

# Work Portfolio

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**ARCTIC ARROW**  
Powerline Group

## Teck

Teck is a diversified resource company committed to responsible mining and mineral development with business units focused on copper, steelmaking coal, zinc, and energy.



**Service Years:** 1992 - Present

**Project:** Ongoing service contract

**Location:** Elk Valley, BC

For over 20 years we have serviced the five mining facilities that make up Teck's Elk Valley Operations, including Greenhills, Line Creek, Elkview, Coal Mountain and Fording River. We provide both lump sum and hourly contract transmission and distribution services for the provision of labour, equipment, and materials, as well as engineering and design consulting for the various mining operations in the Elk Valley.

To maintain mineral production, many of these projects require strict completion timelines while operating in some of British Columbia's harshest environments. Depending on the planning cycles and engineering requirements, these projects can range from single phase construction and maintenance to complete; design, procure, build, and commission. We also provide emergency response services to the mine sites with transmission and distribution line crews available on an as-needed basis.

Our commitment to safe, efficient, and cost effective project management has allowed Arctic Arrow Powerline Group [AAPG] to develop and maintain a long-term client relationship with Teck.

In 2012, we increased our ability to serve Teck by opening an operations base in Sparwood, B.C. This allows faster response time to trouble calls and maximizes our on-site performance. With the new base located centrally within the Elk Valley, we are able to provide employment opportunities to local people and to take an active part in building sustainable communities.

## BC Hydro

BC Hydro is a commercial Crown corporation owned by the province of British Columbia. BC Hydro is one of North America's leading providers of clean, renewable energy, and the largest electric utility in British Columbia.



**Service Years:** 1982 - Present

**Project:** 230 kV H-frame transmission line installation  
**Location:** Bone Creek, BC

**Project:** 25 kV distribution project  
**Location:** Lillooet River, BC

This project was commissioned in severe winter conditions while meeting all of the client's rigorous scope requirements. Bare hand techniques were used to complete the connections to the BC Hydro system.

### Project scope

- Survey structures and anchor locations
- Clean and grub portions of right-of-way
- Installation of culverts
- Material management and inventory
- Installation of pole foundations and slug anchors
- Frame and set H-frames, three pole running corners, and three pole dead end structures
- Guying and tension calculations
- Tension stringing conductors and shield wires
- Complete quality assurance and quality control records
- Complete as-built drawings for the project

### Project scope

The scope of this project was to complete the construction of 30 km of new single phase 14.4 kV powerline connecting three First Nation reserves to the BC Hydro distribution grid. This project was completed under a joint venture with In-SHUCK-ch Nation Resource Management (representing Douglas, Skatin, and Samahquam First Nations). By working as a team, we successfully met the energization date and all project stakeholders were able to take pride in a job well done.

## ATCO Electric

ATCO Electric builds, operates, and maintains a safe, reliable network of transmission and distribution power lines in northern and east-central Alberta. With more than 85 years of experience, ATCO Electric serves nearly 216,000 customers in 245 communities.



**Service Years:** 1982 - Present

**Project:** 1.5 km - 144 kV single pole and H-frame transmission line installation

**Location:** Parsons Creek, Fort McMurray, AB

**Project:** 25 kV overhead and underground distribution project

**Location:** Enbridge Cheecham Industrial Site, Fort McMurray, AB

### Project scope

- Material management and inventory
- Installation of pole foundations and anchors
- Frame and set single pole, H-frames, and single pole vertical corner structures
- Tension stringing conductors and shield wires
- Complete quality assurance and quality control records
- Coordinate outages and energize three new circuits
- Commission project as per ATCO engineered drawings

### Project scope

- Supply labour and equipment to complete the install of one - 20 MVA transformer and one splicing vault
- Pull 250 meters of 750 MCM feeder cable to tie into overhead distribution system
- Complete four road bores to 25 kV switching yard and install 750 MCM cable through bore locations
- Termination of all riser poles and feeder cables servicing the 20 MVA transformer

# Yukon Energy

Established in 1987, Yukon Energy is a publicly owned electrical utility. They are the main generator and transmitter of electrical energy in Yukon and work with their parent company Yukon Development Corporation to provide Yukoner's with a sufficient supply of safe, reliable electricity and related energy services.



**Service Years:** 1983 - Present

**Project:** 138 kV H-frame transmission line installation

**Location:** Pelly Crossing, Yukon Territory

This project was carried out on First Nation traditional territory and required minimal footprint left behind when the work was complete. Arctic Arrow Powerline Group met this goal and completed the work per plan in frozen conditions, under extraordinary time constraints. The First Nation group was very pleased with our work and commended us for completing this task in such a professional manner.

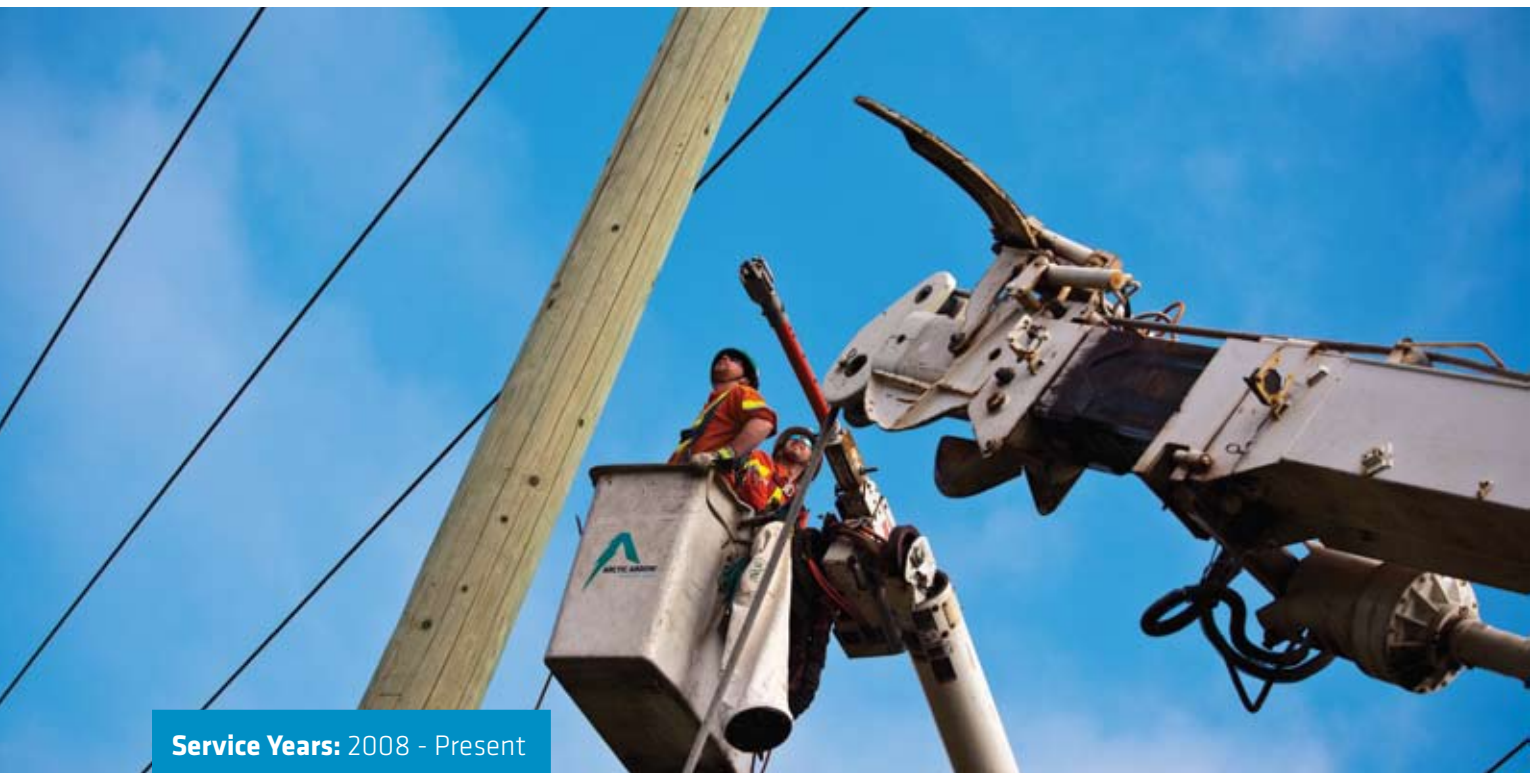
### Project scope

- Materials management and delivery
- Installation of pole foundations and slug anchors
- Frame and set single pole, H-frame, three pole dead ends, three pole running corners, and three pole vertical dead end structures
- Guying and tension calculations
- Tension stringing conductors and shield wire
- Complete quality assurance and quality control records



# Grande Cache Coal

Grande Cache Coal (GCC) is an Alberta based metallurgical coal mining company managing mining operations that produce metallurgical coal for the steel industry. GCC holds coal leases covering 29,000 hectares and containing over 300 million tonnes of coal resources in the Smoky River Coalfield in west-central Alberta.



**Service Years:** 2008 - Present

**Project:** 25 kV three phase line extension

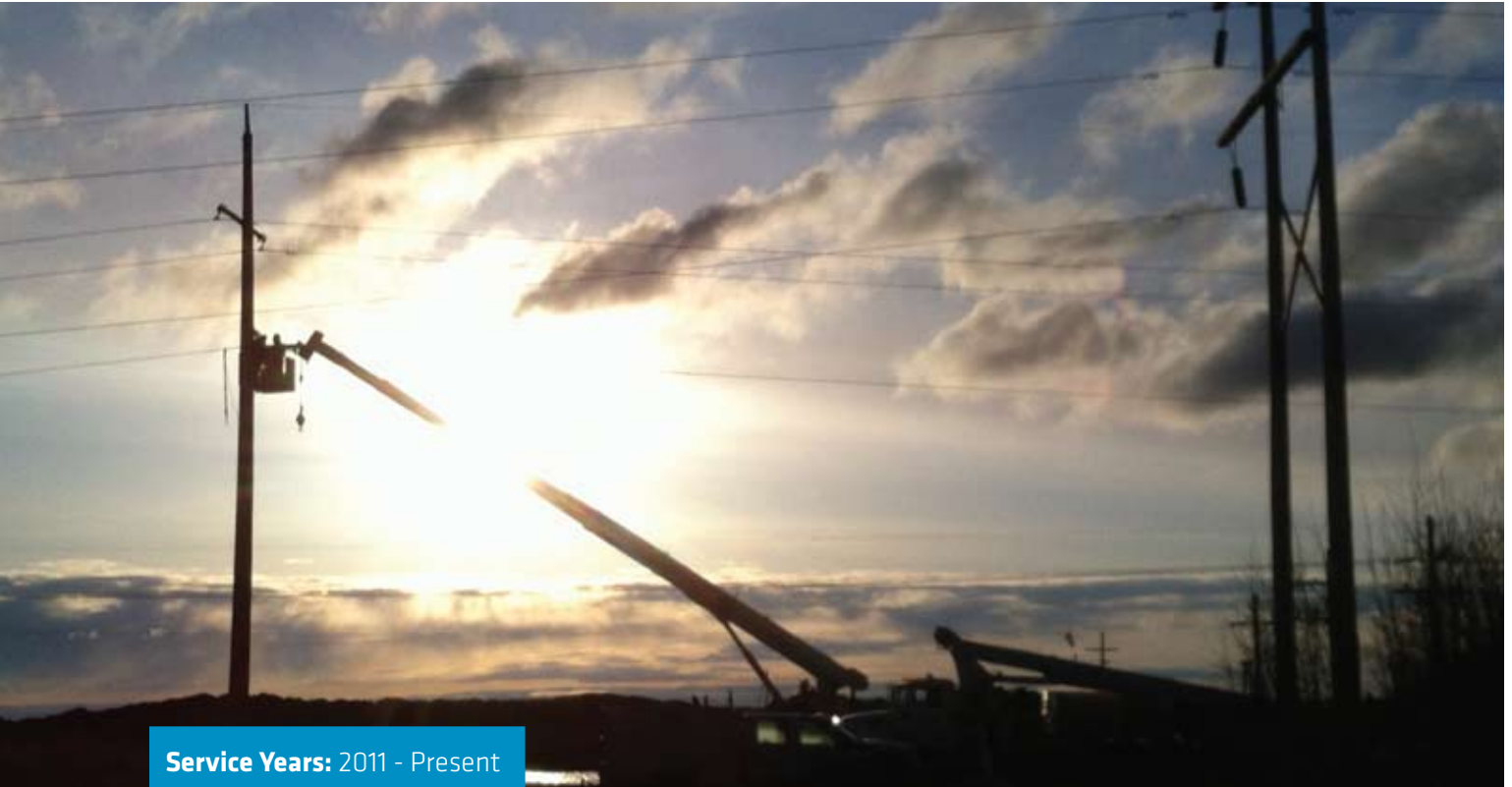
**Location:** Grande Cache, AB

In 2010 Arctic Arrow Powerline Group (AAPG) completed an Engineer, Procure, and Construct (EPC) project with Grande Cache Coal. We were responsible for design and engineering, permitting, material procurement, installation, and commissioning of a 25 km, 25 kV, three phase distribution main feeder to service their electrical infrastructure.

AAPG developed the standards for construction and QA/QC management. All QSC requirements were met or exceeded on this project.

## AltaLink

AltaLink is Alberta's largest regulated electricity transmission company. They serve 85 per cent of Albertans and own more than half of the province's transmission system.



**Service Years:** 2011 - Present

**Project:** 853 line rebuild project

**Location:** Brooks, AB

**Project:** 100 line thermal upgrade/trouble corrective

**Location:** Brooks, AB

### Project scope

- Develop project and client specific work plans and strategies
- Remove existing overhead 138 kV H-frame transmission structures and set new structures
- Prepare line for reconductoring by utility
- Work closely with client representatives to account for various landowner considerations

### Project scope

- Develop project and client specific work plans and strategies
- Remove existing overhead 138 kV H-frame transmission structures and set new structures
- Complete various conductor repairs
- Repair structures for thermal loading upgrade
- Work closely with client representatives to account for various landowner considerations

## FortisBC

FortisBC is an integrated energy solutions provider. They own and operate four regulated hydroelectric generating plants, and approximately 7,000 kilometers of transmission and distribution power lines across the province of British Columbia.



**Service Years:** 2005 - Present

**Project:** Salvage 75 km of 63 kV transmission line with energized distribution underbuild

**Location:** Grand Forks, BC

**Project:** 27 line rehabilitation project

**Location:** Salmo, BC to Nelson, BC

Arctic Arrow Powerline Group removed 75 km of three phase copper conductor from a de-commissioned 63 kV transmission line with energized distribution underbuild.

### Project scope

- Complete removal of transmission structures and conductor on two parallel transmission lines while preserving the distribution underbuild
- Provide all work methods and project management to secure a safe job site
- Complete quality control and reclamation of right of way
- Commission project with a FortisBC representative

The purpose of this project was to restore 27 line and its facilities to a more reliable condition and address flashover concerns.

### Project scope

- Rehabilitation of 63 kV circuit with portions of 13 kV distribution underbuild from Cora Linn to Salmo substations
- Distribution structure replacements and re-framing
- Improve access to electrical structures
- Repair damage caused by storms

**Point of Interest:** AAPG has competitively held the Distribution Construction and Maintenance Unit Price Contract for seven consecutive years with a value of \$1.2 million



Arctic Arrow Powerline Group has seven years' experience performing detailed powerline condition assessment. Over these years, AAPG has strategized and worked directly with clients to create an accurate and cost effective data capture process to ensure corrective and preventative maintenance was identified with public safety first and foremost.



## Highlights

### Field Data Collection

- Identify standard and client specific condition assessment criteria
- Structural above and below ground inspection, grounding, clearance, components and conductor inspection

### Condition Assessment Design

- Compile data collection and report
- Cost identification: labour, equipment, third party, permitting, material
- Create rehabilitation packages based on priority levels

AAPG's condition assessment techniques and processes can be tailored to suit any electrical system. The information in the rehab packages allows management to create budgets and plan accordingly.



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