



NATIONAL ROUND TABLE ON THE ENVIRONMENT AND THE ECONOMY
TABLE RONDE NATIONALE SUR L'ENVIRONNEMENT ET L'ÉCONOMIE

NRTEE Official Reports Copyright and Reproduction Notice

All **NRTEE Official Reports** (“Works”), provided on this USB memory key and identified in the **NRTEE Official Reports List** folder, contain their individual copyright and reproduction notice. The notice in each of these Works is replaced and superseded by the following copyright and reproduction notice, effective February 22, 2013:

© This Work is protected by copyright and made available for personal or public non-commercial use and may be reproduced, in part or in whole, and by any means, and may be further distributed for non-commercial use, without charge or further permission. All users are required to indicate that the reproduction, whether in part or in whole, is a copy of a Work of the National Round Table on the Environment and the Economy (NRTEE). Reproduction, in whole or in part, of this Work for the purpose of commercial redistribution is strictly prohibited. Furthermore, no right to modify or alter in any manner the Work is hereby granted.

Consultant Reports Copyright and Reproduction Notice

All **Consultant Reports** (“Works”), provided on this USB memory key and identified in the **Consultant Reports List** folder, were prepared for, or commissioned by, the National Round Table on the Environment and the Economy (“NRTEE”) in support of its research efforts, and may or may not reflect the views of the NRTEE. Such Works may not contain a copyright notice as they were not intended for public release when they were so prepared or commissioned. In the absence of a copyright notice, and where a copyright notice may in fact appear, the following notice shall be read together with the Work and, where applicable, replace and supersede any existing copyright notice, effective February 22, 2013:

© This Work is protected by copyright and made available for personal or public non-commercial use and may be reproduced, in part or in whole, and by any means, and may be further distributed for non-commercial use, without charge or further permission. All users are required to indicate that the reproduction, in part or in whole, is a copy of a Work of the National Round Table on the Environment and the Economy (NRTEE). Reproduction, in whole or in part, of this Work for the purpose of commercial redistribution is strictly prohibited. Furthermore, no right to modify or alter in any manner the Work is hereby granted.

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Introduction

The National Round Table on the Environment and the Economy (NRTEE) is convening a national opinion leaders forum to tackle the issue of Canada's policy response to climate change. Parties to the UN Framework Convention on Climate Change will be gathering in Kyoto in December 1997 to adopt a Protocol that will define the emissions reductions targets for industrialized countries for post-2000. Negotiations will be difficult, and it is expected that there will be a number of issues left unresolved for future negotiations.

The purpose of this paper is to suggest for the organizers of the NRTEE Leaders' Forum:

- key issues on which the Forum should be briefed to ensure a common level of knowledge for all participants; and,
- key issues on which the Forum will want to enter into a more focused debate aimed at stimulating innovative thinking towards solutions.

I. ISSUES FOR BACKGROUND BRIEFINGS

To be effective, Forum members need to be brought to a common level of understanding regarding the basic elements of the climate change issue in Canada. Particular attention should be paid to cast the briefings in a way that puts the focus clearly on Canada - what climate change means for us, what opportunities are presented for us, what can be done that isn't being done now in Canada and how to engage and mobilize individual Canadians to take action. Three areas are suggested:

- the science of climate change and risk assessment
- the Canadian economy and the economics of climate change
- the international scene: Canada's performance in relation to other OECD countries, the results of Kyoto and the implications for Canadian follow-up

For each of these issues, it is assumed that the Forum members will be provided a short overview document for background reading, additional detailed reference material and a face-to-face, balanced overview briefing. This could be done in a one day, intensive session.

The Science of Climate Change and Risk Assessment

Among those most closely involved in the climate change policy debate, there has been increased acceptance of the overall science of climate change during the 1990s. Skeptics remain, funded by well organized international fossil fuel lobbies, but most observers of the climate change issue agree that the debate has shifted from scientific nay saying to determination of economic costs. This notwithstanding, it will be important for the Forum participants to receive a comprehensive overview of:

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

- the basic underlying principles of the greenhouse effect, its causes and the relative roles of humans and natural systems ;
- likely environmental impacts on Canada and their associated costs,
- links to other environmental issues;
- climate change and extreme weather events - what is the link?
- what is known with certainty and identification of where science is less certain (e.g. role of oceans, regional impacts, etc.)
- most recent thinking on risk assessment as applied to climate change.

State of Debate in Canada

With the exception of some oil and coal companies (and one avid journalist for the Globe and Mail) there is little quibbling among major stakeholders regarding the basic scientific premise of climate change. This notwithstanding, the campaign of casting doubt on the science is often effective, particularly with respect to senior business leaders. The goal is to plant a seed of doubt and well-timed articles and lobbying efforts do make a difference.

Regional impacts and associated costs remain uncertain which makes full cost-benefit comparisons difficult. This translates into the proponents for the 'go slow' camp using familiar economic models and projections to emphasize the costs associated with action with nothing quantified on the benefits side. Increasingly, risk assessment techniques are being used to assist get a handle on the relative merit of policy options.

Those in Canada currently questioning the science of climate change include Imperial Oil, Syncrude, and the Coal Association of Canada. The Canadian Association of Petroleum Producers, who represent upstream oil and gas producers, have cooled their rhetoric on the state of the science. The Canadian Electric Association, the Motor Vehicle Manufacturers Association and other industry groups continue to urge governments to improve the science but go on to note the need for voluntary action now. On the other side of the coin, the insurance industry, many municipal governments and ENGOs note that the costs of inaction far outweigh the potential costs of doing something now even in the light of scientific uncertainty.

Background Information and Possible Resource People

The IPCC Second Assessment Report provides the current state of climate change science. For a good exposé of the fossil fuel lobby's efforts to cast doubt on the science, refer to the 1997 book by Russ Gelspan entitled "The Heat is On". Other sources of information include the Canadian Global Change Program, the Canadian Climate Program Board, The Atmospheric Environment Service and the World Meteorological Organization. For impacts in Canada, the Canadian Climate Program Board publishes a series of impact assessment reports.

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

For presenters/resource persons, consideration should be given to Jim Bruce, former co-chair of IPCC Working Group III Dr. Gordon McBean, ADM of the Atmospheric Environment Service, Dr. Kirk Dawson, Director of the Center for Climate Studies at UBC, and Henry Hengeveld of the Atmospheric Environment Service. Dr. William Leiss of Queen's University is active in the risk assessment field. Should the Forum wish to hear from international experts, Dr. Robert Watson, the new Chairman of the IPCC and former science advisor in the White House, would be a good choice.

The Canadian Economy and the Economics of Climate Change

Most of the controversy surrounding climate change these days relates to the ever-increasing number of studies on the economic impact of taking action on climate change. The bottom lines of each of these studies are often quoted out of context and can be used to either defend a go slow approach or to suggest the need to move quickly on the issue.

A key factor in the debate is the perception on the behalf of most Canadians that one of the main engines of growth for our economy remains the fossil fuel industry. To put things in their proper context, it will be important for the members of the Forum to have a clear overview of what is driving the Canadian economy. One approach could be to examine how the economy has evolved since the 1950s through to present day and out into the future, say to 2015. During the past 40 years Canada's economy has diversified to a point where less than 10% of our economic growth is attributable to the energy sector. Yet our perception of ourselves remains one of a resource-based economy, when in reality the fastest growing sectors are high technology and services.

Another element that needs to be explored is to de-mystify the variety of economic models currently in play. Recently there have been a number of studies and workshops focusing on the relative merits of the range of economic models on the market. Understanding the systematic biases and assumptions that goes into each of the models is an important prerequisite to interpretation of the results.

Finally, once the above groundwork has been done, it will be important to provide the group with an overview of the results of the various economic studies on the Canadian economy, including both the costs of mitigation of, and adaptation to, climate change.

State of Debate in Canada

The proponents of a go slow approach point to top-down, macro-economic studies which indicate short to medium term losses in GNP as a result of taking action on climate change. Studies such as the Australian ABARE model and the Charles River model are often used in this regard. Both of these modeling efforts are funded by the international

NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997

fossil fuel sector. NRCan, Alberta, and Nova Scotia cite these types of models as evidence that going beyond voluntary action will be harmful to the Canadian economy. Their arguments are steeped in the notion that what is good for the fossil fuel industry is good for the Canadian economy.

Those favoring early action point out the systematic biases of the macro-economic models to support their argument that the economic effects of taking action beyond "no regrets" is not going to cause serious economic disruption. This camp prefers the microeconomic "bottom up" or engineering models which look at the application of a wide range of measures and simulates the overall integrated results. These models tend to be more optimistic, predicting less economic impact on the economy.

Background Information and Possible Resource People

The IPCC Working Group III report of 1995 provides a good overview of the types of models and their biases. As well, and most relevant to Canada, is a report comparing the range of models applicable to Canada produced by Michael Margolick on contract to Environment Canada in the spring of 1997. The Conference Board of Canada this summer produced a report synthesizing a number of models that are applicable to Canada. The CERI Research Institute in Alberta is planning a workshop for October in Ottawa aimed at identifying the economic analysis needs of Canada. The results of all of these studies and workshops would be useful background material and their authors would make good presenters.

Regarding an overview of the evolution of the Canadian economy in relation to climate change, Dr. John Robinson of UBC would be capable of providing a succinct presentation. There are numerous others in Canadian academia who could undertake this task as well. Depending on the make-up of the Forum itself, one of its members could make this type of presentation.

The International Scene: Canada's Performance in Relation to Other OECD Countries, the Results of Kyoto and the Implications for Canadian Follow-up

The third area for background briefings should situate Canada within the international context. A brief primer on the UN Framework Convention, Canada's commitments, and an objective interpretation of the results of Kyoto will be essential. An overview of the negotiating blocs and their respective positions should be part of this briefing. Canada's performance on emissions limitation should be compared with a selected group of other OECD countries, with commentary provided on the impacts on Canada's competitiveness associated with a more aggressive approach to emission limitation. Particular attention should be paid to what the USA is planning for post 2000. Measures and approaches

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

which have been particularly successful in some countries should be highlighted if it is felt they could be duplicated in Canada.

A concise overview of the implications of the Kyoto decision for Canada should outline what the new international commitments are and set the stage for the more focused round of discussions aimed at solutions to follow. Perhaps the Head of the Canadian delegation to the ministerial portion of the Kyoto meeting could be invited to make this presentation to ensure a first hand understanding of the session and its implications for Canada.

The State of Debate in Canada

Those arguing for a go slow approach point to the difficulties other countries are having in meeting their targets as proof that Canada's voluntary approach is keeping Canada in the middle of the pack. They regard the emissions reductions that have taken place in Germany and the United Kingdom as being attributable to reasons other than policy measures to combat climate change (e.g. reunification in Germany, energy production transformation in the United Kingdom). Proponents of more aggressive actions note that other countries are delivering results by sending market signals and making more widespread use of regulations. They say that Canada is falling behind others because we are not making the investments in energy efficiency that will be needed to keep our economy competitive. They also cite missed opportunities to develop an export market driven by the innovation that results from meeting more aggressive emissions reduction targets.

Background Information and Possible Resource People

Official reports of emissions inventories and projections for most OECD countries are available from the UN FCCC Secretariat. Most reports are recent - 1997. Syntheses are available from a number of sources, including the IEA and the OECD. The David Suzuki Foundation will be releasing a paper in October 1997 that compares Canada's performance with 7 other OECD countries and draws conclusions for Canada's competitiveness. Other comparative summaries have been compiled by the World Energy Council, the Royal Institute of International Affairs in London, Greenpeace and the World Wildlife Fund, to name a few.

Insofar as the interpretation of the Kyoto results is concerned, the official reports from the Canadian delegation to COP3 should be used, supported by a balanced selection of ENGO and industry commentary.

Possible resource people for this section of the briefing could include Doug Russell or Robert Hornung, authors of the David Suzuki Foundation paper. For the report on the Kyoto session, it might be useful to invite the Executive Secretary of the UN FCCC or his

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Deputy (Richard Kinley, a Canadian) to give the overview, with the Minister who headed the delegation in Kyoto invited to provide her/his thoughts on the outcome in relation to Canada, and what they see as the next steps for follow-up.

II. ISSUES FOR FORUM DISCUSSIONS

The next phase of the presentations to the Forum should be designed to stimulate debate and assist in framing the issues for Canadians as to what our next steps should be. As such, the presentations should be provocative and innovative. For each of the topics chosen, it would be desirable to have a number of points of view represented. As with the background briefings, the issues for discussion should focus on the Canadian economic and political agenda. The presentations need to be forward looking and strategic in nature, aimed at teasing out innovative ideas that could be pursued by both governments and the corporate sector.

On the assumption that there will be some sort of target emerging from Kyoto, there are four areas on which the Forum could concentrate:

- Mobilizing Canadians to Take Action;
- Ensuring a Fair and Equitable Sharing of the Burden in Canada;
- Providing Canadian companies with the flexibility needed to undertake further actions;
- New markets for Canadian Products and Knowledge

Two overarching questions should also be applied to each of these areas. The first deals with means to demonstrate effective federal government leadership and management. The second involves identification of gaps either in the knowledge or technological capacity required to take appropriate action.

This section of the paper presents some thoughts on what might be covered in each of the briefings and possible background material and resource people who could be called upon to participate in the sessions.

Mobilizing Canadians to Take Action

If Canada is to have a chance at meeting an emissions target, the public has to become engaged. Grass roots community action has always been a hallmark of environmental activism in Canada. Yet, for climate change, the threat seems too vague and too far in the distance for most Canadians to take seriously. What motivates Canadians to take action and how can these motivators be applied to dealing with climate change? A presentation on Canadians' values and opinions on environmental issues and climate change in particular would be helpful for the Forum participants.

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

An effective response to an emissions target will likely force some lifestyle changes for Canadians. This will not happen if people remain unconvinced of the problem. What can be done to clarify and promulgate the messages needed to convince Canadians that actions taken now to reduce emissions are a good investment? How best to go about getting these messages out? What are the respective roles of the three levels of government as well as the corporate sector?

Finally, what type of campaign would be best-suited to this task? Work currently underway with municipalities is beginning to return dividends. Perhaps a briefing on the success stories at community levels, both in Canada and abroad, would be useful.

Possible Resource Material and People

The work of numerous Canadian ENGOs would be particularly helpful in identifying successful campaigns of the past and present. Summaries of other countries' public awareness efforts can be easily found in the national reports of Parties to the UN FCCC. On the public attitudes front, the Environmental Monitor provides up to date polling on public attitudes and the environment, with climate change questions often figuring prominently in the surveys. On the municipal front, the International Center for Local Initiatives on the Environment (ICLEI) has recently published a paper summarizing local efforts underway in numerous OECD countries, including a case study on Toronto.

Insofar as possible presenters/invited experts goes, Louise Comeau of the Sierra Club has had extensive experience on the climate change file and in public awareness raising activities. Doug Miller of Environics International takes the pulse of the nation on green issues and the Executive Director of ICLEI is uniquely qualified to bring the group up to speed on municipal initiatives.

Ensuring a Fair and Equitable Sharing of the Burden in Canada

Assuming there is enough political will to deal seriously with the issue of climate change, a fundamental challenge will be to determine the relative responsibilities of each of the major economic sectors and each province. To date, Ministers of energy and environment have been unable or unwilling to enter into such a discussion. Canada's commitment remains a national one with no regional or sectoral targets. Given that most of the levers for policy action on emissions limitation rest with the provincial governments, forging some sort of agreement on the allocation of targets (or the distribution of burden) will be essential. The overall goal is to change the nature of the climate change debate from being a win-lose polemic pitting one region of the country against another, to one of shared responsibility and a search for win-win solutions. To do so, the debate must be broadened from an energy-environment focus to one that involves all sectors of the economy and engages a wider range of ministers, notably finance ministers.

NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997

Determination of a burden sharing agreement essentially becomes a federal-provincial negotiation, the political spectre of which may be seen by some as too daunting at this time. But, in all likelihood, if an international target emerges from Kyoto, there will be a two to four year period before the agreement would enter into force; a time for leaders in Canada to work towards a consensus on the need for a formula that spreads the economic burden and opportunities equitably across the country. The NRTEE Forum could emerge as a powerful voice in assisting this crucial part of the climate debate by framing the issues *in less traditional, and more innovative, ways than they have been presented up to now.*

Although the means to achieve individual targets would be left up to each jurisdiction, the NRTEE Forum would be well-placed to consider the relative merits of a variety of possible "philosophical" approaches - i.e. providing advice on the appropriate mix of voluntary, regulatory or market-based measures.

Possible Resource Material and People

Briefings which would be of assistance for the Forum could include advice on the current state of federal-provincial relations and opinions from experts on whether to, or how to, begin such a debate. An assessment would be required of the relative potential in each province to make emissions reductions and the regional economic impacts of taking such actions, to the extent that those analyses have been done.

Those Parties to the UN FCCC who have sub-divided responsibility for actions (notably the European Union and the Netherlands) began their work with a sector-by-sector analysis of the impacts of taking action. This sectoral analysis then formed the basis for negotiating regional/sovereign state and sectoral targets. With the increasing efforts in Canada's economic modeling and analysis community towards determination of sectoral impacts, it will be important for the Forum to be kept abreast of the most recent developments in these areas.

Possible presenters could include observers from academia of, and political participants in, federal-provincial negotiations, with a view to determining the best approach for beginning to tackle the question of equitable burden sharing. The presentations on the results of Canadian modeling efforts from the first background briefings could provide a springboard for regionally based economists to provide their perspective on the impacts in their particular region of the country. Key provinces would be Alberta, Ontario, Quebec and BC.

For the experiences in other countries, a representative of the European Commission or the Netherlands would be appropriate. Dr. Bert Metz of the Netherlands Environment

NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997

Department was a key player in both the Dutch efforts to domestically allocate sectoral targets, and in the EU deliberations on burden sharing among member states.

Providing Canadian companies with the flexibility needed to undertake further actions

One of the key messages from Canadian industry has been the need for clear policy direction coupled with the provision of flexibility for individual companies to choose how they will most cost effectively reduce their emissions. This explains the underlying popularity of the Voluntary Challenge and Registry (VCR). However, in a regime whereby a legally binding target is the goal for Canada, ways must be found to make the VCR more effective, including providing recognition for early actions, for offset projects and for activities implemented jointly with other countries.

Internationally, there are a number of flexibility provisions likely to be included, at least in principle, in the Kyoto deal. These include joint implementation (JI) and emissions trading and possibly differentiation of targets based on individual national circumstances. Is Canada positioned to take best advantage of JI and emissions trading? There is a JI office established in NRCan but to date the number of projects registered with the group is small, primarily because potential investors have no guarantee that the credits resulting from the projects they are sponsoring abroad will have any value in Canada. Emissions trading is at its inception, with an international pilot trading regime planned to be in place by 2000 involving a few interested countries (Canada included). The Forum may wish to explore the opportunities presented by these provisions of the Protocol and consider ways in which Canada could most effectively capitalize on their existence.

In general, the Forum should hear from industry leaders what they feel would be cost effective and innovative means of achieving internationally agreed targets. Their views would be helpful as well on what Canadian initiatives would be required to create the optimal policy environment to provide industry the flexibility it needs to achieve meaningful reductions. As noted earlier, engagement of other ministries, notably the finance ministry, will likely be needed to provide the best policy setting.

Possible Resource Material and People

On voluntary actions, the Pembina Institute in 1996 conducted a comprehensive review of Canada's VCR which provides valuable insight and suggestions for improvements. The OECD in 1995 published a study that surveys the voluntary programs internationally in place for the electric sector. Similarly, the OECD has produced in 1996 and 1997 reports on JI and emissions trading. The UN Conference on Trade and Development (UNCTAD) has been active in emissions trading since 1991 and has published a variety of state of the art reports on how a trading system might be implemented. The NAFTA Commission for

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Environmental Cooperation in 1997 released an evaluation of the potential for GHG emissions trading in the North American context.

Regarding the positions of industry, the Business Council on National Issues, the Canadian Electric Association, the Canadian Association of Petroleum Producers, the Canadian Coal Association, and numerous others have produced a variety of papers that include their views on the flexibility required for industry to reduce emissions.

For resource people, Robert Hornung of the Pembina Institute, Jan Corfet-Morlot of the OECD and Eric Haites, who was involved in the CEC study, could be called upon. For emissions trading experiences, Dr. Richard Sandor, CEO of Center Financial Products, Vice Chair of the Chicago Board of Trade and a principal player in the international pilot project on GHG emissions trading, can offer a good overview of the use of the trading markets to achieve environmental goals. For industry perspectives on flexibility for achieving emissions trading, Ken McCready, former CEO of TransAlta Utilities, Hugh Morris of El Dorado and chairman of the Canadian Global Change Program, and Aldyn Donnelly of GEMCO can provide some key insights to what could improved to provide incentives for industry action on climate change.

New markets for Canadian Products and Knowledge

One of Canada's key negotiating objectives has been to engage developing countries, particularly large emitters, in taking steps to reduce their emissions. The UN FCCC has failed to make progress in this regard, with a highly divisive North-south polemic dominating the discussions. Developing countries feel that the industrialized world is shirking its responsibilities for emissions limitation while at the same time calling for poorer countries to shoulder their part of the burden. A lack of trust has been established that will make diplomatic breakthroughs slow and difficult.

However, at the same time there are opportunities to build trust in the developing world through wise investment choices. As sustainable development principles become implemented, new markets will be created. For Canada, it will be important to identify promising market niches and choose policies and programs aimed at fostering development and export of selected, high potential greenhouse gas reducing and energy efficient technologies. The Forum should be briefed on what we have to offer, the potential international market possibilities, the costs and benefits of a Canadian climate change technology initiative, and opportunities to cooperate with the provincial governments to determine the policies needed to support "niche" Canadian GHG reduction technologies.

Possible Resource Material and People

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

In 1994 Roy Woodbridge did a survey of Canadian expertise and technology for Industry Canada. Titled "An Industry Canada Action Plan: Canadian Environmental Industries and Climate Change Business Opportunities", the plan outlined key areas where Canada has a potential market niche. Some of the recommendations from the report have found their way in to Canada's Environmental Technology Initiative, currently being implemented by Environment Canada and Industry Canada. Other sources of information for these opportunities include the Canadian Wind Energy Association, the World Bank, and the Industry Canada web site, "Strategis" for international business opportunities.

Possible presenters for this section could include Len Good, Canadian Executive Director for the World Bank, who could speak to investment priorities and associated Canadian business opportunities related to climate change in developing countries; Roy Woodbridge, author of the 1994 Study on Canadian capacity, business leaders with experiences in this area (e.g. Bombardier and Ontario Hydro International), and representatives from CIDA or IDRC to outline Canadian approaches to fostering sustainable development projects.

CONCLUSION

There are many areas on which the Forum could be briefed, some chunks of which have been outlined above. But care will need to be taken to not overload the group with too much or too detailed information. What is being sought is strategic advice and a framework into which the Canadian response to climate change can be cast. While background briefings and thought-provoking presentations are important, they should not overshadow or preclude the main purpose of the Forum which is to draw out the collective wisdom of these pre-eminent Canadian leaders.

CC2

NRTEE CLIMATE CHANGE FORUM
ISSUES FOR BRIEFING AND DISCUSSION
SEPTEMBER 25, 1997

GCSI GLOBAL STRATEGIES

CONTRACT # ~~1~~0050-7-1760

NRT-1997042
12pp

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Introduction

The National Round Table on the Environment and the Economy (NRTEE) is convening a national opinion leaders forum to tackle the issue of Canada's policy response to climate change. Parties to the UN Framework Convention on Climate Change will be gathering in Kyoto in December 1997 to adopt a Protocol that will define the emissions reductions targets for industrialized countries for post-2000. Negotiations will be difficult, and it is expected that there will be a number of issues left unresolved for future negotiations.

The purpose of this paper is to suggest for the organizers of the NRTEE Leaders' Forum:

- key issues on which the Forum should be briefed to ensure a common level of knowledge for all participants; and,
- key issues on which the Forum will want to enter into a more focused debate aimed at stimulating innovative thinking towards solutions.

I. ISSUES FOR BACKGROUND BRIEFINGS

To be effective, Forum members need to be brought to a common level of understanding regarding the basic elements of the climate change issue in Canada. Particular attention should be paid to cast the briefings in a way that puts the focus clearly on Canada - what climate change means for us, what opportunities are presented for us, what can be done that isn't being done now in Canada and how to engage and mobilize individual Canadians to take action. Three areas are suggested:

- the science of climate change and risk assessment
- the Canadian economy and the economics of climate change
- the international scene: Canada's performance in relation to other OECD countries, the results of Kyoto and the implications for Canadian follow-up

For each of these issues, it is assumed that the Forum members will be provided a short overview document for background reading, additional detailed reference material and a face-to-face, balanced overview briefing. This could be done in a one day, intensive session.

The Science of Climate Change and Risk Assessment

Among those most closely involved in the climate change policy debate, there has been increased acceptance of the overall science of climate change during the 1990s. Skeptics remain, funded by well organized international fossil fuel lobbies, but most observers of the climate change issue agree that the debate has shifted from scientific nay saying to determination of economic costs. This notwithstanding, it will be important for the Forum participants to receive a comprehensive overview of:

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

- the basic underlying principles of the greenhouse effect, its causes and the relative roles of humans and natural systems ;
- likely environmental impacts on Canada and their associated costs,
- links to other environmental issues;
- climate change and extreme weather events - what is the link?
- what is known with certainty and identification of where science is less certain (e.g. role of oceans, regional impacts, etc.)
- most recent thinking on risk assessment as applied to climate change.

State of Debate in Canada

With the exception of some oil and coal companies (and one avid journalist for the *Globe and Mail*) there is little quibbling among major stakeholders regarding the basic scientific premise of climate change. This notwithstanding, the campaign of casting doubt on the science is often effective, particularly with respect to senior business leaders. The goal is to plant a seed of doubt and well-timed articles and lobbying efforts do make a difference.

Regional impacts and associated costs remain uncertain which makes full cost-benefit comparisons difficult. This translates into the proponents for the 'go slow' camp using familiar economic models and projections to emphasize the costs associated with action with nothing quantified on the benefits side. Increasingly, risk assessment techniques are being used to assist get a handle on the relative merit of policy options.

Those in Canada currently questioning the science of climate change include Imperial Oil, Syncrude, and the Coal Association of Canada. The Canadian Association of Petroleum Producers, who represent upstream oil and gas producers, have cooled their rhetoric on the state of the science. The Canadian Electric Association, the Motor Vehicle Manufacturers Association and other industry groups continue to urge governments to improve the science but go on to note the need for voluntary action now. On the other side of the coin, the insurance industry, many municipal governments and ENGOs note that the costs of inaction far outweigh the potential costs of doing something now even in the light of scientific uncertainty.

Background Information and Possible Resource People

The IPCC Second Assessment Report provides the current state of climate change science. For a good exposé of the fossil fuel lobby's efforts to cast doubt on the science, refer to the 1997 book by Russ Gelspan entitled "The Heat is On". Other sources of information include the Canadian Global Change Program, the Canadian Climate Program Board, The Atmospheric Environment Service and the World Meteorological Organization. For impacts in Canada, the Canadian Climate Program Board publishes a series of impact assessment reports.

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

For presenters/resource persons, consideration should be given to Jim Bruce, former co-chair of IPCC Working Group III Dr. Gordon McBean, ADM of the Atmospheric Environment Service, Dr. Kirk Dawson, Director of the Center for Climate Studies at UBC, and Henry Hengeveld of the Atmospheric Environment Service. Dr. William Leiss of Queen's University is active in the risk assessment field. Should the Forum wish to hear from international experts, Dr. Robert Watson, the new Chairman of the IPCC and former science advisor in the White House, would be a good choice.

The Canadian Economy and the Economics of Climate Change

Most of the controversy surrounding climate change these days relates to the ever-increasing number of studies on the economic impact of taking action on climate change. The bottom lines of each of these studies are often quoted out of context and can be used to either defend a go slow approach or to suggest the need to move quickly on the issue.

A key factor in the debate is the perception on the behalf of most Canadians that one of the main engines of growth for our economy remains the fossil fuel industry. To put things in their proper context, it will be important for the members of the Forum to have a clear overview of what is driving the Canadian economy. One approach could be to examine how the economy has evolved since the 1950s through to present day and out into the future, say to 2015. During the past 40 years Canada's economy has diversified to a point where less than 10% of our economic growth is attributable to the energy sector. Yet our perception of ourselves remains one of a resource-based economy, when in reality the fastest growing sectors are high technology and services.

Another element that needs to be explored is to de-mystify the variety of economic models currently in play. Recently there have been a number of studies and workshops focusing on the relative merits of the range of economic models on the market. Understanding the systematic biases and assumptions that goes into each of the models is an important prerequisite to interpretation of the results.

Finally, once the above groundwork has been done, it will be important to provide the group with an overview of the results of the various economic studies on the Canadian economy, including both the costs of mitigation of, and adaptation to, climate change.

State of Debate in Canada

The proponents of a go slow approach point to top-down, macro-economic studies which indicate short to medium term losses in GNP as a result of taking action on climate change. Studies such as the Australian ABARE model and the Charles River model are often used in this regard. Both of these modeling efforts are funded by the international

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

fossil fuel sector. NRCan, Alberta, and Nova Scotia cite these types of models as evidence that going beyond voluntary action will be harmful to the Canadian economy. Their arguments are steeped in the notion that what is good for the fossil fuel industry is good for the Canadian economy.

Those favoring early action point out the systematic biases of the macro-economic models to support their argument that the economic effects of taking action beyond "no regrets" is not going to cause serious economic disruption. This camp prefers the microeconomic "bottom up" or engineering models which look at the application of a wide range of measures and simulates the overall integrated results. These models tend to be more optimistic, predicting less economic impact on the economy.

Background Information and Possible Resource People

The IPCC Working Group III report of 1995 provides a good overview of the types of models and their biases. As well, and most relevant to Canada, is a report comparing the range of models applicable to Canada produced by Michael Margolick on contract to Environment Canada in the spring of 1997. The Conference Board of Canada this summer produced a report synthesizing a number of models that are applicable to Canada. The CERI Research Institute in Alberta is planning a workshop for October in Ottawa aimed at identifying the economic analysis needs of Canada. The results of all of these studies and workshops would be useful background material and their authors would make good presenters.

Regarding an overview of the evolution of the Canadian economy in relation to climate change, Dr. John Robinson of UBC would be capable of providing a succinct presentation. There are numerous others in Canadian academia who could undertake this task as well. Depending on the make-up of the Forum itself, one of its members could make this type of presentation.

The International Scene: Canada's Performance in Relation to Other OECD Countries, the Results of Kyoto and the Implications for Canadian Follow-up

The third area for background briefings should situate Canada within the international context. A brief primer on the UN Framework Convention, Canada's commitments, and an objective interpretation of the results of Kyoto will be essential. An overview of the negotiating blocs and their respective positions should be part of this briefing. Canada's performance on emissions limitation should be compared with a selected group of other OECD countries, with commentary provided on the impacts on Canada's competitiveness associated with a more aggressive approach to emission limitation. Particular attention should be paid to what the USA is planning for post 2000. Measures and approaches

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

which have been particularly successful in some countries should be highlighted if it is felt they could be duplicated in Canada.

A concise overview of the implications of the Kyoto decision for Canada should outline what the new international commitments are and set the stage for the more focused round of discussions aimed at solutions to follow. Perhaps the Head of the Canadian delegation to the ministerial portion of the Kyoto meeting could be invited to make this presentation to ensure a first hand understanding of the session and its implications for Canada.

The State of Debate in Canada

Those arguing for a go slow approach point to the difficulties other countries are having in meeting their targets as proof that Canada's voluntary approach is keeping Canada in the middle of the pack. They regard the emissions reductions that have taken place in Germany and the United Kingdom as being attributable to reasons other than policy measures to combat climate change (e.g. reunification in Germany, energy production transformation in the United Kingdom). Proponents of more aggressive actions note that other countries are delivering results by sending market signals and making more widespread use of regulations. They say that Canada is falling behind others because we are not making the investments in energy efficiency that will be needed to keep our economy competitive. They also cite missed opportunities to develop an export market driven by the innovation that results from meeting more aggressive emissions reduction targets.

Background Information and Possible Resource People

Official reports of emissions inventories and projections for most OECD countries are available from the UN FCCC Secretariat. Most reports are recent - 1997. Syntheses are available from a number of sources, including the IEA and the OECD. The David Suzuki Foundation will be releasing a paper in October 1997 that compares Canada's performance with 7 other OECD countries and draws conclusions for Canada's competitiveness. Other comparative summaries have been compiled by the World Energy Council, the Royal Institute of International Affairs in London, Greenpeace and the World Wildlife Fund, to name a few.

Insofar as the interpretation of the Kyoto results is concerned, the official reports from the Canadian delegation to COP3 should be used, supported by a balanced selection of ENGO and industry commentary.

Possible resource people for this section of the briefing could include Doug Russell or Robert Hornung, authors of the David Suzuki Foundation paper. For the report on the Kyoto session, it might be useful to invite the Executive Secretary of the UN FCCC or his

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Deputy (Richard Kinley, a Canadian) to give the overview, with the Minister who headed the delegation in Kyoto invited to provide her/his thoughts on the outcome in relation to Canada, and what they see as the next steps for follow-up.

II. ISSUES FOR FORUM DISCUSSIONS

The next phase of the presentations to the Forum should be designed to stimulate debate and assist in framing the issues for Canadians as to what our next steps should be. As such, the presentations should be provocative and innovative. For each of the topics chosen, it would be desirable to have a number of points of view represented. As with the background briefings, the issues for discussion should focus on the Canadian economic and political agenda. The presentations need to be forward looking and strategic in nature, aimed at teasing out innovative ideas that could be pursued by both governments and the corporate sector.

On the assumption that there will be some sort of target emerging from Kyoto, there are four areas on which the Forum could concentrate:

- Mobilizing Canadians to Take Action;
- Ensuring a Fair and Equitable Sharing of the Burden in Canada;
- Providing Canadian companies with the flexibility needed to undertake further actions;
- New markets for Canadian Products and Knowledge

Two overarching questions should also be applied to each of these areas. The first deals with means to demonstrate effective federal government leadership and management. The second involves identification of gaps either in the knowledge or technological capacity required to take appropriate action.

This section of the paper presents some thoughts on what might be covered in each of the briefings and possible background material and resource people who could be called upon to participate in the sessions.

Mobilizing Canadians to Take Action

If Canada is to have a chance at meeting an emissions target, the public has to become engaged. Grass roots community action has always been a hallmark of environmental activism in Canada. Yet, for climate change, the threat seems too vague and too far in the distance for most Canadians to take seriously. What motivates Canadians to take action and how can these motivators be applied to dealing with climate change? A presentation on Canadians' values and opinions on environmental issues and climate change in particular would be helpful for the Forum participants.

NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997

An effective response to an emissions target will likely force some lifestyle changes for Canadians. This will not happen if people remain unconvinced of the problem. What can be done to clarify and promulgate the messages needed to convince Canadians that actions taken now to reduce emissions are a good investment? How best to go about getting these messages out? What are the respective roles of the three levels of government as well as the corporate sector?

Finally, what type of campaign would be best-suited to this task? Work currently underway with municipalities is beginning to return dividends. Perhaps a briefing on the success stories at community levels, both in Canada and abroad, would be useful.

Possible Resource Material and People

The work of numerous Canadian ENGOS would be particularly helpful in identifying successful campaigns of the past and present. Summaries of other countries' public awareness efforts can be easily found in the national reports of Parties to the UN FCCC. On the public attitudes front, the Environmental Monitor provides up to date polling on public attitudes and the environment, with climate change questions often figuring prominently in the surveys. On the municipal front, the International Center for Local Initiatives on the Environment (ICLEI) has recently published a paper summarizing local efforts underway in numerous OECD countries, including a case study on Toronto.

Insofar as possible presenters/invited experts goes, Louise Comeau of the Sierra Club has had extensive experience on the climate change file and in public awareness raising activities. Doug Miller of Environics International takes the pulse of the nation on green issues and the Executive Director of ICLEI is uniquely qualified to bring the group up to speed on municipal initiatives.

Ensuring a Fair and Equitable Sharing of the Burden in Canada

Assuming there is enough political will to deal seriously with the issue of climate change, a fundamental challenge will be to determine the relative responsibilities of each of the major economic sectors and each province. To date, Ministers of energy and environment have been unable or unwilling to enter into such a discussion. Canada's commitment remains a national one with no regional or sectoral targets. Given that most of the levers for policy action on emissions limitation rest with the provincial governments, forging some sort of agreement on the allocation of targets (or the distribution of burden) will be essential. The overall goal is to change the nature of the climate change debate from being a win-lose polemic pitting one region of the country against another, to one of shared responsibility and a search for win-win solutions. To do so, the debate must be broadened from an energy-environment focus to one that involves all sectors of the economy and engages a wider range of ministers, notably finance ministers.

NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997

Determination of a burden sharing agreement essentially becomes a federal-provincial negotiation, the political spectre of which may be seen by some as too daunting at this time. But, in all likelihood, if an international target emerges from Kyoto, there will be a two to four year period before the agreement would enter into force; a time for leaders in Canada to work towards a consensus on the need for a formula that spreads the economic burden and opportunities equitably across the country. The NRTEE Forum could emerge as a powerful voice in assisting this crucial part of the climate debate by framing the issues in less traditional, and more innovative, ways than they have been presented up to now.

Although the means to achieve individual targets would be left up to each jurisdiction, the NRTEE Forum would be well-placed to consider the relative merits of a variety of possible "philosophical" approaches - i.e. providing advice on the appropriate mix of voluntary, regulatory or market-based measures.

Possible Resource Material and People

Briefings which would be of assistance for the Forum could include advice on the current state of federal-provincial relations and opinions from experts on whether to, or how to, begin such a debate. An assessment would be required of the relative potential in each province to make emissions reductions and the regional economic impacts of taking such actions, to the extent that those analyses have been done.

Those Parties to the UN FCCC who have sub-divided responsibility for actions (notably the European Union and the Netherlands) began their work with a sector-by-sector analysis of the impacts of taking action. This sectoral analysis then formed the basis for negotiating regional/sovereign state and sectoral targets. With the increasing efforts in Canada's economic modeling and analysis community towards determination of sectoral impacts, it will be important for the Forum to be kept abreast of the most recent developments in these areas.

Possible presenters could include observers from academia of, and political participants in, federal-provincial negotiations, with a view to determining the best approach for beginning to tackle the question of equitable burden sharing. The presentations on the results of Canadian modeling efforts from the first background briefings could provide a springboard for regionally based economists to provide their perspective on the impacts in their particular region of the country. Key provinces would be Alberta, Ontario, Quebec and BC.

For the experiences in other countries, a representative of the European Commission or the Netherlands would be appropriate. Dr. Bert Metz of the Netherlands Environment

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Department was a key player in both the Dutch efforts to domestically allocate sectoral targets, and in the EU deliberations on burden sharing among member states.

Providing Canadian companies with the flexibility needed to undertake further actions

One of the key messages from Canadian industry has been the need for clear policy direction coupled with the provision of flexibility for individual companies to choose how they will most cost effectively reduce their emissions. This explains the underlying popularity of the Voluntary Challenge and Registry (VCR). However, in a regime whereby a legally binding target is the goal for Canada, ways must be found to make the VCR more effective, including providing recognition for early actions, for offset projects and for activities implemented jointly with other countries.

Internationally, there are a number of flexibility provisions likely to be included, at least in principle, in the Kyoto deal. These include joint implementation (JI) and emissions trading and possibly differentiation of targets based on individual national circumstances. Is Canada positioned to take best advantage of JI and emissions trading? There is a JI office established in NRCan but to date the number of projects registered with the group is small, primarily because potential investors have no guarantee that the credits resulting from the projects they are sponsoring abroad will have any value in Canada. Emissions trading is at its inception, with an international pilot trading regime planned to be in place by 2000 involving a few interested countries (Canada included). The Forum may wish to explore the opportunities presented by these provisions of the Protocol and consider ways in which Canada could most effectively capitalize on their existence.

In general, the Forum should hear from industry leaders what they feel would be cost effective and innovative means of achieving internationally agreed targets. Their views would be helpful as well on what Canadian initiatives would be required to create the optimal policy environment to provide industry the flexibility it needs to achieve meaningful reductions. As noted earlier, engagement of other ministries, notably the finance ministry, will likely be needed to provide the best policy setting.

Possible Resource Material and People

On voluntary actions, the Pembina Institute in 1996 conducted a comprehensive review of Canada's VCR which provides valuable insight and suggestions for improvements. The OECD in 1995 published a study that surveys the voluntary programs internationally in place for the electric sector. Similarly, the OECD has produced in 1996 and 1997 reports on JI and emissions trading. The UN Conference on Trade and Development (UNCTAD) has been active in emissions trading since 1991 and has published a variety of state of the art reports on how a trading system might be implemented. The NAFTA Commission for

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

Environmental Cooperation in 1997 released an evaluation of the potential for GHG emissions trading in the North American context.

Regarding the positions of industry, the Business Council on National Issues, the Canadian Electric Association, the Canadian Association of Petroleum Producers, the Canadian Coal Association, and numerous others have produced a variety of papers that include their views on the flexibility required for industry to reduce emissions.

For resource people, Robert Hornung of the Pembina Institute, Jan Corfet-Morlot of the OECD and Eric Haites, who was involved in the CEC study, could be called upon. For emissions trading experiences, Dr. Richard Sandor, CEO of Center Financial Products, Vice Chair of the Chicago Board of Trade and a principal player in the international pilot project on GHG emissions trading, can offer a good overview of the use of the trading markets to achieve environmental goals. For industry perspectives on flexibility for achieving emissions trading, Ken McCready, former CEO of TransAlta Utilities, Hugh Morris of El Dorado and chairman of the Canadian Global Change Program, and Aldyn Donnelly of GEMCO can provide some key insights to what could be improved to provide incentives for industry action on climate change.

New markets for Canadian Products and Knowledge

One of Canada's key negotiating objectives has been to engage developing countries, particularly large emitters, in taking steps to reduce their emissions. The UN FCCC has failed to make progress in this regard, with a highly divisive North-south polemic dominating the discussions. Developing countries feel that the industrialized world is shirking its responsibilities for emissions limitation while at the same time calling for poorer countries to shoulder their part of the burden. A lack of trust has been established that will make diplomatic breakthroughs slow and difficult.

However, at the same time there are opportunities to build trust in the developing world through wise investment choices. As sustainable development principles become implemented, new markets will be created. For Canada, it will be important to identify promising market niches and choose policies and programs aimed at fostering development and export of selected, high potential greenhouse gas reducing and energy efficient technologies. The Forum should be briefed on what we have to offer, the potential international market possibilities, the costs and benefits of a Canadian climate change technology initiative, and opportunities to cooperate with the provincial governments to determine the policies needed to support "niche" Canadian GHG reduction technologies.

Possible Resource Material and People

**NTREE Climate Change Forum
Issues for Briefing and Discussion
September 25, 1997**

In 1994 Roy Woodbridge did a survey of Canadian expertise and technology for Industry Canada. Titled "An Industry Canada Action Plan: Canadian Environmental Industries and Climate Change Business Opportunities", the plan outlined key areas where Canada has a potential market niche. Some of the recommendations from the report have found their way in to Canada's Environmental Technology Initiative, currently being implemented by Environment Canada and Industry Canada. Other sources of information for these opportunities include the Canadian Wind Energy Association, the World Bank, and the Industry Canada web site, "Strategis" for international business opportunities.

Possible presenters for this section could include Len Good, Canadian Executive Director for the World Bank, who could speak to investment priorities and associated Canadian business opportunities related to climate change in developing countries; Roy Woodbridge, author of the 1994 Study on Canadian capacity, business leaders with experiences in this area (e.g. Bombardier and Ontario Hydro International), and representatives from CIDA or IDRC to outline Canadian approaches to fostering sustainable development projects.

CONCLUSION

There are many areas on which the Forum could be briefed, some chunks of which have been outlined above. But care will need to be taken to not overload the group with too much or too detailed information. What is being sought is strategic advice and a framework into which the Canadian response to climate change can be cast. While background briefings and thought-provoking presentations are important, they should not overshadow or preclude the main purpose of the Forum which is to draw out the collective wisdom of these pre-eminent Canadian leaders.