

Power Systems Engineer

Keep the lights on. Design and protect the grid that carries electricity from dams and reactors to your house.

TYPICAL PAY

\$105,000

a year, full time

PAY RANGE

\$70k to \$165k

starting to experienced

TIME TO QUALIFY

4 to 8 years

after high school

DEMAND

Good

job outlook

LICENCE NEEDED

Yes

regulated job

WHERE YOU WORK

Utilities, consulting firms, system operators, large industrial plants

How you get there

- 1 High school** Grades 11 and 12
 Calculus, Advanced Functions, Physics and Chemistry. Physics is the one that matters most.
- 2 Accredited electrical engineering degree** 4 to 5 years with co-op
 Choose power and energy electives: machines, power electronics, protection, system analysis. Few schools offer a separate power systems degree.
- 3 Work terms at a utility** During the degree
 Provincial utilities, system operators and consultants all take co-op students, and most hiring starts there.
- 4 Engineer-in-training** About 4 years
 About four years of supervised experience registered with your provincial regulator.
- 5 P.Eng (professional engineer) licence** After about 4 years
 Pass the law and ethics exam and submit your experience record. Then you can seal designs for substations and lines.

Pros and cons

- + Work that matters and never disappears: electricity demand keeps growing
- + Large employers with pensions and predictable hours
- + Rare specialties give you leverage for your whole career
- Big organisations move slowly and paperwork is heavy
- On call rotations mean 3am phone calls during storms
- Some sites are in remote places

Optional boosts

Protection and control. High voltage direct current experience. Renewable integration. Power systems master's degree.

Good to know

Canada runs mostly on water

About 60% of Canada's electricity comes from hydro dams, more than almost any other large country. That shapes the whole grid: very long transmission lines carrying power from remote rivers to distant cities.

One bad afternoon in 2003

In August 2003 a cascading failure blacked out Ontario and much of the northeastern United States, affecting around 50 million people. The reliability rules that power systems engineers work under today...

Where these numbers come from

Job Bank: Design engineer, electrical power systems, wages (updated Nov 2025)
 Engineers Canada
 Independent Electricity System Operator, Ontario
 University of Waterloo: Electrical Engineering

Numbers checked September 2026. Pay figures are typical full-time annual amounts in Canadian dollars, based on Government of Canada Job Bank wage data and published salary grids. They vary by province, employer and experience. Tuition is for domestic students. Sources, links and the click-through version: <https://career.help/ca/careers/power-systems-engineer>



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