Outsourced Smart Grid Services:
A Smart Approach for
AMI and Beyond

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Could your utility improve efficiency and performance with third-party services?

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After years of planning and implementation, the U.S. market for advanced metering infrastructure (AMI) is approaching maturity. In fact, the Institute for Electric Efficiency and The Edison Foundation estimate that 65 million smart meters will be on line by 2015. But as many utilities know, deployment is just the beginning.

Often, the day-to-day management of AMI systems is as challenging as their implementation. There is more data to relay, collect, interpret and store than ever before. Inter-related systems must be updated in lockstep. Plus, there are new applications, such as distribution automation, to prepare for. The result? A utility workload that's quickly growing in size and complexity.

Rather than hiring and training new staff, many utilities are considering the value of outsourced services to address pressing issues like:

- An aging utility workforce — the most seasoned professionals are retiring
- The need for specialized, smart-grid-related skills — this may outstrip the abilities of the in-house team
- Balancing opportunity costs — is utility staff time better spent on other projects?
- Meeting requirements for infrastructure upgrades and maintenance — especially those surrounding IT infrastructure and data storage

Utilities can overcome unique challenges and position for future unknowns by selecting from a broad range of potential services from simple cloud-based hosting of software to complete smart grid system management. The key is choosing the right partner.

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Outsourcing Options for Your Unique Requirements

For years, many utilities have relied on some level of AMI outsourcing. But the trend toward third-party support is clearly picking up speed. In fact, Pike Research estimates that, by 2020, arrangements in which daily AMI operations are handled by a non-utility third party will constitute more than half of the AMI market.

The types of services in demand depend on the utility's specific grid management and IT challenges. But the most experienced smart grid partners add value at every phase of engagement from initial deployment through daily maintenance and support.

Deployment Support

Basic project management of AMI installations is typically included in most solution contracts. However, the quality of deployment support plays a critical role in the overall success of a smart grid solution. What's more, not all service providers possess the same level of knowledge and experience. To mitigate risk and achieve your objectives on time and on budget, choose a vendor that adheres to a proven, best-practice-based process.

Vendors with proven track records follow these five critical functions:

1. Planning — The most effective vendors engage in a hands-on approach to understanding your requirements and constraints; establishing a communication plan; and defining risk plans, responsibilities and scope of work.

2. Launch — Be sure your vendor has extensive experience installing and configuring head-end and MDM systems.

Because no two utilities or service level agreements are exactly the same, your project may present new challenges to a less seasoned vendor.

3. Integration — Experience is also key in the integration step. Your vendor must ensure all appropriate systems (smart grid, billing, back-office, etc.) are properly interfaced in order to fulfill your smart grid business case.

4. Training — Vendors should be the experts on their systems, so providing robust, hands-on training to your personnel is a must.

5. Execution and control — Rollouts seldom execute exactly as planned. Be sure your vendor is on call and supporting you every step of the way.

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"Smart Grid As a Service" involves outsourcing the daily management of AMI to a third-party vendor.

Application and Data Management

Also called "cloud computing," this class of services refers to computing resources (software or hardware) delivered as a service via the Internet. Cloud services might include the use of remote servers hosted on the Internet for accessing applications and/or storing, managing and processing data.

Cloud computing offers a number of benefits. Foremost among these is the avoidance of big capital expenditures. There is no need to buy software, or the servers, racks and other hardware required to support it. The utility simply pays a "subscription" fee out of its operating budget. Plus, the vendor's staff manages the solution, so you are guaranteed expert monitoring and support without additional labor costs.

Early adoption of cloud computing confers other advantages, too. Many of the applications needed for integrating renewables and managing bi-directional energy flow are largely cloud based. As distributed generation becomes

more common, utilities that adopt cloud computing will be ahead of the curve. They can also work with smart grid vendors to develop custom, cloud-based applications that address an array of needs — from improving grid reliability to load forecasting.

Cloud computing can raise concerns over service integrity and reliability, data protection, and privacy. However, focusing on expert vendors will mitigate risks, and enable you to reap potential benefits.

Seek vendors who deliver:

■ Visibility into their processes and controls
■ Plans for disaster recovery and business continuity
■ Physical security controls that are clear and auditable
■ Standards-compliant cyber security

Managed Network

The day-to-day management of an AMI system is demanding, especially for a small utility. Beyond 24/7 upkeep of all hardware and software, the utility must stay on top of outages, disconnects, reconnects, firmware updates and more. When this

scope of work is beyond a utility's reach, managed network services are a smart option to ensure smooth operations and peace of mind.

Sometimes called "Smart Grid as a Service," this type of support involves outsourcing the daily management of AMI to a third-party vendor. The vendor (often the AMI supplier) provides a completely outsourced solution:

■ Installation and management of the communications network
■ Secure hosting, updating and management of software
■ Health monitoring for meters, servers and other hardware
■ Data collection and storage
■ Proper systems integration
■ Ongoing troubleshooting
■ MDM system hosting and management
■ Adherence to widely accepted cyber-security protocols

Outsourced Smart Grid Services: A Smart Approach for AMI and Beyond

Outsourcing specialized work can save money and the hassle of justifying resources to bring the work in-house.

Meanwhile, the utility personnel work side-by-side with experts to realize a streamlined workload, focused support, and lower overhead and labor costs.

Many large utilities already benefit from managed network services. While their in-house teams have the skills and resources to handle daily system management, outsourcing these responsibilities lets them focus on next-generation smart grid projects, such as distribution automation and renewables integration.

In spite of widespread adoption, some utilities will never feel comfortable "handing over the keys" to their AMI systems. Yet, high levels of protection and assurance are achievable. Seek a partner with at least 10 years of managed networking experience and an extensive track record of optimizing clients' utility operations. Be sure to evaluate their success in meeting service level agreements, including read rates, transaction speeds and overall system uptime.

Maintenance and Support

At the other end of the spectrum are utilities that prefer to address smart grid challenges in-house. However, even they can find themselves needing specialized insight from a smart grid expert.

In this case, a utility should consider outsourcing maintenance and support services. While the day-to-day operation of the smart grid system is still under their control, the efficient work of specialists is often critical to quickly troubleshoot or update firmware.

Outside specialists also provide value in structuring and maintaining servers and databases. Because meter data is highly transactional, it's critical that the storage databases are correctly architected and indexed. An AMI system will not communicate with the billing system if the databases are improperly structured.

Outsourcing this type of specialized task can save utilities money and the hassle of justifying resources to bring the work in-house.

Other tasks that benefit from outside expertise include hardware and software upgrades. Particularly in large-scale smart grid deployments, updating network equipment, meters and other devices can be complex and labor-intensive. Outsourcing part or all of this process keeps your utility team focused on core competencies.

As with other services, guaranteed and reliable maintenance and support comes from an industry-proven vendor. Look for demonstrated experience and success stories where a utility's support requirements were similar to yours.

Specialized Support

Recognizing that some utilities require a higher level of attention and responsiveness, smart grid vendors offer premium support services. Typically, these VIP-style services are a fee-based upgrade, added to an existing service relationship. What you receive is front-of-the-line vendor access, plus a dedicated point of contact who facilitates everything from order fulfillment to training needs and technical support.

Taking a cue from the IT world, some smart grid vendors also sell blocks of technical and engineering support time (often, a certain number of hours per year), which are used for system troubleshooting, training in-house staff, upgrade support or other utility-defined problem areas. The unstructured nature of the time provides a high level of flexibility for the utility. Not only can they respond to evolving priorities throughout the year, but they can also advance key projects without separate statements of work.

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Which Outsourced Services Are Right for You?

The mix of outsourced services that suits one utility may not work for another. Begin by assessing your organization's in-house skills and how they align with future smart grid projects. By understanding what's required to implement and manage the initiatives you plan to undertake, you can determine whether outsourced services make sense. The next step? Developing a thorough cost-benefit analysis to evaluate financial feasibility.
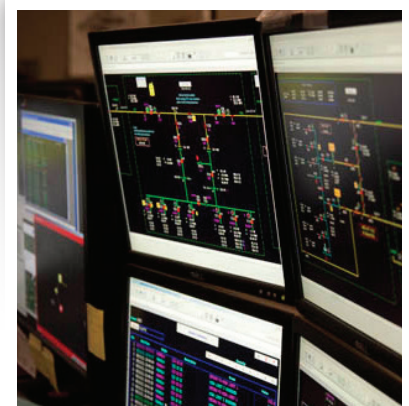
If smart grid outsourcing is right for your utility, allow plenty of time to assess potential partners. In general, the best indicator of future success is past success. Ask any prospective partner to document:

- How long they have provided the service you seek (e.g., managed network services, cloud-based support, etc.)
- The number of times they have successfully deployed the service
- How many customers/the scale at which they can or are currently supporting in this service area
- Testimonials/endorsements from extremely satisfied customers
- Experience in adapting to utility-specific business processes
- Ability to adhere to service level agreements
- Credentials, certifications and standards compliance, especially for hosted/cloud-based services
- Ability to customize services to your needs
- Ability to integrate with various smart grid and back-office systems, communication networks, and types of hardware
- All critical functions are handled in-house and not outsourced to another vendor

Smart grid solutions continue to grow in scope and complexity, further stretching the resources of utility IT teams. When delivered by a qualified partner, outsourced smart grid services alleviate cost and labor pressures, so utilities can focus on what they do best: serving energy consumers.

What to Ask *Before* You Outsource

- What are the core competencies of your AMI administrators and IT team?
  - *Do they perform any tasks that fall outside their skill sets and/or comfort zones?*
  - *What necessary skills (if any) do they lack?*
- How will the skills need to evolve over time?
  - *Are there projects on the horizon that will require new and/or unfamiliar skills?*
- What would it take to bring all desired skills and competencies in-house and develop streamlined processes?
  - *What additional training would be required?*
- *What new team members would need to be added?*
- Could an outside vendor perform smart-grid-related tasks more effectively than my team (e.g., more quickly, fewer errors, etc.)?
- What are the cost efficiencies of working with an outside vendor?
- Could an outside vendor help improve cross-departmental cooperation and communication?
- What would be the potential impact (if any) of outsourcing?
  - *On other systems and departments?*
  - *On energy consumers?*
- Do you already use outside contractors to address spikes in workload — for example, to support the needs of solution implementation?

[1]http://www.edisonfoundation.net/iee/Documents/IEE_SmartMeterRollouts_0512.pdf

[2]http://www.businesswire.com/news/home/20120607005259/en/91-Million-Smart-Meters-Covered-Managed-Services

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Manage energy better with unique solutions from industry experts. Contact Landis+Gyr at **futureready@landisgyr.com**