FROM PUBLIC GOOD TO PRIVATE EXPLOITATION: GATS AND THE RESTRUCTURING OF CANADIAN ELECTRICAL UTILITIES

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I. INTRODUCTION *

When George W. Bush announced the U.S. would pursue a *North American Energy* Framework, his idea was greeted with enthusiasm by the Canadian government and energy-exporting provinces. The public outcry that could have been expected a decade earlier has failed to materialize thus far, probably because of a general sense that a continental energy policy is on a steamroll that is not going to be stopped. As one commentator put it, "there isn't a lot left to negotiate when it comes to Canada-US energy relations."[1] His take is that the *FTA* and *NAFTA* have pretty much sewn up Canada's energy integration with the U.S., and since these agreements came into effect from Sable Island off the coast of Nova Scotia to the Beaufort Sea a web of pipelines is carrying oil and gas south of the border.[2] In some respects this sense that the setting for a common continental energy policy is already in place is correct.

*A list of acronyms used in this article is provided on page 60.

The combination of the deregulation of the oil and gas industries in the late 1980s that accompanied the Western Accord, privatization of production in provinces where it was still in the public sector, and the signing of the continental trade agreements radically changed the energy regulatory regime in Canada.[3] These changes accelerated production for exports so that Canada now sells abroad about 59 percent of its natural gas and 30 percent of its oil supply, proportions that are likely to continue to increase since recent price hikes for energy in the U.S. have further stimulated exploration and plans for new pipeline connections.[4] Almost all of Canada's oil and gas exports are to the U.S., with gas accounting for 94 percent of all U.S. natural gas imports and 15 percent of its total market. Canadian exports of crude oil are 14 percent of U.S. imports and account for 8 percent of the total U.S. market. The integration of the U.S. and Canadian oil and gas distribution has had the effect of creating a common energy market for these forms of energy and there is almost nothing except

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the re-regulation of the entire industry that will halt the convergence of domestic and export pricing. Mexico, unlike Canada, would experience enormous changes in its oil and gas industries through a U.S.-led continental energy deal. Mexico has an exemption in NAFTA for most activities relating to exploration, refining, storage, transmission and distribution of crude oil, natural gas, and basic petrochemicals, so any policy that affects this exemption would bring about a *diminution of state powers over oil and gas.*[5]

Despite the highly integrated nature of the Canadian and the U.S. oil and gas industries, Canada would not come out of this unscathed, mainly because of changes that a U.S.-inspired energy policy would bring to the electricity industry. Electricity is one part of the energy sector where the U.S. still does not have common pricing and unrestricted access to investment, resources and sales within Canadian markets. While some provinces have deregulated electrical generation to encourage private production of electricity, most of the value of Canadian electricity remains in publicly-owned and regulated institutions. Of the five main electricity-exporting provinces, only one, Ontario, has a plan for complete deregulation and open market access. The other four electricity-exporting provinces, B.C., Québec, Manitoba and New Brunswick, rely primarily on publicly-owned institutions for generation, transmission and distribution of electricity.

The public provision of electricity in Canada is in a precarious position because of a number of forces that are driving the deregulation of the industry; forces that relate to both domestic and international pressures. Both domestic and international private-power marketers and suppliers want access to government-controlled markets.[6] They usually justify deregulation ideologically by the claim that private producers operating through the market are inherently superior to government-provided services, and that the introduction of competition in electricity markets would reduce prices. Another force for deregulation relates to the drive for exports in many provinces, a process that brings the regulated market in conflict with the deregulated system in the U.S.[7] In exporting provinces the requirements of access to U.S. markets bring these jurisdictions under the aegis of the Federal Energy Regulatory Commission (FERC), the U.S. regulatory body.[8] This in turn requires allowing specific kinds of access to private producers and traders to the infrastructure of the electricity system in Canada in order to ensure reciprocal access

to markets.[9] As the high prices of electricity in the U.S. make production for export increasingly attractive, more demands will be made on Canadian suppliers to conform to U.S. requirements.

The intent of this study is to examine the initiatives on energy at the WTO that are occurring through the new round of negotiations on the General Agreement on Trade in Services (GATS). These initiatives coincide with the U.S. drive for an integrated continental energy policy. The proposals for the comprehensive inclusion of energy in the GATS would cement the deregulation process and, hence, the move toward privatization of the provision of electrical energy in Canada. Should they succeed, the U.S. proposals for the GATS would privilege private-energy producers and result in radical changes to the electrical energy industry in Canada. Countries that currently have public control of the oil and gas industries could be seriously affected by GATS measures on energy, and it is likely that the GATS could further restrict Canadian access to its own oil and gas resources. The focus for this study, however, will be on electricity because that is the major energy utility that is still controlled by governments in Canada and is the most threatened by the possibility of GATS coverage.

II. ELECTRICITY DEREGULATION

A. Changes in the Industry

In most countries the electrical industry is a very big public business that has the potential to provide the private sector with huge profits. Revenues, world-wide, from generation and distribution of electricity are estimated to be over $1 trillion a year, or roughly more than double the revenue generated by the international auto industry. Until fairly recently it was widely accepted that the electrical industry was best served by large-scale monopoly production. Until the 1990s most countries in the world, with the exception of the United States and Japan, relied on vertically integrated, state-owned utilities for electricity.[10] In Canada the capital costs involved in providing electricity were larger than private corporations wanted to risk, so the establishment of the modern electrical system was accomplished through the public sector with considerable encouragement from private industry.[11] The primary mandate of these government utilities is to provide electricity to people and industry within a provincial boundary, and their operations are characterized by long-

term planning for adequate supply, equitable distribution, and low and stable prices. Exports, while often important for provincial revenue, were usually limited to the sale of surplus electricity through long-term contracts with guaranteed pricing.[12]

The move toward privatization resulting from the competitive pressures of globalization came slower to the electrical industry than to other utilities in the public sector. The landmark case in the deregulation of utilities in North America was the U.S. court decision in 1984 ordering AT&T to open the U.S. telephone system to competition. Since then the U.S. has introduced legislation to deregulate the telecommunications industry, the gas industry and the electricity industry. In 1992 the Energy Policy Act opened ownership of electrical generation and access to transmission systems. This provided competition at the wholesale level. At the retail level, by 2003 the "Comprehensive Electricity Competition Act" will allow all customers to choose their electricity supplier.[13] Similar changes in electrical utilities have occurred in other countries such as Argentina, Australia, Chile, Norway, Sweden, the United Kingdom and New Zealand.[14] The deregulation of utilities in the U.S. affected Canada, and now both the telecommunications and gas industries are competitive and largely deregulated.

The electrical industry was relatively insulated from deregulation pressures because the technological advantages of large-scale generation, transmission and distribution created natural monopolies and this, coupled with the history of public development of the infrastructure, kept the industry firmly under government regulatory control.[15] The huge capital costs for reservoirs, generation facilities and transmission and distribution lines brought governments into the industry in the first place. As well, the physical constraints of transmission and distribution meant that the most efficient relationship between high-voltage transmission and low-voltage distribution demands an exclusive line, or network of lines, both to reduce costs and to minimize losses of electricity. Both the cost of establishing the infrastructure and the technical requirements of transmission and distribution kept the industry either under government ownership or government regulated, mainly to protect the consumer from monopoly power but also to ensure long-term planning for sufficient supply and equitable distribution.

Most analysis of deregulation in recent years points to the significance of new technologies of electricity generation as the

primary force for change, mainly because they have made investor-owned, relatively small-scale electrical generation more viable.[16] In some instances it is true that the economies of scale that have historically dominated the industry have been undercut by the use of new technologies, such as combined cycle gas turbines (CCGTs) that make smaller-scale production more efficient and cheaper.[17] But the significance of new technologies as the driving force behind deregulation is hugely overstated and really applies only to those jurisdictions that have turned away from coal and nuclear energy to gas. This occurred in Great Britain, where the industry rapidly shifted from coal to gas, and California, where attempts were made to switch electrical generation from nuclear energy to gas. Private power producers, frequently termed Independent Power Producers (IPPs), and energy traders, while arguing for deregulation on the justification of cleaner and cheaper electricity through competition, tend, once the market is deregulated, to focus on the least expensive, not the cleanest, method of generation. Also, as electricity prices increase significantly, many relatively expensive forms of generation that are available to the private sector become more viable.

The main point is that changing technology is a convenient excuse to justify the deregulation of markets, but it is not the driving force behind deregulation in Canada. In most cases the technologies used in private generation are not new and rely on older, dirty, and sometimes expensive ways of generating electricity. The driving force for deregulation is the desire on the part of the private sector to participate in a market that has been either closed to them (as in most of Canada) or existed as a highly regulated monopoly (as in the U.S.).

Probably the most compelling factor leading to the deregulation of electricity in the U.S. was the introduction of the concept of "unbundling" of integrated electrical systems. This concept, first seen with the deregulation of telecommunications, requires that the advantages (and efficiencies) of vertically integrated utilities be dismantled so that new suppliers can have access to transmission and distribution networks. The argument usually used to justify "unbundling" the three major components of electricity entities (generation, transmission and distribution) is that existing vertical integration leads to 'natural monopolies' unfairly capturing the electricity market. This train of thought is reinforced by the promise that a competitive, deregulated market would elicit more supply, greater efficiency, and lower prices. The attractiveness of the market for

private companies relies heavily on the availability of a well-developed, usually public, infrastructure of transmission and distribution lines, because new technologies have not changed the natural monopoly of these components of delivering electricity to where it is needed. Independent power companies focus on the deregulation of generation, rather than pushing for the ownership and operating of transmission and distribution lines, mainly because these systems *are expensive to operate and the margins are thin.*[18]

Under systems that have been characterized by large-scale, vertically integrated natural monopolies, the supply, distribution, and prices of electricity are regulated by public entities. The regulator would normally oversee long-term planning for supply and monitor all price changes.[19] Through these measures, both the supply and price of electricity are guaranteed for specific long-term periods. Under a deregulated system this role of the regulator is removed and the market acts as the adjudicator of both supply and pricing decisions. This means no collective long-term oversight ensures building for an adequate supply in the future, and prices to consumers shift from reflecting costs of production to reflecting what the market will bear. These are the most fundamental characteristics of the shift from a regulatory regime to a deregulated one - not the absence of regulation itself. The term 'deregulation' is a misnomer because considerable re-regulation is necessary in order to limit the advantages of the existing 'natural monopoly,' whether public or private. In a deregulated regime the state's role shifts from being a provider of electricity or a regulator of private monopolies to being a facilitator of market expansion.

The period of relatively low prices for gas from the mid-1980s until fairly recently spurred the "dash to gas" in many places where coal or nuclear generation had dominated production.[20] Gas is relatively clean, at least compared with coal, and is certainly much less environmentally dangerous than nuclear power generation. But so far, it has had less of an impact in places where the traditional source of electricity supply has come from water because of the huge advantages of hydroelectric power over any other conventional source of electricity. Once the system is in place, it is cheap and clean. Hydroelectric production accounts for the largest portion of electricity exports in Canada: B.C. Hydro, Hydro-Québec, and Manitoba Hydro all rely primarily on water to generate electricity. Huge hydro-based systems are not without problems, however. The initial

creation of large reservoirs and transmissions systems plays havoc with the environment and results in damage to wildlife, terrain, local communities and the socio-economic way of life of many aboriginal people. But once the systems are in place, they provide a secure, reliable supply of inexpensive and clean electricity.

B. U.S. Drive for Energy

U.S. energy policy seems to be based on a goal of increasing energy consumption 32 percent by 2020.[21] This means the U.S. will need vast amounts of oil, gas, and electricity -- much more than can be met using existing U.S. reserves. In fact, almost all increases in the use of energy in the U.S. during the past ten years have been met through imports, suggesting a serious problem with domestic supply. The drama of energy shortages in the U.S. is reflected in the language of the U.S. *National Energy Policy*, the document produced by Vice-President Dick Cheney, Secretary of State Colin Powell and others of the National Energy Policy Development Group (NEPD) in May, 2001: "A fundamental imbalance between supply and demand defines our nation's energy crisis." It talks about how "millions of Americans find themselves dealing with rolling blackouts or brownouts," employers who "must lay off workers or curtail production to absorb the rising cost of energy," and of the families who "face energy bills two to three times higher than they were a year ago."[22]

U.S. electricity use is expected to increase 45 percent within the next 20 years, something that will require, in order to meet this demand, between 1,300 and 1,900 new electric plants. This would mean bringing into production about one new plant a week over the next twenty years, something that almost no one thinks is likely.[23] Despite the relatively unsuccessful attempts at deregulating the electricity market, deregulation is still the cornerstone of the U.S. electricity policy. The assumption is that a completely deregulated market will spur private companies to undertake the financial burden of increasing electricity supplies. In the face of recent market responses to deregulated markets, this assumption seems curiously optimistic: although twenty-five states have opted to open their retail electricity markets to competition, very little new electrical generating capacity has come on line. The NEPD says new capacity is expected to come into production within the next four years, but the clear message of the U.S. policy report is that there is and will be a mismatch between generation of electricity and demand.[24] Cur-

rently, and within the foreseeable future, the major problem areas for electricity are California, New York, and the New England states, all areas that could dramatically increase their imports from Canada.[25]

Considering the potential problems of energy supply it seems odd that increasing, rather than reducing consumption, is the kingpin of the National Energy Policy. While the policy document contains much hype about conservation and the success of energy conservation in the U.S., it goes onto assert that, "energy use per person in the United States is expected to rise as is overall demand for energy."[26] It is hard not to notice the inherent contradiction between the rhetoric about conservation and the plans for increased consumption in the U.S. energy policy. Despite this contradiction, there are rational political objectives for instituting a policy that focuses on increasing consumption.

First, it can address some fairly tricky political headaches for the Bush administration by permitting a return of dirty or dangerous energy sources like coal and nuclear energy. This move has the backing of key Republicans. Ninety-one percent of the electricity generated in the U.S. comes from burning fossil fuels and nuclear fission. Nuclear power accounts for about 20 percent, thermal generation about 71 percent, hydroelectric generation 7 percent, and alternate sources like wind and solar energy make up only about 2 percent of all electricity generation. The *National Energy Policy* specifically favors the increased use of coal and nuclear energy in domestic production.

Second, pricing problems can be mitigated by vigorously pursuing a continental energy policy to make sure these resources are available from Canada and Mexico. In this regard the U.S. policy is extremely clear: "energy security must be a priority of U.S. trade and foreign policy."[27] Security will be achieved on a variety of fronts, including support for a "North American Energy Framework to expand and accelerate cross-border energy investment, oil and gas pipelines, and electricity grid connections..."[28] Canadian and Mexican resources are to be the U.S. energy storehouse, and policies that make sure that these foreign supplies increase are crucial to preventing the continuation of price escalations in the U.S., something that any politician worth a campaign contribution knows is essential.

Polls show Americans are worried about global warming and are prepared to pay more for cleaner power, but politicians tend not to believe this despite the rhetoric on sustainability and clean energy.

As Al Gore said early in his term as vice-president, "The minimum that is scientifically necessary [to combat global warming] far exceeds the maximum that is politically feasible."[29] The average U.S. family increased its total energy bill by 26 percent between 1999 and 2000, although in some areas such as California the price hikes were much more dramatic.[30] Higher energy prices tend to create demands that 'something be done,' and that something is guaranteeing a secure supply at prices Americans consider reasonable. As the chair of the Western Governors' Energy Committee, Jim Geringer, noted at a 2001 conference at Whistler, "the best way to drive prices down is to increase supply." He also observed that the heavy reliance on Canada by the U.S. can create conflicts, as in the allegations that B.C. Hydro gouged California and the likelihood that these charges will be upheld in U.S. courts. But these kinds of problems with price spikes can be averted if Canada assures adequate supply through an "energy policy for the Americas."[31]

The *National Energy Policy* is candid in its assessment of what is required for U.S. energy security, specifically stating that it "depends on an efficient domestic and international infrastructure to support all segments of the energy supply chain."[32] Promoting the liberalization of the global energy sector means not only securing access to supply, but also promoting U.S. energy investments in other countries. "American energy firms remain world leaders, and their investments in energy producing countries enhance efficiencies and market linkages..."[33] To this end the NEPD recommends that the U.S. specifically focus on meeting U.S. energy objectives through international trade agreements. It says the U.S. should support "American energy firms competing in markets abroad and use our membership in multilateral organizations, such as the Asia-Pacific Economic Cooperation (APEC) forum, the Organization for Economic Cooperation and Development (OECD), the World Trade Organization (WTO) Energy Services Negotiations, the Free Trade Area of the Americas (FTAA) and our bilateral relationships to implement a system of clear, open, and transparent rules and procedures governing foreign investment; to level the playing field for U.S. companies overseas; and to reduce barriers to trade and investment."[34]

The outlines of U.S. energy policy are eminently clear: the objective is not simply to secure adequate trade in energy resources, but to ensure the right of U.S. energy investors to exploit the re-

sources of other countries. It specifically refers to the opportunities at the WTO to open markets "for private participation in the entire range of energy services, from exploration to the final customer."[35] That the U.S. is extremely serious in this objective is evident from the section in the *National Energy Policy* that recommends a comprehensive review of the use of "economic sanctions" so that energy security can be included in U.S. policy.[36]

III. THE GENERAL AGREEMENT ON TRADE IN SERVICES (GATS)

A. Main Features

When WTO/GATS was created in 1994, relatively little attention was paid to it by those concerned with the negative effects of trade agreements. In North America the main focus for analysts and activists at the time was on the North American Free Trade Agreement, in large part because of the rights it would give investors and the threats that it posed to public services. The irony is that the GATS, which slipped by quietly, is not mainly about trade in services, but about the rights of investors, and it is a powerful vehicle for advancing privatization of services in the public sector. The WTO's summary is explicit: GATS "is the world's first multilateral agreement on investment, since it covers not just cross-border trade but every possible means of supplying a service, including the right to set up a commercial presence in the export market."[37]

The GATS is an extremely powerful and very complex instrument that has a built-in agenda for, in the words of the document, "achieving a progressively higher level of liberalization."[38] This "built-in agenda" means that countries have agreed to continuously rewrite and expand various sections of the GATS. The current round of the GATS negotiations began in February, 2000, and is now part of the new set of negotiations launched at the WTO ministerial meeting in Qatar. The negotiations on services are significant because they cover virtually every type of trade and investment that exists. Services are the sector that accounts for about 75 percent of the economy and labor forces of most developed countries and a growing proportion of economic activity in the developing world.

One of the main objectives of the GATS is to give private companies access to services that are now in the public sector. It does this by providing rules that will inhibit both government regulatory measures and governments' provision of services. The GATS

explicitly restricts what governments can do and includes the actions not simply of federal governments, but also of sub-national governments. The GATS covers such governmental actions as legislation, regulations, procedures, requirements, practices or any other action affecting trade in services.[39]

Since a great deal has been written about the intricacies of the GATS, the following provides only a brief explanation of its main features. This is necessary before explaining how the new negotiations could result in changes in international energy regulation. There are two main parts to the agreement that are often referred to as 'top down' and 'bottom up' approaches to covering services.[40] The 'top down' coverage refers to "General Obligations and Disciplines" that outline the requirements that all countries are obliged to observe and that apply to all services. The 'bottom up' coverage contains requirements that apply only when countries make specific commitments for specific types of services.

1. General Obligations and Disciplines

Among the fourteen articles in this section are those requiring "transparency" and "most-favored nation treatment (MFN)." [41] *Transparency* establishes the requirement for all nations to inform the Council for Trade in Services of any changes in existing laws or new laws that affect trade in services and to respond to any nation's request for information. A major purpose of the transparency provision is to enable parties to increase pressure on each other to continue liberalizing between and during negotiations.

The *most-favored nation* (MFN) rule requires that the best treatment awarded to any foreign service provider must be given immediately to all of them. In addition to these two requirements applicable to all nations for all services, this section contains important parts that will have a bearing on any service, such as energy services, when they are included by a nation as a covered area. The most significant of these are provisions related to monopolies, subsidies, and domestic regulation. While restrictions related to domestic regulation and subsidies are in the process of renegotiation, other rather formidable ones are already spelled out on monopolies. Even those in the public sector must conform to MFN obligations and to a government's specific commitments that a monopoly must not abuse its position when it supplies services outside the scope of its rights;

and that a government provide compensation when it grants a monopoly in sectors where it has GATS commitments.

2. Specific Commitments

The "bottom-up" aspects of the agreement refer to specific commitments that individual nations make to open up sectors for further liberalization.[42] Each country now decides the extent that it wants specific sectors, such as education and health-care, to be liberalized. The country can open the entire sector or specific aspects of it. So, for example, a country like Australia has 'signed-on' to the education agreement for some aspects of secondary and higher education, but not for primary education.[43] Each country can also select the "mode" of liberalization it wants to accept from four modes of trade that cover every possible way of supplying a service. These four modes of supplying a service are cross-border supply, consumption abroad, commercial presence, and presence of natural persons. A country currently can commit to liberalize one or all of the modes of supplying a service. Countries can also list exemptions and limitations on coverage.

For the energy sector the most significant of these "modes" will be cross-border supply, which deals with energy created in one country and transported to another; commercial presence, which would include all foreign investment in energy production, transmission and distribution in addition to the activities of foreign energy traders; and movement of natural persons. The movement of natural persons relates to the rights that are given to foreign nationals to work on a temporary basis in a country's sectors that are covered by GATS commitments. For energy companies this could include any movement of labor that would facilitate a foreign energy company's operations.

These "bottom-up" rules apply only to those sectors, or portions of sectors, that a government has opened up for further liberalization. The two most significant bottom-up provisions are the requirements for "market access" and "national treatment." The "market access" provision is designed to allow foreign service providers full access to domestic markets. This is a very powerful article because it prohibits governments from setting any numerical limits on the scope and size of activities within the market as they do now in electricity production for domestic markets. It specifically says that governments cannot limit the number of service suppliers, limit the value of a

market share, limit the total number of operations, or put any limitations on the participation of foreign capital in terms of foreign share-holding or the total value of individual or aggregate foreign investment.

National treatment requires that governments provide foreign services with treatment at least as good as that provided to "like" domestic companies within covered industries. These requirements cover both formal discrimination as well as actions that result in discrimination, even if there is no intent to discriminate. This can be interpreted as requiring a "level playing field," which can mean that a foreign service provider may demand better treatment than a domestic equivalent in order to be competitive.

3. Government Services

One serious problem with the GATS is the way that government services are treated. Right at the beginning the agreement defines services to include those "in any sector except services supplied in the exercise of government authority." [44] This seems to protect public services, because they are supplied "in the exercise of government authority." However, the GATS then further clarifies this exemption by explaining that "a service supplied in the exercise of government authority means any service which is *supplied neither on a commercial basis, nor in competition with one or more service providers.*" [45] If a fee is charged for a service, (such as a fee for electricity) the public service is likely no longer exempt from GATS.[46] Also, as soon as there is some kind of competition between the public and private sector, the GATS rules would apply. It is extremely rare when any public service has neither a commercial component nor competes in some way with the private sector. While electricity is largely in the public sector in Canada in virtually all markets, there is some private generation of power, an activity that can be said to compete with the public sector in some way. And, as will be seen in the next section, in many provinces a certain amount of deregulation has already occurred so that some forms of private generation of power are allowed. According to a recent discussion paper prepared by the Government of B.C., "only a small sub-set of services - those that are provided by completely non-commercial, absolute monopolies - appear to be protected by this exclusion."[47]

What this means, in effect, is that for all practical purposes there is no distinction in the GATS agreement between public and private

service providers or between services provided for-profit and those provided on a not-for-profit basis.[48] "Essential security interests," as defined by each country, are the only clear and totally carved-out exemptions for government actions, and it is important to note that the language in this section, which is clear and unambiguous, is not replicated when other government services are mentioned.[49]

4. Horizontal Rules

Liberalizing trade through the 'request-offer' bottom-up process is extremely slow, and the spectre of spending decades trying to get countries to open all service sectors is a process the private service providers want to avoid. It requires that each member list its demands for access to markets to other members and, in turn, indicate services that it is willing to have opened up. In order to avoid such a cumbersome process, one of the objectives of service providers in the new round is to achieve a greater inclusion of 'horizontal' rules. That is, they are hoping to get whole sectors completely and rigidly included, or 'bound,' across the four modes of services trade.[50]

B. The GATS' Current Energy Coverage[51]

The fairly recent deregulation of the electrical industry in countries like the U.S. and the U.K. had provoked interest in using the GATS to extend this trend to other countries. When the GATS was originally negotiated most electricity markets were characterized by state-owned, vertically integrated monopolies with relatively little trans-border trade, so not much was done to sort out the problems of dealing with energy issues in these original negotiations. One of the major problems is that energy is not always easily distinguishable by what is a 'good' and what is a 'service.' Before deregulation these aspects of production were so integrated that distinguishing between the two was both unnecessary and virtually impossible.[52] However, with the introduction of a separate trade agreement on services and the 'unbundling' of the components of electricity production, deciding what constitutes a service has become significant, although it is not always straightforward. It is most problematic for electricity. Unlike oil for example, electricity does not have a physical quality that allows it to be stored. As soon as it is produced it needs to be transmitted and used. So while electric power is often made from a tangible item that has value and can be traded (i.e., water, coal, gas, uranium), trading it is primarily a transmission and distribution

problem. Under a wide definition of what constitutes a service, virtually every aspect of the electrical industry could be covered.[53]

Under the current GATS there is not a separate comprehensive classification category for energy services. Rather, in the WTO "Services Sectoral Classification List" (referred to as W/120), services related to energy are listed separately under headings related to Business Services, Construction and Related Engineering Services, Distribution Services, Transportation Services, and Other Services Not Included Elsewhere. WTO member countries must now specifically commit to opening these sectors, something that relatively few have done. Opening these sectors means granting trading partners 'market access' and 'national 'treatment' unless limitations to this are specifically stated.

Under Business Services, those "incidental to energy distribution" have been signed on by eight WTO members, including the United States.[54] "Incidental" is an imprecise word that if taken in its usual meaning would refer to consultancies and other business-type activities, that is, services that are not the main business of energy distribution. However, this meaning is not entirely clear because an explanatory note to the United Nations Provisional Central Product Classification (UNCPC) indicates that these services would include core distribution and transmission activities.[55] The lack of clarity on this issue is important because unless a country specifically limits transmission and distribution services (core activities of utilities), these would be open to market access and national treatment when signing on to "services incidental to energy distribution." Thus far Canada has not signed on to open this sector.

Under Transport Services, three countries have signed on for pipeline transport.[56] No countries have signed on for wholesale trade services and retailing services under Distribution Services, although according to the WTO background note, these distribution services cover oil but do not cover electricity and natural gas because these are covered under "services incidental to energy distribution" under the UNCPC definition.[57] It is important to reiterate the lack of clarity on the classification of core electricity activities because it is something that could easily be misinterpreted: under the interpretation of the WTO's background note to energy, the core business of electricity transmission and distribution is covered through "services incidental to energy distribution."

The only specific commitments Canada has made on energy relate to general construction work for civil engineering on power facilities and pipelines (See Appendix I). Alberta, Newfoundland, and Nova Scotia have stipulated a general 'horizontal' limitation on national treatment (but not market access) for cross-border trade basically to allow companies located in these provinces or Canada to have priority in competitive bidding for energy projects. Alberta's limitation covers large-scale energy projects while Newfoundland and Nova Scotia's limitations are restricted to petroleum operations.[xx] This likely means all other provinces cannot give priority in any way to local, provincial, or Canadian firms in the construction projects covered. In the sign-on for construction services, the only limitation to complete market access and national treatment is Ontario's stipulation under Mode 3 (commercial presence) that an applicant and holder of a water power site development permit must be incorporated in Ontario. This probably means that in other provinces any construction work for power facilities and pipelines is fully open to foreign competition without limitations. It also suggests that any attempts to limit access because of water licenses restrictions could be subject to a challenge because of the horizontal provisions on domestic regulations and monopoly provisions. In provinces that are anticipating the increased use of run-of-the-river sites or new dams (as in B.C.), the way is open not only for foreign construction but also for foreign ownership and operation of hydroelectric generation.

Should any province or local government (that has not specifically named limitations for foreign construction firms) attempt to use construction on energy projects to meet local development objectives, a powerful 'top-down' requirement that comes into play once a sector is opened might be used to challenge this action. 'Monopolies and exclusive service suppliers' is a 'horizontal' requirement that applies to actions in any sector where a country makes a commitment (Article VIII). The definition of a monopoly, including public ones (Article XXVIII (h), is extended in Article VIII to a "Member [who] formally or in effect, (a) authorizes or establishes a small number of service suppliers and (b) substantially prevents competition among those suppliers in its territory." So, if B.C., for example, wanted to reserve some aspects of gas pipeline or electrical transmission construction or new dam construction to provide for local economic development and employment, it could be subject to a WTO challenge.

B.C. Hydro has designed construction projects in recent years to specifically include aboriginal firms and local workers in the construction of power projects. This was undertaken because of the historical tendency for regional benefits from large-scale construction projects to be minimal because local construction companies and crews were not used. In some respects the increased objections by First Nations to the use of aboriginal lands in the building of dams and transmission systems has forced provincial governments and power companies to institute local and 'equity' hire initiatives. While Canada has a horizontal limitation on 'national treatment' that may protect preferences for aboriginal persons, some 'equity hire' and local preference provisions could now be subject to challenge by any GAT member that bids on energy construction services. Unfortunately, even the apparent protection for aboriginal preference is unclear because of the language in Canada's limitation in the Schedule of Specific Commitments. Specifically, it is not certain whether this limitation applies only to existing measures or whether the limitation would also apply to future agreements.[59]

While the Canadian energy commitments under GATS are minimal, they are not insignificant, particularly considering the rapid expansion that is likely to occur in future energy production. In addition to the above, all energy services are now covered by the horizontal requirements for all services-- transparency and 'most favored nation' mentioned earlier. This means that whenever any changes are made to laws or regulations affecting energy that also affect trade in services, this information must be made available to the WTO Council for Trade in Services. The 'most-favored-nation' treatment means that if any province enters into agreements with a single U.S. corporation for the development or delivery of energy, the same treatment must immediately be given to all other foreign service providers. This is a powerful tool to spread and consolidate privatization and deregulation initiatives. Where any single energy corporation gets a foot in the door, that door must be swung wide open to all.[60]

1. Negotiating Issues

Negotiating a comprehensive separate energy section within GATS, such as exists for telecommunications, will require considerable finessing on the part of the U.S., but as noted at the beginning of this paper, it is a very important interest of major energy investors

and traders. Most of the world still does not engage heavily in electricity trade, and in most countries energy is considered an essential service and is either highly regulated or is in the hands of government monopolies. World trade in electricity is regionally based because of its non-storability and reliance on limited transmission networks, and it exists primarily between Canada and the U.S., Paraguay and Brazil, Russia and other countries in Eastern Europe, and between Western European nations (France, Germany, Italy, Netherlands, Switzerland, Finland and Spain). In Europe, France is the major exporter due to its huge nuclear industry, while Germany, Italy, Netherlands and Spain are net importers. Sweden and Switzer-

Table I

World Electricity Trade (Billion kilowatt hours 1989*)

Area	Exports	Imports
Canada	42.91	12.95
Mexico	.01	1.01
United States	14.00	42.92
North America	**56.92**	**56.2**
Paraguay	46.63	1
Brazil	0.01	39.89
Central and South America	**48.28**	**48.28**
France	68.70	5.00
Germany	30.50	40.50
Italy	0.53	42.54
Netherlands	1.07	22.41
Sweden	15.00	8.35
Switzerland	11.96	21.22
Western Europe	**216.03**	**232.19**
Czech/Republic	12.29	8.08
Finland	8.43	1.29
Russia	20.00	5.00
Turkestan	1.90	4.30
Turkmenistan	4.10	2.20
Uzbekistan	1.92	7.50
Eastern Europe & Former USSR	**72.85**	**56.63**
Middle East	**1.07**	**1.07**
Mozambique	7.90	0.07
South Africa	1.88	2.46
Zimbabwe	.11	1.56
Africa	**10.15**	**10.32**
China	7.20	0.00
Hong Kong	0.65	2.05
Far East and Oceania	**10.69**	**10.65**
World Total	**415.98**	**416.02**

Source: U.S. Dept. of Energy, Energy Information Administration, *Country Energy Data Report*, International Energy Database, January 2000

*Totals within areas and for the world are larger than columns additions because other small amounts of trade take place but are not included in the chart

land have small positive trade balances in electricity. [61] In North America, the electricity trade is primarily from Canada to the U.S. with negligible amounts to the U.S. from Mexico.

European energy deregulation has begun through various directives of the European Union. Electricity deregulation is planned to be phased in so that by 2003 at least one-third of all national markets are to be fully open to private generation.[62] The Energy Charter Treaty (ECT) that has been signed by 49 states, including members of the EU, Russia, and several central and Eastern European countries, provides protection for foreign direct investment, rules on energy transportation, and language to enforce competition laws. The important point is that electricity trade in Europe is covered by existing agreements, and that the current GATS negotiations are aimed primarily at areas of the world where electricity markets are still relatively closed or are taking tentative steps toward deregulation.[63] Large electricity traders are aggressively pursuing comprehensive coverage for energy in the GATS. The now bankrupt and discredited energy trader, Enron Corporation of Houston, spearheaded this effort through a business coalition that is enthusiastically supported by a variety of energy business groups.[64] As a spokesperson for a coalition of energy producers and traders noted, there are numerous barriers to trade and energy, but the "inclusion of energy services under the World Trade Organization would mandate an open and transparent tendering process..."[65]

The U.S. supports a comprehensive energy section in GATS to make it easier to open energy markets for both trade and investment. Its stated negotiating objectives, as defined in a WTO document submitted to the Council for Trade in Services, are broad and deep.[66] The four most important objectives relate to the classification of energy services, very broad market access and national treatment commitments, and commitments that address national regulations.

The U.S. proposal wants to see an index of energy activities that would incorporate all energy services and energy-related service activities, "*including those energy activities identified as not falling within the GATS,*" in the WTO Services Sectoral Classification List (commonly referred to as W/120). Classification is an important issue because a very broad scheme could include virtually every aspect of the electricity industry, and this would pave the way for incremental listings of ever-increasing aspects of the industry under GATS rules. As mentioned earlier, distinguishing between a "good" and a "ser-

vice" in electricity production is difficult, and it is highly probable that even electrical generation and storage could be classified as a service. According to the U.S. document, energy services "are those services involved in the exploration, development, extraction, production, generation, transportation, transmission, distribution, marketing, consumption, management, and efficiency of energy, energy products, and fuels." The European Community has submitted a detailed list of the energy services that supports those defined by the U.S. As a U.S. document on reforms in world-wide electricity indicates, deciding what is classified as a service, (as opposed to manufacturing, as generation might be classified, because it "materially transforms" energy) is crucial for investment treatment under the GATS. "Should WTO members choose to define generation as a

Table II
European Community List of Energy Services

The EC notes that this list related to energy activities "irrespective of the energy source concerned and includes in particular coal, electricity, gas, heat, oil, renewable and, subject to the specific conditions related to this energy sector, nuclear."

Services related to Exploration and Production
Services related to the construction of energy facilities
- Construction
- Installation
- Maintenance and repair

Services related to networks
- Operation of transportation/transmission and distribution
- Connection services
- Ancillary services

Storage Services
Services for the supply of energy
- Wholesale sales of energy products
- Retail sales of energy products
- Trading
- Brokering

Services for final use
- Energy audit
- Energy management
- Metering
- Billing

Services related to decommissioning
Other energy-related services
- Installation
- Maintenance and repair of energy equipment

Source: WTO, "Communication from the European Communities and their Member States," 23 March 2001, S/CSS/W/60

manufacturing process, then foreign firms that seek to own or acquire power generation facilities will have no rights or privileges under the GATS."[67] The U.S. government considers power generation a service.

Nothing related to the energy industry is left out of the U.S. and EU proposals to GATS for definitions of energy services, with the exception of the actual ownership of the energy source. In this the U.S. document tries to be reassuring by stating: "in a large number of countries, including our own, many natural resources are held in trust for the public. The United States recognizes this, and is not proposing to address issues of ownership of natural resources." Similarly, in its negotiating proposal on oil and gas services Canada says that "nothing in these negotiations will address the ownership of resources."[68] When the U.S. or any other government says it does not intend the GATS to address ownership issues, it is referring to something quite limited and specific—the ownership of the physical energy asset (e.g. the water, coal, oil, and gas). They recognize that resources are most often owned in common by people of a country and, if not exploited directly by government agencies, are allocated to private corporations on some basis that provides a return to the common ownership. In Canada many resources (oil, gas, trees, coal, water) are owned by the Crown but are leased on a long-term basis to private companies (both Canadian and foreign) for rents returned to the Crown. However, governments often directly own the companies that extract and distribute the resources, as in the case of electricity production. While the stated U.S. intention is to leave the actual ownership of the resource in tact, everything else could change. The introduction of competition in markets that are currently government monopolies could initiate a change in the 'ownership' structure of other aspects of the market under GATS. If GATS fully covers electricity (and energy in general), a commitment by a country will make it virtually impossible to maintain a government monopoly or control over generation, and it will force the other monopoly aspects of transmission, distribution and storage to be open for competing electricity producers. The main issue is determining what constitutes a service, and within the proposed items it seems that the objective for the private sector and the U.S. is to cover everything, including extraction, generation, transmission, storage and distribution. Only the ownership (but not the use) of the physical resource seems to qualify as something that can remain as public

property. The use of the resource would be subject to GATS rules regarding market access and national treatment, should these requirements be negotiated to broadly cover energy.

A very important issue on classification will be whether energy services will be classified as one sector, or whether different parts of it will be classified under relevant sectors such as business services, distribution, etc. as they now are. Complete sectoral classification would facilitate a more aggressive horizontal inclusion of all aspects of energy when countries sign on, but this approach could present problems for countries that face domestic opposition to energy deregulation. A desegregated approach may make it easier for countries to make commitments to specific sub-sectors and diffuse anxiety about having an entire sector committed, particularly because many of the commitments will be open to differing interpretations of what is included. Perhaps in anticipation of negative public reaction to an "energy agreement" in GATS, Canada seems to prefer a desegregated method of classification, at least with regard to oil and gas services. (Canada has not indicated a negotiating position on electricity). Canada's argument is that all services in the oil and gas sector can be found in the existing classification lists, and that this is a logical way of grouping things; that is, all engineering services being grouped together, all business services grouped together, etc. However, Canada does say that there could be a special clustering or checklist for all energy services that "Members could use as an *aide-memoire* during the negotiations."[60] In light of the ambiguity regarding where electricity falls in the classification scheme, it is interesting to note that electricity is not listed in Canada's initial negotiating proposals under its discussion of business services: "These so-called "business to business" services include, not only professional services and computer and related services, but also services as diverse as R&D services, market research services, consulting services, technical testing and analysis and maintenance and repair of equipment services."[61] Canada's negotiating position on business services is to

> "broaden and deepen existing sectoral commitments, with particular emphasis on the elimination of: (a) any remaining cross-border supply limitations given the increasing importance of this mode of delivery for these sub-sectors; (b) limitations on commercial presence where Member countries have been reluctant to make commitments."[1]

As noted above, Canada has not yet made commitments under 'services incidental to energy distribution,' although this negotiating position may indicate an intention to include this sector during this round of negotiations.

2. Market Access, National Treatment and Domestic Regulation

The U.S. wants to "negotiate the broadest possible market access and national treatment commitments" for energy services, and in particular it wants to eliminate the 'barriers' such as the lack of a `right of establishment' and an `inability to provide cross-border services' that the U.S. currently faces.[72] It also discusses the elimination of discriminatory treatment between foreign and domestic service providers, but signals that merely achieving the lack of discrimination between the two is not sufficient to give access to markets. It specifically wants to see regulatory reform, because without it "market access and national treatment commitments, while necessary, may not be sufficient to assure liberalization for energy services." Recognizing that within countries there are differing levels of competition, the U.S. is calling for a staged process of energy liberalization and encourages a 'study' that mirrors the steps taken with telecommunications in order to encourage countries to undertake commitments in a highly regulated sector. It calls for this study to address, among other things:

- Non-discriminatory third-party access to and interconnection with energy networks and grids, where they are dominated by government entities or dominant suppliers;
- An independent regulatory system separate from and not accountable to any supplier of energy services;
- Nondiscriminatory, objective and timely procedures for the transportation and transmission of energy;
- Requirements that parties maintain appropriate measures for the purpose of preventing certain anti-competitive practices in these sectors;
- Transparency in the formulation, promulgation and implementation of rules, regulations, and technical standards.

All of these requirements, should they eventually become part of GATS, would substantially change the regulatory environment and operations of most electrical utilities in Canada, even those that have begun to open markets to private providers of electricity. [See

Appendix II for a list of GATS provisions that pertain to electricity.] Some of these provisions could threaten the security of domestic consumption at differential prices. In a time when power traders are increasingly active in electricity markets, open and nondiscriminatory access to transmission systems would not only have to be accorded to those who want to sell to domestic customers, but also to foreign traders who may prefer to export electricity. The result would be either less supply for Canadian consumers, or increased prices driven up by export markets.

The U.S. makes it clear that achieving market access and national treatment do not fully address important issues that it would like to see in the GATS. In order to achieve regulation over these issues it plans to introduce the use of Article XVIII in much the same way that it was used in the negotiation of the telecommunications section in order to deal with interconnection issues and the ability to

Table III
Comparison of U.S. Market Reform Objectives with GATS Instruments

Market Reform Objectives	Market Access	National treatment	MFN Treatment	Transparency	Domestic Regulation	Monopolies and exclusive suppliers	Other
Privatization							
Ensure that							
All potential bidders may participate on equal terms	x	x	x				
All necessary information is publicly available				x			
The privatization process is unbiased					x		
Restructuring of Management Contract							
Ensure that							
Entity will not be at a competitive burden to restructure by regulatory or market barriers	x	x					
Cross subsidization is eliminated						x	
Facilities have all information advantage					x	x	
Market power distortion does not limit competition							x
Regulatory reform							
Ensure that							
Access and interconnection to monopoly facilities and networks is open based on objective criteria (including technical standards and specifications) and non-discriminatory terms and conditions					x		x
Interconnection to the transmission grid is provided in a timely fashion on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service					x		x
Transparency is maintained so that competition by limiting actions by power producers in other domestic regions							x
Information on cross border transmission may have to be provided where economically feasible		x	x				x

(Table III continued on next page)

Market Reform Objectives	Market Access	National treatment	MFN Treatment	Transparency	Domestic Regulation	Monopolies and exclusive suppliers	Other
Regulatory reform–Continued							
Procedures applicable for interconnection to the transmission grid as well as interconnection agreements themselves are publicly available				x	x		
Timely mechanism is available to a body that will resolve disputes regarding the terms, conditions, and rates of interconnection							X
Allocation and use of rights of way or the like, which can affect a trade transaction and distribution assets is carried out in an objective, timely, transparent, and non-discriminatory manner				x			X
Rule-making and implementation are conducted in a transparent manner				x			
Regulatory authorities are independent of objectives					X		X
Information about [electricity] transactions is available for [period of time]				x			X
Terms and conditions of licensing and licensing criteria are publicly available				x	x		x
Authorization, licensing, or permitting procedures are not unnecessarily lengthy, burdensome or subject to arbitrary criteria					x		
Standard and permissible practices are addressed in a transparent, non-discriminatory, and competitively neutral manner				x			x
Competition is not adversely impacted by government subsidies such as those that encourage coal production nuclear power, renewable energy or combined cycle technology					x		x
Electricity and fuel taxes that vary within the region or relative to neighboring regions do not disadvantage transactions		x	x		x		x
Universal service requirements are administered in a transparent, non-discriminatory and competitively neutral manner, and in a manner no more burdensome than necessary for the kind of universal service required by the government		x	x	x	x		x

Market Reform Objectives	Market Access	National treatment	MFN Treatment	Transparency	Domestic Regulation	Monopolies and exclusive suppliers	Other
Regulatory reform–Continued							
Environmental policies are administered in a transparent, non-discriminatory and competitively neutral manner, and in a manner no more burdensome than necessary		x	X	X	X		X
Inter-relationship with other industries, such as natural gas supply, does not distort or unduly complicate							X
Additional international objectives							
Ensures that competitive opportunities are not foreclosed by							
Foreign investment approval, screening, or registration procedures, such as case-by-case approval or economic needs tests	x	x	x				
Foreign equity ownership limitations	x	x	x				
Limitations on cross-border trading in electric power, brokerage and related services	x	x	x				
Reciprocity provisions		x	x				
Limitations on foreign acquisition of existing businesses	x	x	x				
Limitations on the scope of foreign business to specified activities that are narrower than local firms	x	x	x				
Discriminatory personnel requirements imposed on foreign firms (such as a certain percentage of domestic employees, the CEO must be a national or citizen, or a percentage of the board must be residents)	x	x	x				
Limitations on long-term leasing or ownership of land by foreigners for commercial development		x	x				x
Special requirements on the legal form of establishment for foreign companies (such as joint ventures)	x	x	x				

Source: OECD, Electric Power Services: Market Reforms in Selected Foreign Markets (November 2000) OECD Publication 5170 at 21 E, 21 10

have "effective" market access.[73] This is the GATS article that deals with "other" issues to ensure that the GATS meets U.S. deregulation objectives. As can be seen in Table III, the U.S. objectives on deregulation can be met with a variety of permutations in the use of GATS instruments.

The next section will examine the nature of the electrical industry in Canada and the restructuring that is occurring in some jurisdictions. It will also examine the ways that a full commitment on electrical energy by Canada in GATS could thwart the attempts by some jurisdictions to protect consumer interests in Canada as they deregulate. As the WTO background paper on energy notes, "In those countries where vertically integrated public utilities maintain a monopoly on the supply of energy, there is no scope for international competition," which reduces GATS impacts.[74] However, in countries that have initiated some aspects of deregulation and markets are partially liberalized, GATS rules can have significant implications for further liberalization. As will be seen below, most provinces have initiated some type of open access to transmission systems as a result of complying with FERC regulations for trade. As the WTO background paper notes,

> "The breaking up of the public monopolies and the unbundling of vertically integrated utilities is the first market access issue on the road of multilateral liberalization in this sector. Once Members have chosen to liberalize this sector, major regulatory aspects need to be addressed in order to ensure that such liberalizing effort is not nullified by the market power of existing suppliers, especially those who control the transmission and distribution networks."

Through these initial deregulatory measures provincial jurisdictions have opened themselves to major changes that may have been unintended but will have a huge impact on the pace and direction of deregulation in the Canadian market.[75]

IV. CANADA'S ELECTRICAL UTILITIES

A. Major Features

The Canadian electrical system is oddly structured, reflecting *the historical peculiarities of federal/provincial jurisdictions* and competition between the provinces. Rather than developing a national grid system or even substantial regional grids to take advantage of efficiencies and low-cost producing abilities of some prov-

inces, the bickering between provinces prevented the development of a mechanism that could have regulated the transmission of electricity across provincial boundaries. Instead, each province developed electricity for distribution within its borders and, when it could, exported electricity to the U.S. rather than to other provinces. The result is that north/south ties are considerably more developed than those between the provinces.[76] This has produced unfortunate results, such as Ontario developing nuclear power rather than importing significant amounts of hydroelectric power from Québec, and Alberta relying on coal rather than importing much hydroelectric power from B.C. or Manitoba. Most exports of B.C., Manitoba and Québec, three very low-cost producers, go to the U.S.

Table IV
Canadian Electrical Trade: Interprovincial and U.S.

YEAR: 2000 Annual Report Total

FROM

TO	Nfld	PEI	NS	NB	QUE	ONT	MAN	SASK	AB	BC	US
Nfld					42 307						
PEI				880 712							
NS				171 516							
NB		0.000	207 387		2916.256						18 416
QUE	31808 308			43 591		1997 473					3953 226
ONT					2918 744		1361 903				1879 413
MAN						1 908		858 647			715 670
SASK							2027 260		505 024		596 865
AB								532 197		1324 309	170 515
BC									487 202		5244 320
US				4352 542	2023 744	4421 744	3333 169	228 779	127 206	9946 619	

Total Receipts

Provinces	US
42 307	
880 712	
171 516	
3122 843	18 416
33848 372	3953 226
4280 547	1879 413
860 468	715 670
3232 260	596 865
1856 508	170 515
487 202	5244 320

Total Deliveries

Provinces	31808 308	0.000	207 387	1156 816	5805 207	1999 387	3388 169	1190 744	1192 226	1324 309	
US				4352 542	2023 744	4421 744	3333 169	228 779	127 206	9946 619	

0.000 2668 416
28813 726

Source: StatsCan Electric Power Statistics Monthly

Note: All values in GWh

Note: Interprovincial numbers are May 1998 to Oct 2000
International figures are Jan 2000 to Dec 2000

Canada is the largest producer of hydroelectric power in the world and is the world leader in long-distance electric power transmission. Total electrical production is about 567.2 billion kilowatt hours per year (bkwh), with 60 percent of this coming from hydropower, 19 percent[77] from coal, 13 percent from nuclear, 7 percent from gas, and less than 1 percent from renewable resources other than water. The contrast with the U.S., which supplies only 7 percent of its electricity through hydropower, is striking. Electric power is the most important energy source in Canada and accounts for 43 percent of all energy income, with oil and gas providing 35 percent and pipelines 7 percent. The enormous value of electricity makes it a fine target for private interests that stand to benefit enormously when the industry is neither controlled nor operated by governments.

Canada has had a long history of electricity export to the U.S., beginning with American utilities that set up powerhouses on the Ontario side of Niagara Falls early in the 20th century. As industry analyst and historian Karl Froschauer noted in his book, *White Gold*, "In small southern Ontario towns, casket makers, mill owners, cigar box manufacturers, carriage makers, and furniture factory owners (most still using steam engines to run their machinery) watched as Ontario's power drove electric motors in modern factories in industrial parks across the border, and they looked with envy at the economic success of American industries perched on the cliffs on the U.S. side of the Falls."[78] Niagara Falls was the power supply that lay at the heart of 20th century American industrialization and was the power that made the automated assembly line possible. Ontario manufacturers had lost something critical to their success and put their weight behind attempts to repatriate water rights and electricity under the slogan that "Power exported is power lost."[79] Canada's struggle with the U.S. over this is a long story and ultimately came to a head during the first World War when it was not able to reclaim the electricity it needed for its own production. That is, the U.S. did not respect Canada's restrictions on exports even at a time when Canadians most needed electricity for war manufacturing.[80] This experience pointed to the huge dangers to Canada of not having control over its electricity supply. But these are dangers that have been forgotten in the rush to sell more power to the U.S.

Since the electricity industry developed primarily within provincial boundaries, most of its regulation is under provincial control. Until recently all provincial governments either directly owned the major electrical utilities or asserted strong regulatory control over private monopolies. This meant that in most cases the security of supply and prices were firmly located in the public sphere. The federal government regulated the export of electricity to the U.S. and regulatory approval was needed from the National Energy Board (NEB) in order to enter into any export agreement. Such agreements were subject to public scrutiny through hearings to determine the effect on various groups of people and the environment. This federal control and public scrutiny began to change, however, with the gradual opening of the market to comply with FERC demands and with the signing of the Free Trade Agreement and NAFTA. U.S. interests, such as Bonneville Power Authority, that limited access to its transmission lines even when firm power arrangements had been

made between Canadian suppliers and U.S. utilities had frequently thwarted access to U.S. markets. It became eminently clear to Canadian utilities that if they wanted to increase sales to the U.S. they would need to begin the process of deregulating their markets.

The oversight of the NEB changed considerably with changes to the law that removed the necessity to consult the public about the economic and social significance of proposed exports. Export permits are now allowed to proceed in a more routine way without public hearings and in most cases without any federal scrutiny. In response to changes in the market, and in particular with the rise of power trading and the increase of Canadian utilities' actions on spot markets, blanket export permits are issued to exporting companies. As a result, virtually no control or oversight exists over Canadian exports of electricity. This is especially important because changes in the entire industry are being made as a result of U.S. policy directives rather than from an assessment of the best interests of Canadians. When relatively small amounts of electricity are exported, the lack of federal review does not appear to create a situation that places the security of electricity supply in jeopardy. However, the relative size of the export market is much less significant than the fact that it is the stimulus behind an 'open access' policy that led to increasing demands from U.S. electricity companies and power traders to have access to the Canadian market. Since Canada is blessed with such a huge supply of the basic materials to generate electricity, few could imagine a decade ago that international trade would threaten domestic consumption. The difference now is that the powerful trade agreements that have followed from an export-driven energy policy can compel markets to open in ways that will jeopardize the stability of both supply and pricing that Canadians take for granted.

Today between 5 percent and 10 percent of Canada's total generation is exported, something that is highly dependent on weather conditions and how much water is stored behind dams. Between 1988 and 1996 an average of only 6 percent of total production was exported to the U.S. Considering the dominance of electricity exports in the reshaping of the entire electricity industry in Canada, exports' share of total electrical production is rather small. Export sales are primarily to the New England states, New York State, the upper Midwest, the Pacific Northwest and California.

Deregulation and privatization of electricity have moved rather slowly from their initial beginnings in the U.S. in the late 1970s. This

Table V
Canada - Electricity Exports to U.S. by Province

Province	1997	1998	1999	2000
BC				
Value ($millions)	222.6	323.3	458.0	1,986.6
% of total value	16%	20%	24%	49%
Volume (GWh)	10886.5	12641.7	16923.0	39436.6
Quebec				
Value ($millions)	515.2	698.2	715.8	1,062.4
% total Cd value	37%	38%	37%	26%
Volume (GWh)	11834.9	13058.3	15275.0	20232.7
Manitoba				
Value ($ millions)	309.8	356.2	343.0	442.7
% total Cd value	23	22	18	11
Volume (GWh)	11689.5	11852.2	6701.5	9303.1
Ontario				
Value ($million)	161.6	121.3	172.6	288.8
% total Cd value	12%	8%	9%	7%
Volume (GWh)	7315.9	9635.9	3909.2	4421.7
New Brunswick				
Value ($ millions)	165.1	183.9	235.1	284.2
% total Cd value	12%	11%	12%	6%
Volume (GWh)	9958.3	4393.9	5043.4	4352.9
Saskatchewan				
Value ($ millions)	3.0	6.6	7.8	17.8
% total Cd value	0.2%	0.4%	0.4%	0.4%
Volume (GWH)	224.9	442.1	393.5	228.8
Total Volume Exported*	45,201.3	44611.7	43929.8	48612.7

*Totals include a small export from Alberta, not shown. Alberta is a net importer from the U.S.

Source: Constructed from data from Statistics Canada Trade Data Online, Electrical Energy Trade Balance (http://www.strategis.gc.ca/), StatsCan Electric Power Statistics Annual Statistics, StatsCan Electric Power Statistics Monthly

speeded up considerably after the dramatic privatization exercise in the U.K. in 1990. A driving force for deregulation and privatization in many countries relates to some specific flaw in the nature of the electrical industry itself that include problems with supply, high prices, a desire for cleaner or safer fuels, or a combination of all three factors.[81] Usually the decision to solve the problems through deregulation is a result of a shift in the political climate to allow the dismantling of public enterprises. *Public policy to encourage competition* through the deregulation of electricity in the U.S. and outright privatization in the U.K. had some relationship to the economic problems the industry faced in each country. The justification for

change in each case was to lower prices. Any variety of solutions could have been used to solve the problem of high prices, but the political fashion in both countries favored a shift toward private energy producers and deregulation.

The circumstances in Canada are radically different. No province has faced problems either with insufficient supply or high prices. As can be seen from Table VI, electricity prices for all classes of customers are lower in Canada than the average price for electricity in North America. The only U.S. cities that have similarly low prices are in the Pacific Northwest and Tennessee, both of whose

Table VI
Comparative Electricity Prices in North America
(Canadian cents per kWh)
Average Prices on May 1, 2000

Cities	Residental	Medium Power	Large Power
Power		1,000 kW	50,000 kW
Consumption	1,000 kWh	400,000 kWh	30,600,000 kWh
Canadian			
Winnipeg	5.89	4.44	2.96
Montreal	6.03	6.10	3.83
Vancouver	6.12	4.56	3.36
Ottawa	7.36	6.88	5.78
Edmonton*	7.51	5.81	5.30
Toronto**	8.32	7.31	6.24
St. John's	8.37	6.22	3.49
Regina	8.20	6.79	4.10
Moncton	9.14	6.62	4.95
Halifax	9.40	8.27	5.57
Charlottetown	10.06	8.80	5.45
U.S.			
Seattle	6.75	5.28	4.92
Portland	9.36	6.40	5.70
Nashville	9.41	8.50	6.41
Miami	10.22	7.79	5.77
Houston	12.07	8.85	5.77
Chicago	12.26	10.98	7.09
Detroit	14.63	10.53	7.39
Boston	16.82	14.76	11.96
New York	21.24	17.52	12.63
San Francisco	17.18	12.76	7.33
Average	10.30	8.34	6.00

* Statistics Canada reports electricity cost increases of 21.3% that caused an inflation spike in Alberta. ["Alberta Inflation Leads Nation," *Calgary Harold*, July 21, 2001.] The price of electricity rose from 5 cents to 25 cents per kWh, although a rebate prevented residental customers from experiencing the 500% increase in electricity bills. Large business customers experienced large increases because their rates were not increased, although this was partially offset by rebates of up to 7.6 cents per kWh.
** In June 2001 Toronto Hydro-Electric System increased residental rates 8.6% or $7.35 per month. Medium industrial users rates increased 8.9% and for large industrials rates increased 11.6%.
Source: Hydro Québec, *Comparison of Electricity Prices in Major North American Cities;* Toronto Hydro Electric System, *Important Information about Rates;* National Energy Board, *Canadian Electricity: Trends and Issues*, May 2001.

systems are supplied by hydroelectric generation. Also, Canada's generation is relatively clean with over 60 percent coming from renewable resources and only about one-quarter from thermal generation. All large-scale electrical generation has environmental costs, so any increase in production affects the environment in some negative way. But the use of thermal generation, particularly coal and nuclear energy (fuels that are regaining favor in North America), is either harmful to the environment or potentially dangerous.

Clearly, the reasons for deregulation in Canada do not mirror the attempt to 'solve' problems faced in the U.K. and in the U.S. Deregulation in Canada has several causes and the strength of each differs, depending on the province where it occurs. Ideological imperatives that favor private markets whenever possible are primarily behind the changes in provinces like Alberta and Ontario. But for provinces like B.C., Quebec, and Manitoba, deregulation so far have been forced upon their markets through an exposure to the U.S. system.[82] As will be seen below, exporting provinces have initiated some deregulatory measures in order to comply with FERC regulations for exporting into the U.S. market.

B. Exports and the State of Deregulation[83]

Only one province, Alberta, has a fully deregulated market, although Ontario has indicated its intention to achieve that goal. In Ontario the full deregulation process was postponed for a time in response to the huge difficulties of deregulation in Alberta and U.S. states. However, the deregulation process has been resumed and some privatization measures have been announced. British Columbia, Québec, and New Brunswick, all exporting provinces, have done at least the minimal deregulation necessary to assure continued access to U.S. markets. Québec has gone the furthest in protecting its domestic consumers through reserving a portion of its generation at specified pricing for the people of Québec. The provinces that have not embarked on some form of deregulation are those that have no export market and do not anticipate having one.

1. Alberta[84]

Over 80 percent of Alberta's electricity is generated by coal, with about 8 percent by natural gas, 4 percent by hydroelectricity, and 7 percent from other sources. The province has a small trade deficit in electricity and also a very small export market. Its access to the U.S.

Table VII
Levels of Deregulation of Electricity in Canada
(as at August 2001)

Province	Fully Deregulated	Wholesale Access	Limited Retail Access	Deregulation Planned	
				Full	Partial
Alberta	x				
B.C.		x	x		
Manitoba (?)					
Ontario		x	-	x	
Newfoundland	-	-	-	-	
New Brunswick		x	x		x
Nova Scotia	-	-	-	-	
PEI	-	-	-	-	
Quebec		x	-		x
Saskatchewan		x	-		

market is through B.C. Hydro's transmission lines. Most electricity is provided by the private sector. Oil and gas companies have been relatively uninterested in electricity generation, but this may be changing. PanCanadian Petroleum Ltd. is now selling electricity to the Alberta Power Pool and has received a ten-year electricity export permit from the National Energy Board for sales to the U.S.[85]

TransAlta, an investor-owned company, provides 63 percent of Alberta's electricity (4,500 MW) with 95 percent from thermal plants (coal) and 5 percent hydro. EPCOR is publicly owned by the citizens of Edmonton and generates 20 percent of Alberta's (1,701 MW) electricity through gas and coal-fired plants. It mainly services the Edmonton region. ATCO is an investor-owned company that supplies 15 percent of Alberta's electricity by selling mainly in small and rural areas. Trans-Alta is active in foreign electricity markets. It is the largest electricity retailer in New Zealand with the 1998 acquisition of South Power soon after the deregulation of the N.Z. electricity market. It wholly owns two generating facilities in the U.S. and one in Mexico and has the majority interest in two generating facilities in Australia.

In 1999 Alberta restructured the electricity industry to permit competition in generation. All electricity generated or imported is sold to the Power Pool of Alberta where it is distributed through an hourly spot market. Once Power Pool members purchase power at the auction, they are free to resell or distribute it to their customers. Huge price increases during 2000 and a provincial election led the government to substantially subsidize consumers affected by the restructuring measures. It is interesting to note that TransAlta's website, last updated June 25, 2001, still promises that competition "ensures customer choice and prices set by an open, dynamic and competitive market instead of complicated and expensive regulatory processes. Increased competition, the innovation it brings, and lower regulatory expenses work together to bring the price of electricity down over time - to the benefit of all consumers."[86] Before deregulation Alberta had one of the cheapest and most reliable electricity systems in North America. After deregulation it experienced regular brown-outs and was the third most expensive jurisdiction in North America after California and Hawaii.

Despite the failure of electricity deregulation in Alberta, considerable pressure is being exerted on Edmonton and Calgary to sell their municipal electrical utilities. The arguments are either that electricity in a deregulated environment is a highly risky investment for a city, or that deregulation will require massive capital costs to expand in order to be a player in the international market.[87] Both fear of huge costs and the future opportunities available on an expanded market are bolstering the ideological bent in Alberta to privatize these utilities. As has been pointed out by industry analyst Myron Gordon, the risk to the people of these cities through privatization is considerable, but with careful planning the municipal utilities could continue to operate in the interests of the people of Edmonton, both as owners and as consumers.[88]

2. British Columbia[89]

B.C. Hydro, a Crown corporation, is the third largest electrical utility in Canada. It provides about 85 percent of the electricity sold in B.C. with a generating capacity of 11,133 megawatts. The other major supplier in B.C. is Utilicorp Networks, (until recently West Kootenay Power and Light Company), a private utility owned by the U.S. corporation Utilicorp, that supplies the south east section of the province. B.C. Hydro's generation is primarily from its 32 hydroelec-

tric facilities which provide about 90 percent of its supply of generated electricity, two gas-fired thermal plants, and 2 non-integrated diesel. It also purchases small amounts of electricity from independent power producers and engages heavily, through PowerEx, in electricity trading.

The B.C. Utilities Commission (BCUC) regulates both B.C. Hydro and Utilicorp Networks. While the B.C. system is currently regulated, it is in the process of deregulating, a stage that has been facilitated by the separation of B.C Hydro's integrated system into three separate and distinct units dealing with generation, transmission and distribution. BC Hydro is required to provide non-discriminatory wholesale transmission access. Retail competition in B.C. is allowed on a limited and trial basis to Utilicorp Networks and four industries, a move that indicates an inclination of the BCUC to allow retail competition (and hence deregulation) of the B.C. market. The Crown corporation also recently put up three of its units-- customer service, a vehicle division, and Westech– for sale.

In 2000-2001, B.C.'s export revenues increased enormously with the price rising from 47.2 cents per MWh in 2000 to 227.1 cents per MWh in 2001. This was largely because of the disastrous problems with deregulation in California that bid up the price of electricity. Revenues from the California market accounted for 42 percent of the total electricity trade revenues B.C. Hydro received, although $289 million is still to be recovered because some California utilities defaulted on their obligations to the power exchange and system operator. Also,B.C. Hydro faces charges of 'gouging' California and may have restitution to pay when the matter is decided in U.S. courts. The revenues B.C. Hydro received from trade increased from 32 percent of total revenues in 2000 to 69 percent of total revenues in 2001, representing a substantial ratcheting up of the significance of electricity trade to government revenues. It is not expected that these export market conditions will be replicated in the future.

While the volume of electricity trade sales did not increase dramatically, the revenues from these sales did. The result was a net income in 2001 (before transfers to customers and a rate stabilization account) of $859 million, $314 million higher than the previous year. Domestic tariffs have been frozen since 1993, resulting in the real cost to customers (adjusted for inflation) declining by 13 percent in the past decade. The volumes of electricity trade sales did not change much from the previous year but are up about 128 percent from 1999

and 243 percent higher than in 1997. This is largely a result of power trading through PowerEx rather than from an increased generation in the hydro system. In 1998 PowerEx received a 10-year blank export permit from the National Energy Board to facilitate trading activities.

Until the election of the Liberal government in 2001, B.C. managed to stave off the strong pressure from the private energy sector to deregulate the electricity market. A major task force undertaken in 1997-98 ended without agreement among its members, although the task force chair, Mark Jaccard, who was head of the B.C. Utilities Commission, strongly favored deregulation.[40] Since the election of the Liberal government strong signals indicate that deregulation and privatization of some parts of the system are extremely likely. The first step was the appointment of Larry Bell as both CEO and Chair of the Board. During his leadership of BC Hydro in the 1980s under a Social Credit government, Bell oversaw the privatization of B.C. Gas, which was then part of B.C. Hydro. Since then he has been a director of TransAlta, Alberta's main private electrical corporation.

The Liberal government's Task Force on Energy Policy issued its interim report in November, 2001, in which it strongly advocated moving to a deregulated system based on a 'market' price, the establishment of an independent transmission company, and separating generation and distribution into distinct companies with the possibility that the generation company be broken down into multiple companies in the future.[41] It also recommended that 1) the province eliminate the requirement for provincial Energy Removal Certificates that are now necessary in order to export energy from B.C., 2) that industrial and high-voltage customers be able to participate in the wholesale market, and 3) that all generators of electricity be encouraged to develop facilities for domestic and export customers. It specifically discouraged any type of pricing arrangement, such as that initiated by Québec, that provides customers with electricity at "below market prices." If these recommendations are implemented, as is highly likely, B.C. electricity prices will be integrated with those in the U.S. because B.C. customers will be competing with American customers for electricity and new sources of generation will come primarily from the private sector. The government admits that prices could increase between 30 and 60 percent. As Myron Gordon noted in his submission to the 1997 task force, the large energy corporations want to enter B.C. Hydro's market, "dis-

rupt B.C. Hydro and make it unprofitable, and ultimately capture the enormous profits to be made from taking over the province's magnificent low-cost hydro sources of power." [92]

Big electricity consumers and B.C. Hydro workers are resisting the recommendations of the task force. The industrial users anticipate that the huge rate increases would create "serious economic dislocation, destroy the fundamental economic health of many firms and result in serious unemployment, community instability and reduced government revenues."[93]

The significance of allowing private corporations to export electricity from B.C. is rapidly capturing the attention of major U.S. electricity traders. The private sale of a major gas exporter, West Coast Energy, to the U.S. corporation, Duke Energy, is a further signal that B.C. is about to experience a deregulated regime that would allow private producers to export electricity. Duke Energy is an aggressive private electricity producer and was a major player in the California deregulation story. According to California state officials, Duke Energy participated in the most "egregious example of price gouging:"it charged the state $3,800 for a single megawatt hour, a more than 12,600 percent increase over the $30/Mwh charged the previous year."[4]

3. The Prairie Provinces [95]

Saskatchewan Power is a publicly owned utility that provides most of the electricity to the province. It operates 14 power plants that generate 2,889 MW with about 74 percent from coal-fired plants, 20 percent from hydro and 6 percent from gas. It has run a small trade deficit in electricity since 1997 and has a very small export market. The Saskatchewan government opened access to its transmission system in July, 2001, in order to increase power exports. However, it is watching the restructuring process in Alberta before fully committing to restructuring.

Manitoba Hydro is a Crown corporation that supplies most of the electricity needs of the province through its 12 hydroelectric generation stations with an installed capacity of 5000 MW. A small proportion is generated from two thermal (coal) and six diesel power plants to serve remote northern communities. Manitoba Hydro, since acquiring Centra Gas from Westcoast Energy in 1999, is also the largest distributor of gas in the province, servicing 100 communities in the southern portion of Manitoba.. It is the lowest cost electricity

producer in Canada for all classes of customers and has some of the lowest costs in the world among electricity suppliers.

Exports account for about 37 percent of the company's total sales. It currently has nine formal long-term export trade agreements with six electric utilities and many short-term agreements with over 30 electric utilities and marketers in the U.S. Midwest, Ontario and Saskatchewan. Manitoba Hydro normally accounts for between 18 and 22 percent of Canada's total electricity exports to the U.S. Its active participation in the U.S. market through the Mid-continent Area Power Pool (MAPP) required a change in the Manitoba Hydro Act to allow wholesale competition. To comply with the MAPP agreement, it was required to open its transmission grid to other wholesale users, which it did in 1997. However, this seems not to have seriously affected the market of the public utility, since any private power generator would have to match the prices on the lowest-cost market in the country.

To date there are no plans for further deregulation of Manitoba Hydro. According to its Annual Report, "the Corporation expects to preserve an energy system that is among the most reliable and lowest cost in North America."

4. Atlantic Canada

New Brunswick Power is a Crown corporation that provides most of the power for the province.[*] It operates 14 power plants with a total generation capacity of 3,140 MW. About 13 percent of total generation is from hydro, 21 percent from nuclear power, and 67 percent from thermal sources (coal and oil). New Brunswick normally accounts for about 12 percent of Canada's total electricity exports to the U.S. Exports and out-of-province sales account for about 25 percent of total revenues.

While no specific plans for restructuring the market have been announced, the Select Committee on Energy tabled a report, *White Paper - New Brunswick Energy Policy 2000-2010*, recommending a gradual transition to competition in the wholesale market. The implementation of non-utility generation, wholesale competition for municipal utilities and retail competition for large industries is scheduled for April, 2003. In preparation NB Power restructured its operations into three distinct units in 2000: generation, transmission and distribution. As the Annual Report notes, "A new business unit structure for transmission better positions NB Power for open access

to regional transmission networks and facilitates opportunities for energy trading." While the restructuring process is at an elementary stage, the White Paper calls for an open access transmission tariff including ancillary services, provisions for stranded cost recovery, and the possibility of a "standard offer service" for customers who do not select a competitive supplier. The chairman's message in the 2001 Annual Report contained an ominous note: "The Provincial Government is currently examining options for the future of NB Power."

By the end of the year the board of directors was seriously considering a bid by British Energy PLC to purchase or lease the Point Lepreau (PLGS) nuclear generation station. The plant needs to be completely refurbished and the cost, estimated at $750 million, is something that may be used to justify privatization. When this occurs, it will place a substantial portion of electrical power generation in private hands in New Brunswick.[97] As industry analyst Myron Gordon noted in a presentation to the N.B. government, divesting itself of PLGS will not eliminate the province's problems, but will only "make certain that this debt burden will fall on the province, while continued ownership provides a high probability that PLGS will be a financial bonanza for the province."[98]

Full deregulation exposes N.B. to the probability of rapid and high price increases for electricity. A large gap that now exists in the price of electricity between N.B. and New England would not continue, primarily because private generators would have the option of selling in a much more lucrative market and N.B. consumers would be bidding against New England consumers for electricity. As Myron Gordon pointed out, with prices in Maine, the rest of New England and New York two to three times higher than in N.B., the argument that lower prices would result from deregulation exists only in theory.[99]

Nova Scotia Power Inc.(NSPI) is an investor-owned utility that provides most of the electricity consumed in Nova Scotia.[100] It is a wholly owned subsidiary of Emera (NS Power Holdings until 2000), a private company that trades on the Toronto Stock Exchange as EMA. The Utility and Review Board (UARB) has supervisory powers over NSPI's operation, expenditures, and electricity rates. NSPI electricity is generated primarily from five thermal power plants with an installed capacity of 2,200 MW. About 70 percent of electrical generation is from coal, 17 percent from oil, and less than 9 percent from hydro. Emera owns a 12.5 percent interest in the

Maritimes & Northeast Pipeline, which exports natural gas to the northeastern U.S. and eastern Canada. Nova Scotia does not import or export electricity and there have been no initiatives to restructure the electricity market in N.A. Emera is in the process of gaining regulatory approvals for the acquisition of all of the common shares of Bangor Hydro-Electric Company in Maine.

Maritime Electric is a private utility and is the only supplier of electricity on Prince Edward Island. Most of its electricity (98 percent) comes from NB Power. It has two power plants totaling 104 MW and a fully integrated system. No deregulation initiatives are on the horizon.

Distribution and generation are split between two companies in Newfoundland.[101] Newfoundland Power, a regulated, investor-owned utility, is the major distributor of electricity. It has a small hydroelectric generating capacity itself (148 MW), but purchases 90 percent of its power from the Crown corporation Newfoundland and Labrador Hydro. Newfoundland neither exports nor imports electricity from the U.S. Newfoundland and Labrador Hydro owns about 65.8 percent of Churchill Falls Ltd. in partnership with Hydro Québec and has entered into an agreement to last until 2041 to sell all power generated by Churchill Falls to Hydro Québec. About half of the income of Newfoundland and Labrador Hydro comes from the Churchill Falls sales.

The Board of Commissioners of Public Utilities of Newfoundland regulates both Newfoundland Power and Newfoundland and Labrador Hydro, monitoring capital expenditures, corporate policies, rates, and the issue of securities. There has been no electricity rate increase in Newfoundland for 10 years although one is planned for 2002. This is because a small proportion (about 16 percent) of the power sold in Newfoundland is generated from thermal sources that have become more expensive with increased fuel prices. There does not appear to be any plan to deregulate the electricity industry in Newfoundland.

5. Ontario[102]

In 1998 the Ontario government dismantled the Ontario Hydro system that was responsible for the generation, transmission and distribution of electricity. (Municipal electrical utilities (MEUs) also distributed electricity transmitted by Ontario Hydro and were regulated by them.) In a move to deregulate electricity and generate

competition in the industry Ontario passed the Energy Competition Act in 1998, and as a result of this process five separate entitles emerged from Ontario Hydro. Ontario Power Generation Inc. (OPG) is responsible for electricity generation and the sale of wholesale energy. Hydro One Inc. assumed the transmission, rural distribution and retail energy services business. An Independent Electricity Market Operator (IMO) was established to be the market operator responsible for the dispatch of generation and control over the transmission grid. The Electrical Safety Authority was established to perform inspection of electrical equipment and wiring installations. The management of the outstanding debt of Ontario Hydro became the responsibility of The Ontario Electricity Financial Corporation (OEFC).

Ontario's deregulation was scheduled to take place in 2000, but the debacles in California and Alberta and the inability of the IMO and MEUs to cope with deregulation so quickly led the Ontario government to postpone it. The government is now referring to deregulation as a two-step process. The initial period that dealt with the breakup of Ontario Hydro is known as the 'Transition Period.' During this period OPG is required to sell energy at regulated rates, although these rates increased 0.7 cents per kWh in June, 2001. During the transmission period customers still pay their bills on a 'bundled' basis-- that is, there are not separate charges for generation, transmission and distribution, although once this phase is over, customers will have separate charges for each activity.

The second step, which was originally to occur in 2000 and is now scheduled to happen by May, 2002, is the 'Open Access' period when competition will be introduced in generation on both the wholesale and retail markets and full access will be given to private suppliers to the transmission and distribution systems. This means customers at all levels will have 'choice' in their electricity supplier. A process of 'decontrol' will limit the generating capacity of OPG and it will be required to sell-off or lease its generating capacity so that it reduces its market share to 35 percent within ten years. It currently has 85 percent of the market share. Also, because it is expected that most energy sales still will be from OPG for some time, a price threshold of 3.8 cents per kWh will be imposed on OPG's sales, and any earnings over this amount are to be rebated to Ontario customers through the IMO.

As an initial move toward 'decontrol' it has leased its Bruce A and Bruce B generating stations to Bruce Power L.P., an entity controlled by British Energy PLC. Industry analysts Myron Gordon and John Wilson estimate that the province gave up, through this lease, an operating cash flow (that is, earnings before deducting depreciation, interest and taxes) of at least $600 million per year for 20 to 25 years, making this the "largest gift to a private corporation by a Canadian government in the country's history."[103]

At the end of 2001 the privatization of Hydro One was announced. This action, billed as the largest privatization in Canadian history, will take place through an initial public offering that the province hopes will raise about $5 billion.[104] Hydro One owns $10 billion in assets that include almost all the high-voltage transmission lines in the province and about one-third of the distribution system, primarily in rural areas. While the province's energy minister, Jim Wilson, insists the sale will not translate into higher electricity prices for consumers, consumer groups (which include industrial heavyweights such as General Motors of Canada and Dofasco) are vehemently opposed to the privatization.[105]

Although private companies have so far applied to build 13 electricity plants in Ontario worth $3 billion, they are not proceeding until deregulation actually occurs. Since Ontario is relying on the private sector to build all new generation capacity, the delays in initiating deregulation are making many private producers uneasy.[106] If the private producers do not build, there could be problems with adequate supply in Ontario in the future because there will be no planning or oversight for new facilities.

OPG is one of the largest electricity generators in North America with 69 hydroelectric, six fossil fuel, and five nuclear generating stations. In 2000 it generated 136.2 TWh of electricity with about 44 percent coming from nuclear energy, 31 percent from fossil fuels, and 25 percent from hydroelectric generation. OPG has historically exported energy to the Midwest and Northeast regions of the U.S. and also has small markets with Manitoba and Québec. The amount sold on these interconnected market varies considerably from a high of 12.6 TWh in 1994 to a low of 3.0 TWh in 1998, but average sales are about 4.8 TWh per year, or about 4 percent of total electricity generated.

Privatization efforts in Ontario continue at a rapid rate. The generating stations Lakeview (1140 MW), Lennox (2140 MW), Thun-

der Bay (310 MW) Atikokan (215 MW), and four Mississagi River generators (490 MW combined) are for sale. These stations plus the Bruce nuclear reactors will place about one-third of all generation in Ontario in private hands. According to one analyst, "this cut means Ontario can no longer supply enough electricity to get us through a cold winter."[107] The main problem is that with the possibility of selling the U.S. market, private electricity companies will have little incentive to sell in Ontario unless the prices there match those in the U.S.

6. Québec[108]

Hydro-Québec, a publicly owned firm, is the largest electrical utility in Canada and one of the biggest in North America. It operates 51 hydroelectric and 29 thermal generating stations with an installed capacity of 31,512 MW. Hydro makes up 93 percent of the installed capacity. Hydro-Québec is the major purchaser of the generation from Churchill Falls power plant, which has a capacity of 5,428 MW. It usually exports about 37 percent of total value of Canadian electricity exports to U.S., representing about 20 percent of Hydro-Québec's total sales. In 2000 its proportion of total Canadian electricity exports fell to 26 percent, even though it increased its exports by over $346 million because the spectacular crisis in California had resulted in a huge increase in revenues for B.C. Hydro. Hydro-Québec has a power license, through its subsidiary H.Q. Energy Services (U.S.), to buy and sell electricity under market conditions in the U.S. In 2000 Hydro-Québec set up an energy trading floor in Montreal and as a result has greatly increased its volume of power purchases and sales on all markets outside Quebec. However, the volume it generates for export has remained relatively constant.

Hydro-Québec is actively involved in power generation in other countries, primarily China and Central America, where it participates in the financing and management of infrastructure projects. It operates Panama's largest hydroelectric facility, Fortuna, and holds a 16.6 percent share in this facility. In China, Hydro-Québec holds a 20 percent interest in Meiya Power Company, the major independent power producer in the country, and also has a stake in the Qingshan power plant in Hunan province. Hydro-Québec is also involved in transmission systems in South America. It built the Mantaro-Socabaya interconnection in Peru and continues to

operate this and the recently acquired Transelec, Chile's largest power transmission company.

Since 1998 Hydro-Québec has been regulated by The Régie de l'énergie (Energy Board). In 2000 Hydro-Québec was required (through Act to amend the Act respecting the Régie de l'énergie) to begin a process of allowing competition in generation by unbundling its distribution and generation activities. Through this deregulation exercise electricity generation will be removed from the jurisdiction of the Régie de l'énergie. However, in order to protect consumers in Québec the government has established a 'heritage pool' giving Québec consumers access to a maximum of 165 Twh per year of Hydro-Québec's generating output at a fixed price of 2.79 cents per kWh. Beyond that volume, the law opens the wholesale market up to competition. Hydro-Québec's transmission and distribution costs, which continue to be regulated, are added to the cost of supply.

V. IMPLICATIONS OF GATS FOR ELECTRICAL UTILITIES

The Canadian government's GATS negotiating position seems reassuring when it states that any services in the public sector should not be subject to GATS. "The GATS cannot be interpreted as requiring governments to privatize or to deregulate any services. We recognize the right of individual countries to maintain public services in sectors of their choice: this is not a matter for the GATS negotiations. However, in sectors where countries have chosen to undertake specific commitments under the GATS, the mutually-agreed rules of GATS should apply."[10] This is a good position, but it means nothing in the context of a formal trade agreement that already has negative implications for services in the public sector. The catchwords here for electricity are "in the public sector." As was noted above, the governmental authority exclusion (Article I.3.c) is highly restrictive and it would appear to deny protection to any electricity entity in the public sector.

With the beginnings of a deregulatory regime in most provinces the door has been opened not only for the private delivery of electricity but also the shift to a system that is no longer controlled by the public in the public interest. While some provinces (Alberta and Ontario) have indicated a desire to completely deregulate, not all have indicated they wish to move in this direction and have done the least they can to comply with FERC regulations without jeopardizing

public interests in electricity. The main problem with Canada agreeing to any provision for electricity in the GATS is that it provides the means for escalating the commitments provincial governments have made so far to deregulate under FERC requirements. Should Canada sign on to energy in the GATS, the benefits of any public ownership of resources would be nullified because access to the resources would be open to challenge through a variety of GATS requirements, including market access, national treatment, and controls over domestic regulation.

It is also important to note that when Canada talks about the 'public sector', it seems to focus on a limited notion of what this encompasses. Listed under its objectives during this round of negotiations is the intent to "preserve the ability of Canada and Canadians to maintain or establish regulations, subsidies, administrative practices or other measures in sectors such as health, public education and social services." Hence more commercial-type services, like electricity, are not specifically singled out for protection.

GATS provisions for 'market access' and 'national treatment' are critical and significant tools for those pursuing private control in a deregulating market. It is likely that the extent that countries 'sign-on' to these measures will be varied, but the strategy will be to get a 'foot-in-the-door' and increasingly to put pressure on lagging countries to open their markets. The critical question ultimately will be: who will have access to the power sources? While they can technically remain under government ownership, determining who will be able to use these resources will not be under government control. The U.S. behavior on 'stumpage fees' for softwood lumber under Crown control in B.C. is indicative of the position of private corporations, backed by enormous U.S. power, to insist that any system of ownership that deviates in any way from market (in the widest possible sense - i.e., an international market) prices and access to the resource will be contested through international trade bodies.[10]

Market access provisions, when they are agreed to, prevent governments from putting limits on the actions of foreign energy providers. A government could be challenged under market access provisions if it decided that some restriction on the number of new gas generators that could be built within a specific area was needed. This is because GATS specifically prohibits governments from placing "limitations on the total number of service operations or on the total quantity of service put..." [Article XVI, 2 (c)] Even if this were

a domestic regulation applying to all corporations, such a limit on production possibilities could be challenged as a trade barrier that is illegal under GATS.

GATS provisions also could have implications for a Québec style of deregulation where a large portion of Hydro-Québec's generation is deemed a 'heritage pool' in order to assure stable pricing and adequate supply for domestic customers. This could be challenged under GATS as a regulation that limits the value of a market share for foreign investors and providers. Simply maintaining the huge generating capacity of Hydro-Québec could be challenged as an inappropriate monopoly action and could force an Ontario-style deregulation on that province. In order to protect consumers, provincial governments would need to list an enormous number of current practices as limitations on market access and national treatment. Once practices are listed, enormous pressures will be placed on governments to remove these limitations in subsequent rounds of negotiations. With a company like Hydro-Québec, which is actively involved in international electricity projects, this pressure is likely to be very strong.

As restructuring results in changes in the market that lead to privatization initiatives, GATS is likely to have an impact on who owns the existing public enterprises. While Canada has a horizontal limitation on 'national treatment' that reserves the right to exclude foreign corporations when privatization occurs, the presence of foreign providers in the existing markets (such as British Energy PLC in Ontario, and Utilicorp in B.C.) could make this limitation without effect on any new privatization initiatives.[11] It is important to note that Canada's horizontal limitations on public services, designed to allow differential treatment in terms of benefits or price, only pertain to a small sub-set of public services. Differential benefits are reserved for income security or insurance, social security or insurance, and social welfare. Differential prices are reserved for public education, training, health, and childcare. Neither differential benefits nor differential prices are reserved for any other kind of public service, including electricity. This could have huge implications for any attempts to protect consumers in Canada through differential pricing between domestic and export markets if Canada includes electricity in its commitments under GATS.

A. Deregulation and Market Power

The major risk with deregulation is the probability that regulated domestic utilities will be replaced with unregulated private monopolies whose prices are manipulated and supply is not secure. The way markets behave in a deregulated regime is less predictable than textbooks and those advocating deregulation would lead one to believe. The classically competitive market, the ideal that is held up as a promise of the future electricity market, is one in which there are a great many sellers and buyers of a product-- so many that no seller or buyer will be able to influence the supply or the prices paid. In this ideal world, price guides production and distribution decisions so that the most efficient use of the resource is achieved.

In the real world, competitive markets are rare and only occur in those industries that have relatively small entry costs. This is not a condition that exists in the electrical industry, and the move toward deregulation in Canada is occurring at precisely the time that competitive forces are being thwarted through massive industry concentration both in North America and throughout the world.[112] Imperfect markets, rather than competitive ones, dominate in the industry when deregulation occurs. These imperfections arise as a result of corporate mergers, acquisitions and predatory pricing and create unanticipated and exceedingly unattractive distortions in public policy outcomes. In electricity markets that have experienced deregulation and privatization, the evidence is compelling that corporate concentration very rapidly occurs, allowing market control to be exercised by private energy producers or traders from the outset.

The huge problems created through deregulation in California are an obvious example of manipulation and market power. The possibility of collusion between electricity suppliers led California Governor Gray Davis to initiate an investigation into whether price spikes had occurred because of "possible manipulation in the wholesale electricity market."[113] But even less spectacular cases point to the problems that arise. The situation in the U.K. is one of the most telling examples of the way markets become concentrated and targets for takeovers by international energy companies. According to one energy analyst, "the new structure failed [to be competitive] either because it was infeasible or the government lacked the political will to enforce it, so that the industry now lies at the mercy of the players, which inevitably maintain a strong interest in stifling competition, because real competition increases risks and reduces profits."[114]

From the very beginning of the U.K. privatization exercise foreign firms rushed in to control the market. The U.S. 1992 Energy Policy Act allowed, for the first time, U.S. electrical companies to invest in foreign corporations. The attractiveness of foreign markets led to a huge increase in mergers and acquisitions by U.S. firms and an astronomical growth in size in relatively small, insignificant regional power producers. Deregulation in the U.K. rapidly led to the U.S. ownership of two-thirds of that country's regional electricity companies.[15]

Within the U.S. electricity industry, concentration has proceed at a phenomenally rapid rate since the beginnings of deregulation. Between 1996 and 1998 there were an average of 12 merger and acquisition announcements annually and there are currently 9 percent fewer investor-owned utilities than there were at the beginning of the 1990s, resulting in almost 20 percent fewer people working in the industry.[16] One of the major differences in the new round of mergers, aside from the quantity of mergers taking place, is the size of the companies merging: they have involved some of the largest companies in the industry, giving the merged companies considerable market power. For example, the merger between FPL Group of Florida and Entergy Corporation of Louisiana gives the new company 11 percent of the U.S. nuclear power generation market. Another company, Exelon, resulting from the mergers between Unicom (Illinois) and PEOC Energy (Pennsylvania), will account for 17 percent of total nuclear capacity in the country.

These mergers and acquisitions usually have been within the electrical industry, but electrical utilities are trying increasingly to integrate their structures, and so their acquisitions are encompassing natural gas firms, coal mines, and other sources of power generation. According to the chairman of Dominion Resources (which until recently was an obscure regional U.S. utility) whose recent merger made it the fourth biggest gas and electricity firm in the U.S., "We've created a firm that reaches from the wellhead all the way to the final destination, the customer."[17] This is ironic in an era that lauds and even demands the disintegration of vertically integrated public utilities: private corporations are busily replicating significant aspects of the structures of public monopolies, although not with the guarantees for public accountability. The electricity market is so lucrative that even oil giants like Texaco and Shell are entering it. According to the head of Shell Exploration and Production Com-

pany, "we are committed to gas, and so to ensure access to markets and customers, we must get into the power business."[118] The new energy conglomerates are seeing total returns in electricity markets far outpacing every other energy sector.[119] Enron, until its recent spectacular decline, was the largest buyer and seller of natural gas and electricity in North America, Scandinavia and the U.K. It operated on the notion that the aggregation of the various sectors of the industry would be the key to success. According to its CEO and president, "our wholesale energy merchant business — the buying, selling, financing and packaging of natural gas and electricity — is really the center of the universe for us now."[120] Clearly, electricity generation will drive much of gas growth in the future, and any energy company that wants to expand will do all it can to acquire electricity generation firms. The dangers to the public of this private integration of energy resources are clear from the fallout from Enron's reprehensible business practices. The inability of the federal regulators (FERC) to understand the complexities of the arrangements of this massive company created a "regulatory black hole" that leaves the public unprotected from market manipulation.[121] While other large players may escape Enron's fate, their power in manipulating the market is comparable and something the international system has no mechanism to control.

Industry concentration leads to restrictive practices, a lack of transparency, and price spikes. According to an industry analyst in Australia, John Spoehr, "there is an incentive in the new market-based system to under-invest in new generation capacity to keep supply at levels which maximize financial returns to the generators."[122] Even the U.S. Department of Energy, an agency that supports deregulation, recognizes the problem of market power when markets deregulate: sharp price spikes are not new to pool-based electricity exchange systems. In countries that have adopted pool-based electricity trading systems, such as the United Kingdom and Australia, concerns have arisen about the connection between price spikes and market power. In the wake of California's recent experience with its electricity pool, a similar concern has been expressed regarding suppliers who may have achieved excessive market power."[123]

The main point to take from this is that with the huge growth of international power players who can fairly rapidly shift in and out of markets because of their size, instability becomes an inherent feature

of the system. Investment in new facilities, when it occurs, will be made with a shorter-term profit horizon than was typical of regulated utilities, a tendency that largely ignores national capacity issues. The result is a cycle of capacity shortage that exacerbates price spikes, a process that itself encourages under-building.

Instability in a deregulated market is accentuated by a new phenomenon in the electricity industry-- energy traders. When electrical generation serviced a defined area, ties between jurisdictions existed for exporting surplus or for importing energy as secondary backups for emergencies. With the expansion of export markets and deregulated systems, energy traders buy electricity on the spot market and trade it in other jurisdictions. Huge trading floors are run by power traders such as Enron Corp., Reliant Energy Inc., Dynegy Inc. and Duke Energy Corporation. Enron alone had 1,500 traders and accounted for a quarter of all the natural gas and electricity traded in the U.S.[124] These traders are in a spectacularly advantageous position to control prices and manipulate supply in a way that leads one analyst to refer to their actions as akin to the actions of junk bond traders on Wall Street in the 1980s.[125] A report by California's electricity grid managers concluded that 98 percent of the trading bids between May and November of 2000 were driven up by non-competitive patterns of behavior. According to an attorney who is involved in a class-action suit against the traders in California, "the whole trading thing is just a front that lets them game the market. They can get away with it because no one (outside the industry) can figure out what they are doing."[126]

One problem private traders experience when in competition with public utilities such as in B.C. and Québec is that they do not have access to large storage systems (dams) that are in the public sector. This gives the traders associated with public companies like B.C. Powerex a huge advantage, because they can buy power when it is relatively inexpensive and use it for provincial customers rather than drawing down on the water reserves in the dam. Then when the company can make money in more expensive markets, it can increase its generation from water that has been saved in dams. The power traders claim this is an 'unfair advantage' that the public system has over the private systems, and they want the storage facilities of the public systems included in the common infrastructure that is deregulated so that they can use them when trading power. The issue of rights to storage is likely to be one of the first challenges that a public

utility could face through 'market access' and 'national treatment' conditions under a GATS comprehensive inclusion of electricity.

Deregulation is the objective of the GATS, but its benefits in the electricity industry are narrowly focused. Benefits would accrue to exporters and private producers who now want to expand their influence over production and distribution in the public sector. The concentration of market power that ensues from deregulation would nullify the benefits that exist in a public system; benefits that balance the need for electricity with the problems that its creation and distribution spawn for the environment and communities. It will also create considerable instability within the system, both for electricity prices and for the security of supply. The large energy conglomerates have a clear and aggressive strategy to control the major electricity markets in the world. While the private sector has planned and ensured that the world regulatory systems meet their objectives, the same cannot be said for government objectives. The government of Canada has no specific long-term plan for electricity. It has left this planning to the private sector and seems to want to accommodate the needs of this group without an analysis of the implications for the public objectives that are essential to preserve in any electricity system.[127]

B. Implications for Developing Nations

Venezuela and Chile are the only developing nations that have suggested their negotiating positions on energy services in the GATS. Venezuela specifically calls for the energy needs of developing countries to be considered in a way that goes beyond a trade-based perspective: "It would be in the interests of developing countries if these negotiations were approached with a wider focus than a merely trade-based perspective, and if the results could help to enable them to achieve their objectives linked to the strengthening of their domestic entrepreneurial capacity, technological development and the protection of the environment and natural resources."[128]

How the electricity needs of developing nations will be accommodated under a GATS regulatory structure is hard to imagine unless it is merely short-term. The interests of the private traders and providers in the developing world are to gain access to these markets because they have the most growth potential in the near future. [See Table VII] The main focus for the western companies is to bypass the constraints that they have experienced in developing countries where

utilities have remained firmly under public control even after considerable privatization. Some companies, like Enron in India, have experienced frustration when they tried to behave in developing countries in ways that are acceptable in deregulated markets but that are inappropriate when the wider objectives of development are taken into consideration.

Industrialized countries consume about 60 percent of the world's electricity, a figure that is expected to drop to less than half that within twenty years as the growth of electricity consumption in developing nations rapidly increases. The significance of electricity growth in developing nations has not been lost on energy producers in developed nations. Virtually all major players have become active in the electricity markets of the developing world, including public utilities in Canada like Hydro-Québec, and private utilities such as TransAlta.

Table VIII
World Net Electricity Consumption by Region
(Billion Kilowatt-hours)

Region	History		Projections		Change
	1990	1999	2010	2020	1999-2020
Industrialized Countries	**6,385**	**7,517**	**9,352**	**10,888**	**1.8**
U.S.	2,817	3,236	4,147	4,864	1.9
EE/FSU*	**1,906**	**1,452**	**1,760**	**2,138**	**1.9**
Developing Countries	**2,258**	**3,863**	**6,191**	**9,203**	**4.2**
Developing Asia	1,239	2,319	3,883	5,856	4.5
China	551	1,084	2,035	3,131	5.5
India	257	424	654	949	3.9
South Korea	93	244	433	437	3.0
Other Asia	337	578	858	*1,339*	3.9
Central and South America	**449**	**684**	**1,035**	**1,552**	**4.0**
Total World	**10,549**	**12,833**	**17,303**	**22,230**	**2.7**

*Note: EE/FSU= Eastern Europe and the former Soviet Union

Sources: U.S. Energy Information Administration, *International Energy Outlook 2001*, p. 119

The main dilemma for developing nations will be to determine the extent that they will have to agree to the GATS deregulation initiatives in order to have access to western technologies and funds. As a condition for granting loans, the IMF and the World Bank often include electricity among the infrastructures requiring deregulation.. The countries are then placed in the unenviable position of having to try to meet the needs of a poor population with an industry that demands returns for its shareholders. So, for example, when Brazil announced a mandatory scheme of power rationing, a major U.S. company threatened to withdraw from a $2 billion power plant project.[129] The countries that deregulate first and fastest will obviously attract foreign investment, and the more any country tries to maintain control over its electricity system, the more it is likely to be frozen out of international funding and dropped by the big private firms interested in working only in a deregulated market. Countries like India are increasingly concerned about the possibility of corruption in the terms of the agreements that have been signed with private western power-producers.[130] After Enron entered into an agreement to build the world's largest gas-fired plants, public pressure forced the electricity board to reassess the terms. The claim was that it would produce power that was much too costly and would primarily benefit only Enron and politicians who had been bribed. This resulted in holding back payments to Enron, leaving a political mess that led one politician to plea: "Free us from Enron."

It is experiences like Enron's that will undoubtedly place pressure on developing nations to ensure that future electricity projects are fully covered by GATS so that corporations will have recourse to the WTO when investment projects run into trouble. But deregulating electricity presents huge perils for developing nations, particularly considering the aggressive nature of large energy companies and the very real possibility that the case of Enron will not be unique.

C. Environmental Issues

When California and Ontario were contemplating the deregulation of the electricity industry, many environmentalists supported of the initiative. Their argument was that through competition in a deregulated market, more 'green power' could be used than in a market where supply and price were firmly under the control of monopolies.[131] Governments were encouraged by this rosy depiction of the way that a deregulated market would work and marshaled

these groups in support of changes. The arguments of some environmentalists fit nicely with private industry's promises that emerging competition would allow people to 'choose' their energy supplier and also pay a premium for 'green energy' if they were so inclined. It should be noted that not all environmental groups subscribed to these arguments. These environmentalists also argued that if market activities drove up energy prices, contrary to what the industry was saying, it would be good because it would discourage increased energy consumption. Even if the promises of private producers under a deregulated system did not occur, the outcome would be good for the environment.

There are serious problems with these arguments. The most significant relates to the simplistic notion that high prices will reduce total energy consumption in a deregulated market. The logic of conservation under a regulated monopoly is considerably different from a deregulated system. A regulated utility that is required to provide electricity to its customers faces enormous start-up costs for any new generation of power brought on line. It is in the interests of this utility to encourage its customers to conserve energy, and it will go to considerable lengths to see that this happens through 'demand-side management.' Most public utilities began demand-side management programs: for example, B.C. Hydro, before the specter of deregulation changed its policy, encouraged both domestic and industrial customers to cut back on consumption through time-sensitive pricing, outright rebates for retrofitting and the installation power-efficient appliances.[12] Even though these initiatives were expensive, paying for this new 'found' energy was considerably cheaper than investing in new power plants. The logic of power conservation completely changes in a deregulated market where the whole point of production is to sell as much as possible. In this case, if competition between suppliers actually emerges (doubtful, as was seen above), it will be in their interests to entice customers to consume as much as possible. In that way everyone will be able to sell more at the highest possible prices.

In the deregulated continental market that is emerging in North America, a great many conditions arise to encourage both greater production and greater consumption of energy. Energy producers in Canada, for example, will be encouraged to increase production in order to be able to sell to high-priced U.S. markets. Companies like B.C. Hydro may continue to encourage PowerSmart programs, but

these programs begin to take a decidedly different approach to conservation. B.C. Hydro has begun to buy back energy it has promised to large industrial producers, because it can sell this at a much higher price in the U.S.[133] It is encouraging conservation in Canada so that it can sell more in the U.S. This is not overall conservation that will prevent the need for more energy, as was the original PowerSmart design, but merely encouraging low use in a low-price area so sales can increase to high-priced markets. The ultimate objective is to sell more everywhere, and 'demand-side management' has no place in this kind of market.

In a deregulated market strong incentives exist for new production to come on line. As was noted earlier in this study, the high price of deregulated energy is encouraging the use of dirty and dangerous fuels. When the initial deregulation measures were undertaken, there was some hope that these fuels would be abandoned in favor of natural gas in electricity generation. Both California and Ontario were heavily reliant on nuclear power production, and it was under these circumstances that environmentalists supported the deregulation of the industry. The important point is that circumstances in places where hydroelectric generation dominates production are significantly different. When a hydro-based industry is deregulated, it is highly likely that most new production through private power producers will be from natural gas, coal, or nuclear energy rather than hydro sources, therby considerably worsening the environmental degradation from electricity production.

When markets (particularly electricity markets) deregulate, they rarely take on the competitive nature usually promised. That is, the markets are not characterized by the classic textbook notion of many small producers who compete with each other to woo customers. Rather, market manipulation, market concentration and the exercise of market power undermine any attempts to use the product in the public interest. When the product is an essential service, like electricity, where the interests of people, the needs of industry, and the environmental damage caused by any form of electricity production need to be carefully weighed and balanced, letting the market take its course is a recipe for disaster. The market simply is not efficient when values other than property rights are at stake. While the notion of "choice" as exercised through the market appeals to the democratic nature of a society based on the significance of individual will, the public has recognized, through time, that market incentives

cannot promote the public's collective interest, especially when environmental matters are involved.

Canada's negotiating submission on the GATS specifically mentions the need for a "systematic process of identifying and evaluating *likely* and significant environmental impacts of trade negotiations." To this end Canada promises to "undertake domestically an environmental assessment of the GATS in accordance with Canada's *Framework for Conducting Environmental Assessments of Trade Negotiations*." [14] The difficulty with this promise is that until people can know exactly what Canada will agree to with regard to energy, it will be impossible to understand and make representations to the government about the GATS-specific environmental implications. Nevertheless, if the government were to undertake an examination of the GATS with regard to the deregulation of electricity in general, it could fulfill its promise on environmental assessment. If it waits until after the GATS negotiations are completed, the environmental assessment will be useless.

VI. CONCLUSION

Canada has recklessly allowed its relatively small export market set the agenda for the future of the electricity industry in this country. Ninety-four percent of Canada's electricity goes to people and industries within its boundaries, while an average of only six percent is exported. Yet both the security of supply and reasonable prices are at risk through deregulation measures designed, for the most part, to accommodate existing and future exports. When electricity was firmly within government control through both public and private integrated monopolies, and exports proceeded through long-term contracts, international trade agreements could not affect the ways that public resources were used. Governments could insist on planning for an adequate future supply, for environmental protection, and for ensuring a price to domestic consumers that was based on the costs of production. The process of deregulation has exposed a rational use of resources to the chaotic operations of the market. On top of this reckless approach to an essential service, deregulation has failed to anticipate the consequences of GATS and other trade agreements.

Some provincial governments have tried to limit their exposure to deregulation and do not intend to submit fully to the vagaries of the electricity market, but they may have little choice if Canada

continues to encourage measures that further liberalize energy markets. Thus far the Canadian government has been silent about its position on how electricity should be treated in the GATS. It was similarly silent on water in NAFTA, and the result was a lack of clarity that misled the population into thinking water was not included in the trade agreement.

The deregulation of electricity exposes Canada to enormous hazards. The most obvious is the harmonization of prices upward to prevailing U.S. levels. As private firms provide increasing levels of electricity generation, there will be no way to prevent them from exporting power to the market where prices are the highest. With the Canadian dollar at an all-time low, this price increase will cause hardship for many people, particularly those in rural and hard-to-service areas or with low incomes. Price increases will also raise production costs for Canadian industrial users, something that will affect their ability to remain competitive and will ultimately have an impact on the general level of production and employment. Any attempts to protect domestic consumers, such as Quebec's 'heritage market' approach, may cushion the full impact of deregulation for a short period, but it will be transitional. Private power traders and producers will be shut out of this market and will be able to complain about this hiving-off of the market as a barrier to trade. Ultimately, Canadian utilities will be forced to raise their prices to continental market levels.

Integrated public utilities are able to balance competing issues that are not easy to reconcile, such as those involving equity and the environment, with the need to exploit resources to generate and deliver energy to end-users. It is highly unlikely that uniform pricing could be maintained in a province through a deregulated market. In remote areas security of supply may be a particularly serious issue. Environmental issues will be fully exposed to the whims of the market. Fuel sources used will be based on market decisions, not on environmental considerations. And conservation measures that are rational in the market of a public utility make no sense when producers only have an incentive to sell more. All of the efficiencies that are available through an integrated utility will be broken up when decisions about generation are not directly planned in coordination with the transmission and distribution system.

Some provinces are proceeding with deregulation as though it and privatization are two separate and distinct actions. But deregu-

lation is not a half-way measure, it is the 'thick-edge-of-the wedge' for privatization. Deregulation means breaking up integrated public monopolies and encouraging private participation in the market. When this is done, the major efficiencies that an integrated public utility can realize are lost. As it becomes less efficient, its value to the public will ultimately diminish. Under these circumstances, then, the sale of the public assets seems a more sensible move.

The most serious issue for Canadians is the complete deregulation of the electrical industry itself. Even regulated private monopolies can and have been made to use the public resource in a manner that is consistent with the public interest. A regulator can demand that they periodically submit plans for future electricity supply, control prices, and review new projects for their impacts on the environment and communities. In a deregulated market-- even if some aspects of production remain under public ownership-- all of the benefits of a regulated utility are lost. Because the intent of GATS is to increasingly deregulate markets, any incremental movement toward this end with regard to electricity will place Canadian electrical utilities on an escalating path toward deregulation.

Electricity is not a commodity like others; it is an industry that provides for human survival in a densely populated and complex world. Electricity is the basic infrastructure for every industry and virtually every job in the country. The significance of who controls this industry cannot be understated.

ACRONYMS

APEC	Asia-Pacific Economic Cooperation
BCUC	British Columbia Utilities Commission
CCGTs	combined-cycle gas turbines
ECT	Energy Charter Treaty
EU	European Union
FERC	U.S. Federal Energy Regulatory Commission
FTA	Canada-U.S. Free Trade Agreement
FTAA	Free Trade Area of the Americas
GATT	General Agreement on Tariffs and Trade
GATS	General Agreement on Trade in Services
IMF	International Monetary Fund
IMO	independent electricity market operator
IPPs	independent power producers
MAPP	Mid-Continent Area Power Pool
MEUs	municipal electric utilities
MFN	most-favored-nation trade rule
NAFTA	North American Free Trade Agreement
NEB	Canada National Energy Board
NSPI	Nova Scotia Power, Inc.
OEFC	Ontario Electricity Financial Corporation
OPG	Ontario Power Generation, Inc.
OECD	Organization for Economic Cooperation and Development
UNCPC	United Nations Provisional Central Product Classification
UTARB	Nova Scotia Utility and Review Board
WTO	World Trade Organization

NOTES

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[1] Barrie McKenna , "Klein wants to deal on energy, what's left to deal?" *Globe and Mail*, Business Comment, June 15, 2001.

[2] There have been substantial increases in gas interconnections between Canada and the U.S. recently. In 1999 The Northern Border Pipeline, an extension of the Nova Pipeline, came onstream to connect Chicago thorough the upper Midwest. The Maritimes and Northeast Pipeline running from Sable Island to New England came onstream in January 2000. Even more recently, The Alliance Pipeline came onstream. This is a 1,875 mile pipeline from Fort St. John in B.C. to the Chicago area and is designed to carry about 1.3 billion cubic feet per day of gas. Another pipeline, The Millennium Pipeline, designed to connect Canadian gas to southern New York and Pennsylvania is under regulatory approval. B.C. also exports gas to the U.S. utility Pacific Gas & Electric. [U.S. Government, Energy Information Administration, Feb. 2001.]

[3] For an analysis of NAFTA's implications for oil and gas see Larry Pratt, *Energy: Free Trade & The Price We Paid* (Edmonton: The Parkland Institute, 2001).

[4] Canada, Natural Resources Canada, *Important Facts on Canada's Natural Resources* (July 2000) and U.S. Dept. of Energy, "Country Energy Data Report, Aug. 3, 2001.

[5] NAFTA, Chapter 6, Annex 602.3.

[6] Power marketers buy and sell power on wholesale markets and market electricity directly to utilities or customers. Usually power marketers do not own generation, transmission, or distribution facilities themselves.

[7] This drive for exports comes from provincial governments that derive increased revenues from exports as well as from private producers. For example, in 2000 Cominco in B.C. shut down its operations so that it could export power to the U.S. rather than use it in production. This brought $137 million in revenue to the company.

[8] FERC has oversight of interstate transportation and sales of natural gas and electric power.

[9] FERC orders 888 and 888A require all transmission service providers that wish to sell power at unregulated rates in the U.S. market to post a *pro forma* open-access transmission tariff with FERC. In doing this they are essentially unbundling the transmission charge from the cost of electric power so that all users pay the same transmission charge - even the public utility that owns the transmission system.

[10] WTO, Council for Trade in Services, *Energy Services: Background Note by the Secretariat*, September 9, 1998.

[11] For an analysis of the development of the public electrical industry in Canada see Karl Froushauer, *White Gold: Hydroelectric Power in Canada* (Vancouver: University of British Columbia Press, 1999)

[12] This needs to be qualified by the recognition that mega-projects such as Churchill Falls and much of the Québec and B.C. Hydro systems had an export objective.

[13] This is modified for states that feel a regulated monopoly is more advantageous.

[14] For a discussion of deregulation and privatization of electricity in Latin and South America see Anil Hira, "Evaluacion Politica de la Integracion Electrica en el Cono Sur," *Revista CIER*, (Montevideo: CIER) Ano X, No. 36, June/July 2001.

[15] A natural monopoly occurs when a single large firm would have the lowest cost of production and could prevent other firms from entering the industry because set-up costs are high and the 'natural monopoly' can sell at relatively low prices. Usually a natural monopoly exhibits economies of scale, which means that as production increases the costs per unit decline.

[16] See, for example, Margaret Jess, "Restructuring Energy Industries: Lessons from Natural Gas," *Natural Gas Monthly Special Report* (Washington, DC: U.S. Dept. of Energy, May 1997).

[17] Early gas turbines were relatively inefficient but in the late 1980s the introduction of the combined-cycle gas turbine changed the economics of this industry–at least in the short-term. In a combined-cycle turbine the excess heat from a gas turbine powers a second steam turbine. The process has enabled efficiencies to rise from 30 percent, which was typical for the fossil-fueled steam-electric plants and the more conventional gas turbines to about 60 percent most recently. [Harry R. Linden, "Technology as an Enabling Force in the Global Restructuring of the Electric Power Industry," *The Electricity Journal* 18, 10 (December 1995). For a discussion of combined cycle gas turbines in terms accessible to non-experts, see Christopher Flavin and Nicholas Lenssen, *Powering the Future: Blueprint for a Sustainable Electricity Industry* (Washington, D.C.: Worldwatch, 1994), pp. 20-23.

[18] Calpine's rationale is a good example of sticking to generation and integrating gas and electrical production, but not getting into transmission and distribution. Mathew Ingram, "Calpine rides the power wave into Canada," *The Globe and Mail*, July 27, 2001, B8.

[19] See, for example the *Integrated Electricity Plan*, January 2000 that B.C. Hydro was required to file with the B.C. Utilities Commission

[20] For an analysis of the privatizing process in the U.K. see Andrew Holmes, *Privatising British Electricity: Restructuring and Resistance* (London: Financial Times Business Information, 1992).

[21] Dick Cheney, Colin L. Powell, et al., *National Energy Policy: Report of the National Energy Policy Development Group* (Washington: US Government Printing Office, 2001) p.1-1.

[22] Ibid, pg. viii.

[23] Ibid, p. 5-10.

[24] Ibid. p. 1-5.

[25] Other areas in the U.S. that experience problems are more related to transmission capacity limits than to inadequate generation. These areas are The Great Lakes and the Southeast.

[26] Ibid., p. 8-1.

[27] Ibid., p. xv.

[28] Ibid. p. xv.

[29] Bill McKibben, "Some Like It Hot," *The New York Review of Books*, XLVIII, 11, July 5, 2001, p. 38.

[30] *National Energy Policy*, 2-1.

[31] Chad Skelton, "U.S. delegation in Whistler clear: B.C.'s energy resources in sights," *Vancouver Sun*, July 27, 2001. p. D7/13.

[32] *National Energy Policy*, p. 8-3.

[33] Ibid., p. 8-6.

[34] Ibid., p. 8-6.

[35] Ibid., p. 8-7.

[36] Ibid., p. 8-6.

[37] WTO, www.sto.org/wto/services/services.htm.

[38] WTO, General Agreement on Trade in Services, Article XIX, 1

[39] The Canadian Centre for Policy Alternatives has produced several publications that explain the GATS in detail. See Scott Sinclair, GATS: *How the World Trade Organization's new "services" negotiations threaten democracy* (Ottawa: CCPA, 2000); Matthew Sanger, *Reckless Abandon: Canada, the GATS and the future of Health Care* (Ottawa: CCPA, 2001); Scott Sinclair, *The GATS and Canadian Postal Services* (Ottawa: CCPA, March 2001).

[40] There were important political reasons for these two different sections. Service industry coalitions wanted comprehensive coverage, but some countries could not commit to including all parts of their service sectors in the 1994 agreement. The two-part arrange-

ment provided a point of leverage-particularly because a built-in negotiating agenda was included.

[41] GATS, Part II, General Obligations and Disciplines.

[42] GATS, Part III, Specific Commitments

[43] Marjorie Griffin Cohen, "The General Agreement on Trade in Services: Threats to Public Post-Secondary Education in Australia," *Australian Universities Review*, Fall 2000.

[44] GATS, Part I, 2 (b)

[45] GATS, Part 1, 2 (c)

[46] While thee is no explicit definition of 'commercial' in GATS, there is clear wording in NAFTA which may act as a proxy for the absence of a definition within the GATS. It says requirements to act in "accordance with commercial considerations means consistent with normal business practices of privately-held enterprises in the relevant business or industry." [NAFTA, Article 1503.]

[47] For a thorough discussion of the problems created by the treatment of "exercise of governmental authority" in GATS see B.C. Ministry of Competition, Science and Enterprise, *Discussion Paper*, April 2, 2001.

[48] Article XXVIII further confirms the lack of distinction between public and private provision of services in its definitions of "monopoly supplier of a service," and "juridical person."

[49] GATS, Article XIV (b) (i) (s).

[50] A country can determine if its commitment is 'bound' or 'unbound.' If it is 'bound' the commitment cannot be changed without compensation to other WTO members, if it is 'unbound' governments have a right to alter the commitment without any type of penalty.

[51] Unless otherwise noted, the information from this section comes from the WTO, Council for Trade in Services, *Energy Services: Background Note by the Secretariat*, Sept. 9, 1998.

[52] This intimate connection between services and goods aspect of electricity is reflect in the GATTS, where electricity was not originally

defined as a 'commodity,' and while it can be classified as a commodity under the World Custom Organization Harmonized Commodity Description and Coding system (WCO HS), this is an optional decision.

[53] For an assessment of the treatment of electricity as a good under GATT and NAFTA see Robert Howse and Gerald Heckman, "The Regulation of Trade in Electricity: a Canadian Perspective," in *Ontario Hydro at the Millennium: Has Monopoly's Moment Passed?*, ed. By Ronald D. Daniels (Montreal & Kingston: McGill-Queen's University Press, 1996), pp. 101-155.

[54] The others are Australia, Dominican Republic, Gambia, Hungary, Nicaragua, Sierra Leone, and Slovenia.

[55] The Sectoral Classification List, W/120, is cross-referenced with the more detailed UN Sector Product Classification list (Provisional CPC).

[56] Those making commitments for pipeline transport are Australia, Hungary and New Zealand.

[57] The UNCPC definition of wholesale and retail trade covers: wholesale trade of solid, liquid and gaseous fuels and related products (62271), and retail sales of fuel oil, bottled gas, coal and wold (63297).

[58] GATS, Canada-Schedule of specific Commitments, GATS/SC/16.

[59] Ibid.

[60] For a more thorough discussion of 'domestic regulation' see Sinclair, GATS, pp. 75-81.

[61] U.S. Energy information Administration (EIA), "International Energy Database," January 2001.

[62] Directive 90/547/EEC.

[63] The European Community while saying that it does not propose deregulation of the energy sector, does urge WTO members to adopt a "pro-competitive" regulatory framework for this sector. WTO, "Communication from the European Communities and their Member States; GATS 2000: Energy Services," 23 March 2001, S/CSS/W/60.

[64] Enron's spectacular fall through dishonest business practices seems not to have negatively affected the objectives of this coalition, despite the instability deregulation has caused in electricity markets.

[65] John R. Irwin, Press Release, Oil and Gas Drillers Group, "Oil and Gas Drillers Group Urges Addition of Energy Services Classification to GATS," May 3, 2000. Irwin pointed out that "the need for such a classification is important not only from a global trade perspective, but also from the point of view of the Houston economy," because 53 percent of the economy of that city is energy-related.

[66] WTO, "Communication from the United States," 18 December 2000, S/CSS/W/24.

[67] United States International Trade Commission, *Electric Power Services: Recent Reforms in Selected Foreign Markets*. November 2000, p. ix. [USITC Publication 3370]

[68] WTO, "Communication from Canada: Initial Negotiating Proposal on Oil and Gas Services, 14 march 2001, S/CSS/W/58.

[69] Ibid.

[70] Canada, "Canadian Initial GATS Sectoral/Modal/Horizontal Negotiating Proposals," 2001.

[71] Ibid.

[72] Op cit., Communication from the U.S.

[73] USITC, op. cit., p. 21.4.

[74] Op. cit., WTO S/C/W/52, Section F.

[75] Ibid., Section A.

[76] Karl Froschauer (op. cit.) Gives a detailed analysis of the politics involved in the failure to develop a national grid system.

[77] These figures are based on 1999 production.

[78] op. cit. Froschauer, p. 3.

[79] Ibid.

[80] Ibid., p. 72-73.

[81] For example, in California the average price for residential consumers was 36 percent higher than the average U.S. rate and the average industrial user paid 52 percent more than the average in the U.S. [U.S. Energy Information Administration, *International Energy Outlook 2001*). p. 126.

[82] At the time of writing a B.C. government task force on energy was advocating deregulation of electricity, primarily for ideological reasons.

[83] Export statistics for all provinces are from Statistics Canada, *Trade Data Online*, "Trade Balances for Electrical Energy," www.strategis.gc.ca

[84] Rick Wallace, *The British Columbia Advantage* (Edmonton: The Parkland Institute, 2001): news releases, www.transalta.com

[85] *Globe and Mail*, August 23, 2001, B6.

[86] TransAlta, "Deregulation: Our Changing Industry," June 25, 2001.

[87] Myron J. Gordon, "An Examination of the Comparative Financial Consequences of Owning and Welling EPCOR for the People of Edmonton," for the City Council of Edmonton, June 28, 1999.

[88] Ibid., p. 4.

[89] B.C. Hydro, *The Power of Sustainability: Annual Report 2001*.

[90] Dr. Mark Jaccard, *Reforming British Columbia's Electricity Market: A Way Forward*, British Columbia Task Force on Electricity Market Reform: Final Report, January 1998.

[91] B.C., *Strategic Considerations for a New British Columbia Energy Policy*, Interim Report of the Task Force on Energy Policy, November 30, 2001.

[92] Myron Gordon, "Financial Implications of Competition in the B.C. Electric Power Sector." submission to the British Columbia Task Force on Electricity Market Reform, 1997.

[93] Ian Mulgrew, "Energy task force report 'a dangerous piece of work,' "*The Vancouver Sun*, January 14, 2002.

[94] Timothy Egan, "Once Braced for a Power Shortage, California Now Finds Itself with a Surplus," *The New York Times*, November 4, 2001, A17.

[95] *Manitoba Hydro-Electric Board 50th Annual Report*, 2000-01, *Manitoba Hydro and Electricity Exports*. www.hydro.mb.ca/exports; Sask Power, *2000 Annual Report*.

[96] New Brunswick Power Corporation, *2001 Annual Report*.

[97] "British Energy Bidding for Point Lepreau," *Globe and Mail*, July 21, 2001.

[98] Myron J. Gordon, "The consequences of Privatizing New Brunswick Power and Deregulating the Electric Power Industry in New Brunswick," paper presented to the Select Committee on Energy of the New Brunswick Legislature, January 6, 1999, p. 29.

[99] Ibid., p. 5.

[100] NS Power Holdings Inc., On Course: *1999 Annual Report*.

[101] Newfoundland and Labrador Hydro, *2000 Annual Report; Newfoundland Power, About Us*, www.nfpower.ca

[102] Ontario Power Generation, *Annual Information Form*, April 30, 2001. Ontario Power Generation, *OPG in Motion: Annual Report 2000*.

[103] Myron J. Gordon and John Wilson, "Statement on Bruce Nuclear Station," unpublished document, Dec. 27, 2001. See also, Myron J. Gordon, "Can We Stop the Bruce Giveaway?" *Toronto Star*, May 5, 2000.

[104] Martin Mittelstaedt, "Utility sale seen hurting users," *The Globe and Mail*, Dec. 14, 2001.

[105] The view that privatization of *Hydro One* will not increase energy prices is also shared by Tom Adams, the head of Energy Probe. [April Lindgren, "Ontario Selling Hydro One," Dec. 2001, F3.

[106] Janet McFarland, "Indecisiveness on energy leaves us in the dark" *The Globe and Mail*, July 21, 2001.

[107] Myron Gordon and John Wilson, "consumers will get bill for the deal with British energy firm," *Toronto Star*, November 21, 2001, A29.

[108] Hydro Québec, *Annual Report 2000*.

[109] Canada, 'Canadian Initial GATS Sectoral/Modal/Horizontal Negotiation Proposals, op. cit.

[110] Dale Marshall, "Finding Solutions to U.S. Bullying in Softwood Lumber," Nelson (BC) Daily News, August 27, 2001, p. 4.

[111] Canada's limitations on national treatment says: "Federal and subcentral governments, when disposing of their equity interests in, or the assets of, a service supplier which is owned by such governments, may prohibit the ownership of such interests or assets by non-Canadian investors or their investment; and may impose limitations upon the ownership of such interests or assets, and on the ability of owners of such interests or assets to control any resulting enterprise, by non-Canadian investors or their investments." GATS/SC/16.

[112] For a thorough discussion of the contrary forces of market liberalization and industry concentration see John Ernst, "Public Utility Privatization and Competition: Challenges to Equity and the Environment," *Just Policy: A Journal of Australian Social Policy*, no. 9 (March 1997), pp. 14-26.

[113] "California Looks in Every Direction Seeking 'Fix' for Power Market Shock," *Electric Utility Weekly*, August 7, 2000, p. 1.

[114] Steve Thomas, "Electricity Reform in Great Britain: An Imperfect Model," *Public Utilities Fortnightly*, June 15, 1996).

[115] ILO, *Public Services Privatisation Research* Unit Paper, ILO Ref IC 12-0-41/CS 1-04, July 10, 1997, p. 13.

[116] Employment in the U.S. electricity industry fell from 440,000 jobs in 1992 to 360,000 in 1999. [U.S. Energy Information Administration, *International Energy Outlook 2001*. P. 123.]

[117] "Energy, The New Convergence," *The Economist*, Vol. 351, No. 8121, May 29, 1999, p. 59.

[118] Ibid.

[119] Brian A. Toal, "The New Majors," *Oil & Gas Investor*, Vol. 19, No. 9, Sept. 1999.

[120] Ibid.

[121] Jeff Gerth with Richard A. Oppel Jr., "Regulators Struggle With a Marketplace Created by Enron," *New York Times*, November 10, 2001.

[122] John Spoehr, "Power Struggles-privatization and electricity in South Australia," *Australian Options*, No. 20, (2000), pp 15-21.

[123] *International Energy Outlook, 2001*, op. cit., p. 128.

[124] John Emshwiller and Rebecca Smith, "Dynergy<s Enron deal faces major uncertainties," *Wall Street Journal*, Nov. 12, 2001.

[125] Michael Liedtke, "Action on Energy Trading Floors Reverberate in Power-Hungry California," The Associated Press, April 17, 2001.

[126] Ibid.

[127] For a discussion of Canada's abysmal negotiating on energy issues see John Wilson. "Where are our negotiating skills?" *Toronto Star*, July 4, 2001

[128] WTO, Communication from Venezuela, "Negotiating Proposals on Energy Services," S/CSS/W/69.

[129] Stratfor, "Developing Nations Will Suffer as Power Goes Private," [Stratfor describes itself as "The Internet Source for Global Intelligence] http://www.stratfor.com

[130] Celia W. Dugger, "Enron's High-Stakes Fight Over Power Plant," *New York Times*, March 19, 2001.

[131] See submissions to British Columbia Task Force on Electricity Market Reform, 1997 and the Final Report of the Task Force, *Reforming British Columbia's Electricity Market: A Way Forward*, pp. 29ff.

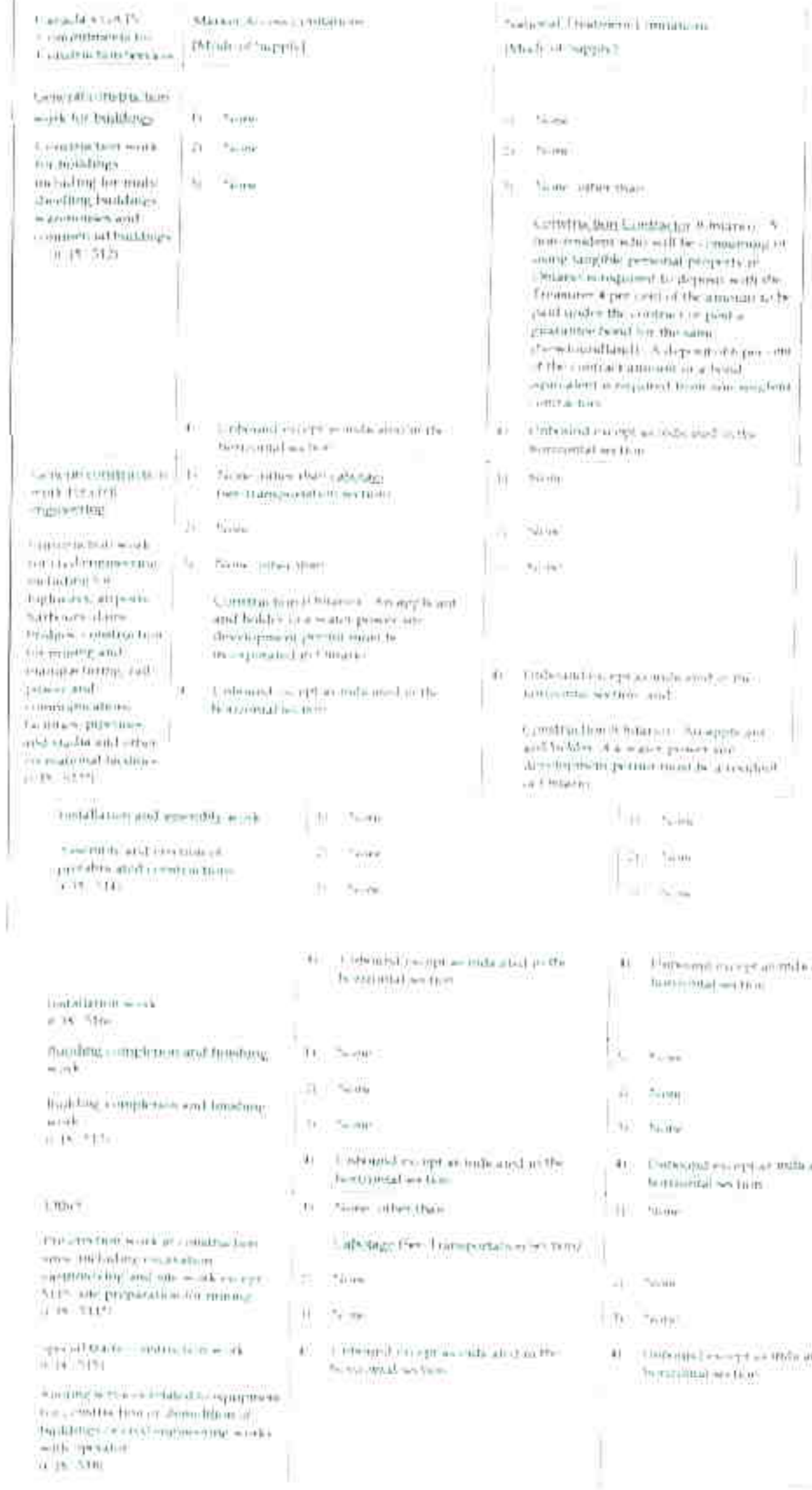
[132] This was through its PowerSmart program.

[133] British Columbia Hydro and Power Authority, *Application for Power Smart Industrial Rate*, June 2001.

[134] Canada, "Canadian Initial GATS Sectoral/Modal/Horizontal Negotiation Proposals," op. cit.

APPENDIXES

Appendix I



Appendix II

Selected GATS Provisions Pertaining to Electricity

Market Access

The GATS market access principle, contained in Article XVI, establishes the objective of progressively eliminating a set of six specific types of limitations to market access. These are:

a) limitations on the number of service suppliers whether in the form of numerical quotas, monopolies, exclusive service suppliers or the requirements of an economic needs test,

b) limitations on the total value of service transactions or assets in the form of numerical quotas or the requirement of an economic needs test,

c) limitations on the total number of service operations or on the total quantity of service output expressed in terms of designated numerical units in the form of quotas or the requirement of an economic needs test,

d) limitations on the total number of natural persons that may be employed in a particular service sector or that a service supplier may employ and who are necessary for, and directly related to, the supply of a specific service in the form of numerical quotas or the requirement of an economic needs test;

e) measures which restrict or require specific types of legal entity or joint venture through which a service supplier may supply a service, and

f) limitations on the participation of foreign capital in terms of maximum percentage limit on foreign share-holding or the total value of individual or aggregate foreign investment.

Nondiscrimination

The GATS principles concerning nondiscrimination are contained in Articles II and XVII. Article II provides for most-favored-nation treatment (MFN), through which WTO members commit to accord to services and service suppliers of any other member treatment no less favorable than that accorded to like services and service suppliers of any other country. Members must adhere to MFN principles except in those areas in which they have listed exemptions. Article XVII provides for national treatment, which is described as treatment no less favorable than that accorded to domestic services and service suppliers. National treatment applies to the extent a member has committed to it on its schedule of specific commitments.

Transparency

GATS transparency obligations are contained in Article III, which requires:

- Prompt publication of relevant measures of general application.
- Notification to the WTO of significant changes in laws, regulations or administrative guidelines with significant bearing on services trade.
- Establishment of enquiry points for use by other WTO members.
- Prompt responses to information requests from other WTO members.

Domestic Regulation	GATS domestic regulation obligations, as contained in Article VI require WTO members to: • Avoid using regulatory powers in such a way as to create services trade barriers. • Ensure that measures of general application are administered in a reasonable, objective, and impartial manner. • For sectors in which specific commitments are undertaken regarding market access or national treatment, ensure that licensing and qualification requirements or technical standards (1) are based on objective and transparent criteria, (2) are not more burdensome than necessary, and (3) in the case of licensing procedures, are not in themselves a restriction on the supply of the service.
Monopolies and Exclusive Suppliers	Article VIII of the GATS asserts that WTO members should ensure that, in cases where a monopoly supplier competes in supplying a service outside the scope of its monopoly rights, such a supplier does not abuse its monopoly position in a manner that limits market access or national treatment.
Additional Commitments	Under Article XVIII, the GATS also provides for the negotiation of additional commitments to address measures affecting trade in services that are not covered by the market access and national treatment provisions. Negotiation of such commitments strengthened the WTO Agreement on Basic Telecommunications by ensuring that market access commitments would not be undercut by anti-competitive practices. These additional commitments required signatories to: • prevent cross-subsidization and misused bid information, • implement interconnection rules that favor competition, • maintain non-discrimination and transparency in the implementation of universal service obligations, implement policies to ensure the transparency of public availability of licensing, • maintain the independence of regulators from any *market competitors*, • ensure non-discrimination in the allocation of scarce resources such as band width.

Source: World Trade Organization, *General Agreement on Trade in Services*, S/SEC, *Electric Power Services: Recent Reforms in Selected Foreign Markets*, November 2000, Publication 3370, pp. 212–214.

Appendix III

Electrical Units of Measurement:

Watt. It is the rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt Watthour (Wh): An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electre circuit steadily for 1 hour.

Voltage: The electrical force that causes a current to flow in a circuit (an analogy is pressure that forces water through a pipe). Voltage is measured in volts (V) or kilovolts (kV).
Kilovolt: One thousand volts.

Kilowatt (kW): One thousand watts. (ten 100W lightbulbs burning for one hour)
Kilowatthour (kWh): One thousand watthours.

Megawatt (MW): One million watts. (or 1,000 kWh)
Megawatthour (MWh): One million watthours.

Gigawatt (GW): One billion watts.
Gigawatthour (GWh): One billion watthours.

Terawatt (TW): One trillion watts.
Terawatthour (TWh): One trillion watthours.

Appendix IV

Glossary of Electricity Industry

Access Charge: A fee levied for access to a utility's transmission or distribution system.

Aggregator: An entity in a deregulated market that brings together customers into a buying group for the purchase of a product or service. Public utilities perform this function in today's regulated markets.

Captive Customer: A customer who does not have realistic alternatives to buying power from the local utility even if that customer had the legal right to buy from competitors – generally considered to be residential and small commercial customers.

Capacity: The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer.

Cogenerator: A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes.

Combined Cycle: An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more gas (combustion) turbines. The exiting heat is routed to a conventional boiler or to a heat recovery steam generator for utilization by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit.

Demand-Side Management: The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand. It is usually pursued so that utilities do not have to build more generation capacity.

Direct Access: The ability of a retail customer to purchase electricity directly from the wholesale market rather than through a local distribution utility.

Distribution: The portion of an electric system that receives high voltage energy from the transmission system and shapes it so that it can then deliver it to customers such as households and small businesses through low voltage lines.

Electrical Energy: the amount of electrical power produced per second.

FERC (Federal Energy Regulatory Agency): The U.S. Federal Agency that has jurisdiction over interstate electricity sales; wholesale electric rates; hydroelectric licensing; natural gas pricing; oil pipeline rates; and gas pipeline certification. It oversees the nation's utility industry by regulating the conditions of power sold in interstate commerce and regulates the conditions of all transmission services.

Firm Power: Power capacity intended to be available at all times during the period covered by a guaranteed commitment to deliver, even under adverse conditions.

Fossil Fuel: Any naturally occurring organic fuel, such as petroleum, coal, and natural gas.

Generating Unit: Any combination of physically connected generator(s), reactor(s), boiler(s), combustion turbine(s), or other prime mover(s) operated together to produce electric power.

Generation (Electricity): The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in watthours (Wh).

Geothermal Plant: A plant in which the prime mover is a steam turbine. The turbine is driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rocks or fluids at various depths beneath the surface of the earth. Drilling and/or pumping extract the energy.

Grid: The layout of an electrical distribution system.

Hydroelectric power: Power produced by using the power of fast flowing water to turn the shaft of a generator. Hydroelectric power stations are located near dams or on large rivers.

Interruptible power: Refers to contractual arrangements that permit a customer's load to be interrupted at the option of the supplier when power is needed elsewhere. Interruptible power is usually cheaper than firm power.

Independent Systems Operator (ISO): A neutral operator in a deregulated market responsible for maintaining instantaneous balance of the grid system in a deregulated system. The IGO performs its function by controlling the operation of the transmission system and enough generation capacity to ensure short-term reliability.

Investor-owned utility (IOU): A for-profit company owned by stockholders that provides utility services. TransAlta is an IOU.

Marketer or Power Marketer or Power Trader: A marketer would normally represent the interests of the generator for selling electricity on the market. However, with the introduction of spot markets, the trader buys electricity where the price is relatively low and sells to places where it is more expensive.

Non-Firm Power: Power or power-producing capacity supplied or available under a commitment having limited or no assured availability.

Nonutility Power Producer: A corporation that owns electric generating capacity and is not an electric utility. Nonutility power producers include cogenerators (such as mining companies), small power producers, and other nonutility generators including independent power producers without a designated franchised service area. Frequently in a regulated market the nonutility producers sell power to the utility.

Power: The rate at which energy is transferred. Electrical energy is usually measured in watts. Also used for a measurement of capacity.

Power Pool: An association of two or more interconnected electric systems having an agreement to coordinate operations and planning for improved reliability and efficiencies.

Obligation to Serve: Obligation to provide electrical service to all customers who seek that service at fair and reasonable prices in exchange for the monopoly status of a utility to serve in a designated service territory.

Provider of Last Resort: A legal obligation to provide services to a customer where competitors have decided they do not want that customer's business.

Retail Wheeling: The sale of electricity by a utility or other supplier to a consumer in another utility's retail territory. Refers to the use of the local utility's transmission and distribution lines to deliver the power from a wholesale supplier to a retail customer by a third party.

Regional Transmission Organizations (RTOs): In a deregulated market the RTOs are responsible for the operation of regional wholesale markets by organizing power transactions for participants on spot markets on an hourly or daily basis. RTOs include U.S. and Canadian corporations.

Retail: Sales covering electrical energy supplied for residential, commercial, and industrial end-use purposes. Other small classes, such as agriculture and street lighting, also are included in this category.

Standard Industrial Classification (SIC): A set of codes developed by the Office of Management and Budget, which categorizes business into groups with similar economic activities.

Standby Service: Support service that is available, as needed, to supplement a consumer, a utility system, or to another utility if a schedule or an agreement authorizes the transaction. The service is not regularly used.

Storage: Reservoirs for storing water in hydroelectric systems provide important leverage for utilities that buy power for use when prices are low and use stored power for the electricity trade when prices rise. The ability for power traders to have access to the storage facilities is an important "trade liberalization" and deregulation issue.

Stranded Costs: May be thought of as the amount of book value above market value of a utility's assets. These costs may include federally mandated contracts, the cost of pre-existing debt or assets that are not competitive in the deregulated environment.

Tariff: A document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided.

Thermal generation: Electrical generation related to burning fossil fuels or other combustible materials.

Transmission: transportation of electricity from generators to distribution systems and large industrial consumers through high voltage lines.

Unbundling: The separation of a vertically integrated utility into its major component parts, generation, transmission, and distribution. Unbundled rates price the various components of electricity service separately. For example, a consumer's bill might have separate components for electricity, transmission, distribution, efficiency services, and various other related services.

Utility: a large natural monopoly, either publicly or privately owned, providing an essential service through a system that regulates pricing, supply and distribution.

Vertical Integration: An arrangement whereby the same company owns all the different aspects of making, selling and delivering a product or service. In the electric industry, it refers to a utility's ownership of generating plants, the transmission system, distribution lines, and all customer service activities.

Wheeling: The use of the transmission facilities of one utility to transmit power for another utility or power producer. Wholesale wheeling is used to indicate bulk transactions in the wholesale market,

whereas retail wheeling allows power producers direct access to retail customers. The term is often used to mean transmission.

Wholesale Sales: Energy supplied to other electric utilities, cooperatives, municipals, and Federal and State electric agencies for resale to ultimate consumers.