

## Environment and Climate Change Canada Economics and Environmental Policy Research Network (EPRN)

### Request for Proposals 2017-2018

The EPRN is seeking proposals for academic research projects in the following priority research areas:

- Policies for a Low Carbon Economy;
- Innovation & Competitiveness;
- Conservation (including species at risk protection);
- Data Set Development & Linkages

To help facilitate the generation of research proposals, we have included below a list of potential research project ideas that have been compiled through consultation with Environment and Climate Change Canada and the EPRN Steering Committee.

We particularly encourage proposals in these research areas that feature the use and application of behavioural economics to study expected responses to environmental policy, including regulatory approaches and the use of market based instruments (MBIs). We will also prioritize in the review process those proposals that include specific case studies or empirical analysis of programs in Canada or internationally (that Canada may learn from), as well as proposals for surveys or innovative experimental approaches to evaluate the role of, or advantages to, alternative policy options for the design of environmental policy in any of the proposed research priority areas.

#### How to Apply:

Research proposals may be submitted by faculty, graduate students, or post-doctoral fellows. Proposals up to but generally not exceeding \$25,000 for projects to be completed by 31<sup>st</sup> March 2018 will be considered for funding (although smaller submissions are also welcomed).

**Research proposals are due no later than 11:59 pm on May 15, 2017 to: [research.network@smartprosperity.ca](mailto:research.network@smartprosperity.ca)**

#### In addition:

- Research proposals should not exceed 4 pages and must include a detailed budget (please use the [application template](#)).
- Proposals by graduate students must include a signed letter from a permanent faculty member agreeing to supervise the proposed research by the student.
- Proposed research plans and budgets must reflect that all requested funds would be disbursed and final project deliverables completed by 31<sup>st</sup> March 2018. All awarded funds not expended by 31<sup>st</sup> March 2018 will be required to be returned to funder. Research proposals should not exceed this timeframe.

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- Successful applicants will be expected to present their research at the annual EEPN Symposium, tentatively planned for March 2018. Travel costs to attend the symposium will be covered separately (do not include this travel in your proposed budget).
- Except in special cases (such as dataset development projects), proposed deliverables should include (i) a final working paper, submitted to the research network, and (ii) a policy brief summarising the research question, approach, and highlighting key policy-relevant findings of the research project.
- The terms of the funding agreement with Environment and Climate Change Canada do not allow us to fund university overhead. Please do not include university overhead costs in budget proposals.

Applicants are encouraged to include plans in their proposal to present their research at other academic or related conferences and events. We therefore encourage the inclusion of relevant travel costs in proposed budgets.

**Proposals will be evaluated by the EEPN Steering Committee. We will endeavour to make funding decisions promptly, with successful proposals announced around the May, 25 2017.** If you have any questions about the call for proposals or submission process, please submit your questions to [research.network@smartprosperity.ca](mailto:research.network@smartprosperity.ca).

## 1. POLICIES FOR A LOW CARBON ECONOMY

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*Objective:* The EEPN is interested in funding research proposals that seek to examine the evidence base for policies and pathways to effectively, efficiently, and equitably combat climate change and reduce greenhouse gas emissions, with a view to implementation of the new [Pan-Canadian Framework on Clean Growth and Climate Change](#), as well as Canada's international emissions reductions commitments and longer term, mid-century deeper decarbonisation goals. Proposals are also welcome that apply behavioural economics to study expected responses to different carbon pricing approaches, or policies for a low carbon economy. Specific questions in this area may include, but are not limited to:

### 1.1 The evidence for and design of Carbon Pricing:

- We invite proposals to evaluate the expected or observed impacts of existing, proposed, or emerging carbon pricing systems in Canada on consumers, business, and industry sectors – as well as behavioural economic or political economic approaches to evaluate potential responses to or acceptability of different carbon pricing policies. Relevant proposals may include:
  - Empirical evaluations of the impact of existing carbon pricing regimes on the performance of different sectors of the Canadian economy.
  - Analyses of the impact (observed or expected) of existing carbon pricing policies on household behaviour. What are the observed distributional effects of different programme designs?
  - Evaluations of what we can learn from Canadian or international experience about the different challenges and solutions for implementing carbon pricing policies. For example, how to best implement offsets and other flexibility mechanisms under cap and trade systems?

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- Evaluations or analyses of how to ensure the acceptability or durability of carbon pricing policies, especially through different options for how to recycle or allocate the revenues from carbon pricing programs. E.g. How does one obtain longer term support from the public for carbon pricing, given the options that the revenues can be allocated to?

### 1.2 Policies for a Low Carbon Economy in Canada:

- We invite proposals to examine the evidence base for different policies, or policy bundles, to most effectively incent and implement an efficient and equitable reduction in greenhouse gas emissions for different sectors of the Canadian economy. We also welcome behavioural economic or political economy approaches to evaluate potential responses or acceptability of different policy design options. Relevant proposals may include:
  - Empirical evaluations of how carbon pricing mechanisms may be bundled with other policy options, to allow them to be more successfully or effectively implemented.
  - Empirical evaluations or analyses of (observed or expected) interactions or impacts of layering different climate policies. i.e. What are the complementarities or drawbacks of layering price, regulatory (e.g. efficiency standards), and command and control measures in different contexts, or for different jurisdictions? In what contexts would layering different policies be beneficial, and in which might it be detrimental?
  - Empirical evaluations or analyses of what policies, or policy bundles, (observed or expected) will most effectively help to incent and implement the infrastructure and/or financing that will be needed to transition to a low carbon Canadian economy. Proposals may also include examination of potential synergies between policies to incentivize investment in green infrastructure and potential co-benefits in risk mitigation or adaptation outcomes.
  - Empirical evaluations or analyses of the expected or observed distributional impacts of low carbon economy policies in Canada, including how such policies impact different income groups, industry groups, or different community groups (such as urban vs. rural communities) across Canada. For example, what are the observed or expected socio-economic/distributional impacts of policies to phase out coal in different jurisdictions across Canada – and/or how may policies be better designed to ameliorate these effects?
  - Empirical evaluations or analyses of what policy bundles (observed or expected) would lead to a more equitable transition to a low carbon Canadian economy.
  - Evaluations or analyses of where regulatory initiatives for a low carbon economy may conflict with or contradict existing regulatory frameworks for conservation or environmental protection in Canada, across different jurisdictions.

### 1.3 Linkage Options for Carbon Pricing Systems:

- How can carbon pricing systems be more efficiently and effectively integrated across jurisdictions (both nationally, and sub-nationally), to promote more effective policies at all levels, and to increase the durability of these systems over time? Relevant proposals may:

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- Examine or analyze the key opportunities and policy design challenges to link or coordinate carbon pricing regimes across jurisdictions. What outcomes would be expected from different proposed options for low carbon policy integration?
- Identify, examine, and/or analyze different approaches to comparing the stringencies of carbon pricing regimes across jurisdictions. E.g. How should the stringency of carbon taxes be compared with cap and trade systems, or how to compare cap and trade systems with different allocation mechanisms? Also, how do, or should, different jurisdictional contexts or considerations (such as economic or social characteristics) affect the relative evaluation of stringency?
- Identify, examine, and/or analyze any additional questions we need to better understand to overcome the challenges of provincial or international linkages of carbon markets. For example, how to most effectively/efficiently align opposing regulatory programs to accommodate inter-jurisdictional linkages of carbon pricing regimes? Or, developing a better understanding of the implications of Article 6 of the Paris Agreement for Canadian carbon pricing systems.
- Examine how to design legislation to increase the durability of climate policies and carbon pricing systems over time, while promoting continuous improvement.

#### 1.4 Canada in a Low Carbon World:

- What are the implications of international agreements, carbon pricing frameworks or climate policies in other countries for Canada's economy, and the performance of Canadian environmental or low carbon economy policies? Relevant proposals may include:
  - Empirical evaluations or analyses of observed or potential leakage problems.
  - Analyses or evaluations of the observed or expected competitive advantage implications for different sectors of the Canadian economy of the transition to a low carbon world.
  - In the case of carbon policies, such as the carbon tax adopted by Alberta, which recommend increasing the stringency of carbon prices in real terms over time "*as long as similar prices exist in peer and competitor jurisdictions*" (Climate Leadership Report to Minister 2015), what are the implications for leakage, competitiveness (in different sectors), and/or overall greenhouse gas reductions of adopting different metrics or comparison groups to make these determinations.

#### 1.5 Long-term Decarbonisation Pathways

- We invite proposals to analyze or simulate the expected outcomes of different national decarbonisation pathways in Canada or in different sectors of the Canadian economy, as well as the impact of global decarbonisation pathways in the Canadian economy. Relevant proposals may:
  - Explore linking existing long-term decarbonisation models and/or conduct complimentary research to reduce uncertainties in existing models.
  - Identify, examine, and/or analyze the impacts of different decarbonisation pathways on specific industries in Canada, with a particular focus on emission-intensive industries.

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- Develop models or proof of concept papers to investigate the impacts of technological jumps (or system changing technologies) on long-term decarbonisation costs and pathways.

## 2. INNOVATION & COMPETITIVENESS

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*Objective:* The EEPN is interested in funding research proposals that seek to identify evidence of linkages between the application of well-designed environmental policies and/or regulations in different sectors of the Canadian economy, and resulting measures of innovation and/or competitiveness for Canadian firms. While significant research has been undertaken to assess the extent to which environmental regulations can spur innovation and improve competitiveness, there has been little use of detailed case studies, surveys, or empirical analysis looking specifically at Canadian (federal or provincial) environmental policies/regulations. Specific questions in this area may include, but are not limited to:

### 2.1 How do different environmental policy or regulatory design options affect innovation and competitiveness outcomes of Canadian firms, considering the characteristics of different economic sectors?

- We invite proposals to evaluate how detailed environmental policy design options have or could be used in different regulatory contexts and/or jurisdictions to impact innovation and/or competitiveness outcomes. Such studies could examine firms across different sectors of the Canadian economy, or the impact on firms with different characteristics within a sector. Relevant issues may include:
  - measures beyond performance and technology standards (such as compliance flexibility options),
  - the relative or perceived stringency of the environmental policies/regulations adopted,
  - the predictability, stability, or expected durability of policies/regulations over investment periods,
  - the extent of coverage (or number of exemptions) for the sector subject to a policy/regulation,
  - the consequences of being in non-compliance with different regulatory or policy regimes.
- We invite proposals to evaluate the extent to which the impact of environmental policies or regulations on innovation and/or competitiveness depends on the characteristics of the firm or of the economic sector on which they are imposed. Relevant issues may include:
  - exposure of the sector to international markets/competition,
  - relative market power of firms in the sector,
  - availability of cost-effective alternative materials, processes, or production methods,
  - sectors characterized by different factor intensities.
- We invite proposals to evaluate the innovation or competitiveness aspects of how the design of environmental policy/regulation relates to and interacts with international market exposure and trade in different sectors. Relevant issues may include:
  - an examination of the evidence for, or expected impact of, policy measures to adjust for competitiveness impacts of environment policies (such as border tax adjustments).
- We invite proposals to evaluate how environmental policies or regulations influence the development of markets for clean technology or the growth of the clean technology sector in Canada. What other policies or

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regulatory frameworks should be considered to accelerate the growth of the clean technology sector, and what is the evidence base for each?

- We also invite proposals to evaluate how environmental policy or regulatory approaches may interact with non-environmental rules or regulations in driving innovation or competitiveness outcomes. For example, how might intellectual property, R&D tax incentives, or other rules interact with different environmental policy designs?

## 2.2 How can we better measure and evaluate the linkages between environmental policies/regulations and innovation and competitiveness outcomes?

- We invite case studies or analyses of what metrics should be used, or what should we measure to better understand the dynamics of innovation in different sectors. Proposals could include case studies, surveys, empirical analyses or experimental approaches to examine how best to measure and evaluate the impacts of different policy tools on innovation and competitiveness outcomes.
- We particularly invite proposals for the development of new datasets to evaluate the linkages between environmental policy or regulatory design and innovation and/or competitiveness outcomes. Proposals are welcomed that identify data gaps and propose appropriate methods to gather relevant data to evaluate current or emerging policies in Canada. For example, proposals may explore modifying input-output tables to reflect emerging and innovative, clean production processes and techniques, or explore linking modified input-output tables with existing long-term decarbonisation models to analyze competitiveness outcomes.

## 2.3 The Role of Public Policy in Leveraging Private Investment for Green Economy Transitions

- We invite proposals that look at the role of public policy in incentivizing private investment to spur clean innovation, and more generally supporting the transition to a low-carbon economy. Relevant areas of research may include, but are not limited to:
  - The design of public policies and/or frameworks for public investments (or evaluation of existing policies or public investment frameworks) to: (i) leverage or increase private sector financing, or (ii) avoid crowding out or chilling private investment.
  - Research on emerging financial instruments/vehicles to direct private investment into the R&D, commercialization and deployment of clean or low-carbon technologies, as well as investments in projects and assets necessary for a rapid transition to a low-carbon and climate resilient economy.
  - Case studies or analyses of impediments in existing regulatory rules that impede investment in innovation in Canada – including evaluation of alternative policy bundles that may help to remove impediments to innovation while maintaining environmental policy goals.

## 3. CONSERVATION

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*Objective:* The EEPN is interested in funding research proposals that address the role of environmental policy, and particularly market-based instruments (MBIs), in encouraging environmental conservation alongside improved economic

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outcomes; including improved protection of water, air quality, biodiversity and species at risk. We are particularly interested in proposals that feature the use and application of behavioural economics to study expected responses to environmental policies encouraging conservation. Specific questions/proposal topics may include, but are not limited to:

### 3.1 The role of Conversation Offsets as an Environmental Policy Tool:

- We invite proposals to examine how environmental policy can be designed to improve incentives for the provision or adequate supply of conservation offsets in Canada. These could include proposals for case studies, surveys, empirical analyses, or behavioural economics experiments to examine alternative policy design options available to support the growth and potential range of applications of conservation offsets in practice, including: defining the extent of the market for offsets, the advantages or trade-offs between offset systems featuring quality vs. quantity measurements, the use of offset banking systems, the use of incentives to encourage demand for or participation in offset markets, and monitoring, enforcement, and/or program evaluation requirements.
- We invite proposals for case studies, surveys, or empirical analyses of different methodologies, metrics or protocols that are available to improve the effectiveness and potential range of applications of offset design, including: standardizing the calculation of offset values, improving the evaluation of offset risk and/or impermanence, or addressing the misalignment of timing of environmental harm versus conservation benefit. Such proposals could include examples of what are the best practices in each of these areas, and analysis of why are they effective.
- We invite proposals to identify or analyze the effectiveness of different criteria or indicators that may be available to evaluate when offsets are an appropriate environmental policy tool to use. Relevant factors may include whether an offset program has operations on private or public land, operations on mixed landscapes (e.g. urban, rural or protected) or areas with overlapping land-use tenures, operations with spillovers on adjoining land values, and/or the use of offsets in locations with risk of reversal or impermanence.

### 3.2 The role of Payments for Environmental Services and other innovative MBI's for Environmental Conservation

- We invite proposals to design surveys, case studies, empirical analyses, or behavioural economics experiments to examine of the effectiveness of alternative economic instruments for conservation policy design, including offsets, payments for environmental services, or performance bonds. Proposals may include an evaluation of different criteria or indicators that may be available to select between these different policies in different cases.
- We invite proposals for specific case studies, empirical evaluations, or behavioural economics approaches to evaluate the environment and economic outcomes of specific payments for environmental services programs, such as Alternative Land Use Services (<http://alus.ca/>).
- We invite proposals for specific case studies, empirical evaluations or behavioural economics approaches to analyze the use and/or design of MBIs for conservation outcomes on public land. Relevant examples of challenging contexts on public lands may include the use of incentive payments in cases of multiple tenures on forest land, or multiple tenures on public grazing lands.

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- We invite proposals for case studies or analyses of alternative mechanisms for conservation finance, including examination of how different programs have been designed to ensure the sustainability of payments for environmental services, and how these structures might apply in Canada.
- We also invite proposals for case studies or analyses to examine the evidence base for the use of performance bonds or similar financial tools to securitize the environmental and conservation risks of development projects – and to support effective environmental assessment processes in Canada.

### 3.3 The role of MBIs in SARA (the Species At Risk Act):

[Note: The SARA contains numerous tools which enable 'equivalent protection measures' to be put in place without direct federal regulation, including agreement provisions enabling the Minister to use formal agreements to achieve protection outcomes equal to that of SARA, without SARA's direct regulatory prohibitions or a Cabinet protection order].

- Given that SARA addresses highly imperilled species, proposals are particularly invited that propose a case study or other evaluation of best practices in the design of economic instruments to ensure compliance with SARA species protection and recovery objectives.
- Proposals are also welcome that design surveys, case studies, or empirical, behavioural economics, or other analyses to examine the specific (economic or ecological) circumstances under which it would be preferable to use incentive-based economic instruments as equivalent protection measures instead of direct federal regulation. Such proposals could include examination of:
  - When agreement involving economic instruments would be cost-effective vis a vis direct regulation?
  - How economic instruments should be designed to incentivize and ensure species recovery, and net gain in species protection?
  - How economic instruments could be designed to provide sufficient flexibility to meet changing requirements as species move through different stages of the SARA process?
  - How economic instrument design should relate to or reflect the level of uncertainty in species protection outcomes?
  - Whether economic instruments can be designed to elicit private information about species conditions, habitats, or risks for the cost-benefit analysis process in SARA?

## 4. DATA SHARING OPPORTUNITIES

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*Objective:* The EEPN is seeking proposals to create new datasets or clean up existing datasets that could be used to support future research projects in the EEPN priority areas. Proposals for data sharing projects must include a description of potential research applications for the datasets created. Note that the EEPN cannot fund proposals solely for the acquisition of data from Statistics Canada, but rather proposals must include time spent by faculty members and/or graduate students to conduct data compilation, reformatting, analysis, or dataset matching.

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To the extent possible, new datasets should be made publicly available to the EEPRN members (via the EEPRN website) following project completion. Applicants are encouraged to obtain estimates of data acquisition costs from Statistics Canada or other sources, and include data acquisition costs in their proposed budget.

For example, we invite proposals that define potential research applications that may be enabled by specific new expansions of or linkages between the following datasets:

- The newly completed linkage between Environment and Climate Change Canada's National Pollutant Release Inventory (NPRI) and Statistics Canada's Annual Survey of Manufactures (ASM);
- Environment and Climate Change Canada's Ecological Gifts program;
- The 2009 Survey of Innovation and Business Strategy (SIBS);
- The Workplace and Employee Survey (WES);
- Labour Data from corporate T1 returns or Records of Employment
- Other Statistics Canada datasets, such as input-output tables;
- Health data relating to hospital admissions, mortality and cancer incidence.
- Any other dataset from Environment and Climate Change Canada, Statistics Canada, or elsewhere that would facilitate research under any of the EEPRN research priority areas.

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