PROJECT PROPOSAL

1. **Project name: Improving Black Carbon Emissions Inventory Data for Residential Wood Combustion**

2. **Two-year budget: C$425,000**

3. **Short statement on the need identified (including current status), the project objective and the outcomes (achievable by June 2019) to address it**: Residential wood combustion is a significant source of black carbon (BC), but this source is less well-characterized than others. This project would design and implement a survey in North America to collect data on residential wood use (including local-scale counts of appliances, and profiles and quantities of wood burned), to support improved estimation of $PM_{2.5}$ (particulate matter) and BC emissions in North America. The data gathered through this survey would be used to refine estimates of emissions from residential wood combustion sources and would be incorporated into the development of the next iteration (2018–19) of national emissions inventories. Improved inventories are used to inform policies that will lead to improved health and environmental outcomes.

4. **Select the strategic priority(ies) that the project addresses:**

2015–2020 Strategic Priorities	Priority Areas
☒ Climate Change Mitigation and Adaptation ☐ Green Growth ☐ Sustainable Communities and Ecosystems	☐ Trade and the Environment (e.g., environment and innovations; movement of environmental goods and services) ☐ Methane emissions reduction ☐ Reduce and recover food waste ☒ Black carbon inventory ☐ Priority species and ecosystems (e.g., transboundary invasive alien species) ☐ Health of oceans (e.g., marine litter; ocean acidification; marine protected areas) ☐ Syndromic surveillance systems ☐ Mexican Emissions Control Area (ECA) ☐ TEK case studies

5. **Explain how the project can achieve more impact by working trinationally, and why the CEC is the most effective vehicle to undertake this work:**
This project addresses a key recommendation from the CEC 2015 report *North American Black Carbon Emissions: Recommended Methods for Estimating Black Carbon Emissions*, to conduct research to improve data from residential wood combustion sources, including conducting surveys on wood use, in place of current statistics. Working trinationally will allow experts from each country to lend perspectives, share information on existing work in this area, and contribute to the development of a more robust and adaptable survey instrument to gather data on a wide range of wood-burning appliances and practices, than any actively in use in any single country.

6. Describe how the project may capitalize on, or advance, the relationship between ecosystems, job creation, gender impacts, and income generation:

The survey could be designed to include questions related to social aspects of residential wood use. For example, it may be useful to understand whether certain communities rely on gathered wood and whether this disproportionately affects women's health in those communities, as well as if it affects the economic growth of those communities. While these data would not have a direct impact on inventory development, the emissions information could be of use to inform policies addressing public health and economic development.

7. List the objectives and activities to be conducted to achieve measurable results:

Objectives (must be SMART[1])	Main activities to achieve objectives (by 30 June 2019)	Measurable results
By 30 June 2019, improve the availability and completeness of data on residential wood use and combustion to support improved estimation of $PM_{2.5}$ and black carbon (BC) emissions in Canada, Mexico, and the United States, for inventories developed in 2018–2019.	• Design trilateral survey • Distribute survey • Analyze results • Identify relevant appliance profiles and burn rates for use in each country/local area within each country • Incorporate relevant appliance profiles and burn rates into national emission inventory development activities	Data gathered from the survey are incorporated into national inventories completed in 2018–2019.

8. Describe how the project complements or avoids duplication with other national or international work: This work is complementary to ongoing efforts to improve inventories of $PM_{2.5}$ and black carbon. The EPA's Residential Wood Combustion Tool could be used as a starting point for the input variables needed to build a robust residential wood combustion inventory. Information from Canada's current efforts to enhance an existing household survey with additional questions on the use of wood for residential heating will inform the survey design. The three North American countries will have the flexibility to adapt the survey questions to their own circumstances. The data gathered under this project will also inform the countries about areas where BC emission factor development for residential wood combustion could be improved. This project is also consistent with a recommendation from the Arctic Council's Expert Group on Black Carbon and Methane to expand the detail available on residential wood combustion in Arctic State inventories (report not yet public).

[1] SMART: Specific, measurable, achievable, realistic and time-bound.

9. **Describe opportunities for inclusion of traditional ecological knowledge (TEK), if applicable, and how these opportunities are incorporated into the project:**
   TEK and, specifically, knowledge of the types of wood used in cultural practices in certain communities, will be pertinent to the design of a survey on residential wood combustion.

10. **Describe opportunities for youth engagement, if applicable, and how these opportunities are incorporated into the project**:
    N/A

11. **List significant involvement of other levels of government, Indigenous groups, local communities, experts, private sector, civil society, and others, as applicable:**
    US state, local and tribal reporting agencies will review all potential modifications to the US Environmental Protection Agency's (EPA's) Residential Wood Combustion Tool inputs. The EPA has regular monthly calls with these agencies.

12. **Identify relevant committee members and their federal agencies in each country committed to developing this project, and implementing it, if approved:**

    Canada: Michael Layer (NRCan); Mathilde Brodeur, Jennifer Kerr (ECCC)
    México: Rafael Martínez Blanco, Diana Guzmán Torres (Semarnat); Abraham Ortínez Álvarez, Iris Jiménez Castillo (INECC)
    United States: Rich Mason, Amanda Curry Brown (US Environmental Protection Agency Office of Air Quality Planning and Standards)