III.B Market Assessment

Purpose of Market Assessment

To understand the possible contribution of marine energy technologies to the energy generating portfolio, it is necessary to predict how economic viability may change due to increased experience, development and other mechanisms.

Objectives of Market Assessment

Market assessments are conducted for investors or policy makers throughout the development of a marine energy technology to understand the commercial viability of that technology in comparison to alternative electricity generating options (including non-marine). The objective of an economic assessment of a particular marine energy technology is to:

A. Provide a summary measure of economic viability that is straightforward to compare to alternative generating options at a specified future date;

B. Quantify the potential market for the particular technology;

C. Quantify the uncertainty associated with predicted returns;???

D. Identify the risks associated with development of the particular technology;

E. Quantify sensitivity of the economic viability (due to e.g. design optimisation, scale of market, scale of deployment).

Reporting from Market Assessment

Market Assessment should lead to the following outputs:

1. Statement of deployment scenario assumed.
2. Report on potential capital cost and operating cost reduction specific to the technology.
3. Report on potential increase of revenue that could be attained due to performance changes.

Contents of Protocol

This protocol should provide guidelines for estimating technology specific limitations to possible cost reduction mechanisms. The following sections should be covered:

1. Capital cost

2. Operating cost

3. Performance and revenue

4. Exclusions

None of the objectives are specifically excluded from this protocol.

Principles

This protocol will provide a methodology for quantifying the long-term cost-reduction that could be achieved by alternative marine energy technologies. The protocol should be used by policy makers, investors or planners involved with evaluation of either alternative energy scenarios or early stage-concepts.

1. Capital cost
    - Define minimum requirements for infrastructure (costs or quantities) per-unit or per-MW installed based on both technology and site parameters.

2. Operating cost
    - Define minimum quantities for components of the operating cost including, but not limited to, minimum facilities, environmental monitoring and network costs. This should include vessel requirements based on appropriate estimates of site accessibility for maintenance activities.
    - Indicate how maintenance time and vessel requirements can vary with scale.

3. Performance and revenue
    - Provide guidelines on limitations to the maximum performance (e.g. power density, power variance, minimum transmission losses) of different types of device using device classification templates (see “II.C Deployment and Performance Assessment of Multi-Megawatt Device Arrays”).
    - Provide guidelines on factors limiting scale of deployment for this type of technology.

Key Aspects

The protocol should provide guidelines as to which costs may reduce and identify methods for estimating the magnitude of cost reduction for a given deployment scenario. Similarly, the protocol should provide guidelines on the extent of performance increase that can be attained for the same deployment scenario. When conducted for several deployment scenarios this can be used to calculate the support required for the technology.