

# PeoplePower

You have the power to make your own career in energy

SUPERVISOR  
CONSULTANT  
ARCHITECTURAL  
TECHNOLOGIST  
CONSULTING ENGINEER  
ENERGY ANALYST  
MECHANICAL  
ENGINEER



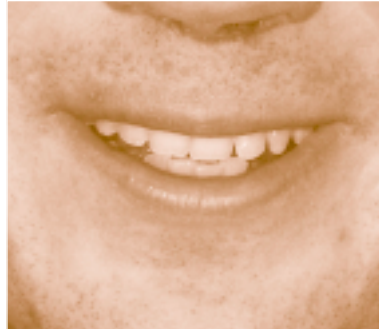
ALTERNATE ENERGY  
ADVOCATE  
ENGINEERING DRAFTING  
SHEET METAL  
TRADESPERSON  
ENGINEERING  
GEOLOGIST  
TINSMITH



CERTIFIED POWER  
LINEPERSON  
ENGINEERING STUDENT  
CHEMICAL ENGINEER  
ENVIRONMENTAL  
ASSESSMENT  
ARCHITECT



FISH BIOLOGIST  
CARPENTER  
DISTRIBUTION  
TECHNICIAN  
ELECTRICAL  
TECHNOLOGIST  
CHARTERED  
ACCOUNTANT



ELECTRICAL ENGINEER  
CIVIL ENGINEER  
GEOGRAPHER  
ENERGY CONSULTANT  
STEAM ENGINEER  
SYSTEM CONTROL  
OPERATOR





**PeoplePower** is your window into the careers and backgrounds of some people who work in the field of energy in the Yukon.

Many of these people work for utility companies, government agencies or private companies, while others are self-employed in their own consulting, engineering or design businesses. These businesses range from one-person operations to having many employees.

What do they do? Who do they work with? What do they like about their work? How did they get into work in the energy field? What advice can they offer you?

This is your chance to find out. Begin with the **PROFILES** to learn about 30 people who are already working in energy-related jobs.

If you think energy is an interesting subject and a possible career, turn to **ENERGY'S FUTURE** for some perspectives on how the field is shaping up.

**FINANCING YOUR STUDIES** provides suggestions for getting financial support to help you offset the cost of your education.

**FAST TRACK** highlights several careers that can lead to energy work and offers advice on how to get into them.

If you want to do your own research, **STARTING POINTS** lists energy and education web sites to start with, just a tiny sample of what is out there on the web.

This booklet is no substitute for a guidance counsellor or for college and university calendars, but it does deliver advice from people who are involved in energy-related work right now. If you have questions for anyone profiled here, your CAPP teacher or guidance councillor will know how to contact them.

**ENERGY** is everywhere and our understanding of it is rapidly changing. More than ever before, we know that energy has costs. We see it when we pay our power bill and buy gas or heating oil. We see how our environment pays in terms of climate change and unstable weather events, and what society loses by wasteful use of a critical resource.

Attitudes are changing. We, as a society, are becoming motivated to change the way we produce and use energy.

Energy used to be solely about gas, oil, coal, large hydro dams and power lines.

Today, it is much more. It is about sustainability. Energy workers in the Yukon are thinking smart and being innovative. They write policies that guide actions to reduce greenhouse gas emissions, create wind maps for future wind turbine installation, work with households, businesses and governments to cut energy costs, organize public education courses on using energy efficiently, research hydrogen fuel production, improve the efficiency of heat recovery systems, and design award-winning green buildings.

World-wide, there is a shortage of workers with technical, trade and professional training in sustainable energy.

It is a growing field with immense opportunities for Yukon students. It is worth checking out!

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Whitehorse, Yukon Y1A 2C6  
Telephone: (867) 393-7069  
Fax: (867) 393-7071  
greenpower@gov.yk.ca  
www.nrgsc.yk.ca

Yukon Energy Corporation  
Box 5920  
Whitehorse, Yukon Y1A 6S7  
Telephone: (867) 393-5300  
Fax: (867) 393-5323  
www.yec.yk.ca

Energy Solutions Centre  
206A Lowe Street  
Whitehorse, Yukon Y1A 1W6  
Telephone: (867) 393-7063  
Fax: (867) 393-7061  
info@nrgsc.yk.ca  
www.nrgsc.yk.ca

Department of Education  
Government of the Yukon  
Public Schools Branch  
Box 2703  
Whitehorse, Yukon Y1A 2C6  
Telephone: (867) 667-3006  
Fax: (867) 393-6339  
www.gov.yk.ca/depts/education/  
index.html

## ELECTRICAL ENGINEER

**Angela Paik**  
Yukon Energy



*"I like being able to see the lasting physical evidence of what I've done."*

## ELECTRICAL TECHNOLOGIST

Power System and Industrial Electrician

**Andre Fortin**  
Owner,  
Dynamic Systems



*"Everything we do is about energy management."*

## TINSMITH

Gas Fitter, Oil Burner  
Mechanic, Class C Electrician

**Rick Griffiths**



*"A good worker in the trades never lacks work and an apprenticeship lets you earn as you learn."*

### ANGELA

- designs electrical distribution systems, chooses appropriate equipment, develops materials lists and plans projects
- expects to work on substation design and protection circuits
- works with engineers, surveyors, draftspeople, linespeople, electricians and electrical suppliers
- likes the hands-on technical challenges of designing real systems

### ANDRE

- oversees a work crew of 15 to 40 electricians, instrumentation control and electronic controls technicians
- installs electrical and communications systems in commercial and institutional buildings
- installs Systems Control and Data Acquisition (SCADA) software that allows for remote and computer programmed control of electrical, water, heating and ventilation systems
- works with electricians, electrical technologists, builders, engineers and property managers
- likes the variety and challenge of evolving technology

### RICK

- teaches oil burner and gas fitting technology at Yukon College
- installs, trouble-shoots and upgrades heating systems
- works with building contractors, engineers and homeowners
- promotes trades as a career through Yukon College and Skills Canada
- likes new challenges and encouraging people to consider trade careers

### EDUCATION

- Bachelor of Science in Electrical Engineering from University of Alberta, in co-op program
- co-op placements with Computing Devices Canada, Imperial Oil, ATCO

### EDUCATION

- diploma in Electrical Engineering Technology from Ryerson College
- technical qualification as an industrial electrician
- certification as a power system electrician

### EDUCATION

- Vancouver Technical High School
- two-year heating and sheet metal apprenticeship at Chicago Institute of Technology in mechanical design
- on-the-job training and Technical Qualification (TQ) in four trades: gas fitting, oil burner mechanic, class C electrician and sheet metal worker

### CAREER ADVICE

- Growing power needs and the demand for renewable power sources such as solar, wind and biomass mean a growing demand for electrical engineers.
- Co-op engineering programs give you real experience as you learn.
- Co-op programs can connect you with mentors who already have careers.
- Employers often recruit students who have worked with them during their co-op term. It allows them to learn what you're like and what you can do.
- University of Alberta has an on-going hybrid electrical vehicle project that engineering students can work on.

### CAREER ADVICE

- A two- or three-year technical education from the Northern Alberta Institute of Technology (NAIT) or the British Columbia Institute of Technology (BCIT) gives you very marketable skills.
- There's a strong demand for electronic controls and instrumentation technologists.
- Get some work experience outside the Yukon to give yourself broader exposure than you can get here.
- Training doesn't stop once you have a diploma.
- Technical skills, combined with hands-on trades skills, can make you a highly valued employee.
- We encourage our technologists to become tradespeople.

### CAREER ADVICE

- If you want to become an apprentice, talk to employers about job opportunities.
- Most employers want their apprentices to have completed high school.
- There's a big demand for skilled oil burner mechanics.
- An electrical ticket gives you lots of flexibility.
- Plumbers are among the best paid people in the trades, mainly because there is such a need. You can't have a house without plumbing.
- New energy technologies, such as heat pumps and solar hot water systems, mean that plumbers will play a greater role in the energy field.

## ENERGY CONSULTANT

working with First Nations communities



### Sean Sheardown

*"Renewable energy sources and energy conservation save money for the client and reduce*

*greenhouse gases. It's nice to be in work that has such positive effects all around."*

#### SEAN

- works with Energy Solutions Centre
- builds awareness of green options in First Nations communities and encourages consideration of alternate energy options on new projects
- works with consultants and contractors to provide appropriate advice
- worked with Alaska gas pipeline team to inform First Nation communities about pipeline development
- coordinated mitigation projects at Aishihik Lake for Yukon Energy
- likes the human and social dimensions of resource management

#### EDUCATION

- Bachelor of Science in Resource Recreation from University of Northern British Columbia

#### CAREER ADVICE

- As First Nations build new infrastructure, such as buildings and subdivisions, they'll want to use new technology and will need people with skills.
- A university degree gives you a broad perspective and may help you to coordinate and manage jobs, not just do the technical work.
- The renewable resources management program at Yukon College may give you credit towards a university degree.
- A good science background helps in the university program, but writing and communications skills are just as important.

## ENGINEERING GEOLOGIST

### Forest Pearson

Gartner Lee Ltd.



*"I'm a very curious person by nature. Every problem is unique and there is a unique solution for each problem."*

#### FOREST

- assesses ground water and geothermal energy potential and its contamination, by studying geology, ground water, reports, aerial photographs
- assesses ground water quality by sampling for flow rates, temperature, corrosiveness, minerals and contaminants
- works with governments, mining industry, First Nations, bottled water suppliers, consulting engineers, hydro geologists and biologists
- likes helping make sure things are done right, and helping people who want to do the right thing to use and protect water and other environment resources

#### EDUCATION

- Bachelor of Science in Geologic Engineering from University of Alaska (Fairbanks)

#### CAREER ADVICE

- Work on the basics such as math and sciences, writing and communications skills.
- Consider getting some CAD and spreadsheet training.
- Engineering makes you employable with a four-year Bachelor of Applied Science degree. With Bachelor of Science degrees in geology, biology or chemistry, you may need a masters degree to get a job.
- Look for opportunities to get practical knowledge in your field.
- The University of Alaska (Fairbanks) has a northern focus to its programs. These programs are small, which allows good access to faculty and current research.

## CERTIFIED POWER LINEPERSON

Lead Hand

### Jack Weir

Transmission and Distribution, Yukon Energy

*"There are good Yukon opportunities in the trade. Within the next 15 years, the people with experience will be retiring."*



#### JACK

- maintains Yukon Energy's transmission and distribution lines
- coordinates the work of contract line repair crews and works with them
- oversees Yukon Energy's transmission and distribution systems in Faro, Mayo and Dawson
- likes outdoor work and the challenges of repairing high voltage electrical lines

#### EDUCATION

- Grade 12 equivalent in math and physics (Students now need grade 12, not an equivalent.)
- four-year power linesperson apprenticeship
- live-line, hoisting and rigging, and power line technician training

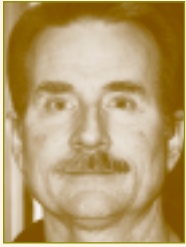
#### CAREER ADVICE

- Many Yukon linespeople are in their mid- to late 40s and will retire in the coming years.
- The Yukon Electrical Company Ltd. employs a crew of linespeople, while Yukon Energy and private sector contractors have small work forces and fewer apprenticeship opportunities.
- Consider taking a college course in power systems technology to learn how power generation and distribution systems work. Combined with a linesperson apprenticeship, you will have the skills to work on the whole transmission and distribution system.
- Some of your power line training could be applied to a power systems apprenticeship.

## FISH BIOLOGIST

### Rem Ricks

Owner, WR Ricks Consulting,  
R & D Environmental Management



*"I admire fish and I like learning and talking about them."*

## MECHANICAL ENGINEER

### Sandy Birrell

Owner, Swarthmoor



*"I like applying new technology to old problems."*

## SUPERVISOR

Customer Service and Administration

### Wendy Scramstad

The Yukon Electrical Company Ltd.



*"I always knew I wanted to work with people."*

### REM

- designed Yukon Energy fish hatchery improvements
- studies impacts of hydro power management on fish populations
- conducts fish contaminant sampling, spawning surveys, fisheries assessments
- works with fisheries managers, biologists and Yukon Energy
- likes working with fish and enjoys fieldwork

### SANDY

- tests buildings for energy wastage and designs solutions to make them more energy efficient
- works with the Energy Solutions Centre, building owners and managers, and municipal property managers
- worked for the Yukon government drafting management regulations for the oil and gas industry
- worked in the oil industry to make drilling and pumping technology more efficient and environmentally sound
- likes using new technology to make buildings more environmentally friendly

### WENDY

- supervises the front office at The Yukon Electrical Company Ltd. and is a member of the management team
- manages public relations activities
- works with the public, administration and management staff
- likes the variety that each day brings, particularly helping people and problem solving

### EDUCATION

- Master of Science in Aquaculture and Fish Diseases from University of British Columbia
- Diploma in Aquaculture and Fisheries Technology from Malaspina College
- Diploma in Education from University of Victoria
- Doctor of Veterinary Medicine from Texas A & M University
- Bachelor of Science in Biology from Lamar University, Texas

### EDUCATION

- Bachelor of Engineering in Mechanical Engineering from McGill University, plus a four-year work experience for professional certification
- thermography, P-TRAK ultra-fine particle tracking, and wood energy technical training sessions through the Energy Solutions Centre

### EDUCATION

- one-year general studies at Red Deer College
- financial accounting, time management and supervisory training courses from Yukon College
- 19 years of on-the-job training and experience with The Yukon Electrical Company Ltd.

### CAREER ADVICE

- Energy production and distribution affects the environment.
- Fisheries work needs to be done whenever developments affect fish habitat.
- A fisheries biology degree gives you a broad background.
- Graduate degrees give you credibility but are often more research oriented.
- Technical training equips you for fieldwork.
- Specialized aquaculture degree programs are now available.

### CAREER ADVICE

- Energy efficiency is increasingly important. People want more efficiency during economic downturns because of cost concerns.
- Any hands-on mechanical experience introduces you to technology and to what engineers design.
- Choose a credible university known for its engineering program.
- Think twice before taking an engineering technology course as an alternative to an engineering degree.
- Realize that technologists are more limited in what they can do.

### CAREER ADVICE

- Good people skills are really important, both on the telephone and face-to-face.
- You need an accounting or business administration background for this work.
- It's important to have computer skills and be familiar with programs like Outlook, Word and Excel.
- Utilities such as The Yukon Electrical Company Ltd. are a regulated monopoly and can offer good job stability. They also work hard to keep their staff and customers happy.
- A college business administration course would be good preparation for this career.

## MECHANICAL ENGINEER

### Eric Albertini

Partner, Northern Climate Engineering

*"Energy efficiency in heating and ventilation systems is a way to reduce reliance on fossil fuels, lower greenhouse gas emissions and cut costs."*



## ENGINEERING DRAFTING

Technologist

### Roxanne Scholfield-Ray

Yukon Energy

*"I enjoy both math and arts, so engineering drafting seems like a good way to combine my interests."*



## ELECTRICAL ENGINEER

### Ross Dorward

Owner, Dorward Engineering

*"Set a path for life-long learning by giving yourself enough options in the basics."*



### ERIC

- designs mechanical heating, ventilation and air conditioning (HVAC) systems for commercial and institutional buildings
- works with architects, heating and ventilation contractors, building owners, builders, and sheet metal and plumbing tradespeople
- likes new challenges and developments in energy technology

### ROXANNE

- drafts schematic wiring diagrams
- maps utility transmission installations
- works with engineers and engineering technologists
- worked on GIS (Global Instrumentation System) digital mapping in New Zealand that mapped and created a database for utility assets
- likes the combination of technical and outdoors work that can be part of digital mapping

### ROSS

- designs energy efficient lighting, heating, communications and control systems
- conducts energy audits of existing buildings and designs energy saving retrofits
- works with architects, heating and ventilation designers, building owners, builders and electrical tradespeople
- worked in Indonesia and learned different ways of looking at things and the importance of clear communications, close observation and a thoughtful approach
- likes the collaborative work with other building design professionals

### EDUCATION

- Bachelor of Applied Science in Mechanical Engineering from University of Toronto
- completed four years of applied work following university to qualify as a professional engineer

### EDUCATION

- two years of arts and science courses at University of Calgary
- two-year diploma in Engineering Drafting Technology from Southern Alberta Institute of Technology (SAIT)

### EDUCATION

- four-year electrician apprenticeship, 20-year journeylevel and master electrician
- instrument mechanic apprenticeship in electronic control systems
- Electrical Engineering Technologist, two-year diploma from Northern Alberta Institute of Technology (NAIT)
- Bachelor of Science in Electrical Engineering from University of Alberta

### CAREER ADVICE

- Working in construction gives you an idea of how building systems work.
- Each field of engineering has a wide range of possibilities. If you're interested in this area, talk to engineers to find out what they do.
- Engineers are recognized as effective problem solvers. Some turn their skills to managing or to entirely different careers.
- Trades or technology training can start you towards an engineering degree and give you marketable skills to finance your education.
- Building energy management is increasingly important. There's a strong demand for instrument mechanics and certified engineering technologists to work on ventilation and other mechanical systems.

### CAREER ADVICE

- Engineering drafting is becoming a dead-end career. Today, electrical or civil technology programs with later specialization in mapping is a better route to utility mapping.
- GIS technology, digital mapping and sophisticated computer software are leading to technological changes in utility mapping.
- As new energy projects are developed, there needs to be people to map them.
- Once you're working in the field, new skills can be picked up through mentoring, but you need a skill set to get you in the door.

### CAREER ADVICE

- Hands-on work experience to learn how things go together is good preparation for an engineering career.
- Take time to explore the industries that interest you.
- Apprenticeships or technology schools are great introductions to engineering, and may give you advanced standing in a degree program.
- Choose a co-op engineering program over a straight four-year program to give yourself broader experience and on-the-job training as you learn the profession.
- Don't forget the importance of writing and people skills. You'll be working with people and writing reports that must contain clear explanations.

## ENGINEERING STUDENT

### Brett Stevenson University of Calgary



*"That was one of my really big decisions – trying to choose the most employable career."*

## CONSULTING ENGINEER

Wind Assessment

### J.P. Pinard



*"I've always been concerned about environmental over-use and alternate energy sources. With wind, I invented a niche for myself. I kept trying, and I didn't give up."*

## ENVIRONMENTAL ASSESSMENT

### Kathleen Wood Consultant



*"There's always going to be a need for environmental approvals and today there's more scrutiny than ever."*

#### BRETT

- starts a one-year work internship in oil production engineering with Nexen Inc. on May 1 and will spend part of the year in Yemen
- will complete the final year of her chemical engineering program on her return
- worked at Dorward Engineering and in a lab during summer vacations
- played on the varsity soccer team last year and is an active community volunteer
- likes her course work, especially math, but shifted from electrical to chemical engineering because of difficulty with physics

#### J. P.

- assesses wind energy in mountainous terrain
- works on contract with Yukon Energy doing wind monitoring and analysis
- develops wind flow modelling software for wind analysis in mountainous terrain
- volunteered with Boreal Alternate Energy Centre on early Yukon wind assessments and worked on Haeckel Hill wind monitoring
- likes developing green alternatives to oil and fossil fuel energy sources

#### KATHLEEN

- looks after regulatory matters for Yukon Energy
- renews water licences, permits and authorizations
- coordinates scientific work required for environmental impact assessments
- works with biologists, engineers, foresters, geomorphologists, Yukon Territory Water Board, the Canadian Environmental Assessment Agency, and with the people at Yukon Energy who perform technical functions like operating the dam
- likes the intellectual challenge of the work, working across several disciplines and that projects have a product at the end

#### EDUCATION

- third-year student in Chemical Engineering Internship Program at University of Calgary
- recipient of Yukon Energy Scholarship and Association of Professional Engineers Education Award

#### EDUCATION

- Bachelor of Science in Engineering, Mechanical Engineering from Waterloo University co-op program
- Masters of Earth and Atmospheric Sciences from University of Alberta
- PhD in progress, Faculty of Earth and Atmospheric Sciences at University of Alberta

#### EDUCATION

- Bachelor of Arts in Geography from University of British Columbia
- on-the-job education in environmental permitting in the early 1970s when the Kitimat project in British Columbia was under environmental assessment review

#### CAREER ADVICE

- Carefully check out the program you want to take. Some schools are very narrowly focused and it may be difficult to choose the electives you want.
- It may be impossible to shift from one engineering school to another without losing credits.
- More women are studying engineering today. In the first-year general engineering program, 20% of the class was women but this increased to almost 50% for third-year chemical engineering.
- First-year engineering is tough, but people get through it by working with friends.
- Most opportunities for chemical engineers are in oil and gas, biomedical, polymer engineering and pharmaceuticals.

#### CAREER ADVICE

- If engineering is your interest, go the co-op route.
- Co-op work terms give you experience and contacts, allow you to explore your interests and help pay for your education.
- Alternate energy is a growth area. There will be new technology and jobs around wind turbines, photovoltaics, hydrogen and biomass fuels.
- There will be opportunities to integrate and combine different energy technologies.
- There's lots of room to improve energy efficiency in the transportation sector.
- If you keep an open mind, experience in any energy sector will be useful. Even work for the oil industry will expose you to energy issues.

#### CAREER ADVICE

- Growing concern about the environment means that people will be needed to work in the environmental assessment field.
- Universities now offer environmental studies programs.
- When you're choosing a school, look at the work faculty members are doing to see if it interests you.
- Geography provides a good cross-disciplinary background for assessment work.
- Engineers, scientists and people with commerce and law backgrounds contribute to environmental assessments. All of them need to communicate clearly with people in other disciplines.
- Expect lots of report writing.

## CIVIL ENGINEER

Energy consultant

### Laura Prentice Energy Solutions Centre



*"My job is to increase awareness and use of green technology and to identify and overcome obstacles to its adoption."*

#### LAURA

- consults on green technology and promotes appropriate energy technology
- encourages new partnerships on energy efficiency projects
- works with Energy Solutions Centre, architects, engineers, building trades and all levels of government
- helped develop the Yukon's comprehensive energy policy, Northern Climate Exchange and Green Building Design Competition
- likes alternate energy and appropriate technology

#### EDUCATION

- Bachelor of Science in Civil Engineering from Queen's University

#### CAREER ADVICE

- Engineering teaches you to set priorities and gives credibility to also do non-engineering jobs.
- There is no limit to the type of work that is linked to energy. Projects involve a range of skills and knowledge.
- Managing building energy demands is a growing field. There is now a certified energy manager technical designation.
- If you aren't strong in math and sciences, you can still work in the energy field. Analytical, communications and management skills are needed.
- International development internships are available for people with academic or technical backgrounds and practical skills. Experience abroad offers new perspectives on appropriate use of technology.

## SHEET METAL TRADESPERSON

Trade Certification

### Steve Duncan President, General Manager, Duncan's Ltd.



*"Get your high school diploma. Even in trades where graduation is not required, employers want apprentices who have completed high school."*

#### STEVE

- manages and costs heating, ventilation, air conditioning (HVAC) and plumbing projects for HVAC design engineers, building contractors, sub-contractors, tradespeople and suppliers
- designs HVAC building mechanical systems
- installs commercial and residential heat pumps
- likes the constant challenges of solving unique problems

#### EDUCATION

- first-year university
- sheet metal apprenticeship and trade certification
- business administration, mechanical design and industry technical courses

#### CAREER ADVICE

- Higher initial capital costs discourage adoption of new technology at this time.
- Public awareness of energy and cost savings will lead to demand for technology such as heat pumps, solar walls and solar hot water systems.
- Trades will be increasingly involved in energy-related work.
- Expose yourself to the field in which you might be interested. Look for work in construction to get exposure to the trades.
- First-year apprenticeship work is basic, but it becomes more interesting and challenging the further along you go.
- Industry trade associations offer upgrading and specialty courses while equipment suppliers and manufacturers offer training specific to their products.

## GEOGRAPHER

Energy Consultant

### Craig Olsen

*"Environmental workshops and conferences can be great learning opportunities."*



#### CRAIG

- educates on energy efficiency and climate change awareness and responses
- trains community energy consultants
- organizes energy fairs
- works with Department of Renewable Resources, Yukon Development Corporation, Yukon Conservation Society, Yukon Energy and the Energy Solutions Centre
- likes opening people's eyes to energy savings

#### EDUCATION

- Bachelor of Science in Biology and Geography from University of Alberta
- construction-oriented training in R-2000 energy efficient construction, air quality, P-TRAK ultra-fine particle tracking and woodstove training for installers
- heating systems design course at Heating Refrigeration and Air Conditioning Institute

#### CAREER ADVICE

- There is a continuing need for more knowledge about climate change and adaptations.
- The demand for renewable technologies — greener, cleaner, more efficient and affordable — is increasing.
- Opportunities to sell and install more efficient heating, lighting and cooling systems will grow.
- Volunteer with a conservation society to get exposure to energy and environmental issues.
- Summer work in construction provides an applied technology background. Summer work on scientific research programs will expose you to science and technology issues and experts.
- Some university programs now focus specifically on environmental education.



## CIVIL ENGINEER

### Ron Gee

Senior Engineer Resource,  
Yukon Energy



*"It's satisfying to make the best use of the water behind the dam and make sure it's not wasted. That reduces diesel emissions."*

## CHARTERED ACCOUNTANT

### James Grattan

The Yukon Electrical Company Ltd.



*"Accounting lets you see the whole structure and understand how the parts work together. The north will likely see the next big push for energy resource development."*

## ARCHITECTURAL TECHNOLOGIST

### Kirk Potter

Owner, Energy North Inc.



*"My kind of work can make communities more self-sufficient, and makes some sort of difference in the end."*

#### RON

- reviews hydrology reports to estimate the water available to generate power
- oversees dam safety and seismic instrumentation and upgrading
- conducts assessments of hydro potential
- works on capital planning and environmental issues
- works with operations people, engineering consultants, hydrologists, regulatory agencies and scientists
- works with Yukon Development Corporation on geothermal energy
- likes the broad spectrum of activities, from the hatchery to earthquake safety

#### JAMES

- manages customer services at The Yukon Electrical Company Ltd. and oversees operations, capital planning and development, customer accounting and 40 staff members
- works with The Yukon Electrical Company Ltd. management team, engineers, information technology people and customers
- worked in Hungary and learned about a different culture and way of doing things
- likes working with people (80% of his time) and the variety and challenges of his job

#### KIRK

- owns a construction company that specializes in energy efficient insulating systems, air sealing and retrofits
- worked in the solar industry in Calgary
- distributes Solarwall technology
- works with architects, property managers, municipal and First Nation governments, building research organizations and building owners
- likes energy conservation and its social, environmental and economic dimensions

#### EDUCATION

- Bachelor of Science in Civil Engineering from University of Alberta

#### EDUCATION

- Bachelor of Commerce in Accounting from University of Alberta
- completed three years of articling and exams to qualify as a Chartered Accountant

#### EDUCATION

- diploma in Architectural Technology from Southern Alberta Institute of Technology (SAIT)
- industry-specific courses in thermography and demand-side energy management

#### CAREER ADVICE

- There will be more focus in the future on alternative and renewable energy sources.
- There will be demand for electrical, mechanical, hydrological and civil engineers to work on wind turbines, and solar and ground water energy resources.
- Engineering gives you broad skills. There are lots of civil engineers doing mechanical engineering work and vice versa.
- An aptitude for science and math is important for engineering.
- Try to get real life work experience such as through a co-op engineering program.
- A technical school or a general science program might be a wise thing if you're not yet sure you want to be an engineer.

#### CAREER ADVICE

- If you've grown up in the north, it's important to get outside and see how things are done there. Then you can bring skills back and make the Yukon more productive.
- Accounting gives you credentials and knowledge that can be used in any business.
- Some universities offer co-op accounting programs which allow you to learn on the job while attending university.
- Don't think of bookkeeping as a stepping stone to an accounting career. There is a lot more to accounting than number crunching.

#### CAREER ADVICE

- Get involved with people who are doing interesting energy work in your community.
- Hands-on work with building science basics is important.
- Work with a builder; handle different materials and learn how things fit together.
- Cost is a barrier to energy solutions now, but this will change.
- More energy efficiency jobs will come as governments respond to climate change.
- Engineers will be in demand to develop new energy systems and systems control software.
- Engineering technology programs and industry-specific courses such as demand-side management or thermography are good introductions to energy issues.

## ARCHITECT

### Jack Kobayashi

Partner, Kobayashi and Zedda Design Group



*"Energy and environmental issues run through everything you do as an architect."*

## SYSTEM CONTROL OPERATOR

Lead Hand

### Guy Morgan Yukon Energy



*"You hold a lot of power and responsibility and you're doing something useful for people. You never stop learning here."*

## ENERGY ANALYST

### Cathy Cottrell-Tribes

*"Energy is a small part of a lot of things. There are more areas opening up in the energy field every day."*



#### JACK

- designs institutional, commercial and residential buildings and interiors
- conducts architectural energy audits
- with his partners, designed the Yukon Energy corporate building and the Mayo School, both C-2000 buildings
- works with engineers, builders, governments, businesses and individuals
- likes working with First Nations because they start the design process without pre-conceived architectural notions and are prepared to experiment and be inventive with form

#### GUY

- oversees the generation and transmission of power for Yukon Energy
- uses Systems Control and Data Acquisition (SCADA) software and hardware to operate the Whitehorse Rapids, Mayo and Aishihik dams and the Whitehorse and Faro diesel generators
- directs the isolation of substations or sections of line when repairs are needed
- works with engineers, systems and power plant operators, and line and substation repair people
- likes the responsibility, challenges and pay of the job

#### CATHY

- compiles and analyzes information from wind monitoring stations and develops energy databases
- encourages use of renewable energy sources
- coordinates programs, conducts research and writes and publishes on energy topics
- helped develop the concept of the Energy Solutions Centre
- works with Energy Solutions Centre, Yukon Energy, engineers and businesses
- likes the work because it's making a positive change

#### EDUCATION

- Bachelor of Environmental Studies in Urban and Regional Planning from University of Waterloo
- Masters of Architecture from University of Manitoba

#### EDUCATION

- on-the-job training with the line crew at The Yukon Electrical Company Ltd. after high school
- on-the-job training in the power plant and later on systems with Yukon Energy

#### EDUCATION

- Bachelor of Science in Physical Geography from University of Victoria, in co-op program

#### CAREER ADVICE

- There is a lot of room for energy efficiency in architecture.
- Architects in the Yukon have to remain flexible. Even if you are especially good at energy efficient design, you won't always be working on green buildings.
- Moving from the broad to the specific is a good way to work in architecture.
- A more general degree before specializing in architecture may give you background and a skill set that can enrich your architectural work. A background in planning, history, geography or biology could be helpful.
- The creative side of architecture is most fulfilling. Architecture is making things better for people, and it doesn't have to be big and fancy — it could be as small as a bedroom.

#### CAREER ADVICE

- Work on a line crew and on transmission and distribution lines shows you how the system works.
- Being certified as a linesperson or electrical technologist gives you a good background.
- Systems control people sometimes come from heavy duty mechanic and power plant operations.
- There is a move in the industry to develop certification for system control operators, so getting some formal training is a good idea.
- You need computer-based skills for this kind of work.
- Be prepared for shift work of up to 12 hours per shift.

#### CAREER ADVICE

- The energy field will keep growing as people improve energy use to cut costs and greenhouse gas emissions.
- Wind and solar energy will become more important as fossil fuels become more costly.
- The renewable energy side has the longest future because it is sustainable.
- Geography and other sciences can be a door into the energy sector.
- Co-op programs may give you the option of work across the country. If your marks are good enough to get in, go for it — it's a fast ticket to a career.
- Women, in particular, may want to consider a career as a consultant because of the flexible working hours.

## STEAM ENGINEER

### Bert Albisser

Aquatech Supplies and Services



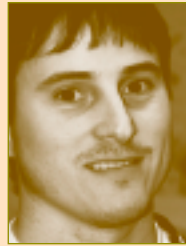
*"As soon as all the solar people realize that the best solar collector we've got is the earth itself, we'll all be better off."*

*(Bert quoting geothermal pioneer Dr. Jim Bose)*

## DISTRIBUTION TECHNICIAN

### Brian Power

Yukon Energy



*"It's never too late to go back to school. If I hadn't done that, I wouldn't be here. A diploma is important, not just for a job, but for your own pride."*

## ALTERNATE ENERGY ADVOCATE

### Josée Bonhomme

Owner, Solar and Wind Logics



*"We shouldn't teach about climate change to panic kids, but to show how they can change behaviour to make things better... live your convictions."*

#### BERT

- installs heat pumps to extract geothermal heat from ground water
- sells and installs water systems of all kinds for residential, commercial and municipal use
- works with engineering firms, builders, house owners, governments and private industry
- likes the idea of using geothermal energy and would like to see heat pump technology applied in a sensible manner

#### BRIAN

- designs electrical hook-ups for commercial and residential customers
- surveys line routing on the work site and schedules work crews
- prepares technical drawings, materials lists and cost estimates
- works with builders, homeowners and line workers
- likes responsibility, making decisions and working in the field

#### JOSÉE

- demonstrates, supplies and sells alternative energy systems
- educates on solar and wind technology
- demonstrates low-impact housing
- establishing a non-profit society to encourage energy awareness among school age children
- works with governments, builders and educators
- likes working with children to make them energy aware

#### EDUCATION

- certified steam engineer
- heat pump technology training at Ohio State
- heat pump training at Oklahoma State
- certified installer through In-Ground Heat Pump Association
- re-certified through the Energy Solutions Centre

#### EDUCATION

- Grade 12 diploma from Quesnel Secondary after a time away from school
- basic surveying and computer drafting on-the-job with The Yukon Electrical Company Ltd.
- survey technician program from Yukon College
- electrical theory course in progress through distance learning from Northern Alberta Institute of Technology (NAIT)

#### EDUCATION

- college-level ski area management from Humber College of Applied Arts and Technology
- geography and land use planning
- self-taught in efficient construction, energy management and alternate energy

#### CAREER ADVICE

- There are good opportunities for geothermal energy in the Whitehorse area.
- High initial installation costs have discouraged local applications in spite of good long-term economics, but there's more receptivity now.
- Good technology that works in colder temperatures is now available.
- You need a grasp of mechanical systems and energy principles to work with heat pumps.
- Steam engineering was a good background.
- A plumbing background would work for heat pump installations.

#### CAREER ADVICE

- Don't neglect your basic education.
- Having no diploma means working at jobs you may not enjoy.
- The more knowledge and skills you absorb, the more career choices you have.
- On-the-job learning is good, but you need the theory and technical skills too.
- College programs give you credentials that let you do more interesting work.
- Choose courses that you can build on.
- It takes time to build respect and earn responsibility.

#### CAREER ADVICE

- Study math and science in high school.
- If you're interested in designing new alternative energy technology or improving existing technology, you'll need a lot of physics, chemistry and math.

## CHEMICAL ENGINEER

### John Maissan

Director of Technical Services  
Yukon Energy



*"Never say it can't be done. Start looking at how it can be done and take things one step at a time."*

## CONSULTANT

Energy Efficiency and Awareness



### Janne Hicklin

*"I believe the world is finite. So waste has always really bothered me, whether it's material or energy."*

## CARPENTER

### Kim Beggs

*"I like working with my hands, using my brain, figuring things out and being creative. You see results on a daily basis."*



#### JOHN

- manages technical services and capital projects
- oversees research and development
- oversees the upgrading and extension of generating and transmission facilities
- led the addition of wind turbine generation to the Yukon power system
- works with his staff, governments, technical people, the public, ratepayers, environmentalists and First Nations
- likes developing new technology, such as the wind turbines on Haeckel Hill, and having a physical, concrete result to show for his work

#### JANNE

- designs energy efficiency, waste reduction and public awareness programs
- managed the Yukon Power Smart Idea Shop
- helped develop the concept of the Energy Solutions Centre
- works with governments, Yukon Development Corporation, Raven Recycling, the Energy Solutions Centre and Yukon Conservation Society
- likes being involved in projects that conserve resources

#### KIM

- installs energy efficient technology, such as appropriate insulation levels and sealed vapour barriers, when building and renovating
- works on everything from houses to renovations to furniture
- works with other carpenters, builders and sub-trades workers
- likes to build places that are energy efficient and well laid-out with good air quality — places where people are going to be happy

#### EDUCATION

- Bachelor of Science in Chemical Engineering from University of Waterloo, in co-op program

#### EDUCATION

- land classification at Olds Agricultural College
- one-year chemical technology studies, Southern Alberta Institute of Technology (SAIT)
- on-the-job technical learning on commercial and residential solar energy and efficiency research at the Kananaskis Centre, University of Calgary

#### EDUCATION

- 10-month carpentry pre-employment from Yukon College
- carpentry apprenticeship

#### CAREER ADVICE

- If you're interested in working in the energy field, it would be wise to focus on engineering.
- Civil, mechanical or electrical engineering will each give you a good background for energy work.
- To learn more about energy possibilities, search the web or volunteer with a conservation group to get exposure to different perspectives.
- Get hands-on experience with any technology, whether it's working on a car or fixing machinery. Learn to be practical.

#### CAREER ADVICE

- Energy efficiency, especially as it relates to climate change, will become an increasingly important field.
- University engineering and environment programs, college technology training and work in the building sub-trades all allow opportunities to specialize in energy efficiency.
- Seek out a mentor — someone who's doing leading work — and volunteer to work with them on projects that interest you.
- Technical and communications skills go hand-in-hand; you need both.
- Try organizing a conservation project yourself.

#### CAREER ADVICE

- A trade pre-employment course gives you a good grounding in the trade.
- If you start your apprenticeship on the job, people may expect you to know things you haven't yet learned.
- Choosing a trade is not a reason to slack off in school.
- Keep up your math. The better you understand it, the more you can do and the more creative you can be in your work. You'll end up using it all.
- Working with different carpenters on different jobs during your apprenticeship exposes you to a range of approaches and skills.

## ENERGY'S FUTURE

Over the last several years, attitudes towards energy have shifted. The public is now more aware of global warming, greenhouse gases and the environmental effects of climate change. Industry is increasingly concerned about energy availability and costs.

This has spurred an interest in renewable energies such as wind, solar, geothermal and biomass sources – commonly referred to as “green” energy. At the same time, more and more consumers are cutting their need for energy by using it more efficiently.

GLOBALLY, COUNTRIES like Denmark, Germany and the United States, encourage alternative energy use through tax incentives, awareness programs and a range of state and federal measures.

Specific green energy sources like wind are receiving a lot of attention. Over the past two years, worldwide wind-generated electrical capacity has doubled to 19,000 megawatts.

The Australian Cooperative Research Centre for Renewable Energy says the sustainable energy industry is growing faster world-wide than the information technology, tourism, manufacturing and coal mining industries. Some predict there will be more than three million jobs in the renewable energy and energy efficiency industries over the next 20 years.

These include jobs with power utilities, renewable energy manufacturers and installers, energy and environmental consultancies, and international aid organizations, not to mention university and private industry research.

Major oil companies are investing big money in renewables. Shell estimates that renewable energy will



be 50% of its business by 2050. It is spending \$500 million over five years in green energy alternatives. BP Solarex had sales of \$179 million in 1999 and expects its photovoltaic (solar) products to generate \$1 billion in revenues by 2007.

In North America, the renewable energy market quadrupled in value between 1998 and 1999, from \$204 million to \$843.4 million.

LAST YEAR, THE Globe and Mail reported a surge of Canadian interest in renewable alternatives. It noted that industrial energy users from greenhouses to pulp mills were looking for ways to use plant or wood waste to generate electricity. Utility company Trans Alta Corporation invested \$5 million in Vision Quest Windelectric Inc., a wind

farm operator. Television ads by large oil companies play up their role in renewable energy research and sustainable development.

IN THE YUKON, the government's energy policy has encouraged the development of energy alternatives through the \$3 million Green Power Initiative managed by Yukon Development Corporation. There are now programs, demonstration projects and initiatives, including the Energy Efficiency Initiative and the Wind Research and Development Initiative.

The wind turbines on Haeckel Hill, near Whitehorse, are visible evidence of local efforts to develop green power sources. In fact, Yukon Development Corporation recently received a national leadership award for small- and medium-sized enterprises for its efforts to reduce greenhouse gas emissions.

The Yukon also leads on other energy fronts. The Yukon Energy corporate building and the new Mayo

school are two of seven C-2000 energy efficient buildings in Canada

And, the Energy Solutions Centre has been promoting a series of small-scale programs to alert businesses and individuals to the potential for cost savings if energy is used more efficiently.

IT IS CLEAR that there is increased global potential for energy careers and you can be part of this growth and excitement. If you are doing career planning and want to live and work in the Yukon, chose your energy career carefully. Remember, our home market is small, we are a long way from world markets, and research and development opportunities are limited because we lack a critical mass of research scientists and engineers.

Apart from the utilities and electrical contractors, only a few Yukon companies have a 100% energy focus. As architect Jack Kobayashi pointed out, energy efficiency is important – it's something to keep in mind on every project. However, companies like his could not survive with an exclusive energy focus.

Similarly, the geothermal heat pumps Bert Albisser sells and installs are a tiny fraction of his business. But it is important for him to keep working to make energy use more sustainable.

Still, Yukoners have been involved in energy-related work for years (it's cold up here!), and as the profiles show, many feel there will be much more work in the future. We've pioneered wind turbine adaptations to our climate. J.P. Pinard, who is modelling wind generation models for mountainous terrain, is actively sought after on an international level.

As awareness of the cost saving potential of green technology and energy efficiency grows, there will be increased consumer demand. With that will come more employment and business opportunities.

## FINANCING YOUR STUDIES

There are many sources of money to tap into for support while studying, including the Yukon grant and Canada student loans. Here are a few other ideas.

**Yukon scholarships** Over the years, various organizations, individuals and professional groups have established scholarships. This web site provides an overview, but by no means a complete listing, of scholarships available in the Yukon. <http://www.gov.yk.ca/depts/education/advanceded/sfascholarships.html>

**Canada-wide scholarships** This is a free scholarship search service devoted to helping high school seniors, and university and college students find information on scholarships, bursaries, grants and other forms of financial assistance. <http://www.studentawards.com/>

**Yukon First Nations** For post-secondary university funding assistance, call 667-3328. For general help and information, call your First Nation office.

**Yukon Foundation scholarships** The Yukon Foundation offers scholarships or money to assist with Yukon projects. For information, call 393-2454 or write to Box 32096, Whitehorse Y1A 5P9.

**Yukon energy scholarship** Yukon Energy and Yukon Development Corporation offer two, two-year scholarships to Yukon students, worth \$4,000 each. You must be accepted at an accredited post-secondary institution in Canada or Alaska in full-time studies in the sciences, engineering, technologies, business administration, commerce or economics, or related areas. For more information, phone 393-7069.

**Co-op programs** These programs mix terms of academic work with periods of paid, on-the-job experience in businesses related to the course of study. Either four or eight months a year are spent working. It takes longer to get a degree, but it can give you an inside track to good jobs. Plus, you will be making money to offset the cost of your education and reduce your debt upon graduation.

### Fast Track

### ENERGY CAREERS

Energy is high profile these days. Alternate energy sources that used to be considered fringe ideas are now mainstream business. With these changes, employers are demanding higher levels of training and certification from their workers. According to the U.S.-based Energy Foundation, "the best pathway to a career in energy is provided by a solid undergraduate education in a traditional discipline, followed by graduate study and research in an area that emphasizes interdisciplinary connections among relevant disciplines."

The FAST TRACK boxes on the next page look at several occupations that are active in the energy field, summarize the advice we received from the pros, and suggest steps you can take. A good first step is to consider career counselling and aptitude testing.

**NO HIGH SCHOOL DIPLOMA?  
GET BACK ON TRACK.**

- A high school diploma and good math, science and communications skills are prerequisites to just about any career in energy. It's never too late get them.
- Yukon College offers upgrading courses to help you develop your basic skills. Then, you can qualify for the General Equivalency Diploma (GED).
- Other courses at the college will help you develop study skills, fill in knowledge gaps or up your average before you make that big investment in college or university.

**FAST TRACK**

**ADMINISTRATION**

- University business programs offer a rounded background that may let you work in the energy sector.
- Take a co-op business or accounting program that offers work experience and income while studying.
- College-level business or bookkeeping programs are more limiting than university business or accounting programs.
- Employment with a mid-size company exposes you to more aspects of the business than working in a large company.
- Accounting is a widely recognized profession which provides you with marketable, portable skills.

**FAST TRACK**

**TRADES**

- Employers prefer a high school graduation diploma, although you may get into some trades without one. You will need math skills.
- Consider pre-apprenticeship courses to pick up practical and theoretical skills.
- Approach employers about apprenticeship opportunities. Get work as a labourer first to demonstrate your commitment.
- Apprenticing with an individual journeyman is an option. Apprenticeships are transferable. Working with a number of different employers will likely increase the scope of your skills.
- Consider joining a union for your apprenticeship as this may give you a broader scope for work and training.
- Larger employers have more room for apprentices and often offer more learning opportunities.
- Training in specific technologies, in addition to trade certification, makes you more employable.
- Electrical and mechanical systems tradespeople are more employable in energy businesses than carpenters.
- Work in the construction trades often means seasonal work and being away from home.

**FAST TRACK**

**TECHNOLOGY**

- You need a high school diploma and math and sciences to get into technical school.
- Two- or three-year diploma courses from technical colleges equip you with recognized, highly marketable skills.
- Combining a technology diploma with trades skills increases your versatility and popularity with employers.
- Electronic controls and instrumentation technologists are in high demand.
- Some technology diplomas, such as technical drafting, are becoming irrelevant because computer software now allows technologists and engineers to do their own drafting.
- Don't mistake a technology diploma for an engineering degree.

**FAST TRACK**

**ENGINEERING**

- You need a high school diploma and good math and science marks.
- Pick a university that is known for the strength of its engineering program.
- When you graduate from a four-year engineering program, you have a marketable degree.
- A co-op degree, which takes longer to complete, puts you in the marketplace with credentials, hands-on experience, contacts and less educational debt.
- Having hands-on practical skills building or fixing things helps when you enter engineering school.
- Don't neglect your written and oral communications skills. You have to be able to write clear, understandable reports.

**FAST TRACK**

**SCIENCES**

- You need a high school diploma or GED and good math and science skills to get into science programs.
- A Bachelor of Science degree should be considered a starting point for more specialized training.
- A Masters degree is expected for entry-level positions in scientific pursuits.
- Scientific understanding is necessary for analysis, policy and environmentally focused energy work.
- Co-op programs in the sciences offer applied knowledge and experience at the undergraduate level and make you more employable.
- Colleges and universities now offer specialized environmental studies programs. Take these rather than a generic biology or chemistry degree.
- If you want to work as a consultant, you'll need to develop good written and oral communication- skills.

**STARTING POINTS** Internet web sites offer a wealth of information on energy issues and energy careers. Below are some sites that provide a place to start in your search for job- and career-related information in the energy field. Check out the links to other sites. Or, go to Google ([www.google.com](http://www.google.com)), type in “energy careers Canada” and see what you find. Double check what you find so you know you are relying on correct, current information. Remember, for help at any time, visit the guidance councillor at your school.

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## Post-secondary education

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<http://www.gov.yk.ca/trades>

This Yukon Department of Education site lists information on trades, apprenticeship and certification in the Yukon, with links to trades information across Canada.

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<http://yukoncollege.yk.ca>

This site offers information on Yukon College programs, with links to the Northern Research Institute and the Technology Innovation Centre.

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<http://www.uwaterloo.ca/canu/>

Use this web site to find easy links to dozens of Canadian universities, and some international schools as well.

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<http://www.lakeheadu.ca/~napewww/introduction.html>

The Native Access Program for Engineering (NAPE) is a unique program offered at Lakehead University in Thunder Bay, Ontario. Its goal is to increase the number of First Nation people who receive an engineering education. Students receive specialized training designed to prepare them for the university’s engineering diploma and degree programs.

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<http://www.cietcanada.com/start.htm>

A good grounding in energy is found at the TEMOL (Training in Energy Management Through Open Learning Program) link on the Canadian Institute for Energy Training (CIET) web site. (CIET is registered as an educational institution by Human Resources Development Canada.) TEMOL is 360 hours of study, consisting of 260 hours of activity in the modules and a 100-hour practical project addressing a related issue in the participant’s workplace. It is designed as an individual-study, self-paced, flexible program.

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<http://www.tufts.edu/tepc/energy/>

This Tufts University site states that as a profession, “energy” is not a single field, but a critical intersection of many pursuits involving energy, resources, environment, and development. It features an Energy Foundation essay on energy careers and lists U.S. college and university energy programs.

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<http://acre.murdoch.edu.au/education/>

The Australian Cooperative Research Centre for Renewable Energy Limited’s education and training program addresses the need for renewable energy and energy efficiency education at all levels of education. Many of the programs and courses are available online.

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## Energy jobs

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<http://www.yuwin.ca/english/index.cfm>

The Yukon Work Information Network (YUWIN) is part of a Canada-wide employment and training information site. Yukon information and links to other sites across the country are included.

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<http://www.ccpe.ca/>

The main web site of the Canadian Council of Professional Engineers (CCPE) offers detailed information on the programs, services and initiatives of CCPE. It is an extensive source for information about engineering.

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<http://www.new-sng.com/maintemplate.cfm>

This National Engineering Week web site (a great site for young people who want to know more about being an engineer) is maintained by the Canadian Council of Professional Engineers.

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<http://www.eren.doe.gov/erec/factsheets/careers.html>

The fact sheets on this site provide information on major renewable energy technologies, jobs you might find in each technology, and resources to help continue your research.

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[www.opg.com/about/careers.asp](http://www.opg.com/about/careers.asp)

Maintained by Ontario Power Generation, this site is loaded with information about opportunities for new graduates, student and co-operative employment opportunities as well as trainee and apprenticeship positions. It offers insights into the kind of skills employers are seeking.

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## General sites

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[www.ceri.ca/main.htm](http://www.ceri.ca/main.htm)

The Canadian Energy Research Institute site examines energy economics and related environmental policy issues in energy production, transportation and consumption. If you want to do energy policy work, this will show you what you’re getting into.

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[www.worldenergy.org](http://www.worldenergy.org)

The World Energy Council offers big picture information about energy.

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[www.pembina.org](http://www.pembina.org)

The Pembina Institute for Appropriate Technology is an important player on the Canadian alternatives scene. It has information on climate change and eco-efficient technology and communities.

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<http://www.nrcan.gc.ca/careers/en-e.htm>

NRCan – Natural Resources Canada – is the federal department responsible for supporting energy efficiency and alternate energy research and development.

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[www.canadiancareers.com/smallbusiness.html](http://www.canadiancareers.com/smallbusiness.html)

Given the strong possibility that you may want to be self-employed some day, a look at some of the links on this site will be useful.