

COMPETITION ON THE WIRES

energy reform in ontario

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With the impending breakup of Ontario Hydro's monopoly over power generation, Ontario's electricity industry is entering a new era. Passed in October 1998, the province's Energy Competition Act (Bill 35) will introduce competition into the generation and retailing of electricity. To facilitate market competition, Ontario Hydro will be broken up into five separation companies this April (see interview with Pat McNeil, vice president of corporate planning, Ontario Hydro, at right). By the year 2000, consumers can expect to have a choice on their electricity supplier.

Engineering Dimensions spoke to seven of the key players in energy reform, whose views appear on the following pages. They generally agree that the prospects are good for a competitive electricity market in Ontario, but safeguards are needed to ensure an adequate energy supply and protect the public and the environment.



Pat McNeil is vice president of corporate planning for Ontario Hydro, heading up business planning, investment planning and regulatory affairs.

ED: Could you briefly outline Ontario Hydro's plans for restructuring to facilitate market competition?

PM: Ontario Hydro is being restructured and succeeded by five new entities. Ontario Power Generation (OPG) will assume the ownership and operation of Hydro's generation assets and will be responsible for the generation and sale of electricity. The Ontario Hydro Services Corporation (OHSC) will be a holding company for the transmission, distribution and retail services side of the electricity business. Both companies will be owned by the province, but will be self-financing, with the flexibility to make independent operating and investment decisions.

The Independent Market Operator (IMO) will be a non-profit statutory corporation without share capital, intended to ensure reliable electricity supply and fair market access for all participants. The Ontario Hydro Financial Corporation (OHFC) will exist as the continuation of the current Ontario Hydro, and will hold and discharge the residual or stranded debt resulting from the recapitalization of Ontario Hydro's successor entities.

The Electrical Safety Authority will be created to prescribe safety standards and processes for the generation, transmission, distribution and retail use of electricity in Ontario, replacing Ontario Hydro's statutory obligation for electrical inspection. These companies will become fully operational with the transfer of assets on April 1, 1999.

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Hydro's responsibility for the province's transmission system will be passed on to OHSC, which will act as a common carrier for all generators and power retailers. In addition, OPG will continue to meet the energy requirements of Ontario customers until the marketplace opens up in 2000.

ED: What will an open market mean for Ontario Hydro over the long-term? Will you be looking to expand your market share outside of the province?

PM: OPG will be an Ontario-based company, but not just an Ontario company—and this is an important distinction. With the implementation of deregulation in Ontario and the United States, OPG has the opportunity to compete in regional markets and become a successful North American generator. OPG plans to use its strengths of a diverse fuel mix, a good environmental record, an experienced workforce and an attractive cost structure to compete and win in the U.S. marketplace.

OPG's dominance in the Ontario market (approximately 85 per cent of the provincial bulk power market) was a major concern for the Market Design Committee (MDC). Its report addresses the issue of market power through various mitigation measures, one of these is decontrol of OPG's generating assets in two phases.

OPG must relinquish control of the timing, quantity and bidding of 4000 MW of power output 42 months after the market opens. Within 10 years after the market opens, OPG must decon-

trol generation capacity to ensure it has no more than 35 per cent of the Ontario market. Decontrol means giving up control of the stations' output, not necessarily the stations themselves. It can be accomplished through energy swaps with plants outside Ontario, plant leases, agreements to sell all output of a plant to a third party and several other means.

ED: How will Hydro ensure the safety of nuclear power plants in the new, competitive market?

PM: Public safety, as it has been for Ontario Hydro, will be the paramount objective for OPG. Economic and competitive pressures associated with open access will not affect the safe operation of OPG's nuclear facilities. The current operating environment and emphasis on protecting the health and safety of the public and workers will continue.

ED: What will happen to Ontario's nuclear plants over the long term?

PM: The performance of OPG's nuclear generation will be critical to ensuring that OPG is a competitive supplier of electricity in Ontario and in the export market. Improving nuclear performance will capitalize on nuclear's principal strength—the highly competitive production costs of its generating units. Initiated in 1997 to address poor nuclear performance, the Nuclear Recovery Program is underway, and we fully expect the plants to support OPG's success in the competitive market.

WHO'S WHO in energy reform

Organizations that will play key roles in the restructuring of Ontario's electricity market include:

- ⚡ Ontario Power Generation (OPG), to retain Ontario Hydro's generating facilities and compete with other generators;
- ⚡ Ontario Hydro Services Corporation (OHSC), the holding company for the transmission, distribution and retail of services side of the electricity business;
- ⚡ Independent Market Operator (IMO), responsible for ensuring reliable electricity supply and fair market access;
- ⚡ Ontario Hydro Financial Corporation (OHFC), to hold Ontario Hydro's outstanding or "stranded" debt (estimated at \$23 billion), which will be paid off through charges to electricity users;
- ⚡ Electric Safety Authority, responsible for electrical inspection and for developing and enforcing the Ontario Electrical Safety Code;
- ⚡ Market Design Committee (MDC), which has advised government on rules for the new competitive market; and
- ⚡ Ontario Energy Board (OEB, responsible for regulating the wire services of transmission and distribution, and for licensing and regulating market participants.



Tom Adams is a member of the IMO's board and executive director of Energy Probe, a non-profit watchdog organization that investigates potential environmental hazards, and promotes a safe and ethical energy supply.

ED: What will an open electricity market mean for consumers in terms of price and choice?

TA: The main purpose of Ontario's power reforms is to reduce prices. The prospects are very good that prices will decline with the advent of competition, as they have in virtually every other jurisdiction that has adopted competition as a replacement for power monopolies. The major risk to prices is some significant shortfall in production from existing generating units—a problem that would exist whether or not competition was introduced. Customer choice is fundamental to our new power market. Regardless of size, all customers will have the opportunity to shop around from the outset—a level of commercial freedom that has not been attempted on such a short schedule anywhere else in the world.

ED: What role should public education play in the restructuring of the electricity market? Who should play that role?

TA: Education of consumers and the marketplace participants is an important task. The IMO, Ontario Energy Board (OEB) and Ministry of Energy, Science and Technology have major responsibilities in helping people to come up the learning curve. Having said this, we shouldn't overlook the role the market players themselves will play. Although we are exposed to massive amounts of commercial advertising and marketing promotions, we are often not aware of how much we are learning from them. Think of

phone deregulation and ask yourself where you learned more—from the competitors or from the CRTC. One of the reasons we need vigorous competition is to promote public education.

ED: Is the government doing enough to protect consumers and ensure an adequate energy supply in the new competitive market? If not, what else should be done?

TA: I would resist any presumption that, without government action, customer protection and supply adequacy are necessarily jeopardized. The recommendations of the MDC provide a strong basis for customer protection and supply adequacy. As the market matures, it is likely to diversify and strengthen. For example, over time I expect to see the power generation fuel mix in Ontario to broaden in response to market forces.

In some respects, the MDC may have taken customer protection too far. For example, to maximize customer protection, it has recommended a one-year time constraint on initial contract sales to homeowners. If implemented, this recommendation would impose extra costs on those marketers and customers who would have mutually agreed to a longer term in the absence of this rule. Marketers that might be particularly hurt by this time constraint are those trying to sell power under long-term contracts as a hedge for power station investments. Capital intensive renewable generation may be particularly harmed by the time limitation.

ED: Is the government doing enough to help ensure that strong environmental protection measures are built into the new competitive market? If not, what else should be done?

TA: The MDC and its executive worked very hard to develop detailed and serious recommendations on environmental protection matters, such as “cap and trade” controls for air emissions from fossil units, and requirements for nuclear waste disposal and decommissioning funding. The government’s White Paper expresses a commitment to environmental protection. Many policy makers recognize that if electricity reform ends up being seen as an environmental failure, many citizens will not support the reform process. It is therefore disappointing to see the environment ministry take so little concrete action to resolve environmental issues.



Jim Wilson is Ontario's minister of energy, science and technology, playing a critical role in developing the rules for the new electricity marketplace.

ED: Deregulation of electricity generation began in Alberta in 1995. It has experienced critical power shortages and the potential benefits of an open market—better service and cheaper rates—have yet to materialize. What can Ontario learn from Alberta’s experience?

JW: Ontario has learned a great deal from Alberta’s experience with electricity restructuring.

Early in the process of designing our market, we realized that ensuring adequate supply was a key factor in reducing the potential for price increases, once market forces took hold. That is why we undertook to make conditions in the Ontario market conducive to potential new generators and competitors to the existing dominant generator, OPG. The market power mitigation agreement negotiated between the MDC and OPG goes a long way toward ensuring that market prices will be fairly determined and that proper market signals are

sent to potential investors. In addition, the provisions that call for a strengthening of the interties (connections between Ontario and out-of-province hydro suppliers) will permit generators from outside Ontario to increase their market presence, adding to potential supply and increasing competition.

Ultimately, the OEB has the mandate to ensure that the market is operating in the overall public interest.

ED: What is the Ontario government doing to protect consumers and ensure an adequate energy supply?

JW: The best way to ensure that we have an adequate energy supply under deregulation is to make sure that we have a market that will generate the proper price signals, so that consumers and investors will respond appropriately. We are moving expeditiously to a market that will generate these signals. Combined with the institutions that I have mentioned, I am certain our market design will give investors confidence to risk their capital here and get a fair return.

The MDC has made a number of recommendations for consumer protection. We are studying those recommendations now. Consumer education has a key role, and the Ministry of Energy, Science and Technology is already moving to fulfill that role. Ultimately, if consumers elect not to choose an alternative supplier, they will still receive their service as in the past—from their local distribution utility.

ED: What does your ministry hope that a competitive energy market will achieve for the province?

JW: I hope that the competitive energy market will maximize the choices that consumers have, so they can match their electricity service to their needs. I also hope that competition ensures these services are delivered at the lowest cost possible.

I hope the market will send the proper price signals to suppliers and consumers, so that rational decisions about investment and consumption can be made. Since we introduced our legislation, more than \$1.4 billion in proposed new generation investment has been announced. All of the projects run on either clean natural gas or renewable energy sources, such as hydroelectric, wind and biomass. For the first time, Ontario electricity customers will be able to choose “greener” sources of electricity.

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Robert Lake, P.Eng., is general manager of the Peterborough Utilities Commission, and president of the Municipal Electrical Association (MEA), which promotes excellence in utility services in Ontario. MEA has about 500 members.

ED: What is the MEA's position on the new Energy Competition Act?

RL: The MEA has been promoting industry reform for several years. Although there are many complex issues, a simple generalization is that the industry will be faced with new costs and additional taxes that increase the price consumers pay for electricity. At present, municipal utilities do not pay corporate taxes. Bill 35 will require municipal utilities to pay the equivalent of corporate taxes to pay down Ontario Hydro's debt.

The major source of potential benefit—competition in the generation of electricity—will not be achieved for several years. Ontario Hydro's successor company will initially continue to own and control about 85 per cent of the generation facilities in Ontario. It has taken Ontario Hydro the better part of a century to accumulate the amount of generation it has. It is reasonable to expect that it will take about 10 years for other generators to provide effective competition for Ontario Hydro.

ED: How will the new legislation affect municipal electric utilities? What sort of restructuring can we expect?

RL: The legislation will have different effects on different municipal utilities. Most municipal councils are cash strapped. They will be permitted to sell their utilities, or to continue to operate utilities and receive dividends from their operations.

Some city councils will be risk-averse and want to be in the "wires" business only; that is, own and operate the wires that carry electric power, but not get involved in competitive energy sales. The wires charges will be regulated by the OEB, but if the utility does a reasonably good job, the business will be relatively risk-free with an almost certain level of revenue. Some councils and utilities will see the potential for a multitude of new businesses and have greatly expanded portfolios. Ultimately, the decisions will be made by municipal councils. At the end of the process, we can expect to see quite a mix in the electric utility business.

ED: What threats and opportunities can municipal electric utilities expect once they become independent, for-profit, local distribution companies?

RL: There will be opportunities for utilities that have boards and staff who are prepared to move quickly and to take some risks. Most municipal utilities in Ontario are relatively small organizations. They don't have, and many probably won't have, the resources to meet all of the requirements of deregulation. There will be opportunities for other utilities to provide those services on a contractual basis.

The legislation also enables municipal utilities to get into the telecommunications and natural gas businesses.

ED: What restrictions will local distribution companies be faced with?

RL: Although we use the word "deregulated," in fact, utilities will be faced with more "red tape" than they have ever experienced. If a

utility stays with just the basics of selling electricity and providing wires to transport the electricity, they will be faced with obtaining approvals for wires charges, extension of electrical services to new customers and a new accounting system just to own wires. They will need to obtain licences for both the wires and energy businesses. They will be affected by some parts of the regulations that will flow from the four reports received from the MDC over the past year. They will need to comply not only with Bill 35, but also with the various codes of conduct issued by the OEB.

To a large degree, rapidly growing utilities around the Golden Horseshoe have had capital expansions funded through development charges. In the new system, they will no longer be able to collect development charges. This will present a very significant restriction on what utilities will be able to build. In the worst case scenario, scarce dollars will be spent to connect new customers, while lines and poles that should be replaced for reliability, economic and safety reasons go unattended.



Lauri Gregg, P.Eng., is director of energy and technical services for Falconbridge Ltd. in Toronto, and chair of the Association of Major Energy Producers and Consumers of Ontario (AMPCO). AMPCO represents 63 of the largest industrial consumers of electricity in Ontario from the resource, manufacturing and processing sectors.

ED: What is AMPCO's position on current plans for moving toward a competitive electricity market in Ontario?

LG: AMPCO has been fully supportive of the actions taken by the provincial government and the Ministry of Energy, Science and Technology to create a competitive electricity market in Ontario, culminating with the passage of Bill 35. However, AMPCO and its members have concerns about the issues of market power, stranded debt recovery and the commercial structures of OPG and OHSC. Consequently, AMPCO is advocating more reasonable approaches to the problems existing in each of these areas.

ED: In AMPCO's view, what needs to happen to create a truly competitive electricity market?

LG: To have a truly competitive market, all generators, marketers and end-use customers must be able to participate easily and on an equal footing in the market. The key to having a competitive market is to have many participants. Consequently, AMPCO continues to advocate the break-up of Ontario Hydro generation into at least five entities as quickly as possible, as well as a more rapid decontrol process than that outlined by the MDC. All barriers must be removed for new market entrants, and investment in new generation must be stimulated.

ED: What benefits does AMPCO hope to obtain?

LG: In general, AMPCO members compete in global commodity markets against competitors in other jurisdictions who have lower electricity prices. Since 1995, AMPCO members have advocated a competitive electricity market, which will generate dynamic, economically efficient electricity prices, and provide contract flexibility and a choice of ancillary services. This type of market will allow AMPCO members to manage and optimize their energy costs.



As Ontario's environment minister, Norman Sterling, P.Eng., is keen to protect the environment in the shift toward a new competitive electricity marketplace.

ED: What is the Ontario government doing to help ensure that strong environmental protection measures are built into the new competitive energy market?

NS: The Ontario government is committed to ensuring that strong environmental protection measures are built into the design of a competitive electricity market for Ontario. A regulation will be put in place prescribing limits on emissions from fossil-fuelled generating stations in Ontario. Emission standards will also be set for all generators wishing to sell into the Ontario electricity market. In addition, pollution disclosure requirements will ensure that electricity customers can obtain the information they need to understand the environmental implications of their purchase decisions.

ED: What is the timetable for implementing these measures?

NS: A precise date has not been established; however, the emission limits regulation will come into effect when the electricity market opens in the year 2000.

ED: The government is considering an emission reduction trading program to give companies the incentive to make greater reductions than are required. How would such a program work?

NS: In its simplest form, an emissions limit is established for a pollutant from a specified set of sources. Using emissions trading, a firm would be able to meet its emission requirements by reducing pollution itself and/or purchasing reduction credits from another source within the same airshed that was able to achieve emissions below the amount required.

Emissions trading uses the efficiency of the marketplace to assist industry in meeting emissions obligations at the lowest total cost. It can result in environmental objectives being achieved more quickly than might otherwise be the case. Sources with low costs to reduce emissions have an incentive to reduce their emissions and sell surplus trading units. Sources with high costs save money by purchasing surplus trading units for some period until cost-effective, pollution-reduction mechanisms are found, rather than being forced to make reductions immediately.



Agnes Bishop, MD, is president of the Atomic Energy Control Board (AECB). The AECB's mandate is to regulate the nuclear industry in Canada to ensure that the development and use of nuclear energy do not pose an unreasonable risk to health, safety, the environment and national security.

ED: What are AECB's major concerns respecting the restructuring of Ontario Hydro and the province's electricity sector?

AB: Our two main concerns with the Ontario government's initiative are the control of the power grid and the financial pressures

that are likely to result from the move to a competitive market. Both factors are important to the safe operation of nuclear reactors, and the impact that the restructuring of Ontario Hydro might have on these matters must be properly addressed and understood.

The safety case for Ontario's nuclear power plants assumes a certain reliability of the grid to provide emergency power. From an operational viewpoint, therefore, we would expect power manoeuvres on the grid to be governed by rules that will ensure that the probability of power interruptions to nuclear stations won't increase. Furthermore, Canada's nuclear plants were designed

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Agnes Bishop, MD

to supply base-load electricity. They are not well suited to constant changes in requested output. The AECB would, therefore, also expect that nuclear stations would not be required to change their power output frequently, just because cheaper power can be purchased from elsewhere as market conditions fluctuate.

At a minimum, the safety implications of operating in such a manner would have to be properly assessed and found acceptable before changes in operating mode could be authorized.

We must ensure that, as the business environment changes, plant safety is not jeopardized by the pressure to compete against other energy producers.

ED: How are these concerns being addressed?

AB: Many issues associated with the new electricity market are still being addressed. Those issues that might impact nuclear operations, such as market rules or grid reliability standards, will not be in effect until the middle of the year 2000. Developed by the MDC, the market rules have recently been submitted to the minister of energy, science and technology for approval. The grid reliability standards are being developed by the North American Electric Reliability Council. Ontario Hydro is working closely with the MDC and council on the development of the rules.

ED: What steps need to be taken to ensure the safe operation of Ontario's nuclear power plants?

AB: OPG has applied for licences to operate the nuclear power plants currently run by Ontario Hydro. In reviewing the applications, AECB staff have concentrated on the safety implications associated with the restructuring of Ontario Hydro and OPG's ability to operate and manage the nuclear power plants. OPG must have complete control of daily decisions regarding operations, have established clear organizational accountabilities, and have all required processes and procedures in place. OPG must also be willing and able to follow through with the nuclear recovery plan put in place by Ontario Hydro.

It is the opinion of AECB staff that appropriate measures can be taken as part of the restructuring of Ontario Hydro to ensure that there will be no negative effect on the safe operation of Ontario's nuclear power plants. ♦