

The Canadian Early Emission Reduction Program:

Early Action to Reduce Greenhouse Gas Emissions and Manage Canadian Climate Change Compliance Liabilities

A Design Proposal Developed by:

The Canadian Early Emission Reduction Program (CEERP) Collaborative

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For:

*The National Air Issues Coordinating Committee,
The National Climate Change Secretariat, and
Concerned Stakeholders*

The Canadian Early Emission Reduction Program (CEERP): Early Action to Reduce Greenhouse Gas Emissions and Manage Canadian Climate Change Compliance Liabilities

This Early Emission Reduction Program design concept represents agreement by Collaborative members on an effective and pragmatic approach to “credit for early action.” The Collaborative has achieved consensus on most of the key design features, subject to further analysis and refinement. However, more detailed analysis is now required to address detailed issues of implementation, determine the effectiveness of the proposed system and to understand the probable cost-benefit. Following this analysis, some adjustments to the design may be necessary. The participants in the Collaborative, while strongly supportive of the general direction of this early emission reduction program design, will not be in a position to fully endorse and commit to subsequent participation in such a program until the details of the final design are determined.

Collaborative members believe that they have completed a workable initial design. They also agree that leadership for the next stage of implementation of CEERP should transfer to the government. Members may be asked, and many are prepared, to assist in this next design phase. Members look forward to a positive response from governments that will allow this important initiative to move to the next stage for analysis and refinement.

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A. Executive Summary: Key Elements of the Canadian Early Emission Reduction Program

By accepting greenhouse gas (GHG) reduction obligations as an outcome of international negotiation obligations, the government of Canada has also accepted the risk of a very significant future liability. Credit for Early Action is a means for encouraging and rewarding the types of actions by Canadian organizations that contribute to reducing GHG emissions. By starting to “bend the line” of Canada’s projected increasing emissions path, the country and the participating organizations can both contribute to the management of this serious risk.

This proposal for a Canadian Early Emission Reduction Program (CEERP) describes the conceptual elements of an effective and practical credit for early action system. The design aims to enable the governments of Canada, as well as Canadian entities concerned about their emissions of greenhouse gases, to:

1. contribute to Canada’s national environmental objectives related to climate change; and
2. manage their respective risks and liabilities associated with international commitments to reduce Canada’s greenhouse gas emissions.

In essence, CEERP is an entity-based “credit for early action” system that includes the following main features:

- participants voluntarily establish their binding greenhouse gas emissions baseline
- verified emission reductions (VERs) are created when actual emissions are below this baseline, and debits in VERs are created if emissions exceed this baseline, which entities are then responsible for
- initial ownership of VERs is awarded to the entity responsible for the emission reduction action
- VERs are convertible to credits in the future on a “tonne for tonne” basis
- continuous improvement is built into the system
- changes (increases and decreases) in the production capacity of the entity are accommodated
- participation by third party GHG reduction project (offset) developers is included
- avoided emissions are allowed for, and indirect, or upstream, emissions are accounted for
- domestic investment in GHG emission reductions is encouraged.

Most of the major design elements for a CEERP have been selected and integrated by a multi-stakeholder Collaborative and are outlined in this proposal. While some important program details still need to be developed, most of these can be points of refinement in the detailed program design, or can be implemented at the administrative level. The Collaborative believes that the CEERP proposal now outlines the essential components of a system design with the detail required to secure a commitment from governments to:

- establish the CEERP Policy and Administrative Secretariat,
- nominate and put in place the Senior Stakeholder Advisory Panel, and
- subsequently solicit applications for participation in the program (that is, the initial 2001-2002 budget period).

Table 1. Summary of Key Elements of the Canadian Early Emission Reduction Program

<i>Incentives for Participants in CEERP</i>	<i>Comment</i>
<ul style="list-style-type: none"> • participation is voluntary 	<ul style="list-style-type: none"> • no entity is under any obligation to participate in CEERP
<ul style="list-style-type: none"> • protection from other policy requirements 	<ul style="list-style-type: none"> • CEERP participants voluntarily enter into binding emission performance agreements, which constitute their net GHG reduction obligations. For CEERP participants and while CEERP is in effect, these agreements take precedence over any other future GHG emission reduction policy requirements.
<ul style="list-style-type: none"> • ability to elect a base year for credit creation and baseline protection 	<ul style="list-style-type: none"> • entities who become participants by December 2000 can choose any year after 1990 • entities who join after December 2000 can only choose a year after 2000
<ul style="list-style-type: none"> • growth industries can participate 	<ul style="list-style-type: none"> • the performance baseline can be adjusted upward for discrete investments
<ul style="list-style-type: none"> • flexibility to use third-party (non-participants') 'offsets' 	<ul style="list-style-type: none"> • participants can purchase emission reductions associated with projects undertaken by third parties by adopting both the project baseline and actual emissions associated with the project • projects will need to meet a number of eligibility criteria to be adopted
<ul style="list-style-type: none"> • treatment of avoided emissions 	<ul style="list-style-type: none"> • on a regional basis, less GHG intensive electricity sources are measured against the 'most GHG efficient commercially available' electricity supply
<ul style="list-style-type: none"> • credits can be used against future regulatory obligations 	<ul style="list-style-type: none"> • government guarantees that a credit for one tonne of verified emission reduction (VER) will authorize the holder to emit one tonne of GHG in any future domestic regulatory program
<ul style="list-style-type: none"> • VERs are transactable 	<ul style="list-style-type: none"> • participants can sell or trade VERs to other participants in CEERP or to government
<i>Obligations for Participants in CEERP</i>	<i>Comment</i>
<ul style="list-style-type: none"> • accept a number of binding commitments 	<ul style="list-style-type: none"> • while the choice of participating is voluntary, participants are entering a contractual arrangement
<ul style="list-style-type: none"> • report all direct and indirect GHG emissions at the entity level as their performance baseline 	<ul style="list-style-type: none"> • participants are responsible for and include all GHG emissions produced by emission sources they own in Canada in their performance baseline • participants, while not responsible for all indirect (upstream) GHG emissions associated with their use of fossil fuels and electricity, nonetheless include them in their performance baseline • participants create VERs if actual emissions are below their performance baseline • participants accumulate debits if actual emissions are above their performance baseline
<ul style="list-style-type: none"> • continuous improvement in GHG emission reduction performance 	<ul style="list-style-type: none"> • the performance baseline will decline at a rate of X% per year for the duration of CEERP (for example 0.5%)

<i>Obligations for Participants in CEERP (cont.)</i>	<i>Comment (cont.)</i>
<ul style="list-style-type: none"> • accept responsibility for debits 	<ul style="list-style-type: none"> • if a participant has accumulated a net debit in the program, it will have to take action periodically to balance its account
<ul style="list-style-type: none"> • adjustments to the baseline 	<ul style="list-style-type: none"> • a participant's baseline must be adjusted to account for acquisitions and divestitures, new facilities and shutdowns, and the use of third-party 'offsets'
<ul style="list-style-type: none"> • reporting 	<ul style="list-style-type: none"> • participants will be required to report on an annual basis
<i>Obligations for Government Under CEERP</i>	<i>Comment</i>
<ul style="list-style-type: none"> • put required policy framework in place 	<ul style="list-style-type: none"> • ensure policy is consistent across provincial and federal governments • ensure that companies deal with one set of rules and those rules apply in all jurisdictions
<ul style="list-style-type: none"> • put required institutional framework in place 	<ul style="list-style-type: none"> • establish agreements with companies wishing to participate
<ul style="list-style-type: none"> • use the program to promote Canadian experience in areas not yet addressed internationally until an international agreement is reached 	<ul style="list-style-type: none"> • allow credits for activities related to carbon sequestration and joint implementation projects with other industrialized countries that meet CEERP eligibility rules, criteria and budgets established under the CEERP program
<ul style="list-style-type: none"> • establish a program 'Budget' 	<ul style="list-style-type: none"> • the program 'Budget' will determine the short-term liability tonnes of VERs or amount of credits government is willing to recognize through CEERP
<ul style="list-style-type: none"> • denominate the program 'Budget' in dollars 	<ul style="list-style-type: none"> • these funds will provide government with flexibility in managing its liability for the accumulated VER's through actions including; the purchase of international credits that increase Canada's assigned amount under the Kyoto Protocol and buy-back of the credits from participants willing to sell.
<ul style="list-style-type: none"> • guarantee that a credit for one tonne of verified emission reduction (VER) will authorize the holder to emit one tonne of GHG in any future domestic regulatory program 	<ul style="list-style-type: none"> • VERs will only be used in other programs if CEERP is ended by government
<ul style="list-style-type: none"> • protection from other policy requirements 	<ul style="list-style-type: none"> • CEERP participants voluntarily enter into binding emission performance agreements which constitute their net GHG reduction obligations. For CEERP participants, and while CEERP is in effect, these agreements take precedence over any other future GHG emission reduction policy requirements.

B. Introduction

This Initial Design Proposal describes the conceptual elements of an effective and practical mechanism for enabling both the governments of Canada and Canadian entities concerned about their emissions of greenhouse gases (GHG) to both:

1. contribute to Canada's national environmental objectives related to climate change, and
2. manage their respective risks and liabilities associated with international commitments to reduce Canada's greenhouse gas emissions.

The Proposal represents the efforts of a collaborative group to design a system that facilitates and rewards substantive early GHG emission reduction actions in a cost-effective manner while also driving ongoing continuous improvement. The Collaborative is comprised of major industrial emitters, greenhouse gas emission reduction credit developers, and environmental public interest policy organizations. A brief description of the Collaborative and a list of participants are provided in Appendix One.

The Collaborative recognizes the importance of the commitment made by 26 Ministers of Energy and Environment in April 1998 to have an effective Canadian system for providing "Credit for Early Action" operational by early 1999. In developing this initial design proposal for a "Canadian Early Emission Reduction Program" (CEERP), the Collaborative drew substantially on the analysis and foundation work of the national "Credit for Early Action" Issue Table, part of Canada's formal national Climate Change strategy development process. The Collaborative has also closely examined current and emerging thinking on Credit for Early Action mechanisms in the United States, including US Senate Bill S:547, introduced by Senator John Chafee (R-RI) and now moving through the US Senate. The CEERP design draws on some of the thinking in this Bill, however, CEERP also has a number of unique features to better meet Canada's needs. Appendix Two compares US Senate Bill S:547 and the CEERP proposal.

The Canadian Early Emission Reduction Program described in this paper can be fully developed and implemented in the near term, without having to resolve the question of exactly how the credits generated under CEERP will be used in the future. In other words, credits awarded under the CEERP program do not restrict governments with respect to the selection of future regulatory or emissions trading options to meet Canada's international GHG emission reduction commitments.

However, implementing the CEERP design will require governments to clearly commit to being serious about encouraging meaningful early action – by guaranteeing business value in a carbon-controlled future for actions taken now to help Canada meet its national GHG emission reduction objectives. CEERP will also require industrial emitters and other entities wanting to participate voluntarily in the system to be serious about achieving real GHG emission reductions both now, and in the longer term.

C. Rationale for a Canadian Early Emission Reduction Program

C1. Key Policy Objectives for a CEERP

Key policy objectives for the CEERP system include:

- rewarding and incenting behaviour that reduces GHG emissions,
- maximizing voluntary GHG emission reduction actions as a contribution towards meeting Canada's international commitments,
- demonstrating that a binding voluntary agreement with an open credit trading system can work,
- providing a transition strategy from a purely voluntary system with no incentive (current status) to a potential future domestic emissions management system that meets Canada's commitments,
- providing a basis for effective risk management by participating emitters / companies,

- reducing the risk of Canada not meeting its international obligations, by initiating action soon enough to “bend the line.” and
- enabling corporate emitters to identify and act on their defined or negotiated accountability for capping and reducing overall national emissions while still managing growth in the transition period (that is, define the desired level of “performance” of an emitting entity and take into account unique social and economic circumstances).

A CEERP system will not create certainty that Canada’s international GHG emission reduction commitments will be met. It can, however, help to ease the transition to a carbon-constrained world and facilitate a softer landing without constraining economic development or producing an inequitable re-distribution of wealth.

C2. The “Balance Sheet” Management Approach

Any Canadian system for recognizing and encouraging early emission reduction action by GHG emitters must be implemented in the context of an overall national “Balance Sheet Management Approach” for Canada. This balance sheet would track GHG emission assets and liabilities from a national perspective and relate them to Canada’s climate change objective. Table 2 illustrates what the key components of Canada’s national balance sheet would look like at this time if the Kyoto Protocol were in force.

Table 2. Canada’s National Balance Sheet (2010)

Assets (Mt CO2e)		Liabilities (Mt CO2e)	
Assigned Annual Amount	531	Actual Emissions Performance (projected)	669
Net Flexibility Mechanism Acquisition (Clean Development Mechanism, Joint Implementation, International Emissions Trading)	0	Verified Emission Reductions (created under CEERP)	0
Net Annual Biological Sinks	0		
Total Assets	531	Total Liabilities	669

C3. Canada’s Existing Liability without CEERP

As Table 2 illustrates, Canada currently expects to have a net annual liability on the national balance sheet of 138 Mt in the year 2010. The balance sheet can only be balanced by increasing Canada’s assets (through the Kyoto Protocol’s flexibility mechanisms or through actions that result in a net increase in carbon sequestration) or by reducing its liability (actual emissions). If Canada does nothing to create the conditions that will curb the current growth pattern, then the initial annual liability (in 2008) will be \$1.4 to \$4.1 billion¹ – a deficit that would accrue each year. The CEERP proposal provides a mechanism through which Canada can manage this huge liability and ease the transition to a future where Canada is required to dramatically reduce its GHG emissions.

Participants in CEERP will also need to keep an entity account balance that indicates their net credit/debit position under CEERP. This is described in more detail in Section H (*Creating Verified Emission Reductions*).

¹ This assumes that the average cost of a tonne of CO2e reductions in the marketplace will be in the range of \$10 to \$30.

C4. The Business Case for Implementing CEERP Now

The fundamental purpose of an early action program is to drive the investment of additional human and financial resources towards activities that reduce greenhouse gases in the atmosphere, prior to mandatory requirements to reduce emissions. Early investments in actions that reduce GHG emissions will embed facility and technology infrastructure that will pay an annual dividend of lower GHG emissions in each subsequent year for the life of those facilities – 20 to 30 years or more.

A key driver for early action is a desire by private sector firms to manage the business risk exposure associated with uncertain future policy interventions that would act to limit GHG emissions and, indirectly, constrain economic productivity. For these companies, CEERP provides access to what might be termed “climate change policy insurance.” In exchange for accelerated and enhanced action to reduce GHG emissions, the Canadian government will assure participants in CEERP that one tonne of verified emission reductions (VERs) under CEERP will equal one tonne of credit against any future domestic GHG emission reduction obligation.

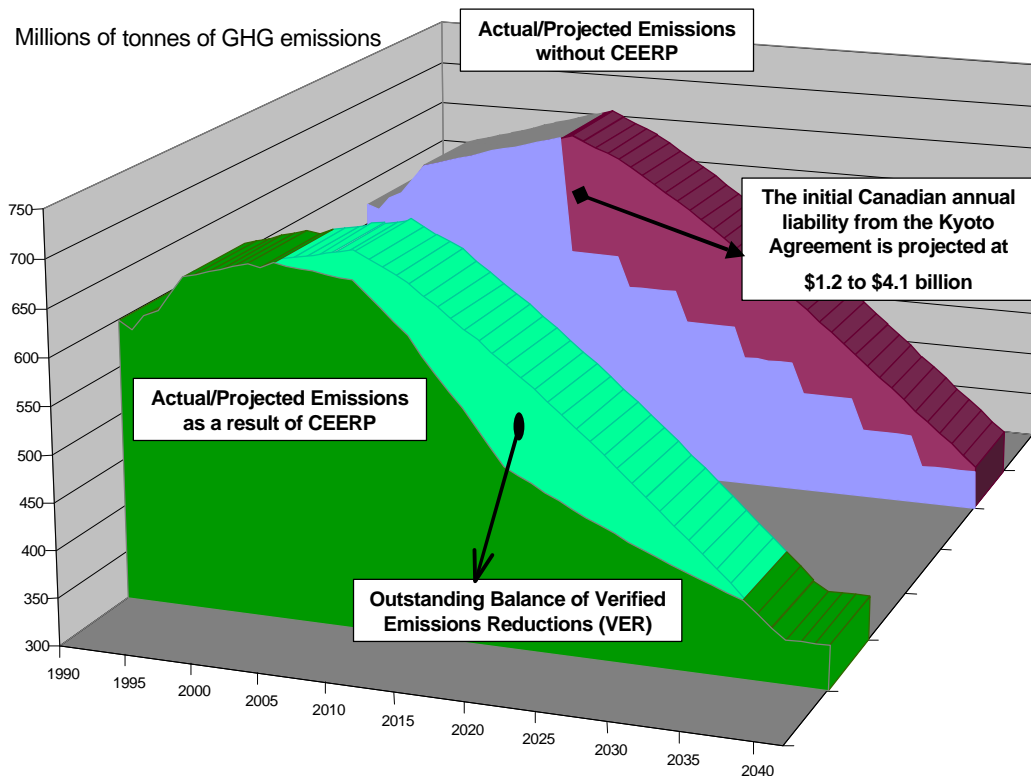
Entities pursuing growth involving capital expenditures with timelines of 20-30 years or more will tend to perceive the risk of climate change policy impacts differently than entities that are in a stable or declining stage of the business cycle. CEERP will provide entities that have different perceptions of risk and emission reduction value with some flexibility in how they manage their GHG emissions. Participants in CEERP obtain certainty in exchange for enhanced efforts to reduce GHG emissions. Non-participants make a choice to accept greater uncertainty about what future domestic emission reduction obligations will require and how it might affect their business operations. This could be a viable strategy for some entities and would be available as a choice.

The government commitment under the CEERP system to convert any net VERs generated into credits against any relevant future domestic obligation to control GHG emissions upon termination of the CEERP program means that VERs appear as a liability on the national balance sheet. This domestic liability, however, is dwarfed by the size of the government’s international liability that will accrue every year after 2008 should Canada not initiate early action to reduce GHG emissions. Figure 1 illustrates this liability over time taking into account potential further reductions in Canada’s assigned amount.

In the short term, government will have to offset the liability generated by the creation of VERs through actions that increase the assets in Canada’s balance sheet. However, this liability will decline over time because the CEERP design includes an improvement coefficient that continually reduces a participant’s baseline and will eventually require participants to use their banked VERs. As a result, CEERP participants will ultimately use all of their existing VERs as credits against future emissions. At that time, the liability associated with verified emission reductions will fall to zero. Appendix Three outlines a simple methodology for assessing the actual liability and cost-benefit of the program, based on the national inventory and various assumptions about uptake in the program. Conceptually this is illustrated below in Figure 1.

There are a number of tools available to government to manage the extent of the short-term liability. The program design includes several key adjustments that can be utilized in the final design to achieve the acceptable balance between incenting early reduction action and carrying a short-term bubble of debits on the national balance sheet (see Section K, *CEERP System Budget and Liability*).

Figure 1. Canada's Actual/Projected Emissions and Liabilities



Accordingly, the CEERP system can facilitate a “soft landing” for Canada as it moves to meet its international obligations to reduce GHG emissions. It provides a mechanism that allows CEERP participants to grow and manage their business risks while also ensuring steady progress toward Canada’s emission reduction targets. An environmental benefit is created through the determination and innovative spirit driven by the CEERP participants’ motivation to stay ahead of the improvement coefficient.

There are other compelling business reasons for initiating CEERP now. In the absence of a Canadian source for credit against future domestic obligations, the necessary investment of risk management capital by private sector entities will be made offshore in acquiring international Certified Emission Reductions from the Kyoto Protocol’s flexibility mechanisms. Thus, not having CEERP will direct GHG emission reduction dollars and associated employment and economic development out of the country and could also result in long-term efficiency and competitiveness disadvantages. Additional financial impacts and weakening of competitiveness will arise should the US adopt a meaningful credit for early action program and Canada not do so for any period of time.

C5. The Role of CEERP in Canada’s GHG Emission Reduction Strategy

The Canadian Early Emissions Reduction Program should begin in 2001 as a complement to, not a replacement for, a broad-based Canadian Climate Change Action Plan to reduce greenhouse gas emissions. The broader plan must engage all members of all sectors in a comprehensive and equitable manner in a way that achieves compliance with Canada’s international obligations.

CEERP participants voluntarily enter into binding emission performance agreements that are based on taking meaningful early action and establishing a course of continuous improvement in GHG emission levels. This contractual agreement will constitute their net GHG reduction obligations. For CEERP participants, and while CEERP is in effect, these agreements take precedence over any other future GHG emission reduction policy requirements.

If the CEERP system is terminated (before/during/after the Kyoto Protocol's first budget period), participants will be able to convert any VERs they have accumulated into credits against any relevant domestic obligation related to the control of GHG emissions on a "one tonne is equal to one tonne" basis. A fundamental requirement is that governments provide this guarantee if CEERP is to succeed. Any accumulated deficit in the participant's account balance must be offset by investments in GHG emission reductions.

D. Eligible Activities under CEERP

D1. Types of Eligible Domestic Emission Reductions

The CEERP system targets emissions of all six greenhouse gases identified in the Kyoto Protocol. Any action that reduces these emissions and meets the CEERP requirements (such as those regarding measurement and quantification) is eligible under CEERP. Actions likely to be undertaken under CEERP include:

- energy efficiency and conservation improvements,
- substitution of a lower carbon content fuel for one of higher carbon content,
- introduction of lower GHG emission intensity sources of energy, including renewables,
- capture of CO₂ emissions for alternate use or secure storage (e.g., verifiable geological sequestration), and
- methane recovery and conversion to CO₂ from natural gas systems losses, landfill venting or livestock operations.

D2. Inclusion of Biological Sequestration Activities

Activities that sequester carbon through biological processes should, in principle, be eligible to participate under CEERP, although specific guidelines for eligibility will have to be further developed before these activities can be included. In general terms, these guidelines should require that:

- sound methodologies are in place to develop baselines of carbon reservoirs and estimates of carbon sequestration, and
- carbon sequestration is treated in a manner consistent with the national balance sheet approach in which both carbon sequestration gains and losses are accounted for on the appropriate side of the balance sheet or account statement (for Canada and for entities).

Different types of biological sequestration activities (e.g., soil carbon sequestration or carbon sequestration in growing trees) may have different issues to address. Thus, provisions to include each category in CEERP should proceed independently on its own timeline, with its own eligibility rules and guidelines. The work of the national climate change issue tables could provide a useful foundation for the development of such rules and guidelines.

CEERP could recognize leading edge and well-developed biological carbon sequestration projects before international agreement is reached on the treatment of such projects under the Kyoto Protocol. This presents some risk for both Canada and the entity, however, because the action may ultimately not be recognized internationally. Governments can take steps to minimize this risk and liability, such as requiring a special approval process for such projects.

D3. Inclusion of International Activities

Use of the Kyoto Protocol's project-based flexibility mechanisms (Clean Development Mechanism, joint implementation) provides an opportunity for both government and CEERP participants to add assets to their balance sheets. These types of activities should be recognized under the CEERP system.

(a) Clean Development Mechanism (CDM) projects undertaken in the 2000 to 2008 period

The Kyoto Protocol indicates that Certified Emission Reductions (CERs) generated by CDM projects are creditable against national compliance requirements as long as they meet international eligibility rules for CDM. In fact, CERs can be added to Canada's assigned amount in the Kyoto Protocol's first budget period (2008-2012).

As a result, a private entity should be able to acquire CDM-based CERs to meet its own obligations established under CEERP, alongside and with equal value to domestic VERs. Entities might choose to hold a mix of VERs and CERs on their entity account, if needed, to balance their emission liabilities. The only difference is that the creation of CERs will be based on international rules, whereas the creation of VERs will be based on Canadian CEERP rules.

CERs need not be convertible into domestic VERs as long as CER end use is defined under CEERP to have the same end use for as long as the program continues – that is: one tonne of CO₂e in CERs can be credited against one tonne CO₂e of reduction obligations under a future Canadian domestic regulatory obligation. Allowing CERs to be used in this way does not compromise room in the VER budget for eligible domestic early actions within CEERP, nor does it draw from Canada's available international assigned amount during the compliance periods.

The extent to which CDM-based CERs should be eligible for earning VERs is a matter for broader national Climate Change Action Plan policy discussion related to the extent to which Canada should meet its international obligations through the Kyoto Protocol flexibility mechanisms.

(b) Joint Implementation (JI) Projects implemented after the year 2000

The Kyoto Protocol does not, at this time, allow emission reductions associated with joint implementation projects undertaken and transacted prior to 2008 to be added to Canada's assigned amount in the Kyoto Protocol's first budget period.

Nonetheless, arguments can be made to allow such initiatives to be included in the CEERP system. For example, recognizing pre-2008 JI projects under CEERP provides Canadian entities with an opportunity to gain experience and build relationships with JI project developers that will help them if JI projects ultimately become creditable. From a national perspective, Canada may be able to apply this experience to the continuing negotiation of the rules that will guide JI under the Kyoto Protocol.

On the other hand, allowing such projects to be eligible to create verified emission reductions under CEERP presents a risk for government because there is no guarantee that this liability on the national balance sheet will be offset by an increase to Canada's assigned amount under the Kyoto Protocol. Moreover, there is some concern that allowing such projects under CEERP may draw down the available budget for the program without producing domestic economic benefits. Finally, there is a concern that such a decision may set a precedent for the international treatment of pre-2008 JI projects under the Kyoto Protocol.

Verified emission reductions should be made available for joint implementation projects implemented after the year 2000 if those projects meet CEERP project eligibility rules. The liability concerns associated with awarding VERs for such activities would be significantly reduced if either of the following conditions is met:

- Canada signs a bilateral agreement with another industrialized country where that country commits to transferring a portion of its Kyoto Protocol assigned amount to Canada in the first budget period for JI projects undertaken by a CEERP participant in the country, or
- the Kyoto Protocol is renegotiated to allow pre-2008 joint implementation projects to be credited in the same way as pre-2008 CDM projects

If these conditions are not in place, government should manage its liability for these VERs by creating a special budget for such activity as outlined in Section L3 (*Authority Granted to Deal with "Special Cases"*).

(c) Pre-2000 Activities Implemented Jointly (AIJ)

Like pre-2008 JI projects, GHG emission reductions associated with Activities Implemented Jointly (AIJ) initiatives undertaken by Canadian entities prior to the year 2000 are not allowed to be credited against Canada's post-2008 compliance obligations under the Kyoto Protocol.

Such projects should be eligible to create VERs under CEERP if they meet CEERP project eligibility rules and had been registered with the former Canadian AIJ office. The potential liability associated with these Canadian AIJ projects is likely to be fairly modest.

E. Participants in CEERP

Participation in the CEERP system is voluntary. Any corporate entity that is willing to take on the obligations associated with CEERP participation may join the program. Participation will be of greatest interest to large emitters of greenhouse gases such as industrial corporations and municipalities with significant potential climate change action risk to manage.

However, in the interest of fairness and of encouraging the broadest possible base of early action, administrative, reporting or other transactional cost barriers to participation must be minimized for smaller scale emitters, as well as for those interested in and capable of developing reductions. Therefore, the CEERP proposal allows for pooling arrangements under which a group of participants can agree to act as a single participant for the purposes of entering CEERP. A number of small emitters would simply pool their corporate baselines, their actual inventories, and the associated tasks of applying, reporting and tracking their account balance. They would, as a group, assume both the obligations and benefits of CEERP membership.

Finally, the CEERP proposal includes provisions that allow non-participants like third-party greenhouse gas emission reduction project developers and individual consumers to contribute to reductions and thereby interact with the program. The mechanics of these linkages are discussed in Section I (*Encouraging GHG Emission Reductions by Non-CEERP Participants*). An offsets developer wanting to act as an aggregator for multiple third-party GHG offsets could also pool the reductions of a large number of smaller scale but similar projects, for example school or municipal energy conservation initiatives.

F. Baseline for Creation of Verified Emission Reductions

F1. Entity-Level Baseline

Verified emission reductions (VERs) are created under the CEERP system when actual emissions are below an entity-level GHG emission baseline. An entity-level baseline approach has been chosen to ensure that participants in CEERP take responsibility for their entire GHG emissions profile and cannot simply “cherry pick” emission reductions from specific projects that reduced GHG emissions. By focusing at the entity-level, CEERP strives to minimize GHG emissions leakage.

For the purposes of CEERP, an entity is defined as a legal parent that is required to report all GHG emissions from its domestic holdings. To construct an entity baseline, a participant in CEERP will have to sum all GHG emissions produced by GHG emitting sources for which it is the legal owner.

A CEERP entity-level baseline will include:

- (a) direct emissions from entity holdings of all six greenhouse gases identified in the Kyoto Protocol (with the operative limitation being the practical ability to measure and quantify), and
- (b) indirect (upstream) emissions related to the production and distribution of energy and electricity inputs used by the entity.

Indirect emissions are included within the entity-level baseline in CEERP in order to:

- maximize the benefits for those that take action to reduce energy consumption by leveraging the emissions from the supply chain through to the point of use,
- provide incentive for the entity to choose lower carbon intensity energy sources, and
- provide incentive for energy producers to reduce carbon intensity of their energy supply.

CEERP will provide participants with emission factors for all energy and electricity-related inputs at each stage in the supply chain to allow for the calculation of upstream emissions. These emission factors will be adjusted each year to reflect actual emissions in the preceding year and will account for imports and exports of energy and electricity.

The requirement for reporting includes all producers and distributors of energy and electricity that exceed a defined threshold of annual GHG emissions. The *Canadian Environmental Protection Act* provides the Minister of Environment with the provision to request such information.

By including indirect emissions, entities establish a baseline, which is the basis for VER creation. Actions that reduce electricity consumption, for example, will then lower the entity’s actual emissions. Since the difference between the baseline and actual emissions results in VERs, entities can create VERs through a broad range of actions involving both direct and indirect emissions. Entities are not responsible for indirect emissions. They include them to provide the opportunity to create additional VERs through their actions. (See Appendix Four for examples and additional details.)

All energy use associated with the upstream extraction, processing and distribution of the energy and electricity is included. For example, the emissions factor attributed to a pipeline loss for a natural gas distributor would include the CO₂-equivalent for the natural gas emitted, plus the GHG emissions associated with extraction and processing of the gas lost from the pipeline.

All sources of energy used by an eligible producer or distributor are included for the purposes of determining direct and indirect emissions factors within a specific energy or electricity supply chain. For example, a hydroelectricity producer would include any ancillary energy use, fuel for vehicles, space heating, etc. These energy flows would include both direct and indirect emissions.

The emissions factor for the direct GHG emissions associated with the combustion of biomass taken from sustainable sources is valued at zero.

Indirect emissions are included in downstream emissions factors, the direct emissions in the upstream supply chain must be accounted for in the adjusted baseline of the upstream supplier. In the baseline and credit approach used in CEERP, the absolute level of the baseline has a relatively minor impact on the accountability of an entity. The difference between the adjusted baseline and the actual emissions determines the level of VERs. The elected and adjusted baselines also determine the initial level of baseline protection and the improvement coefficient.

Using the previous years reported emissions, the CEERP institution described in Section L (*Program Application, Measurement and Verification Process*) will provide all participants with the necessary emission factors, “sanctioned” for use in the CEERP program, to ensure fairness and consistency.

The accounting procedures for handling improvements must avoid double counting of the changes that occur year over year. The accounting procedures should allow both producers and consumers to realize the maximum benefit for their actions without double counting any reductions that occur throughout the energy and electricity supply chain.

CEERP includes provisions that will allow participating entities to adjust their baseline to account for changing circumstances within the entity (see Section G, *Adjustments to the Baseline*), as well as to accommodate the adoption of GHG emission reduction projects from non-participants in CEERP (see Section I, *Encouraging GHG Emission Reductions by Non-CEERP Participants*). Once the baseline is adjusted, the improvement coefficient will be applied to reflect the new baseline level in relation to 1990.

F2. Starting Year for the Baseline

A CEERP participant will make a one-time election of a base year. This base year will serve as the starting point for the entity-level baseline against which VERs can be created (see Figure 2).

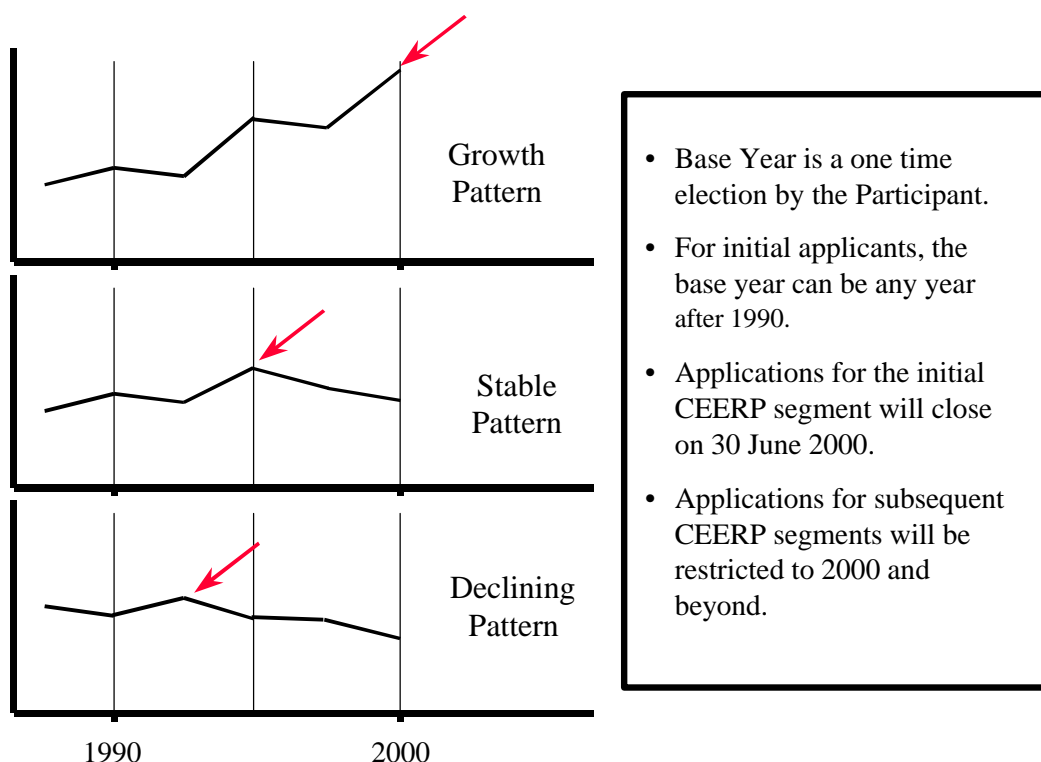
The base year also provides grounds for baseline protection in the event that a future regulatory policy allocates authorizations to emit greenhouse gases. Collaborative participants agree that if the allocation of allowances to emit greenhouse gases under a future regulatory program is based on the level of a CEERP participant’s emissions in a period that is later than its elected base year, the absolute value of emission reductions accumulated to that period will be, for the purposes of that allocation, added back to the CEERP participant’s emission level. In this way, entities will not be disadvantaged in the future for having participated in CEERP and taken early action.

Entities who become participants in CEERP prior to December 31, 2000 will be allowed to elect any year after 1990 as their base year. All participants who join the program after December 31, 2000 will only be able to choose the year 2000 or a subsequent year as their base year.

Allowing early entrants to CEERP to select a base year between 1990 and 2000 means that CEERP will provide verified emission reductions for actions taken in the past that have reduced greenhouse gas emissions. While past actions should be rewarded under CEERP, there are concerns about the potential size of the liability associated with the accumulation of VERs for past actions.

Governments have a number of tools they can use to control the size of this liability. For example, the improvement coefficient used to establish entity baselines could be adjusted or provisions to “sunset” the accumulation of VERs from past actions could be established. This is an important issue that needs to be addressed prior to implementation of CEERP (see Section K, *CEERP System Budget and Liability*).

Figure 2. Election of the Base Year under CEERP



F3. Targets to be Met for the Creation of Verified Emission Reductions (Slope of the Baseline)

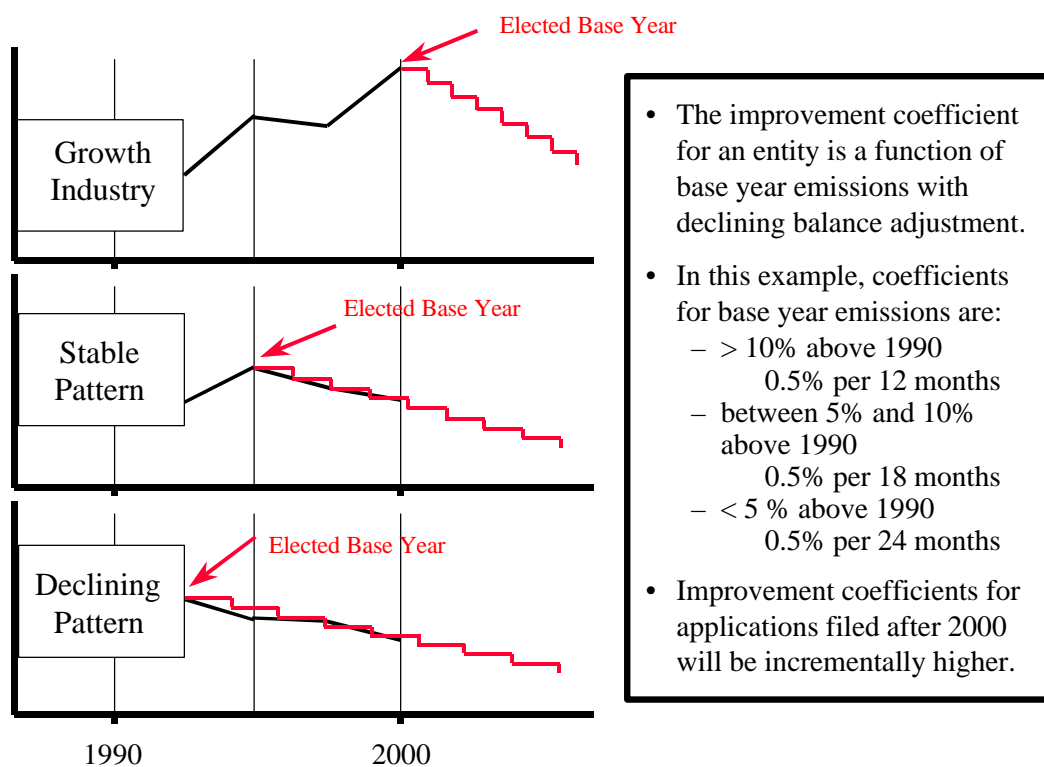
The credit creation baseline is essentially a GHG emissions target that must be met in order to produce a verified emission reduction. Within the CEERP system, this target will be adjusted downward over time by periodically applying an improvement coefficient to base year emission levels. This downward adjustment is essential to ensure that CEERP encourages continuous improvement by all participants.

Collaborative members have not attempted to seek agreement on the final numerical value of the improvement coefficient at this time. That will be part of the analysis and detailed design in stage two of the program development. Nonetheless, Collaborative members agree that:

- the improvement coefficient must apply across the board, without sectoral differentiation,
- the higher the base year emission levels are above 1990 emission levels, the more stringent the improvement coefficient, and
- the improvement coefficient for participants who join CEERP after December 31, 2000 will be incrementally higher than for participants who joined earlier.

Figure 3 provides an example of how the value of the improvement coefficient would change under CEERP for participants with different base year emission levels.

Figure 3. Sample CEERP Improvement Targets



The improvement coefficient is of fundamental importance to the CEERP system. Determining the level of the improvement coefficient under the CEERP system is a key policy decision that must be made before CEERP can be implemented. This task is a high priority over the next few months as CEERP is further refined and developed. Stakeholders will be unable to fully endorse CEERP until the value of the improvement coefficient has been determined.

G. Adjustments to the Baseline

CEERP includes provisions that will allow participating entities to adjust their baseline to account for changing circumstances within the entity including, most importantly, growth or reduction in production capacity. Subsequent to a baseline adjustment, the improvement coefficient will apply to the adjusted baseline. The improvement coefficient may itself change if the new resulting baseline is at a different level in relation to 1990 (as per the example shown in Figure 3.)

The adoption of GHG emission reduction projects (commonly referred to as offsets) from non-participants in CEERP can also be accommodated under CEERP. This feature is discussed in more detail in Section I1, *Providing an Incentive for Non-CEERP Participants to Undertake GHG Emission Reduction Projects (Third Party Offsets)*.

G1. Upward Adjustments in the Baseline

CEERP has been designed to allow growing industries to participate. Accordingly, CEERP participants will be allowed to adjust their baselines upward to reflect the impact on entity GHG emissions of discrete investments in new sources of output that result in:

- real increases in production or
- adjustments to capacity utilization.

In the case of new capacity, the quantity of the adjustment will reflect the GHG emissions increase that would have resulted had the investment been made in the “most GHG-efficient commercially available” technology. Two of the options for determining the “most GHG efficient commercially available” technology, which were discussed by the Collaborative, are:

1. The CEERP Institutional Structure (see Section L) will review all requests for upward adjustments in the baseline and will define what constitutes the most GHG-efficient commercially available technology. It is possible that this definition may, in some cases, vary from region to region in Canada.
2. The “most GHG-efficient commercially available” technology is defined for the elected base year and applied against any subsequent capacity increases

This issue will have to be addressed in the next stage of program design, to develop the most practical and effective approach.

Adjustments for changes in capacity utilization would reflect the emissions performance of the facility at the time the change takes place. Figures 4A and 4B provide examples of adjustments to the baseline, before and after source additions.

Figure 4A. Baseline Adjustments for Source Additions (before source addition)

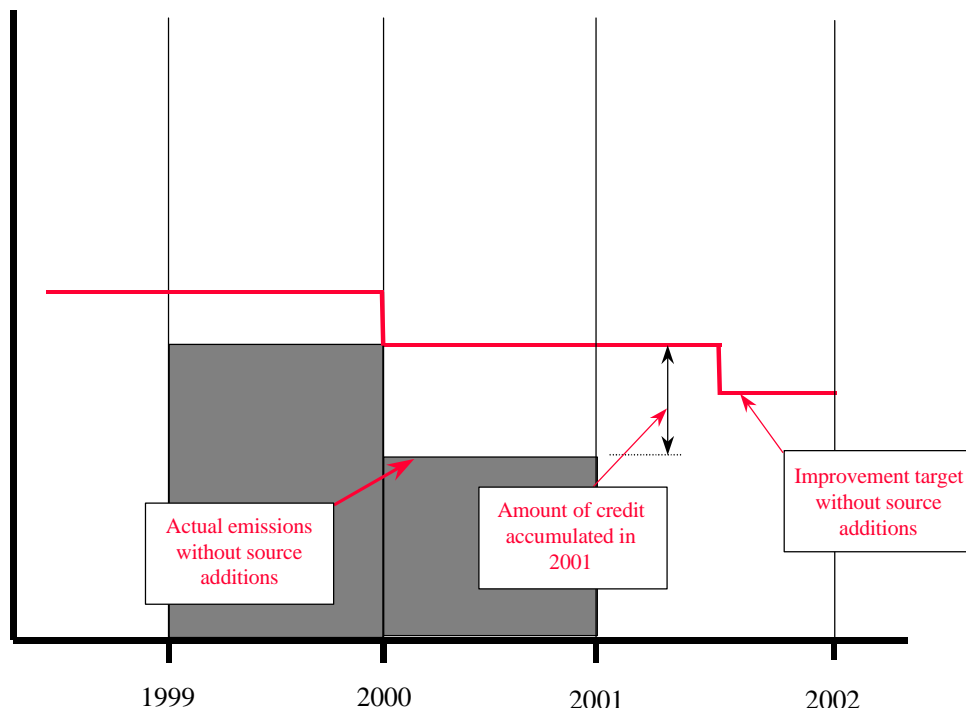
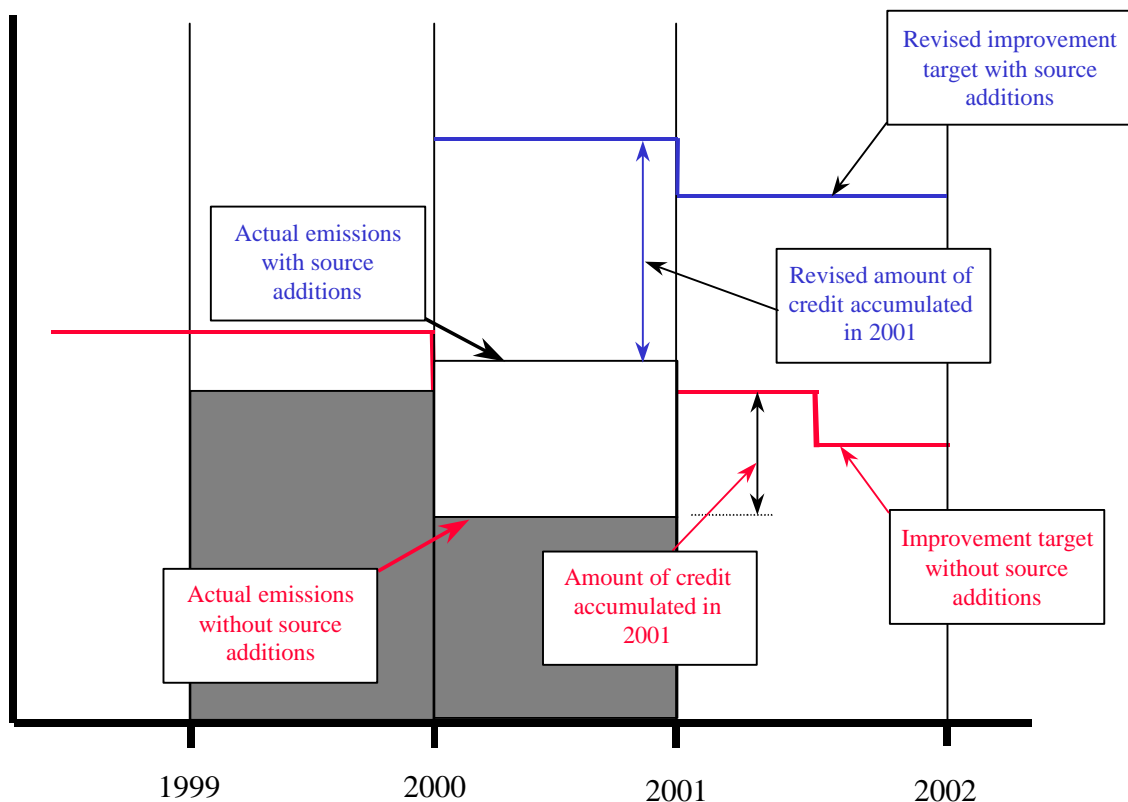


Figure 4B. Baseline Adjustments for Source Additions (after source addition)



CEERP participants can also adjust their baseline upward if they acquire new emission sources through a transfer of ownership. The adjustment will be made in the participant's base year and will reflect the GHG emissions actually produced by the acquired source in the participant's base year.

Baseline would also be adjusted upward if the indirect emissions associated with the entity's energy or electricity supply increased in the previous year. The energy or electricity consumption would be calculated based on the emissions factor reflecting that increased emission level.

This ability to adjust baselines upward to reflect the impact of discrete investments in new sources of output that result in real increases in production will allow CEERP participants to obtain some credit for 'avoided emissions'. For example, the most GHG-efficient commercially available technology for electricity generation in one part of the country may be natural gas combined-cycle co-generation. If a CEERP participant brings new electricity generation capacity on line in that region of the country it can adjust its baseline upward accordingly. However, if the new generation technology has lower GHG emissions than natural gas combined-cycle co-generation (for example, hydroelectric, wind or more efficient traditional technologies), then there will be less of an increase in actual emissions resulting in the creation of VERs. As a result, the CEERP participant is rewarded for having made a choice that 'avoided' GHG emissions.

G2. Downward Adjustments in the Baseline

As noted earlier, the application of an improvement coefficient ensures that entity baselines will slope downward over time. But the fact that CEERP allows for upward adjustments in the baseline to reflect growth means that CEERP must also require downward adjustments in the baseline for actions such as divestiture of assets and shutdowns of sources of output.

If an entity participating in CEERP shuts down a GHG emitting facility, it must adjust its baseline downward to reflect the loss of that facility. The entity can, however, retain any accumulated VERs generated prior to the shutdown. Collaborative members recognize there is a danger that entities may have an incentive to significantly reduce the use of a facility without actually shutting it down, in order to accumulate VERs. To minimize this problem, CEERP could audit entities that report significant reductions in GHG emissions without reporting any closure or shut down of emitting facilities.

The CEERP system will also adjust an entity baseline downward if an entity transfers ownership of an emitting facility to another entity to reflect the loss of that facility. If the entity purchasing the facility is not a CEERP participant, the seller of the facility loses any accumulated verified emission reductions generated by that facility.

H. Creating Verified Emission Reductions

All entities that choose to participate in CEERP take on the responsibility of holding GHG emission levels to the target levels identified by the baseline. At the end of each year, all CEERP participants will compare their actual emissions against their entity baseline.

If actual emissions are below the baseline, the difference represents the VERs created by the entity in that year. These VERs represent a credit or asset in the entity's GHG emission account balance. On the other hand, if actual emissions are above the baseline, the entity has created a debit and a liability in its GHG emission account balance. The entity's GHG emission balance sheet will reflect the sum of all annual VERs and debits accumulated to that point in time. Table 3 provides an example of an entity balance sheet and account balance for a CEERP participant.

Table 3. A Sample CEERP Participant's Entity Balance Sheet at the End of the Year

ASSETS (Mt CO₂e)		LIABILITIES (Mt CO₂e)	
Emission Allowed Under the Baseline	1.0	Actual GHG Emissions	1.2
VERs Awarded	0.0	VERs Retired	(0.2)
International CDM Credits	0.0		
[NB. 1 VER = 1 tonne CO₂e)			
Previous Year Account Balance = 0.7 Million VERs			
Current Year Adjustment = (0.2) Million VERs retired			
Year End Account Balance = 0.5 Million VERs			

In this case, the entity has accumulated 0.7 million VERs in previous years.

Under the CEERP system design, the ownership of emission reductions are guided by the principle that the party that invests in or otherwise develops the activities that cause the emissions to be reduced initially owns the eligible VERs created by the activity. This principle is generally applicable to most emission reduction activity with two major exceptions:

- emission reductions associated with the use of GHG reducing equipment (e.g., high efficiency appliances), and
- indirect emissions reduction associated with the purchase of low emission energy (e.g., renewable electricity) .

In both of these cases, consumers make choices to purchase a product (e.g., equipment) or service (e.g., electricity) that can demonstrably reduce greenhouse gas emissions.

I. Encouraging GHG Emission Reductions by Non-CEERP Participants: Third Party Offsets; Energy Efficient Products; Generation and Use of Low GHG Intensity Electricity

By joining CEERP, an entity has agreed to meet GHG emission performance targets. As Section H illustrates (*Creating Verified Emissions*), a CEERP participant can create Verified Emission Reductions (VERs) if it takes actions that reduce actual emissions below its performance target.

Nonetheless, CEERP participants are likely to account for only a modest percentage of Canada’s total GHG emissions. It is possible that non-CEERP participants may have more cost-effective opportunities to reduce GHG emissions. Accordingly, the CEERP program also includes mechanisms to allow CEERP participants to support action by non-CEERP participants to protect the climate. These mechanisms are described below.

11. Providing an Incentive for Non-CEERP Participants to Undertake GHG Emission Reduction Projects (Third Party Offsets)

CEERP allows CEERP participants to “adopt” specific projects taken to reduce GHG emissions by non-CEERP participants. Some of the projects that could be adopted include: major energy efficiency retrofit initiatives, landfill gas capture, and the construction of low-GHG emitting electricity generating sources. It will also be possible for a CEERP participant to adopt a number of small GHG emission reduction projects that have been aggregated by a broker or aggregator.

Traditionally, GHG emission reduction project developers have created GHG emission “offsets” by identifying the difference between a project emissions baseline and actual measured emission levels after a project has been implemented. They have then sought to sell this GHG offset in the marketplace.

Under CEERP, participants acquire offsets from non-participants by adopting the baseline related to the project (add the project baseline to the participant’s baseline), and by adding the actual GHG emissions produced by the project to their own actual emissions. This “baseline adjustment” is much like the upward baseline adjustments discussed in Section G1. In other words, the project developer transfers the baseline and actual emissions associated with the project activity to the CEERP participant.

As a result, a CEERP participant accepts responsibility for a project’s baseline when adopting a project. A CEERP participant accepts ownership for the project’s baseline and actual emissions when adopting a project. Two of the options are:

- 1) project lifetime
- 2) indefinite

CEERP participants will not be allowed to adopt the baseline and actual emissions associated with GHG emission reduction projects in years prior to the base year selected by the participant.

To facilitate the adoption of GHG emission reduction projects undertaken by non-CEERP participants, the system will need to:

- establish eligibility criteria that GHG emission reduction projects will have to meet in order to be adopted by a CEERP participant, and

- ensure that practical methods are available to aggregate small projects to minimize unit transaction costs.

Eligibility criteria are required to ensure that GHG emission reduction projects adopted by CEERP participants have produced real and incremental emission reductions that contribute to bringing down Canada's national GHG emissions liability from what they would have been. This is important from both an environmental and equity perspective.

For example, if a CEERP participant can increase its baseline and emit more greenhouse gases by adopting a project, and those emission increases are not actually offset by new and incremental emission reductions, the environment loses. Moreover, allowing a CEERP participant to increase its baseline and emit more greenhouse gases when no new and incremental environmental benefit has been produced will provide a windfall transfer of equity and shift the burden of producing incremental environmental improvements onto other Canadians.

Eligibility criteria will need to be developed and operationalised before CEERP is launched. This is an important task to be undertaken by the CEERP Institutional Structure (see Section L, *The CEERP Institution*). Criteria to determine whether or not a project adjustment to the entity baseline is eligible, need to address the following issues:

- whether or not greenhouse gas emissions are lower after implementation of the project than they would have been without the project (i.e., no leakage of emissions to another location or time);
- the regulatory context (i.e., was the specific greenhouse gas emission reduction project required by law);
- whether or not it can be reasonably demonstrated that Canada's national GHG emission liability is reduced from what it would have been had the project not been adopted (e.g., the project exceeds prevailing technology or management practices in that sector). Also, some Collaborative members feel that an additional consideration would be whether or not the project would have been undertaken under prevailing investment practices;
- the quantifiability, measurability and verifiability of the project; and
- whether or not the project has resulted in any significant environmental burden shifting.

12. Providing an Incentive for Non-CEERP Participants to Purchase GHG-Efficient Products (e.g., homes, cars, appliances)

Under the CEERP system design, the ownership of emission reductions is guided by the principle that the party that invests in or otherwise develops the activities that cause the emissions to be reduced initially is the owner of the eligible VERs created by the activity.

The CEERP system's treatment of indirect emissions provides encouragement for participants to make choices that reduce upstream GHG emissions (see Section F1, *Entity-Level Baseline*). Because individual consumers, businesses and industries can help reduce Canada's GHG emissions by purchasing energy-efficient products like appliances, homes and automobiles, an effort is being made to design the CEERP system to provide an incentive for such purchases.

The broad outline of an approach has been developed. In essence, product manufacturers could voluntarily apply to the CEERP institution to have their product recognized under the program. An application would need to include the following information: (a) the energy or carbon performance of the equipment, (b) the energy or carbon performance of the average new product sold in the marketplace (this may vary in different marketplaces across Canada's regions), and (c) the average lifetime of the product.

If the CEERP institution finds that the uncertainty associated with this information is at acceptable levels, it can recognize the product under the program. It would then provide VERs, in the form of a series of numbered coupons, to be given to the consumer upon sale of the product. A portion of the numbered coupons would be redeemable for VERs in each year of the expected lifetime of the product.

Consumers who are not CEERP participants will have little need for these VERs. At the same time, the quantity of VERs awarded for the purchase of any single energy or carbon-efficient product is going to be small. This means there will be little incentive for individual consumers to seek out CEERP participants to whom they could sell the VERs. There will, however, be an incentive for someone to aggregate these VERs and then sell them to a CEERP participant. This aggregator could be a product manufacturer, who could offer a rebate to consumers for the purchase of the product in exchange for the VERs.

While the preceding paragraphs have outlined one approach CEERP could take to provide an incentive for the purchase of carbon or energy-efficient products, it is recognized that more work is required. Some of the key questions that need to be addressed in further design work include:

- What steps can be taken to minimize the uncertainty associated with the emission reductions recognized under this approach? (i.e., no one knows how each consumer will use the product purchased),
- What steps can be taken to incorporate the CEERP principle of continuous improvement in this approach? (e.g., the quantity of numbered coupons provided could be discounted by the application of an improvement coefficient), and what level of comprehensiveness should this approach strive for and what is feasible? (that is, most products or a few key products).

Further development of the treatment of product related emissions would benefit from the involvement of representatives from the product manufacturers, distributors and sellers.

13. Providing an Incentive for Non-CEERP Participants to Purchase and Generate Low GHG Intensity Energy or Electricity

The CEERP system design already provides some incentives for increased production of low-greenhouse gas intensity electricity. For example, a CEERP participant can create VERs by constructing or adopting a new low-carbon electricity generating facility where the most GHG-efficient commercially available technology is more carbon-intensive. In addition, CEERP participants can reduce their own actual emissions and produce VERs by switching to a low-carbon electricity provider from a more carbon intensive electricity source.

It is also, however, possible to provide an incentive for non-CEERP participants to purchase low-carbon electricity. This incentive can take the form of the 'rebate' described above for energy and carbon efficient products. Producers of low-carbon electricity could apply to the CEERP institution and seek to have their power accepted under the program. The CEERP institution could then decide to award VERs to the purchasers of such electricity. Aggregators (i.e., the electricity producers) could then pay consumers for these VERs (a rebate) and aggregate them for sale to a CEERP participant.

There would, of course, be some differences. In the case of products, VERs would be awarded on an annual basis over the lifetime of the product, regardless of how the product was used. The detailed measurement of electricity use, however, means that VERs could in this case be awarded on a per-kwh of electricity basis and the number of VERs would vary with the quantity of electricity purchased.

As noted above, further design work is required. In addition, it may be possible to apply similar provisions to other low-GHG intensity energy sources, such as biomass, and further analysis should be undertaken with regard to this possibility.

J. Using Verified Emission Reductions

J1. Converting Verified Emission Reductions into Credits

Government must provide an incentive for entities to participate in CEERP. Collaborative members agree that this incentive should take the form of a government commitment that verified emission reductions can be converted into credits against any GHG emission regulatory obligation upon termination of CEERP. This credit will allow the holder to emit a tonne of GHG emissions under any relevant regulated GHG emission reduction obligation. These credits must be provided on the basis that one tonne of verified emission reductions is equal to one tonne of credits.

Accordingly, upon termination of CEERP, all participants with an entity balance sheet that has a positive supply of verified emission reductions will be able to convert these into credits against the relevant regulatory obligation. On the other hand, participants with an entity balance sheet that has a net debit upon termination of the program will be required to “balance” their balance sheet by purchasing an equivalent amount of greenhouse gas emission reductions credits in the marketplace.

J2. Using Verified Emission Reductions before the Termination of the CEERP Program

A participant in the CEERP system can sell or trade verified emission reductions at any time with other participants in the CEERP system. This is a simple transaction between the accounts of two participating entities where an entity that has accumulated a surplus of VERs in its account can transfer some or all of those verified emission reductions to another entity’s account. CEERP participants cannot sell or trade VERs to non-CEERP participants.

Government can also manage its liability under the CEERP system by issuing occasional requests to buy back verified emission reductions from participants (see Section K, *CEERP System Budget and Liability*). A participant may choose to take up this offer and sell some or all of the accumulated VERs in its account to the government. These transactions will be reflected in the various balance sheets.

J3. Obligations of an Entity upon Early Withdrawal from CEERP

The following rules will guide treatment of participants who leave the CEERP system prior to its termination by government. Upon withdrawal, a participating entity:

- forfeits any surplus VERs remaining in its account upon its departure,
- is responsible for truing up any liabilities (deficit in the entity account) it has accumulated upon its departure through the purchase of VERs from other CEERP participants or purchases of GHG emission reductions in the international marketplace,
- forfeits its baseline protection,
- loses any other protection it has received against other domestic regulatory obligations or policies, and
- cannot re-enter the program.

These consequences should serve to maintain participation in CEERP over the long term. If further disincentives to early withdrawal are necessary, such items could be imposed by the CEERP institution. For example, participants could be required to return the cash value of the VERs they may have sold while a member of CEERP. Care should be taken to ensure that these conditions do not represent a significant barrier to participation in CEERP.

K. CEERP System Budget and Liability (Supply of VERs)

Government is responsible for managing an overall national GHG emission balance sheet. One item on that balance sheet is VERs created under CEERP. Collaborative participants recognize that government may wish to manage its liability for VERs made available under CEERP through the establishment of a program budget. Other design mechanisms are also available for managing the liability and adjusting the system.

K1. Budget and Supply of Verified Emission Reductions

The CEERP system budget should be denominated in dollars and should represent the funding required to cover the accumulation of approved verified emission reductions in the CEERP account balance through actions, such as, the buy-back of verified emission reductions or the purchase of increases to Canada's assigned amount in the international marketplace. Accordingly, the level of funding should be determined by:

- domestic objectives for GHG emissions reduction,
- an evaluation of the applications submitted by participants to the CEERP institution,
- the current international market price for a tonne of CO₂-equivalent, and
- the fact that there will be a vibrant market for emission reduction credits and that the market price is expected to rise as we approach the first budget period for the Kyoto Protocol.

Funding levels will be established on a biannual basis. The first CEERP budget period will cover 2001-2002. It will need to cover verified emission reductions generated before the launch of CEERP by participants who have selected a pre-2000 base year. In practical terms, therefore, this initial CEERP budget will have to take into account the projected accumulation of verified emission reductions for past actions. Whenever it appears that the verified emission reductions produced through CEERP will exceed the established budget, government can either choose to increase the budget or close access to the program. No discounting of verified emission reductions should be allowed.

Funding for subsequent budget periods should be managed on the basis of applications submitted for those periods. To be considered, applications must be submitted no later than three months prior to the next budget period.

K2. Managing Government's Liability Regarding Granting of VERs

Verified emission reductions produced through CEERP will accrue on the national balance sheet as liabilities. If the CEERP program is well designed, these liabilities should only be short-term. This is because the application of the improvement coefficient should require a continuous improvement in performance that will cause CEERP participants to draw down their VER account balance over time. Indeed, CEERP is designed to encourage CEERP participants to build up their VER account balance in the short term so that it can be drawn down (providing a smooth landing) in future years.

Within the time and resource limitations of the phase one work it has not been possible to quantify the potential short-term liability governments will face as a result of implementing CEERP. It is clear that substantive work is required to try and identify this figure. To aid in that task, Appendix Three provides a methodology that can be used to help estimate the potential liability.

It is, however, essential to understand that the CEERP system is designed to provide governments with a number of options for managing its liability and ensuring that the program cost-benefit is acceptable. Some of these are outlined below:

- By taking actions to increase Canada's assigned amount (i.e., through use of the Kyoto Protocol's Kyoto Mechanisms), governments increase the assets on their balance sheet and can offset some liabilities generated through CEERP;
- By buying back VERs from CEERP participants, governments can remove the liability from their balance sheet;

- By taking actions to reduce GHG emissions from non-CEERP participants, governments can reduce the other liabilities on Canada's balance sheet;
- By setting a stricter improvement coefficient, governments can make it more difficult for CEERP participants to create VERs in future years, thereby limiting its liability under the program;
- By setting a stricter program budget (fewer dollars to backstop CEERP) and preventing new entrants from joining the program once that budget is filled, governments can control the amount of VERs it will allow to be created under the program;
- By sunsetting the accumulation of VERs for past actions upon commencement of the program (by requiring all participants to select a new base year [e.g., 2000] for the creation of VERs from that point forward), governments can reduce the number of VERs created under CEERP;
- By adjusting performance targets annually to reflect changes in actual emission levels (i.e., annual sunsetting that allows VERs to be generated in one year but does not allow them to accumulate over time), governments can reduce the number of VERs created; and
- By terminating the program, government can prevent the creation of any additional liabilities through the CEERP program.

This is not an exhaustive list and there are other options that might involve more substantial amendments to the proposed CEERP design, which can further reduce the amount of VERs created and subsequently providing a short-term liability. Again, care will be required to ensure that this design feature does not result in a program that has little attraction for potential participants.

L. The CEERP Institution: Program Application, Measurement and Verification Processes

L1. Institutional Requirements

Collaborative members have discussed a number of approaches and have developed the following institutional option for implementing CEERP. Implementation of CEERP involves both policy and administrative functions on an ongoing basis. These functions can best be handled by separate entities that interact extensively but report separately to a Minister or Deputy Minister (or designated authority).

In the pre-operational phase, the policy focus will be on completion of the CEERP program design and rules including determination of the improvement coefficients and analyzing the potential impact of past and future actions by anticipated participants. In the operational phase, there will be policy issues relating to future program budgets, acquisition of additional assigned amounts (via CDM, JI, sequestration, etc.), dealing with unanticipated situations and reviews of the program rules.

With respect to the administrative functions, the operational phase will have the greatest demand for administration services, including assessing baselines and annual emissions, tracking account balances (debits and credits of VERs) including transactions, performing audits, etc. It is expected that there will be administrative requirements, though possibly somewhat limited, in the pre-operational phase (such as soliciting and registering participants, initial or trial technical review of baselines and products, etc.).

A CEERP policy function, consisting of a Policy Secretariat (PS) and a senior Stakeholder Advisory Board (SAB), will be established. The policy function will be managed by a Policy Secretariat under the responsibility of the federal minister (or designated authority) responsible for Credit for Early Action. A senior Stakeholder Advisory Board, comprised of industry, public interest groups and provincial government representation will work with the policy secretariat to provide independent input to the Minister or designated authority on policy issues. It is expected that the Minister / designated authority would rely heavily on the advice of the Advisory Board. Policy issues will be finalized by the Minister / designated authority and confirmed in regulation.

The administrative function will be carried out by a CEERP Administration Secretariat (AS). It will apply the program as set out in regulation. Most significantly, it will enter into the agreements with CEERP participants according to the regulations and on behalf of the Minister / designated authority. It may also choose to access the advice of the senior Stakeholder Advisory Board and, possibly, from a Technical Advisory Committee (TAC).

The CEERP Administration Secretariat will contract or enlist the services of accredited third party service providers as required for effective operation of the administrative function. For example, in the case of the program registry function, a single party could be contracted to provide the registration, tracking of VER account balances and transactions, data collection and management, initial (basic) screen of participants' annual reports, and communications and reporting to governments, participants and the public.

Accredited² service providers could address technical aspects of CEERP's administration. This includes, for example:

- verifying baselines;
- performing technical reviews of annual reports;
- verifying technology and products; and,
- undertaking periodic audits of participants (as required by the CEERP rules).

The CEERP program including the ongoing policy and administrative functions must incorporate the following principles:

- transparency;
- accountability;
- stakeholder participation; and
- certainty and clarity of governance and decision making.

Note that, if possible, existing organizations will undertake the two secretariat functions of CEERP, avoiding the creation of any new entities (institutions). In the case of the third party service providers, the rationale is that placing these aspects of CEERP in a competitive environment will assist in ensuring cost effectiveness and a degree of accountability.

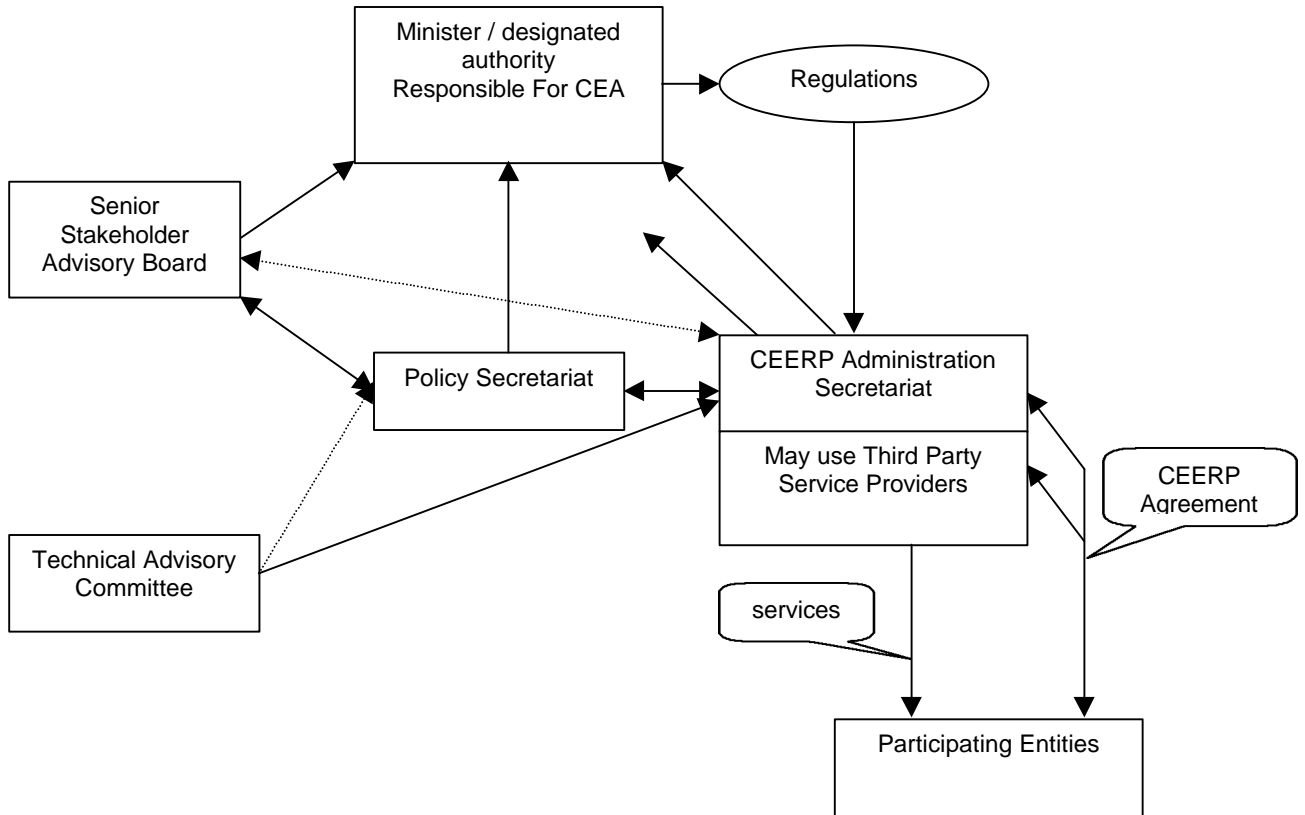
Costs associated with maintaining this institutional arrangement should be borne by both government(s) and industry. It is proposed that government(s) assume responsibility for the costs of supporting the policy secretariat and administering the Stakeholder Advisory Board. CEERP participants would fund the Administration Secretariat through fees and charges unless prohibitive to entry of participants.

The following diagram outlines the arrangement described above.

An initial list of tasks for the various CEERP institution elements is included in Appendix Five.

² Accreditation will be awarded by the CEERP Administration Secretariat.

Figure 5. CEERP Institutional Arrangement



L2. Information Requirements

Emissions Factors for Energy Flows

The CEERP Administration Secretariat (AS) will receive reports from energy producers and distributors, detailing the energy used and the resulting GHG emissions associated with their operations. The AS, if support / advice from the Technical Advisory Committee (TAC) (AS / TAC), will analyse this information and produce an annual summary of the emissions factors associated with energy flows in Canada. Information will be presented on a regional/provincial basis.

Initial Application and Ongoing Reporting

The AS / TAC will develop the guideline template and information requirements for participants' initial applications. The template will incorporate all eligibility criteria and rules with procedures for presenting an entity's baseline and making adjustments to that baseline. The template will also provide standard emissions factors for energy flows to be applied to various years of operation. The AS / TAC will also design and update the documentation for annual reporting of an entity's emissions. Reports made to the institution shall be made available to the public, subject to appropriate provisions to protect confidential commercial and financial information. The Policy Secretariat (PS) will approve and issue the applications and emissions-reporting documentation.

L3. Authority Granted to Deal with "Special Cases"

Equipment-Related Emissions

The AS will provide input to the evaluation of applications for equipment-related emissions reduction claims. The AS / TAC will establish initial information requirements for the application. Equipment-related reductions should be of sufficient magnitude to offset transactions costs associated with processing and tracking the VERs awarded to the reduction claims. The AS will evaluate and assign a level of uncertainty attributable to the emission reduction claim and recommend the VER value for the equipment. The PS will approve and issue the equipment-related VERs.

Project-Related Offsets Adopted by CEERP Participants

As noted earlier, CEERP participants seeking to adopt GHG emission reduction projects undertaken by non-CEERP participants will have to demonstrate that those projects meet a number of eligibility criteria. The AS will evaluate the extent to which these eligibility criteria have been met and will recommend whether or not the projects are eligible for adoption. The PS will approve the subsequent adjustment to the adopting entity's baseline.

Special Budget of VERs for Post-2000 Joint Implementation Projects

The AS / TAC, and possibly the PS and SAB, need to examine the operationalization of this tool to address the liability concerns associated with providing VERs for joint implementation projects that may not be accredited internationally.

Special Cases of VER Creation

The AS will have to operate whatever special mechanisms are developed to allow VER creation for special cases like those identified in Section H (*Creating Verified Emission Reductions*).

L4. Verification Requirements

The AS has the responsibility to develop protocols, with input from the Technical Advisory Committee, for verifying participant applications and annual reports. The protocol will ensure consistent application of

emissions factors and will review supporting information regarding energy consumption. The TAC will also develop criteria for conducting periodic and random audits of participants' submissions. An accredited third party verifier shall execute such audits. The institution's governance body will review and approve the audit recommendations.

M. Baseline Protection

Baseline protection is a necessary component of a CEERP system. Collaborative participants agree that if the allocation of allowances to emit GHG under a future regulatory program is based on the level of a CEERP participant's emissions in a period that is later than its elected base year, the absolute value of emission reductions accumulated to that period will be, for the purposes of that allocation, added back to the CEERP participant's emission level. In this way, entities will not be disadvantaged in the future for having participated in CEERP and taken early action.

N. Timelines for Implementation

The proposed CEERP system should run from early 2000 and should pursue the following schedule:

- finalize rules and announce CEERP program April 2000
- CEERP open for applications July – December 2000
- The initial program period would run from 2001 through 2002.
- The next application opening would be September 2002.

Appendix One. Background on the CEERP Collaborative

In April 1998 Canada's federal and provincial governments committed to

"...establish by early 1999 a system for crediting verifiable early actions to reduce greenhouse gas emissions against any future emissions obligations".

The Credit for Early Action Issue Table was subsequently mandated to:

"...assess options and to recommend program designs and implementation plans for an early credit system for Canada, to be in place by early 1999".

Despite the serious effort of all participants, the Credit for Early Action Table will not fulfill this mandate. Participants on the Table agreed that their final report will include no recommendations to Ministers. By focusing on separate elements of a Credit for Early Action System and the strengths and weaknesses of different options to address those elements, the Table explored numerous options in detail. However, it was unable to develop a proposal that integrated these elements into a coherent and complete Credit for Early Action system.

The table did engage in substantial and valuable background research and analysis of most of the critical design issues related to the development of a practical Credit for Early Action system for Canada. In this context the following eight representatives of players heavily engaged in these discussions came together on February 17, 1999 to try and complete an integrated design. Work done at and around the Credit for Early Action Issues table was used as a starting point for further design and option selection, and it is hoped that this work will accelerate efforts to implement the commitments made by governments.

CEERP Collaborative Participants

CEERP participants, as of July 1999:

Steve Blight – Environment Canada (observer)
Peter Dickey – TransAlta
Jason Edworthy – Vision Quest Windelectric Inc.
Richard Hill – DuPont Canada
Robert Hornung – Pembina Institute
Jean-Étienne Klimpt – Hydro Québec
Gordon Lambert / Martin Holysh – Suncor Energy
Leonard Landry – PanCanadian Petroleum Limited
Don Macdonald – Alberta Department of Energy (observer)
Ron Nielsen – Pollution Probe
Roger Peters – Saskatchewan Environmental Society
Steven Pomper – Alcan Aluminium Ltd.
Faye Roberts – Canadian Vehicle Manufacturers' Association (observer)
John Roberts – Nexfor Inc.
Vasudha Seth / Susan Olynyk – Dofasco
Richard Williams – Westcoast Energy Inc.

Facilitation and Secretariat Support: Rob Macintosh and Kim Sanderson, Pembina Institute

The Collaborative's Objectives are to:

- reach consensus on the broad design of a Canadian Early Emission Reduction Program as well as the specific design of key elements that will underpin the system,
- consult with and enroll other key players (stakeholders) on the draft product,
- recommend decisions that should be made by governments in the Spring of 1999 to facilitate the implementation of such a system,
- identify any areas where additional work is required and suggest how that work should be undertaken,
- develop a proposed timeline for implementation of the system, and
- jointly advance the design and implementation of the system through submission to formal government process and dialogue with Ministers responsible for policy issues associated with the CEA system.

Progress Update

- On March 30th the Collaborative held a workshop to review the emerging proposal with key stakeholders (government, industry, ENGOs), providing an opportunity for discussion and debate about the proposal's structure and key elements. This was followed the next day by a briefing of NAICC-CC.
- The Co-chairs of NAICC-CC wrote the Collaborative requesting that the Collaborative continue, and broaden membership and support.
- The CEERP Collaborative fulfilled the requests of NAICC-CC, held additional meetings and conference calls, and finalized the initial design proposal.

Appendix Two. A Comparison of CEERP and the US Chafee Bill

As of March 1999

Chafee – Senate Bill S. 547	Canadian Early Emission Reduction Program (CEERP)
Credits	
<ul style="list-style-type: none"> credits provided on one-for-one basis (there is no discounting) 	<ul style="list-style-type: none"> credits (Verified Emission Reductions) provided on a one-for-one basis (there is no discounting)
<ul style="list-style-type: none"> credits are based on actual reductions below agreed upon baseline 	<ul style="list-style-type: none"> credits are based on actual emissions below an agreed upon declining baseline
<ul style="list-style-type: none"> credits can be applied against any future domestic regulatory requirement, or can be sold (or traded) to others 	<ul style="list-style-type: none"> credits can be applied against any future domestic regulatory requirement, or can be sold (or traded) to other participants in the CEERP system
Baseline	
<ul style="list-style-type: none"> participant is responsible for increases beyond the baseline, and earns credit for reduction of aggregate emissions below the agreed upon baseline 	<ul style="list-style-type: none"> participant assumes responsibility for emissions from the entire entity, and can therefore be liable for debits if in a deficit position based on actual emissions relative to the agreed upon declining baseline
<ul style="list-style-type: none"> upstream emissions are not included in the baseline 	<ul style="list-style-type: none"> participant is responsible of all upstream indirect emissions related to energy use
<ul style="list-style-type: none"> the baseline remains constant (flat / horizontal) 	<ul style="list-style-type: none"> the baseline decreases by an improvement coefficient, and the steepness of the decline depends on the extent to which the previous year's baseline emissions exceeds 1990 baseline emissions
<ul style="list-style-type: none"> base period is 1996 – 1998 / baseline is established by taking the average annual aggregate emissions between 1996 and 1998 (some exceptions are possible, e.g., if data is not available, or where there have been reductions since 1990 – in which case a earlier base year can be selected effective until 1999) 	<ul style="list-style-type: none"> participant can select any base year back to 1990 if they have entered CEERP before by 2000, otherwise the base year is chosen from 2000 on
<ul style="list-style-type: none"> baselines can be adjusted up or down to reflect changes in emissions due to acquisitions and / or divestitures 	<ul style="list-style-type: none"> baselines can be adjusted up or down to reflect changes in emissions due to acquisitions and / or divestitures
Sources Covered	
<ul style="list-style-type: none"> all domestic GHG sources that the participant owns as of the date on which the early action agreement is entered into 	<ul style="list-style-type: none"> addressed in the context of establishing the baseline, but extends to all domestic holdings (i.e., the GHG emissions from these holdings)

Accommodating Offsets (Projects)	
<ul style="list-style-type: none"> opt-in for sources and carbon reservoirs not covered by the early action agreement 	<ul style="list-style-type: none"> participants adopt the project baseline as a liability for the given year, and report the actual emissions related to the project (the difference between the baseline and the actual emissions will either be a credit or a debit)
<ul style="list-style-type: none"> opt-in for sources and carbon reservoirs not owned by the participant – allowed as long as the owner agrees to exclude the source or reservoir from coverage by the owner's early action agreement 	<ul style="list-style-type: none"> participants are limited to adopting only those projects that occur in their own baseyear or more recently
	<ul style="list-style-type: none"> projects proposed for adoption will need to meet CEERP eligibility criteria
Past Action (pre-1998 or 1999 emission reductions)	
<ul style="list-style-type: none"> if an earlier baseline (e.g., prior to 1996) is 'elected', the participant can only accrue credits with this baseline until 1998 	<ul style="list-style-type: none"> past action is recognized, but there is discussion of tools to manage the liability associated with past action – for example, through adjustment of the improvement coefficient or through "sunsetting" the accumulation of VERs
Growth	
<ul style="list-style-type: none"> the baseline can be adjusted up or down for acquisition or transfer of emitting assets 	<ul style="list-style-type: none"> the entity baseline can be adjusted up or down for acquisition, or divestiture, of emission sources (related to discrete investments in new capacity or decreases in capacity)
Kyoto Mechanisms (CDM [CERs], JI [ERUs] and AIJ)	
<ul style="list-style-type: none"> reductions of GHGs (CERs, ERUs) will be accepted in US CEA when internationally recognized 	<ul style="list-style-type: none"> will be incorporated in CEERP, but note that steps may be taken to manage the liability risk of recognizing actions taken in advance of internationally accepted rules
<ul style="list-style-type: none"> US IJI projects (accepted, with financing and / or construction underway, before 31 December 2000) 	<ul style="list-style-type: none"> pre-2000 AIJ, subject to eligibility criteria, can be used to create VERs, liability expected to be small
Sequestration	
<ul style="list-style-type: none"> domestically, credited to the extent that 'aggregate net carbon sequestration for the credit period in a participant's domestic carbon reservoirs covered by an early action agreement exceeds the sum of the participant's annual reservoir baselines for the credit period' 	<ul style="list-style-type: none"> will be incorporated in CEERP, but note that recognition in advance of internationally accepted rules introduces risk (if the reductions recognized do meet the international rule requirements) and that special procedures will be required to manage this risk

Reporting	
<ul style="list-style-type: none"> participants agree to annually measure, track and report to the U.S. their annual source baseline and greenhouse gas emissions and annual reservoir baseline net carbon sequestration 	<ul style="list-style-type: none"> participants are required to report on an annual basis – standard application and reporting templates will be developed
	<ul style="list-style-type: none"> reports from all energy resource extraction, energy generation, and distribution entities is required to develop emission factors for the energy flows
<ul style="list-style-type: none"> these reports will be available to the public – appropriate provision will be made to protect confidential commercial and financial information 	<ul style="list-style-type: none"> these reports will be available to the public – appropriate provision will be made to protect confidential commercial and financial information
Program Budget	
<ul style="list-style-type: none"> no program budget is expected, credits will result in early assignment of 1st Budget Period allocation if the Kyoto Protocol comes into effect and the U.S. ratifies it 	<ul style="list-style-type: none"> the CEERP budget is expected to be established in dollars, with this fund being used to manage the short-term liability associated with granting VERs (e.g., securing counterbalancing ‘assigned amounts’)
Exemption From Regulatory Measures	
<ul style="list-style-type: none"> an early action agreement does not bind the US to adopt (or not) any particular form of domestic GHG regulatory statute 	<ul style="list-style-type: none"> participants are exempted from regulatory and fiscal policies targeted specifically at their GHG emissions while participating in CEERP
Baseline Protection	
<ul style="list-style-type: none"> if the allocation of authorizations under a domestic GHG regulatory statute to emit GHGs in a compliance period is based on the level of a participant’s emissions in a historic period that is later than the participant’s base period, any early action credit to which the participant was entitled shall, for the purposes of that allocation, be added back to the participants GHG emissions level for the historic period 	<ul style="list-style-type: none"> if the allocation of authorizations under a domestic GHG regulatory statute to emit GHGs in a compliance period is based on the level of a participant’s emissions in a historic period that is later than the participant’s base period, any early action credit to which the participant was entitled shall, for the purposes of that allocation, be added back to the participants GHG emissions level for the historic period

<i>Institutional Requirements</i>	
	<ul style="list-style-type: none"> • establish a negotiating authority (institution) and a registry
	<ul style="list-style-type: none"> • institution will consist of governance and advisory bodies
	<ul style="list-style-type: none"> • institution will develop baseline and eligibility criteria, establish improvement coefficients, establish reporting and verification requirements, evaluate applications, establish entity account balances, manage the overall CEERP budget, recommend quantity of reductions needed (from Kyoto Mechanisms and domestic purchases) to cover anticipated CEERP liability
<i>Start and Stop Dates for the Early Action Program</i>	
	<ul style="list-style-type: none"> • CEERP would start in 2001
	<ul style="list-style-type: none"> • CEERP continues until government decides to end the program (at which time VERs are converted into credits to be used against domestic GHG emission reduction obligations)

Appendix Three. A Methodology for Assessing the Impacts of CEERP

The CEERP Collaborative has undertaken a preliminary examination of the impact CEERP is expected to have, assuming it is implemented Canada-wide. While additional effort is needed to prepare generally accepted quantitative results, the Collaborative was able to qualitatively address this issue.

The following is a point form summary of the steps taken, thus providing a proposed methodology for assessing the impact of CEERP. Included in bold and italics are specific actions that involve contributions by and participation from other parties in the course of the analysis.

As well, a qualitative description of the outcome of the Collaborative analysis is included.

Methodology

1. develop a comprehensive listing of the sectors for Canada (e.g.; includes all emission source categories)
 - draw on existing sources of information for the categories
 - historic / inventory data – Environment Canada, Art Jaques et al, 1997, *Trends in Canada's Greenhouse Gas Emissions (1990-1995)*
 - projections for future emissions – NRCan, "Canada's Energy Outlook 1996 – 2020"
2. determine emissions for each sector in 1990, 1995, 2000, based on the emissions reported in the GHG inventory and projections reports
 - make adjustments for comparability between historic and projected emissions
 - the sectors used for the inventory differ from those used for projections, some reconciliation is required
3. establish recorded or claimed emission reductions (and avoided emissions (check terminology)) the reductions from 1990 to 2000 (Past Action) for each sector
 - assume a portion of the 10 year time frame as the average for generating these reductions (e.g.; five years)
 - establish an annual past action reduction for each sector on this basis (e.g.; VCR submissions)

[NB.: involve representatives from the various sectors in determining these reductions / strive to have these estimates supported by the industries in each respective sector]

4. tally the past action for all sectors to determine the overall Past Action potential impact (which assumes participation by all entities that contributed to the estimated reduction)
 - adjust the Past Action amount to reflect the anticipated participation rate(s) (e.g.; a portion of the total estimated past action which would qualify)
5. estimate the annual reductions at 2000, for each sector, in the form of low (10% likelihood), medium (50% certain) and high (90% confidence of being lower) reduction amounts (sensitivity analysis)

[NB.: strive to have each sector validate these estimates]

6. compare estimated reductions (past action, and projected) with the Annual Average Energy Growth for each sector (as a reference check)
7. use a model that assigns a weighted likelihood to a low, medium and high reduction estimate, and determines the weighted average (e.g.; 10% low, 80% medium, 10% high) to develop the 'annual average reductions' for each sector

8. prepare explanatory notes to describe / substantiate the reduction that is estimated for each sector
 - identify key initiatives in the sector that could reasonably contribute to the estimated reduction

[NB.: work with representatives from each sector to develop these notes]

9. determine possible formulae that can be used to calculate VERs in CEERP
 - this includes various combinations of continuing to accumulate reductions from past action in the future; sunsetting past action at 2000; limiting the accumulation of any previous action (e.g.; to a single year); adjusting the baseline; possible ranges for the improvement coefficient (sufficient to balance VER creation with use, yet reasonable in light of the ability of various industries to continuously improve / reduce emissions); etc.
10. use the data on total emissions at 2000, and estimated annual average reductions, for each sector, and apply the CEERP VER formulae
 - calculate the VERs created and used (as per the improvement coefficient) under each proposed formula
 - assess the impact over various time frames (5, 10, 20, 40 years) of possible formulae (and improvement coefficients), e.g.; how many VERs are created, and when are they used?
11. determine the possible timeframes for creating VERs, and quantity, and level, of VERs that may be generated at points in the timeframe
12. determine the anticipated overall GHG emissions in Canada, based on the projected levels of emissions / reductions for the various sectors that are expected to participate in CEERP

Qualitative Description of the CEERP Impact Analysis

Applying the methodology noted above, and using available data on past and projected emissions from Environment Canada and NRCan, combined with some personal insight from a small group of Collaborative participants, an initial estimate of past action and possible future reductions has been made.

The method was found to be workable, and the existing data sources were reasonably adequate, to develop initial estimates. A number of adjustments to the past and projected data had to be made to ensure reasonable consistency.

It will be important to document clearly and carefully all data sources, assumptions and estimates that are used to develop a more detailed analysis of the impact of CEERP.

The initial estimate for past action, based on full participation by all possible sources, resulted in a quantity of VERs that is consistent with what was found in the CEA Issue Table Study "Quantifying Greenhouse Gas Reductions", PriceWaterhouseCoopers, 25 November 1998.

In developing a formula to use when assessing the performance of CEERP participants each year, a number of adjustments can be used to balance VER creation and use. These include:

- the improvement coefficient;
- the approach taken to recognizing green energy / avoided emissions;
- limits on the periodic budgets established for CEERP;
- sunseting historical action;
- discounting VERs (not crediting at one tonne for one tonne);

Valid estimates of past emissions, anticipated reductions, and future emissions are required for each sector. Ideally these estimates will be developed with participants from the respective sectors, and be realistic and supportable by various stakeholders (governments, industry, NGOs).

Appendix Four. Examples of Handling of Indirect Emissions in Three Specific Scenarios; and, Simplified Examples of Indirect Emissions from Coal Powered Electric Plant and Natural Gas Powered Electric Plant

Three Examples of How Indirect Emissions are Addressed

The accounting procedures for handling improvements must avoid double counting of the changes that occur year over year. Three distinct scenarios may occur:

Example 1

- Producer has stable production and stable performance
Consumer switches to a lower carbon intensive energy source
 - ⇒ Under this scenario the consumer's baseline would be based on the performance of the original supplier. The consumer's adjusted baseline would reflect the current performance level (actual emissions from the previous year) of the original supplier. Actual emissions would be based on the emissions factor attributed to the new supplier.
 - ⇒ The difference between the consumer's adjusted baseline and the new source emissions would result in a VER for the consumer.
 - ⇒ The original supplier would have either surplus energy that is sold to and accounted for by a new consumer (ie treated as adjusted capacity) or would result in less energy being used.

Example 2

- Producer has stable production and stable performance
Consumer reduces energy consumption
 - ⇒ Under this scenario the consumer's baseline would be based on the performance of the original supplier. The adjusted baseline and reduced consumption would reflect the current performance level (actual emissions from the previous year) of the supplier.
 - ⇒ The difference between the consumer's adjusted baseline and actual emissions would result in a VER for the consumer.
 - ⇒ The original supplier would have either surplus energy that is sold to and accounted for by a new consumer (i.e.; treated as adjusted capacity upward for the new consumer) or would result less energy being used (treated as adjusted capacity downward for the supplier).

Example 3

- Producer has improved performance (i.e., more energy for the same GHG emission, same energy for less GHG emission).
Consumer energy consumption is stable
 - ⇒ Under this scenario the producer's adjusted baseline and actual emissions would reflect the current performance level (actual emissions from the previous year) of their supplier.
 - ⇒ The difference between the producer's adjusted baseline and actual emissions would result in a VER for the producer.
 - ⇒ The consumer would use the improved emissions factor to determine their adjusted baseline and actual emissions for the following year.

These accounting procedures will allow both producers and consumers to realize the maximum benefit for their actions without double counting any reductions that occur throughout the energy and electricity supply chain.

Simplified Examples of Indirect Emissions from a Coal Powered Electric Plant and a Natural Gas Powered Electric Plant

NB. These examples are for illustrative purposes only. The numbers used are strictly hypothetical and are not intended to be used for any other purposes. In order to provide clear examples, certain simplifications have been assumed.

Examples of how Indirect Emissions Reductions in the Electricity System would be handled by CEERP

Assume: 100 GWh/yr end-use consumption of electricity from a typical coal plant

Assume the following assignment of emissions

		GWh/yr by Location	Tonnes/GWh by Location	Tonnes by Location	Cumulative Tonnes
Fuel Mining			65	7,222	7,222
Fuel Transport			4	444	7,667
Generation (including station service)		111	1,100	122,222	129,889
Transmission Losses	10%	11		12,222	142,111
Consumer		100		-	142,111

Ownership and Size of Emission Reduction - Case 1: Users improve efficiency by 20% or buy 20% green power

		GWh/yr by Location	Tonnes/GWh by Location	Tonnes by Location	Cumulative Tonnes
Fuel Mining			65	5,778	5,778
Fuel Transport			4	356	6,133
Generation (including station service)		89	1,200	106,667	112,800
Transmission Losses	10%	9		10,667	123,467
Consumer		80		-	123,467
CEERP participant reductions for VER calculation (Consumer)					18,644

Ownership and Size of Emission Reduction - Case 2: Utility replaces plant with IGCC or buys 20% of power from wind developer

		GWh/yr by Location	Tonnes/GWh by Location	Tonnes by Location	Cumulative Tonnes
Fuel Mining			65	7,222	7,222
Fuel Transport			4	444	7,667
Generation (including station service)		111	1,000	111,111	118,778
Transmission Losses	10%	11		11,111	129,889
Consumer		100		-	129,889
CEERP participant reductions for VER calculation (Utility)					11,111

Ownership and Size of Emission Reduction - Case 3: Utility reduces line losses

		GWh/yr by Location	Tonnes/GWh by Location	Tonnes by Location	Cumulative Tonnes
Fuel Mining			65	6,842	6,842
Fuel Transport			4	421	7,263
Generation (including station service)		105	1,200	126,316	133,579
Transmission Losses	5%	5		6,316	139,895
Consumer		100		-	139,895
CEERP participant reductions for VER calculation (Utility)					2,216

Ownership and Size of Emission Reduction - Case 4: Mining Company reduces methane losses

		GWh/yr by Location	Tonnes/GWh by Location	Tonnes by Location	Cumulative Tonnes
Fuel Mining			40	4,444	4,444
Fuel Transport			4	444	4,889
Generation (including station service)		111	1,100	122,222	127,111
Transmission Losses	10%	11		12,222	139,333
Consumer		100		-	139,333
CEERP participant reductions for VER calculation (Mining Company)					2,778

Examples of how Indirect Emissions Reductions in the Natural Gas System would be handled by CEERP

Assumption: 100 million cu. metres/yr end-use consumption of natural gas

Assume the following assignment of emissions

	mil m ³ /yr by Location	Tonnes/mil m ³ by Location	Tonnes by Location	Cumulative Tonnes
Fuel		80	8,000	8,000
Extraction/Processing				
Fuel Transport		8	800	8,800
Consumer	100	1,750	175,000	183,800

Ownership and Size of Emission Reduction - Case 1: Users improve efficiency by 25%

	mil m ³ /yr by Location	Tonnes/mil m ³ by Location	Tonnes by Location	Cumulative Tonnes
Fuel		80	6,000	6,000
Extraction/Processing				
Fuel Transport		8	600	6,600
Consumer	75	1,750	131,250	137,850
CEERP participant reductions for VER calculation (Consumer)				45,950

Ownership and Size of Emission Reduction - Case 2: Utility reduces transport pumping energy

	mil m ³ /yr by Location	Tonnes/mil m ³ by Location	Tonnes by Location	Cumulative Tonnes
Fuel		80	8,000	8,000
Extraction/Processing				
Fuel Transport		6	600	8,600
Consumer	100	1,750	175,000	183,600
CEERP participant reductions for VER calculation (Utility)				200

Ownership and Size of Emission Reduction - Case 3: Utility improves processing efficiency

	mil m ³ /yr by Location	Tonnes/mil m ³ by Location	Tonnes by Location	Cumulative Tonnes
Fuel		50	5,000	5,000
Extraction/Processing				
Fuel Transport		8	800	5,800
Consumer	100	1,750	175,000	180,800
CEERP participant reductions for VER calculation (Utility)				3,000

Appendix Five. Tasks and Functions for the CEERP Institution

Comments submitted through the CEA Table indicate a preference for a system implemented by the government or a private sector third party accredited by a government agency. This institution will have authority to administer rules and enter into contracts with participants in CEERP. The need for specific new legislation to provide the legal authority for the institution will need to be examined. The institution should have the following features:

- a streamlined management infrastructure with national coverage on, minimally, a regional basis (i.e., offices in the West, Ontario, Quebec, and the East),
- a properly functioning and accredited quality management system,
- a balanced governance body with multi-stakeholder input to approve verified emission reductions (i.e., baseline and actual emissions),
- a balanced multi-stakeholder technical advisory body to evaluate and provide recommendations on technical matters, and
- an appeal review process.

The specific mandate and areas of responsibility for the institution include:

(a) Pre-operational phase

- Finalise the mandate and operating framework for the institution – putting in place management structures, procedures and practices, eligibility criteria for entity baseline elements and GHG emission reduction project adoption, guidelines for participant applications and reporting requirements (including emission factors), and verification processes and auditing criteria.
- Establish governance and advisory bodies.
- Receive and evaluate initial participant applications.
- Prepare National Balance sheet reflecting updated input to National GHG Inventory.
- Establish budget proposal for initial budget period.
- Analyse impact of emissions reduction from past actions and determine appropriate improvement coefficients and the need for any additional provisions (e.g., sunset provisions as proposed in the US Chafee Bill).

(b) Operational phase

- Finalise contracts with entities based on approved baselines and improvement coefficient.
- Establish entity account balance including approved verified emission reductions for past action
- Receive, review and approve annual reports from program participants (e.g., baseline adjustment requests, actual emission levels)
- Determine annual debits and credits
- Prepare recommendation to acquire credits through Kyoto Flexibility Mechanisms or VER buyback program
- Update entity account balances and National Account Balance
- Receive applications for next budget period and prepare budget proposal