

Sustainable Development Technology Canada Announces its Third Round of Funding for \$20.4M for Clean Technology Projects

Innovations Will Contribute to Cleaner Air, Greenhouse Gas Reductions and Enhanced Competitiveness of Canadian Companies

Ottawa -- Oct 21, 2003 – The Board of Directors for Sustainable Development Technology Canada (SDTC) are pleased to announce that it has approved, in principle, funding for 10 new projects totalling an SDTC investment of \$20.4M. These projects are currently leveraged by an additional \$56.3M of investment from other private and public sources.

If these technologies are successfully developed, the total contribution to Greenhouse Gas (GHG) emissions reductions is estimated to be 45Mt (mega-tonnes) annually. This is based on the consortia's self-reported estimates which assume widespread market uptake across Canada within the first Kyoto commitment period of 2008-2012. There is sufficient market uncertainty that SDTC discounts this value by 90% in terms of providing a conservative forecast for potential emission reductions. Of the ten projects, 2 have substantial clean air benefits.

SDTC is a \$350 Million investment fund established by the Government of Canada through Natural Resources Canada and Environment Canada, to further the development and demonstration of innovative technology solutions to reduce greenhouse gas emissions and improve air quality. SDTC's mandate is to act as the primary catalyst in building a sustainable development infrastructure in Canada. The Foundation operates as an arm's-length, not-for-profit Corporation with fifteen Directors on its Board.

"The Board is impressed with the quality and scope of applications that continue to be presented to SDTC. The response from across Canada remains healthy and is an indication that the marketplace has come to recognize the importance of SDTC funding. The Board was presented with such a strong slate of projects that it has decided to increase the amount of support from SDTC, which is almost double that funded in Round Two. This means that SDTC is moving from strength to strength but is just beginning to scratch the surface of the potential for sustainable development technologies in Canada," said SDTC Chairman of the Board, James M. Stanford.

"As SDTC is evolving, we are seeing greater participation of the SDTC team with the proponents at earlier stages in the application process. We are helping to strengthen partnerships, assist with additional private sector sources of funding and clarify the business case put forward by the consortia. This has resulted in higher quality applications with a greater likelihood of success. These are important early steps in building a clean technology infrastructure in Canada," said Dr. Vicky J. Sharpe, President and CEO of SDTC.

Over the initial three rounds, SDTC has invested approximately \$40M with leveraged funding of \$109M for a total project funding of \$149M. "The impacts of SDTC investments are beginning to be felt. Prior to its existence, Canadian venture capital (VC) investments in energy and the environment sectors averaged five seed stage deals per year. Within its initial two years, SDTC has invested in projects that have the potential to quadruple annual clean technology deal flow into the Canadian VC marketplace," said Sharpe.

"New technologies are essential to ensuring that Canada remains at the forefront of climate change solutions," said the Honourable Herb Dhaliwal, Minister of Natural Resources Canada. "The funding for these projects will help turn technological potential into reality."

"These investments by Sustainable Development Technology Canada reflect the importance of taking short-term action, while applying long-term thinking on climate change," said the Honourable David Anderson, Minister of the Environment. "The technologies supported by these investments will help Canada meet its obligations in the first Kyoto commitment period and, at the same time, lay the foundation for even greater emissions reductions in the future."

SDTC expects to make its fourth round funding announcements in the spring of 2004.

A summary of the technologies approved for contract negotiation follows in the attached Backgrounder.
For further information please check our website at www.sdtc.ca.

SDTC Backgrounder: Consortia Technology Summaries **from SDTC's Third Funding Round**

The following are the successful consortia which have been identified by the lead organization. A brief description of each technology is provided.

Lead Organization: RailPower

RailPower has developed an ultra-energy efficient switcher locomotive. Most railway switcher locomotives incorporate standard diesel-electric configurations which, because they are not built for the demanding stop-go environment of the railway switching yard, tend to operate inefficiently and emit large amounts of particulates. RailPower's prototypes are powered by custom designed lead-acid batteries which are kept at full charge by a computer-controlled, smokeless diesel generator.

- Industry Sector: Transportation
- Category: Clean air
- Consortium Member(s): ALSTOM, Transport Canada, CANAC

Lead Organization: Paradigm

Paradigm has developed a process for efficiently breaking down biological wastewater sludge. This patented technology, which the proponent calls *MicroSludge*[™], uses chemicals and a high pressure homogenizer to pre-treat waste sludge before it goes into an anaerobic digester, where decomposition is far more efficient. Conventional waste treatment methods are inefficient, and only break down 30 to 40 percent of the sludge. The remaining 60 to 70 percent of the sludge microbes are either applied to land or sent to a landfill, where subsequent uncontrolled decomposition releases significant amounts of methane into the atmosphere.

- Industry Sector: Biomass/organics
- Category: GHG with CAC co-benefits
- Consortium Member(s): PowerTech/BC Hydro, CH2M Hill, Chilliwack Waste Water Treatment, NRC, NRCan

Lead Organization: BET Services Inc.

BET Services Inc. and Overland Custom Coach Inc. will test and demonstrate eight prototype hybrid-electric shuttle buses in daily transit operation. The proponent claims that its battery-dominant design reduces GHG and CAC emissions by 40 percent compared with diesel, and that these buses are capable of driving for one hundred kilometers solely on battery power, producing zero emissions. Small diesel engines, operating at optimum speed, will keep the batteries charged—thereby reducing emissions for longer-distance service runs.

- Industry Sector: Transportation
- Category: Clean Air/Green House Gases
- Consortium Member(s): Overland Custom Coach, Other

Lead Organization: Blue-Zone

Blue-Zone has developed a unique technology to capture, reclaim and purify the leading halogenated inhalation anesthetic gases used in hospitals. These are aggressive greenhouse gases, with Global Warming Potentials of up to 1,900 times that of Carbon Dioxide. Most of these gases are routinely vented to the atmosphere during medical use. Blue-Zone's globally patented Delta™ technology can capture virtually all of the vented gases and extend the useful life cycle of anesthetics by ten to twenty times. In addition, Delta™ technology offers hospitals significant cost savings in their expenditures on anesthetic agents.

- Industry Sector: Emissions treatment, capture
- Category: Clean Air / GHG
- Consortium Member(s): University Health Network of Hospitals in Toronto (4 teaching hospitals); University of Toronto, Department of Anesthesia; Jayne Industries Inc.; Bodycote Materials Testing Canada Inc.; 3L Filters; Canadian Centre for Pollution Prevention and Ontario Centre for Environmental Technology Advancement (OCETA).

Lead Organization: Quantiam

Quantiam Technologies Inc. and NOVA Chemicals Corporation will enter into the prototype phase of a novel technology for enhancing the efficiency of existing and new olefins production facilities used to manufacture the single most important group of petrochemicals and representing an \$80 billion a year industry. The Consortium's catalyzed-assisted approach requires less heat energy, thereby producing less GHG and CAC emissions than conventional hydrocarbon steam cracking processes. If successful, this would provide a new and disruptive technology for worldwide olefins manufacturing. The proponents believe that there is a major commercial opportunity for anyone who can develop and market a less energy-intensive alternative to conventional hydrocarbon steam cracking.

- Industry Sector: Industrial/Emissions control, capture, cleanup
- Category: GHG with Clean Air co-benefits
- Consortium Members: Quantiam Technologies Inc., NOVA Chemicals Corporation, NOVA Research & Technology Corporation

Lead Organization: Cellex

Cellex Power Products, Inc. is developing fuel cell power products for use in Industrial Vehicles. The project focuses on developing fuel cell based Power Units for powering electric and internal combustion engine fork lift trucks. Cellex Power™ believes that, with SDTC help, it can be in a position to assemble Cellex fuel cell Power Units for commercial use by the end of 2005.

- Industry Sector: Transportation/Fuel cells
- Category: GHG / Clean Air
- Consortium Member(s): Fuel Cells Canada, Arpac

Lead Organization: PyroGenesis

PyroGenesis will test a transportable Plasma Resource Recovery System (PRRS), which converts industrial and municipal waste into fuel and construction materials. This technology uses a plasma torch to gasify waste material. This process is significantly different from conventional incineration, which emits problematic particulates and other pollutants.

- Industry Sector: Biomass/organics
- Category: GHG
- Consortium Member(s): SNC Lavalin, ONYX, Saint John

Lead Organization: Hydrogenics

Hydrogenics will lead a consortium of technology and end-user partners to develop, demonstrate, and pre-commercialize fuel cell-powered forklifts. This will involve outfitting two Class-1 forklifts with fuel cell propulsion systems and hydrogen storage systems, as well as developing refuelling capabilities, gathering market research, and demonstrating the newly outfitted forklifts to industrial end users. The project aims to demonstrate a number of value propositions for this potentially early-adopting market.

- Industry Sector: Transportation, Energy conversion/storage
- Category: Greenhouse gas, with clean air co-benefits
- Consortium Member(s): Deere & Company, FedEx, General Motors of Canada, HERA Hydrogen Storage Systems, NACCO Materials Handling Group, City of Toronto

Lead Organization: Cansolv

Cansolv Technologies Inc. has developed a way to reduce the cost of capturing CO₂ in flue gas. This technology grew from earlier projects that introduced ways of removing SO₂ from process emissions, which the proponent successfully implemented at Noranda and Philips Conoco. In collaboration with Paprican, Cansolv now wants to demonstrate its CO₂ capture technology at a large pulp and paper manufacturing site. The manufacturer will use the captured CO₂ to acidify peroxide-bleached pulp prior to papermaking and/or other applications such as the on-site manufacture of precipitated calcium carbonate, a common filler in several paper grades.

- Industry Sector: Emissions control, capture, cleanup
- Category: Greenhouse gas
- Consortium Member(s): Paprican, Tembec Inc.

For further information please contact SDTC through our website www.sdtc.ca.