



TURNING THE CORNER

March 2008

Regulatory Framework *for* Industrial Greenhouse Gas Emissions



Government
of Canada

Gouvernement
du Canada

Canada

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Overview

- The April 2007 *Regulatory Framework for Air Emissions* laid out the broad design of the regulations for industrial emissions of both greenhouse gases and air pollutants.
- This document sets out the final regulatory framework for industrial greenhouse gas emissions. It includes both an elaboration and a strengthening of the April 2007 regulatory framework.
- The federal government still intends to work to reach equivalency agreements with any interested provinces that set enforceable provincial emission standards that are at least as stringent as the federal standards.
- The final regulatory framework will contribute significantly to the commitment in the 2007 Speech from the Throne to implement a national strategy to reduce Canada's total greenhouse gas emissions by 20% below 2006 levels by 2020.

Strengthening of the April 2007 regulatory framework

- **The final regulatory framework strengthens the April 2007 regulatory framework in three key respects**
 - All oil sands upgraders and in-situ plants that come into operation in 2012 or after will be required to meet a stringent target based on the use of carbon capture and storage by 2018.
 - All coal-fired electricity plants that come into operation in 2012 or after will be required to meet a stringent target based on the use of carbon capture and storage by 2018.
 - The federal government will establish a clean electricity task force to work with provinces and industry to meet an additional 25 Mt reduction goal from the electricity sector by 2020.

Elaboration of April 2007 regulatory framework: targets

- All covered industrial sectors will be required to reduce their emissions intensity from 2006 levels by 18% by 2010, with 2% continuous improvement every year after that.
- The target will be applied at the facility, sector, or corporate level, as determined after consultations with each sector.
- Minimum thresholds will be set in five sectors to avoid imposing unreasonable administrative costs on small facilities.
- Fixed process emissions will receive a 0% target. The definition of fixed process emissions will be based on technical feasibility.
- To provide incentives to adopt the best available technologies for new facilities, whose first year of operation is 2004 or later, a target based on a cleaner fuel standard will be applied.

- There will be an incentive until 2018 for facilities to be built carbon-capture ready.
- A special incentive will be provided through the target structure for high-efficiency co-generation.

Elaboration of April 2007 regulatory framework: compliance mechanisms

- *Canada's domestic offset system:*
 - The offset system will issue credits for incremental real, verified domestic reductions or removals of greenhouse gas emissions in activities outside the regulations.
 - Offset credits may be used by regulated firms for compliance with their targets.
 - The offset system will be administered in a cost-effective manner and will promote projects in as many sectors and for as many project types as practical.
- *Clean Development Mechanism:*
 - Firms may use credits from the Kyoto Protocol's Clean Development Mechanism (with the exception of credits for forest sink projects) for up to 10% of their regulatory obligation.
- *Credit for Early Action Program:*
 - Firms that took verified early action to reduce emissions will be eligible for a total one-time allocation of 15 Mt in credits. These credits will be bankable and tradable, and will be allocated based on clear criteria and a simple, transparent process.
- *Technology fund:*
 - Subject to the conditions set out in the April 2007 regulatory framework, firms will be able to make contributions to a technology fund as a means of complying with the regulations.
 - The technology fund will take a portfolio approach to investing in a range of technology deployment and development projects; the technology fund will own the emission reductions resulting from its investment, based on the cost of the project.
 - Subject to equivalent conditions as apply to the technology fund, firms will be able to invest directly in pre-certified investment projects, drawing from a menu of projects established by the federal government.
 - In order to ensure that carbon capture and storage is in widespread use by 2018, firms in sectors that can make use of this technology may be credited for investments in pre-certified carbon-capture-and-storage projects up to 100% of their regulatory obligation through 2017.

Emission reductions

The regulatory framework is expected to achieve approximately 165 Mt in direct and indirect emission reductions from the industrial sector by 2020; that is, about a 37% reduction from projected levels or a 21% reduction below 2006 levels. This does not include the additional 25 Mt in targeted reductions from the electricity sector.

Next steps

- The regulatory framework for industrial greenhouse gas emissions will now be translated into regulatory language. Draft regulations are expected to be published in the *Canada Gazette, Part I* for public comment in fall 2008.
- Final regulations are expected to be approved and published in the *Canada Gazette, Part II* in fall 2009. The greenhouse gas provisions of the regulations are to come into force, as planned, on January 1, 2010.
- Air pollutant elements will be added to the draft regulations once the regulatory framework for air pollutants has been finalized in spring 2008.

1. Introduction

On April 26, 2007, the Government of Canada released *Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution*.¹ This plan set out an ambitious agenda to improve the environment and the health of Canadians through a series of concrete, innovative measures to reduce emissions of greenhouse gases and air pollutants. Rather than relying solely on the voluntary measures used in the past, for the first time, the government is introducing mandatory and enforceable actions across a broad range of sectors.

In addition, the government committed to reducing Canada's total emissions of greenhouse gases, relative to 2006 levels, by 20% by 2020 and by 60% to 70% by 2050.

The *Turning the Corner* action plan has several components, including:

- a regulatory framework for industrial emissions of greenhouse gases and air pollutants;
- the development of a mandatory fuel-efficiency standard for automobiles, beginning with the 2011 model year, as well as action to reduce emissions from the rail, marine, and aviation sectors, and from on-road and off-road vehicles and engines;
- the implementation of new energy performance standards to strengthen existing energy-efficiency standards for a number of products that consume electricity, including light bulbs, in order to reduce emissions from the use of consumer and commercial products; and
- the development of measures to improve indoor air quality.

Since the release of the *Turning the Corner* action plan, the Government of Canada has made significant progress in all of these areas.

The April 2007 regulatory framework, entitled *Regulatory Framework for Air Emissions*, laid out the broad design of the regulations for industrial emissions of both greenhouse gases and air pollutants.² This document provides a detailed description of the final regulatory framework for industrial greenhouse gas emissions. The framework for industrial emissions of air pollutants will be finalized in spring 2008.

Section 2 summarizes the broad regulatory framework for industrial greenhouse gas emissions as set out in April 2007 in the *Regulatory Framework for Air Emissions*. In Section 3, a brief overview of the consultations undertaken is provided. In Sections 4 and 5, the final greenhouse gas regulatory framework is elaborated, first with respect to the application of the target and, secondly, with respect to the design of the compliance mechanisms. Section 6 reiterates the government's intention to move from an emission-intensity based system to a fixed emission cap system in the future. In Section 7, a summary of the estimated economic impacts of the regulations on industrial greenhouse gases is given. Section 8 outlines the steps in finalizing the regulations.

1 The full set of measures in *Turning the Corner* is available at www.ecoaction.gc.ca/turning-virage/index-eng.cfm.

2 The April 2007 regulatory framework for air emissions, including industrial emissions, is available at www.ecoaction.gc.ca/news-nouvelles/20070426-1-eng.cfm

2. The April 2007 Regulatory Framework for Industrial Greenhouse Gas Emissions

The regulatory framework for industrial greenhouse gas emissions proposed that the following sectors would be covered by the regulations:

- electricity generation produced by combustion;
- oil and gas (including oil sands, upstream oil and gas, natural gas pipelines, and petroleum refining);
- pulp and paper;
- iron and steel;
- iron ore pelletizing;
- smelting and refining (including base metals smelting, aluminum and alumina, and ilmenite (titanium) smelting);
- cement;
- lime;
- potash; and
- chemicals and fertilizer.

The targets for greenhouse gas emissions will set reductions in emission intensity from 2006 levels that will come into force in 2010. The government has committed to review the regulations every five years in order to assess progress in reaching the government's medium- and long-term emission reduction objectives. The first such review would take place in 2012 and would entail an assessment of the effectiveness of measures taken to reduce greenhouse gas emissions and of advances in industrial technology in order to determine the potential for further emission reductions.

The framework for industrial greenhouse gas emissions has two key components: (1) stringent, mandatory short-term emission-intensity reduction targets, relative to 2006 emissions and (2) compliance mechanisms that provide firms with flexibility in how they meet their targets. Each of these components will be addressed in turn.

Target	Ways to comply (in addition to in-house reductions)
<p>Existing facilities</p> <ul style="list-style-type: none"> ■ 18% reduction from 2006 emission intensity, starting in 2010 ■ 2% annual improvement thereafter <p>New facilities</p> <ul style="list-style-type: none"> ■ 3-year grace period ■ Clean fuel standard ■ 2% annual improvement 	<p>Climate change technology fund: <i>one fund/two components</i></p> <ul style="list-style-type: none"> ■ Deployment & Infrastructure: access as % of total target over 2010-2017 period – 70%, 65%, 60%, 55%, 50%, 40%, 10%, 10% ■ Research & Development: access over 2010-2017 period – 5 Mt annually ■ Explore credit for certified project investments ■ Contribution rate to funds (\$/tonne over 2010-2017 period) – \$15, \$15, \$15, \$20, \$20 escalating with GDP <p>Trading</p> <ul style="list-style-type: none"> ■ Domestic trading ■ Access to domestic offsets ■ Access to Clean Development Mechanism at 10% of total target ■ Actively explore linkages to a Canada-U.S. -U.S. regional or -state-level greenhouse gas emissions trading system <p>Credit for early action of 15 Mt</p>

2.1 Targets

The April 2007 framework set an initial required reduction of 18% from 2006 emission-intensity levels in 2010 for existing facilities. Every year thereafter, a 2% continuous improvement in emission intensity would be required. By 2015, therefore, an emission-intensity reduction of 26% from 2006 levels would be required, with a further reduction to 33% by 2020. The emission-intensity approach ties the emission reduction targets to production. This allows emission reductions to be achieved while accommodating economic growth.

New facilities, which are those whose first year of operation is 2004 or later, would be granted a three-year commissioning period before they would face an emission-intensity reduction target. After the third year, new facilities would be required to improve their emission intensity each year by 2%. A cleaner fuel standard would be applied, thereby setting the target as if they were using the designated fuel. A flexible approach would be taken in special cases where the equipment or technology used in a new plant facilitates carbon capture and storage or otherwise offers a significant and imminent potential for emission reductions.

The purpose of this policy is to provide an incentive for new facilities to choose cleaner fuels or to invest in the technology needed for carbon capture and storage or in other less emission-intensive technologies.

For both existing and new facilities, fixed process emissions, which are emissions tied to production and for which there is no alternative reduction technology, would receive a 0% target in the regulations. In other words, for these types of emissions, there is no way, with current technology, for them to be reduced except by shutting down production.

2.2 Compliance mechanisms

In order to provide flexibility and to minimize the economic impact of the regulations, firms could comply with the regulations either by reducing their own emissions through abatement actions or by making use of one of the framework's compliance mechanisms, detailed below.

Technology fund: Firms could obtain credits for compliance purposes by contributing to a technology fund. The fund would be a means to promote the development, deployment, and diffusion of technologies that reduce emissions of greenhouse gases across industry. A third-party entity, at arm's-length from government, would be created to administer the fund. A key principle is that there would be no inter-regional transfer of wealth.

Contributions to the deployment-and-infrastructure component of the fund, aimed at investments with a high likelihood of yielding greenhouse gas emission reductions in the near term, would be limited to 70% of the target in 2010, falling to 65% in 2011, 60% in 2012, 55% in 2013, 50% in 2014, 40% in 2015, 10% in 2016, and 10% in 2017. No further contributions would be accepted after 2017. The research and development component, which would focus on projects aimed at supporting the creation of transformative technologies, would be limited to 5 Mt each year, also ending after 2017.

From 2010 to 2012, the contribution rate for the fund would be \$15 per tonne of carbon dioxide equivalent. In 2013, the contribution rate would be \$20 per tonne. Thereafter, the rate would escalate yearly at the rate of growth of nominal GDP to 2017.

Inter-firm trading: Firms whose actual emission intensity in a given year is below their target would receive tradable credits equal to the difference between their target and their actual emission intensity,

multiplied by their production in that year. These credits could be banked for future use or sold to other parties, including other regulated firms.

Offset System: Offsets are projects that result in incremental real, verified domestic reductions or removals of greenhouse gas emissions in activities that are not covered by the federal greenhouse gas regulations. These projects would generate credits that firms could use for compliance purposes.

Clean Development Mechanism: Firms could use certain credits from the Kyoto Protocol's Clean Development Mechanism. Access to these credits for compliance purposes would be limited to 10% of each firm's total target.

One-time credit for early action: Firms that took verified action between 1992 and 2006 to reduce their greenhouse gas emissions would be eligible to apply for a share of a one-time credit for early action. A maximum of 15 Mt worth of credits would be allocated, with no more than 5 Mt to be used in any one year. Firms would be required to submit evidence of changes in processes or facility improvements they had undertaken that resulted in verifiable, incremental greenhouse gas emission reductions. The maximum allocation for emission reductions would be one credit for each tonne of carbon dioxide equivalent reduction. If the total tonnage of emission reductions applied for were to exceed 15 Mt, the credits would be distributed to individual firms in proportion to their contribution to the total emission reduction achieved.

2.3 Estimated impact of the April 2007 Regulatory Framework for Air Emissions

Application of the industrial regulatory framework is expected to result in significant absolute reductions in greenhouse gas emissions from 2006 levels. This would put Canada on the path to meeting its national emission reduction target of 20% below 2006 levels by 2020.

Under the April 2007 analysis, the economic costs of regulating industrial emissions of both greenhouse gases and air pollutants were estimated not to exceed 0.5% of GDP in any given year up to 2020. At the same time, the environmental and health benefits were estimated to exceed \$6 billion per year in 2015.

3. Consultations

Following the release of the framework in April, 2007, the government consulted extensively with provinces and territories, as well as with non-governmental organizations, Aboriginal peoples, industry, and other stakeholders, on key policy and regulatory development issues in the framework that remained to be elaborated.

The federal, provincial, and territorial governments have initiated a cooperative process to work through the regulatory issues, through the Environmental Protection and Planning Committee of the Canadian Council of Ministers of the Environment. Some provinces have indicated an interest in negotiating equivalency agreements with the federal government.

The consultations focused on the following issues.

Coverage

- Whether small facilities should be excluded from the regulations in order to minimize administrative burden, and, if so, on what basis?

Targets

- How the greenhouse gas target should be applied in different sectors?
- Whether certain sectors face special circumstances that would require a different application of the framework?
- Finalization of the definition of fixed process emissions in each sector.
- How to treat major expansions and transformations?
- How to incorporate a cleaner fuel standard in the target for new facilities in each sector?
- How the regulations could provide an appropriate incentive for co-generation?

Technology Fund

- Structure of the fund.
- Eligibility of pre-certified investments in specific projects.
- Emission reductions resulting from fund investments.
- Ownership of emission reductions that result from fund investments.

Offset System

- Program start date.
- Criteria for project assessment.
- Types of eligible emission reduction projects.

Clean Development Mechanism

- Types of Clean Development Mechanism credits that would be eligible for compliance with the domestic regulations.

One-time credit for early action

- Process and criteria for allocating the 15 Mt credit for early action.
- Method for implementing the 5 Mt yearly limit.
- Choice of governance structure.

The government has received extensive feedback on the April 2007 regulatory framework.

Provinces and territories have raised concerns about possible duplication with provincial or territorial regulatory regimes and about equity among sectors and regions.

Overall, industry has indicated it will have difficulty in meeting the targets through in-house reductions alone. Some sectors have argued that the targets are too stringent and that the continuous improvement requirement is onerous. Other sectors feel the targets are manageable if there is adequate access to the various compliance mechanisms.

4. Final Industrial Greenhouse Gas Framework: Targets

The April 2007 regulatory framework set out a series of policy decisions regarding the design of the framework. The final regulatory framework for industrial greenhouse gas emissions, as described in this section, reflects the results of the extensive consultations with provinces and territories, environmental groups, and industry, detailed in Annex 1, as well as additional in-depth analysis.

In developing the final regulatory framework for industrial greenhouse gas emissions, the government has been guided by principles of environmental protection, economic development, and regulatory efficiency. In assessing policy choices for the framework, the government balanced the impact that various options would have on the emission reductions to be achieved; the competitiveness of Canadian industries and the overall economic cost of the regulations; and the government's ability to design effective and enforceable regulations. Where appropriate, the unique circumstances of some sectors have been taken into account, within the guiding criteria of the framework. This final framework contributes significantly to the commitment in the 2007 Speech from the Throne to a national strategy to reduce Canada's total greenhouse gas emissions by 20% from 2006 levels by 2020 and by 60% to 70% by 2050.

The federal government still intends to work to reach equivalency agreements with any interested provinces that set enforceable provincial emission standards that are at least as stringent as the federal standards.

4.1 Target application

In all sectors, the required reduction from 2006 emission intensity will be 18% by the beginning of 2010, with 2% continuous improvement every year after that, as laid out in the April 2007 framework. There are three approaches that can be used to apply the target: facility-specific; sector-wide; and corporate.

Facility-specific: Each facility within a sector receives an individual target of an 18% reduction from its own 2006 emission intensity.

This approach is applied in sectors where factors beyond the control of a facility operator affect emissions. For example, terrain characteristics, elevation, configuration, and diameter of pipe all have an impact on emissions from natural gas pipeline facilities, yet these are features that cannot be altered by existing pipeline facilities. Facility-specific targets are also used in sectors with complex and diverse facility structures.

Facility-specific targets will be applied in the following sectors: iron ore pelletizing, potash, base metal smelting, chemicals, fertilizers, iron and steel, ilmenite (titanium), oil sands, petroleum refining, natural gas pipelines, and upstream oil and gas.

Sector-wide: All facilities within a sector face the same target, which is an 18% reduction from the sector's average 2006 emission intensity.

This approach is used in sectors where facility structures are more homogeneous in structure across the whole sector and less complex. It will be applied in the lime, pulp and paper, aluminum and alumina, and cement sectors.

Corporate-specific: Each company within a sector receives a target of an 18% reduction from the average 2006 emission intensity of its entire fleet of facilities.

This approach will be used in the electricity sector, as it provides a strong incentive for investment in new non- and low-emitting power generation since the entire fleet of facilities will include all types of electricity generation. With this approach, electricity companies can reduce their emission intensity by replacing high-emission intensity facilities (for example, coal and other fossil fuels) with non-emitting or lower-emission intensity facilities (for example, wind and other renewable energy, hydro, nuclear).

4.2 Minimum thresholds

Some sectors have a large number of facilities, often including many small facilities that contribute little to the sector's overall emissions. Other sectors have only a few, but large, facilities. It may make sense to exclude very small facilities from coverage by the regulations. The approach taken balances threshold levels to ensure: (1) that the loss in emission reductions will be minimized; (2) that the regulatory burden on both industry and government will be minimized; (3) that similar facilities within a sector will face similar regulatory treatment; and (4) that facilities with similar levels of emissions in different sectors will face similar regulatory treatment. Minimum thresholds will be established for facilities in the chemical, nitrogen-based fertilizer, natural gas pipeline, upstream oil and gas, and electricity sectors.

The thresholds shown in Table 1 will apply in the regulations.

Table 1. Minimum thresholds

SECTOR	THRESHOLD
Chemicals	50 kt CO ₂ e
Fertilizers (nitrogen-based)	50 kt CO ₂ e
Natural gas pipelines	50 kt CO ₂ e
Upstream oil and gas	3 kt/facility and 10,000 barrels of oil equivalent/day/company
Electricity	10 MW

The upstream oil and gas sector comprises a very large number of facilities with a wide variety in size. The proposed threshold is much more stringent than what is currently used by the Government of Alberta in its July 2007 regulations³ for emissions from this sector. The government is committed to achieving a common threshold and common reporting regime in Alberta. It will continue discussion with the Government of Alberta on these issues, seeking a common practical approach to emissions coverage,

³ Specified Gas Emitters Regulation, Alberta Regulation 139/2007, available at http://www.qp.gov.ab.ca/documents/Regs/2007_139.cfm?frm_isbn=9780779728619

including the phasing of thresholds and the identification of additional measures that could be implemented to address emissions in the rest of the sector. The federal government will also engage in discussions with the Governments of Saskatchewan and British Columbia. These discussions will be informed by the additional information to be provided to the government in response to its December 8, 2007, Section 71 Notice.⁴

In all other sectors, all facilities will be covered by the regulations.

4.3 Fixed process emissions

The April 2007 framework stated that fixed process emissions would receive a 0% target in the regulations, and included a general definition of fixed process emissions. After sectoral analysis and consultation with industry, the definition of fixed process emissions has been made more precise. Fixed process emissions are those emissions that are:

[1]

from chemical processes that produce carbon dioxide emissions and are fixed to production; and

[2]

created in a process where:

- a) carbon that is chemically bound in the raw materials is removed from these materials to produce a carbon-free product (that is, less than 1% carbon by mass); or
- b) carbon is used to remove an undesired component from the raw material and where the raw material is not substitutable; or
- c) unintentional oxidation of hydrocarbon feedstocks results from the catalytic conversion of these feedstocks into products; or
- d) carbon dioxide entrained in ethane gas feedstock is removed and released to the atmosphere in order to process the feedstock.

Fixed process emissions do not include the result of:

- combustion, where combustion is the exothermic reaction of a fuel with gaseous oxygen; or
- a process that is for the purpose of reducing emissions of air pollutants from the facility; or
- the release of formation carbon dioxide from the processing of crude oil or natural gas.

4.4 Definition of "new facility"

In the April 2007 framework, new facilities were defined as those whose first year of operation was 2004 or later, but the framework did not specify how major expansions or transformations of existing plants would be treated.

New facilities will include facilities that came into operation in 2004 or later and include greenfield facilities, major expansions and major transformations.

- Greenfield facilities are those built where no facility existed before.
- Major expansions are defined as a 25% increase in the physical capacity of an existing facility⁵.
- Major transformations are those in which there have been significant changes to process.

4 Canada Gazette, Part I, Supplement, Vol. 141, no. 49, December 8, 2007, available at canadagazette.gc.ca/partI/2007/20071208/pdf/g1-14149.pdf.

5 Other jurisdictions tend to use either a physical capacity or value of investment relative to the value of existing capital stock as a measure.

Only the expanded or transformed portion of the facility would be treated as new, unless the integrated nature of the facility requires that the entire facility be treated as new. Re-opened facilities would be treated as existing facilities, unless they met one or more of the above conditions.

4.5 Application of a cleaner fuel standard

A sector-specific approach will be used to specify a cleaner fuel standard for the determination of targets for new facilities. In sectors where fuel choice is an important factor in a facility's emission intensity, an explicit cleaner fuel standard is needed to ensure that the emission intensity of the sector continues to decrease over time.

This approach will apply to the potash, natural gas pipeline, upstream oil and gas, oil sands, and electricity sectors. A fuel-specific cleaner fuel standard will apply to the electricity sector which will be equivalent to the emission-intensity performance of: "supercritical" technology for coal-fired generation; "natural gas combined cycle" technology for gas-fired generation; and "oil-fired gas turbine" technology for oil-fired generation.

In the other sectors, the cleaner fuel standard will be based on natural gas. In the case of oil sands, the cleaner fuel standard will be process-specific, with a specific natural gas-based cleaner fuel standard for each of mining, in situ, and upgrading.

In those sectors in which carbon capture and storage is a viable option for reducing emissions, for new facilities that do not meet the cleaner fuel standard but that are built capture-ready, the standard would not apply until 2018. This would mean that the 2% annual continuous improvement target would apply to the facility's actual emission intensity. This incentive for carbon capture and storage will apply to the oil sands, electricity, petroleum refining, chemical, and fertilizer sectors.

In other sectors, fuel choice is a less important driver of emission intensity, and the target approach for existing facilities provides an adequate incentive for new facilities to choose cleaner fuels. There is, therefore, no need for an explicit cleaner fuel standard.

For the iron ore pelletizing, lime, iron and steel, titanium, pulp and paper, aluminum and alumina, and cement sectors, a sector-average approach will be taken. For these sectors, a new facility's target in its fourth year of operation would be calculated as the target for that year for existing facilities; that is, an 18% reduction from the sector's average emission intensity in 2006, multiplied by the relevant continuous improvement factors. For the base metal smelting sector, a facility-specific approach will be taken, such that a new base metal smelter's target in its fourth year of operation would be calculated as a 2% reduction from the facility's third year emission intensity.

In all cases, a three-year commissioning period applies, during which the new facility will not face an emission reduction target but will have to report its emissions. This is done in order to allow a new facility time to reach normal operating conditions, so that its target is not based on an artificial baseline (which could have meant that it had fewer reductions to undertake).

4.6 Carbon capture and storage

Carbon capture and storage is a process where carbon dioxide is separated from a facility's process or exhaust gas emissions before they are emitted, transferred from the facility to a suitable storage location, and injected into underground geological formations and monitored to ensure they do not escape into the atmosphere. The stream of carbon dioxide is also sometimes injected into older oil wells to help extract further reserves of oil.

Carbon capture and storage has the potential to store significant amounts of carbon dioxide in Canada. The recently-released report by the ecoENERGY Carbon Capture and Storage Task Force estimates that the Canada-wide potential "could be as high as one-third to one-half" of Canada's projected greenhouse gas emissions in 2050.⁶ Estimates by Environment Canada and work undertaken for the Government of Alberta suggest there is a potential to capture and store 50 to 55 Mt of carbon dioxide annually by 2020.

It is a technology that is most cost-effective when it involves large volumes of carbon dioxide, such as those produced at oil sands and electricity generation facilities, and when it is built into new facilities, although it can also be applied to existing facilities. The government therefore intends to develop targets based on carbon capture and storage for upgrader and in-situ facilities in the oil sands sector, and for new coal-fired electricity-generating facilities, that begin operation in 2012 or later. The targets will apply in 2018. The exact specification of these targets will be determined during the development of the proposed regulations. Emissions of a regulated facility that are captured and stored will be considered as emission reductions. Application of these targets is expected to generate an additional 30 Mt in reductions in 2020 beyond those expected from the basic regulatory framework.

Table 2. Target structure by sector and type of facility

	TOUGH	TOUGHER	TOUGHEST
Sector	Existing facilities 18%/ 2% from 2010	New facilities On stream 2004 or later 3-year commissioning period 2% continuous improvement	Additional requirements for new facilities On stream 2012 or later
Oil sands	As above	Process- specific cleaner fuel standards for mining, in-situ, and upgrading <ul style="list-style-type: none"> • based on natural gas • incentive for carbon capture and storage until 2018 	Target based on carbon capture and storage for in-situ and upgrading <ul style="list-style-type: none"> • effective 2018
Electricity	As above	Fuel-specific cleaner fuel standards for <ul style="list-style-type: none"> • coal, gas, and oil • incentive for carbon capture and storage until 2018 	Target based on carbon capture and storage for coal <ul style="list-style-type: none"> • effective 2018
Petroleum refining, chemicals and fertilizers	As above	Process-specific cleaner fuel standards <ul style="list-style-type: none"> • based on natural gas • incentive for carbon capture and storage until 2018 	
Upstream oil and gas, Natural gas pipelines, Potash	As above	Process-specific cleaner fuel standards <ul style="list-style-type: none"> • based on natural gas 	
Iron ore pelletizing, Lime, Iron and steel, Titanium, Pulp and paper, Aluminum and alumina, Cement, Base metal smelters	As above	Process-specific technology	

6 *Canada's Fossil Energy Future: The Way Forward on Carbon Capture and Storage*, January 9, 2008, p.2 available at <http://www.nrcan-rncan.gc.ca/com/resoress/publications/fosfos/fosfos-eng.php>

4.7 Clean electricity

Electricity is the largest contributor to industrial greenhouse gas emissions and will continue to be so, even after the regulations come into force. The federal government will establish a clean electricity task force to work with provinces and industry to meet an additional 25 Mt reduction goal from the electricity sector by 2020.

Specific measures could include:

- development of an East-West transmission grid and sub-sea cable on the Atlantic coast;
- development of further major hydroelectric projects, such as Peace River C and Lower Churchill;
- introduction of new nuclear reactors; and
- retirement of fossil-fuel electricity generation facilities at the end of their expected life.

Should it not be possible to move ahead on this in cooperation with the provincial governments and electricity utilities, the federal government will consider other options, including regulations if necessary, to meet this goal.

4.8 Co-generation

The April 2007 framework was silent on the treatment of co-generation. Co-generation is the simultaneous generation of heat (or steam) and electricity from the same fuel source. It can result in reduced overall emissions relative to producing heat and electricity separately. The target approach is designed to provide an incentive for facilities to use high-efficiency co-generation.

To reflect the efficiency gains inherent in co-generation, emission targets for facilities that use co-generation would be based on an adjusted baseline that would equal the emission levels if the electricity and heat were produced separately. The emissions that would be deemed to come from the production of heat would be based on those of a stand-alone conventional boiler operating at 80% efficiency. On the basis of these deemed emissions, existing facilities would face an emission-intensity reduction target of 18% in 2010 on the intensity corresponding to heat production and a 2% annual continual improvement requirement thereafter.

The emissions deemed to be due to the production of electricity would be based on the emission intensity rate of stand-alone natural gas combined cycle electricity generation, or 0.418 t/MWh. There would be no reduction target on intensity corresponding to the production of electricity.

This target structure recognizes efficiency gains from using co-generation and provides a strong incentive for facilities to invest in co-generation by reducing the reductions required from a co-generation facility.

4.9 Further target elaboration

The final target approach for industrial greenhouse gas emissions also reflects the unique circumstances of several sectors, within the overall parameters of the framework.

For the cement sector, an expanded definition of production will be applied in order to provide an incentive for this sector to use waste material from other industries in place of emission-intensive clinker.

In the petroleum refining sector, defining production is a challenge since refineries produce many different types of products. The possibility of using the third-party proprietary Solomon Refinery Activity Index to

calculate a facility's greenhouse gas emission intensity will be further explored, with a view to using it, should it be feasible and practical so to do.

An emission intensity target will be set for nitrous oxide emissions from adipic acid production that recognizes the voluntary early action taken by industry before any regulations required it.

Unintentional fugitive methane emissions from sources such as equipment leaks and storage from the upstream oil and gas and oil sands sectors and natural gas transmission, distribution, and storage facilities were not identified as covered sources in the April 2007 framework. Reduction requirements for these sources will be implemented through regulated codes of practices; that is, there will be provisions in the regulations that set out best operating practices and technologies. These reductions would be accounted for outside of the regulated activities. This approach is consistent with proposed requirements covering air pollutant emissions from the same sources at these facilities.

The fertilizer sector faces particular challenges related to dependence on natural gas feedstocks, considerable international trade competition, limited ability to pass on costs, and high potential for relocation outside of Canada. To address these challenges, a two-person task force, consisting of a Member of Parliament and an industry representative, will be set up and mandated to return with options for a target approach for the sector that is consistent with the overall framework.

5. Final Industrial Greenhouse Gas Framework: Compliance Mechanisms

The compliance mechanisms are designed to ensure the environmental integrity of the regulatory system, while providing compliance flexibility for industry, so as to reduce the cost of compliance and minimize the administrative burden.

In addition, the need for sufficient liquidity in the emission trading market was considered in the design of the compliance mechanisms. A flourishing emission trading system will help to keep the overall economic cost of emission reductions down, both for industry and for the economy as a whole.

5.1 Technology fund

The technology fund is a key compliance mechanism. In the initial years of the framework, industry will be able to meet a significant part of its regulatory obligations by contributing to this fund. Firms will be able to obtain credits that can be used towards compliance with their regulatory obligations by contributing to the fund, at the established rate and up to the established limit.

Monies received from contributing firms will then be invested by the fund in qualifying greenhouse gas emission reduction technology projects. The fund is designed to act as an incentive to support the development and deployment of technologies to reduce emissions, both in the near term and in the future.

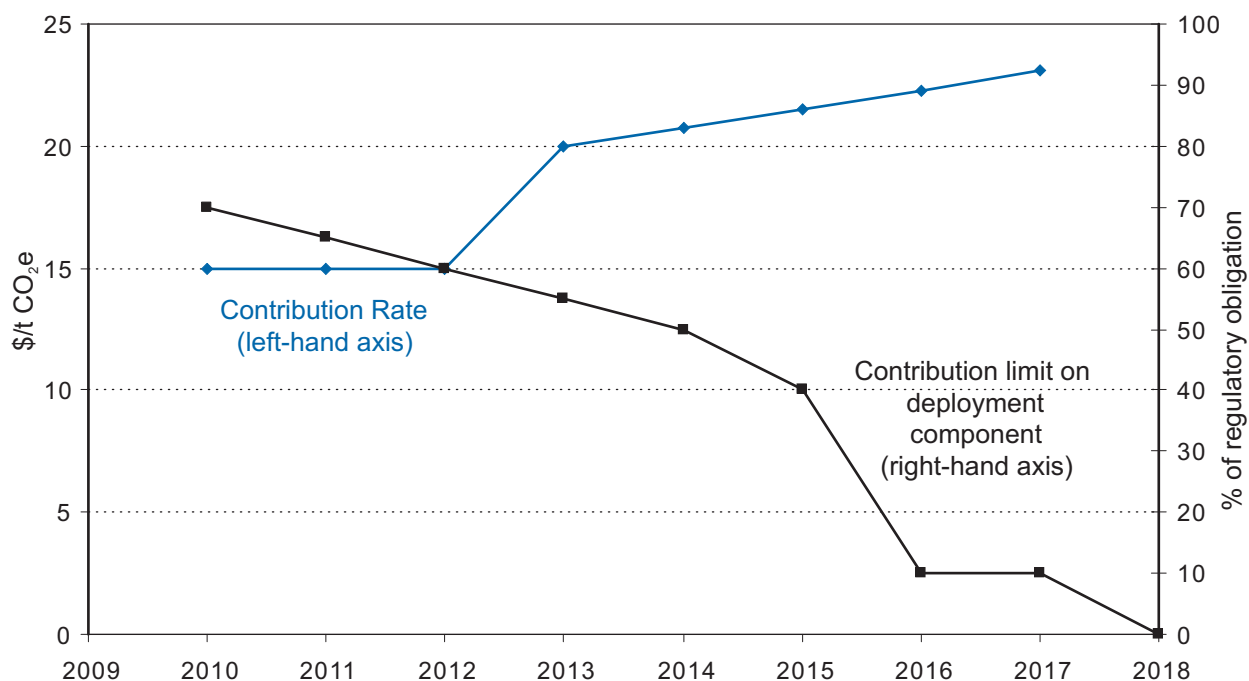
Technological advancement and innovation are critical to achieving significant, long-term reductions in greenhouse gas emissions. New technologies, both under development and ready for deployment, provide a means to transform Canada's industrial production and thereby significantly reduce emissions. Many of these promising technologies face technical, fiscal, or operational barriers to development and deployment, however. The fund would act as an important means of overcoming such barriers and facilitating the diffusion of technologies that reduce emissions of greenhouse gases across industry.

The dual role of the technology fund, as a compliance mechanism and as a technology incentive, informs its design. Moreover, the design of the fund will respect the principle that there be no inter-regional transfer of wealth.

5.1.1 Fund credits: contribution rate, contribution limit, and use

The contribution rate rises over time, while the limit on contributions falls, as detailed in Section 2.1 and Figure 1. This is intended to provide firms with a level of cost certainty in the early years of the regime. As the system matures, this mechanism will gradually be replaced by other emission reduction options, such as internal abatement actions and, importantly, emissions trading in a carbon market.

Figure 1. Technology fund contribution rate in dollars per tonne of carbon dioxide equivalent (CO₂e) and contribution limit on deployment component, 2010-2018.



The contribution limit is the maximum number of credits a firm is eligible to receive for its contributions to the fund in a given year. It is determined as a percentage of each firm's total regulatory obligation (that is, its emission reduction obligation) for all of its facilities in that year, expressed in tonnes of carbon dioxide equivalent; for example, 70% in 2010.

Access to the additional 5 Mt of credits available annually through the research and development component of the fund will be pro rated based on a firm's share of the total regulatory obligation of the regulated industrial sectors. For example, a firm whose regulatory obligation represented 0.1% of the total industrial obligation could contribute to receive up to 5000 tonnes of credits. These credits would be in addition to those available through the fund's deployment and infrastructure component.

5.1.2 Fund design: contributions to and investment by the fund

Firms will be able to contribute to the technology fund and receive credits at the given contribution rate and up to the contribution limit for that year.

The fund will be designed as a portfolio investment fund. That is, in making its investment decisions, the fund will have a mandate to maximize the return on its investment, defined in terms of emission reductions. The portfolio as a whole will be required to demonstrate emission reductions within 10 years. This approach allows a balance between projects with fairly certain, but modest, emission reductions and projects with higher uncertainty.

The majority of investments will be directed towards projects with a high likelihood of yielding greenhouse gas emission reductions in the near term, reflecting contributions to the deployment and infrastructure

component of the fund. This component of the technology fund could also help finance projects that would allow technologies that are close to deployment to deliver their full emissions reduction potential.

Projects will cover a broad range of technologies. A portion of investments, particularly from the research and development component of the fund, will be focused on supporting the creation of transformative technologies expected to achieve emission reductions in the medium and longer term.

The portfolio as a whole will be built to reflect these broad considerations. In turn, project selection will be based on a fair and transparent process. For instance, the fund could issue Requests for Proposals specifying criteria on which project proponents could compete.

For projects close to the deployment end of the technology spectrum, the technology fund may claim ownership of the emission reductions from a project until its investment has been recovered, with the number of tonnes required based on the cost of the project.

Rigorous monitoring, verification and reporting requirements will be applied to ensure accountability in the performance of both projects and the fund as a whole.

5.1.3 Pre-certified investments

As an alternative to contributing directly to the technology fund, under the pre-certified investment option, a firm will be eligible to receive credits for investing directly in large-scale and transformative projects, either its own or joint-venture projects, selected by the firm from a menu set out by the federal government.

Pre-certified investments will have the same contribution rate as the technology fund and will be subject to equivalent criteria and requirements, including ownership provisions.

To facilitate the implementation of carbon capture and storage in new facilities in the oil sands and coal-fired electricity sectors, as well as in other sectors that have the potential to make use of such carbon capture and storage projects, the government will start discussions with industry, as well as the Governments of Alberta and Saskatchewan, to pre-certify carbon capture and storage projects. The use of such pre-certified investments will ensure that funds from such sectors as oil and gas will be dedicated to emission reductions from those sectors.

In addition, because of the significant potential for carbon capture and storage to reduce emissions and in order to encourage investment in such projects, contributions of up to 100% of a firm's regulatory obligation in these pre-certified projects will qualify for credits up to 2018. This provision will be limited to firms that can make direct use of carbon-capture-and-storage technology in the following sectors: oil sands, electricity, chemicals, fertilizers, and petroleum refining.

5.1.4 Recognizing other funds

Contributions to other funds that meet all the necessary requirements could potentially be recognized; in particular, contributions to provincial funds. As with the federal fund, a firm contributing to such a fund would be eligible to receive credits, at the contribution rate and up to the contribution limit.

The decision to recognize another fund will be the responsibility of the federal government. To ensure a nationally consistent approach, other funds would be required to fulfill equivalent mandate and criteria as those governing the technology fund.

5.2 Offset System

In addition to providing compliance flexibility for regulated sectors, Canada's domestic offset system is designed to encourage incremental real, verified domestic reductions or removals of greenhouse gas emissions in activities that are not covered by the federal greenhouse gas regulations. In this way, non-regulated sectors can contribute to Canada's national goal of a 20% reduction in greenhouse gas emissions from 2006 levels by 2020.

The offset system will therefore encourage all sectors of the economy to reduce emissions.

More details on the design of the offset system are found in the companion document, *Turning the Corner: Canada's Offset System for Greenhouse Gases*.⁷ A general overview of the system is provided below.

The following principles will guide the design of the offset system.

- Offset projects must achieve emission reductions or removals and should provide a net environmental benefit.
- Reductions or removals must occur in Canada.
- The system will promote projects in as many sectors and for as many project types as practical.
- The system must be as simple and cost-effective to administer as possible, and the administrative burden for participants should be minimized.
- The system will build on the experience of Canadian pilot projects and the work of other jurisdictions.

Consideration will be given to recognizing reductions originating in the United States, once the United States has a regulatory system in place and cross-border emissions trading is feasible. A good example of emissions that could be covered by such arrangements would be those stored by the Weyburn-Midale CO₂ Project.

To ensure the environmental integrity of the system, it is essential that the reductions or removals from offset projects are real, incremental, verifiable, and unique.

There are several elements to the incremental criterion:

- reductions or removals must be beyond a baseline;
- reductions or removals must be surplus to all legal requirements, including the regulations under this framework, whether federal, provincial, territorial, or regional;
- reductions or removals must be beyond what is expected from receipt of other climate change incentives from a provincial or territorial government, or the federal government;
- only projects that began to achieve their emission reductions or removals after January 1, 2000, will be eligible; and
- only those emission reductions or removals that take place after January 1, 2008, may generate credits.

Because some types of greenhouse gas reduction or removal projects increase emissions of air pollutants, project proponents may be required to identify and address these negative impacts. The Government of Canada is committed to reducing emissions of both greenhouse gases and air pollutants, and such measures will ensure that all air emissions are reduced.

⁷ Available at www.ec.gc.ca/default.asp?lang=En&n=75038EBC-1.

Initial design and implementation of the offset system will be undertaken by Environment Canada. This will allow rapid implementation of the program, as well as accountability for results, through direct government oversight. During the first 18 months to two years of operation, the government will bear all initial delivery costs and no initial user fees will be collected.

The private sector will play a substantial role, including developing quantification approaches for project types for approval by the government, implementing projects, verifying real emission reductions or removals under federal oversight, and providing infrastructure and services for the trading of credits.

5.3 Clean Development Mechanism

The April 2007 framework stated that certain credits from the Kyoto Protocol's Clean Development Mechanism could be used for compliance with the domestic regulations, limited to 10% of each firm's regulatory obligation. Strict rules have been established to recognize emission reductions from certain types of projects. All projects are subject to a rigorous verification process by recognized third parties and are reviewed by the Clean Development Mechanism Executive Board to ensure system integrity.

Allowing Clean Development Mechanism credits to be used for compliance will provide additional flexibility in how firms can comply with the regulations and will enhance market liquidity, reducing compliance costs. The limit on the use of these credits for compliance purposes will, however, ensure that the vast majority of emission reductions actually take place in Canada.

There had been some concern that allowing HFC-23 reduction projects to qualify for Clean Development Mechanism credits would create a perverse incentive to increase the production of HCFC-22, an ozone-depleting substance. This issue has largely been addressed by the decision reached under the Montreal Protocol in September 2007 to initiate an accelerated phase-out of HCFCs in developing countries by 2015. In addition, at the December 2007 United Nations Framework Convention on Climate Change meeting in Bali, it was agreed that the Clean Development Mechanism should not lead to increases in HCFC-22 production.

All Clean Development Mechanism project credits will be accepted for compliance with the regulations, with the exception of credits for forest sink projects. Credits from forest sink projects are temporary under Kyoto Protocol rules. This means that they must be replaced periodically. Including credits from forestry projects would have added complexity to the domestic system without significantly reducing compliance costs for regulated industry.

5.4 Credit for early action

Firms in a number of sectors have made efforts over the last decade to reduce emissions. The objective of the credit for early action is to address the possible disadvantage that a regulated facility could face as a result of having undertaken actions to reduce its greenhouse gas emissions before the regulatory regime was established.

The credit for early action will consist of a one-time 15 Mt allocation of bankable, tradable credits in recognition of such reductions achieved by firms that will be subject to the proposed regulations in 2010. These reductions must have been achieved between 1992 and 2006 and be the result of an incremental process change or facility improvement.

More details on the eligibility and program requirements for the credit for early action program are found in the companion document, *Turning the Corner: Canada's Credit for Early Action Program*⁸. A general overview of the program is provided below.

The credit for early action program has been designed using the following principles.

- **Simplicity and cost-effectiveness:** The program will impose the lowest cost possible on government and industry that is consistent with the level of rigour needed.
- **Fairness:** Facilities that wish to have actions considered for recognition will have an equal opportunity and all applications will undergo the same evaluation process.
- **Transparent:** The program rules, technical guidance, and approach to making allocation decisions will be clearly expressed and publicly available to all interested parties.
- **Consistency:** Decisions on issues such as technical guidance and evaluation of submissions will be as consistent as possible across sectors.

5.4.1 Eligibility

An action to reduce greenhouse gas emissions is eligible for early action recognition if it:

- reduced emissions of one or more of the following six greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, or sulphur hexafluoride;
- occurred in a facility that meets one of the facility definitions outlined in Schedules 5 to 14 and 16 to 19 of the December 8, 2007 *Notice with respect to reporting information on air pollutants, greenhouse gases and other substances for the 2006 calendar year* and emissions from or the capacity of the facility exceed the minimum threshold specified in Section 4.2 above;⁹
- led to initial reductions in 1992 or later and the reductions continued until at least December 31, 2006; and
- was an "incremental reduction," in the sense of being an emissions reduction resulting from an action beyond the normal business conditions in place at the time the action was taken.

An action to reduce greenhouse gas emissions is not eligible for early action recognition if it was:

- undertaken to meet a legal requirement with a defined date and target;
- the result of a direct federal, provincial or territorial climate change incentive other than an Accelerated Capital Cost Allowance;
- part of a standard improvement in line with changes generally occurring in the industry;
- a result of reductions in production activity or shut-downs; or
- implemented outside the facility's boundary.

⁸ Available at www.ec.gc.ca/default.asp?lang=En&n=75038EBC-1.

⁹ Canada Gazette, Part I, Supplement, Vol. 141, no. 49, December 8, 2007, available at canadagazette.gc.ca/partI/2007/20071208/pdf/g1-14149.pdf

5.4.2 Allocation and issuance of early action credits

Clear eligibility criteria for these credits will be established and communicated to all stakeholders prior to the allocation of the credits. Evidence that eligibility requirements are met must be provided and available for verification and audit.

As stated in the April 2007 framework, if the reductions that meet the eligibility criteria exceed 15 Mt, credits will be allocated on a *pro rata* basis. If the reductions that meet the eligibility criteria are fewer than 15 Mt, a maximum of one credit per tonne of reductions will be allocated. There will be no pre-allocation of credits to any particular sector or region. The 5 Mt limit on credits to be used in any given year will be addressed by issuing 5 Mt of credits in each of the years 2010, 2011, and 2012. Each allocation of credits to any successful applicant will be divided equally over the three years.

Individual firms that took the early action are responsible for preparing their submissions. In order to complete a submission, applicants need to establish their baseline, quantify eligible reductions, and provide evidence to support their claim. Third-party verification of reduction claims will be required. In order to receive their credits, applicants successful in their claim will be required to establish an account in the system that will be used to track the ownership of the various units that may be used for compliance. The intention is to start the application process in spring 2008, with the decision on credit entitlements being made in summer 2009.

6. Transition to Fixed Emission Caps

In the October 2006 *Notice of intent to develop and implement regulations and other measures to reduce air emissions*¹⁰, the government indicated its intention to move from emission-intensity targets to fixed emission caps in the 2020-2025 period. The government still intends this transition to take place.

The anchor for the fixed cap will be the national objective of a 20% absolute reduction in greenhouse gas emissions from 2006 levels by 2020. The level of the cap on industrial emitters will be informed by the results of the application of the emission-intensity system.

As well, any decision in Canada on the transition to a fixed-cap regime for greenhouse gas emissions would take into account developments occurring in other countries, especially the United States, with the aim of establishing a North American emissions trading system once the United States implements a greenhouse gas regulatory system.

¹⁰ Available at canadagazette.gc.ca/part1/2006/20061021/pdf/g1-14042.pdf.

7. The Economic Impacts of the Industrial Regulations

This section provides an overview of the likely impact of the regulatory framework for industrial greenhouse gas emissions on economic growth in Canada. This section does not take into account the potential economic impacts of future recommendations of the clean electricity task force.

To conduct this analysis, Environment Canada has used its Energy-Emissions-Economy Model for Canada (E3MC). The model combines the bottom-up, technology-specific Energy 2020 model and the macroeconomic model from Informetrica Limited. This analysis is based on an updated reference case of expected “business-as-usual” growth in Canada's greenhouse gas emissions to 2020 compiled by Environment Canada.

7.1 Impact of the regulatory framework

The analysis conducted by Environment Canada indicates that the regulatory framework for industrial emissions and actions to address fugitive greenhouse gas emissions will result in direct reductions from industry in the range of 145 Mt below reference case levels by 2020. In addition, capital investments arising from the technology fund are expected to generate an additional stream of indirect reductions in the order of 20 Mt per year within this timeframe. The reductions due to technology fund investments are expected to arise in large part as a result of opportunities created both within and outside of the regulated sectors. These opportunities include, for example, access to carbon-capture-and-storage infrastructure by non-regulated industries in Canada's oil-producing regions and the diffusion of energy-efficiency and other technologies from regulated industries across the economy.

In total, the regulatory framework is expected to achieve approximately 165 Mt in direct and indirect emission reductions from the industrial sector by 2020; that is, about a 37% reduction from projected levels or a 21% reduction below 2006 levels. This does not include the additional 25 Mt in targeted reductions from the electricity sector.

7.2 Economic Impacts

Under the authority of the Canadian Environmental Protection Act, 1999, the proposed regulations will require significant reductions in the emissions of greenhouse gases from Canada's most emission-intensive industrial emitters. This implies that Canada's industrial sectors will face an internal cost of emissions, derived from the incremental costs they will face in complying with the regulations. This cost of emissions provides an economic incentive for improved energy efficiency, a switch to cleaner energy sources where possible, and improved management of non-combustion greenhouse gas emissions (such as accidental spills and leaks). In many cases, new technology and other investments will be required.

A portion of the costs associated with these investments and changes in operations will be passed on by the regulated sectors in the form of higher prices, thereby changing the relative price signals to the rest of the economy in favour of low-emitting investment and consumption choices.

Canadians can therefore expect to bear costs under the regulatory framework that are not trivial. At the same time, these costs strike an appropriate balance between environmental results and manageable economic impacts.

For the majority of individual Canadians and for businesses outside the regulated sectors, these costs will be most evident in the form of higher energy prices, particular with respect to electricity and natural gas. However, increased energy conservation and efficiency are expected to limit those increases. The regulatory framework itself is not expected to have a significant impact on motor fuel prices, due to international price competitiveness pressures.

Overall, the analysis indicates that the regulatory framework will have a measurable, negative impact on Canada's real Gross Domestic Product (GDP) level. This impact will begin at relatively marginal levels in the first five years, but gradually increase out to 2020. The assessment indicates that this impact will not exceed 0.5% of forecasted real GDP levels in any given year between 2010 and 2020. Real GDP will thus be modestly affected by the regulatory framework, but will continue to grow at a robust pace.

Some industrial sectors, particularly those that are more carbon-intensive, will be more affected than others, particularly in the short- and medium-term. Costs for these industries are primarily driven by the requirement for accelerated investments in more energy-efficient, less carbon-intensive capital and technologies, with some loss in output possible.

Overall, the regulatory framework results in real, but manageable, economic costs. Most importantly, the regulatory framework will break the link between greenhouse gas emissions from Canada's industrial sector and sustained economic growth for these key industries. It also provides the foundation for Canada to meet its national goal of a 20% reduction in greenhouse gas emissions from 2006 levels by 2020. Full details on the modelling assumptions underlying this economic analysis are available in the technical document "*Turning the Corner: Detailed Emissions and Economic Modelling*".

8. Next Steps

The next step is to translate the final regulatory framework for industrial greenhouse gas emissions into regulatory language for the actual regulations. Work has begun on this, and the draft regulations are expected to be published in the *Canada Gazette, Part I* for public comment in fall 2008. The final regulations relating to industrial greenhouse gas emissions are expected to be approved and published in the *Canada Gazette, Part II* in fall 2009, with the greenhouse gas provisions of the regulations coming into force, as planned, on January 1, 2010.

Amendments to the regulations to include the air pollutant elements will be made once the regulatory framework for air pollutants has been finalized in spring 2008. In addition, there will be annual reporting requirements under section 71 of the *Canadian Environmental Protection Act, 1999* until equivalent regulatory requirements are in force.

The emissions reporting requirements will be part of the regulations and will be developed in consultation with provinces/territories, industry, and environmental groups. The data will be managed under the Single Window for Reporting initiative that is now under way at Environment Canada. In addition, procedures for monitoring the ownership and retirement of compliance units will be developed for the purposes of compliance verification.

Consultations undertaken on the greenhouse gas elements of the regulatory framework for air emissions

General consultations

On April 30, May 1 and May 2, 2007, Environment Canada officials held three technical briefings on the overall regulatory framework for representatives from province and territories, industry, and environmental and health non-governmental organizations. These consultations were aimed at validating sector-specific air pollutant targets, including their date of coming into force; finalizing the greenhouse gas regulatory framework; and addressing the scope of the offset system and governance of the technology fund.

Two multi-stakeholder consultation sessions specifically focusing on the compliance mechanisms were held in Montreal on May 31 and June 1, 2007 and in Vancouver on June 4 and 5, 2007.

On December 3, 2007, a high-level multistakeholder group of industry and non-governmental representatives met with Environment Canada officials to discuss the finalization of the framework.

In addition, further in-depth consultations were held, as described below, for the purposes of validating sector-specific air pollutant targets, including their date of coming into force; finalizing the greenhouse gas regulatory framework; and addressing the scope of the offset system and governance of the technology fund.

Provincial/territorial consultations

In-depth consultations on the overall regulatory framework were held with provincial and territorial representatives on May 22-24, 2007, in Gatineau, Quebec. In addition, a number of bilateral discussions at the official and ministerial level have taken place with provincial and territorial counterparts.

On an ongoing basis, the federal government and provincial and territorial governments agreed that the Environmental Protection and Planning Committee of the Canadian Council of Ministers of the Environment would serve as the main federal-provincial/territorial forum in which to discuss the regulatory framework.

The Environmental Protection and Planning Committee has met four times to discuss the framework, and has had two conference calls. In addition, working groups were set up to provide provincial and territorial input into the elements of the regulatory framework.

The Canadian Environmental Protection Act National Advisory Committee was briefed on the regulatory framework twice, once in June and once in December 2007.

Industry consultations

Environment Canada officials met several times with companies and associations in their respective industry sectors. Overall, around 120 meetings were held with industry on the greenhouse gas and other elements of the regulatory framework between May and November 2007.¹¹

Aboriginal consultations

At the end of November and early December 2007, a series of three meetings on the regulatory framework were held with three Aboriginal groups: the Assembly of First Nations, the Congress of Aboriginal Peoples, and Inuit Tapiriit Kanatami.

Non-governmental organization consultations

Consultations with environmental and health non-governmental organizations on the regulatory framework were held June 6-8, 2007 and again on December 11 and 12, 2007, both in Ottawa.

Ministerial consultations

During May, June, September, and October 2007, ministers met with chief executive officers and other senior-level executives from the key sectors that will be regulated to discuss the proposed regulatory framework and to listen to industry's views on the framework.

¹¹ The meetings in May to August also included the validation of the air pollutant targets that were in the April 2007 Regulatory Framework for Air Emissions.