



Once upon a time the power supply industry was relatively simple. One organisation handled all aspects of generating, delivering and billing electricity to all customers in a discrete geographic region, and customers had no choice over supplier. That situation no longer applies, and many suppliers fill many roles; generation, transmission and distribution are now separate, and customers can change suppliers with ease.

Adding to the complexity is a dramatic growth in concern over environmental issues, leading to a comparable growth in the number of regulatory compliance requirements. For example, there are 10,000 regulatory compliances in Europe.

Three leading figures from Microsoft; Charles Johnson, worldwide general manager, Manufacturing and Resources Sector; Sai Sireesh, worldwide director, Risk Management and Compliance Solutions; and Larry Cochrane, worldwide industry technology strategist spoke about the five main issues facing the industry:

- climate change;
- resource issues;
- globalisation and pricing;
- workforce pressures;
- regulatory uncertainty.

Regulatory compliance is a key issue. One complicating factor for regulatory authorities is the growth is distributed

generation, with small IPPs joining the market. There are many new entities generating power in the range of a few kW up to about 10MW, and not all of these come under the regulatory regime existing in the region. Regulatory agencies look at the whole spectrum, but sometimes lines can get drawn and redrawn. The increasing complexity of the industry makes transparency and flexibility vital.

The key drivers – from Microsoft’s perspective – are to provide an employee productivity friendly enterprise risk management environment and infrastructure embedded in everyday activities and processes. This will help empower employees and collect key operational risk information, and compare this to the various risk and compliance requirements. The prevalence of mergers and acquisitions means that different IT frameworks can be involved. “Rip and replace” of the IT framework is not usually viable, making for a need to find commonality.

Emissions

To reduce emission levels, and reward or penalise those who meet or fail to meet the set levels, emission levels have to be continuously measured. The company has to see where it is in relation to the targets, and, in the case of the European Union Emission Trading Scheme (ETS), the EU has to see what the overall picture is to determine what levels to accurately set in the future.

Compliance with regulatory requirements and managing exposure to risk is increasingly important as the structures of the industry become more complex, writes DAVID FLIN. Today, in many organisations, risk management and compliance initiatives are under direct board-level oversight

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"For example, Microsoft and its partner Enviance have developed a platform with AEP to enable it to orchestrate collection of carbon footprint data from all of its units, reporting internally for management and externally for compliance," said Larry Cochrane.

Some actions taken by operators to reduce their carbon footprint may have consequences. For example, blending biofuels with fossil fuels will reduce effective carbon impacts. However, biofuels – especially if they come from waste processes – can often have variable heat content and may contain a high level of contaminants that cause corrosion. Condition-based monitoring and optimising all of the assets of a company is crucial. One has to look at all the plants and all the assets. Microsoft works with plant operators to ensure that they have all the information and infrastructure to enable them to make timely and informed decisions. We also provide the solutions to support smaller entities operating within a larger one. The key elements are: information and documentation; operational risk management; collaboration and communication; enterprise risk management infrastructure.

Get smart

Developing a smart grid is a key driver. Increasing use of smart meters and storage systems enables the customer to adjust energy use so they can benefit from rate changes. With end users increasingly being generators, peak shaving is growing.

The development of smart meters, alongside the smart grid, has the potential to change standard demand patterns. The extra information that a smart meter can give regarding cost can encourage improvements in how the consumer uses energy.

This will make grids much more complex. Previously, they were essentially uni-directional, with one supplier controlling all inputs and the grid itself, and supplying all the demands. Now, flows are multi-directional, many separate entities provide inputs, and there are more regulations regarding proportions of generation types involved. For example, many countries stipulate specific minimum percentages of electricity generated from renewable sources.

We can also expect the unexpected. For example, development of the plug-in hybrid vehicle may be significant, as it might result in overnight charging. It also brings benefits by capturing less expensive energy at night when more is available and returning the power to the grid when demand is high.

We may be on the cusp of new solar technology for domestic use being cost-competitive. If solar becomes cost-competitive, then this is likely to have a major impact on both power supply and demand profiles.

Other information issues

One key issue in Europe is the aging workforce. For various reasons, there will be a glut of retirements over the next five to



10 years, and a lot of expertise, knowledge and experience will dissipate. Companies must ensure they capture as much of this intrinsic knowledge as possible via knowledge management and collaboration infrastructure.

Customer choice is not available everywhere, but where it is, customers can change energy suppliers easily. Therefore, improving the customer experience will be key for utilities to retain their customer base. In addition, there is a lot more merger and acquisition activity between myriad private suppliers than was the case when a single entity handled all of the electricity supply function. A large number of projects are being undertaken that involve many parties, which, as a result, bring complexity.

As a result, while having free flow of necessary information to all involved parties is crucial, it is also important to ensure that the information only goes to those who need it. If not, then at best, the recipient will be receiving excess information that just gets in the way of assimilating the important information. At worst, commercially sensitive information could be distributed to the wrong party.

It is also important to make sure that the information is transmitted easily and accurately across different corporate entities, which might have different infrastructures for handling this data.

The future

The market will become more complex in all senses. Emissions trading will expand, and must inevitably include the developing nations such as China and India if carbon reductions are to have any impact.

Grids are going to become more complex; markets will become more complex; and operational requirements will become more complicated and need to meet potentially variable needs. There will be a lot of new players, and the active participation of end use customers in the market will cause a lot of changes. **ep**

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PICTURE CAPTIONS CLOCKWISE FROM TOP LEFT Larry Cochrane, Sai Sereesh, Charles Johnson MICROSOFT