



*Emission-Free Electricity
from the Boundless Energy of the Sea*

PROJECT SUMMARY

Prototype TGU Demonstration Project

Presented to

***The Community
of Eastport, Maine***

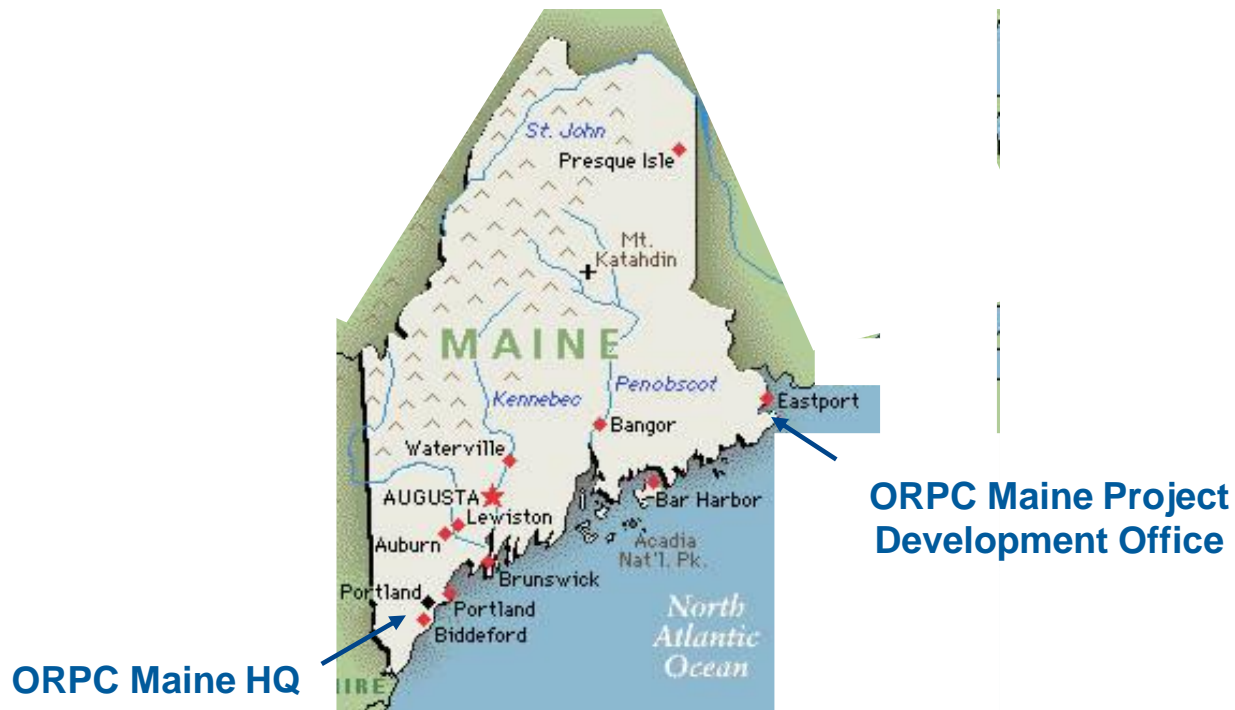


May 22, 2008



ORPC Maine *Company Growth Update*

**Officially opened ORPC Maine Portland office May 2008.
Our accomplishments here in Eastport have directly affected our
overall growth and success!**





ORPC Maine, LLC Project TEAM Update

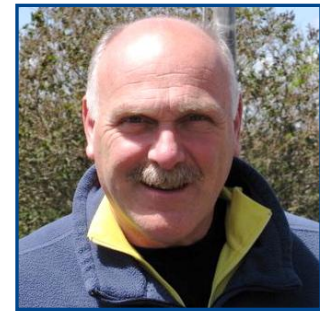
In addition to expanding our presence into Portland,
John Ferland, Director of Project Development, joins the ORPC Maine team.



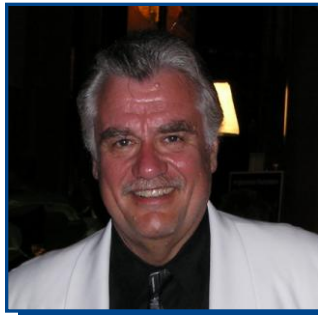
John Ferland
Director of Projects



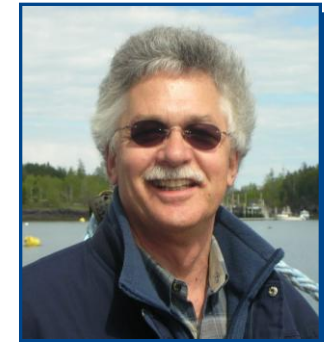
Cheray de Candia
*Manager, Marketing &
Communications*



Bob Lewis
*General Manager -
ORPC Maine, Eastport*



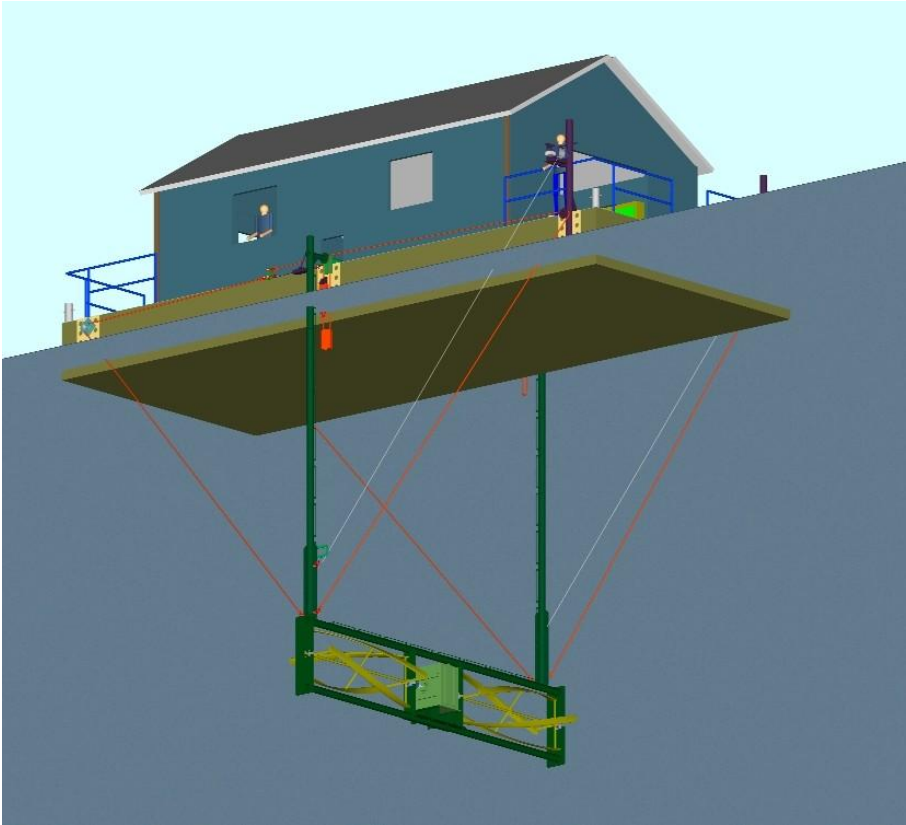
Ernie Hauser
VP of Project Development



Chris Sauer
President & CEO

Prototype TGU Demonstration Project

Over a year ago, ORPC decided to build a prototype of our proprietary Turbine Generator Unit (TGU) and test it in Cobscook Bay and Western Passage to demonstrate its technical feasibility.



The TGU was deployed 30 feet beneath the barge using a retractable deployment frame. The prototype TGU is approximately 1/3 the physical size we envision for tidal energy projects. The TGU is the core component of ORPC's ocean current generation (OCGen™) technology.

NOVEMBER 2007

The Barge is brought into the shop to be retrofitted!



NOVEMBER 2007

Construction and assembly of the TGU and Barge took place at the Maine Marine Technology Center (MMTC), known as the “boat school.” At the peak of construction, we had up to 30 local people working on the project.



NOVEMBER 2007

The key components were completed.



Our First Prototype TGU



Our Underwater Permanent
Magnet Generator

Launching of Energy Tide 1

DECEMBER 2007

December 8, 2007 marked the successful launch of Energy Tide 1!



"I hereby christen you the Energy Tide 1," proclaimed Eastport fifth-grader Willi Hopkins using a bucket of seawater instead of champagne.

Launching of Energy Tide 1

DECEMBER 2007

The Energy Tide 1 was launched from the MMTC ramp into Deep Cove



“May you bring us the power of the sea,” declared President Chris Sauer echoing the Quoddy dream of the past century.

JANUARY 2008

Due to severe weather - ice, snow and sub-zero temperatures – the testing and monitoring of the TGU was frequently (usually) delayed.



Winter Weather Delays

JANUARY 2008

The ice sets in!



Severe Winter Weather Continues

FEBRUARY 2008

Despite the severe weather, ORPC continued to forge ahead with its testing.



Severe Winter Weather Continues

FEBRUARY 2008

Testing Continues



New Blades for the TGU

MARCH 2008

ORPC determined that the turbine blades were undersized so 2 new turbines with larger, improved blades were built. The fabrication of the new blades took place at the MMTC using local personnel.



New Blades for the TGU

MARCH 2008

Installing the new turbines in the TGU.



Tow Testing the Upgraded TGU

APRIL 2008

The TGU with the improved turbines were tow tested and found to be a significant improvement vs. the turbines with the original blades.



APRIL 2008

After push and tow testing was complete, the Energy Tide 1 was installed at the stationary moorings off Dog Island in Western Passage.



APRIL 2008

The TGU was tested continuously for a week and, on April 25, 2008, the successful testing of Energy Tide 1 officially came to an end.



Summary of Results

- The Turbine Generator Unit (TGU) design feasibility has been confirmed.
- The TGU self-starts (under load) in current speeds under 2 knots (cut-in speed).
- After starting, the TGU does not stop until current speeds fall below 1 knot (cut-out speed).
- The TGU generates electricity continuously, in direct proportion to current speeds, and in both flood and ebb tidal flows.
- The TGU has been stress tested in current speeds up to 8 knots with no excessive vibration or deflection.
- The turbine efficiency was less than expected and, as a result, improving turbine efficiency is a top priority.
- ORPC has instituted an analysis and subscale testing program to optimize turbine efficiency with UMass Dartmouth, UMaine Orono and Maine Maritime Academy.

ORPC Investment in Maine

The prototype TGU demonstration project pumped a significant amount of money into the Maine economy, a large portion of which was spent in Washington County.

- Total project cost was approximately \$1.3 million.
- Just over 50% of the project costs was spent in Maine.
- At the peak of construction we employed over 30 local people.
- Nearly all supplies and consumables were purchased locally.



- ORPC plans a more extensive test of the commercial design of its proprietary TGU in both a tidal current application (Western Passage) and a river current application (site TBD) in the summer of 2009.
- ORPC hopes to prove the commercial viability of its TGU at the end of next year's testing programs.
- The commercial design will incorporate marine composite materials into the turbine, generator housing and TGU frame design, which will be manufactured in Maine.
- ORPC plans to do the final fabrication, assembly and shop testing of both the tidal TGU and the river TGU at the MMTC.
- ORPC's plans are contingent on obtaining the needed \$6 million in new funding. ORPC has applied for \$2 million of funding from the Maine Technology Asset Fund (MTAF) and hopes to receive the award by September 1, 2008.



To the Eastport Community THANK YOU!

The success that ORPC has achieved with the completion of the prototype TGU demonstration project would not have been possible without the incredible cooperation, dedication, hard work and ingenuity of a lot of Eastport people and organizations. We would like to publicly express our sincere gratitude to everyone who helped us on this significant achievement, including:

- The officials and citizens of the City of Eastport
- The Eastport Port Authority
- Phoenix Salmon (Cooke Aquaculture)
- The people of the boat school
- Cobscook Bay Resource Center
- Cobscook Bay Fisherman's Association
- The Quoddy and Campobello Island pilots

***Thank
You!!!***