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Stern Review  
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Dear Review Team,

### **Stern Review**

The British Hydropower Association understand that, although the formal deadline for submitting evidence has now passed, the Review team will consider material received were possible.

The BHA is the trade association of the UK hydropower industry. With around 100 members, the Association represents a wide range of interests: consulting engineering, design, manufacture, investment and operation, and specialist service providers. The BHA represents generators from small owner-operators to large UK companies.

We believe the economic benefits of hydropower to the UK in the domestic market and internationally have fully appreciated.

### ***The case for hydropower***

Hydropower is the largest generator of electricity from renewable resources in the world and the UK; it generates over 40% of our green electricity. Hydropower is:

- **efficient** – about 90% of the potential energy stored in water can be converted to electricity. (Thermal power plants emit 34 units of “waste heat” for every unit of electricity produced.);
- **clean** - hydropower in the UK is a negligible contributor to greenhouse gas emissions;
- **renewable** – it uses proven technology, produces negligible amounts of emissions and is the only renewable energy technology that is commercially viable on a large scale;
- **a low cost generator** - running and maintenance costs are low. Plant life can be extended relatively economically through periodic replacement of electro-mechanical equipment;
- **storable** - it is the least costly way of storing large amounts of electricity;
- **a positive factor in project viability** – it is able to play a key role in multi-purpose projects (for navigation/transport, agricultural irrigation, water supply, flood protection, fisheries support recreation, etc.) – often making the project feasible;
- **a source of vital infrastructure strengthening** under-pinning remote communities and acting as an economic stimulus;

- **endowed with well known long-term benefits** – practically indefinite service life, highly reliable performance, extremely low operating costs, as well as avoiding emissions and being highly sustainable;
- **flexible and reliable** contributing to black start capability, spinning reserve, voltage support, synchronous condenser, steady-state operation of thermal units, etc.). It enhances the efficiency of thermal generated base-load and back-up for other, intermittent renewable generators. Storage hydropower has a fast response time to meet sudden system fluctuations;
- **a mature industry** - it is the most industrially mature, commercially viable contributor to electricity generation. It continues to innovate to maintain this edge;
- **an eliminator of fuel price risk** like all renewable energy.
- **highly energy efficient** with operating efficiencies of more than 95% in modern plants compared with 60% in the best of the fossil fuel plants. It has the highest energy payback - only hydropower can produce over 200 times more energy from an installation than the energy needed to build and run it. This is ten times more than oil-fired power stations.
- **long-lived** -hydropower plants can have useful lives of over 100 years.

In the UK most new hydropower power plants will be lower impact, run-of-river schemes. We believe there is potential for an additional 1,800MW- 3,600MW of conventional hydropower.

Hydropower offers net benefits to the environment when compared with fossil fuel generation - it has been estimated that the existing hydropower capacity has saved greenhouse gas emissions equivalent to all the cars on the planet in terms of avoided fossil fuel generation.

Hydropower is the world's leading source of sustainable energy - about 20% of the world's total electricity generation is from hydropower. In developing countries hydropower generates one-third of the electricity used. Between 2000 and 2010, 695,000MW of new capacity will be installed: 27% in coal-fired plants, 26% in gas-fired plants and 22% in hydropower plants. Hydropower developments are frequently part of multi-purpose facilities offering additional economic benefits by securing water supply, irrigation for food production, flood control, navigational improvements, industrial developments, fishery opportunities, tourism and increased recreational opportunities. In Africa, Asia and Latin America, where approximately 2 billion people in rural areas are without electricity supply, hydropower offers potential for contributing to a vast improvement in living standards. The UK has an established skills base across the whole range of activities in the hydropower industry with particular strengths in design and consultancy. We have extensive, long-standing and continuing experience in a wide range of overseas projects and the UK hydropower industry retains considerable export potential.

Yours sincerely



Adrian Abbott  
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