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THE ENVIRONMENTAL IMPLICATIONS OF THE DISCOVERY AND DELIVERY OF NEW ENERGY RESOURCES IN THE CANADA/U.S. CONTEXT.

James E. Hickey, Jr.[†]

INTRODUCTION

This essay makes two observations, one factual and one legal. Both observations, it is suggested, will challenge in the decades ahead present persistent traditional notions of exclusive national control and jurisdiction over the environmental consequences of new energy production in Canada and the U.S.¹ The first observation is that energy fuel cycles of both countries are increasingly becoming transnational and intertwined. As a result, it may be inappropriate in the future to view new energy production decisions in either country involving transnational fuel cycles in isolation as a matter of exclusive national sovereignty. The second observation is that both international environmental law and international human rights law are likely to become increasingly relevant to domestic energy production decisions that have environmental consequences.² As a result, state responsibility under international law is likely to increase in the future and exclusive state sovereignty over new production of energy resources is likely to diminish.

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¹ The environmental implications of the future discovery and delivery of energy resources in the Canada and the United States of course may be approached from many different but related perspectives – legal (application of rules and regulations to new energy production); economic, (new production in response to demand at a given price); political (new production based on governmental response to producer, consumer, developmental, environmental and voter interests); energy policy (growth, no-growth, transitional growth); and ethical (choosing who will be benefited and who will be burdened by new energy production).

² The same can be said of international trade law, which is not addressed by this essay.

THE TRADITIONAL VIEW OF STATE SOVEREIGNTY OVER THE ENERGY PRODUCTION AND ITS ENVIRONMENTAL CONSEQUENCES

The production and use of energy resources and their environmental consequences traditionally have been matters within the exclusive internal sovereignty of states, subject to domestic laws and policies. As far back as 1962, the U.N. General Assembly explicitly recognized this principle in a resolution on the permanent sovereignty of states over natural resources, of which energy resources are a part:³

1. [The] right of nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and of the well being of the people of the state concerned and elsewhere.
2. The exploration, development and disposition of such resources . . . should be in conformity to the rules and conditions which nations freely consider to be necessary or desirable . . .
... [and]
7. Violation of the right of . . . nations to sovereignty over their natural wealth and resources is contrary to the [U.N. Charter].⁴

The claims of states to permanent, unfettered state sovereignty has been especially strong and persistent with regard to energy-producing natural resources (coal, oil, natural gas, uranium, falling water, etc.). In part, this is because there is an indisputable link between the economic well-being of a nation and that nation's capability to produce and use its energy resources as it sees fit. That is, a nation depends on the availability and reliability of energy resources to do the work that is necessary in order for that society to develop economically or to maintain sustained economic growth. In the 1950's and 1960's, the corporate integration of oil and gas fuel cycles (from production to end use) was adversely interrupted by developing nations that expropriated and nationalized energy production on the notion that they had exclusive state sovereignty over the production of energy.⁵

³ *Permanent Sovereignty Over Natural Resources*, G.A. Res. 1803 (XVII), U.N. GAOR, Supp. No.17, at 15, U.N. Doc. A/5217 (1962), available at <http://www1.umn.edu/humanrts/instrtree/c2psnr.htm> (last visited July 1, 2002).

⁴ *Id.*, art 1(1), (2), (7).

⁵ See Janeth Warden-Fernandez, *The Permanent Sovereignty Over Natural Resources: How It Has Been Accommodated Within the Evolving Economy* (CEPMLP Annual Review Article No. 4, 2000), at http://www.dundee.ac.uk/cepmlp/car/html/car4_art4.htm (last visited

One of the few recognized limitations that operated on the traditional view of state sovereignty over natural resources arose in situations where energy production caused substantial harm in a neighboring state's territory. This limitation on the exercise of state sovereignty was reflected legally in the standard set out in 1941 in the famous *Trail Smelter* Arbitration.⁶ There, Canada was held responsible for injury to U.S. farmers in Washington State caused by emissions from a private, licensed smelting operation in British Columbia. The key sentence of the *Trail Smelter* case from a state sovereignty perspective was as follows:

no State has the right to use or permit the use of its territory in such a manner as to cause injury . . . in or to the territory of another, when the case is of serious consequence and the injury is established by clear and convincing evidence.⁷

Under the *Trail Smelter* standard, a state is responsible for the environmental consequences of energy production and use but only for direct, provable, substantial, and actual injury caused in a neighboring state's territory.

That *Trail Smelter* standard of state sovereignty has affected the treatment of environmental consequences of energy production. For example, in the early efforts between the U.S. and Canada to grapple with the problem of acid rain in Canada caused by energy production from coal-fired power plants in the Midwestern U.S. states in the 1970s and 1980s, the U.S. resisted state responsibility, in part, because Canada had not proved that acid rain harm experienced in Canada was caused by particular identifiable U.S. power plants.⁸ The resulting U.S.-Canada Air Quality Agreement⁹ focused largely on cooperation in assembling the evidence of acid rain effects rather than on assigning responsibility consistent with the *Trail Smelter* standard for assigning state responsibility.¹⁰

This view of near exclusive domestic jurisdiction over energy production, its use and its environmental consequences has persisted. Internal state sovereignty over energy production and use in the cases where there are only *internal* environmental consequences is considered generally by states to be the guiding principle.

July 1, 2002).

⁶ *Trail Smelter* Arbitration, U.S.-Can., 3 U.N.R.I.A.A. 1905 (1949), 35 AM. J. INT'L L. 684 (1941).

⁷ *Id.*, 35 AM. J. INT'L L. at 716.

⁸ See *The \$94 Billion Report*, WALL ST. J., Sept. 23, 1987, available at 1987 WL-WSJ 303335.

⁹ Agreement on Air Quality, U.S.-Can., Mar. 13, 1991, 30 I.L.M. 676 (1991).

¹⁰ See *id.* at Annex 2, 30 I.L.M. at 692.

THE ENVIRONMENTAL IMPLICATIONS OF NEW ENERGY
PRODUCTION ARE BECOMING INCREASINGLY TRANSNATIONAL
AND CROSS-SECTOR.

In the decades ahead, new energy production and its environmental consequences in Canada and in the U.S. increasingly will involve transnational and cross-sector energy fuel cycles. That is, a decision in one country to produce energy from a particular energy sector (coal, oil, natural gas, falling water, etc.) may trigger the start of a fuel cycle that ends in the other country. In addition, decisions about new energy production in one country in one energy sector (*i.e.*, nuclear power) may affect energy production decisions in the other country in another energy sector (for example, hydropower).

Energy fuel cycles, of course, begin with a new energy production decision. Fuel cycles operate from production to transportation, to processing, to refining, to distribution of energy products, and finally to end use by consumers who use that energy to do work (like running factory motors, driving cars and trucks, flying jets, heating homes, etc.). Along the way, some energy inevitably is lost, most often in the form of environmental consequences. In the oil fuel cycle, for example, there may be oil well accidents (spills and fires); oil transportation accidents (the *Exxon Valdez* oil tanker crash in Prince William Sound Alaska in 1987); oil-refining discharges that occur while refining crude oil into such commercial products as gasoline, jet fuel and lubricants; and energy losses at the consumption stage (exhaust emissions from cars, trucks, planes, and power plants). In the nuclear power fuel cycle, there are special "back-end" fuel-cycle environmental consequences (dealing with the removal of spent nuclear fuel rods used in power production or with the disposal of radioactive plant facilities at the end of a plant's useful life).

Canada and the U.S. are experiencing increasing integration of energy fuel cycles. Canada and the U.S. are among the top five energy producers in the world and among to top six energy consumers in the world.¹¹ In 1999, roughly 30 percent of Canadian energy production was exported and the U.S. is easily its best customer.¹² Between January and November of 2001 Canada exported to the U.S. more petroleum products than any other country¹³ and the U.S. imports about 1.8 million barrels of crude oil per day from Canada.¹⁴ Canada also is the main supplier to the U.S. of refined

¹¹ See *Country Analysis Brief: Canada*, at <http://www.eia.doe.gov/emeu/cabs/canada.html> (last visited Sept. 1, 2002).

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

petroleum products, such as jet fuel and distillates.¹⁵ Throughout 2001, Canadian natural gas exports to the U.S. accounted for over 90 percent of U.S. natural gas imports.¹⁶ Some have predicted that as demand for natural gas grows and the transnational delivery infrastructure expands with more pipelines and more connections, there is potential for emergence of a unified North American natural gas market.¹⁷ In 1998, Canadian energy exports to the U.S. were very significant. The U.S. imported 45.4 million megawatts (MW) of electricity from Canada and exported to Canada 17.9 million MW of electricity.¹⁸ Finally, five of the regional councils of the North American Electric Reliability Council (NERC), formed by electric utilities in 1968, either border on or are interconnected with either Canada or Mexico.¹⁹

In addition to the growing transnational integration of individual energy sector fuel cycles, the increased effects experienced across different energy sectors have had an ever-larger impact on both the environment and new energy production. Those cross-sector effects also will need to be taken into account in new energy production decisions.

Cross-sector and transnational effects are experienced in a variety of ways. For example, the successful efforts in the 1980s of Long Islanders in New York to cancel a new 800-MW nuclear power plant (the Shoreham plant), in part, encouraged plans for the completion of the James Bay hydroelectric project in Québec to replace the 800 MW of power lost on Long Island. To complete the James Bay development, the required reservoirs would change river flows, eliminate ponds, flood forests, adversely affect indigenous plant life, destroy habitat for fish and other migrating species, and displace indigenous peoples. In seeking the cancellation of new nuclear power production in the 1980s, Long Islanders did not take into account the cross-energy sector environmental effects on new hydroelectric production decisions in Canada.²⁰

¹⁵ *Country Analysis Brief*, *supra* note 11.

¹⁶ *See id.*

¹⁷ *Id.*

¹⁸ *See* OFFICE OF FOSSIL ENERGY, U.S. DEPARTMENT OF ENERGY, ENERGY TRANSACTIONS ACROSS INTERNATIONAL BORDERS-1998 2 (2000). One megawatt meets the electric needs of roughly 1,000 homes.

¹⁹ *See id.* at 3-9.

²⁰ *See generally* Matthew Wald, *Accord With Cree Will Allow Quebec Utility to Finish Dams*, N.Y. TIMES, Jan. 10, 1993, § 1, at 1; Clyde Farnsworth, *Albany Cancellation Hits Quebec Power Project*, N.Y. TIMES, Mar. 29, 1992, § 1, at 9; Sam Verhovek, *Hydropower Under Review In Albany Bill*, N.Y. TIMES, Mar. 17, 1992, § 2, at 1; Matthew Wald, *Environmental Study Is Likely to Delay Quebec Hydroelectric Plan*, N.Y. TIMES, Feb. 1, 1992, § 1, at 27; Sam Verhovek, "Power Struggle," N.Y. TIMES, Jan. 6, 1992, § 6, at 16; Kinsey Wilson, *Hydroplan Loses Luster*, NEWSDAY, Aug. 8, 1991, at 22; Kinsey Wilson, *LILCO Rethinking Hydro Deal*, NEWSDAY, Apr. 10, 1991, at 27.

In addition, the decisions in the Midwestern U.S. states to use coal to generate electricity, rather than using natural gas or other alternatives, did not take into account that the air currents carried sulphur dioxides and nitrogen oxides (emitted from those plants' smoke stacks) to Canada, where they washed out in the form of acid rain that harmed trees and plants and polluted streams, rivers and lakes.²¹

Finally, as a general matter in the nuclear sector, decisions in the U.S. to forego energy production from new nuclear power plants (because of environmental concerns about radiation from plant accidents and from permanent nuclear waste storage facilities)²² trigger new energy production decisions in Canada from all its export energy sectors to supply the U.S. with energy resources and with electricity. This produces environmental effects in Canada from increased operation of other sector fuel cycles (for example natural gas and hydroelectricity) to help meet U.S. energy needs not met by new nuclear power production in the U.S.²³

In addition, there is the new reality that must take into account that the environmental effects of new energy production are not just regionalized but are increasingly global in scope. For example, it is now a settled factual matter that greenhouse gases (carbon dioxide, methane and nitrous oxide) from energy resource production and use contribute to the risk of global warming. This also constitutes a major challenge to traditional notions of exclusive state sovereignty in both the U.S. and Canada, even where there are no immediate cross-border injuries of the sort contemplated under the *Trail Smelter* standard.²⁴

The future reality of new energy production in Canada and the U.S. will involve increasing transnational integration of fuel cycles, greater appreciation of cross-sector effects of energy production decisions, and greater attendant regional and global environmental effects. This fact alone challenges the traditional notions of state sovereignty over new energy production.

²¹ The problem of cross-border acid rain problems began to be addressed in the 1990s. See *supra* note 10.

²² See James E. Hickey, Jr., *Mississippi Power & Light Company: A Departure Point for Extension of the "Bright Line" Between Federal and State Regulatory Jurisdiction Over Public Utilities*, 10 J. ENERGY L. & POL'Y 57, 63-64 (1989); see also Ross Kerber & Kathryn Kranhold, *Major Utilities Seek Government Aid For Waste Storage*, WALL ST. J., Feb. 20, 1998, at B2; Harry W.S. Wainston & James H. Davenport, *Yucca Mountain: A Study of Conflicts in Federalism*, INTER ALIA, Oct. 1992, at 11.

²³ The U.S. operates a little over 100 nuclear power plants that provide roughly twenty percent of U.S. electricity requirements. This percentage can be expected to drop as existing plants are eventually shut down and are not replaced by new plants.

²⁴ See United Nations Framework Convention on Climate Change, May 29, 1992, U.N. Doc. A:AC.237/18 (1992), 31 I.L.M. 849 (1992). The Convention's objective is to protect the earth's climate system by stabilizing atmospheric concentrations of greenhouse gases.

INTERNATIONAL ENVIRONMENTAL LAW AND HUMAN RIGHTS
LAW CHALLENGES TO TRADITIONAL NOTIONS OF STATE
SOVEREIGNTY OVER NEW ENERGY PRODUCTION²⁵

In the decades since *The Trail Smelter*, developments in international law have begun to challenge traditional notions of exclusive state sovereignty over the environmental consequences of new energy production in Canada and the U.S. Two examples of such international law developments are the precautionary principle in international environmental law and the right to a safe and healthy environment in international human rights law.

The Precautionary Principle in International Environmental Law²⁶

An emergent hard law principle in international environmental law is the “precautionary principle.” This principle is now regularly inserted into international law instruments – both in treaties as well as in soft-law documents, such as statements and declarations. The precautionary principle moves state responsibility for the transnational and global environmental consequences of new energy production from responsibility for *actual* injury caused to responsibility for *potential* injury. The basic idea is that states ought not to undertake an activity where the risk of harm is especially great, even in the absence of scientific certainty that harm will result from that activity.²⁷ Here, the goal of international environmental law is not just to impose a duty to compensate parties for damage after it occurs, as traditionally was the case with the *Trail Smelter* standard, but to prevent pollution damage before it happens. The basic effect of the precautionary principle is to extend the *Trail Smelter* state responsibility standard from state responsibility for actual, provable extraterritorial environmental harm to responsibility to prevent extraterritorial environmental harm even in the absence of proof, at least where the risk of harm is great and irreversible on any reasonable time scale. The more permanent and irreversible the potential

²⁵ See generally JAMES E. HICKEY, JR., *Environmental Protection and Energy Development*, in ENERGY LAW AND POLICY FOR THE 21ST CENTURY ch. 5 (2000).

²⁶ See THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION (David Freestone & Ellen Hey eds., 1996); James E. Hickey, Jr. & Vern R. Walker, *Refining the Precautionary Principle In International Environmental Law*, 14 VA. ENVTL L.J. 423 (1995).

²⁷ The “precautionary principle” generally embraces the notion, that “[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” *Report of the United Nations Conference on Environment and Development*, Annex I, Rio Declaration on Environment and Development, Principle 15, U.N. Doc. A/CONF.151/26 (Vol. 1), 31 I.L.M. 874 (1992), available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> (last visited May 18, 2002).

damage, the more the call for some sort of pollution prevention obligation is merited under the precautionary principle.

In the past decade, the precautionary principle has become a staple insert in virtually every international environmental law treaty. In each treaty, there is an articulation of a "precautionary approach", a "precautionary principle," or "precautionary measures" that ought to be undertaken by the parties. At the present time, the precautionary principle does not directly challenge the traditional role of state sovereignty because the precautionary principle remains a vague, variable and largely amorphous principle. In the decades ahead, however, it is likely that the precautionary principle will be refined and that it will apply with greater force to future energy production that is potentially environmentally harmful to neighboring states or to the global community. If so, a state duty *not* to undertake new energy production could arguably arise as a matter of hard international law which, in turn, would substantially challenge notions of exclusive state sovereignty over energy resource production.

International Human Right to a Safe and Healthy Environment

In the decades ahead, international human rights law also is likely to erode traditional notions of exclusive state sovereignty over the environmental consequences of energy production. Under Articles 55 and 56 of the UN Charter, U.N. members pledge to have universal respect for human rights.²⁸

Although the U.N. Charter did not define or state specifically the contents of human rights, much of the story of human rights law since the U.N. Charter was written in 1945 has been about the definition, articulation, and development of specific international human rights and the acceptance of those rights as a matter of hard treaty law. In the future, international human rights law potentially will have a substantial effect on state sovereignty over

²⁸ See U.N. CHARTER, arts. 55-56, available at <http://www.un.org/aboutun/charter/>:

[Art. 55] With a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, the United Nations shall promote:

- a. higher standards of living, full employment, and conditions of economic and social progress and development;
- b. solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and
- c. universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.

[Art. 56] All Members pledge themselves to take joint and separate action in cooperation with the Organization for the achievement of the purposes set forth in Article 55.

energy production in the form of a duty on states to respect an international human right to a safe and healthy environment. The universality of human rights imposes an obligation on states not to conduct themselves in a way that violates the human rights of its own citizens or the citizens of other states.

Over the past half-century, human rights in international law have evolved in three generations. The first generation of human rights law covers civil and political rights for individuals, like the right to a fair trial, the right to be free from cruel and unusual punishment, the right to due process, and the like.²⁹ This set of individual civil and political human rights, for the most part, does not come into play in future U.S.-Canada energy production decisions.

The second generation of human rights started to emerge around the mid-1960s and may have more of an application in this context than the first generation.³⁰ This set of international human rights reflected economic, social and cultural human rights.³¹ Here, human beings are asserted to have a right to culture, to religion,³² to work,³³ and rights to food, health, and the like.³⁴

The third generation of human rights – and the most controversial – are the so-called “collective human rights,” which includes a collective right of all human beings to a safe and healthy environment and a related collective right of indigenous peoples to preserve their culture and/or religion.³⁵ As international human rights law continues to expand and solidify, it may apply in the future to state sovereignty over energy production and use when the exercise of state sovereignty violates a right to a safe and healthy environment, including environmental interference with cultural rights. Thus, if the recent US decision not to drill for oil in the Arctic National Wildlife Refuge (ANWR) in Alaska were reversed in the future, there may be a case to be made to restrict U.S. state sovereignty to produce energy from ANWR to the extent that new production violates the environmental human rights of indigenous people in either U.S. or Canada.³⁶

²⁹ *Id.*, art. 27.

³⁰ International Covenant on Economic, Social & Cultural Rights, G.A. Res. 2200, U.N. GAOR, 21st Sess., Supp. No. 16, Annex at 49, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3 (1967), entered into force Jan. 3, 1976, available at http://www.unhchr.ch/html/menu3/b/a_cescr.htm. Canada and the United States are both parties to this treaty.

³¹ *Id.*, art. 2.

³² *Id.*

³³ *Id.*, art. 6(1).

³⁴ *Id.*, art. 11(1).

³⁵ See, e.g., Dinah Shelton, *Human Rights, Environmental Rights, and the Right to Environment*, 28 STAN. J. INT'L L. 103, 105 (1991).

³⁶ Among the Canadian objections to ANWR energy production drilling by the U.S. was the potential harm to calving grounds of caribou upon which Canadian indigenous people depend for food and the way of life. See *Caribou in the Arctic Refuge*, at <http://>

CONCLUSION

The fuel cycles of energy resources are becoming more transnational in operation and more intertwined in their cross-sector impacts. The environmental consequences of the production phase of energy fuel cycles are also increasingly transnational and global in nature. In addition, international environmental law and international human rights law are evolving in a way that is increasingly relevant to the environmental consequences of new energy production. If those factual and international law trends continue, traditional notions of exclusive state sovereignty over the production and use of energy resources will be eroded.

The recent U.S. decision taken by the Congress not to begin new energy production in the ANWR took little or no consideration of the environmental or human rights that may potentially would be felt by Canada.³⁷ Congressional reversal of the ANWR decision is likely to be more difficult to justify than it has been in the past, both as a matter of fact and as a matter of international law. Energy companies, regulators and planners will need to take into account in their energy production decisions these new emerging factual and legal realities.

arcticcircle.uconn.edu/ANWR/anwrcaribou.html (last visited Jun. 5, 2002).

³⁷ See Alanna Mitchell, *Arctic Facing Serious Damage, UN Study Says*, *GLOBE & MAIL*, June 13, 2001 at A9.