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Written evidence submitted by the British Standards Institution to the Ofgem consultation on Key enablers for DSO programme of work and the Long-Term Development Statement

Introduction

1. BSI is the UK's National Standards Body, incorporated by Royal Charter and responsible independently for preparing British Standards and for coordinating the input of UK experts to European and international standards committees. BSI has over 115 years of experience in serving the interest of a wide range of stakeholders including government, business and society. BSI has a public function in support of the UK economy and brings together stakeholders to facilitate the development of "what good looks like".
2. BSI operates in accordance with a Memorandum of Understanding with the UK Government. BSI represents the UK view on standards in Europe via the European Standards Organizations CEN and CENELEC and internationally via ISO and IEC. BSI is a member of ETSI (The European Telecommunications Standards Institute) and provides support to DCMS through their membership of ITU (the International Telecommunication Union).
3. BSI is keen to support Ofgem and industry in the transition to DSO, as well as to assist Ofgem's wider objectives and work programme, and has identified the following areas where it can do so:

    - Mapping the existing standards landscape; establishing existing national and international standards that can support the transition from a network of DNOs to DSOs.

    - Use its pool of national and international experts to identify (and quantify) any requirements for additional standards to support the transition to DSO.

    - Involve Ofgem in the standard development activities and programmes, ensuring regulatory input into relevant standards, and provide access to an extensive pool of expertise and knowledge in producing the standards of the future (of relevance to the regulated community but also the energy consumer).

    - Where required BSI can support Ofgem with bespoke advisory services; examples include advisory services on the applicability and implementation of standards that can ensure protection for vulnerable customers, assessment of international standards and their applicability in the UK, training workshops and information sharing events.

    - Provide advisory services for data interoperability standards for a fully flexible grid.

    - Supporting the creation of a (principles based regulatory) framework, underpinned by key standards, to support the transition to a DSO landscape.

4. BSI would welcome an opportunity to discuss the above suggestions, and the consultation response, in a follow-up meeting with Ofgem.

General comments

5. BSI welcomes Ofgem's core priorities to enable competition and innovation, drive decarbonisation at the lowest cost, and protect consumers. We believe we can support Ofgem in delivering these objectives.
6. We recognise the importance of inter-operability of network data and are pleased that this is at the heart of this consultation. We also note Ofgem's recognition of the requirement for improving existing data practices within the DSO and DNO community.
7. We believe that standards are essential to supporting the transition from DNO to DSO, to ensure interoperability between new and emerging systems, ensure customers are protected, and avoiding unintended consequences particularly when opening up energy data. Furthermore, standards support the wider industry objectives towards principles-based regulation.
8. In addition to the areas noted in the consultation, BSI would also like to support Ofgem in their approach to the use of open data in infrastructure. BSI has extensive experience in developing privacy and security standards around critical national infrastructure, especially against the backdrop of wider international access. We would be interested to have a separate conversation with Ofgem on how we can help support the development of a security framework around energy data.

Standards that support regulation

9. Standards play key roles as effective, market-led delivery mechanisms for Government policies. Standards are increasingly used across a wide range of Government policy areas to support 'outcome based' regulation including technical product safety, good governance, climate change, energy, fair markets and public confidence.
10. While regulation may be required to correct a market failure or to address an urgent consumer protection issue, standards offer a market led opportunity that may provide better and more flexible solutions. BSI's standards offer the opportunity to achieve government's policy objectives and provide the flexibility not afforded by the regulatory process. For more information on this see *Standards and Accreditation: Tools for delivering better regulation*[1]
11. There are good practice examples of regulators using standards to improve outcomes for consumers. For example, *BS 18477 Inclusive service*, is referenced by a number of regulatory bodies to support vulnerable consumers and many of the existing DNOs (Scottish and Southern Electricity Networks, SSE, UK Power Networks, Wales & West Utilities and Western Power Distribution) were among the first organisations to implement the framework and achieve verification. The standard focuses on the provision of inclusive essential services, including energy, water, telecoms and broadband to enable equal access to all consumers. This standard combined with accredited conformity assessment can give a high degree of confidence of compliance to all parties.
12. BSI has been working closely with the Better Regulation Executive to help develop a strategic approach to how government uses standards in support of legislation. The government's recently published white paper on *Regulation for the Fourth Industrial Revolution*[2], notes standards as a valuable tool for policymakers to use alongside the future regulatory framework. As government shifts towards a more outcome-focused, flexible regulatory system that encourages innovation, standards can help provide clarity for business on how to achieve regulatory requirements.

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[1] https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/bsi-ministers-handbook-standards-and-accreditation-uk-en.pdf

[2] https://www.gov.uk/government/publications/regulation-for-the-fourth-industrial-revolution

Consumer representation in the development of BSI standards

13. Consumers are a key stakeholder in the development of standards. BSI's open, consensus-based standards process ensures that their views are taken into account alongside those of industry and other stakeholders.
14. BSI's Consumer & Public Interest Network (CPIN) represents the views of UK consumers. Funded by BSI, with additional support from BEIS, it provides an independent consumer voice in the development of standards. CPIN members are volunteers, trained in consumer issues, who represent UK consumers in standards developing committees. CPIN also represents UK consumers in European committees, through the European organization ANEC, and in international committees, through ISO's (International Organization for Standardization) Committee on Consumer Policy.
15. BSI's CPI Strategic Advisory Committee (CPISAC) is formed of senior representatives from key UK consumer and public interest organisations, such as CPIN, Which?, Citizens Advice, National Consumer Federation, the Ombudsman Association, Electrical Safety First and the Energy Saving Trust. The Chair of CPISAC sits on BSI's Standards Policy and Strategy Committee to represent the consumer and public interest voice. CPISAC guides CPIN's work in terms of broad priority setting.
16. An ISO international standard is currently being developed by ISO/PC 311 working group 1 on *Inclusive service – Identifying and responding to consumers in vulnerable situations,* based on the British Standard. The standard lays out good practice guidance to identify consumers in vulnerable situations, including those with physical and mental disabilities, mental health, geographical or temporary challenges such as bereavement or redundancy. It is recognised that the definition of a 'vulnerable consumer' will benefit from harmonised international understanding, as many services are being offered cross-borders either directly or through a distributor. For more information on the role that standards play in improving outcomes for vulnerable consumers, please see the CPIN protecting vulnerable consumers leaflet[3].
17. Ofgem has been at the forefront of protecting vulnerable customers and has recently launched their revised Consumer Vulnerability strategy[4] requiring greater responsibilities for DNOs and Energy suppliers on how they treat and protect vulnerable customers. It is essential that in the transition to DSO that customers in vulnerable situations - such as those who are digitally excluded – are supported and protected. BSI believe that the existing standards framework can provide the necessary guidance to ensure this happens.

Consultation response – general comments:

18. BSI recognises and agrees with the drivers and principles underlining this consultation, and informing the planned reform of the LTDS. We agree with the overall goal of the activities proposed with the consultation, i.e. to enable a smart, flexible, low carbon network for consumers. Moreover, these goals align with BSI's strategic approach to energy standardization, which reflects UK Government policies and legislative commitments, as well as the direction of travel of UK's energy industry.
19. We are pleased to see that the breadth of stakeholders, and the need for collaboration among them, is recognised as a key enabler of the transition to DSOs, and to a smart, flexible, low carbon market. Standardization is a key enabler of such collaboration and BSI, in its role as the

[3] https://www.bsigroup.com/globalassets/documents/s19052_bsi_cpin-vulnerability-brochure_web.pdf
[4] https://www.ofgem.gov.uk/system/files/docs/2020/01/consumer_vulnerability_strategy_2025.pdf

National Standards Body, is ideally placed to bring together multiple systems operators and new entrants to capture what good looks like in this space.

20. BSI agrees with the prioritisation of data-related activities to support the proposed LTDS reform and would like to draw Ofgem's attention to the following related standardization developments:

    (i) The role of standards and BSI has been recognised in the Electric Vehicle and Energy Taskforce's (EVET's) recent report and recommendations. Standards and relevant BSI work are well profiled in the report, with specific references to international standards (on the EV, data, cyber and digital topics), as well as the specific Publicly Available Specifications (PASs) under development as part of a BEIS-commissioned ESA standardization programme (see below). The report goes beyond these references to make recommendations for future standardization that will enable the interoperability and the sharing of data within the EV sector and with the electricity system.

    (ii) BSI is currently delivering an Energy Smart Appliances (ESA) Standardization programme which looks to address the principles of data privacy, cyber security, interoperability and grid stability that UK Government (BEIS) have outlined as key in enabling a future smart, flexible, low carbon electricity system. As part of this project (described in detail below), a framework for Demand Side Response (DSR) is being put together, with contribution from a number of stakeholders, including the regulator (Ofgem), individual DNOs and DNO representative organisations (i.e. the ENA). Ofgem is also represented on the Strategic Advisory Group overseeing the programme, disseminating its outputs, and exploring the need for a UK-wide testing and certification regime. We encourage Ofgem colleagues involved in this consultation and in implementing the results of it, to continue and deepen their involvement in the ESA standards programme in order to ensure that the standards developed as a result of the ESA programme are market-relevant, fit for purpose and support the regulator's objectives.

    (iii) There are many standards and portfolios that BSI manages, which are relevant to this consultation and the wider goals it pursues. These include not just the two IEC standards referred to in the consultation, but also data privacy and security standards, cyber security work, and a plethora of health and safety-focused energy generation/ distribution/transmission management/use standards. These are traditionally developed by committees of technical experts. We would encourage Ofgem to engage further with these committees to provide input to the activities that are relevant to Ofgem's work.

    (iv) BSI also holds a number of strategic committees that help shape the standards landscape on key topics. *L/13 - Smart Energy Systems Coordination Group* is responsible for coordinating smart grids & energy systems information across relevant BSI committees and other sources as a horizontal 'systems' committee. The committee also provides guidance on developing standards to address gaps in the energy system standards portfolio, for instance, the full suite of standards required to support smart vehicle charging and advising BSI committees on national requirements relating to energy system standardization.

Question 5: From a review of industry publications we consider that interoperable standards will underpin future DSO activities. Should the FoS mandate the adoption of a IEC 61970 CIM and IEC 61968 CIM for Distribution Management, such that data is collated and constructed in a manner similar to WPDs CIM innovation project model? Are these standards mature and what are the likely benefits and costs?

21. The consultation rightly acknowledges that interoperable standards will underpin future DSO activities. The noted IEC standards are relevant to Ofgem's goals and the DNO community, but constitute a small part of a much wider standards landscape that needs to be explored and assessed to determine its relevance to the industry.
22. Standards exist across a number of related areas. BSI recommends a wider standards landscape is researched and considered by Ofgem to inform its activities. BSI can assist by bringing together key stakeholders to map out the standards landscape and help shape necessary standards revisions, gaps and any new standards development to address these requirements. Such research and assessment activities would take into account the UK market drivers whilst building upon existing European and international best practice (through BSI's involvement in CEN, CENELEC, ISO, IEC, etc.).
23. The relevancy and the implementation pathways for the two specific IEC standards series (IEC 61970 CIM and IEC 61968) can be reviewed by BSI in the wider context, and dependencies with other standards and activities highlighted, and knowledge gaps identified. BSI would welcome further discussions with Ofgem on how the above standards can be used and adapted as part of a broader (DSO) approach.

Case Study: Energy Smart Appliances standards programme

24. BSI is working with the Department for Business, Energy and Industrial Strategy (BEIS) and the Office for Low Emission Vehicles (OLEV) to facilitate the uptake of safe, secure and interoperable energy smart appliances (ESAs), including electric vehicle (EV) chargepoints, for the active management of demand on the electricity network. The ESA programme, led by BSI, supports these aims while informing a wider policy, regulatory and standardization approach to ESAs.

25. Following a public consultation, BEIS outlined four policy principles seen as critical for effective Demand Side Response (DSR) through ESAs:

    • Grid stability: the prevention of outages on the grid caused by erroneous or simultaneous operation of ESAs.

    • Cyber security: the prevention of unauthorized access to ESAs by third-parties.

    • Interoperability: the ability of ESAs to work seamlessly across any DSR service operated by any system player.

    • Data privacy: the secure storing of data on the device or with any controlling party.

26. In response to these policy principles, BSI was commissioned to carry out a review and analysis of the current standardization landscape for DSR using ESAs, including EV chargepoints. The research results were published in October 2018 as the Standards Landscape Report[5] which provides a standards gap analysis and recommendations for possible further work required. A key finding was that the standards landscape across the four policy principles is piecemeal, with standards at different levels of granularity, scope and applicability. It was found that an overarching, integrated standardization approach is missing and currently there is no mechanism to guide, test or certify that a device can be safely and confidently placed on the market as an ESA.

[5] https://www.bsigroup.com/en-GB/smart-appliances-flexible-energy/

27. BSI is now working with BEIS/OLEV to implement the recommendations from the Standards Landscape Report through this new programme of work which engages a range of stakeholders in standards development, dissemination, implementation and strategic coordination. The ESA Programme addresses current standardisation gaps and ensures industry and government liaison and oversight of future activities, while at the same time noting and following the nascent international efforts to standardize DSR in Europe in CEN/CENELEC/ETSI and internationally at the IEC. The programme also covers additional research into EV chargepoint and smart appliance standards convergence, development of standards for ESAs and DSR, and supporting the establishment of a testing and certification regime.

28. Throughout the programme there are opportunities for stakeholder engagement and input, alongside dissemination activities and awareness campaigns to raise the profile, trust, and uptake of ESAs in the market. The programme specifically includes developing two Publicly Available Specifications (PASs) to:

    i. *Specify a framework for demand side response (DSR)*. This PAS provides a reference for the operation of ESAs in a DSR context. It outlines the functional and non-functional aspects of a DSR framework, including the responsibilities of actors and associated policies and procedures, and will set the context in which an ESA can function and operate. The DSR PAS will be used by organizations with responsibilities for operating a DSR environment. It could also be useful for manufacturers of ESAs to understand the context of device supply to the market.

    ii. *Specify a classification for energy smart appliances (ESAs)*. This PAS specifies requirements and criteria that a device (e.g. an EV chargepoint) needs to meet in order to perform and be classified as an ESA. It defines the attributes, functionalities and performance criteria for ESAs, and specifies how compliance with these can be verified. The characteristics of an ESA are symbiotic with those of the DSR framework in the sense that an ESA is able to perform in a DSR environment, and enable DSR-based activities. This PAS is intended to be used by manufacturers and maintainers of ESAs[6].

29. To guide and support the delivery of the ESA standards programme, BSI has set up a Strategic Advisory Group (SAG) of ESA stakeholders. This group acts as a forum for industry and government to meet and discuss barriers and opportunities, alongside other stakeholders such as certification bodies, grid side actors and consumer interest groups. Key objectives of the SAG is to support the standards development activity, advise and steer BSI's standardization activities, at both national and international level, and to be at the forefront of dissemination and awareness raising. The SAG has been tasked with considering the appropriateness and the key parameters of a potential ESA testing and certification regime.

Case study: Faraday Battery Challenge (FBC)

30. BSI is working with Innovate UK and its wide stakeholder community on kickstarting an initial programme of standards in support of the Challenge to determine the wider standardization framework needed to help meet the long-term objectives of the FBC. A 2019 customer journey

[6] The two Publicly Available Specifications being developed are: PAS 1878: Classification for energy smart appliances (ESAs), and PAS 1879: Framework for demand side response (DSR). Public consultation on these is expected to take place in June/July 2020.

map of the battery manufacturing process has helped define pressing issues, regulatory and standardization needs from a battery manufacturing perspective. BSI has therefore been commissioned to implement a programme of work encompassing the development of an initial cohort of three Publicly Available Specifications (PASs) intended to address key technical gaps and immediate market priorities. BSI will be developing PASs for the health, safety and environmental considerations in the battery manufacture of, electrode and cell components; pack and modules; vehicle design. The PASs will form the basis of a wider, long-term standardization approach to battery manufacturing - in the UK and internationally.

Further Information

BSI would be pleased to provide further information or to discuss the content of this submission with Ofgem. For further information please contact:

Sahar Danesh
Government Engagement Manager
British Standards Institution
Email: sahar.danesh@bsigroup.com
Tel: 020 8996 7388

Maria Varbeva-Daley
Energy Sector Lead
British Standards Institution
Email: Maria.Varbeva-Daley@bsigroup.com
Tel: 020 8996 7045

Seb van Dort
Associate Director, Energy
British Standards Institution
Email: Sebastiaan.Vandort@bsigroup.com
Tel: 020 8996 7218