

THE CURRENT

ISSUE FOUR • SPRING 2015



We hope you find our fourth issue of **THE CURRENT**, the community newsletter for our Upper Lillooet Hydro Project (ULHP), informative and interesting. In our second issue of 2015, we highlight the intricate and detailed technical and environmental work that goes into constructing and maintaining the transmission line for the project. Route selection and layout through to construction and long-term maintenance of the transmission line is done following all of the environmental standards and monitoring protocols set in place for the entire project. We are proud of the diligence our qualified professionals have shown during planning, preparation, and construction. This year, the transmission line contractor will be focusing on sections in the Pemberton Valley from the Camels Hump/Ryan River to Pemberton Creek. Feel free to drop by our office in Pemberton if you have any questions or require further information about the transmission line.

This spring, Innergex is turning 25 and as we approach this important milestone, we are reflecting on how Innergex has grown over the years. Two major themes that are central to our celebrations are community and partnerships. In this issue, we feature three BC business that we have partnered with on the transmission line, including Westpark Electric Ltd., Blackcomb Aviation, and Mumleqs Construction LP. We are incredibly proud of our partnerships with local businesses and we will continue to work in collaboration with communities for the next 25 years.

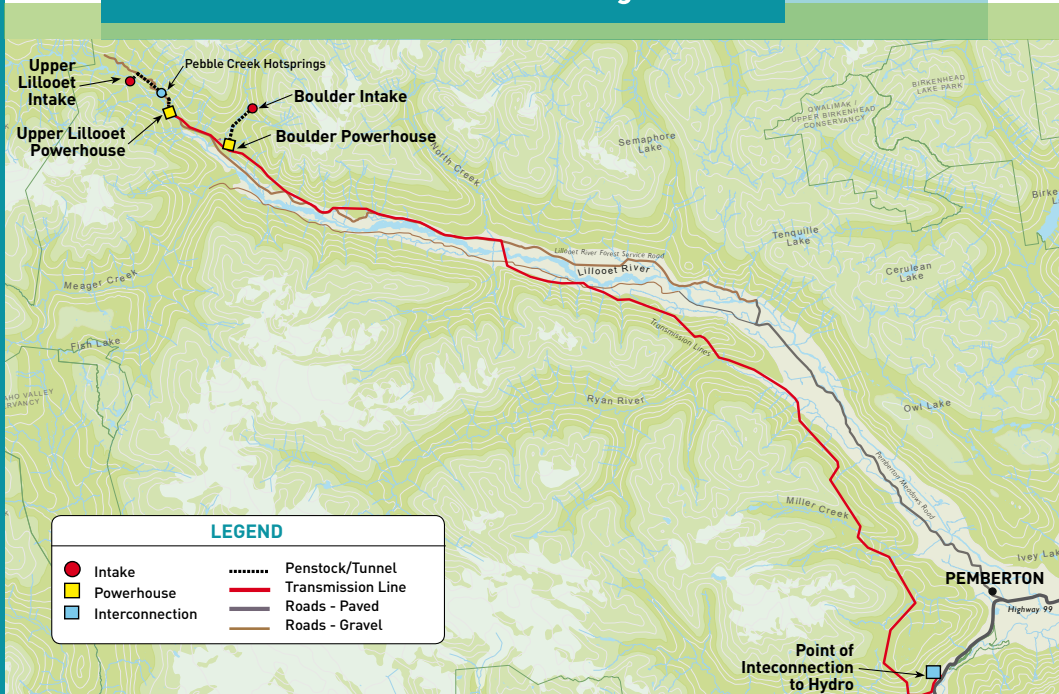
INNERGEX



This year, Innergex celebrates 25 years of producing clean and renewable energy while respecting the environment and balancing the best interests of the host communities, our partners, and our investors. Innergex is recognized today as a leader in developing, operating, maintaining, and financing renewable energy projects. Each new achievement over the years—first in run-of-river hydro, then in wind, and in solar—has served to build our reputation as a Canadian pioneer in the renewable energy industry.

For more information, please visit www.innergex.com.

Transmission Line General Arrangement



Transmission Line Route Selection

The transmission line route for the ULHP was selected to minimize impacts to the surrounding environment. Designed by a team of qualified professionals, the route takes into account terrain and geotechnical hazards, forest types, environmental constraints, visual impacts, recreational areas, existing forestry infrastructure, and archeological and traditional use sites. For example, the Upper Lillooet River crossing was moved downstream to minimize impacts to an old growth management area and a critical moose winter range. Further, the transmission line along the Lillooet South Forest Service Road was placed up along the hillside to minimize impacts to riparian habitat and grizzly bear habitat and to prevent impacts to wetlands and coho restoration habitat.

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Renewable Energy.
Sustainable Development.

Three-Month Timeline

May 2015:

- Continue construction at both powerhouse and intake locations
- Tunneling at Boulder Creek downstream portal
- Transmission line construction along the south side of Lillooet River towards Pemberton continues
- Begin tunneling at the Upper Lillooet River upstream portal

June 2015:

- Provide electrical power to camp and multiple construction fronts
- Start penstock installation for Upper Lillooet River
- Continue tunneling at the Upper Lillooet River downstream portal

July 2015:

- Divert Boulder Creek into the diversion tunnel and start construction of the intake structure
- Complete Boulder powerhouse structure
- Start construction of substations at both powerhouse locations



↑ Westpark crew hooking up conductor at top of pole

Construction Update

Constructing and Maintaining the ULHP Transmission Line

Constructing a transmission line involves a tremendous amount of planning. The transmission line for the ULHP is divided into 16 segments and the construction of each segment requires a separate, detailed work plan, which is reviewed and approved by Innergex, the Independent Environmental Monitor and the Independent Engineer.

At the start of construction, preparation of the transmission line right of ways (expected to be approximately 30 metres wide, with some sections with a maximum width of 75 metres) involves upgrading and/or building roads, clearing vegetation, and grading and installation of site drainage management. Following these works is the installation of the poles and associated infrastructure, and finally the stringing of the conductor. Hazardous trees are also cleared if there is the possibility they could damage the transmission lines.

The 230 kV transmission line will be predominantly supported by wooden H-frame structures of cedar or treated Douglas fir, spaced approximately 200 metres apart. Both ULHP facilities will be equipped with an electrical substation beside the powerhouses, which connect to the transmission line and transport



↑ Typical wooden H-pole and completed line

the electricity to BC Hydro's new 230kV Tisdall substation south of Pemberton.

The transmission line will be maintained throughout the life of the project, including vegetation and road maintenance. Poles will also be inspected by a qualified professional for foundation erosion and corrosion, and to assess the need to remove snow or debris avalanches that may cause line or pole failure.

Electrification of ULHP During Construction

In order to reduce our carbon footprint and costs, Innergex and Westpark Electric are planning to provide hydro electric power to the ULHP during construction. By using hydro electric power, we will reduce our diesel fuel consumption by nearly 4,000,000 litres that would have been burned in generators to power construction activities.

Plans to provide electricity during construction have been in the works for a while. In 2014, Innergex worked with BC Hydro to upgrade their distribution line from single-phase to three-phase up the Pemberton Meadows Road to the Salmon Slough access road. A temporary distribution line was built this past winter up the Salmon Slough forestry road, where it intersects with Segment 9 of the ULHP transmission line. The line will be energized with power from BC Hydro back to the construction site for the tunnels, laydown areas, and camp.

Once construction on the ULHP is complete, the temporary line will be removed, but the newly upgraded three-phase line along the Pemberton Meadows Road will remain in place.



↑ Kick off meeting on site with Hedberg, GMS crew, Westpark, Mumleqs, Innergex and the IEM

Clearing Plans for the ULHP Transmission Line

Prior to the start of clearing for each of the 16 segments of the ULHP transmission line, a detailed clearing plan is developed and outlines all the site-specific forestry requirements and environmental restrictions that the contractor must implement. For the ULHP, the Registered Professional Forester develops the clearing plans in collaboration with the project team to minimize impacts to the environment, social, heritage and health valued components found within each of the segments.

Some of the detailed guidelines included in the clearing plans include: flagging protocols, machine restrictions, communications and safety protocols, harvesting plan and method, access strategies, archaeological protection,

environmental constraints and timing windows delineation of clearing boundaries, location of features and streams, GPS coordinates of safety locations, access routes, and more. The contractor is responsible for carrying out daily environmental and safety meetings to discuss site-specific wildlife constraints, mitigation measures, sensitive areas, etc.

Some noteworthy standards in our clearing plans include clearing only by hand equipment in ecologically sensitive areas. Further, conservation methods for grizzly bear areas and areas with important riparian vegetation during clearing include retaining vegetation with mature heights of 3 metres or less and conifers under 1 metre.

Clearing in Riparian Areas

Riparian areas are the lands adjacent to streams, rivers, lakes and wetlands that interface between upland and aquatic habitats. They are among the most productive and valuable of all landscape types. As such, the ULHP Construction Environmental Management Plan requires that site-specific Riparian Vegetation Management Area prescriptions be prepared for clearing activities that are required to take place within 15 metres of a watercourse. Some additional protocol in riparian areas includes oversight by an Independent Environmental Monitor and minimizing removal of coarse, woody debris, cutting trees by hand (instead of using a machine), and leaving lower parts of trees intact (particularly in fish bearing and coastal tailed frog streams).



↑ Top: Coastal tailed frog. Bottom: Lower portion of trees retained within riparian clearing area

Who Is Our Transmission Line Contractor?

Westpark Electric Ltd., incorporated in 1995, provides electrical contracting services in the industrial/large-scale construction industry. The company is based in Chilliwack and is a family-owned business led by father-son team Bill and D'Arcy Soutar. Westpark directly employs a total of about 30 people, with 25 of those employees dedicated to ULHP during construction season.

Innergex hired Westpark to construct the 72 kilometre, 230 kV transmission line for the ULHP. So far, Westpark has installed hundreds of kilometres of transmission lines across BC—successfully navigating many challenges common on transmission line projects including difficult terrain, restricted work sites, and winter conditions.





Winterfest 2015

Despite warmer weather conditions this year, the Winterfest Committee pulled off a great one-day event at One Mile Lake on January 25, 2015.

This year, Innergex was a GOLD Sponsor for the popular Polar Bear Plunge, which saw about 25 brave souls take the plunge in the ice-cold lake. As part of our contribution to the event, we also hosted a “warming tent” for the cold plungers to warm up after the event. The Innergex warming tent came fully equipped with heaters, Innergex toques, and cups of gourmet, homemade hot chocolate.



↑ Julia Mancinelli, Environmental Manager, serving hot chocolate in the warming tent.

Blackcomb Aviation

Blackcomb Aviation is a family-owned helicopter charter provider that has been servicing the Sea-to-Sky Corridor for more than 25 years. With over 100 employees, and bases throughout the region, Blackcomb Aviation specializes in transmission line work for projects like our ULHP and are the primary Search & Rescue aircraft provider in the Sea-to-Sky Corridor.

For the ULHP, Westpark Electric hired Blackcomb Aviation helicopters to string conductor along the transmission line. Using a helicopter saves time but also greatly reduces impacts to the land that heavy equipment can cause. Blackcomb Aviation uses a specialized technique called Utility Needle Application, where a “needle” is attached to a 50 foot long line and the pilot guides the needle through the centre phase/wire of the H-pole structure. A rope is pulled along between the poles by the helicopter, then the ground crew attach the conductor wire and pull that through a ground-based bull wheel (a large mechanical drum or spool that pulls the wire). “Sock pulling” is a method that is also widely used on the outside conductors where the rope is pulled through from pole to pole and up to 1 kilometre of line can be strung in a short time (less than one hour).

The Blackcomb Aviation crew that first flew over the proposed transmission line route in 2008 are still working on the ULHP. Andy Meeker, Base Manager in Pemberton explained that the work on the ULHP has been very rewarding: “The ability to use specialized industry applications in our own backyard allows us to gain recognition around the province and Western Canada.”

Meet a Local Contractor: Mumleqs Construction

In anticipation of upcoming opportunities, Lil’wat Nation partnered with Lizzie Bay Logging, to create Mumleqs Construction LP. Mumleqs, which means “Keyhole Falls” in Ucwalmicwts, was established in 2013 and provides integrated natural resource construction services. As a 51% First Nation-owned company, its vision is to create economic development within the context of traditional land use ethics and First Nation culture and tradition.

Lizzie Bay Logging, established in 1983, was a natural fit for Lil’wat as a partner—mainly due to their proven track record of maintaining solid relationships and partnerships with local First Nations. On the ULHP, Mumleqs is involved in tree removal, road construction, and road upgrades. Mumleqs employs 30-40 people on the ULHP, with nearly 90% being local from the Pemberton and Lil’wat areas.



↑ Mumleqs owned excavator at work on the transmission line.

Keep up to date on what's going on!

Interested in receiving regular updates on the project, including construction highlights, road closures, and events?

Send us an email at:

info@upperlillooethydro.com and we'll add you to our mailing list.

Don't forget to check our website regularly for updates on the project at:

www.upperlillooethydro.com/project