

Welcome to *Renew* – a quarterly publication of the Ontario Waterpower Association (OWA). This edition moves from a focus on the political to the practical as we enter into a new era of waterpower development and redevelopment. To put the recent Feed-in-Tariff (FIT) launch results for waterpower in context, consider that the Non-Utility Generation program of the late 1980s and early 1990s resulted in 53 projects with a total installed capacity of 142 megawatts. Beyond the FIT, Ontario Power Generation is actively investing in significant new developments, redevelopments and upgrades. And, as reported in the Spring issue of *Renew*, the Hydroelectric Contract Initiative provides strong incentive to add capacity to and improve energy production from existing facilities across the province. It is no longer a question of “whether” waterpower, but how and how quickly. ■

New Association Members

Mark Powell

Alstom Sitca Inc.
www.sitcservices.com



SLR Consulting (Canada) Ltd.
www.slrconsulting.com



Youth Education

This May, the OWA exhibited at the 9th annual Peterborough Children’s Water Festival (PCWF). Ontario Power Generation (OPG) also participated in the PCWF and at the Quinte Children’s Water Festival (right). These annual events engage children in learning by bringing together the expertise of educators, water quality and quantity specialists, community volunteers, conservation groups, industry and government, in an interactive and fun setting. The OWA’s waterpower generation display explained how water is used to generate electricity – the same electricity they use in their homes each and every day.



Top photo: Local area students attending the PCWF are refreshed at the OWA’s display as they learn how water is used to generate electricity.

Inset: Grade 3 and 4 students from Parkdale Public School, Belleville learn about the dangers of swimming and fishing around dams and generators at OPG’s display at this year’s Quinte Children’s Water Festival in Trenton.

The Next Integrated Power System Plan – A Case for More Waterpower

When the proceeding on the first filed Integrated Power System Plan (IPSP) was suspended in the fall of 2008, the Plan called for the addition of almost 3,000 MW of new waterpower to Ontario’s electricity supply mix. Moreover, the IPSP identified waterpower as a preferred renewable source:

“The economic advantage of hydroelectric power is even greater because of the higher capacity value. Hydroelectric resources make a much larger contribution

to meeting annual peak in system demand, thereby substantively avoiding the need (and costs) for other resources that would be needed to meet system adequacy requirements.”

So, leading into the anticipated refiling of the Plan later this year, key questions will be related to what has changed, both in the immediate and, as importantly, in the mid- to long-term outlook. In this regard, there

is a strong case for the addition of more waterpower in the next IPSP, for two reasons.

First, the initial plan included “all feasible hydroelectric resources” as a first priority among renewable resources, with the limits on feasibility largely related to existing policy constraints. In the interim, administrative improvements have been made to the existing policy framework for

Continued on page 2.

Effective and Efficient Facility Management

Guest Article by: *Vince Kulchycki, Chief Operating Officer, Lakeland Holding Ltd.*

Own and operating a water generation facility may seem like the same thing but in reality they are entirely different. As a facility owner you need to ensure that your investment will remain at peak performance to provide the dividends you require. Depending on the size of your facility and if you are a market participant with the Independent Electricity System Operator (IESO), you have different obligations. Your wholesale metering is your cash register and with this much is at stake, it is a solid business decision to have a plan in place to monitor and validate the readings obtained from the meter. Your investment needs to be operating 24/7/365 days a year, with someone consistently monitoring its efficiency.

As facility operator, you are responsible for ensuring the safe and dependable operation of the facility and that it is in compliance with all regulatory bodies such as the Ministry of Natural Resources (MNR), Ministry of Environment (MOE), Transport Canada (TC), and the local Water Management Plan (WMP). Efficient dam operations are essential and, depending on the type of facility and the WMP you follow, this could be a rare, or conversely, a common function. The handling of booms, logs

and sluice gates requires very specific operating procedures and tools with inherent safety risks.

As such, operational safety risks are best addressed through appropriate site specific training and regularly scheduled safety discussions and meetings. Additionally, a preventative maintenance program is an absolute necessity and should be created for a facility's particular requirements. This program also needs to be regularly reviewed to ensure the schedule is achieving its intentions. For example, some types of turbines require more frequent cleanouts or adjustments, to keep them operating at peak performance. Water flows also need to be taken into consideration when developing a program. Although you may have two identical units side by side, they could be affected differently depending on water flow constraints or debris.

As with many facilities, annual scheduled shutdowns for maintenance may be required. Depending on the type and configuration of the units, this could be as brief as half a day to as long as two weeks. If a shutdown is required, this may need to be coordinated with the other facilities, both up and down stream, which may be impacted. As well, the regulatory agencies need to be advised to ensure the facility



Bracebridge Falls Generating Station, Bracebridge, ON

is in compliance with its WMP. Finally, a strong degree of communication between operators and maintenance personnel is essential to minimize potential hazards and maximize your facility's efficiency. It is critical that all aspects of the facility be reviewed from the equipment (i.e., turbines, generators, switchgear, controls, station equipment, building fixtures and tools), to health and safety concerns. Public and personnel safety are paramount and ongoing safety training and education will ensure long-term success.

Bracebridge Generation, a subsidiary company of Lakeland Holdings Ltd., has provided services and technical support for several projects throughout Ontario. ■

www.bracebridgegeneration.com



Crown land access to align with the *Green Energy Act* and more positive change is expected through the planned "Phase 2" review. Progress is also being made with respect to the significant potential subject to land use policy constraints identified in the Plan. Most importantly, the pent-up demand in the industry has come forward, not only through the Feed-in-Tariff program launch, but also in Ontario's Far North, where

A Case for More Waterpower *continued from page 1.*

Aboriginal communities are actively pursuing several waterpower project proposals. The confidence of the Ontario Power Authority to include more waterpower must be bolstered by these advancements.

Second, the need for more of what waterpower can bring to the table – its flexibility – can only be expected to increase as the system integrates other forms of renewable generation and continues its reduced reliance on coal-fired generation. Both the FIT and the Hydroelectric Contract Initiative contracts have strong provisions that encourage the management of waterpower production to meet peak

demand. And, as reported in the most recent Independent Electricity System Operator (IESO) Reliability Outlook report "Integrating renewable energy supplies will require maximizing the flexibility within each and every resource." The rationale for expanding the role of waterpower in the next IPSP is clear.

Though but two of many factors, these changes since the originally filed Plan speak respectively to the core issues of supply and demand, and should result in an improved outlook for waterpower. The IPSP, after all, looks to the horizon while making necessary adjustments in the course charted. ■

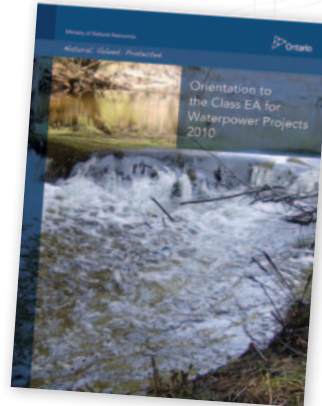
Class EA for Waterpower Projects Training

This past spring MNR's Renewable Energy Program partnered with the OWA, Stantec Consulting and OEL-HydroSys Inc. to deliver Class Environmental Assessment for Waterpower Projects training sessions in Dryden (March 30) and Sudbury (April 7). Participants included MNR staff from northwest and northeast regions and federal Department of Fisheries and Oceans representatives.

"With the launch of Ontario's new Feed-in Tariff (FIT) Program and the awarding of FIT contracts to 42 waterpower projects on Crown land providing this training is both timely and relevant to Ministry Staff" notes Renewable Energy Program Manager Ken Cain.

These sessions were developed to provide a step-by-step overview of the Class EA process and an opportunity for hands-on case study based critical thinking. Key components included examining how the Class EA works, proponent expectations, opportunities for government input and the implications of FIT program expectations and timelines for both developers and regulators.

Participants felt that the sessions achieved their objectives with regard to skills development and that they personally gained valuable knowledge that they will be able to apply and share with their colleagues going forward. Additionally, there was a general recognition that capacity building needs to be an important priority for all involved in waterpower development. As such, the OWA, again with the expertise of Stantec Consulting and OEL Hydrosys, designed an additional training session specifically for industry proponents and practitioners. The workshop was held in Toronto on May 12. The instructors again used a case study example to work through the various phases of the Class EA and addressed such topics as project descriptions,



"Developing waterpower projects involves extensive conversation between developers and the MNR to ensure projects are designed, approved and built in a timely and environmentally responsible way. In that sense, it was great to see the high level of interest and engagement of MNR staff, proponents and consultants that attended the events"

Rob Nadolny, Team Lead, Stantec Consulting

coordination meetings, project scoping, impact and issue management strategies, hierarchy of significance of net effects and implementation and regulatory approvals. Both instructors stressed the importance of open communication.

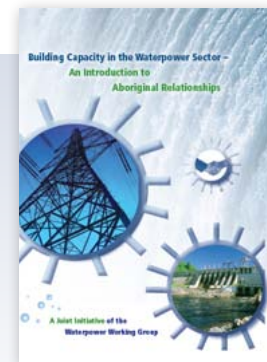
"Early and ongoing engagement of all interested parties as well as detailed record keeping is key," said Tami Sugarman, Principal, Environmental Assessment

and Approvals Coordinator for OEL Hydrosys and Class EA instructor.

The feedback received from both industry and government was that we need to continue to work together to gain a better understanding of key issues and encourage opportunities for open dialogue. ■

Expanding and Sustaining Aboriginal Community Participation in Waterpower –

Over the last five years we have reported in this publication on a collaborative effort between industry, government and Aboriginal organizations to "build capacity" in communities interested in becoming participants in or proponents of waterpower projects. To date, the estimated direct financial and in-kind investment in these initiatives exceeds \$1 million. While the focus has been on practical and pragmatic products and programs, last year's evaluation of the awareness, understanding and ability of communities provided hard evidence of the need to do more (see *Renew*, summer 2009). In a number of key areas, the province has responded through initiatives under the *Green Energy Act*. The Aboriginal Energy Partnership Program and, specifically, its Renewable Energy Fund is an important means of assisting with up-front soft costs. The Aboriginal Loan



Guarantee can provide much needed access to equity. And the FIT Aboriginal Adder directly values participation in a business context. All of these programs are welcome changes, yet they all focus at the project level. The collaborative efforts we have been involved in, however, are directed at building a knowledge base at the community level even before a project is proposed – enabling much more informed and effective participation in a project and the new support programs put in place. If knowledge is indeed the key to power, we are helping to open the door of opportunity. ■

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Upcoming Events

HydroVision International

July 27-30, 2010, Charlotte, NC, USA
www.hydroevent.com

Canadian Institute's Energy Storage Forum

July 7-8, 2010, Sutton Place Hotel,
Toronto, ON, www.canadianinstitute.com

APPo 2010

November 16-17, Metro Toronto
Convention Centre, Toronto, ON
www.appo.org

Canadian Hydropower Association Forum on Hydropower 2010

October 26, 2010
Westin Hotel, Ottawa, ON
www.canhydropower.org

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Last Word

Here we grow again...

Forty-six waterpower projects successful in the Feed-in-Tariff program launch. Twenty-nine awaiting the outcome of the Economic Connection Test. More than 20 additional applications on provincial Crown land yet to apply to for FIT contracts. Significant new projects under development by Ontario Power Generation. Hundreds of megawatts of recognized potential outside of the FIT limitation of 50 MW for waterpower. Active investment in emergent technologies in very-low head and kinetic hydro. Adding capacity to and redevelopment of existing facilities spurred by the Hydroelectric Contract Initiative. And the untapped potential of pumped storage. What does all this mean? Billions in new investment, thousands of new jobs and more renewable gigawatt hours that will serve the province into the next century. Here we grow again.

Ontario's economic prosperity was founded on the power of water – up until 1951 virtually all of our electricity needs were met by waterpower. In the 1960s and 1970s Ontario made other choices and while waterpower's contribution continued to grow, it is fair to say that its position of primacy began to wane, particularly in public consciousness. In fact, between the early 1950s and the mid 1980s, more than 300 waterpower facilities were "retired from service," the vast majority of them small plants in and around communities across the province. No wonder then that while "hydro" still dominates public and media discussion, it has lost its true relationship to waterpower. It has been an entire generation since we have seen any significant growth in waterpower.

As we enter this next era of waterpower development, it is our responsibility as an industry not only to approach our stewardship of the resource in an environmentally responsible, publically accountable manner, but to engage and inspire the next generation of Ontarians – those who will inherit and manage our legacy. Our future depends on it. ■

*Paul Norris
President, Ontario Waterpower Association*