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11 August 2005

Dear Dr Rands,

RSE Inquiry into Energy Issues for Scotland

I am responding on behalf of the British Hydropower Association to the letter of 13th May from Professor Maxwell Irvine to Kieron Hanson, chief executive, British Hydropower Association, inviting our views on the Society's inquiry into energy issues for Scotland

The BHA is the trade association for the UK hydropower industry. With over 100 members across the whole country, the Association represents a wide range of interests: consulting engineering, design, manufacture, investment and operation, and specialist service providers (e.g. legal firms). The BHA members include generators from small owner-operators to the large, vertically integrated companies. Hydropower generates over 40% of the electricity produced from renewable resources in the UK.

As a trade association with an interest in depth in one element of the energy sector only, we are not qualified to comment on many of the questions the consultation document asks. However, the Association believes that indigenous, sustainable resources should be exploited as fully as economic, social and environmental considerations allow. Scotland (and the UK) is fortunate to have a substantial, established hydro-electric generating capacity. The BHA believes that the importance of hydro-electric generation as part of the energy mix needs to be fully recognized. We believe that there is potential in Scotland to build an estimated 300-500MW of new larger hydropower plant and there are former water mill sites, redundant water supply reservoirs and other water utility and river structures that offer potential for small hydropower developments where the BHA believes there is potential to build an additional generating capacity of 250MW-500MW.

Hydropower is clean, efficient, reliable and flexible. It is a proven technology, producing negligible emissions. Currently, hydropower is the only renewable energy technology that is commercially viable on a large scale and the energy payback of hydropower is second to none. Only hydropower can produce over 200 times more energy from an installation than the energy needed to build and run it. As a mature, proven technology efficiencies in hydropower have been honed and turbine efficiencies today are very high indeed; some turbines achieve 95% or more. Hydropower schemes are long-lived with practically an indefinite service life. They give highly reliable performance at low operating costs and the productive lives of plants

can be extended through refurbishment and upgrading. Hydropower's flexibility offers solutions to many power demands. Schemes range from the very largest scale to the very small. They can be grid connected or provide localised generation. Some hydropower plants have storage reservoirs others are run-of-river, using part of the natural flow of a river without storage. Not only is hydro a power source, frequently power generation is a component of multi-purpose schemes to control flooding, provide irrigation and drinking water, and to aid navigation. And it brings indirect social and economic benefits through the strengthening of infrastructure, acting as an economic stimulus to rural development or providing the underpinning for remote communities. Hydropower can enable aqua-culture and recreation opportunities.

Hydropower can be stored. Pumped storage schemes have proved their worth in Scotland, the UK and around the world. Pumped storage schemes maximise system capability and efficiency and displace alternative peaking capacity. Meeting peak demand for electricity is the traditional role for pumped storage but its flexibility allows variable output to match demand and can be used where a very rapid response is needed, or to off-set sudden loss of generation from unexpected events such as lightning strikes. The development of new pumped storage schemes in association with wind power could help to maximise the benefits from wind and helping to mitigate problems of intermittence.

Hydropower has attracted criticism for its environmental, hydrological and socio-economic impacts, but as a mature technology it has developed methods and techniques to mitigate them and to take remedial action by retrofitting fish passes and other protection methods as part of their refurbishment. The industry has made great efforts to minimise the loss of valuable habitat, improve fish passage and to reduce impacts on other riparian interests and local communities.

Yours sincerely,

A handwritten signature in blue ink that reads "Adrian Abbott". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Adrian Abbott
Business Strategy Manager