

## Review of Electricity Market Arrangements

**March 2023**

### Introduction

#### What is REMA?

In July 2022, the UK Government launched its Review of Electricity Market Arrangements (REMA). This consultation marked the beginning of the UK's first major electricity market shake-up for 10 years and puts forward a series of reforms aimed at establishing an electricity system fit for the future.

REMA ultimately has three objectives: supporting the UK's ambitions to fully decarbonise the power system by 2035, lowering bills for businesses and households, and improving energy security and reducing exposure to the volatility of global fossil fuel markets.

The Aldersgate Group responded to the consultation, focusing in particular on principles for market reform, proposals for a 'net zero wholesale market', the needs of a mass low carbon power system, and incentives for low carbon flexibility. This short briefing summarises our response.

### Objectives for market reform

#### Objectives and assessment criteria for reform

The Aldersgate Group agrees with the objectives of electricity market reform set out in REMA: the creation of a net zero wholesale market; facilitation of mass low carbon power (and delivering the grid to accommodate it); and improvements to low carbon flexibility, capacity adequacy, and operability.

Government should also embed these principles in Ofgem's remit. This would help to unlock investment in net zero infrastructure, which has sometimes been stifled due price control reviews prioritising short-term cost-effectiveness over decarbonisation and long-term price reductions.

We agree that reforms should be assessed against cost, deliverability, investor confidence, whole system flexibility and adaptability. However, more clarity is needed on how these criteria will be weighted/take precedence in decision-making. In particular, whether 'least cost' refers to long- or short-term costs. A focus on reducing short-term costs could be detrimental to long-term benefits. For example, anticipatory investment in grid infrastructure now would increase short-term costs, but reduce curtailment costs (that outweigh the near term spend), and increase energy security in the future by enabling a power system that is able to accommodate more renewables.

It will also be necessary to understand whether the 'least cost' criterion will be considered primarily in relation to energy generators, grid infrastructure, or energy consumers; and how a balance will be struck when 'least cost' cannot be delivered across all categories.

### A net zero wholesale market

#### Approach to reforming the wholesale market

This consultation puts forward a comprehensive range of reforms to the wholesale market, all of which would take time to implement and represent a significant departure from current arrangements. They are complex and will require significant resource from market participants and stakeholders to understand, feedback on, and, eventually, adapt to. In order to maintain stability for generators, suppliers, off-takers, consumers and investors, it is important that any future changes are implemented in an evolutionary, rather than revolutionary, way, and that the options on the table are refined with extensive stakeholder engagement.

### **The impact of marginal pricing**

Due to the current marginal pricing approach of UK power markets, gas sets electricity prices 98% of the time - despite usually being the most expensive form of power generation brought online to meet demand, and accounting for less than half of all generation. This means consumers are paying unnecessarily high prices for electricity, and will do so while gas continues to set the marginal price.

Government should therefore prioritise mechanisms that deliver the ‘real’ price of renewable electricity to consumers.<sup>1</sup> This would incentivise electrification and decarbonisation across the economy, with reduced electricity bills improving the business case for investing in low carbon technologies.

While decoupling gas and electricity prices is not simple, it is likely the most viable way of delivering near-term savings to consumers and industry. It is also a way for Government to provide support to vulnerable consumers without large scale financial expenditure and borrowing. Without some kind of support, vulnerable households face negative, cost-of-living-related, health outcomes, while energy-intensive industries, facing increased competitiveness pressure on an energy-related basis, could go out of business or choose to relocate their activities to where electricity is more price-competitive.

### **A Green Power Pool**

In previous reports published by the Aldersgate Group and UCL,<sup>2</sup> we have recommended that Government implement a Green Power Pool (GPP), which aggregates renewable power on CfDs and sells it in priority to vulnerable consumers at the average price. We recommend that vulnerable households and the steel industry be the first consumers in this market, due to their urgent needs for cheap power, but also to test the GPP in a part of the market before applying it more broadly.

CfDs already procure growing electricity volumes at declining costs – but the mechanism is complex because the power is sold into the wholesale market and is not directly available to consumers.

As the marginal price is set by gas up to 98% of the time, our analysis shows that consumers that do not have access to the GPP would face very minor price increases from the withdrawal of CfDs from the wholesale market. Renewables not on CfDs, which dominate the contribution of RES in UK power markets, would remain in the wholesale market.

---

<sup>1</sup> It is crucial that when undertaking electricity market reforms, Government has consumers and off-takers in mind, and consults with them alongside generators, suppliers, and network operators.

<sup>2</sup> Grubb, M, Drummond, P, UCL, Aldersgate Group, 2018-21. Our initial proposal for a Green Power Pool in [UK Industrial Electricity Prices: Competitiveness in a Low Carbon World](#) (2018), and further recommendations on both the Green Power Pool and wider electricity market reform in [Delivering Competitive Industrial Electricity Prices in an Era of Transition](#) (2022).

As the contractual arrangement between generators and the LCCC would not change in any way, we predict that a GPP could deliver affordable power without changing the basic financial principles that underpin investor confidence and market stability.

We do not think that a GPP should be immediately applied across the power market, as this would be a revolutionary approach to market reform (and therefore risk unsettling investment in new renewables). However, it could also dilute the benefits passed on through access to cheap power for specific consumers.

Instead, CfD-derived electricity could be offered to two particular groups of high political and welfare concerns:

- Industrial consumers whose international competitiveness is directly threatened by the differential between GB/EU prices compared to countries where electricity prices are directly regulated; and
- Special-purpose windows for suppliers to market power to vulnerable domestic consumers – groups already targeted for previous government supports, or otherwise defined for this purpose.

In both cases, the price to these consumers would necessarily be regulated to reflect the generation plus add-on costs, not linked to the wholesale market. This would be entirely independent of modest reforms to CfD contracts already being considered.

However, there is a need for close consultation on this to avoid any unintended consequences. For example, it will be necessary to understand how a GPP would affect investor confidence, and how adequate liquidity can be built into a GPP.

For more information on how liquidity and balancing can be supported in a Green Power Pool, please see the working paper from the Aldersgate Group and UCL, [Separating electricity from gas prices through Green Power Pools: Design options and evolution](#).

### **Price cannibalisation**

As renewable power generation displaces fossil fuels in the UK's energy mix and becomes sufficient to meet total demand, the marginal pricing approach raises further challenges. When renewables meet total demand, the wholesale market price will reduce to the short-run marginal cost of renewable power generation. This could reach zero or even negative prices, as the sun and wind are free resources. The marginal pricing approach therefore means that renewable generators would raise insufficient funds to cover the large capital costs incurred when building new plants.

### **Pay as bid vs. Pay as clear**

As recommended above, the Aldersgate Group suggests that the Government take forward the proposal for a Green Power Pool, particularly to mitigate the negative impacts of marginal pricing in a system where fossil fuels are needed to meet demand (artificially high prices for renewable electricity), and when renewables eventually dominate the system (price cannibalisation).

Looking separately at the specific consideration of 'pay as bid' and 'pay as clear' options, Government should acknowledge that pay as bid arrangements are unlikely to deliver substantially lower prices for consumers, and could be disruptive to the market. For example, generators will be incentivised to increase costs when auctioning, thus distorting the merit

order. We could also see renewables (that generate cheaply, but need to cover capital costs, thereby bidding for a higher price), being underbid by fossil fuel plants and pushed out of the merit order. The latter would run counter to the core objectives of REMA: lowering bills, decarbonising power, and reducing dependence on volatile fossil fuels.

### **Locational pricing signals**

In a net zero power system, generation will be dominated by wind, solar and potentially nuclear generators, all of which cannot respond easily to locational signals. Renewables must either be located where optimum wind, solar and tidal resources exist, or where planning permission can be granted, and/or, especially in the case of nuclear, are extremely expensive to build.

The Aldersgate Group therefore agrees that there is a need for more effective locational signals when it is possible, particularly for demand-shifting and power storage.

There is also clearly merit in exploring options that could reduce the need for system-balancing and better incentivise demand-side responses by exposing consumers to a form of locational pricing. However, it is important that, if introduced, locational pricing does not lead to disincentives for new investment in low-carbon infrastructure. This is a concern that has been expressed repeatedly in the Aldersgate Group's engagement with a wide cross-section of industry and the investment community.

### **Nodal pricing**

When it comes to nodal pricing in particular, Government should be aware that exposing consumers to nodal pricing could have adverse distributional effects, especially at times of market constraint/volatility. For example, consumers in areas where generation is low, would face higher electricity prices and rely more on electricity 'imports', while those in areas with high generation would face lower costs. Conversely, generators operating in areas where generation is plentiful would see their income fall, while those operating where generation is low, would see an increase in profits.

An additional concern is that, as stated above, our future energy mix will be dominated by generation sources that have limited availability to respond to locational signals. Nodal pricing is better suited for fossil-dominated generation, where location is less dependent on factors beyond market prices.

Even assuming that future renewable generators could respond to nodal prices and be located in the areas that provide the best overall system outcomes, consideration will need to be given to how locational pricing will impact existing generators. In this regard, it is important that inflexible locational price signals do not add additional costs to generators without creating benefits to the wider system.

More generally, and for offshore wind in particular, locational pricing options will need to be considered alongside Crown Estate leasing rounds and spatial constraints in the North Sea, which are likely to limit the location options available for the industry.

### **Mass low carbon power**

#### **Supplier obligation**

The Government's proposal for 'supplier obligation', through which energy suppliers are obligated to procure a certain percentage of renewable electricity for their customers, was

found to be extremely unattractive from a range of organisations across the Aldersgate Group's membership, other NGOs, and the wider industry community.

Given the volatility of recent fossil fuel prices and the need to mitigate risks for developers, a significant amount of hedging would need to be done if a supplier obligation were in place. This would likely increase costs for developers and investors, and consequently, consumers.

Moreover, due to a current lack of liquidity in the market, it is likely that actually delivering on supplier obligations would be extremely difficult.

### **Central contracts with payment based on output**

The Aldersgate Group suggests that central contracts based on output should continue. CfDs for example, have been extremely successful in growing the UK's offshore wind sector, and moving away from this model would have to be extremely cautious.

A sudden departure risks creating investment gaps, with developers (and the wider supply chain) diverting investments to other areas. Not only would this damage the UK's electricity markets, energy security and net zero targets, it would have a negative impact on domestic industries, growth and job creation. In this regard, electricity market reform should consider its impact on the UK's industrial policy to avoid unintended consequences.

### **Central contracts with payment decoupled from output**

With the above in mind, Government should explore the potential of central contracts with payment decoupled from output, looking in particular at how they may be able to provide effective market signals for flexibility and system services. With a cautious approach, such contracts could include a cap and floor model, or could introduce a 'strike price range' for renewables, to incentivise flexibility where possible.

## **Delivering flexibility**

### **Creating effective investment signals for low carbon flexibility**

At current, there are inadequate signals for low carbon flexibility. For example, renewables on fixed-price CfDs do not face price exposure or any real-time incentive to act more flexibly where possible. While wind and solar provide cheap electricity, by nature they are less flexible. Government must therefore prioritise the creation of incentives for flexibility where it is possible.

This should include creating revenue streams for flexible assets and other flexibility solutions, such as demand reduction, storage and interconnection. For example, by introducing a cap and floor mechanism like that used with interconnection for other flexibility solutions, Government could help to reduce the time it takes for technologies such as storage start making a financial return. This would significantly de-risk investment in new flexibility services.

### **Reforming the capacity market for flexibility**

The capacity market was not established with net zero in mind, and currently excludes – or limits – the role of low carbon technologies and solutions that are needed to provide capacity and flexibility in a low carbon system, such as long-duration electricity storage and demand-side response.

It is crucial that as the UK's electricity system evolves, the capacity market does not lock-in unabated fossil-fuel plants, and encourages a mix of low carbon generation plants, storage and demand side response solutions.

The capacity market is not currently capable of driving adequate investment in low carbon flexibility, especially as de-rating factors reduce the capital available for upfront investment in flexible low carbon power generation.<sup>3</sup>

Due to the different nature of renewable generators, split auctions could be useful in bringing forward different, valuable technologies which would not otherwise be able to compete under current capacity market arrangements – assessing beforehand however, potential impacts on liquidity.

Government should also look to better include off-takers, such as electro-intensive industries, in the capacity market, to capitalise on their ability to shift significant power usage in a way that can generate system benefits (in the form of system balancing at times of demand peaks and troughs), as well as financial benefits for businesses (via direct payments for these services).

---

<sup>3</sup> Relatedly, Government should consider options for centralised reliability, rather than pursuing de-rating factors that reduce the incentives for certain technologies to participate in the capacity market. However, the criteria for low carbon technologies' participation need to be clarified in the near term to create greater understanding and confidence as regards their ability to participate.