### Sound Management of Electronic Wastes in North America

**Planned Budget:** C$400,000.00  
2011: C$165,000.00  
2012: C$235,000.00

**Operating Year(s):** 2011–2012

**Strategic Priority/Objective:** Greening the Economy in North America

**Project Summary:** This project aims at improving understanding of the transboundary movements (flows) of used and end-of-life computers and monitors in/from North America and enhancing capacities of the e-waste refurbishing and recycling sectors to implement environmentally sound management practices.

**Environmental Outcome:** A clearer picture on the transboundary movements (flows) of used and end-of-life computers and monitors in/from North America, and more enhanced capacities of the e-waste refurbishing and recycling sectors to implement environmentally sound management practices.

**Components necessary to reach the environmental outcome:**

- **Component A.** Estimate the amounts of transboundary movement of used and end-of-life computers and monitors within North America and from North America to the rest of the world, based on a set of methodologies developed in an earlier phase (i.e., Phase II) of this analysis.

- **Component B.** Enhance capacities of the e-waste refurbishing and recycling sectors to implement environmentally sound management practices.

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<th>Task</th>
<th>Project outputs</th>
<th>How does the subtask/output move the project towards the Environmental Outcome?</th>
<th>Timing</th>
<th>Budget (C$) (activities)</th>
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</table>
| 1. Estimate the amounts of transboundary movement of used and end-of-life computers and monitors | Final estimates of trade flows for used and end-of-life computer and monitors within/from North America | The trade flow estimates will support decisions of senior policy-makers on e-waste exports/imports. | December 2012 | $200,000  
*Note - Approval of work under this subtask is contingent upon*
Within North America and from North America to the rest of the world, based on a set of methodologies developed in an earlier phase (i.e., Phase II) of this analysis.

Subtasks:

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<th>Subtasks</th>
<th>Description</th>
<th>Approval Methodology</th>
<th>Timeframe</th>
<th>Cost</th>
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<td>i) Export Material Flows Analysis (MFA) data – Implement “Export MFA” to estimate data on used and end-of-life computers and monitors exported from Canada, Mexico and the US, based on mass balance-MFA.</td>
<td>Export MFA data on used and end-of-life computer and monitor trade flows from North America</td>
<td>Trilateral approval of the validation, via peer-review, of the methodology developed in Phase II.</td>
<td>6 months after contract is signed (2011)</td>
<td>$65,000</td>
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<tr>
<td>ii) Shipment-level Analysis – Analyze shipment-level and other trade data for the limited number of countries that collect reasonably good trade data on used and end-of-life computers and monitors to estimate imports of used computers coming from Canada, Mexico and the US.</td>
<td>Shipment-level data on used and end-of-life computer and monitor trade flows from North America</td>
<td>Trilateral approval of the validation, via peer-review, of the methodology developed in Phase II.</td>
<td>7 months after contract is signed (2011) (Five months to obtain the data. Two months to process and adequately analyze the data.)</td>
<td>$20,000</td>
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<td>iii) Extrapolation/Regression</td>
<td>Extrapolation/Regression</td>
<td>Trilateral approval of the validation, via peer-review, of the methodology developed in Phase II.</td>
<td>8 months after contract is signed (2011)</td>
<td>$20,000</td>
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### Analysis – For selected non-North American countries for which no data on imports of used and end-of-life computer and monitor are available, estimate imports (from North America), based on a regression model, fitting countries to demographic/geographic information.

- **data on used and end-of-life computer and monitor trade flows from North America**
- **data that will be integrated into the final estimates of used computer trade flows.**
- **contract is signed (2012)**

### iv) Import MFA – Implement a partial “import MFA” to estimate imports of used and end-of-life computers and monitors for key, non-North American countries for which trade data are unavailable, such as China and Nigeria.

- **Import MFA data on used and end-of-life computer and monitor trade flows from North America**
- **This subtask provides data that will be integrated into the final estimates of trade flows.**
- **12 months after contract is signed (2012)**
- **$50,000**

### v) Hidden Flows Analysis – Estimate global hidden flows by subtracting trade/uptake estimations of imports from the mass balance-based estimates of total exports of used and end-of-life computers and monitors. Hidden flows are the difference between the MFA-generated total exports and trade statistic-

- **Hidden flows data on used and end-of-life computer and monitor trade flows from North America**
- **This subtask provides data that will be integrated into the final estimates of used and end-of-life computer and monitor trade flows.**
- **14 months after contract is signed (2012)**
- **(Expect to finish the hidden flow analysis two months after subtasks i) – iv) are completed. The two**
- **$5,000**
vi) Uncertainty Analysis – Analyze uncertainties in the methodologies developed in quantitative and qualitative terms and include margins of error for all numeric inputs and outputs used by various models employed by the methodologies. Sensitivity analyses will also be applied to estimate fluctuations in final results. The uncertainty analysis applies to each of the above components. Time is needed to process and adequately analyze the data. Since little empirical data is available, this subtask assesses the uncertainty inherent in the final estimates of used computer trade flows. 14 months after contract is signed (2012)

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<td>vii) Reports on trade flows – integration of the outputs of the various methodologies to estimate trade flows for used and end-of-life computers and monitors.</td>
<td>Final estimates of used computer trade flows. The trade flow estimates will support compliance monitoring and enforcement agencies and inform decision-makers on an important international topic, e-waste exports/imports.</td>
<td>Final report (19 months after contract is signed) (2012) (Interim report outline (8 months after contract signed), $40,000</td>
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First complete draft report (15 months after contract signed), Draft final report (17 months after contract signed.)

### Component B. Enhance capacities of the e-waste refurbishing and recycling sectors to implement environmentally sound management practices.

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| 1. Promote the adoption of environmentally-sound management (ESM) practices in small and medium-size enterprises (SMEs), specifically e-waste recyclers and refurbishers, in North America. | 1. Development of training courses to promote and incorporate ESM in SMEs.  
2. Develop a web-based micro-site to disseminate relevant ESM guidance and training materials. | This task will increase the implementation of environmentally sound approaches, thus reducing mismanagement of e-waste, protecting the health and safety of workers engaged in e-waste recycling and refurbishing, and lessen environmental contamination. | December 2012 | $200,000 |

#### Subtasks for B 1:

<p>| Subtask | A report assessing ESM training needs for SMEs that Assesses priority of training needs, leading to 2011 | 2011 | $15,000 |</p>
<table>
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<tr>
<th><strong>SMEs in e-recycling and e-refurbishing sectors in North America to identify specific training needs on ESM, clarify the primary target audience for training, and identify practical options for training delivery in Canada Mexico, and the US. Identify existing ESM guidance, training materials and tools for e-recycling and e-refurbishing and identify potential gaps.</strong></th>
<th><strong>Recycle and refurbish e-waste. Survey results that will feed into the needs report.</strong></th>
<th><strong>Training courses that are more likely to increase the environmentally sound recycling and refurbishment among SMEs.</strong></th>
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<td><strong>ii) Develop training content for use in training courses that utilizes the information obtained during subtask i). It is anticipated that training content will cover both general management aspects and operational aspects of ESM, including risk prevention and management.</strong></td>
<td><strong>The content and structure for training on the environmentally sound recycling and refurbishment of e-waste geared to SMEs.</strong></td>
<td><strong>SMEs said that the best way to increase environmentally sound recycling and refurbishment is through detailed technical training. The training course content will meet this approach to improving ESM.</strong></td>
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<td><strong>iii) Deliver training courses based on ESM training content from subtask iii) to promote uptake of ESM by SMEs that recycle and refurbish e-waste. Deliver two face-to-face training courses for</strong></td>
<td><strong>Two face-to-face training courses for Mexican SMEs that recycle and refurbish e-waste</strong></td>
<td><strong>Will increase environmentally sound recycling and refurbishment among SMEs leading to reduced health and environmental consequences of mismanaged e-waste.</strong></td>
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<td></td>
<td><strong>Web-based or face-to-face training for Canadian SMEs that recycle and refurbish e-waste.</strong></td>
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| 2011 | $65,000 |
| 2012 | $100,000 |

($30,000 for first face-to-face training in Mexico)

($30,000 for second face-to-face training in Mexico)
| iv) Develop a website to more widely disseminate ESM materials and training course content, which may include guidelines, presentations, links to relevant websites, and recorded training sessions. | A webpage on the CEC website addressing ESM approaches for recycling and refurbishing e-waste. This activity will include web design, translation services, and HTML markup for training materials. | Will disseminate information pertaining to environmentally sound management to SMEs that recycle and refurbish e-waste, leading to reduced health and environmental consequences of mismanaged e-waste. | 2012 | $20,000 |

### Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (See below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, working groups, committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply to activities funded through the NAPECA grant program.

- Does the project contribute to achieving Council’s strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?
  - This project is directly related to Strategic Objective #1 under the Greening the Economy in North America priority (addressing gaps in our common knowledge on the movement of used electronics and e-waste and improved private sector environmental performance in North America).

- By undertaking the following activities, government agencies in the three countries will be more effective at addressing priority issues as a region:
  - This project will allow the parties to gain access to information that will allow them to implement or modify current policies on e-waste and to foster the implementation of environmentally sound management of these wastes

- Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America?
The scope of activities is North American. The strategies and themes included are in line with the themes included in the Strategic Plan in the above-cited strategic objectives.

- Does the project identify specific, clear, and tangible results that will be achieved and how progress toward each result will be measured over time?
  - The project identifies and outlines a task and subtasks to attain the overall objectives.

- Is the CEC the most effective vehicle for the Parties to undertake the project, considering:
  - The value-added of doing it under the CEC cooperative program. The CEC, as a trilateral international governmental agency, is an excellent vehicle to collect and analyze information on the flows of used and end-of-life computers and monitors in North America to the rest of the world and to foster the implementation of environmentally sound management of these wastes in the refurbishing and recycling industry in the region.
  - Any other public, private or social organizations that work on such activities. There is no other regional organization public or private working within the regional scope of activities included in this trilateral project. However, pursuant to advice received from JPAC, project proponents engaged in enhancing capacities of small and medium-size enterprises in e-waste refurbishing and recycling sectors will explore future opportunities for engaging consumers in this work, with a view to increasing awareness of these issues.
  - Opportunities to cooperate and/or leverage resources with such organizations. This project will leverage to efforts being implemented in other regions of the world.

- Does the project propose a clear timeline for implementation of the activities, including a target end date for CEC involvement? Where applicable, describe how the work will continue after CEC involvement ends? The project includes a clear timeline.

- Where applicable, does the project identify with reasonable specificity:
  - Linkages with other relevant CEC projects, past or present, in order to create synergies, capitalize on experience, or avoid duplication? Yes
  - The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project? Yes
  - The beneficiaries of capacity building activities that the project may include? Yes
  - The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome? Yes