SURERUS MURPHY

A JOINT VENTURE COMPANY

ENERGY TRANSITION PROJECTS

Core competencies and skills

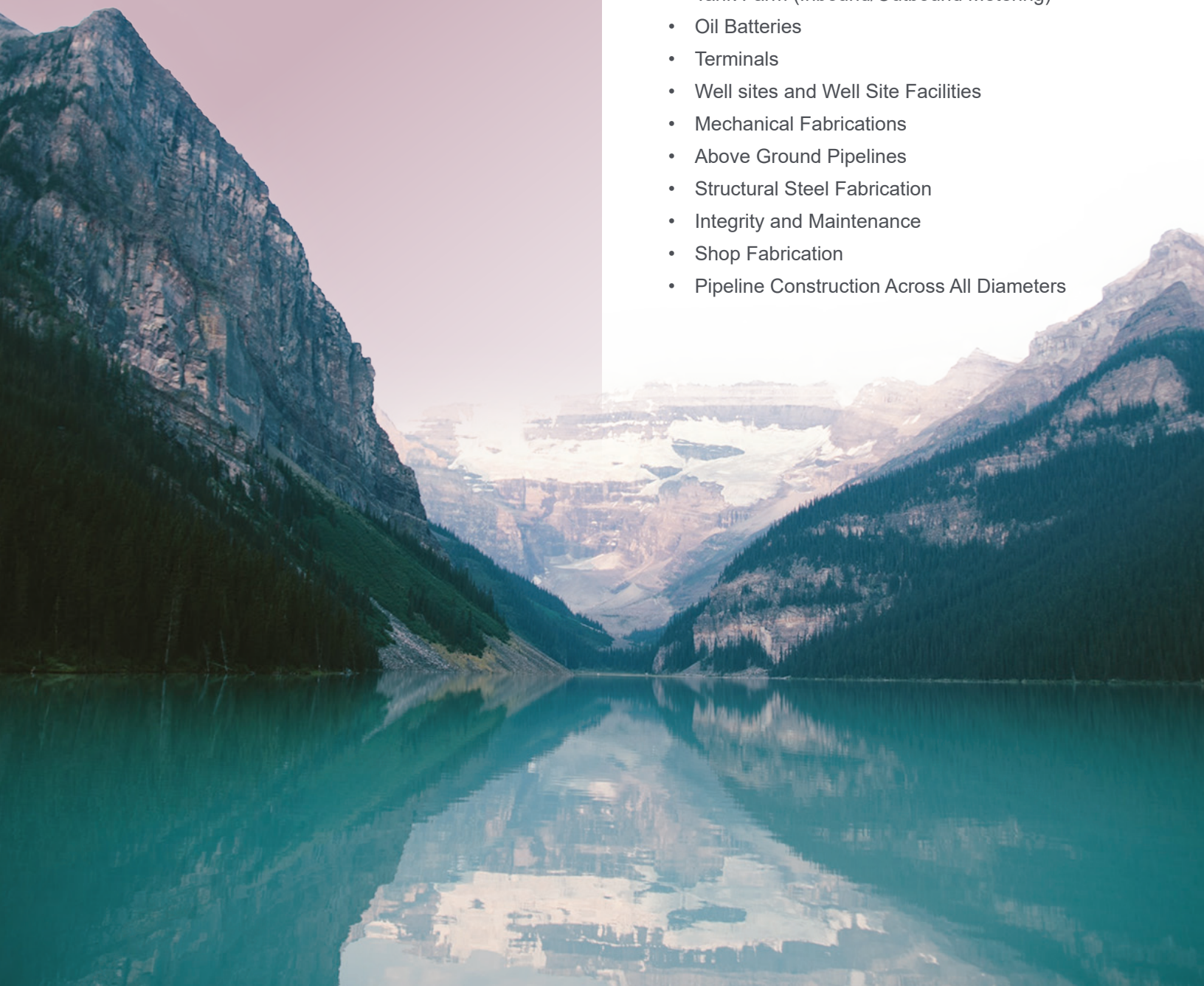
Our Beginning:

Surerus Murphy Joint Venture brings together two leading infrastructure companies, Surerus Pipeline Inc. and J. Murphy & Sons Ltd., combining over 100 years of pipeline construction and infrastructure experience and innovation. Since we formed as a joint venture in 2014, we have grown year-on-year. Today, we are involved in constructing some of the largest infrastructure projects in Canada in recent history.

What We Do:

We build reliable infrastructure projects throughout western Canada, supporting Canada's energy industry's network of pipeline and facility projects, as well as municipal infrastructure projects that are required for a community's growth and safe operations.

- Compressor Stations
- Power Stations (Gas Turbine and Co-Generation)
- Firewater
- Pumping Stations
- Gas Compression
- SAGD
- Heavy Oil Facilities
- Tank Farm (Inbound/Outbound Metering)
- Oil Batteries
- Terminals
- Well sites and Well Site Facilities
- Mechanical Fabrications
- Above Ground Pipelines
- Structural Steel Fabrication
- Integrity and Maintenance
- Shop Fabrication
- Pipeline Construction Across All Diameters



Currently, we are focused on partnering with clients and organizations that are leading Canada's transition, particularly those using carbon capture and hydrogen technologies.

We pair our delivery of quality construction projects with our commitment to work safely, responsibly and with a focus on being a caring corporate citizen. We are small enough to be nimble and responsive, and large enough to have niche expertise in emerging technologies and in innovation that will be incorporated in Canada's energy transition.

Our in-house experts enable us to add value beyond what is typical of an organization of our size.

Our expertise includes:

- Plant and Facility Construction
- Electrical
- Tunneling
- Instrumentation
- Industrial Fabrication
- Civil
- Maintenance and Turnarounds
- Technology
- Pipeline Construction and Maintenance
- Construction Engineering and Survey

Throughout a project's lifecycle, from feasibility, planning support, to engagement and consultation, construction, and installation, and finishing with reclamation and evaluation, we offer support and experience.

Beyond access to talent, what makes us different is our willingness to collaborate and deliver best value. By best value, we don't mean cheap and fast; we mean high quality for cost, delivered in a collaborative, timely and safe manner.

Rooted in a Culture of Safety:

We believe all occupational injuries and illnesses can be prevented. We embrace safety as a core value. We are committed to the highest standards of safety performance, and we work to a safety program that ensures the wellbeing of all persons on our work sites.

We provide tools, resources and learning opportunities for our workers to strengthen their physical and mental wellbeing. These learning opportunities include mandatory training in suicide prevention, which is bolstered by our efforts to keep mental health awareness at the forefront of our corporate culture.

Ready for the Energy Transition:

Our goal is to be leaders in the energy transition market and the contractor of choice for our clients. The growth of the low-carbon economy requires new builds or retrofitted pipelines and facilities, which is our wheelhouse.

We are ready to take on this work.

- Our formidable balance sheet enables us to invest in technology, innovation, and our people.
- We apply our knowledge of traditional pipelining practices to building pipeline and infrastructure projects for the carbon capture, utilization and storage and hydrogen energy industries.
- We have an experienced team with a track record of success to lead our work in energy transition projects, and they've been making waves.
- We are working with large producers and green energy companies alike to ensure that Canada has the infrastructure to meet its Net Zero 2050 commitments by building pipelines and facilities that service the energy transition future.

A Dedicated Team Working on the Energy Transition:

We have a dedicated team focused solely on the energy transition. This includes researching current and developing technologies relating to hydrogen, hydrogen carriers (ammonia/methanol), carbon capture utilization and storage (CCUS), bioenergy, as well as any other technologies that may be utilized for gas production, transportation, compression, or storage in a net zero economy.

We have investigated the different scenarios detailing the various uses for hydrogen (i.e., residential/commercial/industrial heating) and are following pilot projects in Canada and the UK. We have a keen interest in ATCO's blending project in Fort Saskatchewan, Alberta and CFER Technologies' joint industry project, which will test a legacy pipeline compatibility under a hydrogen atmosphere. Whether it's the energy transition of a country or the transition of a product being moved through a pipeline, we will continue to adapt to ensure we can meet all our clients' needs.

Building Low-Carbon Energy Infrastructure:

Project Type:	Construction Stage:	Capabilities:
Hydrogen	Hydrogen Production and Storage Facilities	Construction engineering, procurement, and installations of complex facilities including all civil and mechanical works. • We can construct many structures at our 30,000 sq. ft fabrication facility and 30-acre yard in Gibbons, Alberta, providing innovative solutions to clients.
	Hydrogen Pipelines and Associated Facilities, Including Compression and Pipeline Retrofitting	Construct all-diameter pipeline, above-ground installations, pressure reduction stations, terminals, and compressor and pumping stations. • Construct natural gas feeder lines and accompanying infrastructure for blue hydrogen production/power generation facilities.
	Front End Engineering and Design (FEED)	We have partnerships with multiple engineering partners to enhance our engineering approach from a consultancy service starting from the FEED phase of a project through to detailed design.
Carbon Capture Utilization & Storage	Carbon Capture and Sequestering Facilities	Construction engineering, procurement, and installations of complex facilities including all civil and mechanical works. • We can construct many structures at our 30,000 sq. ft fabrication facility and 30-acre yard in Gibbons, Alberta, providing innovative solutions to clients. • We also have a 30,000 sq. ft facility on 8 acres in Spruce Grove with space for 8 overhead cranes for pre-fabrication.
	CO2 Gathering and Transmission Pipelines, Including Compression	With our skilled personnel in trades and designations, complemented by our in-house suite of specialized equipment, we construct all-diameter pipeline and above-ground installations, pressure reduction stations, terminals, and compressor and pumping stations. • We have constructed over 500km of medium- and large-diameter pipeline in Canada.
	FEED, and Installation for all Associated Infrastructure	Includes CO2 gathering and transmission pipelines, compression, and facility construction. • We have partnerships with multiple engineering partners to enhance our engineering approach from a consultancy service starting from the FEED phase of a project through to detailed design.

Building Low-Carbon Energy Infrastructure:

Project Type:	Construction Stage:	Capabilities:
Bioenergy	Biogas Production and Upgrading Facilities (Wastewater, Landfill, Livestock)	Construction engineering, procurement, and installations of complex facilities including all civil and mechanical works.
	Biofuel Production and Upgrading Facilities	Construction engineering, procurement, and installations of complex facilities including all civil and mechanical works.
	Pipeline Construction and Associated Infrastructure Implementation, Including Compression	With our skilled personnel in trades and designations, complemented by our in-house suite of specialized equipment, we construct all-diameter pipeline and above-ground installations, pressure reduction stations, terminals, and compressor and pumping stations.

	FEED, and Associated Engineering (UK)	Process Engineering:
		• Control and Automation Systems
		• Our other fully engineered solutions include:
		  • Anaerobic digestion
		  • Biogas conditioning and storage
		  • Combined heat and power (CHP) plants
		  • Gas-to-grid connections

Lithium Solution Mining	Lithium Solution Mining Facilities and Associated Infrastructure	We work with clients on construction engineering, procurement, and installations of complex facilities including all civil and mechanical works. • Above ground pipeline • Mechanical fabrication • Structural steel fabrication • Shop fabrication • Civil site preparations at well pads • Construction of pre- and post-treatment, purification, and polishing facilities • Construction and engineering of all above- and below-ground installations from producing well pads to central processing facilities • Retrofitting of existing oil field infrastructure
	Pipeline Construction and Associated Infrastructure Implementation, Including Compression	With our skilled personnel in trades and designations, complemented by our in-house suite of specialized equipment, we construct all-diameter pipeline and above-ground installations, pressure reduction stations, terminals, and compressor and pumping stations. • We deliver on all-diameter and materials of pipelines including steel and HDPE. • Murphy was involved with coal seam gas transportation which included the installation of more than 5000km of HDPE flow lines.

Building Low-Carbon Energy Infrastructure:

Project Type:	Construction Stage:	Capabilities:
Pumped Storage Hydroelectricity (PHS)	Civil Works	• Civil construction engineering and site preparation • Large diameter tunneling up to 7m diameter
	Mechanical Works	Mechanical construction engineering, installation, and implementation. • Above ground pipeline installation • Mechanical fabrication • Structural steel fabrication • Pump stations • Electrical • Instrumentation

Experience to Lead the Energy Transition:

Hydrogen:

Hydrogen is an important fuel source to decarbonize industries such as industrial heating, metal refining, and heavy transportation. Hydrogen will play a key role in our energy future and as a result, our in-house team of engineers as well as program and project managers have been working to ensure we can meet all our clients' needs in constructing the new hydrogen economy.

Previous Hydrogen Experience:

- Previous projects include the construction of a ~60km hydrogen pipeline in the Alberta Industrial Heartland region.
- More than 500km of medium and large diameter pipeline constructed in Canada.

Carbon Capture, Utilization and Storage (CCUS):

In the International Energy Agencies (IEA) Energy Technology Perspectives 2020 report, the Sustainable Development Scenario highlights global CO2 emissions from the energy sector falling to zero on a net basis by 2070. The contribution of CCUS grows over time as the technology improves, costs fall and cheaper abatement options in some sectors are exhausted. In 2070,10.4 Gt of CO2 is captured from across the energy sector. CCUS has the potential to remove vast amounts of CO2 from existing power and industrial plants here in Canada while supporting the rapid scale up of low-carbon blue hydrogen.

Through our parent company Murphy Group UK and Ireland, we have consulted with clients on numerous FEED and constructability assessments to kickstart the decarbonization of sequestering facilities and gathering and transmission pipelines. From capture, to transportation, to sequestration, we build for this industry.

Previous CCUS Experience:

- We are consulting with clients in the UK on FEED and constructability assessments to kickstart the decarbonization of two key industrial clusters. This includes examining main routing options, an above-ground CO2 pipeline gathering system, as well as constructing a natural gas feeder pipeline for nearby power generation.

Bioenergy (Biofuels, Biogas, RNG):

The Government of Canada is forecasting biofuels alone will constitute 12% of total end use energy demand by Canadians by 2050. Renewable natural gas also potentially offers petajoules of clean fuel that can assist with decarbonizing residential heating in areas hydrogen may not be feasible.

Previous Bioenergy Experience:

- ***Huddersfield Energy and Recycling Facility***
  - Built and commissioned a new wastewater treatment facility.
  - Build holding tanks for mixing and holding re-watered sludge cake and thickened sludge prior to pumped feed to digesters.
  - Built two new 7,306m3 anaerobic digesters.
  - Built biogas storage and handling system comprising biogas treatment (carbon scrubber for siloxane removal), gas holder and flare stack.
  - Built two new 1.2MW combined heat and power units to generate electricity to reduce the site reliance on imported power with the waste heat from the units used to heat the digesters.
  - Built a new dual fuel boiler (biogas or natural gas) to supplement combined heat and power units to heat output when required.
  - Built a 47m high exhaust stack for dispersion of exhaust gases from the boiler and combined heat and power units.
  - Built heat exchangers to transfer heat from combined heat and power units to sludge so the digesters are operated in the range 36-39°C.
  - Built two holding tanks for storage of digested sludge prior to dewatering.
  - Built a lime-dosing facility to allow powdered quick lime to be dosed into the digested sludge so that conventional product status is achieved.
  - Built two new dewatering centrifuges to produce sludge cake at circa 25% dry solids.
- ***Mutton Island Wastewater Treatment Facility***
  - Built an anaerobic digestion to renewable energy from organic waste and installed a new combined heat and power unit to harness the biogas produced to power the operation of the plant.
- ***Swords Wastewater Treatment Facility***
  - Refurbished and expanded the anaerobic digestion plant that was designed to maximise renewable energy yield in the form of biogas from the sludge treatment process and minimise the carbon footprint of the plant.
  - Built and installed a biogas conditioning plant to remove hydrogen sulphide.
  - Installed a biogas holder.
  - Built two 100kW combined heat and power units.

Lithium Solution Mining:

As many sectors electrify, the demand for lithium is expected to increase by 500% over the next 10 years. We can support lithium mining in Canada and deliver technically challenging construction services.

Pumped Storage Hydroelectricity (PSH):

Our in-house team of engineers and project managers are working to ensure we can meet all our clients' needs in constructing all facets pertaining to PSH where favorable geological conditions exist.

FURTHER READINGS

HYDROGEN STRATEGY FOR CANADA

www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/environment/hydrogen/NRCan_Hydrogen-Strategy-Canada-na-en-v3.pdf

CANADA'S NET ZERO FUTURE

climatechoices.ca/wp-content/uploads/2021/02/Canadas-Net-Zero-Future_FINAL-2.pdf

NET ZERO EMISSIONS BY 2050

www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html

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