

Freedom of Information (FOI) Request
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Ref: Sent by email from enquiries@theccc.org.uk

Climate Change Committee

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Your request:

1) in your DDM what is the projected electricity demand for a peak winter evening in 2050 for the balanced pathway case?

2) is the generation capacity described on p194 all of the available capacity in the DDM in 2050 or are there other sources such as storage, interconnectors, hydrogen power? If the answer is "no" please provide details of those unlisted capacities.

3) does the DDM model the fact that there will be periods when there is virtually no wind or solar power available?

4) on the still peak winter evening in 2050, the total demand will clearly exceed the 30 GW capacity available from Gas CCS, Nuclear, and BECCS (as listed in the table). What numbers are contained within the Balanced Pathway to describe how this shortfall is assumed to be met from energy storage systems (electrical, pumped hydro, or Hydrogen), or interconnectors, both in terms of GW of generation capacity and £BN of investment required.

I have read your FOI response of 23/6/21 which (in response to request part (v)) which answers this in the generality - but am looking for the actual numbers in your base case.

5) if the answer to question 2 is "yes" (i.e. P194 is all the generation capacity) and the answer to question 3 is also "yes" (i.e. there will be periods when most of the capacity is not available), does the DDM have periods where electricity demand is simply not met?

Our response:

Thank you for your request. We have recently published a new report on power decarbonisation which is based on more advanced modelling. Our new report and the supporting research are linked to below, with the most relevant sections identified to address your queries, based on more recent modelling.

1. Delivering a reliable decarbonised power system:
<https://www.theccc.org.uk/publication/delivering-a-reliable-decarbonised-power-system/>
- Chapter 2: Delivering a reliable decarbonised power system (p.45)

- Section B details what reliable and secure renewables-based system looks like during periods of low wind and solar
2. Net Zero Power and Hydrogen: Capacity Requirements for Flexibility. Report by AFRY, commissioned by the CCC to develop a set of indicators for the electricity supply and hydrogen production sectors:
<https://www.theccc.org.uk/publication/net-zero-power-and-hydrogen-capacity-requirements-for-flexibility-afry/>
- Chapter 2: The Need for Flexibility (p.24) details various electricity demand scenarios
 - Chapter 4: Results (p.45) details various weather scenarios
 - Annex A: Detailed Modelling Methodology (p.102) details the assumptions and scenarios supporting the model.

If you feel you need further responses to your questions, please do let us know.

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Information disclosed in response to this FOIA request is releasable to the public. In keeping with the spirit and effect of the FOIA and the government's Transparency Agenda, this letter and the information disclosed to you may be placed on the CCC website, together with any related information that will provide a key to its wider context. No information identifying you will be placed on the CCC website.

If you are dissatisfied with the handling of your request, you have the right to ask for an internal review. If you are not content with the outcome of the review, you may apply directly to the Information Commissioner for a decision. In keeping with our transparency policy, the information released to you will be published on www.theccc.org.uk. Please note that this publication will not include your personal data.

Kind regards,
Climate Change Committee