

Consultations on a Canadian Resource Recovery Strategy



Summary of Edmonton/Prairie Provinces Consultation Held at Edmonton, AB on April 23, 2002



Natural Resources
Canada

Ressources naturelles
Canada

Canada

Consultations on a Canadian Resource Recovery Strategy Summary of Edmonton/Prairie Provinces Consultation Held at Edmonton, AB on April 23, 2002

1. Background

Natural Resources Canada (NRCan) is holding a series of consultation sessions over the spring of 2002 on the development of a Canadian Resource Recovery Strategy. Sessions are being held in seven locations including Vancouver, Yellowknife, Edmonton, Toronto, Halifax, Montreal and Iqaluit. Representatives from industry, non-governmental organisations and all levels of government are being invited to participate. The objectives of these sessions are to identify:

Resource recovery priorities in urban and rural communities across Canada;

Resource recovery priorities in Canada's North;

Barriers to resource recovery in every region;

Potential resource recovery demonstration projects in industrial, post-consumer and institutional sectors;

Estimated levels of project funding and co-funding partners.

In Edmonton, the day-long consultation session began with an introduction by each participant, followed by an overview from Mike Clapham, NRCan, of the Canadian Resource Recovery Strategy (see Background Paper, Attachment I). Bob Mitchell (Alberta Environment), Christina Seidel (Recycling Council of Alberta), Dr. Ashley Nixon (Shell Canada) and Wyn Van der Schee (City of Calgary) provided introductory comments about resource recovery issues, priorities, barriers and opportunities.

The group then discussed in plenary resource recovery issues in the Prairie Provinces, identified criteria for selecting resource recovery projects, the roles of different stakeholders in the development and demonstration of projects and barriers to resource recovery. Participants met in breakout groups to identify several potential resource recovery projects for potential co-funding by NRCan.

A copy of the agenda and the list of participants in Edmonton are attached (Attachments II and III). There were 26 participants representing resource recyclers and recycling associations, the Cities of Calgary and Edmonton, the Centre for Environmental Technology Advancement, industry, the Government of Alberta, the Alberta Research Council, Alberta's Industrial Heartland, local entrepreneurs, the Federation of Canadian Municipalities and consultants. The majority of participants were from Alberta with one representative from Saskatchewan and one from Manitoba.

2. Items of Note in the Discussion

- NRCan was congratulated for seeking input to a Canadian Resource Recovery Strategy in advance of developing the strategy.
- Resource recovery was recognized as an important means of achieving greenhouse gas emissions reduction.
- Some discussion centred on the overall goal for the Canadian Resource Recovery Strategy. It was suggested that it should be 'zero waste' or '100% product' or 'the last garbage can'. While participants agreed in general that there should be a paradigm shift to thinking of waste as a resource, agreement was not reached on the precise wording for the overall goal. It was noted that 'zero waste' means different things to different people and that this wording should not be adopted as a goal without an in-depth discussion and explanation.
- It was suggested that community and economic development planning should be carried out using eco-industrial or industrial ecological principles.
- It was suggested that 'alternative' advertising industry should be approached to address the perception that recycled products are suspect.
- It was suggested that products made from recycled resources should not be labelled as being 'recycled' to address the negative perception of recycled products.
- While resource recovery projects were recognized as important in a Canadian Resource Recovery Strategy, it was noted that it was also important to address policies affecting resource recovery.

3. Resource Recovery Issues

Participants identified the resource recovery issues listed in Table 3-1.

Table 3-1: Resource Recovery Issues in the Prairies

Issue	Industrial	Institutional/ Commercial	Post-consumer
Paper	Y	Y	
Cardboard	Y	Y	
Compostable organics	Y	Y	Y
Computers	Y	Y	Y
Animal waste	Y		
Forest waste	Y		
Yard waste			Y
Food waste			Y
Flared gas	Y		
Mercury from vehicles (switches, batteries)			Y
Plastics			Y
Carbon recovery	Y		
Construction, renovation and demolition materials	Y	Y	

Issue	Industrial	Institutional/ Commercial	Post-consumer
Sulphur	Y		
Fibre optic cable	Y	Y	
Pressure treated lumber	Y		Y
Railway ties	Y		
Water	Y		
Industrial waste heat	Y		
Household hazardous waste, e.g. paint			Y
Waste exchange leftovers	Y	Y	
Fly ash	Y		
Dry cell batteries (household rechargeables + alkaline)			Y

4. Criteria for Selecting Priorities

The session participants identified the following criteria for selecting resource recovery project priorities:

- Quantity of waste by weight and/or volume
- Potential environmental impact
- Risk to human health
- Sustainability (including social, environmental, financial)
- Time to implement (should be sooner rather than later)
- Achievability
- Potential for significant economic benefit
- Potential for social benefits
- A costly problem to resolve
- Effectiveness in saving natural resources
- Potentially exportable to other countries
- Availability of market for recovered materials
- Evidence of support by industry and the public (It was noted that lack of support does not necessarily mean that the issue should not be addressed.)
- Addresses a local concern
- Fosters sustainable behaviour
- Evidence that intervention of a demonstration project in the marketplace will kick-start the market

5. Barriers

Participants identified the following barriers to resource recovery:

- Transportation costs
- Environmental impacts of transportation
- Low landfill costs (low tipping fees)
- Externalized environmental costs (social and environmental costs not included in cost of product or tipping fees)
- Life cycle analysis not carried out on resource recovery solutions
- Successful urban programs are not necessarily viable in rural areas - there are vast rural areas in the Prairies
- Low volumes of wastes in remote areas make resource recovery economically unattractive
- Lack of recycling (collection, storage) infrastructure
- Uncertain or non-existent markets for products containing recycled materials
- Lack of match between supply and demand of secondary resources
- Concerns about quality of material being recycled and quality of products produced from recycled materials
- Negative perception of recycled products
- Resistance by public and elected officials to resource recovery because of the perception that recycling costs more than alternatives
- Lack of locally available technologies (need to learn from experience outside Canada)
- Lack of funding to implement projects/technologies locally
- Aversion by financial institutions to invest in environmental and recycling technologies because of perceived environmental and economic risk
- Consumer indifference to resource recovery/recycled products
- Lack of capitalization of resource recovery projects
- Lack of marketing skills by resource recovery entrepreneurs
- Start-up costs of resource recovery projects
- Lack of depth/capacity in start-ups

- Lack of continuity of education/awareness programs
- Lack of availability of recycled products in retail stores
- Higher cost of recycled products
- Competition to secondary resource products from suppliers of natural resources
- Markets for recycled products tend to be 'niche' markets
- Lack of incentives in the Industrial Commercial Institutional (ICI) sector to reuse, recycle
- Lack of emphasis on product substitution
- Comfort with the status quo
- Need to connect resource recovery technology users with the R&D community
- Current product standards and management process standards prohibit or discourage use of recycled materials (ISO/EMS)
- Not In My Backyard syndrome, e.g. pyrolysis

Main Groupings of Barriers
<ul style="list-style-type: none">- Remote and low density populations result in long transportation distances and low volumes that make collection and recovery of materials very costly- Capitalization, marketing, capacity gaps associated with start-ups exacerbated by investor concerns about environmental risks- Lack of collection, storage infrastructure- Life cycle and social and environmental costs not included in costs of products- Lack of public and political will to recover resources- Price fluctuations in natural resource commodities affect competitiveness of recycled resources

6. Roles

The following roles for governments (all 3 levels) to play in enhancing resource recovery were identified:

Roles for Governments

- Policies to encourage green power (e.g. dollar incentives, tax incentives similar to flowthroughs for mining companies)
- Laws and regulations that encourage resource recovery rather than disposal
- Standards and certification for resource recovery (specify when and how a product can legitimately claim to be recycled)
- Market incentives that are softer than fiscal instruments, e.g. rebates for low water use faucets, energy efficient light bulbs, and green box for recyclables, etc.
- Lead by example, e.g. procurement of products with recycled content, practice product stewardship, etc.
- Coordinate with other government levels, extended producer responsibility programs, harmonization of regulations, initiatives across Canada
- Use Canadian Council of Ministers of the Environment to coordinate across Canada
- Help provincial levels deal with international companies
- Build capacity in institutions through education and awareness and by providing know-how
- Recover methane from landfill
- Provide financial incentives for resource recovery
- Institute/require full cost accounting
- Pressure to 'design for environment'

7. Opportunities

Group discussion revealed the following opportunities for improving resource recovery in the region:

- Build on/extend current successes, e.g. tire program in Alberta
- Government and large industry should show leadership in procurement of products containing recovered resources.
- Consider cogeneration projects

- Consider combined heat and power projects, district heating, etc.
- Opportunities for improved networking/sharing of experience and information should be considered.
- Map secondary resources in a manner similar to the mapping of natural resources by the Geological Survey of Canada
- Partnership models, e.g. work with suppliers to provide 'recyclable' or 'green' alternates, e.g. glue that dissolves in water
- Consider integrated approaches to resource recovery, use a suite of tools/approaches

8. Projects

Participants identified a variety of possible resource recovery projects in the region. These are presented in Table 8-1 below under the headings of crosscutting, post-consumer, institutional and industrial projects. Participants were encouraged to consider the following questions when introducing projects:

- What is the project?
- Who is the proponent of the project?
- What resource recovery issue does it address?
- Who are the potential or existing partners and co-funders?
- What is the estimated cost?
- What sector/barrier does the project address?

Details of project submissions received after the April 23 session are given in Table 8-2.

Table 8-1: Potential Resource Recovery Projects

Project	Sponsor	Impact	Cost	Potential Partners
CROSS-CUTTING				
Develop an integrated organic matter utilization system that manages agricultural and municipal waste and produces biogas and fertilizer		<ul style="list-style-type: none"> Addresses major public concern about agricultural wastes, recovers energy, saves natural resources 		Alberta Research Council, Alberta Cattle Producers, and Agriculture Canada
Recover waste heat from industry for use in district heating and greenhouses		<ul style="list-style-type: none"> Recovers energy, creates local jobs, saves transportation costs/impacts for delivery of produce 		Alberta's Industrial Heartland
Inventory secondary resources (similar to natural resource geological surveys) - include wind?	Alberta Environment			Recycling Council of Alberta, Alberta Environment, and NRCB?
Establish a Resource Recovery Centre of Excellence - Industrial Commercial & Institutional (ICI) waste needs should be included		<ul style="list-style-type: none"> Connect service providers with customers Provide training Technology commercialization Business start-up 		Municipalities? Researchers?
National study of landfill full cost pricing to understand regional differences and relation between resource recovery markets and landfill pricing and banning of material from landfills. Need to flesh out terms of reference - should study be by individual commodity or not? Costs to be included: property, disposal, construction, operation, monitoring, closure	Recycling Council of Alberta	<ul style="list-style-type: none"> Addresses full cost accounting barrier Helps make certain types of recycling viable Establish a benchmark of best practice 	~\$500k	Green Municipal Fund, NRCan ICI/corporate, Solid Waste Association of North America (SWANA), and Alberta Environment

Project	Sponsor	Impact	Cost	Potential Partners
<p>Biomass Gasifier Based Combined Heat, Power and Greenhouse project. Demonstration of biomass gasifier to generate energy from current nonrecyclables and supply energy to greenhouse. The project is applicable to small communities (over 35,000 population) with landfill issues, and to lumber operations. Demonstration project will handle 52,000 tonnes/year of waste wood, plastic, cardboard, sewage sludge, etc.; up to 4.2 MW power can be produced. (A project sheet has been submitted.)</p>	<p>WinterGardens</p>	<ul style="list-style-type: none"> • Designed for small communities; applicable to remote northern communities • Addresses post-industrial, post-consumer • Reduce landfill GHG • Reduces fuel transportation costs for produce • Could be marketed internationally 	<p>Total cost \$13 Million. (Phase I: \$3.65Million Phase II: \$4.4 Million Phase III: \$5 Million)</p> <p>Funds from NRCan: up to \$850,000 in Phase I</p>	<p>Whitefish Lake First Nation, Private company, Department of Indian Affairs and Northern Development (DIAND), Climate Change Action Fund (CCAF), Banks, and Power producers.</p>
<p>Computer/Electronics Recycling Program for Saskatchewan. Modify existing facilities to establish electronics recycling program in Saskatchewan. Advanced Disposal Fee will pay for program (fee estimated: 1½ -2% of retail value for CPU, printer, keyboards and peripherals; 4% for CRT monitors). (A project sheet was submitted prior to the consultation session.)</p>	<p>SARCAN Recycling</p>	<ul style="list-style-type: none"> • Provides employment for adults with disabilities • Markets (diverts from landfill) all electronics • Addresses post-consumer, industrial, institutional sectors 	<p>\$120k (?) to establish the pilot program, after 1 year.</p>	<p>ITAC, Electronics retailers and manufacturers, Industry Canada, NRCan, Govt. of Saskatchewan, Rehabilitation Centres of Saskatchewan, and Disabled Workers.</p> <p>Funding from federal or provincial governments could be directed to public education.</p>
<p>Turn Calgary landfill cell into a methane digester, mine the remaining compost</p>	<p>City of Calgary</p>	<ul style="list-style-type: none"> • Recovers energy and materials from landfill • Saves natural resources 		
<p>Cleanit Greenit Composting Site. Establish a composting project to address up to 40,000 tonnes/year of non-hazardous organic waste (ICI or municipal or both) using Cleanit Greenit Composting technology. (A project sheet has been submitted.)</p>	<p>Cleanit Greenit Composting System Inc.</p>	<ul style="list-style-type: none"> • Diverts material from landfill • Saves natural resources 	<p>\$ 4 Million</p> <p>\$500,000 is requested from NRCan</p>	<p>City of Calgary, City of Cochrane, KC Environmental Group Ltd., businesses providing wastes, IRAP/NRC or TEAM, and CRRS/NRCan.</p>

Project	Sponsor	Impact	Cost	Potential Partners
Establish a website based clearing house (waste exchange) dedicated to commercial and residential demolition wastes	K-Lor Contractors	<ul style="list-style-type: none"> • Diverts material from landfill • Saves natural resources 		
Establish collection systems for end of life products from ICI locations		<ul style="list-style-type: none"> • Diverts material from landfills • Extends landfill life 		
POST-CONSUMER				
Provide collection infrastructure for public service areas, e.g. gas stations		<ul style="list-style-type: none"> • Extends landfill life 		Recycling Council of Alberta, Alberta Environment, BCMB?, AUOMA?
Gasify residuals from post-consumer waste stream to produce energy (waste biomass and automotive shredder residue could also be included). Techno-economical feasibility study will be completed in fall of 2002 (partially funded by Green Municipal Enabling Fund). The next step will be a 20 MW demonstration facility. (A project sheet has been submitted.)	City of Edmonton	<ul style="list-style-type: none"> • Recovers energy • Reduce GHG emissions • Diverts material from landfill • Saves natural resources 	\$80 Million to \$100 Million (1.5-2.5 yrs) NRCan funds up to 50%; (City of Edmonton 10%, industry partner up to 80%)	Epcor, Alberta Research Council, University of Alberta, gasifier technology vendor, federal and provincial governments (capital cost & policy support: GHG credits, clean energy incentives).
INSTITUTIONAL				
Carry out onsite composting in remote areas (municipal waste from small remote areas).		<ul style="list-style-type: none"> • Diverts material from landfill 		Northern Care
Investigate/assess small-scale technology applications and collection options for rural/ remote communities, e.g. baler twine				Northern Care Agriculture Canada
Energy from landfill gas using fuel cell technology. Demonstrate the feasibility of using new stationary fuel cell technology to produce electrical energy directly from landfill gas. 2x600 kW demo units. (A project sheet has been submitted.)	City of Edmonton	<ul style="list-style-type: none"> • Energy recovery at higher efficiency • GHG reduction • Applicable to rural Canada 	\$ 5 Million. NRCan up to 50% (City of Edmonton 10%, industry partner up to 80%)	Alberta Research Council, University of Alberta, Utilities, Fuel cell technology vendor, federal and provincial governments (capital cost & policy support: GHG credits, clean energy incentives).

Project	Sponsor	Impact	Cost	Potential Partners
Zero Waste/Organics Recycling Initiative. Carryout a demonstration project in the Bow Valley to test options for low-cost centralized composting (low-tech) in mid-sized rural communities; include full cost analysis, identify barriers and costs. Develop an alternative to the shipping the waste for landfill in Calgary area (140 km away) at a cost of \$60/tonne; convert 10,000 tonnes/year of organic waste into compost and soil amendment products. (Description includes details from project sheet submitted after the April 23 consultation.)	Bow Valley Waste Management Commission (BVWMC)	<ul style="list-style-type: none"> • Diverts municipal solid waste from landfill • Convert waste into compost and soil amendment products • GHG reduction (much lower transportation distance) 	Phase I (12-18 months): \$140,000 Phase II (12 months): \$ 3 Million Total: \$3.14 Million.	Federal and Provincial governments, Member Municipalities, Banff National Park, and Private Partnerships.
INDUSTRIAL				
Find new market opportunities for sulphur <ul style="list-style-type: none"> • sulphuric acid • agriculture use 	Alberta's Industrial Heartland			Shell Syncrude Suncor
Assess barriers to recovering industrial wastewater being deep-well injected				Newalta, and the Alberta Energy Utility Board (AEUB)
Develop recovery options for fast food waste stream, e.g. composting options, packaging improvements (biodegradable)		<ul style="list-style-type: none"> • Landfill diversion 		Alberta Research Council, And the Recycling Council of Alberta
Develop methods to remove flammable materials clinging to steel from recycled tires	Tire Recycling Management Association of Alberta	<ul style="list-style-type: none"> • Currently steel recyclers are reluctant to take steel from recovered tires (due to risk posed by flammable materials clinging to metal). 		
Replace wooden poles and ties that require toxic preservatives with composite poles and ties made from end of life products	Recycling Council of Alberta	<ul style="list-style-type: none"> • Avoids contamination due to toxic preservatives • Saves natural resources 		

Project	Sponsor	Impact	Cost	Potential Partners
Roofing Product from Recycled Tires. Develop a lean manufacturing model that can be replicated; to optimize layout and material flows for manufacturing facility that makes roofing product from recycled tires; could also address product standards; model applicable to any end-of-life product recycling operation. (A project sheet has been submitted.)	CETAC-West (on behalf of GEM Inc.)	<ul style="list-style-type: none"> Addresses barrier of undercapitalization of start-ups Addresses gaps of funding for marketing & business & facility design Diverts waste from landfill Maximize beneficial use of recycled tires Reduce demand for asphalt shingles, energy intensive clay tiles and wooden shingles 	Manufacturing study: \$50k-\$100k (2-4 months) Existing plant upgrade: \$500k-\$1M (6mo. -1year)	GEM Inc. and Sustainable Development Technology Canada (SDTC). (50% from GEM Inc. and 50% equity or loan from SDTC is foreseen for both the manufacturing study and the existing plant upgrade.)

Table 8-2: Project submissions received after the April 23 consultation

Project	Sponsor	Impact	Cost	Potential Partners
INDUSTRIAL				
Wood Waste Mulch Project for Forestry Industry in Alberta. A mulch facility to handle 100,000 tonnes/year of wood waste generated by the forestry industry in Alberta. Project requires some research and development. Target markets for the mulch include the landscaping industry and the oil and gas reclamation sector. (A project sheet has been submitted.)	KC Environmental Group Ltd.	<ul style="list-style-type: none"> Diverts wood waste from landfill Reduce greenhouse gases Convert waste into soil rejuvenation products 	\$ 3 Million over three years. \$600,000 sought from NRCan	Weyerhaeuser or Millar Eastern. (KC Environmental Group Ltd will cover \$500k, Business Bank of Canada \$400 k, and the forestry company \$1,500 k multi-year processing contract).

Project	Sponsor	Impact	Cost	Potential Partners
POST-CONSUMER				
<p>Public Area Recycling Options. This project will address the lack of adequate recycling infrastructure in public service areas such as gas stations and convenience stores. Volumes and composition of waste will first be quantified with the objective of developing options to divert viable portions of this waste stream. The primary focus will be on packaging waste including beverage containers, oil containers, windshield washer jugs, and snack food packaging. An enhanced recycling infrastructure for public service areas will then be implemented. (A project sheet has been submitted.)</p>	<p>Recycling Council of Alberta</p>	<ul style="list-style-type: none"> • Divert waste from landfill • Develop and implement viable options to divert packaging waste 	<p>Research Phase I: \$120,000 Implementation Phase II: \$1,000,000</p>	<p>Alberta Environment, Alberta Used Oil Management Association, Beverage Container Management Board.</p>
<p>Rural Municipal Compost Facility. A demonstration project designed to divert organic material from the residential waste stream to a centrally-located municipal composting facility. This project will supplement existing backyard composting program (not all residents have one; often inadequate to handle all the yard clippings and organic waste generated by a household). The municipal composting program will also encourage wider participation of residents in composting through education. (A project sheet has been submitted.)</p>	<p>Northern Coordinated Action for Recycling Enterprises (Northern CARE)</p>	<ul style="list-style-type: none"> • Reduce waste going to landfill in rural northern Alberta • Supplement existing backyard composting initiative, particularly when volumes exceed the capacity of individual units. • Reduce demand for chemicals and fertilizers • Extend landfill life • Raise public awareness of the benefits of composting 	<p>To be determined.</p>	<p>Alberta Environment (Action on Waste), Federation of Canadian Municipalities (FCM), Recycling Council of Alberta, Natural Resources Canada, Northern Alberta Development Council, Northern Alberta rural municipalities, and local businesses and industries.</p>

Attachment I

**CONSULTATIONS ON
A CANADIAN RESOURCE RECOVERY STRATEGY**

- A Background Paper -

April 12, 2002

1. Introduction

Resource recovery seeks to recover materials and energy at the end of product life in an economic, social and environmentally sustainable manner. Natural Resources Canada (NRCan) wishes to identify potential demonstration resource recovery projects that are reflective of Canada's unique circumstances. These projects will form the basis of a Canadian Resource Recovery Strategy.

NRCan is undertaking a consultative process with all interested partners to solicit their views and ideas in a series of discussion fora to identify resource recovery priorities and recommend economic and environmentally sustainable demonstration projects for co-funding. Your input to this process is being sought.

NRCan is targeting to identify projects, funding partners and levels that can be incorporated in a resource recovery strategy that reflects the needs of all regions across Canada. From these consultations a business case will be developed and presented to federal senior management in the fall of 2002.

2. The Process

Consultations are planned during April and May in the following locations:

- Vancouver, B.C. covering B.C. and the Yukon
- Edmonton, Alberta covering Alberta, Saskatchewan and Manitoba
- Yellowknife, N.W.T. covering the North West Territories
- Toronto, ON covering Ontario
- Montreal, QC covering Quebec
- Halifax, N.S. covering Atlantic Canada
- Iqaluit, Nunavut covering Nunavut

The objectives of the consultations are to identify:

- resource recovery priorities in urban and rural communities across Canada;
- resource recovery priorities north of Canada's 60th parallel;
- barriers to resource recovery in each region;
- potential resource recovery demonstration projects in industrial, post-consumer and institutional sectors;
- estimated levels of project funding and co-funding partners.

Participants are requested to come to the meeting with one or more of the following:

- local resource recovery issues and opportunities;
- sectoral resource recovery issues and opportunities, i.e. industrial, institutional, post-consumer;
- barriers encountered in addressing the above issues and opportunities;
- potential demonstration projects that need co-funding to implement.

A draft format for identifying potential demonstration projects is attached for your consideration (see Appendix I). One form for each potential demonstration project should be completed and taken to the consultation meeting.

The priorities, barriers and demonstration projects identified over the course of the consultations will be compiled in notes that will be transmitted to all participants. NRCan will use the results of the consultations to recommend demonstration projects for co-funding by the federal government.

3. CONTEXT

3.1 Background

Domestic and global demand for recycling and recycled products has been steadily increasing, and will continue. Both industrialized and non-industrialized economies are being challenged to be efficient and competitive, and to ensure the environmentally sound management of products and materials throughout their life cycle.

The recycling of products is becoming a highly competitive growth industry. Recycling is recognized as being resource efficient and is one of the means of achieving industrial and commercial stewardship together with associated reductions in greenhouse gas emissions. Domestic and international pressure for the adoption of prevention-oriented measures that maximize the material and energy efficiency of products in their design and manufacture is growing. This pressure is creating opportunities for cost-effective and environmentally sound recycling and reuse of products at the end of their planned economic life.

Canada has been blessed with geography and geology rich in naturally occurring resources. Due to the multi-elemental complexity of many ore bodies, the challenges presented in harvesting multiple species of forest resources and oil exploration and extraction, Canada has unique and highly specialized competencies in natural resource management and production expertise. This specialized resource management knowledge base combined with existing infrastructure of modern processes and production facilities, provide a significant advantage in managing complex recyclable resource materials arising from both post industrial and post consumer sectors.

Small and Medium-size Enterprises (SME's) have their own special opportunities, needs and challenges. For them, a typical challenge is to secure access to small-scale technologies and processes for resource recovery that are affordable and cost-effective, and that do not necessarily rely on direct or regular access to more sophisticated centralized recovery facilities. SME's remain the backbone of Canada's economy, responsible for a high proportion of employment, growth.

In absolute terms resource recovery operations are most attractive in urbanized regions, but in relative terms can occasionally be of greater significance in sensitive rural and remote areas. The North would be a particularly significant case in point, as would be valuable farming and tourism areas and regions with delicate ecosystems and valued natural amenities. In communities and regions where haulage of recyclable materials to centralize recovery operations is too costly or impractical, local small-scale recovery enterprises may present an attractive alternative and opportunity.

Canada has an opportunity to establish itself as a global leader in niche areas of resource recovery, with a positive image as a responsible life-cycle manager of products. There is a need to develop and promote Canadian technologies and approaches that can compete in the growing global market for viable and environmentally responsible resource recovery technologies and expertise. In order for this to happen Canada has to remain an active and credible participant in international policy developments affecting both global markets for recyclable materials and the access to foreign markets of Canadian products.

3.2 The Canadian Resource Recovery Strategy

NRCan is facilitating the development of a Canadian resource recovery strategy. Canada needs a strategy for the following reasons:

- to improve material and resource efficiencies,
- reduce environmental impacts of resource use,
- contribute to Canada's plan to reduce greenhouse gas emissions,
- address the unique challenges and opportunities to resource recovery posed by Canada's geography, population distribution and climate,
- position Canada to be a global leader in niche areas of resource recovery.

Resource recovery consists of measures to maximize the economic opportunities and success in - recovering products (and by-products), materials and energy at the end of product life, and putting them back to work in the economy through recycling and reuse.

A resource recovery strategy focuses on the promotion and support of innovative product design and supportive public, private and consumer policies and practices that a.) increase the recoverability of valuable material and energy resources at the end of product life; b.) improve access to recoverable products, materials and energy (including product components and by-products) by those involved in the recycling and reuse sectors; and c.) enhance the efficiency and environmental soundness of recycling and reuse. Cost-effective and environmentally sound resource recovery optimizes the productive use of natural resources, minimizes waste generation and related treatment and disposal costs and supports industrial innovation and competitiveness.

Effective resource recovery efforts involve complex policy, technology, regulatory, and infrastructure issues that transcend traditional industrial, commercial, institutional and consumer sector and inter-jurisdictional boundaries. Strong partnerships with provinces/territories, communities, industry, consumers and public stakeholder groups are vital to successful approaches. The establishment of a consultation process identifying projects that will have an impact on the recovery of materials currently going to waste is an essential start.

Three key elements need to be addressed when developing a cost-effective, environmentally sound resource recovery strategy than can advance Canada's sustainable development goals:

1. How to inform, influence and engage decision-makers in governments, industry, non-governmental organizations and Canadians generally in taking appropriate action in resource recovery activities. Shifting the paradigm, from considering end-of-life products and materials as a waste to looking at them as valuable resources to be recovered for further economic use, will be crucial to increased recovery activities

2. How to advance technologies, processes and supporting institutional networks and infrastructure so that they better support resource recovery. The availability of cost-effective and environmentally sound technologies, infrastructure, equipment and processes is vital to the growth and development of domestic resource recovery operations. This includes both upstream technologies and approaches for the design of products that are amenable to cost-effective recovery at the end of their planned economic life, and downstream technologies and approaches for the efficient and effective diversion, extraction, separation, reuse and recycling of materials and energy
3. How to create and maintain a policy and regulatory environment that facilitates and reinforces cost-effective and environmentally sound resource recovery. At the heart of a viable resource recovery sector in Canada is a favourable domestic climate for investment in, and operation of, resources recovery operations. The complex array of regulatory and other policy measures affecting the operation and financing of resource recovery operations influence profoundly the overall financial and operational viability of many reuse and recycling initiatives.

4. Project Criteria

Demonstration projects are to be identified that:

- will develop and promote Canadian technologies and approaches that can compete in the growing global market for viable and environmentally responsible resource recovery technologies and expertise;
- inform, influence and engage decision-makers in governments, industry, non-governmental organizations and Canadians generally in taking appropriate action in resource recovery activities;
- advance technologies, processes and supporting institutional networks and infrastructure so that they better support resource recovery;
- create and maintain a policy and regulatory environment that facilitates and reinforces cost-effective and environmentally sound resource recovery.

The projects should:

- be capable of being economically, environmentally and socially sustainable;
- have willing partners from other levels of government, industry, community groups and other interested stakeholders;
- recover products and materials at the end-of-life for industrial, institutional and post consumer levels of society;
- address local priorities and have active local champions,
- be reasonably well-defined
- need co-funding to implement.

5. Conclusions and Next Steps

Following the stakeholder consultation sessions and any written comments submitted by May 31, 2002, a summary of the comments received will be compiled and circulated to interested stakeholders. Taking these comments into account, an overall strategy will be developed. The recommended demonstration projects and funding levels and partners will form the basis of the strategy. It is anticipated that the strategy will be submitted for funding approval in the fall of 2002.

Stakeholder views on these proposals are an important element of the Canadian resource recovery strategy process. Your views are greatly appreciated.

6. Appendix I

Canadian Resource Recovery Strategy

Draft Format to Identify Potential Projects

- Title
- Originator (with address and contact information by e-mail, Fax and telephone.)
- Brief description of proposed project
- Type of project: industrial, post-consumer, institutional.
- Geographical Emphasis: north of 60th parallel, urban and/or rural.
- Estimated impact on material and/or energy recovery.
- Estimated total cost of the project, and estimated timeframes.
- Potential partners in project.
- Estimated funding sources and levels

Attachment II
Consultations on a Canadian Resource Recovery Strategy
Edmonton/Prairie Provinces Consultation - April 23, 2002
Sheraton Grande Edmonton Hotel - (Winterlake Room)

Agenda

8:00 am	Registration & Refreshments	
8:30 am	Welcome / Workshop Objectives	Roger Yates
8:40 am	Round Table Introductions	All
9:00 am	Overview of CRRS Strategy	Mike Clapham
9:20 am	Panel Introductions	
9:30 am	Panel Discussion on Priorities, Issues Relating to Urban and Rural Contexts:	Invited Local Representatives
	- Industrial	J. Ashley Nixon, Shell Canada
	- Institutional	Bob Mitchell, Albert Government
	- Post-consumer	Wyn Vander Schee, City of Calgary Christina Seidel, Recycling Council
10:15 am	Break	
10:30 am	Plenary Discussion	All
11:15 am	Introduction of Issues to be addressed by breakout Groups	Carole Burnham
11:30 am	Breakout Group Discussions	All
12:30 pm	Networking buffet lunch	
1:15 pm	Breakout Groups - Continue Discussions	All
3:00 pm	Break	
3:15 pm	Groups Report to Plenary/Group Discussion	Chair: Carole Burnham
3:45 pm	Round Table Closing Comments/Issues	All
4:15 pm	Next Steps	Mike Clapham
4:30 pm	Summary / Thank You's	Roger Yates
4:45 pm	Adjourn	

Attachment III

Consultations on a Canadian Resource Recovery Strategy Edmonton/Prairie Provinces Consultation - April 23, 2002

List of Participants

Company	Name	Contact Number	E-mail Address
Alberta's Industrial Heartland	Larry Wall	780-414-0066	larrywall@industrialheartland.com
Alberta Research Council	Stacey Schaub-Szabo	780-450-5360	szabo@arc.ab.ca
Alberta Research Council	Xiaomei Li	780-450-5290	xiaomei@arc.ab.ca
Ascherwordsmith ABCRC (Beverage Container Recycling Corp.)	Avery Ascher Guy West	204-624-5548 403-264-0170	avery@ascherwordsmith.com gwest@abcrc.com
Alberta Government	Bob Mitchell (Panellist)	780-422-8464	Bob.Mitchell@gov.ab.ca
Alberta Government	Judy Morris	780-422-2144	Judy.Morris@gov.ab.ca
AMEC	Gary Willson	403-569-6515	Gary.Willson@amec.com
Alberta Plastics Recycling Association	Douglas Flood	780-426-1493	dflood@cpia.ca
Bow Valley Waste Mgmt Commission/ Wild Earth Associates Inc.	Al Tinholt	403-609-0321	BVWMC@wildearth.ab.ca
The City of Calgary	Wyn Van der Schee (Panellist)	403-230-6631	wyn.vanderschee@gov.calgary.ab.ca
The City of Edmonton	Bud Latta	780-496-5415	bud.latta@gov.edmonton.ab.ca
DOW Chemical Canada Inc.	Thomas Pearson	780-998-8292	tpearson@dow.com
CETAC West	Don Colley	403-777-9595	dcolley@cetacwest.com
Federation of Canadian Municipalities	Sherri Watson	613-792-1357	smwatson@magma.ca
Hatch	Carole Burnham (Facilitator)	416-445-0500	cburnham@attcanada.ca
Hatch	Roger Yates (Facilitator)	905-403-4131	ryates@hatch.ca
K-Lor Contractors Services Ltd.	Dan Zembal	403-255-7303	dzembal@sitecleanup.com
Newalta	Peter Dwan	403-236-2203	pdwan@newalta.com
Northern Coordinated Action for Recycling Enterprises	Christine Della Costa	780-732-9311	executivedirector@northerncares.org
NRCAN	Mike Clapham	613-992-4404	mclapham@nrcan.gc.ca
Organic Soil/Cleanit Greenit Composting System Inc.	Kirstin Castro- Wunsch	780-488-7926	kirstin@cleanitgreenit.net
Recycling Council of Alberta	Christina Seidel (Panellist)	403-843-6563	cseidel@telusplanet.net
SARCAN Recycling	Kevin Acton	306-933-0616	kacton@sarcana.sk.ca
Shell Canada	J. Ashley Nixon (Panellist)	403-691-4965	ashley.Nixon@shell.ca

Company	Name	Contact Number	E-mail Address
Telus Corporation (also: Recycling Council of Alberta -- President)	Wendy Luther	780-493-7347	wendy.luther@telus.com
Tire Recycling Management Association of Alberta	J. Kevin O'Neil	780-990-1111	kevin.oneil@trma.com
Suncor Energy	Dianne Humphries	403-269-8728	dhumphries@suncor.com
WinterGardens Energy Recovery Systems L.P.	Myron Sparklingeyes	780-447-3013	wintergardens@shaw.ca

Unable to Attend but Request Documentation:

Company	Name	Contact Number	E-mail Address
Husky Oil	Dave Kay	306-825-1515	DAVE.KAY@huskyenergy.ca
Saskatchewan Industry and Resources	Ray Chan	306-787-2993	rchan@ir.gov.sk.ca