

Dear Joanna Gaches,

Please find below Business Modelling Applications' (BMA) response to the consultation - Centralised Strategic Network Plan: Consultation on Stage 1 – modelling future supply and demand.

To provide context for our responses to this consultation. BMA is a UK-based technology company. Our decision intelligence software platform, Decisio™, helps Clients redefine the way they tackle the decisions that matter most. In 2013 we recognised that the world is increasingly Volatile, Uncertain, Complex and Ambiguous (VUCA) and that many of today's significant global challenges are the result of the limitations of decision-making processes in the past. In response we developed our decision support technology, Decisio™, to enable Clients to make more holistic, rapid, and connected decisions in a VUCA context. The Decisio™ platform's proven AI-assisted decision-making is being used by many of the leading energy, water and wastewater utilities in the UK, and internationally, to profitably navigate to resilient, low carbon business models.

We welcome this consultation and the importance that Ofgem has placed on the need for mature, adaptative pathway analysis to underpin the transition to an optimised whole energy system approach. We broadly support the draft proposals that Ofgem has set out, which represent significant development on the Future Scenario approach.

However, there are some areas in which we believe the proposed approach can be further enhanced. In particular, we would encourage Ofgem to:

- Design in a bottom-up, as well as top down, approach to systems modelling that will ensure pathway analysis can fully accommodate regional complexities.
- Extend pathways to include alternative as well as core pathways to provide confidence and visibility to decision makers on how pathways may flex in response to defined trigger points.
- Include systematic stress and sensitivity analysis of pathways to proactively and transparently highlight risk and opportunities associated with each pathway.
- Enhance the accessibility of pathways data and insights to a wider range of stakeholders including regional system operators, local authorities and local industrial clusters through use of technology.

I trust this response has been helpful. We would welcome the opportunity to further discuss our responses with you and your team.

Yours sincerely,

Dr Craig Maelshagen
Chief Solution Officer, Business Modelling Applications
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Business Modelling Associates response to the consultation - Centralised Strategic Network Plan: Consultation on Stage 1 – modelling future supply and demand

Q1. Do you agree that we should move towards pathways instead of scenarios, to provide greater clarity on the type of investments required under the CSNP?

BMA support the move towards pathways that are more prescriptive about the type, scale and timing of investment required. We caution that these pathways need to be adequately tested against a range of scenarios – both stress and sensitivity testing. This will give further transparency and confidence to decision makers. We would also encourage the development of core and alternative pathways to provide further confidence as to how a particular pathway could be adapted to respond to a changing context. Key attention will have to be given on how to communicate this effectively without oversimplification or excessive complexity.

Q2. Do you agree that there should be a single forward view of the near term for all pathways?

BMA would agree that there should be a single forward view that clearly identifies no/low regrets investments and actions in the near future. This is consistent with the need for more ambitious near term investments. Again, robust scenario analysis of this single forward view (stress testing and sensitivity analysis) would be critical to give investor confidence.

Q3. Do you agree with our proposal to have Net Zero compliant pathways (number to be determined by FSO), with a separate counterfactual demonstrating the scale of activities and investment that falls short?

BMA agree with your proposal to have Net Zero compliant pathways. We see this as the FES moving from ‘what if’ scenario analysis to more directive adaptive planning/strategy development. However, we caution that it is critical to include stress tests of pathways to illustrate under what circumstances a pathway might fail to deliver Net Zero, in order to avoid false confidence or complacency.

Q4. Do you agree that the pathways should run to 2050, and if not, why not?

BMA feel that pathways should run to 2050 at a minimum. However, as soon as possible they should extend beyond 2050 to become a rolling 25-year plan and encompass objectives beyond achieving Net Zero such as energy security, supporting economic growth and broader sustainability.

Q5. Do you agree that the model should develop the capacity to include extreme data ranges when requested of the FSO in its role as strategic advisory body?

BMA think that given recent events it is critical that the FES pathways are robustly and systematically stress tested against a range of extreme events. The importance of a resilient energy system is self-evident and must be included in the FES pathways. We would put forward National Gas’ NetStrat solution for network strategy as an example of a tool that can do this.

Q6. Do you agree with our consultation position on modelling network constraints?

BMA agree that the FES should include network constraints in the short-term. However, we do not agree that the FES should be based on unconstrained network in the long term. Instead, soft constraints should be used in the long term with appropriate biases to ensure that the FES scenarios reflect the relative cost of increasing network capacity, at least at a regional level. This would not

add excessive complexity to the FES model and would improve the quality of the outputs in terms of advising where additional generation and network capacity should be increased.

Q7. Do you agree with our consultation position, and do you have a view on which data principles should be possible to adopt for the first?

BMA agree that FES data, models and algorithms should be as open access as possible. Our additional comment would be these needs to also consider the practicalities (or soft barriers) as well as legalities. Publishing large amounts of data in flat formats such as spreadsheets or csv are difficult and impractical for many to make effective sense or use of. We would urge a more accessible platform (web or cloud based) that would give more effective access, including guided access to ensure engagement and use by the widest possible stakeholder community. As decarbonisation gathers pace it will involve more groups across the UK, for example small businesses, local industrial clusters and local authorities. BMA's Decisio platform is an example of a tool that can be used to enhance access to data and analytics to a wider and more diverse range of stakeholders.

Q8. Are there specific stakeholder needs cases for publication of data, including the format of outputs?

BMA would highlight the need for Local Authorities, Combined Authorities / city regions, smaller industrial clusters, low carbon innovation parks, equipment manufacturers (particularly smaller, innovative UK manufactures) as well as actors in the wider supply chain such as ports. These stakeholders may be either developing regional decarbonisation plans, be impacted by UK energy system decarbonisation or looking to identify growth opportunities presented by UK energy system decarbonisation.

Q9. Are there specific data outputs associated with the FES that we should mandate?

Rather than specific data outputs, BMA would recommend that effort is put into curating and communicating decision-relevant outputs in an interactive way. For example, identifying and highlighting regional risks and opportunities associated with particular pathways. Ideally it would be possible for stakeholders to dynamically test the impact of changing assumptions on the FES pathways in order to explore specific concerns or questions.

Q10. Do you agree that regional and/or industrial hub pathways should be included in the FES?

BMA strongly suggest that the top-down GB-wide pathways that are then disaggregated to a regional level are of limited value and do not reflect best practice. A much more robust and decision relevant modelling approach would be to model at a regional level and aggregate to a GB-level. A single model should be able to simultaneously model for regional and GB-wide constraints and objectives. This will improve relevance and usefulness of the FES pathways to regional stakeholders such as energy distribution networks or Local Authorities.

Q11. Do you agree with our proposal for a 'major' FES in the year prior to the main CSNP publication, with smaller annual updates in the intervening years?

BMA support this, this is in-line with an evolution of the FES from exploratory scenario analysis to a more directive adaptive planning/strategy approach. This will require an ability for each new iteration of the FES pathways to utilise and build on the previous iteration and, subsequently, development and use of repeatable tools and processes. A more repeatable, automated methodology

with less manual handling will be required if the FES is to deliver more directive pathways rather than a simple range of scenarios (link to question 1).

Q12. Do you consider that longer-term evolution of energy supply and demand modelling should head in the direction outlined above and if so how?

BMA support the longer-term evolution of the energy supply and demand modelling as outlined. We would point to the NetStrat solution being used by National Gas as an example of existing best practice that meets many of the capabilities aspired to here. A core capability to address and incorporate variations in assumptions, deep uncertainty and low probability events is mass, automated scenario analysis and meta scenario analysis capabilities.