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Environmental Impact Assessment and Energy Exports

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I. INTRODUCTION

Environmental Impact Assessment (EIA) is a form of institutional foresight that affects the outcome of litigation. Legislation in the United States, Canada, and other nations requires EIAs with varying degrees of stringency. In essence, they are analogous to the foreseeability-proximity principle used in tort law.[1] By triggering enhanced consideration of projects affecting the public interest, EIAs are actually an administrative law response to cure standing defects.

This Article considers the nature of environmental assessment requirements related to natural resources, particularly the effect on Canadian hydroelectricity exports to the United States. The primary focus is the interrelation between economics and the transnational effect of large-scale energy projects.

Part II discusses the concept of sustainable development from an international law perspective. It relates and develops this trend to the seminal influence of U.S. law upon the evolution of the EIA process. Because sustainable development is affected by economic exigencies, this section explores the influence of global trade liberalization. For instance, a pernicious incident of trade pacts like the North American Free Trade Agreement (NAFTA) is the emergence of regulatory competition. Less developed countries appear willing to accept "dirty" industries that would otherwise face higher costs in countries with more stringent standards.

Part III describes the effect of fossil fuels, electricity, and nuclear power upon the environment. Although natural gas is the cleanest fossil fuel, the emphasis here is on alternative fuels and how the choice of a particular fuel affects the energy mix. These choices contribute to the greenhouse effect and affect the management of natural resources. Consequently, attempts to control pollution create extra costs that fetter economic productivity.

The costs of pollution control are discussed in Part IV. Part V presents an overview of the theory underlying EIAs and their relationship to energy strategy. The emphasis is inter-disciplinary. Because a particular project can have indirect or synergistic

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1. This principle states that if an actor's conduct is a substantial factor in bringing about harm to another, the fact that the actor neither foresaw nor should have foreseen the extent of the harm or the manner in which it occurred does not prevent the actor from being liable. RESTATEMENT (SECOND) OF TORTS § 435 (1989).

consequences, Cumulative Environmental Assessment (CEA) is required. In addition to the external legal process, businesses increasingly employ internal controls known as environmental audits. These so-called "eco-audits" are protective programs that can discharge legal liability for environmental offenses by proving due diligence.

Part VI discusses the Federal Canadian Environmental Impact Assessment Review Process (EARP) guidelines. Many Canadian projects that had hitherto never been scrutinized are now being "EARPed." This scrutiny has increased federal government costs and created potential liability for failure to adhere to the guidelines. The new Canadian Environmental Assessment Act introduced EARPs as a requirement for cumulative impact assessment.

Part VII highlights a large scale hearing on electricity demand in Ontario and examines the burden that publicly funded intervenors place on taxpayers. Part VIII looks at the enormous James Bay Electricity Project in Québec, otherwise known as the Great Whale (*la Grande Baleine*) Project. The project calls for flooding thousands of square miles of pristine wilderness, a move that would disrupt native Cree Indian and Inuit lifestyles. The cost, scale, and effect of electricity exports to the United States make this project a paradigm of the conflict between energy supply and environmental impact.

II. SUSTAINABLE DEVELOPMENT AND FREE TRADE

Trade liberalization refers to the initiatives that the United States, Canada, the European Community (E.C.), and other nations undertook in response to changing patterns of global competition. Following World War II, the United States emerged as the dominant world economy, highlighted by steady growth and low interest rates until the mid 1960s. Unlike Western Europe and Japan, where economies were forced to endure physical and political reconstruction, the era was an age of contentment for North America.[2] During this period, the United States, its allies, and the former U.S.S.R. were locked in a cold war for global hegemony. New competitors, like West Germany, Japan, Taiwan, and Singapore, utilized innovation and productivity to increase their share of the market.

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2. JOHN KENNETH GALBRAITH, THE CULTURE OF CONTENTMENT (1992).

The 1991 collapse of eastern-block European communism marked a moral victory for market economies that had begun to ease protectionist barriers in an effort to maintain an advantage in the face of increasing global competition. These exigencies exacerbated the conflict between economic growth and environmental concerns.

Steady growth is an indication of a robust market economy. Economic health has conventionally been tied to steady annual increases in a country's Gross National Product (GNP), but "[t]he world's population and our production of pollution are expanding exponentially."[3] Exponential growth consists of doubling time. For instance, at an inflation rate of 6.3%, the cost of all goods and services would double in eleven years. Yet the universe is finite.[4] Steady economic growth has a detrimental effect upon the environment. The new challenge of capitalism is to complement economic growth with sustainable development.

In 1987, the World Commission on Environment and Development (the "Bruntland Commission") report entitled "Our Common Future," determined that "sustainable development" had to be the basis for an integrated approach to economic policy.[5] The meaning of "sustainable development," however, is vague. Sustainable development is a goal pursued by proponents of "environmental economics." This sub-discipline is a fusion of ecology and economics. But, "[e]conomics has no ecological foundation because it dismisses air, water, and soil bio-diversity as limitless 'externalities' shared globally."[6]

Hence, "sustainable development" is a value concept because an argument exists regarding the economic sustainable utility, or social "well-being," produced by any given development. The concept provides for the least advantaged in society ("intragenerational equity") and promises fair treatment to future generations ("intergenerational equity").[7] Reaching a political agreement on an acceptable limit of economic growth is the real problem.

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3. DAVID SUZUKI, INVENTING THE FUTURE: REFLECTIONS ON SCIENCE, TECHNOLOGY, AND NATURE 106, 107 (1989).

4. *Id.*

5. DAVID PEARCE ET AL., BLUEPRINT FOR A GREEN ECONOMY at xii (1989).

6. SUZUKI, *supra* note 3, at 110.

7. PEARCE, *supra* note 5, at 2.

Environmental economics creates conflicting goals. For example, myopic focus on short-term economic gains concerns current welfare, yet environmental consciousness requires one to measure the economy's potential welfare over a period of time. Given free functioning markets, one measure of present and future welfare is national income adjusted for defense spending.[8] Economic growth involves the real GNP per capita increasing over time, although such a noticeable trend does not by itself mean that growth is "sustainable." This GNP increase must not be threatened by "feedback" from biophysical impacts, such as pollution and resource problems, or social effects, such as unemployment or social disruption. Environmental survival, however, may not be reconcilable with the global trend toward trade liberalization.

Free trade encourages "dirty" development by attracting capital to places where environmental standards are weak, which are usually Third World countries.[9] Weak environmental regimes act to subsidize polluters through the absence of appropriate environmental protection.[10] While free trade, through deregulation, promotes decentralized, market-type incentives, the protection of the environment requires "re-regulation"—the reinstatement, expansion, and strengthening of new regulatory programs. Stewardship of natural resources and protection of the environment must be addressed within the changing context of trade liberalization.

Left unfettered, acquisition and alienation of resources requires regulation that maximizes social welfare in the public interest. Regulation, however, must not fetter the allocative efficiency of market forces. The process is not straightforward when property rights are held in common. The costs and benefits

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8. *Id.* at 106.

9. Robert W. Benson, *The Threat of Trade, the Failure of Politics and Law, and the Need for Direct Citizen Action in the Global Environmental Crisis*, 15 LOY. L.A. INT'L & COMP. L.J. 1, 1-2 (1992).

10. Joel P. Trachman, *International Regulatory Competition, Externalization, and Jurisdiction*, 34 HARV. INT'L L.J. 47, 56-57 (1993).

> By absorbing the environmental costs of production, in a context where the environmental costs of production might otherwise be charged to the producer, a particular society can assist its producers by lowering their costs of competing on either domestic or foreign markets. But who bears the cost of the reduced environmental regulation?

Id.

of transactions are externalized, thereby making waste inevitable.[11]

For instance, an individual herdsman over a common pasture could rationally increase his herd and overgraze the pasture. He would personally and presently profit while spreading the effects to other herdsmen.[12] This opportunistic behavior creates a "Tragedy of the Commons" where "[e]ach man is locked into a system that compels him to increase his herd without limit—in a world that is limited."[13] The challenge of energy regulation is to efficiently harness the creative destruction of the marketplace. Unless harnessed, the traditional costs of economic growth will continue to outweigh the benefits and may ultimately lead to economic collapse. To the extent that free trade promotes growth that does not regard the impact upon the environment, it is a fundamentally misguided public policy.

Although pollution may be inherently harmful, a corollary to this concept implies that each reduction in pollution enhances the quality of life and helps to restore the earth to its pristine state.[14] On the other hand, social regulations, such as pollution-abatement, and health and safety regulations may divert labor and capital. There is a nexus between productivity and environmental regulations.[15] Environmental policy has been identified as a potential brake on the rate of privately produced U.S. goods and services. Beyond mandating resources to control pollution, the present design of environmental policy deleteriously affects economic growth. Throughout the 1970s, the U.S. Congress sought "technology forcing" water and pollution control strategies, while acting to

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11. Richard J. Pierce, Jr., *State Regulation of Natural Gas in a Federally Deregulated Market: The Tragedy of the Commons Revisited*, 73 CORNELL L. REV. 15, 16 (1987).

12. *Id.*

13. Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. J. 1243 (1968); *see also* Richard James Sweeney et al., *Market Failure, the Common-Pool Problem, and Ocean Resource Exploitation*, 17 J.L. & ECON. 179 (1974) (arguing that international regulation is needed to reduce inefficiencies associated with ocean bed regulation).

14. Kyle C. Johnson, *Letting the Free Market Distribute Environmental Resources*, 17 WM. & MARY J. ENVTL. L. 79, 82 (1992).

15. Raymond J. Kopp & V. Kerry Smith, *Productivity Measurement and Environmental Regulation: An Engineering-Econometric Analysis*, *in* PRODUCTIVITY MEASUREMENT IN REGULATED INDUSTRIES 249, 250-51 (1981); "Productivity statistics are, after all, simply convenient indicators of the firm's performance in using the resources at its disposal." *Id.* at 251.

minimize the political cost of workers being laid off.[16] Many of these standards are engineering, rather than performance, standards that Congress forced upon regulatory agencies and individuals through generic statutes. Conflicts of interest developed between economic goals and environmental goals, including the use of EIAs.

For instance, the National Environmental Policy Act of 1968 (NEPA)[17] requires federal agencies to carry out environmental impact assessments of their actions. The NEPA was first reviewed in relation to the Atomic Energy Commission that regulated nuclear power safety and promoted nuclear power use.[18] Unfortunately, the NEPA does not clearly define "impact." Environmental impact statements follow an implicit theory of "impacts" that include any alteration in the state of the world caused by a given project.[19] What constitutes "alteration" depends on value judgments that consider the world in the absence of the project.[20] These considerations are invariably compromised by economic exigencies, resulting in a restrained form of economic growth called "sustainable development."

"Sustainable development" is a nascent concept not mentioned in GATT, the U.S.-Canada Free Trade Act (FTA), or NAFTA. This absence is due to the economic focus of these international treaties. Another reason is modern technology's inability to help Third World countries leap-frog over the "dirty" phase of the industrial revolution.[21] In other words, "[w]ithin the lifetimes of our children, the entire future of our species will have been decided. The curves now going straight up will have to level

16. Robert W. Crandall, *Pollution Controls and Productivity Growth in Basic Industries, in* PRODUCTIVITY MEASUREMENT IN REGULATED INDUSTRIES 347, 347-48 (1981). *See* Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29 (1983) (deciding whether the Department of Transportation could rescind a rule requiring air bags or passive restraints in various cars by 1982).

17. National Environmental Policy Act of 1968, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321, 4331-36, 4341-47 (1982)).

18. This conflict of interest was eventually addressed again by the creation of the Nuclear Regulatory Commission. *See* Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109 (D.C. Cir. 1971).

19. *Id.*

20. Eugene Bardach & Lucian Pugliaresi, *The Environmental Impact Statement vs. the Real World*, 49 PUB. INTEREST 22, 30 (1977).

21. Benson, *supra* note 9, at 9-10.

out and turn downward. If we don't do it deliberately, Nature will impose the final control."[22]

Until 1977, the U.S. Department of the Interior excluded project benefits from EIA and focused solely on the negative impact of a development project. The reasoning was that inclusion of project benefits might present the appearance of a "balanced" document, open to attack by critics claiming that the balancing was incompetent or prejudicial to environmental interests.[23] Another reason was the political and economic perception that the environmental impact of projects usually outweighs the benefits and that fact should not be publicized more than necessary.[24]

A. NAFTA and the Environment

Trilateral NAFTA negotiations took place between the United States, Mexico, and Canada, and in August 1992, ministers for the three countries reached an agreement.[25] On December 17, 1992, U.S. President Bush, Mexican President Carlos Salinas de Gortari, and Canadian Prime Minister Brian Mulroney signed the treaty.[26] The agreement went into effect January 1, 1994.[27] NAFTA signals that the long, painful transformation of U.S. industry, which displaced so many workers, will continue. The big winner seems to be Mexico, which is reversing decades of protectionism and statism. Critics suggest that NAFTA is an attempt by the United States to create a "tortilla curtain" to combat its biggest problem with Mexico—illegal immigration.[28]

From the Yukon to Yucatán, free trade under NAFTA will be difficult because the economies of the United States and Canada are considerably more advanced than Mexico's economy. On September 25, 1993, a U.S. Federal Court of Appeals overturned a district court ruling that ordered an environmental impact assess-

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22. SUZUKI, *supra* note 3, at 108.

23. *Id.*

24. Bardach & Pugliaresi, *supra* note 20, at 34.

25. The background of the related U.S.-Canada Free Trade Agreement is analyzed in Alexander J. Black, *Economic and Environmental Regulatory Relations: United States-Canada Free-Trade in Energy*, 8 CONN. J. INT'L L. 583 (1993).

26. William E. Clayton, Jr., *U.S., Mexico, Canada Sign Free Trade Deal*, HOUSING CHRON., Dec. 18, 1992, at A32.

27. Diane Linquist, *Today's the Day the Tariffs Tumble NAFTA is in Effect Along the Borders*, SAN DIEGO TRIB., Jan. 1, 1994, at A1.

28. Michael Wallace Gordon, *Economic Integration in North America—An Agreement of Limited Dimensions But Unlimited Expectations*, 56 MOD. L. REV. 157, 164 (1993).

ment of NAFTA.[29] Such a study would have taken several years to conduct, effectively killing the agreement. The court held that submission of NAFTA to Congress by the President constitutes "agency action."[30] NAFTA, however, is not a "final agency action" under the Administrative Procedure Act (APA).[31] Hence, it is not reviewable.[32] On November 18, 1993, the U.S. House of Representatives voted 234 to 200 in favor of NAFTA.[33] President Clinton won by garnering more Republican votes than Democrat votes, 132 to 102.[34] A majority of Democrats in Congress, 156, joined 43 Republicans in voting against the treaty.[35]

Certain fears have been expressed about this attempt to design a level playing field.[36] For example, the United States has a functional reciprocal trading arrangement with a portion of Mexico running adjacent to its border. Canada will therefore have to indirectly accept free trade with these so-called "Maquiladora Industries," whose low production costs will help undermine social

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29. Public Citizen v. United States Trade Representative, 5 F.3d 549 (D.C. Cir. 1993)

30. *Id.* at 553.

31. NEPA requires federal agencies to include an EIS "in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment . . . " 42 U.S.C. § 4332(2) (1988). Congress, however, did not intend to create a private right of action but rather a public law right for judicial review based upon the Administrative Procedure Act (APA). Section 702 of the APA confers an action for injunctive relief on persons "adversely affected or aggrieved by agency action within the meaning of a relevant statute. . . ." Section 704 allows review only of "final agency action." Administrative Procedure Act, 5 U.S.C. §§ 702, 704 (1988). *See* Public Citizen v. Office of the United States Trade Representative, 782 F. Supp. 139, 141-44 (D.C. 1992), *aff'd* 970 F.2d 916 (D.C. Cir. 1992).

32. Public Citizen v. United States Trade Representative, 5 F.3d at 550.

33. *Correcting the 43% Dilemma: Clinton Gets By With the Help of Republicans*, L.A. TIMES, Nov. 19, 1993, at B6.

34. *Id.*

35. *Id.*

36. MEL HURTIG, THE BETRAYAL OF CANADA 190-92 (1991). The author is against "continentalism," a term "ranging from closer economic cooperation to full economic integration, and going all the way to political union." *Id.* at 307. "What the Mulroney government did in energy constitutes a blatant sellout of the Canadian public interest." *Id.*

> In summary: Canadians no longer have the ability to set the prices for their own vital energy supplies. . . . Canada abandoned the ability to ensure a reasonable minimum price for oil and gas exports (in a country where most of these exports are sold by foreign-controlled corporations to other foreign-controlled corporations!) . . . [e]ven if resource exploration, development, or pipelines have been heavily subsidized by Canadian taxpayers, Canada agreed not to charge Americans a higher price for resource exports than the price Canadians pay.

Id.

programs while capital is relocated.[37] The increasing trend by U.S. corporations to move their factories to these regions may ease the advanced "social contract" of the Northern United States.[38]

Additionally, Canada is concerned about the FTA's efficacy with regard to the extent of permissible subsidization in the resource sector. For instance, non-tariff, protectionist trade measures will continue to risk countervailing duties under GATT. The FTA incorporates basic GATT rules and applies them to Canada-U.S. energy trade.[39] The FTA prevents the imposition of either import or export controls on energy goods except in specific circumstances, but neither party can entirely cut off energy supplies, even when these export controls are allowed.[40] In recent years, these countervailing duties, or threats of them, have applied to softwood lumber, shakes, and shingles, as well as to the alleged dumping of Saskatchewan potash in U.S. markets. Some commentators expect the declining U.S. resource industry to enthusiastically pursue these remedies. Therefore, the agreement is not necessarily viewed as a trade panacea.[41]

Under NAFTA, tariffs imposed by each nation will be reduced, yet there is no proposal to develop a common tariff for goods from non-NAFTA nations.[42] NAFTA does not contemplate subsidization of Mexico by revenue transfers and redistributions from the wealthier United States and Canada.[43] Nor does NAFTA contemplate a significant infrastructure, like the E.C., with powers to issue directives and regulations. Instead, a trade commission consisting of senior officials from each nation will meet periodically.[44]

The problem of goods being shipped into the NAFTA nation with the lowest tariffs and then transhipped to another NAFTA nation is addressed by "rules of origin."[45] A minimum standard

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37. Patrick Lee & Chris Kaul, *Uniqueness of Maquiladora Could Fade Trade*, L.A. TIMES, Nov. 19, 1993, at D2.

38. *Id.*

39. J. Owen Saunders, *Energy, Natural Resources and the Canada-United States Free Trade Agreement*, 8 J. ENERGY & NAT. RESOURCES & ENVTL. L. 3 (1990).

40. *Id.*

41. *Id.*

42. *Id.* at 5-6.

43. *Id.*

44. Gordon, *supra* note 28, at 163.

45. *Id.*

of at least fifty percent in the Canada-U.S. FTA is to be adopted.[46] This standard may include the ownership of companies, reflecting the U.S. concern that NAFTA ought not to encourage "the European or Asian use of Mexico as a manufacturing platform for the U.S. market."[47]

Environmental issues affect national sovereignty concerns in trade agreements and are a potential stumbling block to corporate globalization. Trade liberalization is not universally welcomed. Canadian critics such as the New Democratic Party argue that the pact erodes Canada's environmental standards by bringing them down to U.S. and Mexican standards. During a parliamentary hearing on the pact, the Canadian Environmental Law Association (CELA) testified that "NAFTA establishes a new, international legal regime to prevent governments from regulating corporate activity."[48] In other words, global trade liberalization curtails the ability of governments to intervene in their economies.

Environmental concerns about trade liberalization were magnified in the Tuna/Dolphin GATT dispute between the United States and Mexico. GATT Article III generally prohibits taxation measures that treat the products of GATT signatories less favorably than domestic products.[49] Trade law, however, can conflict with environmental legislation. For instance, the 1986 Superfund Amendment and Reauthorization Act sought to finance the Superfund cleanup program and included imposing a higher tax on imported petroleum (11.7 cents per barrel) versus domestic petroleum (8.2 cents per barrel).[50] Canada, Mexico, and the E.C. challenged this differential tax by invoking a panel under the dispute settlement procedures of GATT Article XXIII,[51] forcing the United States to eliminate the differential tax.[52]

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46. *Id.*

47. *Id.* at 161.

48. Marci McDonald, *How NAFTA Slid Through Cracks in Green Movement*, TORONTO STAR, Oct. 11, 1993, at A11 (statement of Michelle Swenarchuk, a lawyer with the Canadian Environmental Law Association (CELA)).

49. General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A3, T.I.A.S. No. 1700, 55 U.N.T.S., art. III [hereinafter GATT].

50. Superfund Revenue Act of 1986, Pub. L. No. 99-499, 100 Stat. 1760 (codified as amended in scattered sections of 26 U.S.C.).

51. General Agreement on Tariffs and Trade: Dispute Settlement Panel Report on the United States Superfund Excise Taxes, June 17, 1987, 27 I.L.M. 1596 (1988).

52. *See* Steel Trade Program Liberalization Implementation Act of 1989, Steel § 8, Pub. L. No. 101-221, 103 Stat. 1886, 1891 (*see* 19 U.S.C.A. §§ 2101, 2253, 2703 (1989); 26

The conflict between environmentalism and global capitalism is also demonstrated by the U.S. enactment of the Marine Mammal Protection Act.[53] This Act blocked imports of tuna from Mexico and several other countries because fishing fleets from these countries were using the porpoise unfriendly *purse sein* net.[54] The Act embargoed imports of tuna, even if they were caught in foreign or international waters, from any nation using this net that tends to catch yellowfin tuna and a large number of porpoises.[55]

GATT Article XI generally prohibits quantitative restrictions.[56] Consequently, Mexico challenged the U.S. action, resulting in a dispute settlement panel convened under Article XXIII:2.[57] The panel ruled in Mexico's favor after finding that none of the exceptions listed in Article XI applied to the U.S. embargo.[58] Nevertheless, the GATT Council never adopted the panel report when the United States and Mexico reached a subsequent bilateral resolution. Adoption of the report would have forced the United States to (1) come into conformity with its GATT obligations and lift the embargo, (2) compensate adversely affected GATT partners, or (3) face retaliation against U.S. exports by adversely affected GATT signatories.[59]

Trade liberalization has also influenced the behavior of environmental groups. The National Wildlife Federation has accepted donations from such environmentally incorrect industries as Dow, DuPont, Monsanto, Shell Oil, and Waste Management, Inc., as well as $2.5 million from Eastman Kodak. The once staid environmental movement, which began with hunters and bird-watchers and exploded into a stormy activist adolescence in the 1970s, is now in its third wave, a placid coming of age.[60] Busines-

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U.S.C. § 4611 (1990)).

53. Marine Mammal Protection Act of 1972, Tit. I, § 101(a)(2), Pub. L. No. 92-522, 86 Stat. 1027, 1030 (codified as amended 16 U.S.C. § 1401 (1972)).

54. *Id.*

55. *Id.*

56. GATT, *supra* note 49, art. XI.

57. General Agreement on Tariffs and Trade: Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna, Aug. 16, 1991, 30 I.L.M. 1594 (1991).

58. *Id.*

59. Alan F. Holmer & Judith H. Bello, *Trade and the Environment: A Snapshot From Tuna/Dolphins to the NAFTA and Beyond,* 27 INT'L LAW. 169, 172-73 (1993).

60. McDonald, *supra* note 48, at A11 (quoting PHILLIP SHABECOFF, A FIERCE GREEN FIRE: THE AMERICAN ENVIRONMENTAL MOVEMENT 256-59 (1993)).

ses have joined the environmental bandwagon to try to shape the movement and the debate. Feuds among environmental groups have resulted in some advocating compromise, such as the business-friendly formula of trading pollution credits, which ended the U.S. impasse on acid rain.[61]

III. ENERGY AND THE ENVIRONMENT

Like other non-renewable natural resources, energy use affects our physical, social, and economic environment. The exploration and exploitation of fossil fuels costs more than its nominal current market value since it is a non-renewable resource. This situation creates an opportunity cost that prudent public utility regulators must take into account, because these regulators approve the construction of facilities and transportation rates, and encourage end-use consumption. While modern post-industrial society increases its energy appetite, long-term environmental considerations relating to energy use affect economic planning and employment levels. Regulators in North America share a broad policy dilemma. Although the present energy market is abundant, their proposals ideally should be able to meet the test of shortages or a major environmental crisis.

Waste prevention can take various forms, such as prorationing petroleum production. In the late 1970s, forecasters estimated that the United States could use thirty to forty percent less energy per unit of GNP.[62] Today, the United States uses twenty-seven percent less energy and thirty-two percent less oil per unit of GNP than it did in 1973.[63] Therefore, improved energy efficiency and conservation is an energy "source" creating real surpluses.[64] Yet the focus remains on supply rather than demand, and natural gas is the preferred fossil fuel.

Gas is an environmentally attractive fuel vis à vis the atmosphere and climate. Gas use can promote conservation of a non-renewable fuel, which in turn can help stop global warming.[65] Increasingly, governments, suppliers, and transporters are promoting gas use because of its relative "green" value. Natural gas

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61. *Id.*
62. Daniel Yergin, *Energy Security in the 1990s*, 67 FOREIGN AFF. 110, 115 (1988).
63. *Id.*
64. *Id.*
65. House of Commons Energy Committee, Sixth Report, *Energy Policy Implications of the Greenhouse Effect*, V.I. HC 192, July 1989.

regulation not only affects the traditional setting of transportation rates, including third party access, but it has also led to a consideration of environmental effects. These effects include demands upon land use (such as new pipeline construction), capital, and air quality, stemming from increased use of the fuel. Natural gas regulation does not exist in a vacuum and must be considered in relation to the relative environmental opportunity costs of competing fuels. Unlike oil, natural gas is expensive to transport over long distances.[66] Coal is being used more often to generate electricity to the extent that nuclear energy use remains stagnant. Yet coal use will probably decline because of environmental concerns.

Emissions by Power Plants, Tons/Year[67]

	Gas Combined Cycle[68]	NSPS Coal	Uncontrolled Coal
Sulfur dioxide	.3	410	3,900
Particulate matter	.9	21	1,700
Nitrogen oxides	135	240	680
Carbon dioxide	51,000	143,000	143,000

More restrictions and disincentives will be placed on coal use unless clean-burning technologies drastically improve. Nuclear power supplies about eighteen percent of U.S. electricity needs, but it is not cheap. Approximately 430 plants are licensed for operation worldwide and an estimated 120 are under construction.[69] Significant development is not expected until current technology dramatically improves, thereby meeting the increasing restrictions and disincentives placed on its use. For example, some partially-built U.S. nuclear plants may be converted to natural gas. Sweden has a mandate to phase out its existing nuclear plants by

66. Yergin, *supra* note 62, at 120.

67. PIERRE ELLIOT TRUDEAU, ENERGY FOR A HABITABLE WORLD: A CALL FOR ACTION 40 (1991). The American Gas Association compared emissions from coal-fired power stations and 100 new 240,000 kw gas combined cycle power plants. Their findings demonstrate clear advantages in gas use. NSPS refers to the U.S. Environmental Protection Agency's new source performance standards. *Id.*

68. *Id.* at 41. Gas input for the gas combined cycle is 1.08 quadrillion BTU/year. Bob Williams, *Greenhouse, Acid Rain Worries Buoy Prospects for U.S. Gas, Clean Coal*, OIL & GAS J., Aug. 29, 1988, at 12, 14.

69. TRUDEAU, *supra* note 67.

the year 2010, and a moratorium effectively exists in West Germany.[70]

The dominant consensus about the oil market changed four times between the early 1970s and the mid-1980s. Each opinion promised certainty yet soon collapsed for political reasons. Also, shared expectations tended to "transform the conditions that gave rise to the expectation in the first place."[71] When the international oil cartel, OPEC, fostered petroleum shortages in 1973 and 1979, the specter of dwindling vital resources gave birth to environmental groups focused on energy. Furthermore, the interrelation between the various forms of energy and demand became more apparent. These alternative fuel issues remain important because, aside from being part of the petroleum industry, natural gas prices are indexed by reference to oil prices.

As expected, crude oil prices have declined since 1990, when the Persian Gulf crisis forced prices to rise. Due to oversupply, oil prices in Canada reached their lowest level since 1975.[72] The price of North Sea Brent crude oil, a worldwide benchmark, averaged about $20 (U.S.) in 1991, compared to $23.50 (U.S.) in 1990.[73] North American natural gas prices were at their lowest in a decade—approximately $1.38 (Can.) per thousand cubic foot in 1991, compared to $1.55 (Can.) per thousand cubic foot in 1990.[74] Average world oil prices will probably rise to around $25 (U.S.) per barrel in 1996 and continue to increase to $30 (U.S.) per barrel in 1998.[75] The prices will eventually increase to approximately $40 (U.S.) per barrel in 2001, but the prices will remain below $23 (U.S.) per barrel in 1991 real terms.[76]

Natural gas consists largely of the hydrocarbon methane, and it commands 20% of the world energy market, up from 10% in 1950.[77] Methane, the simplest hydrocarbon, is linked to four hydrogen atoms. When burned, it emits only 60% as much carbon

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70. Yergin, *supra* note 62, at 121.

71. *Id.* at 129.

72. IMPERIAL OIL LTD., ESSO, 1991 ANNUAL REPORT 3 (1992).

73. *Id.*

74. *Id.* at 10.

75. GRAMPIAN REGIONAL COUNCIL, OIL & GAS PROSPECTS, 1991 UPDATE 11 (1991) (stating that the two predominant units of natural gas measurement, one thousand cubic feed (mcF) and one million British thermal units (MMBtu), contain approximately equivalent amounts of energy).

76. *Id.*

77. Lynton McLain, *Survey Sec., The Gas Industry 5; Big Claims for "Green" Fuel*, FIN. TIMES, Apr. 20, 1990, at 5.

dioxide per unit of heat produced as coal and 80% as much as fuel oil.[78] Even though natural gas is a fossil fuel that contributes to the greenhouse effect, it is a relatively clean burning fuel. Thus, natural gas is a leader in the growing fight against the greenhouse effect.[79] Polluting gases cause the greenhouse effect.[80] Such gases include methane as well as carbon dioxide, which is believed to account for half of all polluting gases. These gases trap the re-radiated earth's heat after sunlight has warmed the ground. Scientists believe that carbon dioxide levels are increasing at about one-half of one percent annually.[81] Coupled with widespread world deforestation, this increase of polluting gases is leading to global warming.[82]

Global warming, if unabated, threatens to radically increase desert areas, raise ocean levels enough to threaten low-lying countries, and jeopardize agricultural production.[83] Chlorofluorocarbons (CFCs) and halons are other culprit gases whose effect is estimated to be 20,000 times greater per molecule than carbon dioxide.[84] Produced by refrigerators, aerosols, and other sources, CFCs may be responsible for up to fourteen percent of the greenhouse effect.[85] CFCs also damage the earth's ozone layer, lessening atmospheric protection from the sun's harmful ultraviolet radiation.[86]

The second largest contributor to the greenhouse effect is thought to be methane from natural gas.[87] Methane causes approximately eighteen percent of the greenhouse effect.[88] Methane pollution increases at about one percent per year, twice

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78. *Id.*

79. U.K. HOUSE OF COMMONS ENERGY COMMITTEE, ENERGY POLICY IMPLICATIONS OF THE GREENHOUSE EFFECT, SIXTH REPORT, Memoranda of Evidence to the Select Committee on Energy, HMSO, Feb. 1989, at 4. NO_2 and CO_2 gases are created by burning, but methane can leak during production. Apparently, straight methane is a more potent ingredient in the greenhouse effect than carbon dioxide since it is thirty times as effective at absorbing infrared radiation. *Id.*

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.*

88. *Id.*

the rate of carbon dioxide pollution.[89] Each methane molecule has approximately thirty times the effect of carbon dioxide.[90]

The 1987 Montreal Protocol marked the first efficacious attempt to reduce the release of CFCs.[91] More than seventy countries were a party to the Protocol, including developing countries.[92] The Protocol introduced a progressive or staged reduction in the production and consumption of CFCs.[93]

In 1989, the United Nations General Assembly voted to convene a conference on the environment and development to be held in Rio de Janeiro in June 1992.[94] The United Nations Conference on the Environment and Development (UNCED) Earth Summit reduced a planned "Earth Charter" to the so-called "Rio Declaration."[95] The signatories produced a litany of vague intentions for the next century, called "Agenda 21," and an equally toothless treaty on biodiversity which fails to monitor the dangers of biotechnology or to equitably assign biotechnological benefits to all humankind.[96] The 1992 conference concluded a climate change treaty that failed to set specific targets or means for reducing greenhouse gases.[97] The conference also established a vague forest policy that lacks implementing machinery and failed to create an effective sustainable development commission.[98]

Environmentally, gas has far less sulphur and nitrogen than coal. Gas is the most benign of the world's conventional fuel sources.[99] Promotion of increased natural gas use can actually benefit the environment if it results in a lock step decrease in the use of "dirty" fuels. Unlike coal thermal generating plants, the introduction of new combustion technology means that natural gas plants do not need expensive scrubbers to reduce the contribution

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89. *Id.*

90. *Id.*

91. Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541, 1550, *as amended* 30 I.L.M. 537, 539 (1991).

92. *Id.*

93. *Id.*

94. Michael Weisskopf & Julia Preston, *Rio Organizer Says Summit Fell Short, Environmental Principles Approved*, WASH. POST, June 15, 1992, at A1.

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*; *see also* Benson, *supra* note 9, at 12 (asserting that the commission both lacks power and is fettered by North-South divisions).

99. U.S. OFFICE OF TECHNOLOGY ASSESSMENT, ACID RAIN AND TRANSPORTED AIR POLLUTANTS: IMPLICATIONS FOR PUBLIC POLICY 149-50 (1984).

to acid rain damage. Proportionately, efficient burning of gas releases less carbon into the atmosphere than coal burning. Between 15 and 20 million of the 27 million tons of sulphur dioxide emitted annually into our air come from coal-fired powerplants.[100] Two new coal-fired plants, fully equipped with scrubbers, emit less than one-fifth the air pollution of one older, unscrubbed facility.[101]

While natural gas commands a higher price than coal, gas is more efficient. For example, combined cycle gas turbines[102] use waste heat from primary gas turbines and pass it through a heat exchanger to raise steam for a secondary steam turbine.[103] This process can achieve thermal efficiencies of nearly fifty percent electricity generation.[104] Co-generation or Combined Heat and Power (CHP) machines also use gas. The steam from the gas exhausts is used industrially or for space heating rather than being passed through a secondary turbine. Energy conversion rates for gas are about fifty percent, compared to thirty-seven percent for

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100. *Id.*

101. *Id.* at 164. A properly operated scrubber can remove 90% of the sulphur dioxide in a plant's flue gasses. Limestone injection burners and fluidized-bed combustors clean the coal as it is burned. They promise to be much more cost-effective than flue-gas scrubbers at removing sulphur pollutants. New coal-cleaning technologies that remove pollutants prior to combustion are also being developed. *Id.*

102. *See* Scenic Hudson Preservation Conference v. Fed. Power Comm'n, 354 F.2d 608 (2d Cir. 1965), *cert. denied*, 384 U.S. 941 (1966). The court blocked the FERC license of a pumped-storage hydroelectric plant on the ground that Consolidated Edison and FERC had failed to give sufficient consideration to the allegedly environmentally preferable alternative of gas turbines. *Id.* According to the court, "we must conclude that there was no significant attempt to develop evidence as to the gas turbine alternative; at least, there is no such evidence in the record." *Id.* at 619. After five years of delay, the court finally accepted that the gas turbine alternative was not a viable substitute, but by then the project had died. This case provided a theoretical underpinning for U.S. environmental law. A campaign in the early 1960s to preserve the natural beauty of the Hudson River focused on the river's fisheries. In December 1980, the parties negotiated a settlement; Consolidated Edison consented to surrender its original federal license to build the power plant and the environmentalists promised not to oppose the use of once-through cooling systems for several other Hudson River plants. Also, the utilities agreed, inter alia, to a program of power outages during crucial spawning seasons and the installation of state-of-the-art fish screens around intakes. Scenic Hudson Preservation Conference v. Fed. Power Comm'n (II), 453 F.2d 463 (2d Cir. 1971). Concerning impact assessment statements, the court noted that it is the short-term use of the environment, not the short-term impact on the environment, that must be considered. *Id.* at 492.

103. Maurice Samuelson, *Survey: The Gas Industry, A Dramatic Comeback,* FIN. TIMES, Apr. 20, 1990, at V.

104. *Id.*

the average conventional coal-fired power station.[105] Nevertheless, gas pollutes, and the consequences of this pollution are significant:

> Homo sapiens now appropriate 25% of the net photosynthetic product . . . 25% of the energy that powers all life (40% of the energy that powers life on land). We do that not only directly, harvesting the food, fiber and fuel crops revved-up by our fertilizers, but indirectly, suppressing biotic potential through spills and sprays, burning and paving, acid rain and heavy metals. And we expect our population to double within 40 more years and our economy to double sooner than that.[106]

To protect air quality and thereby reduce the threats of global warming, cleaner fuels, as well as pollution free alternative fuels like natural gas, are important parts of the international attempt to protect the environment.

Many tout hydroelectricity as a pollution-free alternative. Unfortunately, hydroelectricity is not the panacea that it appears to be at first blush. Flooding thousands of square miles of land creates cultural costs of relocating inhabitants and losing biodiversity from the destruction of ecosystems. Wildlife migration and reproductive patterns are disrupted when rivers are diverted from their natural courses. Productive wetlands dry out downstream and silt gets trapped, eventually filling the reservoir storage capacity.[107] Irregular flows caused by variable electrical demand can cause stream bank erosion, ruin fish breeding, and endanger boaters and campers.[108] Conversely, "[i]nsofar as hydroelectricity displaces fossil fuel generation of electricity in the United States, it also reduces emissions of sulphur dioxide, nitrogen oxides and particulates, and these reductions help alleviate acid rain assaults upon the Canadian environment."[109] There are also the positive effects of dam construction, including irrigation, flood control, and

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105. *Id.*

106. Donella H. Meadows, *Preserving Life on Earth: The Dangers of What We Know, and What We Don't*, L.A. TIMES, Sept. 9, 1990, at M4.

107. *The Beautiful and the Dammed*, ECONOMIST, Mar. 28, 1992, at 93.

108. *Hydroelectric Efficiencies Help Environmental Efforts*, ELECTRIC LIGHT & POWER, Apr. 1992, at 21.

109. Barbara K. Bucholtz, *COASE and the Control of Transboundary Pollution: The Sale of Hydroelectricity under the U.S.-Canada Free Trade Agreement of 1988*, 18 B.C. ENVTL. AFF. L. REV. 279 (1991).

recreation on the artificial lake.[110]

Hydroelectric power is produced at almost 1,600 sites in the United States and supplies twelve percent of the nation's energy.[111] Because many facilities built between 1930 and 1960 used taxpayer subsidies, the cost of hydroelectric power is relatively low.[112] For instance, in 1900, hydroelectric plants produced electricity averaging $0.45 per kilowatt hour (kWh), compared to fossil fuel generated electricity which averaged $2.85 per kWh and nuclear fuel costing $6.29 per kWh.[113] But, for the United States, heavy construction costs and the dearth of suitable sites mean that large supplies of hydroelectricity must be imported through high tension transmission lines from Canada, which obtains seventy percent of its electricity from hydro-power.[114]

IV. COSTS OF POLLUTION CONTROL

Despite the importance of environmental concerns affecting the energy sector, energy policies still focus on supply security. Reducing demand remains a nascent and adjunct energy policy concern. Reduction is an ideal form of energy conservation that deserves greater attention because it promotes environmental objectives by conserving natural resources. A tension exists between environmental quality and the cadre of society charged with commodity development. Managers appear pre-occupied with reducing developmental costs rather than reducing the less obvious chronic effects of exposure that impair optimum fitness. Since the 1980s, managerial and technical leadership have rationalized permanent human and environmental contamination as a byproduct of material progress.[115]

Environmental regulation has affected the competitiveness of U.S. industries, especially in the manufacturing sector. This effect is due to the style, rather than the stringency, of U.S. regulation. While the nation's environmental standards are average for an industrialized country, its costs of achieving these standards are

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110. THE CONSERVATION FOUNDATION, STATE OF THE ENVIRONMENT: A VIEW TOWARD THE NINETIES 250 (1987).

111. *Hydroelectric Efficiencies Help Environmental Efforts*, *supra* note 108, at 21.

112. *Id.*

113. *Id.*

114. *Id.*

115. SAMUEL P. HAYS & BARBARA D. HAYS, BEAUTY, HEALTH, AND PERMANENCE 540 (1987).

nearly the highest.[116] This cost reflects the country's insistence on requiring specific abatement techniques, rather than mandating emission levels and permitting polluters to meet these levels by least-cost methods.[117]

Environmental standards for individual polluters tend to be engineering standards, not performance standards (which are more complicated to certify). While engineering standards are more capital intensive, particular technologies can be de facto standards, certified as the best available for the time being. New industrial plants must meet more rigorous standards than older facilities.[118] Pollution sources are distinguished by the best practicable and available technologies. Rapidly growing industries are likely to have stricter standards than their less-dynamic counterparts because it is politically safer to introduce such standards into industries with dynamic growth.[119] Likewise, capital-intensive industries are likely to face the toughest regulations while labor-intensive industries face greater output and employment adjustments after investing in pollution control.[120] More stringent standards are forced on firms subject to rate-of-return regulation.[121] By 1981, utilities accounted for nearly one-third of environmentally related spending. Moreover, because demand is inelastic, utilities often receive state regulatory permission to pass on the extra costs to customers.[122]

U.S. environmental regulation elicits a "best available technology" approach, requiring polluters to use available technologies within the relevant industry's economic capability. For instance, General Motors (GM) lobbied for miles-per-gallon (MPG) regulation that was more stringent than Congress implemented.[123] GM knew the higher standard would inflict large costs on its competitors, Chrysler and AMC.[124] Yet, clean-up

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116. Joseph P. Kalt, *The Impact of Domestic Environmental Regulatory Policies on U.S. International Competitiveness*, *in* INTERNATIONAL COMPETITIVENESS 221 (A. Michael Spence & Heather A. Hazard eds., 1988).

117. *Id.*

118. Crandall, *supra* note 16, at 349-52.

119. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*

123. Bruce Yandle, *A Cost-Benefit Analysis of the 1981-1984 MPG Standard*, 6 POL'Y ANALYSIS 291, 304 (1980).

124. *Id.*

under a "best available technology" approach is more costly compared to strategies like economic incentives which foster innovation. Nevertheless, this approach is relatively easy to implement without incurring the political backlash of large scale shut-downs.[125]

Pollution control costs are also influenced by the prevalent political philosophy, such as the conservative, non-interventionist driven, deregulation movement of the 1980s. Deregulation has saved consumers billions of dollars.[126] Regulatory reform has helped introduce less obtrusive forms of regulation. Thus, the Environmental Protection Agency, under its "tradeoff and bubble policies," created a limited system of transferable pollution permits within the existing scheme.[127] Regulated firms can reallocate compliance obligations in a more cost-effective pattern, with savings estimated at more than $750 million.[128] Conversely, re-regulation would mean halting the deregulation process and expanding administrative regulation in certain areas. The Reagan administration, however, did not achieve a widespread rollback of environmental health and safety regulation. Market failure has been so serious in areas such as environmental regulation that a convincing case for total deregulation cannot be made.[129]

V. ENERGY, PUBLIC POLICY & IMPACT ASSESSMENT

Choosing an energy strategy inevitably means selecting an environmental strategy.[130] Deciding on an energy strategy is difficult because socio-economic costs exist in regulatory decision-

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125. Richard B. Stewart, *Regulation and the Crisis of Legalisation in the United States*, *in* LAW AS AN INSTRUMENT OF ECONOMIC POLICY: COMPARATIVE AND CRITICAL APPROACHES 115 (Terence Daintith ed., 1988) [hereinafter *Regulation and the Crisis of Legalisation in the United States*].

126. Richard B. Stewart, *Economics, the Environment, and the Limits of Legal Control*, 9 HARV. ENVTL L. REV. 1 (1985).

127. *Id.*

128. *Id.*

129. *Regulation and the Crisis of Legalisation in the United States*, *supra* note 125, at 120 (citing Philip J. Harter, *Negotiating Regulations: A Cure for Malaise*, 71 GEO. L.J. 1 (1982-83)).

130. Janet Keeping & Nigel Bankes, *Marketing Electricity: Alberta Review Raises Key Issues for a Sustainable Energy Policy*, 38 RESOURCES 7 (1992). The Alberta Electric Energy Marketing program cannot be meaningfully reviewed in a vacuum; it must be examined in the context of the need to achieve sustainability in all our affairs. A vision is needed of what a sustainable Albertan society would look like. A suitable energy policy can only be designed with such a goal to work toward. *Id.*

making, including the "opportunity cost of not being able to sell that oil and gas in the future."[131] For example, the U.S. Supreme Court directed the Federal Power Commission to reconsider a decision in light of the "alternative" of building no energy plant at all.[132] This "no plant" alternative is viable only if there is a conservation technology or some other plant in another place licensed by a different agency. Alternative power sources or conservation modes, such as an old, highly polluting, coal-fired plant, may exist or be waiting for licensing or approval.[133] Difficult decisions concerning the construction of energy production and transmission facilities are accompanied by environmental impact statements (EIS) or assessment (EIA). Environmental assessments serve as a focal point between conflicting legal rules and environmental concerns.

Impact assessment institutionalizes foresight by encouraging consultation between governments.[134] The trend toward institutional EIA stems from the U.S. NEPA of 1969,[135] which anticipates problems and identifies alternative courses of action to avoid or mitigate adverse impacts.[136]

> The EIS document is only the most visible feature of an underlying social process whereby environmental values are identified, articulated, and advocated. While this process does insure that the decision maker will be apprised of at least some of the environmental issues surrounding a project, it also insures that he will treat them with considerably more disdain than they deserve. Environmental interests have managed to acquire a negative image in many circles (which may or may not be justified), and the EIS process as it is seen by the decision maker strongly reinforces the stereotype.[137]

Impact assessment is a dynamic process that helps bridge the doctrinal demarcations between private law incidents involving individuals and public law concerns of the state. These demarcations discourage environmental litigation by denying individuals

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131. Pierce, *supra* note 11, at 21.
132. Udall v. Fed. Power Comm'n, 387 U.S. 428 (1967).
133. *Id.*
134. Nicholas Robinson, *International Trends in Environmental Impact Assessment,* 19 B.C. ENVTL. AFF. L. REV. 591 (1992).
135. National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(c) (1989).
136. Robinson, *supra* note 134, at 593.
137. Bardach & Pugliaresi, *supra* note 20, at 35.

standing to sue. Denial of *locus standi* for environmental matters is a modern illustration of the conflict between the function of substantive law and the structure of adjectival law.[138] Moreover, impact assessment encourages a wide variety of interdisciplinary information. Impact assessment expands justiciability by creating a public forum that enables individuals, so-called "interveners,"[139] to contribute to the decision-making process. By giving a voice to disenfranchised local people who cannot mobilize into an effective interest group, impact assessment also alleviates the standing problem.

Several global trends in the generic EIA process are apparent. EIA adapts to various political systems but works best when implemented by a politically independent authority. EIA encourages communication and consultation between government agencies, and is increasingly recognized as part of international law. EIA is utilized by international agencies, like the World Bank, and it is arguably becoming a norm of customary international law (*opinio juris*) that nations should engage in effective EIA before taking actions that could adversely affect shared natural resources, another country's environment, or the Earth's commons.[140]

Conversely, EIA is often resisted by opponents who are skeptical of its usefulness. Countries that have adopted EIA tend to use the process for large projects and rarely enjoin courts to oversee its accuracy. Further, the procedures may reflect proponent bias. Divided responsibility for EIA in federal-type jurisdictions can create positive or negative biases toward the project.[141]

EIAs are usually carried out in a limited time period within a restricted area. Assumptions are made that a reasonable

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138. FREDERIC W. MAITLAND, THE FORMS OF ACTION AT COMMON LAW 2 (1962). Under the framework of the forms of action (or formulary) system, a plaintiff who sought relief in the common law courts had to state a case in accordance with one of a limited number of standard forms. *Id.* Maitland said,

> English law knows a certain number of forms of action, each with its own uncouth name. . . . This choice is not merely a choice between a number of queer technical terms, it is a choice between methods of procedure adapted to cases of different kinds. . . . The forms of action we have buried, but they still rule us from their graves.

Id.

139. Described in French as *mis-en-cause*.

140. World Bank Operational Directive, 4.01, *cited in* Ibrahim F.I. Shihata, *The World Bank and the Environment: A Legal Perspective*, 16 MD. J. INT'L L. & TRADE 1, 9 (1992).

141. Robinson, *supra* note 134, at 600.

estimate of the impact can be calculated by scaling up the observed effects of a small portion of the industry, such as a couple of arctic oil wells, by a factor of 100 or more. It is probable, however, that the industry will be on its best behavior, so these results will always be conservative. Often, these studies overlook the synergistic effects of interaction among several components, which gives new or greater consequences than the sum of their isolated impacts.[142]

Because energy-related projects are usually large, they are prime candidates for EIA. Universally, the regulator's "unenviable but inescapable role" arguably involves consenting to "some risks and environmental effects" while rejecting others "in light of the best available assessment of the aggregate public interest."[143] "Regulation is the art of making unpleasant choices wisely. . . . Risk is ubiquitous, absolute safety unattainable, and environmental impact of some description inevitable."[144]

Some valid considerations include spillover costs. These product costs, without regulation, do not reflect the costs imposed upon society, such as environmental pollution. These considerations manifest themselves in a myriad of different regulatory programs. Such extra costs spill over from market actors and are absorbed or externalized by society as a whole. Furthermore, pollution does not respect international boundaries. This situation creates "international externalization" where the environmental degradation affects territory outside the state that maintains weak environmental regulation.[145] Hence, transborder pollution is a common problem being met by differing responses in diverse legal

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142. SUZUKI, *supra* note 3, at 57.

143. Peter Huber, *Electricity and the Environment: In Search of Regulatory Authority*, 100 HARV. L. REV. 1002, 1009 (1987).

> The difficulty for the regulator in this setting is a familiar one: even risk choices that are in the aggregate public interest will rarely be in the best interest of every individual whom they affect. The construction of a new powerplant—or the decision not to construct one—inevitably involves some disturbance of the risk environment and therefore entails benefits to some and burdens to others. Nevertheless, a utilitarian, collectivist assessment of "acceptable" risk and environmental impact is quite inescapable in a crowded industrial society.

Id. at 1064 n.25.

144. *Id.* at 1004. Thus, regulation of health, safety, and the environment presents its own brand of "tragic choice." *Id. Cf.* STEVEN G. CALABRESI & PHILIP BOBBITT, TRAGIC CHOICES (1978) (discussing allocation of scarce but essential or life-saving resources such as kidney dialysis machines).

145. Trachman, *supra* note 10, at 57.

regimes.

Observing the approach taken by various legal regimes helps formalize environmental policy and process in a particular jurisdiction. Comparative law is a useful analytical device generally because it counters the tendency to view localized problems, including "false alternatives," as unique or intractable. Although nomenclature can be a problem, the comparative approach is useful when it sheds light on the function of law in response to similar factual problems occurring in different jurisdictions.

Different legal jurisdictions invariably tackle similar physical or technological problems in diverse manners. Cultural, social, political, and economic factors drive the ethos of a particular jurisdiction. Consequently, the law reacts to these human factors with a purpose often labeled as "public policy."

> On the other hand, in substance the growth of the law is legislative. And thus, in a deeper sense, what the courts declare to have always been the law is in fact new. It is legislative in its grounds. The very considerations which judges most rarely mention, and always with an apology, considerations of what is expedient for the community concerned are the secret root from which the law draws its life juices. Every important principle which is developed by litigation is in fact the result of understood views of public policy . . . .[146]

Thus, the implementation of public policy into an efficient regulatory superstructure is needed in order to protect the expectation interests of energy producers, transporters, and distributors. These expectation interests invariably conflict making the process of regulation more adversarial than conciliatory.[147]

Because rules in more than one jurisdiction affect energy exports, it is important to search for "functionally equivalent rules, concepts or institutions" and to seek out the institutions that

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146. OLIVER WENDELL HOLMES, THE COMMON LAW 35 (1881); SILAS BENT, JUSTICE OLIVER WENDELL HOLMES 148 (1932).

147. Part of the problem with regulatory rate hearings is that the same debates are continuously replayed, the regulated firm arguing for higher revenues and toll payers and consumer associations arguing against them. The National Energy Board of Canada has indicated that it is receptive to a settlement process under which interested parties negotiate many of the details prior to the beginning of a hearing. *See* National Energy Board, *Improving the Regulatory Process—Current Position on Submitters' Suggestions* (Sept. 1988).

attempt to solve the same problem or fulfill the same role.[148] For instance, a useful analytic technique is to construct hypothetical scenarios because many development proposals involve uncertainty. Consequently, the worst-case scenario dominates much of an EIS.[149]

> The concept [that an impact is any "alteration in the state of the world"] . . . is not straightforward, of course. What it means depends in large measure on beliefs about what the world might look like in the absence of the project. The simplest and most legally and politically defensible belief is that the world would in no way look different than at present. Unfortunately, this view . . . is most unrealistic. There is constant change in human and natural environments all around us, but this endemic change is ordinarily not contemplated by the EIS. Nor does it ordinarily take into account how people or other organizations, will adapt to change.[150]

Thus, there may be an "institutional pessimism" in agency impact statements. Too little pessimism can lead to charges of "whitewashing" the proposed development and a court order requiring the department to go back and prepare an "adequate" impact statement.[151] Conversely, agencies sometimes may not want the impact statement to look like a "balanced document" because environmental critics may allege that the balancing was either incompetent or prejudicial to environmental interests.[152]

Geographers and surveyors assist in balancing the environmental assessment process. A *cadastre* is used in their assessment. A *cadastre* is a "parcel-based land information system that manages information about the land, its use, and its ownership from the parcel level to support administrative functions."[153] Generically, this process is known as "geomatics," the process of managing geographically referenced information, including its analysis and dissemination.[154] National Spatial Data Infrastruc-

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148. Marilyn Aitkenhead et al., *Law and Lawyers in European Integration*, 43 MEDEDELINGEN VAN HET JURIDISCH INSTITUT VAN DE ERASMUS UNIVERSITEIT ROTTERDAM 25 (1988).

149. Bardach & Pugliaresi, *supra* note 20, at 29.

150. *Id.* at 30.

151. *Id.* at 29.

152. *Id.* at 34.

153. J.D. McLaughlin & Sue Nichols, *Resource Management: The Land Administration and Cadastral Systems Component*, 49 SURVEYING & MAPPING 77, 80 (1989).

154. *Id.*

ture (NSDI), a trend in geomatics, is moving toward linking databases into distributed information networks or developing software to exploit available information and to build a broader information services industry.[155] NSDI acts like an information highway linking public and private databases across the nation providing effective access to spatially-related information in businesses, government offices, schools, and homes.[156]

Administrative decision-making is affected by cadastral reform, namely the growth of information about the environment, which in turn influences new environmental values. Use of this information, however, depends upon the governmental agency's internal organization. When environmental specialists' duties go beyond mere environmental impact assessment to function as active planners who communicate frequently with engineering planners, they tend to exert greater influence on planning outcomes. A government department, however, must coordinate with external forces, such as interest groups, because the courts invariably share neither the governmental department's continuing contact with decision-making, nor its familiarity with useful documentation.[157]

A. E.C. Environmental Policy

E.C. environmental law is less developed than its North American counterpart. History offers a reason for this difference. In his seminal paper at the end of the 19th century, *The Significance of the Frontier in American History*, historian Frederick Jackson Turner advanced a thesis that the history and character of America was forged by the frontier, "the ever advancing line where civilization confronted nature.[158] Each move forward provided a clean slate and free land where the advancing Americans would develop an independent spirit and a democratic society."[159] On the other hand, the E.C. is comprised of twelve ancient member states that include numerous cultures and language groups whose turbulent, sometimes jingoistic history did

155. *Id.*
156. *Id.*
157. Richard A. Liroff, *NEPA—Where Have We Been and Where Are We Going?*, 46 J. AM. PLAN. ASS'N 154, 156 (1980).
158. Frederick Jackson Turner, *The Significance of Frontier in American History* (Harold P. Simonson ed., 1963).
159. *Id. See also* SHABECOFF, *supra* note 60, at 256-59.

not experience an eighteenth and nineteenth century frontier.

Initially, the E.C. focused on solving acute problems within the Community. Realizing that pollution did not stop at its frontiers, the E.C. intensified cooperation with other countries.

> Generally, however, the initial response within western European states to the environmental agenda has been muted. Several reasons account for this slower application. European planning law, at least in northwestern Europe, already required a measure of environmental assessment as part of normal planning and development controls. Corporate and government actors had already found means of controlling chemical and nuclear toxic wastes in response to the existing requirements of occupational health laws, the social welfare culture and the high density of population. The problems of regaining economic growth have also tended, until recent years, to swamp environmental issues.[160]

Further, Community policy has recently accepted that climate change, ozone depletion, diminution of biodiversity, etc. are threatening the ecological balance of our planet as a whole. E.C. environmental policy presently seeks "sustainable development" via a mixture of coercion and self-regulation.[161]

Nevertheless, "black-letter" environmental provisions concerning Community energy policy are scarce; hence, reference must be made to general Community law.[162] Pursuant to article 130r(1), E.C. actions affecting the environment must meet the objective, inter alia, "to ensure a prudent and rational utilisation of natural resources."[163] Article 130r(2) states that "[e]nvironmental

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160. GRANT LEDGERWOOD ET AL., THE ENVIRONMENTAL AUDIT AND BUSINESS STRATEGY: A TOTAL QUALITY APPROACH 11 (1992).

161. Towards Sustainability: A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development, COM(92)4 final at 27.3.92 [hereinafter Towards Sustainability].

162. LUDWIG KRÄMER, EEC TREATY AND ENVIRONMENTAL PROTECTION 22 (1992). "Specific Community measures to integrate environmental considerations into energy policy are lacking. . . . The Community has restricted its activity in the energy sector almost exclusively to general Decisions and recommendations on energy saving in particular." *Id.* For instance, the Directive adopted in 1988 on the limitations of emissions to the atmosphere from combustion installations with a rated capacity from fifty megawatts, provides for progressive reductions in emissions of SO_2 in existing plants by the year 2003 and of NO_2 by 1988, as well as specifying limit values for new plants. *Id.* *See also* Leigh Hancher, *Energy and the Environment: Striking a Balance?*, 26 COMMON MKT. L. REV. 475-512 (1989).

163. KRAMER, *supra* note 162, at 22.

protection requirements shall be a component of the Community's other policies."[164] According to article 130r(3), in preparing its action relating to the environment, the E.C. shall take into account: (i) available scientific and technical data; (ii) environmental conditions in the various regions of the Community; (iii) the potential benefits and costs of action or lack of action; (iv) the economic and social development of the Community as a whole; and (v) the balanced development of its regions.[165]

Like E.C. articles 8a and 100a, which promote the approximation or harmonization of national laws that otherwise would create obstacles to free trade, articles 130f and 130r create "multidimensional framework provision(s)."[166] These provisions are unlike the straightforward, unambiguous, one-dimensional provisions of classic E.C. laws, such as article 34(1), where quantitative measures have equivalent effect. Thus:

> [T]here is no absolute frame of reference and Community law is now about to enter into its relativistic age where formulas need to be found which allow the reconciliation of a magnitude of shifting frames of references, each of them composed of a set of legal objectives of equal importance.[167]

This relativistic approach appears to be the European response to the interdependence of environmental exigencies, an environmental interdependence.

Mandatory environmental assessment in Great Britain came into force in July 1988 via E.C. initiatives and gave further credence to the allegation that Great Britain is the "dirtiest" country in Europe. Assessment in Great Britain is the result of E.C. Directive 85/337, which took over twenty drafts and ten years before passing through the legislature.[168] In 1985, the E.C. Council issued a Directive to all members requiring EIAs to be conducted for all public and private projects.[169] The Directive was to provide uniformity of EIA requirements for all member nations. "There was concern within the Community that great disparities in such legislation would affect investments in the

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164. *Id.*
165. *Id.*
166. *Id.*
167. Jürgen Grunwald, *Common Carriage—A Reassuring View From Brussels*, 3 OIL & GAS L. & TAX'N REV. 55, 61 (1989-90).
168. Council Directive 85/337, 1985 O.J. (L 175).
169. *Id.*

Community and distort economic competition within the common market."[170]

The Directive sets forth the basic framework for assessment to be implemented in each member state by listing twelve categories of development that may require an environmental impact statement and nine categories where such statements are mandatory. The latter requires specified information describing the project, measures envisaged to avoid adverse effects, data required to assess the main environmental effects, and a non-technical summary and consultation with interested "authorities."[171] For instance, mandatory assessment is required for facilities such as crude oil refineries, thermal power stations, and motorways and roads over a certain length.[172] An impact statement must consider a project's direct and indirect effects upon (1) human beings, fauna, and flora; (2) soil, water, air, climate, and the landscape; (3) the interaction between (1) and (2); and (4) materials, assets, and cultural heritage.[173]

Although the Directive was adopted unanimously, Great Britain was less than enthusiastic.[174] The British government thought the Town and Country Planning Act was sufficient, and that defining the project types that needed assessment would be difficult. In Great Britain, environmental impact assessment is required for certain planning purposes classified by legislation.[175] The process requires wider consultation than ordinary planning applications and must be advertised in the same way as a bad

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170. Louis L. Bono, *Assessments with the English Planning System: A Refinement of the NEPA Process*, 9 PACE ENVTL. L. REV. 155, 157 (1991).

171. *Id.*

172. *Id.*

173. *Id.*

174. *Environmental Assessment*, EST. GAZETTE, Nov. 2, 1991, at 135. The principal E.C. environmental assessment provision is Council Directive 85/337, 1985 O.J. (L 175). The Commission reports annually, from July 3, 1989, on exemptions. An attempt to encourage freedom of environmental information exists. *See* Council Directive 85/338, 1985 O.J. (L 176) (concerning the adoption of the Commission work program regarding an experimental project for gathering, coordinating, and ensuring the consistency of information on the state of the environment and natural resources in the Community (CORINE)).

175. Town & Country Planning (Assessment of Environmental Effects) Regulations 1988, S.I. 1988 No. 1199, *amended by* Town & Country Planning Act, 1990, ch. 8, Sched. 1, 2 & 3. This statute is explained in Department of Environment Circular 15/88. The British Department of the Environment was abolished in 1992 and merged into the Department of Trade & Industry.

neighbor development. The process takes the form of an "environmental statement," which must include a non-technical summary of its contents and be publicly available at a reasonable charge.[176]

E.C. Directive 85/337 illustrates the ability of the E.C. to make progressive reforms in Great Britain.[177] Theoretically, in a changing world fraught with development pressures, EIA provides environmental safeguards. E.C. Directive 85/337 establishes common principles that the legislation of all member states must implement.[178] Basically, the Directive requires an EIA before consenting to a development likely to have significant direct or indirect environmental effects.[179] It is the developer's prime responsibility to provide the necessary information and produce the EIA.[180] Thus, the European Environmental Assessment Directive is arguably the most significant existing piece of community environmental legislation. Nevertheless, the Commission complained about British non-compliance concerning seven projects, including the construction of the M3 link near Winchester, the East London River Crossing, the Channel Tunnel Rail Link and Passenger Terminal, and a road link between Hackney, Wick and the M11.[181]

B. ECO-Audit

There are many ways that businesses may be affected by environmental exigencies. Businesses face growing standards of criminal and civil liability for activities that adversely affect the environment causing physical or economic injury to customers, competitors, or community. Implementing internal systems to manage and marshal environmentally related information can help businesses meet these onerous standards. Sound corporate environmental policies can reduce the actual or potential environmental effects their business activities inflict. Progressive policies can also enhance corporate image held by lenders, shareholders,

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176. JOHN H. BATES, U.K. WASTE LAW 187 (1992).

177. *See also* Council Directive 90/313, 1990 O.J. (L 158) 56. This E.C. Directive on Freedom of Access to Information is designed to increase public access to public authority information concerning the environment. *Id.*

178. Council Directive 85/337, 1985 O.J. (L 175).

179. *Id.*

180. *Id.*

181. Philippe Sands, *Assessing the Impact*, 141 NEW L.J. 1487 (1991).

and consumers, especially when environmental audits regularly test their effectiveness.[182]

The benefits of instituting eco-audits include competitive advantages like attracting and maintaining an increasingly environmentally-aware customer base.[183] Environmental audits are related to systems that promote quality control in manufacturing and production. The audits are related to production controls, yet they are increasingly driven by marketing considerations. Eco-audits are "an analytical tool for identifying, quantifying and managing environmental risks."[184]

In addition to implementing the external standards of environmental assessment before commencing a project, businesses are increasingly utilizing eco-audits to minimize ongoing liability.[185] The prosecution of corporate executives for environmental offenses should arguably be restricted to those who have influence and control over the commission of the offense. Eco-audits provide a potential method for discharging this liability, especially if they evidence due diligence.[186]

The British Standards Institutes' environmental standard is one example of an environmental management system that attempts to foster companies' self-discipline.[187] Coupled with evolving international standards, such as the International

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182. In 1986, the U.S. Environmental Protection Agency (EPA) issued an Auditing Policy Statement encouraging the use of eco-audits, which are "a systematic, documented, periodic and objective review by a regulated entity of facility operations and practices related to meeting environmental requirements." D.J. SPEDDING ET AL., ECO-MANAGEMENT AND ECO-AUDITING 15 (1993) (citing the International Chamber of Commerce (ICC), *ICC Guide to Effective Environmental Auditing*).

183. Jo Dishington, *Proposed Environmental Audits for Community Companies*, 10 OIL & GAS L. & TAX'N REV. 318 (1991) (discussing the National Westminster Bank that sent guidelines to its branch managers warning of the possible risks of lending to customers with "environmentally sensitive" businesses).

184. Angus E. Crane, *Environmental Audit: An American Attorney's Perspective*, 7 OIL & GAS L. & TAX'N REV. 223 (1993). "An audit should identify the presence and extent of environmental contamination or hazardous materials due to current or previous site activities, determine the level of compliance to current standards or regulations, and provide a general overview of environmental risk associated with the property and its operations." *Id.*

185. DIANNE SAXE, ENVIRONMENTAL OFFENCES: CORPORATE RESPONSIBILITY AND EXECUTIVE LIABILITY 54 (1990).

186. Regina v. Sault Ste. Marie, 85 D.L.R.3d 161, 171 (1978) (Can.) (distinguishing between offenses that require mens rea, offenses of strict liability, and offenses exonerated by due diligence).

187. *See* Caroline London, *Disclosure Obligations and Due Diligence Practices in Europe*, 764 A.L.I. 667, 703-05 (Sept. 24, 1992).

Standards Organization, BS 7750 will play an important role in stabilizing Britain's carbon dioxide emissions.[188] BS 7750 is modeled, yet not dependent on, BS 5750, the British Standard on Quality Systems, which attempts to achieve quality assurance or "quality control."[189] The environmental standard should support environmental audits that assess the effectiveness of the environmental management system and determine whether environmental objectives are being achieved. The standard enables organizations to establish systematic procedures to create environmental policies and objectives as well as provisions for compliance. The auditor and client determine the actual method.

Energy Conscious Design (ECD), an architectural firm specializing in energy and the environment, attempted to develop systematic environmental standards by creating a program similar to an automobile safety check, yet applied to building construction.[190] Building Research Environmental Establishment Assessment Method (BREEAM), ECD's program allows improvements to be made before the design is fixed, at which point a certificate is issued confirming the environmental criteria that the design satisfies.[191] Credits are given for aspects of a building which cause above average performance. This "green building labeling" was first introduced in July 1990 and is used for office developments.[192] There is a BREEAM for new housing as well as the National Energy Foundation's National Home Rating Scheme and the Star Points Star Rating Scheme for energy efficiency in houses.[193]

E.C. policy recognizes environmental auditing, and regards it as an internal management tool for decisions regarding the use of raw materials, energy consumption, productivity levels, and waste.[194] Environmental audits are a regulatory attempt to apportion responsibility to sectors like manufacturing by highlighting areas of risk, risk prevention, and health and safety in the workplace. Investors and financiers use resource-based audits as

188. *Id.*
189. *Id.*
190. Michael Hanson, *The E.C.D. Partnership*, 9214 EST. GAZETTE 90 (1992).
191. *Id.*
192. *Id.*
193. *Id.*
194. Towards Sustainability, *supra* note 161, COM(92)64 final at 27.3.92.

a performance indicator alongside traditional account statements.[195] Public authorities use audits to provide a performance and compliance indicator capable of boosting public confidence.[196]

Audit program purchasers may seek relevant environmental consents, compliance with environmental laws, notices of violations, toxic substance removal, and a commitment to remedial action, if these create a problem.[197] Conversely, vendors wish to limit liability by inserting a time limit on the survival of representations and warranties, setting a floor on claims to avoid less significant claims, limiting damages to the purchase price or actual cost of remedial work, and limiting damages for all breaches of warranties, expressly excluding liability for a decline in market value or the interruption of business operations.[198]

A proposed E.C. regulation[199] creates an eco-audit scheme for promoting voluntary environmental auditing, including a self-evaluation process using basic standards and making performance information available to the public.[200] The Community framework requires participating sites to register with a national body.[201] Registered sites will then be audited, in accordance with International Standards Association guidelines, every one to three years depending upon the impact of site activities.[202] The proposals require that management systems aim at continuous improvement of environmental performance.[203] If enacted, the regulation will establish auditor "accreditation systems" by member states with the implication of burgeoning demand for this specialized service.[204]

VI. ALBERTA'S OLDMAN RIVER DAM & IMPACT ASSESSMENT

The Soviet Union's collapse has made Canada the world's

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195. *Id.*
196. *Id.*
197. *Id.*
198. *Id.*
199. Unlike Directives, regulations do not need national implementing legislation. As of June 1, 1994, this proposed regulation had not been approved by the Commission and was not yet in force.
200. Dishington, *supra* note 183.
201. *Id.*
202. *Id.*
203. *Id.*
204. *Id.*

largest nation in land mass, yet it has always been an enormous hinterland rich in natural resources. With a population of 26 million, Canada must support an extended infrastructure. Canada maintains one of the world's highest standards of living commensurate with one of the world's highest per capita public debt ratios. Although Canada is a member of the Organization for Economic Cooperation and Development (OECD)[205] and has diversified into high technology manufacturing and communications, its economy is largely resource driven. The inability of Canadians to escape resource dependence reflects the history and social ethos of such a vast and magnificent land.

In Canada, more importance is being attached to the Federal Environmental Impact Assessment Review Process (EARP) guidelines.[206] Many projects that had thus far eluded scrutinization are now being "EARPed." This increased scrutiny has raised federal government costs as well as created potential liability for projects complying with federal guidelines. These guidelines are subordinate legislation.[207] In 1992, the Supreme Court of Canada affirmed the validity of these guidelines in *Friends of the Oldman River Society v. Canada*.[208] These federal guidelines and their provincial counterparts invariably affect large energy projects.

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205. The OECD consists of western industrialized nations, including the "big seven," the United States, Great Britain, Germany, France, Japan, Italy, and Canada; Australia, New Zealand, and Turkey are also members of the ACCEDE. The ACCEDE was organized in 1960 to: (1) achieve the highest sustainable economic growth and employment and a rising standard of living in member countries while maintaining financial stability, thus contributing to the world economy development; (2) contribute to sound economic expansion in member as well as non-member countries in the process of economic development; and (3) contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations. OECD, Compensation for Pollution Damage (1981).

206. EARP GUIDELINES, 188 CAN. GAZETTE, Nov. 7, 1984, at 2794, 2795 (quoting Environmental Assessment and Review Process Guidelines Order, SOR/84-467). EARP Guidelines were established by federal statute. Department of the Environment Act, R.S.C., ch. E-10, § 6 (1985) (Can.). Section 3 of EARP describes the requirements as follows:

> The process shall be a self assessment process under which the initiating department shall, as early as possible in the planning process and before irrevocable decisions are taken, ensure that the environmental implications of all proposals for which it is the decision making authority are fully considered and where the implications are significant, refer the proposal to the Minister for public review by a Panel.

Id. § 3 (1985) (Can.).

207. *Id.*

208. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th 1 (1992) (Can.).

"Environment" is a term that concerns diverse subject matter. Environmental changes affect a community's livelihood, health and other social matters and are integral to decision making. Accordingly, "[t]he protection of the environment has become one of the major challenges of our time."[209] The court in *Friends of the Oldman River Society v. Canada* approvingly referred to the principles of international law declared in the "Brundtland Report."[210]

> These include the fundamental belief that environmental and economic planning cannot proceed in separate spheres. Long-term economic growth depends on a healthy environment. It also affects the environment in many ways. Ensuring environmentally sound and sustainable economic development requires the technology and wealth that is generated by continued economic growth. Economic and environmental planning and management must therefore be integrated.[211]

Thus, increased environmental awareness, coupled with EARP, has federal government departments and agencies looking over their shoulders. These departments and agencies include the National Energy Board (NEB), which now reviews the environmental effect of electricity and gas exports.[212]

For instance, conserving natural resources is perhaps the single most important classification for instituting a legitimate export restriction under the U.S.-Canada FTA and NAFTA. Hence, previously granted orders in Canada are now being reviewed for "environmental screening," or environmental impact assessment, including the proposed arctic Mackenzie-Delta frontier region.[213] The environmental interest group, the Council of Canadians, applied for a rehearing of the Mackenzie-Delta case, questioning the project decision because several important aspects were not fully considered. In particular, the requirements imposed upon the

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209. *Id.* at 17.

210. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th at 22.

211. World Commission on Environment and Development (WCED), *Brundtland Report, in Report of the National Task Force on the Environment and Economy*, Sept. 24, 1987, at 2.

212. *E.g.*, National Energy Board, *Reasons For Decision, TransCanada Pipelines Ltd.* (Blackhorse Extension), Pub. No. GH-1-91 (July 1991); National Energy Board, *Reasons For Decision, TransCanada Pipelines Ltd.* (Gananoque Extension), Pub. No. GH-4-90 (Apr. 1991).

213. National Energy Board, *Reasons for Decision, Esso Resources Can. Ltd., Shell Can. Ltd., and Gulf Canada Resources Ltd.*, Pub. No. GH-10-88 (Aug. 1989).

NEB under Section 118 of the NEB Act were not properly tested against the effects of FTA Article 904.[214]

At the provincial level, the legal basis for EIA varies between provinces. Québec, Ontario, Saskatchewan, British Columbia, and Newfoundland have EIA-specific legislation, while other provinces carry out EIAs pursuant to other statutory authority. Provincial governments commonly pre-screen proposals for the likelihood of environmental impact, and the protagonist company prepares an assessment. The governmental agency or board then reviews the assessment and invites public comment through informal meetings. Following the meetings, the agency or board makes recommendations to a political authority who decides whether to grant approval.[215] Finally, authorization may be given subject to regulations that impose conditions based on the EIA findings.[216]

EARP requires all federal departments and agencies with decision-making authority for any proposal, initiative, undertaking, or activity that may have an environmental effect on an area of federal responsibility, to initially screen proposals to determine whether they raise potentially adverse environmental effects.[217] Between 1989 and 1991, EARP guidelines[218] were considered in federal court decisions, which proclaimed that the Guidelines Order is delegated legislation that must be enforced.[219]

In *Friends of the Oldman River Society v. Canada*, an Alberta environmental group brought applications for certiorari and mandamus in federal court.[220] The group sought to compel the federal departments of Transport and Fisheries and Oceans to conduct an EARP assessment concerning construction of the

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214. R.S.C., ch. N-7, § 118 (1985) (Can.) (requiring that natural gas exports be surplus to the reasonably foreseeable Canadian requirements).

215. *See generally* Constance D. Hunt, *A Note on Environmental Impact Assessment in Canada*, 20 ENVTL. L. 789 (1990).

216. *Id.*

217. EARP GUIDELINES, *supra* note 206.

218. *Id.* The EARP Guidelines Order, which requires the decision-maker to take socio-economic considerations into account in the environmental impact assessment, does not go beyond what is authorized by the Department of the Environment Act, R.S.C., ch. E-10 (1985)(Can.). The concept of "environmental quality" in § 6 of the Act is not confined to the biophysical environment alone.

219. Tetzlaff v. Canada, 1 F.C. 641 (1991) (Can.); Canadian Wildlife Fed'n v. Canada, 1 F.C. 595 (1991)(Can.); Canadian Wildlife Fed'n v. Canada, 3 F.C. 309, 4 W.W.R. 526 (1989)(Can.); *aff'd* 2 W.W.R. 69 (1990) (Can.). These cases concerned the Rafferty-Alameda Dam in southern Saskatchewan.

220. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th 1, 12 (1992) (Can.).

Oldman River dam near the province of Alberta.[221] This project affects several federal interests, including navigable waters, fisheries, Indians, and Indian lands. The province conducted extensive environmental studies taking into account public views, including those of Indian bands and environmental groups.[222] In 1987, Alberta obtained federal approval for the work under section 5 of the Navigable Waters Protection Act.[223] In assessing Alberta's application, the Minister considered only the project's effect on navigation and made no assessment under the Guidelines Order.[224]

The contract for the dam's construction was awarded in 1988, and the project was forty percent complete when the respondent commenced its action in federal court in April 1989.[225] Relief was denied inter alia due to duplication of environmental studies.[226] Reversed on appeal, the Federal Court of Appeal quashed the approval under section 5 of the Navigable Waters Protection Act and ordered the Ministers of Transport and of Fisheries and Oceans to comply with the Guidelines Order.[227] The Supreme Court of Canada affirmed the Federal Court of Appeal and, in doing so, answered important questions on the constitutional and statutory validity of the EARP Guidelines Order.[228]

Because the Canadian Constitution makes no mention of the environment,[229] the environment is a matter over which both Parliament and the Provincial Legislatures have jurisdiction, as defined by the constitutional division of powers.[230] "Environmental impact assessment is simply a planning tool that is an integral component of sound decisionmaking."[231] In this case, the Department of Transport was the initiating department for EARP because construction of any work in navigable water

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221. *Id.* at 2.
222. *Id.*
223. Navigable Waters Protection Act, R.S.C., ch. N-22, § 5 (1985) (Can.).
224. *Id.*
225. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th 1 (1992) (Can.).
226. *Id.*
227. *Id.*
228. *Id.*
229. CAN. CONST. (Constitution Act, 1982).
230. *See generally* Alexander Black, *Natural Resources and the Canadian Constitution*, 2 OIL & GAS L. & TAX'N REV. 48 (1989).
231. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th 1, 2 (1992) (Can.).

requires the Minister of Transport's approval.[232] EARP guidelines require that federal departments with decision-making authority over any proposal that may have an environmental effect conduct an initial screening to determine whether the proposal may give rise to any adverse environmental effects.[233] Proposals found to have this potentially significant adverse effect must be submitted for public review by an environmental assessment panel.[234]

Consequently, a federal agency must conduct an environmental review only if a proposal will have a significant impact on its area of federal responsibility and the federal agency is an initiating agency with decision-making authority over the project. If the proposal's effects encompass an area traditionally under federal responsibility but the federal agency is not an initiating department, the Minister will not be required to conduct a review.[235]

> It cannot have been intended that the Guidelines Order would be invoked every time there is some potential environmental effect on a matter of federal jurisdiction. Therefore, "responsibility" within the definition of "Proposal" should not be read as connoting matters falling generally within federal jurisdiction. Rather it is meant to signify a legal duty or obligation. Once such duty exists, it is a matter of identifying the "initiating department" assigned responsibility for its performance . . . .[236]

Thus, there must be more than just an environmental effect in an area under federal jurisdiction; an affirmative regulatory duty and decision-making responsibility must exist before a department is required to initiate the process under the Guidelines Order.[237]

A. Cumulative Environmental Assessment

EARP is evolving. The former federal Progressive Conservative government passed the Canadian Environmental Assessment Act[238] in 1992, which enshrines the objectives of EARP. Following the October 1993 federal election, a new Liberal government,

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232. Navigable Waters Protection Act, R.S.C., ch. N-22, § 2 (1985) (Can.).
233. EARP GUIDELINES, *supra* note 206.
234. Friends of the Oldman River Soc'y v. Canada, 88 D.L.R.4th at 1.
235. *Id.* at 29.
236. *Id.*
237. *Id.*
238. Canadian Environmental Assessment Act, S.C. (1992) (Can.).

led by Mr. Jean Chrétien, was elected, and the Act will likely be proclaimed in Spring 1994.

The Act requires officials to weigh a project's environmental effects before construction begins and to give people real power to influence the outcome of projects that could affect their lives.[239] A critical part of the Act is the call for Cumulative Environmental Assessment (CEA) of factors "likely to result from the project in combination with other projects or activities that have or will be carried out,"[240] namely those already approved. CEA is critical because it addresses the ability of natural systems to continue to maintain source and sink functions to regenerate and assimilate waste products. CEA requires a realistic temporal boundary--ten years in most cases. Spatial boundaries will frequently cross political boundaries and will vary for different indicators.[241]

In the United States, evolution of the consideration of "cumulative impact" into EIS preparation started with *Natural Resource Defense Council, Inc. v. Callaway*.[242] In *Callaway*, the Army Corps of Engineers was forced to consider their project, not in a vacuum but in conjunction with other current similar activities.[243] In this case, others were ocean dumping in the same area.[244] In *Kleppe v. Sierra Club*,[245] the court decided that only concrete proposals would necessitate preparation of an EIS.[246] There is much disagreement about whether a concrete proposal includes only one actually proposed or may include one still in the planning stages.

The challenge of an EIS must occur at the correct time. If challenged too early, the court will hold that the project is not concrete, and if challenged too late, the project will be difficult to stop. The *Kleppe* court also held, "when several proposals . . . will have cumulative or synergistic environmental impact upon a region

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239. *Id.*

240. *Id.* § 16(1).

241. Ray Clark, Cumulative Environmental Assessment (CEA) Workshop for EA Administrators, Nov. 16-18, 1992, sponsored by the Ontario Ministry of the Environment and Federal Environmental Assessment Review Office.

242. Natural Resource Defense Council, Inc. v. Callaway, 524 F.2d 79 (2d Cir. 1975).

243. *Id.*

244. *Id.*

245. Kleppe v. Sierra Club, 427 U.S. 390 (1976).

246. *Id.*

are pending concurrently before an agency their environmental impact must be considered together."[247]

The *Kleppe* cumulative effect ruling was diluted because determining whether the project would have cumulative effects was left to the agency's discretion. Only an arbitrary determination of the cumulative effect would trigger judicial oversight. This dilution was further advanced because the court held that if a proposed project does not directly cause another project's commencement separate EIS preparation might be acceptable.[248] This approach encourages a piecemeal analysis of impact that allows areas such as wetlands to be developed bit by bit. Such analysis is inadequate to further the aims of an effective EIS. Consequently, *Kleppe* is only used to attempt to determine when an EIS is necessary.[249]

To avoid cumulative EIS, preparation agencies will use an "independent utility" argument, such as, the project on its own has an independent existence. For example, the Forest Service will assert that a timber road has its own utility without consideration of the timber to be cut because of the road's construction. The Federal Highway Administration will propose only one phase of highway construction at a time to avoid cumulative EIS preparation. Dam construction is also frequently broken down into phases.

To challenge piecemeal analysis in the United States, one may rely on Council on Environmental Quality (CEQ) regulations that provide the scope of EIS preparation, which includes assessment of "incremental impact when added to other past, present, and reasonably foreseeable actions."[250] This approach worked in *Natural Resources Defense Council, Inc. v. Hodel*.[251] The *Hodel* court held that the government's EIS was insufficient because it failed to consider the effects of offshore drilling from Alaska to Southern California.[252] The defense's argument focused on the effects on "target resources," in this case, salmon and whales that

247. Terence L. Thatcher, *Understanding Independence in the Natural Environment: Some Thoughts on the Cumulative Impact Assessment Under NEPA*, 20 NW. L. SCH., LEWIS & CLARK C. ENVTL. L. 611, 618 (1990).

248. Kleppe v. Sierra Club, 427 U.S. 390 (1976).

249. Thatcher, *supra* note 247, at 618.

250. 40 C.F.R. § 1508.7 (1993).

251. Natural Resources Defense Council, Inc. v. Hodel, 865 F.2d 288 (D.C. Cir. 1988).

252. *Id.*

migrate annually from Alaska to California.[253] Whether this approach can be expanded to include a globally interconnected argument remains to be seen.[254]

In Canada, CEA is a necessary component to environmental assessment and is a means of adopting sustainable development principles in ecosystem management. Recognizing the limited ability to predict, the only cumulative environmental effects to be addressed are those specified in the Environmental Assessment Act, namely "likely" effects.[255] Conventional cause/effect models are not good predictors. Many small projects and practices, such as wetlands drainage, have an enormous collective impact, a creeping incrementalism that begs for a comprehensive approach. Social effects are to be considered under the Act only if the environmental effects are physical environmental changes affecting health, socio-economic conditions, or cultural heritage.[256]

Ironically, the regulations actually narrowed the Canadian Act's scope. These draft regulations curiously exempt many areas of federal government decision-making, such as commercial fishing, importing radioactive wastes, and exporting oil, gas, and hydroelectric power, as opposed to facilities construction, and capturing of Beluga whales and other marine animals.[257]

VII. ONTARIO'S MEGA-HEARING ON ELECTRICITY DEMAND

Large, long, drawn-out public hearings are cumbersome, expensive, and unproductive. Such "mega-hearings" are a recent phenomenon in controversial public utility or natural resource related proceedings. Interveners regularly utilize complex socio-economic and financial data to advocate the position of their respective interest groups.[258] Expanding interveners' right to be heard can cost millions of dollars, yet fail to yield an efficient

253. Thatcher, *supra* note 247, at 638.

254. Another leading U.S. decision on CEA is Fritiofson v. Alexander, 772 F.2d 1225 (5th Cir. 1985) (holding that a Corps of Engineers' project must take into account the reasonably foreseeable additional housing that would be built if the project went ahead).

255. *Id.* at 1235.

256. *Id.* at 1231. *See also* ONTARIO MINISTRY OF ENVIRONMENT, GUIDELINE FOR PREPARING THE CULTURAL HERITAGE RESOURCE COMPONENT OF ENVIRONMENTAL ASSESSMENTS (1992).

257. Environmental Assessment Act, S.C., ch. 140 (1992) (Can.); *see also Cave-in Threatens Environment*, MONTREAL GAZETTE, Sept. 23, 1993, at B2.

258. *See* Alexander Black, *Responsible Regulation: Incentive Rates for Natural Gas Pipelines*, 28 TULSA L.J. 349, 349-91 (1993).

result. This inefficiency is illustrated by the first public planning mega-hearing held by Ontario Hydro, the provincially owned electricity utility that was terminated following the election of the New Democratic Party government. The irony is that the incremental costs of another year of the hearing process would have salvaged the previous two years and would have ensured the project's implementation.[259]

The Municipal Electric Association (MEA) applied for judicial review of an interim decision of the Ontario Environmental Assessment Board (OEAB), which was conducting protracted hearings into a demand/supply plan report, *Providing the Balance of Power*.[260] Ontario Hydro proposed to ensure a continued and reliable supply of electricity for the province, believing that present facilities were inadequate, and contemplated planning measures to the year 2015.[261] A 50% to 100% jump in demand for electricity was predicted, and Ontario's premier power generator wanted permission to build or expand facilities for hydro, combustion, or nuclear generation.[262]

Pursuant to the Ontario Environmental Assessment Act,[263] a public body may not undertake an expansion project unless an environmental assessment is submitted to and accepted by the Minister of the Environment.[264] Alternatively, pursuant to section 12(2), the Minister may direct the OEAB to hold a hearing with respect to (a) the acceptance of the environmental assessment; (b) the approval to proceed with the undertaking; and (c) whether the approval should be given subject to terms and conditions and, if so, the provision of such terms and conditions.[265] Accordingly, Ontario Hydro submitted its assessment, and a hearing was ordered.[266] The purpose of the Environmental Assessment Act is to ensure "the betterment of the people of Ontario by providing for the protection, conservation and wise management in Ontario of the environment."[267] "Environment"

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259. Anne Giardini, *A Waste of Energy*, 2 THE NATIONAL 30, 32 (1993).
260. *Id.* at 30-31.
261. *Id.*
262. *Id.*
263. Environmental Assessment Act, R.S.O. (1980) (Can.), *as amended by* S.C., ch. 140 (1992) (Can.).
264. *Id.*
265. *Id.*
266. *Id.* § 2.
267. *Id.* § 1(c)(iii).

is defined to include "the social, economic and cultural conditions that influence the life of man or a community."[268]

Ontario Hydro's Demand/Supply Plan Report included an environmental assessment pursuant to section 5(3), consisting of (1) a description of the undertaking; (2) a description of and a rational statement for (a) the undertaking, (b) the various implementation methods for the undertaking, and (c) "the alternatives to the undertaking;" and (3) a description of the "the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate, or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking."[269] The assessment must also include "an evaluation of the advantages and disadvantages to the environment."[270] The Intervener Funding Project Act (IFPA) defines an intervener as a person who has been granted such status by the Board.[271] The statute attempts to provide funding to bona fide interests that may not otherwise be able to participate in proceedings against certain administrative tribunals, including the OEAB.[272] The applicant (Ontario Hydro) pays the costs, which are later passed along to the consumers of electricity, beleaguered taxpayers.[273]

Once intervener status has been granted, the individual or group may apply to an OEAB panel for intervener funding.[274] Section 3 of the IFPA prevents hearing substantive matters until the panel has dealt with all intervener funding applications.[275] Normally, the proponent, in this case Ontario Hydro, subsidizes the funding awards.[276]

Ontario Hydro abandoned its long-term plan in January 1993 and withdrew its application, which had taken over 200 days of hearing time, spread over almost two years.[277] The hearing cost approximately $60 million, $30 million of which was paid out to

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268. *Id.* § 5(3).
269. *Id.*
270. *Id.*
271. Intervener Funding Project Act, S.O., ch. 71 (1988) (Can.).
272. *Id.*
273. *Id.*
274. *Id.*
275. *Id.*
276. Giardini, *supra* note 259, at 31.
277. *Id.*

interveners.[278] Many interveners paid more than the awards made by a funding panel.[279] Ostensibly, Ontario Hydro says that the recession robbed the province of the growth that had created the need for new facilities.[280] Other reasons include the high capital expenditures needed, high costs to consumers for expansion, sensitivity to aboriginal opposition, and the New Democratic Party government's apparent reticence for nuclear power and mega-projects.[281]

An interlocutory order was the only judicial determination made before Ontario Hydro abandoned the application.[282] Over 200 interveners were given status before the OEAB for hearings; 29 received funding totaling $22 million.[283] Energy Probe Research Foundation was designated an intervener, made a funding application, and the Funding Panel awarded $625,000 pursuant to an interim order.[284] A question arose concerning the relevance of material that Energy Probe proposed to present before the OEAB. Energy Probe planned to be a full-time intervener criticizing Ontario Hydro's case, presenting marginal cost pricing concepts, and providing an alternative that would radically alter Ontario Hydro, induce fundamental institutional reform, and privatize all electric generating facilities in Ontario that were not nuclear-powered.[285]

Energy Probe believed that competitive market forces should govern supply.[286] The Funding Panel opined that only the OEAB itself could deal with such a question.[287] Subsequently, the OEAB ruled that Energy Probe's alternative to the Ontario Hydro plan was a reasonable one and should be investigated. Ultimately, the court said:

> It is not the environmental impact of a particular project that is being assessed, but rather, a wide-ranging and far-reaching plan

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278. *Id.*
279. *Id.* at 31-32.
280. *Id.* at 31.
281. *Id.*
282. Municipal Elec. Ass'n v. Environmental Assessment Bd., 1992 Ont. C.J. 135 (1992) (Can.).
283. *Id.* at 143.
284. *Id.*
285. *Id.* at 143-44.
286. *Id.* at 145.
287. Municipal Elec. Ass'n v. Environmental Assessment Bd., 1992 Ont. C.J. 145 (1992) (Can.).

> dealing with all the variables associated with a projected supply of electricity for this Province over the next quarter of a century. With some 200 plus interveners and a veritable pot-pourri of varied and often conflicting interests, the undertaking must be weighed against a definition of environment that takes into consideration virtually all aspects of life.[288]

Although the court was only dealing with a preliminary ruling of the OEAB, it realized the ruling's potential impact on the hearing as a whole. On appeal, MEA argued that (1) the OEAB exceeded its jurisdiction by permitting Energy Probe to prepare and present evidence in support of a proposal that is not an alternative to the undertaking or an alternative method of carrying out the undertaking pursuant to section 5(3) of the Environmental Assessment Act; (2) the OEAB exceeded its jurisdiction by permitting Energy Probe to prepare and lead evidence in support of the proposal after it had ruled that the proposal was not an alternative method of carrying out the undertaking; (3) the OEAB lost jurisdiction because its decision on the motion was patently unreasonable; and (4) the ruling of the OEAB was contrary to natural justice and exceeded the OEAB's jurisdiction.[289] The court, however, dismissed the application without costs, holding that the OEAB acted fairly, reasonably, and within its jurisdiction. The court found that the OEAB enjoyed wide discretion to hear and consider evidence that it deemed relevant.[290]

Subsequently, Ontario Hydro found that it had more capacity for producing electricity than necessary, and that its costs had mounted to unacceptable levels.[291] The utility is therefore considering retaining some of its capacity and buying more electricity from independent power producers.[292] Ontario Hydro has peak winter demand of about 24,000 megawatts with a total capacity of about 32,000 megawatts.[293] Angered at the prospect of massive job cuts, representatives of the 15,000 member Power Workers Union said that Ontario Hydro should maintain its current generating capacity, cut purchases from independent

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288. *Id.* at 135.
289. *Id.* at 148.
290. *Id.* at 148-49.
291. Leslie Papp, *Hydro Team Moved Fast on Latest Cuts, Several Areas Got Little Study, Officials Say*, TORONTO STAR, Feb. 7, 1994, at A8.
292. *Id.*
293. *Id.*

suppliers, and reduce conservation programs designed to reduce consumers' electricity demand.[294]

VIII. QUÉBEC AND LA GRANDE BALEINE: THE JAMES BAY ELECTRICITY PROJECT

A huge project intended to export cheap electricity to the U.S. northeast seaboard has shown that non-legal means may be better protection for environmental values in Canada. Cree Indians in northern Québec ceded land rights to the provincial government under the 1975 James Bay and Northern Québec Agreement (JBNQA).[295] The agreement covers an area of 410,000 square miles, and its purpose was to plan and control future development of northern Québec.[296] Federal and provincial legislation concurrently ratified this agreement.[297] It essentially provides for building huge hydroelectric projects in the James Bay region and was signed by the native Cree Indians, the Inuit, and the Canadian federal and Québec provincial governments.[298] In exchange for signing the agreement, Cree Indians and Inuit received cash compensation, hunting and fishing rights to 29,000 square miles of land, and a decision right in future projects.[299]

Hydro-Québec is a $34 billion (Can.) public utility established by the Québec legislature.[300] The utility owns and operates an electric power grid covering nearly all of Québec and interconnects with the neighboring provinces of New Brunswick and Ontario, and with New England markets, including Connecticut,[301] Ver-

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294. *Id.*

295. JAMES BAY AND NORTHERN QUÉBEC AGREEMENT AND OTHER COMPLEMENTARY AGREEMENTS §§ 22, 23 (1991).

296. *Id.*

297. James Bay and Northern Québec Native Claims Settlement Act, S.C., ch. 32, § 3 (1976-1977) (Can.); S.Q., ch. 46 (1976) (Can.) (provincial Act approving the James Bay and Northern Québec Agreement).

298. Eugene L. Chisasibi, *Bury My Heart at James Bay*, TIME, July 15, 1991, at 60.

299. *Id.*

300. Hydro-Québec Act, R.S.Q., ch. H-5 (1991) (Can.).

301. The Hydro-Québec projects have a long history of support from the Connecticut Department of Public Utility Control as well as other state agencies. Phase II of the Hydro-Québec project involves electricity purchase transactions, the construction of new facilities, and an interconnection transmission system for participating members of the New England Power Pool (NEPOOL). Application of Connecticut Light & Power Co. and United Illuminating Co., Conn. Dep't of Pub. Utilities, No. 86-10-24 (1987).

mont,[302] and New York.[303] Hydro-Québec has been building one of the world's largest hydro-electric projects located on and around the Great Whale (*la Grande Baleine*) River on James Bay.[304]

The project has sparked intense conflict. It consists of three phases. Phase I (*la Grande*), costing $11 billion, includes a three unit 10,282-megawatt complex that was established in 1984.[305] Phase II (*la Grande Baleine*) is a planned six unit, 3,600-megawatt Great Whale project scheduled to be completed in 1998.[306] Directly and indirectly, construction on the Grande Baleine Complex will sustain 66,700 jobs,[307] which will help sustain economic development in the region's villages.[308] Phase III is the proposed 8,400-megawatt Nottaway-Broadback-Rupert station. The latter two projects have budgets of $52.5 billion.[309] Both Hydro-Québec and this mega-project are important parts of Québec's economic plan and are supported by the provincial government, the secessionist *Parti Québeçois*, which believes it can form the economic basis for an independent Québec.[310]

The JBNQA is essentially a treaty. This agreement contemplates hydroelectric construction in the James Bay region provided that projects undergo an environmental protection review.[311] As stated earlier, the Cree ceded land rights in exchange for inclusion in the decision-making processes in future projects, cash compensation, and exclusive hunting and fishing rights.[312]

In 1973, a judge issued an interim injunction in favor of the Cree and construction stopped for seven days.[313] The judge said, "the right [of the Cree] to pursue their way of life in the lands subject to dispute far outweighs any consideration that can be

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302. *See generally* Re Return Sales to Hydro-Québec, 122 P.U.R.4th 404 (Apr. 25, 1991).
303. *Id.*
304. Barry Came, *A Stumbling Giant*, MACLEAN'S, May 7, 1990, at 36-37.
305. *Id.*
306. *Id.*
307. *Summary to* GRANDE BALEINE COMPLEX FEASIBILITY STUDY 129-39 (Montreal) (1993) [hereinafter GRANDE BALEINE COMPLEX FEASIBILITY STUDY].
308. *Id.* at 262.
309. Pierre Bolduc, *People*, ELECTRICAL WORLD, Feb. 1992, at 27.
310. *Id.*
311. Chisasibi, *supra* note 298, at 60.
312. *Id.*
313. BOYCE RICHARDSON, STRANGERS DEVOUR THE LAND 299 (1976).

given to such monetary damages."[314] The indigenous people or "First Nations" of North America include diverse tribes of Indians, Inuit, and Eskimo whose ethos is defined by their relationship to the land.

> The earth was created by the assistance of the sun, and it should be left as it was. The country was made without lines of demarcation, and it is no man's business to divide it. . . . Do not misunderstand me, but understand me fully with reference to my affection for the land. I never said the land was mine to do with it as I chose. The one who has the right to dispose of it isthe one who has created it. I claim a right to live on my land and accord you the privilege to live on yours.[315]

Yet the expropriation of their land continues. The Québec Court of Appeals quickly suspended the interim injunction and then denied permission to make application for a permanent injunction as Phase I construction was already too far along to stop.[316] The needs of millions of the province's residents outweighed the concerns of a few thousand natives.[317] The Cree Indians' only alternatives were to renounce the possibility of settlement and depend on Canadian legal process to protect their land from growing incursions by developers and so-called "civilization."[318]

A. Public Opposition to the James Bay Project

The Cree Indians of Québec, supported by environmentalists, condemned the mega-project. The Cree launched a public relations campaign to compel Hydro-Québec to either stop development in the pristine wilderness or give greater consideration to environmental values and the Cree way of life.[319] The Cree also enjoined the citizens of Vermont and New York to consider the transboundary environmental damage during their contract approval processes. Cree and aboriginal Inuit hunters teamed together to paddle a 25-foot hybrid canoe-kayak down the

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314. *Id.*

315. Heinmot Tooyalaket (Chief Joseph) of the Nez Percés spoke of the relationship between man and the land. DEE A. BROWN, BURY MY HEART AT WOUNDED KNEE 316 (1970).

316. Chisasibi, *supra* note 298, at 60.

317. *Id.*

318. RICHARDSON, *supra* note 313, at 319.

319. Chisasibi, *supra* note 298, at 60.

Hudson River into New York's Central Park to coincide with Earth Day, generating much publicity.[320]

Celebrity activists, so-called "eco-stars," have become involved in the Great Whale Project. Robert Kennedy, Jr., a law professor at Pace University, used his famous name to draw attention to the project and the impact on 'North America's Amazon."[321] During a 1991 trip to James Bay, he paddled canoes with natives in the distant wilderness.[322] The increased media coverage helped urge state legislators to cancel New York's $17 billion contract with Hydro-Québec in 1992.[323] The National Resources Defense Council (NRDC), a non-profit environmental association, claimed victory, saying that the contract cancellation weakened the Québec utility's ability to finance the Great Whale.[324] Attempts to balance the general population's need for electricity with the native hunting culture's ethos of sharing resulted in conflict.[325]

During the December 11, 1972 application for an interlocutory injunction to halt construction of the initial James Bay Project, Hydro-Québec predicted that the province might run short of domestic power.[326] Expert witnesses for the Cree, so-called "econometricians," criticized these projections as being exaggerated, erroneous, and misleading.[327] The utility presented misleading figures based on the probable growth of an integrated system. These figures suggested that provincial demand would rise at the same rate even though the company's expansion could be partially attributed to the nationalization of private companies in the 1960s.[328] Hydro-Québec used the upper limits of historical growth rates, seven and eight percent, but did not factor in data for population growth, changing prices of electricity, and alterna-

320. William Claiborne, *Canadian Indians Battle Massive Hydro Project: Protesters Paddle to NYC to Spotlight Québec Dams Aimed at Generating Power for U.S.*, WASH. POST, Apr. 3, 1990, at 12.

321. Jacqui McNish, *How Do You Battle a Kennedy?*, GLOBE & MAIL, Nov. 6, 1993, at A1, A3.

322. *Id.*

323. *Id.*

324. *Id.*

325. RICHARDSON, *supra* note 313, at 20.

326. *Id.* at 250-60.

327. *Id.*

328. *Id.*

tive energy.[329] Out-of-province purchasers were also uncertain about electricity price and demand trends.

New York State Power Authority (NYPA) is an important purchaser of Hydro-Québec's energy surplus.[330] NYPA is a state agency whose mandate is to provide electricity at the best possible price for New York consumers. New York State imports approximately seventeen percent of its electricity on an interruptible basis.[331] At the supplier's mercy, interruptible customers only have a right to available surplus electricity.[332] Negotiations with NYPA produced two contracts. The first contract, worth $13 billion, was signed April 26, 1989 and scheduled to last from May 1, 1995 through April 30, 2015.[333] The second contract, worth $17 billion, was also proposed to last twenty years.[334] Originally, NYPA thought that hydroelectricity imports would be a clean substitute for local fossil-fuel burning generators and that it would not have to confront the environmental costs that accrued within Canada's boundaries.

Hydro-Québec needed an export license and therefore had to seek government approval.[335] The utility argued before the National Energy Board (NEB) that proposed construction of dams would fulfill expected domestic demand.[336] Then, Hydro-Québec negotiated power export contracts with New York.[337] The electricity to be sold abroad was characterized as "surplus" because Hydro-Québec provided other domestic producers fair market access to the power under similar terms and conditions.[338] Hydro-Québec claimed no additional dams were needed to supply

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329. *Id.* at 255-59. The Québec Superior Court in the 1973 interlocutory injunction proceedings recognized the environmental ramifications. "In view of the dependency of the indigenous population on the animals, fish and vegetation in the territory, the works will have devastating and far-reaching effects on the Cree Indians and the Inuits living in the territory and the lands adjacent thereto." *Id.* at 298-99.

330. Huber, *supra* note 143, at 1051.

331. *Id.*

332. *Id.*

333. Jill Hamburg, *NY Power Authority Pulls the Plug on Hydro-Québec Electricity Pact*, NEWSDAY, Mar. 30, 1994, at A43.

334. *Id.*

335. National Energy Board of Canada, *Reasons for Decision, Hydro-Québec*, Pub. No. EH-2-89, at 48-49 (Aug. 5, 1990).

336. *Id.* at 9.

337. *Id.* at 12, 31.

338. *Id.* at 14 (discussing cost-benefit analysis).

electricity exports.[339] The NEB found that the environmental and social impacts of Hydro-Québec's proposed facilities would be adequately addressed through EARP or an equivalent process.[340] Thus, the NEB granted the license to Hydro-Québec with the condition that the company provide a "summary of all environmental impact assessments and reports" required by federal law.[341]

Hydro-Québec challenged this last condition successfully in federal court, but in the Supreme Court of Canada, the Cree successfully argued that the NEB had jurisdiction to impose the condition.[342] This decision was based on the NEB Act's definition of export.[343] The court held that this definition, as applied to electricity, was broad enough to include consideration of the environmental impact of the facilities producing electricity for export.[344]

Causing import purchasers to consider environmental effects was never a decision-making priority. Ironically, the economic projections for increased demand did not materialize. In 1989, Maine withdrew from a $15 billion contract.[345] New York's Governor, Mario Cuomo, then canceled New York's $17 billion contract, saying the price was no longer competitive.[346] The prices for alternative fuels were lower than predicted. Other reasons for New York's cancellation included the demand decrease due to effective conservation measures and the supply increase from independent producers.[347] Due to these changed exigencies, the annual growth of peak electricity demand was only .6% through 2007, rather than the old projected rate of 1.1%.[348]

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339. *Id.*

340. *Id.* at 92.

341. *Id.*

342. Québec (Attorney-General) v. Canada (Nat'l Energy Bd.), 3 F.C. 443, 83 D.L.R.4th 146, 7 C.E.L.R. (N.S.) 315 (1991) (Can.).

343. *See id.*

344. Québec (Attorney-General) v. Canada (Nat'l Energy Bd.), 112 D.L.R.4th 129 (1994)(Can.). "Ultimately, it is proper for the Board to consider in its decision-making process the overall environmental costs of granting the licence sought." *Id.* at 152.

345. William Claiborne, *Québec Caught in Hydropower Clash; Environmental Dispute Jeopardizes Plan to Export Energy to U.S.*, WASH. POST, April 13, 1994, at A14.

346. Thomas F. Berg, *NYPA Kills Hydro-Québec Purchase Contract*, PUB. UTIL. FORTNIGHTLY, May 1, 1992, at 10.

347. Barry Came, *New York Blackout*, MACLEAN'S, Apr. 6, 1992, at 17.

348. *Price of Power Ends NY/Québec Contract*, ELECTRICAL WORLD, May 1992, at 23.

B. Environmental Assessment of the James Bay Project

Phase I of the James Bay Project created seven reservoirs along La Grande River, diverting rivers from the Great Whale (*la Grande Baleine*) from the north, the Eastmain and Opinaca Rivers from the south, as well as the inland Caniapiscau River.[349] Hydro-Québec began Phase I without any environmental assessment because it did not anticipate any problems like mercury pollution.[350] The reservoir drowned trees, creating bacteria that transformed mercury in rocks to a form that enters the foodchain, contaminating fish and threatening eagles, hawks, cranes, herons, loons, and other wildlife.[351] Over 300 rapids in five rivers were inundated and entire valleys wiped out.[352] The nesting sites of osprey and other northern birds were dislocated.[353] Large populations of bears, minks, and otters were disrupted as well.[354] The James Bay Project also poses a potential threat to the Beluga whale's last breeding ground in eastern North America.[355]

When work began on Phase II in 1989, the Cree pressed federal and provincial authorities to conduct environmental and social impact assessments pursuant to the JBNQA.[356] Despite the Cree efforts, an agreement complementary to the JBNQA was signed in 1990 by the federal and provincial authorities without the aboriginal signatories' consent.[357] The agreement called for a joint environmental impact study into all matters affecting the JBNQA and mandated that the study be conducted according to EARP guidelines submitted to the Québec administrator.[358] This arrangement eliminated the participation of a separate federal administrator. In response, the Grand Council of the Crees successfully sought an order of mandamus compelling performance

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349. William Claiborne, *Indians Defending Lands Target Massive Québec Hydro Project*, WASH. POST, Oct. 16, 1990, at 16.

350. *Id.*

351. *Id.*

352. *Id.*

353. *Id.*

354. *Id.*

355. *Id.*

356. JAMES BAY AND NORTHERN QUÉBEC AGREEMENT AND OTHER COMPLEMENTARY AGREEMENTS §§ 22, 23 (1991).

357. *Id.*

358. *Id.*

of two separate reviews, one federal and the other provincial.[359] Despite common elements involved in assessment, the focus of provincial and federal review would not be the same.

The 1975 agreement surrendering native rights created a fiduciary relationship requiring the federal government to protect the Cree's right to federal review. The fiduciary relationship requires good faith and reasonableness on both sides. This good faith requirement was at issue when the aboriginal parties brought another application for a writ of mandamus compelling an EIA of the Eastmain-1 project.[360]

In 1990, the Québec government authorized Hydro-Québec to conduct a preliminary study for this hydroelectric project within the territory covered by the JBNQA. The JBNQA put an end to legal proceedings brought against the first phase of the development of northern Québec. Because the Eastmain-1 project was determined to be part of Phase I, the application for assessment was dismissed.[361] The Federal Court of Appeal affirmed this decision and found that the signatories to the agreement, including the Crees, had given irrevocable consent to the construction of La Grande Complex.[362] The court concluded that the agreement was negotiated in good faith and with all parties' full knowledge.[363] The court emphasized that the Crees had obtained $3.5 million to pay their technical and legal advisors' fees as evidence of their full participation.[364]

Hydro-Québec released a detailed environmental assessment report for the Grande Baleine Project, which cost $256 million.[365] The study was conducted in accordance with stringent guidelines issued in September 1992 following five independent environmental review panels' public consultations.[366] The guidelines were issued after the Canadian government, the government of Québec,

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359. Cree Regional Auth. v. Canada (Fed. Adm'r), 84 D.L.R.4th 51, 29 A.C.W.S.3d 351 (1991) (Can.), *aff'd*, Cree Regional Auth. v. Canada (Federal Administrator), 81 D.L.R.4th 659 (1991) (Can.).

360. Attorney-General of Québec v. Eastmain Band, 99 D.L.R.4th 16, 37 A.C.W.S.3d 204 (1992) (Can.). Leave to appeal to the Supreme Court of Canada was refused. *Id.*

361. *Id.*

362. *Id.*

363. *Id.*

364. *Id.*

365. A 300-page summary of the EIS report has been published in French, English, Inuktitut, and Cree. GRANDE BALEINE COMPLEX FEASIBILITY STUDY, *supra* note 307.

366. *Id.*

the Cree Regional Authority, the Makivik Corporation (Inuit), the Kativik Regional Administration (Inuit), and the Grand Council of the Crees of Québec signed a Memorandum of Understanding in January 1992.[367] The Memorandum helped harmonize the entire environmental assessment and review process for the Grande Baleine Project. The comprehensive 5,000 page report was forwarded to the five commissions and committees charged with the project's environmental review to aid them in reaching informed decisions regarding the Grande Baleine Project.[368]

Over eighty-five percent of the report's studies were conducted by independent organizations that analyzed greenhouse gas emissions, the climate,. fresh water in a marine environment, biodiversity, waterfowl, caribou, mercury, and land use.[369] The impact of the completed La Grande Complex (Phase I) was used to ascertain the repercussions and mitigate the impact of the Grande Baleine Complex (Phase II).[370] The report generally found that the impacts of the Grande Baleine Project would be local in nature and were unlikely to accumulate with other Hudson Bay projects.[371] Not a single species was considered to be in danger. Similarly, the diversity of species and the size of the region's animal and vegetable populations were considered safe.[372]

Aboriginal people were consulted, but the Cree community of Whapmagoostui and the Inuit community of Sanikiluaq refused to speak with the examiners or organizations.[373] The report determined that no native village would be physically affected by the reservoirs or installations of the Grande Baleine Complex; consequently, no relocation would be necessary.[374] Hydro-Québec further found the methylmercury problem to be temporary and manageable, stating that Native Indians and Inuit could continue to safely harvest the wildlife resources provided certain precautions

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367. *Id.*

368. *Grande Baleine Project Enters a New Phase: Hydro Québec Releases Its Environmental Assessment Report*, News Service, Aug. 31, 1993, *available in* QUICKLAW, c2836.

369. GRANDE BALEINE COMPLEX FEASIBILITY STUDY, *supra* note 307.

370. *Id.*

371. *Id.*

372. *Id.*

373. *Id.*

374. *Id.*

were taken.[375] Nevertheless, aboriginal concerns about freshwater seals induced Hydro-Québec to divert the *Petite Rivière de la Baleine* (Little River of the Whale) downstream to preserve approximately 1,171 km2 of water.[376]

Hydro-Québec estimates that energy conservation measures and upgrade of its existing power system can meet forty-four percent of Québec's new energy needs.[377] New power projects, however, will still be needed for the years 2000-2005.[378] The strategic Grande Baleine Project is scheduled to be commissioned during this period, for the year 2003.[379] The proposed Grande Baleine Project best meets the population's electricity needs and aids the economy of Québec, while also preserving the integrity of the environment.[380]

Hydro-Québec must submit an EIS to the provincial and federal administrators of the JBNQA and to the EARP for the proposed Great Whale Project.[381] The administrators must then transmit the EIS to the appropriate review bodies.[382] Each reviewing body will verify and analyze the EIS to determine whether it conforms to the guidelines issued in September 1992.[383] The EIS survey must adequately justify the project's expected environmental and social impacts.[384] Conformity analysis also requires the public's subsequent written opinions and comments. The administrators determine the duration of this consultation process.[385] In order to avoid duplicating efforts and maximize the conformity's efficient harmonization, the reviewing bodies must analyze the public's opinions and comments pursuant to a January 23, 1992 agreement reached among the interested parties.[386]

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375. *Id.* at 129-39.

376. *Id.* In fact, Hydro-Québec abandoned the partial diversion of the Nastapoka into the *Petite Rivière de la Baleine. Id.*

377. GRANDE BALEINE COMPLEX FEASIBILITY STUDY, *supra* note 307.

378. *Id.*

379. *Id.*

380. *Id.* at 280.

381. *Next Steps of the Environmental Review Process for the Great Whale River Hydroelectric Proposed Project*, News Service, Aug. 30, 1993, *available in* QUICKLAW, c2760.

382. *Id.*

383. *Id.*

384. *Id.*

385. *Id.*

386. *Id.*

Once conformity analysis is complete, the reviewing bodies will prepare their reports, recommendations, or decisions, and submit them to the administrators created under the JBNQA and to the EARP's Federal Minister of the Environment.[387] The reviewing bodies may then declare that the EIS conforms with the guidelines and proceed with public review of the project itself, or it may declare that the EIS does not conform and request further information from the proponent.[388] Similarly, the EARP may independently declare that the EIS conforms with the guidelines and proceed with public review of the project itself, or EARP may declare the EIS incomplete and request further information from the proponent.[389]

IX. CONCLUSION

Civilization's negative impact upon the environment accelerated after World War II. The increase in affluence created suburban growth in North America, which in turn compromised those bucolic amenities that inner city dwellers sought. The synthetic organic chemical industry grew, and its sinister nature was revealed when monitoring devices were developed. EIA is a legal process that attempts to mitigate the effect of economic growth and its voracious appetite for energy. In Canada and the United States, EIA is an important part of the legal process that increasingly gives interveners, individuals who are environmentally affected by a project, standing to sue.

EIA can be analogized to nineteenth century "philosophy," which was broken down into "specialties." On the other hand, "public law" did not blossom in the common law world until early in the twentieth century, reinforcing the view that the law is reactive. Environmental assessment is part of public law growth that bridges the gap with private interests. EIA promotes good stewardship of natural resources. For instance, the function of land management from an environmental perspective is protection of land and resources to ensure a heritage for future generations. Management of the environment subsumes "resource management" and "land use management." Management of the environment is multidimensional, a rapidly expanding inter-disciplinary

387. *Id.*
388. *Id.*
389. *Id.*

study of economics, ecology, and law. Accordingly, environmental management has a distributive function.

Failure of the common law to cope with environmental damage created dislocation as the environmental movement grew. Although the common law tends to be allocatively efficient, it is impeded, as in the case of land law, where anachronistic tenurial incidents have fettered its efficiency. A good example is a lease that is both a contract and a conveyance. Leases are instrumentalities for commercial dealings, yet common law estates in land are bedeviled by their antiquity because the law of real estate has lagged behind the law of commerce. Thus, rent is considered a tenurial service of leasehold, and tenants typically do not have significant rights to withhold rent in absence of agreement. Common law rules bound tenants and favored landlords who had a future interest in the property that placed an obligation on the tenant not to commit "waste." These rules stemmed from an agrarian society where the value of the land was worth more than the building.

Modern society has been stressed by globalization of trade that frequently places a greater value on commerce than land use. For this reason, resource "exploitation" has a pejorative tone, but an increase in GNP is statistical legerdemain that does not necessarily equal "progress." While resources need "harvesting," often the rate and manner have been short-sighted and biased in favor of employment goals at the expense of pristine wilderness. This remorseless assault upon the environment was recognized by Holmes:

> I look for a future in which the ideal will be content and dignified acceptance of life rather than aspiration and the passion for achievement. I see already that surveys and railroads have set limits to our intellectual wilderness—that the lion and the bison are disappearing from them as from Africa and the no longer boundless West.[390]

Cast in this light, the real costs of the market economy are transferred to society at large. Environmental law is a reactive attempt to redistribute these costs more equitably, and EIA is the principal process promoting sustainable development and stewardship of land and natural resources.

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390. BENT, *supra* note 146, at 350.

Credible EIAs are expensive and time consuming and are invariably resisted because time means money. Integrated and comprehensive information regarding land tenure (the *cadastre*) and cooperation between the disciplines related to land management, such as surveyors, lawyers, and forestry personnel, add to the cost. As stated in the new Canadian Environmental Assessment Act, EIA is a tool that tries to consider isolated national actions in terms of cumulative impact. Despite the fact that environmental assessment is a process that considers public opinion, there is the danger of procedure triumphing over purpose.

In the case of energy exports, the costs of the environmental study will be passed through to rate-payers. Proponents of these projects are able to overkill, factoring in huge amounts of money as part of the development process. Further, interveners are being granted standing and in some cases are publicly funded. Who should pay for this? Environmentalists say that proponents of development should be responsible for the costs of EIA since they will make money from a limited resource and move on. Government claims an inability to know everything about a development, and if there were no proposal, there would be no need for the information. Proponents often object to doing what they perceive as the government's own management work, because the onus is on government to know something about the resources it manages.

Proponent responsibility becomes a bigger conundrum when the proponent is the government. Québec's economic strength depends on natural resource exploitation, especially hydroelectric potential. Yet, it is wrong to say that the James Bay Project stems from French Canadian nationalism that disregards aboriginal interests. The issue is complex since Canada is a federal state and the export of electricity from Québec has a territorial effect, affecting regulators on a common grid. Part of the problem involves the duplication of EIAs by the federal and provincial governments.

The federal system can be useful in dividing up responsibility for various stages of EIA, thereby detaching assessment from pro-project bias, but the federal government is powerless to compel Hydro-Québec to conduct an environmental assessment in accordance with EARP guidelines. Although they will become tighter, the EARP guidelines are delegated legislation that allows considerable administrative discretion in deciding their applicability. Preparation of an environmental assessment has generally applied

to projects that government agencies or crown corporations promote, and there is presently limited private sector involvement unless public pressure forces the government to act.

This division of responsibility in a federal state may give credence to the statement that "law is a poor and dangerous instrument with which to attempt to rescue the global environment."[391] The public awareness campaign and the Cree Indians' direct action has arguably encouraged coordination of the James Bay EIAs. Aboriginal self-government and a voice in all proposed developments potentially affecting their interests has altered assessment projects in Canada. Canada has postponed any further progress on assessment until past grievances with "first nation" bands have been settled.

In addition to raising the external standards of environmental assessment required before a project commences, businesses are also utilizing eco-audits to minimize ongoing liability. Environmental auditing will likewise have a higher profile in the future. In Ontario, the provincial Freedom of Information and Protection of Privacy Act has enabled special interest groups and individual citizens to force government agencies to release material and has opened up the environmental assessment process. The Ontario government is also in the process of enacting an Environmental Bill of Rights that would guarantee the right to a clean environment and provide much greater public access to the environmental process.

391. Benson, *supra* note 9, at 14.