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The Residential Energy Management Ecosystem

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Numerous firms are developing solutions for both utilities and consumers to monitor, manage, and control their electricity consumption. Companies developing solutions for the residential market represent only one group within the rapidly expanding universe of participants in the residential energy management ecosystem. The basic structure of the ecosystem has three primary levels:

- **Technology Enablers:** firms developing the building blocks of solutions from control communication technologies to software platforms on which communication service providers can provide applications over the top of their current offerings.
- **Products and Systems:** companies integrating these building blocks with their own technologies to offer solutions designed to take advantage of the smart grid capabilities.
- **Distribution Channels:** organizations that touch the consumer, or perhaps more specifically, have a billing relationship with the consumer.

One key development in the expansion of the REM ecosystem is the inclusion of multiple firms beyond traditional electric utilities and their support structure. Some firms

participate within a single level of the ecosystem. Others, such as Cisco, GE, and Ingersoll-Rand, cross multiple boundaries. For example, Motorola Mobility recently acquired 4Home, which developed a software platform designed to allow communication service providers to offer a variety of applications, including energy management and control services.

Energy Management Networks: HANs and iREM Nets

One key result in the expansion of the ecosystem is the division between utility and non-utility (i.e., independent) efforts as these separate entities develop solutions that reach into the household to provide energy-related services.

For utilities, a primary benefit emerging from their smart grid deployments is the enhanced communications capabilities that enable consumers to better manage their electricity consumption and costs. Consumers interact with this system via smart appliances and devices connected on a control network commonly referred to as Home Area Network (HAN). Some of the more common types of systems that would connect on these networks include the following:

- Microgeneration management
- Lighting Controls
- Consumption Monitoring
- Smart Meter
- PC Thermostat
- Appliance Controls
- In-home Displays
- Load Control Modules

The term HAN is one coined by the electric utility industry and refers to control networks connected in some manner to the utility for two-way communication, control, and monitoring of electricity-consuming systems in the home by both utilities and consumers.

Parks Associates views HANs as one type of energy management control network. We define the term iREM Nets as independent residential energy management networks, which is another type of network. iREMs enable consumers to monitor and control electric loads in their home; however, the iREM Nets are not connected to utility systems.

We believe that market opportunities for solutions aimed at iREM Nets will develop faster than those for HANs. The reason for this is that utilities must test solutions extensively before they are deployed. Their assets, once deployed, are expected to have useful lifetimes of 25-30 years; therefore, they must employ reliable and stable technologies. Utilities across the U.S. are engaged in numerous trials of alternative technological approaches to implementing HANs. Smart meters will be activated with HAN capabilities once utilities complete their trials and determine which technological approaches are most likely to achieve their goals, but these efforts will take time.

As a result, over 10 million U.S. households will have an iREM by 2015. In that same time, less than six million U.S. households will have a utility-based HAN.

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.

Each year, Parks Associates hosts executive thought leadership conferences CONNECTIONS™, CONNECTIONS™ Europe, and Smart Energy Summit.

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Farhan Abid is part of the Residential Energy Management & Home Systems research team at Parks Associates. In his role as a Research Analyst, Farhan studies and analyzes activities within the Smart Grid and Home Area networking space. His focus is on the energy management ecosystem and how it affects consumers.

Prior to joining Parks Associates, Farhan was an investment analyst with StrateSphere Investments, a private equity firm based in Columbus, Ohio. Farhan earned a BS in Information Systems from the Fisher College of Business at the Ohio State University.

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