Our Ref: [redacted]

Electricity Market Reform Project
Department of Energy & Climate Change
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by email: elec.marketreforms@decc.gsi.gov.uk
cc: environmentaltaxes.consultation@hmrc.gsi.gov.uk

Dear Sir or Madam

CONSULTATION ON ELECTRICITY MARKET REFORM

Thank you for providing the Scottish Environment Protection Agency (SEPA) with the opportunity to comment on the above consultation document.

The overall aim of the Electricity Market Reform (EMR) package is to increase generation of low carbon electricity, enhance energy security and deliver it at a reasonable cost to consumers. SEPA supports the need for such reform. Decarbonisation of the electricity sector is essential if UK and Scottish Climate Change targets are to be achieved, and early action to reduce the grid intensity of electricity before 2020 is essential, according to advice from the UK Climate Change Committee. This should be in combination with further efforts to reduce energy demand, for both heat and electricity, and improve the energy productivity of thermal electricity production, through effective use of surplus heat.

There is also a need, within the scope of this reform, to move away from a generation based market towards an energy 'productivity' or outcomes based market, where demand side measures and energy storage and load management receive appropriate levels of incentive and reflect the crucial role that they will play in grid balancing. There is also a need to consider a whole energy market. Electricity is part of the energy mix, and will prove increasingly important in future. Thermal electricity generation has associated heat surplus, regardless of fuel sources. The electricity market must therefore be developed with full consideration to heat, the development of a renewable heat market, and efficient use of fossil fuel heat. Consideration of heat and electricity in isolation will fail to deliver the optimum outcomes.

However, given the complexity of the proposals and absence of detail in advance of the White Paper, there is significant potential for unintended consequences from the reform package. The EMR, focussing on electricity rather than energy, means that the package does not consider the energy demand and supply mix as a whole, and it is not clear how the EMR and strategic policy interact. Indeed, there appear to be some obvious consequences from the EMR proposals that could have significant effects:

- Discussions with our stakeholders have indicated that the carbon price support levy, combined with costs of trading schemes, could impact on potential investment in Combined Heat and Power (CHP) for fossil fuelled operations, and therefore have an impact on the energy efficiency of regulated processes, with associated emissions impacts.

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- The shift from multiple fuels for heat and transport to electricity up to 2050 will place additional demand on the electricity network and generators. There is limited consideration of energy efficiency, demand side management and other such changes that will impact on the electricity sector.

The four main elements of the EMR are addressed below. SEPA has briefly responded to the HMT carbon floor price consultation, but includes additional representation here that informs the overall EMR package for consideration by DECC and HMT.

Carbon Price Support

In general, SEPA supports the proposals to change the CCL, and the introduction of a carbon price floor. However, care not to cause offshoring of emissions through increasing imported fossil fuelled electricity from territories without the Carbon Price Support is needed. This is important in terms of carbon reductions and energy security. The support mechanism proposed will also definitely improve the certainty about carbon price, which is key to ensure the appropriate investments occur.

The introduction of a carbon tax through the proposed changes to the Climate Change Levy (CCL) would effectively change the carbon price within the EU Emissions Trading Scheme (ETS) for UK operators. There is concern that this will impact on European competitiveness, and it interacts significantly with other policy and technical developments such as the pan European grid developments and interconnection. SEPA agrees that the current mechanisms do not appear able to achieve the targets. The current carbon price is set by the EU ETS as the main driver for carbon emission reductions. The emission reduction projection of the EU ETS does not achieve the path required under the UK Climate Change Act. In the absence of an EU wide agreement on climate change targets in line with the UK, it is unlikely that the EU ETS will achieve the required emission reduction levels. Also, current investment signals are still price driven, and carbon does not have a sufficient cost to drive low carbon investment as yet. There is a need to standardise the financial mechanisms behind carbon emissions reductions, through a rationalisation of the various different carbon prices that currently exist.

Extending low carbon support via this mechanism to non renewable nuclear energy is new and diverges from the current approach. SEPA believes that care is needed to maintain a high level of ambition for the renewables sector. Policies to decarbonise the electricity sector must be long term in their outlook, and seek to both stimulate immediate low carbon investment, whilst ensuring that this does not create energy systems that have a higher carbon impact than necessary in the longer term.

The proposals need to be expanded upon in order to provide certainty for investment in Carbon Capture and Storage (CCS), and this is urgent if investments are to be made now.

Emissions performance standard

SEPA welcomes the development of an Emissions Performance Standard (EPS) in principle, providing certainty through embedding the EPS concept in legislation. However, the EPS does not appear to send any signals to reduce carbon emissions from gas fired power stations. The combination of the EPS levels and the policy on grandfathering at the point of consent will reduce the drive to achieve further carbon reductions from all fossil generators, including gas. The level and impact of the EPS on coal fired stations is limited, due to the existing regulatory framework on Carbon Capture and Storage (CCS). The EPS appears to provide equal to or less than current arrangements.

SEPA believes that there is a missed opportunity by linking EPS proposals to specific technologies, specifically CCS. There are other alternative and existing technologies that could reduce the carbon intensity of coal or other generation techniques effectively, and should be equally incentivised through the EPS mechanism. This could be, for example, Combined Heat and Power (CHP). It could also help stimulate alternative approaches and new emerging technologies to develop, over and above CHP and CCS. Also, grandfathering of the EPS for the full economic life of a plant could result in a higher than necessary carbon future with very limited flexibility. An approach similar to that within the Pollution Prevention and Control regime of Best Available Techniques could be an appropriate mechanism to deliver incremental emissions reduction.

Proposal for Feed in Tariff (FIT)

SEPA understands the need to support investment in low carbon and renewable electricity generation capacity. Care must be taken in designing a new scheme, to ensure that it can accommodate the variety of generating technologies and scale and capacity of generators in the market. The renewables sector is diverse and in the early stages of development in many of the technologies. Amending a known system will cause concern in the industry, and potential to impact on project financing. Avoiding an investment hiatus is essential if Scotland and the UK are to meet climate change objectives. There is potential for divergence between the Scottish and UK Governments, which would create additional complexity and risk to the renewables sector. Technology specific support through ROC banding is seen as positive, especially for marine energy. However, technologies develop and emerge and a system that is flexible could be more effective. This could, for example, provide different support levels dependent on the carbon intensity of electricity, which could account for variations between and within technologies. This would reward delivery of low carbon, and, if associated with a carbon signal within the transmission charging regime, could significantly incentivise lowest carbon generation.

The proposals to 'vintage' the Renewables Obligation in 2017 pose a particular risk to marine and offshore energy deployments. The lengthy construction phases for such deployments would span the transition period, adding investment uncertainty. SEPA would support further technology banding going forward, to ensure a varied and diverse renewable sector continues in Scotland.

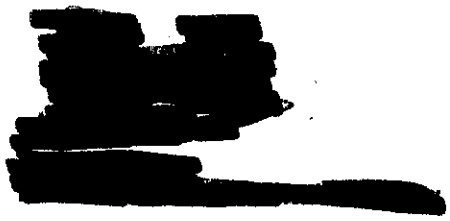
SEPA is concerned that the change from the RO to the FIT scheme removes the obligation from suppliers of electricity. An obligation has been instrumental in developing a renewables industry, ensuring that larger generators and suppliers have an interest in the sector. Currently, electricity suppliers are obliged to source a specific and increasing proportion of their electricity from renewable sources. If this obligation is not met via purchasing renewable power, suppliers face paying a financial penalty that outweighs the cost of purchasing renewable power in the first instance. If suppliers are no longer obliged to purchase renewable power, generators could then shoulder a significant degree of risk and lower revenues. It could also affect the cost of capital.

Capacity mechanism

SEPA is concerned at the apparent bias towards gas generators in the proposals. The capacity mechanism changes the economics of back up generators, from payments for exported power, to payments for installed capacity. This appears to incentivise gas and potentially biomass electricity plant, and may not have the intended policy consequences for energy policy. These do not appear to meet energy security, environmental and consumer protection policy intentions. The capacity mechanism should focus more on demand side management, demand side response and energy storage mechanisms, and provide payments for these demand side and balancing mechanisms.

SEPA has provided some additional detailed responses to specific consultation questions in the attached annex. As a public body committed to openness and transparency, SEPA feels it is appropriate that this response be placed on the public record. If you require further clarification on any aspect of this correspondence, please contact me at the address shown below.

Yours faithfully



Annex 1: CONSULTATION QUESTIONS

SEPA has provided detailed answers to some of the specific consultation questions below.

Emissions Performance Standards

Question 12. Do you agree with the Government's assessment of the impact of an emission performance standard on the decarbonisation of the electricity sector and on security of supply risk?
The two EPS options outlined on page 71 of the EMR consultation document seem unlikely to have any positive effect on the replacement of the coal fleet in Scotland or across the UK. Currently under s36 of the Electricity Act any new coal power station (either in Scotland or in England and Wales would be required to capture CO_2 from a minimum of 400MW gross, which DECC notes is equivalent to option 1 requiring an EPS of 600gCO_2/kWh. This is correct for a power station with a 1600MW gross output however if a coal fired station were to be built that was less than 1600MW gross they would, under the Electricity Act, still be required to capture 400MW gross providing a lower EPS. Option 1 therefore at best replicates the status quo for new coal, or potentially weakens it for plant proposed at under 1600MW.

Option 2 provides for an EPS set at 450g/CO_2/kWh with exemptions for any plant funded under the UK Demonstration 1 – 4 programme, or receiving funding under the European CCS demonstration programme. It is not envisaged that, given the requirements under s36 of the Electricity Act, that new coal fired power plant are likely to be built without UK or European funding to offset the costs associated with CCS. Therefore even under option 2 it is difficult to perceive a scenario where the effect of the proposed EPS would provide any benefit over and above that already provided under the Electricity Act.

Question 13: Which option do you consider most appropriate for the level of the EPS? What considerations should the Government take into account in designing derogations for projects forming part of the UK or EU demonstration programme?

The current proposals state that projects under the funding programmes offered either by the UK or the EU would be exempt from the EPS requirements. The assumption is that these plant might remain exempt for the remainder of the economic life of the plant, meaning that new plant with carbon capture funded by public money would not be required to aim to increase the carbon captured in future.

This is not in line with the plans set out in the Scottish Government document "Draft Electricity Generation Policy Statement 2010: Scotland - A Low Carbon Society". The Scottish Government in its aim to decarbonise the electricity generation sector by 2030 has stated its intention that:

- any application for a new coal plant in Scotland will need to demonstrate CCS on a minimum of 300MW (net) of capacity from their first day of their operation;
- Further new builds from 2020 would be expected to have full CCS from their first day of operation; and
- With regard to retro-fitting of existing coal plants, a 'rolling review' of the technical and economic viability of CCS will take place with the aim of taking a final view on retro-fitting by 2018, with the likelihood of having existing plants retro-fitted by no later than 2025.

Question 14: Do you agree that the EPS should be aimed at new plant, and 'grandfathered' at the point of consent? How should the Government determine the economic life of a power station for the purposes of grandfathering?

SEPA would agree that an EPS as outlined in the proposal should, in the first instance, be aimed at new plant. However, the concept of grandfathering at the point of consent seems contrary to aims to decarbonise the electricity generation sector by 2030 as suggested by the Climate Change Committee, nor in line with the scenarios set out as necessary by the International Energy Agency to limit the average increase in global temperatures to a maximum of 2.4°C. If the UK is to effectively lead in the roll out of CCS technology it would be premature to limit its future use at this point. As new coal plant built now could easily have an operating life of 40 – 50 years, grandfathering at the point of consent does not allow for future developments.

Of concern is also the intention that gas plant would also be grandfathered on consent meaning that the large number of gas plant currently in the planning system in England and Wales would be exempted from any requirement to fit carbon capture equipment in the future. This seems to undermine the requirements set out for England and Wales and for Scotland in relation to carbon capture readiness (CCR). The CCR requirements require operators of gas plant not only to set out that there are no barriers (technical, economic, space, or retrofit feasibility) to the fitting of CCS at some point in the future. Operators are also required to submit information to enable reviews of readiness to be undertaken. These reviews commence within 3 months of the commercial operation date of the power station and are required every two years thereafter.

The opportunity for decarbonising the electricity generation sector should perhaps be flexible enough for an EPS to encourage lowering the CO_2 output of all forms of generation, and could perhaps include the ability to include waste heat as well as carbon capture.

Question 15: Do you agree that the EPS should be extended to cover existing plant in the event they undergo significant life extensions or upgrades? How could the Government implement such an approach in practice?

Yes. The Government could implement this approach in a similar way to that in which upgrades are dealt with under s36 of the Electricity Act to enact the CCS requirements. This approach means that plant undertaking upgrades such as the fitting of selective catalytic reduction would not initiate the requirements to fit carbon capture, but if other upgrades (such as adding supercritical boilers) would.

Question 16: Do you agree with the proposed review of the EPS, incorporated into the progress reports required under the Energy Act 2010?
Yes

Question 17: How should biomass be treated for the purpose of meeting the EPS? What additional considerations should the government take into account?

Biomass is a finite renewable energy source, and analysis has shown that the most effective use for biomass is for heat only generators (research by the Environment Agency, also supported in Scottish Government Draft Electricity Policy Statement, Oct 2010). The EMR does not consider the need to incentivise Biomass for heat, and therefore electricity only should be discouraged.