



## HIGHLIGHTS FROM 2013

### Turbines

The year began with developments from FORCE's technology partners: Alstom acquired TGL from Rolls Royce and began testing their new one megawatt turbine at the European Centre for Marine Energy (EMEC); Atlantis, Lockheed Martin Canada and Irving Shipbuilding were awarded \$5M to reengineer their turbine technology for the Bay of Fundy.

### Equipment

Through the year, FORCE continued its program of site characterization, collecting high frequency data from berth sites and installing new equipment, including:

- a digital tide gauge – installed initially just below low water mark then moved further seaward to a semi-permanent location – now operating effectively and providing useful data;
- an X-band radar system – a joint project with Acadia University – to generate maps of surface currents and wave fields; and
- a weather station – a cooperative project with NSCC – providing site specific data from the FORCE demonstration area.



*FORCE tide gauge: first device to measure tide level changes in real time.*

### Research

FORCE also began design and operational planning work on the Fundy Advanced Sensor Technology (FAST) platform – a recoverable seabed mounted platform designed to advance our understanding of the FORCE site and the instrumentation required to measure it. FORCE struck a science advisory team to develop the platform's initial research program and instrumentation package, and announced its first breakthrough technology – the Vectron – the world's first instrument to provide high-resolution, real time measurements of turbulent water flow at turbine hub height. The Vectron is able to capture highly accurate measurements of turbulence at a specific height above the sea over long periods of time - critical to understanding turbine

performance, and vastly improving developers' odds of successful and efficient operation. This instrument also meets a need for more accurate, site-specific data at high flow sites worldwide.

### **Marine Operations**

In December 2013, FORCE is planning a marine operation with implications for both the FAST platform and turbine power cable deployment. Barge trials – planned next month – will allow a rehearsal of cable deployment procedures, and depending on the outcome of the barge trials, FORCE will proceed to install a subsea data cable following the trial. This cable will allow the FAST platform to be connected to shore in real time in the future, and equally importantly, provide valuable information on cable behaviour in the Minas Passage in advance of planned subsea power cable deployment in 2014.



*Data cable: fitting abandonment termination that will allow connection with subsea monitoring platform.*

### **Monitoring**

FORCE's independent Environmental Monitoring Advisory Committee turned its attention to reviewing monitoring

data collected to date, assessing progress and gaps, to help define the design of future monitoring programs. A new environmental effects monitoring report is expected in spring 2014, covering 2011-2013. This will include final data analyses for several 2012 studies, and the initial data analysis for a 2013 weir fisheries study.

### **Other activity**

Also this year, FORCE advanced offers for sensor platform trials, marine excursions, as well as employment opportunities for a new director of operations and facilities and board director. FORCE also increased its engagement efforts, welcoming 4300 people to the visitor centre, and reaching over 70,000 viewers via a new live webcam.

### **Related developments**

Federal government increases threshold for in-stream tidal power projects from 5MW to 50MW under the Canadian Environmental Assessment Act (CEAA), signalling federal support for industry growth. After a hearing process with participation from parties within the electricity sector, the NS Utility and Review Board released a feed-in tariff (FIT) for tidal turbines and arrays. This milestone represents a significant step forward for the industry, creating a commercial marketplace and price structure for electricity generated at the FORCE site in the Minas Passage.

### **Contact**

Mary McPhee  
Visitor Centre Manager  
(902) 254-2510  
visitor.centre@fundyforce.ca