

RUN OF RIVER & SMALL HYDRO



Clean Energy
CONSULTING INC.





Small Hydro Development

Clean Energy Consulting has been involved in defining and delivering run of river and small storage hydro projects since the company's inception. The unique challenges and multi-disciplinary nature of these projects necessitates innovative and agile thinking, rigorous technical evaluation, and environmental stewardship – all of which are integral CEC's values.

Run of river and small storage-based hydroelectric developments use mature technology developed for large hydroelectric facilities while maintaining a much smaller physical footprint. A run of river power project is designed to divert a portion of a river's flow through a large pipe, or penstock, to turbines installed in the powerhouse situated at a lower elevation. Alternatively, a less than 50 MW, small storage-based hydro facility allows electricity to be produced in the powerhouse when it is needed, while storing a portion of a creek's flow for later use when the demand or the price of electricity is higher. In both cases, the generated power is transmitted to the electrical grid. Water exiting the powerhouse is returned to the river in compliance with all regulatory requirements and in the case of a run of river facility, with minimal flow alteration.

Our team has the demonstrated ability to effectively manage interfaces between design and construction teams, First Nations, communities, and stakeholders to deliver a complex infrastructure project. Contact us to discuss your opportunity and let us assist with designing an innovative solution tailored for your specific requirements.



Assessment Services

- Site Identification
- Hydrology Analysis and Review
- Energy Modelling
- Regulatory Support
- Interconnection Services



Project Services

- Estimating
- Schedule Development
- Construction Specifications
- Procurement
- Facility Assessment



Project Management

- Project Planning
- Construction Planning
- Interface Management
- Cost Control
- Asset Management



Project Profiles

Project Development

CEC has provided project development and assessment services including hydrologic dataset collection and analysis, energy and financial modelling, regulatory and interconnection advisement, technology selection, design, and estimating services. These deliverables have allowed our clients to obtain permits and power purchase agreements, and successfully implement their small hydro projects.



Project and Construction Management

CEC has provided project and construction management services to a client building a 27 MW run of river hydroelectric facility. The project consisted of intake works, 6.4 km of penstock, powerhouse housing two 14 MVA synchronous generators along with supporting infrastructure, 13.8/138 kV transformer, and 21 km of 138 kV transmission line. The project was built within the originally allotted 22 months from ground-breaking to delivering power to the BC Hydro grid. In addition, CEC was responsible for procurement, control system engineering, transmission line design, and facility commissioning.



Maintenance and Operational Support

CEC provides assessment and maintenance support services for operating run of river facilities. On-going operational support includes on-site and remote troubleshooting, including on-call response. Maintenance projects have included designing, programming, and upgrading of spear valve control, a complete upgrade of the HMI, and miscellaneous PLC logic improvements. All work is coordinated with facility personnel to assure minimum downtime and to maximize facility reliability.





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Corporate Profile

Clean Energy Consulting (CEC) is passionate about developing and implementing practical projects that will have a meaningful, positive impact on the tremendous challenges facing our global community. From sustainable power generation and industrial efficiencies to extracting value from waste, our team of consulting professionals can help transform your project from concept to reality. We provide comprehensive project and multi-discipline engineering services to a wide range of industries and have a track record of delivering outstanding results on demanding projects.

We understand the importance of exploring options when developing a project to select the optimal configuration for further definition. The right balance of technical, business, and economic factors needs to be attained before the project can proceed. To accomplish this our development team is able to evaluate alternate technology configurations and implementation methods rather than defaulting to what has been done before.

CEC believes the likelihood for success on a project can be significantly influenced during the early stages before decisions are locked in. With a full understanding of financing, regulatory, consultant, and contractor expectations, CEC ensures that the elements necessary for success are embedded from the start so changes at later stages are minimized.

The CEC team is motivated by challenges and look for innovative ways to achieve outstanding results. Combined with integrity, humility, and a strong sense of ownership, our people are committed to success with all facets of a project – design optimization, efficient construction, and exceptional plant performance. We are dedicated to continuous improvement by listening and applying the lessons learned on previous projects.

Our focus on sustainability and renewable energy allows us to maintain intimate relationships with key stakeholders in this small and passionate network of professionals. We can assist with advising and facilitating regulatory shifts and utility negotiations, and accessing specialized services for key aspects of your project.

Clean Energy Consulting is the right strategic partner to transform your vision from concept to reality!

Ask us about

- Biomass Conversion
- Project Development
- Transmission & Distribution Line Engineering
- Consulting Engineering Services
- Heat Recovery
- Process Optimization

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