

Green Alliance response to the Consultation on Electricity Market Reform

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In response to your request for comments on the above consultation, Green Alliance would like to comment on the limitations of the electricity market reform proposals. Please find below our view of the four mechanisms set out in the consultation.

Carbon floor price

We remain unconvinced that the current proposals for a carbon floor price (CFP) will change behaviour or stimulate investment effectively. As it raises wholesale prices across the board, it will create windfall profits for a number of existing generators and is an expensive way to decarbonise the electricity sector.

The mechanism appears to duplicate other mechanisms in the EMR package. Targeted support to bring on low carbon generation through a feed-in tariff is likely to be far more cost effective. Equally regulation in the form of an Emissions Performance Standard is likely to be a cheaper and more effective way of weaning unabated fossil power plants off the system and building the market for CCS.

Experience in other countries has found that carbon pricing in electricity markets is an extremely expensive way of reducing carbon. To increase the cost effectiveness of the policy, it is vital that the revenue raised is spent on energy efficiency measures. We would therefore urge the government to ensure that a significant amount of the revenue raised through the CFP is hypothecated and used to finance demand side measures.

Emissions Performance Standard

We are disappointed by the weakness of the EPS elements of the EMR package. The preferred model (600gCO₂/kWh) represents a step backwards from the existing Framework for the Development of Clean Coal (FDCC) legislation by failing to provide a mechanism to ensure eventual full plant coverage of CCS, thereby increasing the risk of lock-in to unabated capacity in both coal and gas plant. The 450gCO₂/kWh figure is better but would still do nothing to prevent a second dash for gas if the proposed grandfathering provisions are maintained.

Relying on a carbon floor price to drive CCS retrofit is highly risky, and likely to delay the date at which CCS projects will come forward. Experience to date shows that developers are hesitant to enter into CCS investments based on price signals alone, and even the introduction of a carbon floor price will not provide improved confidence in the short- to medium-terms.

An alternative EPS glidepath model would give investors a clearer signal as to what can and cannot be built and the timeframe in which CCS retrofit is to be expected. Such an approach, which would provide a clear means of tying the EMR package to the required decarbonisation trajectory for the power sector, would also enable the required CCS infrastructure and supply chains to be developed. While allowing some additional unabated gas capacity to be built in the short-term, it would also have the benefit of driving an immediate focus on the provision of new gas capacity that is 'carbon capture realist' rather than projects which may meet 'carbon capture-ready' requirements but which are clearly incorrectly located for future CCS retrofit.

Following extensive discussions with industry and leading academics over recent years, we believe that a well-designed EPS can reward early movers by being set at a more generous level for CCS plant commissioned up to a certain date, provided there is clarity over the timeframe in which full CO₂ capture will be required. An EPS glidepath model would therefore provide greater investor clarity for CCS demonstration plants. We would further underline that a smart selection of demonstration projects would enable a stronger EPS to be met while avoiding lock-in to future financial and carbon liabilities.

Capacity mechanism

In principle we support the government's preference for a targeted capacity mechanism as it appears to reduce payments to existing fossil generators when compared to a general capacity payment. A general payment could result in excess profits for existing generators and fail to bring on investment in the right type of demand and supply side services required in the future.

There appears to be two distinct security of supply issues on the horizon:

- Declining capacity margin as existing plant closes and investment in new fossil generation becomes more risky due to expected low load factors in the future.
- The short-term need for flexibility given the variable nature of much renewable generation coming onto the system over the coming decade.

Demand side resources can help with both of these issues. Demand side resources that deliver a range of services, from long-term energy demand reduction to flexible short-term response, have been shown to be cost effective and reliable in the USA. Indeed many flexible demand side resources can respond more quickly than supply side resources, reliably delivering services within a half hour notice period. If the capacity mechanism is focussed on the latter issue, there is a need to find a way to pay for demand side resources that deliver long-term energy savings both within EMR and the wider policy package.

Government needs to decide what types of services are required and then create a competitive market which enables both demand and supply resources to compete on price on a level playing field. Demand side resources should be eligible to participate in a capacity mechanism and should be included in any feed-in tariff scheme.

The potential for increasing the contribution of the demand side in the UK is vast. For flexible short-term services alone, National Grid estimate that a further 11GW

of demand services could be deployed by 2020 compared to the 350MW of demand contracts currently used in the Short Term Operating Reserve (STOR). A number of non-economic barriers to their deployment will, however, have to be addressed for them to achieve their full potential. In the short term there may also be a need to actively incentivise and encourage demand side services whilst the perceived risks are reduced and people become more familiar with the technical and contractual arrangements. Incentives should be put on the agencies administering the capacity mechanism and feed-in tariff to promote the use of demand side services. Further policies will be required outside of EMR to ensure that demand side services across the economy are provided with a revenue stream.

As there are a number of non-economic barriers to the uptake of demand side services, government is right to think ahead so that solutions that work for both demand and supply sides can be developed, rather than rushing into a crude mechanism on the cusp of security of supply problems.

Support for low carbon resources

Removing wholesale price risk is important and we would therefore support a Contract for Difference (CfD) or fixed feed-in tariff (FIT) over a premium FIT. However we would question the analysis done to compare a CfD with a fixed FIT. The benefits associated with reduced balancing costs under a CfD do not seem to have been quantified and other risks associated with a CfD (such as offtake risk) do not seem to have been properly assessed or quantified so that the costs/benefits of the two can be compared properly.

- Would a CfD penalise renewables through basis risk? Due to their intermittent nature, most renewable generators tend to sell electricity below the average market price. Intermittent renewables find it harder to accurately predict output and therefore face higher balancing charges. Wind generators also suffer as they tend to be on the wrong side of market (ie want to sell when the price is low and buy when the price is high). Over time as the level of wind penetration increases, this effect will become worse and wind generators' access to peak electricity prices will decline. As the amount generators are paid under the CfD would be linked to the average wholesale price, this would mean renewable generators would lose out compared to generators which tend to sell output at an amount closer to the average price (eg nuclear).
- Need to improve market liquidity. The Redpoint modelling assumes that the electricity market is liquid and transparent. However in reality independent generators have problems getting access to market and face offtake risk (the risk that a generator cannot sell the electricity it produces in the market). Whilst in theory independent generators could sell electricity on a power exchange, they can usually only raise finance for a project if they have a Power Purchase Agreement (PPA) with a supplier - this is particularly important for small players. In addition to the risk that independent generators can't get a PPA, there is concern that if they do, suppliers may apply high discount rates. To reduce the discount rates applied under PPAs (and therefore costs to end consumers) it will be important to ensure generators are given better access to markets:
 1. Ideally through improving market liquidity, or if this is not done, by

2. Introducing an obligation on suppliers to buy renewable output – however this is a poor substitute to the underlying need to improve market liquidity.

Greater market liquidity will also be required to enable a reliable reference price to develop against which CfDs can be indexed. To address these problems with market liquidity government should consider significant reform to the wholesale market, eg through the reintroduction of a mandatory pool.

- Volume or price? It is unclear from the consultation whether the CfD proposed is fundamentally a volume or price based mechanism. If it is priced based (ie the price is set for each qualifying technology either through an auction or administered price and the market then responds), the body awarding the contracts would need to monitor the expected volume of low carbon electricity under contract each year. If the volume fell below that required to keep the sector on the required decarbonisation trajectory, the body would need to flag the short-fall to government.
- Need to build in cost reduction. Including degression in the FIT will be vital to minimise consumer burden and encourage competition. Some form of auctioning for mature, non-site specific technologies may help with price discovery but is unlikely to work for most project types. Alongside degression, the government needs to increase its support for RD&D and demonstration projects to ensure immature technologies can be brought to market and to help stimulate step change innovation that should result in significant cost reductions.
- Need for energy efficiency FIT. Given the government's preference for a targeted capacity mechanism as outlined above, we would urge government to consider allowing demand side resources that deliver long-term energy demand reductions to qualify for a FIT as well as supply side resources. An 'energy efficiency FIT' has been shown to work in the PJM and New England markets in the USA and is typically far lower cost than supply side tariffs. Similar monitoring and verification systems to those developed in the USA could be adopted to ensure the services procured meet reliability and additionality criteria.