

By e-mail to: FWP@Ofgem.gov.uk

Forward Work Programme 2022/23
Ofgem
10 South Colonnade
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London
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28 February 2022

Dear Ofgem

Forward Work Programme 2022/23 Consultation – Capgemini Invent response

Capgemini Invent welcomes the opportunity to share our views on Ofgem's Forward Work Plan for 2022/23.

Capgemini Invent is the consulting, innovation, and digital business of Capgemini. We are Europe's largest supplier of systems and technology services to the Energy and Utilities Sector. HFS Research have placed us second globally in their list of business and technology service providers to utilities. Every year we publish the World Energy Markets Observatory (WEMO)¹, the 22nd Edition of this was published late in 2021. The report consists of 600 pages of detailed analysis and insights on the world energy trends.

Our response to the call for evidence draws heavily on our insights and energy market expertise gained in our work across UK market functions in both gas and electricity. Our experience covers a wide range of services relevant to this call for evidence, including: smart metering implementation, retail market code consolidation and digitalisation, net zero consumer strategy, wholesale market harmonisation and digitalisation and price controls regulatory reform advice. We also provide wider services that cover asset operations for network operators, net zero technologies innovations (for example batteries, hydrogen, wind, and solar), and business model change (where we published *Remodelling the future: How energy transition is driving new models in energy and utilities*² in December 2021).

A good example of our work is our role as Technical Design Authority for RECCo. We are at the heart of the fundamental retail market reforms already underway and experience first-hand the challenges and the opportunities that arise across the entire energy sector. We are responsible for supporting the RECCo strategy, identifying improvements required in the market and delivering change. Our agenda for RECCo is driven by increasing consumer protection, digitisation, driving innovation, supporting new business models, sculpting future market design, improving data quality and industry operational effectiveness.

In addition, Capgemini Invent also provides business change services to National Grid ESO notably supporting ESO with its legal separation. In addition, we support numerous energy network clients in business and technology transformations, including development of decision frameworks based on consumer benefits, delivery frameworks, business and IT strategies and as well as supporting delivery and recovery of strategic programmes.

Capgemini Invent has not typically responded to Ofgem consultations in the past. There are two reasons why we have responded to this consultation. Firstly, we strongly believe that strategic priorities need to translate into implementable solutions. Our deep experience in delivery can support Ofgem in identifying outcomes that will work in practice. Secondly, the people who created the current market may not be best placed to challenge the current model and bring the innovations necessary to design the future market arrangements. As a new voice in this debate, we hope that we can bring fresh thinking and a new way of tackling challenges.

Capgemini Invent welcome the strategic direction in the Forward Work Programme 2022/23, however we think a wider consideration of the priorities is needed. We also believe that the pace of change needs to increase. We have outlined these considerations in more detail in Appendix 1.

I hope you find these insights and suggestions helpful and if you would like to discuss any areas of our response, please do not hesitate to contact Jemma Williams³ and Michael Taylor⁴.

¹ [Capgemini \(2021\), World Energy Markets Observatory Report 2021](#)

² [Capgemini \(2021\), Remodelling the future: How energy transition is driving new models in energy and utilities](#)

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Yours sincerely,

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List of enclosures:

Appendix 1 – Response to Forward Work Programme 2022/23 Consultation

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Introduction to our Response – Framing the Challenge

The energy sector needs to dramatically change. The twin challenges of the COVID-19 pandemic and the global energy price crunch have cemented this resolve. They have displayed the weaknesses of the existing energy system, highlighting its over reliance on fossil fuels, risk of market failure and growing fuel poverty.

The energy transition is a crucial enabler for the UK achieving its net zero target. Actions taken now will create jobs, stimulate growth and harvest social benefits. The energy transition is not a uniform, one-size-fits-all process. It is a multifaceted mission that demands a combination of technologies, policies, finance and resources to resolve. While the specific path to the end goal may depend on one's unique position within the energy ecosystem, the destination is common for all. We believe that the process to get there must be just, inclusive, and systemic to ensure that no one is left behind.

If we are to successfully transition to net zero by 2050, we as a sector urgently need to establish a collective north star, with clear statements of intent, priorities, and defined 'no regrets' investments. This whole system north star needs to be planet positive, enabling future generations to restore, regenerate and thrive. Ofgem's Forward Work Programme provides this opportunity in regulatory terms, but more needs to be done.

Capgemini Invent have responded to the consultation from this position and have provided comments and suggestion in relation to four priority areas – Retail, Flexibility, Digitisation and Governance.

Point 3 – Future of Retail

The open and secure nature of the UK energy market has made it a worldwide blueprint, attracting investment from global players. However, recent volatility in the wholesale market has exposed design flaws, which have resulted in the retail space becoming a high risk, low reward environment that disincentivises investment. Capgemini Invent believe that radical reforms are required in the retail energy market to drive private investment and avoid further issues.

Future Retail Market

- Consumer protection needs to be at the heart of the future market design. We view heating, lighting, and hot water as basic human rights. These fundamental needs should be affordable to all, with additional protection provided for the most vulnerable in society. We need to learn from other countries where energy transition has been a luxury of the wealthy, at increased costs to others. To achieve this, we must ensure that the way we measure market effectiveness prioritises consumer protection.
- To create a retail market that attracts the investment and innovation needed to reassert the UK as a world leading competitive market, we need to change the lens in which we view the system. When the current market arrangements were designed, Ofgem regulated a centralised 'energy-only market'. However, the requirements of the future energy system have evolved to that of a 'flexible – energy service market', where energy is integral to many overlapping service provisions, such as transport and heating. This multi-vector, multi-use will likely be integrated into an Energy Services model.
- It is critical that the flow of money through the whole system is modelled and understood by those driving market transition. Far too often we see theoretical economic concepts deployed in energy market design, where the basics have not been understood. To build an effective future market, we must have a clear understanding of how money moves between and incentivises actors at critical points.
- We need to create an environment where market actors expect to see returns from investments. To achieve this a clear direction of travel must be established, so that the private sector can make informed investment decisions.
- Revitalising the retail space will ignite a plethora of benefits, from job creation, increased market competition, money, talent and technology. By acting now, we can capture the first mover advantage and its associated benefits.
- In the creation of future market design, it is essential that we mobilise the right stakeholders, through appropriate incentives. Whether this be through legislation, price signals or capital investment mechanisms, or most likely a bespoke combination of these.

Point 5: Full Chain Flexibility

Capgemini Invent recognise that full chain flexibility is a critical element in the transition towards net zero and requires a whole system approach. Whilst the task ahead is substantial, there are a number of key opportunities and ‘no regrets’ investments that can and should be taken now to enable full chain flexibility.

Whole system approach

- All net zero models agree on a constant, that significant volumes of additional generation and demand will be added to the system. As such, there is a fundamental need for major upgrades to our energy networks.
- Generation will increasingly be variable, dependent on the time of day, season, and prevailing weather conditions, as the system becomes more reliant on renewables. New opportunities in generation, grid flexibility and operability services will create a myriad of investment opportunities. However, unlocking value will not be easy and will involve addressing issues regarding costs and pressure on returns. As such, there must be greater emphasis on the creation robust financial incentives to innovators.
- Electricity demand is also set to at least double by 2050, as sectors like heat and transport are electrified. Without action, this demand will often be ‘peaky’ and create a volatile energy network. To avoid instances of system volatility, it is essential that new demand side technologies are integrated onto the system. Integration must not compromise the balance of electricity supply and demand, but minimise the amount of generation and network needed to meet demand. This approach requires a smart, flexible energy system, provided for by robust regulation. We are supportive of the direction of travel towards a Future System Operator (FSO) and believe that more clarity should be provided in how the FSO will interact with the development of Distribution System Operators (DSO)s.
- Facilitating flexibility from consumers explores how consumers can interact with the system to reduce their energy bills. We must look to enable the deployment of smart technologies and removing barriers to the provision of consumer flexibility services. Ofgem must clarify their intentions and actions in driving flexibility and considers how to facilitate future flexibility solutions.
- Reforming markets to reward flexibility can unlock the full benefits of flexibility, however more thought is needed in how to create the national and local flexibility markets and price signals. We need to explore coordination between markets at all levels of the system and the carbon intensity of flexibility markets and services.
- Digitalising the system is an essential requirement of mitigating the demands of a decentralised system. It will help provide full system visibility and transparency, and reduce system operability issues that may occur due to fragmentation.
- The risk of flexibility introducing significant price swings for consumers cannot be ignored. Surge pricing elsewhere has not always been sufficiently thought through and this has damaged trust.

Point 6: Data and Digitalisation

Capgemini Invent welcome the emphasis on data quality, data openness and its use to reduce operational friction and enable innovation. Ofgem have done an excellent job at bringing data to the forefront of peoples’ thinking. It is now essential that the fundamental principles of the data and digitalisation transformation are established to capitalise on the good work done so far.

Data should be seen as having strategic national importance. Ofgem need to drive a change in attitude. Data is currently viewed as the value, rather than the output that the data could enable. Those participants that generate value from data should be rewarded.

Capgemini believe that there are several ways in which data and digitalisation can be further enhanced to enable the net zero transition:

Data Quality

- It is essential that we have a firm understanding and governance of available data to best resolve the data quality crisis within the industry. By focusing of data consolidation, simplification and removing barriers, we can leverage existing standard data sets to establish a single version of the truth.
- There needs to be a strong vision for common data infrastructure that enables sharing and federation. For example, Unique Property Reference Numbers (UPRN), such as Meter Point Administration Numbers (MPANs) and Meter Point Reference Numbers (MPRN) are not sufficiently available to enable effective cross linking of corresponding identifiers outside of the industry. Such as Land Registry, Ordnance Survey, Royal Mail and the DVLA.

Asset Identification

- Our future energy system vision must allow for the adoption of a modern, flexible approach to data definition. This will include the creation of data schemas that are extensible and enable future evolution. For example, we know that in the future there will be a myriad of assets registered behind the meter, however, at this point, we do not know what these assets will be. As such, we need a scheme which allows for a flexible relationship between assets and systems that will evolve and not create cul-de-sacs.

Access

- We must ensure that we are able to interrogate data in a flexible way. We will not be running specific reports, but querying data answer questions such as 'give me all the available storage capacity for an area tomorrow morning'.
- Access must therefore be near-real-time where needed, but also at a commercially-viable price.

Taking inspiration from other energy markets

- Amber Electric in Australia are currently trialling Time of Use (ToU) tariffs which respond to live changes in capacity to enable balancing. It is based on available technology on phones which predict behaviour through user action and apply this to electricity grids. Our current data model does not support innovation such as this, but instead constrains it. As covered in the 'Delivering a Digitalised Energy System' report, we need to move to a system of "Prices to Devices".
- There is a cultural element issue associated with data that needs to be addressed. Currently, the British public are extremely wary of making data available, due to the inferred risks. We need to demonstrate that the benefits far outweigh the risks.

Ofgem and Regulation Evolution

- It is imperative that Ofgem lead the regulatory transition to a flexible model, which supports innovation, rather than constrains it.
- Whilst safety is always paramount, there needs to be recognition that devices are becoming much easier to install and maintain. As such, there should no longer be a regulatory framework that takes a single definition of an asset based on its function, but should instead be proportionate to the asset in question. For example, an EV which is capable of both import and export should not fall under the same regulatory definition as a solar panel, or battery.
- This model has already been achieved by the civil aviation authority and in the telco industry. Ofcom drove the transition from a binary view on wired, mobile services to enable Mobile Virtual Network Operators (MVNO). The energy industry needs to adopt a principle-based regulation model to encourage business models such as this.

Point 7: Energy Systems Governance

Ofgem have pointed out the demands facing the energy industry, as it goes through unprecedented transition and the importance of reviewing the institutional and governance structures. Institutions such as Ofgem must be the first 'over the fence' in terms of transition, as they are pivotal in driving the change.

Capgemini Invent believe that there are a number of areas where the FWP could go further to help accelerate the pace of change in the energy sector.

Code Governance Reform

- Digitisation and consolidation of the codes presents an opportunity to move to principle-based regulation. The licences could be the home for these principles with most of the operational requirements moving from the licences into the codes. Learnings should be taken from the financial and telco sectors, which transitioned from heavily regulated environments and have become more principle based.
- We need to drive for further consolidation and simplification of industry codes. There are still too many codes and coordination between them is becoming increasingly difficult, as the market becomes more complex.
- We believe that there should be three energy codes (Retail, Settlements, and Network) backed by a set of Engineering Standards. Such an approach would not only reduce the cost and complexity to market entry but will also incentivise greater innovation and accessibility. This will also help to clarify

the interactions between codes, remove barriers to entry to the wider industry and simplify the landscape.

- Our experience of work for RECCo has highlighted the deep complexity surrounding the current energy codes, which has been built up over many years of incremental change and acquisition of numerous other standards. The digitisation of the codes presents the perfect opportunity for simplification. There is also a great deal of overlap between the licences and the codes that should be consolidated, clarified, and standardised. In doing so, we must take the opportunity to align industry terms and standards for the benefit of new entrances and innovators.
- Industry needs certainty on the future direction of the codes and the key themes that will be brought forward by the code managers over the medium term (next 3-5 years). We are working with the RECCo leadership team and board to develop this. It is also backed by a comprehensive release plan that shows the shorter-term releases of code change. Our recommendation is that each code manager should publish a Codes Roadmap, this must be aligned to the direction set by the Strategic Body. Measurement of the performance of the code managers should be against their ability to deliver the items in the Codes Roadmap. The mechanism for these needs to both encourage pace and punish tardiness, so should be both reward and risk.
- We need to commit to the digitisation of codes and believe it should be at the heart of code reform. Through our work for RECCo we have demonstrated the power of creating a digital twin of the code. Digitalised codes allowed for industry changes to be fully impact assessed within codes and cross codes. Such an approach not only accelerates the pace of change and promotes innovation, but also ensures greater visibility of impacts across industry. In turn reducing misalignment and the need for code correction at a time of significant change.
- As the market evolves from the traditional energy only model, to a flexible energy as a services model, it will likely attract large volumes of non-technical market participants. Therefore, it is critical that there is scope for improving code accessibility. In our role as Technical Design Authority (TDA) for the REC code manager, we have created numerous process models (Market Scenarios), which present the codes as BMPN standard processes. This is designed to help participants access and understand the codes. We believe that this approach could be extended to all codes and will help with both understanding and simplification of industry processes.
- Governance also needs to reflect the goal of an innovative competitive system. If world is to view GB energy market as the primary 'sandbox' environment to invest in money, talent and ideas then the governance must reflect that goal.

RIO-2 DSO Governance

- Reforms in the DNO space must address elements of its financial mechanism, to ensure a proactive release of funds for network upgrades. Currently, distribution upgrades are demand driven, where the funding mechanism relies on end-consumers requesting upgrades. However, net zero will require significant network upgrades to support further embedded generation connections and bilateral flows of power across the network. The current model acts as a barrier for innovation and slows the transition towards decentralisation. There is a need for distribution businesses to be incentivised to improve the connections process.
- As the network becomes more decentralised, there is also a requirement to improve the visibility of assets connected to distribution networks, as well as the flows of energy across them. These improvements must be subject to the requirements of data and digitalisation best practice, as outlined above.