

Facing the Energy Challenge: Perspectives in Canada and the United Kingdom

Kananaskis, Alberta November 1992

> Contents Participants Introduction Postscript

Contents

	Preface and Acknowledgements D.K. Adams	7
1	Energy Between Politics and Economics Nicholas Bayne	9
2	Supply and Demand Situations of Energy Industries	
	I Comments on the Future of the Energy-	17
	Commodity-Producing Industries Gerry Angevine	17
	II A United Kingdom Perspective	29
	Malcolm Wesley	2/
3	Alternative Energy Sources	
	I Canadian Situations	33
	Michael Robertson	
	II Energy Mix and Alternative Energy in the	
	U.K.: A Sustainability Perspective Roger Levett	51
4	The Role of Government Policies and Regulation in Energy	y Strategies
	I A View From Canada	77
	Roland Priddle	
	II The United Kingdom Case	85
	John Harvey Chesshire	
5	The Financial Condition of Energy Industries	
	I Canadian Oil and Gas Industries	101
	Wilfred Gobert	
	II Global Conditions and Structural Problems Christopher Cragg	113
6	Strategies for the Future	
	I Research and Development – Alberta	123

	II Energy Efficiency Research and Development in the United Kingdom Gary Acres	127
7	Postscript Michael Clark	137
	Appendix: British and Canadian Delegations to the Canada-UK Colloquium, Kananaskis, November 1992	139

Appendix

British and Canadian Delegations to the Canada-UK Colloquium, Kananaskis, November 1992

CANADIAN PARTICIPANTS

Pierre R. Alvarez

Secretary to the Cabinet and Deputy Minister to the Executive Council, Government of the Northwest Territories, previously Deputy Minister, Energy Mines and Resources

Gerry Angevine

President of the Canadian Energy Research Institute

Brian Davis

Manager, Public Affairs, Shell Canada

Peter Dobell

Secretary of the Institute for Research on Public Policy and Director of the Parliamentary Centre for Foreign Affairs and Foreign Trade

Wilfred A. Gobert

Principal and Director of Research for Peters & Co.

Ross Harvey, M.P.

New Democrat MP for Edmonton East, 1988– ; energy critic for the caucus

Daniel Phillip Hays

Senator 1984—, chair of Energy, Environment and Natural Resources Committee

Al Johnson, M.P.

MP for Calgary North 1988– ; chair of Standing Committee on Energy, Mines and Resources and the P.C. caucus committee on family issues

Roland Priddle

Chairman of the National Energy Board

John M. Reid, P.C.

President of the Canadian Nuclear Association since 1990. Representing Kenora Rainy River, 1965–1984, he also served as Minister responsible for Federal/Provincial Relations

Michael Ross Robertson

Senior Director, Environmental Health and Safety, Petro-Canada; previously Regional Director of the Canadian Wildlife Service in Western and Northern Canada

Mitchel P. Rothman

Chief Economist of Ontario Hydro, serving in the Economics & Forecasts Division of the Environment and Corporate Planning Branch

Glenn Wickerson

General Manager, Tax, for Amoco Canada Petroleum

Gil Winstanley

Director of International Energy Relations Division of Energy, Mines and Resources Canada; Canadian representative at the Governing Board of the International Energy Agency in Paris

William J. Yurko

Chairman and CEO of the Alberta Oil Sands Technology and Research Authority. As an Alberta MLA, 1967–1978, he served as Minister of Environment and Minister for Housing and Public Works. He was a Member of Parliament, 1979–1984

BRITISH PARTICIPANTS

Gary J.K. Acres

Director, Technology Planning, for the Johnson Matthey Research Centre

David Adams

Professor of American Studies at Keele University and Chair of the British Committee of the Canada-UK Colloquium

Kevin Barron

M.P. for Rother Valley, Yorkshire; former private secretary to Neil Kinnock and Labour spokesman for energy, 1989–92

Sir Nicholas Bayne KCMG

British High Commissioner to Canada, and formerly Deputy Under Secretary of State for Economic Affairs at the Foreign and Commonwealth Office

John Harvey Chesshire

Head of the energy program of the Science Policy Research Unit, University of Sussex

Michael Clark

M.P. for Rochford, Essex, since 1983 and chair of the all-Party Group for Energy Studies

Christopher T. Cragg

Editor of the FT Energy Economist, since 1983

Allan Hird

Executive Secretary of the Canada/U.K Colloquium

Anthony Joy

Consul General to British Columbia and Alberta since 1990. From 1976 to 1980, he was First Secretary (Energy) at the British Embassy, Washington D.C.

Roger Levett

ČAG Consultants, formerly with Scottish Enterprise's Energy and Environmental Technologies Group

Karen Jane Sievewright

Materials Scientist with the Research and Technology Division of British Gas; currently on a year's secondment to TransCanada Pipelines

Mark Turner

Canada Desk Officer at the Foreign and Commonwealth Office

Malcolm Wesley

Executive Vice President, British Gas Holdings (Canada)

1 Energy between Politics and Economics*

Nicholas Bayne

Introduction

The production and marketing of energy – such as coal, oil, gas and various forms of electrical power generation – is an economic activity, like manufacturing or banking or construction. Energy companies and utilities are concerned with economic objectives and economic laws, such as supply and demand, prices, investment decisions and return on capital.

But no area of civilian economic activity – not even agriculture – is so much a subject of intervention and regulation by governments. Governments too have economic objectives. But they also have other, more political aims: security of supply, protecting the consumer, preserving jobs, raising tax revenue or respecting environmental standards. Energy policy can be pulled one way by politics and another by economics. The current debate on the coal industry in Britain is a very striking example of this. Economics argue for closing mines, politics for keeping them open.

This tension in energy policy can be aggravated by conflicting international and domestic pressures. In the energy field, economic decisions are increasingly made on international criteria. Governments have dwindling control over what economic activities take place on their territory, because these can always move elsewhere. But they face persistent political demands from vulnerable groups within their country to protect them against external threats. The British coal mines issue illustrates this again. Hitherto British mines have had a guaranteed market through sales of coal to power stations. Part of the controversy has arisen because they now face increased external competition from imported coal.

But politics and economics are not fated always to pull in opposite directions. The most successful policies are those where governments can get economic and political factors to pull in the same direction and be mutually reinforcing. I want to examine three areas of energy policy to see how this mutually reinforcing effect can be achieved. I have chosen policy issues where the tensions arise as much from foreign policy as from

^{*} This is the text of the address given by Sir Nicholas Bayne at the Calgary Petroleum Club on 11 November 1992. The opinions expressed are his own, and should not be taken as official government policy.

domestic pressures, so that, as a diplomat, I have something to say about them. One set of issues became critical in the 1970s, one in the 1980s and one is upon us now in the 1990s.

On each issue, I offer some personal reflections, based on my experience with the economic summit meetings of the G7 powers, in which both Britain and Canada have been much involved. I would not suggest the summits have been more successful than other channels in finding solutions to international energy problems. But when an issue appears on the summit agenda, that means both that the G7 governments are deeply worried about it and that they realize the need to reconcile domestic and international pressures.

Political Instability in the Middle East

My first issue, which became critical in the 1970s, is the political instability in the Middle East and the security of supplies of oil.

Everyone will recall the first oil crisis of 1973/74. This was the reaction by the Arabs to their defeat by Israel in the Yom Kippur war of October 1973. A brief period of interruption of oil supplies from the Middle East led into a fourfold expansion in the price of oil, from \$3 to \$12 per barrel. After much initial confusion, the political reaction of the main industrial powers was quite extensive. A new institution, the International Energy Agency (IEA), was created and continues to do good work to this day. President Giscard of France saw the need for a coordinated economic response to the first oil crisis. He made this the motive for calling together the first Western economic summit at Rambouillet in 1975.

But the economic response did not match the political efforts. Governments tried to shelter their populations from the consequences of high oil prices. As a result, consumption of oil and other forms of energy continued to grow, particularly in the US. Inflation accelerated dangerously; and the West was all too vulnerable to the second oil crisis which struck in 1978/79, provoked by the fall of the Shah and the arrival of Ayatollah Khomeini in Iran. This caused spot market prices almost to triple between October 1978 and June 1979, from \$13 to \$36. The rationing system put in place by the IEA did not really work. It took only a small shortfall in supply, about 5%, to provoke a scramble for available cargoes which drove up prices very steeply.

But this time the economic and political responses from the West were more consistent, though they took some time to work out. Energy issues dominated the G7 summits of 1979 and 1980. This time round the leaders realized that they must let the full effect of higher world oil prices work through their economies, and be reflected in higher domestic prices and lower demand. That was the only way of reducing the vulnerability of the OECD economies to repeated shocks of this kind. All the G7

countries agreed to follow this course – with one exception. That was Canada, where Prime Minister Trudeau did not follow the recommendations of his colleagues to allow domestic energy prices to rise to the same level of world prices. In so doing, I believe he made himself very unpopular in Alberta; I have heard some Albertans say that they consider themselves to be \$50 billion poorer as a result.

The political response to the second oil crises focussed on various collaborative measures to limit imports, to find alternative sources of supply for oil and to develop alternative types of energy, especially coal, nuclear and synthetic fuels. All these were moves in the right direction. In practice the drop in demand for all types of energy brought about by the economic strategy meant that many of the targets set were never directly tested.

However, the resilience of the western economies has been demonstrated in other ways. Since 1979 there have been two more major political upheavals in the Middle East, which could well have produced the third and fourth oil shocks. The first was the Iran/Iraq war, which broke out in the autumn of 1980. The second was the Iraqi invasion of Kuwait and the ensuing Gulf War. Both of these involved reductions of about 5% of oil supplies to OECD countries, the same as the second oil crisis.

In late 1980, with world demand low and oil stocks high, it was possible to absorb the effect of the Iran/Iraq war by drawing down stocks and discouraging purchases in the spot market. The Gulf crisis of 1990/91 had a more dangerous initial impact, driving up oil prices from \$20 per barrel in September 1990 to nearly \$40 in October. But Saudi Arabia was able to mobilize additional supplies, to make good the shortfall from Iraq and Kuwait, and prices soon declined to more normal levels. The IEA helped by encouraging the release of stocks early in 1991, just before the allied attack of Iraq began. It would have been even better, in my view, if the IEA had released stocks the previous autumn. This could have prevented the surge in price and reduced the damage done at the time to some weaker economies.

We have thus survived the 1980s and early 1990s without an oil supply crisis provoked by political instability in the Middle East. But it could still happen again. On the economic side, world oil consumption, after falling off in the early 1980s, has now climbed back past its peak of 1978, fed especially by strong demand in Asia. Despite recent discoveries elsewhere, two thirds of the world's proven reserves of oil are in the Middle East. Politically, the Middle East remains an unstable region, with the growth of Islamic fundamentalism. The most hopeful sign is the progress being made, at long last, towards a settlement of the dispute between Israel and its Arab neighbours. If that could be resolved, the underlying political threat to oil supplies from the region would be greatly reduced, if not wholly removed.

Protecting the Environment

My second issue, which became critical in the 1980s, is concern with protecting the environment. This had already surfaced as an international issue as early as the Stockholm environment conference of 1972. But it was then submerged by the oil crises and ensuing recessions and only came back on to the agenda in the mid-1980s. The first time it was treated by a G7 summit was in London in 1984. By the Paris summit of 1989, it had become the issue to which the assembled leaders devoted the greatest amount of time and it has featured strongly since.

Not all environmental issues concern energy. But it is the energy related ones, such as air pollution from power stations and car exhausts, the escape of radio-activity into the atmosphere and most especially the greenhouse effect, which have the widest international impact. Acid rain or the radioactive clouds from Chernobyl respect no borders. The global warming produced by mounting levels of man-made CO₂ in the atmosphere is an issue which affects the future of the entire planet and human life on it. The policies of large, poor and populous countries like China, India and Brazil can have as much impact on global warming as those of rich industrialized countries.

Before the G7 and other developed countries could offer any recommendations to the rest of the world, they needed to work out their own strategy, to offer an example to others. Initially western governments, especially in Europe, tried to combat air pollution and reduce emissions of greenhouse gasses by regulation, prohibition and administrative measures. But this would have led to great tension between political and economic pressures. Even if it had worked in the West, it would not have been acceptable in the developing world. On reflection, western governments, in addition to administrative controls, are trying to make more use of prices and other economic levers to achieve environmental aims. This approach respects the 'pollution pays' principle; it tries to have the environmental costs reflected in the price of different forms of energy; and uses taxes and subsidies to encourage the shift towards more environmentally acceptable types of fuel.

In some ways the energy policy trends provoked by the oil crises have been useful in dealing with environmental pressures. Governments are already seeking to save energy and make their economies less energy dependent. These policies also help them to meet their targets for reducing emissions of greenhouse gasses.

The oil crises also encouraged a move away from oil to alternative fuels: to gas, nuclear power and coal. The 1980 summit, for example, called for no more oil-fired power stations but a doubling in the use of coal by 1990. Environmental factors have produced quite a different ranking. Oil is acceptable again. Gas is even more favoured as producing

more energy for less CO₂ emissions. Gas has become very attractive for power stations; a Canadian consortium is building a new gas-fired station in Britain, east of London. *Nuclear power* has become more controversial then ever. Some environmentalists favour it as producing energy with no emissions of greenhouse gasses at all. Others point to the appalling danger of radioactive leaks. My impression is that the greatly increased security now required of nuclear power stations puts them at an economic disadvantage.

Coal is the fuel that has lost most ground for environmental reasons. In addition to releasing sulphur dioxide into the atmosphere, coal is only half as efficient as gas in relation to greenhouse gas emissions. Partly for environmental reasons, decisions on coal have produced political repercussions both in Canada and Britain. The dispute in Britain over the future of the coal industry has led to a comprehensive review of energy policy. Canada has suffered the tragedy of the Westray mine explosion in Nova Scotia. The mine was known to be extremely dangerous, but was reopened because the Westray coal was environmentally very efficient.

So it has been hard for the developed countries to work out their own environmentally acceptable energy policies, which can reconcile economic and political pressures. But these policies also have to find favour in the developing world, whose prospects are entirely different. It is not difficult for rich industrial economies to find ways of saving energy. But countries at the beginning of their development need to expand their energy capacity to power new industries. They will not readily agree that environmental factors should hold back their economic development. They will insist on being involved in working out any international regime.

That is why international discussion has to take place through United Nations channels, so that every country can have its say. This discussion reached a climax at the Rio Conference in June this year, which was the largest gathering of heads of state and government hitherto on record. The Rio conference is only the beginning of a series of negotiations on environmental issues, which will stretch well into the next century. But Rio established some basic principles which will determine what happens next.

There was a danger that at Rio developing countries would adopt a politically confrontational approach, blaming all the problems on the industrial countries and demanding to be paid for any environmental measures they took. But this view did not prevail. Both rich and poor countries were prepared to subscribe to an international climate change convention, which obliges each country to draw up a national strategy for keeping greenhouse gas emissions in check. Developing countries recognized that it was in their interest as well to preserve the world in a fit state for future generations. The developed countries accepted an obligation to help developing countries achieve their environmental strategies in ways which did not hold up their economic growth. A new financial

instrument, the Global Environment Facility, was created to help developing countries meet the incremental costs of respecting their obligations under the climate change and other conventions.

Some were disappointed at the outcome of the Rio conference. I myself find it extraordinary that so many countries were prepared to accept constraints on their present policies for the sake of future generations. Governments of both rich and poor countries sought to respond to the political imperatives of environmental protection by measures which made economic sense and did not distort energy markets.

The Transformation of the Soviet Union

My third issue, which has become critical as the 1990s begin, is the transformation of the former Soviet Union. The USSR has collapsed as a communist super power and broken up into its component republics. Each of them is trying to put in place an efficient democratic system and a working market-based economy. They all have a very long way to go.

The collapse of the Soviet Union, which preoccupies us all, is already having profound effects on the energy scene. During the 1980s the Soviet Union (as it then was), was the world's third largest producer of coal, after the United States and China. It was the world's largest producer of oil. It became the world's largest producer of natural gas, overtaking the

United States, and possessing 38% of proven world reserves.

The collapse of the Soviet Union is already having adverse effects on security of supply and on the international environment. A serious shortfall in energy supplies to the East European countries is crippling their efforts at economic reform. Germany, Italy and France are linked with Russia by a natural gas pipeline network, which caused great controversy at the 1982 G7 summit. Now the gas supplies by this route, which have risen from 20 to 60 billion cubic feet over the 1980s, are at risk from production shortfalls in Russia and disputes over transit across Ukraine. In the environment, there has been deep concern about the safety of nuclear power stations in the former Soviet Union ever since the escape of radioactivity from Chernobyl in 1986. There are still power stations of the same or similar design in operation and the safety procedures are known to be inadequate. The danger of another nuclear accident remains high.

Everywhere in Russia and the other new states the old political and economic structures have crumbled away or are on the point of collapse. But new arrangements are slow to take root and gain acceptance and legitimacy. In Russia President Yeltsin and his economic team have many of the right ideas for reform, but they are struggling against mounting political as well as economic obstacles. In other new states the process of

reform is only just beginning.

The West has the strongest possible political incentive to see democracy established and the market economy develop in these former communist states. We welcome the collapse of communism and the end of super-power confrontation. The last thing we want to see is the Soviet Union replaced by a group of states whose economies are disintegrating, where border disputes and civil wars are breaking out and where the existence of huge stocks of weapons are a persistent threat to security.

This issue has dominated the last three G7 summits, and the leaders met with Gorbachev in 1991 and Yeltsin this year. The British and Canadian governments have been prominent in the G7 in trying to help the Russians put into place both the institutions and the policies required for macro-economic stabilization, for monetary reform and for dealing with the debt overhang. We have been active too in humanitarian assistance, to prevent popular hardship undermining essential reforms. But alongside these efforts to transform government and public administration in Russia, we also have to encourage the growth of a private sector economy. Here, as with the other issues we need techniques which enable politics and economics to pull in the same direction.

The first steps towards future prosperity for Russia must lie in the transformation of its primary industries, in particular energy, mining and agriculture. Most secondary manufacturing industry in Russia is hopelessly uneconomic. The tertiary service sector is in its infancy. But the energy industries, which already produce the greater part of Russia's foreign exchange earnings, can provide the foundation for future economic growth.

The transformation of the energy industry in Russia and other states will be a huge task. Production facilities and the physical distribution network are antiquated and prone to breakdown and leakage. Energy pricing policy in Russia and the other states hardly exists, so that the use of energy is enormously wasteful. The damage to the environment, not only from dangerous nuclear power stations but from other forms of air and water pollution, is very extensive. Finally, while the Russians have been ready to admit private foreign capital into other parts of their economy, they have hesitated to lose control of energy and other national resources.

But Russia's energy resources, in particular its natural gas and oil, are of interest to western firms, as British, Canadian and other companies have shown. In the right conditions, they can earn profits. So the essential task is to create such conditions, which might encourage private energy investment into Russia and other energy-rich states of the former Soviet Union, such as Kazakhstan. For this, I suggest a number of elements are required:

 A clear understanding of where responsibility lies for decisions on energy investment, reinforced by a proper regime of contract law.

- Opportunities for foreign companies to take equity stocks in energy undertakings, with a workable system for generating foreign exchange earnings and for remitting profits.
- A market-related domestic pricing system for energy, for both firms and households, to cut down waste and release more quantities for export.
- Assurance of free movement between republics, with no trade barriers or interruptions in transit.

These elements depend on decisions by the Russians and other states themselves. Governments and indeed Western companies can provide essential advice and training. The Energy Charter now under negotiation should provide a helpful framework of acceptable practice. In addition, some government financial support for energy projects will be needed, for example in improving the safety of nuclear power stations. But the aim must be to avoid using public finance to meet needs for which private capital could be available.

Even in the energy sector, which contains grounds for hope, transforming the former Soviet system is bound to be a long and painful process. The Russians and other states start with many handicaps. They face serious dangers from hyper-inflation and economic depression. They will need all the help they can get, from governments, international bodies and the private sector alike. It strikes me that Canada, with its highly successful energy and resource based economy in a large sparsely populated land area, provides a good model to which the Russians and others could aspire.

Conclusion

I have examined three questions, each of which struck me as being the dominant international energy issue in three successive decades. None of these is definitely resolved. We cannot be sure that political upheaval in the Middle East will not again disrupt energy supplies, though we have some defences in place. The outlines of acceptable solutions for protecting the environment are just now emerging. With the former Soviet Union we are only beginning to understand the scale of the problems. All three continue to require an effort of cooperation, not only between governments but also between governments and the private sector, to ensure that political objectives are pursued by methods which make economic sense and vice versa.

7 Postscript

Michael Clark

It was an honour, and a great pleasure to take part in the Canada-UK Colloquium. The topic this year was 'Energy', and those of us who had the opportunity to attend and participate appreciated the presentations and the exchange of views that the format made possible.

It soon became clear that collectively participants had a broad knowledge of energy extending beyond local or national territories. Thus the Canadians were able to describe not only their own energy opportunities and challenges, but also those of North America as a whole. Similarly the British put the changing UK energy scene within the context of the European Community. In this way the colloquium was able to cover two of the world's three major trading blocks.

By the very nature of a residential colloquium relevant conversations took place outside the conference room. While walking, eating and relaxing, the participants exchanged experiences, information and – most interestingly of all – facts of political, parliamentary, constitutional and historic interest about their respective country. I feel certain that must be a prime objective of any international or bi-lateral gathering.

If we reached conclusions at all they revolved around price and long-

term availability of energy, and environmental considerations.

Natural gas is being used increasingly, over the next 25 years its use will double and prices probably increase steeply. In the short term however, gas is plentiful and cheap, as are most energy sources. There seems little likelihood of firm national energy policies in these circumstances. It was however pointed out that energy policy is largely determined at arm's length by national policies on housing, social welfare, national security, transport and the environment.

The environment featured prominently in all discussions. It was pointed out that most developed countries are becoming more diligent in the introduction of measures to protect the environment. Often these expensive measures made only marginal improvement within the country concerned. We concluded that as the environment was a global matter the problem should be tackled world-wide. For example millions of dollars spent reducing CO_2 by increasing the thermal efficiency of western power stations, could be far more effectively used helping China to improve effectiveness of her numerous coal-burning power stations which apparently have efficiencies below 20%.

The meeting concluded with the politicians being charged to 'do something'. In response the politicians present retorted that they could tax and legislate, inform and lead, but priorities must be determined by the electorate; through open debate and consensus.