



Assurance in a smart metered world

In the GB energy industry, participants work closely together to deliver a competitive and efficient market. Industry processes are carried out across a wide range of systems, with rules and requirements documented across several industry codes and agreements. As with any complex set of interdependent arrangements, to manage risk of failures, we need comfort that participants and their systems are all following the same rules and that we can change those rules to ensure they are fit for purpose.

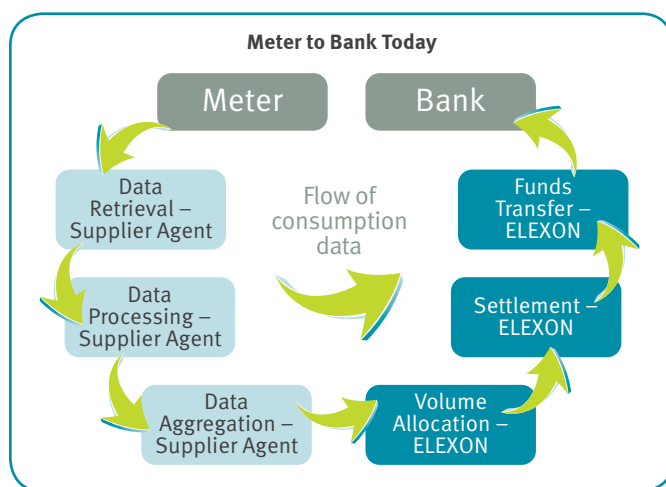
For over ten years, ELEXON has delivered independent services to provide assurance that the obligations in the Balancing and Settlement Code (BSC) are met and associated risks are managed. In this paper, we share our experience and suggest a framework for assurance in a smart metered world, as the energy industry prepares for smart metering roll out and a new set of obligations under the Smart Energy Code (SEC).

How does assurance work under the Balancing and Settlement Code?

The BSC 'Performance Assurance Framework' (PAF) provides a tried and tested set of assurance techniques for assessing, mitigating and managing risks in an ever changing market. The main objective of the PAF is assuring the integrity of the 'meter-to-bank' settlement processes, where we allocate accurate electricity volumes to Suppliers for each half hour of every day, using metered data that is processed and transferred across

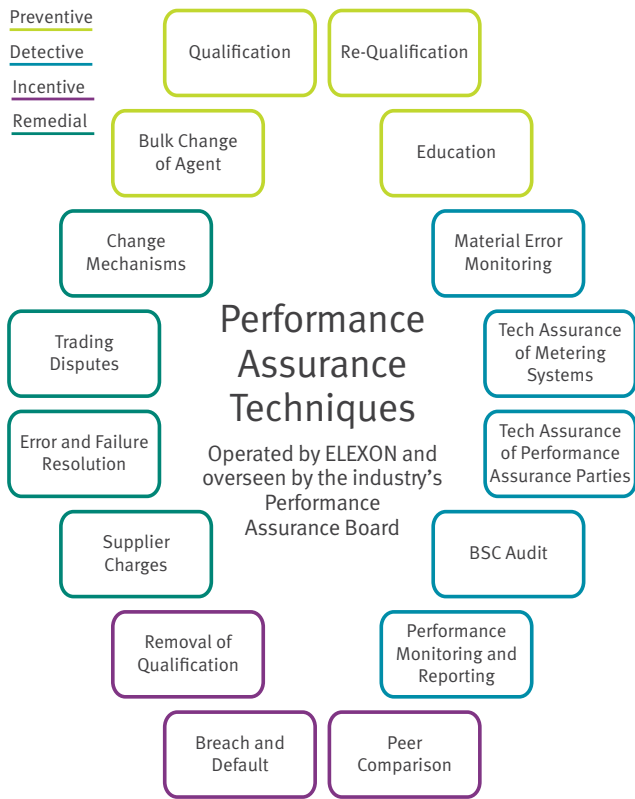
many participants. As well as providing Supplier volumes, the outputs of the meter to bank processes are used in 'use of system' calculations for distribution and transmission businesses. Failures in these processes could result in material misallocations of energy and payments across parties.

In the ten years ELEXON has managed the PAF, we have assessed and implemented changes to the scope and type of assurance services we provide, working with the industry to identify risks and deploy the appropriate technique for those risks. We have continuously sharpened focus on root causes and have seen a steady rise in data quality.





The BSC Performance Assurance Framework

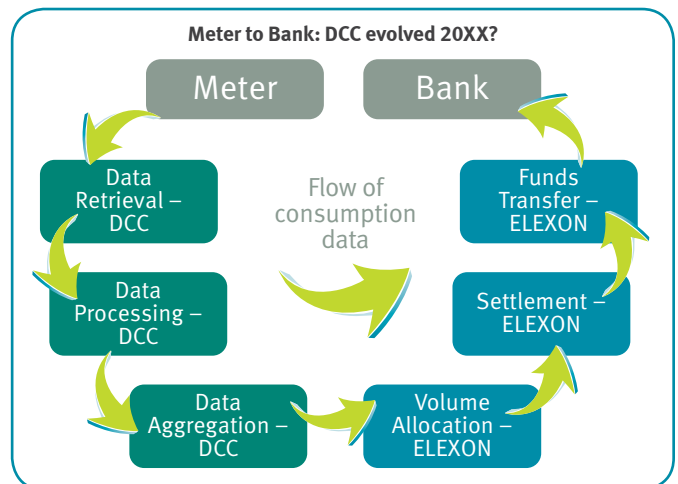
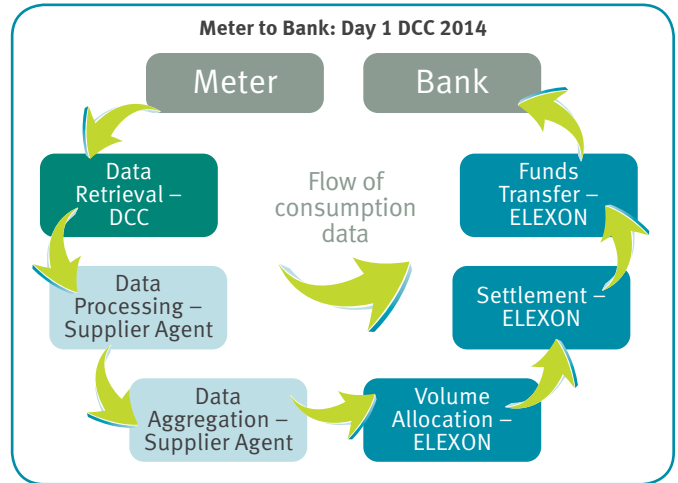


The Performance Assurance Framework is a menu of assurance techniques which vary in type, scale and approach. The majority of techniques and services are delivered in-house by ELEXON; others are outsourced to BSC Agents for example, the annual BSC Audit and Technical Assurance of Metering Systems.

What's changing with the roll out of smart metering systems?

The roll out of smart metering systems and the new SEC will introduce changes to the central market arrangements; there will be new industry processes, participants and obligations to assure. From 2014, the new DataCommsCompany (DCC) will provide communications and data retrieval services for smart meters and therefore impact our meter-to-bank processes. As roll out progresses, DCC services will evolve to include meter registration, and potentially data processing and aggregation. The PAF will need to accommodate the emerging DCC services either directly in the BSC or by accepting equivalent requirements in the SEC.

Whilst there may be new participants and processes, many of the assurance functions needed for the DCC services and its users are likely to be very similar to those we manage under the BSC. For example, we currently have assurance techniques



which cover metering compliance, data retrieval, records maintenance and access control.

Key considerations for assurance in a smart metered world

Smart metering will greatly increase the volume of metering data being collected, processed and used by industry participants. It also will give consumers control over access to their consumption data allowing them to make informed decisions about their energy use.

We believe that there are two main focus areas for assurance in a smart metered world:

- The nature of smart metering data, coupled with new communications lines into every home in GB, means consumer data security and privacy are paramount.
- The data collected by the new DCC will be used to bill consumers and for settlement, so there is a need for robust arrangements to assure data quality, accuracy and timeliness.

To date, much of the focus of the government’s smart metering programme has rightly been on the first of these, as the framework around data privacy and security is fundamental to the success of roll out and maintaining a positive consumer experience. Consumer data and the integrity of the end to end smart metering system must be protected using robust security solutions. We welcome the commitment to privacy and security ‘by design’, which should ensure that system development proceeds after being fully informed by detailed risk and impact assessments. There needs to be appropriate allocation of responsibilities between various participants in the end to end smart metering system, coupled with rigorous assurance to prevent vulnerabilities being introduced. Ongoing security and privacy will need to be delivered by thorough change management processes, to accurately assess the risk and costs to system changes.

As well as privacy and security, other aspects of assurance within the SEC arrangements need to be focussed on. The programme signposts that the SEC will contain ‘accreditation’ and ‘assurance’, suggesting market entry procedures for signatories to the SEC and ongoing performance and compliance monitoring with SEC obligations. Based on our experience of the BSC, we agree these are important elements and welcome their inclusion.

Key industry process and risk areas impacted by smart metering

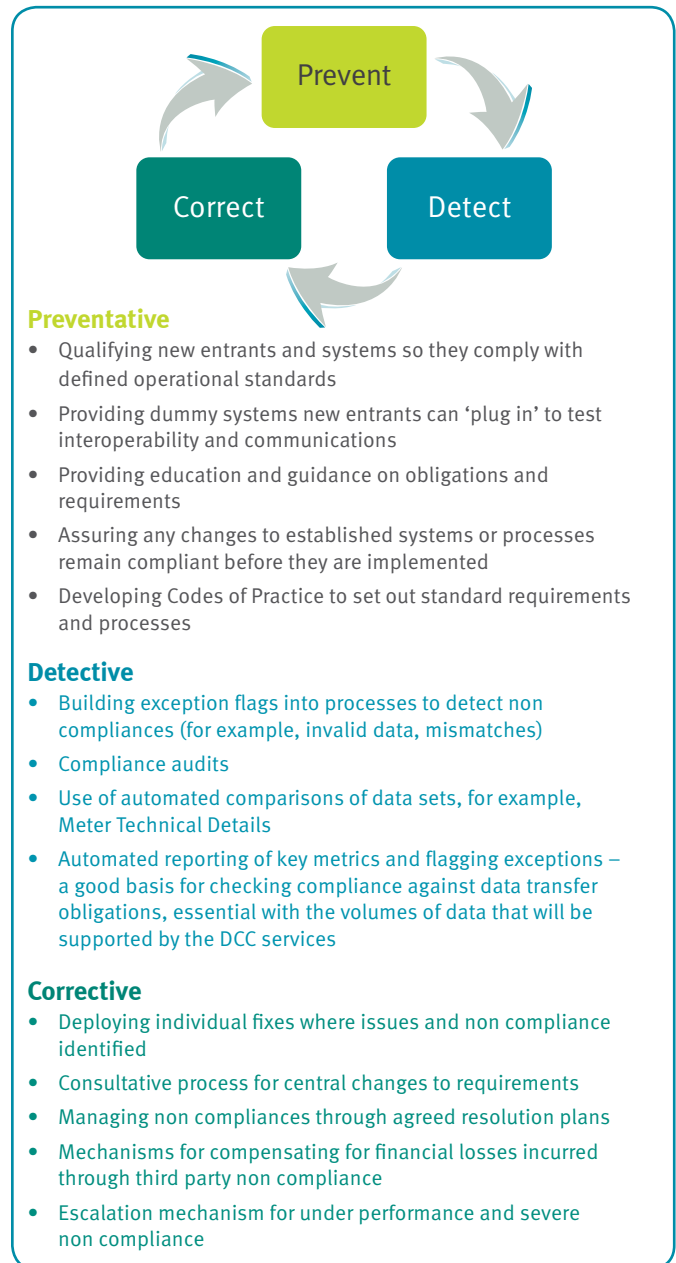
The specific requirements and obligations that the SEC will place on industry participants (including the DCC) are not yet known. We believe the following key risk areas will need special attention:

Process Area

- Participants entering/exiting the market
- Change of Supplier events
- Meter and smart metering system ‘devices’ compliance
- Identifying and notifying participants of meter/communications faults and energy theft
- Managing and maintaining metering system technical details
- Switching between commercial agents and the DCC service for optional (non domestic) consumers
- Controlling access to the meter and data across the end to end smart metering system
- Data security and integrity
- Assuring the protection of consumers through the installation visit
- Protecting the smart network as part of GB’s critical national infrastructure

What should a smart assurance framework include?

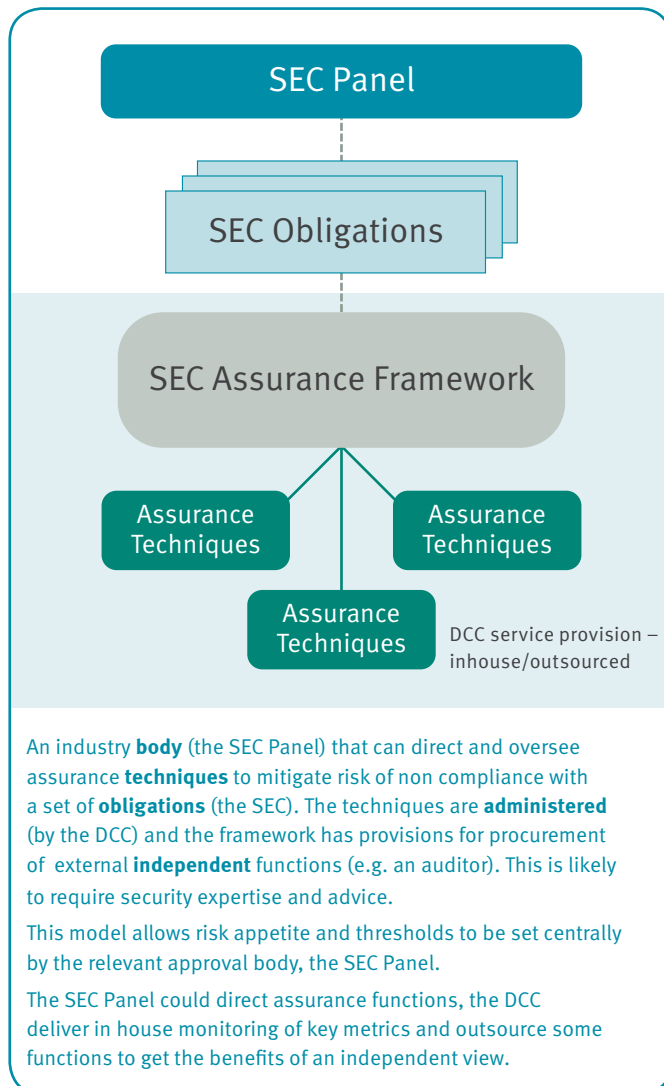
From our experience of operating the PAF, we believe we have a unique insight into how to make the smart assurance regime work. Three main types of assurance techniques could be deployed:



In the early stages of the smart arrangements, the key points in processes may not be completely clear – this needs to be recognised in the overall design. Providing a menu of techniques which can be adapted to the evolving arrangements and tailored to individual participants allows for responsiveness and flexibility.

Governance model for SEC assurance

The governance model for assurance under the SEC will be defined by the Smart Metering Implementation Programme. What has been set out to date provides scope for a proven model which is very similar to the BSC:



The SEC will sit in a 'regulatory web' with other central market bodies and Codes. To avoid duplication of effort and requirements, we suggest that reliance is placed on other code assurance functions where there are appropriate links and coverage. We recommend that assuring the smart

arrangements, both in the Foundation Phase and under the live SEC, is considered in the context of the existing industry assurance processes – and recorded once within the most appropriate governance regime.

There is precedent under the industry codes to place reliance on assurance functions from other Codes and Agreements. For example, the BSC Audit and National Grid's Balancing Mechanism Audit are linked, and elements of BSC market entry place reliance on testing performed under the Master Registration Agreement.

A challenging transition from 'dumb' to smart metering

Assurance processes will need to be in place during the Foundation Phase before DCC services go-live, and also during the early stages of mass roll out. There will be new participants using new systems – as well as existing participants getting to grips with new obligations and dealing with large and increasing volumes of data. Risk profiles will change over the years as the smart arrangements evolve. Thorough planning is needed to identify the weak points and monitor those across the transition period, flagging issues early and designing and implementing flexible assurance mechanisms.

How is ELEXON preparing for the changes smart metering roll out will bring to its assurance services?

We are working closely with the BSC Performance Assurance Board and expert groups to explore and assess options for market assurance in a smart metered world. This work covers protecting data quality under the BSC during the transition and preparing for how the BSC assurance arrangements will need to adapt and link with the Smart Energy Code in the future. We are keen to talk with our customers and stakeholders with views on assurance in a smart metered world. Please contact douglas.alexander@elexon.co.uk, our Metering & Disputes Manager, for more information.

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ELEXON is a provider of core services to the energy industry and has managed the operation and development of the wholesale electricity market for the past ten years. We were instrumental in the introduction of electricity supply competition in the late 1990s. We are playing an active role in the government's Smart Metering Implementation Programme and are fully committed to supporting the government, the energy industry and consumers to realise the potential benefits of smart meters.