



WORLDWIDE EPC SOLUTIONS FOR OIL & GAS SINCE 1962



2024

Excellence in Project Execution Award

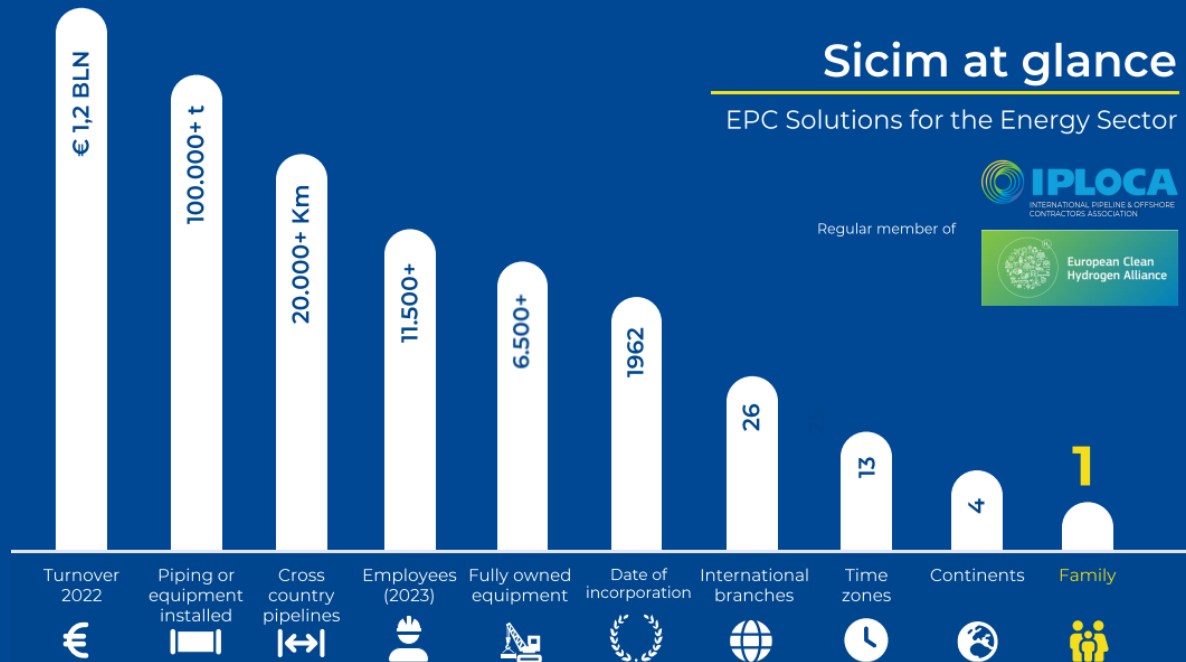
Coastal GasLink Project – Section 8 West
Overcoming Design and Construction Challenges

SICIM Business Profile

We are a leading Worldwide Contractor providing **E**ngineering, **P**rocurement and **C**onstruction services to the **Energy Industry**. With over 62 years experience, our main activity is Pipeline and Plants construction. Our mission is to provide our Clients with the best possible EPC solutions by full commitment to continuous improvement in People, Equipment and Innovation through a sustainable business.

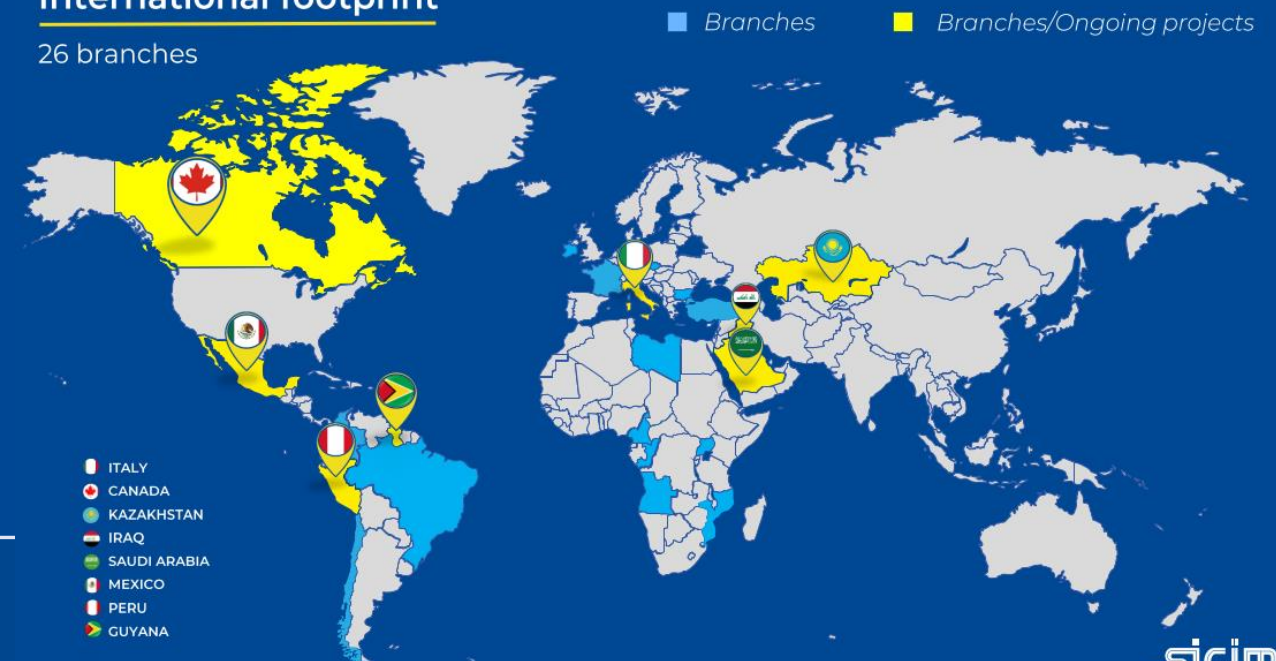
Range of services:

- Project Management;
- Engineering and Procurement services for EPC projects (approx. 250.000 hr/year);
- Pipelines and Flowlines to transport fossils and non fossils fluids (e.g. CH₄, H₂, CO₂, NH₃, etc.);
- Oil/gas plants & facilities;
- Energy transition projects (CCS/CCUS; H₂ production, Solar plants, Biogas & Biomethane plants)



International footprint

26 branches



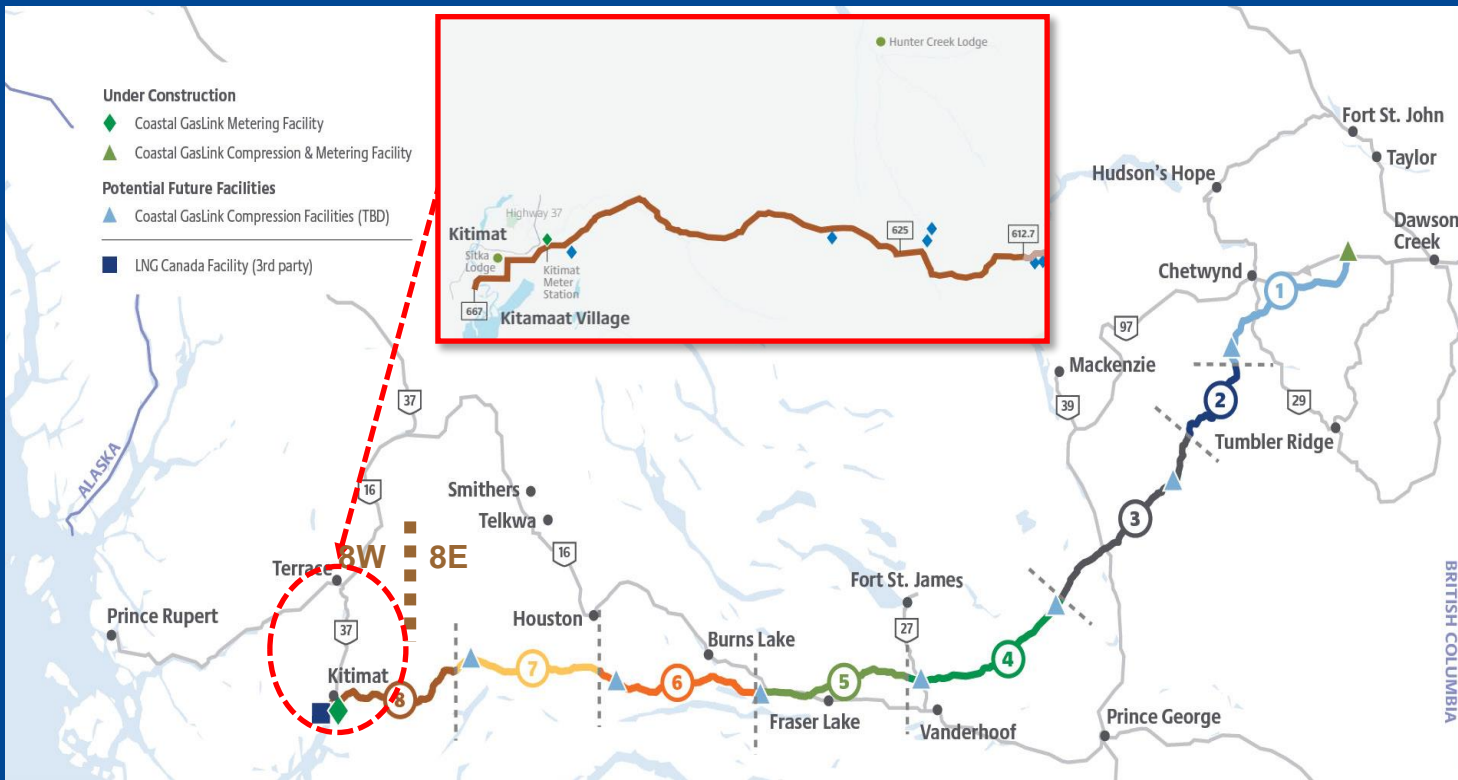
Coastal GasLink Project (CGL) (Section 8 West)



Project overview

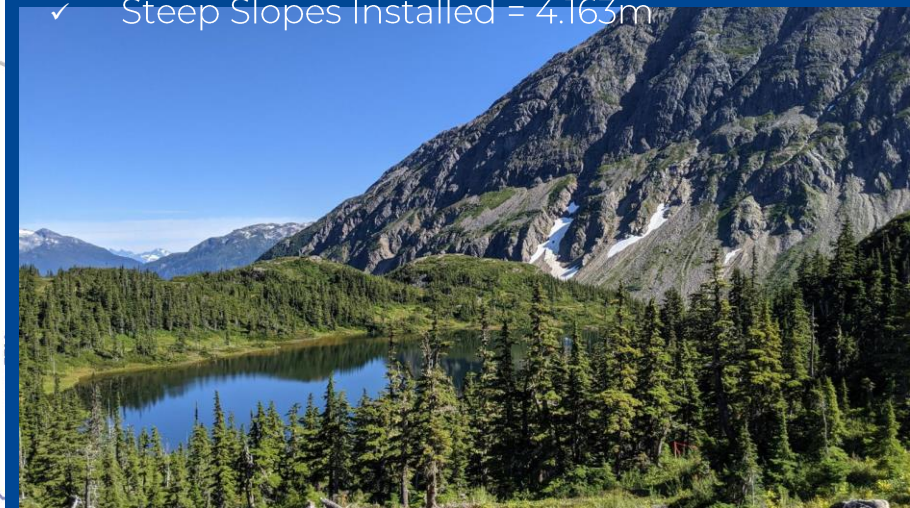
The Coastal GasLink Project is a 670-kilometre DN48" pipeline that delivers natural gas from northeastern B.C. to the LNG Canada facility in Kitimat, B.C.

Sicim, in partnership with the Canadian group Ledcor, successfully performed the installation of Section 8 West, consisting of 55 Km of 48", which was considered the most technically challenging portion of the entire project due to its geographical complexities through the Coastal Mountains.



KEY QUANTITIES

- ✓ Total Welds = 3,399
- ✓ Tie In Welds = 37% of total welds (1,263)
- ✓ ~63% of all pipe required bending
- ✓ Project Labor Hours = + 6,8 MLN
- ✓ Sheet pile Installation = $\approx 6,000\text{m}$
- ✓ Grade = $1,083,090\text{m}^3$
 - ✓ Blast Rock = $443,649\text{m}^3$
 - ✓ Ditch Rock Blast = $20,088\text{m}$
- ✓ Aggregate Crushed = $493,416\text{m}^3$
- ✓ Watercourse Installed = 238
 - ✓ An insulated crossing every 250m
- ✓ Trenchless Crossings = 11 (860m)
- ✓ Glaciomarine Clay = $1,120\text{m}$
- ✓ Steep Slopes Installed = $4,163\text{m}$

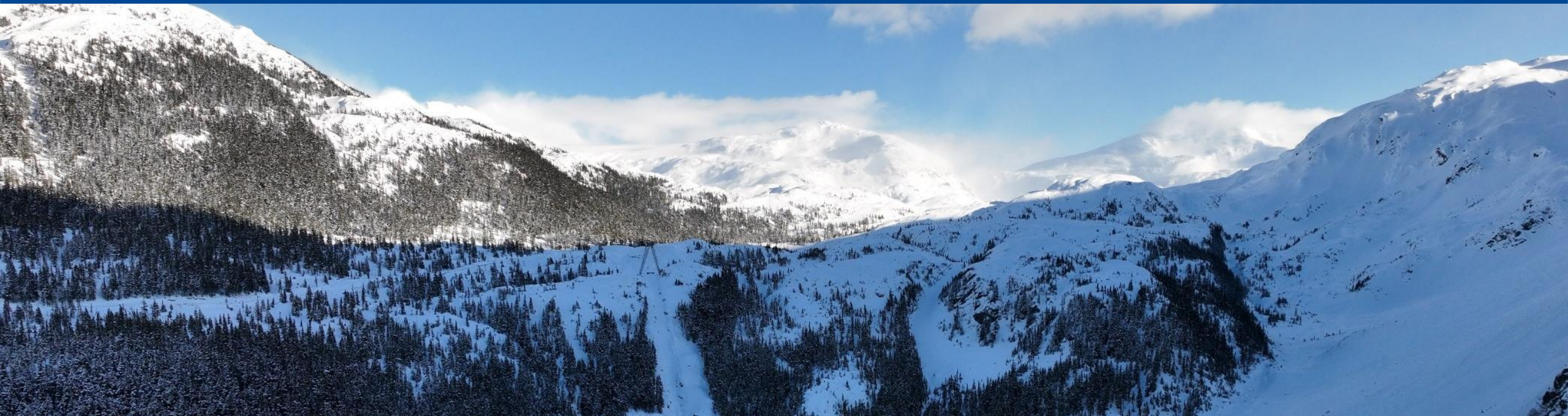


Coastal GasLink Project (CGL) (Section 8 West)

Findings

Section 8 West was considered as the most complex section of CGL project due to:

- ✓ Route orography, 22 steep slope sections were identified along the route; most of them requiring unique installation procedures;
- ✓ Height difference between start and ending points of the section was more than 1,500 m over the 55 km;
- ✓ Remoteness of the area with the relevant logistic issues;
- ✓ Extreme weather conditions that were limiting the yearly working window to 6 months;
- ✓ Geological conditions, a large variety of different soil conditions were present along the route varying from large quantity of metamorphic rock to glacial marine clay;
- ✓ Strict environmental limits imposed by the regulator on water quality;
- ✓ Shortage of personnel skilled on pipeline installation in steep slope sections;



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Solutions

To face these construction challenges, Sicim had to implement several unconventional solutions for pipeline installation to mitigate the numerous risks involved when laying pipes on the challenging steep slopes typical of Coastal Mountains:

- ✓ **Cable crane:** two steep slope sections (7 & 10), with slopes up to 45 degrees, required the use of cable crane systems for pipeline installation;
- ✓ **Raise bore:** steep slope section 3 required the use of this technology in consideration of the short weather window and limited access;
- ✓ Installation and operation of 2 camps to accommodate the construction crews;
- ✓ Early planning and installation of a dedicated access road system;
- ✓ **Construction planning:** the varied seasonal weather conditions presented additional challenges for this multi-year project dictating the implementation of a detailed schedule to properly make full use of the restricted weather window that was limiting most of the construction activities from June to November. Installation of a customized lighting system to daylight the steep slope part of the critical path of the project to increase the daily working hours;
- ✓ Development of dedicated grading plans to minimize the cut and fill quantities, extensive use of the drill and blast;
- ✓ Development of detailed erosion and sediment control plans specific for each section prepared by environmental consultants approved by the regulator;
- ✓ Use of specialized expat personnel with large experience on mountain pipeline projects around the world. Implementation of a mentorship program to protect the green hands brought on a pipeline site for first time.



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Achievements

- ✓ Mitigation of the numerous risks involved in Coastal GasLink's steep slope pipeline installation in the Coastal Mountains,
- ✓ Extremely challenging conditions that required cutting edge solutions;
- ✓ Achieved a Safety enhancement, increased productivity and put environmental responsibility at the front plan;
- ✓ Notable cost saving compared with "conventional" pipeline construction solutions;
- ✓ High level technical preparation and planning capabilities allowed to complete the works in line with the available seasons and ahead of schedule, all while remained focused on safety & sustainability;
- ✓ Widespread dissemination of a culture based on respect for all people and communities;
- ✓ Attitude to pushing boundaries and driving positive change in our industry;
- ✓ Client recognition of our strong commitment to delivering a world-class project that will provide economic benefits for Indigenous communities, British Columbians and Canadians for future generations.
- ✓ Established innovation solutions for future projects in similar terrains

Sicim decided to introduce this Project as a submission for the "IPLOCA Excellence in Project Execution Award" as a recognition for the excellence in construction of its Project Team in providing innovative & unconventional pipeline installation solutions



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Learn more about the project watching this video

