

# Annex 1: Canada's First Biennial Report

## Section 1 Introduction

Canada is pleased to present its first Biennial Report (BR), under decision 2/CP.17 of the United Nations Framework Convention on Climate Change (UNFCCC). For 2014, Canada is presenting its BR as an Annex to its 6th National Communication. While the BR

and National Communication are complementary documents, Canada has designed them to be self-contained, with each responding to separate reporting requirements mandated by the UNFCCC.

## Section 2 Information on Greenhouse Gas Emissions and Trends

In 2011, Canada emitted about 702 megatonnes of carbon dioxide equivalent (Mt CO<sub>2</sub> eq) of greenhouse gases (GHGs) to the atmosphere, excluding emissions/removals from Land Use, Land-use Change, and Forestry (LULUCF). Since 2005, total Canadian GHG emissions have decreased by 35.7 Mt (4.8%).

The GHG emission and removal estimates contained within Canada's Inventory are developed using methodologies consistent with the guidelines prescribed by the Intergovernmental Panel on Climate Change (IPCC). The inventory estimates include the gases CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs), in the following six IPCC sectors: Energy, Industrial Processes, Solvent and Other Product Use, Agriculture, Waste and LULUCF.

The Common Tabular Format (CTF) Table 1 in Canada's 1st Biennial Report contains the same information as the Common Reporting Format (CRF) Table 10 in Canada's 2013 National Inventory Submission to the UNFCCC.

It should be noted that the LULUCF estimates in CTF Table 1 include the impact of natural disturbances; these figures are not used to evaluate Canada's progress towards its 2020 target. CTF Table 4(a)<sub>1</sub> and accompanying text explain how Canada incorporates the LULUCF sector in assessing its progress towards its 2020 emission reduction target.

For a more elaborate analysis of recent historical GHG emission and removal trends, please see Chapter 2 of Canada's 2013 National Inventory Report entitled, *National Inventory Report: Greenhouse Gas Sources and Sinks in Canada 1990–2011*.<sup>1</sup>

### National Inventory Arrangements

The *Canadian Environmental Protection Act, 1999* (CEPA 1999) provides the legislative authority to designate Environment Canada as the single national entity with responsibility for the preparation and submission of the National Inventory Submission to the UNFCCC and for the establishment of a national system. Canada's national system covers the institutional arrangements for the preparation of the inventory, including:

- the roles and responsibilities of the inventory agency and of the various players involved
- the processes for inventory preparation, data collection and estimates development
- quality management of the inventory
- the procedures for official approval of the inventory

Additional information on Canada's national inventory arrangements can be found in Chapter 1 of *Canada's 2013 National Inventory Report* and Chapter 3 of Canada's 6th National Communication.

**Table 1** Emission Trends—Summary

Year: 2011

Submission: 2013

Country: CANADA

GREENHOUSE GAS EMISSIONS		1991	1992	1993	1994	1995	1996	1997	1998	1999
Unit	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)
CO <sub>2</sub> emissions including net CO <sub>2</sub> from LULUCF	392,295.43	377,419.22	442,735.49	452,068.10	654,303.48	474,644.43	452,490.55	622,818.73	549,056.20	
CO <sub>2</sub> emissions excluding net CO <sub>2</sub> from LULUCF	459,313.03	464,651.68	464,063.08	478,748.17	491,116.15	504,425.38	517,254.27	526,370.72	541,572.14	
CH <sub>4</sub> emissions including CH <sub>4</sub> from LULUCF	75,331.34	79,133.25	86,094.97	88,400.41	104,802.77	93,631.44	92,511.97	106,878.92	98,033.46	
CH <sub>4</sub> emissions excluding CH <sub>4</sub> from LULUCF	72,002.96	77,308.30	79,642.60	82,557.07	85,909.47	89,039.78	90,882.88	92,067.68	91,678.62	
N <sub>2</sub> O emissions including N <sub>2</sub> O from LULUCF	51,126.25	51,063.66	53,431.51	56,547.67	65,475.92	59,149.33	56,205.81	60,199.43	52,734.05	
N <sub>2</sub> O emissions excluding N <sub>2</sub> O from LULUCF	49,065.08	47,783.33	48,467.87	52,924.33	53,749.55	56,300.71	55,072.53	51,002.39	48,786.84	
HFCs	767.25	835.33	655.97	NA,NO	479.41	861.53	1,397.69	1,934.68	2,413.69	
PFCs	6,538.83	6,949.98	6,556.82	6,450.32	5,965.33	5,489.59	5,622.83	5,512.71	5,601.84	4,645.28
SF <sub>6</sub>	3,392.20	3,873.67	2,691.12	2,498.69	2,570.18	2,395.56	1,861.25	1,923.00	2,478.26	2,534.01
<b>Total (including LULUCF)</b>	<b>529,451.29</b>	<b>547,465.33</b>	<b>591,210.98</b>	<b>605,551.68</b>	<b>832,946.73</b>	<b>635,760.80</b>	<b>610,041.74</b>	<b>799,911.86</b>	<b>709,416.69</b>	
<b>Total (excluding LULUCF)</b>	<b>591,079.35</b>	<b>583,394.90</b>	<b>602,088.28</b>	<b>622,765.08</b>	<b>639,139.72</b>	<b>658,101.49</b>	<b>671,842.89</b>	<b>679,455.57</b>	<b>691,630.58</b>	
GREENHOUSE GAS SOURCE AND SINK		1991	1992	1993	1994	1995	1996	1997	1998	1999
CATEGORIES	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)
1. Energy	469,186.20	460,063.71	477,948.42	494,644.59	508,788.47	524,737.56	539,053.97	548,804.37	563,880.54	
2. Industrial Processes	55,978.49	57,415.95	55,229.88	56,955.01	57,472.54	59,089.28	58,523.34	55,369.90	52,052.93	
3. Solvent and Other Product Use	178.71	169.94	159.40	175.40	212.98	216.64	230.11	401.45	409.54	
4. Agriculture	46,728.50	46,378.90	49,063.17	50,988.99	52,669.69	54,228.77	54,053.38	54,611.44	55,020.12	
5. Land Use, Land-Use Change and Forestry <sup>1</sup>	-61,628.06	-35,929.57	-10,877.30	-17,213.40	193,807.01	-22,340.68	-61,801.15	120,456.29	17,786.11	
6. Waste	19,007.45	19,366.39	19,883.09	20,001.09	19,986.44	19,829.24	19,982.10	20,288.41	20,267.45	
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Total (including LULUCF)<sup>1</sup></b>	<b>529,451.29</b>	<b>547,465.33</b>	<b>591,210.98</b>	<b>605,551.68</b>	<b>832,946.73</b>	<b>635,760.80</b>	<b>610,041.74</b>	<b>799,911.86</b>	<b>709,416.69</b>	

Abbreviations: LULUCF = Land Use, Land-use Change and Forestry

Notes 1: Includes net CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from LULUCF

**Table 1** Emission Trends—Summary (continued)

Year: 2011  
 Submission: 2013  
 Country: CANADA

GREENHOUSE GAS EMISSIONS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change from base to latest reported year
Unit	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	(%)
CO <sub>2</sub> emissions including net CO <sub>2</sub> from LULUCF	510,015.61	505,057.09	647,900.25	618,797.57	675,937.54	632,448.78	633,569.84	635,942.22	558,642.39	522,149.36	638,050.26	624,308.34	-89.14
CO <sub>2</sub> emissions excluding net CO <sub>2</sub> from LULUCF	564,642.46	559,091.55	565,884.09	582,886.04	584,654.92	578,955.01	571,747.40	594,609.51	576,528.04	542,049.92	554,019.16	555,613.97	20.97
CH <sub>4</sub> emissions including CH <sub>4</sub> from LULUCF	95,327.37	98,266.52	107,128.93	104,848.08	107,554.40	103,757.79	104,764.35	102,798.18	98,308.76	97,147.64	102,222.51	102,018.82	-35.43
CH <sub>4</sub> emissions excluding CH <sub>4</sub> from LULUCF	94,025.84	95,310.44	95,410.53	96,125.71	97,843.22	98,097.81	98,038.65	96,407.19	94,098.57	90,943.19	90,400.78	90,562.54	25.78
N <sub>2</sub> O emissions including N <sub>2</sub> O from LULUCF	49,546.19	48,705.06	53,729.79	54,079.64	57,622.28	53,829.90	52,302.00	53,340.78	54,415.48	51,019.46	54,628.21	53,338.12	4.33
N <sub>2</sub> O emissions excluding N <sub>2</sub> O from LULUCF	48,613.73	46,870.83	46,450.38	48,791.00	51,592.33	50,308.15	48,124.33	49,373.88	51,802.20	47,165.70	47,267.06	46,221.70	-5.80
HFCs	2,888.12	3,507.83	3,915.58	4,421.71	4,795.35	5,296.47	5,105.86	5,483.71	5,550.85	6,306.34	7,072.55	7,526.83	881.01
PFCs	4,311.08	3,500.42	2,994.81	3,019.03	3,046.98	3,317.26	2,583.90	2,193.70	2,252.32	2,171.97	1,807.49	1,450.89	-77.81
SF <sub>6</sub>	3,051.86	2,888.58	3,169.42	2,787.46	2,456.88	1,492.14	1,595.90	771.98	683.95	383.06	462.24	415.29	-87.76
Total (including LULUCF)	665,388.23	661,755.50	818,928.79	787,753.49	851,413.42	800,142.33	799,321.65	800,528.58	719,853.55	679,187.83	804,044.25	789,058.29	49.03
Total (excluding LULUCF)	717,891.11	710,969.64	717,824.81	738,043.94	744,388.67	737,456.83	727,196.04	748,839.98	730,915.73	689,030.17	700,849.29	701,791.22	18.73
GREENHOUSE GAS SOURCE AND SINK CATEGORIES	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change from base to latest reported year
	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	CO <sub>2</sub> eq (Gg)	(%)
1. Energy	589,473.78	585,344.44	591,113.12	606,986.65	603,290.51	597,336.61	586,892.94	609,761.78	592,195.74	560,441.65	570,137.09	571,601.41	21.83
2. Industrial Processes	52,054.26	50,523.86	51,881.16	53,886.49	61,681.05	60,481.41	61,018.70	59,787.20	56,545.80	50,805.78	53,262.13	54,271.29	-3.05
3. Solvent and Other Product Use	449.60	419.52	385.55	445.51	407.41	378.00	329.36	326.32	341.62	280.49	241.97	247.40	38.44
4. Agriculture	55,650.44	54,865.01	54,224.77	56,517.48	58,140.93	58,122.92	57,345.56	57,641.84	56,602.62	56,194.71	55,612.85	53,924.99	15.40
5. Land Use, Land-Use Change and Forestry <sup>1</sup>	-52,192.87	-49,214.14	101,103.98	49,709.55	107,023.75	62,685.50	72,725.80	51,688.60	-11,062.19	-9,942.34	103,194.97	87,267.07	-241.60
6. Waste	19,953.02	19,816.81	20,220.20	20,497.80	20,869.77	21,157.90	21,609.48	21,332.84	21,229.94	21,387.55	21,595.25	21,746.13	14.41
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00
Total (including LULUCF) <sup>1</sup>	665,388.23	661,755.50	818,928.79	787,753.49	851,413.42	800,142.33	799,321.65	800,528.58	719,853.55	679,187.83	804,044.25	789,058.29	49.03

Abbreviations: LULUCF = Land Use, Land-Use Change and Forestry

Notes 1: Includes net CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O from LULUCF

## Section 3 Economy-wide Emission Reduction Target

Under the United Nations Framework Convention on Climate Change (UNFCCC), Canada associated with the Copenhagen Accord in January 2010 and committed to reduce its greenhouse gas (GHG) emissions to 17% below 2005 levels by 2020. In light of strong economic growth, this could be challenging: Canada's economy is projected to be approximately 31% larger (in real terms) in 2020 compared to 2005 levels. The Government's approach is to encourage strong economic growth and job creation while achieving its environmental objectives.

**Table 2(a)** Base Year

Base Year	2005
Emission reduction target (% of base year)	17% below 2005
% of 1990	3.6% above 1990 levels, based on the 2013 emission inventory for historical data
Period for reaching target	2020

Canada's GHG projections are derived using a bottom-up macroeconomic model where energy data is allocated to individual subsectors using the North American Industrial Classification system, as shown in Table 2 (b). These subsectors are then aggregated into the Economic Sectors presented in this report. Considering that Gross Domestic Product (GDP) and relative energy prices are a key driver of GHG emissions in most sectors, macroeconomic models are the primary tool for generating emissions projections in Canada. This method of energy and emissions allocation is essential for identifying possible impacts from current and future policies and measures implemented in a particular sector. For example, using an economic sector aggregation for Emission Intensive Trade Exposed Industry (EITE) and the Building Sector allows for policy analysis of all emissions generated from the sector such as stationary combustion and industrial processes.

According to the National Communication reporting guidelines, Parties have the flexibility to present their policies and measures and projections according to sectoral categories that are appropriate to their own national circumstances. Canada has chosen to use economic sectors in our Biennial Report and National Communication as these categories more accurately reflect the drivers of emissions than the Intergovernmental Panel on Climate Change (IPCC) activity based sectoral categories. Paragraph 17 of the National Communication reporting guidelines provide Parties the flexibility to report their sectors using a categorization that they deem appropriate within the policies and measures chapter. Paragraph 34 of the guidelines clarifies that projections should be presented using the same sectoral categorization as the policies and measures chapter.

**Table 2(b)** Gases and Sectors Covered

Gases Covered	Base Year for Each Gas (year)
CO <sub>2</sub>	2005
CH <sub>4</sub>	2005
N <sub>2</sub> O	2005
HFCs	2005
PFCs	2005
SF <sub>6</sub>	2005

Sectors Covered		
Oil and Gas		Yes
Electricity		Yes
Transportation		Yes
Emissions Intensive & Trade Exposed Industries		Yes
Buildings		Yes
Agriculture		Yes
Waste & Others		Yes
LULUCF		Yes*

Abbreviation: LULUCF = Land Use, Land-use Change and Forestry  
 \*LULUCF is not included in the base year for setting Canada's quantified economy-wide emission reduction target, but the contribution to the LULUCF Sector will be applied to the target year [see Biennial Report Table 2(d)].

**Table 2(c)** Description of Quantified Economy-wide Emission Reduction Target: Global Warming Potential Values (GWP)

Gases	GWP Values IPCC Second Assessment Report
CO <sub>2</sub>	1
CH <sub>4</sub>	21
N <sub>2</sub> O	31 <sup>0</sup>
HFCs	As per GWPs for the range of HFCs in IPCC's Second Assessment Report
PFCs	As per GWPs for the range of PFCs in IPCC's Second Assessment Report
SF <sub>6</sub>	23,900
NF <sub>3</sub>	—

Abbreviations: IPCC = Intergovernmental Panel on Climate Change

Canada's 2020 target range was set on the 100 year global warming potential (GWP) values in the IPCC Second Assessment Report, 1995, as noted above.

GWP values from the IPCC Fourth Assessment Report will be used starting in the 2015 National Inventory Report, consistent with the revised UNFCCC Annex I Inventory reporting guidelines adopted at COP17 (December, 2011).

#### Table 2(d): the LULUCF Sector

The LULUCF Sector is a particularly important sector for Canada given our vast land areas. 10% of the world's forests are in Canada. Our managed forest covers 229 million hectares, more than the managed forest of the entire European Union. Canada also has 65 million hectares of total farm area as reported in the 2011 *Census of Agriculture*.

Canada has opted for accounting approaches to GHG emissions for each subsector that take into account the unique structure of these forests and lands. These accounting approaches are seen as a scientifically credible way to measure improvements over time in this complex sector. Under this approach, the contribution of LULUCF in 2020 is estimated to be 28 Mt.

In a spring 2012 submission to the UNFCCC, Canada stated its intent to include the LULUCF sector in its accounting of GHG emissions towards its 2020 target, noting that emissions and related removals resulting from natural disturbances would be excluded from the accounting. It was also indicated that a Reference Level or comparison against a 2005 baseline would be used for accounting.

Canada's submission clarifying its economy-wide emission reduction target under the Copenhagen Accord is at <http://unfccc.int/resource/docs/2012/awglca15/eng/misco1a02.pdf>

Please see the LULUCF section of the Projections Chapter of the National Communications report for details on LULUCF emissions projections and accounting methodology.

**Table 2(d) I** Description of Quantified Economy-wide Emission Reduction Target; Approach to Counting Emissions and Removals from the LULUCF Sector

Role of LULUCF	LULUCF emissions in base year	Excluded
	LULUCF emissions in 2020	Included <ul style="list-style-type: none"> <li>• Forest Land Remaining Forest Land</li> <li>• Cropland Remaining Cropland</li> <li>• Forest Land Converted to Other Land Categories</li> <li>• Other Land Categories Converted to Forest Land</li> </ul> Excluded <ul style="list-style-type: none"> <li>• Settlements</li> <li>• Wetlands</li> <li>• Grasslands</li> </ul> Land-based approach: No Activity-based approach: No Other: Based on LULUCF Convention reporting categories

Abbreviations LULUCF = Land Use, Land-use Change and Forestry  
 Description of contribution of LULUCF calculations:  
 Accounting approaches for all subsectors: Difference between 2005 and 2020 except Forestland remaining Forestland which is measured against a Reference Level consistent with the Reference Level agreed for Canada in the Durban agreement on LULUCF.\* Further detail on the LULUCF sector is presented in Table 2(d) II.

\* A technical correction to the Reference Level will be used, consistent with the process allowed in the Durban agreement on LULUCF.

**Table 2(d) II** Projected Emissions (+) or Removals (-) from the LULUCF Sector in 2020

Category (in Mt of GHG emissions/removals)	2020 Projected Emissions/ Removals	2020 Estimate/ Reference Level	Expected Contribution to 2020 Emissions
Forest Land Remaining Forest Land	-133	-107 <sup>a</sup>	-26
Cropland Remaining Cropland <sup>b</sup>	-9	-10	1
Forest Land Converted to Other Land Categories <sup>c</sup>	15	18 <sup>d</sup>	-3.7
Land Converted to Forest Land	-0.4	-0.9	0.6
Total	-128	-100	-28

Numbers may not add up due to rounding

<sup>a</sup> For Forest Land, Remaining Forest Land, a 2020 reference level is used for determining the contribution.

<sup>b</sup> Cropland remaining Cropland includes residual emissions after 20 years from forest conversion to cropland.

<sup>c</sup> Includes all emissions from the conversion of Forest Land to other categories, except residual emissions 20 years or more after the forests are converted to cropland.

<sup>d</sup> Differences between these values and those reported in the National Inventory Report are due to the reallocation of emissions from conversion of forest to cropland after 20 years or more.

## Section 4 Progress in Achievement of Quantified Economy-wide Emission Reduction Targets and Relevant Information

### 4.A Mitigation actions and their effects—Policies and Measures

Per the UNFCCC guidelines, Biennial Report Table 3 generally focuses on actions implemented since Canada's last National Communication. Priority has been given to those policies and measures that have the most significant impact in affecting Canada's greenhouse gas emissions—notably regulations being advanced under Canada's sector-by-sector approach. To provide additional context, information is also included on key supporting and complementary measures such as investments in clean energy technologies and initiatives that may be of interest to international audiences. Given the shared jurisdiction for climate change in Canada, the table also includes information on some of the most important provincial and territorial policies and measures.

Policies and measures in the planning stage are included and these are clearly distinguished from implemented policies and measures throughout. Emissions reductions may not be available for planned measures as final regulations or agreements have not yet been finalized. Similarly, emission reductions may not be available for supporting measures in cases where emission reductions are not the primary objective of the initiative.

The methodology for estimating expected emissions reductions from individual measures may vary by implementing entity and have been included on an as provided basis from the implementing entity. Emissions estimates for individual measures cannot be directly linked to integrated emissions projections in Table 6a of this report given the interactive effects that may occur between different federal and provincial measures.

Rather than the sectoral categories used by the Intergovernmental Panel on Climate Change, Canada's policies and measures are organized by the following sectors: transportation; oil and gas, consisting of upstream and downstream sectors; electricity; buildings; emissions-intensive and trade-exposed industries; agriculture; waste and others; and cross-cutting (please see Chapter 5 of Canada's 6th National Communication for more detail). The sectors appear in order from the largest sources of emissions in Canada to the smallest. Within the sectoral groupings, federal measures appear first, followed by provincial and territorial measures from west to east.



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Light-Duty Vehicle GHG Regulations: Phase 1*	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from the on-road transportation sector	Regulatory	Environment Canada	Implemented	2011	10,000
Brief Description	The regulations apply increasingly stringent annual GHG emissions standards to new passenger automobiles and light trucks manufactured or imported into Canada for the years 2011–2016.							
Light-Duty Vehicle GHG Regulations: Phase 2*	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from the on-road transportation sector	Regulatory	Environment Canada	Adopted	2017	3,000
Brief Description	Proposed amendments to the Light-Duty GHG Regulations will involve more stringent standards for model years 2017–2025.							
Heavy Duty Vehicle GHG Regulations*	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from the on-road transportation sector	Regulatory	Environment Canada	Implemented	2014	3,000
Brief Description	These regulations will apply increasingly stringent annual GHG emissions standards to new on-road heavy-duty vehicles and engines imported or manufactured in Canada for the years 2014–2018.							
Federal Renewable Fuels Regulations*	Transportation	CO <sub>2</sub>	To regulate renewable content in fuel	Regulatory	Environment Canada	Implemented	2010	2,000
Brief Description	Regulations require an average 5% renewable fuel content for gasoline, and 2% renewable fuel content in most diesel fuel.							
Carbon Dioxide Standards for Aviation	Transportation	CO <sub>2</sub>	To reduce GHG emissions from new airplanes	Regulatory	Transport Canada	Planned	TBD	NE
Brief Description	Canada is participating in the development of a new international CO <sub>2</sub> standard for new airplanes at the International Civil Aviation Organization. Canada plans to adopt the standard once it has been finalized and approved by the International Civil Aviation Organization.							

Abbreviations: greenhouse gas (GHG), kilotonne of carbon dioxide equivalent (kt CO<sub>2</sub> eq), megatonnes (Mt), not estimated (NE), to be determined (TBD)

\* Asterisk indicates that the policy or measure has been modeled using Environment Canada's energy, environment, and economy model (E3MC) and is reflected in Canada's GHG emissions projection as presented in Table 6a of this report and Chapter 5 of Canada's 6th National Communication. Please note that emissions estimates for individual measures cannot be directly linked to integrated emissions projections in Table 6a of this report, given the interactive effects that may occur between different federal and provincial measures.



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Canada's Action Plan to Reduce GHG Emissions from Aviation	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from the aviation sector	Voluntary Agreement	Transport Canada	Implemented	2012	NE
Brief Description	A comprehensive voluntary approach that includes all segments of the Canadian aviation sector, from airlines and airports to air traffic navigation and aircraft manufacturers, the Action Plan sets an aspirational goal to improve fuel efficiency from a 2005 baseline by an average annual rate of at least 2% per year until 2020. The Action Plan forms the basis for the Government of Canada's response to the International Civil Aviation Organization's Assembly Resolution A37-19, which encouraged Member States to submit national action plans by June 2012 setting out measures each state is taking or will take to address international aviation emissions.							
Regulatory Cooperation Council Locomotive Emissions Initiative	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from locomotives operating in Canada and the U.S.	Voluntary Agreement	Transport Canada	Adopted	TBD	NE
Brief Description	The Emissions Initiative is a joint voluntary approach with the U.S. Environmental Protection Agency on the development of potential strategies to reduce GHG emissions from locomotives. Among other elements, a Canadian industry-government Memorandum of Understanding that includes measures, targets and actions to reduce GHG emission intensity from rail operations was concluded as part of this initiative. The initiative also involves work towards a Canada-U.S. industry-government voluntary action plan to reduce greenhouse gas emissions from locomotives.							
Energy Efficiency Requirements for Marine Vessels	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from international shipping	Regulatory	Transport Canada	Implemented	June 2013	366
Brief Description	Canada has enacted national regulations to implement new energy efficiency requirements negotiated under Annex VI of the International Maritime Organization's <i>Convention for the Prevention of Pollution from Ships</i> . The regulations require all vessels of 400 gross tonnage and above to have a Ship Energy Efficiency Management Plan on board, stating how each vessel will increase energy efficiency and reduce greenhouse gas emissions. Additionally, under the regulations, new vessels of 400 gross tonnage and above must meet Energy Efficiency Design Index requirements that will increase energy efficiency by 30% by 2025. The Energy Efficiency Design Index requirements do not apply to domestic vessels voyaging only in Canadian waters, as it was found that applying the international standards to these vessels, which are smaller and use shorter routes, would result in increased emissions.							
Energy Efficiency Requirements for Canadian Marine Vessels that Serve Domestic Trade	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from domestic shipping	Regulatory	Transport Canada	Planned	TBD	NE
Brief Description	New Canadian ships that serve domestic trade within Canada are currently exempt from the International Maritime Organization's Energy Efficiency Design Index requirements. A technical review found that when the international Energy Efficiency Design Index standard is applied to Canadian ships on domestic service, which are smaller and use shorter routes, the results would reduce the energy efficiency of these ships and increase their CO <sub>2</sub> emissions. The technical review recommended ways to apply the Energy Efficiency Design Index to yield the intended results; Transport Canada plans to implement adjusted domestic Energy Efficiency Design Index standards in the future.							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Shore Power Technology for Ports Program	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions from docked ships	Economic	Transport Canada	Implemented	2011	7
Brief Description	The Shore Power Technology for Ports Program provides cost-shared funding for the deployment of marine shore power technology at Canadian ports. This technology allows ships to plug into the local electrical grid to power the vessel instead of using their auxiliary diesel engines when docked.							
ecoTECHNOLOGY for Vehicles Program	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To support the development of low-emission vehicle regulations, standards, codes, protocols, guidelines, and related instruments	Research, Information	Transport Canada	Implemented	2011	NE
Brief Description	The ecoTECHNOLOGY for Vehicles program tests, evaluates, and provides expert technical information on the environmental and safety performance of advanced light-duty vehicle and heavy-duty vehicle technologies. The ecoTECHNOLOGY program shares technical findings to inform the development of vehicle emissions regulations; to guide the proactive development of new or revised safety regulations, standards, codes and guidelines; and to support the development of non-regulatory industry codes and standards to help integrate new vehicle technologies into Canada. The ecoTECHNOLOGY program is not expected to directly result in emission reductions; however, it will inform the development of Canada's light-duty vehicle and heavy-duty vehicle GHG emission regulations and help more low-emission vehicle technologies to enter the Canadian market.							
Truck Reservation System Program	Transportation	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To reduce GHG emissions associated with port-related trucking activity at Canada's major container ports	Economic	Transport Canada	Implemented	2013	NE
Brief Description	The Truck Reservation Systems Program provides funding to projects at Canada's major container ports for the deployment of technologies and practices that improve port-trucking efficiency and environmental performance (e.g., reducing truck idling, wait times at port terminals, and congestion on access roads). The Truck Reservation System Program is currently working with project proponents (notably Canadian Port Authorities), to gather more complete data on truck movements within port areas to better measure GHG emissions on an ongoing basis and also in certain regions to set a baseline. Specific GHG emission reduction targets will be set throughout the course of individual projections.							
British Columbia Renewable and Low Carbon Fuel Requirements Regulation*	Transportation		Reduce the carbon intensity and increase the renewable content of fuels sold in B.C.	Regulatory	British Columbia	Implemented	2010	NE
Brief Description	Regulation that targets a 10% decrease in carbon intensity of transport fuels sold in B.C. by 2020, and 5% renewable content in gasoline (4% in diesel).							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
British Columbia Clean Energy Vehicles Program	Transportation		To reduce GHGs in transportation	Economic	British Columbia	Implemented	2011	NE
Brief Description	The \$14.3 million program provides incentives for eligible clean energy vehicles and includes deployment of charging point infrastructure for these vehicles.							
Alberta Renewable Fuel Standard*	Transportation		To accelerate the use of fuels derived from renewable sources	Regulatory	Alberta	Implemented	2011	1,000
Brief Description	Regulation requires an average of 2% renewable content in diesel fuel and 5% renewable alcohol in gasoline. The renewable fuel content must have at least 25% less GHG emissions than the equivalent petroleum fuel on a life-cycle basis.							
Alberta GreenTRIP	Transportation		To increase the accessibility and use of public transit in Alberta	Economic	Alberta	Implemented	2010	50
Brief Description	This is a \$2 billion one-time capital funding program that supports new and expanded public transit in Alberta. To date, 13 projects are receiving funding and only three projects have made estimates for their expected GHG reductions.							
Manitoba Biofuel Production Incentive*	Transportation	CO <sub>2</sub>	To provide financial support for ethanol and biodiesel manufacturers in Manitoba in order to reduce transportation emissions	Regulatory	Manitoba	Implemented	2010	NE
Brief description	The Ethanol Fund Grant Regulation started in 2008 and provides a portion of gas tax revenue to be credited to an Ethanol Fund Grant, which provides an eight-year grant to support ethanol manufacturers in Manitoba. The Biodiesel Fund Grant Regulation is a five-year grant program that provides an incentive of 14 cents per litre of biodiesel to support biodiesel production Manitoba. The program started April 1, 2010 and ends March 31, 2015.							
Ontario Ethanol in Gasoline Regulation*	Transportation	CO <sub>2</sub>	To reduce GHG emissions from transport sector	Regulatory	Ontario	Implemented	2007	NE
Brief Description	Ontario Regulation 535/05 (Ethanol in Gasoline), requires an annual average of 5% ethanol in gasoline (beginning with calendar year 2007).							
Ontario The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area*	Transportation		To reduce GHG emissions from the transport sector	Economic	Ontario	Implemented	2008	3,900

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Brief Description	<p>This 25-year Regional Transportation Plan aims to improve regional transportation, bolster global competitiveness, protect the environment and enhance quality of life. To date, \$16 billion has been committed with projects underway. Ontario's 2013-14 budget allocated \$3.4 billion towards public transit infrastructure in the province, a large portion of which was allocated to this plan.</p> <p>Emission reductions for Ontario's transportation sector are combined. Combined estimated mitigation impact of 3.9 Mt applies to initiatives related to:</p> <ul style="list-style-type: none"> <li>- The Big Move Regional transportation plan and Growth Plan for the Greater Golden Horseshoe</li> <li>- Passenger vehicle efficiency regulations</li> <li>- Freight truck speed limiter regulation</li> <li>- Municipal hybrid bus purchase and Green Commercial Vehicles Program</li> <li>- Ontario ethanol regulation</li> <li>- Other related transportation initiatives</li> </ul>							
Quebec Electric Vehicle Action Plan	Transportation		To accelerate the deployment of electric vehicles and related infrastructure	Economic	Quebec	Implemented	2011	NE
Brief Description	<p>The Action Plan aims to have:</p> <ul style="list-style-type: none"> <li>- 25% of the 2020 sales of new light passenger vehicle be for electric vehicles (plug-in hybrids or all-electric vehicles)</li> <li>- 95% of public transit commuters use vehicles powered by electricity by 2030</li> <li>- Increase employment in this field from 1,500 to 5,000 by 2020</li> </ul> <p>The Action plan aims to accelerate the deployment of electric vehicles and related infrastructure, such as charging stations, at electrifying Quebec's public transportation system and at supporting Quebec businesses in this field.</p>							
Quebec Public Transit Policy	Transportation		To reduce GHG emissions from the transport sector	Other	Quebec	Planned		NE
Brief Description	<p>Following the success of Quebec's first Public Transit Policy in 2006, which increased ridership by 11% in 2012, a new sustainable mobility policy is being developed and will address land-use planning and transportation, governance and public transit funding, electrification of transportation, regional and rural transportation as well as transit adapted to the needs of persons with disabilities or limited mobility.</p>							
Oil and Gas Sector GHG Regulations	Oil and Gas	TBD	To reduce emissions from the oil and gas sectors in Canada	Regulatory	Environment Canada	Planned	TBD	NE
Brief Description	<p>The Government of Canada is working with provinces to reduce emissions from the oil and gas sectors while ensuring Canadian companies remain competitive.</p>							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
British Columbia Flaring and Venting Reduction Guideline	Oil and Gas	CH <sub>4</sub>	To reduce flaring and venting in the oil and gas sector; goal is to eliminate all routine flaring by 2016	Regulatory	British Columbia	Implemented	2010	NE
Brief Description	Applies to the flaring, incineration and venting of natural gas at well sites, facilities and pipelines.							
Alberta Carbon Capture and Storage Funding Act*	Oil and Gas	TBD	To enable government support for carbon capture and storage projects	Economic	Alberta	Implemented	2008	2,800
Brief Description	Enable Alberta to administer funding to support large-scale carbon capture and storage projects.							
Reduction of CO <sub>2</sub> Emissions from Coal-fired Generation of Electricity Regulations*	Electricity	CO <sub>2</sub>	To reduce GHG emissions from the coal-fired electricity sector	Regulatory	Environment Canada	Implemented	2015	3,000
Brief Description	Regulations under the <i>Canadian Environmental Protection Act, 1999</i> will apply a performance standard to new coal-fired electricity generation units and to old units that have reached the end of their useful life. The performance standard of 420 tonnes of CO <sub>2</sub> per gigawatt hour will come into force July 1, 2015. GHG reductions in 2020 are estimated at 3,000 kt of CO <sub>2</sub> emissions. The regulations are estimated to result in a net reduction of approximately 214 Mt CO <sub>2</sub> eq of GHG over the period 2015–2035.							
ecoENERGY for Renewable Power program*	Electricity	CO <sub>2</sub>	To reduce GHG emissions by increasing renewable electricity supply in Canada	Economic	Natural Resources Canada	Implemented	2007	6,240
Brief Description	The program offers an incentive of 1¢ per kilowatt-hour of electricity produced over a period of ten years from a qualifying low-impact renewable energy project built before March 31, 2011.							
British Columbia Clean Energy Act: Clean or renewable electricity requirement	Electricity		To maintain low carbon electricity supply	Regulatory	British Columbia	Implemented	2010	NE
Brief Description	<i>Clean Energy Act</i> commits that British Columbia will generate at least 93% of their electricity from clean or renewable sources.							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Manitoba Coal and Petroleum Coke Heating Ban Regulation	Electricity		To reduce GHG emissions from coal and petroleum coke	Regulatory	Manitoba	Implemented	2013	NE
Brief Description	Ban on the use of petroleum coke for space heating effective December 31, 2012. Coal users must submit plans for converting away from coal in June of 2014, plans must be implemented by June 2017. Funds from Manitoba's emissions tax on coal are redirected to support transition from coal to biomass.							
Manitoba Emissions Tax on Coal Act	Electricity	CO <sub>2</sub>	To reduce GHG emissions from coal in Manitoba	Economic	Manitoba	Implemented	2012	NE
Brief Description	This includes a tax on coal emissions; capital support for coal users to convert to cleaner energy; and support for developing biomass, which is a coal alternative. The <i>Emissions Tax on Coal Act</i> came into effect January 2012. The tax is payable by any individual who purchases more than a tonne of coal for use in Manitoba. Different grades of coal are subject to a different tax rate, approximately \$10-per-tonne of CO <sub>2</sub> eq emissions. The tax will be extended to include petroleum coke.							
Manitoba Coal Fired Emergency Operations Regulation	Electricity	CO <sub>2</sub>	To restrict Manitoba Hydro's use of coal	Regulatory	Manitoba	Implemented	2009	NE
Brief Description	This regulation restricts Manitoba Hydro's use of coal to generate power to emergency operations. Manitoba Hydro's last remaining coal-fired facility is located at Brandon Unit # 5 in Brandon, Manitoba.							
Manitoba Geothermal Energy Incentive Program	Electricity	CO <sub>2</sub>	To reduce the use of imported natural gas and promote heating and cooling of buildings with renewable geothermal heat pumps	Economic	Manitoba	Implemented	2009	NE
Brief Description	This program offers incentives to residential and commercial building owners for installing geothermal heat-pump systems. Incentives include provincial grants for new houses in natural gas service areas, provincial grants for district geothermal systems, and a Green Energy Equipment Tax Credit.							
Ontario Coal Phase-Out*	Electricity		To reduce GHG emissions from coal-fired electricity generation	Regulatory	Ontario	Implemented	2007	31,600



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Brief Description	Ontario mandated the cessation of coal-fired electricity generation by the end of 2014 through a regulatory amendment (O.Reg. 496/07). Ontario has shut down 11 of 19 coal units across five generating stations, with 6 more units to be shut down at the end of 2013, one year ahead of schedule. The Ontario government estimates that this policy will reduce GHG emissions from the electricity sector by up to 30 Mt compared to 2003 levels. Ontario is replacing coal with increased conservation and cleaner energy sources like natural gas, nuclear, solar and wind. Emission reductions for Ontario's electricity sector are combined. The combined estimated mitigation impact of 31.6 Mt applies to initiatives related to Ontario's Long-Term Energy Plan:							
Ontario Feed-in-Tariff*	Electricity		To support the development of renewable and clean energy sources	Economic	Ontario	Implemented	2009	NE
Brief Description	The Feed-in Tariff Program allows individuals and companies to sell renewable energy, like solar, wind, water, biomass, biogas and landfill gas, into the grid at set rates. As of May 2013 about 1,700 projects have been approved, representing over 4,500 megawatts of capacity. This includes over 200 large-scale projects that account for over 4,200 megawatts of capacity. The Feed-in Tariff program was re-launched in December 2012.							
Quebec Energy Strategy	Electricity		To increase renewable electricity generation and energy efficiency	Economic	Quebec	Implemented	2006	NE
Brief Description	The strategy provides for new renewable energy generation (hydroelectricity, wind and bioenergy) by 2015 and an increase in energy efficiency for all types of energy. A new strategy is currently being drafted.							
New Brunswick—Electricity Act Renewable Portfolio Standard Regulation	Electricity		To achieve 40% of renewable energy	Regulatory	New Brunswick	Planned	2014	NE
Brief Description	Current Renewable Portfolio Standard is being revised to reflect 40% renewable, consistent with the Energy Blueprint Policy.							
Nova Scotia Greenhouse Gas Emissions Regulations*	Electricity	CO <sub>2</sub> , NH <sub>3</sub> , N <sub>2</sub> O, F <sub>6</sub> S <sub>6</sub> , HFCs, PFCs	To reduce GHG emissions from coal energy	Regulatory	Nova Scotia	Implemented	2009	2,500



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Brief Description	Nova Scotia		Nova Scotia has implemented a mandatory declining cap on GHG emissions from Nova Scotia Power Inc., starting at an average of 9.6 Mt over 2010 and 2011 to 7.5 Mt by 2020. In September 2012, the Nova Scotia government and the Canadian federal government published a draft equivalency agreement on coal-fired electricity, which committed Nova Scotia to amend its GHG regulations to require additional reduction requirements for the 2021 to 2030 period. The agreement requires the GHG emissions cap to decline from 7.5 Mt in 2020 to 4.5 Mt in 2030.	Regulatory	Nova Scotia	Implemented	2009	1,300
Efficiency Nova Scotia Corporation Act*	Electricity		To use energy more efficiently					
Brief Description			The legislation created an independent electricity efficiency administrator called the Efficiency Nova Scotia Corporation. It established a fund that is dedicated to deliver electricity efficiency programs. The Efficiency Nova Scotia Corporation also manages energy efficiency and conservation programs outside of electricity saving measures. Funding comes from a levy on the Nova Scotia electricity rate-payer base and the Province of Nova Scotia.					
Nova Scotia Renewable Electricity Plan*	Electricity		To increase the share of clean energy in the province's energy use	Regulatory	Nova Scotia	Implemented	2010	NE
Brief Description			The Regulations require 25% of electricity supply to be generated from renewable sources by 2015 and 40% by 2020. This will involve the adoption of a diverse mix of energy sources including wind, tidal, solar, hydro and bioenergy.					
Prince Edward Island's Energy Accord	Electricity		To increase Prince Edward Island's reliance on wind power	Voluntary Agreement	Prince Edward Island	Implemented	2011	NE
Brief Description			Prince Edward Island's Energy Accord was released in November 2010 and took effect in March 2011. The Accord is a five-year energy strategy developed by Prince Edward Island in collaboration and partnership with Maritime Electric Company Limited. Its goals are to lower and stabilize electricity rates and increase Prince Edward Island's reliance on locally owned wind power. The Accord contains a number of initiatives including support for an additional 40 megawatts in wind generation. New wind generation is expected to be operational by 2013, at which time 33% of the province's electricity supply would come from wind power.					
Newfoundland and Labrador Green Fund	Electricity	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To provide support for climate change initiatives	Fiscal	Newfoundland and Labrador	Implemented	2007	NE
Brief Description			Projects funded through the Green Fund include energy efficiency, small scale wind turbines, biofuels, and waste methane capture.					
Newfoundland and Labrador Muskrat Falls Hydroelectricity project*	Electricity	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To increase the share of clean energy in the province's energy use	Economic	Newfoundland and Labrador/ Nalcor Energy in partnership with Emera	Planned	2017	1,200
Brief Description			Once developed, the 824 megawatt Muskrat Falls hydroelectric project will displace oil-fired electricity generation representing over 10% of the province's GHG emissions.					

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Northwest Territories Alternative Energy Technologies Program	Electricity		To support conversion to renewable and clean energies	Fiscal	Northwest Territories	Implemented	2007	NE
Brief Description	The program will support Aboriginal and community governments, non-for-profit organizations, commercial businesses, and residents to convert to renewable and clean energies. Technologies eligible for incentives include solar, hot water heating systems, and wind turbines.							
Northwest Territories Energy Efficiency Incentive Program	Electricity		To support upgrades to more energy efficient technologies	Fiscal	Northwest Territories	Implemented	2007	NE
Brief Description	The Energy Efficiency Incentive Program provides rebates for energy efficient appliances, residential retrofits, and new homes ranging from \$50 to \$4,500.							
Northwest Territories Commercial Energy Conservation and Efficiency Program	Electricity		To support commercial energy and water efficiency	Fiscal	Northwest Territories	Implemented	2011	NE
Brief Description	Eligible small businesses receive free energy audits and 25% of the cost of retrofit expenses up to a maximum of \$10,000.							
Northwest Territories Arctic Energy Alliance	Electricity		To educate, raise awareness and help residents of the Northwest Territories adopt energy saving best practices	Education	Northwest Territories	Implemented	2007	NE
Brief Description	Non-profit Arctic Energy Alliance provides free information, advice, incentives and answers to questions from residents of the Northwest Territories on energy efficiency and hosts annual Energy Actions Awards. The Arctic Energy Alliance also conducts energy audits to educate residents on how to reduce home energy consumption.							
British Columbia Building Green Code*	Buildings		To improve energy efficiency in new houses and buildings	Regulatory	British Columbia	Implemented	2008	NE
Brief Description	In September 2008, British Columbia adopted new energy and water efficiency objectives and requirements for all buildings in the British Columbia Building Code. Further efficiency updates to the Code are proposed but not yet adopted.							
LiveSmart BC: Efficiency Incentive Program	Buildings		To support homeowners in improving energy efficiencies of their homes	Economic	British Columbia	Implemented	2008	NE
Brief Description	This program provides incentives for homeowners to improve the energy efficiency of their homes. Since the program was launched in 2008, around \$10 million has been invested. This program will end on March 31, 2014.							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Ontario Building Code*	Buildings		To reduce GHG emissions in the buildings sector	Regulatory	Ontario	Implemented	2012	2,900
Brief Description	<p>The Building Code is phasing in higher energy efficiency requirements for new buildings over time, which plays a significant role in limiting greenhouse gas emissions while allowing businesses and residents the flexibility to move forward in a cost-efficient manner.</p> <p>Emission reductions for Ontario's buildings sector are combined.</p> <p>Combined estimated mitigation impact of 2.9 Mt applies to initiatives related to:</p> <ul style="list-style-type: none"> <li>- The Growth Plan for the Greater Golden Horseshoe</li> <li>- Natural gas demand side management programs</li> <li>- Building Code changes</li> <li>- Other related buildings and cross-cutting initiatives</li> </ul>							
Northwest Territories Capital Asset Retrofit Fund	Buildings		To increase building energy system efficiencies in schools and other territorial buildings. Targets benchmarking of healthcare facilities and/or government buildings across the Northwest Territories	Other	Northwest Territories	Implemented	2008	NE
Brief Description	Through energy audits, building surveys and energy benchmarking, buildings are identified and retrofitted to improve their energy efficiency. The program tracks actual financial savings from retrofits and reinvests them into the Capital Asset Retrofit Fund.							
Northwest Territories Initiatives for new buildings	Buildings		To reduce energy consumption and ensure quality control for buildings in the north	Other	Northwest Territories	Implemented		NE
Brief Description	Initiatives include the development and use of <i>A Good Building Practice for Northern Facilities</i> guidebook. The Government of the Northwest Territories Public Works and Services conducts design reviews and engages in energy modelling workshops, public awareness activities related to energy use and conservation and information sharing with other groups and Territories.							
Northwest Territories Housing Corporation Energy Initiatives	Buildings		To achieve higher high energy efficiency and meet Natural Resources Canada's minimum standard	Other	Northwest Territories	Implemented		NE
Brief Description	Three key initiatives include: 1) A draft <i>Retrofit Strategy</i> ; 2) The Northern Sustainable Housing Project for the design of a highly efficient building with reduced operating costs and greenhouse gas emissions and; 3) Promoting energy efficiency through the Homeownership Program "Solutions To Educate People."							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Yukon Government Green Building Standards	Buildings		To increase energy efficiency of new buildings within the City of Whitehorse	Regulatory	Yukon	Implemented		NE
Brief Description	Increased minimum insulation values, requirements for a Blower door test on all new construction, and requirements for heat-recovery ventilators.							
Emission Intensive and Trade Exposed Sector Regulations	Emissions-intensive and Trade-exposed	CO <sub>2</sub> and TBD	To reduce GHG emissions from major-emitting industrial sectors	Regulatory	Environment Canada	Planned	TBD	NE
Brief Description	Sector-specific regulatory approaches are being developed for major-emitting industrial sectors under Canada's sector-by-sector regulatory approach to reducing greenhouse gas emissions. These approaches are currently under development.							
Pulp and Paper Green Transformation Program*	Emissions-intensive and Trade-exposed	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To improve the environmental performance of Canada's pulp and paper industry in the areas of renewable energy production and energy efficiency	Fiscal	Natural Resources Canada	Implemented	2009	1,360
Brief Description	Operating from June 2009 to March 2012, the \$1-billion Pulp and Paper Green Transformation Program provided funding to Canadian pulp and paper companies for capital projects with environmental benefits. Though not specifically designed as a climate change mitigation mechanism, through projects that improved energy efficiency, enabled fuel switching and added capacity to generate renewable electricity, the Pulp and Paper Green Transformation Program generated both direct and indirect GHG emission reductions.							
Saskatchewan Management and Reduction of Greenhouse Gases Regulation	Emissions-intensive and Trade-exposed		To reduce GHG emissions from large final emitters	Regulatory	Saskatchewan	Planned	2013	NE
Brief Description	The regulation requires large final emitter facilities that emit over 50,000 tonnes of CO <sub>2</sub> to reduce their emissions by 20% by 2020 from a 2006 baseline. Compliance options include payments into a non-profit technology fund only accessible to regulated emitters for low carbon investments. Monies not used can be held in the technology fund for 5 years and then transfers into the Climate Change Foundation which is accessible for climate change related research and development or education, and is available to anyone in the province upon approval of an application.							
Ontario Greenbelt Plan	Agriculture		To permanently protect prime agricultural land and environmentally sensitive areas	Regulatory	Ontario	Implemented	2005	NE

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> e)
Brief Description	The Greenbelt Plan identifies 1.8 million acres of land where future urbanization should not occur by providing permanent protection for prime agricultural land and environmentally sensitive areas.							
The Ontario Biogas Systems Financial Assistance Program	Agriculture		To support the reduction of GHG emissions from farms	Fiscal	Ontario	Implemented	2008	NE
Brief Description	The program, completed in 2010, successfully led to more than 11 megawatts installed electrical capacity, enough power for 10,000 homes. It supported GHG emission reductions by direct avoidance of emissions from manure storage and offsetting emissions by replacing fossil fuel generated electricity or natural gas.							
The Ontario Ethanol Growth Fund	Agriculture		To support the production of ethanol fuel	Fiscal	Ontario	Implemented	2005	NE
Brief Description	The Fund has helped create an industry with domestic production that is currently at 885 million litres per year, projected to grow to over 1 billion litres per year. Ontario has seven ethanol facilities in place.							
British Columbia Landfill Gas Management Regulation*	Waste	CH <sub>4</sub>	To increase methane capture rate at landfills	Regulatory	British Columbia	Implemented	2009	NE
Brief Description	Requires larger municipal solid waste landfills (>1,000 tonnes methane/year) to install approved landfill gas capture systems with a capture rate target of 75%. Regulations will take effect in 2016.							
Manitoba Prescribed Landfills Methane Gas Capture Regulation	Waste	CH <sub>4</sub>	To reduce methane emissions from landfills	Regulatory	Manitoba	Implemented	2009	195
Brief description	Regulation 180/2009 pertaining to Manitoba's <i>Climate Change Emissions and Reduction Act</i> , in combination with s.15 of the Act, requires Manitoba's three largest landfills—the Eastview Landfill in Brandon, the Brady Landfill south of Winnipeg, and the BFI Canada Prairie Green Landfill—to capture or flare excess methane. The Regulation is expected to result in emissions reductions of 195 kt GHG per year.							
Ontario Landfill Gas Collection*	Waste	CH <sub>4</sub>	To reduce GHG emissions from the waste sector	Regulatory	Ontario	Implemented	2008	2,000

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Brief Description	In 2008, Ontario introduced regulations requiring all landfills larger than 1.5 million cubic metres to install landfill gas collection and flaring systems. Currently, most of the largest landfills are now collecting landfill gas in Ontario. Emission reductions for Ontario's agriculture and waste sectors are combined. Combined estimated mitigation impact of 2 Mt applies to initiatives related to:							
			<ul style="list-style-type: none"> <li>- Biogas Financial Assistance Program</li> <li>- Landfill gas capture regulation</li> <li>- Other policies and programs in the waste and agricultural sectors.</li> </ul>					
ecoENERGY Efficiency*	Cross-cutting	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	To improve energy efficiency in Canada	Information, regulatory, and education	Natural Resources Canada	Implemented	2011	6,500
Brief Description	<p>The ecoENERGY Efficiency program:</p> <ul style="list-style-type: none"> <li>- supports the development and implementation of energy codes, benchmarking tools, training and information materials to improve the energy efficiency of commercial and institutional buildings in Canada;</li> <li>- enables and promotes the construction and retrofit of energy efficient low-rise residential housing through the EnerGuide Rating System, the R-2000 Standard, and ENERGY STAR for New Homes initiatives;</li> <li>- introduces or raises energy efficiency standards for a range of products, and promotes energy-efficient products through the ENERGY STAR initiative; and</li> <li>- aids the adoption and implementation of an energy management standard in Canada, accelerates energy-savings investments in industrial facilities and supports the exchange of best-practices information within Canada's industrial sector; and</li> <li>- provides Canadians with decision-making tools for buying more fuel efficient vehicles including introducing improved vehicle fuel consumption labels. It also provides Canadians and Canada's commercial/ institutional fleet sector with information to operate their vehicles to reduce fuel consumption by exposing drivers to fuel-efficient driving techniques.</li> </ul> <p>Note: The estimated mitigation impact of 6,500 kt in 2020 only includes energy efficiency impacts associated with policies and measures that occurred since Canada's 5th National Communication and associated in-depth review in 2011. This figure does not include the estimated mitigation impact of 44,750 kt in 2020 resulting from energy efficiency standards published prior to 2011.</p>							
ecoENERGY Innovation Initiative	Cross-cutting	CO <sub>2</sub>	To support renewable and clean energy technologies	Fiscal	Natural Resources Canada	Implemented	2011	NE
Brief Description	<p>The Government of Canada has invested \$268 million over five years (2011–2016) in renewable energy and clean energy technologies. The objective is to support energy technology innovation to produce and use energy more cleanly and efficiently. The initiative primarily involves research projects; only minor direct GHG emissions reductions are expected.</p>							
ecoENERGY Technology Initiative	Cross-cutting	CO <sub>2</sub>	To increase clean energy supply, reduce energy waste, and reduce pollution from conventional energy	Fiscal	Natural Resources Canada	Implemented	2007	200



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
<b>Brief Description</b>								
Carbon capture and storage investment in Canada's Federal Budget 2008*	Cross-cutting	CO <sub>2</sub>	To support the SaskPower Boundary Dam clean energy technology project	Fiscal	Government of Canada	Implemented	2014	1,000
<b>Brief Description</b>	As part of Budget 2008, a one-time allocation of \$240 million was given towards the SaskPower Boundary Dam carbon capture and storage project which will capture and store up to 1,000 kt CO <sub>2</sub> per year from 2014 onwards for the life of the plant.							
Clean Energy Fund	Cross-cutting	CO <sub>2</sub>	To support clean energy technology research, demonstration and development	Fiscal	Natural Resources Canada	Implemented	2009	2,800
<b>Brief Description</b>	The Government of Canada has allocated \$37.6 million over five years (2009/10-2013/14) for the demonstration of promising technologies, including large-scale carbon capture and storage projects, and renewable energy and clean energy systems demonstration and research and development projects. The Fund is expected to result in emissions reductions of up to 2,800 kt CO <sub>2</sub> eq per year from 2015 to 2025, and possibly beyond.							
Sustainable Development Technology Canada—Sustainable Development Tech Fund	Cross-cutting	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	Support for renewable and clean energy technologies as part of a broader mandate to support the development, demonstration and commercialization of clean technologies	Economic	Sustainable Development Technology Canada (Environment Canada and Natural Resources Canada)	Implemented	2001	NE
<b>Brief Description</b>	The Government of Canada has allocated a total of \$915 million to Sustainable Development Technology Canada's Sustainable Development Tech Fund, including an injection of \$325 million in Budget 2013. To date, the Sustainable Development Tech Fund has allocated \$592 million to support 245 projects across Canada, leveraging an additional \$1.5 billion mostly from industry. GHG emissions reductions (as well as other positive environmental outcomes) are an indirect and long-term objective. It is estimated that Sustainable Development Technology Canada's efforts will have resulted in a total cumulative global GHG reduction of 135.8 Mt of CO <sub>2</sub> eq by 2020. As of 2012, completed projects are estimated to have yielded a total of 2.1 Mt of CO <sub>2</sub> eq.							



**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
ecoENERGY for Aboriginal and Northern Communities	Cross-cutting	CO <sub>2</sub>	Reduced GHG emissions in Aboriginal and northern communities	Fiscal	Aboriginal Affairs and Northern Development Canada	Implemented	2011	70
Brief Description	<p>The ecoENERGY for Aboriginal and Northern Communities Program is investing \$20 million over five years to support Aboriginal and northern communities, including off-grid communities, to reduce GHG emissions through the integration of proven renewable energy technologies such as residual heat recovery, biomass, geothermal, wind, solar and small hydro. The program provides funding support for the design and construction of renewable energy projects integrated with community buildings, and for the feasibility stages of larger renewable energy projects, thereby displacing natural gas, coal and diesel generation of electricity and heat.</p> <p>The objective of the ecoENERGY for Aboriginal and Northern Communities Program (2011–2016) is to reduce or displace natural gas, coal and diesel generation of electricity thereby reducing greenhouse gas emissions by a projected 1.5 Mt over a 20-year project lifecycle for all projects funded by March 31, 2016.</p> <p>Note: The program funds larger renewable energy projects at the feasibility stages. As a result, it is possible that not all of the funded projects will reach the implementation phase and realize greenhouse gas emission reductions. In some cases, greenhouse gas reductions may be not be realized until after 2020.</p>							
British Columbia Carbon Tax*	Cross-cutting	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, SF <sub>6</sub>	To introduce a cost for GHG emissions from fossil fuels	Economic	British Columbia	Implemented	2008	3,000
Brief Description	<p>This revenue-neutral tax applies to virtually all fossil fuels, including: gasoline, diesel, natural gas, coal, propane, and home heating fuel. The carbon tax started at a rate based on \$10 per tonne of associated carbon or carbon-equivalent emissions, and will rise by \$5 each year over the next four years, reaching \$30 per tonne in 2012 where it will remain. The revenue generated by this tax is returned to individuals and businesses through reductions to other taxes and other tax credits.</p>							
Carbon Neutral Government of British Columbia	Cross-cutting		To achieve carbon neutrality in government operations	Regulatory	British Columbia	Implemented	2007	NE
Brief Description	<p>The <i>Greenhouse Gas Reductions Targets Act</i> required the provincial government, including provincial ministries and agencies, schools, colleges, universities, health authorities and Crown corporations, to become carbon neutral by 2010 and to make public a report every year detailing actions taken towards carbon neutrality. The province has since announced that it achieved carbon neutrality in 2010, 2011 and 2012. Emissions reductions offset market development, outreach, and demonstration.</p>							
Alberta Industrial Regulations*	Cross-cutting		To limit emissions intensity from the industrial sector	Regulatory	Alberta	Implemented	2007	10,000

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Brief Description	Industrial facilities that emit more than 100,000 tonnes of CO <sub>2</sub> eq are required to reduce their emissions intensity by 12% using a baseline based on past emissions. Regulated facilities have four compliance options: improve the GHG intensity of their operations; buy emissions performance credits from other regulated facilities that achieve reductions beyond their requirement; buy Alberta-based offsets; or pay \$15 per tonne of CO <sub>2</sub> eq to the Climate Change and Emissions Management Fund. As of 2013, the regulation covers 106 facilities from 15 industrial sectors (about half of Alberta's GHG emissions).							
Alberta Climate Change Emissions Management Fund	Cross-cutting		To promote investments in green projects and technologies	Economic	Alberta	Implemented	2008	700
Brief Description	The Climate Change and Emissions Management Fund invests in projects and technology to reduce GHG emissions in Alberta, including renewable forms of energy and cleaner energy development. Funds come from companies who have chosen to pay for their excess emissions, one of the four compliance options under Alberta's Industrial Regulations. Since 2007, around \$400 million has been paid into the clean technology fund, and 182 million has been invested in 48 clean energy projects.							
SaskPower demonstration carbon capture and storage projects*	Cross-cutting		To support the development of carbon capture and storage technology	Fiscal	Saskatchewan	Implemented		NE
Brief Description	Saskatchewan has invested upwards of \$17 million in capture and storage projects and projects that reduce flaring. Together with industry and government partners, it has several capture and storage projects underway. The Weyburn-Midale project is the largest capture and storage demonstration site in the world. Saskatchewan is also implementing the approximately \$1 billion, 15 megawatt project at Boundary Dam, with a \$240 million federal government contribution. Once operational in 2014, the Boundary Dam Project is expected to capture up to 1 Mt of CO <sub>2</sub> per year, thereby reducing emissions by 7.2% from 2002 levels.							
Saskatchewan Go Green Fund in Environment	Cross-cutting		To reduce GHG emissions through green initiatives	Fiscal	Saskatchewan	Implemented		NE
Brief Description	Launched as part of the Go Green Plan, this fund invests in projects which reduce or avoid GHG emissions, among other environmental priorities such as water conservation. The 2011 Saskatchewan budget included \$17 million in funding to the Go Green Fund and green initiatives funding for Energy and Resources. Previously funded initiatives include the High Wind and Storage Project, which aims to develop wind energy and energy storage technology, and AQUISTORE, which will develop technologies for carbon dioxide storage in saline aquifers.							
Manitoba Biomass Energy Support Program	Cross-cutting	CO <sub>2</sub>	To reduce GHG emissions from coal to promote biomass energy	Economic	Manitoba	Implemented	2012	NE

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> e)
Brief description			This program provides up to \$400,000 in grants to encourage coal users to switch to biomass energy products and support the expansion and growth of the biomass energy production industry. It consists of two components: 1) a consumer support component that provides grants of up to \$12,000 to coal users to help offset the price differential between coal and biomass products; and 2) a capital component that provides grants of up to \$50,000 to help biomass users and processors develop high-quality, renewable biomass products for use in combustion heating systems.					
Ontario Places to Grow Act	Cross-cutting		To reduce GHG emissions from land use and transportation	Regulatory	Ontario	Implemented	2005	NE
Brief Description			The Growth Plan for the Greater Golden Horseshoe 2006, is designed to support greater density and transit alternatives. These help limit growing traffic congestion and urban sprawl. The Growth Plan for Northern Ontario, 2011, under the <i>Places to Grow Act, 2005</i> , includes policies to incorporate climate change mitigation and adaptation considerations into planning and decision making where appropriate.					
Ontario Provincial Policy Statement	Cross-cutting		To provide policy direction in matters of provincial interest in land use planning and development	Information	Ontario	Implemented	2005	NE
Brief Description			The Provincial Policy Statement guides municipalities in making land use planning decisions that influence transportation, energy demand, and encourages the development of compact communities and the reduction of emissions.					
Ontario Next Generation Jobs Fund	Cross-cutting		To support the development of green technologies	Fiscal	Ontario	Implemented	2007	NE
Brief Description			This fund supports projects related to the development of clean cars, clean fuels, and clean products and technology in Ontario. Projects must demonstrate environmental and economic benefits, including job creation and GHG emissions reduction.					
Ontario Innovation Demonstration Fund	Cross-cutting		To support the development of green technologies	Fiscal	Ontario	Implemented	2006	NE
Brief Description			The Innovation Demonstration Fund supports pilot demonstrations in emerging technologies with a preference towards environmental, alternative energy, bio-products, hydrogen and other green sectors. The Innovation Demonstration Fund helps companies mitigate technological risk and addresses the financing gap that exists between research and development and commercialization.					
Ontario 50 Million Tree Program	Cross cutting		To sequester carbon and improve adaptive capacity of the settled landscape	Fiscal	Ontario	Implemented	2007	NE
Brief Description			This 18 year program, to invest \$79 million in the planting of 50 million trees on the settled landscape of southern Ontario that will sequester 6.6 Mt of CO <sub>2</sub> by 2050 and help restore forest cover on this highly fragmented landscape.					

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Quebec 2013-2020 Climate Change Action Plan and Adaptation Strategy	Cross-cutting		To reduce GHG emissions by 25% compared to 1990 levels in 2020	Regulatory	Quebec	Implemented	2013	NE
Brief Description	The 2013-2020 Climate Change Action Plan has an estimated \$3 billion budget over 8 years to finance 30 priorities in the following areas: transport, industry, buildings, land-use planning, research and development, government procurement, energy efficiency, bio-energy, agriculture and waste management. At the heart of the action plan is Québec's cap-and-trade system which allows for the funding of most of its GHG reduction measures through the government sale of emission allowances. This plan takes over from the 2006-2012 action plan.							
Quebec Duty on Non-Renewable Fossil Fuels Payable to the Green Fund*	Cross-cutting	TBD	To reduce emissions from gasoline and other fossil fuels	Regulatory	Quebec	Implemented	2007	NE
Brief Description	A levy that applies to distributors of gasoline and fossil fuel used for energy efficiency purposes. It is calculated based on GHG by type of energy and generates revenues of \$200 million a year that are directed to the provincial Green Fund to reduce GHG emissions and improve public transport.							
Quebec's Cap-and-Trade System*	Cross-cutting		Cap-and-trade system	Economic and Regulatory	Quebec	Implemented	2012	NE
Brief Description	One of the key elements of Quebec's approach to climate change is a cap-and-trade system which became effective in January 2012, with a first compliance period starting January 2013. Covered entities primarily include electricity production and distribution and large industrial facilities. In 2015, the system will expand to cover the distribution of fuel used in the transportation, building, and small- and medium-sized business sectors. Quebec and California will formally link their emissions trading schemes in 2014. Quebec anticipates its auction of GHG emission allowances for the fall of 2013 and the first Quebec-California joint auction at the beginning of 2014.							
Development strategy for Québec's environmental and green technology industry	Cross-cutting		To support research and development as well as businesses in the field of green technology	Information, Research	Quebec	Implemented	2008	NE
Brief Description	In relation to climate change, new energies, energy efficiency, and carbon capture and sequestration among other areas, the strategy aims to: <ul style="list-style-type: none"> <li>- support industrial research;</li> <li>- help disseminate information on university research projects in green technology;</li> <li>- support technology refinement and demonstration projects; and,</li> <li>- improve environmental certification mechanisms and the implementation of measures to facilitate the execution of demonstration projects.</li> </ul>							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
New Brunswick Energy Blue Print	Cross-cutting		To improve energy security, affordability and reliability, environmental responsibility, effective regulation	Other	New Brunswick	Implemented	2011	1,300
Brief Description	The Policy is a three year plan, with a ten year view and includes five key energy objectives. Thirteen of the 20 actions relate directly or indirectly to reducing GHG emissions.							
New Brunswick Energy Efficiency Regulation	Cross-cutting		To improve energy efficiency and energy conservation	Regulatory, Education	New Brunswick	Implemented	2005	300
Brief Description	Efficiency New Brunswick is a Crown Corporation Agency established in 2005. Its mandate is to provide advice and solutions to help residents use energy more efficiently, make better energy choices, manage energy expenses and lessen the impact of energy use on the environment. More specifically, the agency's mandate is to: <ul style="list-style-type: none"> <li>- Promote energy efficiency measures in the residential, community and business sectors</li> <li>- Develop and deliver programs and initiatives in relation to energy efficiency;</li> <li>- Promote the development of an energy efficiency services industry;</li> <li>- Act as a central resource for the promotion of energy efficiency; and</li> <li>- Raise awareness of how energy efficiency measures can lead to a more reliable energy supply for New Brunswick.</li> </ul>							
New Brunswick's Air Quality Regulations	Cross-cutting		To limit GHG emissions from industrial sectors	Regulatory	New Brunswick	Planned	2014	NE
Brief Description	This sets the context for all industrial sectors operating in the province and includes a strong industrial approvals program which generally incorporates facility level emission caps, as well as monitoring and reporting programs.							
Yukon Government Carbon-Neutrality	Cross-cutting		To achieve carbon neutrality	Regulatory	Yukon	Adopted	2009	NE
Brief Description	The Government of Yukon's 2009 Climate Change Action Plan commits the Yukon Government to cap GHG emissions from its internal operations in 2010, reduce them by 20% by 2015 and become carbon neutral by 2020. It also committed the government to report on these emissions through the Climate Registry and to develop a carbon offset policy for internal operations.							

**Table 3** Progress in Achievement of Quantified Economy-wide Emission Reduction Targets: Mitigation Actions and Their Effects (continued)

Name of Mitigation Action	Sector(s) Affected	GHG(s) Affected	Objective and/or Activity Affected	Type of Instrument	Implementation Entity	Status of Implementation	Start Date of Implementation	Estimate of Mitigation Impact in 2020 (kt CO <sub>2</sub> eq)
Yukon Government Sector Specific Targets	Cross-cutting		To minimize growth in overall Yukon emissions	Regulatory	Yukon	Adopted	2012	NE
Brief Description	<p><b>Building Sector</b></p> <ul style="list-style-type: none"> <li>- By 2016, increase the average energy efficiency of new buildings constructed outside of Whitehorse by 25% compared to 2011 standards</li> <li>- By 2020, reduce the emissions intensity of existing buildings across Yukon by 5%</li> <li>- By 2020, meet 20% of government buildings' space heating needs with clean energy sources</li> </ul> <p><b>Transportation Sector</b></p> <ul style="list-style-type: none"> <li>- By 2015, reduce emissions from Yukon government light fleet operations by 5%</li> <li>- By 2015, reduce emissions in the transportation sector by 10%</li> </ul> <p><b>Electricity Sector</b></p> <ul style="list-style-type: none"> <li>- By 2020, reduce the emission intensity of on-grid diesel power generation by 20%</li> <li>- By 2016, reduce on-grid electrical usage by 5 gigawatts per hour through demand-side management programs</li> </ul> <p><b>Industrial Sector</b></p> <ul style="list-style-type: none"> <li>- By 2016, reduce the electrical energy intensity of industrial operations present in 2011 by 15%</li> <li>- By 2014, establish reporting protocols for stationary facilities emitting over 2.5 kt of GHG per year.</li> </ul>							
Nunavut's Energy Strategy	Cross-cutting		To reduce fossil fuel consumption	Other	Nunavut	Adopted	2006	NE
Brief Description	As part of the Energy Strategy, the Nunavut Government stated a goal to reduce the Territory's dependency on imported fuel through conservation and development of renewable energy sources.							



## 4.B Reporting on Progress

Total Canadian GHG emissions were 737,000 kt CO<sub>2</sub> eq in the base year (2005). By 2011, the latest year of reporting, GHG emissions were 702,000 kt without accounting for a reduction of almost 9,000 kt CO<sub>2</sub> eq from the Land Use, Land-use Change and Forestry (LULUCF) sector. Contributions from the LULUCF sector are quantified for 2010 and 2011 but applied only to the 2020 CO<sub>2</sub> eq emissions total.

Further detail on reductions measures can be found in Chapter 4—Policies and Measures of the 6th National Communication Report as well as the relevant tables within this Biennial Report.

**Table 4: Reporting on Progress**

Year	Total Emissions Excluding LULUCF (kt CO <sub>2</sub> eq)	Contribution from LULUCF (kt CO <sub>2</sub> eq)	Quantity of Units from Market Based Mechanisms Under the Convention (number of units and kt CO <sub>2</sub> eq)	Quantity of Units from Other Market Based Mechanisms (number of units and kt CO <sub>2</sub> eq)
2005	737,000	NA		
2010	701,000	-2,000		
2011	702,000	-9,000		

NA = Not applicable, numbers rounded to the nearest Mt, 2012 historical estimates are not yet available.

## 4.C Estimates of Emission Reductions and Removals and the Use of Units from the Markets-Based Mechanisms and Land Use, Land-use Change and Forestry Activities

### Overview

The accounting contribution by the LULUCF Sector amounts to credits of 2,400 and 9,000 kt for 2010 and 2011, respectively.<sup>2</sup> The difference in the net LULUCF contribution between 2010 and 2011 is largely due to the changing contribution from Forest Land Remaining

Forest Land. The net greenhouse gas (GHG) flux from LULUCF subcategories included in the accounting amounted to emissions of 72,000 and 57,000 kt carbon dioxide equivalent (CO<sub>2</sub> eq) for the 2010 and 2011 inventory years, respectively.

### Canada's general approach to including LULUCF in accounting

Canada's approach to LULUCF accounting incorporates the Convention categories Forest Land and Cropland, including all land conversion to these categories since 1970, and the conversion of Forest Land to Wetlands and Settlements. The LULUCF subcategories that are reported in Canada's 2013 National GHG Inventory submission (NIR 2013) but excluded from the accounting are: Other Land converted to Wetlands (Other Land converted to Flooded Lands), Grassland conversion to Settlements (non-forest land conversion to Settlements in the Canadian North) and Settlements remaining Settlements (urban forests). The notation "NI" in Table 4(a)I of Canada's first Biennial Report indicates that a LULUCF category, although reported in the national inventory, is "not included" in the accounting. The exclusion of these categories results in minor differences from the National Inventory estimates.

All of Canada's managed land is Forest Land, Cropland, Grassland, Wetlands or Settlements. The category "Other Land" entirely consists in unmanaged land; thus, its inclusion in the accounting would not be appropriate (notation key "NA").

The notation "IE" in the last row indicates that estimates of delayed emissions from the pool of wood products from domestic harvest have been included elsewhere, specifically in the category Forest Land remaining Forest Land (FLFL). Additional explanations on the FLFL and Harvested Wood Products (HWP) categories are provided in Section 2 "Forest Land Remaining Forest Land" and Section 6 "Harvested Wood Products."



For all categories except FLFL, the accounting contribution is calculated by subtracting the 2005 (base-year) estimates from the 2010 and 2011 estimates. For FLFL, reference level (RL) accounting is used: the accounting contribution is calculated by subtracting the RL value for any given year from the corresponding inventory FLFL estimate reported. The 2010 and 2011 values for “Base year/period or reference level value” of Table 4(a)I—74,000 and 66,000 kt CO<sub>2</sub> eq respectively—were generated automatically by adding the FLFL RL value to the base year emissions of all other categories. Because Canada uses different accounting rules for different categories, the significance of these numbers is unclear.

Canada's target is formulated for the year 2020 as opposed to a time period; for this reason, a cumulative contribution from LULUCF is “not applicable” (notation “NA”).

#### Accounting Framework in Table 4(a)I **Forest Land Remaining Forest Land**

The accounting “contribution from LULUCF for reported year” of Table 4(a)I is derived using a RL approach. The contribution is calculated by comparing the RL value for that year to the actual emissions and removals that occurred in that year. The resulting accounting contribution for 2010 is 1,200 kt CO<sub>2</sub> eq (an accounting debit) and, for 2011, -4,800 kt CO<sub>2</sub> eq (an accounting credit).

To derive the RL values Canada has followed the same methodology as that used for the RL for Forest Management (FM) it submitted in 2011, which was subsequently assessed and included in the Annex to Decision 2/CMP.7.<sup>3</sup> Canada's RL was based on a projection for each year from 2010 to 2020, with the RL calculated as the average value for the period 2013–2020. HWPs were included, with the pool starting in 1990, and emissions estimated for historical years and projected based on assumptions about future harvest levels and the use of harvested wood products. In keeping with the focus on anthropogenic emissions

and removals, Canada's RL also excluded the impact of natural disturbances, apart from a low, constant background level of fire emissions expected to occur each year.

The RL approach is an internationally accepted, scientifically credible method of accounting for managed forests. Canada will continue to use the RL approach and the assumptions about future harvest levels and the use of harvested wood products integral to the approach, although it is no longer a party to the Kyoto Protocol. The derivation of Canada's RL time series, and the specific values for 2010 and 2011 shown in “Contribution from LULUCF for reported year” of Table 4(a)I, is described below, and reflects the following changes:

- Canada is now accounting for managed forests using the UNFCCC category of FLFL rather than the activity of FM.
- Canada's Copenhagen target of reducing emissions 17% below 2005 levels is in relation to 2020, not a commitment period of 2013–2020, as under the Kyoto Protocol. Consequently, the contribution from managed forests in 2020 will be accounted for on the basis of the 2020 value from the RL time series, not the average of values for each year in the 2013–2020 period.
- Canada has applied a technical correction process to its RL time series for 2010 to 2020 in order to ensure the integrity of the accounting approach, and as a result of revisions and recalculations in its FLFL estimates (see Section 2.3). The technical correction aims for consistency with good practice as defined by the Intergovernmental Panel on Climate Change (IPCC), although the relevant guidance was not adopted yet at the time of writing this report.

#### **Category definition**

Canada has derived the values indicated in Table 4(a) I using the UNFCCC category FLFL. This category includes all land that was converted to forest more than 20 years ago.

The net GHG emissions and removals from FLFL are estimated at 68,000 kt CO<sub>2</sub> eq in 2010 and 54,000 kt CO<sub>2</sub> eq in 2011. These values are derived using the same data and methodologies used to produce FLFL estimates for NIR 2013. While the historical FLFL values in column “Net GHG emissions/removal from LULUCF categories” are identical to estimates in Table 7.5, Chapter 7 of NIR 2013, they are not the same as numbers reported in the Common Reporting Format (CRF) tables because of the treatment of HWPs. In the CRF tables, HWP carbon is assumed to be instantaneously oxidized at the time of harvest. In Table 7.5 the estimates assume a pool of HWP carbon that starts in 1990 from domestically harvested wood and include emissions of carbon from the pool over time.

#### Reference level

In column “base year/period or reference level value” of Table 4(a)I, the 2010 value of the RL time series is estimated at 67,000 kt CO<sub>2</sub> eq, and for 2011, at 59,000 kt CO<sub>2</sub> eq. These RL values are derived using the same data and methodologies used to produce FLFL estimates for NIR 2013,<sup>4</sup> and differ from the RL values Canada submitted in 2011. This is because the historical data used in developing FLFL inventory estimates and constructing the time series for the RL have been revised and updated since 2011.

The updates and recalculations to the historical data and the methodological improvements are explained in detail in Chapter 7 of NIR 2013, including:

- a. *Harvest and natural disturbance data updates:* Data for 2010 and 2011 are now available and revisions to official harvest data from 1990 onward were incorporated in NIR 2013. The largest recalculation in NIR 2013 FLFL estimates was for the 2010 inventory year, where official data replaced preliminary harvest estimates. Updated wildfire data that utilized more detailed mapping of areas affected by fires for 2009 and 2010 caused upward recalculations for these years.
- b. *Forest conversion updates:* Updated estimates for conversion of forests to other uses were obtained

based on digital remote sensing analysis. Forest conversion rates and corresponding emissions decreased for the 1990–1999 time period, while both increased in the 2000–2009 time period. This affects the total land area captured within the FLFL category.

- c. *Error corrections:* Errors identified in the implementation of various methodological changes introduced in past NIRs were corrected, namely those related to harvest activities. The error correction with the largest influence on total recalculations was related to a reduced Ontario harvest discount factor, which affected all years prior to 2008.

Implementing these methodological changes and corrections in the calculation of the RL time series is required to maintain the comparability of the FLFL estimates and the RL values, and therefore, the integrity of the accounting approach.<sup>5</sup> Incorporating these changes required a technical correction to the RL time series that Canada submitted in 2011. The technical correction reflects the following:

- Re-estimation of the projected RL time series for 2010–2020 as a result of the above-mentioned updates to the historic data (1990–2009) and methodological changes.
- No changes to the harvest and management assumptions for the 2010–2020 period from the original RL, apart from the correction of an error in treatment of slash burning emissions in one province in 2020.<sup>6</sup>
- No change to the assumption of no natural disturbances used in deriving the RL in the projection period, apart from a low, constant background level of fire emissions (equal to 95,000 hectares).<sup>7</sup> However, as actual disturbance data is now available for 2010 and 2011, the impacts of disturbance in these two years (approximately 2.3 million hectares burned by wildfire) is now included in the RL. In this way, the impact of these natural disturbances is excluded from accounting because the impact is included both in the RL values for 2010 and 2011 and in the FLFL values for those years, and so cancels out in the accounting.

The technical correction is equal to the difference between Canada's original RL (from 2011) and the updated and recalculated RL reflecting the above data updates, methodological improvements and switch to focussing on FLFL. For 2010, the technical correction is estimated at 163.7 Megatonnes (Mt) CO<sub>2</sub> eq; for 2011, the correction is 164.4 Mt CO<sub>2</sub> eq. The size of the correction is largely attributable to the inclusion of emissions from natural disturbances—the known emissions for 2010 and 2011 are considerably higher than the low background level of disturbance assumed in the RL (see below). The technical correction is not a result of any changes in policy assumptions for the 2010–2020 period (e.g. harvest rates) from the original RL assumptions.

#### Breakdown of the technical correction (Mt CO<sub>2</sub> eq)

	2010	2011
Methodological changes	-5.9	-6.9
Data updates	2.9	3.1
Inclusion of actual natural disturbances	166.7	168.2
Technical correction	163.7	164.4

The technical correction is the value that must be added to the original value from the RL time series that Canada submitted in 2011, in order to reflect methodological changes, data updates and actual natural disturbance impacts rather than only a low background level of fire. Positive values indicate the correction reduces the RL sink while negative values indicate the correction increases the RL sink.

#### Exclusion of natural disturbance impacts

Natural disturbance (fire, insect infestation) impacts are excluded from the accounting for 2010 and 2011, as explained above. The approach Canada has used to calculate a “background level” of natural disturbance is explained in Canada's 2011 RL submission. Detailed, spatially-referenced information on the year, location, and type of natural disturbances excluded from the accounting is available upon request. The modelling approach Canada uses to estimate emissions and subsequent removals associated with natural

disturbances is described in Chapter 7, Section 7.3.1 of NIR 2013. Canada's National Forest Carbon Monitoring, Accounting and Reporting System, the same system used to provide FLFL estimates for NIR, is used to estimate the emissions and will be used to identify any subsequent removals from the lands affected by natural disturbances, as well as to monitor lands affected by natural disturbances for salvage logging or subsequent land use change in order to account for any associated emissions.

The excluded natural disturbance impacts are “beyond control” and “not materially influenced” by Canada, as these natural disturbances occur each year in spite of significant and costly efforts to manage disturbance. Canada engages in on-going efforts to prevent, manage and control natural disturbances to the extent practicable. For fires, efforts occur through the Provincial and Territorial Forest Fire Management Agencies, the Canadian Interagency Forest Fire Centre ([www.cifcc.ca](http://www.cifcc.ca)), and the use of fire information tools. A Canadian Wildland Fire Strategy (see <http://cfs.nrcan.gc.ca/pages/159>) helps guide fire management agencies and research to better mitigate forest fires in Canada. For insects, Canada uses risk analysis and an integrated pest management approach under a National Forest Pest Strategy which provides a venue for sharing knowledge and expertise on pest status, methods, and best practices (see <http://cfs.nrcan.gc.ca/pages/48> and <http://cfs.nrcan.gc.ca/pages/345>). Canada also engages in efforts to rehabilitate land that has been subject to natural disturbance, where practicable: these efforts are governed by forest regeneration policies that exist in each province and territory.

#### Cap

Canada does not apply a cap in accounting for FLFL.

#### Land Converted to Forest Land

The accounting contribution in 2010 is 180 kt CO<sub>2</sub> eq and, in 2011, is 230 kt CO<sub>2</sub> eq (both accounting debits). The contribution is derived using a net-net approach that compares the estimated emissions in the year of interest to the emissions in Canada's base year (2005).

Canada is using the UNFCCC inventory category of Land Converted to Forest Land (LFL), noting that net removals from LFL that are more than 20 years old are captured under FLFL. In any given year, LFL always consists of forest that existed for less than 20 years; as such, it differs from the activity of Afforestation under the Kyoto Protocol, which includes all Forest Land created since 1990.

Historical estimates for LFL and their associated removals are the same as those reported in the CRF table of the NIR 2013. For 2010, reported LFL removals are estimated at  $-740$  kt CO<sub>2</sub> eq; for 2011,  $-700$  kt CO<sub>2</sub> eq.

The base year (2005) value for LFL is the same as that reported in Canada's NIR 2013.

### **Cropland**

The accounting contribution of the Cropland category for 2010 is  $-3,500$  kt CO<sub>2</sub> eq and, for 2011,  $-3,900$  kt CO<sub>2</sub> eq (both accounting credits). The contribution is calculated by subtracting the net 2005 GHG flux from the values for 2010 and 2011.

The category definitions and the methodologies used to derive the estimates for 2005, 2010 and 2011 are described in NIR 2013. The estimates in the 2nd and 3rd columns of Table 4(a)I are identical to those in the Common Reporting Format tables in NIR 2013 for the corresponding categories and years.

### **Forest Land converted to Other Land categories**

The categories "Wetlands" and "Settlements" of Table 4(a)I include only emissions from the conversion of Forest Land. Forest conversion to Wetlands contributes credits of 490 and 650 kt CO<sub>2</sub> eq in 2010 and 2011 respectively. Meanwhile, Forest conversion to Settlements results in a debit of 150 and a small credit of 12 kt CO<sub>2</sub> eq for 2010 and 2011, respectively. These contributions are derived by subtracting the emissions in Canada's base year (2005) from the estimated emissions in the year of interest.

The category definitions and the methodologies used to derive the estimates for 2005, 2010 and 2011 are described in NIR 2013 (Table 7.1 and Section 7.8). The estimates in "Net GHG emissions/removals from LULUCF categories" and "Base year/period or reference level value" columns of Table 4(a)I are identical to those in the Common Reporting Format tables in NIR 2013 for the corresponding categories and years. As in NIR 2013, all carbon stored in forest products produced in the course of forest conversion is deemed an immediate emission.

### **Harvested Wood Products**

There are significant temporal inaccuracies resulting from a default assumption that all carbon transferred out of forests in wood commodities is emitted immediately. To improve the temporal accuracy of estimates, Canada has developed a country specific model, the Carbon Budget Model Framework for Harvest Wood Products (CBM-FHWP) to monitor and quantify the fate of carbon from domestic harvest, according to the general framework of the production approach (IPCC 2006). For the purpose of this report, in Table 4(a)I the delayed emissions from the Harvested Wood Product pool are included in the FLFL category for the 2010 and 2011 inventory year estimates and the corresponding FLFL reference level values.

In general, the incorporation of the long term carbon storage in HWP changes the temporal pattern of emissions as carbon storage in the HWP pool delays emissions. A comparison of the estimates of net flux from FLFL using both the default instantaneous oxidation approach (IPCC 2003) and the incorporation of HWP using the CBM-FHWP is presented in Table 7-5 of the NIR 2013. More information on Canada's application of the production approach using the CBM-FHWP is provided in section 7.3.1.1 and A3.4.7 of NIR 2013.

**Table 4(a) I** Progress in Achieving the Quantified Economy-wide Emission Reduction Targets—Further information on mitigation actions relevant to the contribution of the Land Use, Land-use Change and Forestry Sector in 2010

	Net GHG Emissions/Removals from LULUCF Categories (kt CO <sub>2</sub> eq)	Base Year/Period or Reference Level Value (kt CO <sub>2</sub> eq)	Contribution from LULUCF for Reported Year (kt CO <sub>2</sub> eq)	Cumulative Contribution from LULUCF (kt CO <sub>2</sub> eq)	Accounting Approach
<b>Total LULUCF</b>	<b>71,788</b>	<b>74,189</b>	<b>-2,401</b>	<b>NA</b>	
<b>A. Forest land</b>	<b>67,300</b>	<b>65,874</b>	<b>1,426</b>		
Forest land remaining forest land	68,044	66,802	1,242		2010-RL2010
Land converted to forest land	-744	-928	184		2010-2005 BY
Other (please specify)					
<b>B. Cropland</b>	<b>-7,584</b>	<b>-4,100</b>	<b>-3,484</b>		2010-2005 BY
Cropland remaining cropland	-12,879	-10,127	-2,752		
Land converted to cropland	5,296	6,027	-732		
Other (please specify)					
<b>C. Grassland</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>		NI
Grassland remaining grassland					
Land converted to grassland					
Other (please specify)					
<b>D. Wetlands</b>	<b>2,559</b>	<b>3,053</b>	<b>-494</b>		2010-2005 BY
Wetlands remaining wetlands	1,978	2,164	-185		
Land converted to wetlands	580	889	-308		
Other (please specify)					
<b>E. Settlements</b>	<b>9,514</b>	<b>9,363</b>	<b>151</b>		
Settlements remaining settlements	NI	NI	NI		NI
Land converted to settlements	9,514	9,363	151		2010-2005 BY
Other (please specify)					
<b>F. Other land</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>		NA
Other land remaining other land					
Land converted to other land	NA	NA	NA		NA
Other					
<b>G. Other (please specify)</b>					
Harvested wood products	IE	IE	IE		

Abbreviations: LULUCF-Land use, Land-use Change and Forestry, RL = Reference level, BY = Base year, IE = Included elsewhere, NA = Not applicable, NI = Not included

**Table 4(a) I** Progress in Achieving the Quantified Economy-wide Emission Reduction Targets—Further information on mitigation actions relevant to the contribution of the Land Use, Land-use Change and Forestry Sector in 2011

	Net GHG Emissions/ Removals from LULUCF Categories (kt CO <sub>2</sub> eq)	Base Year/Period or Reference Level Value (kt CO <sub>2</sub> eq)	Contribution from LULUCF for Reported Year (kt CO <sub>2</sub> eq)	Cumulative Contribution from LULUCF (kt CO <sub>2</sub> eq)	Accounting Approach
<b>Total LULUCF</b>	<b>57,077</b>	<b>66,173</b>	<b>-9,096</b>	<b>NA</b>	
<b>A. Forest land</b>	<b>53,296</b>	<b>57,858</b>	<b>-4,562</b>		
Forest land remaining forest land	53,994	58,786	-4,792		2011-RL <sub>2011</sub>
Land converted to forest land	-697	-928	230		2011-2005 BY
Other (please specify)					
<b>B. Cropland</b>	<b>-7,974</b>	<b>-4,100</b>	<b>-3,873</b>		2011-2005 BY
Cropland remaining cropland	-13,240	-10,127	-3,113		
Land converted to cropland	5,267	6,027	-761		
Other (please specify)					
<b>C. Grassland</b>	<b>NI</b>	<b>NI</b>	<b>NI</b>		NI
Grassland remaining grassland					
Land converted to grassland					
Other (please specify)					
<b>D. Wetlands</b>	<b>2,403</b>	<b>3,053</b>	<b>-649</b>		2011-2005 BY
Wetlands remaining wetlands	1,935	2,164	-229		
Land converted to wetlands	468	889	-420		
Other (please specify)					
<b>E. Settlements</b>	<b>9,351</b>	<b>9,363</b>	<b>-12</b>		
Settlements remaining settlements	NI	NI	NI		NI
Land converted to settlements	9,351	9,363	-12		2011-2005 BY
Other (please specify)					
<b>F. Other land</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>		NA
Other land remaining other land					
Land converted to other land	NA	NA	NA		NA
Other					
<b>G. Other (please specify)</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>		
Harvested wood products	IE	IE	IE		

Abbreviations: LULUCF-Land use, Land-use Change and Forestry, RL = Reference level, BY = Base year, IE = Included elsewhere, NA = Not applicable, NI = Not included



## Section 5 Projections

Between 2005 and 2011, real gross domestic product (GDP) grew at an annual average rate of 1.4%, significantly less than the historical and projected trends due to the economic downturn of 2008. This historical data is available from Statistics Canada's *National Income and Expenditure Accounts* (and CANSIM table 380-0002). Stronger growth trends are assumed after 2011. Between 2011 and 2020, real GDP is expected to increase by 2.1% on average each year. The economic projections to the year 2018 are based on private sector projections from Finance Canada's Private Sector Survey, June 2013.

The outer years are based on Finance Canada's longer-term fiscal projections included in their Labour productivity growth is based on Human Resources and Skills Development Canada's employment projections.

The outer years (2018–2030) are based on the Department of Finance's longer-term fiscal projections included in their "Economic and Fiscal Implications of an Aging Population report." Forecasts of major energy supply projects and prices forecasts are taken from the National Energy Board's preliminary 2013 projections.

Population growth in Canada is assumed to slow from its historical trajectory out to 2030. The Canadian labour force follows an assumed path of diminishing growth, slowing from 17% overall growth in the last decade (2000–2010), to 9% between 2010 and 2020, and to 5% between 2020 and 2030. According to Statistics Canada (August 2011) and Finance Canada (October 2012), the decline in the labour participation rate is mostly attributable to the growing number of retirees (the "Baby Boomer" generation), increasing life expectancy, and a decline in fertility rates below the replacement level of 2.1 children per woman. Population growth rate assumptions use data provided by Statistics Canada.

Oil and natural gas price and production forecasts were provided by the National Energy Board (preliminary projections 2013).

For further detail on Macroeconomic assumptions, please see Chapter 5, Annex I—Baseline Data and Assumptions, in Canada's 6th National Communication.

For further detail on Macroeconomic assumptions, please see Annex 1 of Chapter 5, Annex I—Baseline Data and Assumptions, in Canada's 6th National Communication.

**Table 5** Summary of Key Variables and Assumptions Used in the Projections Analysis

Key Underlying Assumptions	Historical						Projected			
	1990	1995	2000	2005	2010	2011	2015	2020	2025	2030
Oil Price (C\$2010/bbl)	\$38.63	\$25.75	\$39.04	\$64.38	\$81.87	\$97.73	\$97.86	\$105.42	\$108.09	\$110.82
Natural Gas Price (C\$2010/GJ)	\$2.71	\$2.49	\$5.85	\$10.45	\$4.77	\$4.28	\$4.46	\$5.29	\$5.90	\$6.34
Real GDP Chain-Weighted (\$1997)*	0.2%	2.8%	5.2%	2.9%	3.2%	2.5%	2.6%	1.6%	1.5%	1.7%
Real GDP per capita (\$1997)*	-1.3%	1.8%	4.3%	2.0%	2.0%	1.3%	1.5%	0.6%	0.6%	0.9%
Consumer Price Index (1992=100)*	4.8%	2.2%	2.7%	2.2%	1.8%	2.9%	2.0%	2.2%	2.0%	2.1%
Population*	1.5%	1.0%	0.9%	1.0%	1.2%	1.2%	1.1%	1.0%	0.9%	0.8%
Population of driving age (18-75)*	1.5%	1.2%	1.2%	1.2%	1.4%	1.3%	1.1%	0.7%	0.6%	0.6%
Labour Force*	1.3%	0.8%	1.7%	0.8%	1.1%	0.9%	1.0%	0.7%	0.5%	0.5%

\* Annual growth rate

Abbreviations: Cs = Canadian dollars, bbl = barrels, GJ = gigajoule, Mt CO<sub>2</sub> eq = megatonne of carbon dioxide equivalent, GDP = gross domestic product

**Table 6(a)** Information on Updated Greenhouse Gas Projections Under a 'With Measures' Scenario

Sector	Historical							Projected	
	Base year	1990 (kt CO <sub>2</sub> eq)	1995 (kt CO <sub>2</sub> eq)	2000 (kt CO <sub>2</sub> eq)	2005 (kt CO <sub>2</sub> eq)	2010 (kt CO <sub>2</sub> eq)	2011 (kt CO <sub>2</sub> eq)	2020 (kt CO <sub>2</sub> eq)	2030 (kt CO <sub>2</sub> eq)
Oil and Gas	2005	101,000	124,000	150,000	162,000	164,000	163,000	200,000	241,000
Electricity	2005	94,000	98,000	129,000	121,000	99,000	90,000	82,000	59,000
Transportation	2005	128,000	137,000	155,000	168,000	167,000	170,000	176,000	179,000
Emissions Intensive Trade Exposed Industries	2005	93,000	94,000	85,000	87,000	75,000	78,000	90,000	101,000
Buildings	2005	70,000	76,000	82,000	84,000	79,000	84,000	95,000	110,000
Agriculture	2005	54,000	61,000	66,000	68,000	69,000	68,000	69,000	70,000
Waste & Others	2005	50,000	49,000	51,000	49,000	48,000	49,000	50,000	55,000
LULUCF Emissions <sup>a</sup>		-158,000	130,000	-120,000	-7,000	72,000	57,000	-128,000	-142,000
Gas									
CO <sub>2</sub> emissions including net CO <sub>2</sub> from LULUCF	2005	296,000	590,000	443,000	563,000	607,000	594,000	484,000	512,000
CO <sub>2</sub> emissions excluding net CO <sub>2</sub> from LULUCF	2005	459,000	491,000	565,000	579,000	554,000	555,000	614,000	656,000
CH <sub>4</sub> emissions including CH <sub>4</sub> from LULUCF	2005	75,000	105,000	96,000	104,000	102,000	102,000	87,000	88,000
CH <sub>4</sub> emissions excluding CH <sub>4</sub> from LULUCF	2005	72,000	86,000	94,000	98,000	90,000	91,000	85,000	86,000
N <sub>2</sub> O emissions including N <sub>2</sub> O from LULUCF	2005	51,000	66,000	50,000	54,000	54,000	53,000	50,000	52,000
N <sub>2</sub> O emissions excluding N <sub>2</sub> O from LULUCF	2005	49,000	54,000	49,000	50,000	47,000	46,000	49,000	51,000
HFCs	2005	800	500	3,000	5,000	7,000	8,000	13,000	19,000
PFCs	2005	7,000	6,000	4,000	3,000	2,000	2,000	2,000	2,000
SF <sub>6</sub>	2005	3,000	2,000	3,000	2,000	400	400	300	400
Totals									

<sup>a</sup> While the historical Forest Land remaining Forest Land (FLFL) values are consistent with information reported in Canada's National Inventory Report (NIR) 2013, they are not the same as numbers reported in the Common Reporting Format (CRF) tables of NIR2013 because of the treatment of harvested wood products (HWPs). In the CRF tables, HWP carbon is assumed to be instantaneously oxidized at the time of harvest. In contrast, all estimates shown in this Table assume a pool of HWP starting in 1990 from domestically harvested wood and include emissions of carbon from the pool over time. The historical FLFL numbers here correspond to numbers shown in Table 7.5 of NIR 2013. Values for 2012 onward use provincial/territorial projections for harvest and assume no natural disturbance impacts except a low background level of fire emissions.

**Table 6(a)** Information on Updated Greenhouse Gas Projections Under a 'With Measures' Scenario (continued)

Sector	Historical							Projected	
	Base year	1990 (kt CO <sub>2</sub> eq)	1995 (kt CO <sub>2</sub> eq)	2000 (kt CO <sub>2</sub> eq)	2005 (kt CO <sub>2</sub> eq)	2010 (kt CO <sub>2</sub> eq)	2011 (kt CO <sub>2</sub> eq)	2020 (kt CO <sub>2</sub> eq)	2030 (kt CO <sub>2</sub> eq)
Total with LULUCF		433,000	769,000	598,000	730,000	773,000	759,000	635,000	673,000
Total without LULUCF		591,000	639,000	718,000	737,000	701,000	702,000	762,000	815,000
LULUCF Contribution								-28,000	NE
Total with LULUCF Contribution		591,000	639,000	718,000	737,000	701,000	702,000	734,000	NE

Abbreviations: LULUCF = Land use, Land-use Change and Forestry, NE = Not Estimated; Totals may not add up due to rounding.

**Table 6(a) Notes:**

Canadian emission projections point to significant progress that has already been achieved through actions taken by consumers, businesses and governments. Under the "with current measures" scenario, Canada's GHG emissions in 2020 are projected to be 734 megatonnes (Mt). This is 128 Mt less than under a scenario where consumers, businesses and governments had taken no action to reduce emissions (the "without measures" scenario). The projections indicate that further efforts will be required in order to meet the Copenhagen target. Further actions by federal, provincial and territorial governments, as well as actions by individual Canadians and businesses, will contribute to the additional reductions required for Canada to meet its commitments under the Copenhagen Accord. The Government of Canada supports the efforts of provinces and territories as well as businesses and individuals to lower their respective emissions.

**Table 6(b)** Information on Updated Greenhouse Gas Projections Under a 'Without Measures' Scenario

	Historical							Projected	
	Base Year	1990 (kt CO <sub>2</sub> eq)	1995 (kt CO <sub>2</sub> eq)	2000 (kt CO <sub>2</sub> eq)	2005 (kt CO <sub>2</sub> eq)	2010 (kt CO <sub>2</sub> eq)	2011 (kt CO <sub>2</sub> eq)	2020 (kt CO <sub>2</sub> eq)	2030 (kt CO <sub>2</sub> eq)
<b>Gas</b>									
CO <sub>2</sub> emissions including net CO <sub>2</sub> from LULUCF	2005	NE	NE	NE	NE	NE	NE	NE	NE
CO <sub>2</sub> emissions excluding net CO <sub>2</sub> from LULUCF	2005	459,000	491,000	565,000	579,000	584,000	577,000	702,000	NE
CH <sub>4</sub> emissions including CH <sub>4</sub> from LULUCF	2005	NE	NE	NE	NE	NE	NE	NE	NE
CH <sub>4</sub> emissions excluding CH <sub>4</sub> from LULUCF	2005	72,000	86,000	94,000	98,000	93,000	93,000	95,000	NE
N <sub>2</sub> O emissions including N <sub>2</sub> O from LULUCF	2005	NE	NE	NE	NE	NE	NE	NE	NE
N <sub>2</sub> O emissions excluding N <sub>2</sub> O from LULUCF	2005	49,000	53,700	49,000	50,000	49,000	47,000	50,000	NE
HFCs	2005	800	500	3,000	5,000	7,000	8,000	13,000	NE
PFCs	2005	7,000	5,500	4,000	3,000	2,000	2,000	2,000	NE
SF <sub>6</sub>	2005	3,000	2,000	3,000	2,000	500	500	400	NE
<b>Totals</b>									
Total with LULUCF		NE	NE	NE	NE	NE	NE	NE	NE
Total without LULUCF		591,000	639,000	718,000	737,000	735,000	727,000	862,000	NE

Abbreviations: LULUCF = Land use, Land-use Change and Forestry, NE = Not Estimated; Totals may not add up due to rounding.

## Table 6 (b) Notes:

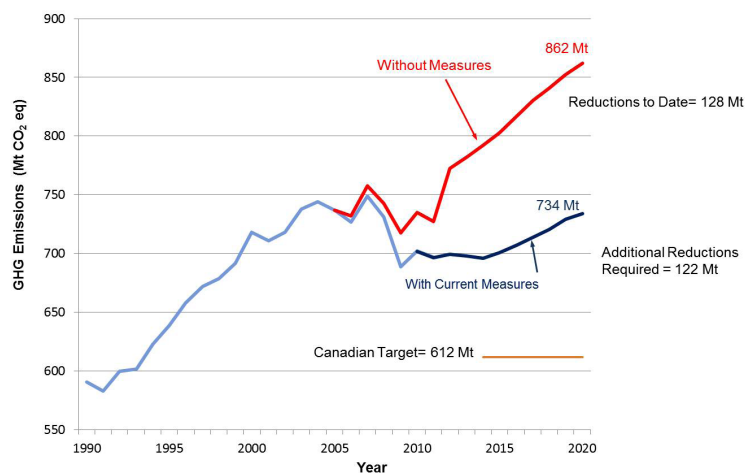
Progress in reducing GHG emissions is measured against a “without measures” scenario. The “without measures” scenario is constructed by beginning the model’s forecasting mode in 2006 configured to exclude any government policies implemented after 2005. Historical macroeconomic data is used between 2006 and 2011 and wholesale energy prices throughout the entire projection period are kept the same as those used in the reference scenario. Changes in electric generation sector energy use resulting from non-policy driven factors, including nuclear refurbishment or historical weather-related fluctuations in hydroelectric dam capacities are included in the “without measures” scenario. Oil sands emissions are derived using 2005 emissions intensities. Agriculture emissions from livestock and crop production are maintained at reference scenario levels throughout the entire projection period.

The scenario that includes current measures is then compared against this baseline scenario. In order to

be included in the “with current measures” scenario, the measure must be concrete or legislated, financially backed, and specific enough to add to the modeling platform as of May 2013.

The analysis indicates that if consumers, businesses and governments had taken no action to reduce GHG emissions after 2005, emissions in 2020 would have risen to 862 Mt. This is in comparison to the “with current measures” scenario where emissions in 2020 are expected to be 734 Mt (with the contribution from LULUCF). This means that, taken together, actions by consumers, businesses, and federal, provincial and territorial governments have decreased emissions substantially from the “without measures” scenario.

For further information on the “without measures” scenario, including methodologies, please see the “Assessment of Aggregate Effect of Policies and Measures” Section 5.6 of Chapter 5 of Canada’s 6th National Communication Report.



**Figure 5.1** Scenarios of Canadian emissions to 2020 (Mt CO<sub>2</sub> eq)



## Section 6 Provisions of Financial, Technological and Capacity Building Support to Developing Country Parties

### 6.A Finance

Developed country parties are required to report on the financial resources they have provided over the last two years in Tables 7, 7.A, and 7.B. These tables provide accurate and transparent information on the type of climate support provided by Canada to developing countries and multilateral agencies. In order to give a full account of Canada's contributions to international climate finance since our last National Communication and the fast-start financing period, Canada is providing information for the past four fiscal years, 2009/10, 2010/11, 2011/12, 2012/13.

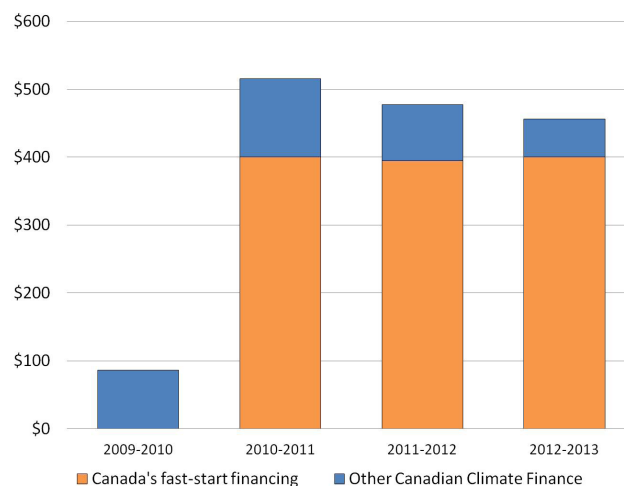
Table 7 gives a summary of Canada's climate finance support. Table 7.A provides information on Canada's contributions through multilateral channels and Table 7.B outlines information on Canada's support to bilateral programs.

Funds in the following tables are reported in Canadian dollars in millions. Currency exchange rates are based on data from the Organization for Economic Co-operation Development (OECD), Development Assistance Committee (DAC).

For more information on Canada's financial support to climate change action, please consult Canada's 6th National Communications to the UNFCCC and Canada's May 2013 Fast-Start Financing Submission to the UNFCCC.

You can also consult Canada's Climate Finance website at: <http://www.climatechange.gc.ca/finance/default.aspx?lang=en-CA>

**Effectively Addressing Developing Countries Needs**  
Through its climate finance, Canada provided extensive support to efforts that effectively address climate



**Figure 7.1** Canadian Climate Finance Programming for Fiscal Years 2009–2010 to 2012–2013 (Not including contributions to the Global Environment Facility)

change in developing countries, delivered through a wide range of multilateral, bilateral and partnership channels. Canada responded to priorities identified by bilateral partners in the context of ongoing and longstanding development partnerships that include addressing climate change issues as part of development objectives set by our partners.

Over the last four fiscal years (2009–2010 to 2012–2013), Canada provided over \$1.55 billion<sup>8</sup> to support climate change projects through a variety of channels and programs (see figure 6.1). This amount includes \$1.2 billion in fast-start financing delivered over the last three fiscal years (2010–2011 to 2012–2013), as well as \$348 million<sup>9</sup> of international assistance projects with a direct or significant focus on climate change. Canada also provided over \$204 million to support the Global Environment Facility (GEF) in the last four years, of which approximately a quarter came from Canada's fast-start financing. Detailed information on Canada's support to the GEF can be found in table 7A of this Biennial Report.

### **New and additional resources**

Canada's provision and mobilization of financial support is in line with its obligation under the United Nations Framework Convention on Climate Change (UNFCCC) to provide new and additional resources as part of its overall support to help developing countries implement actions to address climate change.

Canada's fast-start financing effort is the prime example of Canadian support that is fully new and additional. Canada provided \$1.2 billion in support to projects that were above and beyond what was planned prior to the Copenhagen Accord.

Over the past four years, Canada also responded to priorities identified by bilateral partners in the context of ongoing and longstanding development partnerships that include addressing climate change issues as part of objectives set by its partners. For this support, it is not possible to determine a simple definition under which

this programming is new and additional or not, nor is it necessary to do so given the importance of seeking to mainstream climate change results in country-driven programming.

### **Mobilising Investments**

The majority of financing for climate change will come from private sector sources, scaled up climate-focused investment will be a key part of scaled up action on climate change. There are a number of potential barriers to facilitating sufficient private investment, and therefore Canada is actively contributing to international efforts to better understand opportunities for mobilizing private investment.

A large portion of Canada's climate financing over the reporting period was provided to multilateral organizations such as the International Finance Corporation, the Inter-American Development Bank and the Asian Development Bank for the establishment of Canadian facilities targeting the mobilization of climate friendly private-sector investment in developing countries. The first two facilities, at the International Finance Corporation and Inter-American Development Bank, are fully operational and are showing results on the ground.

Projects supported by these Canadian facilities are expected to generate significant environmental benefits and contributed to leveraging investment from the public and private sectors. As of September 2013, out of the \$684 million provided to multilateral financial institutions through our fast-start financing, direct project investments using approximately \$110 million of the Canadian funding provided has been approved, helping to mobilize over \$1.050 billion of public and private sector investment and contributing to achieving annual GHG emission reductions of over 675,000 metric tonnes of carbon dioxide equivalent. These facilities achieve an incremental benefit by providing support to projects with measurable, positive climate impacts that require some financing on concessional terms to be viable.

**Table 7** Provision of Public Financial Support—Summary Information in 2009–10

2009–10										
Allocation Channels	Domestic Currency (CAD Millions)					USD* (Millions)				
	Core/General	Climate Specific				Core/General	Climate Specific			
		Mitigation	Adaptation	Cross-Cutting	Other		Mitigation	Adaptation	Cross-Cutting	Other
Total contributions through multilateral channels:	33.94	0	15.00	0	0	38.73	0	17.12	0	0
– Multilateral climate change fund										
– Other multilateral climate change funds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
– Multilateral financial institutions, including regional development banks	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
– Specialized United Nations bodies	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total contributions through bilateral, regional and other channels	0	12.43	59.17	1.41	0	0	14.18	67.51	1.61	0
<b>Total</b>	<b>33.94</b>	<b>12.43</b>	<b>74.17</b>	<b>1.41</b>	<b>0</b>	<b>38.73</b>	<b>14.18</b>	<b>84.63</b>	<b>1.61</b>	<b>0</b>

Abbreviations USD = United States Dollars

\* Based on OECD/DAC Exchange Rates for FY2009/10: 1.141

**Table 7** Provision of Public Financial Support—Summary Information in 2010–11

2010–11										
Allocation Channels	Domestic Currency (millions)					USD (millions)*				
	Core/General	Climate Specific				Core/General	Climate Specific			
		Mitigation	Adaptation	Cross-Cutting	Other		Mitigation	Adaptation	Cross-Cutting	Other
Total contributions through multilateral channels:	58.58	44.50	20.00	1.00	0	60.35	45.84	20.60	1.03	0
– Multilateral climate change fund										
– Other multilateral climate change funds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
– Multilateral financial institutions	0	0	0	291.55	0	0	0	0	300.35	0
– Specialized United Nations bodies	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

2010–11										
Allocation Channels	Domestic Currency (millions)					USD (millions)*				
	Core/General	Climate Specific				Core/General	Climate Specific			
		Mitigation	Adaptation	Cross-Cutting	Other		Mitigation	Adaptation	Cross-Cutting	Other
Total contributions through bilateral, regional and other channels	0	1.20	142.06	6.23	0	0	1.24	146.35	6.42	0
<b>Total</b>	<b>58.58</b>	<b>45.70</b>	<b>162.06</b>	<b>298.78</b>	<b>0</b>	<b>60.35</b>	<b>47.08</b>	<b>166.65</b>	<b>307.80</b>	<b>0</b>

\*Based on OECD/DAC Exchange Rates for FY2010/11: 1.0302

**Table 7** Provision of Public Financial Support—Summary Information in 2011–12

2011–12										
Allocation Channels	Domestic Currency (millions)					USD (millions)*				
	Core/General	Climate Specific				Core/General	Climate Specific			
		Mitigation	Adaptation	Cross-Cutting	Other		Mitigation	Adaptation	Cross-Cutting	Other
Total contributions through multilateral channels:	54.75	100.60	0	5.65	0	54.15	99.50	0	5.59	0
– Multilateral climate change fund										
– Other multilateral climate change funds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
– Multilateral financial institutions	0	0	10.00	200.00	0	0	0	9.89	197.82	0
– Specialized United Nations bodies	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total contributions through bilateral, regional and other channels	0	0.34	114.91	22.86	0	0	0.34	113.66	22.61	0
<b>Total</b>	<b>54.75</b>	<b>100.94</b>	<b>124.91</b>	<b>228.51</b>	<b>0</b>	<b>51.15</b>	<b>99.84</b>	<b>112.42</b>	<b>226.02</b>	<b>0</b>

\*Based on OECD/DAC Exchange Rates for FY2011/12: 0.9891

NA = Not applicable

**Table 7** Provision of Public Financial Support—Summary Information in 2012–13

Allocation Channels	2012–13									
	Domestic Currency (millions)					USD (millions)*				
	Core/ General	Climate Specific				Core/ General	Climate Specific			
Mitigation		Adaptation	Cross-Cutting	Other	Mitigation		Adaptation	Cross-Cutting	Other	
Total contributions through multilateral channels:	57.29	100	0	2.30	0	56.67	98.91	0	2.27	0
– Multilateral climate change fund										
– Other multilateral climate change funds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
– Multilateral Financial Institutions	0	0	4.45	192.67	0	0	0	4.40	190.57	0
– Specialized United Nations bodies	0	15.50	16.50	2.50	0	0	15.33	16.32	2.47	0
Total contributions through bilateral, regional and other channels	0	9.16	80.21	15.10	0	0	9.06	79.34	14.94	0
<b>Total</b>	<b>57.29</b>	<b>124.66</b>	<b>101.16</b>	<b>212.57</b>	<b>0</b>	<b>56.67</b>	<b>123.30</b>	<b>100.06</b>	<b>210.25</b>	<b>0</b>

\*Based on OECD/DAC Exchange Rates for FY 2012/13: 0.9891

NA = Not applicable

**New and additional:** Canada's fast-start financing effort is the prime example of Canadian support that is fully new and additional. Canada provided \$1.2 billion in support to projects that were above and beyond what was planned prior to the Copenhagen Accord.

Over the past four years, Canada also responded to priorities identified by bilateral partners in the context of ongoing and longstanding development partnerships that include addressing climate change issues as part of objectives set by its partners. For this support, it is not possible to determine a simple definition under which this programming is new and additional or not, nor is it necessary to do so given the importance of seeking to mainstream climate change results in country-driven programming.

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2009–10

Multilateral Organization	2009–2010				Status	Funding Source <sup>a</sup>	Financial Instrument	Type of Support	Sector
	Total Amount (millions)		Climate-Specific						
	Core/General		CAD	USD					
Global Environment Facility <sup>†</sup>	33.94	38.73	0	0	Provided	ODA	Grant	Cross-cutting	Cross-cutting
Strategic Climate Fund—Pilot Program for Climate Resilience <sup>†</sup>	0	0	15.00	17.12	Provided	ODA	Grant	Adaptation	NA
<b>Other</b>									
Asia Pacific Partnership <sup>†</sup>	0	0	11.80	13.46	Provided	OoF	Grant	Mitigation	Energy
Canadian International Development Agency—Climate Change Adaptation and Capacity Building in Western Africa <sup>†</sup>	0	0	0.01	0.01	Provided	ODA	Grant	Adaptation	Cross-cutting
Canadian International Food Security Research Fund*	0	0	0.18	0.21	Provided	ODA	Grant	Adaptation	Agriculture
CGIAR Research Program on Climate Change, Agriculture and Food Security <sup>†</sup>	0	0	5.50	6.28	Provided	ODA	Grant	Adaptation	Agriculture
International Development Research Centre <sup>†</sup>	0	0	7.75	8.84	Provided	ODA	Grant	Adaptation	Cross-cutting
International Model Forest Network—African Model Forest Initiative*	0	0	1.41	1.61	Provided	ODA	Grant	Cross-cutting	Forests
Latin American Energy Organization*	0	0	0.5	0.57	Provided	ODA	Grant	Mitigation	Cross-cutting
World Food Programme—Food for Asset Building—Ethiopia*	0	0	3.00	3.42	Provided	ODA	Grant	Adaptation	Agriculture
World Food Programme—Productive Safety Net Programme—Ethiopia*	0	0	35.50	40.51	Provided	ODA	Grant	Adaptation	Agriculture
<b>Total</b>	<b>33.94</b>	<b>38.73</b>	<b>79.24</b>	<b>90.42</b>					

<sup>†</sup> Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

Abbreviations: ODA = official development assistance, OoF = other official flows; USD = United States dollars; CAD = Canadian dollars

<sup>a</sup> Refers to "type of funding" in Canada. For more information on Canada's International Assistance, please consult the Government of Canada's Statistical Report on International Assistance: <http://www.acdi-cida.gc.ca/acdi-cida/acdi-cida.nsf/eng/JUD-4128122-G4W>



**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2010-11

2010–2011									
Multilateral Organization	Total Amount (millions)				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Core/General		Climate Specific						
	CAD	USD	CAD	USD					
Global Environment Facility <sup>†</sup>	58.58	60.35	0	0	Provided	ODA	Grant	Cross-cutting	Cross-cutting
Least Developed Countries Fund <sup>†</sup>	0	0	20.00	20.60	Provided	ODA	Grant	Adaptation	Agriculture
BioCarbon Fund <sup>†</sup>	0	0	4.50	4.64	Provided	ODA	Grant	Mitigation	Agriculture
Forest Carbon Partnership Facility—Readiness Fund <sup>†</sup>	0	0	40.00	41.21	Provided	ODA	Grant	Mitigation	Forests
UNFCCC Trust Fund for Participation <sup>†</sup>	0	0	1.00	1.03	Provided	ODA	Grant	Cross-cutting	N/A
<b>Subtotal</b>	<b>58.58</b>	<b>60.35</b>	<b>65.50</b>	<b>67.48</b>					
<b>Multilateral financial institutions, including regional development banks<sup>a</sup></b>									
International Finance Corporation <sup>†</sup>	0	0	271.00	279.18	Provided		Concessional	Cross-cutting	Clean Energy
International Finance Corporation <sup>†</sup>	0	0	5.83	6.01	Provided		Grant	Cross-cutting	Clean Energy
International Finance Corporation <sup>†</sup>	0	0	14.72	15.17	Provided		Concessional	Cross-cutting	Clean Energy
<b>Subtotal</b>			<b>291.55</b>	<b>300.36</b>					
<b>Other</b>									
Asia Pacific Partnership <sup>†</sup>	0	0	1.20		Provided		Grant	Mitigation	Clean Energy
Canadian International Development Agency—Climate Change Adaptation and Capacity Building in Western Africa <sup>†</sup>	0	0	0.06		Provided		Grant	Adaptation	Cross-cutting
Canadian International Food Security Research Fund <sup>*</sup>	0	0	7.04	7.25	Provided	ODA	Grant	Adaptation	Cross-cutting
International Development Research Centre <sup>†</sup>	0	0	8.28	8.53	Provided	ODA	Grant	Adaptation	Cross-cutting
International Model Forest Network—African Model Forest Initiative <sup>*</sup>	0	0	1.75	1.80	Provided	ODA	Grant	Cross-cutting	Forests
Latin American Energy Organization <sup>†</sup>	0	0	0.03	0.03	Provided	ODA	Grant	Energy	Cross-cutting
Unitarian Service Committee—Seeds of Survival <sup>*</sup>	0	0	1.53	1.58	Provided	ODA	Grant	Adaptation	Agriculture

<sup>a</sup> While it is expected that contributions made to multilateral banks will mostly flow to mitigation projects, Canadian support to the International Finance Corporation, the Inter-American Development Bank, and the Asia Development Bank have been reported as supporting “cross-cutting” activities because both adaptation and mitigation projects can receive funding from these facilities. Please refer to Canada’s 6th National Communications to the UNFCCC for a more detailed estimation of the expected sectorial breakdown of these contributions and Canadian climate finance overall. More information can also be found on [www.climatechange.gc.ca](http://www.climatechange.gc.ca), which should be consulted for the latest information.

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2010–11 (continued)

Multilateral Organization	2010–2011				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Total Amount (millions)		Climate Specific						
	Core/ General	Climate Specific	CAD	USD					
World Bank—Productive Safety Net Programme—Ethiopia*	0	0	34.00	35.03	Provided	ODA	Grant	Adaptation	Agriculture
World Food Programme—MERET—Ethiopia†	0	0	15.00	15.45	Provided	ODA	Grant	Adaptation	Cross-cutting
World Food Programme—Productive Safety Net Programme—Ethiopia*	0	0	40.55	41.77	Provided	ODA	Grant	Adaptation	Agriculture
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>109.44</b>	<b>112.74</b>					
<b>Total</b>	<b>58.58</b>	<b>60.35</b>	<b>466.49</b>	<b>480.58</b>					

† Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2011–12

Multilateral Organization	2011–2012				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Total Amount (millions)		Climate Specific						
	Core/ General	Climate Specific	CAD	USD					
Global Environment Facility†	54.75	54.15	0	0	Provided	ODA	Grant	Cross-cutting	Cross-cutting
Clean Investment Fund—Clean Technology Fund†	0	0	100.00	98.91	Provided	ODA	Concessional	Mitigation	Clean Energy
Global Alliance for Clean Cookstoves†	0	0	0.60	0.59	Provided	ODA	Grant	Mitigation	Cook Stoves
Forest Carbon Partnership Facility—Carbon Fund†	0	0	5.00	4.95	Provided	ODA	Grant	Cross-cutting	Forestry
UNFCCC Trust Fund for Supplementary Activities†	0	0	0.65	0.64	Provided	ODA	Grant	Cross-cutting	Cross-cutting
<b>Subtotal</b>	<b>54.75</b>	<b>54.15</b>	<b>106.25</b>	<b>105.09</b>					
<b>Multilateral financial institutions, including regional development banks</b>									
Inter-American Development Bank†	0	0	200.00	197.82	Provided	ODA	Concessional	Cross-cutting	Cross-cutting
Caribbean Development Bank†	0	0	10.00	9.89	Provided	ODA	Grant	Adaptation	Cross-cutting
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>210.00</b>	<b>207.71</b>					
<b>Other</b>									
Canadian International Food Security Research Fund†	0	0	12.23	12.10	Provided	ODA	Grant	Adaptation	Agriculture

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2011–12 (continued)

2011–2012									
Multilateral Organization	Total Amount (millions)				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Core/General		Climate Specific						
	CAD	USD	CAD	USD					
Commission for Environmental Cooperation†	0	0	0.34	0.34	Provided	ODA	Grant	Mitigation	Cross-cutting
Congo Basin Forest Fund†	0	0	20.00	19.78	Provided	ODA	Grant	Cross-cutting	Forests
Congo Basin Forest Partnership†	0	0	0.14	0.14	Provided	ODA	Grant	Cross-cutting	Forests
International Development Research Center and World Health Organization†	0	0	7.5	7.42	Provided	ODA	Grant	Adaptation	Cross-cutting
International Development Research Centre (IDRC)	0	0	16.1	15.92	Provided	ODA	Grant	Adaptation	Cross-cutting
International Model Forest Network—African Model Forest Initiative*	0	0	2.72	2.69	Provided	ODA	Grant	Cross-cutting	Forests
International Fund for Agricultural Development†	0	0	19.85	19.63	Provided	ODA	Grant	Adaptation	Agriculture
Unitarian Service Committee—Seeds of Survival*	0	0	2.09	2.07	Provided	ODA	Grant	Adaptation	Agriculture
World Food Programme—Cambodia*	0	0	4.00	3.96	Provided	ODA	Grant	Adaptation	Agriculture
World Food Programme—Productive Safety Net Programme—Ethiopia*	0	0	17.50	17.31	Provided	ODA	Grant	Adaptation	Agriculture
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>102.47</b>	<b>101.35</b>					
<b>Total</b>	<b>54.75</b>	<b>54.15</b>	<b>418.72</b>	<b>414.16</b>					

† Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2012–13

2012–2013									
Multilateral Organization	Total Amount (millions)				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Core/General		Climate Specific						
	CAD	USD	CAD	USD					
Global Environment Facility†	57.29	56.67	0	0	Provided	ODA	Grant	Cross-cutting	Cross-cutting
Clean Investment Fund—Clean Technology Fund†	0	0	100.00	98.91	Provided	ODA	Concessional	Mitigation	Clean Energy
Global Alliance for Clean Cookstoves†	0	0	1.30	1.29	Provided	ODA	Grant	Cross-cutting	Cook stoves
UNFCCC Trust Fund for Supplementary Activities†	0	0	1.00	0.99	Provided	ODA	Grant	Cross-cutting	Cross-cutting
<b>Subtotal</b>	<b>57.29</b>	<b>56.67</b>	<b>102.30</b>	<b>101.19</b>					

**Table 7(a)** Provision of Public Financial Support—Contribution through Multilateral Channels 2012–13 (continued)

Multilateral Organization	2012–2013				Status	Funding Source	Financial Instrument	Type of Support	Sector
	Total Amount (millions)								
	Core/General		Climate Specific						
	CAD	USD	CAD	USD					
<b>Multilateral financial institutions, including regional development banks</b>									
International Finance Corporation <sup>†</sup>	0	0	60.28	59.62	Provided	OoF	Concessional	Cross-cutting	Clean Energy
Asian Development Bank <sup>†</sup>	0	0	82.39	81.49	Provided	ODA	Concessional	Cross-cutting	Clean Energy
Inter-American Development Bank <sup>†</sup>	0	0	50.00	49.46	Provided	ODA	Concessional	Cross-cutting	Clean Energy
Caribbean Development Bank <sup>†</sup>	0	0	4.50	4.45	Provided	ODA	Grant	Adaptation	Cross-cutting
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>197.17</b>	<b>195.02</b>					
<b>Specialized United Nations Bodies</b>									
United Nations Environment Programme—Climate and Clean Air Coalition <sup>†</sup>	0	0	13.00	16.32	Provided	ODA	Grant	Mitigation	Cross-cutting
UNDP—Mexico <sup>†</sup>	0	0	2.50	2.47	Provided	ODA	Grant	Cross-cutting	Cross-cutting
United Nations Environment Programme—Climate Technology Center and Network <sup>†</sup>	0	0	2.50	12.86	Provided	ODA	Grant	Mitigation	Cross-cutting
UNDP—Canadian Climate Adaptation Facility <sup>†</sup>	0	0	16.50	2.47	Provided	ODA	Grant	Adaptation	Cross-cutting
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>34.50</b>	<b>34.12</b>					
<b>Other</b>									
Canadian International Food Security Research Fund*	0	0	10.08	9.97	Provided	ODA	Grant	Cross-cutting	Forests
Congo Basin Forest Partnership <sup>†</sup>	0	0	1.86	1.84	Provided	ODA	Grant	Cross-cutting	Forests
International Center for Tropical Agriculture <sup>†</sup>	0	0	0.50	0.49	Provided	ODA	Grant	Adaptation	Agriculture
International Development Research Centre <sup>†</sup>	0	0	16.05	15.88	Provided	ODA	Grant	Adaptation	Cross-cutting
International Model Forest Network—African Model Forest Initiative*	0	0	3.16	3.13	Provided	ODA	Grant	Cross-cutting	Forests
International Network for Bamboo and Rattan <sup>†</sup>	0	0	0.49	0.48	Provided	ODA	Grant	Adaptation	Cross-cutting
Unitarian Service Committee—Seeds of Survival*	0	0	2.21	0.48	Provided	ODA	Grant	Adaptation	Agriculture
World Meteorological Organization <sup>†</sup>	0	0	13.64	13.49	Provided	ODA	Grant	Adaptation	Cross-cutting
World Resource Institute <sup>†</sup>	0	0	0.15	0.15	Provided	ODA	Grant	Adaptation	Cross-cutting
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>48.14</b>	<b>47.62</b>					
<b>TOTAL</b>	<b>57.29</b>	<b>56.67</b>	<b>382.11</b>	<b>377.95</b>					

<sup>†</sup> Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2009–10

2009–2010								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Bolivia*	0.25	0.29	Provided	ODA	Grant	Adaptation	Water and sanitation	Building capacities in community-based eco-development and environmental health in connection with water and sanitation.
Caribbean countries*	1.28	1.46	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the improvement of the capacities of national governments and local communities to respond to and manage natural disasters.
Costa Rica, Dominican Republic, Honduras*	0.15	0.17	Provided	ODA	Grant	Adaptation	Cross-cutting	Helping communities restore degraded forests and addressing livelihood issues of local landowners in areas with high levels of rural poverty.
Ethiopia, Philippines, Jamaica*	0.23	0.26	Provided	ODA	Grant	Adaptation	Cross-cutting	Advancing sustainable economic growth and development in urban regions, consistent with the countries' national development agendas.
Haiti*	2.03	2.32	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the rehabilitation of the Artibonite River watershed in the border zone between Haiti and the Dominican Republic.
Honduras*	0.17	0.19	Provided	ODA	Grant	Adaptation	Agriculture	Enhancing food security through improved agricultural productivity, diversity and the promotion of sustainable natural resource management practices.
Nigeria†	1.52	1.73	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting effective climate change governance.
Philippines†	1.00	1.14	Provided	ODA	Grant	Adaptation	Cross-cutting	Support the improvement of enabling policies and strategic environment for disaster risk reduction.
Indonesia*	0.5	0.57	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing the livelihood security and well-being of vulnerable coastal communities on the west coast of South Sulawesi.
Peru*	0.1	0.11	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the development of sustainable management policies and programs.
Senegal, Tanzania, South Africa*	0.13	0.15	Provided	ODA	Grant	Mitigation	Transport	Increasing the capacity of local authorities and their stakeholders to develop integrated long-term sustainability plans.

† Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

ODA = official development assistance, OOF = other official flows; USD = United States dollars; CAD = Canadian dollars

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2010–11

2010–2011								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Benin†	0.78	0.80	Provided	ODA	Grant	Adaptation	Cross-cutting	Strengthening economic skills and climate change adaptive capacity.
Bolivia*	0.13	0.13	Provided	ODA	Grant	Adaptation	Water and sanitation	Building capacities in community-based eco-development and environmental health in connection with water and sanitation.
Burkina-Faso†	1.28	1.32	Provided	ODA	Grant	Adaptation	Other-Irrigation	Irrigation and climate information.
Caribbean countries*	1.6	1.65	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting capacity building of national governments and local communities to respond to and manage natural disasters.
Congo Basin Region*	0.29	0.30	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting a fair and sustainable management of natural resources in Congo Basin countries.
Costa Rica, Dominican Republic, Honduras*	0.04	0.04	Provided	ODA	Grant	Adaptation	Cross-cutting	Helping communities restore degraded forests and addressing livelihood issues of local landowners in areas with high levels of rural poverty.
Cuba*	0.1	0.10	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing municipal environmental management practices and the quality of life of the communities in coastal zones.
Egypt†	1.16	1.20	Provided	ODA	Grant	Adaptation	Cross-cutting	Establishing the Alexandria Research Centre for Adaptation to Climate Change.
Ethiopia*	7.35	7.57	Provided	ODA	Grant	Adaptation	Other-Sanitation	Reduce population health vulnerability and increase resilience to vector-borne tropical diseases.
Ethiopia, Kenya, Sudan, Tanzania*	1.34	1.38	Provided	ODA	Grant	Adaptation	Agriculture and Water	Enhancing climate change adaptation in agriculture and water resources (irrigation) in the Greater Horn of Africa.
Ethiopia, Philippines, Jamaica†	0.68	0.70	Provided	ODA	Grant	Adaptation	Cross-cutting	Advancing sustainable economic growth and development in urban regions, consistent with the countries' national development agendas.



**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2010–11 (continued)

2010–2011								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Ghana*	1.40	1.44	Provided	ODA	Grant	Adaptation	Cross-cutting	Climate change adaptation research and capacity development.
Haiti*	4.90	5.05	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving local response to climate change impacts, and reducing vulnerability to natural disasters.
Haiti†	1.9	1.96	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the rehabilitation of the Artibonite River watershed in the border zone between Haiti and the Dominican Republic.
Honduras†	5.93	6.11	Provided	ODA	Grant	Adaptation	Agriculture	Enhancing food security through improved agricultural productivity, diversity and the promotion of sustainable natural resource management practices.
Indonesia†	0.99	1.02	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing the livelihood security and well-being of vulnerable coastal communities on the west coast of South Sulawesi.
Kenya*	1.12	1.15	Provided	ODA	Grant	Adaptation	Agriculture	Enhancing climate change adaptation research capacity in the agriculture sector.
Lesotho, Malawi, Swaziland*	1.50	1.55	Provided	ODA	Grant	Adaptation	Agriculture	From research to policy: linking climate change adaptation to sustainable agriculture in southern Africa.
Mali†	0.5	0.52	Provided	ODA	Grant	Adaptation	Agriculture	Supporting the development and rehabilitation of the agricultural irrigation infrastructure.
Nigeria*	1.17	1.21	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting effective climate change governance.
Peru†	0.04	0.04	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the development of sustainable management policies and programs.
Philippines†	1.4	1.44	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving the investment climate for sustainable economic growth.
Vietnam*	4.45	4.58	Provided	ODA	Grant	Cross-cutting	Cross-cutting	Supporting the implementation of the National Target Program on climate change.

† Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2011–12

2011–2012								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Argentina <sup>†</sup>	1.26	1.25	Provided	ODA	Grant	Adaptation	Water	Adapting to water stress in the Comahue Region.
Barbados, Trinidad and Tobago, Jamaica, Guyana, Grenada <sup>†</sup>	1.50	1.48	Provided	ODA	Grant	Adaptation	Water	Sustainable water management under climate change in small island states of the Caribbean.
Bolivia <sup>†</sup>	1.08	1.07	Provided	ODA	Grant	Adaptation	Water	Strengthening local capacity for adaptation to climate change in the Bolivian Altiplano.
Bolivia <sup>*</sup>	0.43	0.43	Provided	ODA	Grant	Adaptation	Water and sanitation	Building capacities in community-based eco-development and environmental health in connection with water and sanitation.
Cambodia <sup>†</sup>	1.50	1.48	Provided	ODA	Grant	Adaptation	Water	Improving water governance and climate change adaptation.
Cambodia, Mozambique, Ghana, Kenya, Zimbabwe <sup>*</sup>	1.38	1.36	Provided	ODA	Grant	Adaptation	Cross-cutting	Providing improved food and economic security for communities who are among the poorest and most vulnerable people in their societies.
Caribbean countries	2.04	2.02	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the improvement of the capacities of national governments and local communities to respond to and manage natural disasters.
Chile <sup>†</sup>	1.30	1.29	Provided	ODA	Grant	Adaptation	Water	Vulnerability and adaptation to climate variability and change in the Maipo Basin.
Chile, Colombia, Dominican Republic, Mexico <sup>†</sup>	0.45	0.45	Provided	ODA	Grant	Mitigation	Waste and Landfill	Supporting the development of policy frameworks and projects for waste management, including a series of measures for the whole waste stream that will reduce emissions of short-lived climate pollutants such as black carbon and methane.
China <sup>†</sup>	1.50	1.48	Provided	ODA	Grant	Adaptation	Water	Water resources and adaptation to climate change in North China Plains and Poyang Lake Region.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2011–12 (continued)

2011–2012								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
China, Nepal, Pakistan <sup>†</sup>	1.53	1.51	Provided	ODA	Grant	Adaptation	Water	Building effective water governance in the Asian Highlands.
Colombia, Mexico <sup>†</sup>	1.10	1.09	Provided	ODA	Grant	Mitigation	Energy	Providing technical advice to countries to help them establish implementable mitigation actions in the Oil and Gas sector, including actions that will significantly reduce emissions of short-lived climate pollutants, notably black carbon and methane.
Congo Basin Region*	0.5	0.49	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting a fair and sustainable management of natural resources in Congo Basin countries.
Costa Rica, Dominican Republic, Honduras*	0.05	0.05	Provided	ODA	Grant	Adaptation	Cross-cutting	Helping communities restore degraded forests and addressing livelihood issues of local landowners in areas with high levels of rural poverty.
Costa Rica, Guatemala, Nicaragua <sup>†</sup>	1.48	1.46	Provided	ODA	Grant	Adaptation	Water	Adapting community-based water supply in Central America to a changing climate.
Costa Rica, Mexico, Peru <sup>†</sup>	0.50	0.49	Provided	ODA	Grant	Mitigation	Other-Housing	Providing technical advice to countries to help them establish mitigation actions in the Housing sector.
Cuba*	0.07	0.07	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing municipal environmental management practices and the quality of life of the communities in coastal zones.
Dominican Republic, Guatemala <sup>†</sup>	1.49	1.47	Provided	ODA	Grant	Adaptation	Water	Water security and climate change in Central America and the Caribbean.
Ethiopia*	1.5	1.48	Provided	ODA	Grant	Adaptation	Agriculture	Increasing agricultural productivity for smallholder farmers.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2011–12 (continued)

2011–2012								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Ethiopia, Philippines, Jamaica*	1.44	1.42	Provided	ODA	Grant	Adaptation	Cross-cutting	Advancing sustainable economic growth and development in urban regions, consistent with the countries' national development agendas.
Haiti <sup>†</sup>	2.93	2.90	Provided	ODA	Grant	Adaptation	Cross-cutting	Support for climate change adaptation and local risk management.
Haiti*	0.19	0.19	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the rehabilitation of the Artibonite River watershed in the border zone between Haiti and the Dominican Republic.
Honduras <sup>†</sup>	0.15	0.15	Provided	ODA	Grant	Adaptation	Water	Building capacity to assess infrastructure vulnerability.
Honduras*	4.7	4.65	Provided	ODA	Grant	Adaptation	Agriculture	Enhancing food security through improved agricultural productivity, diversity and the promotion of sustainable natural resource management practices.
India <sup>†</sup>	1.50	1.48	Provided	ODA	Grant	Adaptation	Water	Adapting to climate change in urbanizing watersheds.
Indonesia*	1.3	1.29	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing the livelihood security and well-being of vulnerable coastal communities on the west coast of South Sulawesi.
Latin America and the Caribbean*	0.21	0.21	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving capacities for energy planning and regulation across countries in the region.
Mali*	0.04	0.04	Provided	ODA	Grant	Adaptation	Agriculture	Supporting the development and rehabilitation of the agricultural irrigation infrastructure.
Nicaragua*	1.1	1.09	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting sustainable economic growth in rural areas and increase access to safe, nutritious food for poor communities.
Nigeria <sup>†</sup>	0.61	0.60	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting effective climate change governance.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13 (continued)

2011–2012								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Philippines*	0.7	0.69	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving the investment climate for sustainable economic growth.
Thailand†	1.23	1.22	Provided	ODA	Grant	Adaptation	Water	Inland aquaculture and adaptation to climate change in northern Thailand.
Thailand†	1.43	1.41	Provided	ODA	Grant	Adaptation	Water	Improving flood management planning.

† Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13

2012–2013								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Bolivia*	0.71	0.70	Provided	ODA	Grant	Adaptation	Water and sanitation	Building capacities in community-based eco-development and environmental health in connection with water and sanitation.
Burkina Faso†	2.50	2.47	Provided	ODA	Grant	Adaptation	Agriculture	Improving food security through the sustainable development of agriculture.
Cambodia, Mozambique, Ghana, Kenya, Zimbabwe*	0.73	0.72	Provided	ODA	Grant	Adaptation	Cross-cutting	Providing improved food and economic security for communities who are among the poorest and most vulnerable people in their societies.
Cameroon†	2.72	2.69	Provided	ODA	Grant	Adaptation	Agriculture	Increasing access to sufficient, nutritious and safe food, and the economic well-being of producers in model forests, and improving climate resilience capacities.
Caribbean countries*	2.1	2.08	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the improvement of the capacities of national governments and local communities to respond to and manage natural disasters.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13 (continued)

2012–2013								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Chile <sup>†</sup>	0.33	0.33	Provided	ODA	Grant	Mitigation	Agriculture	Supporting the development of a Nationally Appropriate Mitigation Action proposal based on atmospheric carbon capture by soils, and support for research on climate change adaptation.
Chile, Colombia, Mexico, Dominican Republic <sup>†</sup>	2.70	2.67	Provided	ODA	Grant	Mitigation	Other-Waste and landfill	Supporting the development of policy frameworks and projects for waste management, including a series of measures for the whole waste stream that will reduce emissions of short-lived climate pollutants such as black carbon and methane.
Colombia <sup>†</sup>	0.32	0.32	Provided	ODA	Grant	Mitigation	Other-Risk management	Implementation of an environmental education program for risk management to support climate change adaptation.
Colombia, Mexico <sup>†</sup>	1.90	1.88	Provided	ODA	Grant	Mitigation	Energy	Providing technical advice to countries to help them establish implementable mitigation actions in the Oil and Gas sector, including actions that will significantly reduce emissions of short-lived climate pollutants, notably black carbon and methane.
Congo Basin Countries <sup>†</sup>	0.78	0.77	Provided	ODA	Grant	Mitigation	Capacity Building	Capacity building in 10 countries located in the Congo Basin Region to help identify and develop Nationally Appropriate Mitigation Actions.
Congo Basin Countries <sup>*</sup>	0.5	0.49	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting a fair and sustainable management of natural resources.



**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13 (continued)

2012–2013								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Cuba*	0.64	0.63	Provided	ODA	Grant	Adaptation	Cross-cutting	Enhancing municipal environmental management practices and the quality of life of the communities in coastal zones and strengthening local capacities to implement industrial agricultural techniques that reduce the need for imported energy and resources.
Democratic Republic of Congo†	1.75	1.73	Provided	ODA	Grant	Adaptation	Agriculture	Reducing poverty and increasing food self-sufficiency.
Ethiopia†	1.81	1.79	Provided	ODA	Grant	Adaptation	Agriculture	Increasing economic, social and ecological resilience of smallholder Ethiopian farmers to climate change.
Ethiopia†	1.87	1.85	Provided	ODA	Grant	Adaptation	Agriculture	Increasing the food security of Ethiopian households.
Ethiopia*	5.34	5.28	Provided	ODA	Grant	Adaptation	Agriculture	Increasing agricultural productivity for smallholder farmers and supporting market-led approach to development for increased food consumption and higher incomes.
Ethiopia, Bolivia, Mali, Ghana*	1.11	1.10	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving livelihood security and resilience.
Ethiopia, Philippines, Jamaica*	0.87	0.86	Provided	ODA	Grant	Adaptation	Cross-cutting	Advancing sustainable economic growth and development in urban regions, consistent with the countries' national development agendas.
Ghana†	2.08	2.06	Provided	ODA	Grant	Adaptation	Agriculture	Implementing measures to ensure sustainable access to food and livelihoods
Ghana†	2.10	2.08	Provided	ODA	Grant	Adaptation	Agriculture	Increasing resilience of the vulnerable households to climate change.
Ghana*	1	0.99	Provided	ODA	Grant	Adaptation	Agriculture	Supporting climate resilient agriculture capacity building for smallholder farmers.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13 (continued)

2012–2013								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Guatemala <sup>†</sup>	0.66	0.65	Provided	ODA	Grant	Adaptation	Forest	Reducing socio-environmental vulnerability to climate change.
Haiti <sup>†</sup>	0.50	0.30	Provided	ODA	Grant	Adaptation	Cross-cutting	Strengthening adaptive capacities to address climate change threats on sustainable development strategies.
Haiti <sup>*</sup>	0.48	0.47	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting the rehabilitation of the Artibonite River watershed in the border zone between Haiti and the Dominican Republic.
Honduras <sup>*</sup>	2.87	2.84	Provided	ODA	Grant	Adaptation	Agriculture	Enhancing food security through improved agricultural productivity, diversity and the promotion of sustainable natural resource management practices.
Indonesia <sup>*</sup>	1.33	1.32	Provided	ODA	Grant	Adaptation	Coastal zone management	Enhancing the livelihood security and well-being of vulnerable coastal communities on the west coast of South Sulawesi.
Indonesia, Cambodia, Laos, Philippines, Thailand, Vietnam <sup>*</sup>	2.61	2.58	Provided	ODA	Grant	Adaptation	Cross-cutting	Reducing the impact of disasters on vulnerable populations by providing support to governments and civil society to manage and reduce disaster risk.
Latin America and the Caribbean <sup>*</sup>	0.17	0.17	Provided	ODA	Grant	Adaptation	Cross-cutting	Improving capacities for energy planning and regulation across countries in the region.
Mexico <sup>†</sup>	0.13	0.13	Provided	ODA	Grant	Mitigation	Cross-cutting	Technical support for GHG emission inventory.
Nicaragua <sup>*</sup>	2.05	2.03	Provided	ODA	Grant	Adaptation	Cross-cutting	Supporting sustainable economic growth in rural areas and increase access to safe, nutritious food for poor communities.
Peru <sup>†</sup>	0.30	0.30	Provided	ODA	Grant	Adaptation	Capacity building	Climate change adaptation integration in the poorest communities.

**Table 7(b)** Provision of Public Financial Support: Contribution through Bilateral, Regional and Other Channels, 2012–13 (continued)

2012–2013								
Recipient Country/Region	Total Amount (in millions)		Status	Funding Source	Financial Instrument	Type of Support	Sector	Additional Information
	Climate Specific							
	CAD	USD						
Peru, Costa Rica, Mexico <sup>†</sup>	3.00	2.97	Provided	ODA	Grant	Mitigation	Other- Housing	Providing technical advice to countries to help them establish mitigation actions in the housing sector.
Rwanda <sup>†</sup>	2.24	2.22	Provided	ODA	Grant	Adaptation	Agriculture	Increasing access to sufficient, nutritious and safe food among those most vulnerable to climate change.
Senegal <sup>†</sup>	3.02	2.99	Provided	ODA	Grant	Adaptation	Agriculture	Reducing poverty by improving the ability to adapt to climate change.
Tanzania <sup>†</sup>	3.11	3.08	Provided	ODA	Grant	Adaptation	Agriculture	Improving market-led agricultural production and market and processing knowledge.

<sup>†</sup> Contribution targeting the Rio Conventions as a 'principal objective'

\* Contribution targeting the Rio Conventions as a 'significant objective'

## 7.B Technology Development and Transfer

Canada is committed to a broad range of actions to advance the development and deployment of clean technologies globally. Additional details are included in Canada's 6th National Communication, and some examples are highlighted below. A portion of Canada's fast-start climate change financing has also focused on the development and deployment of clean energy technologies. Additional details of projects and activities funded under Canada's fast start financing can be found in Chapter 7 of Canada's 6th National Communication, and in Biennial Report Table 7B.

- Canada's RETScreen Clean Energy Project Analysis Software is the world's foremost clean energy decision-making software. It has helped significantly to reduce costs associated with identifying and assessing potential energy projects. It is estimated that RETScreen has helped spur the installation of at least 24 gigawatts of installed clean energy capacity worldwide with a value of approximately \$41 billion.
- The Generation IV International Forum (GIF) is an international treaty-supported research and development (R&D) collaboration that is working to develop and promote advanced generation (Generation IV) nuclear-based clean energy systems. Canada provides funding of approximately \$4 million annually to support its contributions to GIF collaborative R&D, as well as in-kind support from Canadian national labs and participating university partners.
- Canada supports the UNFCCC's Climate Technology Centre and Network (CTCN). The CTCN will provide tailored advice and technical assistance to developing countries to support the implementation of technology actions for mitigation or adaptation objectives. With a seat on the CTCN advisory board Canada actively participating in the development of this key institution.
- Canada led the development of the Global Early Warning System for Wildland Fire under the Global Observation of Forest Cover and Landcover Dynamics (GOFC-GOLD) Fire Implementation Team. This system contributes to the Global Multi-Hazard Early Warning System evolving under the auspices of the United Nations International Strategy for Disaster Reduction. Canada is collaborating with the European Commission's Joint Research Centre to enhance the current system. Regional early warning products using more detailed local data are also in development.
- The Canadian Forest Service undertakes a broad range of cooperation with international partners to advance GHG mitigation and forest management adaptation goals, including activities such as software training and scientific and technical mentoring and guidance in a range of countries.

**Table 8** Provision of Technology Development and Transfer Support

Recipient Country and/or Region	Targeted Area	Measures and Activities Related to Technology Transfer	Sector	Source of the Funding for Technology Transfer	Activities Undertaken By	Status	Additional Information
Global	Mitigation	Development and dissemination of the RETScreen Clean Energy Project analysis Software.	Energy	Public & private	Public	Implemented	Canada has developed RETScreen, the world's foremost clean energy decision-making software. Additional details are contained in Chapter seven of Canada's 6th National Communication and at the RETScreen website: <a href="http://www.retscreen.net">www.retscreen.net</a>
China, Euratom (the European Atomic Energy Community), France, Japan, the Russian Federation, South Korea, South Africa, Switzerland, and the U.S.	Adaptation	Canada supports international collaboration through the Generation IV-International Forum (GIF). Measures and activities include: workshops, reports and publications, ongoing collaborative R&D projects.	Energy	Public	Public	Planned	Sharing of knowledge, resources and infrastructure through the GIF, has enabled GIF participants to reduce individual costs and financial risks while enhancing their mutual R&D capabilities.
Global	Mitigation & adaptation	As a member of Advisory Board (AB) of the Climate Technology Centre and Network, Canada supported the operationalization and work of the Centre in 2013.	Other	Public	Public	Implemented	With other AB members, Canada actively engaged in the elaboration of the Climate Technology Centre and Network's administrative procedures, project prioritization and network membership. These will ensure that the CTCN will strengthen capacity for climate technology transfer; foster collaboration and access to information to accelerate climate technology transfer; and manage requests from developing countries and deliver responses.

**Table 8** Provision of Technology Development and Transfer Support (continued)

Recipient Country and/or Region	Targeted Area	Measures and Activities Related to Technology Transfer	Sector	Source of the Funding for Technology Transfer	Activities Undertaken By	Status	Additional Information
China, Mexico, Poland, Korea, Australia, Italy, Russia	Mitigation & adaptation	Forest GHG emissions mitigation and forest management. Adaptation: software training and scientific and technical mentoring and guidance.	Other	Public	Public & private	Implemented & Planned	This program will target forest GHG emissions mitigation and forest management adaptation. The Canadian Forest Service undertakes a broad range of cooperation with international partners to advance GHG mitigation and forest management adaptation goals. Additional details are contained in Chapter seven of Canada's 6th National Communication.
United Nations International Strategy for Disaster Reduction (global), southeast Asia and Southern Africa Regions	Mitigation & adaptation	Canada led the development of the Global Early Warning System for Wildland Fire under the Global Observation of Forest Cover and Landcover Dynamics (GOFC-GOLD) Fire Implementation Team. Current activities include information sessions, website.	Other	Public	Public	Implemented & planned	Additional details are contained in Chapter seven of Canada's 6th National Communication.

## Capacity Building

Canada undertakes a range of actions to support capacity building for climate change in developing countries. Capacity building needs are also addressed through many of Canada's activities focused on technology development. This includes building capacity through the dissemination of software and tools developed by Canada, the provision of support to help partners effectively use those tools, and research and development collaboration. Additional details are included in Canada's 6th National Communications Report, and some examples are highlighted below. A portion of Canada's fast-start climate change financing has also focused on developing institutional and technical capacity in developing countries. Additional details of projects and activities funded under Canada's fast start financing can be found in Chapter 7 of Canada's 6th National Communication, and in Biennial Report Table 7B.

- Canada's RETScreen Clean Energy Project Analysis Software is the world's foremost clean energy decision-making software. It has helped significantly reduce costs associated with identifying and assessing potential energy projects. It is estimated that RETScreen has helped spur the installation of at least 24 gigawatts of installed clean energy capacity worldwide with a value of approximately \$41 billion.
- Canada has also developed forest carbon accounting software called the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3). This forest carbon accounting software, developed by the Canadian Forest Service, helps forest managers meet criteria and indicator reporting requirements for sustainable forest management and forest certification, and understand how their actions affect the net carbon balance of their forest estate.
- Natural Resources Canada has supported Engineers Canada to lead the development of a standardized methodology tool to assess the engineering vulnerability of infrastructure in a changing climate in Canada. After testing in Canada, it was introduced at a regional workshop in Brazil in 2010. Since then, it has been successfully applied in two infrastructure risk assessments, in Costa Rica and Honduras.
- The International Model Forest Network (IMFN) is a global learning network of 60 member Model Forests around the world, which together cover more than 100 million hectares. Canada has hosted the IMFN Secretariat since its inception in 1995, and works with international partners to advance the sustainable management of forest-based landscapes through the Model Forest approach.
- Canada led the development of the Global Early Warning System for Wildland Fire under the Global Observation of Forest Cover and Landcover Dynamics (GOFC-GOLD) Fire Implementation Team. This system contributes to the Global Multi-Hazard Early Warning System evolving under the auspices of the United Nations International Strategy for Disaster Reduction. Canada is collaborating with the European Commission's Joint Research Centre to enhance the current system. Regional early warning products using more detailed local data are also in development.
- The Generation IV International Forum (GIF) is an international treaty-supported R&D collaboration that is working to develop and promote advanced generation (Generation IV) nuclear-based clean energy systems. Canada's participation in collaborative R&D through the GIF facilitates the development of leading edge technology and knowledge through sharing of confidential and protected data, resources and infrastructure, shared training of highly qualified people, and through the undertaking of collaborative research.
- The Clean Energy Ministerial (CEM) is a high-level process focused on clean technology to address climate change. Canada works through the CEM with 22 other governments, including major emerging economies, with the goal of facilitating the transition to a global clean energy economy. Canada is an active participant in four of the CEM's technical initiatives: the Carbon Capture, Use and Storage Action Group; the International Smart Grids Action Network; the Global Superior Energy Performance Partnership; and the Super-Efficient Equipment and Appliance Deployment Initiative.



- The International Partnership on Energy Efficiency Cooperation (IPEEC) also facilitates capacity building in the area of energy efficiency, promoting information exchange on best practices. Canada participates in both the Executive and Policy Committees of IPEEC. Canada is the current IPEEC Policy Committee Chair.
- Canada supports the UNFCCC's Climate Technology Centre and Network (CTCN), which will play a key role in supporting capacity building in developing

countries. Canada made a \$2.5 million fast-start financing contribution to support CTCN, which will provide tailored advice and technical assistance to developing countries to support the implementation of technology actions for mitigation or adaptation objectives. Canada's contribution will support start-up costs of the Centre as well as specific capacity-building activities. Canada also sits on the advisory board of the CTCN.

**Table 9** Provision of Capacity-building Support

Recipient Country/Region	Targeted Area	Program or Project Title	Description of Program or Project
Global	Multiple areas	RETScreen Clean Energy Project Analysis Software	World's leading clean energy decision-making software and has helped significantly reduce costs associated with identifying and assessing potential clean energy projects. Provided to users free-of-charge and in multiple languages, and includes comprehensive training materials. More information available at <a href="http://www.retscreen.net">www.retscreen.net</a>
China	Multiple areas	Carbon Budget Model of the Canadian Forest Sector (CBM-CFS <sub>3</sub> ) Technology Transfer	CBM-CFS <sub>3</sub> Training Workshop and project planning, scientific and technical guidance.
Mexico	Multiple areas	Carbon Budget Model of the Canadian Forest Sector (CBM-CFS <sub>3</sub> ) Technology Transfer	Potential CBM-CFS <sub>3</sub> Training Workshop. Guidance with estimation of Land Use, Land-use Change and Forestry (LULUCF) forest GHG emissions and removals, development of measuring reporting and verification system and related reducing emissions from deforestation and forest degradation (REDD+) activities.
Poland	Multiple areas	Carbon Budget Model of the Canadian Forest Sector (CBM-CFS <sub>3</sub> ) Technology Transfer	Planning CBM-CFS <sub>3</sub> Workshop and project meetings. Scientific and technical guidance.
Republic of Korea	Multiple areas	Carbon Budget Model of the Canadian Forest Sector (CBM-CFS <sub>3</sub> ) Technology Transfer	Scientific and technical guidance.
China, Euratom (the European Atomic Energy Community), France, Japan, the Russian Federation, South Korea, South Africa, Switzerland, and the United States	Adaptation, Technology development and transfer	Generation IV International Forum	The Generation IV International Forum is a treaty-supported international collaboration that includes several developing and developed countries. The Forum supports the establishment and sharing of existing and new knowledge and infrastructure needed for the development of advanced nuclear-based clean energy systems with enhanced safety, improved sustainability, improved economics and enhanced proliferation resistance and physical protection.

**Table 9** Provision of Capacity-building Support (continued)

Recipient Country/Region	Targeted Area	Program or Project Title	Description of Program or Project
Latin America, South-East Asia, Central and North Africa	Multiple areas	International Model Forest Network	The International Model Forest Network (IMFN) is a global learning network whose members work toward a common goal: the sustainable management of forest-based landscapes through the Model Forest approach. The IMFN is comprised of 60 Model Forests around the world, which together cover more than 100 million hectares. Canada has hosted the IMFN Secretariat since its inception in 1995. During the reporting period, Canada provided targeted support for climate change initiatives in Model Forests which focused on: <ol style="list-style-type: none"> <li>1) Forest management through reforestation and applied research on climate change impacts on forests;</li> <li>2) Capacity building through research extension and communications activities to increase awareness of the need to adapt to the impacts of climate change; and</li> <li>3) The development and ground-truthing of policy options based on research conducted in Model Forests.</li> </ol>
Association of Southeast Asia Nations, Southern Africa Development Community	Multiple areas	GOFC-GOLD Global Early Warning System for Wildland Fire	Global and regional systems developed collaboratively with various government agencies; ongoing consultation and advice.
International Partnership for Energy Efficiency Cooperation Members: G8 countries, the European Commission, Australia, Brazil, China, India, Mexico and South Korea	Multiple areas	International Partnership for Energy Efficiency Cooperation	The International Partnership for Energy Efficiency Cooperation aims to promote information exchange on best practices and facilitate initiatives to improve energy efficiency. Canada transfers its policy, program and technology-related best practices via Committee discussions and through its participation in two task groups—the Super-efficient Equipment and Appliance Deployment Initiative and the Global Superior Energy Performance initiative. Canada's specific expertise related to minimum energy performance standards, energy labelling and industrial capacity building have been shared.
Various	Technology development and transfer	Carbon Capture Use and Storage Action Group—Clean Energy Ministerial	The Carbon Capture Use and Storage Action Group aims to create greater political momentum to advance the level of carbon capture and storage deployment required to meet the global GHG mitigation challenge.
Non-Annex I members of the Global Superior Energy Performance Initiative	Technology development and transfer	Global Superior Energy Performance Initiative	Canada actively participates on Global Superior Energy Performance Initiative Energy Management Working Group, which aims to pursue continuous improvements in energy performance, primarily through sharing information, the development of tools, reporting mechanisms, common accreditation systems, resources and credentialing processes. To date, Canada's participation in the Initiative has been in-kind, including the implementation of three ISO 50001 Energy Management Systems Standard pilot projects, as well as commitments to share expertise and information.

**Table 9** Provision of Capacity-building Support (continued)

Recipient Country/Region	Targeted Area	Program or Project Title	Description of Program or Project
When operational, developing countries will be the recipient of the Climate Technology Centre and Network's assistance.	Multiple areas	Canada's support for the Climate Technology Centre and Network. As a member of the Advisory Board of the Climate Technology Centre and Network, Canada supported the operationalization and work of the Centre in 2013.	Canada has also made a \$2.5 million fast-start financing contribution to support the United Nations Framework Convention on Climate Change's Climate Technology Centre and Network. The Network will provide tailored advice and technical assistance to developing countries to support the implementation of technology actions for mitigation or adaptation objectives. Canada also sits on the Advisory Board of the Climate Technology Centre and Network, thereby supporting the operationalization and work of the Centre.

## References

- 1 *Canada's National Inventory Report: Greenhouse Gas Sources and Sinks in Canada 1990–2011* is available online at: <http://www.ec.gc.ca/ges-ghg>
- 2 In this explanatory text, estimates referring to Table 4(a)I are expressed in kt CO<sub>2</sub> eq, and rounded to two significant figures.
- 3 Canada's 2011 Submission of its Forest Management Reference Level can be accessed on the UNFCCC website portal: [http://unfccc.int/files/meetings/ad\\_hoc\\_working\\_groups/kp/application/pdf/canada\\_fmrl\\_en.pdf](http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/canada_fmrl_en.pdf)
- 4 See Section 7.3 of Canada's 2013 National Inventory Report. Like the historical FLFL estimates shown in Table 7.5 of the National Inventory Report, the RL assumes a pool of HWP carbon starts in 1990 from domestically harvested wood and includes emissions of carbon from the pool over time.
- 5 Canada's shift to the use of FLFL as the basis for accounting is treated as a methodological change.
- 6 The RL included in 2/CMP.7 mistakenly excluded the emissions associated with slash burning in British Columbia in 2020, although slash burning emissions were included for the province in every other year, and were included for other provinces for all years including 2020. This error has been corrected in the updated RL.
- 7 This low, constant level of natural disturbance is based on the assumption that 95,000 hectares of managed forest will burn each year, based on data from the past 51 years (1959–2009), which shows that at least this amount burned during 90 percent of the years. Using this approach, Canada has ensured that the RL has been derived without the expectation of net debits or credits.
- 8 All figures are in Canadian dollars (CAD) unless otherwise stated.
- 9 Including over \$112 million of contributions made to projects with a primary focus on climate change (i.e. marked as targeting the Conventions as a 'principal objective' under the OECD/DAC Rio markers), and over \$236 million to projects with a significant climate change component (i.e., marked as targeting the Conventions as a 'significant objective' under the OECD/DAC Rio markers). Canada has not included every contribution reported as targeting the Conventions as a 'significant objective' under the OECD/DAC Rio markers to ensure this report focusses on the most relevant contributions to climate action. For example, core contributions made to multilateral organizations are not reported on in this report.