



*Emission-Free Electricity
from the World's Rivers and Seas*

Tidal Energy in Maine

Opportunities, Obstacles & Issues to be Addressed

Presented to

Governor's Ocean Energy Task Force



January 14, 2009

Ocean Renewable Power Company (ORPC) is both a technology developer and a project developer

- A Delaware LLC founded in 2004, ORPC is a Maine-based developer of technology and projects that convert tidal, river and deep water ocean currents into emission-free electricity.
- Proprietary ocean current generation (OCGen™) technology.
- Successful demonstration of the technical feasibility of the core component of OCGen™ technology, the Turbine-Generator Unit (TGU), in April 2008
- Project sites *in three* of the world's most promising tidal energy resources (Western Passage and Cobscook Bay, ME and Cook Inlet, AK).
- Executive offices in Portland (2 Portland Fish Pier) and a project operations office in Eastport

Maine Has What It Takes For Successful Tidal Energy Development

- Tidal energy resources that are as robust as any in the U.S. and recognized worldwide
- Resources are close to shore and in reasonable proximity to transmission interconnection points
- Underutilized port facilities and marine equipment
- History of boatbuilding and marine services – workforce experienced in working on the water, composite manufacturing, etc.
- Significant R&D capabilities through universities and other institutions
- Mandate to reduce (or eliminate) dependency on imported energy
- Strong need for economic sustainable development based on Maine competitive advantages

The Maine Tidal Energy Industry Already Exists



Maine Tidal Energy Industry Partners

- Ocean Renewable Power Company/ORPC Maine - OCGen™ technology & projects
- University of Maine Orono – Technology R&D, engineering & environmental studies
- Maine Maritime Academy – Technology R&D & engineering/operations oversight
- US Windblade – ADCF turbine design & manufacturing (composite materials)
- Harbor Technologies – TGU frame design & manufacturing (composite materials)
- Maine Marine Technology Center – Facilities for fabrication, assembly & shop testing
- Eastport Port Authority – Operations planning & marine services
- Devine Tarbell & Associates – FERC licensing & environmental permits
- Pierce Atwood – Legal counsel

Tidal Energy in Maine Brings Significant Opportunities

- Abundant supply of emission free electricity – potentially up to 10 percent of Maine electricity consumption
- Creation of a world-class ocean energy cluster - EREC
- Sustainable economic development – R&D, engineering, manufacturing, construction, O&M, environmental monitoring & studies, etc.
- Anchor customer for Maine marine composites industry – will put Maine composites industry on the world map
- Large (Utility scale) and small (distribution) projects – spreads the benefits
- The *new Working Waterfront* – a major part of the future of the waterfront
- Significant new jobs, investment and tax revenue – 300 to 500 new quality jobs and over \$1 billion in new investment in Maine in 5 to 6 years

With Significant Opportunity Comes Significant Challenges

- “Tidal energy isn’t big enough to be a priority” – tidal energy is the leading edge of the long term ocean energy industry (over \$1 billion investment and several hundred jobs ain’t bad!)
- State funding – so little and so much to do with it
- The fight for ‘bottom space’ – dangerous waters for developers
- Baseline environmental studies – very costly and time consuming
- Community purchase of tidal power – host communities want to buy the power from “their” resource
- Transmission capacity – upgrades will be required for larger projects and they are costly and take time

Tidal Energy Development Will “Blaze the Trail” for Other Future Ocean Energy Development - Lessons Learned Will Be Invaluable

- Environmental baseline studies
- Interface with permitting agencies (federal and state)
- Stakeholder interaction, including local communities, fishermen, lobstermen, pilots, industry groups, concerned citizens, etc.
- Undersea transmission lines and grid interconnections
- Relationships with marine services contractors and ports
- University applied R&D, environmental monitoring, etc.
- Ocean energy job training
- Ocean energy electricity market development

Successful Ocean Energy Development Requires The Involvement of All Stakeholders – The ORPC Perspective

- Engage all stakeholders early – local officials, citizens, fishermen, pilots, etc.
- Listen, listen, listen...and learn - understand
- Be transparent and honest – no secrets
- If you make a mistake, admit it

Work hard at it and enjoy it!

Build mutual trust and respect



To Help Tidal Energy Development, Several Key Issues Should Be Addressed by the Governor's Ocean Energy Task Force

- Formally establish the “Ocean Energy Continuum” - get organized
- Set up funding programs (grants and loans) for ocean energy development
- Establish and fund a state-wide ocean energy “honest broker” – must have credibility with all stakeholders
- Make ocean energy permitting a state priority - streamline
- Establish a way for local communities to buy ocean power – local buy in
- Commission an ocean energy transmission study and follow up with funding of recommended upgrades