



Software Engineering Institute
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SGMM: First Annual Report on Smart Grid Implementation



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As of July 2009, 53 utilities have completed the Smart Grid Maturity Model (SGMM) assessment. Results indicate that most utilities are just starting smart grid implementation and are focusing their efforts on one or two of the eight SGMM domains. As the SGMM data continues to grow, trends in smart grid deployment by utilities will become more evident, helping utilities make meaningful progress toward the goals of a smart grid.

About the SGMM

The Smart Grid Maturity Model is a management tool that allows utilities to plan, quantifiably measure progress, and prioritize options as they move towards the realization of a smart grid. The model consists of eight domains of related capabilities and characteristics that an organization must address to reach smart grid maturity.

Achieving balance across these domains, which involve the organization's processes, people, and technology, shows that an organization has examined and improved upon all aspects of its operations. Being technically advanced is not enough; organizations that overlook systemic organizational issues and necessary support structures are not aligned to effectively adopt the innovations needed to realize their smart grid vision.

As more and more organizations participate, the SGMM will provide increasingly valuable benchmarking, best practice, and decision-making resources for individual organizations and for the industry as a whole. Find out how you can join this community and gain these benefits by visiting www.sei.cmu.edu/smartgrid.

Most utilities are just getting started

The SGMM uses a 6-point scale (0 through 5) to measure both the overall maturity level and the maturity for each domain in the model. As anticipated, the SGMM scores indicate that most utilities are just beginning their smart grid journeys—overall maturity scores are almost evenly split between levels 0 and 1 (see figure 1).

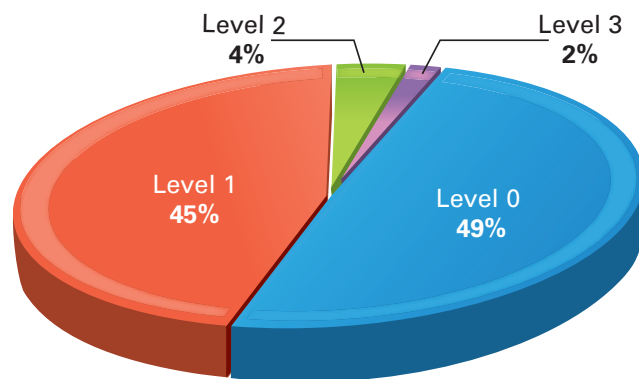


Figure 1 – Distribution of overall SGMM maturity scores

Domain scores show peaks and valleys

SGMM domain scores show that most utilities are strongest in one or two domains rather than having a balance across all eight domains. If this imbalance persists, utilities may struggle to realize smart grid goals. Examining the strongest and weakest domains (see figure 2) provides insights into utility approaches and progress.

Technology domain leads the way

- 88% have or are piloting connectivity to intelligent electronic devices
- 79% have a data communication strategy in place or partially deployed
- 70% align tactical IT investments to an enterprise IT strategy

However, there is evidence that technology deployments may not be fully integrated into the overall business:

- 29% have aligned their business processes and their IT architecture
- 11% have applied smart grid technologies to improve performance across lines of business
- 8% have distributed intelligence and analytics across lines of business

Societal & Environmental shows strength

- 90% have active programs addressing environmental and societal issues
- 78% have established energy efficiency programs for customers
- 90% report environmental performance to all internal and external stakeholders
- 65% have programs encouraging off-peak usage

Value Chain Integration shows slower progress

- 17% have a strategy for creating and managing a diverse resource portfolio (integration of distributed generation, demand response, etc.)
- 21% have, to a great extent, identified the assets and programs needed to facilitate load management
- 26% are evaluating, to a great extent, distributed generation sources and the capabilities to support them
- 11% have introduced support for home energy management systems

Progress lags in Customer Management & Experience

- 30% are tracking customer usage more than once a month
- 7% have more than 10% of their customers participating in demand/response
- 19% have two-way communication to more than 10% of their meters
- 9% have remote load control of customer high-energy devices for more than 10% of their customers

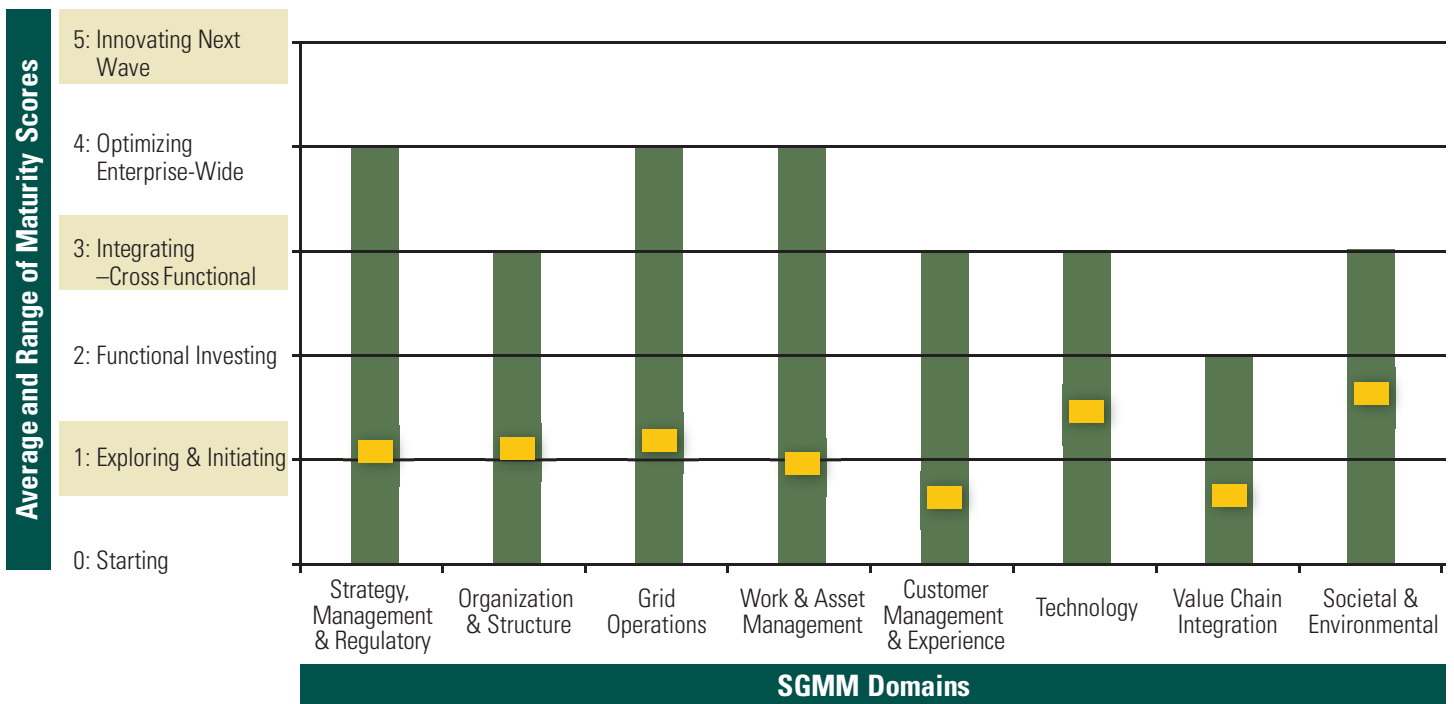


Figure 2 – Average and range of maturity scores by domain

Participation in the SGMM is diverse

The SGMM is designed to meet the needs of a wide range of electric utilities, whether they are public or investor owned, rural or urban, large or small, based in the U.S. or abroad, or whether they have generation capacity or rely on power purchase agreements to meet their customer load. Wide-ranging demographics were considered when the model was developed so that it would be broadly applicable. As shown in figures 3 and 4, participation has been quite diverse.

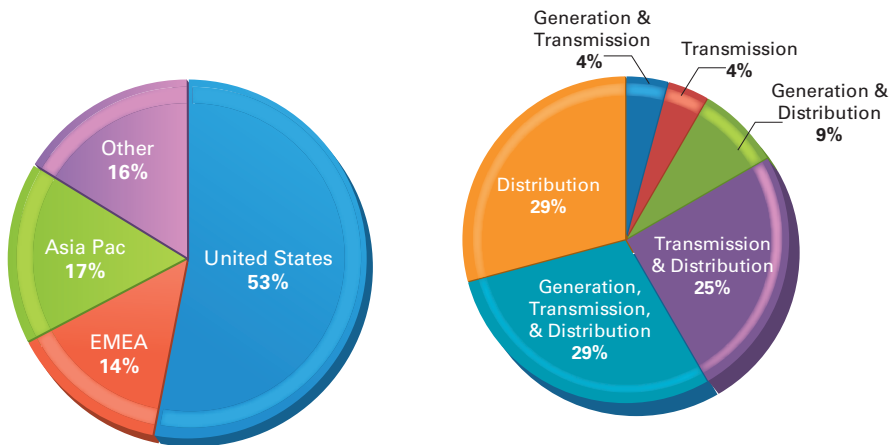


Figure 3 – By geographic region

Figure 4 – By utility type

Initiate your SGMM assessment now—learn how your company compares to the growing SGMM community

Companies that complete the SGMM surveys

- enjoy complete confidentiality of their data and results
- receive a detailed report showing their results alongside aggregate statistics from the other companies that have completed the survey
- have access to one-on-one coaching to help interpret their results
- join in best practice and lessons learned sharing with other SGMM users

Visit www.sei.cmu.edu/smartgrid

Users report that the model is providing value

Leading utilities that have used the SGMM have found it to be a helpful tool for framing management discussion, understanding current positioning, and charting smart grid direction. The model addresses not only important technology investment decisions, but also critical organizational and operational adaptations necessary for successful transformation. The following statements summarize user feedback:

The assessment confirmed much of our current approach, where we are now and where we will be in the months and years ahead.

SGMM served as a springboard to catalyze our smart grid vision and strategy.

The domain-specific scores provided valuable insights characterizing where we are with our implementation.

About the Software Engineering Institute

In 2009, Carnegie Mellon University's Software Engineering Institute (SEI) became the steward of the Smart Grid Maturity Model. A global leader in software and systems engineering, security best practices, process improvement, and maturity modeling, the SEI is partnering with government and industry to improve the security, resiliency, and interoperability of the grid. With the support of the Department of Energy and the National Energy Technology Laboratory, the SEI and its collaborator APQC are maintaining and evolving the Smart Grid Maturity Model as a resource for industry transformation.

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About APQC

APQC is a non-profit member-based research organization with more than 30 years of systematic quality and process improvement research experience. APQC is working in collaboration with the SEI to evolve the SGMM and to analyze and maintain the data collected from organizations that use the SGMM.

 APQC®