

AINA CASE STUDY

CLIMATE CHANGE

River Thames: Romney Weir hydropower



This illustration shows how the Archimedes screws turbines would be located within Romney Weir

Private investment will generate sustainable green electricity at a weir near Windsor Castle

Interest in renewable energy continues to increase due to increasing awareness of carbon emissions and climate change, and proposals for small-scale hydropower schemes are often suggested as a way to generate local power.

The Environment Agency owns a number of river weirs throughout England and Wales and has identified their potential for hydropower. At Romney Weir, at Windsor on the River Thames, they are now adopting a proactive approach by working to implement a pilot hydropower scheme.

Working with developer South East Power Engineering, the Agency is promoting a scheme which will incorporate a couple of 40 tonne Archimedes screw turbines into the two weir bays on the Windsor side of Romney Weir. Depending on river levels, flows of water over the turbines are anticipated to be between 5 and 20 cubic metres per second. At peak capacity the scheme is expected to generate 315 kw/hr (1.4 million kh/hr per annum) of renewable electricity directly from the water flowing over the weir and this will be sufficient to provide power to more than 600 average houses. It is anticipated that the installation will be connected to Windsor Castle.

Careful consideration has been given to the relationship of the scheme to whole life carbon costs and any impacts on river ecology, e.g., a fish pass costing £100,000 will be installed and paid for by the developer. It is estimated that emissions generated through construction and operation of the scheme over its anticipated forty year lifespan will be offset by the renewable energy it will produce in less than just twelve months.

The proposal will be privately funded and is anticipated to be in operation during 2011. The Environment Agency intend to expand and develop further schemes throughout their Thames region, and believes hydropower, alongside other renewable technologies, can play an active role in reducing carbon emissions and encouraging energy efficiency measures.