



To: Community Safety Committee
From: Suzanne Bycraft
Manager, Emergency & Environmental Programs

Date: August 9, 2002
File: 6125-01

Re: Request for Support for Canada to Ratify the Kyoto Protocol

Staff Recommendation

1. That, as per the Assistant Manager's, Environmental Programs report dated August 9, 2002, the City of Richmond endorse Canada's ratification of the Kyoto Protocol; and,
2. That a letter be written to the federal Member of Parliaments; federal Ministry of Environment, provincial Ministers of Water, Land and Air Protection, Sustainable Resource Management and Energy and Mines; federal and provincial opposition leaders; and the Federation of Canadian Municipalities (FCM) to communicate this resolution as requested by the FCM.

Suzanne Bycraft
Manager, Emergency & Environmental Programs

Att. 3

FOR ORIGINATING DIVISION USE ONLY		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Engineering	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Facility Management.....	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Policy Planning	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	
Public Works.....	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

Staff Report

Origin

Richmond City Council received a letter from the Federation of Canadian Municipalities (FCM) requesting that Canadian municipalities endorse the ratification of the Kyoto Protocol. A copy of the letter, including a model resolution, is provided in Attachment 1.

The Kyoto Protocol is an international agreement for addressing climate change. The Protocol contains a number of commitments for all participating countries and some additional commitments for industrialized nations identified as Annex 1 countries. Most notably, the Protocol sets legally-binding targets for greenhouse gas (GHG) emissions by the Annex 1 countries by the years 2008-2012. Specific targets vary for individual countries. Canada's target is to reduce GHG emissions to 6% lower than 1990 levels by the years 2008-2012.

Analysis

Climate Change

Climate change is a term used to describe the climatic consequences of increasing atmospheric greenhouse gases arising from industrial activity. Greenhouse gases essentially form a blanket over the Earth's atmosphere causing it to retain more outgoing radiation from the Earth's surface, keeping it warmer than it otherwise would be. Potential impacts of concern include:

- sea level rise and increased flooding risk to coastal and low-lying areas
- more extreme weather events, including greater intensity and duration of storms, floods, landslides, and droughts
- diminished water supplies for human consumption, including use for energy and agriculture
- diminished fishery resource as a result of warmer oceans and rivers and a diminished forestry resource as a result of increased incident of fire, insect outbreaks and disease
- instability and potential collapse of Northern utilities as a result of permafrost thawing
- increased health disorders as a result of declining air quality and increases in populations of bacteria, viruses and parasites.

The City of Richmond has acknowledged the need for addressing climate change at the local level. On May 28th, 2001, Council approved Richmond's participation in the FCM/ICELI Partners for Climate Protection Program. Council also endorsed the Communiqué of the Toronto Declaration on November 26th, 2001. The Communiqué contained the pledge that local governments will continue their collective efforts to reduce greenhouse gas emissions and will urge national government to act on their commitment to reduce global climate change.

International Negotiations on Climate Change

The Kyoto Protocol represents one step in a long process of negotiation on how to address climate change. In 1992, more than 180 countries including Canada and the United States, signed the United Nations Framework Convention on Climate Change (UNFCCC). This agreement set out principles and a framework for global response to addressing climate change. Among other commitments, the Convention included non-legally binding emission targets for industrialized countries.

The Kyoto Protocol was negotiated in 1997 to supplement the Convention and strengthen commitments, most notably by setting legally-binding emission targets for industrialized (i.e., Annex 1) countries. The Protocol was signed by 84 countries including Canada and the United States.

Agreement on the details on how the Protocol will be implemented was reached in November 2001. Factors of consideration included:

- methodologies for collecting emission data and reporting progress
- international institutions and processes for overseeing activity
- strategies that would be considered to be acceptable for meeting emission targets (e.g., domestic action, investments in emission reduction initiatives abroad, purchase of surplus portions of other countries' emission quotas, credits for sinks that absorb greenhouse gases, etc.)

A chronological summary of the international negotiations on climate change is provided in Attachment 2.

Status of Kyoto Protocol Ratification

For the Protocol to come into legal force it must be ratified by 55 Parties to the Convention and, it must be ratified by industrialized (i.e., Annex 1) countries accounting for 55% of that group's 1990 carbon dioxide emissions (CO₂).

Presently, 74 Parties to the Convention have ratified the Protocol and it has been ratified by industrialized countries accounting for 34.8% of that group's 1990 (CO₂) emissions. These countries include Japan and all the countries in the European Union. The status of ratification by Annex 1 countries along with their representative emission contribution is provided in Attachment 3.

Although originally signing the Protocol in 1997, the United States has stated that it will not be ratifying the Kyoto Protocol. The United States is the largest contributor of GHG and is responsible for 36.7% of the total 1990 (CO₂) emissions discharged by Annex 1 countries and 25% of the entire world's emissions. The decision to not ratify the Protocol was based on projected economic costs to the US and concern that targets were only being set for developed countries¹.

¹ pers. comm. Bruce Smith, Federal Environmental Protection, Agency, US

The US approach is to:

- conduct further research for determining how best to address climate change and develop alternative technology
- promote voluntary programs to hold the line on GHG emissions
- re-assess climate change policy in 2012 when more information has been collected.

As a result of the US decision, Australia, which has the highest per capita emissions, has also reported that it will not be ratifying the Kyoto Protocol.

Varying Canadian Perspectives

Federal Government

The Federal Government is committed to ensuring that Canada meets its Kyoto target and commitments². However, a decision to ratify the Protocol will not be made until the Federal Government is satisfied that it has a practical strategy for meeting Canada's target and has conducted the necessary analysis and consultation. The Federal Government recently prepared a Discussion Paper on Canada's Contribution to Addressing Climate Change. It presents four general options for addressing Canada's climate change commitments and identifies broad implications, including economic impacts for each option. These options project an increase in Gross Domestic Product (GDP) from 2000 levels although the increase may be 0-2% lower than the "business-as-usual" scenario. The Federal Government is presently compiling stakeholder input on the Discussion Paper to develop a more detailed implementation plan and conduct further analyses. The Federal Government is also working internationally to negotiate strategies for addressing the implications of the US withdrawal. Specifically, the Federal Government is trying to achieve Canadian credits for clean energy exports to the US.

The Province of British Columbia

The Province of BC has not yet adopted a position on the Kyoto Protocol ratification³. The Province is committed to addressing climate change but has expressed the need for a clearer understanding of the economic implications of the Kyoto Protocol. The Province of BC would also like to see greater consultation, ensuring that Canadians have the opportunity to discuss a range of responses.

The Province of Alberta

Alberta accounts for almost 31% of Canada's greenhouse gas emissions. According to the report Albertans and Climate Change: A Plan for Action prepared by the Albertan government, the Province strongly agrees that climate change is an issue that needs to be addressed. However, Alberta proposes that an alternative, less ambitious approach be adopted with longer time frames that better reflect lead times for technological advancements. They propose about 10% emission reduction by the year 2020.

² pers. comm. Bruno Jacques, Domestic Emission Trading, National Climate Change Secretariat, Federal Government

³ pers. comm. Donna Stanford, Senior Policy Analyst Climate Change Unit, BC Ministry of Water, Land and Air Protection

Local Governments

As stated in the correspondence sent to the City of Richmond, the FCM is supportive of the ratification of the Kyoto Protocol. They believe that:

- climate change will negatively impact Canadian municipalities
- Federal commitments will ensure that the Protocol is implemented in such a manner that no industry or sector would be impacted disproportionately
- the non-legally binding targets for the Convention did not work and that the Kyoto Protocol will stimulate innovation and action to make meaningful progress for addressing climate change
- no economic analyses projects net losses to the Canadian economy and that worst-case scenario analysis suggest a 0 to -4 per cent difference in growth of the GDP which would still result in a net 26-30 percent increase by 2010 as compared to today
- ratification should be done immediately.

To-date, 184 Canadian cities have responded in favour of ratifying the Kyoto Protocol. Lower Mainland municipalities include Delta, Coquitlam, Langleys (City and District), Maple Ridge, Mission, New Westminster, North Vancouver (City), Port Coquitlam, Port Moody, Surrey, Vancouver and White Rock. The City of Burnaby has not yet made a decision concerning the Protocol, indicating their preference to have further information on the economic impacts before they make a commitment. There are 30 cities across Canada that have opposed Kyoto ratification.

The Richmond Situation*ACE Perspective*

ACE recognizes that GHGs are an environmental concern with long-term serious implications and encourages the City of Richmond to seek strategies for reducing emissions. ACE supports the goals of the Kyoto Protocol but has concerns about how it will be implemented. Concerns include the following:

- reduction strategies may not be able to meet the targets identified in the Kyoto Protocol
- money may be detracted away from specific action initiatives to reduce GHG emissions in order to support the administrative requirements of the Kyoto Protocol
- alternative strategies may exist for reducing GHG emissions which could be less costly
- the scientific credibility for the Protocol may have been diluted by Special Interest positions.

Richmond Council Considerations

Local communities have a role in addressing greenhouse gas emissions and negative climate change impacts. The following table identifies the sources of GHG from human activity in the Lower Mainland:

29 %	Cars, vans, light duty trucks and SUVs
28 %	Buildings (residential, commercial and institutional)
14 %	Industrial (Cement, wood, metal manufacturing)
7 %	Planes, trains, ships and farm machinery
7 %	Area (open burning, smoking, gasoline vapour)
6 %	Landfills
5 %	Heavy duty vehicles (trucks and buses)
4 %	Electric power generation

Source: Home Pages - 1999 Lower Mainland Air Emission Inventory

The City of Richmond has taken a number of steps to address negative climate change impacts and reduce GHG emissions. Some examples include:

- City fleet and facility improvements
- policy support for improved bus service and light rail transit
- OCP policy for reducing urban sprawl and encouraging compact complete communities
- participation in the Partners for Climate Protection program.

Not all the implications and costs of the federal government approving the Kyoto Protocol are yet known for Richmond and its stakeholders (e.g., business, institutions and the public). At the same time, not all the implications and costs for not approving the Kyoto Protocol are understood.

Various studies on the economic impact of Kyoto Protocol have been done. Some industrial sectors have projected significant economic impacts. A recent study from SFU projects potentially significant increases in energy, including a 2-85% projected increase in electricity and 50% projected increase in gasoline. The Federal Government estimates impacts between 0 and -2 per cent of GDP in 2012. Another study commissioned by the David Suzuki Foundation and World Wildlife reported that the “benefit of implementing these policies to reduce annual greenhouse gas emissions would exceed the costs”. This study “forecasts the net addition of 52,000 Canadian jobs by 2012, and a \$2 billion addition to the GDP, over and above the growth forecast in ‘business as usual’ Canadian government projections.”

Specific analysis of the relative costs and benefits for municipalities has not been conducted. It is reasonable to assume that ratification of the Kyoto Protocol would result in increased pressure on municipalities to take strategic action. It may also lead to increased consumer costs for municipalities, in particular in the area of energy consumption. However, it is difficult to reconcile potential short-term costs to prevent climate change with potential future costs that

may be required to address the environmental and economic impacts of climate change. No studies were found which estimated the potential costs of not ratifying the Kyoto Protocol.

Rationale for Endorsing the Ratification of the Kyoto Protocol

Decision-making around climate change is extremely difficult. While there is general consensus that climate change is a significant issue for concern, there is much debate over how best to address it. Widely differing societal perceptions with respect to the potential seriousness of the impacts of climate change combined with the limited and conflicting information on costs and benefits of alternative approaches combine to heighten the debate.

It is staff's assessment that the principles behind the protocol are sound, and a common direction is much more likely to achieve success and encourage greater participation than would be achieved by debating the various aspects of the protocol. For this reason, staff recommend that Richmond's City Council support the ratification of the Kyoto Protocol. This recommendation is based on the following considerations:

- climate change could result in significant environmental, economic and social impacts to the City of Richmond and its residents
- climate change is a global issue and requires effort around the globe - the Kyoto Protocol represents an unified approach at the international level for proceeding with collective action
- the Kyoto Protocol has established "conservative" targets when compared to reduction measures called for by the scientific community; this suggests that the Protocol represents a "reasonable" first-time effort, one that balances immediate economic concerns with long-term economic and environmental objectives
- the Federal Government has prepared a set of strategic options that they believe will enable Canada to meet its targets despite the lack of involvement by the United States
- support for the ratification of the Kyoto Protocol is an extension of the City of Richmond's already existing commitments towards reducing greenhouse gas emissions and addressing climate change.

Richmond's endorsement is based on the following assumptions:

- that Richmond and its stakeholders will be consulted and have a range of acceptable choices
- the Kyoto Protocol would be implemented in a fair and equitable manner
- that the City of Richmond will be able to apply our principles of sustainability, equitability, cost-effectiveness, affordability, flexibility, integration, efficiency and co-operation
- that senior governments will provide the necessary support (e.g., financial, technological, information, professional and technical expertise, etc.)

It is also recognized that City Council must maintain the flexibility to balance the multiple interests of the Richmond community in accordance with available resources.

Options

The potential advantages and disadvantages of alternative action by Council are summarized in the following table:

Alternative Action	Potential Advantages	Potential Disadvantages
Endorse (Recommended)	<ul style="list-style-type: none"> • directs greater action towards a potentially serious problem • directs action in an unified approach • save costs later • result in economic, social and environmental benefits • encourages efficiencies • a principles-based approach 	<ul style="list-style-type: none"> • involves change and cost • based on uncertainties and assumptions, including benefit vs cost ratios, which may be incorrect • may not be the best strategy
Reject	<ul style="list-style-type: none"> • avoids change and cost • offer opportunities to pursue alternative approaches 	<ul style="list-style-type: none"> • slow momentum (national and international) • problem may be more difficult to address • may cost more later • may result in a lost opportunity
Wait for More Information	<ul style="list-style-type: none"> • decrease uncertainty • clarify assumptions • add credibility to proposed action • offer opportunities to pursue alternative approaches 	<ul style="list-style-type: none"> • retard action • problem may be more difficult to address • may not be an option (i.e., may become impossible to meet committed targets in shortened timeline) • may incur more costs later • problem may be more difficult to address

Financial Impact: Unknown

It is presently unknown what the financial costs would be to Richmond and its stakeholders for ratifying and for not ratifying the Protocol. It is reasonable to assume that ratification would result in greater short-term costs but lower long-term costs to the City and its stakeholders.

Conclusion


Climate change may result in significant environmental and economic impacts to Richmond residents and communities around the world. The Kyoto Protocol was negotiated in 1997 to strengthen international commitments and accelerate efforts to reduce greenhouse gas emissions, a main contributor to climate change. It is staff's assessment that the principles behind the protocol are sound and that a common direction is much more likely to achieve success and encourage greater participation to address a complex global issue. Accordingly, it is staff's recommendation that the City of Richmond endorse Canada's ratification of the Kyoto Protocol.



Margot Daykin, M.R.M
Assistant Manager - Environmental Programs

MD:md

Attachment 1: Letter Received from the Federation of Canadian Municipalities



Federation of
Canadian Municipalities
Fédération canadienne
des municipalités

Copied & distributed to all.

Date: MARCH 19/02

Initials: [Signature]

KAYOK ✓
Councillors ✓
TAG ✓
Clerks ✓
copied by Margaret P.
MAY. 19/02

March 18, 2002

Distribute to: Head and Members of Council; Managers/Clerk

Ratification of the Kyoto Protocol: what's the hot air all about?

When we burn gasoline to drive our cars, natural gas to heat our homes, coal to make electricity, or cut trees faster than they can be replaced we add greenhouse gases to the air. Scientists have sounded an alarm: if we don't slow the amount of pollution going into the air, our climate will change leading to more extreme weather and disruption to communities.

Some of us are already affected. Warm temperatures in northern communities like Dawson City are melting the permafrost: buildings are sinking; winter roads no longer reliable. Our friends in the Prairies are facing another summer of drought and pest outbreaks. Air quality in southern Ontario has never been so bad. Extreme winds and storms are affecting communities in the east.

Is this climate change? Scientists say these events are typical of climate change and that we can expect more of the same in the future. Once we change the climate, there is no turning back.

When faced with an irreversible problem, it's best to take a precautionary approach. That's what governments did in 1992 when they agreed to the Framework Convention on Climate Change and again in 1997 when they negotiated the Kyoto Protocol.

The Kyoto Protocol is a small step in the long road to protecting the climate and our citizens. It starts to put the brakes on the amount of greenhouse gas pollution going into the air. The Protocol is flexible and designed to cut greenhouse gas emissions at the least cost. Can we cut this pollution without harming our communities? Yes, we can.

I co-chaired a process on behalf of the Federation of Canadian Municipalities (FCM) in 1998 that looked at what municipal governments could do to cut greenhouse gas pollution. We found that using energy more efficiently, capturing landfill gas, diverting organic waste from landfills, and investing in public transit, renewable energy and community energy systems could save money, improve the local environment and cut greenhouse gas emissions. This is sustainable community development.

Ratification of the Kyoto Protocol will improve Canada's productivity and stimulate innovation. Implementation of the Protocol can be designed to ensure that no industry or sector suffers disproportionately. We can design a response that improves competitiveness, not hurt it.

Mission Statement
The Federation of Canadian Municipalities (FCM) has been the national voice of municipal governments since 1901. FCM is dedicated to improving the quality of life in all communities by promoting strong, effective and accountable municipal government.

Énoncé de mission
La Fédération canadienne des municipalités (FCM) est la voix nationale des gouvernements municipaux depuis 1901. La FCM est vouée à améliorer la qualité de vie dans toutes les collectivités en favorisant des gouvernements municipaux forts, efficaces et responsables.

.../2

24 rue Clarence Street
Ottawa, Ontario K1N 5P3
☎ (613) 241-5221
☎ (613) 241-7440
federation@fcm.ca
Web site/site web : www.fcm.ca

Economic and Social Policy
Politiques économiques et sociales
☎ (613) 244-2250
policy@fcm.ca

Sustainable Communities and Environmental Policy
Collectivités viables et politiques environnementales
☎ (613) 244-1515
communities@fcm.ca

Corporate Development
Développement corporatif
☎ (613) 241-2126
corporate@fcm.ca

International Centre for Municipal Development
Centre international pour le développement municipal
☎ (613) 241-7117
international@fcm.ca

Councillor Jack Layton
Toronto, Ontario
President
Président

Alderman John Schmal
Calgary, Alberta
First Vice President
Premier vice-président

Maire Yves Ducharme
Hull (Québec)
Second Vice President
Deuxième vice-président

Mayor Ann MacLean
New Glasgow, Nova Scotia
Third Vice President
Troisième vice-présidente

Councillor Joanne Monaghan
Kitsum, British Columbia
Past President
Présidente sortante

James W. Knight
Chief Executive Officer
Chef de la direction

- 2 -

I urge your council to endorse the attached model resolution, or to modify it to meet your community's needs. Council endorsement on Earth Day, April 22, 2002, is one important milestone, but endorsements are welcome until Fall 2002. Municipal government support for ratification of the Kyoto Protocol could make the difference as the Government of Canada decides whether to follow through on its international commitment; a decision expected by year end.

FCM has prepared talking points, a power point presentation and an analysis of the climate risks to Canada's regions and communities to assist you in presenting the resolution to Council. FCM can also arrange a limited number of council presentations. For more information, or to arrange a council presentation contact: Paul Gregory, 613-241-5221, ext. 291, or pgregory@fcm.ca or visit our Web site at: www.fcm.ca

There's much to be gained from taking action now, so much to lose if we don't.

Sincerely,



Jack Layton
President

MODEL RESOLUTION

**MUNICIPAL GOVERNMENTS
URGE RATIFICATION OF THE KYOTO PROTOCOL**

WHEREAS climate change causes drought, permafrost melting, sea-level rise and floods that damage municipal infrastructure, displace citizens and create a financial burden for municipal governments;

WHEREAS economic activity in rural and northern communities relying on fisheries, tourism, forestry and agriculture is disrupted by climate change;

WHEREAS investments in building retrofits, community energy systems, water conservation, renewable energy technologies, waste reduction, landfill gas capture, fleet management and public transit reduce municipal operating costs, help maintain community services and protect public health while cutting greenhouse gas emissions contributing to climate change;

WHEREAS forestry and agriculture sectors can expand business opportunities by increasing the capacity of trees and soils to absorb carbon dioxide and by developing renewable fuels like ethanol;

WHEREAS fossil fuel producers are increasing investments in renewable energy and alternative fossil fuel technologies that reduce the amount of carbon dioxide going into the air, and

WHEREAS 72 per cent of Canadians want the Kyoto Protocol ratified;

BE IT RESOLVED THAT _____ endorses ratification of the Kyoto Protocol; and

BE IT FURTHER RESOLVED THAT this resolution be communicated to our Member of Parliament, provincial environment and energy ministers, federal and provincial opposition leaders, community media and the Federation of Canadian Municipalities.

NAME

ELECTED TITLE

MUNICIPALITY

DATE

Please Fax Back to (613) 241-7440.

Attachment 2: Chronology of the International Negotiations on Climate Change

Date	Event	Details
1988	International Panel on Climate Change (IPCC) established	<ul style="list-style-type: none"> • established to provide scientific information on climate change
1990	IPCC issues First Assessment Report	<ul style="list-style-type: none"> • confirmed that climate change was a threat • called for a global treaty
May 1992	UN Framework Convention on Climate Change adopted	<ul style="list-style-type: none"> • set overall framework for intergovernmental efforts to address climate change • establishes an objective, principles, commitments for different groups of countries • the Convention divides countries into 2 main groups: <ul style="list-style-type: none"> ○ Annex 1 (industrialized countries) ○ non-Annex 1 (developing countries) • objective is “to achieve stabilization of atmospheric concentrations of greenhouse gases at levels that would prevent dangerous anthropogenic interference with the climate system” • principles: equity, precautionary principle • commitments <ul style="list-style-type: none"> <i>All countries</i> <ul style="list-style-type: none"> ○ prepare and regularly update national climate change mitigation and adaptation programmes ○ must take climate change into consideration when making policies ○ promote education, training and awareness of climate change ○ participate in climate research and information exchange ○ compile an inventory of greenhouse gas emissions ○ reports on action taken to implement the Convention <i>Annex 1 - Industrialized countries</i> <ul style="list-style-type: none"> ○ non-legally binding target to reduce greenhouse gas emissions to 1990 levels by 2000 • presently, @186 governments are Parties to the Convention, including Canada, the European Union and the United States • Conference of the Parties (COP) has decision-making authority • entered into force in March 1994
December 1995	IPCC issues Second Assessment Report	<ul style="list-style-type: none"> • underline need for strong policy action
December 1997	Kyoto Protocol to the UN Framework	<ul style="list-style-type: none"> • supplements and strengthens the Convention - stronger and more detailed commitments for industrialized countries

Date	Event	Details
	Convention on Climate Change adopted	<ul style="list-style-type: none"> • legally binding emission targets for greenhouse gases for Annex 1 parties – Canada has a –6% emission target for years 2008/2012 as compared with 1990 levels – a 5 year commitment period was selected rather than a single year in order to smooth out annual fluctuations in emissions due to uncontrollable factors such as weather or economic conditions • general commitments for all countries • Annex 1 Parties are committed to providing financial resources to help non-Annex 1 Parties meet their general commitments • emissions from aviation and marine bunker fuels are reported and treated separately • signed by 84 countries including Canada and the United States
April 2001	IPCC issues Third Assessment Report	<ul style="list-style-type: none"> • stated that “there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities”
October/ November 2001	Marrakesh Accords	<ul style="list-style-type: none"> • detailed rulebook of the Kyoto Protocol (e.g., methodology of inventory collection, approved strategies, international institutions, etc.) • to meet targets, Annex 1 Parties must: <ul style="list-style-type: none"> ○ reduce domestic emissions ○ offset domestic emissions through use of carbon sinks ○ gain credits internationally where initiatives can be done at lower cost abroad than at home (joint implementation, clean development mechanisms and emissions trading) • methodological and reporting standards • international governance structure and process
200?	<i>Kyoto Protocol Ratification?</i>	<ul style="list-style-type: none"> • Kyoto Protocol would go into force when: <ul style="list-style-type: none"> ○ it is ratified by 55 Parties to the Convention; and, ○ it is ratified by Annex 1 countries accounting for 55% of that group’s 1990 carbon dioxide emissions • Presently: <ul style="list-style-type: none"> ○ it has been ratified by 75 Parties to the Convention; and ○ it has been ratified by Annex 1 countries accounting for 35.8% of that group’s 1990 carbon dioxide emissions
20??	<i>2nd Commitment Period</i>	<ul style="list-style-type: none"> • The Kyoto Protocol is in force until 2012. There is international recognition that further effort will be required with some thought that 5 commitment periods will be necessary.

Attachment 3: Status of Kyoto Protocol Ratification by Annex 1 Countries

Country	Emissions (Gg)	% of total 1990 CO ² Emissions
<i>Parties that have ratified* Kyoto Protocol</i>		
Austria	59,200	0.4
Belgium	113,405	0.8
Czech Republic	169,514	1.2
Denmark	52,100	0.4
Finland	53,900	0.4
France	366,536	2.7
Germany	1,012,443	7.4
Greece	82,100	0.6
Iceland	2,172	0.0
Ireland	30,719	0.2
Italy	428,941	3.1
Japan	1,173,360	8.5
Latvia	22,976	0.2
Luxembourg	11,343	0.1
Netherlands	167,600	1.2
Norway	35,533	0.3
Portugal	42,148	0.3
Romania	171,103	1.2
Slovakia	58,278	0.4
Spain	260,654	1.9
Sweden	61,256	0.4
United Kingdom of Great Britain and Northern Ireland	584,078	4.3
<i>Sub-total</i>		36
<i>Parties which have not ratified the Kyoto Protocol</i>		
Australia	288,965	2.1
Bulgaria	82,990	0.6
Canada	457,441	3.3
Estonia	37,797	0.3
Liechtenstein	208	0.0
Monaco	71	0.0
New Zealand	25,530	0.2
Poland	414,930	3.0
Russian Federation	2,388,720	17.4
Switzerland	43,600	0.3
United States of America	4,957,022	36.1
Total	13,728,306	100.00

* Party has ratified, accepted, approved, or acceded the Kyoto Protocol

Source: Secretariat of the United Nations Framework Convention on Climate Change, <http://unfccc.int/>, last modified on July 22, 2002.