

**CLIMATE CHANGE**

**TECHNOLOGY EARLY ACTION MEASURES (TEAM)**

**PHASE III  
BUSINESS PLAN AND  
MANAGEMENT FRAMEWORK**



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# I. Building On Past Performance And Accountability

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Technology Early Action Measures (TEAM) is an interdepartmental, technology investment program that was first established in 1998 under the Federal Government's Climate Change Action Plan. The program's unique approach, built on incremental financing and extensive networking, has brought together industry, community and international partners to encourage additional investment in innovative technology that reduces greenhouse gas emissions. TEAM operates under the leadership of Natural Resources Canada (NRCan), Environment Canada (EC) and Industry Canada (IC), with the participation of several other federal government departments. TEAM offers support to late stage development and first time demonstration projects to reduce greenhouse gas emissions nationally and internationally, while sustaining economic and social development.

TEAM has provided a very useful mechanism to steadily build **relations and networks** with provincial, and regional interests through multi-partner, multi-jurisdiction project based solutions for climate change mitigation, while contributing to the ongoing policy dialogue aimed at developing and implementing a national climate change strategy. TEAM was honoured in December 2000 with the distinguished Head of the Public Service Award for "Excellence in Policy".

**TEAM partners** include both small and large companies in Canada and abroad, as well as provincial, municipal and foreign government agencies. As of April 30, 2003: 98 projects, total project value \$930M, with \$94M from TEAM, \$96M originating from 45 Canadian federal government programs and departments, and \$740M in support from 319 companies, 42 non-federal government agencies & research institutions in Canada and abroad. To date, there are TEAM projects in 59 Canadian cities, 10 provinces and 2 territories and 16 countries. The ratio of federal investment to private sector and non-federal sources represents better than a 5:1 leverage. Table 1 provides an overview of TEAM's Federal Partners and Investments.

**Table 1**

TEAM Project Collaboration by Federal Delivery Agent (September 1998 – April 30, 2003)				
	<b># of TEAM supported projects</b>	<b>Federal Program/ Agency Support (\$K)</b>	<b>TEAM Funding support (\$K)</b>	<b>Total Project Values (\$K)</b>
TPC	10	67,898	19,700	270,884
NRC (IRAP)	5	706	1,594	5,212
IC (eg. EAB, Sus. Cities)	7	1,322	7,666	19,429
EC (eg. ETAD)	9	3,302	5,561	206,216
NRCan	59	20,911	55,117	410,357
DEC	3	850	1,356	7,801
WED	3	605	1,027	4,452
Others	2	190	928	5,768

Following Budget 2003 the Federal Government has established five major **priority areas** for the Climate Change Technology and Innovation initiative. TEAM's new investments for the period 2003/04 to 2007/08 form a component of this initiative. TEAM's past investments under the Climate Change Action Fund have provided a significant foundation of support for these new priorities as outlined in Table 2.



**Table 2**

TEAM Project Investments by Strategic Technology Priority Areas (September 1998 – April 30, 2003)					
	<b>Advanced End-Use Efficiency</b>	<b>Cleaner Fossil Fuels</b>	<b>Decentralized Energy Production</b>	<b>Biotechnology</b>	<b>Hydrogen Economy</b>
# of TEAM Projects in Priority Areas	26	10	25	20	17
TEAM funds to Priority Areas (\$K) (not including admin.)	22,870	8,897	21,877	18,314	19,445
Total Project Values for Priority Areas (\$K from all sources)	343,327	63,904	307,075	89,932	126,304

**TEAM's position** in the late stage development and first demonstration part of the **technology innovation** chain has enabled the federal government to support a wide range of technology options and paths for GHG reduction. TEAM's role in financing the late stage development and first demonstration of new technology has proven the importance of strategic partnering through the zone between R&D and commercial market implementation for new technologies. This zone is where companies find investment dollars and technical assistance very scarce, at the very time when they are most needed, to enable the move from R&D concept to business reality. A good fit with Sustainable Development Technology Canada (SDTC) has been established, with most of the first SDTC investments supporting companies who are "graduates" from TEAM partnerships.

TEAM has successfully harnessed the long-term R&D efforts of various federal departments and universities into a climate change mitigation focus. A key indicator of TEAM's successful role has been the **major subsequent private investments** made in several companies that have collaborated with the long-term federal R&D enterprise. Specific examples of these private investments include: a \$45M investment in Logen by Shell International; a 24% share purchase of Hydrogenics by General Motors Corporation; a \$7M investment in QuestAir by Shell Hydrogen; a 12.7% share purchase in Stuart Energy Systems by Cheung Kong Infrastructure Holding; and investments in Dynetek Industries by Mitsubishi Corporation (13%) and Ford US (10% in warrants). While the technologies are not yet in the marketplace, these investments indicate that the right business environment has been created and that appropriate choices have been made on the road to ultimate commercial success of the technologies and companies involved. Real technologies are already emerging in the marketplace as a result of TEAM financing. Mariah Energy of Calgary has demonstrated their residential/commercial combined heat and power microturbine system and has made the transition from private ownership to TSX listing. The technology has been verified by the US EPA GHG Verification Centre as part of TEAM's SMART road test effort and is being replicated across Canada and in the US.

TEAM has demonstrated that the best opportunity for new technology benefits in **international development** requires a sharing of the RD&D risk among business and government partners from both developed and developing countries. This approach has been a key factor in the successful implementation of TEAM small hydro projects in Nepal, Poland and China. A solar photovoltaic project with Automation Tooling Systems of Cambridge, Ontario, combined with an investment from CIDA, resulted in a successful joint venture company in Chang Shu, China. Successful solar demos by the company in China have already positioned the new enterprise to become a supplier to Volkswagen Mexico. Demonstrations are underway to apply Solarwall technology as a means of solar crop drying in India, Panama, China and Costa Rica.

The technology demonstration function has also enabled the benefits of new technologies to be realized through the sharing of real or apparent technical risk with **communities**. The Toronto Wind Energy Coop (Windshare) is an example of demonstrating new approaches to distributed energy financing, as well as the use of large wind energy technology in an urban setting. The Sudbury district energy project, with Toromont Energy, pioneered the combination of district heating with electrical power and grid interconnection and successful replication in the communities of Markham and Hamilton. Projects in the north have developed waste heat recovery from diesel power and alternative energy approaches. The Toronto deep lake cooling project is developing a significant alternative to conventional cooling systems in a major urban core, with the federal support (small funding, large technical support) being crucial to overcoming the enormous technical risk being undertaken by Enwave. TEAM financing and federal technical support enabled major demonstrations of potential GHG-reducing transportation technologies in Montreal (the Montreal 2000 electric vehicle demo and the Montreal Biodiesel Bus Demo).

TEAM has also enabled the development of new or improved targeted measure programs for GHG reduction. TEAM financed and assisted in the implementation of an **eco-efficiency innovation** program pilot with the Ontario Centre for Environmental Technology Advancement (OCETA). Designed to assist small and medium-sized enterprises (SMEs) to optimize plant processes and reduce energy, materials and water usage, the pilot uniquely combined a loan loss provision with Business Development Bank of Canada, with support from NRCan and NRC/IRAP. It led to an NRCan Ontario program pilot, and subsequently to a national energy efficiency program, under NRCan's Office of Energy Efficiency. Another new project in cooperation with the Alberta Government, through CETAC West in Calgary, is piloting the implementation of integrated energy and environmental efficiency audits, demonstrations of new technologies and study of performance indicators in the oil and gas sector. The very first demonstration has already led to implementation of significant energy efficiency savings at a BP gas plant in Alberta, and has proven the gains to be made in GHG reductions in this sector.

These substantive early actions on GHG reduction demonstrations form the base upon which TEAM can now contribute new, longer-term demonstrations through the Kyoto implementation period to 2012. Increasing emphasis will be placed on the evolving role of TEAM as a coordinator and integrator of diverse partners and new funding agencies into successful technology demonstrations.

TEAM is committed to report the **performance and impacts** of all TEAM funded projects. Therefore, TEAM has developed a methodology for **evaluating GHG emission reductions**, based on considerable research, consultations, collaborations, testing and valuable contributions from many experts and initiatives in Canada and Internationally. This GHG validation protocol is called the System of Measurement And Reporting for Technologies (**SMART**).

TEAM's pioneering work in development of SMART has culminated in the development of tools and methodologies for measurement and reporting of GHG reductions from technologies and projects. TEAM works with several international GHG standard/protocol bodies including the International Organization for Standardization (ISO), the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), and the Institute of Electrical and Electronics Engineers (IEEE). TEAM'S leadership in the area of GHG standards is well respected, and consequently TEAM is the lead author of the draft ISO International Standard for GHG projects.

Furthermore, the SMART protocol has been developed keeping in mind the need to provide insight to a technology by potential follow-on investors. Technical evaluation and performance and GHG emission reduction potential are intertwined and thus a potential investor should gain additional confidence in the technology results reported by the SMART protocol, particularly since it is completed by a pre-qualified third party evaluator.

In order to address deficiencies in national project and technology GHG protocols and tools, TEAM has established a SMART Protocol Coordination & Working Group to aid other programs and jurisdictions in building their own capacities and in disseminating these GHG tools to private sector partners. All SMART Lite and SMART Protocol work is coordinated through this committee co-chaired by TEAM Operations Office (TOO) and the Federation of Canadian Municipalities (FCM), with membership from TEAM, FCM, Pilot Emissions Removal, Reductions and Learning Initiative (PERRL), Sustainable Development Technology Canada (SDTC), GHG Verification Centre (GHGVC) and Agriculture & Agri-Food Canada (AAFC).

Many TEAM projects, including small hydro in Poland, forestry in Chile, solar in China, and landfills in Egypt and Argentina, are on the path to becoming CDM (Kyoto Clean Development Mechanism) or JI (Kyoto Joint Implementation) projects. TEAM GHG reporting forms much of the basis to substantiate the studies/application required to become a CDM or JI project.

In addition to successful companies evaluated using the SMART, TEAM projects have been verified under both the US EPA GHG ETV (Environmental Technology Verification) and ETV Canada (under licence with Environment Canada). For example, a 30 kW microturbine CHP (combined heat and power) project was verified to reduce GHG emissions by 180 Tonnes/year/unit, as well as to reduce NO<sub>x</sub> (oxides of nitrogen – a precursor to smog) by 95%. Thirty-six (36) microturbines have been installed throughout North America following completion of this project. A farm technology to manage animal wastes was verified to reduce GHG emissions by 64%. Various other projects have been evaluated using the SMART, including landfill gas projects, forestry, electric vehicles, cement, composting, biodiesel, and energy efficiency. Final study reports will be completed during 2004. TEAM has also assisted many projects to develop measurement and reporting plans, including solar, wind, biodiesel, hydrogen, manure management, oil & gas, buildings, municipal infrastructure, and energy efficiency.

## II. TEAM Program Description

### A) Mission

The overall TEAM mission is to identify, develop and support technology late stage development and demonstration projects and technology transfer opportunities in support of early action to reduce GHG emissions, domestically and internationally, while sustaining economic and social development.

TEAM will deliver longer-term demonstration of the climate change Technology and Innovation block. TEAM will retain its successful current mission and will enhance its management tools to: 1) target support for the new strategic priority areas in Table 3; 2) enhance linkages with arm's length organizations in the development and implementation of new projects; 3) encourage hybrid and integrative technology projects; and, 4) augment the importance of project reporting and technical performance during the review process.

Table 3 sets out the scope of the five Technology Priority Areas and anticipated results of TEAM Demonstration Projects.

**Table 3**

<b>Technology Demonstration Priorities</b>	<b>Technology Scope &amp; Examples</b>	<b>Partners</b>	<b>Anticipated Results</b>
<b>Cleaner Fossil Fuels</b>	Development & Demonstration of: <ul style="list-style-type: none"> <li>▪ Energy efficient &amp; low emission technologies for the production of bitumen &amp; heavy oil, cleaner upgrading and refining processes</li> <li>▪ Unconventional low carbon resources (coal bed methane and hydrates)</li> <li>▪ Advanced clean coal technologies, combined with CO<sub>2</sub> capture &amp; storage</li> </ul>	Industry, Industry groups and coalitions, international groups, SMES, power distributors, provincial research councils, NGO's	<ul style="list-style-type: none"> <li>▪ Increased power production efficiency.</li> <li>▪ Lower average GHG intensity per unit of activity.</li> <li>▪ Regional development &amp; diversification.</li> <li>▪ Improved air quality and overall health.</li> </ul>

Technology Demonstration Priorities	Technology Scope & Examples	Partners	Anticipated Results
<p><b>Advanced End-Use Efficiency Technology</b></p>	<p>Longer-term development/field trials &amp; demonstration of:</p> <ul style="list-style-type: none"> <li>▪ Integrated intelligent buildings and community systems management</li> <li>▪ Integration of renewable energy sources</li> <li>▪ Building energy-using and producing systems</li> <li>▪ Transportation vehicles, modes and systems</li> <li>▪ Advanced industrial process technology</li> <li>▪ Eco-efficient industrial systems.</li> </ul>	<p>Industry groups and coalitions, international groups, SMES, municipalities, commercial building &amp; land developers, community based coalitions/co-ops, transportation product developers</p>	<ul style="list-style-type: none"> <li>▪ Market uptake.</li> <li>▪ Reduction in technology &amp; services costs.</li> <li>▪ Industrial energy efficiency and improved bottom line.</li> <li>▪ Lower average GHG intensity per unit of activity.</li> </ul>
<p><b>Biotechnology</b></p>	<p>Development &amp; Demonstration of:</p> <ul style="list-style-type: none"> <li>▪ Biomass and wastes conversion including cellulosic ethanol, other biofuels and green chemistry</li> <li>▪ Plant biotechnology and industrial processes</li> <li>▪ Biomass production, harvesting and transportation</li> </ul>	<p>Agriculture &amp; industry groups and coalitions, community co-operatives, provinces international groups, SMES, NGO's etc.</p>	<ul style="list-style-type: none"> <li>▪ Larger capacity and demonstration facilities.</li> <li>▪ Prove/increase production capacity for alternative fuels.</li> <li>▪ Address surface &amp; groundwater issues.</li> <li>▪ Develop linkages with large U.S. agriculture technology programs.</li> </ul>

<b>Technology Demonstration Priorities</b>	<b>Technology Scope &amp; Examples</b>	<b>Partners</b>	<b>Anticipated Results</b>
<b>Hydrogen Economy</b>	Development & Demonstration of: <ul style="list-style-type: none"> <li>▪ Stationary and transport fuel cell &amp; hybrid applications, associated enabling technologies (electronic inverters),</li> <li>▪ Hydrogen infrastructure &amp; refueling (H2 extraction and conditioning), as identified by the Early Adopters Initiative</li> </ul>	Industry groups and coalitions, international groups, SMES, policy developers	<ul style="list-style-type: none"> <li>▪ TEAM role will be to address technology innovation gaps to support the "H2 Villages and/or "H2 Highways" and other such H2 projects/ programs</li> </ul>
<b>Decentralized energy production</b>	Development & Demonstration of: <ul style="list-style-type: none"> <li>▪ Technologies for small to intermediate scale fossil fuel conversion (microturbines)</li> <li>▪ Renewable energy use – Wind turbines, wave energy, solar/ PV, storage capabilities, biomass &amp; agricultural residue conversion technologies</li> <li>▪ Integration of technologies into the grid (sensors and controls)</li> <li>▪ Hybrids – for both on and off-grid applications</li> </ul>	Small utilities, micropower, industrial power producers, homeowners & commercial project developers, co-operative & grassroot organizations, NGO's, municipalities	<ul style="list-style-type: none"> <li>▪ Lower energy costs.</li> <li>▪ Reliable energy supply systems.</li> <li>▪ Remove non-technological barriers (i.e. grid-tied connections).</li> <li>▪ Lower average GHG intensity per unit of activity.</li> <li>▪ Develop codes and standards</li> <li>▪ Generation of knowledge to develop policy</li> </ul>

## B) TEAM Demonstration Characteristics and Process

While the mission and formula for TEAM success will be continued, some specific changes are proposed in this TEAM Business Plan to ensure that TEAM projects remain consistent with new federal government priorities.

Continuing/enhanced principles will include:

### Process

- Efficiency and minimal bureaucracy; domestic and international scope; transparency of process and decisions; leveraging of government expertise, networks and programs; verifiability and accountability for GHG measurement and reporting.
- TEAM 's unique financial and administrative Authorities were developed in conjunction with Finance and Treasury Board in 2001 and have enabled the forging of interdepartmental and inter-agency partnerships that would not otherwise have occurred. This capacity will be continued and enhanced in the new business plan.
- Linking project approval to sound GHG reduction estimates, sound GHG reduction validation practice, to strategies and management quality of individual companies, to government policies and strategies relating to key sectors and enabling technologies, to departmental priorities and branch/division strategies.
- TEAM funds will be leveraged internally within the federal allocation by a minimum of 15% from federal agencies, with a preferred leverage of 25%.
- Federal funds will be leveraged externally from the private sector and other governments by at least a 1:1 ratio The overall TEAM portfolio target will be 5:1 (other financing sources: TEAM).

### Anticipated Outcomes

- TEAM will continue to emphasize support for a broad range of climate change mitigation technology options. Based on TEAM's performance to date, it is expected that up to 60 projects could be financed with a large number of new companies and partners.
- Achieve significant health and environmental benefits and working demonstrations of sustainable development from project replication and implementation over the long term.
- Achieve significant economic benefits from replication and implementation of project results over the longer-term.



- The SMART protocol will be an invaluable asset to technology owners to assist in attracting further capital from the investment community and in turn, enable the investment community to evaluate a technology from a GHG emissions reduction potential and technical performance perspective.

## **Accountability**

- TEAM will ensure continuing leadership and consistency in the implementation and integration of SMART in Canadian and international GHG technology/project measurement and reporting systems. The existing SMART Coordination and Management Committee will continue to be supported through TEAM.
- TEAM received very favourable assessment as part of CCAF audits conducted by Price Waterhouse Coopers (October 2000) and NRCan Audit and Evaluation Branch (June 2001). In addition, a TEAM-specific mid-term evaluation was conducted by Consulting and Audit Canada. The 2001 report of the Office of the Auditor General also conducted an evaluation of CCAF/TEAM under the heading of Voted Grants and Contributions: Program Management (OAG 2001, Chapter 5, Section 6). The recommendations in the audits and evaluations have been implemented gradually into TEAM operations and have been formally adopted as part of the TEAM Phase III Business Plan. In addition, a further audit conducted by the Audit and Evaluation Branch will be tabled in fall of 2003. In completing this last evaluation, TOO confirmed that some delivery agents of TEAM projects were not fulfilling their reporting requirements of TEAM funding Terms & Conditions. To address this, TOO has; 1) made concerted efforts to raise awareness of the importance of regular reporting through more diligent front-end proposal review and ongoing project monitoring; 2) actively pursued negligent delivery agents; and, 3) proactively tightened the TEAM Phase III Terms & Conditions (Appendix B) to reflect this identified area of concern.
- TABLE 3 (Page 70) summarizes TEAM Phase I and II Project Investments by the five Technology Priority Areas identified in Budget 2003 Climate Change Plan for Canada.

## **New Principles**

- TEAM will increase its focus to support the new strategic priority areas: decentralized energy production, biotechnology, advanced efficiency, hydrogen economy and cleaner fossil fuels. TEAM has a proven track record in coordinating and financing projects in these areas.

- The TEAM Executive and TEAM Operations Office (TOO) will take a more proactive, outreach role in the development and implementation of new projects to ensure the new priority areas are addressed and to build capacity in technical evaluation and GHG accountability among government and private partners. TOO will undertake project management, where necessitated with multi-partner, multi-jurisdiction integrative projects.
- TOO will provide updates of projects in the TEAM project pipeline for The TEAM Executive Committee to review prior to any formal proposal submissions to TOO's proposal review and approval process. This will ensure potential TEAM proposal submissions are consistent with the overall strategic mandate of the Climate Change Plan for Canada.
- While maintaining a timely and efficient proposal review process, TEAM Executive and TOO will place significant priority on strategic management of the project portfolio. This will mean that project proponents should not expect to be funded on a "first come, first served" basis. Projects not consistent with government strategic technology and policy objectives should not expect funding.
- TEAM will further enhance linkages with arm's-length funding agencies, such as Sustainable Development Technology Canada (SDTC) and Federation of Canadian Municipalities (FCM) to ensure working-level coordination of proposal development and review.
- Hybrid and integrative technology projects will be a priority for new TEAM approvals and initial projects will be developed and assessed in each of the priority areas under the TEAM Executive.
- In order to support both GHG accountability and promising new technology areas, the track record of both government and private sector proposal partners in funding management, project reporting and technical performance will be a very high priority in review of any new TEAM project proposals.

## **C) Allocation Considerations**

Parties will not be able to redirect projects already funded through existing mechanisms into TEAM projects in order to free up resources for other purposes. The emphasis, as demonstrated with TEAM's first 5 years (1998-2003) of operations, will be to shift resources to deal with the climate change need for GHG reductions to meet Kyoto commitments.

Based on the first 5 years of operations, specific funds will be allocated to cover O&M for the TEAM Operations Office (TOO) and for salaries for TOO staff not covered by the 3 lead departments (NRCan, IC, EC). As outlined below, the 3 lead departments have committed significant A-base support resources for three TOO staff and for management of the overall TEAM process. NRCan has committed the major share of support from current A-base resources for financial management and communications efforts.

## **D) A-Base Salary, O&M Cost Summary for TEAM**

As a three-year start-up initiative, TEAM management and administration costs were primarily funded from A-base resources of NRCan, EC and IC. During Phase II, TEAM resources supplemented this A-base funding in order to meet the substantial requirements of proposal review and coordination and the SMART process and reporting. The TOO is currently comprised of 8 staff positions, three of which are supported from A-base resources as outlined below. Under Phase III it is currently anticipated that at least one new position will be required. The A-base funding will continue to be provided in Phase III – primarily by NRCan for operational, communications and financial management support, as well as by EC and IC. The level of A-base support devoted to TEAM totals about \$585K per year and is described in summary Table 4.

- DG-level senior management support is estimated at about \$55K salary, comprising \$35K salary per year from NRCan and \$10K per year from each of IC and EC.
- The three departments provide salary and benefits resources from their A-base for three of the eight TOO staff. EC will provide the Director salary + benefits at ~\$120K, IC will provide a contribution of salary + benefits at ~\$90K and NRCan will provide an AS-01 salary + benefits at ~\$50K. EC will provide the Director through a secondment arrangement with NRCan.
- NRCan CETC is also currently providing office space (~\$20K per year), salary for communications work associated directly with the TOO (~\$60K per year), and salary for financial management (~\$30K per year).
- NRCan AP2000 funding provides support (~50K per year for FY2003/04 and FY2004/05) for the continual development of GHG measurement and reporting tools in conjunction with the GHGVC.
- The running of the TEAM IRC requires policy and technical expertise. Support from existing A-base is estimated to be about \$10K from participating departments per year.

**Table 4 – Annual A-Base Cost Summary for TEAM**

<b>SOURCE</b>	<b>ANNUAL SALARY+BEN \$K</b>	<b>ANNUAL O&amp;M \$K</b>	<b>TOTAL \$K</b>
NRCan – TOO (50K)+ Executive (35K) +IRC (10K)+ communications & financial services (90K)+ office space O&M (20K) + AP 2000 (50K)	185	70	255
EC – TOO (120K) +Executive (10K) +IRC (10K)	140	—	140
IC – TOO (90K)+ Executive (10K) +IRC (10K)	110	—	110
IRC (8 other member departments)	80	—	80

## E) Notional TEAM Funding

Table 5 summarizes the notional allocation of resources for TEAM. The difficult task of managing the transition of TEAM resources from the CCAF framework to the new framework will be managed through the TOO in close cooperation with the Climate Change Secretariat or its new equivalent.

**Table 5 – TEAM Phase III Notional Funding in \$M \*\***

<b>COMPONENT</b>	<b>FISCAL YEAR</b>					<b>TOTAL</b>
	<b>2003– 2004</b>	<b>2004– 2005</b>	<b>2005– 2006</b>	<b>2006– 2007</b>	<b>2007– 2008</b>	
Cleaner Fossil Fuels	0	4.28	6.05	4.58	6.15	<b>21.06</b>
Decentralized Energy Production	0	1	3	3	3	<b>10</b>
Biotechnology	0	1	4	3	2	<b>10</b>
Advanced End-Use Efficiency	0	2.5	3.5	3	6	<b>15</b>
Hydrogen Economy	0	1	1	0.5	0.5	<b>3</b>
TEAM Operations Office (TOO) O&M*	0	0.45	0.45	0.5	0.5	<b>1.9</b>
TOO Salary & Benefits*	0	0.48	0.5	0.52	0.54	<b>2.04</b>
<b>TOTAL</b>	<b>0</b>	<b>10.71</b>	<b>18.5</b>	<b>15.1</b>	<b>18.69</b>	<b>63</b>

**Note:** \* A-base from NRCAN, EC & IC not included

\*\* NRCAN corporate taxes of ~\$1.4M over 5 years will be allocated from above as part of TB submission



## **III. Principles For TEAM Phase III Decision Making & Accountability**

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### **A) General**

The Minister of Natural Resources will have direct responsibility and accountability for the interdepartmental TEAM Funds.

The Minister of Natural Resources will delegate through departmental delegation instruments, the authority to initiate, commit, spend and pay for TEAM project funding and management.

All funding proposals requesting more than \$200,000 of TEAM assistance will be reviewed and approved by the TEAM Executive for signature of ADM, Energy Technology and Programs Sector, NRCan, and where responsibility is delegated, decisions rendered. The TEAM Executive will have final approval for all proposals less than or equal to \$200,000 of TEAM assistance. Certain high visibility or sensitive proposals may from time to time need to be submitted to DM and/or Minister of NRCan as required.

Minister and DM of NRCan will receive regular reports, not less frequently than semi-annually on status of TEAM funding from the TOO.

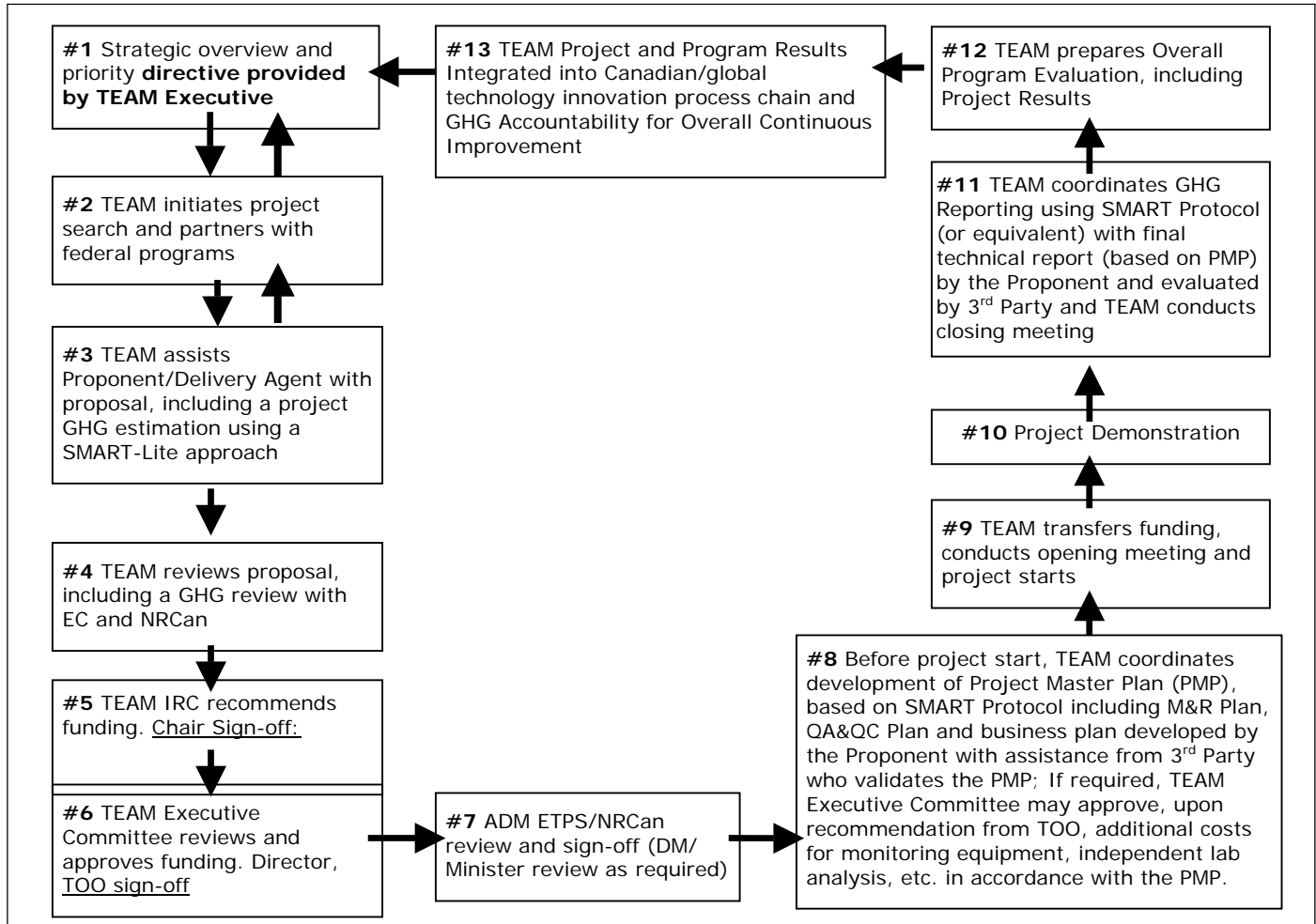
### **B) The TEAM Project Approval Process**

Following the practice established during TEAM startup phase, all TEAM projects that have been vetted through the selection and approval process will be submitted to the ADM, Energy Technology and Programs Sector, NRCan in a revised TEAM Recommendation Form (Appendix C). This describes such things as the project, the basis of selection, funding recommended, other funding and GHG reduction potential. It is signed off by the Interdepartmental Review Committee Chair (TOO Director) prior to submission for TEAM Executive approval of each project, as shown in Figures 1 and 2. Following approval by the Executive Committee it is signed off by the Director, TEAM Operations Office, and forwarded to the ADM, Energy Technology and Programs Sector, NRCan for final approval and funding authorization as shown in Figures 1 and 2. Final approval and funding authorization is performed through the TEAM Project Financial Allocation Approval and Delivery Agent Certification Form found in Appendix D-1 or D-2.

TOO will continue its commitment to a comprehensive front-end proposal review for each project submission. This approach ensures comprehensive, transparent

and diligent review has been undertaken prior to formal review by the IRC and Executive Committee levels.

Figure 1 summarizes the Approval Process & GHG Accountability Framework for TEAM projects.



**Figure 1: Summary of Project Accountability, Review and Approval**



Figure 2 provides a summary of TEAM's Proposal Review and Approval

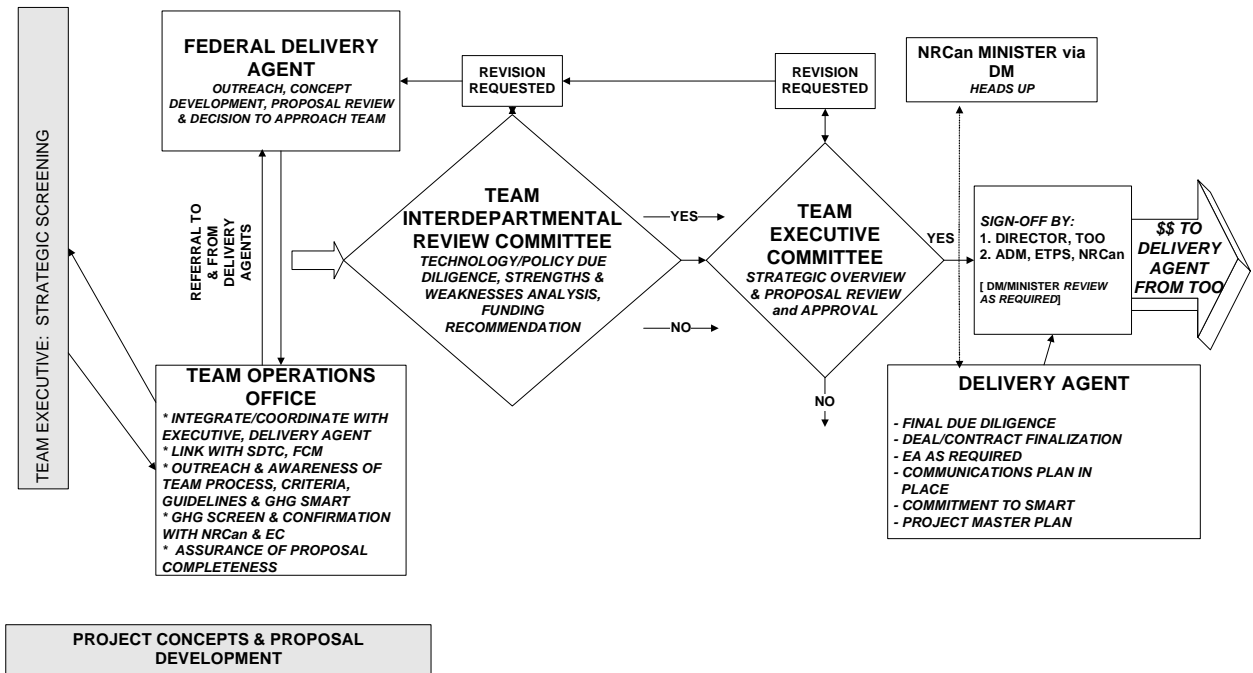


Figure 2: TEAM Phase III Proposal Review & Approval Process

## C) TEAM Rules and Criteria

### General Rules

- TEAM projects will have a broad **scope** relating to the new priority areas, as outlined in Table 3, including energy technologies (such as renewable energy, alternative fuels, energy efficiency, and fossil carbon management) as well as other technologies (such as process technologies, biotechnologies, advanced materials and transportation). All projects must meet the TEAM selection criteria.
- In addition to the major GHG reduction criterion, the next phase of TEAM will pay particular attention to: **past performance** of delivery agents as well as quality of company and company management, company domestic and international business strategy, and government sector/technology specific strategy. It is expected that the contribution that a project is anticipated to make to specific sector and technology strategies and policies would be clearly identified by sponsoring delivery agents to the IRC. These connections to business and government policy strategies are being built into the TEAM process through implementation of the revised TEAM submission form (Appendix C) and use of a revised, comprehensive Tools and Checklists (Appendix E) by TOO and the IRC.

- TEAM projects will meet the TEAM objective of GHG emission reductions and the strategies for demonstration and **barriers** described earlier. Funds dedicated to overcoming non-technological barriers will be directed towards specific projects with the scope, nature and cost of such work clearly identified in each project business case. Barriers to funding will cover work that is required in order for technology replication and commercial application to be undertaken. This includes such things as design modules for technology application and replication, training modules for operators and users, codes and standards development and refinement.
- The issue of **ownership of credits for GHG reduction** is very complex and has not been resolved either nationally or internationally. As this issue becomes clarified, the application to TEAM projects will be dealt with at that time. It should be noted that over the first two phases of TEAM funding, GHG credits have not generally been an issue with partners. TOO has provided practical guidance on implementation approaches for the Clean Development Mechanism (CDM) to TEAM project proponents and has developed the SMART process, which not only provides GHG and technology assessment information but also creates capacity within companies to understand the GHG credit benefits which their technology enables, as a valuable learning tool prior to CDM application. This positions the companies to negotiate with clients with full understanding of potential financial benefits from any eventual global or domestic trading system that may accrue from their "enabling" technologies.
- TEAM **selection criteria** are divided into two components – 1) **eligible/ineligible criteria** that are applied on a simple in or out basis, and 2) base criteria that are applied on technical merit basis, with flexibility in their application assigned to TEAM. TOO and IRC will exercise flexibility in the application of the base criteria where more or less emphasis may be placed on certain base criteria in keeping with the nature of the TEAM mandate.
- Demonstration sites and customer/end-users shall be validated by TOO before the proposal is reviewed by the IRC during the application process.
- TOO shall review the applicant's business plan.
- Even if an applicant meets all of the aforementioned eligibility criteria, the application may be rejected on the basis of not obtaining satisfactory results in a previously funded project or because the outlined strategy was deemed unsatisfactory by TEAM. Past delivery agent performance will also be considered in project proposal review.

## Eligibility Criteria

### 1) GHG Reduction Potentials

- Each TEAM project must result in, or lead directly to, GHG reductions. It will be important to examine the merits of each project in relation to the potential reductions that could ensue from replication or adoption on a broad basis. For example, a project by itself may realize very low GHG emission reduction, but if replicated and more broadly deployed could provide significant reductions. As well, a project may be a key enabling technology, without which the major GHG reductions may not be achieved, such as hydrogen storage tanks for vehicles or solar PV system controllers.
- Proponent commitment: private sector companies must demonstrate a commitment to validation of the technology performance and the GHG benefits that results from demonstration projects.
- Reduction estimates based on tonnes of CO<sub>2</sub> equivalent per annum will be provided for the project time period, for year 2008 after some replication/implementation, and for 2012 after further replication/implementation.
- TOO will require, GHG estimation using a SMART-Lite approach as outlined in Figure 1 TEAM's Review and GHG Accountability Framework and in Appendix F. TOO will assist proponents as required.
- As shown in Figure 1, the overview of the project review and validation process, SMART has three distinctive components: 1) SMART Lite for a proposal stage, 2) , a Project Master Plan (PMP) at project initiation stage, and 3) SMART Report at the project termination stage.
- The SMART Lite is a simplified version of the SMART Final Report and is completed by the proponent and submitted to TEAM along with a proposal. It briefly covers the description of the technology, selection of benchmark, detailed calculations of an estimated GHG emission reduction and additional information that is used in the submitted proposal (Appendix F-1).
- The Project Master Plan (PMP) is managed by TOO, using information and guidance provided by the proponent, involving expert assistance from a 3rd party contractor funded by TOO, to develop technical and GHG documentation (i.e. plans and procedures) for the reporting and evaluation of the TEAM project. The PMP includes the monitoring and reporting plan. , The proponent and TOO shall agree to the PMP before TOO transfers funding and the project starts (Appendix F).
- In cases that the development of the PMP results in additional costs (e.g. monitoring equipment, independent laboratory analysis, etc.), then the costs shall be approved by the TEAM Executive Committee on the basis that these additional costs shall not exceed \$25K.
- The SMART reporting evaluates GHG and technical documentation from the project.

- GHG estimations for each project, for the periods outlined above, will be reviewed by appropriate government experts.
- Project Master Plan development (Figure 1) and subsequent SMART report completion are important considerations for: i) good project management ii) investor and market acceptance of new technology; iii) provision of a sound basis for calculation and validation of GHG reduction on a per unit of activity basis and iv) ancillary benefits.
- TEAM will identify pre-qualified 3rd party consultants to work on the Project Master Plan and the SMART report.
- Funding of up to \$40K (total) will be allocated to fund Project Master Plan and SMART report. This funding will be managed and coordinated by TOO.

## 2) Ineligible Projects

Projects ineligible for TEAM funding are those related to

- CC adaptation,
- measurement of ambient GHG concentrations,
- CC impacts, or
- computer software packages or products.

## 3) GHG Sinks or Reservoirs

If project proposals related solely to **GHG sinks or reservoirs** meet TEAM criteria they will be considered eligible for TEAM consideration. GHG sinks include such things as carbon sequestration in forests and agricultural soils; GHG reservoirs include such things as coal bed methane displacement, enhanced oil recovery/reservoir storage, and enhanced CO<sub>2</sub> recycling. These initiatives are generally very long-term and usually very expensive. They will be a very low priority for TEAM funding.

## Base Criteria

### 4) Risk Factors

- It is accepted that the degree of risk per dollar invested will generally be high considering the nature of first time technology demonstration.
- Overall quality analysis of the company or companies and other partners will be an important evaluation factor (track record, management, financing, etc.)
- Suggested proposal evaluation factors are included in Appendix E.

### 5) Replication Potential

- Each project must provide a reasonable business case for replication of the technology in Canada and /or internationally with significant client investment and substantial and sustained GHG reductions over the medium-term (2008) and longer term (2012).

- The domestic and international business strategy of the company(ies) and other partners will be assessed.
- Existing tax measures and/or policy initiatives that are in place, and are essential to project replication, are to be identified. As well, any new taxation or policy initiatives that are required for replication need to be clearly identified.
- Suggested proposal evaluation factors are included in Appendix E.

## **6) Leveraged Partnerships**

- Overall TEAM leverage to all other funds will be targeted at a 5:1 ratio.
- TEAM funding has to lever other federal resources in addition to the high leverage expected from the private sector and other non-federal public sector sources.
- Total federal funding for any one project will generally be less than 50% of total project cost. Preference and practice will be to keep this level as low as possible.
- TEAM financial support shall not exceed 75% of the total federal participation averaged for the sum of all projects over the funding period. For any specific project however, TEAM financial support shall not exceed 85% of total federal participation but, preferably, will be less than 75%.
- Federal resources from granting councils such as Natural Sciences & Engineering Research Council (NSERC) and Canadian Institute for Health Research (CIHR) can be eligible towards the 15-25% federal delivery agent resources required for TEAM projects. Such resources must be clearly project-related, not just be part of an overall funding program.
- TEAM welcomes the participation of other levels of government within Canada. Projects that have a very significant provincial or municipal funding level (i.e. 50% or more of the government funding for a project) may be exempted from the rule of 15-25% from the federal delivery agent. For example, TEAM funding will generally not exceed 60% of the total "public" participation in a project, if the remaining public portion is provided by another level of government within Canada. However, any such project will be dealt with in the TEAM process on an exceptional, individual project basis.
- TEAM also welcomes the participation and partnership of arm's length agencies (federally funded) such as Federation of Canadian Municipalities (FCM) and Sustainable Development Technology Canada (SDTC) in accordance with Treasury Board stacking rules. The contributions of these groups to any specific project must not exceed the private sector (proponents) contribution to the project. Arm's length funding should include significant private sector (proponent) investment in a project. Projects with significant arm's length funding but without significant private sector or federal delivery agent contributions will be dealt with in the TEAM process on an exceptional, individual project basis.

- Federal stacking requirements and regulations will be the responsibility of the individual federal delivery agents as part of their normal Treasury Board authorities and FAA rules under their program responsibilities.

### **7) Potential Environmental/Health Benefits**

- The co-benefits or dis-benefits that a project, or its replication, will bring to the environment in general and/or to human health will be a major component of proposal evaluation.

### **8) Potential Economic and Social Benefits**

- The potential economic and social benefits of a project will be a major consideration in the project assessment process.
- Suggested proposal evaluation factors are included in Appendix E.

### **9) Need for Government Investment – Incrementality**

- Testing whether or not a project would go ahead without federal investment and federal expertise is an important point in the evaluation process. Is the funding and expertise only incremental to the overall project or is it a necessary aspect of the project going ahead?
- For each project, responsibility for negotiation of the best project terms and conditions for the federal government will rest with the respective delivery agent.

### **10) Repayment**

- For projects which have a high likelihood of profits within three years; the following repayment principles will apply:
  - all TEAM contributions are repayable
  - repayment terms are negotiated on a case-by-case basis by the delivery agent
  - recipients must be in good standing with regard to pre-existing repayment obligations to the federal government
  - equitable and concurrent sharing of risks
  - high risk projects can be conditionally repayable (i.e. through royalties)
  - lower risk projects can be unconditionally repayable
  - delivery agents can apply additional principles consistent with their program
- For all other projects, repayments of TEAM financial support will follow the terms and conditions of the respective delivery agent. In some cases, repayability may not be required, depending on the delivery agent mechanism and rules and the level of shared risk involved.

- Repayments of federal contributions will follow existing TB agreements, policies or guidelines; or new agreements, policies or guidelines, or amendments to same as may be made from time to time.

### **11) Access by SMEs**

- Most existing delivery agents already target SMEs. TEAM delivery agents shall take into account the need to support SMEs, with particular emphasis on the segment with up to \$5 million annual revenues and/or up to 150 employees.
- Many TEAM projects are successful in strategically partnering SMEs with larger national and multi-national enterprises.

## **D) TEAM Communications**

An individual Communications Plan will be a crucial part of each TEAM project. A Communications Plan will be included in each proposal submission. Any announcements, publications and promotional material will follow the requirements provided in Appendix B (Terms & Conditions).

## **E) TEAM Reporting and Evaluation**

### **Reporting**

TEAM will provide reports as required to Ministers and as outlined in the Results Based Management and Accountability Framework (RMAF) forming part of the Treasury Board Submission. Financial tracking and management will be managed through the NRCan financial system. TEAM will provide an annual report on its activities and GHG reduction benefits, which will be provided to the Minister.

### **TEAM Audit and Evaluation**

As part of Climate Change Action Fund (CCAF), TEAM underwent numerous Audits and Evaluations. As noted earlier, these were generally favourable and TOO management and reporting practices were changed and improved based on Audit and Evaluation recommendations. TEAM Audit and Evaluation will follow the requirements as laid out in the Treasury Board Results-Based Management and Accountability Framework. The major means for evaluating success of TEAM projects will be the TEAM SMART Protocol. This protocol is outlined in Appendix F.





## **IV. Roles And Accountabilities In Management Of TEAM**

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### **Minister of Natural Resources**

Minister of Natural Resources is responsible for:

- Approval of expenditure and work plans for TEAM as part of overall departmental responsibilities
- Delegating authority to approve specific funding proposals under TEAM to the Deputy Minister of NRCan or other federal department delivery agents.

### **ADM, Energy Technology and Programs Sector**

ADM, Energy Technology and Programs Sector is responsible for:

- Authorizing, the transfer of funds to TEAM or TEAM delivery agents that have been reviewed and approved by the TEAM Executive through the process outlined in Figures 1 and 2 and Appendix D. This authorization will be subject to levels of agreed delegation of signing authority of Minister of Natural Resources to Deputy Minister and ADM as may be determined or amended from time to time.
- Reporting of overall activities and anticipated benefits within the Central Agency planning documents of NRCan (e.g. Report on Plans and Priorities, Annual Performance Report).
- Identifying with the TOO, projects which, because of their size and visibility, require approval of the DM and/or Minister of NRCan.

### **TEAM Executive Committee**

TEAM Executive Committee is responsible for:

- Taking a more proactive, outreach role in the development and implementation of new projects to ensure the new priority areas are addressed and to build capacity in GHG accountability among government and private partners.
- While maintaining a timely efficient proposal review process, TEAM Executive and TOO will place significant priority on strategic management of the project portfolio. This will mean project proponents should not expect to be funded on a "first come, first served" basis. Projects not consistent with government strategic technology and policy objectives should not expect funding.

- TEAM Executive committee members are DG level representatives from Natural Resources Canada (NRCan), Environment Canada (EC) and Industry Canada (IC), with the Director TOO as the secretary.
- No project proposals will be considered by the TEAM Executive Committee without prior review and recommendation for funding by the TEAM Interdepartmental Review Committee (IRC).
- TEAM Executive Committee will approve projects on the basis of consensus decisions. Any member can request a formal vote. Voting will be limited to one vote per member department.

Overall TEAM Executive Committee accountabilities include:

- Strategic screening and promotion, proactive outreach, provide overall strategic policy and technology context and focus for ensuring approved proposals are most appropriate and effective vehicles to meet overall government goals in the new priority areas. Strategic screening for Executive review will be based on the outline described below.
- Review, prioritization of technology projects recommended by TOO and IRC as shown in Figures 1 and 2.
- Assurance of adequate peer review analysis of specific projects being considered for TEAM investment.
- If required, consider and approve expected additional costs associated with the implementation of the PMP, as agreed to by the project proponent and TOO. These additional costs shall not exceed \$25K.
- Review of scheduled reports and assessments of the results of TEAM projects and programs prepared by or on behalf of TOO.
- Approve movement of TEAM funds between years and among priority areas, based on recommendations from TOO.
- Appoint new IRC members as required from time to time.
- Responsible for funding and operational decisions for TOO, day to day duties residing with DG/ CANMET Energy Technology Centre (CETC) /NRCan.
- Chair of Executive Committee will rotate among three members on a meeting-by-meeting basis.

## **TEAM Operations Office (TOO)**

TEAM has established a small Operations Office that manages and coordinates the TEAM program. The Director of TOO is responsible functionally to the Executive Committee. The Director and TOO reports operationally to the DG/CETC with accountability through the Minister, NRCan.

Specific TOO functions and responsibilities include:

- Overall TEAM process management and coordination, and tracking and reporting on approved projects as in Figure 1 and Figure 2.

- Sign-off on all TEAM projects that are ready for final approval and funding transfer authorization by ADM, Energy Technology and Programs Sector NRCan as shown in Figure 2.
- TEAM communications coordination in conjunction with NRCan and delivery agent.
- Secretariat to TEAM Executive and IRC.
- TEAM contact and screening window for project inquiries or submission of project ideas. TOO will often do initial screening and discussion among proponents and potential delivery agents, as well as prepare an initial screening report of potential projects for the TEAM Executive Committee, prior to projects emerging for review by the IRC.
- The TEAM Executive Strategic Screening will be prepared by TOO using the following headings:
  - Project description
  - Project partners
  - Project value (estimate)
  - Strategic opportunity assessment
    - Technology priority area
    - GHG estimate (self reported)
    - Innovation
    - Environmental benefits
    - Business need
  - TOO preliminary assessment
- Interface with companies, communities and other technology funding agencies to assist in project development, R&D and business planning needs.
- TEAM interface, with GHG verification entities including the SMART for TEAM project GHG accountability.
- Recommend new members of the IRC to TEAM Executive.
- Manage outreach and marketing activities of TEAM.
- Provide funding for up to \$1K for non-federal expert review of projects.
- TEAM reporting.
- Working with NRCan Finance staff and TBS staff to ensure smooth working relationship and reporting.
- Providing regular updates to DM and Minister Offices.
- Reviewing all project contracts and/or contribution agreements before implementation to ensure TEAM requirements are included.

- Terminate projects that become inactive or have not started within one year of final funding approval. As well, terminate projects or assume management of projects that are in default of TEAM Terms and Conditions.
- TOO will make efforts to establish formal linkages between TOO and other Technology & Innovation components (R&D and early adopters) at the secretariat level.

Figure 3 depicts the interaction between TOO and the Delivery Agent and proponent as well as the process for IRC review of proposals. TEAM Review and Approval Process has been outlined in Figure 2.

### **TEAM Interdepartmental Review Committee (IRC)**

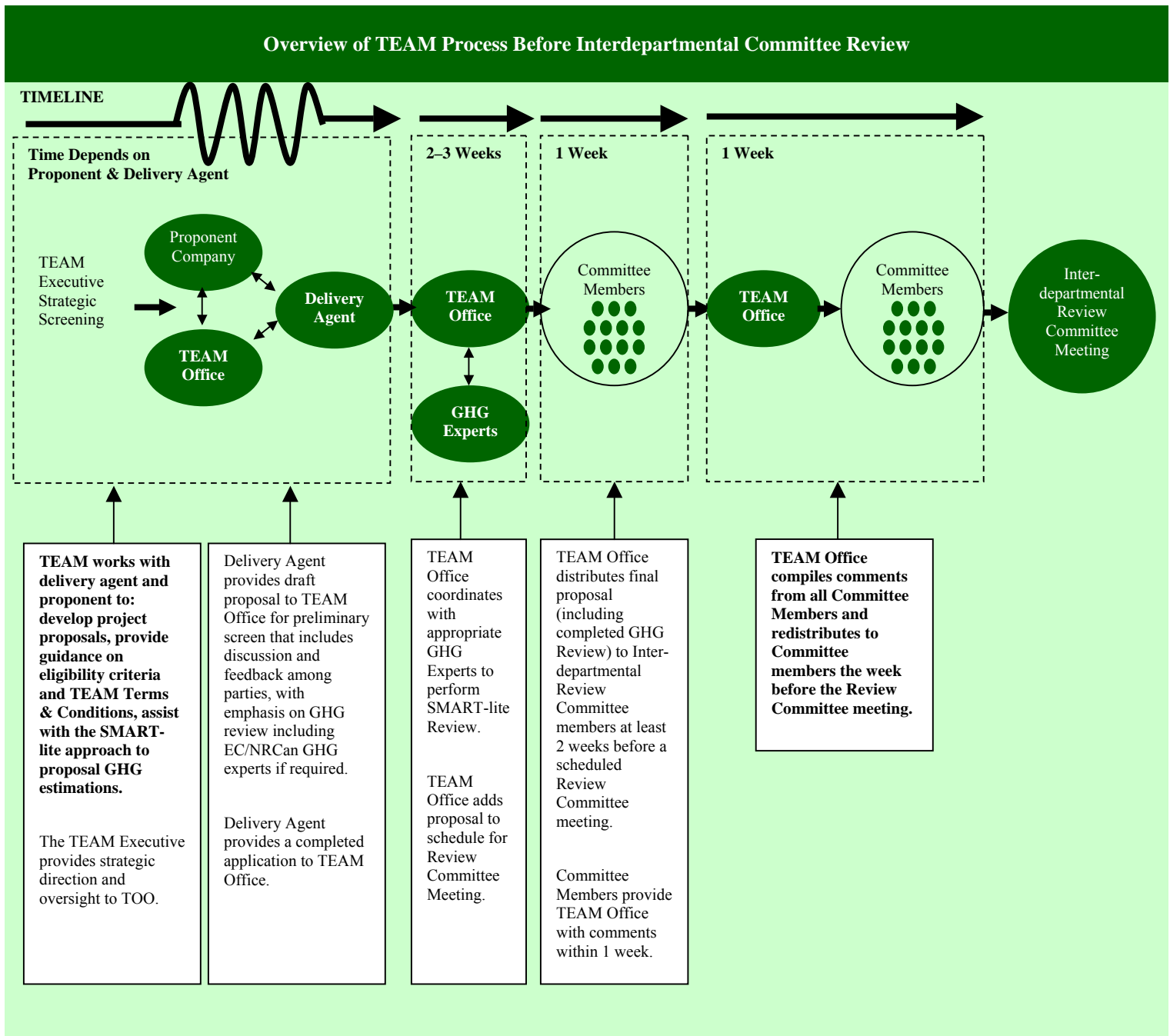
The IRC forms the backbone of TEAM's capability in bringing together the available technical expertise and knowledge base of the federal government technology RD&D community. Members include NRCan, IC, EC, TC, AAFC, DFAIT (CDM/JI), CIDA, HC, TPC, NRC(IRAP), and other departments or agencies that may be invited to join from time to time. TOO provides the secretariat and the committee is chaired by the Director TOO. IRC will generally recommend TEAM projects to TEAM Executive Committee on the basis of consensus decisions, but any member can request a formal vote. Voting will be limited to one vote per member department. IRC Member duties include:

- Ensure provision of technical expertise from their department/agency
- Ensure provision of policy context and views from their department/agency.
- Identify appropriate alternates to comment, attend, participate and vote (as required) in IRC meetings.
- Provide written strengths, weaknesses, comments for proposals at least one week prior to meetings.
- Provide consistent/regular briefings to their department/agency and to member(s) on senior climate change management committee(s).
- Provide initial screening of concepts and proposals with proponents and delivery agents that they may wish to bring to TOO.
- Assist potential project proponents in identifying appropriate delivery agents.
- Ensure proposals are reviewed following TEAM criteria and Tools & Checklists in Appendix E and as shown in Figure 1.

## **TEAM Delivery Agents and Authorities**

TEAM will generally be utilizing existing federal delivery agents and authorities for delivery of projects in coordination with TOO. Examples of the key Delivery Agents are provided in Appendix A. Delivery agents will be responsible to respective Deputy Ministers for TEAM resources received. It will be general TEAM practice that TEAM resources will be recommended on a project-by-project basis that will require agreement with the TEAM Terms and Conditions (Appendix B), which may be revised from time to time by the TEAM Executive Committee. Delivery agents must have appropriate financial controls and reporting mechanisms consistent with TBS and NRCan requirements. Delivery Agents may choose to utilize the overall TEAM Class Contribution Authority by using the appropriate forms in Appendix D-2. The levels of signing authorities of any delivery platform will be respected in the TEAM process.

Diligent project management requires administrative costs that will be a small percentage of total project costs, given the TEAM objective of maximum leverage of government and private sector funds. Delivery agent costs associated with administration of TEAM projects will be allowed and will be incorporated into the overall project proposal. These administrative costs shall not exceed \$30,000 or 5% of TEAM funding, whichever is less. Under exceptional circumstances administrative costs may be negotiated with the Director TOO. Administration costs above these levels will be covered from budget resources of the delivery agent.



**Figure 3: TEAM Process Before Inter-departmental Committee Review**

Delivery agents will be responsible for:

- Complying with the requirements of the TEAM application process, including the preparation of the proposal, GHG estimation and project master plan.
- Complying with the criteria and rules of the TEAM Terms and Conditions (Appendix B), including provision of all reporting required by TEAM.
- Complying with all federal funding stacking rules.

- Ensuring negotiation of the best project terms for the federal government in each project.
- Complying with all federal environmental assessment requirements.
- Ensuring that projects stay within budget, meet deliverables and objectives agreed to and are completed in accordance with the proposal and project master plan.
- Meeting project communications requirements and events requirements for project announcements in conjunction with NRCan and TOO.
- Ensuring TEAM Terms and Conditions are included in contracts and/or contribution agreements with the project proponent and that the project proponent understands all TEAM requirements.
- Proving funding commitments from their programs and/or other sources before applying for TEAM funding.

## **Communications Plan**

### **Objectives**

- To demonstrate that the federal government is taking effective early action and leadership to reduce greenhouse gas emissions, while sustaining jobs and economic growth and providing environmental co-benefits.
- To illustrate that the federal government is building on private and public sector partnerships and its existing resources to meet our Kyoto commitments.
- To demonstrate that through such programs as Technology Early Action Measures (TEAM), the federal government is mobilizing the highest level of technical expertise and innovation to reduce greenhouse gas emissions.

### **Key Messages**

- The federal government has identified five Technology Priority Areas to focus the Technology and Innovation components of the Climate Change Plan for Canada: Decentralized Energy Generation, Biotechnology, Cleaner Fossil Fuels, Hydrogen Economy and Advanced Energy End-Use Technology. TEAM investments will be directed to support later stage development and demonstration of technology in these areas.
- The federal government is taking effective early action to reduce greenhouse gas emissions, while creating opportunities for new jobs and economic growth.
- Climate change is real, and TEAM projects offer real solutions, with real opportunities for reducing greenhouse gas emissions.

- The federal government is working in partnership with the private and public sectors to meet the international greenhouse gas reduction commitments that Canada made in Kyoto.
- By building on existing technology support programs, the federal government is maximizing the impact and cost effectiveness of its climate change program.

## Target Audiences

The Canadian general public, which is looking for action on climate change and wants concrete evidence of government leadership and reassurance that governments and industry are taking action.

The general media (including business and environmental media), which have been negative concerning Canada's track record on climate change, and are looking for substance. The media has also reported concerns about actions that may harm the economy.

Industry stakeholders, decision makers and NGOs, who are potential partners in TEAM projects and technology replication.

Government partners, both national and international, who will work with TEAM to deliver these projects and who will be directly involved in technology replication.

## Approach

Project announcements and events will provide important opportunities to communicate key messages to target audiences. All communications activities and announcements will be positioned as part of the federal government response to climate change, and will be guided by the Government of Canada Communications Framework on Communicating Climate Change.

## Implementation

The communications plans for individual TEAM announcements must recognize the importance of all project participants; role of the Delivery Agent and program, private sector stakeholders, multi-jurisdiction involvement and the collaborative effort of the participants as well as recognize the role, the authority and accountability of the Minister of NRCan for TEAM investments and the Minister(s) for the primary delivery platform(s). The participation of other Ministers and MPs in TEAM announcements will reinforce the message that there is a concerted, collaborative federal effort to reduce greenhouse gas emissions that are in line with the Policy and Technology Priority Areas outlined in Climate Change Plan for Canada.

All TEAM-related communications products, reports, articles and publications originating from the TEAM funding will acknowledge this support and use the Canada wordmarks.



TEAM information will be incorporated into the Climate Change website, in addition to the linkages with websites of NRCan, EC, IC and other government departments. Information on each TEAM project should also be provided to the Government of Canada Climate Change toll-free line at 1-800-959-9606.

News releases, speeches and other communications products should be supported by tangible facts, examples and success stories that demonstrate reduced greenhouse gas emissions and sustained economic development.

## **Coordination**

NRCan, TOO and the Federal Delivery Agent for individual TEAM projects will share the responsibility for managing communications for each TEAM project. (i.e., events planning and the preparation of communications products such as news releases, speeches and talking points). A lead manager for communications for each TEAM project will be designated who will coordinate the announcement and communications effort for each project.

TOO shall be informed of and will be invited to any and all communications events and announcements.

Potential project announcements will be incorporated into each project proposal prior to TEAM Executive Committee review.

Copies of all communications material, press coverage, speeches, brochures, articles, fact sheets, etc. are to be circulated to the TEAM Operations Office.



# V. Technology Early Action Measures Phase III – TEAM Class

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## Contribution Terms And Conditions

### 1. Program/Legislative Authority

The legislative authority to make contributions is provided for under the Department of Natural Resources Act, R.S.C., 1994; Energy Efficiency Act, R.S.C., 1992; Department of Environment Act, R.S.C., 1985; and Canadian Environmental Protection Act, R.S.C., 1985, Industry Canada Act and National Research Council Act and/or other enabling Acts of participating departments.

### 2. Objectives

The overall TEAM mission is to identify, develop and support technology late stage development and demonstration projects and technology transfer opportunities in support of early action to reduce GHG emissions, domestically and internationally, while sustaining economic and social development. TEAM investment will contribute to Canada's ability to mitigate climate change and meet climate change commitments under the Kyoto Protocol, support sustainable development concepts and promote economic and social development.

TEAM will deliver longer-term demonstration of the climate change Technology and Innovation block. TEAM will retain its successful current mission and will enhance its management tools to: 1) target support for the new strategic technology priority areas in Table 3; 2) enhance linkages with arm's length organizations in the development and implementation of new projects; 3) encourage hybrid and integrative technology projects; and, 4) augment the importance of project reporting and technical performance during the review process.

TEAM funding objectives in late stage development and demonstration of new technology will accelerate the development of new technologies in order that they can enter the marketplace many years ahead of time, thus ensuring that GHG reduction technologies contribute to a sustainable future across all sectors of the economy, across Canada and internationally. Program benefits include: a very significant contribution to meeting Canada's commitment under the Kyoto Protocol (through replication over the next ten years), longer-term economic benefits to Canada and foreign partners, and the very significant potential environmental and health benefits.

The measurable outputs and beneficial outcomes of TEAM's support for the five technology priority areas can be summarized as: new and innovative GHG mitigating technologies; multi-partner, multi-jurisdiction integrative projects; improved understanding of the role of technology in addressing climate change and barriers to implementation; increased Canadian capacity on GHG measurement and reporting.

TEAM will utilize its System of Measurement and Reporting on Technology (SMART) protocol as a means of substantiating technology and GHG performance claims and as a promotional tool for the respective technology.

### **3. Eligible Recipients**

Eligible recipients may be for-profit or not-for-profit incorporated entities, partnerships, cooperatives, or any trustee or legal representative thereof, or groups or alliances of eligible recipients, where a lead Canadian recipient has been identified. Agencies of the Crown (including Crown corporations, government institutes, government laboratories, etc.) may be allowed as members of alliances or partnerships, but not as lead recipients, and will be approved on a case-by-case basis.

### **4. Stacking Provisions**

The overall TEAM plus Delivery Agent contribution is limited to the maximum amount and eligible expenditures identified in these Terms and Conditions, and will represent the minimum level required to secure the agreed upon project in support of program objectives. For contributions in excess of \$100,000 the program will require potential recipients to disclose all sources of the funding required for a proposed project prior to entering into a contribution agreement and of all funds received upon completion of the project.

Negotiation of contribution levels will take into account other direct government assistance (federal, provincial, territorial, regional and municipal) for the same purpose, and ensure that total direct government assistance does not exceed 75% of the eligible expenditures described in these Terms and Conditions.

This program is designed to secure substantial investments of recipients' own funding to develop and demonstrate greenhouse gas reduction technology in Canada and internationally. Overall TEAM leverage to all other funds is targeted at a 5:1 sharing ratio. Generally, total federal funding for any one project will be less than 50%, but is flexible on a project-by-project basis as long as overall ratios are maintained. TEAM financial support will preferably be less than 75%, but shall not exceed 85% of the federal portion of funding unless authorized by TEAM Executive as outlined in the TEAM Phase III Business Plan.

Where it is determined by the Delivery Agent during project execution or through a project audit that the stacking limit for total government assistance has been exceeded, then any contribution under this agreement over this limit shall be subject to repayment.

## 5. Application Requirements

Applications can be made on the standard NRCan Class Contribution application form or the applicant's organization's letterhead. All applications must be signed by an authorized officer of the applicant organization and contain the documentation of TEAM project review and approval process and all necessary signatures and approvals associated with the TEAM process. Applications shall be submitted by a federal delivery agent to TEAM and must include the following:

- A clear reference to TEAM in the title block to any application.
- Agreement by the TEAM federal delivery agent to the TEAM Terms and Conditions for TEAM Project funding allocation (in TEAM Phase III Business Plan);
- Where applicable, agreement to comply with the Official Languages Act;
- Compliance with the Conflict of Interest and Post-Employment Code for Public Office Holders;
- Confirmation that no member of the House of Commons or Senate will be admitted to any share or part of this proposed activity or to any benefit arising there from; and,
- Acknowledgement of any, and compliance with any, government decreed economic or political sanctions.

Applicants must adequately address the following criteria within the proposal submission:

- Project risk factors, including overall quality analysis of company(ies) involved;
- Replication potential;
- Leverage;
- Potential environmental and health benefits;
- Potential economic and social benefits;
- Incrementality: i.e. would the project proceed without TEAM support?; and,
- Repayment potential (depending on nature of project and other supporting agencies).

As part of the application, TEAM requires the federal department delivery program to demonstrate proof of eligibility for the applicant.

## 6. Eligible Expenditures

Eligible expenditures will be for non-recurring cost of services and products incurred by the recipient and directly attributable to the agreed-upon project or activity, as well as a reasonable allocation of the recipient's administrative and overhead expenses not exceeding 15% of direct project cost. Eligible costs for activities directly in support of the project or activity will include, but not be limited to:

- salaries and benefits for staff for time spent on activities directly attributable to the agreed-upon project or activity;
- fees for professional, scientific and contracting services;
- promotional activities and travel, including meals and accommodation;
- printing, including paper and electronic (e.g. CD-ROM);
- data collection, processing, analysis and management;
- necessary licence fees and permits, if applicable;
- testing of equipment or technologies developed under the project or activity; and
- purchase and installation of qualifying project-related equipment and products, including diagnostic and testing tools and instruments; laboratory supplies and materials; mechanical, electrical and electronic devices; and, machinery and components.

Eligible expenditures will not include the purchase of land or the payment of property taxes. All eligible expenditures apply to all eligible recipients and are subject to the stacking provisions identified above.

## 7. Maximum Amount per Recipient

Contributions will be approved for up to three-year periods. The maximum amount per recipient will not exceed \$2.0 million per year. Furthermore, the maximum payable to a recipient under any one contribution agreement will be a maximum of \$6.0 million. Any contribution exceeding this amount will be submitted to Treasury Board for approval.

## 8. Approval

All TEAM projects must be approved through the TEAM approval process as described and depicted in Figures 1 and 2 of the Business Plan. When the contribution is approved, the funds will be transferred to the federal government department delivery agent who will in turn make the transfer to the eligible recipient, utilizing either their own contribution agreement process, or the TEAM contribution agreement process.

Authority to approve, sign and amend agreements may be exercised by the Director or Responsibility Centre manager responsible for the initiative. Authority will be in accordance with the departmental delegation of financial signing authority instrument approved by the Minister of Natural Resources.

Approval, expenditure initiation, commitment, and payment authorities will be delegated by the Minister of Natural Resources Canada to positions at the appropriate levels where these responsibilities can be most effectively exercised, and where accountability results can best be established.

These authorities will be established as required in NRCan or in the executing department through the TEAM Operations Office, delegated by means of an Instrument of Delegation and the Delegation of Financial Signing Authorities charts and/or the appropriately signed and approved TEAM forms.

Authorities will be confirmed in the agreement between NRCan/TEAM and the delivery agent before final approval.

In the event of reorganization, the signing authority will apply to the nearest equivalent position.

Acts administered in whole or in part by participating departments (e.g. Industry Canada, Agriculture and Agri-Food Canada, Transport Canada, Canadian International Development Agency, etc.) can provide relevant authorities for administering and allocating funds to TEAM project proponents without the use of these TEAM Contribution Program Terms and Conditions. In cases where participating federal delivery agents cannot use their own contribution agreement terms and conditions due to restrictions therein or where it is not deemed appropriate for the department or agency to establish new terms and conditions for a new program, the TEAM Terms and Conditions will be applied and will be enabled through utilization of the appropriate forms in the TEAM Phase III Business Plan and Management Framework for the purpose of funding transfers to TEAM delivery agents.

TEAM will generally arrange the transfer of funds to delivery agents through an interdepartmental settlement notice (ISN) as noted in Appendix B of the TEAM Business Plan.

## **9. Basis and Timing of Payment**

Payments will be made on the basis of documented claims for reasonable eligible expenditures incurred, to be submitted by the contribution recipient not more frequently than monthly. Each claim is to be accompanied by a brief report of the work completed and details of all costs claimed, and shall be substantiated by such documents as are satisfactory to the Minister. Claims shall be certified by an officer of the contribution recipient or by such other person satisfactory to the Minister.

The Minister may request at any time that the contribution recipient provide satisfactory evidence to demonstrate that eligible costs have been paid.

An amount of 10 percent (10%) of the contribution will be withheld until completion of the projects or of such project audits as may be required.

Contributions may have advance payments issued, based on cash flow forecast prepared by the recipient and in accordance with the cash management provisions of Treasury Board for Transfer Payment Policy.

## **10. Repayable Contributions**

TEAM contributions will be repayable in accordance with Treasury Board Transfer Payment Policy and the proposed repayability approach will be described in the TEAM Project Proposal.

TEAM projects are each unique and repayability will be negotiated on a project-by-project basis paying particular attention to the level of risk sharing by various partners. In light of the risks inherent in projects where technology is not yet proven in the market place, it is recognized that not all projects will succeed, and consequently, that the repayable provisions of agreements may not be triggered. Financial statements will be provided by recipients to the respective departments, who will determine repayability within the parameters of section 7.8 of the Transfer Payment Policy.

## **11. Duration**

The Terms and Conditions will be valid until March 31, 2008. Payments made after expiry date of the Terms and Conditions would only cover items previously set up through PAYEs.

## **12. Due Diligence**

The comprehensive project review and approval process for TEAM projects will provide the documentation of eligibility and adherence to Terms and Conditions. The delivery agent will be responsible for ensuring that any stacking limitations for federal funding are met, and that repayability arrangements are followed.

A project officer will be assigned by the TEAM Delivery Agent to monitor all aspects of the agreement and will recommend signing once all conditions have been met.

The Delivery Agent will ensure that its departmental or agency systems, procedures and resources for ensuring due diligence in approving the transfer payments, verifying eligibility and entitlement, and managing and administering the project are in place. As well, those of NRCan and the TEAM Operations Office will be in place.

Upon final approval in the TEAM process, the delivery agent must prepare the necessary documentation in accordance with the "TEAM project funding Terms & Conditions for Transfer of Funds to Federal Delivery Agents" (Appendix B) and submit this documentation to the TEAM office for review and approval. It is at this point that the "Final Approval" for the transfer of funds will take place.



### **13. Accountability Framework/Evaluation**

Accountability frameworks that set out performance indicators, expected results and outcomes, methods for the reporting on performance, and evaluation criteria are required to assess the effectiveness of contributions. Accountability frameworks for the cited measures is being developed and will be submitted at a later date in an Annex to follow the Treasury Board Submission on Climate Change Technology and Innovation. Evaluations of the programs will encompass activities conducted under these terms and conditions. The cost of independent evaluations will be charged to the program.

The TEAM Results Based Management and Accountability Framework is being developed and will be submitted at a later date in an Annex to follow the Treasury Board Submission on Climate Change Technology and Innovation.

All contribution agreements with recipients must contain a clause stating that (in addition to audit provisions) they will provide information as required to evaluators to assist in the evaluation of the program.

### **14. Audit Framework**

In accordance with Treasury Board policy, each contribution may be subject to audit to verify that only those expenditures allowable under the Terms and Conditions were incurred. The TEAM audit framework is found in an Annex to follow the Treasury Board Submission on Climate Change Technology and Innovation.

Accordingly, the recipient shall:

1. Keep proper accounts and records of the revenues and expenditures for the subject of its contribution agreement, including all original invoices, receipts and vouchers relating thereto for a period of 3 years from the completion of the agreement;
2. Permit the Minister's representatives to audit, inspect and make copies of those accounts and records at all reasonable times;
3. Provide facilities to the Minister's representatives for those audits and inspections; and,
4. Promptly refund to Canada any overpayments of the contribution disclosed by an audit.

### **Other Terms and Conditions**

Costs of managing and administering the TEAM projects under these Terms and Conditions will be from the agreed project allocation for this purpose as defined in the TEAM Phase III Business Plan and Management Framework and through the existing reference levels of the Delivery Agents.

Contribution agreements will include provisions for the cancellation or reduction of payments in the event that funding levels are changed by Parliament.

No member of the House of Commons or Senate will be admitted to any share or part of this proposed activity or project or to benefit arising there from.

In the case of TEAM international projects, Delivery Agents must respect the obligations made by Canada as a signatory to international multilateral agreements to prevent inappropriate trade barriers when negotiating agreements with recipients.

# **APPENDICES**

Please Note: From time to time it may be necessary for TOO to revise the TEAM Terms & Conditions, proposal forms and approval process to proactively address situations that may arise. Any revisions will be approved by the TOO Director and TEAM Executive Committee.



# Appendix A

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## **Examples of Existing Delivery Agents and Authorities Infrastructure Through Which TEAM Projects are Delivered**

There is an extensive infrastructure already in place, in a number of departments, through which TEAM projects are being delivered. The linkages have proven to be beneficial to all parties involved and have clearly demonstrated the benefits available through this horizontal management mechanism. TOO will manage projects on an interim basis where overall complexity and/or partnering structure requires it. Principal among them are:

### **1) NRCan – CANMET Energy Technology Centre**

- Major performer and funder with very high level of expertise in all facets of energy technology, world-class facilities and a highly developed network in energy technology both domestically and internationally.
- Conducts and supports technology development in close partnership with market players and facilitates deployment into market.
- Extensive work with SMEs.
- Industry Energy R&D Program
- Emerging Technologies Program
- Buildings Energy Technology Advancement Program
- Community Energy R&D Program
- Transportation Energy R&D Program
- Renewable Energy Technologies Program
- Industrial Process Optimisation Program
- Advanced Combustion Technology Program
- Oils Sands and Heavy Oil Upgrading & Advanced Separations Program

### **2) National Research Council – Industrial Research Assistance Program (IRAP)**

- Supports SMEs across all industrial/commercial sectors.
- Part of Industry Canada portfolio
- Works very closely with industrial client base.
- Large number of small dollar projects with emphasis on improved manufacturing methods, software and telecommunications.

**3) Industry Canada**

- Technology Partnerships Canada (TPC)
- Energy and Marine Branch
- Environmental Affairs Branch
- Sustainable Cities
- Environmental Industries Sector

**4) Regional Development Agencies (administered through Minister of Industry)**

- Federal Economic Development Initiative for Northern Ontario
- Atlantic Canada Opportunities Agency
  - Business Development Program
- Canada Economic Development for Québec Regions
  - IDEA – SME
  - Technology Investment Loan Funds

**5) Environment Canada**

- Regional and Sectoral operational/regulatory programs
- Environmental Technology Advancement Initiatives:
  - Program supports broad range of environmental technologies.
  - Climate change related work; includes landfill gas recovery, microwave assisted processes, clean vehicle fuel technology, biotechnology, alternative fuels and recycling.
  - Strong technical linkages with other national and regional programs.
  - National and international transfer of environmental technology, know-how and capacity building (shared with DFAIT and CIDA).

**6) Agriculture and Agri-Food Canada**

- Canadian Adaptation and Rural Development Fund (CARDF)
- Assists industry to adapt to change and strengthen economic performance by putting resources and decision-making into the hands of the sector.

**7) Canadian International Development Agency (CIDA)**

- Various geographic/country programs
- Initiatives can support research and development, improve access to information and technology, increase the understanding and practice of environment and resources stewardship, promote new and improved management skills and capture new markets.

**8) Transport Canada's Research and Development Program**

- Intelligent transportation systems, alternative fuels and advanced technology
- Transportation R&D in Canada in partnership with industry and other partners, both domestic and international.

**9) Health Canada**





## Appendix B

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### **TEAM Project Funding Revised Terms and Conditions for Federal Delivery Agents (December 30, 2003)**

#### **Preamble**

The overall TEAM mission is to identify, develop and support technology late stage development and demonstration projects and technology transfer opportunities in support of early action to reduce GHG emissions, domestically and internationally, while sustaining economic and social development.

TEAM will deliver longer-term demonstration of the climate change Technology and Innovation block. TEAM will retain its successful current mission and will enhance its management tools to: 1) target support for the strategic areas; 2) enhance linkages with arm's length organizations in the development and implementation of new projects; 3) encourage hybrid and integrative technology projects; and, 4) augment the importance of project reporting and technical performance during the review process.

TEAM will identify opportunities and leverage funding and resources to support cleaner fossil fuels, advanced end-use efficiency technology, decentralized energy production, hydrogen economy and biotechnology.

TEAM provides a mechanism for horizontal coordination, negotiation and peer review of incremental financing for domestic and international project proposals on climate change mitigation technology demonstration. TEAM will use existing federal delivery agents and authorities and will make recommendations through the TEAM Interdepartmental Review Committee (IRC) and Executive Committee on funding for all projects. TEAM IRC members include NRCan, EC, IC, TC, AAFCan, DFAIT, CIDA, NRC/IRAP, IC/TPC, HC and others self-identified. TEAM is co-chaired by NRCan, EC and IC, and TEAM is managed through the TEAM Operations Office (TOO).

## 1. TRANSFER AND USE OF FUNDS

- 1.1 Effective September 5, 2003, in accordance with the decisions of Ministers related to climate change funding, the TEAM funds will be included in the reference levels of NRCan.
  - 1.1.1 TEAM provides incremental funds to participating departments to undertake climate change mitigation-related technology projects within their mandated areas of activity. As such, TOO will generally arrange the transfer of funds to TEAM Delivery Agents through an Interdepartmental Settlement Notice (ISN). Each TEAM Delivery Agent shall ensure that the TOO is informed of all movements of TEAM resources (including any planned or unplanned lapses) between fiscal years, as part of its regular or quarterly financial reporting to TEAM.
  - 1.1.2 The federal delivery agents shall submit written confirmation of both the statutory authority and the program authority to undertake the activities relating to the project. Where the delivery agent does not have the full and sufficient statutory authority, NRCan would become the signatory to program agreements.
- 1.2 TEAM will present an annual report to the Minister of NRCan of all of its investments, as noted in section 2.2 of these Terms and Conditions.
- 1.3 The Delivery Agent will establish the appropriate methods to control TEAM expenditures separately on behalf of TOO/NRCan.
- 1.4 The Delivery Agent shall ensure compliance with all federal government stacking rules relating to limits on the total amount of federal share of project financing.
- 1.5 Any project that does not start within 1 year of approval may be cancelled at the discretion of TOO Director and notification to TEAM Executive.
- 1.6 Repayments of federal contributions under these Terms and Conditions will be used following existing TB agreements, policies or guidelines; or new agreements, policies or guidelines, or amendments to same as may be made. Delivery agents can also use the TEAM Class Contribution Terms and Conditions (Section V of TEAM Phase III Business Plan).

## 2. FINANCIAL AND PROGRAM REPORTING REQUIREMENTS

- 2.1 TOO will provide regular and annual reports to the Minister of Natural Resources on the major achievements and usage of TEAM funds. It will also be responsible for the reporting on climate change activities and anticipated benefits within the Central Agency planning documents of NRCan (e.g. Report on Plans and Priorities, Annual Performance Report). TOO will maintain an ongoing database of current and forecasted TEAM expenditures and detailed information on the performance and success of the major TEAM activities.
- 2.2 TOO will provide overall financial management summaries and reporting information based on regular input from Delivery Agents.
- 2.3 The Delivery Agent will provide, in collaboration with TEAM/TOO, reports required in fulfillment of such reporting requirements as it may from time to time require, such as for those noted in Section 2.1, as well as reports for the Prime Minister, for Treasury Board, etc. The Delivery Agent will provide any information required through the evaluation process established for TEAM.
- 2.4 The Delivery Agent will cooperate with TOO and project proponents, to implement a Project Master Plan as outlined in Appendix F of the TEAM Phase III Business Plan and agreed to by TOO Director. Funding up to \$40K will be allocated for project costs to cover Project Master Plan and SMART report. . This funding will be managed and coordinated by TOO.
- 2.5 The Delivery Agent will provide quarterly project reports to TOO, containing information on: projects undertaken; achieved deliverables and milestones; and expenditure forecasts (by salaries/O&M/contribution: budgets, year-to-date expenditures, commitments, free balance). Information on performance with regard to assessment of the value of projects in achieving GHG reductions, leverage of Delivery Agent (or other federal partner) and private sector funding, overall effectiveness in project start-up for early action, etc. is are pertinent reporting requirements.
- 2.6 In addition to expenditures incurred from TEAM resources, departments are to identify internal departmental resources applied to TEAM projects funded and/or resources levered from external sources.
- 2.7 The Delivery Agent will provide to TOO, within thirty (30) days of the end of the midyear and third quarter of each fiscal year, a revised estimate by major category of expenditure of resources spent to date, unliquidated commitments, and a forecast of expenditures for the balance of that fiscal year (including any planned or unplanned lapses).

- 2.8 The Delivery Agent will also provide to TOO/NRCan, within sixty (60) days following the end of each fiscal year, the necessary TEAM expenditure reports, project status and completion reports. The Delivery Agent will provide information on expenditures at the level specified by TOO/NRCan.
- 2.9 In particular, budget cycling will be performed through the Annual Reference Level Update (ARLU) process which enables a Delivery Agent, through TOO, to request fund movement between Operations & Maintenance (O&M) and Grants & Contributions (G&C). This also represents an opportunity to better manage project delays or changes by moving funds between fiscal years. TOO will notify Delivery Agents of this opportunity in August/September of each year and provide a short opening to complete such movements through NRCan. After this time, if a Delivery Agent does not spend funds, the Delivery Agent will be responsible for any subsequent project shortfalls due to loss of funds. TOO will make every effort to ensure the funds are preserved within the TEAM program, but will not guarantee re-instatement of the funds to the project from which the funds were lost. TOO will not be responsible for any funding shortfalls that may arise from poor financial management.
- 2.10 Delivery Agents, departments or agencies are to return to NRCan any unspent TEAM funds (such as those identified in 2.9) by end of fiscal year and a report by standard object on expenditures incurred to end of fiscal year (TOO will issue a notice to this effect in a timely manner).
- 2.11 Upon project completion, the Delivery Agent will provide a comprehensive final technical report, as outlined in Appendix F of the TEAM Phase III Business Plan. It is expected that the Delivery Agent will continue to exercise the holdback clause of 10% (not to exceed \$50,000) of the TEAM project funding until the final technical report has been completed to the satisfaction of the TEAM Operations Office.
- 2.12 The Delivery Agent will provide TOO with the name of their principal contact for reporting and financial issues.
- 2.13 The Delivery Agent will also report on TEAM expenditures as part of their input to the Science Addendum (where applicable).

Table 8 summarizes all of the TEAM program reporting for each organizational level, reporting frequency and to whom in the hierarchy.

**Table 8 – TEAM Reporting Requirements**

<b>Requirement</b>	<b>To Whom</b>	<b>Details</b>	<b>Frequency</b>	<b>Format</b>
<b>ORGANIZATION: TEAM Executive Committee</b>				
TEAM progress reports	Minister, Deputy Minister of NRCan, NRCan ADM, Energy Technology and Programs Sector	Project and financial information Milestones Major deliverables Issues to be resolved	Periodically	As Required
<b>ORGANIZATION: TEAM Operations Office</b>				
Semi Annual Updates	Minister of NRCan Deputy Minister of NRCan NRCan ADM, Energy Technology and Programs Sector TEAM Executive & Sr. Managers	Project and Financial information Milestones Major deliverables Issues to be resolved	Semi annual	As required
Project Annual reports	TEAM Executive NRCan ADM, Energy Technology and Programs Sector NRCan DM Minister of NRCan	Consolidated Annual report on activities and expenditures	Annual and periodic	As required
Project Master Plan (QC/QA) Move above to TOO	TEAM Executive TOO	SMART-lite Business plan Technology Process Flow Diagram (PFD) Mass/Energy balances Anticipated results and additional benefits to Canadians	Prior to final project approval	In accordance with TOO guidelines
<b>ORGANIZATION: Delivery Agents and Project Managers</b>				
Project progress reports	TOO	Project milestones, deliverables and/or major accomplishments Issues to be resolved	Quarterly	In accordance with TOO guidelines
Quarterly financial reports	TOO	Project expenditures to date (eligible expenses Leverage	Quarterly	Phase III Business Plan Appendix B
Annual financial reports	TOO	Project expenditures to date, lapses and planned for balance of year	Annual	Phase III Business Plan Appendix A

<b>Requirement</b>	<b>To Whom</b>	<b>Details</b>	<b>Frequency</b>	<b>Format</b>
Final technical reports	TOO	In accordance with TOO guidelines	At project completion	Phase III Business Plan Appendix A
SMART	TOO	In accordance with TOO SMART protocol	At project completion	Phase III Business Plan Appendix A
Periodic reporting	TOO	Final leverage Technology replication to date	Periodic	As required

### **3. PUBLICITY AND PUBLICATIONS**

- 3.1 A communications strategy will be developed jointly by NRCan and the Delivery Agent, with an accountable party assigned for each project for the management of the process for each project. This strategy will recognize the importance of all project participants; role of the Delivery Agent and program, private sector stakeholders, multi-jurisdiction involvement and the collaborative effort of the participants as well as recognize the role, the authority and accountability of the Minister of NRCan for TEAM investments and the Minister(s) for the primary delivery platform(s). The participation of other Ministers and MPs in TEAM announcements will reinforce the message that there is a concerted, collaborative federal effort to reduce greenhouse gas emissions that are in line with the Policy and Technology Priority Areas outlined in Climate Change Plan for Canada. Particular attention will be paid to ensuring NRCan Ministerial participation in any TEAM announcements by providing adequate advance notice of events to NRCan and the TOO.
- 3.2 All reports, articles and publications originating from projects supported by TEAM will acknowledge TEAM support and use the Canada word marks.
- 3.3 Delivery Agent internal communications documents and reports by the Delivery Agent on the success or accomplishments of projects carried out with TEAM funding will recognize the support provided by TEAM.

#### 4. ENVIRONMENTAL ASSESSMENT

- 4.1 The Delivery Agent is responsible for meeting any requirements under the Canadian Environmental Assessment Act (CEAA).
- 4.2 The Delivery Agent will provide a copy of the Environmental Assessment (this includes justification for exemption) attached to the Financial Allocation Approval Form of the TEAM Phase III Business Plan or a copy will be provided within twenty working days of the submission of this Form to the TEAM Operations Office.

#### 5. CONTRACT DOCUMENTATION

- 5.1 The Delivery Agent will provide a copy of the contract arrangements with project parties attached to the Financial Allocation Approval Form or a copy will be provided within twenty working days of the submission of this Form to the TOO.

#### 6. INTELLECTUAL PROPERTY

- 6.1 The management of intellectual property will be the responsibility of the Delivery Agent.

#### TEAM TERMS & CONDITIONS: SIGNATURES

Delivery Agent Signatures:	
_____	_____
Project Officer	Responsibility Centre Manager
_____	_____
Department & Title	Department & Title
_____	_____
Date	Date





# Appendix C

## TECHNOLOGY EARLY ACTION MEASURES

### PROTECTED WHEN COMPLETED

<b>TEAM PROJECT RECOMMENDATION FORM</b>	<b>Project No.:</b>  <b>Last Revision Date:</b> <b>Anticipated Project Start Date:</b> <b>Anticipated Project Completion Date:</b>
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### APPLICATION NOT COMPLETE WITHOUT THE FOLLOWING:

<b>Proponent (technology) Business Plan Included:</b>	
<b>Technical Documentation Included:</b>	
<b>Completed SMART LITE Included:</b>	

**1) Project Title:**

**2) Project Description:**

- What is the purpose of the project? (i.e. Is the project related to: i.) Technology development ii) Technology Deployment iii) Overcoming barriers to deployment and development?)
- What are the project objectives? This includes technical performance objectives.
- Project strategy to reduce GHG emissions and/or enhance GHG removals
- What is the purpose of the new technology(ies)? (Applications to industry, stage of development, etc.)  
  
 What are the project activities and roles/importance of main and auxiliary technology(ies) associated with the project? This may also include products and services and related activities
- What is/are the Project location and/or demonstration site(s)? What is the strategic importance of the demonstration site(s)? — Must be clearly defined in proposal.

- Business plan describing technology users and end-users for all potential product lines derived from the technology or activity, alternative technologies and competitors, market study, potential replication in target market(s) and other industry sectors, financial projections and expected market uptake or penetration Is there a demand or demonstrated market pull? Potential uptake? etc.)

### 3) Applicant's Name and Profile:

Executive Contact	Lead Technical Contact
Title	Title
Company or Municipality Name	Company or Municipality Name
Address	Address
Telephone	Telephone
Fax	Fax
E-mail	E-mail

- Describe company and Partners Background (i.e. size, type of business, facilities, affiliation to other companies, major product lines, time in business, private/public company).
- Describe importance of strategic partnership proposed? How does this affect (enhance) the technology business plan?

### 4) Innovativeness:

- What is the new technology? How does the proposed technology or activity differentiate from existing technology(ies) and/or practices in the identified market opportunities
- What is patentable or IP protectable?
- What is the potential for broad impact on Canadian Technology?

### 5) Risk:

- What are the technical risks associated with the project?
- What is the commercial viability of the technology?
- What are the market risks associated with the project?
- Are there any important policy/political or communications issues?
- Is there a need for a phased approach with go/no go?

### 6) Need for Government Involvement:

- Why will the project not proceed without Federal Government support?

**RATIONALE:****7) GHG Emission Reduction Potential: Using TEAM's SMART Lite approach**

The applicant shall use TEAM's SMARTLite approach to estimate potential GHG emission reductions (or removal enhancements) and include the assessment with this application.

- Provide process flow diagram and related mass and energy balance information
- List all assumptions and formulae used in calculations
- Show calculation for each unit of measure
- Explain replication schedule and rationale

If the project is international, the following issues should be closely examined:

1. Has the project proponent considered proceeding with the Clean Development Mechanism (CDM) or Joint Implementation (JI) or other Internationally accepted standards as part of this project? Has the proponent considered the importance of host country's objectives i.e. GHG project implementation?
2. If the project proponent has considered the CDM angle of this project, are they familiar with the approval and registration procedures required for CDM projects? Has the project proponent contacted the Canadian CDM and JI office concerning these procedures or for any other technical assistance?
3. Has the project proponent previously received funding from the CDM and JI office for any project related analysis or due diligence?
4. If reduction credits are being considered as part of this project (resulting from either CDM or JI), have they been included as part of a contractual arrangement with the proponent's partner?
5. In the case of CDM projects, has the project proponent devised an appropriate baseline methodology that conforms to the approval criteria of the CDM Executive Board?

GHG Reduction Potential in tonnes of annual CO<sub>2</sub> Equivalent as identified by the Proponent: and as reviewed and adjusted by TEAM:

Project (CO <sub>2</sub> e tonnes/yr)	Year 2008 (CO <sub>2</sub> e tonnes/yr)	Year 2012 (CO <sub>2</sub> e tonnes/yr)
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**8) Replication Potential:**

Location of replication:		
Country	Province/State	City

## 9) Provide a Detailed Business Plan

Business plan or technology roll out plan should be in sufficient detail and cover the time period to 2012 and including:

- How effectively could the technology be replicated in other industry sectors/markets?
- What is the commercial potential of the project?
- Has the proponent completed a market study?
- Who is the target market?
- Who is the proponent's competition? Intellectual Property Rights?
- Has the proponent provided financial projections? Summarize any projections with respect to: i.) sales ii.) capital costs iii.) operational costs
- What is the projected market uptake? Is this a reasonable calculation?

## 10) Leveraging:

[Financial contributions from different sources.]

	2003– 2004	2004– 2005	2005– 2006	2006– 2007	2007– 2008	TOTAL
Partner 1						
Partner 2						
Federal Delivery platform						
Other Federal Gov't funds						
TEAM/CCAF O&M *						
TEAM/CCAF G&C						
<b>Total</b>						

\* Includes \_\$\_\_\_\_\_ Administration and \$40,000 Verification

- Note:
1. Administration funds are capped at \$30k or 5% of TEAM requested funds whichever is less.
  2. Verification funds include 40K for Project Master Plan and for SMART protocol. TOO will control and administer verification funds (as stated in TEAM Phase III Business Plan).
    - Has this proposal been submitted or currently in the review process of any other federal government or other arm's lengths organizations for financial support i.e. Technology Partnerships Canada (IRAP-TPC), Sustainable Development Technology Canada (SDTC) and Federation of Canadian Municipalities (FCM)?  
If so, what is the scope of the work, funding requested and what is the anticipated decision date?

**11) Environmental, Health and Social Impacts and Benefits:**

- What are the environmental, health, economic and social impacts associated with the project?
- Does this project, or its replication, have negative or positive impacts on other issues such as land resource use, groundwater or surface water contamination, ozone depletion or smog?
- Where applicable, define what contaminants from the technology, the process or the derived products that may exert an impact on the natural environment i.e. surface run-off from manure management practices

**12) Consultations:**

- Have all related federal offices reviewed this project? List all federal offices that have been consulted.

**13) Repayability:**

Not Repayable \_\_\_\_\_  
 Partially Repayable \_\_\_\_\_  
 Repayable \_\_\_\_\_

- What are the proposed terms of repayability?
- If the funding is not repayable, briefly explain why not.

**14) Communications Strategy:**

- Identify in a sentence or two possible announcement and publicity scenarios.

**15) Recommended Support:**

**16) Sector:**

(Place an "x" in one or more sectors to which project applies)

Biotechnology \_\_\_\_\_  
 Cleaner Fossil Fuels \_\_\_\_\_  
 Decentralized Energy Production \_\_\_\_\_  
 Hydrogen Economy \_\_\_\_\_  
 Advanced Energy End Use Technology \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

<p><b>Recommended Delivery Mechanism(s):</b> Federal Program or Agency</p>	<p><b>Total Project Cost \$</b> <b>Total Arm's Length (non-federal) \$</b> <b>Project Contributions</b> <b>Total Federal Government Financial Support: \$</b> <b>Recommended TEAM Contribution \$</b> <b>Other Federal Assistance: \$</b> <b>Federal Contribution as a % of Total Cost: %</b> TEAM as % of Federal Contribution: %</p>
<p><b>FEDERAL PROJECT CONTACT:</b>  Name: Title: Department: Program: Address: Telephone: Fax: Email:</p>	<p><b>PRIMARY PRIVATE OR MUNICIPAL PARTNER CONTACT:</b>  Name: Organization: Title: Telephone:</p>
<p>Signature</p>	<p>Signature</p>
<p>Date</p>	<p>Date</p>
<p><b>REVIEWED AND RECOMMENDED BY TEAM INTERDEPARTMENTAL REVIEW COMMITTEE ON</b></p>	<p><b>REVIEWED AND ADVANCED BY TEAM EXECUTIVE COMMITTEE ON</b></p>
<p>Date</p>	<p>Date</p>
<p>Signature: IRC Chair</p>	<p>Signature: Director, TEAM Operations Office</p>
<p>Date</p>	<p>Date</p>

**REVIEWED AND ADVANCED to ADM, ENERGY TECHNOLOGY AND PROGRAMS  
SECTOR ON**

Date

Signature: Director, TEAM Operations Office

**Format last revised January 7, 2004**

Note: Even if an applicant meets all of the aforementioned eligibility criteria, the application may be rejected on the basis of not obtaining satisfactory results in a previously funded project or because the outlined strategy was deemed unsatisfactory. Past Delivery agent performance will also be considered in project proposal review.





# Appendix D-1

## TEAM Project Financial Allocation Approval Form & Delivery Agent Certification

**TEAM PROJECT NUMBER:**

**PROJECT TITLE:**

**DELIVERY AGENT (DA) OR PROGRAMME:**

**DELIVERY AGENT DEPARTMENT OR AGENCY:**

**PROJECT LEAD PROPONENT:**

Proposed TEAM Allocation	Complete Financial Coding	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	TOTAL
G&C							
O&M SMART							
O&M DA Admin							
<b>TOTAL</b>							

Intra Number \_\_\_\_\_

Departmental Financial Contact \_\_\_\_\_

Phone #: \_\_\_\_\_

Fax: \_\_\_\_\_

- Project terms and conditions have been finalized and are consistent with Departmental or Agency Authorities and TEAM Project Recommendation Form (copy attached) \_\_\_\_\_.
- Department or Agency hereby agrees to the attached TEAM Project Funding Terms and Conditions.

Pre-Environmental Assessment Form or EA Screening Documents Attached

Draft (unsigned) Contract or Contribution Documents Attached

SMART coordinated by TEAM Operations Office (TOO) with project proponent

SMART Project Master Plan completed and approved by TEAM Operations Office (TOO)

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Name (Departmental or Agency Officer with Delegated authority)      Date

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Title      Department

Recommended by TEAM Operations Office (TOO)

W. Richardson      Date  
Director

Approved by Natural Resources Canada

M. McCuaig-Johnston      Date  
Assistant Deputy Minister  
Energy Technology and Programs  
Sector, NRCan

## APPENDIX D-2

### TEAM Project Financial Allocation Approval Form & Delivery Agent Certification

**TEAM PROJECT NUMBER:**

**PROJECT TITLE:**

**DELIVERY AGENT (DA) OR PROGRAMME:**

**DELIVERY AGENT DEPARTMENT OR AGENCY:**

**PROJECT LEAD PROPONENT:**

Proposed TEAM Allocation	Complete Financial Coding	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	TOTAL
G&C							
O&M SMART							
O&M DA Admin							
TOTAL							

Intra  
Number \_\_\_\_\_

Departmental Financial  
Contact \_\_\_\_\_

Phone #: \_\_\_\_\_

Fax: \_\_\_\_\_

- Project terms and conditions have been finalized and are consistent with Departmental or Agency Authorities and TEAM Project Recommendation Form (copy attached) \_\_\_\_\_.
- Department or agency hereby certifies that the contribution agreement has been prepared consistent with the TEAM Contribution Program terms and conditions and is consistent with Treasury Board policy on Contributions.

- Department or Agency hereby agrees to the attached TEAM Project Funding Terms and Conditions.

	Pre-Environmental Assessment Form or EA Screening Documents Attached
--	--

	Draft (unsigned) Contract or Contribution Documents Attached
--	--

	SMART coordinated by TEAM Operations Office (TOO) with project proponent
--	--

	SMART Project Master Plan completed and approved by TEAM Operations Office (TOO)
--	--

Recommended by TEAM Operations Office (TOO)	
W. Richardson Director	Date

Approved by Natural Resources Canada	
M. McCuaig-Johnston Assistant Deputy Minister Energy Technology and Programs Sector, NRCan	Date

# Appendix E

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## Tools and Checklists for the Development and Review of TEAM Proposals

### Forward

The purpose of this document is to provide guidance to those developing or reviewing TEAM proposals. This document is not designed to duplicate other program criteria but rather to complement or supplement them and to provide a consistency for review by members of the Interdepartmental Review Committee (IRC).

Objectives of the Tools and Checklists are:

- Standardization of the review criteria, through pre-approved checklists and guidelines
- An open process, with transparency for both reviewers and proponents
- Reproducibility, credibility and assurance of ability to perform.

The five checklists are presented to cover the separate but related areas of:

- Effectiveness of the technology for GHG reduction
- Factors influencing market penetration and time to market
- Corporate competitiveness and ability to replicate the technology/process/system on a commercial basis.

The five checklists are:

1. GHG Reduction Estimates
2. Commercialization Potential
3. Market Penetration
4. Commercialization Implementation
5. Corporate Competitiveness.

TEAM projects may be energy-related (e.g. renewable energy, alternative fuels, energy efficiency, etc.) or involve technologies which mitigate GHG emissions (such as process technologies, biotechnologies, transportation, etc.). The two mandatory criteria are:

- GHG reduction potential: each project must result in, or lead directly to, GHG reductions.

- Proponent commitment: private sector companies must demonstrate a commitment to validation of the technology performance and the GHG benefits that results from demonstration projects.

Projects related to climate change adaptation, measurement of GHG concentration or impacts, and software products are ineligible for project funding. Project proposals related to GHG sinks or reservoirs will be a low priority for TEAM support.

The following criteria are applied on a technical merit basis, with flexibility in their application:

- Risk factors, including overall quality analysis of company(ies) involved;
- Replication potential;
- Leverage;
- Potential economic and social benefits;
- Previous track records on the delivery of demonstration projects;
- Incrementality: i.e. would the project proceed without TEAM support?;
- Potential environmental and health benefits; and,
- Repayment potential (depending on nature of project and other supporting agencies).

Additional Principles to be applied to the TEAM review process are:

- While maintaining a timely efficient proposal review process, TEAM Executive and TOO will place significant priority on strategic management of the project portfolio. This will mean project proponents should not expect to be funded on a "first come, first served" basis. Projects not consistent with government strategic technology and policy objectives should not expect funding.
- TEAM will further enhance linkages with arm's-length funding agencies to ensure working-level coordination of proposal development and review.
- Hybrid and integrative technology projects will be a priority for new TEAM approvals and initial projects will be developed and assessed in each of the priority areas under the TEAM Executive.
- In order to support both GHG accountability and promising new technology areas, the track record of both government and private sector proposal partners in funding management, project reporting and technical performance will be a higher priority in review of any new TEAM project proposals.

Few proponents will be capable of conforming to the guidelines in every category. Furthermore, it would be onerous for a project proponent to fully address these criteria through written documentation. Nevertheless, there is value in considering the current status of the proponent and the potential to achieve the objectives as expressed in the guidelines.

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 1.0 – GHG REDUCTION ESTIMATES

The viability of a new technology project for GHG reduction depends on effectiveness of (a) the overall project and (b) the technology, when applied for GHG reduction. In addition to reviewing the corporation and/or strategic partnership implementing the technology and the marketability of it, there is a particular requirement for assurance that the GHG reduction plan is viable and will result in a substantial GHG reduction.

Evaluation Criterion	Guideline
1. Projected Reduction at the National Level	<ul style="list-style-type: none"> <li>▪ The Canadian industry sector that will benefit from the GHG reduction, through use of the technology, may be represented by many small entities or a few large entities, and may be regional or national in nature.</li> <li>▪ The reduction must be calculated for a single “unit” of activity and the size of the project-related industry sector estimated so that a figure is developed for total projected reduction of GHG at the national level.</li> <li>▪ The GHG reduction potential for the project, year 2008 and year 2012 estimates for CO<sub>2</sub> Equivalent tonnes/yr should be included in Section 7 of the proposal.</li> </ul>
2. Projected Reduction in the US and Internationally	<ul style="list-style-type: none"> <li>▪ The US and international industry sector that will benefit from the GHG reduction, through use of the technology, may be the same, or due to jurisdictional differences may require different treatment than the sources of reduction in Canada.</li> <li>▪ The reduction must be calculated for a single “unit” of activity and the size of the project-related industry sector estimated so that a figure is developed for total projected reduction of GHG at the international level.</li> <li>▪ The GHG reduction potential for the project, year 2008 and year 2012 estimates for CO<sub>2</sub> Equivalent tonnes/yr should be included in Section 7 of the proposal.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 1.0 – GHG REDUCTION ESTIMATES

The viability of a new technology project for GHG reduction depends on effectiveness of (a) the overall project and (b) the technology, when applied for GHG reduction. In addition to reviewing the corporation and/or strategic partnership implementing the technology and the marketability of it, there is a particular requirement for assurance that the GHG reduction plan is viable and will result in a substantial GHG reduction.

Evaluation Criterion	Guideline
3. Calculation of GHG Reduction Using SMART Lite and generally accepted (i.e. IPCC) Emission Factors & engineering principles	<ul style="list-style-type: none"> <li>▪ All GHG calculations will be performed using TOO's SMART Lite protocol in Section 7 of the proposal recommendation form.</li> <li>▪ Assumptions relating to the GHG reduction estimates will have a significant effect on the estimates and should be presented. The method of calculation and source of emission factors should be indicated.</li> <li>▪ SMART Lite necessitates pertinent mass and energy balance information be factored into GHG reduction estimates.</li> </ul>
4. Replication Potential Calculation for Identical/Similar Markets	<ul style="list-style-type: none"> <li>▪ For the same industry sector/market as the project, there will be potential to replicate the technology/process. The rationale for (a) adoption and (b) the time frame are key factors for evaluation of the potential benefit of the technology. Rationale for the expectation of a certain time frame is an integral part of evaluating the potential for replication.</li> <li>▪ The Proponent will provide a detailed business plan within the proposal. These market penetration rates for Year 2008 and 2012 will form the basis for GHG reduction potential in Year 2008 and 2012.</li> </ul>



## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 1.0 – GHG REDUCTION ESTIMATES

The viability of a new technology project for GHG reduction depends on effectiveness of (a) the overall project and (b) the technology, when applied for GHG reduction. In addition to reviewing the corporation and/or strategic partnership implementing the technology and the marketability of it, there is a particular requirement for assurance that the GHG reduction plan is viable and will result in a substantial GHG reduction.

Evaluation Criterion	Guideline
5. Replication Potential for Related Industries / Markets	<ul style="list-style-type: none"> <li>▪ For industry sectors/markets not addressed through the project, there could be potential to replicate the technology/process. Further development work, in the technology, infrastructure or the market, may be required before replication is feasible. The rationale for adoption and implementation of replicates or similar projects and the time frame are key factors for evaluation of the potential benefit of the technology.</li> <li>▪ Proponent will identify possible “unconventional” markets for the technology within their business plan and include possible GHG reduction estimates from such activity in the GHG reduction estimates.</li> </ul>
6. Knowledge of Barriers to Implementation	<ul style="list-style-type: none"> <li>▪ Significant barriers to implementation should be examined. The likelihood of overcoming the barriers, together with methods, measures and policies that could address these should be reviewed.</li> <li>▪ Where barriers may be potential show stoppers, contingency plans should be identified and the effect on the overall project objectives outlined.</li> </ul>
7. Timeframe	<ul style="list-style-type: none"> <li>▪ The timeframe for significant replication of the project should be related to the Kyoto target date of 2008 – 2012.</li> <li>▪ An ideal time frame for replication is 3 yrs or less, after project completion.</li> <li>▪ More distant time frames are also beneficial, e.g. Year 2008, Year 2012 and beyond. Only the estimated “time frame” achievement s to 2012 are evaluated in this evaluation category.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 2.0 – Commercialization Potential

Evaluation Criterion	Guideline
1. Proof of concept	<ul style="list-style-type: none"> <li>▪ The technology concept must be developed to the point of demonstrating its commercial potential.</li> <li>▪ For commercial potential, uniqueness of the technology is important, hence consideration must also be given to the protection of intellectual property. Data from the proof of concept demonstration is likely to be included in the patent application.</li> <li>▪ A comprehensive process flow diagram (PFD) and associated mass and energy balance information should be fully substantiated.</li> <li>▪ Quality Control and/or Quality Assurance procedures should be documented.</li> </ul>
2. Market analysis	<ul style="list-style-type: none"> <li>▪ An essential requirement for successful commercialization is an understanding of market characteristics and the competitiveness of the technology relative to other options, both existing and emerging.</li> </ul>
3. Business strategy	<ul style="list-style-type: none"> <li>▪ With any technology, and considering what is known about the market, there are a number of strategic business options. A fundamental consideration is to decide what is being sold and the intended customers or clients. The choices of what-is-being-sold, for example, could be a license, a service, a product or a combination of these.</li> </ul>
4. Financial analysis	<ul style="list-style-type: none"> <li>▪ The market analysis and the business strategy are used to prepare financial projections which include estimates of sales, cost of sales, capital costs and operational costs and inadvertently GHG reduction estimates. This provides the basis for a cash flow analysis which can be used to determine the funds required to execute the business strategy.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 2.0 – Commercialization Potential

Evaluation Criterion	Guideline
5. Management resources	<ul style="list-style-type: none"><li>▪ One of the most important factors to potential investors is the quality of management and key personnel. For example, if a technology spin-off company is formed by the technology innovators at a university, then additional business experience will most likely be required. Similarly, if a small to medium-sized enterprise requires access to expertise, then a strategic alliance with a stronger player in the market or a related market may be desirable. There must be a plan to secure the necessary financial and management resources to enable successful exploitation of the technology.</li></ul>
6. Strategy for ongoing development of the technology	<ul style="list-style-type: none"><li>▪ Technologies with good commercial prospects can typically migrate into other markets.</li><li>▪ An overview of the plans for the ongoing development of the technology and its associated migration strategy should be included in the business strategy.</li></ul>
7. Timeframe	<ul style="list-style-type: none"><li>▪ Commercialization is not comprised of a single activity, but rather a set of processes which are performed both sequentially and in parallel. The “route to market” may be straightforward or complex; it frequently takes longer than originally anticipated.</li></ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 3.0 – EXISTING & POTENTIAL Market Penetration

Evaluation Criterion	Guideline
1. Government, Taxation and Infrastructure	<ul style="list-style-type: none"> <li>▪ Government policies on taxation, public spending, regulation, infrastructure and the domestic market can stimulate or inhibit investment opportunities.</li> <li>▪ Government actions to improve tax regimes, coordinate policies and provide infrastructure can free up private initiative and encourage investment.</li> </ul>
2. Availability of Capital	<ul style="list-style-type: none"> <li>▪ The principal focus of lending activity is on hard asset-backed lending and investment. However, in today's knowledge-based economy, where the most valuable assets of a company are often the expertise and know-how of the people who work there, this conventional approach may not always be sufficient.</li> <li>▪ Companies need access to capital to expand and grow during their early years. They must also focus on generating retained earnings, the lowest-cost form of capital that can be invested in their businesses.</li> </ul>
3. Technology	<ul style="list-style-type: none"> <li>▪ Investment in technology is essential for the nurturing and maintenance of a high level of economic performance. The failure to invest in technology can seriously limit growth in productivity.</li> <li>▪ Just as the greater use of existing technologies is important, so is the research and development of new technologies. Companies that emphasize quality and meeting customer needs are more likely to become better technology users and better developers of innovative products.</li> </ul>
4. Products and Markets	<ul style="list-style-type: none"> <li>▪ Understanding the differences between technology, products and markets is important. Technology does not create wealth on its own. There must be a clear understanding of the specific products that can be derived using the technology and the markets that these products can penetrate. Furthermore, if the product does not lead to other products, the market opportunity will be limited.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 3.0 – EXISTING & POTENTIAL Market Penetration

Evaluation Criterion	Guideline
5. Technology Dispersion	<ul style="list-style-type: none"> <li>Technology “push” occurs when technology developers are convinced that their technology can create wealth, even though they may not be able to clearly identify the products that it might spawn or the markets that it might address. Market “pull” is what happens when a user or someone else who is thoroughly familiar with a given market identifies the need for a product in that market and sets out to develop both the technology and the products to address it.</li> </ul>
6. Market Research	<ul style="list-style-type: none"> <li>The market research for a new technology venture can be as difficult and time-consuming as the scientific research and product development that goes into the creation of the product itself. The main objective should be to estimate market potential, market penetration and sales revenue.</li> </ul>
7. Market Potential	<ul style="list-style-type: none"> <li>Market potential refers to the total market for a product or service, while market penetration is the percentage of the total market that has been acquired. In analyzing the market, it is important to examine two components of sales — those that replace existing units(the replacement market), and those sales to users who have never had any type of similar system in the past(the incremental market). While marketing and sales strategies may differ, price and functionality usually influence the purchasing decisions of both of these types of customers.</li> </ul>
8. Market Share	<ul style="list-style-type: none"> <li>The objective of market research is to determine market share. This is important to both investors and entrepreneurs, not only during the planning stage, but after the enterprise is up and running. Market share is the sum of the replacement and incremental markets, and if the total potential and penetration are known, it is possible to calculate the market share.</li> <li>The market share realized by any product is related to two main factors — a differential advantage in terms of functionality and benefits to the end user, and the level of marketing and sales effort in support of the product. The developers of the product play a key role in evaluating the market to determine potential market share, particularly in relation to functionality and benefits.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 3.0 – EXISTING & POTENTIAL Market Penetration

Evaluation Criterion	Guideline
9. Exports	<ul style="list-style-type: none"> <li>▪ For many companies, the capacity to generate wealth and prosperity is dependent upon the ability to sell products in world markets. Today, the world marketplace offers more opportunities than ever, as the process of globalization reduces tariffs and other trade barriers, and allows goods, services and people to move around the world with increasing ease. Successful export ventures can increase profitability, allowing firms to grow faster and strengthen their competitiveness.</li> </ul>
10. Human Resources	<ul style="list-style-type: none"> <li>▪ Good investment goes beyond the acquisition and development of new technologies. It also means finding better ways of doing things with available resources, in the face of constantly changing market conditions. How work is organized and how existing equipment and resources are used in production processes is as important as having access to the latest technologies. This also depends on labour and management working together to achieve common goals.</li> <li>▪</li> </ul>
11. Integrating Environmental and Economic Solutions	<ul style="list-style-type: none"> <li>▪ The need to address environmental problems requires both voluntary approaches and a regulatory framework that allows businesses to innovate in an environmentally responsible manner. Increased public awareness of the environment is forcing industries to place greater priority on how their products are produced, marketed and disposed. With proper management, industry can satisfy both environmental and economic concerns.</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 4.0 – COMMERCIALIZATION IMPLEMENTATION

Evaluation Criterion	Guideline
1. Demonstration of Technology Functionality	<ul style="list-style-type: none"> <li>▪ Has the technology been proven at pilot scale? Full scale?</li> <li>▪ Is test program data available for consideration by a performance verification program (e.g. ETV Canada)?</li> <li>▪ Does it meet the requirements for regulatory approval?</li> <li>▪ In order to penetrate a specific or niche market, the demonstration site or product end-users must be strategically developed beforehand to ensure the project objectives complement the desired outcome i.e. market uptake.</li> <li>▪ Explanation for site selection should be substantiated and incorporated into the Business plan and market potential analysis</li> </ul>
2. Marketing Plan	<ul style="list-style-type: none"> <li>▪ Is the product or process marketing plan developed? Implemented?</li> <li>▪ Is it based on market analysis, and a 2–5 ,10 year strategic plan covering the Kyoto period of 2008–2012 for the business?</li> <li>▪ Is the competitive advantage being exploited?</li> <li>▪ Is the competitive advantage projected to continue for a significant period?</li> </ul>
3. Economic Justification for the Potential Purchaser	<ul style="list-style-type: none"> <li>▪ Given that the project and its replication will result in a GHG reduction, is there economic motivation for the purchaser?</li> <li>▪ Is this in the form of a significant cost reduction with a 2–5 year payback for the capital investment?</li> <li>▪ If the motivation is regulatory compliance, will this project achieve full compliance?</li> </ul>

## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 4.0 – COMMERCIALIZATION IMPLEMENTATION

Evaluation Criterion	Guideline
4. Business Operations	<ul style="list-style-type: none"> <li>▪ Has the company or consortium already established operations in a manner to allow successful delivery of its project for TEAM? For delivery of the product/process to other purchasers? Or will first operations be established as a result of the TEAM project?</li> <li>▪ Does the company/consortium have in-house expertise sufficient for delivery of its commercialized product or process?</li> </ul>
5. Financial Resources	<ul style="list-style-type: none"> <li>▪ Are there sufficient financial resources for functioning of the business and TEAM partnership during the period of the TEAM project?</li> <li>▪ Is there sufficient working capital to take advantage of other opportunities that arise during the project period?</li> </ul>
6. Management Resources	<ul style="list-style-type: none"> <li>▪ Has the company sufficient management resources in place to cover the functions of the CEO, financial/accounting operation, sales, general operations, engineering and technical development? Or will new management personnel be hired after the TEAM project is approved?</li> </ul>
7. Ongoing Development of the Technology	<ul style="list-style-type: none"> <li>▪ Is the technology at the right stage for commercialization or is basic or applied research still required?</li> <li>▪ If the technology has origins in a university or a government research institution, is there an ongoing relationship?</li> <li>▪ Is development ongoing for additional applications of the base technology?</li> </ul>
8. Timeframe for Replication	<ul style="list-style-type: none"> <li>▪ Does the business strategy include plans for replication? By establishment of branch operations or licensing to others?</li> <li>▪ Are there regulatory issues to be resolved?</li> <li>▪ Is the proponent and the process capable of replicating the project results, as described in the proposal to TEAM, in a time frame allowing completion by 2008 and 2012? In Canada? Elsewhere?</li> </ul>



## TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 5.0 – CORPORATE COMPETITIVENESS

The corporate capacity and potential for successful commercial development can be examined using a diagnostic tool that characterizes the status of development of the venture in relation to twelve evaluation dimensions. This technique, derived from the Bell-Mason Diagnostic and Prescriptive Method, can be applied in evaluating commercialization progress. The analysis examines a number of business characteristics that can be measured at different stages of commercial development.

Evaluation Criterion	Guideline
1. Technology/ Engineering	<ul style="list-style-type: none"> <li>▪ Does the company have a fundamental, desirable and measurably superior technology?</li> </ul>
2. Product	<ul style="list-style-type: none"> <li>▪ Does the product have well-defined and unique features, functions and benefits to support the price and match competitive market requirements?</li> <li>▪ Can the company build the next generation of follow-on products?</li> </ul>
3. Manufacturing Capability	<ul style="list-style-type: none"> <li>▪ Does the company have a well-defined organization and processes to produce products at the cost, quality, specifications and schedules required by its customers?</li> <li>▪ Does it manage its raw materials and finished goods and inventories in an optimal fashion?</li> </ul>
4. Business Plan and Vision	<ul style="list-style-type: none"> <li>▪ Does the company have a written five-year plan that is working and realistic and that emphasizes the plan's first two years?</li> <li>▪ Are resources and milestones spelled out in the plan?</li> </ul>
5. Marketing	<ul style="list-style-type: none"> <li>▪ Does the company have a complete strategic and tactical market plan and the organization to implement it?</li> <li>▪ Does the plan contain detailed information to support the marketing of the product, including a definition of the programs, resource requirements and schedule?</li> </ul>
6. Sales	<ul style="list-style-type: none"> <li>▪ Does the company have a driven sales group headed by a proven leader with a sufficient understanding of the product class, price and customers?</li> </ul>

## **TEAM PROPOSAL DEVELOPMENT & REVIEW CHECKLIST 5.0 – CORPORATE COMPETITIVENESS**

The corporate capacity and potential for successful commercial development can be examined using a diagnostic tool that characterizes the status of development of the venture in relation to twelve evaluation dimensions. This technique, derived from the Bell-Mason Diagnostic and Prescriptive Method, can be applied in evaluating commercialization progress. The analysis examines a number of business characteristics that can be measured at different stages of commercial development.

<b>Evaluation Criterion</b>	<b>Guideline</b>
7. CEO	<ul style="list-style-type: none"><li>▪ Does the CEO have demonstrated management, team-building and leadership abilities involving product development and the capacity to manage the company throughout all stages of growth?</li><li>▪ Does the CEO attract capital, credible board members, key customers and strategic corporate partners?</li></ul>
8. Team	<ul style="list-style-type: none"><li>▪ Is the team composed of high quality individuals with measurable experience and expertise in the various areas?</li><li>▪ Is the team results-oriented rather than management-oriented and do members function collectively as a team in an integrated fashion?</li></ul>
9. Board of Directors	<ul style="list-style-type: none"><li>▪ Is the Board composed of individuals whose experience and expertise enhance the company's competence at its current and subsequent stages of growth?</li></ul>

# Appendix F-1

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## Overview of TEAM GHG Accountability Framework

### Background:

Technology Early Action Measures (TEAM) is a Government of Canada Climate Change Action Fund initiative that acts as a catalyst for the development of greenhouse gas (GHG)-reduction technologies. TEAM and its federal partners identify the market potential for technology projects, arrange for both funding and technical assistance for their development, and assist the proponents during the execution of the projects. The TEAM partners then help to expedite the entry of the resulting new products and processes into the marketplace.

TEAM is committed to report the performance and impacts of TEAM-funded projects. This commitment includes support to develop and evaluate the required technical and GHG measurement and reporting activities and documentation, such as test plans for technologies and GHG reporting for the project, to:

- Increase the credibility of TEAM project claims;
- Increase the accountability of TEAM;
- Develop the capacity of project proponents and GHG reporting Contractors;
- Accelerate market acceptance of innovative climate change technologies.

The ability to develop and evaluate technical and GHG measurement and reporting activities and documentation of TEAM projects depends on the availability of appropriate standards and protocols. In the absence of an appropriate GHG project accounting methodology, TEAM developed general guidance and requirements for a GHG Accountability Framework based on the System of Measurement And Reporting for Technologies (SMART), including:

- SMART Lite as the basis for proposal GHG estimate reviews;
- Project Master Plan as the basis for project testing, monitoring and reporting during project implementation;
- Final Technical Report as the basis for reporting the project outcomes at the end of the project; and,
- SMART Protocol as the basis to evaluate the GHG performance of TEAM projects following the end of the project.

Conditional upon approval by TEAM, TEAM projects may be developed and/or evaluated according to a protocol or standard similar to the SMART. For example, the forthcoming release of the GHG Protocol for projects by the World Resource Institute and the World Business Council for Sustainable Development (to be available in 2004) or ISO 14064 for GHG Projects (to be available in 2005) may be considered and approved by TEAM as the basis to develop and/or evaluate GHG measurement and reporting activities and documentation of TEAM projects.

The following figure and table provide an overview of TEAM's GHG Accountability Framework. The following appendices provide overviews of each of the elements of TEAM's GHG Accountability Framework. In addition to the guidance and tools developed by TEAM for GHG Accountability, TEAM has convened a SMART Working Group to collaborate with relevant GHG initiatives to develop consistent products and services for GHG Accountability.

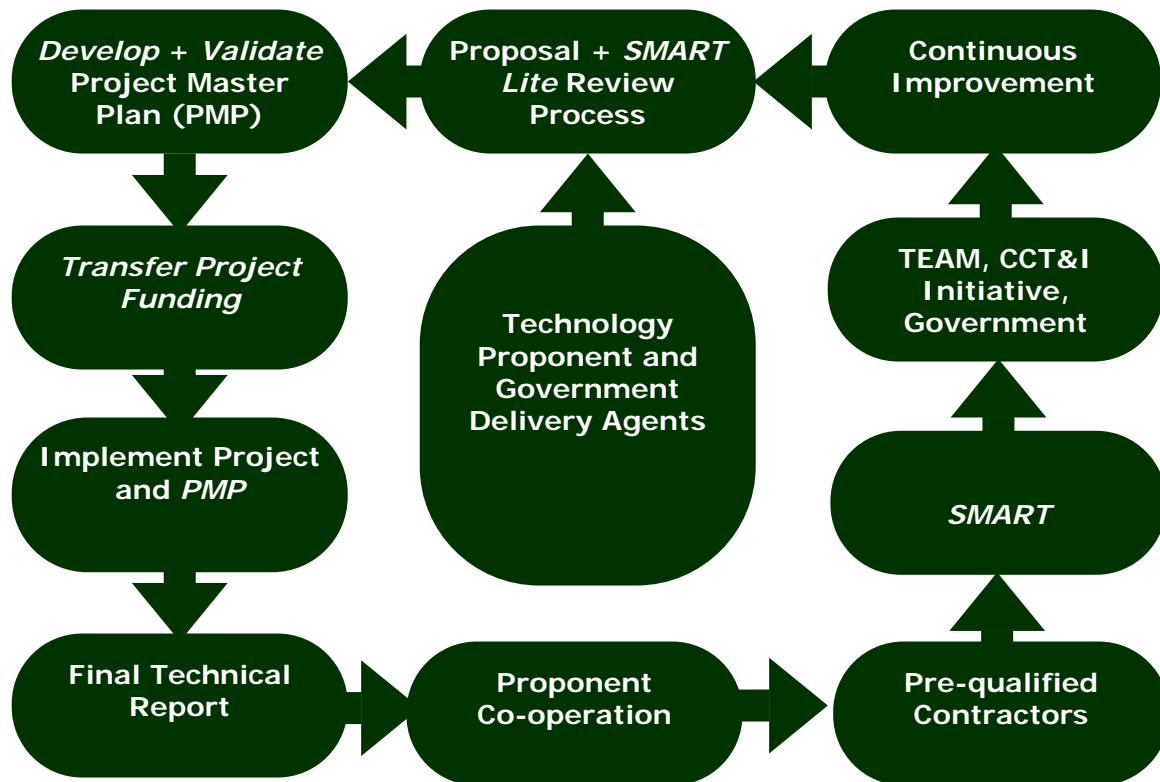


Figure 1: TEAM's GHG Accountability Framework

### Overview of TEAM's GHG Accountability Framework:

Item, Timeline, Contents	Participants and Approach	Purpose
<b>SMART Lite</b> (During proposal development and review process; refer to Appendix F-2 for contents)	Project proponent prepares SMART Lite with proposal in collaboration with TOO; IRC and TEAM Executive Committee to approve SMART Lite	To provide a transparent and comparable basis to consider the estimated GHG reduction potential of a TEAM proposal
<b>Project Master Plan (PMP)</b> (At the end of proposal process, just before final funding approval by senior CC group; refer to Appendix F-3 for contents)	Project proponent provides technical documentation (e.g. test plans, procedures, etc.) and guidance, 3rd party contractor validates technical documentation and develops balance of PMP; TOO to coordinate and approve process; TEAM Executive Committee to approve PMP	To provide a detailed understanding and plan of the project and the necessary basis of measurement and reporting activities to allow for final funding approval and to ensure adequate evidence to be documented of the technology and project during project implementation
<b>Final Technical Report (FTR)</b> (At the end of project; refer to Appendix F-4 for contents)	Project proponent prepares FTR in accordance with the PMP; TOO to review and approve FTR	To provide overview of the project outcomes in relation to PMP and proposal
<b>SMART Protocol</b> (As soon as the project has been completed and reviewed by TOO; refer to Appendix F-5 for contents)	Project proponent provides FTR and additional guidance or information as required; 3rd party contractor to evaluate the FTR in accordance with PMP and provide additional assessment as required in accordance with the SMART Protocol; TOO to coordinate and receive deliverable	To provide final assessment of technical and GHG performance of technology project



## Appendix F-2

### **SMART Lite Approach to Develop GHG Estimates for a TEAM Proposal**

The purpose of the SMART Lite is to provide a transparent and consistent basis to consider the estimated GHG emission reduction (or removal enhancement) potential of TEAM proposals. The SMART Lite is designed as a relative quick and simple approach based on to the SMART (System of Measurement and Reporting for Technologies). As part of the application for TEAM funding, the project proponent prepares the SMART Lite in collaboration with the TEAM Operations Office. The SMART Lite consists of the following steps.

#### **Step 1:**

The project proponent shall describe the project design, including:

- a) project title, description, and purpose, including whether the project involves technology development, technology deployment, or overcoming barriers to deployment and development;
- b) project objective(s), including technical performance objectives;
- c) strategy to reduce GHG emissions and/or enhance GHG removals);
- d) project location, including geographic/physical information and conditions prior to project initiation;
- e) project activities and technologies, including main and auxiliary technologies, components, and technical documentation; and,
- f) primary project function(s), including products and services, and expected level of activity for each project function.

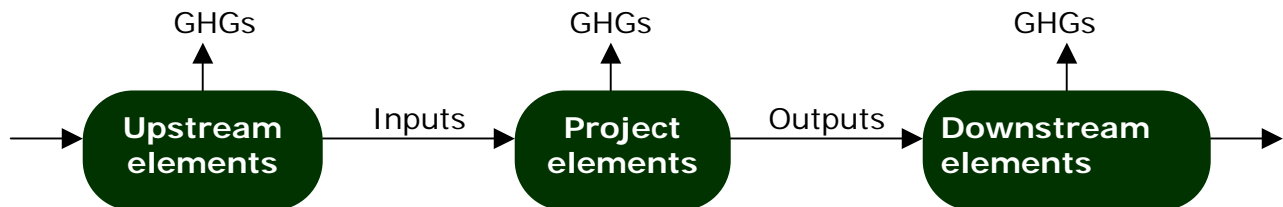
#### **Step 2:**

The project proponent shall consider the project design, specifically the objectives, and use a systems approach to identify project elements (i.e. technology, process, activity, etc.) for the purpose of quantifying, monitoring and reporting technical and GHG information. The project proponent shall consider relevant upstream (e.g. source of feedstock, energy, etc.) and downstream (e.g. end use, disposal, etc.) activities in the identification of elements attributable to the project. The elements should be identified as direct (owned/controlled by the project proponent) or indirect (not owned/controlled by the project proponent).

If appropriate, the project proponent shall present a mass balance and/or energy balance of the project elements, including inputs and outputs for each element, using an annotated process flow diagram.

Note – Although it is preferred to have an annotated process flow diagram to demonstrate transparent technical information about the technology and project, if the project proponent does not already have a process flow diagram, then the project proponent shall provide a simplified process flow diagram. The following figure presents a simplified process flow diagram illustrating the technology project with upstream and downstream elements. The project proponent is encouraged to be transparent, accurate and complete as possible when providing information to allow TEAM to assess the funding application as quickly as possible. Data for inputs and outputs for each corresponding element should be based on previous work that was measured and documented (e.g. R&D stage and/or prototype stage).

Example of a simplified process flow diagram:



### Step 3:

The project proponent shall select and justify the baseline(s) (i.e. the benchmark reference) used for comparison, including appropriate information to support the justification for the selected baseline (i.e. the scenario and procedures). The project proponent shall identify baseline elements and, as appropriate, provide information as is specified for project elements in Step 2.

### Step 4:

The project proponent shall identify the methodologies used to estimate GHG emissions and/or removals for each of the project elements and baseline elements.

The project proponent shall estimate GHGs separately for each type of relevant GHG (e.g. CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>, PFC, HFC), as well as CO<sub>2</sub>e, and for each element. The project proponent shall calculate GHG estimates according to (baseline GHG intensity X baseline level of activity) – (project GHG intensity X project level of activity). The project proponent shall provide calculations in a MS EXCEL spreadsheet.

The project proponent should present all other relevant factors (e.g. output/year, energy output/year, activity/year, energy saved, process parameters, etc.), assumptions, formulas and sample calculations (full calculations, including the references (documents, websites, contacts, etc.), assumptions and conversion factors, should be presented in an appendix), units, conversion factors (state whether conversion factors affecting the heat or carbon content of fuels, such as lower or higher heating values, have been used in deriving the emission factors).



Note – GHG intensity is the emissions/unit of activity and level of activity is the number of units of activity. Examples of units for GHG intensity include tonnes of CO<sub>2</sub>e emitted per unit of energy output, tonnes of CO<sub>2</sub>e emitted per unit of material output, tonnes of CO<sub>2</sub>e per unit of person kilometre travelled, etc. Emission factors can be time dependent, for example, an aggregated emission factor for a national electricity mix changes as the fraction of each fuel used to generate electricity changes, as well as changes in the stated carbon intensity of fuels.

If some of the information requested is presented elsewhere within the proposal, then a clear reference should be stated (e.g. Section XXX, Paragraph YYY, Table ZZZ, etc.).

### **Step 5:**

In order to estimate potential GHG emission reductions or removal enhancements based on expected replication of the project/technology, the project proponent shall provide a business plan and shall present a table of the total potential market, including the identification of all the potential locations, plants, installations, etc. that have replication potential (if data is not available, then a reasonable estimate, based on appropriately referenced documentation, is a minimum). The project proponent shall justify the expected replication potential (i.e. 10% market share) including the timeline for replication (i.e. locations, plants, number of systems expected to be replicated).

The project proponent shall estimate the potential GHG emission reductions for each replication project in accordance with the approach used for the proposed TEAM project and shall present methodologies used to adjust calculations (if necessary) of the proposed TEAM project for the replication projects (i.e. all subsequent locations, plants, number of systems are same in scale/scope as the initial proposed project, or subsequent locations, plants, number of systems differ explicitly by, for example, types, number of components, energy displaced, etc.).

The project proponent shall present a summary table of the estimated potential GHG emission reductions for the proposed project and potential replication scenarios for year 2008 and 2012, including annual potential GHG emission reduction (tonnes of CO<sub>2</sub>e/year) for the proposed TEAM project, in 2008, and in 2012, as well as other relevant factors (i.e. energy saved, process parameters, etc.). GHG emissions (or removals) and emission reductions (or removal enhancements) should be stated as ANNUAL from annual installations/operations and ANNUAL emissions from cumulative installations/operations (it is important NOT to include cumulative emissions). Units of measure should be metric, for example, a metric tonne (1 tonne = 1000 kg = 2205 lb) rather than a short ton (1 ton = 2000 lb).

If the project is an international project, the following questions should also be closely examined:

- a) Has the project proponent considered proceeding with the Clean Development Mechanism (CDM) or Joint Implementation (JI) or other Internationally accepted standards as part of this project?

- b) If the project proponent has considered the CDM angle of this project, are they familiar with the approval and registration procedures required for CDM projects?
- c) Has the project proponent contacted the Canadian CDM/JI office concerning these procedures or for any other technical assistance?
- d) Has the project proponent previously received funding from the CDM/JI office for any project related analysis or due diligence?
- e) If reduction credits are being considered as part of this project (resulting from either CDM or JI), have they been included as part of a contractual arrangement with the proponent's partner?
- f) In the case of CDM projects, has the project proponent devised an appropriate baseline methodology that conforms to the approval criteria of the CDM Executive Board?

## Appendix F–3

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### **Guidance to Develop a Project Master Plan for TEAM Projects**

The purpose of the Project Master Plan (PMP) is to provide a detailed understanding and plan for the technical and GHG quantification, monitoring and reporting activities of the project. The PMP forms the necessary basis to allow for final funding approval and to ensure adequate evidence of the technology and project will be documented during project implementation.

Although the focus of the PMP is on the main technology to be demonstrated (i.e. technology-specific test plans and assessment), the PMP also includes the information and procedures to evaluate GHG emission reductions for the overall project. The PMP is developed in accordance with the SMART Protocol to allow for GHG evaluation of the project based on a systems approach to account separately for each GHG element (i.e. technology, process, activity, etc.).

A well executed PMP and final SMART report will also serve as verifiable documentation for further commercial investments.

The PMP is developed based on technical documentation and guidance provided by the project proponent (e.g. process flow diagrams, test plans, procedures, priority issues, etc.) and expert validation and/or development of additional technical documentation as required to address all requirements of the PMP by a 3rd party contractor. The PMP is coordinated by TOO and approved by the TOO Director.

The general process to develop a PMP involves:

1. Document review and assessment
2. Develop initial outline of PMP
3. Gather and analyze information
4. Develop specific test plans, QA/QC plan, monitoring plan, reporting plan
5. Develop draft PMP
6. Develop final PMP

PMP includes contents as described below.

## **General Contents of Project Master Plan for TEAM Projects**

### **Project Description:**

- Introduction
- Project Site
- Conditions Prior to Project Implementation
- Project Design and Strategy for GHG Reductions
- Project Function(s), Functional Unit (i.e. what are the goods and services provided by the project, and what is the basis of measurement) and Level of Activity
- Chronological Plan, including Proposed Start Date, End Date, Duration
- Technology and GHG Performance Objectives

### **Proponent Description:**

- Overview of Project Proponent(s) and Partners
- Roles and Responsibilities, including Organization Chart

### **Technology Description:**

- Main and Auxiliary Technologies (i.e. each unit process, process flow diagram, mass and energy balance, etc.)
- Inputs and Outputs
- Regulatory Issues
- Environmental Issues
- Human Resource Issues
- Health & Safety Issues
- Limitations and Assumptions
- List of Available Technical Documentation

### **Project GHG Elements:**

- Project System, including Main and Auxiliary Technologies and Upstream and Downstream Activities (i.e. GHG Elements)
- Inputs and Outputs
- GHG Estimation Approach
- Exclusions, Limitations and Assumptions

### **Benchmark Description:**

- Potential Benchmarks
- Regulatory and other factors

- Strengths and Weaknesses
- Benchmark Ranking
- Proposed Benchmark(s)
- Benchmark System GHG Elements
- Inputs and Outputs
- GHG Estimation Approach
- Comparability of Proposed Benchmark(s) and Project
- Exclusions, Limitations and Assumptions

### **Test Plan, Quality Assurance/Quality Control Plan**

- Introduction and Objectives
- Personnel
- Health, Safety & Training Requirements
- Parameters Evaluation
- Non-direct Data Sources and Collection
- Sampling Process and Methodology
- Sample Type and Number of Samples
- Sampling Time / Frequency
- Sampling Equipment, Inspection, Maintenance, Calibration
- Analytical Laboratory Requirements and Methods
- Sample Handling, Records and Chain of Custody
- Operating Conditions and Scheduling
- QA/QC Requirements and Procedures
- Data Management and Assessment (statistical analysis, uncertainty, sensitivity, etc.)

### **Monitoring Plan:**

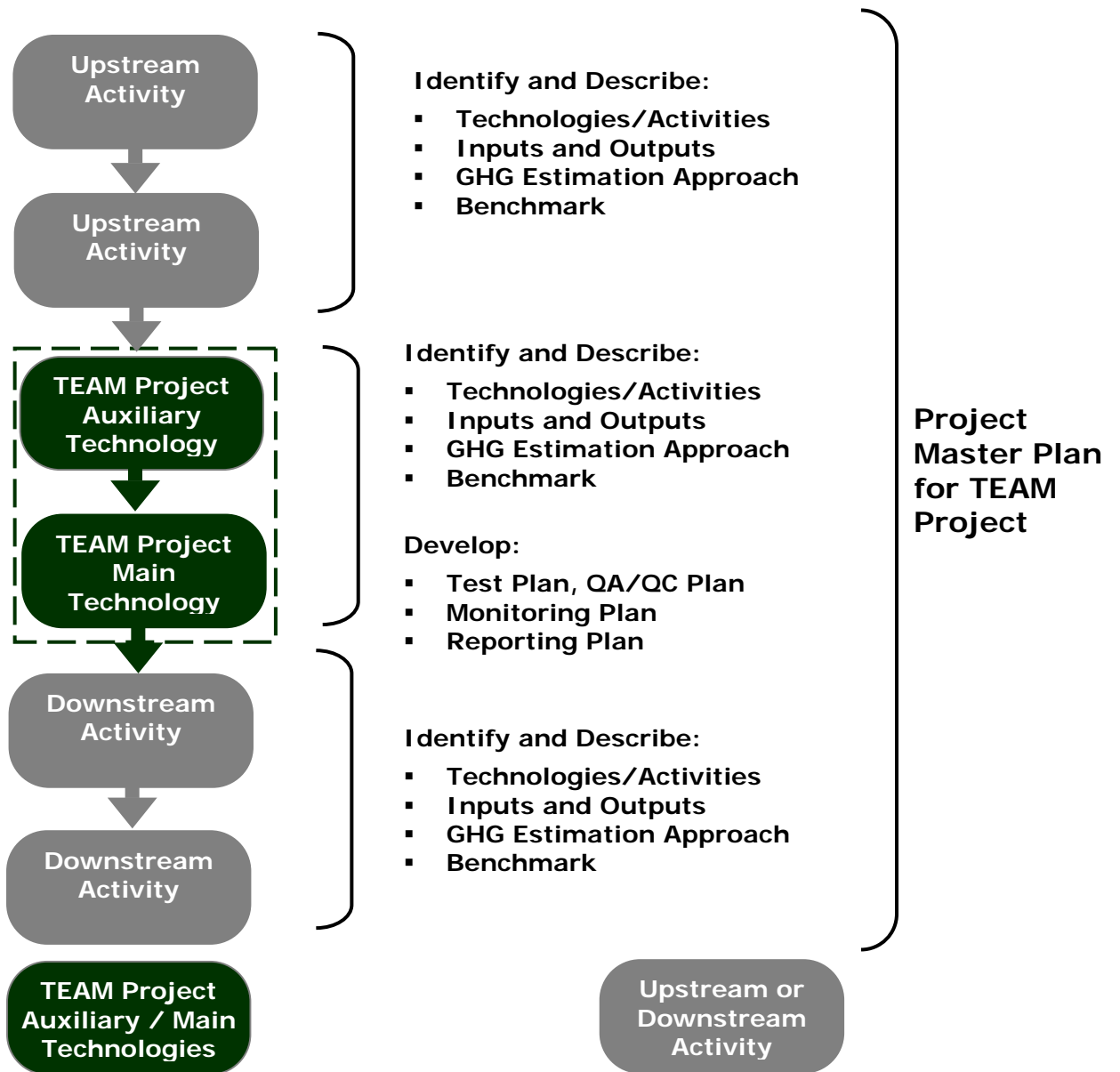
- Roles and Responsibilities
- Monitoring Schedule for the Project

### **Reporting Plan:**

- Roles and Responsibilities
- Reporting Schedule
- Progress Reports
- Final Technical Report (refer to Appendix F-4)

**Appendices:**

- List of References (documents, websites, interviews, etc.)
- Technical Assessments and Documentation
- Business Plan
- Baseline Studies
- Figures, Photos, etc.
- Electronic files (text, spreadsheet, etc.)
- Additional Information as appropriate



The green boxes represent the technologies/activities owned or controlled by the project proponent. These technologies, inputs/outputs, parameters, operating procedures, etc. should be identified and described in the PMP in high detail with a specific test plan, QA/QC plan, monitoring plan and reporting plan. Primary and secondary data sources are used to measure and report in the PMP and SMART.

The grey boxes represent upstream and downstream activities/technologies that are related to the TEAM project but are not owned or controlled by the project proponent (e.g. electrical grid, waste disposal, etc.). These activities, as well as the inputs and outputs, should be identified and described in the M&R plan. Secondary data sources are used to measure and report in the PMP and SMART.

**Figure 2: Illustration of Scope of Work and General Approach To Develop a Project Master Plan for TEAM Projects**





## Appendix F-4

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### **Guidance to Prepare a Final Technical Report for TEAM Projects**

This guidance has been drafted to assist TEAM project proponents and federal government project managers to prepare TEAM project final technical reports. This guidance is provided to improve the consistency of information included in TEAM project final technical reports, which forms the basis of the subsequent GHG evaluation using the System of Measurement And Reporting for Technologies (SMART). Projects that submit multiple technical reports should also submit a summary report to link the reports together. The project proponent should prepare the Final Technical Report in accordance with the Project Master Plan (Appendix F-3).

#### **Organization:**

- Cover Letter (signed)
- Title Page
- Executive Summary
- Table of Contents
- List of Tables and Figures
- List of Abbreviations and Nomenclature

#### **Project Description:**

In accordance with the Project Master Plan

#### **Proponent Description:**

In accordance with the Project Master Plan

#### **Technology Description:**

In accordance with the Project Master Plan

#### **Project GHG Elements:**

In accordance with the Project Master Plan

#### **Benchmark(s):**

In accordance with the Project Master Plan

**Project Conclusion:**

- Project Results and Evaluation (figures, modelling output, etc.)
- Project Impacts
- Conclusion & Recommendations

**Appendices:**

- List of References (documents, websites, interviews, etc.)
- Technical Specifications and Documentation
- Experimental Data (Raw Data) and Results
- List of Suppliers (contact information, parts supplied, etc.)
- Financial Summary
- Figures, Photos, etc.
- Electronic files (text, spreadsheet, etc.)
- Business Plan
- Baseline Studies
- Additional information as appropriate

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## Appendix F-5

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### SMART Protocol Overview

TEAM's commitment toward GHG Accountability includes guidance, tools, process, funding ( up to \$40k total per project), staff and other resources (e.g. contracting system of pre-qualified 3rd party contractors, case study promotion, etc.). TEAM designed the SMART (the System of Measurement And Reporting for Technologies) as a practical and cost-effective protocol to evaluate and report GHG performance and impacts of TEAM projects. The general GHG metrics of the SMART is to determine the GHG reduction potential of the technology project in terms of:

1. GHG reductions per unit (e.g. tonnes of CO<sub>2</sub>e mitigated per unit of energy, mass, or activity);
2. annualized GHG reductions per unit of technology/project (e.g. tonnes of CO<sub>2</sub>e mitigated per unit technology per year); and,
3. total GHG reductions (tonnes of CO<sub>2</sub>e mitigated) for the TEAM funded project.

The SMART offers many benefits to both project proponents and government programs. Companies benefit by establishing credibility, gaining experience and know-how, showing leadership, building competitive advantage, maintaining constructive government and public relations, and developing a network of partners and relationships to be prepared to participate in future climate change initiatives. The Government of Canada benefits in the confidence and knowledge that its investments have real-world results, are fiscally responsible, build capacity in the private sector, and reduce risks associated with climate change.

The SMART Protocol is available to download from the TEAM website ([www.team.gc.ca](http://www.team.gc.ca)).



## Appendix F-6

### Terms of Reference for SMART Working Group

#### Mission and Objectives:

Established in 2001, the SMART Working Group was formed to work collaboratively to develop products and services for technically rigorous and consistent measurement and reporting for technologies and technology-related projects, based on a common understanding and agreement of principles and approaches.

It's main objectives are to develop and provide guidance on the use of products (e.g. protocols, templates, plans, data, case studies, etc.) and services (e.g. reviews, training, list of contractors to do the work, advisory group, etc.) to meet the needs of each participating program, as well as the interests of other stakeholders for more efficient and effective "faster, better, cheaper" accountability.

The origins of the SMART Working Group (WG) stem from the collaborative efforts of federal and federally-funded initiatives to collaborate on the evolution of the System of Monitoring and Reporting for Technologies (SMART), originally developed by the Technology Early Action Measures (TEAM) Operations Office.

#### Participation and Communication:

The members of the working group initially will consist primarily of federal and federally-funded programs and experts directly involved in technology advancement and project implementation to mitigate climate change and pollution. Additional members may be permitted to join the working group if they agree to support the WG terms of reference and contribute toward tangible results.

The WG will focus on the technical issues of quantifying impacts of emission and pollution reducing technologies and emission reduction or removal projects with an initial focus on greenhouse gas (GHG) impacts. Participation in the group will require technical knowledge of emissions monitoring, quantification and verification issues and an agreement to maintain a technical focus and rigour in all activities related to the WG.

Participation of a non-technical nature will be reserved for observer status. Observer status will entail receipt of meeting minutes and the ability to submit documents and comments through the WG secretary.

Communications with observers will also be maintained through other ad hoc fora such as those previously established by TEAM and the GHG Verification Centre.

### **Working Group Management:**

As much as possible, the organization of the working group will be a work among equals. However, a federal co-chair, non-federal co-chair and a secretary position will be maintained to assist, facilitate and coordinate the WG.

The co-chairs will:

- Assist with administrative issues such as meeting arrangements, membership, and distribution of materials;
- Facilitate meetings
- Coordinate the development of work items and work plans
- Act as formal WG representative to other initiatives

The secretary will:

- Act as central resource, as both source and depository, to facilitate and coordinate work items
- Act as co-chair in the absence of either co-chair
- Act as formal WG representative to other initiatives

The positions will be initially occupied by:

Federal co-chair: Thomas Baumann, TEAM

Non-federal co-chair: Bryan Flannigan, FCM

Secretary: Pierre Boileau, GHGVC

### **Meeting Frequency:**

The WG will typically meet face-to-face on a biweekly basis. Meetings will typically consist of a review of progress, "hands on" development on work items, planning next steps and discussion of new items.

### **Resources:**

The WG will initially rely on in-kind and financial contributions from the participants, with meeting facilities provided at Natural Resources Canada. Financial contributions will be targeted towards delivery of physical products of most use to the contributor. The WG will provide expert review and comment on these products.

### **Membership: (as of July 2003)**

Thomas Baumann, Chief, Greenhouse Gas Measurement & Reporting, Technology Early Action Measures (TEAM), 943-5913

Bryan Flannigan, Manager – Project Verification, Green Municipal Funds, Federation of Canadian Municipalities (FCM), 241-5221 x363

Pierre Boileau, Section Head, Clearinghouse & Outreach, GHG Division, Greenhouse Gas Verification Centre (GHGVC), 994-6143

Blaine Kennedy, Manager, Screening & Evaluation, Sustainable Development Technology Canada (SDTC), 234-6313 x236

Robin James, Program Manager, Pilot Emission Reductions & Removals Learnings (PERRL), 953-4820

Office of Energy Efficiency (OEE) and NRCan co-lead of GHGVC,

Carlos Monreal, Science Advisor, Environment/Energy, Agriculture & Agri-food Canada, 759-1053

Tony Kosteltz, Head, Technology Demonstration, Environmental Technology Advancement Directorate (ETAD), Environment Canada, 953-2844

Ray Rivers, Executive Director, Clean Air Canada (CACI), 416-922-2903