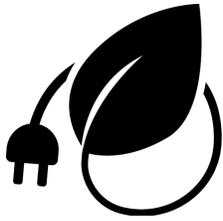


People Power Pro Energy 2.0



Adding industry-leading artificial

intelligence for vastly improved smart home experiences, People Power Pro Energy 2.0 provides critical breakthroughs in AI device and service integration for white-label IoT deployments.

The Modern Approach

Today's home is capable of moving to a new level of energy efficiency and intelligent connectedness – going beyond basic demand response and thermostat control. Energy service providers can now offer highly valued consumer services using innovative artificial intelligence (AI) technology with People Power Pro Energy 2.0. It's the most advanced solution for scalable market deployments to maximize energy savings, comfort and convenience for consumers.

For energy companies looking to deploy engaging connected services, intelligence is the next hurdle towards broader market adoption and business growth. Delivering services with scale is possible only when a system is built to address the program concerns of *both* the end user and the service provider. Maintaining that balance, People Power Pro Energy 2.0 improves upon the previous version and is built with a billion consumer interactions of experience. Committed to helping

our business partners drive scale with delightful experiences for them and their customers, People Power Pro Energy 2.0 includes:

> Energy services made intelligent

Sophisticated demand response services with AI enabled energy-centric customizable microservices to address key consumer opportunities at scale.

> Device integration for the masses

Deliver intelligence to an array of devices for targeted energy programs with thermostats, home lighting, load controllers, plugs, switches and more.

> Management of IoT made easy

Energy efficiency and IoT initiatives are elegantly delivered and managed by service providers with People Power's improved command center – Maestro 2.0.

Energy Intelligence

Leading the industry in AI development for IoT, People Power has created patent pending, energy-centric services for the smart home that meet the needs of both energy providers and consumers. Each new service is configured with AI-enabled microservices to deliver modular functionality for optimal intelligence and performance. By learning key activities and patterns in the home, configurations of microservices help any service understand when to optimize energy consumption to maximize comfort, convenience and energy savings. A new service can be purchased and added dynamically into a customer's smart home account. Energy service providers benefit from the flexibility to quickly and easily create microservices that continuously innovate and differentiate.

NEW: Enterprise Program Management Service

An enterprise-level intelligence (VEN/VTN), this service is responsible for orchestrating multiple synchronized demand response events and time-of-use pricing schedules across a user base. The service connects an energy provider directly to the Maestro

command center to facilitate demand response events at specific times, specific durations and for specific users. The communications architecture was implemented in the spirit of OpenADR with the goal to enable it to operate as an OpenADR VEN. The service understands negotiations in individual households to load-shift energy around a community to broadly balance comfort and energy savings.

NEW: DR Home Management Service

Managing the home as an intelligent assistant (VEN) for the homeowner, this service has the ability to connect with each energy management asset in the home. It supports BYOT programs and delivers intelligent deployments of connected devices including thermostats, smart plugs, hot water heaters, pool pumps and more. When augmented with motion and entry sensors, the solution automatically learns family behaviors that classify home, away, vacation and sleep patterns to maximize energy savings. This service is also responsible for executing DR and time-of-use pricing events, and can negotiate with organizational service on behalf of the user to keep the home comfortable while balancing energy reduction activities. It communicates bi-directionally with the homeowner over SMS about activities and conditions in the home and is capable of pre-cooling, capping heat and reducing effects of snap-back at the conclusion of DR events. This service is granted to the end user on a subscription basis and transparently informs them which devices are being controlled and when. All demand response events enable opt-out or opt-in programs that can be operated as “pay-for-performance” with the built-in points reward mechanism. User participation can be selected based on customer “tags”, devices connected, or other key attributes. SMS user interaction features enable programs to rapidly scale by not requiring users to download mobile apps.

NEW: Enterprise Weather Management Service
An enterprise-level intelligence (VTN), this service

connects throughout the day to weather forecast data, determining when to trigger manual demand response events. The Enterprise Weather Management Service connects directly to the Maestro command center allowing administrators to define geocode, temperature, humidity and heat index thresholds that trigger DR events. Making for even more robust deployments, an administrator with access to historical grid data can define logical DR event thresholds that automatically trigger.

NEW: Leaky Home Microservice

Developed to intelligently identify residences that fail to retain desired heating and cooling efficiency, this *microservice* understands which homes are most likely to benefit from energy audits and assists to solve an important challenge for energy providers. The Leaky Home Microservice actively communicates with administrators to identify inefficient homes that should be targeted for efficiency examinations.

NEW: Home Lighting Microservice

Tracking the time of sunset and sunrise, along with the user’s utility time-of-use rates, this service can intelligently dim or brighten lighting based on a variety of conditions. Add a motion sensor and home lighting can be switched off after learned periods of inactivity. Intelligently assisting to deter burglary, the Home Lighting Microservice can learn the resident’s movement patterns and automatically mimic them while occupants are away from home.

Device Integration

Thermostats: Pro Energy 2.0 transforms any connected thermostat into a learning thermostat, with the ability to coordinate with sensor-recognized occupant activities in the home. With cloud-based fine-resolution machine learning models that emerge over time, the connected thermostat becomes smarter and is able to detect suboptimal appliance conditions and energy robbing incidents like open doors or windows. Preventative maintenance

features automatically identify HVAC systems in need of service. Supported devices: Honeywell Lyric Round, Honeywell Lyric T-5, Honeywell Lyric T-6, Centralite Pearl Thermostat, Ecobee and Sensibo Sky.

Smart Lighting: Pro Energy 2.0 enables an ever-growing selection of lighting solutions for consumer use in the connected home. With the ability to incorporate today's most popular voice services (Amazon, Google), controlling home lighting with a spoken command is attractive to consumers. Supported devices: GE Link A19, GE Link PAR38, GE Link BR30, Philips Hue White and Color Ambience, Philips Hue White, OSRAM Lightify Soft White, OSRAM Lightify Tunable White, OSRAM Lightify Full Color, Sengled A19 and Sengled BR30.

Smart Plugs: Pro Energy 2.0 makes the smart plug an important role-player in any consumer IoT program. It provides important layers of control to any connected home for device and lifestyle automation. Supported products: Centralite 3 Series, Peanut Smart Plug and SmartThings Smart Plugs.

Smart Switches: Pro Energy 2.0 makes smart dimmers and smart switches important participants in any connected home solution. With devices from leading global brands, including GE and Leviton, new levels of intelligent home control are now possible.

Large Load Controllers: Pro Energy 2.0 intelligently manages large appliances and devices. The solution can be integrated with high-load devices including pool pumps and electric heaters using Smartenit large load controllers, and connects LintAlert PRO Plus devices to add intelligence to any washer or dryer.

IoT Command Center: Maestro

Keeping consumers engaged in energy-centric initiatives is essential in achieving service provider business goals. Recognizing this, People Power built the Maestro command center, a tool for managing energy programs and IoT services in a secure and

straightforward manner. A highly visual tool to enroll users and support their needs, issue behavioral challenges that drive consumer engagement programs and offer rewards to keep them engaged, Maestro provides a command and control view for any IoT program. Program insights include user data, service details, device connectivity, enrollment and subscription data, and much more.

Maestro 2.0 expands in functionality to enable simple control of AI-based services at the admin level. Now, coordinating activities across a community of homes intelligently has never been so easy. In addition to the rich feature set of the previous version, Maestro 2.0 also includes a new Demand Response Management System (DRMS). With simplified user engagements in mind, Pro Energy 2.0 delivers new mobile customer dialogue functionality with intelligent SMS conversations for increased program ease-of-use.

SUMMARY: People Power Pro Energy 2.0

- > **Coordinates** *smart home devices intelligently so lighting, load controllers, and a variety of hardware products can participate in energy efficiency.*
- > **Recognizes** *when a home is vacant or occupied for customized smart home performance.*
- > **Understands** *occupant movements to enable personalized efficiencies in the home.*
- > **Improves** *security by mimicking occupant lighting patterns when residents are away.*
- > **Integrates** *today's popular voice services for lighting control with spoken commands.*
- > **Communicates** *with new SMS text dialogue functionality for simplified user engagements.*

NEW: People Power Data Cube Service

The Pro Energy 2.0 release includes a new service, People Power Data Cube – a real-time cloud based data service that enables analytics, what-if scenario planning and limitless report creation. People Power

is a custodian of customer data, enabling service providers to enjoy full access to end-user, opted-in data to assist knowledge discovery and report critical business metrics – not for just a couple of weeks, but forever. Scalable to millions of users and compatible with popular data visualization tools and CRMs, business performance management of IoT programs is convenient and affordable with Data Cube. Helping service providers and their partners in the creation of machine learning models for greater system intelligence, Data Cube can be injected into IoT programs to improve behaviors of digital *microservices*. The addition of well-cultivated algorithms and machine learning services that continually evolve delivers highly valued, highly differentiated solutions.

A Growing Suite of Home Services

In addition to energy efficiency initiatives, People Power enables new revenue services including home security, professional monitoring and senior care. The same combination of devices used for intelligent energy management extends automatically into engaging and valuable services for new recurring revenues. Additionally, People Power has built and delivered custom branded online stores for the sale of devices and add-on subscriptions for any brand offering.

ISO Standards

People Power implements ISO algorithms for baseline energy consumption measurement and demand response performance evaluation. Whole home and building energy data can be injected into user accounts through a direct connection with the utility or rate-payer funded energy efficiency program infrastructure, or can be captured through other mechanisms like Green Button, TED energy meters, smart meters and more. The baseline energy algorithms can be customized to deliver the most relevant metrics for any region.

White-Label Solutions

People Power has learned how to keep consumers interested in connected services, resulting in noteworthy engagement levels. Whether it's behavioral demand response (BDR), demand response (DR), or energy efficiency (EE) programs driven by artificial intelligence, People Power has earned a leadership position in the industry by developing cutting edge methods to develop, deploy and manage consumer experiences at every touch point. Services are delivered and promoted through our business partner's brand, creating new brand value and awareness.

Our Successes in Sustainability

People Power, founded as a green-tech company in 2009, remains committed as ever to home energy management systems that advance residential and commercial energy efficiency. Having succeeded in energy conservation programs with several energy providers in North America, our solutions are built around the lessons learned from consumer engagements that have produced industry-leading results. The success of our programs has exceeded industry-standard rates of end-user participation and energy savings at nearly 3-times the rate when compared to the baseline of other consumer programs.

Cool Fact

People Power was awarded the 2015 Outstanding Achievement in Energy Efficiency Technology Deployment by the Association of Energy Service Professionals (AESP) for a successful energy conservation program we deployed in Hawaii.

Contact

Sales@PeoplePowerCo.com

Visit www.PeoplePowerCo.com

Copyright 2018 © People Power Company V:PPC20180219

How Energy Providers Expand 24x7 Relationships with Consumers



By Stuart Sikes

Vice President of
Business Development
and Strategy

People Power Co.

The challenges facing energy providers today

range from increasingly fierce competition, to new revenue generation, changing regulations, and lack of consumer engagement. It remains to be seen if energy providers will leverage a changing landscape to maintain, or even expand their roles in the household, even though they have a “24x7” relationship with almost every household.

A Changing Energy Landscape

While the regulations surrounding global utilities vary greatly, the handwriting is clear: distribution of energy services is, or will be, open to competition. In Western Europe and Australia, cutthroat competitors provide lessons to open markets such as Texas, California and the Northeast. With few barriers to competition, differentiating energy commodities is a formidable task. When wind and solar sources add energy to the grid, the basic economic premise of energy providers is upended. As Bloomberg noted, following stormy winds on October 28, 2017 that added the equivalent of forty nuclear reactors to the grid, Germany paid consumers to use electricity in an effort to balance the load on the grid.ⁱ

The Free Electrons Accelerator, whose membership includes eight global energy providers, is a utility-

funded incubator of clean energy startupsⁱⁱ.

Their premise is that new generation resources will eventually render the price of electricity to be zero and, therefore, global providers must aggressively innovate to maintain and expand their roles as valued service providers.

To do so, energy service providers must offer new services that leverage their unique and persistent relationships with most every household, business and enterprise.

Unlocking the Mass Market for Smart Homes

Despite slow growth over the past two decades, smart home products and services are now inundating the consumer market. New products, offered both by traditional home security providers and consumer technology vendors including Google, Samsung, Amazon, and many others, are flooding the market.

Market analysts including Statista, McKinsey and Parks Associates predict connected home growth rates of 16% to 30%ⁱⁱⁱ for the next few years as companies strive to serve homes that have shown no interest in smart control technologies thus far, and that make up the majority of broadband households.

Market forces are trained on breaking down the three primary barriers to smart home product adoption: high prices, complex products, and lack of consumer value propositions. Peace of mind has been the leading value proposition and has driven the professionally installed and monitored home security business, but high initial and monthly fees have deterred adoption by audiences other than high-end or highly concerned households. New offerings at half, or less, of traditional prices stand to unlock the much larger mass market. Innovative, easy-to-operate connected systems increasingly appeal to consumers who have grown dependent on smartphone-based connected technologies and internet video and music services.

Energy Provider as Smart Home Vendor

Gartner predicts that households will have over 500 connected devices by 2022^{iv} – market potential that has already attracted the biggest technology product and service providers. To win the battle for smart homes, players are building new channels, including Amazon’s Smart Home Services^v in-home sales and installation teams, ADT’s retail partnership with Samsung, and Vivint Alarm’s kiosks inside of Best Buy. The market is in its formative stages and energy providers have the opportunity to extend their 24x7 relationship with every entity, business and home to include a variety of new home services. Energy management, or the ability to manage costs while increasing comfort, is a logical benefit of smart home technologies and can be easily bundled with home monitoring, both professionally and self-monitored. Once in place, smart home systems may be easily extended to address the urgent challenge of in-home senior care. Beyond these applications, dozens of possibilities such as pet monitoring, child and baby monitoring, grocery inventory management, appliance monitoring, leak detection, and many other uses abound.

Energy providers today serve nearly 100% of the population with critical services, with billing, customer support, and in some cases, real-time monitoring of energy usage. Innovative energy providers have already leveraged these customer touch points to differentiate and bring new value to their customers by bundling smart home services with electricity, appliance care, and renewable energy management. Many energy providers, however, will wait to see what role, if any, will be left for them to play in the next decades.

Value Derived from Data

Most will agree that the ability to analyze data to improve the subscriber’s experience is the breakthrough delivered by the Internet of Things (IoT). Smart home systems serve consumers by

working in concert to be more intelligent – that is, using data from one or more sensors (activity sensors) to control other devices (thermostat, smart plugs, for example). The ability to collect, store and analyze this data increases a system’s ability to correctly predict activities and increase comfort, safety and economy. People Power has developed a suite of microservices – cloud-based software digital assistants that react to user data and third-party data such as weather – to fine-tune home systems. These microservices provide powerful results by learning the normal daily patterns of people and their homes, to proactively identify appliances that need maintenance, eliminate false alarms to security services, and alert family caregivers when abnormal activity is detected in grandma’s home. Energy providers can use this technology to distribute power resources evenly across a community, intelligently manage demand response events at a level that is deeply personal to homeowners, and identify which homes and businesses are leaking energy.

Microservices are simple to write and are built on open source software development kits, meaning that almost anyone who wants to create one may do so. This approach leads to constant innovation. With dozens, then hundreds, then thousands of microservices addressing the needs of cat lovers or plant lovers or new parents, the value of the smart home grows exponentially. While properly functioning sensors and switches are important, the ability to use subscriber data to provide those subscribers with highly personalized systems that operate in the background with little intervention changes the smart home equation. As artificial intelligence-driven (AI) smart home systems provide greater utility to users, subscribers will be increasingly loyal to their providers.

Origin and China Mobile

Examples of service providers who are leveraging AI to develop home systems that learn are Origin,

Australia's largest energy retailer, and China Mobile of Beijing, the world's largest mobile telecom provider. These companies are extending their core services of electricity and phone service by offering smart home systems, branded as their own services, and powered by People Power.

By implementing the AI-driven software suite from People Power, these service providers are in position to offer home monitoring, energy management, senior care and many subsequent services that may, perhaps, become more valuable than their core commodity offerings.

Looking Ahead

Clearly the smart home has arrived, and many options will be offered from many channel partners. We are, however, in the earliest stages of this market and the landscape will look very different at the end of this decade.

As prior market evolutions have taught, the greatest value of technology is in creating services that delight and engage customers. While many attractive systems are coming to market, the value is in the data, not the hardware. Systems that leverage AI to learn users' habits, preferences and patterns will lead to customized application of personalized systems based on off-the-shelf products. These same systems will likely control the sale and distribution of the commodities offered by today's energy providers, and coordinate the use of renewables, electric vehicles and home energy storage. Leading energy providers will quickly transform into home services providers, offering a variety of control, management and monitoring services for a flat fee, which will also include electricity.

The transformation of energy provider to home service concierge has already begun, and will include new business models in which charging for kilowatt hours of electricity will be a thing of the past.

Author:

Stuart Sikes

Vice President of Business Development and Strategy, People Power Co.

Email: Stuart@PeoplePowerCo.com

About People Power

An award-winning IoT software company specializing in helping service providers deliver differentiated connected home solutions through their brands, People Power leads the industry in white-label IoT services with patented AI technology for recurring revenues in energy, security and care. People Power introduces machine learning and true intelligence into the connected home, enabling service providers to rapidly offer unique microservices to address emerging market opportunities. The People Power IoT Suite enables rapid device and program connection, engagement, delivery and simple management from concept through commercial release.

Visit: www.PeoplePowerCo.com

Copyright 2018 © People Power Company V:PPC20180219

ⁱ <https://www.bloomberg.com/news/articles/2017-10-30/record-winds-in-germany-spur-free-electricity-at-weekend-chart>

ⁱⁱ <http://freeelectrons.co/>

ⁱⁱⁱ <https://www.statista.com/outlook/279/109/smart-home/united-states#;>

https://www.mckinsey.com/spContent/connected_homes/index.html;

<https://www.parksassociates.com/blog/article/pr-03142017>

^{iv} <https://www.gartner.com/newsroom/id/2839717>

^v <https://www.amazon.com/b?node=14586916011>