Introduction

Friends of the Earth England, Wales and Northern Ireland welcome the opportunity to respond to the consultation on the Government's proposed Electricity Market Reform (EMR) proposals. We set out our key view below, broadly following the order of the consultation document's specific questions.

We agree with the Government that this represents a 'once in a generation' opportunity to set our energy system on the path towards a low-carbon future. We also agree broadly with the Government's stated aims for the reforms: delivering a low-carbon electricity system that provides energy security and doing so in a way that is affordable to bill-payers, especially those on lower incomes. And we also agree that the current market arrangements are unlikely to deliver the scale of investment needed to meet these challenges. The Renewables Obligation has had a mixed track record in bringing forward investment in renewable technologies; it has had limitations in terms of cost and complexity.[1] (Question 1).

However, we are extremely concerned that the proposals set out in DECC's EMR Consultation Document (and also in HM Treasury's consultation on the 'Carbon Price Support'):

- does not set out a clear target for the decarbonisation of the electricity sector, and will not decarbonise the electricity system as far or as fast as we need;
- are geared towards building more electricity generating plant, rather than on cutting the need for them through energy efficiency, smart grids, storage and connections with other European countries;
- will promote investment in new nuclear and gas power stations, at the expense of renewable energy – and even deliver windfall gains for existing nuclear power companies;
- does little to transform the illiquid power market or challenge the dominance of the 'Big Six' energy companies.

EMR is also proposed in the context of a raft of other policy and regulatory interventions which are likely to fundamentally affect the future development of our energy system, and we are concerned that the consultation document does little to situate the 'four pillars' of EMR in the wider policy landscape. It appears that there is no overall guiding vision for the end goal of this swathe of policy and regulatory reform, with the result that it is very difficult to comprehend these policy interactions or concretely identify wider impacts.

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[1] Gross, R. (2010) *Is there a route to a UK Feed in Tariff for renewable energy?: ICEPT Discussion Paper*

A number of related policy areas do already give rise to concern: in our view, the Green Deal looks unlikely to adequately tackle energy efficiency and fuel poverty; continuing uncertainty over the structure and capitalisation of the Green Investment Bank create uncertainty over investment in both supply and demand side; and the early review of small-scale Feed-in Tariffs, coupled with extremely low Government ambition is undermining investor confidence in decentralised energy.

Friends of the Earth believe that for an effective EMR:

- The 2020 and 2030 objectives need to be strengthened and centre-stage, for EMR and all the other strategies currently under review.
- The CCC's 2030 decarbonisation goal should be a central goal
- Demand reduction should be a fundamental principle, and EMR proposals strengthened accordingly.
- A FIT is welcome, but this should be targeted at new and emerging technologies: nuclear should not be included.
- The FIT should be based on the clear and simple Fixed FIT model, as demonstrated successfully in Germany, including clear degression rates, as for the small FIT, so it is not an ongoing subsidy, but will gradually reduce as technologies mature. This will reduce the overall cost of the programme.
- The Government should set the level of the FIT; an auctioning system is likely to benefit big and existing players and shut-out new or smaller entrants.
- The EPS needs to be strengthened, to provide a stronger signal against gas and for renewables.
- The carbon floor price, at the levels proposed, will have a relatively minor effect on investment decisions. It should not be seen as a justification for weaker policies in other areas. It needs to be reformed so it does not provide a financial benefit to either existing or new nuclear, which receive major subsidies already on liabilities, insurance and decommissioning.

The right targets and timelines

As the Government acknowledge, the electricity system must play a crucial role in meeting our climate change goals. But we are concerned that the consultation document is unclear about exactly what contribution it must make, and by when. A clear policy framework is essential to guide investment decisions, and the Committee on Climate Change (CCC) have provided one:

"the aim should be to reduce average emissions to around 50 gCO_2/kWh by 2030".[2]

It is imperative that the Government adopt this standard; the CCC's 2030 target of an overall 60% economy-wide cut, from which the electricity sector's decarbonisation target is based, is in the CCC's view the "absolute minimum" effort consistent with the Climate Change Act's 2050 target.[3]

We are concerned that the EMR proposals currently assume significant decarbonisation "during the 2030s" and are underpinned by modelling which assumes a target of 100g CO_2/kWh, double that recommended by the CCC. The Government must adopt the target recommended by the CCC if it is serious about meeting its obligations under the Climate Change Act, with modelling and proposals revised accordingly. We also advocate that the modelling be redone with different assumptions about oil prices – the current assumptions of $80 a barrel in 2020 appear to be a significant underestimate given that today's prices are above $100 a barrel and the long-term trend is upward.

Energy Security (Question 2)

The Government is right to be mindful of the need to maintain security of supply. Friends of the Earth believe that energy security is essential not only in its own right, but also as a necessary condition for public acceptance of the changes needed to achieve a low-carbon energy system.

However, we believe that the Government is overly pessimistic in its outlook on likely capacity margins. An over-estimation of the challenge of 'keeping the lights on', combined with an under-estimation of the risks of old 'tried and tested' technologies appears to be driving some problematic elements of the EMR package:

- the over-emphasis of the supply side relative to the demand side to provide system security and balancing
- an unwarranted emphasis on the need for new nuclear and gas plant, in order to maintain a 'balanced' portfolio

The Government's own analysis, set out in the consultation, suggests that "in the absence of any intervention capacity margins are likely to fall over the decade to settle at 5-11% from 2020-2030", but also concludes that "an

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[2] As set out in Committee on Climate Change (2010) *The Fourth Carbon Budget* and reiterated in Turner, A. (2011) *Letter from the Committee on Climate Change to Chris Huhne on Electricity Market Reform consultation, 8th March 2011*

[3] Committee on Climate Change (2010) *The Fourth Carbon Budget*

economically optimal de-rated capacity margin in the UK could be around 8-12%".[4] Even without intervention therefore, capacity margins look set to be approximately at the optimal level. Concerns about security of supply should therefore not be overstated in order to justify particular policy choices.

Friends of the Earth agrees that diversity of supply is an important component of ensuring security, but does not believe that this automatically means that a generation mix of approximately one third each of nuclear, renewables and fossil fuels/CCS, as the modelling underpinning the EMR proposals appears to suggest. 'Renewables' as a category covers an extremely diverse range of technologies, encompassing offshore and onshore wind, solar, wave, tidal, deep geothermal and sustainable biogas and biomass.

Furthermore, energy security is not only about diversity of supply. It is also about independence for consumers – and the system as a whole – from reliance on speculative international commodity markets, from highly-centralised energy infrastructure, and from energy sources which commit future generations to ongoing risk.

Nuclear new build programmes in Finland, France and the US have been beset by delays and significant cost over-runs. It is implausible to suggest that the UK will be different, or that significant numbers of new nuclear stations can be completed swiftly, at low cost and without significant taxpayer subsidy.[5] Nuclear, when the costs relating to the processing and storage of waste, is much more costly than is assumed in the underlying analysis by Redpoint, or that by Mott McDonald. Analysis from the USA demonstrates that solar is now cheaper there than nuclear.[6] Meanwhile the Offshore Valuation Report demonstrates that recent apparent increases in the cost of offshore wind are largely due to exchange rate movements and that the development of UK supply chains for offshore wind would reduce costs further.[7] In addition the legacy of nuclear waste presents massive ongoing social and financial costs for potentially thousands of years.

Claims by vested interests that gas prices are likely to be low and stable for a considerable period, thus making early decarbonisation through expansion in unabated gas feasible and desirable,[8] also require more scrutiny. A number of

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[4] DECC (2010) *Electricity Market Reform consultation document,* p.30

[5] http://www.foe.co.uk/shop/index.php?main_page=product_book_info&cPath=1_2&products_id=342

[6] http://www.ncwarn.org/?p=2290

[7] The Offshore Valuation Group (2010) *The offshore valuation: a valuation of the UK's offshore renewable energy resource.*

[8] http://www.guardian.co.uk/business/2011/feb/13/gas-firms-lobby-europe-on-emissions

industry players and commentators, including BG, have dismissed talk of a 'gas glut', pointing to rising global demand and the technical difficulties of extracting shale gas.[9] Given the UK's growing reliance on imports as UK gas production dwindles[10] and the uncertainties over global gas prices, it would appear imprudent to further increase our energy system dependence on potentially highly volatile gas prices.

Analysis using the DECC 2050 pathways model shows that it is entirely possible to meet the CCC's 2030 decarbonisation goal without new nuclear build, by a strong policy package delivering on renewables, energy efficiency and decentralised energy.

On this basis, we believe that the future energy mix can and should be based primarily on renewables, with no room for new nuclear power stations or additional gas to that already 'in the system'.

The consultation gives the superficial impression that the Government does not have a preferred mix and that the policy proposals suggested may allow the market to determine the appropriate technologies. Yet the illustrative modelling underpinning the work takes *as a starting assumption* that renewable deployment actually *slows down* in the 2030s (renewable energy represents 29% of electricity generation by 2020, and 35% by 2030),[11] at a time when currently emerging – and less intermittent – technologies, such as tidal, might be expected to become commercially viable. The role of decentralised energy is similarly assumed to be very small. This, and the likely impacts of particular policy proposals, suggest that the EMR has been designed to encourage particularly large roles for nuclear and gas, with renewables getting squeezed.

In undertaking EMR, the Government must restate its commitment to meeting the legally-binding EU target to source at least 15% of its energy from renewable sources by 2020, and set an ambitious target for renewable energy beyond 2020.

The default position of the EMR proposals also appears to be that energy security is primarily an issue for the supply side. This is a fundamental mistake. The demand side, including overall demand reduction and strategies for tackling peak capacity including demand-side response, storage and interconnection, must be placed on an equal footing to new generation.

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[9] http://www.guardian.co.uk/business/2011/feb/08/bg-production-targets-profits

[10] https://www.og.decc.gov.uk/information/statistics.htm

[11] Redpoint Energy in association with Trilemma UK (2010) *Electricity Market Reform: Analysis of policy options*

There is very little discussion of the need for significant demand reduction – to counterbalance the increases in demand from electrification of heat and transport – with responsibility for energy efficiency placed primarily with the Green Deal. Insufficient ambition in energy efficiency drives an overstatement of the amount of additional capacity needed on the supply side and potentially increases costs.[12]

There is some limited acknowledgement that the demand side may have a role to play, in system balancing or addressing peak capacity margins in the consultation's consideration of a capacity mechanism. But the demand side should not be reduced to this 'supporting role'; it should be seen as a primary route to delivering stable, secure, low-carbon and affordable energy. In particular, this means that consideration must be given to how demand management/reduction can participate in the long-term contracts available under the Feed-in Tariff arrangements.[13] In addition, EMR must create supportive market conditions for demand management aggregators to enable the full participation of the demand side, including decentralised energy.

Carbon Price Support

We do not believe that the proposals for a 'Carbon Price Support' as set out in the consultation are likely to stimulate investment in low-carbon technology.

We support the principle of a rising economy-wide carbon price, but in its current form and at levels proposed, we do not support the proposed carbon floor price. In addition, for a carbon floor price to be effective it would also need to be accompanied by the following policies, as discussed elsewhere in our response:

- An Emissions Performance Standard for new power stations set at a level that ensures new and existing gas stations would require CCS in the 2020s. Relying on the CFP alone could result in a second dash for gas, which would jeopardise progress towards the power sector decarbonisation target recommended by the Committee on Climate Change if this new generation was unabated by CCS.
- A clear legal cap on UK carbon emissions for the 2020's, and in line with the recommendations of the Committee on Climate Change for electricity sector decarbonisation.

The low starting prices and 'delayed' (as opposed to linear) trajectories discussed in the consultation, especially in HM Treasury scenarios 1 and 2,

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[12] See for example, http://www.ukerc.ac.uk/Downloads/PDF/U/UKERCEnergy2050/0906UKERC2050.pdf

[13] www.emrd3.org.uk

make the floor price ineffective in the short term, with the carbon price a relatively trivial concern compared with gas price risks or barriers in the planning system. In the longer term, the policy does not look especially 'bankable', as the annual uprating of the levies are subject to considerable political risk; it thus provides little confidence for investors looking ahead over the next decade.

In addition, the Carbon Price Support will deliver a windfall gain of up to £3.43 billion for existing nuclear plants between 2013 and 2026.[14] This is untenable, given the Government commitment to avoid additional subsidy for nuclear power. If the Price Support mechanism is to proceed, these windfall gains should be captured for the public through an additional tax on nuclear operators.

A significant proportion of revenues from a Carbon Price Support – and from auctions of EU ETS allowances – should be directed towards energy efficiency measures for households and businesses, to neutralise the effect on billpayers, and to help tackle fuel poverty.

Feed-in Tariffs (Questions 3-11)

We very much welcome the commitment to introduce long-term contracts to provide revenue certainty for investors in low-carbon generation. We believe that Feed-in Tariffs are the most significant of the four policy pillars proposed, in terms of delivering the new low-carbon infrastructure that we need.

We believe that the Government is mistaken in trying to create a one-size-fits-all instrument to support all low-carbon generation, including nuclear alongside renewables (and potentially CCS). As set out above, we believe that the risks and costs of new nuclear power should rule it out as a solution for low-carbon electricity.

Providing Feed-in Tariffs for nuclear is effectively a subsidy (with the consultation document confirming that any FIT would be treated by ONS as tax and spend) contrary to Government commitments. These incentives are only appropriate to help newer technologies compete with existing players in a system which currently heavily favours older technologies. Nuclear power has had six decades to stand on its own feet. It should not continue to get its existing heavy subsidies (on insurance and decommissioning), let alone get new support.

Friends of the Earth believe that Feed-in Tariffs should apply only to genuinely renewable energy technologies.

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[14] http://www.ft.com/cms/s/0/5f7d9fd0-379e-11e0-b91a-00144feabdc0.html#axzz1G10OkZPQ

It is surprising that the consultation document ranks the Fixed FIT as the least attractive option, especially given the great success that countries including Germany, which deployed 1,493 MW of wind[15] and 17.5 GW[16] of solar in 2010 alone, have had with this model.

It is equally surprising that the Premium FIT *is* considered viable, given that, according to the consultation document itself, the Premium FIT leads to the highest cumulative emissions to 2030, provides the least confidence in delivering decarbonisation objectives, has the greatest impact on consumer bills, and the highest overall social cost of all three models considered, while proving less attractive to "a wider group of investors". On this basis, the Premium FIT should be dismissed.

A CfD is better than a premium FIT, however the case has not been made that it is better than a fixed FIT. The Fixed FIT model must be considered as an alternative.

The Fixed FIT provides a greater reduction in hurdle rate for certain renewable technologies and a lower overall cost to society than the Contract for Difference model. The Fixed FIT transfers more risks – and in particular, offtake risk and balancing risk – away from generators (and hence investors) than a Contract for Difference, and hence increases certainty.

In the absence of a liquid wholesale market, or an obligation on suppliers to purchase low-carbon electricity, the offtake risk represents a significant barrier to new investment, especially from new entrants. It is not clear whether Ofgem's separate review of liquidity will provide the necessary changes.

Fixed FITs provide greater simplicity and a more widely tried and tested model than CfDs, leading a number of leading investors to suggest that they might be the preferable option. PWC, for example, argue in their recent *Renewable energy country attractiveness indices* that:

> "The EMR consultation poses many questions over the form of the FIT– preferring a "contract for difference" mechanism accompanied possibly by an auction process which, if poorly implemented, could produce a complexity that would negate some of the benefits that a simple FIT provides. It could also leave exposure to market risk. Certainly, participants more familiar with basic FIT systems could conclude that the more complicated proposals do not warrant further engagement –

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[15] http://ewea.org/fileadmin/ewea_documents/documents/statistics/EWEA_Annual_Statistics_2010.pdf

[16] http://www.renewableenergyfocus.com/view/15219/solar-pv-installations-reached-175-gw-in-2010/

> with the consequence that the desired broadening of market participation would not occur to the extent that it could.
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> It is interesting to note that the second preferred mechanism is a premium FIT (similar to that used in Spain), even though some of the disadvantages causing it to fall out of favor are acknowledged in the consultation paper. Perhaps because of the complexity of interacting with the UK's deregulated energy trading arrangements, there is no preference for a fixed FIT. Indeed, the analysis provides no cost comparison to a two-stage FIT with degression (such as that in Germany), even though there is evidence to suggest that this type of approach does, over time, produce a more cost-effective portfolio of low carbon energy production."

Affordability demands that there should not be incentives for over-investment in excessive low-carbon capacity, the risk can be mitigated through a review of FIT rates for new projects triggered when certain volume targets are met. Alongside a standard annual degression in the tariff rates, this approach can incentivise early deployment, and ensure that price support for increasingly market-competitive renewable technologies is only transitional, rather than permanent.

CfDs are likely to prove less attractive than Fixed FITs for renewables that are intermittent, such as wind, than for nuclear generation, due to the particular way in which the strike price is set and 'top-up' payments are calculated in relation to it. The detailed explanation of these concerns are set out in consultation responses from other organisations including Renewable UK.

The Government should pursue a Fixed Feed-in Tariff, using the German model, to support the development of renewables, simply and effectively.

It is striking that the demand side is not considered in the consultation in relation to long term contracts and price support. Consideration must be given to how demand management/reduction can participate in the long-term contracts available under the Feed-in Tariff arrangements

Auctions (Question 31)

Auctions as a means of setting FIT prices appear to be attractive in theory, but are likely to be counter-productive in practice. For some technologies (such as nuclear) there are too few players to generate real competition. In others the 'winner's curse' phenomenon may lead to under-delivery of required volumes. In addition the complexity of the auction process, may prove a barrier to new entrants.

We believe that a Fixed FIT for renewables, banded for different technologies, based on administered prices is the right approach. Rate decreases triggered

by volumes constructed can keep costs reasonable, while competitive pressures are retained elsewhere in the system – within the supply chain for example.

Emissions Performance Standard (Questions 12-18)

The proposed Emissions Performance Standard (EPS) is deeply disappointing and, in the absence of other controls via the planning system, is likely to lead to a new 'dash for gas'. We note that the recently closed consultation on National Policy Statements (NPS) for major energy infrastructure explicitly prevents the Infrastructure Planning Commission from considering issues of either need or climate change in making decisions on individual applications and that the Energy and Climate Change Select Committee's recent report into NPS leads with the warning that NPS as written create a major danger of a second "dash-for-gas". The framing of the EPS as merely a 'backstop' against new unabated coal provides no strong signal about the direction of travel for emissions from electricity, and risks lock-in to a fossil-fuel dependent system, if significant quantities of gas-fired plant additional to those already 'in the system' are consented.

A stronger EPS is required to reduce the risk of a dash for gas - a plant-based EPS set at a level of 300gCO_2/kWh for all new generating plant from now on, tightening to less than 100gCO_2/kWh in 2025 (from which point it should also apply to existing plant). This tighter EPS is less punitive in the short term than that modelled by Redpoint for the EMR consultation.

An EPS on this basis would apply to new plant initially, but with a clear understanding that it will apply to existing plant at a given future date. This provides investment certainty, without effectively creating a 'licence to pollute', which would be the outcome of grandfathering emissions rights at the point of consent. Furthermore, a tighter EPS reduces the risk that consumers will be required to foot the bill for large numbers of future CCS retrofits.[17]

Short term derogations for individual plant, which would still be consistent with an overall 50g / kWh carbon intensity target would be acceptable, but long term exceptions would stop the policy from being 'bankable' by investors and make it ineffectual.

Biomass should be subject to the same conditions as other fuels, but should, in addition, be subject to tight controls on sourcing, to ensure sustainability.

A tight EPS is required not only to limit emissions from existing fossil fuel plant and further deployment of (unabated) coal and gas plant, but also to

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[17] See WWF, Greenpeace, RSPB, Friends of the Earth (2010) *Additional evidence to ECC*

provide a strong signal on investment in renewables, a point reiterated by the CCC. [18]

A tighter EPS should be complemented by reforms to National Policy Statements currently out to consultation, where the NPS set a limit to the amount of new non-renewable capacity allowed. This safeguard is absolutely essential if the EPS is not strengthened and stays at the proposed levels in the consultation, otherwise there will be a new dash-for-gas which will stifle renewables investment.

Capacity mechanisms (Questions 19-25)

The proposals in the consultation appear to lack clarity over the exact purpose of the mechanism; is it primarily to ensure there is sufficient peak capacity margin to meet demand, or it is to provide stability and balancing, in a system with a higher proportion of intermittent generation? We believe that further work is needed to clarify this position, since the policy solutions may be different in each case.

The need to 'keep the lights on' dictates the need for the maintenance of an appropriate capacity margin and to manage for intermittency, but this need not simply mean the availability of Combined Cycle Gas Turbines or other fossil fuel peaking plant. We therefore welcome the Government's stated intention to support storage and demand side measures, although it is not yet clear that they should be supported through the same mechanism as peaking plant. Appropriate investment in these measures and in interconnection with other European countries can obviate the extent to which a continued reliance on gas is necessary. We note the growing evidence from Europe and the USA that increasing decentralised energy can have a major impact in smoothing out demand and therefore urge that the current uncertainty created by the review of Feed-in Tariffs for sub-5MW installations is concluded rapidly, by lifting the monetary ‘cap’ on the scheme and limiting the review to only solar PV above 500kW.

In conclusion: the overall approach (Questions 26-29)

We cannot support the preferred package of options set out in the consultation. This is fundamentally a package designed to support the needs of nuclear and gas, rather than designed to sustainably achieve long-term carbon targets or increase energy security. Renewables, and in particular demand side options, come off a very poor second best.

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[18] Turner, A. (2011) *Letter from the Committee on Climate Change to Chris Huhne on Electricity Market Reform consultation, 8th March 2011*

The planned Carbon Price Support at the levels proposed will have little impact on future investment in renewables, but will provide a windfall gain to existing nuclear plant.

The proposed EPS is weak and is likely to usher in a new dash for gas, without creating an incentive for investment in renewables.

The CfD for all 'low carbon', rather than a Fixed FIT for renewables creates an additional subsidy for nuclear (contrary to Government promises). It creates complexity (and less certainty) for investors, leaves the offtake risk with generators in a highly illiquid and opaque wholesale market, and benefits baseload technologies over intermittent ones, again prioritising nuclear. The apparent preference for price setting via auction will be detrimental to new entrants.

The need for a capacity mechanism at this stage is less clear, though we do support strongly support incentives for investment in demand side measures to both reduce overall demand and to increase flexibility through demand side response, storage and interconnection.

In addition, the consultation does little to situate the 'four pillars' of EMR in the wider policy landscape. In parallel to EMR, the Government is also:

- pursuing its 'Green Deal' energy efficiency programme in the Energy Bill;
- developing its microgeneration strategy;
- reviewing its existing Feed-in Tariffs for small renewable energy schemes;
- finalising its plans for a Green Investment Bank;
- publishing its National Planning Statements for Energy;
- deciding how best to role out smart meters; and
- considering the future of energy regulator Ofgem;
- while Ofgem itself is reviewing the liquidity of energy markets, and looking at price controls and charging regimes for the electricity and gas transmission networks,
- with consideration of Distribution Network Operators and the System Operator to come!

Yet the links to, and interactions with, these other changes are very poorly articulated in the consultation.

It appears that there is no overall guiding vision for the end goal of this swathe of policy and regulatory reform, with the result that it is very difficult to comprehend these policy interactions or concretely identify wider impacts.

Friends of the Earth believe that for an effective EMR:

- The 2020 and 2030 objectives need to be strengthened and centre-stage, for EMR and all the other strategies currently under review.
- The CCC's 2030 decarbonisation goal should be a central goal
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