

Power Engineers and Power Systems Operators

Description

Power engineers operate and maintain reactors, turbines, boilers, generators, stationary engines and auxiliary equipment to generate electrical power and to provide heat, light, refrigeration and other utility services for commercial, institutional and industrial plants and facilities. Power systems operators monitor and operate switchboards and related equipment in electrical control centres to control the distribution of electrical power in transmission networks. They are employed by power generation plants, electrical power utilities, manufacturing plants, hospitals, universities and government and commercial establishments.

Duties:

- Power engineers:
 - Operate automated or computerized control systems
 - Start up and shut down power plant equipment, control switching operations, control water levels and coordinate with systems operators
 - Monitor and inspect plant equipment to ensure it is operating at maximum efficiency
 - Analyze and record instrument readings and equipment malfunctions
 - Troubleshoot and perform corrective action to prevent equipment or system failure
 - Respond to emergency situations if required
 - Perform routine equipment maintenance duties using appropriate lubricants and tools
 - Maintain a daily log of operation, maintenance and safety activities, and write reports
 - May assist in the development of operation, maintenance and safety procedures.
- Power systems operators:
 - Co-ordinate station power loads and line voltages to meet distribution demands
 - Monitor and inspect station instruments, meters and alarms to ensure transmission voltages and line loadings are within prescribed limits and to detect equipment failure and outages
 - Issue work and test permits to electrical and mechanical maintenance personnel, assist in locating and isolating system problems, and assist during routine system testing
 - Complete and maintain station records, logs and reports.

Other titles:

- apprentice power dispatcher
- energy from waste plant operator
- building systems technician
- stationary engineer
- system controller – electrical power systems
- power plant operator
- distribution control operator – electrical power systems
- nuclear generating station field operator
- auxiliary plant operator
- power plant stationary engineer
- nuclear reactor operator
- power dispatcher – generating station

(Government of Canada National Occupation Classification)

Skills



Education/Training Requirements

Ontario Secondary School Diploma (OSSD)

- Completion of secondary school is usually required

Post-secondary diploma/degree

- For power engineers, a college training program in power engineering and several years of work experience is required
- For power systems operators, completion of a three- to five-year power system operator apprenticeship program OR over three years of work experience in the trade and some college or industry courses in electrical and electronic technology is required

Certification

- Power engineers must obtain a provincial engineering certificate according to class
- Control room operators at nuclear power plants require licensing from the Canadian Nuclear Safety Commission

Potential Earnings in Durham Region

The average and median wages and salaries for individuals employed as power engineers and power systems operators are as follows. Place of Residence (POR) is defined as individuals who reside within the Durham Region. Place of Work (POW) is defined as individuals who are employed within the Durham Region.

Median Wages and Salaries (POR)	Average Wages and Salaries (POR)	Median Wages and Salaries (POW)	Average Wages and Salaries (POW)
\$105,179	\$108,837	\$112,456	\$116,807

Employment Prospects

Industry (NAICS)	Jobs in Durham Region (POW)	Durham Region Residents Employed (POR)
2211 – Electric Power Generation, Transmission and Distribution	2020	1560

(Ministry of Advanced Education and Skills Development 2016 data in Durham Workforce Authority's 2017 Sector Report)

Additional Resources

- Canadian Nuclear Safety Commission: <https://www.cnsccsn.gc.ca/>