Smart/Intelligent Grid Development and Deployment in Thailand (Smart Thai)

“Accelerating Successful Smart Grid Pilots
A Study From the World Economic Forum”

Mr. Juergen Bender
Global Head Utility Solutions, Orga Systems

8th March 2013
MA DU ZI Hotel Bangkok, Thailand

Materials will be available on WADE Thai website: http://wadethai.org/
Accelerating Successful Smart Grid Pilots
A Study From The World Economic Forum
A “smart grid” is a digital, self-healing energy system that delivers electricity or gas from generation sources, including distributed renewable, to points of consumption. It is capable of optimizing power delivery and facilitating two-way communication across the grid, enabling end-user energy management, minimizing power disruptions and transporting only the required amount of power. The result is lower cost to the utility and the customer, more reliable power and reduced carbon emissions.
Trends Of The Last Few Years

- **The rise of smart grid as an industrial imperative**
  
  Many governments are seeing smart grid and the broader low-carbon technology industry as critical to the evolution of their manufacturing and knowledge economy.

- **The broadening of the smart grid concept to intelligent cities**
  
  The debate has also notably shifted from being a discussion on pure “smart grids” and electricity infrastructure to include intelligent infrastructure, whereby the sensing and control capabilities inherent in the smart grid are applied to multiple physical infrastructure layers within the urban environment (e.g. water, waste, buildings, etc.).

- **The emergence of new entrants in the utility value chain**
  
  We are beginning to see a new breed of industry participants, such as consumer products, telecoms and retail companies, explore their potential roles within the industry. We have not yet seen a significant disruption in the traditional business model; however, as the new entrants develop their understanding of the industry dynamics, we expect disruptive business models to emerge.
Key Challenges For Today‘s Smart Grid Pilots

A review of the first crop of pilots suggests that, while the industry has taken a significant step forward, there are clear opportunities to extract more insight and value from these investments.

- The struggle to create strong smart grid business cases remains in environments where regulatory incentives have not evolved to reflect today’s policy agenda.
- Future legislation is uncertain and, in some cases, disaggregation of the utility value chain is increasing complexity; making it more difficult to align and allocate risk and reward.
- Challenges remain around data privacy, cybersecurity, interoperability and standards.
- There are examples of conflation of objectives, whereby new technologies and pricing structures are rolled out in parallel, making it difficult to understand cause and effect when customers react poorly to the change.
- Pilots are encountering consumer engagement challenges, both in communicating effectively with the consumer and in delivering high-quality implementations in unpredictable field environments.
- A number of smart metering pilots have struggled to convince the regulator and the consumer over the true benefit of their smart grid value propositions.
Overview
In 2006, EnergyAustralia began piloting AMI technologies in New South Wales, Australia, and has released the findings of each stage of the project publicly. To avoid any conflation of objectives and to establish all change management requirements for the technology, operating model and business processes and models, the pilot was split into three phases, and here we present lessons learned at each phase:

1. Technology Trial (June 2006 to July 2008) – To understand the level of technical development achieved in the market and the practicalities of installing the AMI solution

   Lessons learned:
   • A complex vendor environment is created as a large number of technologies from a combination of different vendors are procured for testing
   • AMI product trialled at the time required further development before the testing phase was complete
   • Laboratory testing may take longer than expected as technologies may not be as mature as envisaged

2. Cutover (August 2008 to November 2009) – To understand the issues for using half-hour, remotely read metering data delivered daily for billing and market settlement

   Lessons learned:
   • Early engagement is needed with retailers to create an effective roll-out process
   • Extensive process change is required to allow for the variation of timelines for installation and commissioning depending on technology and vendor
   • Back office processes and systems are required to be able to sort the large amounts of data being sent from the vendors

3. Customer Research (December 2009 to December 2011) – Having addressed technology and back office/field operational issues in phases one and two of the pilot, EnergyAustralia is now concentrating on testing new advanced metering infrastructure business models with consumers; they are specifically conducting research into the impacts of different pricing structures (including time of use tariffs) and consumer products across different consumer demographics
Pilot Phasing to Avoid Conflation of Objectives

Phase 1. Technology-focus
Primary objective is to validate robustness and interoperability

Phase 2. Operating model-focus
When technology is stable, iterate company operating model and processes

Phase 3. Business model-focus
When operating model is stable, experiment with new business models

Enhanced data analytics
Increase in consumer insight
Generating Insight through Pilot Scoping and Execution Phases
No individual stakeholder group will accelerate the smart grid industry. A variety of stakeholders will need to collaborate. This cross-industry interplay will catalyze smart grid pilots and support the transition to mainstream roll-out.
Three of the most pivotal stakeholder relationships

- Policy-maker – Regulator: Realigning regulation with policy
- Utility – Vendor: The changing balance of power
- Utility – Consumer: The advent of a closer interaction
1. Short term: Lay the foundations for success

   a. Policy-makers and Regulators
      Create the right conditions for innovation and certainty over funding and regulatory treatment while driving alignment on standards

   b. Utilities and Partners
      Develop broad-based consortia, focus on creating a stable technology platform and engage consumers where they are likely to be personally affected
2. Medium term: Reshape the agenda and roll-out proven technologies

a. Policy-makers and Regulators
   Review the regulatory framework to align incentives and encourage private-sector investment

b. Utilities and Partners
   Use initial data to help shape the regulatory agenda; pilot changes to the operating model and processes; share data and use simulation to make the value case for roll-out of “proven” technologies
3. Longer term: Change the model

   a. Policy-makers and Regulators
      Reward utility innovation and encourage participation of new entrants that may offer new business models

   b. Utilities and Partners
      Position the value case for full-scale roll-out of technologies as the economics improve; innovate around the business model to offer customers greater value; and use behavioral segmentation data to target a greater proportion of customers with differentiated product and service offerings
Copyright © 2012 Orga Systems GmbH. All rights reserved. Specifications and data may change without notice. We offer no guarantee that the information contained in this presentation is correct and/or complete.

The information contained in this document is confidential and proprietary to Orga Systems GmbH and to be used solely for the purpose provided. Any unauthorized use, reproduction, or distribution of this document or any information contained herein as well as any use of the original document format and/or layout is strictly prohibited.

The software and its capacity described in this document can be extended through the purchase of further licenses. This also means that as the system grows there it may be required to implement new or additional hardware in order to ensure adequate system performance.

OPSC® Gold, OPSC® Prepaid, InCore®, MCP™ - Media Control Point, HybridBilling™, CRE™ - Convergent Rating Engine, SIMelligence™ Center, SmartRevenue Suite™, SmartMoney Suite™ and SmartUtility Suite™ are trademarks of Orga Systems GmbH.

Other company, product and service names may be trademarks or service marks of others.
Thank you!