ECO Canada

Request for Proposal

Environmental Employment Supply-Demand Model and Outputs
January 22, 2019, Amended February 7, 2019

eco canada

Submission Deadline: 4pm (MST) February 15, 2019

CONTACTS

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1.0 ECO CANADA BACKGROUND

Environmental Careers Organization (ECO Canada) is a not-for-profit corporation established in 1992 as part of Canada's Sector Council Initiative. ECO Canada is focused on identifying, communicating and meeting the needs of environmental practitioners, employers, educators and students to build the world's leading environmental workforce.

ECO Canada has supported Canada's environmental workforce sector by establishing professional development resources, training programs and educational partnerships, conducting in-depth labour market research and providing the largest industry-specific job board.

Our programs and services are developed through national partnerships, consultative strategic planning and ongoing labour market research. Our labour market research provides valuable insights into environmental career trends, which can be used by governments, educators, youth and industry planners to make decisions and develop strategies.

In recent years, ECO Canada has moved away from large surveys as its primary source of labour market information and has undertaken preliminary research with the intention of creating a labour supply-demand model for environmental employment based on secondary source data. In September 2017, ECO Canada published four reports introducing the preliminary results of our labour supply-demand model research program:[1]

- *Canadian Environmental Employment: Summary Analysis*
- *Canadian Environmental Employment: Job Posting Trends*
- *Canadian Environmental Employment: Supply and Demand*
- *Canadian Environmental Employment: Environmental Goods and Services*

2.0 PROJECT OVERVIEW

ECO Canada is in the process of reviewing the preliminary labour supply-demand model developed over the past few years (described in APPENDIX B), and now seeks to conduct additional research to produce more refined estimates and forecasts of environmental employment (defined in APPENDIX A).

To assist in this process, ECO Canada seeks qualified and experienced proponents to:
A. Improve and refine ECO Canada's current labour supply-demand model's estimation and forecasting methodology
    – *or –*
B. Develop a new methodology for estimating and forecasting environmental employment demand and supply which produces more refined estimates and forecasts than ECO Canada's current model

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[1] All of these reports can be accessed at ECO Canada's website (https://www.eco.ca/research/labour-market-information/).

In addition to completing either A or B above, ECO Canada requests that proponents:

1. Produce estimates for environmental employment for 2018, by ECO Canada's environmental subsectors (see APPENDIX A), National Occupational Classification (NOC), North American Industry Classification System (NAICS), and Canada's provinces, territories and census metropolitan areas
2. Forecast environmental employment for a 7 to 10 year period, by ECO Canada's environmental subsectors (see APPENDIX A), National Occupational Classification (NOC), North American Industry Classification System (NAICS), and Canada's provinces, territories and census metropolitan areas
3. Provide ECO Canada with all data used to estimate/forecast environmental employment
4. Provide ECO Canada with a full and detailed description of the model's methodology as it was used to estimate/forecast environmental employment, including all regression, simulation and computational equations included in the model
5. Provide ECO Canada with all tools (e.g., spreadsheets, programs and access to any proprietary software) used to produce the estimates and forecasts of environmental employment in a form that will allow ECO Canada's research team to run the model in-house with different parameters and assumptions

Lastly, ECO Canada seeks to produce a written report summarizing the model's methodology, estimates and forecasts and providing analysis of the statistical results. This report will ultimately be made available for download on ECO Canada's labour market information webpage. Proponents may (but are not required to) bid to complete the written content of this report.[2]

The selected consultant will carry out the work each year for two consecutive years. The maximum value of work is $100,000 plus GST. A higher budget is allotted for Year 1.

2.1 CONSULTANT ACTIVITIES

In collaboration with ECO Canada's research team, the successful proponent will develop a work plan and schedule to ensure timely delivery of outputs and achievement of research objectives. Activities can include, but are not limited to:

- Participating in regular status meetings with and submitting progress reports to ECO Canada
- Presenting research findings and progress reports in-person or virtually to a specific audience, such as ECO Canada's Labour Market Information (LMI) National Steering Committee
- Developing PowerPoint slides and other materials for delivering presentations and/or facilitating discussions of key research findings and proposed messages
- Conducting meetings for consultation purposes, analysing or validating data and findings.

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[2] Graphic content and formatting for this report will be provided by ECO Canada and/or other contractors.

- Maintaining detailed records of all stakeholder participation during the project and providing them to ECO Canada's Research team
- Participating in project reviews to evaluate successes and areas for improvement

In collaboration with ECO Canada's research team, the successful proponent will produce and submit the required deliverables[3] as outlined in Section 2.0. Activities can include, but are not limited to:

- Reviewing and analysing secondary research
- Preparing and providing draft and final copies of materials for delivering presentations and/or facilitating discussions of key research findings and proposed messages
- Preparing and providing draft and final copies of the detailed labour supply-demand model methodology documentation
- Preparing and providing all tools (e.g., spreadsheets, programs and access to any proprietary software) used to produce the estimates and forecasts of environmental employment in a format that will allow ECO Canada's research team to run the model in-house with different parameters and assumptions
- Preparing and providing all data used in the estimation/forecasting process in a format which, in conjunction with the provided tools, will allow the ECO Canada Research team to replicate the consultant's estimates/forecasts
- Developing key messages for a written report summarizing the model's methodology, estimates and forecasts and providing analysis of the statistical results
- Composing and providing draft and final copies of a written report summarizing the model's methodology, estimates and forecasts and providing analysis of the statistical results

A proponent who elects to bid to complete the written content of the report summarizing the model's methodology, estimates and forecasts and providing analysis of the statistical results will also be expected to produce such a report in draft and final versions.

The successful proponent will work with the ECO Canada team to establish an agreeable timeline for the completion of these activities and delivery of these materials.

3.0 PROPOSAL SUBMISSION REQUIREMENTS

The proponent is expected to demonstrate the ability to either (i) improve and refine ECO Canada's current labour supply-demand model – or – (ii) develop a new model methodology which produces more refined estimates and forecasts than ECO Canada's current model.

In addition, the proponent is expected to describe the format in which they will:
- Provide full and detailed methodology documentation for the labour market model produced

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[3] ECO Canada maintains document standards and a style guide that must be followed for all materials. Copies will be provided to a successful consultant at the onset of the project.

- Provide all tools (e.g., spreadsheets, programming content and access to any proprietary software used)
- Provide all data used in the estimation and forecasting of environmental employment.

ECO Canada requires proponents to provide all of the following information in their proposal - incomplete proposals or those that fail to follow the submission requirements outlined below will not be considered for review:

A. Introduction to your organization
   I. A brief background of your organization
   II. Why is your organization interested in this project?
   III. Your organization's prior experience, knowledge and expertise regarding
      i. the environmental sector in Canada
      ii. labour market information analysis and employment forecast report writing (at least five years of experience conducting research, analysis and reporting including generating or surveying employment projections)

B. Your organization's capacity to deliver the proposed project
   I. List of team members, work locations, area(s) of expertise and specific role/tasks
   II. Relevant education and/or certification (resumes for each team member must be included in an appendix)
   III. Bilingualism (English and French) is an asset

C. Your organization's proposed modelling approach and research methodology
   I. If your organization is proposing to improve upon and refine ECO Canada's current supply-demand model methodology (as outlined in APPENDIX B), describe your approach/methodology for producing model enhancements
      - or -
   II. If your organization is proposing an approach and research methodology that differs from ECO Canada's current methodology (as outlined in APPENDIX B), describe your approach to data collection, data analysis, and model creation

D. A description of your organization's proposed format for providing model methodology, tools and data to ECO Canada so that ECO Canada's Research team will be able to run the model in-house with different parameters and assumptions

E. Your organization's suggested project timeline and deliverable dates (refer to Section 5.0 Process Schedule for tentative due dates on deliverables)

F. Your organization's project management plan
   I. Contact information for your key contact or project lead for correspondence
   II. Team members' roles and responsibilities
   III. Support(s) required from ECO Canada leadership and research teams to ensure project success
   IV. Involvement of ECO Canada in the research and report writing process
   V. A plan for communicating all relevant updates and progress to ECO Canada throughout the project, including at least one weekly written update and one weekly meeting (the

meetings will preferably occur within two business days of the date that the weekly written update is delivered and can be held over Skype, over the phone or over another electronic platform that is accessible to both parties)

    VI.   Measures that will be taken by your team to ensure the highest level of quality and timely production and submission of reports, documents, correspondence and communication with ECO Canada and key project stakeholders

    VII.   Potential risks that your team may foresee in carrying out research and analysis activities and possible actions to mitigate these risks

G. Your organization's proposed budget

    I.   Consultant hourly rate - please specify hourly rates for each key role if these vary (e.g., senior researcher, junior researcher, analyst, project lead, etc.)

        i.   Consultant's travel costs to attend meetings and to conduct research[4] must be included in the estimated budget.

H. Samples of work, references and/or letters of support that provide insight regarding the qualifications and experience requested in this RFP

Proponents who elect to bid to complete the written content of the report summarizing the model's methodology, estimates and forecasts and providing analysis of the statistical results will also be expected to provide a suggested outline for such a report.

4.0 PROPOSAL REVIEW CRITERIA

All proposals will be reviewed by members of ECO Canada's review team based on the review criteria below. Incomplete proposals or those that fail to follow the submission requirements outlined above will not be considered for review.

Review Criteria	Points Awarded
Demonstrated knowledge of ECO Canada and the requirements of this project	10 points
Prior experience, knowledge and expertise regarding the environmental sector, labour market information analysis and labour supply-demand modelling	10 points
Organizational capacity to complete project	10 points
Proposed approach to modelling environmental employment demand and supply	20 points
Proposed data sources and modelling tools	10 points
Project management plan	20 points
Proposed budget	10 points
Samples, References or Support Letters	10 points
Total Points	100 points

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[4] This fee includes the distribution of any research tools (e.g., surveys) used in the research phase of the project. For example, if the consultant(s) chooses to conduct a mail survey, they are responsible, both financially and logistically, for its distribution

The qualifications review committee will be comprised of select ECO Canada staff and where possible volunteers from ECO Canada's LMI National Steering Committee.

5.0 PROCESS SCHEDULE

The table below outlines the timeline leading to the contract award as well as tentative due dates for major deliverables in Year 1 after the contract is awarded to the successful proponent:

Event	Date
Question Submission Deadline	January 28, 2019
Answers to Proponents' Questions Posted	January 31, 2019
Proposal Submission Deadline	February 15, 2019
Contract Award Date (First Year)	March 6, 2019
Delivery of preliminary environmental employment estimates (2018) and forecasts (7 to 10 years) to ECO Canada	May 3, 2019
Delivery of labour supply-demand model methodology documentation, data and tools to ECO Canada	May 17, 2019
Completion of Contract (First Year)	Late Spring 2019

6.0 ENQUIRIES

Clarification of terms and conditions of the RFP process shall be directed to:

Claudine Vidallo
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Suite 400, 105 – 12 Avenue SE
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cvidallo@eco.ca
Phone: (403)-233-0748 ext. 1995

or

Geni Peters
PM and Research Advisor
ECO Canada - Environmental Careers Organization of Canada
Suite 400, 105 – 12 Avenue SE
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gpeters@eco.ca

Questions regarding the RFP will be accepted until January 28, 2019 at 4pm (MST).

7.0 SUBMISSION DETAILS

Proposals should be marked "Proponent Name – Proposal for Environmental Employment Supply-Demand Model and Outputs" and submitted to research@eco.ca. All documents required with the submission, as stated in section 3.0 Proposal Submission Requirements, should be included as one PDF document and are not to exceed 15 pages excluding appendices. Submissions will be accepted until 4pm (MST) on February 11, 2019.

8.0 TERMS AND CONDITIONS

Respondents are solely responsible for their own expenses in preparing a Response and for subsequent negotiations. ECO Canada shall not be responsible for any cost incurred by the proponent in preparing the proposal or otherwise prior to the signing of a contract with ECO Canada. Firms selected to present to or be interviewed by the Qualifications Review Committee will be notified of the logistics by ECO Canada. Participation in the presentations/interviews will be the sole financial responsibility of the consultant(s) and will not be reimbursed from the project budget. All documents, including Responses, submitted to ECO Canada become the property of ECO Canada. Information pertaining to ECO Canada obtained by the Respondent as a result of participation in this RFP is confidential and must not be disclosed without written authorization from ECO Canada. The RFP should not be construed as an agreement to purchase goods or services. A proposal will not necessarily be accepted. The RFP does not commit ECO Canada in any way to award a contract.

Documentation prepared and information collected by the successful proponent during the project is property of ECO CANADA. The successful proponent's documentation and tools developed by the proponent before working with ECO Canada will remain the successful proponent's intellectual property. However the successful proponent must inform ECO Canada if those documents or tools will be used during the completing of the work. It is understood that if ECO Canada accepts to use those documents or tools ECO Canada will acknowledge the author (the successful proponent) however no royalties or any other payments will be given to the successful proponent.

All project materials must be transferred to ECO Canada upon completion of the project.

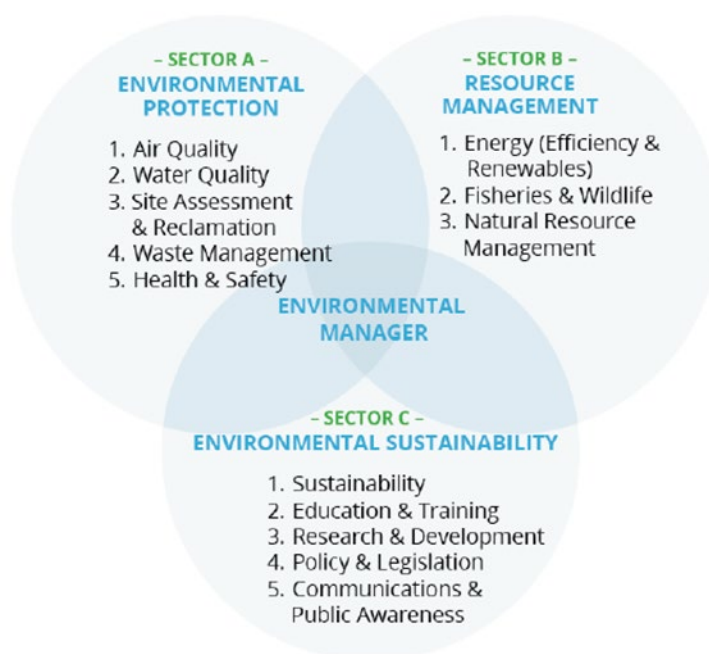# APPENDIX A - ECO CANADA'S DEFINITIONS OF ENVIRONMENTAL EMPLOYMENT

ECO Canada's National Occupational Standards ("NOS")

ECO Canada developed a definitional framework for environmental employment based on 330 National Occupational Standards ("NOS"). ECO Canada's NOS competencies[5] group related behaviors originating from the application of an individual's <u>knowledge</u>, <u>skills</u> and <u>attributes</u>.

For example, consider an Energy Auditor employed by an electric utility. A few examples of the NOS competencies this worker would use are:

- Understands concepts related to generation, transport, installation, operation, and maintenance of technologies and related equipment used to produce energy
- Assess economic feasibility of products and technologies aimed at reducing energy demand and use and/or improving energy efficiency
- Identifies targets, best practices and objectives to reduce energy demand or use and/or improve energy efficiency

ECO Canada groups the 330 NOS competencies into three major clusters – Environmental Protection, Natural Resource Management and Environmental Sustainability – and fourteen subsectors (see ECO Canada's Sector Model diagram on the right). The 14 subsectors are diverse; consequently, the range of possible drivers which influence future demand for and supply of environmental workers is broad.

– SECTOR A –
ENVIRONMENTAL PROTECTION

1. Air Quality
2. Water Quality
3. Site Assessment & Reclamation
4. Waste Management
5. Health & Safety

– SECTOR B –
RESOURCE MANAGEMENT

1. Energy (Efficiency & Renewables)
2. Fisheries & Wildlife
3. Natural Resource Management

ENVIRONMENTAL MANAGER

– SECTOR C –
ENVIRONMENTAL SUSTAINABILITY

1. Sustainability
2. Education & Training
3. Research & Development
4. Policy & Legislation
5. Communications & Public Awareness

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[5] Competencies are presented as demonstrated behaviors which are specifically designed to illustrate what a professional must *consistently* do to produce *positive* results, even when under pressure.

Definition of Environmental Employment

Given the unique nature of environmental employment, and in order to capture environmental workers wherever they may be employed, ECO Canada has developed a distinct definition of environmental employment.

>**Core Environmental Occupation** – a job which requires application of one or more of ECO Canada's defined NOS competencies, regardless of industry

Difficulties in measuring environmental employment by NOC/NAICS

It is very difficult to identify an environmental worker based on the NOC and NAICS groupings in which they are categorized. The example below illustrates this difficulty.

Example - Sara and Wendy are both practicing civil engineers (NOC 2131 – Civil engineers) employed by electric utilities (NAICS 221 - Utilities). Sara is employed as an Energy Auditor with Solar Ontario, while Wendy is an Engineering Manager who works at Pacific Gas and Electric Company. Although Sara and Wendy belong to the same NOC (2131) and NAICS (221) groupings, based on what they do / tasks they perform at their job, Sara **IS** an environmental worker and Wendy **IS NOT**.

ECO Canada's distinct definition of environmental employment has guided ECO Canada's methodology for estimating environmental sector employment. Much of the challenge in modelling environmental employment lies in finding ways to map estimates of environmental jobs based on ECO Canada's definitions into estimates of environmental employment by National Occupational Classification ("NOC") and North American Industry Classification System ("NAICS"), which are the traditional taxonomies employed in LMI supply-demand models.

APPENDIX B - ECO CANADA'S CURRENT ENVIRONMENTAL EMPLOYMENT SUPPLY-DEMAND MODEL

B.1 Base Year / Future Total Canadian Employment

Step 1 - Two different historical Labour Force Survey datasets (one measuring employment by occupation (NOC) and one measuring employment by industry (NAICS)) are combined[6] into a single dataset providing historical estimates of employment by occupation (NOC) and industry (NAICS).

Step 2 - The historical employment data from Step 1 was compared to historical data on real GDP growth to determine how employment levels in specific occupations and industries were impacted by changes in economic activity in the past. The relationship between real GDP growth and employment identified in this step was the basis for projecting future changes in employment resulting from forecasted changes in economic activity (referred to as 'expansion demand'). Annual real GDP growth by province and industry (2-digit NAICS) are based on a consensus forecast generated using estimates from public sources such as Canadian chartered banks.

Step 3 - ESDC's COPS projections of 'retirements' and 'emigration and in-service mortality' by occupation were used to calculate retirement and emigration rates by NOC. The employment projections from Step 2 were multiplied by the retirement and emigration/in-service mortality rates to project future changes in employment resulting from labour force exits (referred to as 'replacement demand').

Outputs

Industry View
Annual employment by Geography (National, Provincial, CMA) and Industry (2-digit NAICS)

Occupation View
Annual employment by Geography (National, Provincial, CMA) and Occupation (1-, 2-, and 3-digit NOC)

Industry-Occupation View
Annual employment by Geography (National, Provincial, CMA), Occupation (1-, 2-, and 3-digit NOC) and Industry (2-digit NAICS)

Retirement-Emigration
Annual demand due to retirements and emigration by Geography (National) and Occupation (1-, 2-, and 3-digit NOC)

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[6] Data from the 2011 National Household Survey was used to bridge the two Labour Force Survey datasets.

B.2 The Incidence of Environmental Employment

The incidence of environmental employment (i.e., the share of total Canadian employment that is considered environmental employment) is estimated from data collected using Job Posting Analysis (JPA). The JPA methodology identifies job postings that require environmental knowledge, skills, and/or tasks (i.e., core environmental occupations) by applying algorithms based on ECO Canada's NOS and subsectors to a Job Vacancy Database (JVD). Job postings in the JVD that match these criteria are tagged and collated into a monthly time series dataset. The **incidence of environmental employment** is then estimated by dividing the number of job postings for environmental occupations by the total number of job postings in the JVD.

Outputs

Quarterly National JobAds
Quarterly job postings by Geography (National), Occupation (1-, 2-, and 3-digit NOC) and
Sector (All, Environmental Sector, ECO Canada subsectors)

Annual Subnational JobAds
Annual job postings by Geography (National, Province, CMA), Occupation (1-, 2-, and 3-digit NOC) and
Sector (All, Environmental Sector, ECO Canada subsectors)

B.3 Base Year / Future Environmental Employment

Estimates of base year environmental employment and projections of future environmental employment were generated by multiplying the projections of total Canadian employment (section B.1) by the estimates of the incidence of environmental employment (section B.2).

Outputs

Environmental Employment
Annual employment by Geography (National, Provincial, CMA), Occupation (1-, 2-, and 3-digit NOC) and
ECO Sector (ECO Canada's subsectors)

B.4 Environmental Labour Supply

The supply of workers available for environmental employment is estimated based on Canadian Occupational Projection System (COPS) projections of school leavers, new immigrants, and other job seekers published by Employment and Social Development Canada.

Outputs

Supply of Workers Available for Environmental Employment
Number of graduates, immigrants and other labour market entrants by Geography (National) and
Occupation (1-, 2-, and 3-digit NOC)