

# MKE

*McGhee-Krizsan Engineering*

**CELEBRATING 10 YEARS OF SERVING  
RENEWABLE ENERGY COMPANIES ACROSS CANADA**



**McGhee-Krizsan Engineering champions your project from Concept to Completion**



# AN EXCITING 10 YEARS AND MORE TO COME

## *Thank you from our President*

Incorporated in December 2006, we hit the ground running in January 2007. Thank you to all of those whom we've partnered with over the past 10 years.

It's been an exciting time, both for MKE and the renewable energy sector, starting with the passing of the Green Energy Act in Ontario and the Clean Energy Act in B.C. These pieces of green energy legislation led the way to ending Ontario's dependence on burning coal in 2014 and set B.C.'s renewable energy target at 93%. These acts effectively opened the door for new private sector participants to join the energy production industry from diverse backgrounds such as farming, First Nations, retail, small business, and individuals. MKE was there to help these new industry entrants integrate into the world of Renewable Energy.

We've been actively involved in the growth of the industry in the Ontario and B.C. markets, both on the front lines with developers, and behind the scenes with industry associations like the Ontario Waterpower Association (OWA), helping navigate through new and ever changing regulatory processes.

- **In Ontario:** MKE focused primarily on Project Management for small new developments (under 10 MW) working through feasibility, environmental assessment and permitting phases.
- **In B.C.:** MKE took on the role of Independent Engineer, working on behalf of the B.C. regulators to oversee several larger projects (over 40 MW) through the construction and commissioning phases.
- **In addition:** MKE continued with its core Independent Engineering audit services for financing, acquisitions and sales of facilities.

Since inception, MKE has volunteered significant time and expertise to the Ontario Waterpower Association through participation in numerous working groups and committees striving for improvements to the development process. This has been a sincerely rewarding endeavour. I recommend it to anyone wanting to give back to our industry. In 2014, I was elected to the OWA Board of Directors, and dedicated my time to further aid in helping the interests of the industry.

Again, I would like to thank all our clients and project partners. I look forward to working with you all in this wonderful industry to make the next 10 years as interesting and successful as the last.

Sincerely,

Karen McGhee, P.Eng., Consulting Engineer  
MKE Founder & President



## WHAT ABOUT THE NEXT DECADE?

The waterpower industry appears to be shifting focus again. We will likely see a significant reduction in new developments from what we have seen over the last 10 years, given the sharp decline in demand for new generation, at least in Ontario and B.C. It will be interesting to see how recent government changes in Alberta and the United States will impact the industry over the next few years.

The focus of the industry will move from new builds to **maintenance** and improvements to **safety, efficiency, and longevity** at existing facilities.

Retrofitting publicly owned dams for generation will gather increased interest in **micro installations** as governments and public entities look for ways to fund required maintenance and upgrades of aging infrastructure. MKE had the opportunity to investigate several of these micro projects in Southern Ontario in anticipation of the latest FIT proposal call in 2016. Implementation of new emerging low head technology at these sites provides could provide innovative solutions for generation.

## MKE FOCUS AREAS

- 1. At existing facilities:** Safety, Maintenance, and Emergency Planning, Condition Surveys and Assessments;
- 2. New micro developments:** Engineering and Project Management;
- 3. Financing/Sales/Acquisitions:** Independent Engineering Reviews and Audits; and
- 4. Regulatory compliance:** Monitoring and Auditing.





# ENGINEERING SERVICES

## Development

- Project Management
- Project Siting
- Equipment Selection
- Feasibility & Economic Studies
- Permitting
- Planning
- Consultation and Engagement

## Construction

- Tendering and Evaluation
- Construction Administration
- Construction Environmental Management Planning
- Inspections
- Compliance Monitoring

## Financing, Sales & Acquisitions

- Independent Engineering Project Reviews and Audits
- Construction Audits
- Contingency and Reserve Fund Planning
- Energy & Revenue Forecasting
- Financial Model/Proforma Preparation and Review
- Sale Bid Documents
- Annual Operational Audits

## Maintenance and Operations

- Annual condition surveys
- Public Safety Planning
- Emergency Preparedness and Response Planning
- Project Management for restoration and upgrade projects
- Preventative Maintenance Planning\*
- Operation and maintenance assistance and training\*
- Asset Management\*

*\* In cooperation with strategic partners*



Montrose HEP, 74 MW, Powell River, B.C.



Kokish HEP, 45 MW, Port McNeil, B.C.



## RECENT PROJECTS

MKE specializes in Project Management and Independent Engineering for the Renewable Energy sector. Our reputation was built by providing engineering services for the Waterpower/ Hydroelectric Industry throughout Canada. Today, we've expanded our focus to include Wind and Solar Power. MKE has also recently fostered strategic partnerships that broaden our services in operations, maintenance, asset management and environmental studies.

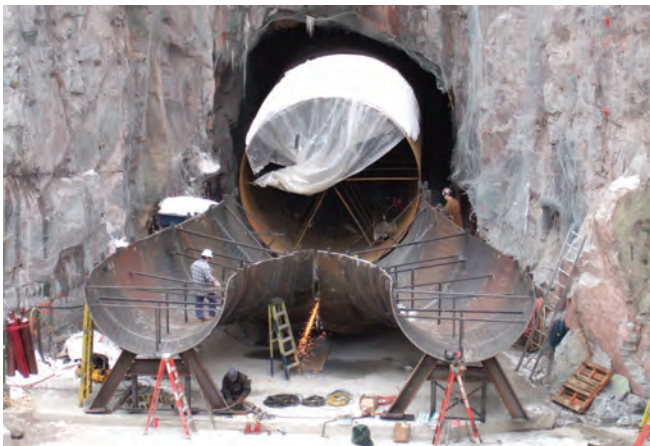


### **Jimmie Creek HEP,**

a 62 MW run-of-river hydroelectric facility in the Toba Valley on the Sunshine Coast of B.C.

Owner/Operator: Alterra Power Corporation in cooperation with partners Klahoose First Nation, Tla'amin Nation and shíshálh Nation.

MKE Role: Independent Engineer, including review of construction design and compliance monitoring on behalf of the B.C. government.



### **Umbata Falls G.S.,**

a 24.2 MW run-of-river plant on the White River southeast of Marathon, Ontario.

Owner/Operator: Umbata Falls LP comprised of Innergex and Ojibways of Pic River First Nation.

MKE Role: Independent Engineer for construction and long-term financing, including project review, energy & revenue forecasting, contingency and reserve fund planning, and construction auditing.



### **Trout Lake River Hydro Project**

a 3.5 MW waterpower development on Trout Lake River north of Ear Falls, Ontario.

Developer: Horizon Hydro Inc., with possible future First Nation partner.

MKE Role: Project Manager and Champion for development from Feasibility through Environmental Assessment phases on behalf of developer, including scoping, budgeting, scheduling, consultant oversight, and consultation & engagement.





### **Stan Adamson Power House and Dam (shown) Project**

included four hydraulic structures in Peterborough and Campbellford, Ontario.

Owner/Operator: Peterborough Utilities Inc.

MKE Role: Development of Emergency Preparedness and Response Plans for four facilities.



### **Elora G.S. (shown), Project**

included evaluation of three waterpower power facilities including Elora, Fenelon Falls and Marmora (each < 5 MW) in southern Ontario for acquisition.

Owner/Operator: Shaman Power

MKE Role: Independent Engineering review of three facilities including condition assessment, energy production and revenue forecasting, operations and maintenance budgeting, commercial agreement review and reserve fund planning on behalf of purchaser and lender.



East Toba H.E.P., 123 MW, Powell River, B.C.



# 10 TIPS FOR PROJECT SUCCESS

1. **Assess, assess, assess, and then...reassess.** Renewable energy projects, particularly waterpower, take several years to complete and require significant investment prior to breaking ground. The more you know about the project and the risks, the greater your ability to effectively manage timelines and costs.
2. **Build meaningful relationships and open communications** including all those impacted by your project.
3. **Hire the right development team.** Your team needs to understand your unique priorities yet be flexible enough to adapt to unforeseeable changes that will ultimately occur during the development process.
4. **Have patience.** Renewable energy projects are not for the faint of heart. These projects can be slow, but become long-term, valuable assets.
5. **Maintain open communications with all regulatory agencies** and keep them informed of changes in scope early to avoid delays and work stoppages caused by permit amendments.
6. **Learn from others.** Waterpower has been around for over a hundred years: look to the successes of others.
7. **Plan based on risk tolerance.** Structure construction contracts to appropriately meet your unique risk tolerance.
8. **Budget time and money for financing process.** Allow for sufficient time and budget to navigate through the financing process. Too often developers are ready to start construction only to discover financing isn't in place.
9. **Keep commitments.** Ensure that all commitments made through the development process are satisfied during construction and operations. Ignoring commitments can impact future projects and the industry in general.
10. **Appoint a Project Champion** to usher your project over the many hurdles and keep the process on the rails.







## NO LIMIT PROJECT MANAGEMENT

MKE digs deep into its projects and regularly exceeds client expectations. We tailor our scope and services to meet your unique needs and develop efficient, effective, expert solutions.

**Contact us to learn how we can Champion your Project from Conception to Completion.**



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