A global economy, new technology, better quality products and improved access to energy worldwide is driving revamps and debottlenecking of existing brownfield and development of new greenfield facilities.

Our experts are well positioned to support, facilitate and further enhance these developments.
Proven Downstream Capabilities

With over 100 years’ experience and 20,000 professionals in oil and gas, we offer client-focused, end-to-end engineering and construction solutions across upstream, midstream and downstream projects to many of the world’s leading energy companies. We are recognized globally for our agile and responsive approach, delivering world-leading energy projects safely, on time and on budget.

Safety

We are a safety leader with one of the best safety records in the industry. Our vision is to deliver a workplace where no one gets hurt and everyone goes home safe. In 2017, we completed over 58 million person-hours, with a total recordable incident frequency rate of 0.10, down from 0.11 in 2016 and 0.12 in 2015. We also achieved 189 Perfect Days without a single safety, security or environmental incident in 2017.

Comprehensive Services

Whether delivering massive shutdown and turnaround projects in South Africa or delivering sole-source construction in Sakhalin, we go beyond engineering and EPC to being able to manage the challenges and risk associated with complex and remote projects globally. In addition to offering fully designed turnkey solutions, we can deliver service-specific scopes of work, with a highly valuable, self-performing asset construction and field services team across the full lifecycle of our clients’ assets.

Technology Neutral

Through our global relationships with all major technology licensors and working with the client at concept stage to determine the best technology solutions for each project, we have the ability to deliver the most efficient and optimized solution for each project.

Work Share and High-Value Engineering Center

We have developed one of the most advanced centers for engineering work share in India, with a focus on investing in the best tools and data processing capabilities and a team that has delivered hundreds of projects all over the world, together with our operation centers on every continent.

Local Communities and Sustainable Development

We are committed to improving the communities in which we work through project-related economic initiatives, local employment and training, and charitable involvement. We have a demonstrated track record of our commitment to community engagement, particularly in industrial work locations, delivering:

- Skills training and mentoring programs
- Involvement in our local community’s organizations
- Traditional knowledge and community studies
- Partnering arrangements and framework agreements
- Assistance in education and health services
- Permitting and approvals
We’re one of very few firms with world class expertise at scale in financing and asset management, engineering, procurement, construction, training, and operations and maintenance. This is a key differentiator in our industry and a powerful vehicle for delivering outstanding value to our stakeholders.

Differentiators

1. Strong safety programs
2. Cohesive and experienced project teams
3. Track record of project execution certainty
4. Ability to manage complex projects
5. Transparent communications

58 MILLION PERSON-HOURS IN 2017 WITH A TRIF OF 0.10
Specialized Expertise in Refining and Petrochemicals/Chemicals

SNC-Lavalin possesses decades of experience providing services to the world’s leading refiners, petrochemical, chemical and industrial manufacturing industries. Our involvement in these projects often begins with a front-end feasibility study (including configuration selection using Linear Programming (LP) modeling, technology/licensor selection) or the owner’s proprietary process package, which is further developed during the early project planning phases. Services continue into the performance of detailed engineering, procurement of the process equipment through to construction or construction management for the erection of the final facility. We have also provided plant start-up, operations and technical services.

700+ PROJECTS OVER THE LAST 50 YEARS
Refining

SNC-Lavalin undertakes projects ranging from small process unit revamps to large greenfield facilities using a wide range of feedstocks including heavy sour crude (Canadian oil sands and Venezuelan heavy oil), as well as lighter feedstocks.

- Crude and vacuum distillation
- Coking
- Solvent de-asphalting
- Residue hydrocracking
- Visbreaking
- Catalytic cracking
- Hydrocracking
- Hydrotreating
- Ultra low sulfur diesel
- Catalytic reforming
- Alkylation
- Isomerization
- Oxygenates production
- Gas recovery/LPG production
- Vapor recovery
- Sulfur recovery units/sulfur treatment
- Hydrogen plants/reforming:
  - Acid gas treatment
  - Sour water strippers
- Sulfur recovery including tail gas treatment units
- Flue gas desulfurization
- Gasification
- Solvent de-waxing
- Utilities and offsites
- Materials handling
- GTL/CTL
- Upgrading
- Bitumen production
- Heavy oil refining
- Carbon Capture and Sequestration (CCS)

Our experience covers a full range of industries across refining and petrochemicals to include specialty and fine chemicals, fertilizers, sulphur and pharmaceuticals.

Petrochemicals/Chemicals

Experience with a Wide Range of Plant Types

We have worked on a wide range of petrochemical and chemical projects, ranging from:

- Olefins
- Polymers
- Aromatics
- Methanol
- Syngas
- Specialty chemicals
- Polyurethane
- Ethylene
- Propylene
- LLDPE
- HDPE
- Polypropylene
- Polystyrene
- Hydrogen
- Butene/butane separation
- Terephthalic Acid
- Polyester
- Fertilizer
- Sulphur/sulphuric acid
- Ammonia

Expertise in Specialty Process Equipment

Through the execution of these projects, we have gained a deep and intimate knowledge of the design, specification and procurement of specialty process and mechanical equipment, including:

- Reactors
- Distillation columns
- Heat exchangers, Process vessels, agitators and blenders
- Centrifuges
- Specialty pumps and compressors
- Specialty furnaces such as cracker furnaces
- Batch processing control systems
Modularization

SNC-Lavalin has strong modularization experience with associated utilities and offsites. We have found that the key factors to successfully implementing modularization are an early emphasis on logistics during the design phase, a site design that focuses on ease of installation of the modules and stringent shop inspections to ensure that the modules adhere to the required design tolerances. This approach helps to ensure smooth delivery and installation of the modules and helps to prevent costly delays in the field during construction of the facility. Additional capabilities include small to mega project execution with flexible and adaptable contracting strategies to suit project-specific requirements.

Associated Facilities

We also have a high level of experience with facilities typically associated with process plants including:

- Material handling equipment for both solids and liquids;
- Warehousing and tank farms for the storage of raw and finished products;
- Packaging facilities, automated or manual, for pallets, drums, sacks, totes, crates and other containers;
- Loading and unloading equipment for trucks, railcars and barges;
- Utilities and offsites;

Environmental Assessment and Consulting

We have a depth of experience in environmental assessments for major projects including emissions, federal regulatory framework, and energy projects. Our global presence and local knowledge means that we are able to lead and quickly integrate diverse consulting teams. We have a proven track record of successfully managing large, complex and challenging environmental assessments.

Project Development

SNC-Lavalin is one of the few firms to have a Capital arm that provides project development support to clients across the energy and infrastructure space. Whether through sweat equity or project finance expertise, we help our customer find innovative ways to bring projects to fruition. This capability is another reason why we stand above our peers to offer the full spectrum of services that ensure projects come online.
Expertise at a Glance

**Mercury Polyalphaolephin (PAO) Unit (USA)**

**Client:** INEOS Oligomers, LLC  
**Description:** Providing engineering, procurement and construction services, in a 50/50 joint venture with JV Driver, to design and build a polyalphaolefin (PAO) unit with a production capacity of 120,000 metric tons per annum in the INEOS petrochemical complex in Chocolate Bayou, Texas.

**Corunna Cracker Expansion Phase 3 Furnaces (Canada)**

**Client:** NOVA Chemicals Ltd.  
**Description:** Providing engineering, procurement and construction services, in consortium with TechnipFMC, to supply two gas cracking furnaces to increase the Corunna cracker’s current ethylene capacity by more than 50%. Both TechnipFMC and SNC-Lavalin supported NOVA Chemicals in the front-end engineering (EDS / FEED) development for the gas cracking furnaces.

**Cartegena Oil Refinery Expansion (Colombia)**

**Client:** Reficar  
**Description:** Planning, integration and execution of the pre-commissioning, commissioning activities, and support of the start-up and site acceptance testing of the greenfield and brownfield areas. The expansion project included a new 165,000 bpd refinery, utilities, and infrastructure as well as the modernisation of the adjacent 80,000 bpd refinery. Completed the Electrical and Instrumentation installation for the new Refinery’s Process Units (SC-1291 Block B) to produce clean, ultra-low sulphur gasoline and diesel from heavy crude.

**Sulphuric Acid and Power Plant (Saudi Arabia)**

**Client:** Saudi Arabian Mining Company (Ma’aden)  
**Description:** We provided overall turnkey engineering, procurement, construction, pre-commissioning, commissioning, training and provisional and final acceptance testing as part of a consortium being led by SNC-Lavalin and utilizing our proprietary project management system and procedures, including HSSEQ. The project was in the battery limits of a new ‘greenfield’ site, and interconnected to other EPC packages and offsites. The overall project facility comprised of 3 sulphur burning sulphuric acid plants, a power plant using steam turbine generators, associated infrastructure and utility facilities and associated tie-ins with the existing plant. SNC-Lavalin also provided the environmental management plan, health and safety plan, provided a Local Resource Development Initiative and a training program for local labour to operate and maintain the facility.
**Burrup Ammonia Project (Australia)**

**Client: Burrup Fertiliser Pty Ltd.**

**Description:** Engineering, procurement and construction contractor for the development of a world-scale, export-oriented ammonia plant. Among the major components provided were a 2,200 tpd ammonia plant, primary and secondary reformers, captive power plant, package boilers, vent stacks, instrument air and service air system, catalyst loading and unloading facilities, atmospheric pressure, cryogenic ammonia storage tanks, closed circuit seawater—freshwater cooling system, seawater cooling tower, demineralization water plant, effluent treatment plant, sulphuric acid and caustic unloading, emergency diesel generators, and ammonia loading and recirculation facilities at the Dampier Public Wharf.

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**Horizon Secondary Upgrading Project (Canada)**

**Client: Canadian Natural Resources Limited (CNRL)**

**Description:** We provided engineering, procurement, construction management, commissioning support, start-up and performance testing support of the Secondary Upgrader project, a subset of the Horizon Project. The project consisted of three hydrotreaters and processes 135,000 bpd of feedstock from the Primary Upgrader into synthetic crude components.

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**Sadara Petrochemical Complex (Saudi Arabia)**

**Client: Sadara Chemical Company**

**Description:** The Sadara Project is a new world-scale integrated chemicals complex in Jubail Industrial City II. Once complete, the Sadara complex will represent the largest petrochemical facility ever built in a single phase. Provided In-Kingdom (IK) consultancy services over a two year period to support the overall project management team in its execution of the Sadara downstream project including process units, utilities, storage tanks and offsite facilities. Our technical support team performed in-plant work support services on the complex’s polyethylene plant.

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**Greenfield Refinery Feasibility/Conceptual Study (Canada)**

**Client: Pacific Future Energy**

**Description:** We are carrying out a feasibility / conceptual study and providing support for regulatory process / environmental application for a 200,000 bpd bitumen refinery and its associated auxiliaries and utilities to be installed in British Columbia. The refinery will utilize state-of-the-art technology for heavy oil refining with a high conversion of bitumen, very low emissions to the environment and a maximum recycle of water. Gasoline and diesel from this refinery will meet Euro V standards. The facility will generate its own power from natural gas and bio-mass. The refinery will have a large rail loading / unloading station for receiving feedstock and exporting sulphur. Finished transportation fuels will be sent to the marine terminal through pipelines.
Jubail Petrochemical Complex (Saudi Arabia)

Client: Sipchem
Description: Engineering, procurement and construction on the Acetyl Polishing Unit at the Butanediol plant. Lumpsum turnkey for the engineering, procurement and construction, testing and commissioning for the product transfer and export pipelines and tank farm facilities at the Jubail Acetyls Complex and the King Fahd Industrial Port. Upgrade of the Sipchem Methanol Pipeline and tank farm facilities at Jubail. Construction management and supervision of E&I on the Vinyl Acetate Monomer Plant, the Acetic Acid Plant and a utilities project at the Acetyl Complex in Al-Jubail, as well as the carbon monoxide plant and the Butanediol and Maleic Anhydride facility.

Synfuels and Refinery Complex (South Africa)

Client: Sasol
Description: Construction management, shutdown/turnaround and maintenance services for the gasification plant, west refinery, ethylene plant revamp, cold separation unit, synthol, refining, coal tar filtration, carbo-tar, phenosolven units, synthol reactor trains and selective catalytic cracker and oxygen units on this coal-to-liquids refinery.

Khurais Water Injection Pump Station Facilities (Saudi Arabia)

Client: Saudi Aramco
Description: We provided detailed engineering, procurement, construction, pre-commissioning, commissioning and start-up assistance for the installation of two water supply pumps to provide 2MM bpd to the Khurais field in addition to the revamp of four existing water injection facilities for the Ghawar field in Saudi Arabia to inject an additional 2.1MM bpd.
Third Party Engineering Services Agreement (Canada)

Client: Imperial Oil Limited
Description: Ongoing since 1996. Over 1,000 assignments of variable sizes and complexities, comprising routine plant expansions, capital improvement and maintenance projects, including hydrocracker, reformulated gasoline and cyclopentane projects. We have provided project management, engineering, support for procurement, construction, commissioning and start-up.

Asset Enhancement Alliance (USA)

Client: ExxonMobil
Description: SNC-Lavalin has been providing alliance engineering services to the ExxonMobil refinery, chemical plant and olefins plant in Baytown, Texas since 1966. These services have included front-end development, project management, engineering, procurement and construction support.

Corunna 4th Boiler (Canada)

Client: Nova Chemicals Ltd
Description: We performed EPCM services to add a 4th Boiler (D) to the three 300 Klb/Hr 1500 psig Boilers (A, B, and C). The plant has two 75 Klb/Hr 200 psig package boilers that produce the additional steam for normal operation and start-up. Once the 4th Boiler is operational, the package boilers will be decommissioned. The plant needs the 4th Boiler in order to take two other boilers out of service for about 12 weeks each for similar upgrades. Having four boilers online also increases the reliability of the olefins plant.