



Joint Ofgem and BEIS Consultation on Reforming the Energy Industry Codes – Response from the UK Energy Research Centre

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1 The need for reform of governance of industry codes

The consultation document notes that:

The scale and pace of change in the energy system needed to meet the Government's targets will require agile regulation, with proactive governance of the technical and commercial rules of the system. Effective code management with appropriate strategic oversight could help unlock innovation and help to ensure we have a secure, affordable and clean energy system now and in the future.

I agree with those observations. In my view, the CMA was right to note "Ofgem's insufficient ability to influence...the [code development] process", and that parties to the codes faced "conflicts of interest and/or limited incentives to promote and deliver policy changes".

In its response to the BEIS/Ofgem consultation on a Smart Energy System in January 2017, UKERC noted that:

One key lesson in respect of the DNOs' and, on their behalf, the Energy Networks Association's (ENA) leadership to date of innovation of GB power system methods, processes, standards and codes is that the reforms that we believe are now required cannot be left to them to take forward. It might be argued that the National Electricity Transmission System Operator (NETSO) should assume a leadership role. However, it will be open to the same criticism of lack of independence as the ENA. In the absence of any other suitable body, leadership would seem to fall to Ofgem or BEIS. Although Ofgem and BEIS might argue, perhaps with reason, that they lack the knowledge to take a more active part, we believe that leaving leadership to the network licensees is much too passive and risks excessive delays in proposals for change being formed and tested.

It also noted that:

It will be important to have a common set of high level principles that apply across the power system regardless of location and voltage level, and a consistent set of standards and codes in respect of energy trading and retail, system access and connections, network investment and maintenance, system operation, and system resilience.

and,

One reason why [code] changes are so slow is that each change results in both winners and losers, and the losers will sometimes do their best to block the change regardless of what is best for consumers the system (or consumers) as a whole. [Ofgem has tended] to lean on the National Electricity System Operator to provide what Ofgem wants to see as independent leadership to the processes. ... Arrangements relating to distribution ... have largely been left to the DNOs, represented through the Energy Networks Association (ENA) and the impression we have is that Ofgem's engagement has been almost entirely passive.

The response went on to note that code reform relating to distribution has been extremely slow.

I agree with many of observations made in Table 1 of the consultation and with the desired outcomes in Table 2.

It needs to be possible for codes to be updated in a timely and appropriate fashion. It is quite correct for all parties that are likely to be directly affected by a proposed code change or the introduction of a new code to have the chance to comment on that change. Consultations are therefore essential.

However, often the issues are complex; significant time should therefore be given for these consultations. They also provide the opportunity for vested interests to try to manipulate the changes, either to propose changes that benefit them to the detriment of climate change mitigation measures or energy users, or to block changes that are detrimental them although they benefit the environment and energy users overall.

Streamlining or acceleration of the process seems essential but must not lead to perverse outcomes. It seems necessary for some degree of authority to be given to one or more parties in which the rest can have confidence, to drive and explain change.

At present, three parties have particular influence in respect of energy sector codes:

- National Grid, in particular the ESO in respect of electricity codes and the gas transmission system operator in respect of gas codes.
- The Energy Networks Association.
- Ofgem, which has final responsibility for approving or rejecting proposed changes.

I agree that *“the current code administration model is unable to manage the pace and breadth of change resulting in necessary code modifications being delayed or not progressed; there is not sufficient accountability to ensure that codes are being managed effectively and delivering change in line with the interests of consumers”*; and that *“there is insufficient co-ordination between codes, which can undermine or delay changes.”*

I agree that a new, independent code manager function should be responsible for *“identifying, proposing and developing changes (analysis, legal drafting etc.), including understanding the impacts”*. A disadvantage of being independent of any of the main actors within the industry may be that it would be difficult to identify necessary changes and assess their likely impact. However, they should not be alone in having the right to propose changes. In any case, it should be ensured that they have sufficient resources and expertise to develop changes and conduct suitable analysis to assess their impact.

2 The objectives of reform

I agree with three of the four objectives of reform:

1. Providing strategic direction.
2. Empowered and accountable code management.
3. Independent decision-making.

The strategic direction for codes should promote the interests not just of present day consumers but also of future consumers and all citizens and be consistent with the

requirements of an energy system transition that enables the UK's greenhouse gas emissions to be net-zero by 2050.

I agree that there should be a *“rebalancing [of] decision-making away from industry control, to arrangements that are agile and responsive to change and work in the interests of existing and future customers, where the right incentives drive the design of rules and systems, while continuing to draw on industry input and expertise”*.

The following fourth objective of reform should, in my view, be approached more cautiously.

- Code simplification and consolidation

I agree that accessibility of codes should be improved, unnecessary content removed and the content made clearer and more consistent with a common set of definitions and clear mapping of links between documents and of those that apply to different parties. It should be ensured that codes are suitably adaptive to a changing industry. In order to avoid unnecessary barriers to innovation, a consistent objective for codes should be that they specify what should be done (or not done) but, as far as possible, avoid saying how.

Great care should be taken when it comes to code simplification. If it addresses, more clearly and succinctly, the 'what' of some requirement and is agnostic on the 'how', that will be good. Much of what is currently written could be argued to be too prescriptive. However, the possibility of unintended consequences of any changes must be considered. For example, if generators are not required to have certain capabilities, there is the risk that none of them will and it will be impossible or excessively expensive to achieve certain system functions such as management of frequency or voltage.

The objective to simplify codes might not be appropriate in some specific circumstances, in particular in relation to technologies that are not yet well understood or where detailed behaviours have the potential to cause significant system problems but are treated as commercially confidential. This applies most notably in the case of power electronic inverters connected to the system. At the time of writing, it seems that this might have been an issue in the loss of infeed from Hornsea offshore wind farm in the GB system incident on August 9th 2019. Either performance requirements must be very detailed in order to ensure what can best be judged as acceptable performance when deployed on a large, interconnected system, or openness of implementation must be required. The latter would undoubtedly be challenged and so must be defined carefully. An intent to implement such a rule in the face of manufacturers' opposition would be more likely to succeed when part of a concerted, consistent international effort, e.g. across Europe.

3 The model for governance of code

The potential models are:

- Model 1 - a code manager function and separate 'strategic body'; or
- Model 2 - an 'Integrated Rule Making Body' (IRMB) (a combined code manager function and strategic body).

I agree that government should be responsible for articulating the vision and policy direction for the energy system, and that this policy framework would help to shape the decision-

making and prioritisation of code change. The energy system is extremely important to the facilitation of societal choices, the economy and, in respect of supplies to key public services such as health, water and communications. It also has a major impact on greenhouse gas emissions for which the devolved administrations in Scotland and Wales have legislated responsibilities. In the development of codes, the strategic body should therefore take account of policies not just of the UK Government but the devolved administrations.

I agree with a separation of responsibility between those who are charged with the development of codes and those with the authority to approve changes. If those functions were both held within one body, a conflict of interest might arise: it might propose a change and another sector actor might raise a variant to it. If the approver and the code proposer are one and the same, could the sector as a whole be confident that both proposals would be treated objectively?

I agree that *“While empowering the code manager function is intended to facilitate proactive change, there is still a need to ensure that these code managers are held to account and deliver in the best interests of consumers”* and that *“the code manager function would be accountable to the strategic body”*.

4 Responsibility for strategy in the management of codes

I agree that the strategic body will need to be held accountable and *“impartial, engaging with – but not beholden to – industry”* and appropriately reflecting views from government, Ofgem, code managers and the wider sector. I also agree that it will need to be *“sufficiently resourced, with the appropriate skills and capabilities (e.g. complex programme delivery and energy sector-specific expertise)”*.

Of the options for where the strategic function should sit, I am least comfortable with it being the Electricity System Operator (ESO). The ESO has only recently been separated out from the rest of National Grid but remains part of the group. The performance of National Grid over recent years suggests that, for as long as the ESO is accountable, finally, to shareholders, there will inevitably be a tension between interpretation of responsibilities written into its licence and the resources that managers are prepared to make available for different activities. As far as I can tell, this has meant management of revision processes in response to changes proposed by others, but little else. It could be argued that competition for resources will not disappear whether the strategic body or code manager is a public body (such as Ofgem) or a not-for-profit company but, with a clearer, more distinct set of responsibilities, it may be expected to be more pro-active than National Grid has been.

“Both models retain important roles for industry parties, working with code managers on the details of code changes. Drawing on industry expertise and experience to help develop change across the sector will remain an important part of the code development process.”

What will be the role of Ofgem under the new arrangements? The consultation document notes that the strategic function *“would be accountable in turn to Parliament, the Government or another appropriate body (such as Ofgem).”* Given the importance of the

energy system to the devolved administrations' meeting of their responsibilities, they should be added to the list of parties to which the strategic body should be accountable.

5 A Code Manager

The consultation document outlines different options for how the code manager might be appointed. I express no particular views other than to note a tension between the following two observations made in the consultation document:

- *“some industry parties (such as the current code administrators) could bring a wealth of experience and expertise to the code manager role”.*
- *“One criterion could be in respect of independence and could, for example, require that the bidder has no affiliation with an existing party to the industry codes”.*

The network licensees, in principle, have the requisite experience and, by virtue of their licence obligations towards security of supply and facilitation of the electricity and gas markets, ought to be in the positions of being ‘honest brokers’. However, as noted above, they do not have a history of being proactive and have arguably not dedicated sufficient resources to the development of codes. It may also be argued that some have stood in the way of reform, preferring the status quo in respect of how their businesses operate.

6 Practical issues

The new body or bodies must have sufficient understanding of both engineering and economic issues and the ability to translate them into likely impacts on energy users. This will require engineering and economic expertise and, at least, access to the ability to assess societal and environmental impacts. Engineering and market modelling capability will be essential. It also requires expertise in the drafting of legal documents.

I agree that code managers *“should oversee the change process, potentially making decisions on some changes, consulting and working with industry on more material changes, and proposing solutions to the strategic body for approval”*. Yes, industry parties, having experience with the application of codes, will be important parts of the process but both the code development and strategic bodies must have sufficient expertise to understand and evaluate what they are being told and to drive positive change in the event of neglect or any obstruction by industry parties.

Particularly technical areas such as the treatment of power electronics based interfaces with the electricity system will require increasingly close attention as such devices become increasingly prevalent. This may be an example of an area where a code manager delegates responsibility to the industry such as a suitably convened expert panel of which the ESO would be one member, though it must still be ensured that the panel is sufficiently well resourced to carry out its work and does so objectively.

I agree that specific steps should be taken to ensure that smaller parties are able to engage in the code governance process. For example, as noted in the consultation document, the code

manager “*producing notes from relevant meetings, or funding access for smaller players to relevant discussions*”.

The “*creation of a single interactive regulatory on-line portal for all energy rules*” will be important. At present, it is very difficult to find all the relevant rules and fully appreciate the scope of each document. Even with a rationalised set of codes, explanatory notes will be very important for a number of sector actors, in particular smaller ones.

Care should be taken when updating versions of standards or codes. Where legal compliance is required, it must be clear which rules apply at which time.

Appropriate guidance should also be produced to promote correct and consistent interpretation of codes. This could be written by the strategic body or the code development body. In the latter case, whether the guidance should be subject to regulatory approval or not is a matter for debate: the codes themselves should be the primary determinant of actions by industry parties and guidance should not over-ride it. It may therefore be argued that approval of guidance is not required and would allow for a more ‘agile’ production and revision of guidance in the event that any unanticipated issues come to light. However, there would be the risk that guidance written by a party other than the strategic body would be inconsistent with the overall goal of the code.

Consideration should be given to the policing of compliance with codes. Again, sufficient resources should be devoted to it and the tests will need to be carefully designed. According to what is known publicly at the time of writing, it would appear that testing of controls on Hornsea wind farm’s connection and turbine failed to reveal an inability to ride through a relatively modest voltage dip at the point of connection to the main transmission system on August 9th 2019.

As shown in many of the disruptive power system disturbances reviewed by CIGRE Working Group C1.27 on the subject of “*Planning to Manage Power Interruption Events*”¹, non-compliance with, for example, the Grid Code can lead to major blackouts. An interesting discussion around verifying compliance arose in meetings of that Working Group. One school of thought held that the best way to ensure compliance was to threaten huge fines for non-compliance. Another school of thought, held by the North American and Australian members of the group, was that such threats would discourage industry parties, particularly generators, from being open about areas where a technical problem gave rise to non-compliance. This ran the risk that the system operator would only find out about it when it was too late rather than having the chance to work around it. Instead, generators would be encouraged to maintain compliance by being when paid when it was demonstrated.

7 Europe

The UKERC response to the BEIS/Ofgem consultation on a Smart Energy System in January 2017 noted that “*there are currently well-developed processes at a European level, led through the European Network of Transmission System Operators for Electricity (ENTSO-E) and complemented by work in the Council of European Energy Regulators (CEER) that, under*

¹ CIGRE WG C1.17, *Planning to Manage Power Interruption Events*, Technical Brochure 433, CIGRE, Paris, October 2010.

current arrangements, will lead to changes in GB electricity system standards and codes.”

Note should be taken of the following points:

1. The detailed technical work undertaken through ENTSO-E and CEER that benefits both from significant effort from British parties and from pooling of effort from across Europe, the latter of which will be less easy to access following the UK's exit from the European Union.
2. The possibility that compliance with particular codes that apply across the EU may be a condition for the development and utilisation of interconnectors and that, as time goes on, these codes may not be entirely consistent with those that apply in Britain
3. The way that industry codes drive technology development, e.g. on wind turbine low voltage ride-through capability, and that, where codes differ, e.g. between Britain and the European Union, technologies will be more likely to be driven by codes in large markets than small ones.