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FAO Socrates Mokkas
Energy Market Research and Economics
Ofgem
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7 December 2011

Dear Socrates,

Energy Capacity Assessment: Measuring and modelling the risk of supply shortfalls

Drax Power Limited ("Drax") is the operating subsidiary of Drax Group plc and the owner and operator of Drax Power Station in North Yorkshire. In March 2009, Drax acquired an electricity supply business, Haven Power Limited ("Haven"); Haven supplies over 32,000 small and medium sized business customers and provides an alternative route to market for some of Drax's power output.

In general, Drax agrees with the modelling approach detailed in the recent open letter. The three key points Drax makes is that:

1. It is very important that the methodology is well understood by industry participants. The ways the resulting analysis is used to influence policy developments must also be transparent and clearly communicated.
2. The use of stress tests and alternative scenarios is very important in capturing inherent uncertainties. Periodic reviews of the methodology are also sensible in mitigating the effects of these uncertainties on the analysis.
3. The weakness of intermittent generation and interconnection in providing firm capacity must also be adequately captured in the analysis.

A full response to the questions detailed in the open letter can be found in Annex 1.

If you would like to discuss any of the views expressed in this response, please feel free to contact me.

Yours sincerely,

By email

Cem Suleyman

Regulation and Policy
Drax Power Limited

Annex 1: Open letter questions

CHAPTER: Three

Question 1: Do you agree that the de-rated capacity margin is a good indicator of future capacity adequacy?

Yes. Drax agrees that a de-rated capacity margin is a good indicator of future capacity adequacy in comparison with a simple capacity margin, especially when a large amount of intermittent generation will connect to the transmission system. In such a scenario it is important that reliable capacity adequacy is the focus of the analysis rather than capacity flexibility, i.e. ramp rates. Capacity flexibility is and shall be managed by National Grid in its role as GB System Operator.

Question 2: Are there any measures of risk other than LOLE and EEU that we should report and what are their comparative advantages?

No. Drax believes that LOLE and EEU are adequate measures of risk. It seems sensible to have two separate measures that gage the quantity of supply shortfalls in addition to the magnitude of these supply shortfalls. It is important that the two measures are clearly reported to industry participants and the methodologies are well understood. This will allow market participants to react to the information provided as part of their business planning decisions.

CHAPTER: Four

Question 3: Are there any additional key input assumptions that we should consider in the modelling?

Drax believes that the key input assumptions have been captured.

Question 4: Do you agree that the use of stochastics (probability distributions) to model short-term variation of key input variables is the best available method? Do you agree with the use of scenarios and stress tests for capturing long term uncertainty in key input variables?

Yes. Drax believes it is particularly important that Ofgem, and in future National Grid, employ a number stress tests, alternative scenarios and sensitivities. A gas stress test seems particularly important in periods of high gas demand / extreme weather conditions. It is essential that analysis of this type is subject to a number of different scenarios (or, at least, reasonably envisaged scenarios) to fully test whether or not the system can withstand the strains that are likely to be placed upon it in the future. This should help ensure that market participants can reasonably respond to meet customer demand in an orderly fashion.

Question 5: Do you agree with the proposed approach to modelling wind availability?

Drax believes that that the two approaches have both advantages and disadvantages. An approach based on historic performance may be more realistic, although it might fail to take account of technological improvements. An approach based on the latest technical specifications of wind turbines may be more indicative of future performance, although the results will not be based on empirical performance. For these reasons, Drax would suggest that the modelling of wind availability be based on the latest technical specifications, with the outputs verified against historic performance. This should ensure that the results produced under a forward looking approach are not overly optimistic in comparison with 'real' data.

However, Drax remains concerned over the contribution that wind generation capacity can make to a reliable generation capacity margin (regardless of whether it is placed in the demand calculation or not). Wind generation is intermittent, thus it cannot be relied on to provide secure electricity supplies.

Question 6: Do you agree with the proposed use of NGET's existing data and assumptions, regarding, in particular, commissioning and decommissioning dates and embedded generation?

In general, yes. The TEC Register should provide a good guide for new connections, although it is important to note that not all of the projects listed in the TEC Register will connect on time, if at all. With regards to decommissioning, it will be important to analyse the load factors of existing plant and the ability of such plant to capture prices that will cover their SRMC.

All of the above will depend upon prevailing market conditions, therefore scenario analysis on commissioning and decommissioning dates would be sensible to sense check the outputs of the model.

Question 7: Do you believe that Ofgem should require industry stakeholders to submit up-to-date data with regard to commissioning and decommissioning dates and embedded generation? Which industry process will ensure the confidentiality of information provided?

It is important that industry stakeholders understand what this information is used for and how it will be presented. It is particularly important that Ofgem ask the right type of questions. In particular what factors will affect commissioning and decommissioning decisions rather than specific dates as these are highly uncertain. Attempting to gather very precise information far into the future could risk placing inaccurate information into the public domain which might actually misinform rather than inform industry stakeholders. This is because the decisions of market participants to open or close plant will depend upon prevailing market conditions and will change over time. The key metric is whether generators are able to achieve market prices that cover the cost of keeping plant open.

This data would also be extremely commercially sensitive, therefore confidentiality would be of utmost importance. Therefore a certain level of aggregation will be required to protect against any potential anti-competitive outcomes.

Question 8: What are your views on how best to model LCPD opt-out plants' restricted running regimes?

Drax believes that the best way to model LCPD opt-out plants' restricted running regimes is to develop a short run market merit order decision model, where opt-out plant only runs where it is efficient for them to do so, i.e. where the wholesale power price rises above their SRMC. The number of running hours available to each opt-out unit at the beginning of the model run should be available to Ofgem. Look at fixed costs and look at ways of recovery

Question 9: Which of the two approaches for modelling electricity interconnection flows will provide the most realistic flows? If you favour the scenario based approach, what are your views on reasonable scenarios to run?

Drax prefers the scenario based approach. Drax is worried that the price differential model approach will be too costly to design and that the scenario based approach represents a more proportionate method to modelling interconnector flows.

Moreover, a scenario where no interconnector capacity is available should be run as part of the modelling exercise. It is expected that the price of electricity in each interconnected country will dictate flows across interconnectors. This is consistent with the view taken by the European Commission that interconnectors should not be treated as generation or demand, but rather as transmission capacity. Drax believes that interconnector capacity should not be viewed as reliable generation capacity.

Question 10: Under what conditions would users respond by curtailing their demand and how would you go about modelling this? Is it worth Ofgem requesting data from DNOs on self-interruption and interruptible contracts?

The simplest option might be to impose a basic Value of Lost Load (VoLL) trigger for industrial and commercial customers. The lack of demand side response in the domestic and SME sector suggests that voluntary demand curtailments are unlikely to occur. However, these assumptions should be revisited periodically to ensure that this state of affairs is still correct. The implementation of smart meters and modifications to the present settlement of NHH customers might change the assumptions made above.

Question 11: Is historical data of scheduled outages a good indicator of future patterns of scheduled maintenance timings?

Drax believe an approach based on historical data might not provide the best indicator of future patterns of scheduled maintenance timings. This is because the optimal times of years to take outages will not necessarily be the same every year. For this reason Drax recommends that a forward looking approach is adopted where modelling is undertaken to discover the times of years when the relevant spreads are at their lowest. This should therefore determine when outages are taken for modelling purposes.

With regards to forced outages, a historic approach that creates an analysis based on probabilities seems a sensible approach.

Question 12: Will treating half-hour periods independently have significant effects on our estimates of the de-rated capacity margin and risk of supply shortfalls and how should the model take into account half-hourly cross-correlations?

There is certainly a risk that cross-correlations could adversely affect the outputs of the modelling exercise. For example, the model should consider the actions the SO might take when attempting to balance the system. However, depending on the detail of the modelling, Drax would suggest that a thorough sense check of the modelling be undertaken to ensure that no perverse outcomes result due to unrealistic modelled behaviour, e.g. it would be unrealistic for nuclear reactors to two-shift.

Question 13: Are there any boundaries other than Cheviot that may significantly affect the risk of supply shortfalls?

Drax believes that the three Transmission Owners and the System Operator are best placed to answer this question.