



“Knowing your Site and Sticking to It”

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Appraisal of IEC Standards for Wave and Tidal Energy Resource Assessment

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Through a collaborative international effort, Technical Committee 114 of the International Electro-technical Commission (IEC TC-114) is working to develop a set of international standards for the emerging field of marine energy systems. Two of the new standards concern methods and procedures for estimating the scale and character of the wave and tidal energy resources in a region. The proposed methods are complex and involve sophisticated computer modelling of wave conditions and tidal flows, validated by field measurements. Moreover, since resource assessment typically progresses in stages depending on the purpose and the desired level of accuracy, the new standards specify different methods appropriate for different stages of assessment (reconnaissance, feasibility or design).

This paper will provide an update on research in progress to appraise the new IEC standards through pilot applications to sites in the Bay of Fundy and off the west coast of Vancouver Island. The new IEC standard for tidal current resource assessment is being appraised through application to the FORCE project site located near the north shore of Minas Passage. The tidal resource is being modelled using a series of progressively more detailed models developing using the well-known TELEMAC modelling system. The accuracy of the resulting resource estimates is being assessed by comparison with velocity measurements acquired by FORCE near the four technology demonstration berths. Moreover, a sensitivity analysis is being undertaken to determine the main sources of error and uncertainty impacting the precision of the resource assessments.

Results from this study will be used to improve future editions of the new IEC standards.