

The material in this paper is work in progress and is not a statement of government policy or policy intent

HOW TO TREAT EMBEDDED GENERATION IN DECIDING HOW MUCH CAPACITY TO CONTRACT

BACKGROUND

1. National Grid will be providing a recommendation on the amount of capacity to contract in a Capacity Market to meet the Reliability Standard. Embedded generation which is greater than 2MW is able to participate directly in the Capacity Market while those less than 2MW will be able to participate through aggregators. Therefore the analysis which National Grid base their recommendation on will include the amount of capacity required to meet the Reliability Standard on the entire network including the distribution network. DUKES table¹ below includes a list of this embedded capacity currently connected to the distribution network which could in theory participate in a Capacity Market².

Distribution Network - Great Britain	2012
Installed capacity	5,429
Coal	593
CCGT	2,520
Oil	409
Diesel Engines	134
OCGT	166
Conventional Thermal Gas	953
Hydro	654
Other Fuels	554

NATIONAL GRID'S RECOMMENDATION ON THE AMOUNT OF CAPACITY TO PROCURE

2. National Grid will make an estimate of this embedded capacity that will be needed in the auction to meet the reliability. We do not have indicative numbers yet on the amount of embedded generation that will be in the recommendation of the amount of capacity to contract.

The problem

¹ Table 5.13 is based variety of sources. However, it is possible some capacity has not been picked up – this would likely be small-scale onsite (non-renewable) non-CHP capacity. DECC's autogenerator survey is intended to pick up these schemes, but the sample does rely on ONS, being aware of any new sites. The diesel section is almost entirely Scottish Islands' generation (owned by SSE). To note, however, that there are some categories (Other fuels) that we cannot disaggregate further (and may include some more diesel plant) - these are typically CHP schemes (see DUKES 5.12 for a list of the included CHP schemes that have agreed to have their details published – this includes several hospitals).

² This assumes that this capacity is greater than 2MW which is likely to mostly be the case.

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3. There is uncertainty both about the amount of embedded generation that exists as well as the level of participation that we expect in the Capacity Market. The reasons for this uncertainty are:
 - a) That the data is less certain for embedded generators. There is no TEC register or similar compulsory register which allows us to accurately assess the level of capacity connected to the distribution network.
 - b) The amount of demand that they meet at times of winter peak is also uncertain. Again there is no way of tracking this other than by making an estimate of what might have been demanded if there was no generation.
 - c) We do not know the extent to which these embedded generators will engage with the Capacity Market. While we are confident that most transmission connected capacity will have a strong incentive to participate, we suspect that the incentives on embedded generation may be less strong, e.g. because they may have commercial pressures which mean that they may find it more difficult to make themselves available at times of system stress.
4. The next question is how we mitigate this uncertainty in the Capacity Market. The policy position is that the amount of capacity to contract will be amended after pre-qualification for the auction. So if for example National Grid estimate that the target volume of capacity is 65GW based on 60GW of capacity from transmission connected capacity and 5GW of embedded generation and therefore aim to contract 65GW but only 2GW of embedded capacity comes forward in the auction, then the target amount of capacity to contract in the demand curve will be reduced to 62GW. In this way we ensure that we do not over-procure capacity on the transmission network as a result of forecasting errors made on the embedded network.

QUESTION: IS THIS THE CORRECT POLICY APPROACH? IS THERE ANYTHING MORE SOPHISTICATED THAT COULD BE DONE?

T-1 auction

5. By June 30th this year, auction participants will be informed about how much of the total amount of capacity that is estimated to be required to meet the Reliability Standard in 2018/19 is to be reserved for the T-1 auction. However there will no demand curve set out for the T-1 auction. This will only happen at T-1. At T-1 there will be an estimate of the amount of capacity required to meet the reliability standard in 18/19 based on the latest information about supply and demand. In addition only at T-1 will the other auction parameters such as the price cap, Net CONE etc. be set out.

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Interaction with T-1 auction

6. There is a further question about the T-1 auction. National Grid will provide estimates of the amount of DSR that could develop over the period in the Electricity Capacity Report on the basis of their Future Energy Scenarios. Ministers will then take a decision on the amount of capacity to reserve for the T-1 auction.
7. We have not discussed or put forward a policy position to modify the amount of capacity for the T-1 auction based on the amount of embedded generation that comes forward to the auction. Implicitly therefore the assumption is that there is not a serious or significant overlap between the amount of embedded generation that Grid will be including in their recommendation and the amount of DSR that Grid are forecasting.

QUESTION: IS IT RESONABLE TO ASSUME THAT THERE IS NO SIGNIFICANT OVERLAP BETWEEN THE EMBEDDED GENERATION THAT TURNS UP TO THE T-4 AUCTION AND THE AMOUNT TO HOLD BACK AT T-1. IF NOT REASONABLE, IS THERE ANYTHING WE CAN DO ABOUT IT?