

Written Evidence Submitted by Business Modelling Associates UK Ltd (HNZ0017)

Specific topic addressed:

“How the proposed measures – and any other recommended measures – could best be co-ordinated.”

What I would like to do is provide input, based on my professional experience, on how whole systems modelling and decision support tools could best benefit the co-ordination of an effective and efficient deployment of low carbon hydrogen. In this regard I look to build on the excellent points made in the Council for Science and Technologies’ letter on “Achieving net zero through a whole systems approach” sent to the Prime Minister on the 30th January 2020.

I whole heartedly support the case for a whole systems approach and application of systems engineering to achieve the UK net-zero emissions target and wish to **emphasise the value and importance of decision support tools that enable multi-stakeholder engagement and coordination within a whole systems approach.**

Business Modelling Associates have been developing and implementing software tools that support whole systems planning in the utility sector for over ten years. Our tools have helped utilities coordinate short- and long-term planning across internal and external organisational siloes. Our experience is that it is necessary but insufficient to have robust technical models of the system in question. To allow organisations to effectively realise and coordinate delivery of the change required to optimise their system(s), it is necessary to also have decision support tools that can be simultaneously used by multiple planners (including across multiple organisations as relevant) and for effective visualisation of the resultant whole-systems plan to engage with wider stakeholders. Without this the barriers to change are too great (namely complexity, uncertainty, and behavioural inertia) and progress is slow or worse: planning and delivery of the whole system vision is fragmented and uncoordinated.

Based on our experience I argue that achieving a whole systems approach to low carbon hydrogen (and of course Net Zero) will not only require brilliant technical models of the system to enable decision-makers to understand interactions between individual initiatives but that it will also require tools that more holistically support decision makers to coordinate their actions and communicate their decisions. This is particularly important as, in my opinion, the level of coordination required to deliver the whole system change required to achieve Net Zero (for example between gas transmission, gas distribution and hydrogen producers) is greater than current practice, tools and flows of information allow.

Specifically, the the Governments stated low carbon hydrogen policy impacts of 1) 5GW of hydrogen capacity by 2030 and 2) supply of hydrogen blends to domestic gas consumers to reduce emissions of gas used by domestic customers by up to 7% will require detailed coordination between; Government, regulators, hydrogen producers, carbon transportation and storage service providers, the gas transmission utility (National Grid Gas Transmission) and the gas distribution networks at a minimum. Effective planning and delivery cannot be carried out each of these entities in isolation (that would defeat a whole systems approach) and nor can it be achieved through a high-level technical model that does not engage the experience and expertise of organisations which will ultimately deliver those outcomes (for example, the regulated gas transmission and distribution utilities). A range of integrated strategic and tactical systems planning tools will be required to enable the coordination between these organisations to develop the detailed plans for an effective and efficient low carbon hydrogen transition. I would put forward that it would be appropriate for the Hydrogen Programme Development Group which includes those relevant industrial entities under the chair of BEIS to act as the focal point for this coordination.

In summary, we believe that in order to achieve the most effective and efficient coordination of the actions and investments required to deliver low carbon hydrogen, decision support tools will be required that:

- 1) Allow decision makers to understand the interactions and interdependencies between the investments and interventions required to deliver low carbon hydrogen, and more widely with other elements of the ten-point plan for the green industrial revolution.
- 2) Ensure regular, effective, data driven engagement and coordination between the multiple entities who need to act in order deliver the low carbon hydrogen ambitions (governmental, industry, regulated utilities, investors, and others).
- 3) Provide clear and effective information, including through data visualisation and infographics, to stakeholders both in planning and delivery of the transition to net zero.

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