

Abstract

Title: Hydropower Generation

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Purpose: The aim of the research was to investigate the feasibility of run-of-river hydroelectric power generation in Ireland in the context of new EU renewable energy targets. Uncovering developments in hydro technology and difficulties associated with developing small hydro schemes were major objectives of the study. Further research objectives were to address the difficulties encountered and to provide detailed guidance for prospective construction orientated entrants to the renewable energy market as well as providing a business opportunity within the author's own organisation.

Methodology: A comprehensive Literature Review was undertaken in order to gain an understanding of the hydro energy market and the Regulatory Body's requirements for prospective developments in Ireland. The primary data collection method employed was a series of semi-structured interviews with seven professionals. Three of the interviewees had experience in the environmental sector, two were renewable energy company owners and a further two were construction-orientated professionals. Participants were employed in the public and private sectors and chosen due to their awareness of the economic, environmental and construction fundamentals surrounding renewable energy projects.

Findings: The summary findings indicate a limited scope for the construction of small hydro plants in Irish rivers. Local Authorities are starting to turn to renewable energy schemes to reduce their CO₂ emissions and new developments in the European renewable energy market offer opportunities across all renewable energy sectors. The tariffs currently on offer to the developers of renewable energy schemes are considered too low at present and are geared towards micro scale developments thereby minimising the interest in this sector from commercial / construction entities. New technology is coming on stream for capturing tidal currents and may have applications in large river systems. As with all infrastructure schemes, renewable energy projects will require some civil engineering works and in the current difficult economic downturn companies will have to seek out these opportunities both public and private.

Keywords: economic feasibility, environmental impact, hydroelectric generation, run-of-river, unit cost of electricity.