1) Identify any existing market structure, utility regulation, or other impediments to development of ocean renewable energy resources.

There seem to be few if any barriers to the development of ocean renewable energy resources from the market structure and utility regulatory perspective. Experience in New England generally, and Maine in particular, demonstrates an institutional and regulatory environment that is among the most hospitable in the country for the development of merchant generation. Implementation of the 1992 Energy Policy Act lead to the divestiture of generation by the most of the region's electric utilities, the development of the ISO New England, and the advent of multiple merchant generation facilities. Merchant generation was quick to develop in Maine due to the availability of land, a relatively simple permitting process, proximity to fuel sources, early history with the development of PURPA Qualified Facilities, and the interconnection practices of local transmission and distribution utilities. More recently, Maine's regulatory climate and favorable wind resource has lead to the largest and most rapid concentration of wind development within New England.

The process for generator interconnections to the grid are well established and contained in Schedules 22 and 23 of ISO New England's FERC Regulated Open Access Transmission Tariff (OATT). Schedule 22 is the Large Generator Interconnection Procedure (greater than 20 MW). Schedule 23 is the Small Generator Interconnection Procedure. These schedules establish the responsibilities of the ISO, the transmission owner, and the generation project sponsor in the process. Sponsors of generation projects must demonstrate through engineering studies that the interconnection they propose does not diminish the reliability of the grid. Before receiving approval for interconnection, the studies are reviewed by the NEPOOL Reliability Committee,[1] which provides feedback on the studies and recommends to ISO whether or not the interconnection should be allowed. Any detrimental effects to the reliability of the power grid that stem from interconnection of a project must be remedied prior to the project sponsor receiving an approval for interconnection. Both the cost of the study and the cost to make needed grid improvements may be very expensive and must be borne by the project developer. At present, there are over 120 interconnection requests under review by ISO New England. Historically, approximately twenty percent of proposed projects have become commercial.

Thus while there may be cost or economic barriers to the development of ocean renewable energy resources, there appear to be no significant barriers from either wholesale market rules or utility regulation,

2) Recommend changes to market and utility policy to promote the development of ocean renewable energy resources in Maine.

As discussed above there are few if any impediments to the development of ocean renewable energy resource in Maine's utility regulatory climate. Neither do there seem

[1] The Reliability Committee is made up of market participants that include other generation owners and transmission utilities with expertise in transmission planning..

to be major barriers associated with ISO New England's administration of the wholesale electric markets.[2]

3) Availability of time of use rates:

There was a question regarding the availability of time of use rates (TOU) for electric service. In response to the Public Utilities Regulatory Policy Act (PURPA) all commercial and high use residential customers in Maine were placed on mandatory TOU rates. The rate was so unpopular with most residential customers, that the Commission later eliminated the mandatory rate for residential customers. When Maine's legislature restructured the electric industry, utilities were prohibited from providing energy (or supply) services and limited to providing the delivery service. As a result, Central Maine Power and Bangor Hydro-Electric Company have maintained TOU rates but they apply only to the delivery service[3]. Supply prices in the market are a function of customer's contracts with their suppliers and may be either time differentiated or flat. Supply prices for customers on standard offer service[4] are not time differentiated, as existing metering and related systems are not sophisticated enough to extend the TOU rates to these customers. The Commission is currently reviewing advance metering infrastructure (AMI), which would enable the availability of TOU rates to the supply component of the rate.

4) Availability of special electric heat rates:

All investor owned electric utilities in Maine have published electric heat or electric thermal storage heat rates available for delivery service to retail customers. These rates do not apply to the supply component of the rate.

5) Fixed/variable rate design:

We also discussed whether the institution of a rate design that recovers a greater proportion of costs through fixed charges would spur greater demand for geothermal heating technologies, driving increased demand for electricity, and by extension creating a larger market for electricity derived from ocean renewable energy resources. Presumably the lowered energy charge would make geothermal heating more competitive with fossil fuels. Such a change in rate design might also have other unintended effects which should be considered. Among them;

- Negative customer reaction. According to a 2004 MPUC study "Report on Utility Incentive Mechanisms," more than half of all residential and small business customers would experience bill increases under such an approach (see pp. 32 – 35).
- Mixed incentives for utilities. By reducing the amount of costs recovered through volumetric pricing and increasing the amount recovered through fixed charges, utilities could be less resistant to energy efficiency programs which reduce sales.

[2] These markets are regulated by the Federal Energy Regulatory Commission whose rules have proven somewhat difficult for Maine interests to change in past proceedings.
[3] Residential TOU rates continue to be optional for the consumer.
[4] Nearly all residential and small commercial customers.

Conversely, the approach could eliminate any incentive utilities might have to promote greater use through special electric heat rates.

- Mixed incentives for customers. The rate change might spur greater adoption of geothermal heat, but might also reduce customers' incentives to conserve energy or invest in alternative energy technologies such as solar or wind power.
- Timing issues. There is no guarantee the large potential sources of renewable energy from the Gulf of Maine will materialize. If new rate designs succeed in increasing demand for electricity without the development of new renewable resources, they would create greater reliance on fossil fuels.