Careers in Energy

Current Job Trends & Future Growth

Environmental Sub-Sector Profiling Series



About the Environmental Sub-Sector Profiling Series

ECO Canada's new research series explores the top job opportunities in different environmental sub-sectors

In each study, researchers analyze environmental job ads in a growing online database, including 400,000+ general job listings (as of June 2013)

Discover the <u>full series</u> in our free library of labour market reports

About the Study

From March - December 2012, ECO Canada's research team:

- Analyzed 974 online job ads related to energy management, energy efficiency, energy conservation or renewable energy
- Surveyed 490 energy employers and experts
- Interviewed 9 leading energy executives and industry associations

Overview

This research examined the top opportunities and characteristics of environmental jobs in Canada's energy sector, including:



Where the jobs are – key sectors that employ Energy Professionals

What it takes to get hired – required skills, education and experience

Corporate Energy Professionals >>

Design Professionals >>

Building Operators and Managers >>

Energy Managers and Specialists >>

Renewable Energy Professionals>>

Canada's Energy Workforce

Over 148,000 Canadian Energy Professionals perform work activities related to:



Energy Management

Conserving resources, protecting the climate, reducing costs and ensuring access to adequate energy supplies



Energy Conservation

Adapting business practices to reduce energy demand and use less of energy-consuming services



Energy Efficiency

Developing new processes, technologies and other innovations that reduce energy usage for a constant service



Renewable Energy

Producing heat,
electricity and fuel
through renewable
energy sources (biomass,
hydroelectricity, wind,
solar, geothermal, or
biofuels)

Defining the Energy Sector

This study explores careers in the 5 economic sectors

responsible for **95%** of Canada's energy consumption

Manufacturing

All manufacturing activities for machinery, electrical equipment, petroleum products, chemicals, pulp and paper, and other energy-intensive products.

Building Design, Engineering, Construction & Retrofitting

Architectural and engineering services, industrial and interior design, building assessment and construction, heavy and civil engineering construction, and building equipment design.

Building Maintenance & Operation

Facility management for educational institutions, hospitals, government and public administration buildings, airports, and both residential and commercial establishments.

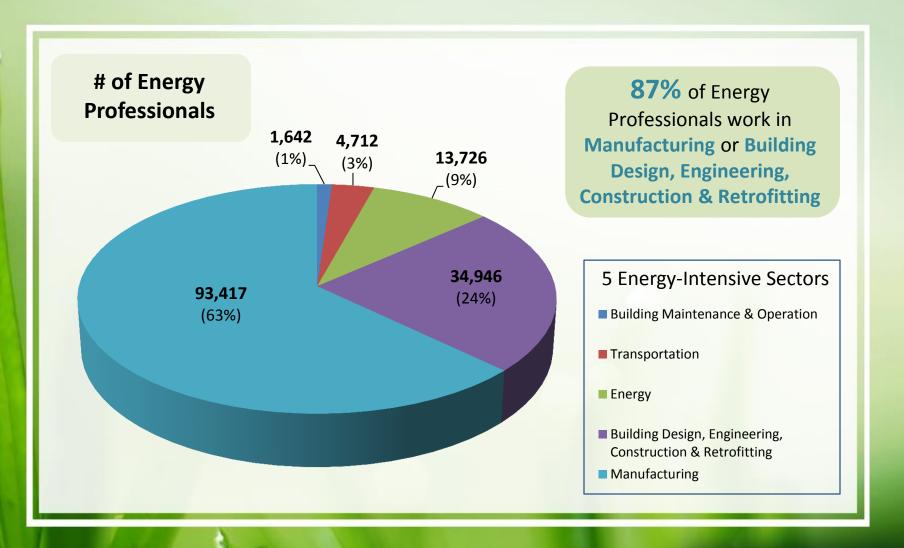
Transportation

Air, rail, road, and water transportation, and public transportation systems.

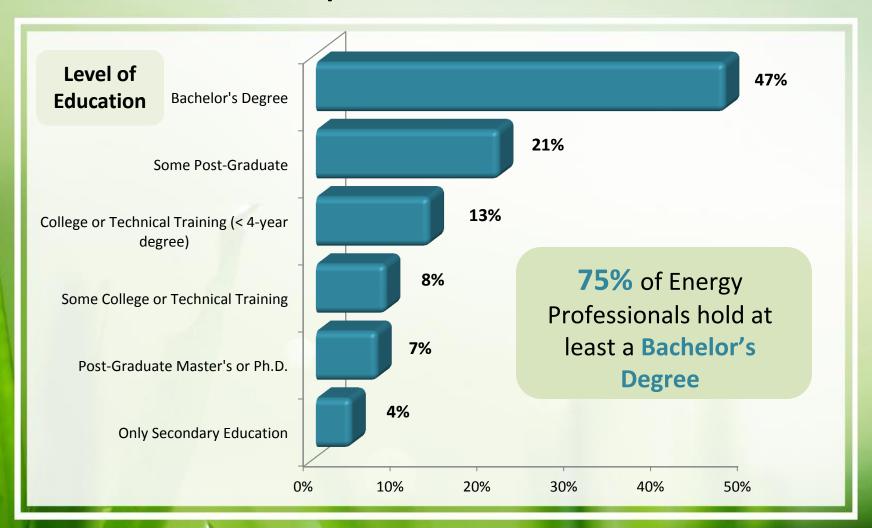
Energy

Electric power generation, transmission and distribution, pipeline transportation, utility system construction, oil and gas extraction, and oil-field services.

Where Is the Work?



Educational Requirements



Top Environmental Skills

According to energy employers, these are the top environment-related skills that Energy Professionals need:

Environmental Skill	% of Energy Professionals Who Use this Skill*	% of Energy Professionals Who Need Additional Training for this Skill*	
Developing sustainable development indicators, plans or strategies	80%	77%	
Liaising and partnering with stakeholders	44%	71%	
Implementing or monitoring sustainable development strategies and programs	43%	76%	
Developing, coordinating and implementing energy efficiency programs	39%	76%	
Conducting environmental assessments	39%	39%	

^{*} Totals do not add up to 100%, since employers could mention more than one skil

Key Essential Skills

In addition to environmental skills, energy employers are also looking for staff who can:

Communicate effectively, especially in writing



Manage a financial budget or capital

Conduct research and produce innovative ideas



Demonstrate technical aptitude

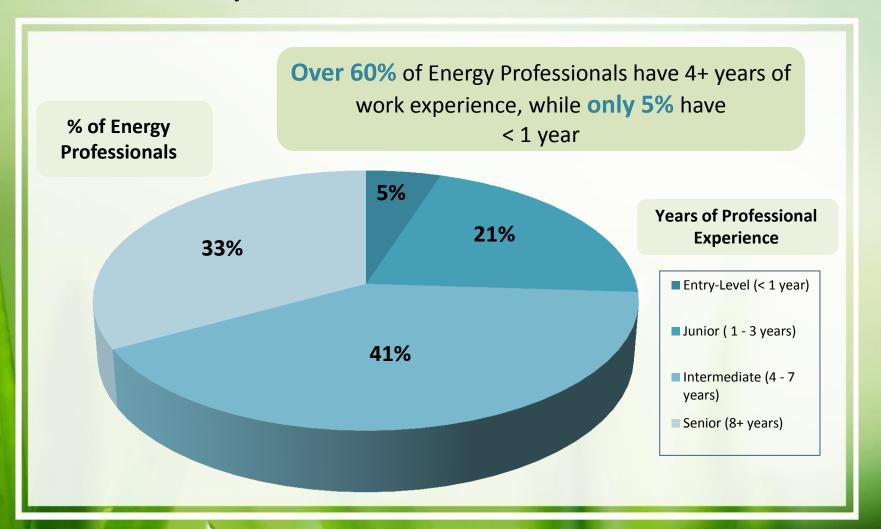
Stay abreast of technological and regulatory developments



Lead others

Build a business case for implementing new technologies

Years of Experience



Opportunities for New Professionals

Energy Professionals with < 1 year of experience will find more work opportunities as:



- Renewable Energy Professionals
- Green Building Designers
- Green Building Project Managers
- Green Building Operations Managers



- Building Science Engineers
- Building Science Technologists
- Energy Managers
- Energy Efficiency Program Managers



- Energy Management Control Systems Engineers
- Energy Management Control Systems Technicians and Technologists
- Energy Specialists

What Are the Jobs?



Corporate Energy Professionals Career Insights

Top Careers

Corporate Energy Professionals work at all levels of an organization to manage energy usage, maintain positive stakeholder relationships, and improve energy performance

120 Corporate Energy Professionals work in diverse careers outside of the three main categories below

Senior Managers, Production Managers and Supervisors

94,987 workers

Identify opportunities for energy savings and implement changes to equipment, operations or systems to optimize performance

Energy Policy Analysts and Attorneys

106 workers

Evaluate projects and policies to ensure that they meet energy efficiency goals and provide recommendations to comply with regulations

Business Development and Marketing Managers

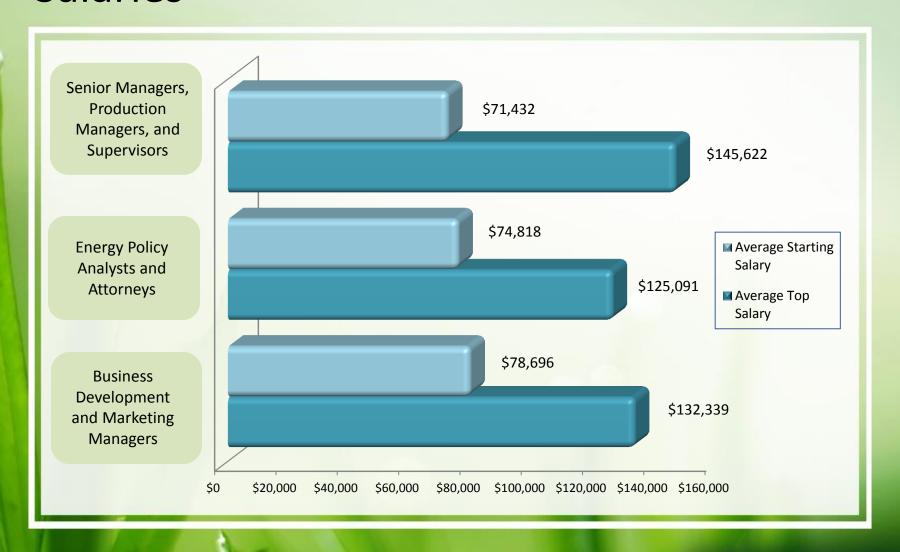
328 workers

Maintain a strong awareness of energy efficient systems and performance to direct relevant sales and marketing activities in energy services

Demand by Energy Sectors

Careers	Energy	Building Design, Engineering, Construction & Retrofitting	Building Maintenance & Operation	Manufacturing	Transportation
VP of Energy	✓	✓	✓	✓	✓
Production Manager or Supervisor	✓	✓		✓	✓
Superintendent			✓		
Supply Chain and Distribution Manager				✓	✓
Energy Policy Manager – Environmental Sustainability	✓	✓	✓	✓	✓
Energy Policy Analyst or Attorney	✓		✓	✓	✓
Business Development Manager – Energy Services	✓	✓	✓	✓	✓
Community Relations Coordinator or Liaison	✓		✓		✓
Environmental Coordinator	✓	✓	✓	✓	✓

Salaries



Hiring Forecast

In the past 2 years:

59% of employers had vacancies for Energy Policy Analysts and Attorneys

53% were also looking for Business Development and Marketing Managers



In the **near future**:

63% of employers expect to increase their staff of Energy Policy Analysts and Attorneys

60% also plan to hire more Business Development and Marketing Managers

Top Hiring Challenges:

Replacing experienced senior managers when they retire

Finding qualified external candidates

Recruiting staff to work in **remote locations**

Design Professionals and Implementers Career Insights

Top Careers

Design Professionals and Implementers research, create and install energy efficient buildings, materials, equipment and systems

Electrical and Construction Tradespeople

25,689 workers

Install energy efficient building materials and equipment, or support energy efficient production in manufacturing facilities

Building Science Engineers

1,019 workers

Research and develop technological advancements to create energy efficient buildings, machinery, systems and equipment **8,309** Design Professionals work in different careers outside of the 5 categories listed here

Green Building Project Managers

830 workers

Oversee projects to develop and install energy efficient facilities, building materials and equipment

Green Building Designers

2,088 workers

Develop LEED or energy efficient commercial and residential buildings, as well as manufacturing facilities

Building Science Technologists

517 workers

Support the data collection, analysis and planning required for green building design and systems

Demand by Energy Sectors

Careers	Energy	Building Design, Engineering, Construction & Retrofitting	Building Maintenance & Operation	Manufacturing	Transportation
Engineer Manager, Supervisor or Project Manager	✓	✓	✓	✓	
Quality Control Manager		✓		✓	
Project Engineer	✓	✓	✓	✓	✓
Electrical Engineer	✓	✓		✓	
Green Building Designer	✓	✓		✓	
Green Building Project Manager		✓		✓	
Building Science, Mechanical Engineering or Electrical Technologist		✓		✓	
Architectural Technologists		✓			
Electrical or Industrial Mechanic	✓	✓		✓	
Environmental Project Manager	✓	✓	✓		

Salaries



Hiring Forecast



In the past 2 years:

45% of employers had vacancies for Building Science Engineers, Technologists, and Green Building Designers

25% of employers had vacancies for Design Professionals and Implementers at the time of the survey

In the **near future**:

83% of employers plan to hire Architectural Technologists and other related occupations

Building Operators and Managers Career Insights

Top Careers

Building Operators and Managers coordinate property management, develop building operating procedures, and improve building systems to save energy and costs

Most Building and Equipment Operators (6,291) work in a wide range of highly varied occupations

Energy Management Control Systems Engineers

634 workers

Research and develop energy efficient improvements to building structures, equipment, operations or systems

Energy Management Control Systems Technicians or Technologists

378 workers

Implement and monitor energy efficient improvements to building structures, equipment, operations or systems

Energy Efficiency Program Managers and Project Managers

151 workers

Develop and assess building operation strategies and policies to reduce energy use and save costs

Green Building Facility and Operations Managers

134 workers

Oversee building systems, structures, and renovations, and respond to tenant requests to ensure energy efficient and cost-effective operations

Demand by Energy Sectors

Careers	Energy	Building Design, Engineering, Construction & Retrofitting	Building Maintenance & Operation	Manufacturing	Transportation
Supervisor of Planning & Building Services	✓	✓	✓		
Green Building Operations Manager		✓	✓	✓	✓
Energy Efficiency Program or Project Manager		✓	✓	✓	
Instrumentation/Controls Project Manager	✓		✓	✓	
Energy Management Control Systems Engineer	✓	✓	✓	✓	✓
Energy Management Control Systems Technician or Technologist	✓	✓	✓	✓	
Power Engineer	✓		✓		
Electrician or Electrical Mechanic	✓	✓	✓	✓	
Heating, Ventilation and Air Conditioning (HVAC) Mechanic	✓		✓	✓	

Salaries



Hiring Forecast

In the past 2 years:

45% of employers had vacancies for Green Building Project Managers ...and in the **future**:

62% of employers expect to hire more staff for this specific role

Overall Forecast:

Most Building Operator and Manager careers will experience only moderate growth, since **51%** of employers expect their future staffing levels to remain about the same

Key Hiring Challenge:

Finding qualified external candidates

Energy Managers and Specialists Career Insights

Top Careers

Energy Managers and Specialists monitor their employers' energy consumption, then develop strategies for cost-effective and energy-efficient improvements to company operations

Energy Managers, Assessors, Auditors and Planning Professionals

3,095 workers

Perform operational energy assessment and make recommendations to management on new systems, equipment, or work processes that will reduce energy consumption

Energy Engineers

1,313 workers

Apply energy-efficiency principles to develop renewable energy projects or design products that reduce energy consumption

Automation Technicians

1,267 workers

Design, deliver and commission control systems that increase efficiency for industrial processes, the electrical grid, and related industries

Energy Simulation Specialists

51 workers

Rely on modeling software and tools to perform energy savings calculations for organizations

Demand by Energy Sectors

Careers	Energy	Building Design, Engineering, Construction & Retrofitting	Building Maintenance & Operation	Manufacturing	Transportation
Energy Advisor (Auditor)		✓	✓		
Energy Efficiency Assessment & Planning Specialist	✓	✓	✓	✓	✓
Energy Efficiency Program or Project Manager		✓	✓	✓	
Energy Engineer	✓	✓	✓	✓	
Process Engineer	✓			✓	
Power Engineer	✓		✓		
Energy Simulation Specialist	✓	✓			
Manager of Project Control & Distributed Generation	✓		✓	✓	
Environmental Manager	✓		✓		
Environmental Consulting Manager	✓	✓	✓	✓	✓

Salaries



Hiring Forecast

In the past 2 years:

69% of employers were looking for Energy Simulation Specialists

46% also had vacancies for Energy Engineers

In the **near future**:

Over 1/2 of employers plan to hire for these same two positions

At the time of the survey:

1 out of every 5 firms is looking for Automation Technicians and Energy Simulation Specialists

Renewable Energy Professionals Career Insights

Top Careers

Renewable Energy Professionals support the development and implementation of renewable energy facilities, systems and equipment

410 Renewable Energy
Professionals work in
other occupations that do
not fall into any one major
category

Renewable Power Project Managers

634 workers

Oversee the construction, configuration, testing and deployment of new renewable energy systems (e.g. wind, solar, bioenergy, etc.)



Renewable Energy Technicians

93 workers

Provide installation, configuration and maintenance services for renewable energy facilities and equipment

Demand by Energy Sectors

Careers	Energy	Building Design, Engineering, Construction & Retrofitting	Building Maintenance & Operation	Manufacturing	Transportation
Renewable Energy Developer	✓	✓	✓		
Engineer Manager, Supervisor or Project Manager	✓	✓		✓	
Fleet and Fuel Manager					✓
Electrical or Mechanical Engineer	✓			✓	
Hydro-electrical Engineer	✓	✓			
Clean Energy Researcher	✓	✓		✓	✓
Renewable Energy Maintenance & Service Technician	✓	✓	✓	✓	
Industrial Mechanic	✓		✓	✓	
Power Systems Electricians	✓	✓	✓	✓	✓
Power Systems Operators	✓	✓	✓	✓	

Salaries

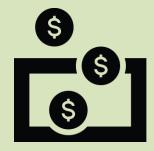
Renewable Power Project Managers



Average starting salary:

\$70,667/yr

Renewable Power Project Managers



Average top salary:

\$101,467/yr

Hiring Forecast

In the past 2 years:

75% of employers had vacancies for Renewable Energy Technicians

65% were looking for Renewable Power Project Managers

In the **future**:

55% of employers plan to hire more Renewable Power Project Managers

Recent demand
has been strongest
for Renewable
Energy
Technicians
25% of employers
had vacancies for
this role

Key Take-Away Points

- ➤ The overall demand for Energy Professionals is strong:
 54% of energy employers had vacancies in the past 2 years and 48% plan to hire additional staff.
- > Starting salaries are significant, ranging from \$50,000 to \$80,000+/yr.
- ➤ Manufacturing and Green Building Design,
 Construction, Engineering & Retrofitting are top
 employment areas, representing 86% of the Energy
 workforce.

Launch Your Energy Career

Get started

- Review the typical salaries, work activities, and fields of study for over 120 environmental careers.
- See our career profiles at: www.eco.ca/training/career-profiles

Build the right skills

- Develop vital business skills with the ECO Academy, a new suite of online courses based on 20+ years of environmental labour market research.
- Learn more at: www.eco.ca/training

Get recognized

- Once you've got the skills prove it. The Environmental Professional (EP)
 designation helps you market your expertise to environmental employers.
- Discover the benefits at: www.eco.ca/certification

A special thanks to RDA Global Inc. for conducting this study. We also thank the numerous interviewees who graciously provided their time and insights.

Learn more about ECO Canada's ongoing labour market research at:

www.eco.ca/research







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