

# Facility and Process Operators

Facility and Process Operators work in plants and facilities across energy sectors. They ensure the safe and reliable operation of facilities, equipment, and pipelines. Facility and Process Operators use electronic and computerized control panels and monitoring instruments to ensure plants, equipment, and pipelines operate within established parameters and procedures. They may be the first to detect and respond to an emergency or malfunction. These operators play a key role in the startup or shutdown of a plant or one of its units.

There are different types of Facility and Process Operators working in the various roles across the energy industry: Steam or Power Engineers; Control Room Operators and Field Operators.

The career may appeal to you if you already have direct experience in the field or facilities as a worker, tradesperson, technician, or technologist. You like controlling machines and processes and analyzing data and information. You are curious and systematic by nature. You enjoy following a set of procedures and routines and are always learning as equipment and facilities change around you.

## Established Energy Sectors:

[Oil and Gas](#)[Offshore Oil and Gas](#)[Oil Sands](#)[Energy Services](#)[Pipelines](#)[Refining](#)

## Emerging Energy Sectors:

[Biofuels](#)[Hydrogen](#)[Liquefied Natural Gas \(LNG\)](#)[Carbon Capture and Storage \(CCS\)](#)

For energy sector definitions, go to [CareersinEnergy.ca](https://careersinenergy.ca)



# What Facility and Process Operators Do



## Operate and Maintain Plant and Facility Systems and Equipment

Facility and Process Operators monitor production and process equipment and pipelines. They use control systems and sensing instruments to operate, control, and adjust equipment. Some of the equipment operated with these systems is stationary. Examples of stationary equipment are pressure vessels, storage tanks, valves, and boilers. Other types of equipment, that are rotating, includes engines, pumps, turbines, and compressors. Facility and Process Operators conduct inspections to detect malfunctions and ensure equipment is operating at maximum efficiency.



## Use Sensing and Monitoring Equipment and Systems

Facility and Process Operators are responsible for ensuring the safe and efficient operation of facilities, equipment, and pipelines. They control operation processes and acquire data using sensing and monitoring equipment and systems. Automated gauges, instruments, and metres are used to collect information for analysis and reports. Data collected can be about chemical processes, temperature, pressure, pipeline flow rates, and status and production levels of wells. This helps to coordinate and regulate processes and identify any issues.



## Troubleshoot Equipment and Handle Issues

Facility and Process Operators monitor plants and equipment for any issues. Based on readings and data from sensing systems, they address issues and make changes to enhance equipment performance. They ensure equipment is in good condition and operating properly. This can involve servicing mechanical equipment such as pumps, separators, and compressors.



## Understand Safety Requirements and Respond to Emergency Situations

Facility and Process Operators understand the safety, environmental, and regulatory responsibilities that go along with plant and equipment operations. They are responsible for hazard identification and emergency response procedures. They respond to alarm conditions as they arise and adjust or shut down equipment when necessary for a safe operating environment. Operators use a procedure called “Lockout Tagout” to ensure equipment is safely shut down.



## Record and Report on Operations and Production Systems

Facility and Process Operators are responsible for gathering data, maintaining daily logs, and creating reports. These records are used for ongoing monitoring and status updates of operational activities and are shared with other operations personnel.

# Key Skills and Abilities Facility and Process Operators Need

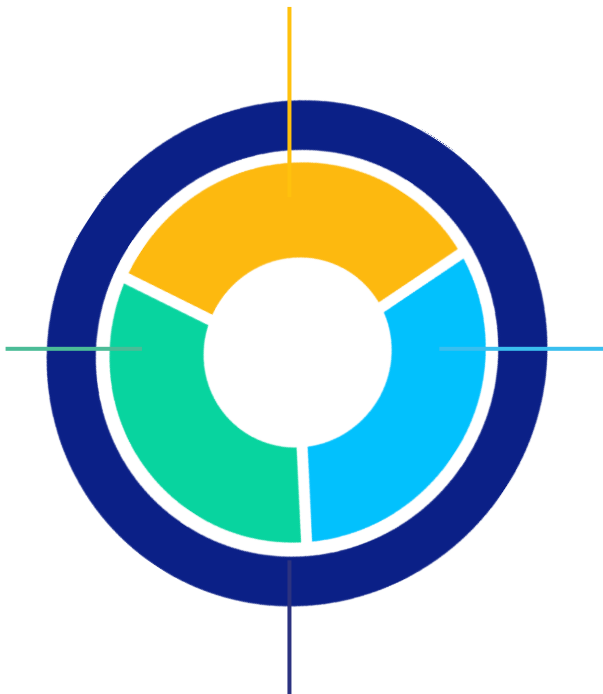
This chart shows the knowledge, skills, certifications, and personal attributes Facility and Process Operators need to enter and advance their career in the energy industry. Each occupation, job level, and responsibility will require a different mix of these skills and abilities.

**Core Knowledge**

- Discipline-specific knowledge such as electrical and electronics; chemistry; mechanical; manufacturing, processing, and production
- Operation monitoring and maintenance of equipment
- Working with materials, equipment, and tools
- Quality inspection procedures and analysis
- Analyzing data and problem-solving
- Able to work with high-pressure liquids and gases
- Public safety procedures and regulations for industrial equipment and facilities

**Technical Skills**

- Troubleshoot and perform maintenance on equipment
- Evaluate systems and equipment to improve productivity and reduce risks and failures
- Proficiency with computer hardware and software including automated operations systems
- Work in or around potentially hazardous heavy equipment, chemicals, explosives, etc.



**Beneficial Certifications**

- Class 5 Driver's Licence plus a clean abstract
- Standard and Emergency First Aid
- Industry-specific certifications/training may include:
  - H2S Alive
  - Common Safety Orientation (CSO)
  - Confined Space Entry
  - Blowout Prevention
  - Well Control
  - Workplace Hazardous Materials Information System (WHMIS)
  - Fall Protection
  - Transportation of Dangerous Goods (TDG)
  - Lockout Tagout certification

**Personal Attributes**

- Analytical thinking
- Adaptability
- Collaboration
- Attention to detail
- Stress tolerance
- Innovativeness

# Facility and Process Operator Careers in the Energy Industry

There are different types of education requirements for the Facility and Process Operator career. Entry to the career generally starts with experience as a worker, tradesperson, or technician in the field or plants plus relevant education. The chart shows how roles and educational requirements change for each career level. As you advance your career, your education and experience can help you to move across the various sectors in the energy industry.

Career Level	Entry	Mid	Senior
<b>Types of Jobs</b> <hr/> Education information can be found in the detailed career pathway at <a href="http://careersinenergy.ca">careersinenergy.ca</a>	<b>Entry-level operators work under supervision</b>  <b>Power Engineer</b> <ul style="list-style-type: none"> <li>Power Engineering Technologist</li> <li>Stationary Steam Engineer</li> <li>Process Operator</li> <li>Plant Operator</li> <li>4th Class: usual minimum requirement in an industrial facility</li> </ul> <b>Control Room Operator (pipeline operations)</b>  <b>Field Operator</b> <ul style="list-style-type: none"> <li>Production Operator</li> <li>Outside Plant Operator</li> </ul>	<b>Mid-level operators can perform operations and maintenance activities independently</b>  <b>Power Engineer – Class 3 and Class 2 (dependent on the rating of the plant)</b>  <b>Shift Operator</b>  <b>Control Room Operator (energy plant and pipeline operator)</b>  <b>Intermediate Field Operator</b>	<b>Senior-level operators supervise and review other operators' work</b>  <b>Power Engineer /Supervisor</b>  <b>Lead Operator</b>  <b>Chief Engineer – Class 2 or Class 1 (dependent on the rating of the plant)</b>  <b>Class 1 for complex facilities</b>  <b>Senior Control Room Operator</b>  <b>Senior Field Operator</b>

<b>Education Levels And Areas Of Study</b>	<b>Power Engineers</b>  Completion of 2-year college program and/or specialized education programs. Certification is required by all provincial/territorial requirements.  <b>Field Operator</b>  High School Diploma and combination of field/process operations experience and education. Employers often provide specialized on-the-job learning.	<b>Control Room Operator</b>  Completion of a 2-3 year college program in process operations or science/engineering technology plus: <ul style="list-style-type: none"> <li>Power engineer certification and plant operator experience for energy plant operations</li> <li>On-the-job training for pipeline operations</li> </ul>
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# Transferring Facility and Process Operator Skills from One Energy Sector to Another

There are core skills and knowledge that all Facility and Process Operators need for their careers. These building blocks apply across all energy sectors and for all specializations.

The following flowchart presents the core skills and knowledge Facility and Process Operators need as building blocks. Each energy sector uses the building blocks in different ways.

New entrants to a Facility and Process Operator career can use the diagrams to understand the building block skills needed to work in sectors across the energy industry. Experienced Facility and Process Operators can use the diagrams to understand how each building block is applied across the sectors.

## Skill: Read gauges, instruments, and sensors; track and analyze data; and make adjustments to operations

Skill attributes

Sector



## Skill: Install and maintain tools, equipment, and systems, and perform troubleshooting

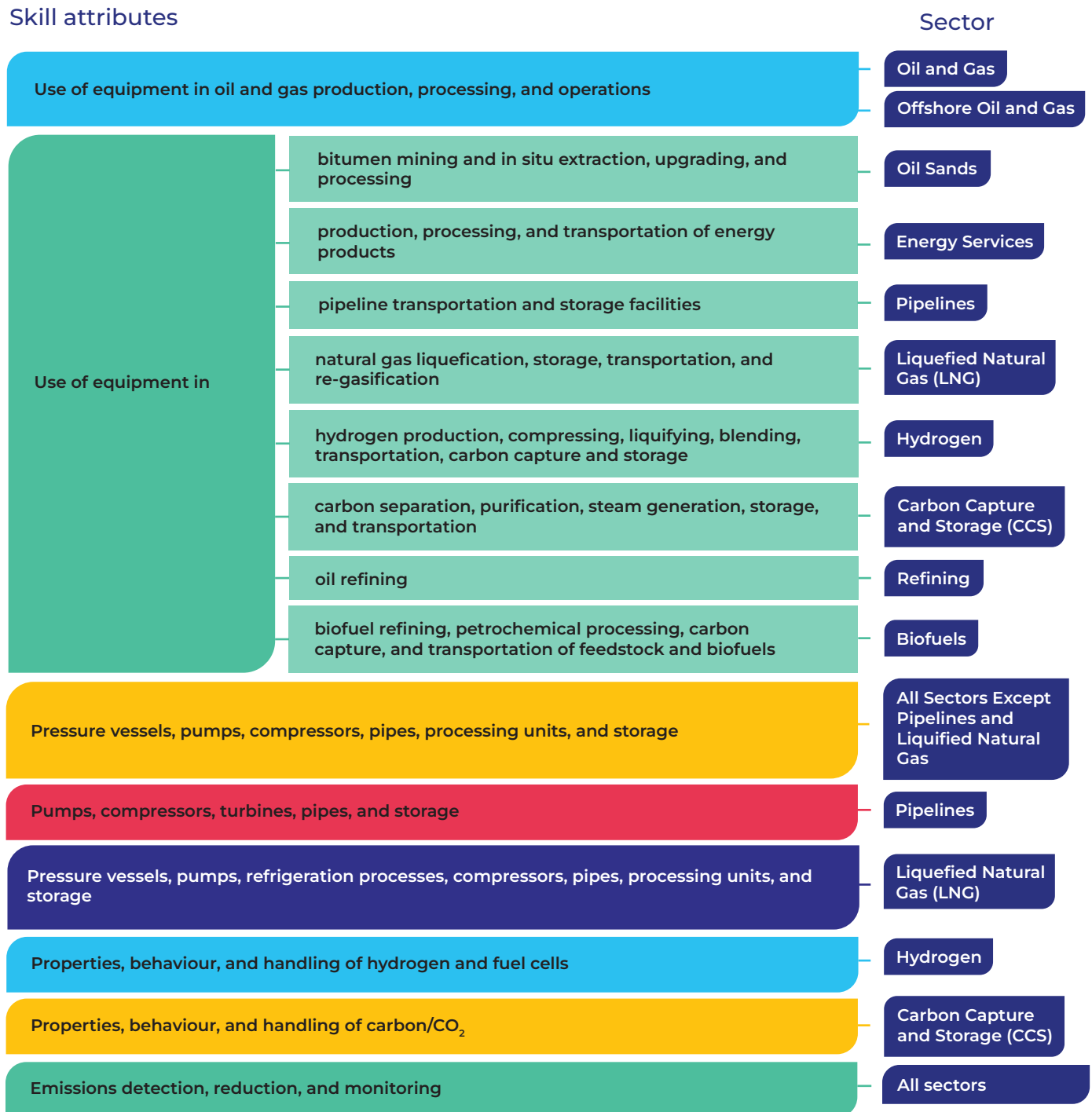
Skill attributes

Sector



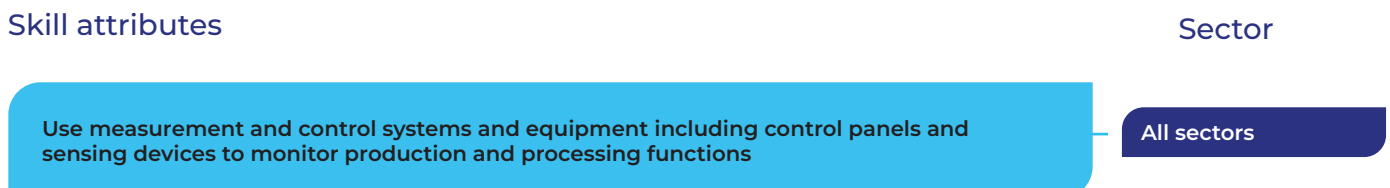
## Skill: Knowledge of operations, production, and maintenance processes and equipment for facilities

### Skill attributes



## Skill: Operate and monitor stationary and rotating processing equipment using control systems and sensing instruments

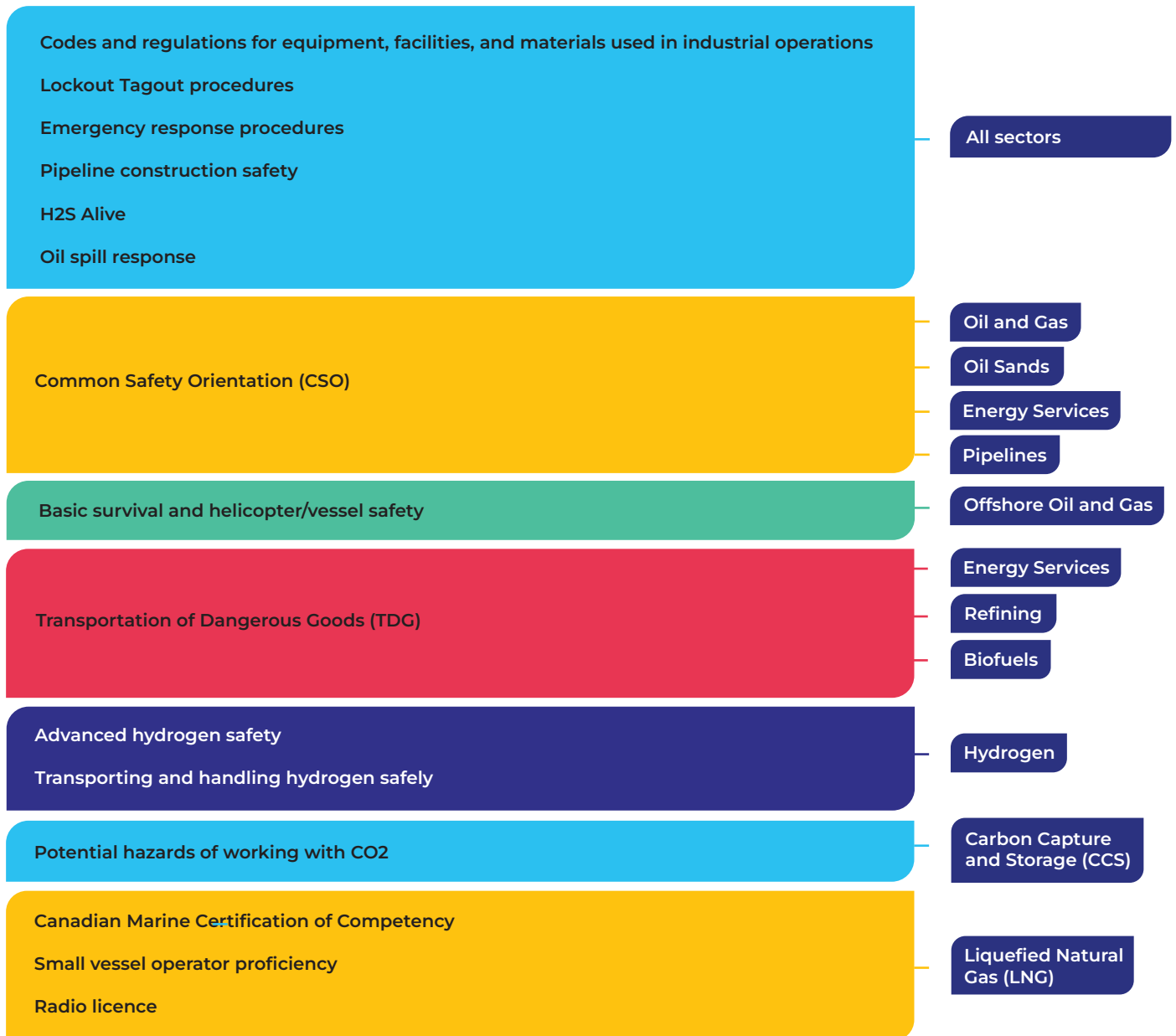
### Skill attributes



# Skill: Identify risk and safety issues and determine ways to avoid risk and improve safety

## Skill attributes

## Sector



# Career Outlook for Facility and Process Operators



## Projected to have a large number of job openings

Projected to have 1,500 or more job openings over the period 2022-2035 nationwide.

Source: Careers in Energy, National Labour Market Outlook to 2035



## Top 10 in-demand

Top 10 in-demand occupation: Projected to have the greatest number of job openings over the period 2022 - 2035 nationwide.

Source: Careers in Energy, National Labour Market Outlook to 2035



## Projected labour shortages

The demand for workers is projected to be greater than the supply of available workers.

Source: Careers in Energy, National Labour Market Outlook to 2035



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