National Energy System Operator

Market Development Webinar Q&A

ESO

Q&A from NESO Webinar:
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At the beginning of March 2024, we ran a webinar focusing on the new responsibilities that NESO will take on from the first day of its existence across Market Development. The webinar explored how NESO will drive the evolution of market arrangements across the whole energy system to facilitate security of energy supply and deliver investible markets at the most equitable cost to consumers. This document contains the questions, with answers, that were asked during the Q&A section of the webinar. If you missed the webinar you can watch it on our website: Becoming the National Energy System Operator (NESO) | ESO (nationalgrideso.com).

There is a huge focus on BESS, but I would make a plea for flexible demand to be given similar emphasis and interested in your thoughts on work in this area?

We wholeheartedly agree on the value of demand flexibility, and specifically distributed flexibility, as critical for us to operate a clean, reliable and affordable electricity system. The ESO Flexibility strategy team are currently co-creating our first Flexibility Strategy with industry, to set out our vision, desired outcomes and roadmap. The objective of this strategy is to unlock the flexibility from distributed and consumer energy resources needed for a net zero power system in the medium term. Look out for the publication of this document this summer. In addition, the new Market Facilitator, to be announced in the Spring, will work together with Ofgem and industry to design and implement new distributed flexibility markets and drive alignment between ESO and DSO market arrangements.

Is Tidal lagoon being considered for Long Duration Storage?

DESNZ are currently consulting on a cap and floor mechanism to support investment in Long Duration Energy Storage. Other than ruling out Lithium-ion batteries, they have not specifically ruled out what form of energy is used as storage. However, qualifying technologies need to be closed loop generators. In other words, the stored energy must be generated from electricity, and only used again to make electricity. Any technology that does not satisfy this criterion will not be eligible.

How do stakeholders currently collaborate and communicate across National, Regional and Local areas?

Currently communication across national, regional and local areas is a bit patchy, but with areas of very good practice that we should learn from and work out how to build out a more coordinated and joined up approach. At the moment things tend to be on a single vector level, however, there is wide consensus that this now needs to be cross-vector, including the coverage of electricity, heat networks, gas and hydrogen. When you look at the distribution networks, they've made great progress and share data through open networks. All distribution networks both on gas and electricity have significantly increased their stakeholder engagement work, with some of that spanning both gas and electricity planning. Looking forward, NESO is going to be taking on a new role as the Regional Energy Strategic Planner aiming to ensure that the energy networks are regionally coordinated across vectors, between the geographies and with the right level

of local input into the process. The key thing is to also ensure that the national picture and regional pictures are aligned, consistent and can inform each other as we look to drive a more coordinated view across the energy system.

How can electricity prices better reflect the cost of renewable generation?

It is not entirely clear whether the question is referring to wholesale electricity prices or retail electricity prices. However, with respect to the former, REMA is considering reform options which could ensure wholesale prices better reflect the value of electricity at any point in time and location. This could result in greater frequency of price setting by very low marginal cost renewable assets. By the same token it would also provide more accurate price signals for flexibility, such that flexible resources that contribute to price formation would provide compensatory upward pressure on prices. In relation to retail pricing, various pilot studies, including a DESNZ innovation programme on Alternative Energy Markets, are exploring allocating policy costs in a way that encourages demand response to reduce carbon emissions through better matching of demand to availability of renewables.

What are the ESO's thoughts on stimulating the roll out of time of use tariffs?

Time of Use tariffs are designed to reflect the actual cost of generating and supplying electricity at different times, which can fluctuate due to demand levels and the availability of renewable energy resources. Consumers are incentivised to shift their electricity usage to off-peak times. If the majority of demand will have the opportunity to be exposed to that price signal and respond to it proactively, the actions ESO need to take as a 'residual balancer' will be reduced. Thus, ESO would like to support and enable the roll out of Time of Use tariffs where possible.

Opportunities for V2G are currently limited by vehicle functionality and EV Charger functionality (or cost). How does the ESO see this evolving?

Continuous improvements in EV battery and charger technology will enhance the feasibility of V2G applications. The Smart and Secure Electricity System programme is facilitating the development and adoption of V2G by establishing and promoting standards for V2G communication and operation. ESO is taking actions to max market access for V2G as well. As these developments unfold, we are expecting to see V2G becoming an important component of energy system in the future, offering great benefits for grid and system balancing.

Consumer engagement is partly dependent on Smart meter penetration. In Dorset this is only about 30%. Does this show the extent of consumer engagement in energy?

The penetration rate of smart meters does provide some insight into the level of consumer engagement in energy, but we believe it is not the whole story. Smart meters are a key for enabling more sophisticated forms of engagement such as Time of Use tariffs and Demand Flexibility Services. However, consumer engagement can manifest in other ways too, for example, various energy efficiency incentives scheme.

You talk about electricity and gas but what about heat? (Especially if 20% of buildings will be on heat networks by 2050)

District heat networks are part of what we will be looking at in our whole energy study. They are one of the key emerging vectors for heating in parts of the domestic heating sector. While we have specific licenses and license obligations on gas and electricity, we see district heating as a key part of the vectors we are looking at in the whole energy work. It is an important part of the extension to whole energy from the current electricity and gas roles.

Will NESO be replacing DSOs?

No, the role will be to complement, support and develop a whole system approach across DSOs, GDNs, gas transmission networks and electricity networks as well.

Question on strategic direction into action. How do you think the competence of engineering and consulting organisations can be engaged to take the actions forward?

Collaboration with all industry stakeholders will be essential to achieve net zero in the energy system. Engineering and consulting organisations are particularly crucial, given their valuable expertise and key role in this effort, especially for projects that require input from a diverse range of backgrounds.

How will NESO coordinate and communicate with RESP & LAEP developments that are already underway whilst NESO is still being structured and deployed by summer?

We have been working on this programme for a number of years. We have stood up our own operating model for the organisation so that, on Day 1, we are ready to fulfil the new roles and responsibilities of NESO. We have also stood up separate programmes within the organisation to ensure that we've got the right level of focus on those new additional key roles such as regional energy strategic planning (RESP) or in the strategic spatial energy planning (SSEP) space. There are independent teams within the ESO today already working on this and it is important to note that NESO will be taking on the role of RESP, so we are already working out how we step into that role. We know that engagement is going to be critical to the success, not only on regional issues, but as an organisation across the whole suite of roles and responsibilities, so we don't intend to do any of this in isolation. We will be doubling down on the engagement and that's something particularly at a regional level, we'll be really focusing on. Working closely with local authorities and the distribution networks, both gas and electricity, will be a key part of how we step into that role of RESP. We're already out there working with the industrial clusters and will continue to do so, as well starting to understand the role of hydrogen, the role of those clusters and how we think about that in some of the strategic planning and market work.

What are ESO's plans to use market mechanisms to reduce the constraint management costs (currently borne through the BM) as a net zero electricity system develops?

Tackling increasing constraint costs is a key focus for ESO and will continue to be for NESO. A way to reduce constraint costs is to build out the transmission system and there is a significant amount of transmission system build out to achieve through the HND and HND follow-up exercise. In terms of market mechanisms, the current way of managing constraint cost is through the balancing mechanism. There is a cross industry consensus that there is structural market reform needed to widen market frameworks to tackle constraint costs and locational congestion in the long-run, and that is a core focus of the government's review of electricity market arrangements. In the interim before fundamental market reform can be undertaken, we are looking across piste in terms of our own balancing and ancillary services and other commercial and market mechanisms that we could adopt, test and trial to tackle some of these structural constraints. We recently launched our local constraints markets which is offering units above the Scottish boundary not currently in the balancing mechanism, the opportunity to deliver constraint management services. We have also recently launched our constraints collaboration project where we have asked industry - how do you think we can best tackle these constraint costs through market mechanism? The call for ideas closed recently and we are currently running through the ideas to look at which we can work with industry to co-create.

Will NESO be involved with coordinating and standardising DNO flexibility services, e.g., flexibility products, tender windows, reporting and a single platform?

The Ofgem consultation on Market Facilitator is currently underway. From their first consultation there was broad consensus that such a role is needed, however the current consultation is looking at who should take on that role - NESO or Elexon. The Market Facilitator needs to be a trusted, capable organisation that can deliver these market changes at pace and is able to influence wider market and policy reforms that are required, ultimately to facilitate the growth in distributed and local flexibility that is needed. We think that NESO is the organisation with robust accountability, the technical and strategic capability and the whole energy system purpose to deliver this but ultimately the consultation that is currently open will make this decision.

The Government Hydrogen Strategy published in December is ambitious. Will ESO be prioritising planning of regional/cluster hydrogen networks?

As we think about a whole system approach to strategic planning, the role of hydrogen and other vectors will come together as we start to think about that. We have done engagement with regional clusters, looking at what they are trying to achieve, ensuring what they are looking at on a regional basis aligns with the national thinking that has already been done and how we bring that together with our teams looking at the regional energy strategic plan as well. We have already stood up a team within our strategy and planning function as well starting to look at hydrogen and the whole energy network planning team is starting to think about electricity, natural gas, hydrogen and the interplay between those vectors as well.

What will NESO's role be in providing a free and liquid wholesale forward market for both Electricity and Gas?

Liquidity in the electricity market is an important consideration in REMA, and the impact on liquidity of any reform to the wholesale market or to the CFD will be assessed.

The context in gas is quite different. In the electricity market we can expect to see the demand for electricity to grow over time but for gas the predictions are a decline. The drivers in the longer term are different in the different sectors but liquidity in forward markets is important across the range of energy vectors and is one of the things we will be looking at in our whole energy market strategy and our gas market development plans.

Do you foresee risks in the relationship/set-up between Ofgem and NESO? I.e., Ofgem regulating the NESO licence, whilst NESO is tasked with advising Ofgem.

This is a question about how we set up the future governance arrangements for NESO and the relationship between us and Ofgem and DESNZ as well. We have got a clear framework in which we'll operate, it is right and appropriate and proper that Ofgem continue the role as an economic regulator to ensure that we are being economic, efficient, spending consumers money well and that we're delivering against our promises and our business plan. That's an important role and one that should not be diluted and must continue. We have a very clear framework as well as statutory roles, duties and a license that sets out how we operate. Those two things are quite different and separate and we're being very clear and thoughtful about how we arrange those different obligations and responsibilities and how we transfer to a different kind of relationship because we will be a public corporation. This is why NESO was created in the first instance and Ofgem, DESNZ and ourselves are clear on what that is, what the value is and how we should work together.

When you refer to methane, is bio methane explicitly included? Perhaps in a more localised network basis on the lower pressure networks?

Yes, we recognise that biomethane has an important role, at least on a localised basis.

Will NESO value carbon emissions in future markets? How will this be balanced against consumer value?

NESO will be reporting on the GHG emissions of the markets it owns and operates in the next few years, however, we're technology agnostic when it comes to operational decisions and focus on making sure that we procure at lowest cost. We design our markets so that they are open to all kinds of technology, including those able to help decarbonisation. The Government sets carbon policy.

What would be NESO's role with regard to regional system planning? Is this part of the network planning role?

As part of our transition and transformation to becoming that independent NESO organisation, we have looked at our operating model and set up our organisation to be able to take on these new roles and deliver them in the most effective and efficient way. One of the directorates we have stood up under Julian Leslie is our Strategic Energy Planning directorate and that will house our Centralised Strategic Network Plan (CSNP), Strategic Spatial Energy Plan (SSEP) and Regional Energy Strategic Plan (RESP) teams. We are looking at that in a holistic way and bringing these together under Julian's leadership to ensure they are aligned, coordinated and consistent. We need to ensure that the top-down national level plan and bottom-up regional level plans are consistent and coherent, that everything at the bottom adds up what we expect to come from the top and that we figure out how to get the right balance between those. It is important those roles are taken in a joined-up way which is why we are bringing them together under one strategic energy planning directorate.

What steps is NESO taking to engage better, take on board and respond to stakeholder concerns?

We recognise that this is an area where we can make a step change and improve and it's one of the things that we're really doubling down on in terms of our new organisational capabilities and values within the new operating model. The importance of engaging with customers and delivering great engagement has been recognised and we're standing up a new Customer Directorship. It is incredibly important to the new organisation that that at a senior level, we are listening and having a genuine two-way conversation with our customers and our stakeholders. We cannot do this alone nor do we want to do this alone. The only way that we can achieve the massive targets and the massive ambition that we have, not just for NESO but as an industry, as an economy, as a society, is if we bring industry, stakeholders, consumers and customers together and work collaboratively to get the outcome that we want, whether that's 2035 or 2050 and the milestones and the goal posts between there as well.

What does a whole energy market across vectors mean/look like?

At this stage, we are not expecting there will be a single market across all energy vectors. We do expect increasing intensity and complexity of interactions between vectors (for example, between hydrogen, natural gas and electricity) and our whole energy markets study will look at the risks and opportunities this brings. We expect to assess the case for changing how we think about market design to focus more on those interactions.

How does NESO plan to foster collaboration when Gas and Electricity networks have seemingly diverging priorities in the coming years esp. re. heating?

One of the important roles we have as NESO is to step away from interest in owning networks and to take an independent view based on the longer-term interests of achieving net-zero at the least cost to consumers in a secure and balanced way. We will bring our own perspective to these discussions and will expect the companies we engage with to have their own perspectives and interests which may not align. We will bring evidence and analysis to that discussion, we won't just be engaging with the network companies, there are other important stakeholders and interested parties that we want to engage with as well. It is important to recognise that it is ultimately our advice, but the decisions will be for Government or Ofgem in this area. We will try and bring people together and share the learning from that process and put together our view for the most efficient and effective way forward, but it is ultimately for others to make decisions. It is important to note that the recommendations will require trade-offs. Part of what we have been doing over the last few years is engaging with industry and helping them understand where we fit in, how our roles will work together and how it comes together to take a whole system view. There will be trade-offs that need to be made between different vectors and different sectors that won't please everybody. How we, as NESO, must conduct ourselves is with transparency, so that whilst people may not like the outcomes of those trade-off they will understand the process, the plans and how we got there which is really important for us.

There is a lot of market cannibalisation in wind, solar, BESS etc. will NESO have a role in mitigating the impacts of this?

We are not in the market of providing wholesale power price forecasts, however we are in the market of understanding the impact system and technology evolution on investment signals. We understand that increased penetration of renewables and storage will influence wholesale power prices, and this will have a knock-on impact on investment. Our work in REMA will need to understand these market dynamics to ensure the best package of market design and investment policy is determined.

How do you plan to approach domestic gas transition to electricity? Notably disconnecting the significant part of domestic pipes which shift to electricity?

The future of domestic heating is one of the key challenges as we decarbonise, and it is important to see it as part of a broader question of decarbonisation not just a choice between gas and electricity. We think district heating has an important part to play in that and there is a range of potential solutions including the electrification of heating which will inevitably play a large part. One of the things we will be looking at on the markets side is what the conditions are for some of those changes, how the consumer views play into those changes in the makeup of our energy system and what that means for energy markets going forward. There is also a networks component to this. In the RESP role, they will be looking at what gas networks are needed in the future and similarly the SSEP will be looking at the overall role of gas networks, so there is a whole range of approaches which will potentially play into this. Ultimately, we will be looking at the best ways to decarbonise that are in the best interest of consumers and are secure. It is not our role to decide if and when parts of the gas sector need to be decommissioned or repurposed for other uses, but some of that will come through as implications of our advice for decisions by Government or Ofgem. What we are producing will be relevant to the issue, but we won't be making the decisions on that.

How will the multi-phased study (2024-2026) align with REMA timescales? Will this delay our Gov target to decarbonise our power sector by 2035?

We expect our multi-phased whole energy study to build on the REMA programme, not to cause any delay. We will look for opportunities to improve market interactions to ensure we decarbonise at pace whilst continuing to have security of supply and at best value for consumers.

Will the move to NESO impact your advocacy on introducing Locational Marginal Pricing?

As we move to NESO, the way we engage publicly and with our partners at DESNZ and the regulator will change but we will maintain our clear independent voice and ultimately, we will look for solutions that are in the interest of GB consumers and the whole energy system. Our role will continue in that vein.

Will NESO get involved with the Capacity Market consultation? E.g., Storage derating factors and capex thresholds?

The EMR Delivery Body and Modelling teams have been working with DESNZ and LCCC to design the changes needed to implement the proposals in DESNZ's Phase 2 consultation, including those relating to extended performance testing and 3- and 9-year agreements for low carbon, low capex projects. Actual implantation of the changes is subject to DESNZ's final decision.

What are the best resources to understand the current gas market?

There are multiple free and paid subscription services available. ESO is not in a position to recommend.

How will NTS backbone transmission be supported financially?

This is a discussion between NGT and Ofgem. ESO is not in a position to comment on this.

Will heat networks be within NESO remit?

We will need to understand the impact of heat networks in developing our regional energy plans.

How will you ensure that whole energy network and market planning is not perceived as being overly influenced by ESO's history as an electricity focused business?

There is a determined effort on our side to take an independent whole energy view so we will be working hard to make sure we look across the vectors to build up our expertise and to work with stakeholders both in the gas sector and other energy vectors. We will be very transparent and build on that, set out our analysis, engage widely and hopefully by our actions, demonstrate we are taking a broader view and change perceptions over time.

We are building our capability and bringing the best experts into the organisation and augmenting what we have today and building our whole system teams. We are already bringing in colleagues who understand the existing natural gas markets and system, people with hydrogen experience, people who understand carbon capture, people who understand the electrification of transport or heat, people who think about these things in a broader decarbonisation sense. We are bringing together the right skills and capabilities into the organisation. We're also thinking about how we build the existing skills and capabilities of the ESO today, starting to think about whole systems thinking. These are things that we are now rolling out as well as training programmes to ensure

that the new people we bring in build that knowledge and experience, but also as do the existing people core to the organisation.

What's the most significant difference between the new whole system market development that NESO will carry out, compared with what DESNZ is capable of now?

One of the important aspects of the way in which we are looking at our whole system role across more strategic planning roles is to work in partnership with DESNZ and Ofgem where appropriate. Part of our role is to advise them, and we need to make sure that our advice is useful and builds on what it is they are doing themselves rather than duplicating or contrasting. The distinction is that we are closer to some of the markets and the ways in which they operate and therefore we may be able to bring technical expertise in some areas. We have been building up a capability in gas and other energy vectors which will never be as deep as our experience in the electricity network but adds value to what others can provide. The role of NESO, to some extent, builds a bridge between industry and government and Ofgem.

When is NESO planning to publish methodologies for SSEP and CSNP?

We are currently working closely with government on the scope, approach and other things around what it is we are going to be delivering for the SSEP and how, and from that will come the timeline. We can't give you an answer now, but this is something we will be able to share with you once we have clarity on that commission we get from government.

The transition towards the full CSNP will be published on March 19th. This is our next evolution of the requirements of the electricity network that allows us to meet the carbon budget and 100% zero carbon operation in 2035. This then leads us into a full CSNP, which so far, we have penciled in for the delivery towards the back end of 2026. This will be the first time we bring together the electricity and methane gas network into a holistic network plan, by which time we will hopefully have some hydrogen and CCUS elements in there also.

What mechanisms will you put in place to allow the country to pivot to new energy vectors if needed?

Mechanisms for supporting new energy vectors are primarily a matter for government policy. Across all our work on strategic planning, market strategy and advisory, we will look to support decarbonisation of the energy sector at pace, protecting security of supply and at best value for consumers. This will need to reflect the inevitable uncertainties and consider contingency plans.

Will interaction with European price areas be considered, given existing electricity interconnection and anticipated interconnection across other energy vectors?

Yes, existing gas and electricity interconnectors are a key component of our current energy system and additional interconnection, potentially including other vectors will be considered.

Will you continue publishing the FES (or pathways)?

We will continue to produce our future energy supply and demand projections. Our scenarios are evolving with the need for strategic network investment and the frequency and guidance will be subject to consultation later in the year.

Will you be introducing market reforms to allow Interconnectors to take part in flexibility markets?

In accordance with our BP2 goals (D4.6.3) we “will develop Balancing Services that meet our changing system needs and allow technologies to compete on a level playing field. The Smart Systems and Flexibility Plan seeks interconnector participation in ancillary services to facilitate efficient and flexible access to cross-border markets. We will be exploring barriers to entry across ESO markets; by identifying mitigating actions and working with industry to implement the changes needed to facilitate routes to market, we will increase participation and liquidity.”

With respect to NESO building a bridge between NESO and industry, there is a big risk NESO will dampen or disregard industry views and concerns as ESO has done (CM portal).

We recognise that the NESO can only be successful if it works collaboratively and effectively with the wider industry, and we are committed to learn and improve in how we do this. This doesn't mean that we will always agree with industry views, which usually cover a range of perspectives, but we will listen, endeavour to understand fully and take account of those views in coming to our independent position, and to explain why we reach the position we do. Launching the EMR portal is one of our key commitments in our RIIO2 business plan. We have launched the EMR portal for registration since January with over 660 customers registered. We have delivered a couple of process/system improvements based on customers’ feedback. We are opening the testing environment of the portal for customer familiarisation/testing from 20th March and aiming to launch the new system with full functionalities in May. We are delivering this system with an agile approach as such we have developed a programme of continuous improvements which will be released to the system regularly after Day One. We are committed to continue with the EMR Portal User Groups to gain insight from customers and communicate via our regular newsletters and webinar to provide continued transparency in the project.

How are you ensuring the new recruits are pragmatic realists rather than hypothetical dreamers? It's good to have a mix - but seen far too much of the latter.

Our recruitment process includes initial CV sifting against the role outline requirements, followed by a competency-based interview process which is built in line with recognised best practice. Questions asked in interviews are designed to assess the individual's capabilities, skills and experience levels that are required for the role, in addition to values, motivation and attitudes.

We have recently developed a new interview pack to incorporate questions aligned to our NESO People Capability framework and the NESO Values. The decision on appointment is then made by the hiring manager based on the best candidate for the role. If no suitable candidates are found, we typically readvertise using alternative techniques to attract different candidates e.g. specialist agency support or headhunting.

Any plans to get balancing costs back below £2bn p.a.?

We will be publishing the first annual balancing costs report at the end of April. In this we will be giving a view as to balancing costs projections over the next decade.

What role do NESO expect to play on water? Understand it's not NESO's responsibility but water availability could be a blocker to net zero projects.

As a System Operator we have undertaken prior assessments in regards to water availability (e.g. through drought events) and its impact on the electricity system. We expect to continue to have to consider water availability within our analysis, particularly within Strategic Energy Planning and resource adequacy.

In developing NESO, how are you drawing on international experience / models?

In developing NESO, we have drawn on international experience and models. While the NESO is a unique creation, there are other elements that have been replicated internationally, such as the

independence of the organization and the bringing together of multiple energy vectors into one entity. To ensure that we are leveraging best practices and lessons learned, we have engaged with several organizations that have implemented similar models.

Market enforcement is extremely lax, e.g., it took an embarrassing Bloomberg article to get wind FPNs approved. Will NESO be more proactive?

It is not true that the Bloomberg article acted as a trigger to the improvement of FPNs, engagement has been ongoing with operators of wind units since the start of 2023. News stories highlight issues that are typically already being worked on, but which are not highly publicised when the intent is to work with partner companies on improvements. We are keen to work with our customers on improvements in their data but ESO themselves are not an enforcement body. We have a market monitoring team which screens all transactions which take place against the regulation on wholesale energy market integrity and transparency and are continuing to step up our data analytics capabilities to identify breaches of contract terms and breaches of other market rules.

ESO