

Ontario's Electricity Liberalisation: From Promise to Crisis

and

Lessons for Atlantic Canada

Speaking notes

by

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Introduction

Ontario's electricity restructuring is now beset by a range of significant problems that threaten its potential to deliver reasonably priced, reliable, and environmentally responsible power. Ordinary consumers in Ontario are going to be paying more for electricity. The paper attempts to explain the changes happening in Ontario's electricity system and the effects of these changes, both in the lead-up to competition and once the province's electricity market opens for competition. The paper further attempts to synthesise some lessons from the Ontario experience relevant to the question of how Atlantic Canada's power systems might be further liberalised.

The reader may find the discussion of Ontario's restructuring confusing to follow, in part because of the irreducible complexity of modern power systems, but also in part because the restructuring has become a crazy quilt of beneficial and harmful ideas stitched together without an easily discernible pattern. This thumbnail sketch of the restructuring may help you pick your way through the story.

By the mid 1990's, Ontario Hydro was becoming financially and operationally dysfunctional. Recognising that change was required, the newly elected Harris government sought input from a number of prominent business and academic leaders who recommended a competition-based alternative. Although some important limitations resulted from the early policy development decisions up to and including the passage of Ontario's new energy legislation in 1998, most of the basic concepts advanced were sound. However, once the process of implementing the policies was undertaken, a number of errors have been made that, without mitigation, will impair the public interest. The future prospects for Ontario's restructuring are difficult to speculate on but some clear lessons have already been demonstrated.²

²Another overview of Ontario's new electricity market can be found at <http://www.theimo.com/imoweb/mktOverview/mktOverview.asp>. The information on this site mostly aimed at businesses with interests in power generation, marketing, or other services.

The Ontario Ministry of Energy Science and Technology offers its own overview of the electricity restructuring at http://www.est.gov.on.ca/english/am/am_faq_next.html. The information provided relates primarily to legal and policy issues. No rate impact analysis of the restructuring is provided on the Ministry's site.

What happened to the old Ontario Hydro?

Ontario Hydro collapsed under the weight of its liabilities. An abbreviated overview of the process of that collapse includes the following historic events:

Completion of the Darlington nuclear power station might be considered the beginning of the end of Ontario Hydro. The Darlington nuclear power station was completed in the years between 1989 and 1993 for a cost of \$14.4 billion. According to the earliest published planning documents, the station was originally supposed to be completed for approximately \$2.5 billion and completed in 1983. In addition to the enormous cost overruns, the station suffered from several major technical flaws on completion that severely compromised its output and income. Although supposed politically imposed delays in its construction are popularly blamed for Darlington's cost overruns and delays, the only publicly available evidence of politically imposed changes in the construction schedule was Bill Davis' order to accelerate construction following his election victory in 1981. Darlington was the leading cause of an increase in electricity prices in the period of 1989 to 1993 of over 20% in inflation adjusted terms. Nuclear production peaked in Ontario in 1994 and has generally declined since. Historic supporters of Ontario Hydro and its monopoly, such as the powerful industrial lobby group called the Association of Major Power Consumers in Ontario, began considering alternatives to Ontario Hydro supplies largely as a result of the electricity rate increases and falling natural gas prices during this period.

Maurice Strong chaired Ontario Hydro's Board from 1993 until 1995. During this brief term of office, Mr. Strong implemented a series of major management changes, which on balance proved to be very beneficial to the public interest. At a press conference on March 9, 1993, he announced a range of initiatives, including: the first unscheduled closure of an Ontario Hydro nuclear reactor (Bruce unit 2), the end of Ontario Hydro's massive 25-year expansion plan and the associated Environmental Assessment Act approval process (a plan that was originally slated to cost approximately \$100 billion), the reduction of Ontario Hydro's work force by about one third, and a rate freeze. Under Mr. Strong's leadership, Ontario Hydro embraced sustainable development, including an extensive and successful internal energy conservation effort. Mr. Strong also directed Ontario Hydro to participate constructively in public discussions about competitive options for Ontario's electricity future.

One of Mr. Strong's most revolutionary changes was a simple structural reform: he reorganised Ontario Hydro into "business units", each of which traded – bought and sold goods and services – with the others. One stunning, and apparently unanticipated, effect of this restructuring was that the Nuclear-generation "business unit" fell several billion dollars short of cash in its first year, i.e. its revenues from power sales were enormously inadequate to pay its bills, primarily the debt incurred to build the nuclear stations. That revelation led to a series of "asset re-evaluation" exercises that helped quantify the enormous amount of money that had been lost on Hydro's nuclear construction binge.

Mr. Strong also made significant, although incomplete, reforms to Ontario Hydro's accounting practices, reducing their deceptive nature. For example, he wrote off phoney accounts receivable

that Ontario Hydro had used to justify its investment in the retubing of the Pickering A nuclear reactors during the period 1983-1989.

Ontario Hydro was then in a very precarious position: its generation costs, and sales prices, were suddenly higher than the cost of generating power from newly built high-efficiency stations fuelled with natural gas. Moreover, Hydro's costs were dominated by so-called "fixed costs" like the mortgages on the nuclear stations – costs that had to be paid whether or not there was any demand for Hydro's power. As a result, a drop in sales (*e.g.*, if major customers began generating their own power) could easily cause a destructive feedback loop known as the "cost-price-demand spiral" or the "death spiral". Facing the threat of declining revenues, Ontario Hydro entered into secret contracts to sell heavily discounted power to its largest industrial customers in order to prevent the development of lower-cost generation by customers. Although this short-term expediency initiated a series of events that caused lasting damage to consumers and the environment, at the time, the move appeared necessary to ward off financial default. Mr. Strong also vigorously defended the Nuclear Liability Act in court. The Nuclear Liability Act – an expression of the antithesis of sustainable development -- extinguishes all third party liability for suppliers to the nuclear industry and limits liability for nuclear operators to \$75 million in the event of nuclear accidents. Despite these blemishes on his career, Mr. Strong guided Ontario Hydro in a new direction and ultimately contributed enormously to the economic and environmental welfare of Ontario.

The Advisory Committee on Competition in Ontario's Electricity System – often referred to as the Macdonald Committee after its chairman Donald Macdonald – was convened by the Harris government soon after its election in 1995. The committee reported in early 1996 after receiving submissions from all organised groups with an interest in Ontario's electricity future and many individual citizens.

A major event during the Advisory Committee on Competition deliberations was the decision by the Association of Major Power Consumers in Ontario to reverse its previous position for the Ontario Hydro's monopoly and endorse a market-based alternative. A substantive element of this interest group's position that helped to change the electricity policy debate was its public endorsement of the recovery of costs to cover Ontario Hydro's financial deficiency from all consumers, including large industrial users.

The committee's report recommended the break-up of Ontario Hydro, the privatisation of major components of the power system, sweeping regulatory improvements, strengthened environmental rules, the creation of an independent agency responsible for power system reliability, the opening of the electricity market to competition, and a move away from the secret power discount deals designed to thwart competition.

Although Ontario Hydro's main union, the Power Workers Union (CUPE 1000), opposed many competitive reforms, the attractiveness, practicality, and logical force of the Advisory Committee on Competition recommendations gathered so much support that the union was forced to temper its position. An influential coalition of interest groups called the Stakeholder's Alliance for Competition (composed of groups including the Association of Major Power Consumers in

Ontario, the Independent Power Producers Society of Ontario, and Hydro Mississauga) was formed soon after the release of the report to press for the implementation of the Advisory Committee's report.

In August 1997, Ontario Hydro released the findings of an internal review of its nuclear program. The reporting committee, under the chairmanship of Carl Andognini, consolidated analysis of a large number of previously known performance and maintenance deficiencies. The committee (consisting of imported U.S. experts on nuclear-plant rescues) concluded that there were fundamental problems in the nuclear program's administration. The report recommended the temporary closure of seven of the remaining 19 reactors then in-service. Ontario Hydro's then president, Dr. Allan Kupsis, resigned in the wake of the report and Mr. Andognini was made responsible for the nuclear division of Ontario Hydro. Public confidence in Ontario Hydro was undermined by the release of the nuclear performance review. Ontario Hydro and other representatives of the Canadian nuclear industry claimed that the "lay-up," as it was called, of seven reactors was not related to safety deficiencies. However, the report was clear in outlining an organisation where safety margins had been seriously compromised. Moreover, four of the seven reactors – the four at Pickering A – were closed coincident with the expiry of their federal operating licence. The licence had required upgrades to the antiquated emergency shutdown safety system by December 31, 1997. Ontario Hydro had not made the necessary upgrades to continue to comply with its licence condition. The "lay-up" of the Pickering reactors had clearly been driven by safety considerations.

In November 1997, the Ontario government released a white paper, called "Direction for Change: Charting a Course for Competitive Electricity and Jobs in Ontario", articulating its new electricity policy.³ The white paper was developed internally within government under the authority of Norm Sterling, then Minister of Environment and Energy, with input from the bureaucracy and provincial Tory party. The white paper embraced the concept of competition and adopted most of the proposals of the Advisory Committee on Competition. However, the white paper made two significant departures from the Committee's recommendations. Whereas the Committee had recommended a separation of the power trading and power system reliability functions – an approach that has been adopted in California and has been implicated in some of the difficulties California has suffered during mid 2000 – the white paper, following the lead of successful jurisdictions like the State of Victoria in Australia, instead directed the formation of the Ontario Independent Electricity Market Operator which consolidates these functions. Another departure was that while the Committee recommended partial privatisation of some of Ontario Hydro's assets as a means to ensure real competition, the white paper stopped short of directing privatisation and instead directed the creation of a single generation company with overwhelming market power – Ontario Power Generation. This direction was at odds with other elements of the white paper that supported competition and has proven to be a critical impediment to the development of real competition.

³The white paper can be found at http://www.theimo.com/imoweb/historical_devel/finale.pdf. Energy Probe's analysis of the white paper can be found at <http://www.energyprobe.org/energyprobe/index.cfm?DSP=titles&SubID=86>.

In January 1998, the provincial government established the “Market Design Committee”, chaired by U of T Dean of the Faculty of Law, Dr. Ron Daniels, to implement the white paper and to provide recommendations for the design of a competitive electricity market in Ontario. Over its 13-month existence, the Market Design Committee issued four quarterly reports including a partial set of rules defining the new market.⁴

In October 1998, the government proclaimed Bill 35, the Electricity Act, ending the monopoly system for generating and selling electric power in Ontario. The bill was based on the concepts in the white paper and the early work of the Market Design Committee.⁵ Energy Probe’s main criticisms of Bill 35 were that it impaired the independence of the Ontario Energy Board and that it permitted financial irresponsibility in the Hydro successors. These concerns were dismissed by the government but are today among those at the centre of the problems with Ontario’s electricity reforms.

Ontario Hydro’s Successors

The passage of Bill 35 created five new entities from the former Ontario Hydro:

- ◆ Ontario Power Generation (OPG)
- ◆ Hydro One (H1)
- ◆ Ontario Independent Electricity Market Operator (IMO)
- ◆ Electrical Safety Authority (ESA)
- ◆ Ontario Electrical Finance Corporation (OEFC)

Pursuant to the terms of Bill 35, all of these entities began their legal existence on April 1, 1999.

Ontario Power Generation

Ontario Power Generation (OPG) is the owner of all of the former Ontario Hydro’s power generation assets. OPG is a crown-owned company. In July, 2000 OPG announced that it had leased its Bruce nuclear complex to a consortium led by British Energy. After the lease transaction is completed, OPG will control about 65% of Ontario’s power market and all the major generation units that will set market prices. Under the terms of the lease agreement, OPG will maintain access to detailed technical reports on the condition of the Bruce reactors and their potential for power generation. This information may be useful in allowing OPG to continue to manage power prices in Ontario. Although required by the terms of the Market Power Mitigation Agreement to reduce its market share in Ontario, OPG is publicly committed to expansion into new electricity markets. The Ontario government continues to endorse OPG’s expansion,

⁴ The MDC reports can be found at http://www.theimo.com/imoweb/historical_devel/Mdc/mdc.asp.

⁵Energy Probe’s analysis of Bill 35 can be found at <http://www.energyprobe.org/energyprobe/index.cfm?DSP=titles&SubID=85>.

arguing that by keeping OPG big it will be able to “compete in the broader North American electricity market.”⁶

Hydro One

Hydro One (H1) is the owner of all of the former Ontario Hydro’s transmission and distribution assets and the vast majority of the former Ontario Hydro’s telecommunication assets as well. Like OPG, H1 is government-owned. Unlike OPG, H1 now has a portion of its debt in the private, unguaranteed market. Protected by a tax holiday, which was extended on September 29th, H1 is expanding its distribution business through the acquisition of many municipally owned distribution utilities.⁸

Independent Market Operator

The IMO is a monopoly charged with maintaining power system reliability and organising and administering a spot market for electricity.⁹ The IMO’s decision-making powers are vested in its board of directors of up to 16, representing stakeholder interests and “independents”. The Ontario Energy Board will review the costs the IMO incurs and the rates it charges to consumers. The largest component of the IMO’s charges will relate to the cost of transmission losses, transmission congestion, and buying specialised electrical services to help maintain reliability.

Ontario Electricity Financial Corporation

The Ontario Electricity Financial Corporation (OEFC) is the legal continuation of the former Ontario Hydro. The OEFC is an agency of the Province of Ontario and is responsible for servicing and retiring the former Ontario Hydro's provincially guaranteed debt and managing certain other legacy liabilities.¹⁰

⁶Link: www.ontariopowergeneration.com

⁷Link: www.gov.on.ca/FIN/english/regbull.htm

⁸Link: www.hydroone.com

⁹Link: www.theimo.com

¹⁰Link: www.oefc.on.ca

Electrical Safety Authority

The Ontario Electrical Safety Authority (ESA) took over responsibility of regulating electrical safety in Ontario, one of the special powers of the old Ontario Hydro. ESA operates as a stand-alone, financially self-sustaining safety business accountable to a board of directors made up of representatives from the electrical industry, the Ministry of Consumer and Commercial Relations, and the public.¹¹

Other key players in Ontario's power system include the municipal distribution utilities, marketers, independent generators, power suppliers outside of Ontario, and the Ontario Energy Board.

Key Problems with Ontario's Electricity Restructuring

When Ontario's electricity restructuring was being guided by the leadership of Maurice Strong, Donald Macdonald and Ron Daniels, a possibility was created to undertake the restructuring in a way that would broadly benefit the public interest. Now, Ontario's electricity restructuring is degenerating into a liability for consumers, taxpayers, and the environment. None of the problems threatening the ability of the restructuring to benefit the public interest are intractable. All but a few of these problems could have been fixed when they arose -- some of them easily fixed. Many of these problems remain fixable although in some cases, time is running out. The future of Ontario's electricity restructuring hangs on the outcome of these problems.

Several of these problems impair the investment climate in Ontario's electricity sector.

Without a Market Opening Date the Market Can't Open

Ontario's electricity restructuring is proceeding right now without an officially announced date for market opening. The previous date of November 2000 was driven by the white paper commitment to open the market in 2000. As preparation for market opening proceeded, it became increasingly clear that a 2000 opening would be impossible to achieve while maintaining the integrity of the power system. All parties directly involved with the restructuring process that I am aware of supported the delay of the November date and many breathed a sigh of relief.

Normally, the Minister of Energy would be responsible for announcing the revised date for market opening. However, the Minister has not done so.

The IMO released its Business Plan on Wednesday of this week and it contains an assumption for business planning purposes that the market will open in May 2001.

¹¹Link: www.esainspection.net

The Minister of Energy is responsible for a wide range of policy issues that are inextricably linked to the market opening date but remain to be resolved. These must be resolved in some reasonable and timely way before the preparations for market opening can be completed.

One major unresolved issue is how the retail electricity market will function. The IMO is accountable for the functioning of the wholesale market, and although the OEB or the Ministry could take on responsibility for the functioning of the retail market, that assignment has not taken place. A prominent feature of the government's electricity restructuring as articulated by its white paper has been the commitment to open the retail and wholesale markets together as was done in natural gas in Ontario in the 1980's. For twenty years, Energy Probe has advocated retail and wholesale electricity competition. We saw the fairness and efficiency benefits in gas. As a result, we were enthusiastic supporters of the white paper on this point. However, with little progress resolving the issues surrounding retail competition, with regret I now believe that for the sake of saving the wholesale competitive market, it is necessary to separate retail and wholesale, opening wholesale in May and the retail market when it is ready.

The government has yet to decide how Ontario Hydro's power purchase agreements will be renegotiated. Between 1989 and 1993, Ontario Hydro entered into a number of contracts to buy electricity from independent suppliers located in Ontario. Almost all of these contracts had terms of between 20 and 50 years. Taken as a group, the price Ontario Hydro agreed to pay under these contracts is about twice the value of the power today. In April 1999, the government estimated the net present value of the loss on these contracts to be \$5.2 billion. It was recognised as early as Maurice Strong's chairmanship that competitive restructuring would require renegotiations of the power purchase contracts. However, at this time, the Ontario government appears to have no workable plan for how this will be done. The cost impact for consumers and/or taxpayers is not known. The potential for independent power producers to participate in the competitive market is also not known. Because of the diversity of contracts and the fact that many of the independent power projects were project financed by syndicates, this renegotiation is one of the most complex issues the restructuring faces.

Recovery of the losses on power purchase agreements is only one element of the losses to be offset by a special electricity tax called the Debt Reduction Charge. When Ontario Hydro was broken up, it owed more money than it was worth. The move to competition revealed that a portion of the liabilities incurred in the previous monopoly environment, primarily for nuclear costs and power purchase agreements, cannot be recovered at market prices. These liabilities are usually called "stranded costs" but are more properly referred to as stranded liabilities. The government has yet to decide how the Debt Reduction Charge will be collected.

Moving to competition has caused what might be considered transition costs. As a very rough estimate, these transition costs may be in the order of \$500 million dollars. These costs pale beside the Ontario government's official estimate of Ontario Hydro's stranded liabilities of approximately \$21 billion. About \$13 billion of these are supposed to be collected from electricity sector companies in corporate taxes and dividends to government. The remainder of the costs – currently estimated at about \$8 billion – are to be recovered through a Debt Reduction Charge that is to be levied on electricity consumed in Ontario. The mechanism for recovery has

yet to be determined but watch for large industry to lobby for rules that will ensure that consumption of self-generated power avoids the charge. The Debt Reduction Charge was originally intended to expire in 8 years. However, given the lack of clarity around how the underlying issues will be resolved and the fundamental difficulties associated with finalising nuclear costs, it seems reasonable to expect that the tax may extend beyond its promised expiry.

The government has yet to decide how tardy market participants essential to the functioning of the new electricity market, like some municipal utilities, will be encouraged to be ready.

With none of these issues being resolved in a timely way, the progress to market opening is impaired. Prospective market participants who do not know what dates they must meet cannot be expected to make complete preparations.

Lack of Financial Accountability

By 1998, the total interest-bearing debt of Ontario Hydro, which was all guaranteed by the Province of Ontario, stood at over \$31 billion. One of the main objectives of restructuring Ontario Hydro was to eliminate the exposure to taxpayers for liabilities incurred by Ontario Hydro.

The legal successor of Ontario Hydro, called Ontario Electricity Financial Corporation (OEFC), holds and administers all of the government-guaranteed debt of the group. The public has been told that its role is to collect all excess cash from the operating successors, together with the proceeds of assets sold, and pay down the debt in an orderly fashion, thus reducing and eventually relieving the taxpayers of any risk or obligations related to Ontario Hydro and its successors. In aid of this objective, OEFC is supposed to receive a number of dedicated revenue streams generated from the electricity sector to extinguish its obligations.

Rather than working off the legacy of financial irresponsibility, it appears that OEFC is operating its finances in ways very similar to the old Ontario Hydro. OEFC failed to meet its statutory financial reporting deadline for its first fiscal year. Its first fiscal year ended on March 31, 2000 and according to the Electricity Act, OEFC is required to report within 90 days, which makes the reporting deadline July 1st. No public financial statements have yet been released. Energy Probe has sought an explanation of this deficiency by corresponding with OEFC's chair six weeks ago but we have yet to receive an answer.

Energy Probe has obtained several financial reports for OEFC. In these reports, it appears that OEFC has experimented with a variety of reporting conventions. However, when consolidated accounts are recreated from the financial results of all of the Hydro successors, it is clear that OEFC is allowing the public exposure to electricity debt to grow significantly.

Instead of reducing the public's exposure to electricity liabilities OPG and Hydro One are accumulating cash and making large, curious investments.

OPG is investing aggressively in the restart of the Pickering A nuclear station and the installation of pollution control equipment on its coal plants. The company claimed a year ago that the Pickering restart would cost \$800 million. It is now widely expected that the restart program cannot be completed for less than \$1 billion. When used nuclear plants of more recent vintage than Pickering A are trading sometimes in the range of \$33 to \$347 per installed kilowatt¹², it is difficult to grasp OPG's business case for spending \$500 per installed kilowatt at Pickering. OPG announced in September 2000 that it would spend an additional \$250 million on cleanup measures at its three coal plants in southern Ontario. The coal investment appears risky given that the cleanup measures will reduce only NOX emissions while increasing emissions of other noxious materials that appear likely to become regulated. I will comment later about how these investments, particularly the prospect of Pickering A's restart is affecting the entry of generation investment in the competitive market.

Hydro One is the only entity now in the market buying distribution utilities in Ontario. As I will discuss later, there has been a high level of uncertainty about the value of these assets. This uncertainty has caused other parties to retreat from the market. Hydro One's willingness to invest when others are reluctant has been aided by a special tax holiday it enjoys but also may be based on either knowledge of how policy issues will fall out that the rest of the market does not have or a more relaxed approach toward the disposition of funds.

Although Hydro One has defeased \$1 billion of guaranteed debt by borrowing in the private market, the taxpayer is not really better off as our security is now encumbered.

Energy Probe's analysis indicated that the total third party debt of the Ontario Hydro successor group grew by \$1.23 billion in its first fifteen months.

Ontario Finance Minister Ernie Eaves claims a budget surplus for the government's last fiscal year. We believe that the government's budget numbers ought to reflect the taxpayer's increased exposure to Hydro obligations. If that standard is applied, then it appears that the government's budget was not balanced after all.

Energy Probe does not claim that its analysis is definitive. Significant gaps in the financial reports exist. One difficulty is that revenues for OEFC are not sufficiently disaggregated in the reports we have obtained to allow them to be reconciled with the reports of the other Hydro successors. OEFC's own 15-month income statement appears to contain an internal discrepancy of \$40 million.

Despite the limitations of our analysis, we believe our findings warrant a complete and public investigation by the provincial auditor. It is clear that despite all the changes, Ontario's power system is still not recovering its costs. It appears that the province is not acting as a responsible

¹² Recent U.S. reactor sales include Pilgrim for \$181 (US)/KW, TMI 1 for \$228 (US)/KW, Clinton for \$22 (US)/KW, NMP 1 for \$117 (US)/KW, NMP 2 for 136 (US)/KW.

receiver in bankruptcy. The restructuring has created room for the renewed expansion of the commercial successors to Ontario Hydro.

Continued Subsidies to Industrial Customers

In June 2000, Minister Wilson told the Association of Major Power Consumers in Ontario that the secret deals that Ontario Hydro signed with selected large industrial customers to provide them with discounted power would be extended into the new electricity market. Under Bill 35, the discount deals were set to expire when the competitive market opened. Minister Wilson's decision contradicted the recommendations of the Advisory Committee on Competition and the government's commitments in the white paper to allow all customers, regardless of size, equal and fair access to the market.

Continuing the deals requires a mechanism to fund the necessary subsidies. To solve the problem, Minister Wilson ordered the government-owned OPG to continue selling power at the secret prices.

The mechanism bears a little attention. Once the market is opened, consumers will be charged for several separate components of service. Energy Probe believes that the transmission rates, the Debt Reduction Charge, and IMO charges will add up to close to the total discounted rate – in effect, the commodity will be supplied to favoured large industrial consumers at a price close to zero or even possibly negative prices.

The extension of the discounted power deals will have many negative effects on ordinary consumers. Ordinary consumers will directly pay higher prices. Under the Market Power Mitigation Agreement, Ontario Power Generation is permitted to create artificial scarcity sufficient to increase its average revenue on commodity sales to 3.8 cents/KWh. When commodity power prices close to zero are included in the average revenue calculation, the price for the ordinary consumers must rise accordingly. Since the volumes and prices in the contracts are generally secret (there are a few exceptions and some details have leaked out), the cost impact on ordinary consumers is impossible to accurately calculate. For illustrative purposes, if the total volume of sales captured by these deals is 5% of OPG's total and the commodity price is zero, the price OPG can charge ordinary consumers rises from 3.8 to 4 cents/KWh. If the volume is 10% of the total and the price is zero, the price for ordinary consumers rises to 4.2 cents/KWh.

An alternative interpretation of OPG's subsidy treatment is possible. If OPG includes its gross revenues from the subsidised sales in the calculation of the Market Power Mitigation Agreement average revenue calculation, the company will see lower net revenues and generate lower profits and dividends. In this event, OPG's payments to OEFC will be impaired and taxpayers, rather than customers, will cover the cost of the subsidies to big industry.

In addition to increasing average prices, extending these deals will also increase price volatility, reduce competition and investment, and increase environmental emissions. When the market opens, the subsidised customers will be among the relatively few who have the necessary metering and technical means to respond to price spikes by curtailing consumption. In a more

efficient market, where these interruptible customers were always on the alert for price spikes, cutting their usage when supply constraints occurred, the savvy shoppers would be very important contributors to price stability. With these customers now comfortably protected from market forces, the amplitude of price spikes for the rest of us will be much greater.

Cogeneration investment, which is a major opportunity for reducing environmental emissions, will also be impaired by a climate where heavy industry can solve its energy needs through political processes rather than business effort. The most graphic example of the impact of the price discount extension on cogeneration arose when TransAlta announced its contracts to sell heat energy from its Sarnia cogeneration facility. When the project was originally floated in 1998, there were six customers expected and now there are only three.

Local Distribution Rate Shock

Because of a series of decisions by the Ontario Energy Board and the Ministry of Energy, starting with the regulator's issuance of its "Performance Based Rate Handbook" decision in January 2000, Ontario power consumers served by municipal distribution utilities will see distribution rates increase over the next 3 years by approximately 35% to 100%.¹³ Municipal distribution utilities -- of which at the beginning of restructuring there were about 300 -- are responsible for selling about three quarters of the power used by end-use customers of all sizes in Ontario.

Residential customers using the average amount of 1000 kilowatt hours per month in Toronto will see an increase in their distribution rates of 13% in 2001 and 42% by the time the changes is fully implemented. We estimate that the average household will be paying an extra \$100 per year due to distribution increases.

To explain the cause of the increase it is useful to understand how the utilities operated in the past. Under the old Ontario Hydro structure, no one legally owned the local distribution companies. The utilities were effectively consumer co-ops. Prior to the electricity restructuring, the municipal distributors were virtually debt free. Further, net income from rates built up a cash surplus across the province of about \$1 billion dollars. Distribution rates were set at a level high enough to recover both the annual operating and capital budgets of the utilities. (Normally a regulated utility's rates recover operating costs and the cost impact of the rate base.)

Under Bill 35, the municipalities were granted ownership of the local distribution companies and made them subject to regulation by the OEB. Energy Probe supported these measures. Without clear ownership, rationalisation of the sector could not proceed. Historically the municipal distribution utilities were regulated by Ontario Hydro, a scheme fraught with conflicts of interest and not adapted for transparency and other due process guarantees.

¹³Most customers in rural areas served by provincially-owned Hydro One will be getting a massive rate increase on market opening, but the reasons are different than those described below. Customers served by privately owned local distribution utilities in Sault St. Marie, Gananoque, and Fort Erie will not see the rate increases described below.

The opportunity existed at the beginning of regulation to move the utilities to a more efficient capital structure, one that allowed the utilities to incur debt. Rates could have been set to provide for dividends to municipal owners only to the extent that they invested in the system. This arrangement would have permitted service quality to be maintained at lower prices.

Instead, the regulator adopted a cost of service model that allowed the utilities to earn a “market based rate of return” on historic ratepayer capital, thereby transferring the net book value of the utilities to the municipal governments. Consumers will effectively pay again for the capital costs of assets paid for previously. The OEB locked in massive rate increases and a leakage of about \$7 billion in ratepayer equity as a windfall to municipal governments.

Without decisive action now by the provincial government, the best electricity ratepayers can hope for is that their property taxes may go down by an amount equal to the windfall granted to municipal governments.

Controversy has dogged the OEB's deliberations on this subject since the regulator's staff proposed the mechanism causing the increase in 1999. When asked what would be an acceptable distribution rate increase, a consultant advising the Ontario Energy Board testified in September 1999: "It may very well be that consumers will object to the price increase, but at the same time one must also recognise that there is likely to be mass confusion in the market in any case as folks try to understand what has been done to the electric sector, and are in some senses unable to sort it out." In June 2000, Minister of Energy Science and Technology Jim Wilson issued an edict to the Ontario Energy Board ordering it to review distribution costs and later the same month introduced Bill 100 that would defer the full impact of the increases until after the next provincial election. In August 2000, the president of Toronto Hydro testified that the designers of Ontario's power sector reforms always intended to increase distribution rates, a comment Energy Probe has disputed.¹⁴

The Consumer Association of Canada and the Vulnerable Energy Consumers Coalition (affiliated with the Ontario Coalition Against Poverty) - groups that normally defend the interests of residential and vulnerable energy consumers before the Ontario Energy Board - sponsored experts who appeared before the regulator supporting large distribution rate increases.

Energy Probe has many concerns about the implications of the minister's edict and Bill 100.¹⁵ The purpose of Bill 100 appears to be to ensure that the full impact of the distribution increase is not felt until after the next election. However, Bill 100 creates new uncertainties for consumers and investors. Bill 100 is so ambiguous that its implications for ratepayers cannot be determined. Under Bill 100, what happens after 2003? Does the legislation apply to privatised utilities?

¹⁴Energy Probe has complained to Toronto Hydro about the inaccuracy of the comment, demanding a retraction. As of this writing, Toronto Hydro has only replied that it is working on a response. Energy Probe's complaint is at <http://www.energyprobe.org/energyprobe/index.cfm?DSP=content&ContentID=1328>.

¹⁵See for example: www.energyprobe.org/energyprobe/index.cfm?DSP=content&ContentID=1197.)

Although confusion prevails on many points, it is now clear that all semblance of independent regulation of monopoly services has been lost. The contrast between Ontario's positive experience with independent, non-politicised natural gas regulation and our bad experience with highly politicised electricity matters under Ontario Hydro indicates that giving up the independence of our regulator is likely to harm the public interest. When our new energy legislation was introduced containing a clause granting the Minister directive power over the regulator, we were assured that it would almost never be used.

The Ontario Energy Board has also implemented an incentive program to encourage distribution utilities to cut their costs. The program, called Performance Based Ratemaking (PBR), may reduce distribution rates by a few percentage points over time. The benefits of PBR will never come close to the losses imposed by the double payment problem from applying a market-based rate of return on the capital historically contributed by ratepayers.

Energy Probe is pleading with the provincial government to institute a "ratepayer equity recovery" program to protect electricity consumers. We argue that the province should recover the full book value of the municipal utilities as of Dec. 31 1998 from the municipalities. The proceeds should be earmarked to offset the Debt Reduction Charge. The book value of the MEUs -- estimated at \$7 billion -- is about equal to the DRC recovery target, which we understand to be \$7.8 billion. So far we have received no indications of support.

Ontario's Electricity Investment Climate Goes Sour

With the exception of the TransAlta's Sarnia cogeneration project, which will add 440 MW of new capacity, no other independent power projects have been firmed up. On July 26th the Dow Jones news wire carried a story listed many prominent companies, such as Calpine and Utilicorp, that had intended to invest in Ontario but gave up.¹⁶ The article cites a number of issues such as Bill 100, access to information about the power system, and political risk.

¹⁶Dow Jones Newswire, July 26, 2000, "Power Cos Cautious about Ontario Investing".

A major blow to the confidence of potential investors in the generation market is OPG's plan to restart the Pickering A. Under this plan 2000 MW of baseload capacity would be brought into service over the next few years. The government has endorsed OPG's plan. It appears from OEFC's accounts that the public is financing the restart investment. Competitors have been affected. For example, a representative of Union Gas recently testified at the OEB that, "To the extent that, for instance, the Pickering plant comes back into play, the marginal cost of electricity coming out of that facility will make it very difficult for a start-up (gas-fired) operation to be able to compete with it."¹⁷ It is hard to blame investors for being nervous when competing against an expansionist, highly politicised, taxpayer-financed company intent on advancing its competitive position.

The government is applying a series of subsidy Band-Aids to correct the now embarrassing lack of private investment. In the middle of September it announced a sweeping program of tax holidays for new, rebuilt, or expanded waterpower projects.¹⁸ The government has also politicised the regulation of transmission tariffs in order to artificially encourage investment.

Politicising Transmission Tariffs

Transmission tariffs recover the cost of the high voltage wires now owned by Hydro One which criss-cross Ontario, suspended on tall lattice or tubular towers, delivering power from neighbouring utilities and generating stations to the local distribution companies and large industries. The transmission grid also connects Ontario's power grid to other grids in Quebec, Manitoba and the United States. It appears that Hydro One's costs include some liabilities associated with Ontario Hydro's past mistakes, however the complete data behind the financial restructuring of the transmission system has not been released. Energy Probe is not opposed to recovering some costs for historic mistakes through transmission rates, but in our opinion such costs increase the necessity for fair cost allocation and fair rate design.

Although transmission remains a regulated monopoly, key decisions on how transmission costs are charged to customers have become politicised. Consistent with the history of other energy decisions, when politics enters the decision making, ordinary members of the public generally suffer. After a period of intense lobbying by big industry, Minister Wilson agreed to back big industrial customers in their effort to transfer a portion of their transmission costs, and the hidden taxes embedded there, to smaller customers. The rate impact on the bills of small consumers from this decision is likely to be fairly small for the next couple of years – a few percentage points of the transmission charge. However, the rate impact is very likely to grow in future years and, more importantly, if the principle of cost shifting is accepted for other regulated rates, the impact could become large.

¹⁷OEB hearing RP 1999-0017, Transcript p. 648, ll. 18-22.

¹⁸IPPSO/FACTO, October 2000.

Sixteen days before the OEB released its decision on a hotly contested matter of transmission cost allocation and rate design, Energy Minister Jim Wilson made a speech at a major conference attended by several members of the OEB announcing his opposition to a rate approach that would recover historic costs from all customers on the basis of the total electricity consumed.¹⁹ In the speech, he said “I’ve listened to concerns that gross load billing would make most self-generation projects uneconomic” and that this was an outcome “we want to avoid”. He went on, “The issue is currently before the Ontario Energy Board, and I’m confident that the OEB, as our independent regulator, will come up with a decision that protects the best interests of customers and advances competition.” Industrial interests preferred a rate design that could improve the cost-effectiveness of self-generation projects by shifting sunken transmission costs to customers who don’t build self-generation projects. The mechanism for cost shifting is called net load billing. Net load billing had previously been rejected in favour of more efficient and fairer gross load billing by the Market Design Committee.²⁰ Representatives of the industry groups lobbying the Minister of Energy in favour of net load billing -- chiefly the Association of Major Power Consumers in Ontario and the Independent Power Producers Society of Ontario -- were represented on the Market Design Committee and had endorsed gross load billing in that forum. The parties supporting gross load billing included the Consumers Association of Canada, OPG, and Energy Probe.

The OEB’s transmission rate design decision was, issued May 31, 2000, overturned the recommendation of the Market Design Committee on gross load billing, consistent with the wishes of the Minister.

Other aspects of the public interests, beyond the wholesale competition and public finance issues discussed above, are at risk as well.

Residential Electricity Contracts that Hurt

The activities of some marketers selling electricity contracts in the residential marketplace are likely to impair public confidence in the electricity restructuring. I have studied three contracts that marketers are offering to consumers or have been offered to consumers – two from Direct Energy Marketing Limited and one from Toronto Hydro Energy Services, an affiliate of Toronto Hydro. I am urging consumers not to accept any of these offerings.

These contracts contain financial risks for consumers that ordinary consumers have no reasonable chance of understanding. The contracts assign any money that would normally be paid from Ontario Power Generation (OPG) to each electricity customer under a rebate program outlined in the Market Power Mitigation Agreement to be received instead by the marketer.

¹⁹Link: http://www.est.gov.on.ca/english/ar/sp_000515.html

²⁰The Market Design Committee’s case in favour of gross load billing can be viewed at http://www.theimo.com/imoweb/historical_devel/Mdc/Reports/Q4Report.asp under “Principles for Recovering Fixed Transmission Charges for Basic and Export Service” p. 4-9.

OPG's rebate program requires the company to rebate customers if the annual weighted average commodity price exceeds 3.8 cents/kilowatt hour. The current commodity price, which is not evident on consumer bills, is about 4.5 cents/kilowatt hour.

Factors that might cause electricity prices to exceed 3.8 cents/kilowatt hour include production shortfalls from Ontario's nuclear plants, high electricity prices in neighbouring jurisdictions such as New York or Michigan, tougher environmental controls on Ontario's coal-fired power stations, or little investment in new electric generation capacity due to perceived uncertainty. I expect that OPG rebates are very likely to arise in the first couple of years of the market's operation.

Consumers could be misled by a marketing pitch from Direct Energy that states "Best of all...you will not be subject to retroactive price adjustments." In Ontario's natural gas industry, where ordinary consumers have some experience and which bears some resemblance to electricity, homeowners buying gas from their local utility can be subject to retroactive price adjustments which may add to the customer's bill or provide a credit for a portion of the bill. Once Ontario's electricity system is open for competition, the only retroactive price adjustments for a consumer under contract with a competitive vendor is the OPG rebate. The rebate can only be credited to your bill and can never increase your bill. However, the credit would revert to Direct Energy under the contract. When Direct Energy states that "protecting" you from retroactive price adjustments is "best of all", the company appears to be counting on widespread consumer confusion about how the new electricity system will function.

Although I expect the market price to exceed 3.8 cents/kilowatt hour, and despite the cost impact on consumers of the extension of special rate deals for large industrial customers, because of the Market Power Mitigation Rebate, the final price for consumers, at least in the first year or two, is unlikely to exceed 4.6 cents/kilowatt hour.²¹ This compares with the price of 5.65 cent/kilowatt hour Toronto Hydro is offering and the price of 5.175 cent/kilowatt hour for the first year and 5.75 cent/kilowatt hour that Direct Energy is offering in its contract dated August 18, 2000.

The contract that Direct Energy has offered, dated April 26, 2000, is based on a pricing formula that depending, on how it is interpreted, could cause a significant rate increase for consumers. Under this so-called "discount program", the price for five years for the commodity component of the bill will be capped at the customer's current distribution utility's price, less a discount equal to 5% of the customer's commodity price. The contract does not define the term "current price". Most electricity distribution utilities currently sell electricity service at a bundled price, where the costs for distribution service, transmission service, and the commodity electricity consumed are rolled together into a single rate and a separate monthly hook-up charge. I anticipate that in Ontario's future electricity market, the commodity portion of the normal household's bill will be approximately 40% to 50% of the total bill. If Direct Energy calculates the price for commodity electricity as 5% less than your current bundled price, customers on the

²¹I expect that at the opening of the market, the rebate will apply to approximately 60% to 70% of your power consumption. Within the succeeding few years, assuming the market becomes more competitive, a declining portion of the commodity cost will be covered by the rebate in the event of high prices.

program may end up paying in the order of twice as much for the commodity portion of their electricity bill as they do now. I have made repeated inquiries to Direct Energy's call centre for clarification of the contract interpretation, but have not received any clear replies.

Others contractual terms in Direct Energy's offer may severely disadvantage consumers. If Direct Energy contracts with a supplier such as a generating company, and a failure to deliver by the supplier results in extra costs for Direct Energy, customers buying under contract from Direct Energy will have to cover Direct Energy's losses. The contract does not set out how consumers will be billed for these losses. With the opening of Ontario's electricity market delayed, Direct Energy will have the option to continue the arrangement but once the customer signs, the customer won't have any choice about whether to continue until the 5-year term expires.

Direct Energy had been lobbying the Ontario Energy Board and the Ministry of Energy Science and Technology to have the regulatory rules changed so that, in the event that a dispute arises between Direct Energy and the contracted customer, the contracted customer cannot obtain electricity from their local utility or another supplier. Direct Energy had argued that allowing this safety net for consumers would constitute interference in its contract. If the rules were changed, consumers could have been stuck with a choice between paying a high bill or freezing in the dark. The Ontario Energy Board rejected the submissions of Direct Energy on this point.

Toronto Hydro has recently complained that Direct Energy sales representatives are misrepresenting themselves as affiliated with the utility.

Although electricity prices are likely to rise for ordinary consumers, the commodity portion of the bill is likely to stay the same or fall in the short term while the regulated component rises. Marketing claims that consumers should sign a fixed price commodity contract to avoid higher prices are generally misleading.

Official bodies with a responsibility for customer protection such as the Ministry of Energy and the Ontario Energy Board have not explained to consumers the implications of the Market Power Mitigation Agreement rebate when contracting for power. As a result, consumers are in peril. When consumers who have signed these deals find out what they mean, the reputation of our restructuring will suffer.

Deregulating Fossil Emissions

The Advisory Committee and Competition, the government's white paper, and the Market Design Committee all recognised the need for tougher emission controls. During the 1999 provincial election Premier Harris promised to set "strict emission standards for Ontario Hydro and any utility that sells electricity in our province".

OPG's NOX emissions have been rising since 1995. In 1999, OPG's NOX emission substantially exceeded its target. Its NOX emissions this year will exceed last year's emission.

In January, the Ontario Ministry of Environment announced an Emission Reduction Credit Trading program for emissions from Ontario Power Generation's fossil units. As currently drafted, the government's Emission Reduction Credit Trading program would effectively deregulate coal-fired power plant emissions.

The concept of emission reduction credit trading is that foregone forecasted emissions are treated as if they are real emission reductions. Credit granted for foregone forecasted emissions can then be used to offset actual emissions.

Here's how emission reduction credit trading might work: A company might propose to build a facility like a cement plant that is capable of producing a significant amount of emissions. After duly registering its interest in the facility, the company might then cancel the plan for it or reduce its planned size. The reduction in actual emission below the once forecasted level might then be established as an emission reduction credit and the credit sold to OPG. OPG would then have a credit to reduce its registered emission and increase the utilisation of its coal-fired units by a corresponding amount.

Environmental organisations in Ontario active in air quality issues are universally opposed to this system of reduction credits. Instead there is a very strong consensus in favour a system of emission caps and emission trading by capped entities, similar to the highly successful US EPA SOX trading system.²²

On Feb. 14, 2000, OPG announced of its plans to sell its Lakeview and Lennox power plants by November 2000 in order to move it toward compliance with the competition objectives enshrined in the Market Power Mitigation Agreement. Environmental groups expressed concern that the sale might result in increased emissions. The provincial government imposed a moratorium on the sale of units in May. The moratorium was originally supposed to last for two months to allow the government to clarify issues around emissions control. There is no sign of the clarification or relief from the moratorium.

Several of the government's illiberal policy measures have been justified on the grounds of environmental protection, including the hydropower tax holiday, the transmission rate subsidy and the fossil unit sale moratorium. When effective, light-handed environmental protection measures are rejected in favour of ineffective, bureaucratically intensive ones, the explanation for illiberal actions on environmental grounds rings hollow. It appears instead that the real motivation for these measures is to avoid having to grapple with the underlying issues and the instinct to maintain political control over the outcomes.

²²The Market Design Committee in its third quarterly report articulated a detailed proposal for such a system.

Eight Lessons for Electricity Liberalisation in Atlantic Canada

1 Define a public interest mandate for electricity liberalisation.

The mandate of Ontario's electricity restructuring – to promote jobs and investment – is fundamentally confused. We have too many jobs in the power sector, not too few. We have lots of investment in electricity, although not much of it wise. The confused mandate of the process has made it easily captured by incumbent interest groups and diverted to their purposes. We are watching the commercial Hydro successors, selected major industrial customers, and selected independent power producers capture huge gains at the expense of the legitimacy and integrity of the reform process. You need a better compass to find the true north of the public interest than we have as you negotiate the complex trails of the restructuring. One of the paradoxes of electricity liberalisation is that decentralising power system must to some extent be conducted centrally. A highly successful model used in the State of Victoria in Australia to guide what has proven to be one of the most successful electricity liberalisations so far achieved was to set up a special, advisory office responsible to the Ministry of Finance, staffed with recognised experts and mandated to protect the public. In Ontario, we might have achieved something of the kind had we continued the work of the Market Design Committee.

Transparency must be a core value of liberalisation processes. Virtually all public sector financial data should be released in a timely and complete fashion.

2 Aim for a Maritime-wide regional power market rather than province-by-province market.

A significant potential challenge for electricity sector liberalisation will be prying the grip of the politicians off the levers of power. Several deficiencies of the Ontario market reform process relate directly to the problem of politicians not wanting to lose their power. Examples include the failure to break up and privatise the commercial Hydro successor companies and the decision to retain directive power over the OEB. The experience in some of the most successful electricity liberalisation efforts, particularly mid Atlantic seaboard states (the PJM Interconnection) and Australia, suggests that an interjurisdictional market reduces the grip of politicians.

A wider market offers many practical advantages. The costs of establishing the rules and the IT mechanisms for a competitive market are significant so there is an important economy of scale to spread the set up costs. Creating a wider market will improve the ability of the reforms to release efficiencies.

3 Quantify your sunk costs once and for all by realising them.

Without having its electricity liabilities quantified in a hard fashion, Ontario is sliding toward substantially increased liabilities. The best way to avoid this problem is to quantify the liabilities by privatising them. Privatising the liabilities may appear costly but the gains in transparency are likely to be highly worthwhile in the long term.

4 *Think hard about market design and transition/implementation issues.*

California separated its power exchange and its system operator, a problem that is now widely thought to have contributed to the current difficulties in that market. PJM initially did not use a system of efficient locational marginal prices for energy on the transmission system. Instead, it used an averaging based pricing simplification. As a direct result, its market had to be suspended in 1997 due to widespread gaming of the system. The market for electricity should closely match the physical reality of that system. Ontario is building its initial market on the basis of the kind of pricing that caused the PJM system to fail in 1997.

5 *Developing investor confidence is necessary for long term consumer protection.*

Problems in California and Alberta with diminished supply reliability and high prices are driven in large measure by the slow pace of investment in new generating stations. Ontario is going there. While investor confidence in Ontario languishes, our power system's reliability is being undermined and the stage is being set for much higher prices.

Investor confidence comes from real competition, real financial accountability, and real independent, arms-length regulation rather than from subsidies and Band-Aids

6 *Don't forget environmental protection.*

Environmental protection is essential to the legitimacy of the liberalisation process. If the public gets the sense that the reforms are being carried out at the expense of the market, public confidence will be undermined. The experience with economically efficient air emission control programs, such as the US sulphur dioxide emission trading regime, proves that major environmental improvements can be made at a very modest cost.

7 *Get working early on upgrading the metering stock to handle Internet quality data and make commodity electricity prices today start to evolve toward short run marginal cost*

High quality, intelligent metering, capable of two-way communication of price and usage data, is a critical piece of the customer protection safety net in a competitive electricity market. Without good metering, customers have little practical opportunity to avoid price spikes by managing their usage of electricity. Without prices that reflect marginal cost, better meters offer little advantage for customers. I suggest that as soon as possible, utilities implement short run marginal cost pricing for commodity electricity and the metering stock be upgraded. Intelligent meters will be most cost effective for larger customers. As the costs of intelligent meters drop, the market penetration can increase.

8 *Build the knowledge base in Atlantic Canada.*

Power system restructuring is a complicated business. Any serious liberalisation effort requires expertise in areas such as power system market design, finance, accounting, power system engineering, IT systems development, environmental regulation, interjurisdictional trade law, and administrative law. Although internationally experienced consultants can provide valuable assistance, consultants are both costly and peripatetic. When they leave they take their learning with them. Atlantic Canadians in government, the press, academia, think-tanks, utilities, and industry should be encouraged to study the issues associated with electricity sector liberalisation so that your community has a better chance to succeed in this enterprise than appears now to be the case in Ontario.