

KiWi Power Response to Electricity Market Reform Consultation Document

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1. Executive Summary

In response to the Electricity Market Reform Consultation Document, dated December 2010—KiWi Power has taken up the invitation to express its thoughts and respond to the questions posed by the Department of Energy and Climate Change.

Our response will focus specifically on chapter 4 of the Electricity Market Reform Consultation Document, as we feel security of supply and market operation reforms pose the greatest area of opportunity in the short to medium term.

We strongly support the creation of a targeted capacity programme, which we believe is vital for securing supply and reserve as the existing electricity infrastructure is decarbonised. We firmly believe that the mechanism should incentivise both generation and demand-side resources, and that legislative, commercial and operational factors must be considered to encourage a wide range of participation. We believe that the level of required reserve may be underestimated, and that the capacity mechanism should be flexible in scale and scope to enable relatively fast expansions and contractions of the programme. We suggest that any programme be implemented on a short time scale and with relatively limited duration to enable gradual evolution and avoid unintended consequences. Finally we feel that the generation and demand side industries should be consulted for the operational design of the mechanism, and that a well-structured programme can encourage large quantities of resource at economic price levels.

In conclusion we feel that a capacity programme is a vital aid to decarbonisation, grid stability, reduction in total infrastructure investment, by targeting critical areas and ultimately lower energy costs for UK consumers and businesses.

2. About KiWi Power

KiWi Power Limited was incorporated in December 2009, to operate primarily as a commercial aggregator of Demand Side Response to the National Grid (NG). Our team has operational experience in demand management contract mechanisms including Fast Response, Frequency Response, DSR and Standing Reserve. Currently, we have multiple DSR sites contracted or under preparation and our most recent schemes include: mining, commercial office buildings, airports, shopping centres, and hotels.

KiWi provides Contingency Power and Demand Side Management technical services including standby generation, process optimisation and smart metering. We work with customers to define demand reduction strategies and ensure successful performance during Demand Side Response dispatch events.

3. Response Questions – Chapter 4 – security of supply and market operation reforms

Question 19 - Do you agree with the assessment of the pros and cons of introducing a capacity mechanism?

Yes, we agree with the overall assessment of the pros and cons of introducing a capacity mechanism. Explicitly rewarding capacity for being made available is a vital component of securing future supply and

reserve, and a well-administered programme will encourage many different types of generation and demand-side resource development.

As well as the pros and cons presented, we believe that three further advantages of a well-designed capacity programme should be recognised:

- ☐ We feel that the potential requirement for reserve capacity in the future may be higher than the 10% assumed, due to large closures of existing plant and the decarbonising of the electricity system with intermittent wind power generation. A risk based approach to the design of a capacity programme will allow for fast, flexible increases and decreases in the amount of reserve available, whilst optimising system security and economic considerations.
- ☐ The optimum capacity programme will take time and evolution to create, both due to feedback and learning by programme designers, and education and acceptance by industry. As such, starting a programme in the near future when reserve levels are relatively high and inexpensive, means that programme changes and optimisations to the can be made much more cost effectively now than in the future.
- ☐ A well-designed capacity programme that targets meaningful quantities of demand side resource can be much shorter in contractual duration than feed-in tariffs, carbon pricing systems, and other forms of low carbon legislation. For example, a capacity programme that fixes payments for just 12 or 24 months can incentivise participation from industry, versus 20 years or more for wind or solar FiTs. As such, a capacity programme can be very flexible to implement and low-risk since obligations are not particularly long-term.

Question 20 - Do you agree with the Government's preferred policy of introducing a capacity mechanism in addition to the improvements to the current market?

Yes, we very much agree with the policy of introducing a capacity mechanism while improving current market conditions. We believe that the introduction of a capacity mechanism, as opposed to relying on the existing energy-only system in place today, will encourage a range of resources that will become more and more important in security of supply over the coming decade, as the electricity infrastructure is decarbonised.

We believe that for a capacity mechanism to have the desired effect of ensuring security of supply in a cost-effective manner, it will need to incentivise a range of generation and demand-side resources. An important aspect of this is that a well-functioning mechanism will take into account the real-world commercial challenges, barriers and opportunities of growing these resources. We feel that the design of a capacity mechanism should at the very worst not discriminate against any type of resource; at best it should encourage the lowest cost, most flexible and most green resources with the largest long-term potential.

Question 21 - What do you think the impacts of introducing a targeted capacity mechanism will be on prices in the wholesale electricity market?

We believe that a properly designed capacity mechanism should both reduce wholesale electricity prices as well as decreases the volatility of these prices in the long term. We feel that the absence of a capacity market could hinder the development and overall level of reserve capacity in the future, which would

add pressure to the wholesale market in undesirable ways. Incentivising sufficient reserve with different operational features that can be used at different times will be a more cost effective solution.

Question 22 - Do you agree with Government's preference for a the design of a capacity mechanism:

- ☐ **a central body holding the responsibility;**
- ☐ **volume based, not price based; and**
- ☐ **a targeted mechanism, rather than market-wide**

We agree in principle with the Government preference in designing a capacity mechanism.

We believe the System Operator would be best placed to handle the responsibility of managing and executing delivery of the capacity mechanism—much in the same way National Grid has been responsible for the Short Term Operating Reserve (STOR) programme. A targeted mechanism would allow for Demand Side Response capacity to be grown in conjunction with new-build, traditional generation to meet the ever growing intermittency load profiles of renewable energy sources. A volume based system with an effective auction process will allow for the market to define the most appropriate price for capacity; this is how the STOR market is currently operated.

To build upon the current success of the STOR programme we would advise on creating a capacity auction mechanism with greater commercial and operational flexible--allowing Demand Side Response to expand its participation. Our experience with a substantial number of commercial and industrial clients has highlighted the fact that the operational parameters of a programme are of equal importance as the financial rewards available. For example, we have encountered many clients who do not respond to the Triad market signals, even though awareness exists and potential savings are high, simply due to operational difficulties in implementation. Commercial aggregators and improved technology can make these modifications easy for energy consumer and can deliver results. The New England Market is a highly relevant example, which used DSR and saved customers \$280m.

We feel industry consultation in the form of a working group to build the environment for DSR to flourish is crucial to its success.

Question 23 - What do you think the impact of introducing a capacity mechanism would be on incentives to invest in demand-side response, storage, interconnection and energy efficiency? Will the preferred package of options allow these technologies to play more of a role?

A capacity mechanism with the right architecture can provide the positive incentives and environment for investment in demand-side response, storage, interconnection and energy efficiency.

We feel the Governments preferred package listed in question 22 is a good start to incentivising the above technologies to play a greater role. For example, we as a commercial aggregator are using DSR to create revenues for investment in general energy efficiency measures and building mounted renewable energy technologies.

We believe any new capacity programme should start with duration of 12 or 24 months to allow industry and consumers to grow accustomed to the new systems and markets. The new capacity mechanism should operate alongside existing systems such as STOR. The benefit is two-fold:

- ☐ Crystallise established investment in DSR and encourage further investment in environmentally based, green industry.
- ☐ Make the capacity market mechanism flexible enough to allow the widest possible participation in either scheme, allowing volumes to grow and reduce prices.

As an operational example, we feel the new capacity mechanism could allow for a longer notification time of potential resource utilisation in DSR – such as day ahead or day of 2 hour notification. This allows for greater planning of curtailment activity for consumers and may result in a greater reduction contribution to the grid. Currently STOR requires response within up to 240 minutes' notice—but typically it is closer to 20 minutes. With a day-ahead notification, the same consumer may be able to shed significant load with relative ease.

We believe that DSR and other technologies in themselves can provide decarbonisation of the UK grid. These environmental benefits should be quantified and highlighted to strengthen their case for implementation as well as the security of supply rationale.

Question 24 - Which of the two models of targeted capacity mechanism would you prefer to see implemented:

- ☐ **Last-resort dispatch; or**
- ☐ **Economic dispatch.**

We believe that there is economic value in both approaches and we feel that both types of resource should be encouraged and implemented.

- ☐ Last-resort dispatch is useful for procuring large volumes of resource that can help stabilise the grid in event of emergency. In our experience there are a large number of demand side sites that would actively participate in a low occurrence but high volume programme more readily and with higher capacity. For example, a shopping centre may be willing to shut down practically all heating and cooling load and run its car park on emergency lighting temporarily once a year, but would not consider doing so more frequently regardless of the price paid.
- ☐ Economic dispatch, which is already implemented successfully in the existing STOR programme, is required for day to day balancing. We feel that a lot of progress has been made in encouraging various generation and demand side resource participation in STOR, and this trend should continue with both existing and new programmes.

While each of the two models may have pricing and implementation differences, there will also be operational and commercial differences to consider. As in the example above, a site may be willing to participate in just one type of programme, or could participate in both with different parameters. It is important not to double-count participation, for example a shopping centre should not get paid twice for making chillers available for both last-resort and economic dispatch. Rather, two separate operational programmes on the same site should target different systems and lead to different load reductions. It is

important to note that properly designing a programme with regards to operations leads to a vast increase in take up at more cost-effective rates.

We feel that whatever programme is chosen, it should be flexible and change over time. Programme design should not be too rigid and programme updates should happen relatively frequently. We strongly encourage the participation of the generation and demand side industries in consultations for programme design.

Question 25 - Do you think there should be a locational element to capacity pricing?

Yes, we believe that in the long term a locational element is an important aspect of capacity pricing as it better reflects the true economic value and costs of resources. However, designing a well-functioning locational programme is non-trivial and the administrative burden on top of a new programme would be more costly than the benefits. We suggest an immediate programme design that has two pools of capacity requirement: a normal requirement and a constrained requirement. Constrained resources should be identified by simple geography or position on the electricity network. Constrained resources may be bid into the normal market, but normal resources cannot participate in the constrained market. The auction mechanism for both should be identical. In this way, price discovery can occur, and since the normal market is suitable for both resources, unintended consequences can be avoided.