CANADA IN ASIA

2005-4

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FUELING THE DRAGON

China's Quest for Energy Security and Canada's Opportunities

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CHINA'S THIRST FOR ENERGY

Prime Minister Paul Martin signed a major document during his first official visit to China in January 2005 — the *Canada-China Statement on Energy Cooperation in the 21st Century*. In this, Ottawa and Beijing promised to work closely in the areas of oil, gas, oil sands, energy efficiency, environment and related ventures. Canada is one of the world's most richly endowed countries with energy and other resources while China, the fastest growing major economy, is hungry for energy. The two countries appear to be complementary in their respective energy situations, and the potential for cooperation seems unlimited. But such a proposition, attractive as it is for the future, has not been demonstrated in the history of their bilateral energy relations. Looking ahead, there are still a few hurdles to be overcome that require both sides to take proactive measures.

As the world's fastest growing economy in the past quarter century, China's appetite for energy has grown rapidly. In only 10 years, China has turned from a petroleum exporter to the second-largest oil consumer in the world, burning about six million barrels of oil a day. Although still far behind the United States, which consumes some 20 million barrels a day, China is projected to reach a daily level of 10 million barrels within the next two decades or so (see Figure 1). The commonly held view is that the Chinese market alone is responsible for 40% of the global increase in oil demand since 2000 and, in turn, has driven up oil prices, although China accounts for only 6% of the world's total oil trade.[1]

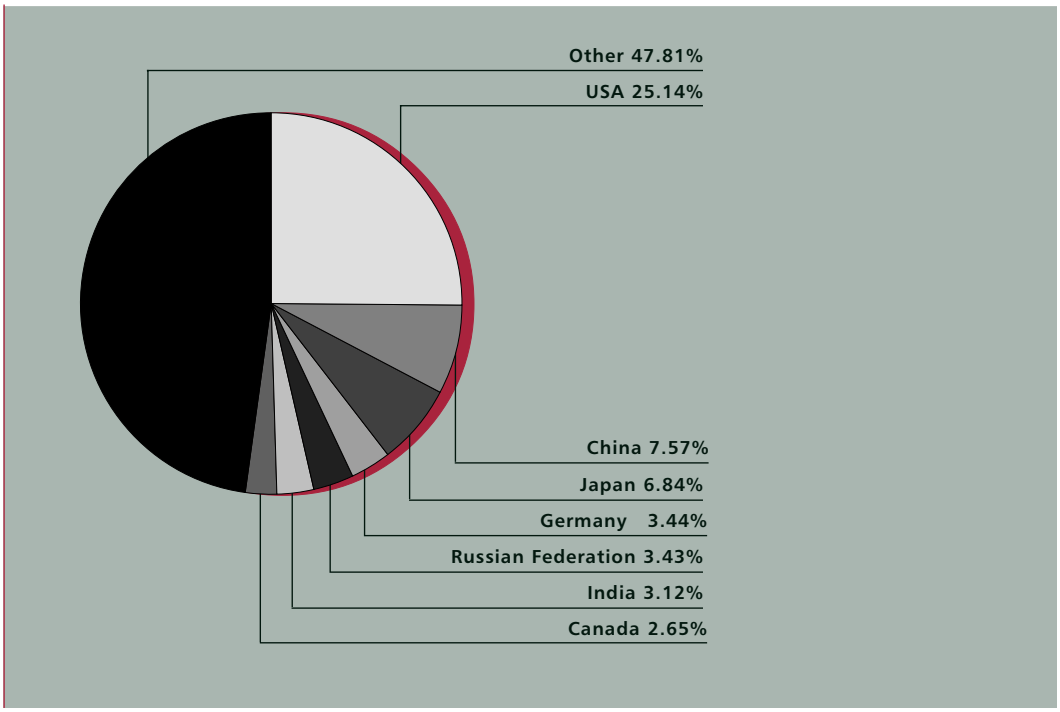
What is almost certain is that China's economic growth and the resulting increasing consumption of energy, will not slow down in the foreseeable future. While the Chinese economy grew by 9.5% last year, its oil imports jumped 40%. If China is to achieve its goal of quadrupling its economy by 2020, its demand for energy and other resources must grow. Forecasts see China's need for crude increasing annually by 12% until 2020 (see Figure 2). And there is a clear indication that China is following in the footsteps of the United States and Japan in its demand on foreign supplies: while China's current dependency on foreign oil is about 40%, it will be well over 60% in less than two decades.[2]

A fast-growing economy will inevitably use more energy, but China's modernization drive has produced a manufacturing structure that progressively requires more energy, an energy consumption system that is inefficient and difficult to sustain. China is now the "factory of the world," with the major portion of its economic output oriented toward industries that are primarily energy-driven. With less than 4% of global GDP, China consumes 31% of the world's coal, 30% of its iron, 27% of steel and 40% of cement. Accompanying this heavy industrial structure is a tremendous waste of energy. To generate every US$1 of GDP, China uses more than three times as much energy as the global average, 4.7 times more than the US, 7.7 times more than Germany and 11.5 times more than Japan.

Yet the country is building one of the most extensive highway infrastructures on earth so it can replace its one billion bicycles with cars. In 1999, only 220,000 vehicles were sold. Last year, the number was 2.04 million — a 69% sales growth and an 80.7% production increase year-over-year. From 24 million cars in 2003, China is projected to have 57 million private automobiles by 2010 and 130 million by 2020. Oil used in transportation will account for over half of total oil consumption. Thus China will rival the US in the number of cars on its roads within a few decades — that is if such growth can be sustained.

The heavy industrial structure and a fast-growing auto industry have also made China one of the worst polluters on earth. While the US remains the biggest producer of carbon-dioxide emissions, China is catching up fast. Being a signatory of the Kyoto Protocol but not subject to its emission reduction standards as a developing country, China is releasing

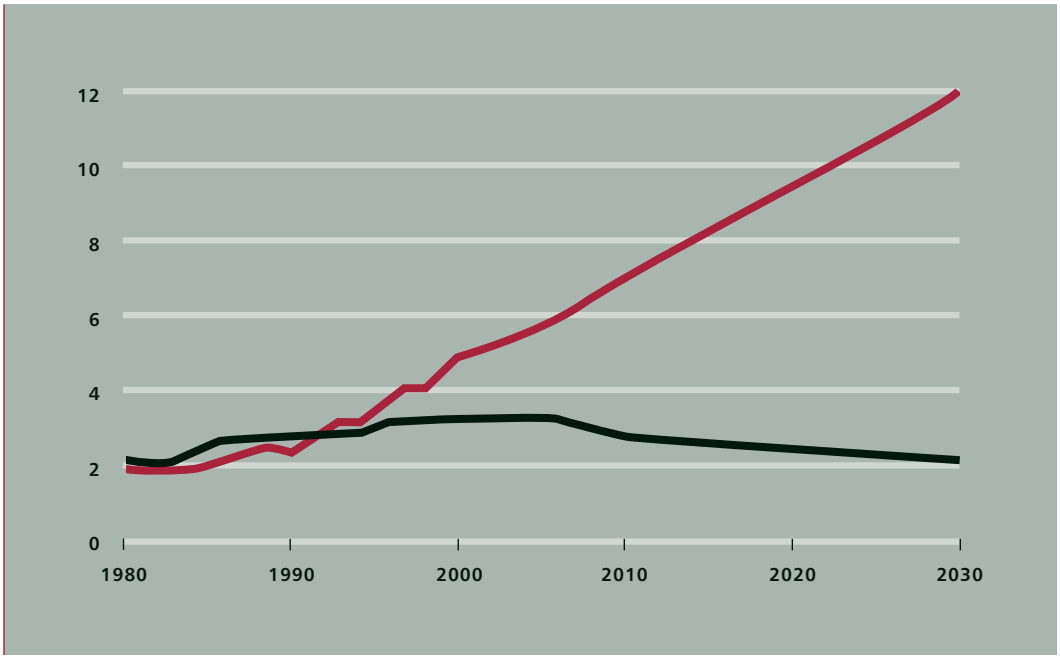
FIGURE 1: Oil Consumption (Percentage of Total World Consumption)



Source:
BP, *Statistical Review of World Energy 2004*. 30 March 2005. <www.bp.com>

Notes:
Data is based on a worldwide average gravity: 1 metric tonne = 7.33 barrels. A barrel is equal to 159 litres (42 gallons). 2003 statistics

FIGURE 2: China's Oil Balance (mb/d)



Source:
Hiroyuki Kato, International Energy Agency, *World Energy Model 2002*.

ever more greenhouse gases into the atmosphere. China's obsession with cars has led to more than traffic jams and higher pollution levels. According to UPI Energy Watch, the annual average fuel consumption per car in China is 2.2 tons, 10-20% more than in the US and double that of Japan. Beyond automobiles, sales of energy-based consumer goods such as air conditioners, refrigerators and other electronic gadgets are growing at an unprecedented rate.

No wonder energy has become a bottleneck for the Chinese economy in recent years. Last year, China's power supply increased by 12% yet 25 provinces and regions experienced blackouts. All major cities face power shortages on a regular basis. Factories are forced to adopt night shifts to avoid peak consumption times or their power supply is cut off altogether. Electricity is rationed in the summer and power cuts have become a common phenomenon.

The broader picture is even more alarming. If 1.3 billion Chinese were to use 20 times more energy every day — that is, the same per capita consumption as in North America — China would require 80 million barrels of oil a day, more than the entire world's current daily consumption. Even if only a quarter of China's population begins to consume as much energy as North Americans, there will be a major crisis. No one should deny China's right to use more energy, but even Chinese themselves are now questioning how best to deal with the country's energy situation.

Some advocate securing the energy supply primarily by traditional means. Others argue that China must curb its demand for energy and focus instead on conservation. Yet others promote the diversity of energy sources. The Chinese leadership seems to have adapted and combined all of these approaches in its overall energy strategy. In the draft of China's medium- and long-term energy development program, covering 2004 to 2020, and approved by the State Council last fall, strategic reserves, energy conservation, diversification, security, nuclear energy, renewable energy, further exploration and environmental preservation are all on the agenda.

In their travels abroad, top Chinese leaders have a particular focus on energy. China has signed billions of dollars' worth of deals around the world to buy energy and build pipelines. It has forged closer ties with countries ranging from Australia to Kazakhstan, from Venezuela to Iran, and from Libya to Indonesia. Beijing wants to have a strategic partnership with anyone that can supply China with energy. Chinese companies have also stepped up investment abroad to acquire control or partial rights in some of the world's potential petroleum fields. They have also opened the doors for multinational corporations to enter China's domestic energy market. Shell, ExxonMobil and GE Energy are all doing business in China. Beijing has also begun to implement a strategic oil reserve system (see Annex A for a list of China's major energy deals around the world in 2004).

China's energy diversification initiative is bold. Currently, well over 60% of China's power is generated from coal. Nuclear energy and natural gas have very little share in China's overall energy supply (see Figure 3). While the rest of the world is debating the dangers of increasing the use of nuclear energy, China has just announced that it will build 40 more nuclear power plants by 2020, with roughly three times the generating capacity of the Three Gorges Dam, which is already the world's largest hydroelectric plant. Canada, the US, France and Japan are competing for the pending award of contracts to build four 1,000-megawatt nuclear reactors. And Chinese scientists confidently claim they have successfully developed a way of using nuclear energy to produce power without any risk to humans or the environment.

At the same time, the Chinese government is working with Greenpeace to build new structures that generate wind energy. While more oil-burning and coal-burning power plants are being built and many more planned, bulldozers are working day and night to turn China's ancient Silk Road to the West into a new Eurasian continental bridge that will serve as energy and materials supply routes.

Domestically, the Chinese leadership knows well that its own legitimacy depends in large part on providing economic benefits to its people. With a huge population longing for jobs, continuous prosperity is seen as the primary key to social stability. Thus, China's quest for energy security is more than simple economics. It is about China's overall development strategy; the direction of China's modernization

program; what kind of China is emerging as a world power; and ultimately it is about whether China will be a responsible leader in protecting the global environment.

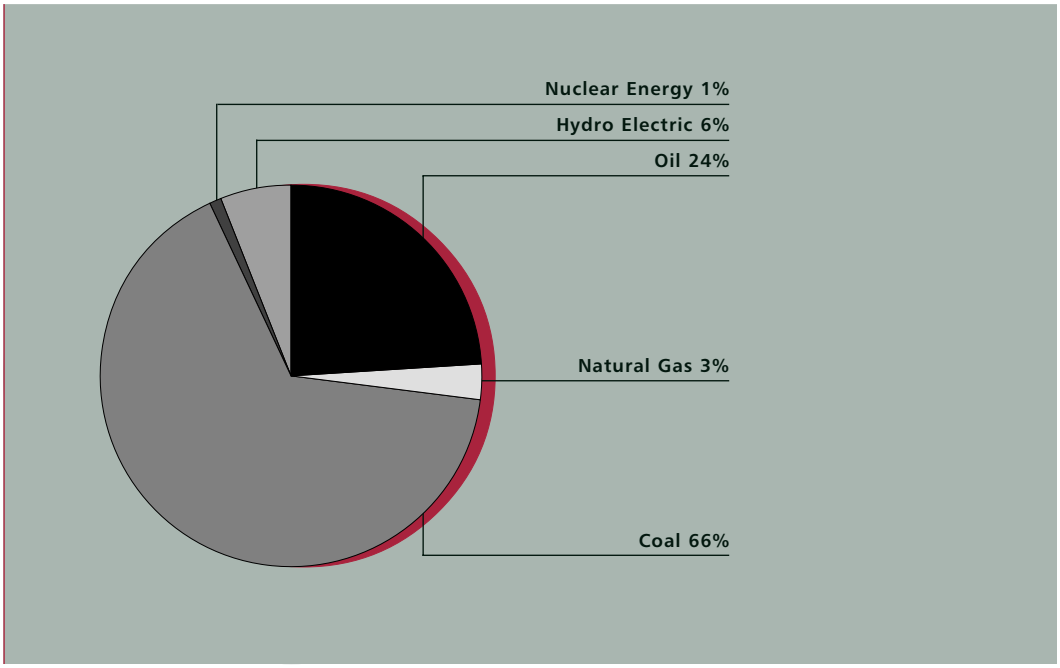
CANADA COMES INTO PLAY

It is clearly in the interests of Canada, the US, Japan and other Western countries to establish a constructive relationship with Beijing in the energy area. This will be conducive to persuading the Chinese leadership to craft a more environmentally-friendly development strategy. Developed countries can pursue technical collaboration with China for energy conservation and efficiency, for using clean and renewable energy sources, for seeking safe and alternative energy, and for reducing oil dependency by jointly developing the next generation of energy sources. In the process, large per-capita energy consuming countries like Canada and the US may also be forced to think seriously about changing their own energy-greedy habits and lifestyles.

For now, however, the most attractive aspect of Canada is its huge oil reserves. According to the latest estimates, Canada's oil reserve stands at 176 billion barrels (see Figure 4), second only to those of Saudi Arabia, and 50% more than Iraq. Such an upgrade is due to a reclassification of the status of Alberta's huge oil sands to the economically recoverable category. Today, Alberta produces more oil from oil sands than from conventional reserves. Although the cost of extracting oil from sand is higher, at about $12 per barrel compared to roughly $4 per barrel for conventional recovery in the Middle East, it is still a profitable operation when the world oil price hovers in the US$40-50 range. Canada also enjoys the kind of political stability that the Middle East and many other oil producing regions lack. With current Alberta oil production at 3 million barrels a day, and half of that going to the US, there is still a surplus available after satisfying domestic needs. Billions of dollars worth of oil sands development projects, pipelines and related projects are in the process of being planned and implemented.

It is normal that Chinese interest in Canadian energy and other resources have grown recently. Large Chinese energy firms have increased their interactions with their Canadian counterparts following the trip to China by Alberta Premier Ralph Klein last summer, in which he called for more cooperation between the two countries' energy sectors. Several dozen Chinese oil companies groups have visited Canada to look into potential energy projects since Paul Martin's China trip.

FIGURE 3: China's Primary Energy Composition



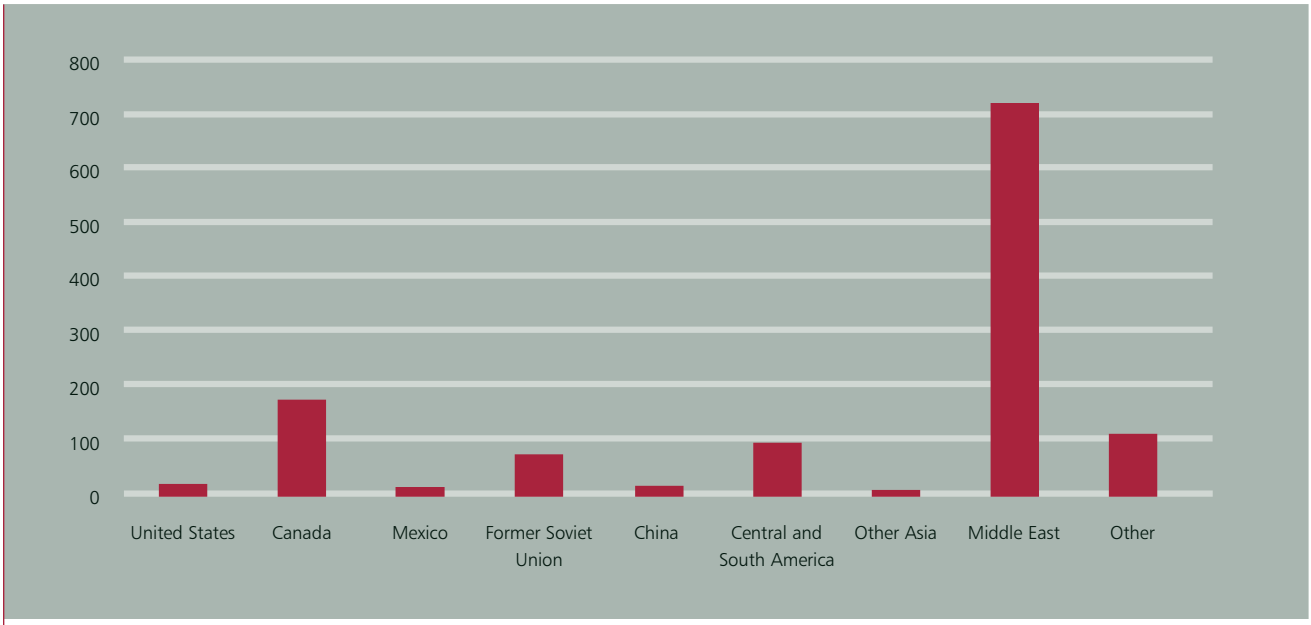
Source:
Li Zheng, Tsinghua BP Clean Energy Research and Education Center, "Polygeneration Based on Coal Classification: A Strategic Technology for China". Presented at the 3rd US-China Clean Energy Workshop, October 18, 2004. 18 March 2005. <http://www.nrcce.wvu.edu/conferences/2004/China/presentations/lizheng.pdf>.

MUCH TALK, LITTLE ACTION IN ENERGY SECTOR COOPERATION

Looking back, Canada and China seem to have always been trying to achieve some kind of cooperation in the widely defined energy sector. Major agreements, statements and initiatives in the past ten years have included:

- During his Team Canada Mission to China in November 1994, Prime Minister Chrétien signed a Nuclear Cooperation Agreement on the peaceful uses of nuclear energy. This agreement, along with MoUs between Atomic Energy of Canada Ltd. and the China National Nuclear Corporation, laid the groundwork for the sale of two CANDU 6 reactors to be built at Qinshan, outside Shanghai.
- In 1996, the then-Minister of National Resources, Anne McLellan, visited China and emphasized Canada's willingness to participate in China's onshore and offshore oil development, encouraged Alberta's ties with China's energy sector, and went to Harbin, Heilongjiang province (a major energy production region), to promote Alberta-Heilongjiang cooperation.
- In early 2001, during Prime Minister Jean Chrétien's second Team Canada mission to China, the two countries signed a number of agreements and memorandums that included the energy and related sectors.
- In 2001, according to *Canada-China Environmental Cooperation Report of Activities*, Canada focused on the following energy and related projects: Energy Efficiency in Building; Reduction of CO_2 Emissions from Coal-Fired Utility Boilers; Renewable Energy Diversification: Transferring Small Hydro Technology; Solar Energy for Rural Electrification in Western China; and Sustainable Cities Initiative (SCI) Canada-Qingdao: Urban Rehabilitation and Conservation.
- In 2003, Prime Minister Jean Chrétien went to China for the completion of the Qinshan project's two CANDU 6 reactors that enable China to avoid several million tones of carbon dioxide emissions every year. The project, which was completed under budget and ahead of schedule, was marked by a high degree of cooperation between the two countries and among the participants. It was

FIGURE 4: Estimated World Oil Reserves, 1995-2025 (Billion Barrels)



Note: Resources include crude oil (including lease condensates) and natural gas plant liquids.

Source: Energy Information Administration, *International Energy Outlook 2004*. 18 March 2005. <http://www.eia.doe.gov/oiaf/ieo/pdf/tbl5.pdf> as provided by the United States Department of Energy.

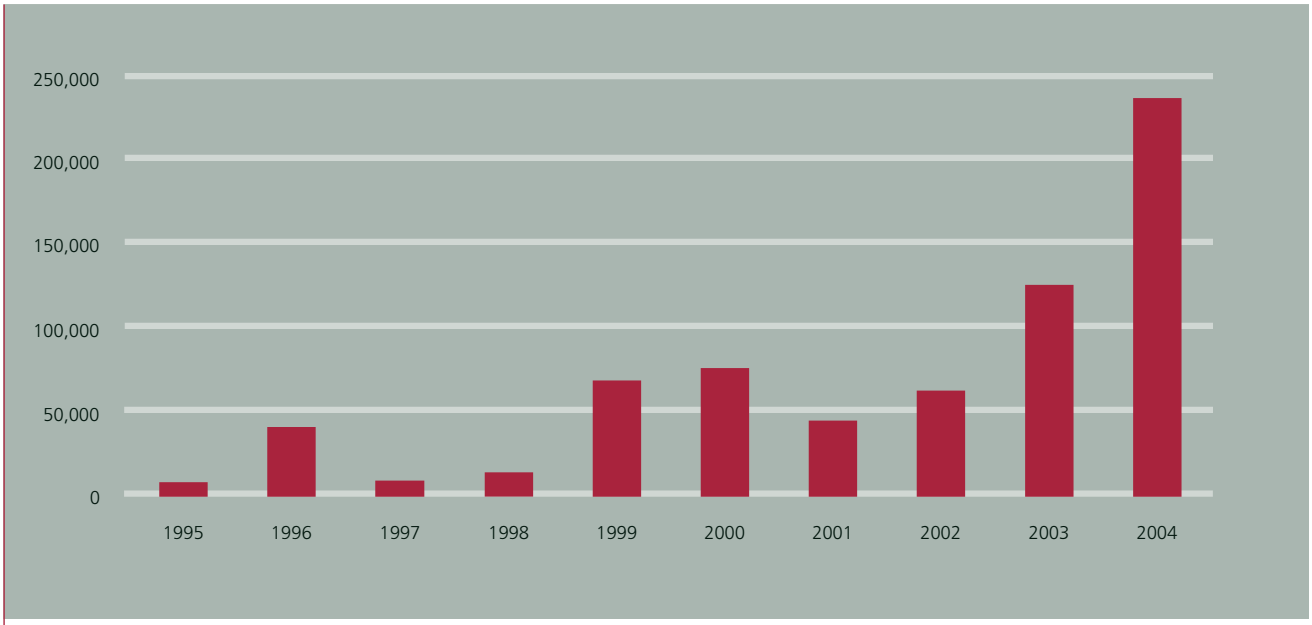
celebrated as an example of advanced Canadian nuclear technology that meets China's growing electricity needs.
- In 2003, Chinese Premier Wen Jiabao, during his first visit to Canada, identified energy as one of the areas of bilateral cooperation.

Despite these efforts, it is difficult to say that there has been much progress in bilateral energy cooperation over the years with the exception of the two nuclear reactors. And overall trade figures do not particularly demonstrate tangible expansion in this area, except in two particular categories, bituminous coal and peat (see Figure 5). There has been much thunder and little rain as far as larger federal initiatives in the energy sector are concerned. So far China is yet to purchase any significant quantities of Canadian oil. In other areas in the above list, the achievements are limited considering the huge potential for trade, investment, technological exchanges and other joint ventures.

Alberta's energy sector, however, has had a major institutional presence in China for over 20 years. The Alberta Petroleum Centre (CAPC), established in Beijing by the Alberta government in collaboration with China National Petroleum Corporation (CNPC), has facilitated many exchanges and training programs over the years.

Now, with the lure of Alberta's potentially huge oil sands production and the surge in China's demand for oil and other resources, there are signs that at last the two countries may engage in some substantial cooperation. Proposed by Premier Wen Jiabao during his visit to Ottawa in late 2003, Canada and China developed *The Common Paper of the Canada-China Strategic Working Group*, with the following bilateral priorities in the energy area:
- Canada and China will strengthen their bilateral dialogue on energy in the context of the 2001 MOU between the Department of Natural Resources of Canada (NRCan) and the National Development Reform Commission of China (NDRC).
- Canada and China, through the Joint Working Group on Energy Cooperation, will maintain regular dialogue and an exchange of views on oil and gas

FIGURE 5: Canada's Energy-Related Exports to China, 1995-2004 (C$ 000s)



Note: Data includes the following industries: oil and gas extraction, peat extraction, coal mining, electric power and petroleum. Canada did not export electric power or petroleum industry products to China in the years 1995 to 2004.

Source: *Trade Data Online*. Industry Canada. 18 March 2005. <http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html>

developments, including oil sands activities. NRCan, NDRC and other relevant departments or agencies will also explore collaboration in research and development of oil sands technology, engaging other players as appropriate.

- Canada and China will conduct research on the development of advanced nuclear energy technologies and related issues to improve the cost and safety of nuclear energy systems.
- Both countries are committed to the sustainable development and use of their energy resources. Accordingly, NRCan and NDRC will continue to encourage opportunities for cooperation between governmental organizations and agencies, academic and research institutions, non-governmental organizations, state enterprises and the private sector to establish and strengthen linkages and pursue joint projects and initiatives in energy efficiency and cleaner energy (including renewables).

This was followed by high-level visits by Canadian leaders with an agenda in pushing for energy cooperation with China. Alberta's Premier Klein went to China last June, with a focus on selling Alberta's huge energy potential and attracting Chinese investment. John Efford, Minister of Natural Resources Canada, was received by China's NDRC in September 2004, resulting in the establishment of the annual meeting of the NDRC-NRCan Working Group, or formally, the Canada-China Joint Working Group on Energy Cooperation. The Group had its first meeting last November, well after the 2001 MOU between the two sides was agreed. Again, Prime Minister Martin's recent visit to China identified three cooperation priorities in the energy and related areas. According to the joint statement at the end of the visit: "In particular, the two countries have identified oil and gas, nuclear energy, energy efficiency, and cleaner energy (including renewables) as priority areas where they will work together to advance their longer term mutual interests, in accordance with their respective laws and regulations." (see Annex B).

Official endorsements seem to have encouraged some real business movement. According to various news reports, all major Chinese energy companies are actively looking into potential business opportunities in Canada, with some of them, such as Sinopec, showing interest in buying stakes in the vast reserves of the Alberta oil sands. Enbridge Inc., Canada's second-largest pipeline company, is currently in talks to offer a Chinese company a 49% stake in a 1,160-kilometre pipeline planned between northern Alberta and the Pacific coast of British Columbia. The approximately $2.5 billion project would send as much as 400,000 barrels a day to China, and still have a surplus to be shipped to refineries in California. Another Canadian pipeline company, Terasen, is reportedly talking with Sinopec and China National Petroleum about joining forces to increase the capacity of an existing pipeline to Vancouver. The company had supplied almost a dozen tanker loads last year to help Chinese refineries determine their capacity in processing the Alberta crude oil blends.

Other Canadian companies with alternative energy technologies have also entered the Chinese market. Westport Innovations Inc. has sold its gas-fuelled engines for the Beijing bus fleet. It announced last December that it had signed an MOU with Beijing Sinogas Co. Ltd. and Qingdao Sino-Canada S&T Park Co. Ltd. to work together on establishing a business plan to develop, market, and sell gaseous fuelled vehicles and infrastructure solutions in China.

LOOKING TO THE FUTURE

Unlike other resource rich countries, Canada has yet to strike a major deal with China. Last year, China and Iran signed a deal worth up to US$100 billion, which will ensure Iranian supplies to China for the next 25-30 years. The year before, Chinese President Hu Jintao signed energy deals worth up to US$40 billion during his trip to Australia. There are still a few issues that need to be resolved to realize such large bilateral projects with Canada.

Second, any major energy cooperation between Canada and China will be closely watched by the US. According to *The New York Times*, "the Department of Energy in Washington said officials were monitoring the talks but declined to comment further."[3] Some Americans have warned of the potential of China as a competitor and of taking away energy from Canada at the expense of the US. Currently, Canada is the largest source of imported oil for the US. Its exports to the Midwestern US have grown steadily since 2001, pushing Canada ahead of Saudi Arabia, Mexico and Venezuela to become the largest supplier of foreign oil, with average exports running at 1.6 million barrels a day. Thus, one argument

is that every barrel of Canadian oil going to China will be one less going to the US which, in turn, has to import oil from other parts of the world that are likely hostile to Washington. It is a zero-sum game. Some estimates claim that potentially a third of Canadian energy could go to China in the future. What is good for Canada or China may not be good for the US.

China, on the other hand, has its own concerns. Noting that Canada is locked into a clause in the North American Free Trade Agreement that it cannot cut back its energy supply to the US unless Canada cuts back on its own consumption, Chinese ask questions such as what would happen if the Canadian production level drops and thus cannot meet a commitment to supply China with either oil or gas. Canada has a market-oriented answer to such concerns: Canada has plenty of oil and its production capacity is more than enough to satisfy the US market, thus China is simply a new market for export. Murray Smith, former Alberta energy minister who is now Alberta's representative in Washington, said "Our main link would still be with the US, but this would give us multiple markets and competition for a prized resource." According to his estimates, out of potential exports of more than three million barrels a day, Canada could export as much as one million barrels of oil a day to China.

Third, China's coming to the Canadian energy sector may have broader strategic implications. While China's exploration of potential Canadian supplies is relatively quiet, its recent engagement in Latin America has been high-profile, with considerable publicity. On his tour of several Latin American countries last November, President Hu Jintao signed a number of energy-related agreements. The most provocative to Washington is the cozy relationship Beijing has developed with Venezuela, the fourth-largest foreign oil supplier to the US. Venezuela's president Hugo Chavez is openly hostile to Washington. In his recent visit to China, he signed agreements to allow Chinese companies to explore for oil and gas, and set up refinery facilities in Venezuela. The move, he claimed, is to reduce dependence on the US. Some analysts argue that Canada should also diversify its export to avoid being over-dependent on the US.

To American strategic planners, there are also political implications beyond economics. Canada and Venezuela, together supplying a third of the crude imports by the US, may have more leverage over Washington with their oil potentially also going to China. And Chinese control or partial control of resources in these countries may weaken US-Canadian relations, and may fuel anti-Americanism in Latin America. The debate on the implications of a closer relationship with China in the energy area is also going on at home. Industry Minister David Emerson has raised the issue of revising the Canada Investment Act, and talked about Canadian energy and resources as strategic assets. The Canadian government must tread carefully with any potential Chinese takeover of major Canadian energy or resource companies.

There are other political, legal, cultural, social and corporate differences between Canada and China. The prospect for bilateral cooperation in the energy sector is bright. There may soon be a few large deals announced. But there are still barriers ahead, and both sides must work to overcome potential difficulties. The Chinese dragon remains hungry but fueling its energy appetite is no simple task.

ANNEX A

CHINA'S QUEST FOR ENERGY SECURITY: MAJOR DEALS IN 2004

- **December 24:** During Venezuelan President Hugo Chavez's visit to China, Beijing and Venezuela signed a bilateral energy accord which allows China access to Venezuela's vast energy resources, including oilfields and the possibility of increased direct crude supplies. Under the deal, China National Petroleum Corp. (CNPC) will be allowed to exploit 15 mature oil fields at Zumano in the east of the country, where there are estimated reserves of more than a billion barrels. Venezuela also offered to supply 120,000 barrels of fuel oil a month to China.
- **November 12:** During Chinese President Hu Jintao's visit to Brazil, Brazilian oil giant Petrobras and China Petroleum and Chemical Corp. agreed on a US$1 billion deal to construct a natural gas pipeline, which would connect Brazil's northeastern and southern gas pipeline networks.
- **October 28:** China signed an agreement to buy oil and gas from Iran and to develop Iran's Yadavaran oil field. The agreement will be carried out by China's leading oil company Sinopec. Iran will also export 150,000 barrels of crude per day to China after Sinopec has developed the Yadavaran field, and Sinopec promises to buy 250 million tons of liquefied natural gas from Iran over 30 years. According to China's official *Xinhua* news agency, the value of the deal is about US$70 billion. Iran supplied roughly 13% of China's oil imports in 2003.
- **October 14:** During Russian President Vladimir Putin's visit to China, CNPC and GASPROM signed an agreement on strategic cooperation. GASPROM, the world's largest natural gas producer and exporter, taps Russia's gas fields and condensate gas fields, and its output makes up over 95% of Russia's total. Since GASPROM merged with Russia Petroleum not long ago, the cooperation between China and Russia is likely to cover oil as well. Although on December 31, 2004 the Russian government announced that Russia will build a pipeline from Siberia to the Pacific Ocean port of Nakhodka, to supply Japan, rather than to the Chinese city of Daqing, it is reported that China was assured that a branch pipeline would be built to Daqing.
- **June 16:** During Chinese President Hu Jintao's visit to Uzbekistan, China's Sinopec signed a "mutually beneficial cooperation agreement" with Uzbekistan's national oil and natural gas company. Details of the agreement were not made public.
- **May 17:** During Kazak President Nursultan Nazarbayev's visit to China, CNPC and Kazakstan's State-owned KazMunaiGaz (KMG) signed an agreement to construct a crude oil pipeline from Atasu in northwestern Kazakhstan to the border of China's Xinjiang Uygur Autonomous Region. This 1240 km pipeline is one part of the Sino-Kazakhstan crude oil pipeline, which is expected to be completed in December 2005.
- **February 4:** CNPC and Algerian state oil company SONATRACH signed a Bilateral Cooperation Protocol on Petroleum Development. Both sides agree to further enhance their cooperation on petroleum development in areas such as oil and gas exploration, development, reconstruction of old fields, pipeline and refinery construction, engineering and technical services, equipment manufacturing, personnel training, as well as petroleum development in other countries.
- **February 4:** During Chinese President Hu Jintao's visit to Gabon, Sinopec signed a technical evaluation deal with the Gabonese oil ministry for three onshore oilfields before taking a decision on whether to take up an exploration and production-sharing contract.
- **January 29:** CNPC and the Ministry of Petroleum Egypt signed an memorandum of understanding about petroleum cooperation in Block 3 in southern Egypt and other potential blocks. The cooperation will be focused on exploration, development, reconstruction of old fields, pipeline and refinery construction, as well as engineering technical services, equipment manufacturing and personnel training.

ANNEX B

CANADA-CHINA STATEMENT ON ENERGY: COOPERATION IN THE 21ST CENTURY (January 20, 2005)

On the occasion of Prime Minister Paul Martin's visit to Beijing, China, Canada and the People's Republic of China have decided to promote cooperation to increase energy security and promote environmental sustainability in the energy sector. Such cooperation has the potential to cover a broad range of energy issues, including sources of supply, energy efficiency and new technologies.

In particular, the two countries have identified oil and gas, nuclear energy, energy efficiency, and cleaner energy (including renewables) as priority areas where they will work together to advance their longer term mutual interests, in accordance with their respective laws and regulations.

- Canada and China have decided to work together to promote cooperation in the oil and gas sector, including Canada's oil sands, as well as in the uranium resources field. Canada and China will therefore encourage Canadian and Chinese enterprises to develop mutually beneficial commercial partnerships in these sectors. In addition, China and Canada will encourage and push forward joint comprehensive research and study of oil sand technologies.
- Canada and China have a history of successful collaboration in the nuclear energy sector. As well, both have extensive capabilities in nuclear research. The two countries will encourage Canadian and Chinese enterprises to expand commercial partnerships in this sector, and will conduct research on the development of advanced nuclear energy technologies and related issues to improve the cost and safety of nuclear energy systems.
- Canada and China are committed to promoting energy efficiency and cleaner energy (including renewables). In addition to ongoing policy dialogue through existing mechanisms, Canada and China will actively encourage and support governmental organizations and agencies, academic and research institutions, non-governmental organizations, state enterprises and the private sector to establish and strengthen linkages and pursue joint projects and initiatives in these areas.

The National Development and Reform Commission (NDRC) of the People's Republic of China and Natural Resources Canada (NRCan) will maintain regular dialogue and exchanges of views on activities pertinent to this framework through the Canada-China Joint Working Group on Energy Cooperation, under the auspices of their 2001 Memorandum of Understanding Concerning Cooperation in the Field of Energy.

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Dr. Jiang's areas of teaching and research include development studies, Chinese politics and foreign policy, Japanese politics and foreign policy, East Asian international relations, and Canada's relations with the Asia Pacific region. He is the editor of a forthcoming book on Canada's energy relations with China, which will be published in both English and Chinese. Dr. Jiang organized a Canada-China Energy Cooperation Conference last November, and a China-Canada Energy Cooperation Conference at Peking University in March this year. Both meetings are supported by the Research Conference Fund from Foreign Affairs Canada and International Trade Canada. Dr. Jiang is a regular commentator in the media and contributor to op-ed pages in major East Asian and Canadian newspapers.

NOTES

1. For an earlier comprehensive review of China's energy situation in the regional context, see "China's Quest for Energy and Northeast Asian Security," Canada Asia Commentary, No. 30, August 2003, Asia Pacific Foundation of Canada.
2. For the latest development in this aspect, see "Asia's Great Oil Hunt," *Business Week*, November 15, 2004.
3. Simon Romero , "Not elk, but oil: China's Canadian hunt," *The New York Times,* December 24, 2004.

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