



IEC TC114 Project

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Message from the Chair

Welcome to the Summer 2014 edition of the newsletter. I hope everyone is enjoying some well deserved rest and relaxation with family and friends.

The spring was a busy time for the standards committee. The semi-annual face to face meeting was held in Winnipeg on June 26th, 2014. A total of 18 delegates attended the meeting either in person or via conference call. The meeting was hosted by the University of Manitoba who provided the conference facilities as well as an update on the hydrokinetic research being performed by the students and a tour of their laboratory facilities.

The meeting provided the opportunity for the committee to receive updates on the progress of each of the project teams. It also allowed for greater time to more fully discuss a couple of the following key issues:

- Increased shadow committee membership is required to ensure Canadian experts are fully supported as well as feedback is received from all key industry stakeholders.
- Canada will be leading a newly formed project team on river energy converter power performance assessment. A call will be required this fall to recruit individuals interested in reviewing draft documents and supporting Canadian experts.
- A motion to elect 2 additional Vice Chair's was put forward to the committee to review and approve. Bill Rawlings and Ryan Nicoll will now assume this role and will work with the Chair on strategic planning issues.
- Canada has been chosen to provide a convener for TC114's first maintenance team , MT62600-1 on Terminology. Mo El-Hawary has generously offered to assume this new role. He will be assisted by Victoria Alleyne from CSA.
- A new procedure will be developed for recruiting and reviewing new applicants to join the committee as Canadian experts.

After lunch, the committee members went on a tour of the Canadian Hydrokinetic Turbine Test Centre in Seven Sisters, Manitoba. Dr. Eric Bibeau, who is the overall manager of the test site, gave everyone a tour including a boat ride of the turbine deployment sites.

- [Ocean Thermal Energy Conversion \(OTEC\) Systems](#)
- [Power Performance Assessment for River Energy Converters](#)



Quick Links

- [IEC TC114 Standards Website](#)
- [International Electrotechnical Commission \(IEC\)](#)
- [Marine Renewable Energy Technology Roadmap](#)

Project Partners:

Our website (<http://tc114.oreg.ca/>) is continuously being updated with the latest information. Please feel free to contact me or Marine Renewables Canada directly for more information on how to get involved with this committee.

Have a great summer!

Cheers,
Russell Stothers
Chair, Canadian Mirror Committee to IEC TC114

Research Projects 2014-15

Earlier this year a request for proposal was launched by SMC/IEC TC114 to solicit applications for funding of research activities related to the development of technical specifications and standards for marine energy conversion systems. The funding was made available through a contribution from Natural Resources Canada and administered by Marine Renewables Canada. Highlights of the research projects funded last year can be found in the "Research Projects" section of the SMC/IEC TC114 web site (<http://tc114.oreg.ca/>).

After a rigorous screening and evaluation process, we are happy to report that three projects have been selected and contracted for a total funding support of \$170,110; leveraged by an additional \$140,100 of contributions from the project proponents/partners for a total value of \$312,210. The selected projects are briefly summarized below, not in any particular order of selection.

Université Laval will undertake research into the Impact of channel blockage and free surface proximity on the performance of cross-flow hydrokinetic turbines. Channel blockage refers to current flow restrictions characteristic of the deployment site which can impact significantly on actual performance of tidal turbines and has to be taken into consideration when developing performance measurements and standards. The Laval research will focus on cross flow or vertical axis turbines and address a knowledge gap in the current Technical Specification of Tidal Energy Conversion Systems (TS 62600-200). It will complement current research being undertaken for horizontal axis turbines and also support the effort of Ad-hoc Group 2 (Performance Assessment of River

**Canadian Sub-Committee
(SMC/IEC TC114)**

- Acadia University
- AMEC Black & McDonald
- Bhuyan Consulting
- CanmetENERGY-NRCan
- Cascadia Coast Research
- Clean Current Power Systems
- CSA Group
- Dalhousie University
- Dynamic Systems Analysis
- Emera
- Glas Ocean Engineering Consulting
- Grantec Engineering
- Mavi Innovations
- National Research Council Canada
- Powertech Labs

Energy Converters).

Mavi Innovations will collaborate with the University of Manitoba in assessing the testing procedures for a floating river energy converter. Floating turbines have special performance testing considerations compared with sea or river bed mounted turbines as factors such as incident velocities and deployment location of current profilers will require adjustments to take into account the floating nature of the device and its movement with currents.

The University of Victoria will lead a team of researchers and collaborators including AXYS Technologies Ltd, and Sandia National Labs to conduct research targeted to support existing technical specifications development, notably mooring systems (PT 62600-10), wave resources assessment (PT 62600-101) and wave energy converter performance at a 2nd site (PT 62600-101). This represents a sub-set of a larger, multi-year project focused on addressing standards and knowledge gaps in wave energy development.

Committee Updates & Initiatives

New CSA Group Advisory Council on Renewable Energy formed

Since the mid 80s, CSA Group has been developing standards related to renewable energy. Our programs related to renewables include:

- Photovoltaics
- Wind energy
- Marine energy
- Biomass
- Energy storage
- Grid integration
- Geothermal ground heat pumps
- Solar thermal collectors

Renewable energy has been increasing worldwide at unprecedented levels, and CSA is excited to see growth in emerging areas such as marine renewable energy. In an effort to best serve our stakeholders in providing standardized solutions, we have formed a new Advisory Council on Renewable Energy (ACRE). Their work will guide our development of standards, training programs, personnel certification programs or certification. Standard solutions may also come in the form of adoptions of existing international standards, or harmonization with existing US standards.

ACRE comprises of industry, contractors, academia, non-government organizations, utilities, government agencies, regulators and certifiers with broad areas of expertise. Its mandate and objectives are to provide broad-based direction for standardization in the field of renewable energy for renewable technologies such systems and subsystems of the following technologies noted above.

In June, a task force of ACRE prepared a draft terms of reference and we will be holding our first Council meeting in the fall of 2014. If you would like more information on ACRE, please contact Muktha Tumkur at muktha.tumkur@csagroup.org or (416) 747-4045.

Update on PT103: Wave energy converter early stage testing guidelines

PT62600-103 (a.k.a. PT103) will be a new set of guidelines under the IEC (International Energy Congress) TC114 Marine energy -- Wave, tidal and other

- Rockland Scientific
- University of Victoria

Members:

IEC-TC114

- Chair: Neil Rondorf (USA)
- Secretary: Danny Peacock (UK)
- Technical Officer: Charles Jacquemart

Sponsors:



water current converters, titled "Guidelines for the early stage development of wave energy converters: best practices and recommended procedures for the testing of pre-prototype scale devices". Championed by Brian Holmes (former Coastal Resources Manager at University of Cork Hydraulics & Maritime Research Centre), PT103 is intended to reduce risk in wave energy converter development, which will aid companies to advance from prototype to commercial scale.

The team, comprised of nationals spanning 11.5 time zones from Newfoundland to Japan, is challenged to collaborate effectively; however, face-to-face meetings supplemented with VoIP connections are proving the most useful method to advance the guidelines.

The inaugural meeting of the PT103 team was hosted by Sandia National Labs in Albuquerque, New Mexico, in July 2013. In two days, six of nine members (one via Skype) succeeded in drafting an outline and assigning authors to sections. Several contentious issues were resolved in heated debates punctuated with communal meals.

Diana Bull, a researcher at Sandia Water Power Division, also arranged a full day of site tours after the meetings, including their Advanced Materials Labs, Lake Facility, Solar Tower and Water Power Department and an FAA Airworthiness Assurance Nondestructive Inspection Validation Center.

The intent after the first meeting was to complete a working draft and meet again in person in February. Other priorities intervened and telconferences were sparse until March 2014, when a second face-to-face meeting was suggested.

In June 2014, Abengoa hosted the meeting in Seville, Spain, followed by a half-day site tour of their Solucar solar power complex near Sanlúcar la Mayor. This time, seven team members (two via teleconference) participated in an intense meeting, reorganizing the document around existing drafts and reassigning sections for review and further expansion.

The productivity of both face-to-face meetings eclipsed tentative steps taken in the year between. A third meeting is tentatively planned to coincide with [ICOE 2014](#) in Halifax, to drive through to a committee draft on a revised schedule (to be announced).

Update on PT 62600-2: Design

The Design Project Team of the IEC TC114, PT 62600-2 has released its committee draft after a long writing period. The draft is currently being circulated for review and anyone wishing to see a draft should contact the TC114 committee. Comments are due by September 12th, 2014.

The Canadian delegation team members Dr. Sue Molloy and Dr. Gouri Bhuyan attended the most recent face to face meeting hosted by DNV GL in Hamburg Germany. The hosts graciously provided a wonderful visit to Hamburg during the world cup, even participating in an evening meal without tvs during a Germany match. The Canadian representatives to the Design project team have invited the following experts in their field to act as a shadow committee and offer comments on working documents of the 62600-02 PT.

- Ricardo Foschi, Vancouver (Emeritus Prof. in Civil Engineering, UBC)
 - Pierre Sullivan, Toronto (Prof. in Mechanical Engineering, UOT)
 - Richard Grant, Halifax (Consulting Engineer with experience related to offshore energy structures)
 - Clayton Bear, Calgary (New Energy Corp)
-

Upcoming Meetings

The SMC to TC114 meets on a monthly basis via teleconference to provide updates on all current activities. The subcommittee also plans for two face-to-face meetings, one typically in the spring and one in the fall to make more progress on significant issues. The meeting in the spring is focused on ensuring all committee members are in agreement with the Canadian position on all issues to be discussed at the annual TC114 plenary meeting. The SMC to TC114 meeting in the fall is focused on assessing the current and projected needs for the upcoming year.

For 2014, the meeting schedule is as follows:

January 15, 2014	Conference Call 10:00 AM PST
February 19, 2014	Conference Call 10:00 AM PST
March 26, 2014	Conference Call 10:00 AM PST
April 21-25, 2014 (Plenary)	TC114 Plenary and PT meetings In Vancouver
May 28, 2014	Conference Call 10:00 AM PST
June 26, 2014 (In person)	Meeting in Winnipeg at U of M and CHTTC
August 20, 2014	Conference Call 10:00 AM PST
September 17, 2014	Conference Call 10:00 AM PST
October 15, 2014	Conference Call 10:00 AM PST
November 7, 2014 (In person) 4-6, 2014)	Meeting in Halifax (ICOE 2014 Conference Nov 4-6, 2014)
December 17, 2014	Conference Call 10:00 AM PST

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