

UK Energy Policy

A Little Less Intervention, A Little More Action



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Executive Summary

The UK is facing major energy challenges. Aging infrastructure, greater reliance on gas imports and tighter controls on emissions, mean that the landscape is changing. Investment is required on a huge scale in order to maintain security of supply and affordability to consumers, while at the same time reacting to environmental goals.

But this is not news. Successive governments have acknowledged the approaching issues, with energy reviews in 2002 and 2006, and Energy White Papers in 1998, 2003, 2007 and 2011. Policy focus has changed over time. What could be viewed as politically difficult decisions were put off time and again.

Nuclear power generation in particular has proven problematic: while the schedule for shutdowns of the previous generation of nuclear power plant has been known for well over a decade, politicians chose to keep the nation's options open and defer decisions on developing policy for nuclear new-build, rather than rule it definitively in or out. Once nuclear power was put firmly back on the agenda in 2008, the next challenge became finding a method to ensure new plant would be constructed, and in time for when their output is needed. By trying to ensure that the selected method would neither advantage nor disadvantage nuclear power compared to other forms of generation, trying to promote nuclear but without a public subsidy, and also attempting to get round any European rules on State-aid, we have ended up with much of the proposed Electricity Market Reform we see today.

Large scale interventionist policy appears to be turning the UK energy market about face, undoing some of the progress to liberalisation. There appears no longer to be faith in the market to deliver, and with the prospect of financial support from government for any major development projects, why should it?

The complexity of many measures proposed under the Energy Bill seems likely to deter some investors, or at the least cause delays while they seek to understand the possible implications and risks involved. Experienced market players, on the other hand, will be more comfortable with this complexity. Timely implementation and operation will be difficult and costly.

Above all, the years of uncertainty, and continuing lack of clarity on many EMR measures, have left the UK with a problem: without clarity and consistency investors cannot commit. Too much intervention itself causes uncertainty, leading investors and market players to defer investment decisions. The economic downturn, and corresponding drop in energy demand, has delayed crisis point by a few years, but it is fast approaching.

We have cast a critical eye over the policy measures, which have been under development for several years and are currently making their way through parliament. We suggest that rather than complex interventionist policy, the market needs a clear long-term framework within which it can work to solve the problems we are facing and attract external investment.

We cannot afford to keep our options open any longer. It is time for a little less intervention and a little more action.

Policy Background

A key aim of the Energy Bill and Electricity Market Reform is to help currently uneconomic low carbon generation projects secure finance and receive decisions for development go-ahead. A series of policy measures are to be introduced in an attempt to provide certainty and comfort to investors on revenue streams, at least in the short to mid-term, until the market can take over again. A further aim is to attempt to ensure security of supply where it is feared the market will fail to do so.

But does this much intervention actually cause regulatory uncertainty? Is it preventing timely investment decisions, thus already resulting in unintended consequences? Is large scale intervention in the UK market going to turn out to have been a wise thing to do? Given the sophistication of the players who have shaped the market so far and Ofgem's seeming lack of strength or decisiveness, how will any windfalls be prevented?

- We question whether the stated policy goals can be met with the selected tools and whether the chosen interventionist approach is likely to be a suitable solution for the UK energy landscape.

Back in 2010 we highlighted that the new coalition government was about to embark on an energy policy which would provide a high-cost, low-quality solution for consumers, and suggested it was a good time to take stock of the situation, potentially to consider alternative solutions.¹

So what has happened in the last three years? There has been a lot of coalition to-ing and fro-ing over subsidies for nuclear (or lack of them), internal wrangling at the Treasury over carbon targets and levies, countless consultations and changes of personnel at the top, but very little real progress. Yes, we now have some draft policy frameworks, thanks to the 2011 White Paper and Draft Energy Bill of Nov 2012, but we still appear to be facing considerable uncertainty on what the proposed solution means in reality, and how it will be enacted.

Meanwhile the world has moved on in many ways – the Fukushima Daiichi nuclear crisis in 2011 has led to a global re-evaluation of nuclear power and a change of energy policy direction in Germany and Switzerland. This has directly affected the UK, as German utilities have withdrawn from bidding to build new nuclear plant here. Centrica, the only UK company involved, has had second thoughts about involvement in building new nuclear plant thanks to uncertainty about overall project costs and the construction

schedule. US shale gas production and the lack of the predicted economic recovery have caused the role of coal in power generation in Europe to change, unexpectedly moving it to base load, thanks to relatively low coal and carbon prices. According to the outgoing Ofgem chief, Alistair Buchanan, the UK has now actually accelerated towards an electricity and gas supply crunch.

We are facing the same old energy policy trilemma: 1) affordable to consumers, 2) secure and 3) green (by which is meant low carbon). 'Green' appears to be the accepted policy priority. It presents some, at least transitional, issues for 'secure' and 'affordable' – or 'least cost' as the term more recently used.

The route chosen for going 'green' looks not to be 'least cost' today: targeting investment in certain low carbon generation technologies comes at a higher cost than other decarbonisation options, such as reducing energy consumption. The capital costs of offshore wind plant are around five times those for a gas-fired combined cycle gas turbine plant (CCGT), and while these costs should decrease over time, as technology matures and construction processes improve, these huge, remote development projects are likely to remain relatively costly to build.² The costs of new nuclear plant under construction in Finland and France have doubled³, with completion subject to continuing delays. And unlike the expected downward course for the costs of most renewable technologies, costs for nuclear plant have actually shown an increase over time with 'negative learning effects'⁴.

Meanwhile, the cost to the consumer has become of greater political 'interest' – a survey last year showed that half of voters prioritised the high cost of energy bills above any other issue they want politicians to tackle⁵. But in a privatised competitive market, the energy suppliers serve their shareholders, within a regulatory framework; deregulation took away centralised planning and price controls on supply, meaning that government has only a modest degree of indirect influence on energy prices, despite the consumers' perception. So the policy landscape within which the industry operates is crucial. Greater intervention, attempting to address the 'green' and 'secure' energy policy issues, is unravelling much of the liberalisation of the energy market. At the same time, energy companies are naturally seeking to preserve their commercial interests and to optimise their positions within the new rules. While the negotiations and consultations take place, vital time is being used up and the uncertainty prolonged. This potentially prevents timely investments and makes others appear more risky, both of which effects ultimately lead to higher end user prices.

New Policy Mechanisms: Critique

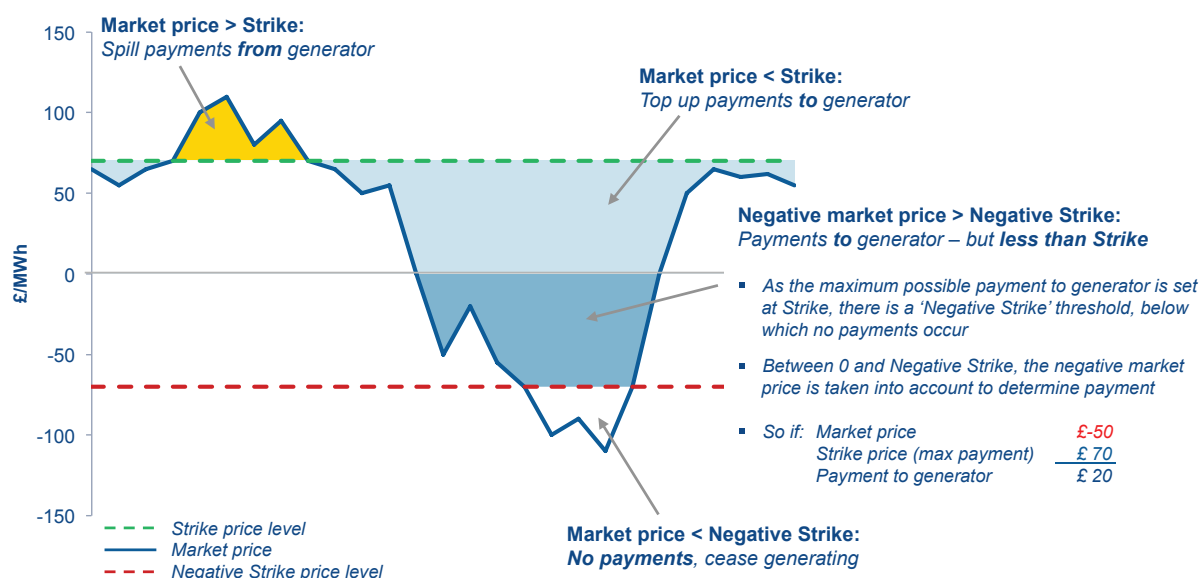
The proposed UK policy framework is made up of several elements, some of which appear to negate (or promote) the need for others. Put together, they will mean a period of huge change for the industry, and massive challenges for all concerned, in terms of timely and effective implementation. The complexity and possibility of delays leads to yet more uncertainty. We have reviewed some of the measures and highlight potential issues and areas still lacking clarity.

- **FiT CfDs:** the Feed in Tariff with Contracts for Difference potentially brings a level of complexity that could benefit the market players, experienced in the trading and optimisation of energy derivatives as they are, much more than the government estimates. In brief, the CfD will be a contract between a central counterparty and the generator, based

around a 'strike price' to be set according to the price level required by the generator to make a particular development project viable. If the market reference price is below the strike price, the generator receives top-up payments; if the market reference price is above the strike price, the generator pays spill payments. The maximum payment the generator can receive is the strike price, meaning that, should there be a negative market reference price, the generator would receive payment up to the strike price, but taking the negative market reference price into account. In times of negative prices (e.g. high wind, low demand), the payment will be lower than the strike price, removing certainty of revenue streams.

Figure 1. Illustrative example of FiT CfD payments, assuming a strike price of £70/MWh:

- Negative prices up to the negative strike price level will still mean payments to CfD contracted generators, but undo some of the revenue certainty the CfD is intended to provide.



Source: DECC, Arthur D. Little

1 'Realigning UK Energy Policy', August 2010, available for download at http://www.adlittle.com/UK_Energy_Policy

2 UK Electricity Generation Costs Update June 2010, Mott MacDonald, commissioned for DECC; 2010 'next of a kind' EPC costs around \$1000/kW for CCGT vs \$3500-5250/kW for offshore wind, up to \$5500/kW for Round 3 offshore wind projects; 2020 overnight EPC costs \$850-980/kW for CCGT vs \$3145-4540/kW for offshore wind, up to \$4930/kW for Round 3 offshore wind.

3 www.world-nuclear-news.org

4 Grubler, A, 2010. The costs of the French nuclear scale-up: A case of negative learning by doing.

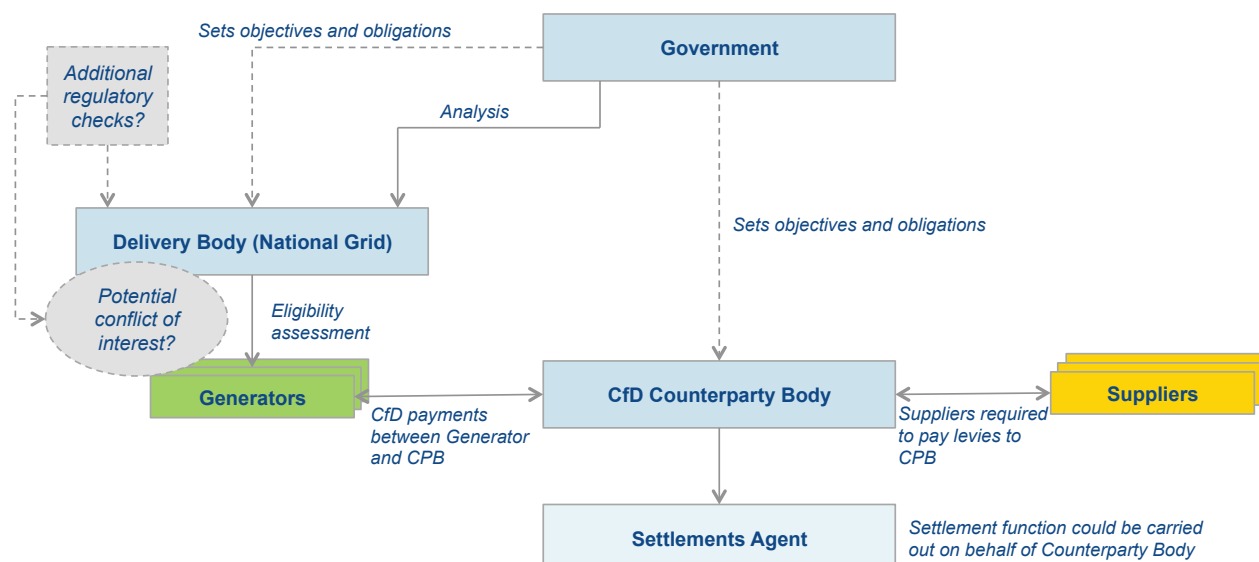
5 Policy Exchange

At the time of writing, there is still uncertainty over many issues connected to the proposed CfD mechanism: how much new generation it will or can support and how it will be limited, the strike and reference prices (which hinge on Ofgem acting to improve traded market liquidity, or some kind of legislative intervention), timings for change in the allocation process going forward, the competition/auction process itself, how monies will be collected/distributed and what that means for suppliers/generators, whether the strike prices will be set at realistic levels, ...

It looks likely that developers of some wind projects will miss the boat for CfDs thanks to the Levy Control Framework limit on funding and the long list of proposed sites. Fundamentally, at the moment it appears that there will be more projects than can be supported by the funding to be made available. Applications for CfDs can only be made once significant investment has been made, for example in securing agreements for grid connections and planning consents. Uncertainty on the likely availability of a CfD, in addition to that surrounding pricing and contractual terms, does not provide the comfort that investors need to pay for these projects to move forward to the point where they become eligible to apply.

As an administered price, the strike price will never be set at the 'right' level. It will almost certainly lead to a poor allocation of resources, with less viable, more expensive projects being advanced because of it. The structure for the delivery of the mechanism also gives rise to potential concerns and cost implications. A combination of the System Operator (National Grid), a new body to play counterparty to the contracts, potentially a settlement agent, the government and Ofgem sounds like a complicated web of administrators, operating at no little expense, and with the potential for information to be sitting in the wrong body. Further, National Grid is a public company, which has its shareholders to consider. In order to prevent it from gaining commercial advantage from its central advisory position, more regulation will be needed to ensure transparency and compliance.

Figure 2. Potential structure for administration of the CfD



Source: DECC, Arthur D. Little

The possible effect of the CfDs on the market price is unclear. The market reference price, although this is not yet known, will be of key importance, determining the level of payments from and to generators. It must be the same market, or one closely linked, to the market in which the CfD generator is selling, or there is a chance of either windfall earnings or under-earning. Currently there are doubts both about the liquidity of the market and the reliability of the reference price. The government claims that there will be many CfD contracts at many strike prices generating at many different times and that this information will not be known to the market. But markets are good at discovering information and using it to their advantage; some players will be able to garner the information from their own portfolios, and the public nature of the strike price negotiation for Hinkley Point means that at least one price will be well known. Will the base load price creep towards it? Future higher levels of intermittent generation on the system, which will be paid based on the day-ahead market, will eventually mean negative prices on high-wind, low-demand days (down possibly to the level of the negative strike price as the generator will get paid up to the strike) and price spikes on low-wind, high-demand days.

- **Carbon Floor Price:** in place since April 2013, this is highlighted as another reason for some coal-fired plant, with limited remaining operating time due to regulatory constraints, to withdraw from the market earlier than expected (e.g. 2013 instead of 2015). It is a tax and therefore has inherent uncertainty: it can be removed or changed at a future government's whim – so does little to reassure investors. It is also set at a level to top up the EUA price to a desired UK floor price for carbon, based on the forward curve for EUAs. This appears inherently flawed. First, as it is set in the Budget well in advance, market prices are likely to move after the top-up level is decided. Furthermore, the EUA market itself has not been without problems and is based around an Emissions Trading System itself struggling for credibility and direction. The effect of such unilateral action for the UK is likely to be carbon leakage, with firms moving operations elsewhere, while the government finds itself intervening further with discounts, support mechanisms and/or redistribution of tax revenues. Electricity generated from fossil fuels in interconnected markets will be comparatively cheaper to produce and imports incentivised.

- **Capacity Mechanism:** the need for peaking plant, or demand side response, to cover those hard to predict low-wind days, leads to the possibility of a Capacity Mechanism, but there is uncertainty over whether it would actually be enacted. As rationally pointed out by Centrica, SSE and others, any possible market-based investment plans will be stalled with the looming promise of guaranteed revenue under this mechanism. Postponed investment decisions could lead to greater fears of supply shortages and thus to higher prices. Elsewhere, Germany has taken capacity measures to cover the increasing proportion of intermittent generation in the mix while nuclear plant are being shut down and gas-fired plant are not economic. Intervention has become necessary to keep the lights on as the market and price landscape have already changed. Moving too soon to suggest such measures, and then not providing certainty on implementation and timing, has led to paralysis in the UK.
- **Emissions Performance Standard:** ultimately, this appears unnecessary, as setting a floor in the carbon price should prevent the construction of high emitting plant. The inference is that this measure could be tightened in the future. So while it is planned to apply to today's new build plant through their operational life to 2045, it carries yet more uncertainty around future changes that will need to be accounted for.

- **“A better deal for energy consumers”**: the headlines on this proposed package of measures were about the government seemingly trying its best to regulate tariffs in a deregulated market, making sure we all paid the lowest tariff for our gas and electricity. Which of course does not make any logical sense at all: if we all pay the lowest tariff, then we all pay the average tariff. Essentially, some of us will pay more, some a bit less, but the impact will be limited. No one will ‘be switched’, the information will be provided and customers will have to act. Fixed term deals, which prevent switching, will still exist, as will differentiation by payment type, meter type and so on. So the list to choose from on the price comparison websites may or may not be shorter, but there will be little change in addition to the proposals already in train to provide more information to consumers. Strangely, at the same time as helping everyone get a better deal, the government would also like to encourage collective buying, by which consumers form an energy club and tender directly with suppliers for a group deal. It seems probable that the savvy customers will go down the collective buying route to secure better prices, which by their nature will be neither transparent nor available to all, while the rest stay with suppliers on the assumption that they are getting the ‘lowest tariff’. Actually they’ll be subsidising the collective buyer deals and seeing their own prices creep up. It does not really sound like a better deal for customers.

EU context

How do all these interventionist measures square with the European Commission’s drive to improve the internal market for energy? The free movement of goods and services between Member States is key, yet the UK is taking unilateral measures potentially to its economic disadvantage and which may, for example, lead to the imposition of restrictive or special measures on electricity imports. State Aid challenges to the proposed measures are not ruled out. Meanwhile, the UK government already seeks to undermine its own planned policy by exempting energy-intensive users from the carbon floor price and potentially from CfD payments.

Way Forward

When we embarked on the road to market liberalisation, the UK government saw its role as to set a framework to ensure the energy market operated with a minimum of distortion and that energy was produced and consumed efficiently. However, the market is not now considered fit for purpose to meet the demands placed on it. With the benefit of hindsight, allowing a return to vertical integration in the late 1990s, while at the same time continuing with deregulation, appears to have been an error. A degree of competitive tension was lost from the market. At the same time, uncomfortable decisions on energy policy were postponed, leading to the current impending web of uncertainty and complexity.

With the delay of nuclear new-build, the closure of both coal and the previous generation of nuclear power plant, we are now looking at a capacity crunch very soon, probably within five years. In this timeframe, and with environmental constraints, only one technology can meet the challenge: gas. None of the interventionist measures proposed thus far help to get sufficient gas capacity on the system to meet this supply gap, in fact they are a hindrance, as developers continue to wait to see what kind of financial support they can hope for. DECC is hoping, perhaps optimistically, for major contributions from demand-side response. Meanwhile, hints are even being made that the Capacity Mechanism could be adjusted to introduce earlier incentives for conventional power plant – indeed SSE has pushed for early payments for existing plant from 2014, warning that the government has underestimated the capacity crunch coming in the next three years.

But is the reaction in fact thanks to excess intervention? Without it, it is likely that price signals, which may not be transparent to all in today's market, would indicate the need for mothballed plant to return to operation, for new build projects to be advanced; National Grid would contract for short-term reserve and demand side response as its role dictates. If we require constraints around emissions and the cheapest plant to meet requirement is also the dirtiest, rules on emissions levels can restrict the type of new-build plant (e.g. the EPS). The framework allows the market to solve the problem, providing the framework is sound.

We also acknowledge that for our electricity supplies to be secure, a mix of technologies in the mid to long-term is required. It is clear that to meet the constraints on carbon emissions, some technologies within that mix will need a degree of initial support, some more long-term. Balancing the support mechanism to bring long-term clarity for investors, appropriate levels of intervention, value for money and transparency is important. Taking a one size fits all approach for all larger scale low carbon projects may not be a suitable way forward. Furthermore, taking a gamble on setting a price has been shown many times to lead to over-investment in certain technologies, disruption and lack of confidence.

■ Give the industry a clear framework: declare the 2030 decarbonisation targets now

For the benefit of consumers and market players, a strong energy framework needs to be put in place providing firm, long-term direction and incentive for action as soon as possible. This includes fundamentals such as declaring the 2030 decarbonisation targets, rather than delaying the announcement to 2016. If we have reached a position where the market is considered unfit or unwilling to solve the problems it faces, this seems due to the lack of clarity of objectives and suitable regulatory landscape for it to work within. Micro-management in the form of greater and greater interventionist policy will prevent the market from functioning, lead to greater inefficiencies and to unintended consequences. Fix the framework and let the market get on with solving the problem.

■ Reintroduce competitive tension to the market

Regardless of the proposed CfD, the market would benefit from improved transparency of price signals beyond the short-term, to aid investment decisions for all technologies and encourage participation. Actual vertical disintegration looks to be a step too far in a market facing such considerable challenges; a form of 'contractual disintegration', pushing 'forward' power sales away from internal bilateral contracting and onto the traded market, might be a step forward. Introducing a further degree of competitive tension in the industry could ultimately lead to benefits for consumers and improve its public perception.

■ **Provide realistic long-term certainty to investors**

For low-carbon generation, investors are clear that the long-term certainty of a framework and the need for stability during project development are crucial. They know that realistically the details of regulations will evolve over time, but that a mechanism which provides long-term visibility is preferable to the possibility that a 'guaranteed' price may disappear, or become unavailable to them through over-subscription. We need to avoid a race against time to bring projects on line to take advantage of overly high feed-in tariffs/strike prices, which has potential to lead to chaos, especially with grid connections, where bottlenecks are already occurring.

■ **Reconsider the CfD – rethink obligation-based mechanisms**

Obligation based mechanisms are familiar to the market and, while criticised, the Non Fossil Fuel and Renewables Obligations have been more successful than some give credit for. By taking the route of an obligation placed on suppliers to purchase renewable and low carbon generation, with the possibility to allow transfer of funds to nuclear plant thereby avoiding government subsidy, we would also have the opportunity to make improvements on the basis of lessons learned. Measures such as a 'bid bond' arrangement to guarantee continuation of current rules during the development period, and clearly signposted policy review intervals, could address some of the risk issues raised in criticism. We may be over-simplifying here, but the complexities of creating, introducing and operating the CfD mechanism have already led to talk of a possible delay to implementation and a need for further extension of the RO to run in parallel.

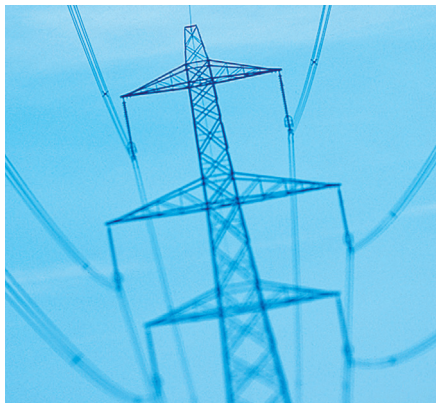
■ **Differentiate support mechanisms between lower and higher risk/capital projects**

While some development projects, such as nuclear and deep water offshore wind, require much larger, longer-term investment and therefore would like to seek very long-term guarantees of revenue streams, other projects can look for the security they require over a much shorter time period (as little as five years). It is perhaps inconvenient for policy makers in addressing EU state aid concerns to differentiate in this way, but the differences should be acknowledged and catered for to avoid inefficiency in the solution enacted for the majority of developments. A long-term fixed price is overkill for a lot of projects and carries a high risk of being set poorly.

Conclusions

Instead of providing more certainty, the proposed measures are prolonging and increasing uncertainty, leading to delays in investment, inefficient deployment of resources and ultimately to major risks for UK security of energy supply. An injection of pragmatism might shift focus to addressing security of supply as the key priority that needs immediate action. The recession has reduced carbon emissions, demonstrating that decreasing energy consumption is a highly effective method to seek the further reductions required, and that this could be exploited more effectively. Introducing smart meters and hoping will not make this happen alone; behaviours need to change.

In 2010 we proposed that it was not too late to change course towards a more cost-effective solution. We advocated renegotiation of some EU commitments in order to keep certain coal-fired plant online: it is now too late for that. But it is not too late to acknowledge that these policy measures will not solve the problems that we face today, and certainly not at least cost to consumers. Yes, a major re-evaluation of policy now would be an embarrassment, but we need some certainty and action very soon to avoid the lights going out because too much intervention paralysed the market into inaction, while the hoped for response from industry and interconnectors did not materialise.



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