



Next Frontier of Smart Energy Management

IN PARTNERSHIP WITH  **SmartThings**



Introduction

Today, the smart home market is growing rapidly, with a wide range of companies—across multiple industries—recognizing the energy-saving benefits of these technologies. Utilities and homebuilders in particular are embracing ways in which this technology can empower consumers and drive smarter decisions over energy use. These new capabilities include leveraging automation for easier and more integrated ways to reduce energy use through utility savings programs.

Energy companies are highly motivated to invest in solutions that provide more energy efficiency and automation in homes. This becomes increasingly important with net zero-goals set by utilities. Smart home technology offers smart energy value for utilities. That can be realized via integration into a wide range of energy efficiency programs that incentivize customers to save energy. That can also mean integrating smart home into builder programs that focus on net zero structures and reduced carbon emissions.

For home builders, smart technology allows all parties to benefit in multiple ways—financially and through market differentiation. Both builders and home buyers alike are appreciative of energy savings rebates as well as the longer-term benefits of lower energy bills. From a sales and marketing perspective, newer smart homes offer additional lifestyle benefits such as built-in security, energy management, and entertainment control.

This whitepaper highlights the continued growth the smart home ecosystem, with new capabilities for builders and utilities to leverage through the connected assets in the home, such as smart thermostats, appliances, smart lighting, smart plugs, and other energy solutions. It also highlights consumer demand for technology that delivers a unified smart home experience and real-time data and analytics regarding the home especially around energy consumption.

Growing Popularity of Smart Home Tech

This is a dynamic time for the connected home industry, where multiple factors are aligning to drive interest in smart home devices and services that enable new applications in the home.

US internet households now have nearly 16 connected devices on average, including 11 connected CE and three smart home devices on average.

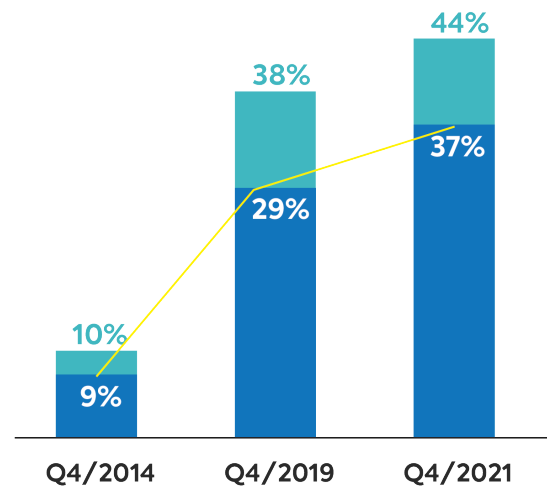
37% of US internet households, about 40 million households, own at least one core smart home device, up from 9% in 2015. Households that own at least one smart home device have an average of eight devices.

Key to the future progress of the smart home market is the ability for players across many industries to deliver a unified experience. Accomplishing that goal requires complex integration, extensive partnerships, and a focus on the consumer experience.

- 11% of US internet households own a smart appliance, and 14% have a smart thermostat
- 25% of households report intentions to purchase a smart appliance in the next six months
- Almost one-third plan to buy a smart light bulb (32%), smart plug (30%), and/or a smart thermostat (29%)

Smart Home Device Ownership

- Own ANY remotely monitored internet-connected device in the home
- Own at least ONE tested core smart home device*



*Smart Home Devices Surveyed

- Smart Appliances (smart refrigerator; oven; etc.)
- Thermostats
- Door Locks
- Video Door Bells
- IP cameras
- Light Bulbs
- Lighting control systems
- Smart plugs/adapters
- Outdoor light fixtures with video camera
- Outlets/switches/dimmers
- Sprinkler systems
- Garage door openers
- Smoke/CO detectors
- Water leak detectors
- Water shut off valve
- Robotic Vacuum Cleaner

© Parks Associates



Drivers for Tech in the Home

Energy Management is Emerging as a Key Driver for Tech in the Home

While security has remained a key driver for smart home adoption, energy is rapidly becoming more popular. A Parks Associates survey, conducted in Q1 2022 among US internet households, suggests that **consumers are growing more concerned about their energy costs and more aware of the environmental impact of their energy choices.**

MDU (multi-dwelling unit) owners/operators value smart access control for security, convenience, and OPEX savings. Properties want to grant access to units remotely for unaccompanied viewing, assist with package delivery control who had access to units, and make key replacement more efficient.

This concern can translate into new demands on both utilities and builders, to adjust their products and strategies to accommodate these new concerns. Market forces and competitive pressure make these changes necessary; however, the new opportunities created here, especially as they adopt new smart home and IoT technologies, make these change more than worthwhile.

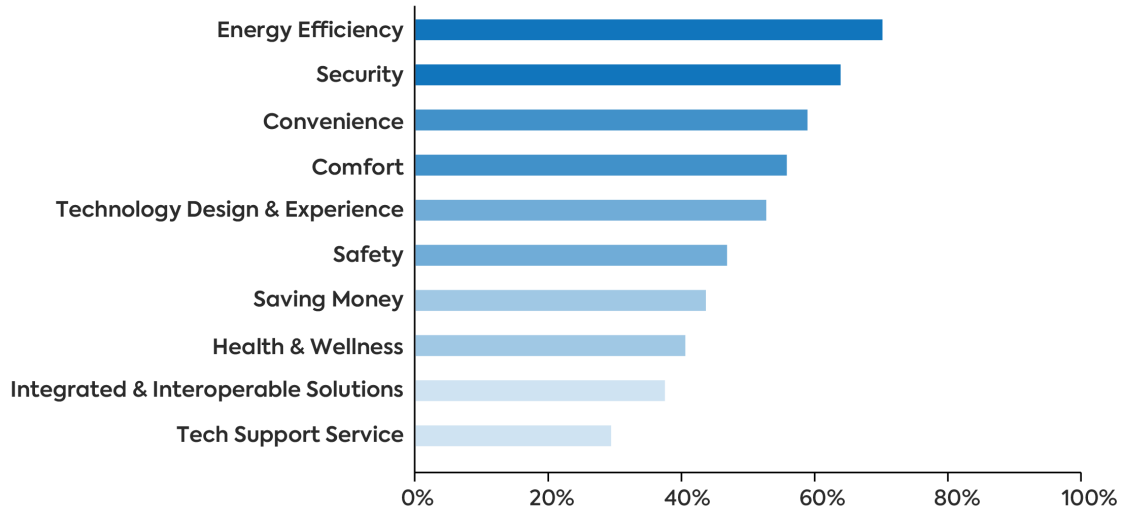
Smart Homes for Builders

For home builders, smart home technology is now a differentiating feature of new single-family homes. Builders are focused on providing the right infrastructure and network requirements, and more than 70% cite integrated smart home and entertainment control systems as highly popular. Smart speakers, which are often the default control interface for home automation applications, have been selected as the user interface of choice by leading builders, such as Lennar, KB Homes, and Shea Homes. Further, when promoting the benefits of smart home technology, **builders are most likely to emphasize energy-efficiency value propositions as selling points in their production homes.**

- 54% of US internet households think their electric bills are too high
- 45% made energy-saving renovations or added major energy devices in 2021
- 56% of US internet households would select renewables as an energy source if costs were the same; 36% say they would pay more to use power from renewable sources

Smart Home Technology Benefits Offered in Single-Family Production Homes

Among US Large Scale Single-Family Builders



© Parks Associates

Utilities Delivering More Value

Utility companies are making a concerted effort to share more data with their customers: the percentage of consumers who receive a daily breakdown of their energy consumption from their energy provider increased from 31% in Q4 2020 to 54% in Q4 2021.

Innovations in energy devices and platforms allow utilities to supercharge this effort, giving energy providers the ability to deliver more detailed and useful real-time energy information and extend into control and conservation services that reach “the other side of the meter.”

Smart thermostats are a key device enabling these services, but adoption levels have been flat for the past few years at roughly 13% of US households. The challenges to increase adoption include cost, installation, and consumer awareness, as once consumers have the device, they report great satisfaction and savings overall:

- 91% of smart thermostat owners report they are satisfied with the energy savings from their devices
- Smart thermostat owners and users report saving on average \$49 a month on electricity due to the device

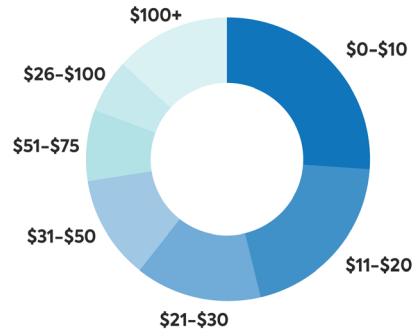


103M smart meters installed in US Smart meters enable utilities to deliver more home energy programs and provide consumers insight into energy consumption with products such as in-home displays or more advanced solutions such as load disaggregation, i.e., an itemized listing of devices and their consumption.

Builders Delivering More Value

Over 50% of large-scale builders in the US include smart thermostats as a standard feature in their homes, and 60% of builders report smart thermostats as highly popular features for their production homes. **Builders see smart home as a key benefit in the value of their homes** — 82% are interested in offering whole-home energy management as a smart home use case — which is an important step for all parties — utilities, builders, and end users — to getting the solutions in place that deliver the energy services and data needed for a unified and comprehensive experience.

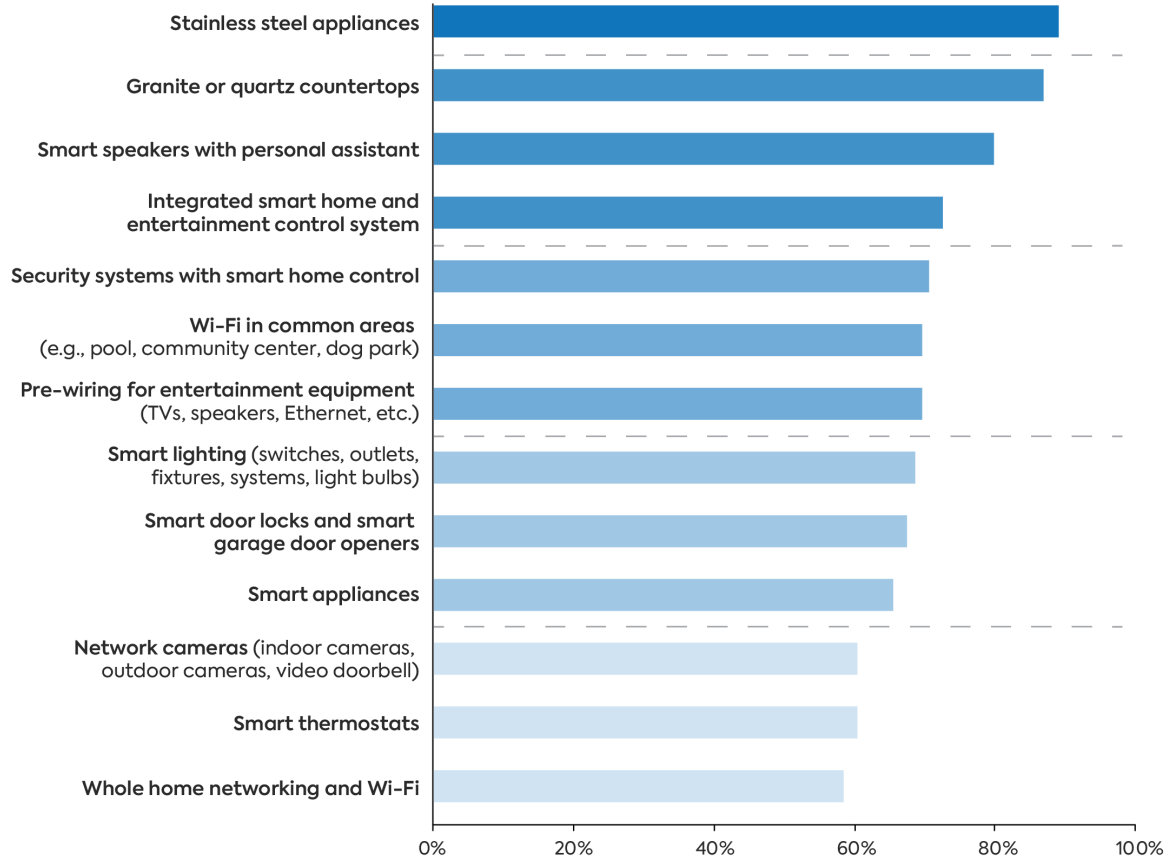
Estimated Monthly Savings Reported by Smart Thermostat Owners/Users



© Parks Associates

Highly Popular Features of Single-Family Production Homes

US Large-Scale Single-Family Builders



© Parks Associates



The Search for Unified Control

Connected devices in the home can provide more information on energy consumption, including load profiles at start-up and runtime profiles during operation. The combination of these data sets allows consumers to understand how the operation of each device impacts their utility bill and could lead to more actionable guidelines to reduce their energy costs.

Getting this disaggregation data can be difficult, and many current utility programs offer data only in 15-minute intervals, while consumers today are accustomed to real-time data. These challenges are exacerbated by the nature of today's smart home ecosystem, which consists of many disparate devices from different manufacturers.

The standard smart home buyer journey today is via retail, often one device at a time, creating an experience where consumers are using multiple apps to control their devices. Therefore, control is not unified, and data is often not shared among devices, creating a disjointed consumer experience.

These conditions have inhibited growth of the smart home market into the mass market. Some level of unified control is available via smart home hubs, security providers, internet service providers (ISPs), high-end custom installments, and even the

master smart home apps on common smartphone operating systems, but **consumers want a more unified experience, with integrated automation and intelligence.**

For many consumers, the ideal solution would be an IoT platform that can aggregate all the disparate devices and services into a single unified source. As consumers accumulate more devices, they gravitate toward a single source of control. An IoT platform can also accommodate the different preferences among consumers regarding the control experience.

US internet households are almost evenly divided, with 52% preferring an involved customized and control experience, versus 48% who prefer a "set it and forget it" experience. IoT solutions can have the flexibility to meet either need.

73% of smart home device owners or purchase intenders consider interoperability important

The Role of Utilities and the Home Builder

This growing emphasis on smart home solutions and interoperability comes as utilities are amid a massive transition changing how energy is generated and delivered. **Driven by a massive shift to renewable energy sources, growing demand, and an aging grid, utilities are moving towards a distributed renewable energy environment after over a century of central station generation.** The “utility of the future” is very real and a very different concept than that of utilities of yesterday, which is changing how they engage with their customers.

Similarly, home builders are seeing growing demand, and new opportunities, for the addition and integration sophisticated smart solutions in the home and communities they construct.

While the shift to renewables and the integration of new connected solutions offers great potential, the challenges are not trivial — and often start at home construction, with solar and EV chargers new considerations as new features for homes. Builders and utilities can partner to ensure the right technology solutions are in place, but among the challenges are how the utility should partner with its end-user customers to help meet renewable energy goals while maintaining reliability and rate stability. This is an opportunity for the utility to “partner” with their customers in becoming their “trusted energy advisor,” especially as consumers become more aware and active of their energy consumption and resources.

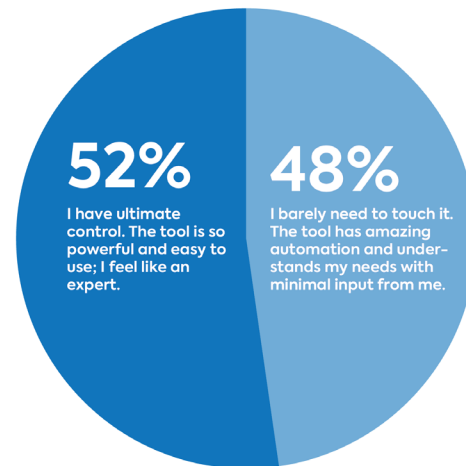
61% of smart home device owners use an app that controls multiple devices

Top Reasons Why Households Use Specific Smart Home Platforms

- Assistant is easy to communicate with
- Quickly performs tasks
- App design makes it easy to use
- It's convenient to control smart products with this assistant/app
- Assistant/app is reliable
- Does all I need
- I trust this assistant/app with my data

Ideal Control App Experience

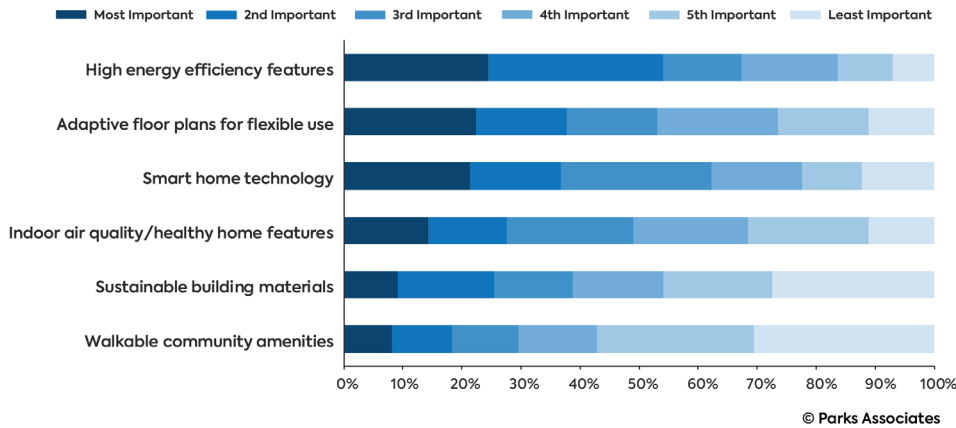
US Broadband Households



© Parks Associates

Importance of Value-Added Features in Single-Family Production Homes

Among US Large-Scale Single-Family Builders



More than 50% of large-scale builders in the US consider high energy-efficiency features to be the most or second-most valuable feature to add to their homes

New Energy Benefits in a New Era of Energy

Action	Utilities	Consumers	The Smart Home
Renewable Energy Goals	Moving from central station generation to distributed, renewable energy source	New opportunities to "go green" and control their energy usage and costs	Intelligent energy usage demands a smart home platform that can facilitate several energy devices and applications
Distributed Energy Resources	Changes everything from operations, to forecasting to customer engagement. Truly a reinvention of the utility as we have known it for over a century.	Opportunities to "flip the script" on traditional energy usage and costs.	In a world where the home has solar panels, a large battery for energy storage, and one or more electric vehicles, the smart home is a game changer for managing costs, convenience, and comfort.
Energy Disaggregation	The ability to "see" into the other side of the meter to help manage the load curve, and to help customers make better energy decisions based on appliance energy footprints	More engagement with the utility and opportunities to manage their energy use for both cost and energy savings.	Connected devices on an interoperable platform will enable new levels of insights and ultimately customer control over energy usage and costs.
Peak Shaving	Greater ability to maintain reliability during day-to-day operations as well as major events by using a variety of resources to minimize peak load.	Manage costs with a variety of tools that will also help ensure reliability.	Automated actions based on signals from the utility as well as from the consumer living inside of the smart home.
Energy Efficiency	Managing aggregate energy usage via a number of passive actions, like energy efficient appliance and lighting programs.	Managing energy costs and usage without having to take any specific, time- or event-based actions.	An integrated smart home with energy efficient appliances can drive down costs and usage with insight-driven automation.
Demand Response	Managing aggregate energy usage with a number of passive actions, like air conditioner cycling during peak load events	Agreeing to partner with the utility to take specific actions to save energy and costs during peak load events.	Enabling intelligence on both sides of the meter will enable more specific, less invasive energy and cost savings via a smart home platform.



| The Smart Energy Consumer

The utility industry is moving aggressively towards building its renewable energy portfolio, and consumers are gaining interest in renewable sources of energy and energy management. Downward pricing pressure on solar panels, batteries, and smart home devices are contributing to the growth of the “smart energy consumer.”

Younger respondents express a stronger preference for clean energy as well as a stronger willingness to pay more for it. They are growing up in a world where renewable energy and climate/environmental concerns are top of mind.

Nearly half of all households in the US desire to be independent from the grid. While this sentiment is likely rooted in feelings of energy insecurity in emergency circumstances, the reliability of distributed energy resources is still a way off from enabling most energy consumers to be truly “off the grid.”

Drivers for Home Builders

- Increasing homebuyer familiarity with and demand for smart tech fueled by desire for security, safety, convenience and comfort
- Builders seek to increase perceived value of their products
- Some builders seek to drive revenue through increased sales price
- Builders need to differentiate their products in competitive markets
- Technology costs decreasing
- Smart speakers and security systems provide unified experience
- Ubiquitous Wi-Fi and Bluetooth enable easy, affordable endpoint solutions



Smart Products Help Build Stronger Customer Relationships

In general, integration with smart home solutions delivers four key benefits to utilities and energy providers: increased consumer engagement with energy management programs, facilitation of smart product integration in demand response programs, increased adoption of smart products for use in energy management, and increased program awareness through cross-marketing efforts.

To maintain its position as a trusted energy advisor, the utility must move more aggressively to serve the energy management needs of its consumers. The utility can deepen the relationship with its customers by empowering them to save energy or offering energy-saving programs. Stronger customer relationships open the door to diversified revenue opportunities as the utility business model is adjusted to reflect the competition for distributed generation.

The convergence of technological advances, energy awareness and concerns, and growing demand among consumers and on the grid is driving adoption of smart home solutions that can deliver new solutions in this energy sector. Industry players and especially energy providers and builders recognize the benefits of incorporating smart products into their offerings. Most of the early efforts were geared at reducing the friction for consumers to acquire these products, but **the next successful step is in enabling a new, unified experience to**

the consumer. Forward-thinking utilities are investigating strategies to integrate multiple devices and aggregate data across industries/ use cases to deliver a truly comprehensive and actionable picture to consumers of their energy consumption at home. These offerings will help build positive consumer engagement, open avenues to expand service portfolios, and ultimately generate new revenues, even as energy consumption is reduced.

Energy Program Use and Incentives

- ~ 40%+ of US households used a special energy program in the past, such as time-of-use or tiered pricing. No one program has adoption greater than 20%
- Incentives are key to securing consumer participation in utility programs, and a \$100 annual credit generates the highest interest among consumers, where they are willing to allow utilities to control their thermostat during peak times

About Parks Associates



www.parksassociates.com
info@parksassociates.com
972.490.1113

Parks Associates, a woman-founded and certified business, 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 apps, advanced advertising, consumer electronics, energy management, and home control systems and security.

About SmartThings



SmartThings is the premier technology enabling connected living and driving the future of IoT. Its open platform already supports thousands of devices across hundreds of brands and offers endless possibilities to innovators and developers seeking seamless connectivity in a vast IoT ecosystem. The company is committed to bringing smart functionality and capabilities everywhere consumers want to be, while enhancing the user experience. There are currently millions of people in more than 200 countries accessing SmartThings technology daily to create automations and control facets of their smart homes via the SmartThings App and through a range of Samsung products such as phones, TVs, and digital appliances. SmartThings offers the most flexible amount of protocols, including the new IoT standard, Matter.

About the Author



Jennifer Kent, Vice President, Research, Parks Associates

Jennifer manages the research department and Parks Associates' process for producing high-quality, relevant, and meaningful research. Jennifer also leads and advises on syndicated and custom research projects across all connected consumer verticals and guides questionnaire development for Parks Associates' extensive consumer analytics survey program. Jennifer is a certified focus group moderator, with training from the Burke Institute.

Jennifer earned her PhD in religion, politics, and society and an MA in church-state studies from Baylor University. She earned her BA in politics from the Catholic University of America in Washington, DC.



Mike Smith, Sr. Contributing Analyst, Research, Parks Associates

Mike Smith is a 32-year veteran of the utility 'smart grid'/analytics and smart energy/home business, and is currently Principal Consultant at KLN Group, a consultancy that he leads where he leads and supports a number of thought leadership and market analysis initiatives. Immediately prior to launching KLN Group, he was an Industry Principal at SAS, where he was involved in client engagement, thought leadership, and business development activities to drive growth of the SAS utilities business.

ATTRIBUTION

Authored by Jennifer Kent and Mike Smith. Published by Parks Associates. © Parks Associates, Addison, Texas 75001. All rights reserved. No part of this book may be reproduced, in any form or by any means, without permission in writing from the publisher. Printed in the United States of America.

DISCLAIMER

Parks Associates has made every reasonable effort to ensure that all information in this report is correct. We assume no responsibility for any inadvertent errors.

RESEARCH & ANALYSIS

for Emerging Consumer Technologies

With over 35 years of experience, Parks Associates is committed to helping our clients with reliable and insightful consumer and industry research.



Smart Home Devices and Platforms



Digital Media and Platforms



Home Networks



Digital Health



Support Services



Entertainment & Video Services



Consumer Electronics



Energy Management



Home Control Systems



Home Security