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04 February 2013

Dear Ms Edney

### **Royal Academy of Engineering submission to the Energy Bill 2012-13**

The Royal Academy of Engineering welcomes the Government's Energy Bill and its efforts to establish an electricity market that will deliver the necessary level of investment in low carbon electricity generation. The Academy feels that the mechanisms in the Bill will help provide security for investors and this is to be supported.

The Academy understands that the Public Bill Committee is considering the Bill in detail and, following extensive consultation with relevant parties, is putting forward a number of amendments. The Academy does not wish to comment on the particulars of the Bill but is keen to highlight two points that we feel should be at the forefront of the Committee's thoughts as they scrutinise the Bill.

The UK's energy system is large and complex, encompassing a number of different sectors, primary sources of energy and end uses. It is vital to the country's prosperity and the key to economic growth. We recognise that the main part of the Energy Bill – Electricity Market Reform – focuses on electricity generation. However, electricity generation forms only a part of the whole energy system. In order to meet targets for carbon emissions reduction, consideration has to be paid to the whole system of energy use and its management – including the use of energy for heat and transport. Electricity generation plant, transmission lines, distribution systems and metering systems all need upgrading, alongside heating and transport systems. Since none of these operate in isolation, a systems-level strategic policy overview of energy generation and use is needed.

The need for a systems view means that it is not appropriate to simply leave the market to provide solutions, but rather a system level policy must be developed, based on sound engineering principles and realistically deliverable from global supply chains and resources. This will provide the market with certainty and policy direction against which it can bring forward efficient solutions. The Department of Energy and Climate Change (DECC) would appear to be the body most appropriate to design and implement such a policy and it is crucial that it is given the mandate to deliver it, backed up by sufficient capital, both financial and human. Only by providing a strategic vision will the UK move towards a coherent energy system with the necessary resilience to cope with the uncertainties of future technological developments and political and societal change.

**Recommendation one:** There must be a holistic strategy for UK energy management, encompassing the whole system of generation, supply and use. We strongly recommend that DECC is given the responsibility of developing a strategic policy vision of the UK's future energy system, encompassing energy generation and use across all sectors.

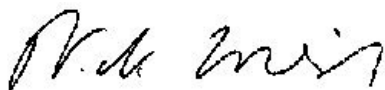
In terms of the aims of the overall energy system, it is vital that these are clearly defined and compatible with long-term political objectives. The Energy Bill maintains the government's objective of providing low carbon, secure and affordable electricity while complying with commitments under both EU and UK legislation. While these are laudable objectives they can sometimes conflict. For example, the EU renewables target can act against other low carbon forms of generation that might be the most effective way of meeting the Climate Change Act emissions targets.

**Recommendation two:** The overriding objective of the Bill must be to reduce cumulative emissions of carbon dioxide at the lowest price over the long-term, while ensuring a secure supply of energy. It is essential that there is systems-level planning to ensure that there is sufficient low-carbon capacity to deliver the right mix of electricity at the right time.

Achieving this objective will require a complete model of the system, able to cope with the inherent economic, technical and social uncertainties. A clearer understanding of what constitutes security of supply will also be needed that takes into account *inter alia* reliability of different types of generation and robustness of global supplies of primary fuels. We understand that National Grid is already working on a delivery plan for the UK's future electricity system that will encompass many of the necessary aspects. We fully support this work and encourage its development to include the wider energy system.

This response to the Bill was developed by The Royal Academy of Engineering's Energy and Environment Community of Practice under the auspices of the Academy's Engineering Policy Committee. It was felt important that an engineering perspective be brought into the scrutiny of the Bill and into plans for its implementation. The Community of Practice will be developing its views on these issues further, and will seek to support DECC with expert advice as it implements the Bill.

Yours sincerely



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The Royal Academy of Engineering



Professor Sir Christopher Snowden FEng FRS  
Vice President and Chair of the Engineering Policy Committee  
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