Among U.S. Broadband Households with a Thermostat

Program it to match my electricity provider's time-of-use rates

Program it frequently, according to my schedule/needs

Never Program It

Program it each season

Program it only before I go on vacation

Program it now and then, periodically when I decide it is needed

Programmed it once after its installation

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Nearly 50% of U.S. broadband households with a thermostat value a thermostat that can automatically detect an unoccupied house and adjust the temperature to save money.

Over 25% of smart thermostat owners say it is too difficult to program their device—so it is rarely done.

Appeal of **Thermostat Features**
U.S. Broadband Households with a Thermostat

...can automatically detect if nobody is home and then adjust the temperature to save money

...reduces energy use by making small changes to the temperature setting

...increases efficiency by taking into account weather conditions

...knows the times/days when electricity is cheaper and automatically adjusts to save money

0%   25%   50%

% Specifying "Highly Appealing"

© Parks Associates

> Solutions that easily connect with popular devices, such as tablets and smartphones, can also find success in this early market.

For example, the Nest, a smart thermostat that is easy to install and use device and has an attractive and intuitive interface, currently accounts for over one-third of the smart thermostat market. Consumers can buy one at retail or through energy provider Reliant Energy.
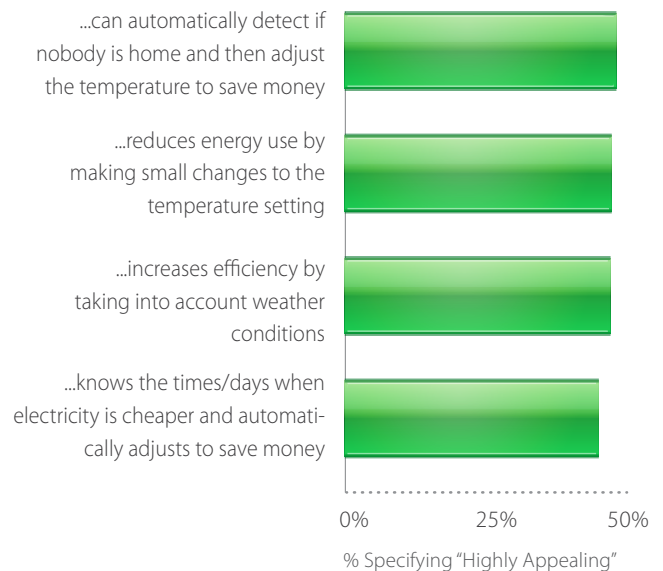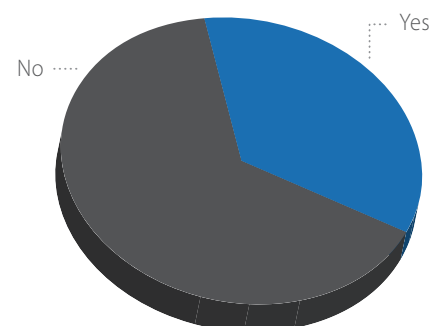
In the long term, interoperability will be an issue with many of these early solutions as the market develops and more systems become connected.

Nest-Brand **Thermostat Ownership**
Among U.S. Broadband Households Owning a Smart Thermostat

Yes

No

© Parks Associates

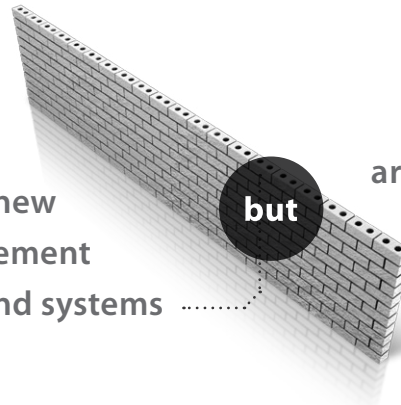# SERVICE BUNDLES FOR HOME SYSTEMS

For service and security providers:

consumer resistance to monthly service fees is a key obstacle to home system adoption.

ROUGHLY

15-40% of households are **interested in new home management capabilities and systems**

but

are unwilling to pay monthly service fees to obtain them.

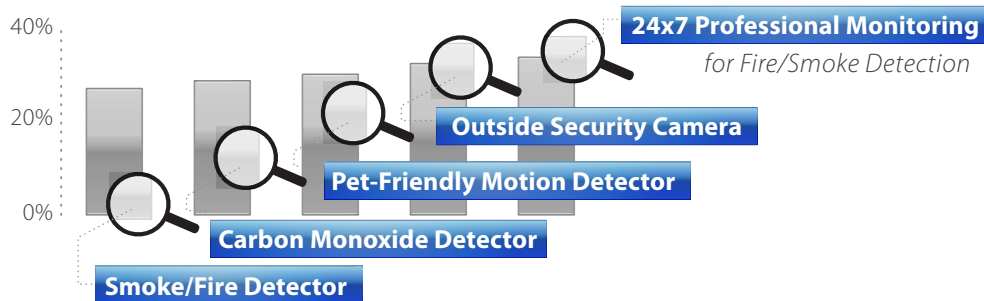Even among those willing to pay, price points vary widely.

Overall, consumers consistently rate **safety features and equipment as the most important elements** in a home management or security system, including detectors for smoke, carbon monoxide, gas leaks, and water leaks.

When asked **what capabilities would drive them to adopt a home security system**, consumers put fire/smoke detector and carbon monoxide detector at the **top of the list**, with one-third of U.S. broadband households without a security system ready to adopt a system that offers one of these items.

TOP **5** FEATURES
to **Boost Home Security Adoption**

U.S. Broadband Households with No Security System   © Parks Associates

40%

20%

0%

24x7 Professional Monitoring
for Fire/Smoke Detection

Outside Security Camera

Pet-Friendly Motion Detector

Carbon Monoxide Detector

Smoke/Fire Detector

Companies will have to diversify their offerings to target this market.

Energy management has appeal but **often ranks behind** safety and security features, with no single "killer app" to drive the market.

Automating energy management solutions *and integrating them* with other solutions, so that consumers have multiple service options, are necessary to speed up adoption from its currently slow, but steady, pace.

UTILITY PERSPECTIVE

The utility channel in particular has struggled to bring new products and services into the mainstream.

For example, **demand response (DR) programs** are designed to shift or reduce peak consumption, and people sign up for these programs with the best intentions. However, **when the time comes for a DR event**, *consumers often manually override the thermostat set point changes*. In many cases, the manual adjustments actually result in longer equipment runtimes.

Traditional energy management programs

use economics as the primary consumer value proposition, i.e., the **return on investment** in the form of **energy savings**.

However, **Parks Associates lists cost savings as only one** of **multiple factors** influential in this market.

PRICE SENSITIVE	CLEAR VALUE	SIMPLICITY
Consumers are not naturally in the market for energy-saving devices, and they are notoriously price sensitive to energy-related solutions.	If the return on investment is not apparent or relatively sizeable, consumers simply will not pay for it.	Consumers will not struggle to figure out a complicated solution.

Consumer awareness of energy programs continues to be low.

Less than 20% of U.S. broadband households are aware of programs such as tiered pricing, time-of-use, and energy monitoring devices.

As real-time measurement and verification become a reality, utilities can transition away from demand side management programs to demand side management markets. In many new and emerging instances, the goal of the solution is to enable smart devices to make decisions on consumers' behalf, automating many processes and providing cost savings based on preprogrammed and learned factors.
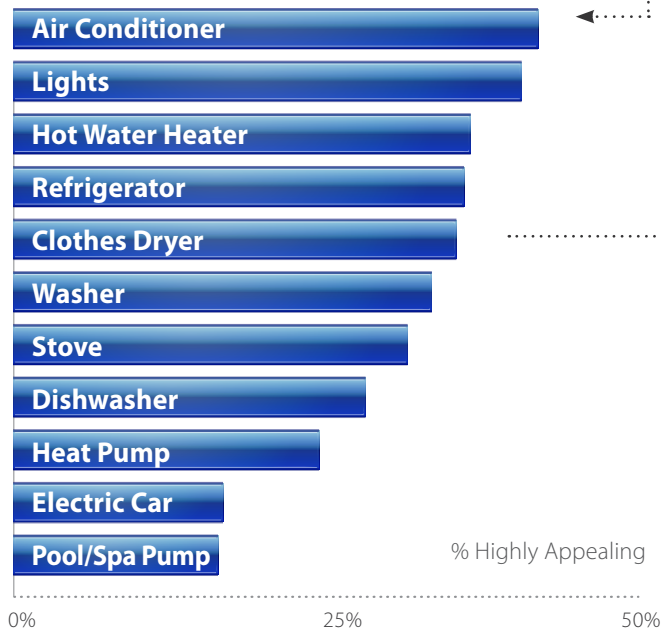
CONNECTED DEVICES AND DATA ANALYTICS

The proliferation of IP devices, the Internet of Things, gives companies and consumers **access to loads of data** about the household, energy consumption, and the devices within, all of which can be used to develop these cost-saving steps. Manufacturers are adding new capabilities and features to differentiate their products, capabilities that can be applied to reduce energy consumptions and shift demand.

Consumers are starting to see the value in these offerings as well, especially in energy-intensive devices such a an air conditioner.

Appeal of **Home Appliances** with *Monitoring* Services

U.S. Broadband Households

Air Conditioner
Lights
Hot Water Heater
Refrigerator
Clothes Dryer
Washer
Stove
Dishwasher
Heat Pump
Electric Car
Pool/Spa Pump

% Highly Appealing

0%   25%   50%

© Parks Associates

OVER **40%** of U.S. broadband households rate an **air conditioner** WITH MONITORING FEATURES **AS HIGHLY APPEALING**.

Appliances such as washers, dryers, and refrigerators with monitoring features capture the interest of at least one-third of consumers.

Adding connectivity to devices also creates mountains of data that can be mined and used to create new products and services.

For example, energy modeling software can detect when an appliance is in disrepair. There is huge value in information, and many companies are finding ways to leverage that data to drive the next wave of energy management solutions.

Connectivity not only **brings convenience and control** to the consumer, **it also enables verification and measurement** of any control action in near-real time.

The ability to verify load shed in **real time will change the way** that utilities approach demand response programs.

SERVICE PROVIDERS AND PARTNERSHIPS

Most telecom and cable operators are developing plans to launch services that include home control, security, and energy management.

In the U.S., Comcast, Time Warner, and AT&T have entered the market for home controls with a base package of services that requires a multiyear professionally monitored security contract. Consumers have access to a full suite of security and home controls products, including IP cameras, electronic door locks, connected lighting, and thermostat controls.

Verizon has chosen to provide self-monitoring services but not professionally monitored security. The starter hardware package includes a lighting module and an IP camera, and the monthly fee for self monitoring is $9.99, regardless of the number of connected devices and does not require a long-term contract. Verizon is targeting the market that does not have professionally monitored security but does value monitoring the safety and security of their home and family, as well as the lifestyle improvements from home controls.
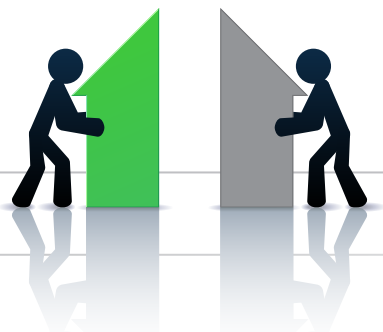
In Europe, Telefonica has announced its M2M solution, which will be launching in 2013 in Spain and portions of South America. Deutsche Telekom will also launch services in 2013, and the majority of telecom and cable operators will enter the market in 2014.

Verizon's pricing structure is highly competitive, targeting the mass market. Pricing structures have yet to be announced in Europe, but pricing in the range of Verizon's home monitoring and controls solution has the ability to expand the market. Parks Associates research indicates this type approach, with **an emphasis on safety along with new capabilities through IP, does have the potential to expand the market** for home security and other connected home services.

In contrast, the utility business model is focused on demand-response programs that reduce overall consumption or impact peak load. There are **many compelling business opportunities** in accomplishing this goal. The collaboration between SDG&E and Alarm.com is an example where a utility leverages a connected device already within its territory to drive this change.
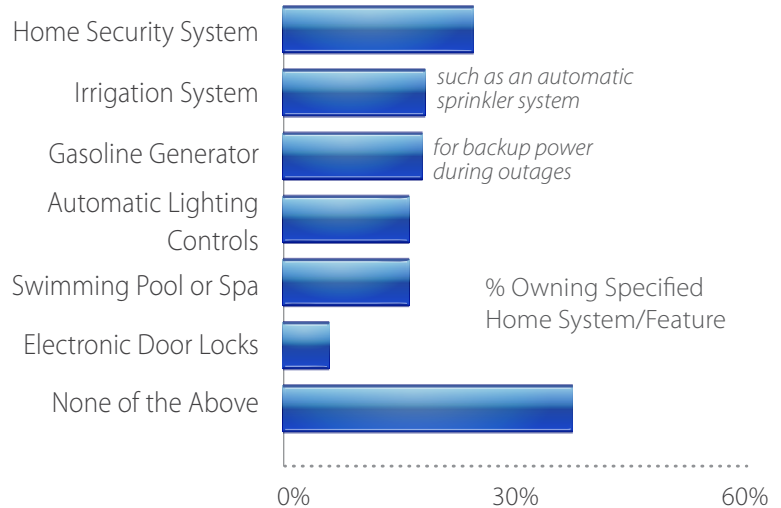
In general, the marketing muscle of security and broadband service providers is helping to **grow awareness of consumer-facing solutions** in home monitoring and control, which are in the early stages of product deployment and consumer awareness. For example, 16% of U.S. broadband households report having automatic lighting controls; however, when drilling down into those numbers, the majority of those products are dimmer controls or automatic timers.

> The industry will need to continue to develop partnerships to deploy new services, show value to the consumer, and provide costs savings.
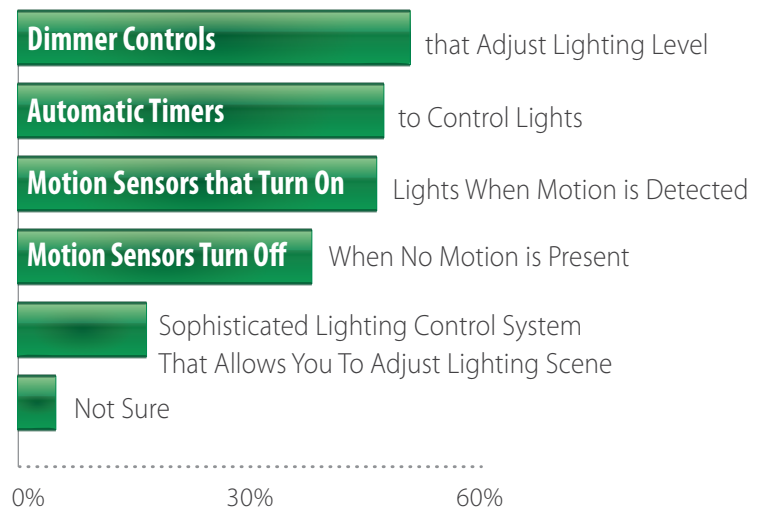
Current **Home System/Features**
U.S. Broadband Households

Home Security System
Irrigation System — *such as an automatic sprinkler system*
Gasoline Generator — *for backup power during outages*
Automatic Lighting Controls
Swimming Pool or Spa
Electronic Door Locks
None of the Above

% Owning Specified Home System/Feature

0%   30%   60%

© Parks Associates

Type of **Lighting Controls**
U.S. Broadband Households with Automatic Lighting Controls

Dimmer Controls — that Adjust Lighting Level
Automatic Timers — to Control Lights
Motion Sensors that Turn On — Lights When Motion is Detected
Motion Sensors Turn Off — When No Motion is Present
Sophisticated Lighting Control System That Allows You To Adjust Lighting Scene
Not Sure

0%   30%   60%

% Selecting Specified Type   © Parks Associates

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Energy management systems have **hardware and software** components…

so there are a variety of partnership options between service providers, retailers, OEMs, and companies in the utility, security, and home control industries.

Hardware components include in-home displays, load monitors, load controls, lighting controls, and thermostats. Hardware revenues may come from multiple channels, including retailers such as Best Buy, Home Depot, and Lowe's.

The software components include cloud services that may perform services such as data analysis, alerts, or notifications, or connectivity to user interfaces such as smartphones or tablets.

These efforts will also create the foundation for future advances in energy management systems.

This market will continue to evolve, and systems will expand to include a variety of advanced offerings:

- Management in dynamic pricing environments
- Equipment performance monitoring and diagnosis of HVAC systems and major appliances
- Management of home-based renewable power generation systems
- Electric vehicle management, including charging in dynamic pricing environments.

These solutions will further expand the market and create new opportunities for recurring revenues.

The market for advanced energy services has been slow to develop, but consumer interest in connected offerings combined with growth in IP-enabled, real-time offerings will provide an avenue for companies with the right service options to thrive long-term in this market.

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ABOUT PARKS ASSOCIATES

Parks Associates is an internationally recognized market research and consulting company specializing in emerging consumer technology products and services. Founded in 1986, Parks Associates creates research capital for companies ranging from Fortune 500 to small start-ups through market reports, primary studies, consumer research, custom research, workshops, executive conferences, and annual service subscriptions.

The company's expertise includes new media, digital entertainment and gaming, home networks, Internet and television services, digital health, mobile applications and services, consumer electronics, energy management, and home control systems and security.

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