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TITLE: Economic and socio-economic assessment methods for ocean renewable energy: Public and private perspectives

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ABSTRACT:

This paper provides a comprehensive review of the current state of the art of the economics and socio-economics of ocean renewable energy (ORE); the many ways in which the viability and impacts of an ORE project are assessed, and an analysis of the current weaknesses, issues or inappropriateness of the metrics and methodologies used in their definition and presentation. The outcomes of this paper are anticipated to benefit the ORE and wider renewable sector as a whole. The review revealed that, for the most part, the current study of economics and socio-economics of ORE remain separate and discrete areas of research. The economic methods utilised appear to be comprehensive but are limited to project (or private investor) level. The methods identified for socioeconomic assessment fall between traditional, and now routine, environmental assessment approaches and more novel holistic approaches such as ecosystem services and life cycle assessment. The novel section of the paper explored the connectivity between the economics and socio-economics of ORE in relation to project developments and policy/planning. A visualisation method was created of concentric rings intersected by related axis of economic, socio-economic and environment, and enabled the examination of the benefits arising from the connectivity between the two spheres. The concept of sustainable development process and the integration of environmental assessment for ORE was also explored and how it responds to differing stakeholder aspirations and interpretations. The analysis revealed that there was a divergence between public and private economic and socioeconomic assessments for ORE: environmental assessment is primarily a public responsibility but with significant inputs from the private developer involved while economic assessments are conducted primarily by the developer and/or investor at their own behest. However, the two spheres of economic and socio-economic for ORE are highly connected and synergistic and must be examined in a holistic manner.

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