



Strategic Planning of Networks Team

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Centralised Strategic Network Plan: Consultation on framework for identifying and assessing transmission investment options

I will limit my response on this consultation on the CSNP, which will be an important document, to issues on which I believe I am well qualified to comment:

Qn 2. What are your views on the types of system need that we have proposed are covered by the CSNP? Are there any gaps?

A major gap in Table 1 is the absence of any reference to electricity storage. The Royal Society study of Large-scale Electricity Storage that I am leading (which will be published on 8 September), identifies a need for many tens of TWh of hydrogen storage to complement high levels of volatile wind and solar supply (the magnitude of this need is only seen in studies that look at sequences of many decades of weather data). The hydrogen would be stored in solution-mined salt caverns, which can only be located in East Yorkshire, Cheshire and Wessex. It will be necessary to transmit wind and solar generated electricity to the electrolyzers that produce hydrogen (which, unless repurposed natural gas pipelines can be used, are likely to be located close to the stores), and from whatever generates electricity from hydrogen (which is also likely to be close to the stores) to where it is required. Transmitting this power will have major implications for the grid which must be taken into account in the CSNP.

Qn 3. Do you agree that the time horizon for system need assessment should be extended to 2050?

Emphatically, yes.

Qn 23. Do you agree that the FSO should evaluate the climate resilience of the long-term whole-system CSNP?

Emphatically, yes.

Professor Sir Chris Llewellyn Smith FRS