



**ANNUAL INFORMATION FORM**

**FOR THE YEAR ENDED DECEMBER 31, 2000**

**ONTARIO POWER GENERATION INC.**

**April 30, 2001**

## **TABLE OF CONTENTS**

<b><u>Page</u></b>	<b><u>Page</u></b>
ITEM 1 - CORPORATE STRUCTURE.....	1
ITEM 2 - BACKGROUND .....	2
Overview.....	2
Restructuring in the Electricity Industry .....	3
Restructuring in Ontario's Electricity Industry.....	4
Ontario's New Electricity Market.....	5
ITEM 3 - BUSINESS OF OPG.....	11
Overview.....	11
Market Opportunity .....	12
Corporate Strategy .....	13
Markets and Customers.....	15
Management of Commercial Risks.....	23
Generation Operations .....	25
Human Resources .....	44
Health and Safety.....	46
Intellectual Property.....	47
Research and Development.....	48
Supply Chain.....	48
Venture Capital .....	48
Information Technology .....	48
Insurance.....	49
Relationship with the Province and Others .....	49
Regulation.....	55
Environmental Matters.....	64
Legal Proceedings.....	69
Risk Factors .....	70
ITEM 4 - SELECTED CONSOLIDATED FINANCIAL INFORMATION .....	79
Selected Historical Financial Information .....	79
Share Capital and Sole Shareholder .....	81
ITEM 5 - MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.....	82
ITEM 6 - MARKET FOR SECURITIES .....	82
ITEM 7 - DIRECTORS AND OFFICERS .....	82
Directors and Senior Management.....	82
Committees of the Board of Directors .....	85
Executive Compensation .....	86
Long-Term Incentive Plan .....	87
Pension Plans .....	88
Employment Agreements.....	89
Compensation of Directors .....	91
ITEM 8 - ADDITIONAL INFORMATION .....	91
GLOSSARY .....	G-1
Organization Abbreviations .....	G-1
Technical and Operational Terms.....	G-1

*All references to dollars in this annual information form are to Canadian dollars. In this annual information form, "Province" refers to the Government of the Province of Ontario (provincial government entity) and "Ontario" refers to the Province of Ontario (geographic area). This annual information form uses certain technical and other terms relating to the electricity industry. See "Glossary" for the definitions or explanations of these terms.*

## **ITEM 1 - CORPORATE STRUCTURE**

Ontario Power Generation Inc. (the "Corporation") was incorporated under the *Business Corporations Act* (Ontario) on December 1, 1998. As part of the reorganization of Ontario Hydro and the related restructuring of the electricity industry in Ontario, the Corporation and its subsidiaries (collectively "OPG") purchased and assumed certain assets, liabilities, employees, rights and obligations of the electricity generation business of Ontario Hydro (the "Acquired Business") on April 1, 1999.

OPG is one of the largest electricity generators in North America. OPG's current business is the generation and sale of electricity to wholesale electricity customers in Ontario, including local distribution companies who sell electricity to their retail customers, and directly to large industrial consumers, with additional electricity being marketed and sold into the interconnected markets of other provinces and the U.S. northeast and midwest. In 2000, OPG purchased 3.3 TWh of electricity from its interconnected markets in addition to generating 136.2 TWh of electricity in Ontario and receiving a net amount of 0.3 TWh of electricity pursuant to special arrangements with neighbouring jurisdictions. Of this total, 135.8 TWh were used to meet demand in Ontario and 4.0 TWh were sold to the interconnected markets.

OPG's fleet of 80 generating stations consists of 69 hydroelectric, 6 fossil and 5 nuclear facilities located across Ontario, with a total installed capacity of 30,900 MW (25,800 MW current operating capacity). These stations offer dispatch flexibility of base load, intermediate and peak capacity and are diversified by fuel type and technology. OPG is a low-cost generator in its regional market area, particularly in relation to the U.S. northeast and midwest.

OPG's electricity generation assets are held through subsidiaries of the Corporation and are leased back to and operated by the Corporation. These subsidiaries are generally organized by operating group (hydroelectric, fossil, nuclear and corporate) based on the location of the facilities owned by each subsidiary, as follows:

**Hydroelectric Generation Subsidiaries**, grouped by the river systems on which OPG's hydroelectric stations are situated, are OPG-Abitibi River Inc., OPG-Madawaska River Inc., OPG-Mattagami River System Inc., OPG-Northwest Plant Group Inc., OPG-Ottawa River Inc., OPG-Small Hydro Inc., OPG-Mississagi River Inc., OPG-Montreal River Inc., OPG-Niagara Plant Group Inc. and OPG-St. Lawrence River Inc.;

**Fossil Generation Subsidiaries**, grouped by station, are OPG-Atikokan Inc., OPG-Lakeview Inc., OPG-Lambton Inc., OPG-Lennox Inc., OPG-Nanticoke Inc. and OPG-Thunder Bay Inc.; and

**Nuclear Generation Subsidiaries**, grouped by station, are OPG-Huron A Inc., OPG-Huron B Inc., OPG Waste Inc., OPG-Huron Common Facilities Inc., OPG-Pickering Inc., OPG-Pickering Waste Inc., OPG-Darlington Inc. and OPG-Darlington Waste Inc.

Furthermore, OPG-700 University Inc. holds and leases back the property where OPG's head office is located. The Corporation also has subsidiaries that have been incorporated for specific purposes and not for the purpose of holding generating assets and leasing them back to the Corporation. These subsidiaries include Ontario Power Inc., Ontario Power Interconnected Markets Inc., OPG EBT Holdco Inc., Kinectrics Inc. and OPG Ventures Inc. All of the Corporation's subsidiaries are wholly-owned corporations organized under the *Business Corporations Act* (Ontario), with the exception of (a) Kinectrics Inc., a science and engineering services company, and its subsidiaries, in which OPG holds a 90% interest; and (b) Ontario Power Interconnected Markets Inc., which is a wholly owned subsidiary incorporated pursuant to the *Delaware General Corporation Law*. OPG also holds a 49% interest in New Horizon System Solutions Inc. and approximately 49% interest in Integran Technologies Inc., an engineering services company.

The information contained in this annual information form concerning OPG or the Corporation for periods prior to April 1, 1999 relates to the electricity generation business that was previously owned and operated by Ontario Hydro and is now owned and operated by OPG, unless the context indicates otherwise.

## ITEM 2 - BACKGROUND

### Overview

The electricity industry is principally made up of four components: generation, transmission, distribution and marketing of energy and other services in wholesale and retail markets. Generation is the production of electricity at generating stations. Transmission is the transfer of electricity across high-voltage power lines from generating stations to local areas. Distribution is the delivery of electricity within local areas to homes and businesses using relatively low-voltage power lines. Following Open Access, wholesale energy market transactions are expected to be with industrial users and intermediaries such as utilities, brokers, aggregators, traders or other marketers. Retail energy marketing includes the sale of electricity to consumers of electricity. Both wholesale and retail energy marketing in deregulated markets also includes the sale of financial products and risk management services. Other services include metering, billing, energy efficiency and analysis, management services and ancillary, or reliability-related, services sold to an independent market or system operator.

Electricity has traditionally been generated in large multi-unit centralized stations. These stations are generally classified by (i) the type of fuel used at the station, (ii) capacity, typically expressed in megawatts ("MW"), and (iii) dispatch mode (being whether the electricity generated by a particular generating station is dispatched to meet peak, intermediate or baseload demand). Although capacity is typically expressed in MW, the energy produced by a station is generally expressed as a function of the time during which the station operates, in terms of megawatt hours ("MWh").

When determining what type of generation station should be built, various factors are considered including: the total cost of the facility; the availability and cost of fuel, from both a short-term and long-term perspective; the development and operating costs of the facility; the duration of the construction period; the future price of electricity; accessibility to the high voltage transmission system; and the facility's expected life span. The emissions characteristics and other environmental impacts of the different types of generating stations and their fuel have become an increasingly important consideration. In recent years, the fuel of choice for the majority of new power project developments has been natural gas due to its availability and relatively low emission characteristics and to technological improvements leading to lower capital and operating costs. However, with gas prices currently at higher levels than they have historically been, there have been several coal generating projects announced recently.

Historically, very large generating stations were constructed to realize economies of scale, notwithstanding greater risks associated with the significant initial capital costs of such stations. However, generation technologies have progressed to the point where, depending on the circumstances - in particular the cost of fuel and the selling price of electricity - smaller generating stations may be better able to compete with larger centralized facilities. The construction of these smaller stations also tends to reduce construction time and project complexity, and therefore financial risk.

Generating stations are called upon to produce energy and are "dispatched" based on demand. "Base load capacity" stations operate virtually continuously to satisfy relatively constant demand. "Peaking capacity" stations operate intermittently to provide energy during periods of maximum demand. "Intermediate capacity" stations operate fewer hours than base load capacity stations but more than peaking capacity stations. Typically, base load facilities are higher capital cost, lower operating cost facilities, while intermediate and peaking facilities are characterized by lower capital costs but higher operating costs and greater flexibility. These facilities have generally been dispatched based on a system where the lowest available marginal cost generating unit is dispatched to meet the "next" unit of electricity required to meet the demand in the area served by the electrical system.

Factors determining the overall demand for electricity in a particular area include: weather conditions; the level of economic activity; the energy requirements of individual sectors of the economy; the extent to which these requirements are met by electricity rather than other energy sources; and technical progress in the efficient use of electricity. Consequently, demand for electricity varies by season (temperature differences), day of the week (mainly influenced by level of commercial and industrial activity) and time of day (business and residential uses).

Electricity is an essential commodity that cannot easily be stored in large volumes. Generation of electricity in an electricity system must virtually instantaneously match demand if the stability and reliability of the system is to be maintained. Consequently, it is important to coordinate the supply of and demand for electricity, a responsibility typically assigned to regulated regional system operators. Electricity systems, transmission and

generation, have evolved on a regional basis and are connected to their regional power grids. Such connections not only enhance system reliability, but also permit the economic purchase and sale of electricity in neighbouring (or “interconnected”) electricity markets.

Electricity utilities have traditionally been vertically integrated monopolies which have built generating, transmission and distribution facilities to serve the needs of the customers in their service territories. Significant capital commitments were required to construct large power stations and to coordinate generation, transmission and distribution. The price of electricity has historically been set by a regulatory process, typically based on the cost of producing and delivering power to consumers, as well as recovery of capital costs, rather than by market forces. Supply choices for consumers have been limited to the utility designated to serve their area. Electricity suppliers have generally not been free to pursue customers outside their designated service territories.

In some jurisdictions, including the United States and parts of Canada, programs were established as early as the 1970s to encourage the development of generation capacity by independent, or non-utility, generators. These generators generally entered into long-term contracts with host utilities to sell power at prices reflecting, among other things, the utility’s avoided cost of building new generation facilities.

### **Restructuring in the Electricity Industry**

In recent years, a number of jurisdictions, including the United Kingdom, parts of continental Europe, Australia, New Zealand, parts of South America and parts of North America, have embarked on or completed a process of restructuring their electricity industries by moving away from vertically integrated monopolies and towards more competitive market models. This shift typically has involved the removal or relaxation of legislative and regulatory barriers for new generation entrants and has often been made in conjunction with other measures to stimulate competition, add sources of supply and increase access to the transmission system.

There are a number of elements common to these restructurings. First, in endorsing industry restructurings, governments, regulators and industry participants have generally concluded that the generation of electricity and the provision of energy services to end users are not natural monopolies. Accordingly, the consensus has been that generation should be open to competition and end users should be given the opportunity to choose their source of supply. Second, the price of energy and the addition of new capacity should be driven by market forces. Third, transmission and distribution are natural monopolies and are best managed through an independent regulator and access to transmission and distribution networks should be open on a non-discriminatory basis to generators, retailers and other purchasers of electricity. Fourth, an independent system operator should be created to maintain system reliability and security, and to ensure non-discriminatory access to these common carrier transmission systems. Fifth, an independent market operator should facilitate market-driven commercial power transactions. The roles of an independent system operator and an independent market operator could be performed separately or by a single operator.

Commercial power transactions in deregulated markets are generally executed through a central power exchange (or “pool”) administered by an independent market operator. Specifically, offers of energy at specified prices are made or “bid” into the power pool and sufficient generation capacity is dispatched to meet demand. Purchasers can buy power at these “spot market” prices or, alternatively, purchasers and sellers can enter into contracts with other market participants, such as retailers and energy marketers to determine the price at which electricity will be supplied.

The distinct differences between the competitive (generation and retailing) and regulated (transmission and distribution) segments of the industry are being recognized by market participants, not only from a regulatory standpoint but also from the perspective of the differing risks and the skills and conditions required for the efficient operation of each segment. In certain jurisdictions, the market design requires functional, financial and corporate separation of these segments. This has resulted in an increase in the number of separate specialized generation, transmission and distribution companies, many of which have been created through spin-offs from previously vertically integrated utilities. Also, a number of companies which originated as independent, or non-utility, generators in the 1970s and 1980s have grown to be significant generation-focused companies. In addition, there has been a trend towards the convergence of the electricity and natural gas sectors, particularly as a significant majority of the new generation under construction in North America is expected to be fuelled by natural gas. This has resulted in an increasing number of major companies in the natural gas industry becoming significant

participants in aspects of the electricity industry. Similarly, major companies in the electricity industry are becoming significant participants in aspects of the natural gas industry.

Although the elements described above have generally been followed, various jurisdictions are implementing industry restructuring in a variety of ways. The restructurings vary regarding the design of each market's rules for competition to supply energy and the rules governing the degree of access given to extra-jurisdictional suppliers. In areas where inter-regional access was previously limited, mechanisms to facilitate the development of larger markets are being established, subject to availability of physical interconnection capacity.

The implementation of electricity industry restructurings and the operation of competitive energy markets can be significantly impacted by the characteristics of each market area including demand/supply balances, the extent of transmission capacity to facilitate energy imports necessary to meet market demand, and the diversity of generation by fuel type and the related exposure to and management of fluctuations in market prices of fuel types such as natural gas. These factors all contribute to energy price volatility. In designing and planning the market structure and rules for competition in their jurisdictions, governments, regulators and other industry participants are influenced by local market characteristics and experience in other jurisdictions.

### **Restructuring in Ontario's Electricity Industry**

Historically, Ontario Hydro had been a vertically integrated electricity utility and the sole supplier of electricity for most of Ontario's consumers. Ontario Hydro owned most of the generation capacity in Ontario, produced and dispatched energy to the transmission system that it owned and operated, and distributed and sold electricity to Ontario's municipal electrical utilities ("MEUs"), large industrial purchasers and rural customers. Ontario Hydro regulated the MEUs that distributed electricity to municipal customers. Ontario Hydro's Board of Directors set wholesale and retail electricity rates charged to Ontario Hydro's customers and regulated the rates that could be charged by MEUs to their customers. In all cases, the Board of Directors was subject to the requirements to comply with policy statements and directives from the Province and to consider the recommendations of the Ontario Energy Board (the "OEB"). Ontario Hydro also exercised approval and inspection functions over electrical equipment and electrical wiring installations throughout Ontario.

In November 1997, the Province released a policy paper entitled "Direction for Change" which set out a restructuring plan for the electricity industry in Ontario intended to cause the electricity industry to operate without government financing. Among the goals of the restructuring were creating a competitive market for electricity and facilitating the maintenance of a financially viable electricity industry in Ontario. In January 1998, the Minister of Energy, Science and Technology established the Market Design Committee to make recommendations to the Province on the commercialization and design of an independent market operator to manage the wholesale electricity market, to oversee the reliable operation of the integrated power system and to create the rules and protocols necessary to implement a fully competitive electricity market in Ontario. The Market Design Committee produced three quarterly reports in 1998 and a final report in January 1999. During this period, the market restructuring legislation, the *Energy Competition Act, 1998*, was enacted.

As a result of this process, five principal successors to Ontario Hydro's integrated electricity businesses began operating as separate entities on April 1, 1999:

- Ontario Power Generation Inc., which purchased and assumed the electricity generation, wholesale energy and ancillary services businesses;
- Hydro One Inc. ("Hydro One"), which purchased and assumed the transmission, rural distribution and retail energy services businesses;
- the Independent Electricity Market Operator (the "IMO"), which was formed to act as both the centralized independent electricity system coordinator and independent market operator, responsible for the dispatch of generation to meet demand, the control of the Ontario transmission grid and the operation of energy and ancillary markets;
- the Electrical Safety Authority, which was established to carry out electrical equipment and electrical wiring installation inspection functions; and

- the Ontario Electricity Financial Corporation (the “OEFC”), which remains responsible for managing and retiring Ontario Hydro’s outstanding debt and other obligations, and for negotiating revisions to the non-utility generator contracts to make them consistent with the new market design.

### **Ontario’s New Electricity Market**

The restructuring of the electricity market in Ontario from a monopoly to a competitive model is being accomplished in two steps. The first step (referred to as the “Transition Period”) began on April 1, 1999 with the reorganization of Ontario Hydro into five separate entities. The second step, expected to occur by May 2002, is the introduction of competition to supply electricity in both the wholesale and retail markets through the opening of access to Ontario’s transmission and distribution systems (referred to as “Open Access”). The Province has recently reaffirmed its commitment to Open Access. The Province has indicated Open Access should be achieved by May 1, 2002, subject to four conditions being met. Those conditions are: (i) protecting consumers and offering more choice; (ii) creating a strong business climate with a reliable supply of electricity; (iii) protecting our environment; and (iv) encouraging new ways of doing business and supporting the search for alternative sources of power.

#### ***Transition Period***

From the perspective of industry participants and consumers, the Ontario electricity market has continued to operate during the Transition Period generally as it has in the past. However, the successor entities of Ontario Hydro are set up as separate corporations with separate Boards of Directors and now operate their businesses separately. During the Transition Period, OPG is responsible for production planning and dispatch of all of its generating facilities, subject to directions from the IMO regarding transmission security and reliability. Ontario consumers have priority access during the Transition Period to the energy OPG generates and, if necessary, OPG will look to external markets to purchase additional supply for the Ontario market. Until Open Access, OPG is required to sell its energy to the local distribution companies, direct industrial customers and Hydro One at regulated rates. Under the current regime, the price of energy for these customers varies based on a number of factors, including the voltage at which electricity is delivered and, for certain larger customers, the quantity purchased, marginal production costs, and whether the contract is for firm or interruptible power. On March 30, 2001, OPG announced a price increase of 0.7 cents per kWh in the wholesale cost of power, to take effect on June 1, 2001. All related revenues will be collected by OPG and will then be forwarded directly to the OEFC pursuant to the revenue allocation arrangements discussed below. This is the first increase in wholesale rates since 1993.

During the Transition Period, Ontario consumers will continue to pay their electricity bills on a bundled basis, meaning that generation, transmission, distribution and other charges are bundled together. Payments from wholesale customers are made to OPG and are held by OPG in a notional account. These funds are then allocated among the successors of Ontario Hydro under the terms of revenue allocation arrangements that were established effective April 1, 1999 (that is, when Ontario Hydro was separated into five successor entities), as follows: (i) the Electrical Safety Authority received a payment in 1999 for its start up costs, and thereafter it has not and will not receive further payments; (ii) Hydro One and the IMO receive payments that are calculated on the basis of OEB-approved revenue requirements; (iii) OPG receives fixed payments that are calculated by multiplying 4 cents times the forecasted energy OPG will supply to meet Ontario consumption for the year, expressed in kWh. These fixed payments are adjusted each year based on forecasted consumption for the upcoming year; (iv) OPG also receives payment for ancillary services provided by it to the IMO; (v) the OEFC receives a payment for the cost it incurs with respect to power purchase agreements between it and non-utility generators; and (vi) the OEFC also receives an allocation equal to the residual amount in the notional account after all of the above allocations are made based on forecasted Ontario consumption and forecasted supply by OPG. Variations in actual revenue delivered to the notional account from the forecast, mainly as a result of differences between actual and forecast consumption and customer mix, are the responsibility of OPG and therefore may impact OPG’s revenue. The 0.7 cents per kWh increase in the energy charges payable by wholesale customers referred to in the above paragraph will form part of the residual revenue allocation to the OEFC. See “*Business of OPG – Risk Factors – Transition Period Obligations.*”

#### ***Open Access***

After Open Access, there will be significant changes in the way the market operates to permit competition at the wholesale and retail levels. Generators, wholesalers, suppliers and marketers, both from within and outside

Ontario, will compete to sell energy to the IMO-administered spot market and to authorized wholesale and retail consumers or market participants. These participants include local distribution companies, larger industrial facilities directly connected to the transmission system, other large industrial and commercial customers who opt to be wholesale market participants, aggregators, brokers, marketers and retailers. At the retail level, end users will have the option of contracting with any licensed energy retailer. If they do not make that choice, they will continue with their current distributor under a regulated supply referred to as Standard Supply Service. See “– *The Retail Energy Market*”.

All market participants will have to be authorized by the IMO to cause or permit electricity to be conveyed into, through or out of the IMO-controlled grid and to participate in IMO-administered markets. All market participants that supply electricity into, or take electricity from, the IMO-controlled grid will have to install approved interval metering at their connection points to the grid. The IMO will dispatch generators based on their offers to sell energy and operating reserve. See “*Business of OPG – Regulation – Ontario’s Electricity Industry – The IMO*”.

In addition, the IMO and all generators, transmitters, distributors, wholesale sellers, wholesale consumers and retailers will have to obtain a licence from the OEB in order to participate in the Ontario electricity market. OPG has received licences from the OEB as a generator, wholesale buyer and seller, and retailer. The OEB has the power to incorporate conditions in the licences of electricity generators, wholesalers or retailers.

Consumers will pay for the energy purchased as well as for transmission, distribution, and charges payable to the IMO in relation to its activities (referred to as “uplift charges”). In addition, a debt retirement charge will be levied to service the portion of OEFC’s debt that cannot be serviced by payments made by OPG, Hydro One and the local distribution companies. See “*Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status*”.

A regulation has been passed, however, requiring that upon Open Access OPG provide transitional pricing to certain current customers of OPG that had contracts with Ontario Hydro for certain specifically designated rate options. Approximately 80 large power consumers, whose purchases under those rate options accounted for approximately 5% of OPG’s production in 2000, will be eligible for this transitional price relief which is scheduled to be phased out over a period not to exceed four years after Open Access.

The following section provides an overview of the roles of the principal market participants involved in the generation, sale and distribution of electricity in Ontario’s new electricity market. Market intermediaries include distributors and generators when acting as wholesale sellers or retailers.

### ***Generators***

Generators may set the price at which they sell power by entering into bilateral contracts with customers or market intermediaries. Generators will function as suppliers of energy and operating reserve that will be priced by the spot market in the IMO-administered markets. Generators may also sell ancillary products to the IMO-controlled grid, including voltage control/reactive support, black start capability and automatic generation control.

### ***The IMO***

The IMO will function both as independent system operator, ensuring overall system reliability and stability by controlling physical dispatch and directing the operation of the transmission system, and as an independent market operator or power exchange. As the market operator, it will function as the clearing house for the settlement of spot transactions between suppliers and purchasers of electricity in the IMO market. See “*Business of OPG – Regulation – Ontario’s Electricity Industry – The IMO*”.

### ***Market Intermediaries***

Market intermediaries include retailers and other aggregators, marketers and brokers of energy. Market intermediaries are one group that purchase energy at the spot market price from the IMO. Distributors, including municipal electricity utilities and other local distribution companies, distribute electricity from the IMO-controlled grid to end-use customers in local regions (municipal electricity utilities and local distribution companies also called “wholesale sellers” by the IMO). Distributors will acquire their electricity from the spot market or under terms



approved by the OEB. Wholesale sellers may provide financial or risk management products to facilitate such things as price-volatility protection and may purchase energy on a spot basis out of the pool for subsequent resale into interconnected markets at either prevailing spot prices in those markets or to other non-Ontario end-users. Retailers are another group of spot energy purchasers that may purchase energy from the IMO or wholesale sellers, and package and resell that energy to end-users.

### ***Ontario End-Users***

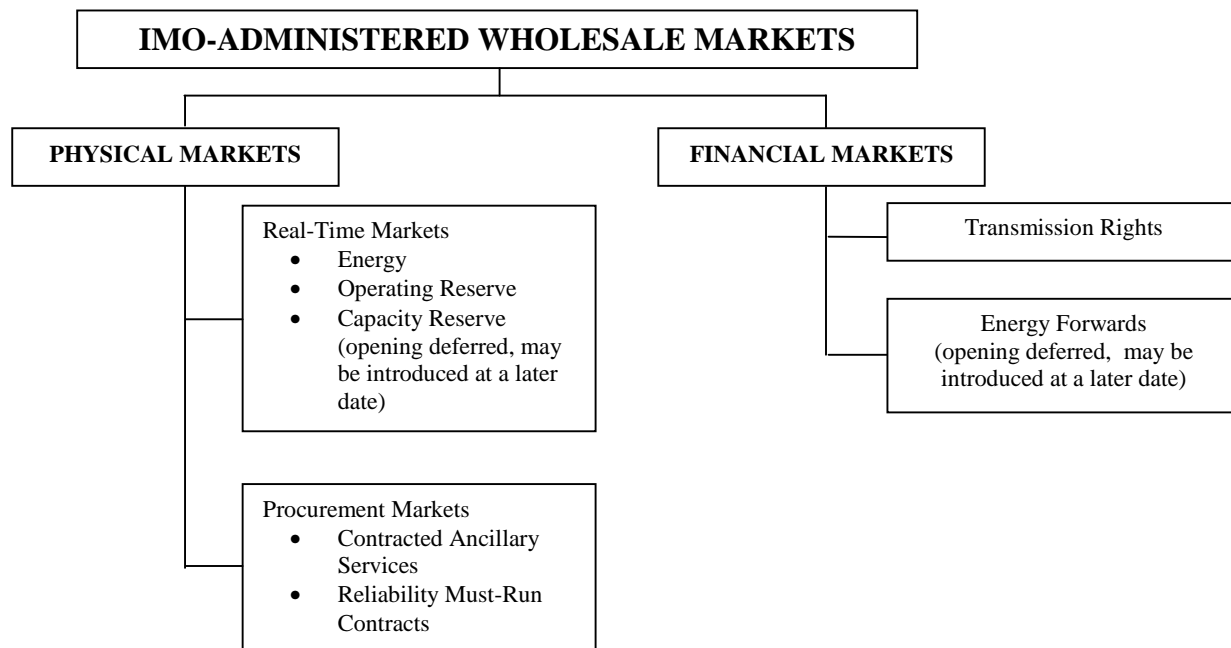
Ontario end-users include industrial, commercial and residential customers. Large end-users, if they are directly connected to the IMO-controlled grid (called “wholesale consumers” by the IMO), have the option of purchasing energy directly from the IMO-administered market or, if not directly connected, from a market intermediary. Other end-users are generally expected to purchase from a market intermediary.

### ***Interconnected Markets***

The interconnected markets are those electricity markets in neighbouring provinces and states whose transmission systems are connected to the Ontario power grid either directly or through other contiguous interconnected markets. Ontario’s markets are interconnected with the northeastern quadrant of North America, including the U.S. northeast and midwest, Manitoba and Québec. Market intermediaries wishing to sell energy into the interconnected markets will be required to purchase the energy out of the IMO-administered spot market for resale into the interconnected markets.

### ***The IMO-Administered Wholesale Markets***

Upon Open Access, the IMO-administered wholesale market for energy services will consist of both physical markets, relating to the dispatch and pricing of energy and ancillary services, and financial markets, which are focused on financial risk management associated with the exposure to spot market energy prices and to transmission constraints by market participants. The following chart provides an illustration of the products and services that will be available in the IMO-administered market, as well as some additional products and services which may be introduced at a later date.



### *The IMO Physical Markets*

The IMO-administered physical energy markets will consist of both real-time and procurement markets: real-time markets for energy and operating reserve and, if implemented, capacity reserve, and procurement markets for additional generation-related services to maintain reliability of the transmission grid and other committed generation.

#### *Real-Time Markets*

The spot markets for energy and operating reserve are both part of the real-time markets that will be administered by the IMO. The energy market deals with offers to sell and bids to purchase electricity. Operating reserve is generating capacity that can be called upon or demand that can be reduced on short notice by the IMO to, for example, replace scheduled energy supply that is unavailable as a result of contingencies such as unexpected outages of generating facilities, or deal with unanticipated increases in demand. The IMO will establish separate prices for the energy market and the operating reserve markets. These markets will interact with one another to determine the best combination of resources for all market participants. The IMO will operate in such a way to ensure that its dispatch instructions at established prices will result in the most cost-effective overall solution for the market. The description below of how the IMO will establish the market clearing prices of electricity and operating reserve does not include adjustments that result from the interaction of the energy and the operating reserve markets. Furthermore, the following is based upon the assumption that there are no constraints in the transmission system. If there are constraints in the transmission system, further adjustments will be made to dispatch instructions and compensation.

In the energy market, offers to sell specified quantities of energy at specified prices for each hour of a given day (the "dispatch day") will be made by generators in Ontario and elsewhere. Intermittent generators and generators of less than 5 MWs of electricity may designate their facility as "non-dispatchable", in which event they will receive the market clearing price for all electricity generated by their facility, without the need to submit an offer to sell to the IMO. All other generators will be "dispatchable" and will only be dispatched if their offer is accepted.

Consumers of electricity may similarly submit bids for electricity that specify the maximum price that the consumer is willing to pay for electricity. If a consumer submits such a bid, when the price of electricity exceeds the price in its bid, the consumer must reduce its electricity usage based on dispatch instructions from the IMO. If such consumer does not follow the IMO dispatch instructions, it will be in breach of the Market Rules. Such consumers are considered to be "dispatchable". All other consumers will be "non-dispatchable". Non-dispatchable consumers will not submit bids and will pay the hourly market clearing price for all electricity consumed by them.

The energy market offers from generators and bids from consumers will be provided to the IMO in advance of the dispatch day and may be changed within certain time limits. For each 5 minute interval, the market clearing price will be set by the price of the next available bid or offer that has been submitted to the IMO to meet an increase in demand. This price can, therefore, be set by an offer submitted by a dispatchable generator or by a bid submitted by a dispatchable consumer. The IMO will also establish an hourly market clearing price, which is the load-weighted average of the 5 minute interval market clearing prices during that hour. All dispatchable generators and dispatchable consumers whose offers or bids are accepted by the IMO will receive or pay the 5 minute interval market clearing price for electricity generated or consumed, based upon metered quantities. All non-dispatchable generators and non-dispatchable consumers will receive or pay the hourly market clearing price for electricity generated or consumed by them, again, based on metered quantities.

The operating reserve markets establish market clearing prices that are paid to parties who submit offers to provide operating reserve to the IMO. As mentioned above, these prices are affected by the interaction between the energy market and the operating reserve markets.

The IMO will consider the establishment of a real-time capacity reserve market which is a mechanism to provide reserves on an ongoing basis, in order to improve the security of the electricity system and the adequacy of the electricity system to meet the demand for energy. Generators would participate in this market by offering to

make generating capacity available, receiving a clearing price for this capacity in addition to the market clearing price for any energy supplied.

### *Procurement Markets*

The IMO maintains the reliability of the transmission grid through ancillary services (operating reserve, voltage control/reactive support, black start capability and automatic generation control) and must-run contracts. Ancillary services other than operating reserve are purchased through procurement markets. Must-run contracts for reliability involve compensating a generator for staffing and keeping a unit in production mode as a support or contingency regardless of the market-clearing price on the spot market. The costs of providing these services will be charged by the service provider to the IMO, which passes the expense to consumers through uplift charges.

The IMO will arrange suppliers for these services either through a competitive tendering process or through contracts, limited to terms of 18 months or less for contracted ancillary services and 12 months for must-run contracts, to be approved by the OEB. These suppliers will receive compensation for costs for being available, out-of-pocket costs, opportunity costs when providing the service and any other compensation deemed fair by the appropriate regulatory authorities.

### *The IMO Financial Markets*

The IMO-administered financial markets are intended to provide market participants, such as purchasers of electricity, wholesale market participants, generators and aggregators, with risk management opportunities through the trading of transmission rights and energy forward contracts.

Transmission rights are to be sold to market participants by the IMO in scheduled auctions following Open Access. The operation of the transmission rights market is intended to provide market participants with a financial hedge against the possibility that they will bid to purchase electricity from the IMO at an inter-tie, and the IMO receives more bids than can be accommodated given the available limits on transmission capacity between Ontario and the interconnected markets at that inter-tie. When the flows of power are such that an inter-tie reaches its capacity, it is usually a reflection of, or results in, significant variations in energy prices on either side of the inter-tie. Through the transmission rights market, importers or exporters of energy will be provided a financial hedge to the congestion impact on price for power across these constrained interconnections. Transmission rights are a financial risk management instrument and do not provide a market participant with priority access to transmit electricity across an inter-tie. They do, however, entitle a market participant to a payment from the IMO in the event that the market participant offered to purchase or sell electricity across an inter-tie and was unable to do so because of congestion at the inter-tie.

The opening of an IMO energy forward market has been deferred for at least 12 months following Open Access. The IMO energy forward market is anticipated to operate one day ahead of the actual physical market day, allowing participants to hedge offers or bids for specified quantities of energy for each hour of the next day based on the clearing price in the forward market.

### *Other Financial Instruments*

Following Open Access, market participants may choose to sell financial risk management products to intermediaries or customers within or outside of Ontario that are designed to reduce exposure to volatility in spot market prices. These contracts, sometimes referred to as bilateral contracts or contracts for differences, do not involve the physical delivery of energy. They will, however, be of interest to generators and users of energy, as they will have the effect of fixing the price at which such parties purchase and sell energy. For example, generators in the new market will sell energy at the spot market price. To protect against the risk that the spot market price will decline, a generator may agree with a counterparty that, on a given date in the future, they will exchange a payment equal to the difference between the actual spot market price for the period covered by the contract and a fixed price agreed to by them at the time they enter into the contract. This contract, when entered into between a generator and an energy consumer, has the effect of fixing in advance the price at which they each purchase and sell energy in the future. See “*Business of OPG – Markets and Customers – Commercial Strategy*”.

In Ontario, IMO market participants will have the option of settling the payments due under these contracts either directly or by using the settlement procedures established by the IMO. Non-IMO participants will settle directly with retailers and other market intermediaries. An industry working group consisting of representatives of the IMO, OPG and other market participants is currently reviewing the structure and operation of the settlement process for financial instruments after Open Access and is considering the development of industry-standard forms of bilateral contracts.

### ***The Retail Energy Market***

Local distribution companies are responsible for distributing energy to end-users other than large industrial users directly connected to the transmission grid. During the Transition Period, retail consumers will continue to purchase energy from their particular distributor at regulated rates. After Open Access, retail competition will exist in the Ontario energy market.

Under the *Electricity Act, 1998*, distributors will be obliged to connect all consumers and supply those that have not elected to buy energy from a competitive retailer. The basis for pricing this service will be the hourly prices in the Ontario spot market. Generally, consumers with demand greater than 50 kW will be charged the hourly spot price directly, while consumers with demand less than 50 kW will be charged a fixed annual rate based on a forecast of the spot price. Adjustments will be calculated at the end of each year against the actual spot price, with the difference being charged or rebated over the following year.

At least in the short term, the IMO administered markets will be primarily a physical market based on spot pricing. In order to hedge against the inherent risk in a spot market, some retail participants may choose to enter into contracts to hedge against the risk of price fluctuations.

### ***Market Power Mitigation***

Currently, a large concentration of generation capacity in Ontario is owned by OPG. In order to address the issue of potential exercise of market power, OPG is required under its generating licence to comply with prescribed “market power mitigation” measures. See *“Business of OPG – Regulation – Ontario’s Electricity Industry – Market Power Mitigation”*.

The first main market power mitigation measure is a rebate mechanism. After Open Access, the significant majority of OPG’s expected energy sales in Ontario will be subject to an average annual price threshold of 3.8 cents per kWh. Any excess earned by OPG must be rebated to Ontario energy consumers via the IMO. The amount of energy sales that would be subject to the rebate mechanism from 2000 to 2004 has been predetermined on an annual basis and will be reduced, with the approval of the OEB, as OPG reduces its control of generation capacity in Ontario. For example, 105 TWh (equivalent to 77% of OPG’s 2000 energy sales in Ontario) would have been subject to the rebate mechanism in 2000 had Open Access commenced in 2000. At the end of each one year period following Open Access, OPG will be required to pay a rebate to the IMO equal to the difference between the average spot market price, as determined by a specified formula, and a fixed price of 3.8 cents per kWh for the amount of energy sales subject to the rebate mechanism. The IMO will pass this rebate on to all energy consumers in Ontario on a *pro rata* basis. As OPG reduces its market power by decontrolling its capacity, it has the right to request that the number of TWhs subject to the rebate mechanism be reduced subject to the approval of the OEB.

The second main market power mitigation measure is a requirement for OPG to relinquish effective control of some of its generating capacity. This may be accomplished by OPG in a variety of ways, including the outright sale or lease of power stations or by entering into other arrangements, provided the result is to transfer effective control of the timing, quantity and bidding of energy produced by OPG’s power stations. This measure, referred to as “decontrol”, consists of two targets. The first decontrol target requires OPG to decontrol at least 4,000 MW of fossil generating capacity (1,000 MW of which can be substituted with hydroelectric generating capacity) within 42 months after Open Access. Under the current generation mix in Ontario, fossil stations tend to be the marginal generators that set the market-clearing price in Ontario and thereby determine the price received by all generators offering electricity accepted for dispatch in the Ontario market. The second decontrol target requires OPG to reduce its effective control over electricity supply options (defined to include generation, inter-tie capacity and demand side

bidding) to 35% or less of the total electricity supply options available in Ontario within ten years of the beginning of Open Access.

In keeping with its decontrol obligations, OPG has agreed to lease its Bruce A and B nuclear generating stations to Bruce Power L.P. (“Bruce Power”). This transaction will reduce OPG’s generation capacity by approximately 6,216 MW, according to OPG’s net in service capacity calculations for 2000, which will help satisfy OPG’s second decontrol target. As the second decontrol target will be measured 10 years after the beginning of Open Access, OPG will assess the extent to which further decontrol initiatives are required, as it monitors its share of the total electricity supply options in Ontario as competitive generation capacity in Ontario increases.

In addition, OPG has announced that once the current moratorium on the sale of coal-fired generating plants has been lifted by the Province, OPG will complete the decontrol of its Lakeview, Lennox, Thunder Bay and Atikokan fossil generating facilities, as well as the hydroelectric plants on the Mississagi River system. OPG’s intention is to complete these transactions as close as reasonably feasible to Open Access. When completed, these transactions would satisfy OPG’s first decontrol target and reduce OPG’s total installed generating capacity by approximately 4,300 MW. See “*Business of OPG – Generation Operations – Fossil Operations – Fossil Station Decontrol*”, “*– Nuclear Operations – Bruce Decontrol*” and “*Business of OPG - Regulation – Ontario’s Electricity Industry – Market Power Mitigation – Decontrol of Capacity*”.

### ***Expansion of Inter-Tie Capacity***

To encourage the supply of energy in Ontario from the interconnected markets, Hydro One is obligated to use its best efforts to expand inter-tie capacity with these markets by approximately 2,000 MW within 36 months of Open Access, subject to governmental and regulatory approvals and environmental assessments. This measure is necessary to increase the physical capacity of the interconnection systems. Hydro One, in conjunction with International Transmission Company, is in the process of installing phase shifting transformers which, when operational, will expand inter-tie capacity with Michigan by reducing inadvertent flows of electricity around Lake Erie. Depending on system conditions, these phase shifting transformers should increase the available transfer capability between Ontario and Michigan by up to 500 MW. Hydro One is in the process of obtaining approval from the National Capital Commission and has received approvals from the Ministry of the Environment and the OEB to increase the existing Ontario-Québec inter-tie transfer capacity by 1,250 MW.

## **ITEM 3 - BUSINESS OF OPG**

### **Overview**

OPG is one of the largest electricity generators in North America. OPG’s current business is the generation and sale of energy to wholesale electricity customers in Ontario, including local distribution companies for resale to their retail customers, and directly to large industrial consumers. OPG also markets and sells electricity into the interconnected markets of other provinces and the U.S. northeast and midwest. In 2000, OPG generated 136.2 TWh of electricity in Ontario in addition to receiving a net amount of 0.3 TWh of electricity pursuant to special arrangements with neighbouring jurisdictions and purchasing 3.3 TWh from the interconnected markets. Of this total, 135.8 TWh was used to meet demand in Ontario and 4.0 TWh were sold to the interconnected markets.

Following Open Access, all generators in Ontario, including OPG, must offer their production into the IMO-administered real-time energy market, or spot market, in order to be dispatched by the IMO. OPG will be required to offer all available capacity as operating reserve. OPG will also negotiate ancillary services contracts with the IMO. Additionally, OPG intends to capitalize on opportunities for the provision of financial risk management products to market participants and other customers in Ontario and in interconnected markets.

OPG’s fleet of 80 generating stations consists of 69 hydroelectric, six fossil and five nuclear facilities located across Ontario, with a total installed capacity of 30,900 MW (25,800 MW current operating capacity). These stations offer dispatch flexibility of base load, intermediate and peak capacity and are diversified by fuel type and technology. OPG is a low-cost generator in its regional market area, particularly in relation to the U.S. northeast and midwest.

OPG's hydroelectric stations have a net in-service capacity of 7,310 MW (as of December 31, 2000) which is primarily base load capacity, but which also provides intermediate and peak production, subject to water availability. OPG's fossil fleet, which is used to provide power for intermediate and peak demand, consists of 9,700 MW of generating capacity. These primarily coal-fired generating stations can be quickly called upon to meet variations in demand. OPG's nuclear generating stations are located at three sites, comprising a total of 20 reactor units with 13,900 MW of installed base load generating capacity. Eight of these units, with a total installed capacity of 5,100 MW, are currently laid up.

### Five Year Generation Summary<sup>(1)</sup>

	1996		1997		1998		1999		2000	
	Total (TWh)	% of Total	Total (TWh)	% of Total	Total (TWh)	% of Total	Total (TWh)	% of Total	Total (TWh)	% of Total
Hydroelectric.....	37.6	28	36.4	28	31.9	25	33.6	26	34.0	25
Fossil.....	19.0	14	24.4	18	34.2	27	36.1	27	42.4	31
Nuclear.....	77.8	58	70.3	54	59.9	48	61.4	47	59.8	44
Total.....	134.4	100	131.1	100	126.0	100	131.1	100	136.2	100

Note:

(1) For a more detailed summary see the tables included under "Business of OPG – Generation Operations".

The decline in total electricity generated between 1996 and 1998 was primarily attributable to declining nuclear generation performance during that period and to the lay-up of two nuclear generating stations in 1997 and 1998 as part of a nuclear recovery plan. See "Business of OPG – Generation Operations – Nuclear Operations – Nuclear Recovery Plan". In 2000, total electricity generated increased relative to 1999 levels, while the percentage of the total produced by fossil generation increased in response to lower nuclear generation.

### Market Opportunity

The power industry in Canada and the United States had an end-user market of at least US\$235 billion in retail energy sales in 1999 produced by an installed base of approximately 900,000 MW of capacity at over 3,600 individual facilities. In 1999, OPG's regional markets, consisting of Ontario, the U.S. northeast and midwest, Québec and Manitoba, had an end-user market of US\$100 billion in retail energy sales.

Several electricity market trends provide significant opportunity for efficient, low-cost generators and marketers of power to produce and sell energy at competitive rates and to grow through further investment in new and existing power generation assets. These trends include: increasing demand for power; the need to renew older generating plants and develop plants with environmentally cleaner, cheaper and more efficient technology; and an industry-wide restructuring that is reconfiguring the assets and ownership of traditional vertically-integrated utilities.

Continued economic and population growth - combined with increasing density in urban areas and demand for heating, air conditioning and electronic infrastructure - have fuelled the demand for additional electricity generation. However, balancing supply and demand in certain markets can be particularly difficult given the long lead time to build new power stations and constraints on inter-tie capacity limiting energy imports. Imbalances between supply and demand may result in volatile prices for electricity. Generators and wholesale resellers with available energy, a reliable means of delivery, and knowledge of the interconnected electricity system can profitably participate in these markets.

In deregulated markets, generators and other market participants must compete with each other largely on the basis of energy price and service. Generators and purchasers of electricity in these markets must manage energy price risk. This provides opportunities to offer products to manage the risk associated with market price fluctuations, and to bundle energy sales with financial risk management products.

Opportunities for the acquisition of generation assets or their output has been made possible by electricity deregulation in North America that has prompted an industry-wide restructuring and an accompanying divestiture of power plants by companies seeking to reconfigure their businesses.

While these developments provide significant new opportunities, they also create new challenges and risks. The ability of OPG to take advantage of the opportunities and face the challenges and risks will depend on a variety of factors, including its ability to operate its generating facilities on an increasingly competitive basis, to provide the products and services its customers desire on a profitable basis and to manage the commodity price risks around its generally long electricity position. See *“Business of OPG – Risk Factors”*.

## **Corporate Strategy**

OPG’s vision is to be a premier North American energy company focused on low-cost power generation and wholesale energy sales. Its portfolio of generation assets is well-balanced and diversified in terms of technology, fuel type, market and dispatch flexibility. Its production costs are low relative to other generators in Ontario and the U.S. northeast and midwest, although not as low as those in Manitoba and Québec. OPG also has significant expertise with respect to the operation and maintenance of generating facilities. Due to its operational and financial flexibility and its strong balance sheet, OPG believes it will be able to successfully pursue opportunities presented by the restructuring of the industry and deregulation of markets.

To achieve its vision, OPG intends to leverage its strengths and direct its resources to: the continued improvement of the efficiency and cost-competitiveness and general optimization of its generation operations; enhanced marketing, sales and trading expertise; development of financial risk management products and services to take advantage of opportunities in the new competitive marketplace; and extension of market reach by selectively expanding into its regional markets in the U.S. northeast and midwest. Whether pursued independently, through its subsidiaries Kinectrics Inc. and OPG Ventures Inc. or using other investment platforms, including venture capital activities, OPG will also build on its technology and research and development expertise to provide opportunities to invest in and exploit future energy technologies, such as fuel cells and renewable energy services. This should allow OPG to prepare for and capitalize on major industry changes over time.

### ***Improve Generation Operations and Increase Cost Competitiveness***

OPG’s fundamental strategy in the near term is to increase the productivity and cost competitiveness of its existing fleet of generating stations. Since 1997, OPG has focused on the successful implementation of a \$1.4 billion nuclear recovery plan designed to improve the operating performance, reliability, safety and environmental performance of its nuclear generating stations. This estimated expenditure excludes future costs related to the Bruce nuclear facilities subsequent to completing the transaction to lease Bruce A and Bruce B generating stations to Bruce Power L.P. As at the end of 2000, OPG had spent approximately \$850 million on this plan, which is expected to be completed in 2004.

Another key initiative is the restart of the Pickering A nuclear station which received environmental assessment approval from the Canadian Nuclear Safety Commission in February 2001. Assuming all other necessary approvals are obtained, this station is expected to restore 2,060 MW of low-cost and smog free nuclear capacity to OPG. OPG plans to return the first unit to service in early 2002, with the remaining three units being added at approximately six to nine month intervals thereafter. The total cost of the restart of Pickering A, the majority of which will be expensed, is expected to be approximately \$1.1 billion, of which approximately \$200 million has been incurred as at December 31, 2000. For all of its nuclear operations, OPG’s goal is to achieve top quartile performance among North American nuclear generators by 2005 based on a nuclear performance index used by the North American members of the Institute of Nuclear Power Operators and the World Association of Nuclear Operators (“WANO”). This index is designed to measure whether a nuclear generator is providing safe and reliable nuclear performance.

OPG has undertaken a continuing program to optimize its fossil generating assets which includes increasing the availability of fossil-fired generation by reducing airborne emissions through a program of substantial investment. The four units at Lennox have been converted from fuelling on oil alone to dual fuelling on oil and natural gas. Scrubbers were added at two of Lambton’s four units in the mid-1990s and the use of low sulphur coal has increased at both Lambton and Nanticoke to reduce airborne emissions. Significant additional improvements are planned, such as the installation of selective catalytic reduction equipment on four units, two at Lambton and two at Nanticoke, by the end of 2003 which is expected to cost approximately \$300 million. OPG is also pursuing a broad range of other initiatives, including operational changes, emission reduction credit trading and further

developing emission control technologies. The successful implementation of these initiatives is intended to maintain the cost competitiveness of OPG's fossil operations relative to other fossil generators in its target market area and to ensure continued compliance with environmental performance standards in Ontario and in neighbouring jurisdictions.

As part of a program to maintain and enhance the value of hydroelectric assets for the next 30 years, approximately \$1 billion in capital investments and station automation efficiency improvements have been made over the past decade on several of OPG's hydroelectric facilities. Over the next five years, another \$500 million is to be incurred to continue this program. Since 1990, approximately 250 MW of additional capacity has been gained as a result of this program.

OPG is also pursuing initiatives to improve the cost competitiveness and operational flexibility of its business and foster a strong market orientation in anticipation of Open Access. In doing so, OPG believes that it will be well-positioned to adapt to changing conditions in the Ontario market and to pursue new or expanded business opportunities in the interconnected markets. OPG's initiatives to date include: a renewed commitment to workforce skills development and cooperative labour relations which, combined with company-wide incentive programs, have contributed to greater operational flexibility and enhanced productivity; improved control of material and service costs through the adoption of new processes and participation in business-to-business e-commerce marketplaces such as that offered by The Pantellos Group; and the strategic outsourcing of non-core businesses and the reorganization of corporate services, internally or with partners, including the information technology services joint venture with Business Transformation Services Inc. and the joint venture of technology-oriented development activities in Kinectrics Inc.

#### ***Develop Marketing and Sales and New Products***

OPG believes that the new competitive market will present significant opportunities for cost-competitive generators, power exporters, power traders and providers of energy products and services. OPG is developing and enhancing marketing, sales and trading capabilities in advance of Open Access, with a focus on two key growth areas of the new marketplace: spot market energy sales and trading and the sale of bilateral financial risk management products.

As part of its strategy to take advantage of these new opportunities, OPG has opened a state-of-the-art trading floor and has invested in and implemented trading systems and other technologies to access market data and interact with other market participants following Open Access. The successful implementation of this strategy includes factors such as sophisticated product structuring and risk management skills to correctly price and manage complex structured products, marketplace recognition and brand equity to facilitate customer acquisition and retention, and the capability to deliver risk management products that meet customer needs. Prudent risk management systems and trading policies have been established and compliance is continuously monitored.

OPG has recently hired personnel both at the senior management and operations level with significant energy trading expertise and has trained experienced marketing and sales staff. OPG intends to build on its four decades of experience in purchasing and selling electricity in the interconnected markets and plans to continue the development of relationships with potential customers in the United States to respond to increased sales and trading opportunities in the future.

Export sales to wholesale intermediaries and large customers in the U.S. interconnected market provide an opportunity to generate significant revenue over the next five years. In recent years, OPG's abilities to take advantage of opportunities for export sales have been limited principally due to the lay-up of Bruce A and Pickering A nuclear generating facilities. Export sales reached a peak of 12.6 TWh in 1994 but averaged 4.8 TWh annually from 1996 to 2000. The planned return to service of the Pickering A units will increase energy supply in Ontario and offer additional opportunities for exports. Hydro One's obligation to expand inter-tie capacity will enhance this opportunity, as well as increase the potential for energy imports. OPG believes that it is well positioned as a result of its past experience buying and selling energy in the interconnected markets, its recent success trading into the competitive New York market, and its accumulated knowledge of the electricity system, participant cost, and pricing patterns both in Ontario and the interconnected markets. However, it will be a competitive process to obtain access to the inter-ties for export. OPG will need to successfully execute in this regard in order to realize its opportunities.



### ***Extend Market Reach and Optimize the Asset Portfolio***

OPG plans to achieve growth through the acquisition of selected generating assets and investment in energy technologies.

OPG intends to secure generating capacity over the next several years in U.S. interconnected market areas close to Ontario in order to complement its mix of assets, strengthen sales and support energy and risk management contract obligations and pursue growth options. OPG will rely on its operating experience and performance improvements in its home market and its expertise in the sale of power into interconnected markets to optimize acquired assets to increase their production and performance. OPG intends, as part of its business strategy, to evaluate joint ventures, strategic alliances, acquisitions or other transactions in furtherance of its growth strategy.

OPG believes that the implementation of its growth strategy and the optimization of its generating asset portfolio will be facilitated by meeting its decontrol obligations on an accelerated basis. Accordingly, OPG has entered into an agreement to lease Bruce A and Bruce B nuclear generating stations to Bruce Power and sell certain related assets to Bruce Power. This transaction is expected to close by mid-2001, following the receipt of regulatory approvals. OPG also intends to further its decontrol efforts by inviting offers for its Lennox, Lakeview, Thunder Bay and Atikokan fossil generating facilities once the Province lifts its moratorium on the sale of coal-fired fossil generating units as well as the decontrol of its hydroelectric plants on the Mississagi River system. OPG's intention is to complete these transactions as close as reasonably feasible to Open Access.

### ***New Energy Technology Opportunities***

OPG's strategy is to pursue energy technology investments that will allow OPG to prepare for and exploit major industry changes over time. As has been the case in other deregulated industries such as telecommunications, emerging technologies and resulting innovations are expected to increasingly affect the competitive landscape and contribute to competitive advantage or disadvantage within the energy industry. As both a longer term growth opportunity and a defensive and strategic measure, OPG is placing increased emphasis on energy technology initiatives and is assessing small-scale distributed generation development opportunities, generation-related technologies at the pre-competitive stage, and supporting venture capital financing opportunities such as technology funds. These opportunities may be pursued directly or through joint venture partnerships or alliances. For example, OPG is currently participating with other partners in the development of a solid oxide fuel cell system and field testing micro-turbine units for use in potential distributed power applications. Given its longstanding leadership role in energy technology, OPG believes it is well positioned to compete successfully in the development and commercial exploitation of new generation-related technologies. OPG recently announced that it has established a venture capital subsidiary, OPG Ventures Inc., to invest in such technologies.

## **Markets and Customers**

### ***OPG's Markets***

#### ***Ontario Market***

Ontario's population in 1999 was approximately 11.4 million and its real gross domestic product ("GDP") was approximately \$370 billion, reflecting GDP growth of 6.1% from 1998 and an average growth of 4.0% per year for the five years ended 1999. Approximately 153 TWh of energy was generated to meet demand in Ontario in 2000, approximately 90% of which was supplied by OPG, approximately 7% by other Ontario generators operating approximately 90 non-utility generating stations (largely gas-fired cogeneration and small hydroelectric facilities) and approximately 3% by imports from the interconnected markets and other generation.

During the period beginning in the 1950s and ending in the 1980s, the annual growth rate of electricity consumption in Ontario declined from approximately 8% to approximately 3% on a weather-normalized basis, a pattern which was typical across North America. In the early 1990s, consumption in Ontario declined both as a result of the recession and due to the substantial electricity price increases in Ontario which were required, in large part, to recover capital costs associated with construction of the Darlington nuclear generating station. Price increases for electricity also precipitated substantial fuel switching from electricity to natural gas. Since 1994,

growth in overall electricity consumption has resumed at an annual rate of approximately 1.6% on a weather-normalized basis during a period of constant average electricity price and renewed economic activity.

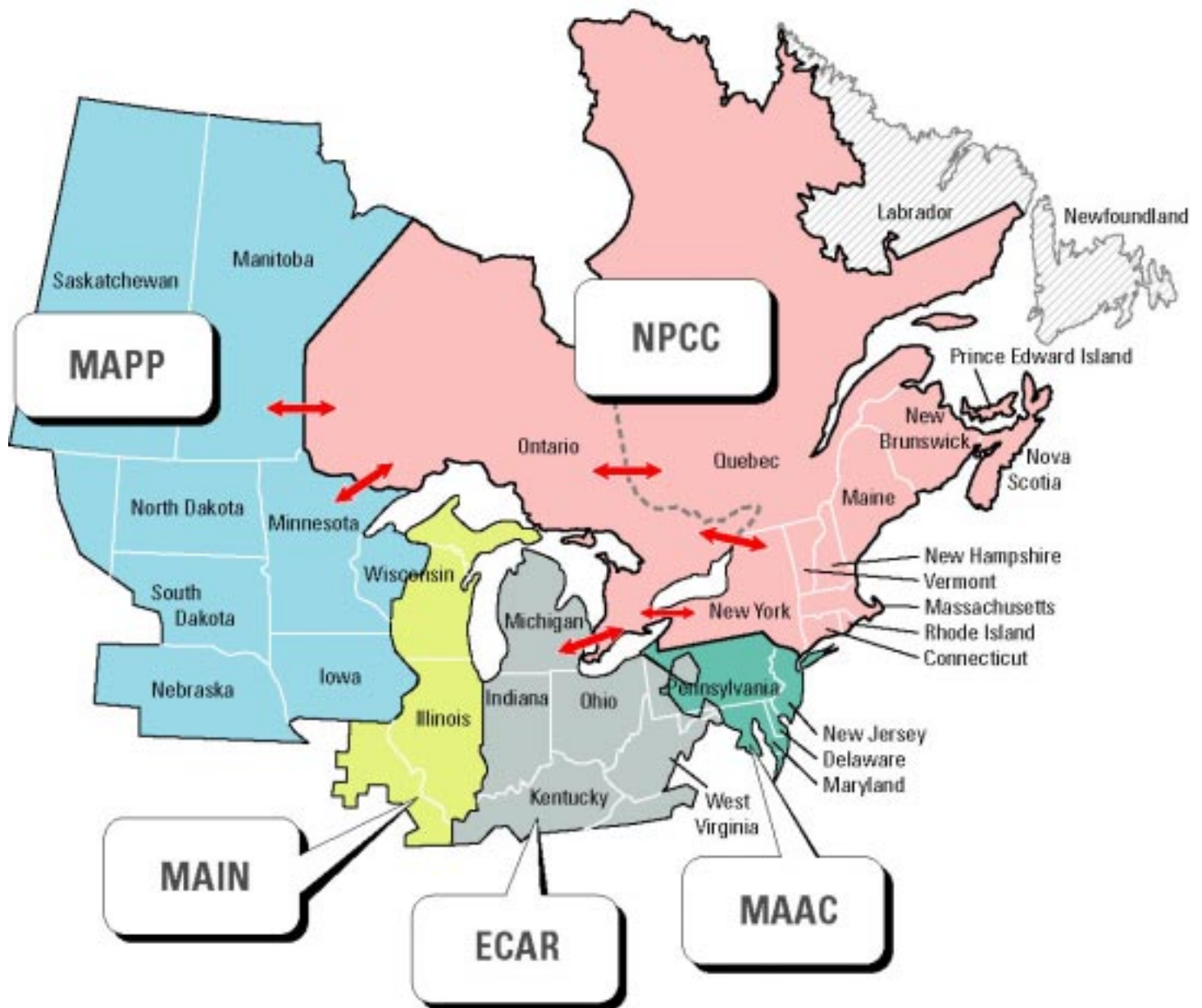
From 1990 to 2000, commercial energy consumption in Ontario (40% of total energy consumption in 2000) increased, reflecting growth in the economy since the early 1990s as evidenced by, new construction, declining vacancy rates for existing office and multi-residential buildings, and increased use of electronic equipment and air conditioning. Industrial energy consumption (35% of total energy consumption in 2000) decreased during the period from 1990 to 1993 during the period of increasing electricity rates and decreasing economic activity, but has increased steadily since 1994. 60% of industrial demand was from commodity-based industries which experienced somewhat slower growth than the remaining manufacturing industries. Demand in Ontario's residential sector (25% of energy consumption in 2000) declined from 1990 to 2000 due to conversion from electric space and water heating to natural gas, and the replacement of some household appliances with more efficient units. Since reaching a low in 1997, however, residential energy consumption has increased slightly in the last three years due to growth in housing construction and additional air conditioning installations. On a seasonal basis, demand for electricity peaks in the winter and in the summer. Winter peak demand usually occurs on the coldest day of the year, as a result of heating requirements. Summer peak demand usually occurs on the hottest day of the year to meet air conditioning requirements. Over the past 10 years, the increase in summer peak demand has outpaced the increase in winter peak demand, so that winter and summer peak one-hour demand in Ontario are now approximately equal at over 23,000 MW. The lowest one-hour demand in 2000 was 11,726 MW, which occurred on May 22 at 4 a.m. EST.

### ***Interconnected Markets***

As a result of the interconnection of the Ontario power grid with transmission systems in neighbouring provinces and states, and the interconnections that, in turn, exist between those provinces and states and other jurisdictions, OPG is able to sell energy into most electricity markets in the northeastern quadrant of North America. OPG has specifically targeted the interconnected markets of the U.S. northeast and midwest as a focus of its energy business. In order to maximize the opportunities in these markets, OPG intends to obtain, effective on Open Access, the requisite licences from the U.S. Federal Energy Regulatory Commission ("FERC"). See *"Business of OPG – Regulation – Energy Regulation"*.

The following map depicts OPG's regional markets and notionally identifies the location of the inter-ties between Ontario and neighbouring jurisdictions. The map also shows how these markets are organized into North American Electric Reliability Council ("NERC") regions. NERC has created ten regions, covering most of North America. Reliability of the transmission systems is coordinated within each NERC region and between them. While Ontario is part of the NPCC region, its inter-ties enable OPG to also access, directly or indirectly, four of the NERC regions and markets within them due to this network of transmission systems.

# OPG's Regional Markets



## NERC Regions

<b>NPCC</b>	Northeast Power Coordinating Council
<b>MAAC</b>	Mid-Atlantic Area Reliability Council
<b>ECAR</b>	East Central Area Reliability Coordination Agreement
<b>MAIN</b>	Mid-America Interconnected Network
<b>MAPP</b>	Mid-Continent Area Power Pool

↔ Existing Ontario Interties

▨ Not part of NPCC

Interconnection transmission capabilities between Ontario and these interconnected markets are subject to physical limitations as well as seasonal variations. Weather and physical aspects of the transfer of power such as loop flows, resulting from the physical movement of power on the interconnected transmission grid, can also limit transmission capability and scheduling. The normal limits of the interconnected transmission capabilities between Ontario and the interconnected markets through inter-ties are as follows:

#### Ontario Inter-Tie Capabilities with Interconnected Markets

Interconnection	Limit (MW) Flows Out of Ontario	Limit (MW) Flows Into Ontario
Manitoba – Winter*	300	300
Manitoba – Summer*	288	288
Minnesota	150	100
Québec North – Winter*	80	78
Québec North – Summer*	80	64
Québec South	450	1,330
New York East	400	400
New York Niagara – Winter*	2,050	1,750
New York Niagara – Summer*	1,950	1,450
Michigan – Winter*	2,400 / 2,450**	1,600 / 1,800**
Michigan – Summer*	2,350 / 2,450**	1,500 / 1,765**

\* Seasonal Limits are based on thermal ratings and 75% of pre-load. Summer limits apply from May 1 to October 31 and are based on 0-4 km/hr wind speed and 30 Deg.C ambient temperature (except on ties with Michigan, which are based on 35 Deg.C.). Winter limits apply from November 1, to April 30 and are based on 0-4 km/hr wind speed and 10 Deg.C ambient temperature.

\*\* For the Ontario –Michigan interconnection the displayed values are, respectively, before June 2001 and after August 2001 (the scheduled in service date of the phase shifters).

In general, Ontario's inter-ties represent an ability to import and export approximately 22 TWh of electricity annually. Hydro One is obligated to use its best efforts to increase inter-tie capacity to neighbouring jurisdictions by approximately 2,000 MW within 36 months of Open Access, subject to governmental and regulatory approvals and environmental assessments. Collectively, these upgrades, if completed, could add approximately 12 TWh to Ontario's import/export capability, comprising 6 TWh with Québec; 4 TWh with the U.S. midwest and 2 TWh with the U.S. northeast. In May 2000 and January 2001, Hydro One received environmental assessment approval from the provincial Ministry of the Environment and the National Capital Commission, respectively, to increase the transfer capability with Québec by 1,250 MW. Also in January 2001, the OEB granted "leave to construct", subject to a condition which would alter the approved environmental assessment proposal. Hydro One is in the process of appealing this condition.

Historically, OPG has sold a portion of its energy production into interconnected markets, with a majority of these sales to the northeast and midwest regions of the United States. The level of these sales varies from year to year from a high of 12.6 TWh in 1994 to a low of 3.0 TWh in 1998, with average sales of 4.8 TWh per year in the years 1996 to 2000. In 2000, OPG sold approximately 4.0 TWh of electricity into interconnected markets, including sales to wholesale customers in these markets. As a part of its sales into interconnected markets, OPG entered into a power exchange agreement with Hydro Québec. OPG also purchased 1,370 GWh from Manitoba, 1,650 GWh from Michigan, 30 GWh from Hydro Québec and 220 GWh from New York in 2000. In most instances, purchases from neighbouring jurisdictions have traditionally been made either to meet demand or in situations where it is more economic to purchase from a neighbouring jurisdiction than to produce electricity in Ontario.

## ***OPG's Customers***

### ***Ontario Customers***

At the end of 2000, OPG's wholesale electricity customers in Ontario included approximately 200 local distribution companies, including municipal electrical utilities and privately-owned distribution utilities, that together served more than 3,000,000 customers; approximately 100 large direct industrial customers; and Hydro One, which served approximately 930,000 mostly rural customers. In 2000, the local distribution companies accounted for approximately 73%, or 104.0 TWh, of total Ontario energy sales of 142.0 TWh, direct industrial customers accounted for approximately 14%, or 20.0 TWh, and Hydro One accounted for approximately 13%, or 18.0 TWh.

Following Open Access, OPG must offer its entire production into the IMO-administered real time energy market, or spot market, in order to be dispatched by the IMO. OPG also intends to offer financial risk management products directly to end users as well as to other wholesale parties in Ontario through bilateral contracts, and will seek to build on its existing customer relationships in developing these product offerings. In addition, OPG and the IMO are currently negotiating agreements for the supply of certain contracted ancillary services by OPG, including voltage control/reactive support and black start capability.

### ***Interconnected Market Customers***

OPG's principal customers in the interconnected markets are currently U.S. based investor-owned utilities as well as wholesale traders, active in the regions around Ontario, that purchase power on a wholesale basis for resale. With respect to transactions in the U.S. interconnected markets, OPG is a participant in the competitive wholesale power market administered by the New York Independent System Operator (the "NY ISO") and has been actively selling and purchasing energy in the NY ISO day-ahead and hourly markets since November 1999. Prior to that, OPG sold energy at the U.S. border to the NY ISO's predecessor, the New York Power Pool, and through its members to independent utilities in New York and New England. OPG is currently a full member of the NY ISO. OPG's membership in the NY ISO and the renewal of its membership were granted, in part, based on the expectation that Open Access would occur in Ontario. The membership was recently renewed from March to December 2001, at which time further renewal of the membership will be assessed by the NY ISO in light of the status of the opening of the Ontario electricity market to competition.

OPG has entered into enabling agreements with approximately 70 wholesale market participants in the U.S. northeast and midwest regarding the purchase and sale of energy. However, OPG has not yet obtained authority to sell at market-based rates (a "power marketer's licence") from FERC. As a result, except for transactions administered by the NY ISO, OPG must transfer title to its produced energy at the U.S. border and the buyer must secure transmission, through intermediate zones in order to sell energy to buyers not directly connected with the Ontario grid at the U.S. border. OPG plans to obtain, if possible, effective on Open Access the appropriate FERC licence. This licence would allow OPG to buy its own transmission rights and to make sales of electricity, either sourced in Ontario or elsewhere, directly to wholesale or retail customers in the United States at market-based rates. This licence would increase OPG's access to the U.S. market, beyond the NY ISO and the Ontario border. See "*Business of OPG – Regulation*".

Following Open Access, OPG plans to continue export energy. However, the new Market Rules require parties wishing to export electricity from Ontario to purchase energy from the Ontario spot market, and then sell it to export customers. The OEB has ruled that such export transactions should be charged a fixed transmission usage fee of \$1/MWh, in addition to applicable IMO fees and uplift charges (including congestion charges), all of which in general are expected to aggregate approximately \$6/MWh. The following chart summarizes the various charges which are included in the export fee:

### Export Fee Breakdown

Charge Type	Description	Amount
Export Transmission Service Rate	The rate is approved by the OEB and applies to the market participant who utilizes the transmission network to export to points outside Ontario in accordance with the Market Rules.	\$1.00/MWh
IMO Administration Fee	A charge that is approved by the OEB and that applies to all market participants that withdraw energy from the IMO-controlled grid.	\$1.00/MWh
IMO Uplift	IMO uplift charges include provisions for system losses, operating reserve, capacity reserve, congestion management (internal to Ontario), black start capability, reactive support and voltage control, regulation service, must run contract settlement, and outage cancellation/deferral. The IMO-published estimates of the individual uplift components vary over a wide range.	\$3.00 to \$4.00/MWh
TOTAL		\$5.00 to \$6.00/MWh

### *Competitive Environment*

The environment for the sale of electricity in Ontario during the Transition Period is substantially the same as it was prior to the restructuring of Ontario's electricity industry. Market participants licensed by the OEB have begun to position themselves for Open Access, but it is not possible to predict how the market, including its sales channels and buying practices, will evolve after Open Access. Given the anticipated operation of the electricity spot market, OPG believes that its competitive position will be most directly affected by its production cost relative to other generators both in Ontario and in the interconnected markets. This will be true particularly in off-peak periods, when OPG believes that generators in interconnected markets have more supply available and are cost-competitive with OPG. OPG believes that its cost of generation is, on an average short-run marginal production cost basis, lower than that of most other generators within Ontario and in many of its U.S. interconnected markets, although higher than generators in Manitoba and Québec.

In a competitive market, a variety of factors could influence OPG's low-cost position, such as the need for further investment in OPG's fossil generating facilities to comply with increasingly stringent limits on air emissions. In addition, other generators could offer power at prices below their full production costs in order to obtain market share in Ontario or in interconnected markets.

Total generation within Ontario in 2000 was 154 TWh. Approximately 4.5 TWh of electricity was imported into Ontario and 5.5 TWh was exported from Ontario. This exported amount includes amounts exported pursuant to an electricity banking arrangement with Hydro Québec. The net result was that approximately 153 TWh of electricity was generated to meet consumption requirements in Ontario. This amount is approximately 10 TWh more than the amount consumed within Ontario, primarily as a result of transmission and distribution line losses. Of the total generation within Ontario in 2000, approximately 89% was generated by OPG, 7% by other Ontario generators (operating approximately 90 non-utility generating stations, being largely gas-fired cogeneration and small hydroelectric facilities ) and 4% by industrial and commercial self-generation.

After Open Access, OPG expects competitive pressures in Ontario to come from the following sources:

*Companies which control generation capacity decontrolled by OPG.* With the entry of Bruce Power, OPG anticipates that the decontrolled Bruce B units and any restarted Bruce A units will be a source of competition. However, baseload energy from these units and from OPG's nuclear facilities have relatively low production costs

and could be offered into the new Ontario market so as to be dispatched by the IMO at all times, save for outage periods; as such, these facilities are not expected to materially impact price setting in the energy spot market. The decontrol of the Lakeview, Lennox, Thunder Bay and Atikokan fossil generating facilities and the hydroelectric plants on the Mississagi River system will also create competition in the Ontario spot market. The Lakeview and Lennox facilities offer intermediate and peaking capacity and are dispatched when demand is higher. As a result, future operators of these stations can act as “marginal bidders” and therefore potential “price setters” at various times in the spot market to the extent not limited by emission allowances. The other OPG generating facilities which are to be decontrolled will also compete with OPG. The Thunder Bay and Atikokan facilities have historically been operated as either baseload or intermediate capacity facilities, giving future operators of these facilities the flexibility to decide which type of facility is most appropriate for them to operate. The Mississagi River system is generally run as a peaking system. This system has a large upstream storage reservoir, with a series of downstream generating stations, each having limited storage of their own. These stations have the ability to produce electricity to contribute to meeting peak demand throughout the year.

*Intermediaries that offer new products and services, including financial risk management products.* Intermediaries will compete with OPG to sell energy products to end users in Ontario by aggregating third party supply (domestic and imports) and spot market purchases, and by offering bundled value-added energy services or financial risk management services. Although intermediaries who participate in this market need not own generating facilities, owners of decontrolled assets will likely be competitors for the sale of these products as a means of managing their market risks. Intermediaries with expertise gained in other jurisdictions in the fields of aggregation and commodity marketing will be particularly well-positioned for these opportunities. The success of these intermediaries will depend on the final Market Rules, electricity price volatility and the development of a relatively liquid financial based market to facilitate pricing and product structuring. OPG believes that it can compete effectively with these intermediaries because of its familiarity with the Ontario market and the breadth of OPG’s existing relationships with the target customers for these services. OPG also believes that certain customers may have a preference for purchasing financial risk management products from a counterparty with proven generating capacity and long-term customer relationships.

*Imports of energy from the interconnected markets into Ontario.* Following Open Access, intermediaries and other parties will be able to compete with OPG both for opportunities to source and import energy from outside Ontario, as well as for resale of imported energy to Ontario end users. While these opportunities will increase their competitive position, there are limits to the amount of energy that can be imported into or exported from Ontario due to physical and seasonal limits on the capacity of transmission inter-ties between and within jurisdictions. These factors will periodically limit the ability of third parties, including low-cost producers such as Hydro Québec and Manitoba Hydro, to export energy into Ontario at certain peak times, although Hydro One has been mandated to expand inter-tie capacity following Open Access, including the recently announced 1,250 MW expansion of the inter-tie capacity between Ontario and Québec. Although OPG is in a relatively strong position regarding its production costs, it is difficult to predict future electricity prices and other generators’ bidding levels. In setting their prices, interconnected market generators will, however, be influenced by the price competitiveness of energy sold into the Ontario market, which will include the cost of transmission fees and losses applicable to transmission from the generation source to the Ontario border, the level of customer demand in Ontario and opportunities available to these sellers in other markets.

*Generation by new independent power producers in Ontario.* Whether new capacity will be built will depend on a number of factors, including actual and anticipated price levels and demand for electricity and natural gas, the ability of parties to structure economic transactions, technological advances, and environmental and other regulatory developments. If new facilities are constructed, they will compete with OPG and will have the potential to be price-setters in the energy spot market. New stations with aggregate capacity of up to 3,100 MW are currently proposed by other market participants and initial portions of this capacity could be in service by the end of 2002.

*Self-generation by wholesale customers.* Interest in self-generation for load displacement or cogeneration by large industrial and commercial customers is expected to continue, particularly if they have a large requirement for steam. The attractiveness of these projects is influenced by a variety of factors, including the price of natural gas (the likely fuel type), power generation equipment availability, the ability to avoid transmission network service and IMO uplift charges, the rebate mechanism’s effect on OPG’s operations (thereby reducing the effective cost of energy to Ontario wholesale customers), or specific project economics which make self-generation viable. Other factors that

may influence the development of self-generation capacity include the availability of waste fuel, steam boiler replacement, energy self-sufficiency, environmental considerations, by-pass of rates or any shift from a uniform to a locational marginal energy pricing system in Ontario.

## ***Commercial Strategy***

### ***Transition Period***

OPG believes that the commercial environment in the Ontario electricity industry during the Transition Period is substantially unchanged from that prior to the reorganization of Ontario Hydro. During the Transition Period, OPG is responsible for production, planning and dispatch of all of its generating facilities, subject to directions from the IMO regarding transmission security and reliability. OPG plans and dispatches its resources based on forecast demand and market conditions, coordinating planned and unplanned outages and contracting with third parties to buy and sell energy as opportunities arise. In this process, OPG's objective is to plan and dispatch its resources at the lowest possible cost by committing its generation on the basis of merit order dispatch (that is, using its generating units generally in order of lowest to highest marginal cost).

Until Open Access, OPG is required to sell its energy at regulated rates. Under the present regulated tariffs, the price of energy for these customers varies based on a number of factors, including the voltage at which electricity is delivered and, for certain larger customers, the quantity purchased, marginal production costs and whether the contract is for firm or interruptible power. In addition to such regulated rates, starting on June 1, 2001, the wholesale cost of power will increase by 0.7 cents per kWh. All revenues related to this price increase will be forwarded directly by OPG to OEFC as part of the revenue allocation arrangements described below.

Further, during the Transition Period, most Ontario consumers will continue to pay their electricity bills on a bundled basis, meaning that generation, transmission, distribution and other charges are not itemised. Payments from wholesale customers are made to OPG and are then allocated among the successors of Ontario Hydro under the terms of revenue allocation arrangements, as follows: (i) the Electrical Safety Authority received a payment in 1999 for its start up costs, and thereafter it has not and will not receive further payments; (ii) Hydro One and the IMO receive payments that are calculated on the basis of OEB-approved revenue requirements; (iii) OPG receives fixed payments that are calculated by multiplying 4 cents times the forecasted energy OPG will supply to meet Ontario consumption for the year, expressed in kWh (these fixed payments are adjusted each year based on forecasted consumption for the upcoming year); (iv) the OEFC receives a payment for the cost it incurs with respect to power purchase agreements between it and non-utility generators; and (v) the OEFC also receives an allocation equal to the residual amount after all of the above allocations are made, based on forecasted Ontario consumption and forecasted supply by OPG. Variations in actual revenue from the forecast, mainly as a result of differences between actual and forecast consumption and customer mix are the responsibility of OPG and therefore may impact OPG's revenue.

### ***Open Access***

In the lead up to Open Access, OPG and other market participants are actively positioning themselves to compete in the Ontario energy market following Open Access. During the Transition Period, OPG is focusing on developing a bidding strategy for sales into the IMO market. It is also building and maintaining its existing relationships with wholesale energy customers in Ontario through enhanced communication and education programs. OPG is developing new customer pricing options and products and services for these customers. Specifically, a portfolio of risk management products and supporting services for bilateral transactions, such as forwards, swaps, load-following bilateral products and billing and settlement options, are being developed to meet customers' needs for energy procurement services. OPG is also developing critical new information systems and enhancing or developing business processes and operations, such as energy trading and risk management operations, to ensure that it possesses the resources, required skills, corporate culture and customer service focus which it believes will be critical to its success in the competitive market.

Following Open Access, OPG's Ontario-based energy production will be offered into the IMO-administered market in order to be dispatched at the spot market price, and the largest part of OPG's revenue will be derived from this source. A significantly smaller portion of revenue will be earned through the sale of bilateral contracts, operating reserve, other ancillary services and must-run contracts with the IMO.



Spot market prices will fluctuate, at times significantly, at different time periods which relate to variations in electricity market demand. The highest spot market prices will be set at periods of peak demand, typically set by the plants at the margin (usually natural gas generators) in the winter and summer months. Typically, at off-peak periods through the spring and fall, spot market prices are set by unit capacity further down the merit order ranking and are typically driven by coal-fired generation. Spikes in spot prices are, to the greatest extent, weather driven, usually reflecting a peak in demand combined with a shortage in energy, generation capacity or transmission and, depending on the jurisdiction, may be subject to a price cap set by the regulator. Due to the fact that the Ontario market is adjacent to several interconnected energy marketplaces and prices in interconnected markets are expected to move toward equilibrium, prices in Ontario will often be influenced by market conditions in other energy markets and available peak supply.

OPG's spot market strategy for the sale of OPG's Ontario-based energy production is to bid all available units into the energy and operating reserve real-time Ontario markets. It is anticipated that this bid strategy will be cost based, including opportunity cost, and should optimize the dispatch of OPG generation. The IMO will optimize energy and operating reserves to minimize the overall cost to the market. OPG expects that operating reserve will have higher value during on-peak hours throughout the year, although it will be limited in its offer by the operating reserve bid cap. The operating reserve clearing price will include the marginal unit's offer plus its opportunity cost, if its actual energy production is reduced to provide the reserve. Actual market clearing prices will be dependent on supply and demand and may at times clear above the OPG offering price. OPG's overall strategy will also include bidding in the Ontario spot market to purchase energy for resale into other markets, such as the New York ISO, depending on market conditions.

Over time, customer expectations and demand for risk management products will evolve as some customers seek more complete customized solutions and others shift to self-manage their price and volume risks and deal directly with trading desks. Given these market dynamics, OPG anticipates the market for bilateral financial transactions in Ontario will start somewhat slowly but increase significantly during the first five years after Open Access. Maintaining a strategic level of flexibility in markets and products will be critical for OPG's success in these transactions in order to adapt to the high degree of uncertainty in the future environment. Much will depend on the pace of competition and rate of customers switching away from Standard Supply Service, OPG decontrol activities, the resultant level of rebates to customers under the market power mitigation framework, spot market price volatility, customers' price-risk tolerances, and changing purchasing preferences of OPG customers.

OPG's goal is to be a leading supplier of bilateral financial risk management products to selected wholesale and large retail customers in Ontario and the interconnected markets. OPG recognizes that its success in offering financial risk management products and services is predicated on the following: sophisticated product structuring and risk management skills in order to correctly price and manage complex structured products; marketplace relationships and brand equity to facilitate customer acquisition and retention; and superior understanding of customer needs in order to structure solutions, including associated services, which best meet customer needs, as well as the capability to deliver such solutions. Further, OPG recognizes that traditional segmentation based on size, industry category or type of business is not fully indicative of customer behaviour in a competitive market. In light of these market realities, OPG has taken a focused approach in targeting markets and customers for sales of OPG financial products and services based on those customers' expressed need for product solutions. OPG will continue to invest resources in developing its trading and risk management capabilities to position itself for success in Ontario and growth into contiguous markets.

## **Management of Commercial Risks**

### ***Overview***

OPG's risk management activities involve identifying, assessing and controlling the risk associated with its portfolio of generation assets in an effort to optimize asset returns. The Board of Directors approves all risk management policies prior to implementation. OPG undertakes an assessment of its risk exposures in order to characterize such exposures and the effects of risk management activities, including avoidance, reduction, transfer and substitution. Executive management and the Board of Directors review OPG's residual exposure to ensure it is consistent with overall strategy and corporate risk tolerance levels.

Upon Open Access, OPG will be subject to increased risk, including market and credit risk inherent in a competitive market. A Risk Oversight Committee consisting of senior officers from OPG has been established to approve transactions under the direction of the Board of Directors, monitor policies and compliance issues, and ensure overall corporate governance specifically related to market activity for OPG.

In anticipation of increased levels and complexity of market activities, OPG has implemented comprehensive trade capture and risk management systems with related processes and controls. These processes will include a segmentation of portfolio activities to facilitate effective identification and measurement of risks, and the application of appropriate position and risk limits. The methodology used to measure these risks will involve the use of comprehensive and recognized risk measures for the monitoring of trading activities and the generation portfolio. See “*Business of OPG – Risk Factors*”.

### ***Electricity Price Risk***

Electricity price risk is the risk that changes in the market price of electricity will adversely impact OPG’s earnings and cash flow. After Open Access, OPG will face price risk directly related both to the demand and supply of generation in the open market as well as to transmission constraints. OPG’s production will be exposed to spot market prices, however, derivative instruments and related risk management products will be used to fix the price at which OPG sells some of its electricity and mitigate its exposure to fluctuating electricity prices upon Open Access. OPG will be in a logical position to provide such derivative instruments, as OPG’s generating assets will act as a natural hedge, thereby reducing the risk that would otherwise be inherent in such activities. It is anticipated, however, that OPG will only have hedged a portion of the electricity that it generates upon Open Access. See “*Business of OPG – Regulation – Ontario’s Electricity Industry – Market Power Mitigation/Decontrol – Rebate Mechanism and Transitional Price*”.

### ***Generation Risk***

OPG is exposed to the market impact of unforeseen changes in output from its generating units, or generation risk. The amount of electricity generated by OPG is affected by such factors as fuel supply, equipment malfunction, maintenance requirements, and regulatory and environmental constraints. To manage these risks, OPG enters into multiple short-term and long-term fuel supply agreements and long-term water use agreements, manages fuel supply inventories, follows industry practices for maintenance and outage scheduling, ensures regulatory requirements are met, particularly with respect to licensing of its nuclear facilities, and manages environmental constraints utilizing programs such as emission reduction credits.

### ***Credit Risk***

Credit risk is the risk of non-performance by contractual counterparties with respect to payment for services provided. Following Open Access, substantially all of OPG’s revenues will be derived from sales through the IMO-administered spot market. Participants in the IMO spot market must meet IMO-mandated standards for creditworthiness with the result that OPG’s risk for these sales is effectively managed. To the extent that the credit support provided by purchasers of power to the IMO is inadequate, however, all market participants will be responsible for any shortfall in proportion to their market activity. Until OPG fulfills its decontrol mandate, OPG will be the primary generator of electricity supplying the Ontario market and will therefore assume the majority of this risk. OPG will be exposed to credit risk as a result of its other business activities, including the sale of financial risk management products to third parties.

OPG has a counterparty credit policy and has implemented credit evaluation and collection procedures to monitor its credit exposures. OPG manages counterparty credit risk by monitoring and limiting its exposure to counterparties based on credit ratings, evaluating its counterparty credit exposure on an integrated basis, and by performing periodic reviews of the credit worthiness of all counterparties, including obtaining credit security for all transactions beyond approved limits.

### ***Foreign Exchange and Interest Rate Risk***

OPG’s foreign exchange risk exposure is attributable primarily to U.S. dollar-denominated transactions such as the purchase of fossil fuel and the purchase and sale of electricity in U.S. markets. OPG currently manages

its exposure by periodically hedging portions of its U.S. dollar cash flows according to approved risk management policies.

Interest rate exposure for OPG is limited by the fixed rates on its long-term debt. Interest rate risk will arise with the need to undertake new financing and with the potential addition of variable rate debt. Interest rate risk may be hedged using derivative instruments. The management of these risks will be undertaken by selectively hedging in accordance with corporate risk management policies.

## Generation Operations

### *Overview*

OPG's portfolio of generating facilities as of December 31, 2000 consists of 25,800 MW of current operating capacity comprised of 7,300 MW of hydroelectric capacity, 9,700 MW of fossil capacity and 8,800 MW of operating nuclear capacity, plus further nuclear capacity of 5,100 MW that is currently laid up. This represents approximately 24%, 31% and 45%, respectively, of the total generation capacity owned by OPG. OPG's nuclear stations and some hydroelectric generating plants are used primarily to provide base load capacity as they have very low marginal operating costs and, in the case of nuclear plants, are not designed for frequent variations in production level to meet peaking demand. Hydroelectric and fossil plants provide the bulk of OPG's intermediate capacity and peaking capacity.

Under the terms of its generating licence, OPG is required to decontrol at least 4,000 MW of fossil net generating capacity within 42 months after Open Access (1,000 MW of which can be substituted with hydroelectric net generating capacity) and to reduce its effective control over generation capacity in Ontario to 35% or less of the electricity supply options in the Ontario market within 10 years of the beginning of Open Access. To meet these requirements, OPG has started to decontrol certain of its assets. To date, it has agreed to lease its Bruce A and B nuclear generating stations to Bruce Power which is expected to close by the end of the second quarter of 2001. In addition, OPG has recently announced that once the current moratorium on the sale of coal-fired generating plants has been lifted by the Province, OPG will complete the decontrol of its Lakeview, Lennox, Thunder Bay and Atikokan fossil generating facilities, as well as the hydroelectric plants on the Mississagi River system. OPG's intention is to complete these transactions as close as reasonably feasible to Open Access.

### *Hydroelectric Operations*

Hydroelectric generating stations use the potential energy of water to drive hydraulic turbines that generate electricity. OPG's hydroelectric stations provide one of OPG's competitive advantages: a reliable, low-cost source of renewable energy that is air emission-free. Through significant capital reinvestment, station automation, efficiency improvements and effective plant maintenance, OPG's hydroelectric plants have low operating and maintenance costs. OPG's hydroelectric plants are very competitive with generation in OPG's regional market area.

### *Generating Facilities*

Generally, hydroelectric stations are grouped geographically and are operated on a river system basis rather than as stand-alone units. OPG's 69 hydroelectric generating stations and associated 247 dams are located on 27 river systems in Ontario. OPG's hydroelectric generating stations currently have a total in-service capacity of approximately 7,310 MW, representing approximately 28% of OPG's total in-service capacity in 2000 (i.e. excluding Pickering A and Bruce A, which were laid up).

#### **Five Year Hydroelectric Capability, Capacity and Generation**

	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Capability factor (%) .....	91	89	90	91	92
Capacity factor (%).....	60	57.7	49.8	52.9	54
Total energy (TWh) .....	37.6	36.4	31.9	33.6	34.0

Capacity factor and energy statistics for hydroelectric facilities depend primarily upon the availability of water which is affected by the amount of precipitation and evaporation. In 1998, 1999 and 2000, the relatively low

values for total energy and lower capacity factor were due to unusually low water availability arising from greater than normal evaporation and lower than normal precipitation.

A significant portion of OPG's hydroelectric production, representing 40% of total hydroelectric capacity and 52% of hydroelectric energy production in 2000, is produced at OPG's three largest stations located on the Niagara and St. Lawrence Rivers. In 2000, the two Sir Adam Beck stations on the Niagara River provided 1,903 MW of capacity, representing approximately 26% of OPG's hydroelectric capacity, and 11.3 TWh of energy production, representing approximately 33% of OPG's hydroelectric energy produced. On the St. Lawrence River, the R.H. Saunders station provided 1,016 MW, or 14%, of hydroelectric capacity and 6.4 TWh, or 19%, of hydroelectric energy produced in 2000.

#### Summary of Hydroelectric Generating Facilities and Performance (2000)

River System/ Generating Station	No. of In-Service Units	Net In-Service Capacity (MW) <sup>(1)</sup>	% of Hydroelectric Capacity <sup>(1)</sup>	Total Energy (TWh) <sup>(1)</sup>	% of Hydroelectric Total Energy <sup>(1)</sup>	Original Unit In-Service Dates
<b>Niagara Region</b>						
Sir Adam Beck I.....	10	498	7	2.0	6	1922-1930
Sir Adam Beck II .....	16	1,405	19	9.3	27	1954-1958
Sir Adam Beck Pump Generating Station <sup>(2)</sup> .....	6	174	2	(0.2)	0	1957-1958
DeCew Falls I and II .....	6	167	2	1.1	3	1898-1948
Ontario Power <sup>(3)</sup> .....	0	0	0	0	0	1905-1912
<b>St. Lawrence River</b>						
R.H. Saunders .....	16	1,016	14	6.4	19	1958-1959
<b>Ottawa River</b>						
Otto Holden.....	8	243	3	1.1	3	1952-1953
Chenault .....	8	144	2	0.7	2	1950-1951
Chats Falls <sup>(4)</sup> .....	4	96	1	0.5	2	1931-1932
Des Joachims .....	8	429	6	2.1	6	1950-1951
<b>Madawaska River</b> .....	15	614	8	1.0	3	1917-1977
<b>Abitibi River</b> .....	9	492	7	2.0	6	1933-1963
<b>Mattagami River</b> .....	19	487	7	2.2	6	1911-1966
<b>Mississagi River</b> .....	8	488	7	0.5	1	1950-1970
<b>Other Rivers</b> .....	116	1,057	15	5.7	16	1900-1993
<b>Subtotal</b> .....	249	7,310	100	34.8	100	
<b>Water Transfers and Unit Rentals<sup>(5)</sup> .....</b>						
<b>Total</b> .....	249	7,310	100	34.0	100	

#### Notes:

- (1) Capacity and production information is provided as at or for the year ended December 31, 2000. Total energy is the energy produced by the station less energy consumed for station service (i.e., energy recorded at the revenue meter).
- (2) During off peak periods reversible pump-turbine units at this station operate to pump water for storage in an elevated reservoir. During on peak periods water from the reservoir is run through the pump-turbine units to generate electricity for sale at higher prices. The outflow from the station rejoins the canal which supplies the main generating stations downstream.
- (3) The Ontario Power station was removed from continuous service in 1999 as a result of the sale of the site on which the station's power distribution facilities were located. No decision has been made regarding the reactivation of this station to full service.
- (4) Chats Falls is an eight-unit station, with four units owned by OPG and four units owned by Hydro Québec. OPG operates and maintains the station, with costs shared equally with Hydro Québec. Figures reflect OPG's share of total capacity and net energy.
- (5) Hydroelectric generation in 2000 is reported net of the impact of various agreements relating to (i) the diversion of water between Ontario and each of Manitoba and Québec and (ii) agreements with the New York Power Authority regarding rental of generation facilities, which were 0.4 TWh in the aggregate.

OPG's hydroelectric generating stations range in age from eight to over 100 years and are, on average, the oldest assets in its power generation portfolio. Although there is a link between the age of a facility and the capital investment required to maintain that facility, age does not establish an upper limit on the expected useful life of hydroelectric facilities and dams, as regular maintenance and the replacement of specific components typically extend station service lives for very long periods.

### ***Facility Planning***

OPG employs a portfolio approach to facility planning and maintenance and has grouped its 69 hydroelectric plants into five asset classes which have similar characteristics. Condition assessments are performed to determine future expenditures for each facility, followed by facility life cycle plans. This planning approach is designed to identify necessary capital, operating and maintenance expenditures for each facility in order to prioritize and optimize facility investment within constraints imposed by technical, financial and regulatory requirements and system conditions. Outages are scheduled so as to minimize production losses due to unutilized water and to ensure unit availability during high water availability and market demand.

In the early 1990s, OPG began installing and replacing equipment that enables the remote control and monitoring of OPG's hydroelectric generating facilities. These modifications were designed to increase the efficiency of hydroelectric operations by reducing the number of staffed control rooms from 18 to 8, reducing control system failures and increasing the amount of information available for production planning. OPG now controls all of its hydroelectric generating stations through eight control centres.

OPG has spent over \$1 billion since 1990 to refurbish and upgrade several of its hydroelectric facilities. This reinvestment program is continuing, with another \$500 million expected to be spent over the next five years. These upgrading initiatives have increased hydroelectric capacity by approximately 250 MW since 1990.

### ***Water Rental Payments***

Hydroelectric generation requires ongoing access to an adequate water supply. OPG's rights to use the water at its hydroelectric stations are established through various international treaties, federal and provincial legislation and the common law. Other related operating rights are contained in leases, licences and agreements with the Federal Government, the Province, neighbouring provinces, municipalities, other utilities and other water users. See "*Business of OPG - Regulation - Water Rights*".

OPG makes payments ("water rental payments") for the use of Crown lands. Water rental payments are calculated based on electricity produced at the relevant facility that results from the use of water (and not a different type of fuel such as oil or gas). OPG's water rental payments were approximately \$130 million in 2000 for all of its hydroelectric stations. Rental rates for 45 of OPG's hydroelectric stations (not including OPG's 4 stations on the Niagara River) were formerly covered by a master agreement with the Province. Rental rates for OPG's 4 stations on the Niagara River were formerly covered by an agreement between OPG, the Province and the Niagara Parks Commission. The rental payments formerly assessed under these agreements have been replaced by a new provincial gross revenue tax which came into effect on January 1, 2001. See "*Business of OPG - Relationship with the Province and Others - Special Taxes on Hydroelectric Generating Stations*". Other stations are covered by separate agreements and payments are made to the various parties with jurisdiction over those stations according to the terms specified in such agreements. The Federal Government receives rental payments for stations on Federal canals and waterways; the St. Lawrence Seaway Management Corporation receives lease payments in respect of water transported through the Welland Canal; and the Government of Québec receives payment for sites that span the Ottawa River. OPG has ten stations for which no water rental payments are made, as there are no Crown leases related to these stations.

### ***Water Management***

The physical availability of water is affected by variations in precipitation and evaporation. OPG uses hydrological and meteorological data to manage head, flow and water storage, and to schedule water use in a manner which minimizes unutilized water flow. OPG's water management strategy is to optimize revenue from available water while meeting legal, environmental, and operational requirements.

### ***Dam Safety Program***

OPG operates 247 dams in connection with its hydroelectric generation operations. An additional 11 dams are maintained in conjunction with OPG's fossil generation operations. OPG's dams are operated and maintained in a manner that meets or exceeds safety guidelines published by the Canadian Dam Association. None of OPG's dams have failed in over 90 years of operation.

In 1986, OPG voluntarily established a dam safety program designed to ensure the safe and reliable operation of its dams and related facilities. OPG is one of the first dam owners in Canada to have developed and implemented a dam safety program. The dam safety program requires regular monitoring and inspections, maintenance and dam improvements where necessary. A review conducted by the Association of State Dam Safety Officials in 1997 concluded that OPG's program is effective, well-managed and contains all necessary elements. OPG has spent approximately \$60 million since 1988 on dam improvements and plans to spend approximately \$25 million over the next five years on upgrades and major maintenance as part of its dam safety program.

The Ministry of Natural Resources (Ontario) (the "MNR") has announced its intention to develop a dam safety regulation under the *Lakes and Rivers Improvement Act*. In September 1999, the MNR released a draft of its proposals for comments. Discussions regarding these proposals have taken place between MNR staff and various stakeholders, including OPG. The proposals have changed significantly since 1999 and the MNR is still evaluating and amending the proposals. It is, therefore, difficult to determine what impact they may eventually have on OPG. This is in part because the proposals include design flood criteria that are different from the Canadian Dam Association criteria used by OPG. The MNR is aware that it will not always be feasible or reasonable for owners of existing dams to physically upgrade all dams that do not strictly meet the new criteria. The proposed regulations, therefore, allow owners of dams to submit a "Dam Safety Management Plan" to the MNR. These plans, which would be reviewed by independent engineers, can include measures to enhance safety by means other than full structural upgrades, and therefore would be significantly less costly than strict compliance with the design flood criteria.

It is expected that the option of Dam Safety Management Plans will be used extensively by OPG and other dam owners. The feasibility and acceptance by the MNR of Dam Safety Management Plans will be subjective and can only be addressed on a case-by-case basis. OPG believes, however, that in most cases, it will be able to develop Dam Safety Management Plans that will be acceptable to the MNR.

### ***Expansion and Development***

Due to the design of some of its Niagara River generating stations, OPG does not currently have the mechanical capability to efficiently use all of the water available to it. OPG mitigates the impact of these limits through a capacity rental arrangement with the New York Power Authority under which the parties share additional power generated by the New York Power Authority using OPG's water rights.

OPG has evaluated a number of alternatives to maximize its use of available water on the Niagara River. In 1998, provincial environmental assessment approval was granted for the Niagara River Development Project which, if undertaken, would consist of two new diversion tunnels extending from the Niagara River upstream of Niagara Falls to the Sir Adam Beck site, a powerhouse and associated transmission facilities. The first stage of the project, including construction of one of the diversion tunnels, would take four years to complete and would cost approximately \$600 million. The remainder of the project would require five years to complete and would cost in excess of \$1.2 billion. OPG regularly reviews the economics of this project but does not currently plan to begin its development.

### ***Hydroelectric Station Decontrol***

OPG has recently announced that it intends to invite offers for the decontrol of its four hydroelectric stations on the Mississagi River, located approximately 70 km east of Sault Ste. Marie. The four stations, Aubrey Falls (162 MW), G.W. Rayner (46 MW), Wells (239 MW) and Red Rock Falls (41 MW), provide net in-service capacity of 488 MW and total average annual energy (averaged over a 30 year period) of 0.76 TWh. The Mississagi River system is generally run as a peaking system, except Red Rock Falls, which operates during non-peak hours

also. Water flows and levels on the Mississagi River are controlled by the Rocky Island Lake Control Dam. The stations are maintained from the Algoma Service Centre.

### ***Fossil Operations***

Fossil generating stations burn coal, oil or natural gas to heat water and create steam is used to drive turbines that generate electricity. OPG's fossil stations are a key component of OPG's overall portfolio. Fossil stations provide a flexible source of energy, as the stations may be taken on-line and off-line relatively quickly and without significant additional cost. Fossil stations may be deployed during periods of intermediate and peak demand or as a base load energy source to accommodate variations in the balance of the generating portfolio due to either planned or unplanned outages within the fleet. Through major ongoing investment in pollution control technologies, emission rates of oxide of nitrogen ("NO<sub>x</sub>") and sulphur dioxide ("SO<sub>2</sub>") from OPG's fossil plants have been substantially reduced. Continued investment to meet prospective Ontario and U.S. regulatory standards will bring further reductions in emission rates and in actual emissions. Recent announcements by the Province will require further reductions in SO<sub>2</sub> and NO<sub>x</sub> emissions by 2007 and will require additional investment in emission control technology and fuelling strategies.

### ***Generating Facilities***

OPG owns and operates six fossil stations. A total of 23 fossil generating units were in service during 2000 with a combined capacity of approximately 9,700 MW representing approximately 38% of OPG's total in-service capacity in 2000 (i.e. excluding Pickering A and Bruce A, which were laid up). Coal-powered generating units located at Nanticoke, Lambton, Lakeview, Thunder Bay and Atikokan account for approximately 7,560 MW of in-service capacity. Dual-fuelled (i.e. capable of burning either oil or natural gas) generating units at Lennox account for approximately 2,140 MW of in-service capacity.

### **Five Year Fossil Capability, Capacity and Generation**

	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Capability factor (%) .....	73	65.8	74.4	68	76
Capacity factor (%)					
Coal .....	29.2	37	51.8	51	62
Oil/Gas .....	1.3	1.9	6.5	12.3	6.4
Total energy (TWh) .....	19.0	24.4	34.2	36.1	42.4

The increase in fossil capacity factors and total energy produced between 1996 and 2000 was due to increased coal-fired generation used to compensate for declines in nuclear generation from the lay-up of units under the nuclear recovery program. The two scrubber-equipped units at Lambton and the eight units at Nanticoke have provided most of this additional fossil generation. In order to meet the increased production demands on fossil generating units and still meet all regulatory requirements, a number of emission reduction initiatives have recently been implemented. These included increasing the use of low-sulphur fuels and capital investments to reduce NO<sub>x</sub> emissions. For example, in order to reduce OPG's NO<sub>x</sub> emissions, over \$50 million was spent in 1999 and 2000 on completing the conversion of units at Lennox to gas, the installation of low NO<sub>x</sub> burners at Lambton, Nanticoke and Lakeview, and the use of computer control to reduce NO<sub>x</sub> emissions at Lambton and Lakeview. An additional \$30 million is to be spent in 2001 for the installation of additional low NO<sub>x</sub> burners at Lambton and Lakeview and a trial of new NO<sub>x</sub> reduction technology at Nanticoke. See "*Environmental Matters – Management of Air Emissions – Fossil Operations*".

## Summary of Fossil Generating Facilities and Performance (2000)

Station	No. of In Service Units	Net In Service Capacity (MW) <sup>(1)</sup>	% of Fossil Capacity <sup>(1)</sup>	Net Energy (TWh) <sup>(1)</sup>	% of Fossil Net Energy <sup>(1)</sup>	Original Unit In Service Date(s)	Estimated Retirement Date <sup>(2)</sup>
Nanticoke <sup>(3)</sup> .....	8	3,920	40	23.5	55	1973-1978	2015
Lambton <sup>(3)</sup> .....	4	1,975	20	12.4	29	1969-1970	2010-2020 <sup>(4)</sup>
Thunder Bay <sup>(3)</sup> .....	2	310	3	1.6	4	1981-1982	2021
Atikokan <sup>(3)</sup> .....	1	215	2	1.0	2	1985	2025
Lakeview <sup>(3) (5) (6)</sup> .....	4	1,140	12	2.8	7	1962-1969	2005
Lennox <sup>(5) (7)</sup> .....	4	2,140	22	1.2	3	1976-1977	2016
<b>Subtotal</b> .....	<u>23</u>	<u>9,700</u>	<u>100</u>	<u>42.4<sup>(8)</sup></u>	<u>100</u>		
<b>Total Excluding Lakeview and Lennox</b> .....							
	<u>15</u>	<u>6,420</u>		<u>38.4</u>			

### Notes:

- (1) Capacity and production information is provided as at or for the year ended December 31, 2000.
- (2) Estimated retirement date is based on the average in-service date of units at the station and an estimated service life of 40 years except as noted.
- (3) All units are coal-fired.
- (4) Service lives for Lambton units 3 and 4 have been extended to 50 years as a result of extensive plant rehabilitation.
- (5) OPG has announced its intention to decontrol approximately 4,300 MW of generating capacity, being the Lennox, Lakeview, Thunder Bay and Atikokan fossil generating stations and the hydroelectric generating stations located on the Mississagi River system which will result in OPG meeting its first decontrol target.
- (6) Four additional generating units at Lakeview representing approximately 1,100 MW of power capacity were permanently taken out of service in 1992 as surplus capacity. The Province recently tabled a regulation that requires Lakeview to cease burning coal by 2005.
- (7) Lennox units are dual-fuelled (oil/natural gas).
- (8) This column does not add correctly due to rounding.

### *Fossil Station Decontrol*

In response to a request from the Minister, early in 2000 OPG announced plans for accelerated decontrol of the Lakeview and Lennox generating stations representing approximately 3,280 MW of the targeted capacity for decontrol. After this announcement, the Province placed a moratorium on the sale of coal-fired generating plants in order to provide the Province with time, before OPG committed to sell or otherwise decontrol these plants, to assess the potential environmental impact of their future operation. As a result, OPG delayed its plans for decontrol of the Lennox and Lakeview stations. The Province has completed its assessment and on March 26, 2001 published for public comment a proposal for new regulations that would have the effect of establishing more stringent limits on air emissions by fossil generating facilities, implementing an emissions reduction trading system, and requiring the Lakeview station to cease burning coal by April 2005. Although the moratorium on the sale of coal-fired plants remains in effect, OPG expects that it will be lifted shortly after completion of the public comment period. Once the moratorium is lifted, OPG has recently announced that it intends to invite offers for the decontrol of these stations and of its Thunder Bay and Atikokan fossil generating stations. Lakeview has operated mainly as an intermediate to peaking plant and Lennox, recently converted to dual-fuel, has operated predominately in peak duty. The Thunder Bay and Atikokan facilities have historically been operated as either baseload or intermediate capacity facilities. See “*Background – Ontario’s New Electricity Market – Market Power Mitigation and Transition Pricing*”.

### *Facility Planning*

OPG’s facility planning approach is designed to identify necessary capital, operating and maintenance expenditures for each facility in order to optimize returns from plant reinvestment within constraints imposed by technical, financial and system requirements as well as regulatory and voluntary emissions limits.

The large temperature and pressure variations experienced during cycling operation of fossil units to meet system peaks cause more mechanical wear than continuous operation. For example, between 1995 and 1997, when the fossil stations were used primarily for peaking loads, OPG had an excess of capacity, so forced outages did not have a significant supply impact. As a result of the lower economic impact of outages, OPG generally focused on



corrective rather than preventative maintenance for these stations, thereby avoiding extraordinary costs that might otherwise be incurred to reduce the duration of outages. With increased usage of the fossil generating stations due in part to the lay-up of the Pickering A and Bruce A nuclear generating stations, increasing fossil capability has been an OPG priority, resulting in additional preventative maintenance activities and reduced outage periods.

OPG has recognized, and carries on its balance sheet, a provision to cover future costs of decommissioning and dismantling each fossil station. This provision is valued at approximately \$125 million at December 31, 2000 and is not currently funded. In establishing this provision, OPG has used 50 years as the expected service life for the two Lambton units where scrubbers have been installed and 40 years for the other fossil units.

### ***Fossil Fuel Procurement***

Coal is the fuel used at all of OPG's fossil generating stations except Lennox. Fuel and related transportation costs in 2000 accounted for approximately 79% of the total production cost of OPG's fossil generation. In 2000, OPG's total fossil fuel and related transportation costs amounted to \$982 million, 83% of which was for coal. Approximately 95% of these costs in 2000 represented purchases in the United States or denominated in U.S. dollars. OPG's fuel unit energy costs have generally declined since 1993 as a result of declining commodity prices, increased supplier competition and equipment modifications that enable the facilities to burn a broader range of coal types, although this has been offset by the declining value of the Canadian dollar relative to the U.S. dollar over the same period. The price of coal started to increase in the last quarter of 2000 and is expected to be significantly higher for the year 2001. As a result, OPG anticipates that it will have higher fuel unit energy costs in 2001.

Approximately 95% of the coal used at OPG's fossil stations in 2000 was shipped by way of the Great Lakes. OPG maintains a seasonal inventory of coal at each of its coal-fired stations that is sufficient to meet forecast energy requirements during the winter months, typically mid-December to mid-April, when Great Lakes shipping lanes are closed.

OPG's fossil fuel costs are affected by various factors including the cost of transporting coal from the eastern and western United States and western Canada, the sulphur content of coals and by choices made in balancing supplier diversity, contractual flexibility, fuel type and fuel quality. OPG blends coal with a range of sulphur contents for use in units that are not equipped with desulphurization scrubbers.

Natural gas is used as a generation fuel at OPG's Lennox generating station. Approximately 34% of the natural gas purchased in 2000 was purchased pursuant to a long-term supply contract. This supply is shipped by firm pipeline capacity from Alberta to Lennox. The rest of the natural gas requirements are fulfilled by spot market purchases in Ontario. In 2000, OPG's total purchases of natural gas cost approximately \$76 million.

The residual fuel oil for OPG's Lennox generating station is purchased through short-term "spot" purchases for volumes of typically 40,000 to 80,000 cubic metres (250,000 to 500,000 barrels) at a time. There are no long-term oil purchase agreements in place. Because of the requirement for low sulphur oil (under 0.7% sulphur content), the oil is purchased from offshore sources; pricing is typically tied to published oil price indices based upon delivery at New York Harbour for the quality of oil purchased. Transportation of residual fuel oil to Lennox is accomplished through leased rail cars, from terminals in either Québec or New York. In 2000, these residual fuel oil purchases cost \$19 million.

### ***Air Emissions and Effective Generation Limits***

OPG's in-service fossil generating units are theoretically capable of generating a total of 85 TWh annually, based on each unit running at its maximum capacity, 365 days per year. However, because of the need to carry out routine and unexpected maintenance and regulatory inspections, these units are limited to a maximum generating capability of approximately 60 TWh annually. Fossil generation is effectively limited to below 60 TWh annually because of environmental regulations, the emissions characteristics of these units and the merit order of dispatch of units.

The burning of fossil fuels gives rise to a number of emissions, principally sulphur dioxide ("SO<sub>2</sub>"), oxides of nitrogen ("NO<sub>x</sub>") and carbon dioxide ("CO<sub>2</sub>"), as well as mercury and particulate matter such as dust and ash.

Acid gas (SO<sub>2</sub> and NO<sub>x</sub>) emissions contribute to acid rain, and legislation specifically regulating such emissions has been in force in Ontario since the mid-1980s. Greenhouse gas emissions contribute to global warming. The primary greenhouse gas emission resulting from OPG's operations is CO<sub>2</sub>. National and international initiatives to reduce greenhouse gas emissions are currently underway and may result at some point in the future in the introduction of regulatory limits on greenhouse gas emissions. These regulatory limits on emissions are supplemented by voluntary caps on emissions implemented by OPG as part of its commitment to reduce adverse environmental impacts of its operations. These regulations continuously evolve as more is learned about the effects of these emissions on the environment and as national standards are adjusted to reflect changing international standards. See "*Business of OPG – Environmental Matters – Management of Air Emissions*".

The following table sets out certain air emissions from OPG's fossil generating facilities for the past five years, with reference to applicable regulatory limits or voluntary limits, emission reduction credits and total fossil energy production.

#### Five Year Fossil Production and Air Emissions

	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Fossil net production (TWh).....	19.0	24.4	34.2	36.1	42.4
SO <sub>2</sub> emissions (Gg)					
OPG emissions.....	84.8	123.6	143.0	142.1	164.1 <sup>(1)</sup>
Emission reduction credits.....	N/A	N/A	N/A	N/A	N/A
Regulatory Limit (gross).....	175.0	175.0	175.0	175.0	175.0 <sup>(2)</sup>
NO <sub>x</sub> emissions (Gg)					
OPG emissions.....	35.3	43.1	55.8	51.4	50.5 <sup>(1)</sup>
Emission reduction credits.....	N/A	N/A	N/A	N/A	12.5
Voluntary Limit (net).....	N/A	N/A	N/A	N/A	38.0 <sup>(2)</sup>
Total Acid Gas Emissions (Gg)	120.1	166.7	198.8	193.5	214.6 <sup>(1)</sup>
CO <sub>2</sub> emissions (Tg)					
OPG emissions.....	18.1	23.5	31.0	32.2	38.5
Emission reduction credits.....	N/A	N/A	N/A	N/A	12.5
Voluntary Limit (net) <sup>(3)</sup> .....	N/A	N/A	N/A	N/A	26.0

#### Notes:

- (1) OPG's annual SO<sub>2</sub> and NO<sub>x</sub> emissions cannot exceed 215 Gg in aggregate and SO<sub>2</sub> emissions cannot exceed an annual cap of 175 Gg.
- (2) Proposed Ontario legislation expected to come into force in 2001 (discussed in more detail below) would reduce the limits for SO<sub>2</sub> emissions to 157.5 Gg annually, net of emission reduction credits used, subject to a rate of 4.6 Gg/TWh, and for NO<sub>x</sub> emissions to 36 Gg annually, net of emission reduction credits used, at a rate of 1.3 Gg/TWh. Pending implementation of these new limits, OPG had agreed with provincial government agencies to cap its NO<sub>x</sub> emissions, net of emission reduction credits used, at 38Gg annually, commencing in 2000.
- (3) OPG has also voluntarily committed to reduce its greenhouse gas emissions beyond 2000, net of emission reduction credits used, to the 1990 level of 26.0 Tg.

The Province has indicated the Ontario NO<sub>x</sub> requirements will meet or exceed the U.S. requirements. Consistent with the Canada/U.S. Ground-Level Ozone Precursors Annex signed in December 2000, OPG expects that the Province will enact legislation limiting NO<sub>x</sub> emissions from Ontario's electricity sector to 28 Gg annually, net of emission reduction credit trading, starting in 2007. The Province has proposed a NO<sub>x</sub> emission limit of 36 Gg (with emissions reduction trading being allowed) in 2001 (numbers may be *pro rated* to reflect a partial year). These limits are currently undergoing public review process and are expected to be in force before year end.

To meet its obligations under applicable environmental regulations and objectives, OPG has implemented a range of air management initiatives to monitor and reduce air emissions from its fossil generating stations. OPG spent approximately \$50 million in 1999 and 2000, and intends to spend a further \$30 million in 2001, to reduce NO<sub>x</sub> emissions. OPG has also announced the installation of four selective catalytic reduction ("SCR") units at Lambton and Nanticoke over the next three years at an estimated cost of approximately \$300 million.

OPG has a number of options available to meet its NO<sub>x</sub> emission limits without limiting the amount of electricity that OPG can generate and sell during the year. First, with the development of an emission reduction trading program, OPG could obtain and use emission reduction credits to offset any NO<sub>x</sub> emissions that exceed the limit. It is anticipated that current levels of fossil generation (in the 40 TWh range) could be sustained in the short-term through the use of emission reduction credits. Second, OPG could reduce NO<sub>x</sub> emissions through the installation of additional capital equipment such as SCR technology on targeted units. As mentioned above, in September 2000, OPG announced plans to install SCR equipment on two units at the Nanticoke station and on two units at the Lambton station by the end of 2003, at a cost of approximately \$300 million. This equipment is expected to reduce NO<sub>x</sub> emissions by an additional 12 Gg per year. OPG also announced that it intends to install low NO<sub>x</sub> burners at the Lakeview station. OPG believes that the implementation of a combination of these options will be effective in providing the flexibility to meet its energy production requirements while still enabling OPG to meet reduced NO<sub>x</sub> emission limits.

In 2000, OPG's fossil facilities generated 42.4 TWh of energy, resulting in 50.5 Gg of NO<sub>x</sub> emissions. Through the use of emission reduction credits, OPG was able to offset 12.5 Gg of NO<sub>x</sub> emissions and meet its voluntary 38 Gg NO<sub>x</sub> limit, thereby generating a further 9.4 TWh of electricity.

Although there has been considerable success in reducing SO<sub>2</sub> emissions from Canadian and U.S. sources, regulators in Canada and the United States have indicated that further reductions are required. The current Ontario proposal is described below. See *"Environmental Matters – Management of Air Emissions – Fossil Operations"*.

SO<sub>2</sub> emission rates are directly related to the sulphur content and heat content of the fuel burned. OPG has primarily used higher-cost low sulphur coals to reduce SO<sub>2</sub> emissions while sustaining cost flexibility. The conversion of four oil-fired units at the Lennox station, which now have the capability to burn natural gas, also contributes to the reduction of SO<sub>2</sub> emissions, because sulphur is removed from the gas before it arrives at the station. The cost of converting the units to burn gas was about \$30 million and the cost of the pipeline to supply the gas was \$20 million. OPG installed SO<sub>2</sub> scrubbers on two units at the Lambton station in the mid-1990s, at a cost of approximately \$500 million, to reduce the SO<sub>2</sub> content of the flue gas before it is emitted into the atmosphere.

Mercury emissions from coal-fired generating stations is emerging as an environmental and health issue. Initiatives are underway in both Canada and the United States to assess and regulate mercury emissions from the electricity generating sector. Specifically, the U.S. Environmental Protection Agency has announced plans to develop a final electricity sector mercury regulation in 2004 with compliance to be achieved in 2007. Similarly, under the Canada Wide Standards setting process, a Canadian mercury emission standard for utilities is expected in 2002. There is considerable uncertainty as to what specific standards will be established for permitted mercury emissions in part because currently available technologies are expensive, unproven in commercial application and may not result in the permanent removal of mercury from the environment. Other technologies are being reviewed but are not yet proven. At this stage it is, therefore, difficult for OPG to implement an appropriate strategy for meeting the anticipated mercury emissions standards. OPG does, however, continue to work with government, stakeholders, academics and industry in addressing mercury emissions.

OPG continues to make modifications to equipment and operating controls that improve its coal combustion heat rate, which results in decreased fuel consumption and lower CO<sub>2</sub> emission rates. For 2000 and beyond, OPG has also voluntarily committed to reduce its CO<sub>2</sub> emissions, net of emission reduction credits used, to the 1990 level of 26 Tg. OPG generated and acquired sufficient CO<sub>2</sub> emission reduction credits to avoid voluntary CO<sub>2</sub> related constraints on fossil generation in 2000. Apart from these equipment modifications, the only options currently available to OPG to meet its voluntary CO<sub>2</sub> emission commitments would be to reduce fossil generation or to buy additional emission reduction credits.

### ***Nuclear Operations***

Nuclear generation harnesses the energy released during controlled nuclear fission reactions to produce steam that is used to drive turbines to generate electricity. Nuclear generation has two main advantages: it is a relatively low marginal cost production technology and produces virtually no SO<sub>2</sub>, NO<sub>x</sub> or CO<sub>2</sub>. The latter advantage is increasing in significance as governments implement stricter air emission standards.

Nuclear stations require greater operational, maintenance, nuclear waste and decommissioning costs and have greater initial capital development costs than other generation technologies. This reflects the complexity of the technical processes that underlie nuclear power generation, and the additional design and safety precautions that are taken to protect the public from potential risks associated with nuclear operations. Offsetting these cost factors is the relatively low cost of nuclear fuel, particularly when compared with fossil fuel costs. OPG's nuclear fuel is supplied by Canadian-based manufacturers that process uranium ore from both domestic and foreign sources. In general, OPG's nuclear stations have a lower operating cost per megawatt of electricity produced than fossil facilities.

Ontario's nuclear generating stations were designed to provide a significant portion of Ontario's base load generation capacity. OPG's in-service nuclear generating stations, each consisting of four units, provided 44% of OPG's total production in 2000.

### ***Generating Facilities***

OPG currently owns five nuclear generating stations located at three sites in Ontario: Darlington, Pickering (A and B) and Bruce (A and B).

### **Five Year Nuclear Capability, Capacity and Generation**

	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>
Capability factor (%) .....	68	62	77	81	79
Capacity factor (%).....	66	61	76	81	78
Total energy (TWh) .....	77.8	70.3	59.9	61.4	59.8

OPG's capability and capacity factors increased in 1998, 1999 and 2000 because operating results for Pickering A and Bruce A were excluded after they were laid up pursuant to OPG's nuclear recovery plan. See "*Nuclear Recovery Plan*". The decline in total energy generated by nuclear operations after 1997 is also largely attributable to the lay-up of Pickering A and Bruce A. The total energy generated by nuclear operations declined in 2000, in large part due to the shut down of the Pickering B facility for five weeks due to a planned vacuum building outage. Such outages are required by regulation to occur every ten years.

## Summary of Nuclear Generating Facilities and Performance (2000)

Station	No. of In Service Units	Net In Service Capacity per Unit (MW) <sup>(1)</sup>	Net In Service Capacity (MW)	Capacity Factor <sup>(1)</sup>	% of Nuclear Capacity <sup>(1)</sup>	Net Energy (TWh) <sup>(1)</sup>	% of Nuclear Net Energy <sup>(1)</sup>	Original Unit In Service Dates	Estimated Operating Life <sup>(2)</sup>
Darlington .....	4/4	881	3,524	85.9%	25	26.6	44	1990-1993	2022-2025
Pickering A <sup>(3)</sup> .....	0/4 <sup>(4)</sup>	515	2,060	0%	15	(0.1)	0	1971-1973	2011-2013 <sup>(5)</sup>
Pickering B....	4/4	516	2,064	55.6% <sup>(12)</sup>	15	10.1	17	1983-1986	2013-2016
Bruce A <sup>(3)</sup> .....	0/4	769	3,076	0%	22	(0.1)	0	1977-1979	TBD <sup>(7)</sup>
Bruce B <sup>(6)</sup> .....	4/4	785 <sup>(8)</sup>	3,140 <sup>(9)</sup>	84.7%	23	23.4	39	1984-1987	2012-2015
<b>Subtotal .....</b>	<b>12/20<sup>(4)</sup></b>		<b>13,864</b>	<b>78.3%<sup>(10)</sup></b>	<b>100</b>	<b>59.8<sup>(11)</sup></b>	<b>100</b>		
<b>Total Excluding Bruce A and B.....</b>	<b>8/12<sup>(4)</sup></b>		<b>7,648</b>	<b>74.7%</b>		<b>36.7</b>			

### Notes:

- (1) Net capacity and production information is provided as at or for the year ended December 31, 2000.
- (2) With the exception of Pickering A, the estimated operating life of each nuclear generating station is assumed to end when substantial capital expenditures are required to replace life-limiting components such as fuel channels and steam generators, typically after 25 to 30 years of operation. The operating lives of these stations can be extended with substantial capital expenditures but OPG will incur these expenditures only if justified by prevailing economic, financing and market conditions.
- (3) 5,136 MW of capacity is not in service as a result of the short term lay-up of Pickering A and the longer term lay-up of Bruce A under OPG's nuclear recovery plan. See "*Nuclear Recovery Plan*".
- (4) OPG applied to the Canadian Nuclear Safety Commission to restart the four Pickering A units incrementally at approximately six to nine month intervals commencing in early 2002. See "*Nuclear Recovery Plan*".
- (5) OPG replaced the pressure tubes of Pickering A between 1984 and 1993 after the discovery of a design flaw. Thereafter, OPG extended the operating life estimate for Pickering A to 40 years because of these new pressure tubes and the operating condition of the existing steam generators.
- (6) OPG has agreed to enter into a long-term lease for the Bruce A and B stations, which is expected to close by the end of the second quarter of 2001.
- (7) Bruce Power recently announced its intention to restart two of the four nuclear units at Bruce A by 2003, provided it receives regulatory approval. See "*Bruce Decontrol*".
- (8) New capacity rating of 790 MW is effective January 1, 2001 to reflect new technical limits on maximum reactor power. Each Bruce B unit had been de-rated from 860 MW to 785 MW in January 1998.
- (9) Net in-service capacity of Bruce B increased to 3,160 MW effective January 1, 2001.
- (10) The percentage represents the average capacity factor for in-service units.
- (11) Numbers may not add up exactly due to rounding.
- (12) This figure is primarily due to the planned five week vacuum building outage at Pickering B described above.

### *Unit Lay-Up and Restart*

One of OPG's key strategic initiatives is the restart of the four laid-up units of the Pickering A station. The return to service of these units will add 2,060 MW of low cost and smog free nuclear production capacity. Subject to receiving Canadian Nuclear Safety Commission approval, OPG plans to return the first unit to service in early 2002, with the remaining three units being added at approximately six to nine month intervals thereafter. The total cost of this project, the majority of which is being expensed, is approximately \$1.1 billion, of which approximately \$200 million had been incurred as of December 31, 2000.

Arrangements with key suppliers for the Pickering A restart project are in place for the first unit and arrangements are expected to be in place for the remaining units so as to return them to service on schedule as described above.

Prior to the Canadian Nuclear Safety Commission making a licensing decision on the Pickering A restart, an environmental assessment under the *Canadian Environmental Assessment Act* was required. OPG prepared a draft environmental assessment report, which was reviewed by Canadian Nuclear Safety Commission staff, who then circulated the draft report for public and governmental review. Canadian Nuclear Safety Commission staff completed a final environmental assessment screening report and conducted public hearings in October and December of 2000 as part of its consideration as to whether to approve the environmental assessment report and proceed with the licensing of the Pickering A units' restart. In February 2001, the Canadian Nuclear Safety Commission released written reasons for its decision that the return to service of the Pickering A units is not likely to cause significant adverse environmental effects (taking into account the mitigation measures described in the screening report) and that public concern did not warrant a referral by the Federal Minister of the Environment to a mediator or review panel. As a result, the Canadian Nuclear Safety Commission will next proceed with the consideration of the licence application by OPG under the *Nuclear Safety and Control Act* (Canada). Licence hearings are scheduled for June 28, 2001 and August 9, 2001.

### ***Operating Life Assessment***

The initial design life for OPG's nuclear generating stations was 30 years. OPG undertakes a comprehensive inspection and testing program in order to ascertain the physical condition of its nuclear generating assets. The condition of the major components is assessed using a variety of inspection techniques such as ultrasonic, visual and functional testing which provide engineers with an assessment of the condition of such components relative to original design. Repeated inspection on testing during planned outages is used to establish degradation rates. The experience of other nuclear operators is also taken into consideration. This information is used to update the major component life cycle plan. OPG's current operating life estimates for its nuclear generating stations are based upon the results of this program to date and the previous operating history of the stations. OPG will continue to analyze information on the physical condition of its nuclear generating stations and develop correspondingly appropriate operational and maintenance activities.

In particular, as a key part of its nuclear recovery program, OPG has undertaken an ongoing program to assess the condition of key components of the system including its steam generators, fuel channels and related infrastructure including feeder pipes. As a result of these programs, OPG has been better able to quantify equipment degradation status, such as the extent of steam generator tube corrosion, feeder tube wall thinning and pressure tube/calandria tube spacer location and relocation issues. As of December 31, 2000, two-thirds of OPG's steam generators (over 70% of the tubes) had been inspected and the present condition of these components has been ascertained with a reasonable degree of certainty. On the basis of the steam generator program inspection results, periodic cleaning has been deemed necessary to slow down the degradation rates. OPG is currently implementing comprehensive operation and maintenance life cycle management plans at all operating stations aimed at enabling the steam generators to operate for the expected life of the station. A prognosis for the remaining life of each unit has been estimated and those at Pickering B and Bruce B will be most closely monitored. The life cycle management plans form the basis for the generation planning and budgeting year to year.

Results from the fuel channel inspection program continue to support the end of life projections for the fuel channels. Maintenance activities at the Pickering B and Bruce B stations to reposition the support springs in the fuel channels are planned over the next several years to ensure the end of life projections are achieved. The modular design of the reactors also allows for replacement of individual channels during planned outages, if required.

Feeder pipes are part of the piping system that carries hot water from the reactor to the steam generator. Thinning of feeder pipes was anticipated in the original design and is a phenomena which occurs at all OPG reactors. At some plants, the thinning rate is higher than expected. If not mitigated, this situation may require replacement of selected pipes before the projected end of life. A program is underway to identify solutions. This condition is most significant at the Darlington plant, but also affects the Bruce A and B and Pickering A and B stations to a lesser degree. There are a number of options for the management of feeder pipe thinning. The results of OPG's inspections to date indicate that this will likely require an expenditure of approximately \$50 million (total for four units at Darlington) and one to two months of additional outage time per unit, over the next decade. There

are some mitigation options which may reduce the outage time by as much as two-thirds. As additional testing is done, this strategy and its associated costs will be refined during 2001.

Feeder pipe cracking was recently experienced on two occasions at one CANDU plant located outside Ontario. The affected sections of pipe were replaced and the unit returned to service on both occasions. Extensive inspection was completed recently at a second plant located outside Ontario which did not reveal any evidence of cracking. OPG has not experienced any feeder pipe cracking at any of its nuclear facilities but will be undertaking inspections during regularly planned outages. OPG believes that feeder pipe manufacturing differences at OPG may make OPG's feeder pipes less susceptible to this phenomenon.

### ***Bruce Decontrol***

In July 2000, OPG, Bruce Power and British Energy plc ("British Energy") entered into a master agreement (the "Master Agreement") whereby OPG agreed to lease its Bruce A and Bruce B nuclear generating stations and sell certain related assets to Bruce Power. Bruce Power is a limited partnership composed of British Energy (79.8% interest), an international energy company operating reactors in the United Kingdom and the United States, Cameco Corporation (15% interest), a Canadian uranium producer, and the two main unions on the Bruce site, The Power Workers' Union (4% interest) and The Society of Energy Professionals (1.2% interest). The transactions contemplated by the Master Agreement are expected to close by the end of the second quarter of 2001, subject to the receipt of all required regulatory approvals. Upon closing, Bruce Power will assume control of the Bruce A and Bruce B nuclear generating stations. Bruce Power recently announced its intention to restart two of the four nuclear units at Bruce A by 2003, subject to certain conditions including receiving regulatory approval.

The operating lease would have an initial term of approximately 18 years and include options to extend the lease for up to another 25 years. The lease agreement would require an initial payment of \$625 million, payable in three instalments, with \$400 million payable on closing, subject to closing adjustments, and \$225 million payable in two instalments of \$112.5 million, no later than four and six years, respectively, from the date the transaction is completed. Bruce Power would also make annual lease payments during the initial term consisting of both fixed and variable payments. The variable payments, which include a share of net revenue above certain thresholds and supplementary payments for the management of used nuclear waste, are estimated to total approximately \$150 million in 2002. In aggregate, the initial payment and annual lease payments to OPG are estimated at \$3.1 billion. OPG will continue to be responsible for nuclear waste and decommissioning liabilities at the Bruce site. Bruce Power will pay OPG a fee to cover long-term management of any waste generated by Bruce Power's operation of the stations. OPG will be responsible for plant decommissioning after the reactors have been defuelled and the heavy water is drained.

The Master Agreement contemplates that the completion of the transaction and the date of Open Access may not coincide. Therefore, the parties have agreed to enter into a bilateral contract under which OPG will purchase all the output from the period commencing upon the closing of the transactions contemplated by the Master Agreement and ending when the retail market opens.

### ***CANDU Technology***

All of OPG's nuclear generating stations use CANDU reactors. CANDU is a pressurized-heavy-water, natural-uranium power reactor first designed in the 1960s by a consortium of Canadian government agencies and private industry. All nuclear reactors in Canada use the CANDU technology. It is also the power-reactor product marketed by Canada abroad. CANDU reactors are currently operating in Ontario, Québec, New Brunswick, Argentina, Romania and South Korea, and two units are under construction in China.

CANDU reactors are unique in their use of natural-uranium fuel and deuterium oxide, or heavy water, as both moderator to slow down the fission process and coolant within the reactor. The refuelling system is also unique in that CANDU reactors can be refuelled at full power. This is due to the subdivision of the core into hundreds of separate fuel channels each holding a single string of natural uranium fuel bundles, allowing for greater fuel efficiency. In contrast, U.S. reactors, which use enriched uranium fuel, must be shut down during refuelling which may require a planned outage of up to 30 days every 18 to 24 months.

Each CANDU unit is designed with a computerized reactor control system which controls reactor power and the transfer of heat generated in the fuel to the turbines. By changing the demanded power level to the control system, the unit operator can adjust the reactor power level and, therefore, electrical generation, from shut down to

full output. The system design also permits on-line maintenance, with redundancy features to improve reliability. Although the normal control process systems are reliable and capable of shutting down the reactor, the stations have also been designed with separate and independent multiple fail-safe safety systems for fast reactor shutdown, emergency cooling and radiation containment. All of OPG's reactors, other than those at the Pickering A station, have two physically separate and independent systems designed to shut down the reactor within two seconds of being activated. Each of these systems is independent of the primary control systems and includes multiple sensors for detecting emergency conditions. The first shutdown system consists of neutron absorbing rods suspended above the reactor which would fall automatically into the moderator upon detection of an emergency condition. The second shutdown system contains a neutron-absorbing solution which would be rapidly injected into the heavy water. The Pickering A reactors were originally designed with only one shutdown safety system which utilized two different shutdown mechanisms. The primary shutdown mechanism consists of fast-acting neutron absorbing rods. An additional slower-acting shutdown mechanism, which drains the reactor moderator to a dump tank is also present. An enhancement to the original shutdown system, which consists of an independent detection system, is being installed prior to the restart of Pickering A.

OPG's reactors also have an emergency core coolant injection system which would be activated in the event of a pipe break in the reactor coolant system. This system would inject ordinary water into the cooling system to ensure that coolant continues to circulate over the nuclear fuel bundles to prevent them from overheating. In addition, all of OPG's nuclear generating stations have a negative pressure containment system. Each reactor is enclosed in a thick-walled concrete containment building connected to a vacuum building by a large duct. If pressure in the containment building exceeds operating limits, pressure relief valves would automatically open and release any radioactive material into the vacuum building. The negative pressure within the vacuum building, together with steam suppression by a dousing system, would keep radioactive material safely contained within the vacuum building walls. Controlled venting, within permissible levels of release, would also be available for long-term pressure control through filtered-air discharge systems.

### ***Nuclear Recovery Plan***

Optimization of OPG's nuclear generation capacity has been an important part of OPG's strategic plan. OPG's nuclear generating stations performed well after they were initially brought into service. However, over the years, inadequate operational and maintenance practices contributed to declining nuclear production resulting from more frequent forced outages or extensions to planned outages. Maintenance backlogs grew and there were an increasing number of reportable events to the regulator, the Atomic Energy Control Board, which in turn resulted in increased regulatory scrutiny. OPG implemented various recovery initiatives in the early 1990s to address these operating difficulties. These initiatives did not identify or deal with the underlying causes due to inadequate planning, co-ordination, resources and accountability.

As a result, in 1997, OPG engaged a team of independent nuclear recovery experts to assess its nuclear operations. This team utilized an enhancement of a methodology developed and used by the United States Nuclear Regulatory Commission to successfully identify and rectify fundamental operating problems at U.S. nuclear generating stations in the 1980s.

The team classified OPG's nuclear operations as "minimally acceptable". OPG's operational and maintenance activities were below industry standards and its management systems were not capable of ensuring that these activities were being planned and executed in a rigorous and cost-effective manner. The team found an organizational culture not focused on efficient and effective operation. In addition, the team found evidence of deteriorating equipment at each nuclear generating station and concluded that OPG was not repairing equipment promptly enough to prevent further deterioration. The team also found that OPG's inspection program for its steam generators was inadequate. The team concluded that existing safety margins were deemed sufficient to protect employees, the public and the environment but OPG would have to implement significant operational and management changes in order to avoid regulatory intervention and restore OPG's nuclear operations to industry-leading standards of safety and performance. The team determined that the design of the CANDU reactor was not a contributing factor to OPG's declining nuclear performance.

OPG's operational difficulties were not unique. The U.S. nuclear industry experienced similar problems in the 1980s, which were largely rectified through the adoption of enhanced operating practices and industry-wide knowledge-sharing practices which form the basis of the practices currently being implemented by OPG.



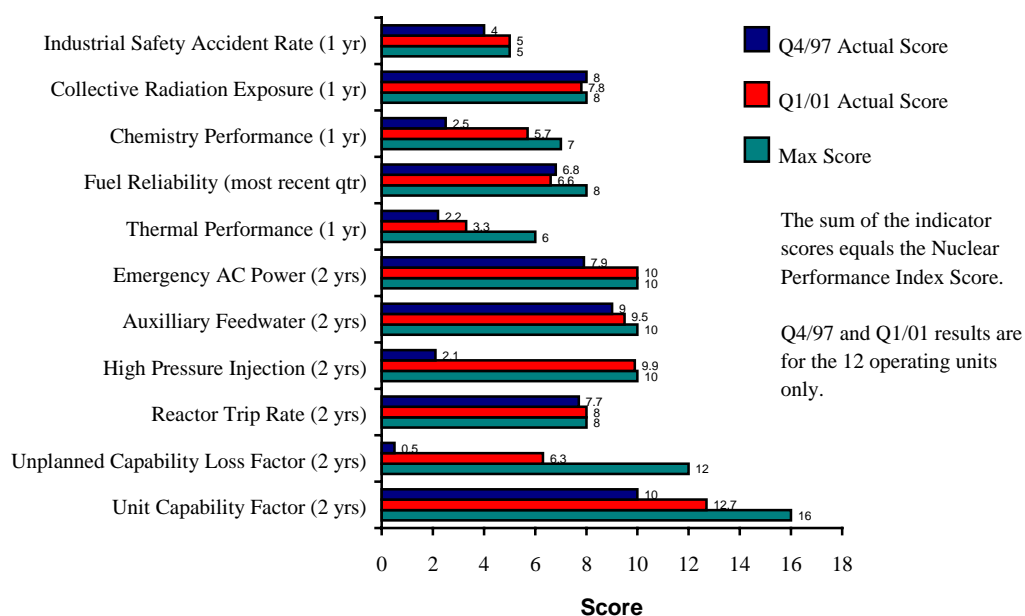
In conjunction with the independent nuclear recovery experts, OPG developed in the fall of 1997 a comprehensive nuclear recovery plan to improve the operating performance of its nuclear generating stations over a seven-year period. Under the plan, OPG is continuing to standardize its operations and implement initiatives to improve: accountability; management and operational control systems; maintenance and inspection programs; regulatory compliance; performance standards and employee training. OPG adopted a phased nuclear recovery strategy in order to focus qualified personnel and management resources on fewer units. As a result, the Pickering A station was placed in short term lay-up on December 31, 1997 and the Bruce A station was placed in longer term lay-up on March 31, 1998. This enabled OPG to focus its initial recovery efforts on the remaining 12 nuclear generating units at the Darlington, Pickering B and Bruce B stations. As at the end of 2000, OPG had spent approximately \$850 million of the \$1.4 billion budgeted for the nuclear recovery plan over the period from 1997 to 2004. These budgeted amounts exclude expenditures of approximately \$300 million in respect of the Bruce nuclear facilities which OPG would otherwise make if it had not entered into the lease agreement with Bruce Power. The new operators of the Bruce site will be responsible for any improvement expenditures in respect of the site after the transaction closes.

With the staffing, planning and execution of the nuclear recovery program well underway, attention is now focussed on returning the Pickering A station to service. The total project cost of returning the Pickering A units to service is expected to be approximately \$1.1 billion, the majority of which is to be expensed, of which approximately \$200 million has been incurred as of December 31, 2000.

As part of its nuclear recovery plan, OPG has adopted the standard nuclear performance index (NPI) sponsored by the American members of the Institute of Nuclear Power Operators (“INPO”) and the World Association of Nuclear Operators (“WANO”). The NPI quantifies the performance of nuclear generating stations with reference to eleven performance indicators, two-thirds of which are related to safety and one-third to production. OPG reports its results quarterly and annually to WANO. The performance of OPG’s in-service units for 1997 and the fourth quarter of 2000, compared to the maximum NPI score possible, are set out in the following chart:

## Nuclear Performance Index

### Comparison of Component Indicators



OPG met or exceeded 34 of its 47 key nuclear performance targets for 2000, including those for industrial safety and electricity production. Significant areas where targets were not met were the number of events reportable to the Canadian Nuclear Safety Commission and environmental non-compliance events.

### ***Regulatory Affairs***

OPG's nuclear operations are regulated by the Federal Government under the *Nuclear Safety and Control Act* (the "NSC Act"). In addition, OPG is subject to the *Nuclear Liability Act* (the "NLA").

The NSC Act, which replaced the federal *Atomic Energy Control Act* effective May 31, 2000, updates the prior legislation which had been enacted in the 1950's and broadens certain powers of the Canadian Nuclear Safety Commission, the successor to the Atomic Energy Control Board, to regulate nuclear operators. All construction requirements, equipment, safety systems and operating limits for OPG's nuclear generation stations are subject to the approval of the Canadian Nuclear Safety Commission. OPG is required to report regularly to the Canadian Nuclear Safety Commission, which continually monitors the safety performance of OPG's nuclear generating stations. See "*Business of OPG – Regulation – Nuclear Regulation*".

All of OPG's nuclear operating licences were reissued as of April 1, 1999 when OPG acquired the generation business of Ontario Hydro. The operating licences for Pickering A and B were renewed on March 28, 2001 for a 27-month period effective April 1, 2001; the operating licences for Bruce A and Bruce B expire on August 31, 2002 and October 31, 2001, respectively; and the Darlington operating licence expires on February 28, 2003. Each of these licences was renewed for terms of approximately two years, the standard term granted by the Canadian Nuclear Safety Commission for power reactor operating licences, and was renewed subject to a variety of terms and conditions relating to the operation of the facilities. The Darlington licence was granted for a term of 27 months. The reason for this term was to account for the Canadian Nuclear Safety Commission's future hearing calendar.

The NLA governs the liability of licensed operators of nuclear generating stations arising from prescribed nuclear incidents. The NLA provides strict liability to the operators for third party claims and requires these operators to purchase nuclear liability insurance from the Nuclear Insurance Association of Canada in specified amounts. Currently, OPG must maintain \$75 million of nuclear liability insurance for each of its nuclear generating stations. The NLA also puts a cap on the level of liability at the insurance level of \$75 million. The NLA is currently under review, which will likely result in a requirement for higher insurance coverage amounts. See "*Business of OPG – Regulation – Nuclear Regulation*".

### ***Nuclear Fuel Procurement***

OPG has entered into various supply contracts for uranium concentrates with suppliers in different geographic regions with varying contractual terms in order to mitigate against price and supply risks. OPG uses one contractor to convert its uranium concentrates into uranium dioxide but has made arrangements with this contractor for an alternate conversion facility in the event the primary conversion facility cannot satisfy OPG's requirements. Price increases for uranium dioxide are limited by contractual terms.

OPG has contracted with two independent manufacturers to process uranium dioxide into finished nuclear fuel bundles. The contracts are currently short term and OPG is in the process of reviewing and renewing these contracts. OPG's current policy is to store approximately six months of nuclear fuel inventory at each of its nuclear generating stations in order to protect itself from supply disruptions. OPG's inventory currently exceeds this target level because of reduced nuclear generation but the company expects that this inventory will return to its target level in 2002.

### ***Ancillary Operations***

#### ***Heavy Water Management***

OPG's nuclear generating stations contain approximately 13,000 tonnes of deuterium oxide or heavy water, which is required to operate the CANDU reactors. OPG also owns approximately 1,500 tonnes of heavy water that has been designated as future use inventory. OPG's heavy water was produced at two heavy water plants at the

Bruce site between 1973 and 1997. One of these heavy water plants has been decommissioned; the other ceased operations in 1997 and is expected to be fully decommissioned by the end of 2003. OPG believes that its inventory of heavy water will be more than sufficient to replenish supplies as a result of normal operating losses at its nuclear generating stations during the expected operating lives of the stations. If the operating lives of these stations are extended, additional supplies of heavy water may have to be purchased from third parties. OPG has in the past sold, and intends to continue to sell, surplus heavy water.

### *Tritium Removal*

Tritium is a radioactive substance that is released into the heavy water moderator of CANDU reactors as a by-product of the nuclear fission process. OPG owns a facility at its Darlington site that removes tritium from the heavy water used at its nuclear generating stations in order to control the occupational dose exposure to its staff and the release of tritium oxide to the environment. The facility will also be used to detritiate heavy water during the decommissioning of OPG's nuclear generating stations. Some tritium is sold to government-approved organizations for authorized commercial uses.

### *Nuclear Waste Management and Decommissioning*

As they operate, OPG's nuclear reactors produce used nuclear fuel bundles (high-level radioactive waste), other material that has come in close contact with the reactors but is less radioactive than used fuel, such as ion exchange resins and other structural material and reactor equipment, including pressure tubes (collectively, intermediate-level radioactive waste), and other material used in connection with station operation that is not highly radioactive, such as tools and protective clothing (collectively, low-level radioactive waste). OPG is responsible for the ongoing long-term management of these wastes. In addition, OPG will have to manage radioactive waste associated with decommissioning of its nuclear generating stations after the end of their useful lives. The handling and disposal of radioactive material in Canada is subject to federal legislation. See "*Business of OPG – Regulation – Nuclear Regulation*".

### *Federal Government Policy*

Since 1978, Atomic Energy of Canada Limited ("AECL"), under the direction of the Federal Government, and OPG have been researching the concept of disposing of nuclear waste in long-lasting containers that would be placed approximately 1,000 metres underground in stable granite rock ("deep geological disposal").

In July 1996, the Federal Government announced a policy framework to ensure that the disposal of radioactive waste would be carried out in a safe, environmentally sound, comprehensive, cost-effective and integrated manner. A Federal environmental assessment review panel (the "Seaborn Panel") reported to the Federal Government in March 1998 after a 10 year review of the deep geological disposal concept. The Seaborn Panel concluded that the technical safety of the deep geological disposal concept was adequately demonstrated for a conceptual stage of development but that broad public support had not been demonstrated. The Seaborn Panel recommended, among other things, the creation of an independent agency to manage used nuclear fuel, the establishment of a segregated fund (funded by producers and owners of radioactive waste) to finance disposal costs, and the study of alternatives to the deep geological disposal concept.

In December 1998, the Federal Government announced its response to the Seaborn Panel's report. The Federal Government will require the producers and owners of radioactive waste in Canada to establish a waste management organization, incorporated as a separate legal entity, with a mandate to manage and co-ordinate the full range of activities relating to the long-term management of radioactive nuclear fuel waste. Under this approach, the producers and owners of this radioactive waste would appoint the board of directors of this waste management organization and fund all of its activities by establishing a segregated fund. The waste management organization would report to the Federal Government setting out its preferred approach to the long-term management of radioactive nuclear fuel waste.

In response to the Federal Government's comments, OPG is studying options for the long-term management of used fuel while maintaining the capability to implement the deep geological disposal concept. OPG has held discussions with the Province, the Federal Government and other Canadian nuclear waste producers

regarding the establishment of a nuclear waste management organization for the life cycle management of nuclear waste.

On April 25, 2001, the Federal Government gave first reading to Bill C-27, the *Nuclear Fuel Waste Act*. This is a key part of the Government's strategy on nuclear fuel waste management. See "*Provisions for Future Nuclear-Related Costs*". See "*Provisions for Nuclear-Related Costs*".

#### *Current Management Practices*

Bundles of used nuclear fuel from OPG's reactors are temporarily stored in water-filled pools known as "wet bays" at its nuclear generating stations for a "cooling-off" period of at least ten years during which their radioactivity is substantially reduced. Each nuclear generating station has sufficient capacity to store used nuclear fuel in wet bays corresponding to approximately 15 to 20 years of operation.

After bundles of used nuclear fuel have been stored for their cooling-off period, they are transferred from the wet bays to above-ground concrete canisters ("dry storage") at the corresponding nuclear station site. Currently, used nuclear fuel is in dry storage only at the Pickering site. Construction of a used fuel dry storage system at Bruce has been approved by OPG at an estimated cost of \$87 million, to provide additional storage capacity when the Bruce wet bays become full in 2003. The regulator's decisions to permit used fuel dry storage at the Bruce site has been challenged in court. To date, such challenges have been unsuccessful. See "*Business of OPG – Legal Proceedings*". OPG is planning to establish dry storage facilities at the Darlington site by 2007.

All of OPG's low and intermediate-level radioactive waste is stored at its radioactive waste management facility at the Bruce site. This facility, which will continue to be owned and operated by OPG after the decontrol of the Bruce site, operates under separate licences issued by the Canadian Nuclear Safety Commission. OPG expects that all of the low-level and intermediate-level radioactive waste produced by OPG's nuclear facilities and by Bruce Power following the lease of the Bruce A and Bruce B nuclear generating stations will continue to be stored at this facility, and that its operations will be expanded as necessary.

OPG's current financial planning assumptions are that a deep geological disposal facility for used nuclear fuel will be available in 2025, and a low-level radioactive waste disposal facility will be available in 2015. Intermediate level radioactive waste, depending on its radioactive content, will be co-disposed with low-level radioactive waste commencing in 2015, and with used nuclear fuel commencing in 2034. In August 2000, OPG submitted a management plan to the Canadian Nuclear Safety Commission entitled "Used Fuel Long-Term Management – Assumed Reference Plan". This management plan proposed a revision to the reference date for an in-service used fuel disposal facility from 2025 to 2035.

OPG has adopted a deferred dismantling strategy for the decommissioning of its nuclear generating stations. Under this strategy, OPG intends to defuel each station immediately after it has ceased operations and prepare the station for storage and monitoring. Thereafter, OPG intends to monitor the station for approximately 30 years, after which it will dismantle the station over a period of approximately ten years. This deferred dismantling strategy has been communicated to the Canadian Nuclear Safety Commission through Preliminary Decommissioning Plans for all of OPG's nuclear generating stations. The Canadian Nuclear Safety Commission issued an operating licence for the Bruce A station in 2000 based on, among other things, its review of this strategy.

#### *Provisions for Future Nuclear-Related Costs*

OPG's nuclear facilities commenced production in the early 1970s but until 1982 no accounting or funding provisions were made for liabilities related to the estimated future costs of its nuclear waste management and decommissioning programs. In 1982, Ontario Hydro began collecting provisions through its rates in amounts that, together with interest accumulated on provision balances, were calculated to cover all such future liabilities with the exception of costs related to dry storage of used fuel during the operating lives of associated nuclear generating stations, which are treated as normal operating or capital costs. These provisions, which were carried in Ontario Hydro's accounts at \$2,344 million as at December 31, 1998, were not placed in a segregated fund but were used for general corporate purposes and therefore served to reduce borrowing requirements. Effective April 1, 1999, the Province agreed that the Province or its agent would take responsibility for certain nuclear waste management and decommissioning liabilities that were incurred prior to April 1, 1999.

On April 1, 1999, the obligation to fund the balance of the costs of nuclear waste management and decommissioning was transferred to OPG. Pending the establishment of segregated funds, at the end of 2000 OPG had accumulated a net balance of approximately \$781 million in a separate account to provide for these costs. For the 2001 to 2004 fiscal years, OPG plans to contribute approximately \$430 million annually to this nuclear waste management and decommissioning account. These contributions will be used to fund future expenditures based on waste management reference plans, decommissioning plans and associated cost estimates. The level of contributions beyond the 2004 fiscal year will be dependent on any changes to the plans and associated cost estimates, as well as any changes to the remaining planned operating lives of individual generating stations. Cost estimates reflect external advice as well as international benchmarks. OPG's estimates of the total present value of its future nuclear waste management and decommissioning costs (including its responsibilities in connection with the Bruce site) as of December 31, 2000 are set out in the following table:

**Present Value of Nuclear Waste Management  
and Decommissioning Cost Estimates**

(millions of dollars)

**December 31, 2000**

Incurred liability::

Decommissioning .....	\$2,417
Waste management .....	<u>4,561</u>
	6,978

Future liability <sup>(1)</sup> .....	<u>434</u>
Total liability.....	\$7,412
Less: Nuclear liability agreement allocation to the OEFC <sup>(2)</sup> ..	2,622
Less: OPG segregated fund.....	<u>781</u>
Net unfunded liability .....	<u><u>\$4,009</u></u>

Notes:

- (1) Represents estimated liabilities for nuclear waste that would be created at OPG's Pickering, Bruce and Darlington nuclear generating stations during their remaining planned operating lives.
- (2) OPG and the Province are negotiating a nuclear liability agreement, described below, under which the Province or its agent would provide a degree of risk sharing with OPG in relation to certain nuclear waste management and decommissioning costs. The proposed allocation to the Province is based on principles contained in a term sheet that is to form the basis of a definitive agreement between OPG and the Province. There can be no assurance that a definitive agreement will be executed on these terms. See "*Business of OPG – Risk Factors – Nuclear Operations*" and Note 7 to the Corporation's audited consolidated financial statements for the year ended December 31, 2000.

On April 25, 2001, the Federal Government gave first reading to Bill C-27, the *Nuclear Fuel Waste Act* (the "NFWA"). This is a key part of the Government's strategy on nuclear fuel waste management. It calls for nuclear utilities to form a waste management organization that would report regularly to the Government and would make recommendations on long-term management of nuclear fuel waste.

The NFWA would also require nuclear utilities to establish a trust fund to finance implementation of these recommendations. In this regard, OPG would be required to make, either directly or through a third party, a deposit of \$500 million into its trust fund. Further, the NFWA would require that each year thereafter, OPG deposit an additional \$100 million into its trust fund. The NFWA would require a proposed waste management organization to submit, within three years of the NFWA coming into force, a study setting out the approaches (including deep geological disposal, storage at nuclear reactor sites and centralized storage as well as financing of same) to managing nuclear fuel waste as well as its final recommendation. The study would be submitted to the Minister of Natural Resources, Canada who would make his recommendation acceptable to the federal cabinet from one of the recommended approaches.

As part of the reorganization of Ontario Hydro, OPG and senior staff at the Ontario Ministry of Finance reached an understanding on key principles for the development of a nuclear liability agreement under which the Province or its agent would provide a degree of risk sharing with OPG in relation to certain nuclear waste management costs primarily relating to high level radioactive waste. If those costs were to exceed certain thresholds, OPG's liability for nuclear waste management costs would effectively be limited. OPG is responsible

for all decommissioning liabilities and for all nuclear waste management liabilities (including funding obligations) until a definitive nuclear liability agreement has been negotiated and executed with the Province and all necessary authorizations, including Orders in Council, have been obtained. See *“Business of OPG – Risk Factors – Nuclear Operations”*.

OPG currently contributes to a segregated fund which was established upon the incorporation of OPG to provide for the future costs of waste management and decommissioning of OPG’s nuclear facilities. It is currently envisaged that the segregated fund will be divided into two, a risk-shared fund, containing contributions primarily for used fuel management, and a non-risk shared fund containing contributions primarily for decommissioning. OPG’s annual contributions to the segregated funds would be made over the remaining financial planning lives of its nuclear generating stations. Together with earnings on accumulated funds, these contributions would be calculated to cover future costs based upon the estimated unfunded liability, net of the OEFC’s contribution. OPG’s contributions to the segregated funds and any consideration payable in the year to acquire all or part of an interest in such funds are deductible under the proxy tax regime currently applicable to the Corporation and certain of its subsidiaries by virtue of the Province’s 100% ownership of the Corporation. See *“Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership Status – Proxy Taxes”* and See *“Business of OPG – Risk Factors – Nuclear Operations”*.

Once the external segregated funds contemplated by the proposed nuclear liability agreement are established, OPG’s accumulated contributions currently maintained in the internal account, together with future contributions by OPG and other stakeholders (such as the Province), would be placed in these external funds. Under the proposed nuclear liability agreement, the Province would contribute a total of approximately \$2,344 million present value as at January 1, 1999 (\$2,622 million at January 1, 2001) to the segregated funds or provide financial assurance in lieu of this contribution. At the end of 2000, OPG had accumulated a net balance in the internal account of approximately \$781 million. Cash contributions of approximately \$430 million per year will be made by OPG from 2001 to 2004. OPG expects that these external funds would be administered by a trust or other agency and will not form part of the Corporation’s assets.

The Canadian Nuclear Safety Commission published its Regulatory Guide on Financial Guarantees for the Decommissioning of Licensed Activities in June 2000. This Regulatory Guide sets out the requirements for the establishment and maintenance of measures to fund the decommissioning of licensed facilities, including the management of all wastes associated with the licensed activity. This Regulatory Guide permits this financial guarantee to be in the form of a government guarantee. Under the proposed nuclear liability agreement, the Province or its agent would, if required, provide this guarantee for an annual fee of 0.5% of the guarantee given.

In the case of the lease of the Bruce A and Bruce B nuclear generating stations to Bruce Power, OPG will assume long-term responsibility for the used fuel and low and intermediate level radioactive waste generated by Bruce Power, as well as responsibility for eventual decommissioning. Radioactive waste materials will be turned over to OPG during the term of the lease in accordance with nuclear waste agreements between the parties. The CNSC will require financial assurances regarding the discharge of liabilities. OPG will arrange with the Province for the financial guarantee assurances associated with these liabilities.

## **Human Resources**

OPG has approximately 15,000 full-time employees and 2,000 contract staff. The majority of OPG’s full-time employees are represented by two unions; approximately 9,200 by the Power Workers’ Union (the “PWU”) and approximately 4,300 by The Society of Energy Professionals (the “Society”). Approximately 49 employees are represented by the Security, Police and Fire Professionals of Canada. OPG’s construction employees are represented primarily by 18 construction trade unions through the Electrical Power System Construction Association (the “EPSCA”). There are approximately 1,500 executive and managerial staff that are not represented by a union.

The Society and OPG have had a longstanding provision in the Society’s collective agreement that provides for third party arbitration rather than strike/lockout in the event the parties are unable to reach agreement during collective agreement renewal negotiations. As such, the Society has never engaged in a work stoppage. The last PWU strike was in 1985 and lasted for 10 days. The parties quickly agreed to third party arbitration to resolve their issues. The tenor of negotiations with both unions has varied with the economic climate in Ontario, ranging from

challenging and difficult to conciliatory and collaborative. This has resulted in complex collective agreements that have placed constraints on management's flexibility to operate its business.

In June 1998, the AECB and OPG jointly established an independent review panel to review labour relations at OPG's nuclear division. The panel's conclusion was that labour relations at that time could have affected the implementation of OPG's nuclear recovery plan and were not conducive to long-term high performance, but did not pose a direct or immediate threat to nuclear safety. OPG addressed all of the issues identified by the panel and now sets and measures its progress against targets established as part of the nuclear recovery plan.

OPG believes that its working relationship with its represented employees has steadily improved over the past five years, consistent with an acknowledgement of the necessity of working cooperatively in the new competitive marketplace. In 1996, the PWU and Ontario Hydro negotiated a four year agreement in order that there be labour stability as changes in the electricity industry took place. In 1998, all parties worked cooperatively to allocate staff to the five Ontario Hydro successor companies, and to reduce a backlog of grievances from over 3,000 to approximately 300.

In 1999, the Society, the PWU and OPG established a "Partnership Agreement" setting out a series of principles that guide the parties in managing day-to-day labour and employment matters. These principles established the framework for the most recent round of collective agreement negotiations with both unions. The Partnership Agreement is also the framework within which the parties will work to manage new employment-related initiatives in OPG for the future. One of the successful outcomes of the Partnership Agreement was the negotiation of renewal collective agreements with the PWU for both the nuclear and non-nuclear business units for the period from April 1, 2000 to March 31, 2002. OPG and the Society also negotiated renewal collective agreements effective from January 1, 2001 to December 31, 2003. OPG believes that recent negotiations with both the PWU and the Society reflect a material improvement in its relationships with these unions.

These improved relationships have also enabled OPG, the PWU and the Society to negotiate provisions in the collective agreements that facilitate the implementation of OPG's decontrol commitments. These provisions include the lease of the Bruce A and Bruce B nuclear generating stations and the strategic reorganization or outsourcing of support services and non-core businesses, such as information services through the joint venture with Business Transformation Services Inc. described under "*Business of OPG – Information Technology*" and research and development through Kinectrics Inc. In addition to these provisions, OPG's collective agreements contain enhanced provisions for the planning and redeployment of staff and provide a process for the use of purchased services. New grievance resolution procedures in both the PWU and Society collective agreements provide a more streamlined process to handle complaints and help minimize the potential for grievance backlogs. The collective agreements with the Society provide an opportunity to tie compensation to performance and include a commitment to mediation and arbitration with no strikes or lockouts until 2005. The parties have agreed that, upon the completion of OPG's nuclear recovery plan, they will discuss whether or not to merge the non-nuclear and nuclear collective agreements.

Improved partnership between OPG and the unions is also reflected in the establishment of a corporate-wide goal-sharing program. This is a self-financing incentive plan that gives unionized employees a stake in OPG's financial success through the opportunity to share in earnings in excess of business plan targets. This incentive program, together with incentive opportunities for non-represented employees, means all OPG employees now have a financial stake in OPG's success. OPG believes that these plans will contribute significantly to improved employee understanding of the drivers of business success, and will also promote and foster innovation, flexibility and a continuous raising of the performance bar.

EPSCA, of which OPG is a member, recently negotiated renewal collective agreements in the power systems construction sector with all but one of the Building Trade Unions with which it negotiates on behalf of OPG. The term for all of the EPSCA collective agreements is from May 1, 2000 to April 30, 2004. The Brick and Allied Craft Union has filed a certification application with OPG to displace bargaining rights currently held by the International Union of Bricklayers in the power systems construction sector. The International Union of Bricklayers is opposing the application. At this time, it is not expected that this matter will negatively impact OPG's operations.

OPG also negotiates directly with two Building Trade Unions in the construction sector, the Machinists and the Canadian Union of Skilled Workers ("CUSW"). OPG negotiated renewal collective agreements with these two

Building Trade Unions also for the period from May 1, 2000 to April 30, 2004. OPG has also negotiated a new collective agreement effective December 28, 2000 to January 1, 2003 with the Security, Police and Fire Professionals of Canada (the “SPFPC”).

OPG’s latest renewal collective agreements with the PWU, the Society and the SPFPC provided employees represented by these unions with a holiday on contributions to the OPG Pension Plan, which extends over part of the term of the respective agreements. PWU-represented employees began an 18-month contribution holiday on April 1, 2000, and Society- and SPFPC-represented employees began a nine-month contribution holiday on January 1, 2001. The contribution holidays for all of these groups of employees ends on September 30, 2001.

In addition to maintaining good business relations with OPG’s unions, the human resources group plays an important role in supporting the achievement of corporate objectives by delivering programs that help prepare OPG for competition in the Ontario market after Open Access. Examples of activity in this area include programs that attract and retain skilled personnel, enhance the business and financial orientation of employees, ensure that OPG has appropriate succession planning and leadership development, and support increased focus on safety and wellness. See “*Business of OPG – Health and Safety– Occupational Health and Safety*”.

## **Health and Safety**

### ***Occupational Health and Safety***

OPG is committed to the safe operation of all its facilities and to workplace health and safety excellence. This commitment stems in part from the fact that OPG’s historic health and safety record was suboptimal. OPG’s goal is to achieve top tier wellness and conventional safety performance by 2003 compared to other similar electrical generation companies and utilities. Corporate performance measures for safety address accident severity and injury rates are monitored quarterly and annually. Local safety measures are also required and safety criteria will be incorporated into the goal-sharing compensation program applicable to OPG’s unionized employees. In 2000, OPG’s conventional workplace safety performance improved significantly over 1999. Management and employee compensation is tied, in part, to success in achieving this goal.

OPG’s conventional safety management system is being enhanced to conform with the British Standards Institute’s Occupational Health and Safety Assessment Series 18001, which is consistent with the ISO 14001 standard adopted for OPG’s environmental management system. Standards and procedures are being updated throughout OPG in accordance with this model.

OPG’s risk management process for its employees and contractors is integral to the safety management system. As part of this process, Joint Health and Safety Committees across OPG receive extensive training. Potential risks have also been identified throughout the organization and operational controls implemented to mitigate these risks in accordance with the *Occupational Health and Safety Act* (Ontario). In addition, comprehensive radiation protection training and other programs have been developed to address risks associated with ionizing radiation in nuclear operations, as required by the *Nuclear Safety and Control Act* (Canada) and associated regulations.

OPG is also establishing a workplace health system based on Health Canada’s workplace health management model. OPG has embarked upon a range of health support initiatives, including disability and attendance management, and a broad range of wellness support programs for employees and their families. Employee sick leave statistics are closely monitored as part of corporate performance measurement, and are linked to and supported by a state-of-the art disability management program. Attendance management programs are in place to encourage employees to adopt healthy lifestyles and to assist them with workplace issues and stress management through education and a variety of other activities.

### ***Radiation Safety***

OPG manages a radiation protection program designed to prevent detrimental health effects to employees and members of the public. OPG follows developments in the field of radiation protection as documented by the International Commission on Radiological Protection (the “ICRP”), the United Nations Scientific Committee on the Effects of Atomic Radiation and the U.S. National Academy of Sciences. The ICRP is widely recognized as the



main source of expert advice regarding protection from the harmful effects of ionizing radiation. This agency periodically issues recommendations concerning principles of radiation protection. The recommendations of the ICRP are usually adopted without significant change by most countries and are incorporated into their laws. In Canada, the Canadian Nuclear Safety Commission is the Federal agency that regulates radiation protection. The Canadian Radiation Protection Regulations are based on the recommendations of the ICRP and OPG nuclear facilities conform to these regulations

Radiation exposures to plant personnel and the public are limited by station design and by adherence to approved operating procedures. Over the years, OPG has been a leader in the application of the principles of “ALARA” (keeping radiation doses As Low As Reasonably Achievable). The CANDU station design has steadily improved with each new plant. Notable achievements were the elimination of radiological source terms (such as Cobalt-60), the implementation of a tritium displacement and removal strategy and the integration of enhanced shielding in the design of plants. OPG’s administrative limits for occupational exposure are set below regulatory limits to ensure that regulatory limits are not exceeded. Operating targets for radiological emissions are even more restrictive, and are typically small fractions of the regulatory limits.

Each site has a radiation protection department which continually reviews and assesses the radiation control program. The department’s staff complement includes health physicists who have been certified by the Canadian Nuclear Safety Commission. The certified health physicists are charged with monitoring compliance with radiation protection policies and regulations.

All persons who enter the operating area of a nuclear facility are assigned a radiation protection qualification that determines access and working rights. Workers that perform radioactive work are extensively trained to look after their own radiation protection. Radioactive work is done in accordance with approved work plans or procedures.

A licensed dosimetry program monitors radiation exposures of workers. Results of the dosimetry program are routinely reported to Federal agencies. Potential radiation exposure of the public is monitored through a comprehensive environmental program that has been designed to monitor site specific exposure pathways to a member of the public, such as drinking water and foodstuffs. The results of this monitoring program are reported annually to the Canadian Nuclear Safety Commission.

As a condition of receiving operating licences for its nuclear facilities, OPG has developed comprehensive emergency plans which detail its planned response to reactor accidents as well as accidents involving the transportation of radioactive materials. These plans dictate how OPG will work with municipal, regional, provincial and Federal agencies to safeguard station personnel and members of the public in the unlikely event of a radiation emergency at one of OPG’s facilities. Plant staff regularly participate in emergency exercises to maintain their skills and to continuously improve response capability for such events.

## **Intellectual Property**

In connection with the reorganization of Ontario Hydro, Ontario Hydro’s patents and certain other transferable intellectual property assets, including trade-marks, copyrights, and industrial design and technical information (including know-how and technical knowledge) were transferred to certain successor corporations. Certain of the intellectual property assets transferred to OPG have, in turn, been licensed by the Corporation to Hydro One and the Electrical Safety Authority for use solely in connection with such parties’ business; OPG has been granted corresponding licences as part of the reorganization. Licences of intellectual property assets among the Corporation, Hydro One and the Electrical Safety Authority are generally non-exclusive, royalty free and perpetual, and cannot be terminated without the written consent of the other party. Intellectual property assets of Ontario Hydro used by OPG in connection with its electricity generation business that, by law, were non-transferable are held in trust or otherwise by OEFC for the benefit of the Corporation. Agreement in these matters has been reached and OPG is waiting for the finalized document.

OPG has transferred certain material testing and inspection technology to Integran Technologies Inc. (“Integran”), of which OPG owns approximately 49%. Integran develops and markets two complementary and cost-effective technologies – grain boundary engineering and nanocrystalline materials. These technologies modify the

atomic structure of common materials and have a broad range of practical applications. In its most commercially advanced application, Integran provides high performance lead acid battery grids that promise to significantly increase energy density and/or battery life for automotive and stand by power applications.

## **Research and Development**

In August 2000, OPG transferred certain assets (including many patents) relating to its Ontario Power Technologies (“OPT”) division to Kinectrics Inc., a new independent science and engineering services company, in return for a 90% interest in Kinectrics Inc. OPT conducted technology research, design and development for OPG and sold research and development products and services to other energy and industrial customers worldwide. The remaining 10% interest is owned by C-SAT Technologies Inc. (“C-SAT”), a consortium comprised of AEA Technology, plc and the partnership of Canatom NPM Inc. and Sciencetech Canada Inc. Following preparation of Kinectrics Inc. financial statements for 2001, C-SAT has an opportunity to increase its interest in Kinectrics Inc. to 50%, subject to purchase rights exercisable by either party.

As the successor to OPT, Kinectrics Inc. plans to leverage over 85 years of service to Ontario Hydro and its successor companies to provide advanced technical services to OPG and other clients in the North American energy industry. Kinectrics Inc. employs approximately 300 scientists, engineers and other staff. It is ISO 9001-registered and its expertise encompasses most aspects of electricity industry technologies including: electrical power systems; materials and components; nuclear systems and processes; civil structures and environmental and chemistry issues. Among other initiatives, Kinectrics Inc. is collaborating with Siemens Westinghouse Power Corporation (“SWPC”) to build, commission and operate a 250 kW combined heat and power system based on SWPC’s solid oxide fuel cell technology, which will be the world’s largest pre-commercial demonstration of this technology to date. In addition, Kinectrics Inc. and other partners are field testing micro-turbine units for use in potential distributed power generation applications.

## **Supply Chain**

In 2000, OPG joined 20 major U.S.-based energy sector companies in investing in The Pantellos Group, an e-commerce marketplace created to provide value-added services and solutions for its members’ supply chain functions. Pantellos is currently expanding its operations into the European and Asia-Australia energy sectors. OPG anticipates that its investment and membership in the Pantellos marketplace will enable it to leverage a number of commercial opportunities offered by the company. These opportunities will allow OPG to realize supply chain process and price efficiencies and drive operational improvements and efficiencies through strategic partnering with and through Pantellos.

## **Venture Capital**

OPG Ventures Inc., a wholly owned subsidiary of OPG, was incorporated in March 2001 for the purpose of investing up to \$100 million over the next three years in emerging technologies related to the energy industry. OPG Ventures Inc.’s strategy will be to optimize financial returns by making equity investments in well-run private companies which have enabling or break-through technologies and who are at the advanced start-up or later stage of growth.

## **Information Technology**

OPG’s competitiveness depends in part on its ability to effectively implement best practices and leading edge information technology systems and operations. OPG is implementing and supporting the information technology systems necessary to manage the changes and new opportunities in Ontario’s deregulated electricity market and the emerging North American energy markets. These systems integrate business processes to facilitate OPG’s participation in the IMO-administered market and other interconnected markets, and include systems for production scheduling and dispatch, spot market bidding and settlement processes, customer information and services, and risk management.

OPG has implemented a number of strategies to enhance the management of the information systems support for its business units. These include: enhanced information technology expertise through training and hiring, continued reductions in the cost of information technology services, and the successful delivery of large scale

projects, such as the fossil and hydroelectric systems restructuring and rebuilding of the data centre and communications networks. In November 2000, OPG entered into an agreement with Business Transformation Services Inc. (“BTS”), a wholly owned subsidiary of Cap Gemini Ernst & Young Canada Inc., to transfer the operation and support of OPG’s information services to New Horizon System Solutions Inc. (“New Horizon”). New Horizon is a joint venture that is owned 51% by BTS and 49% by OPG. Approximately 600 employees from OPG’s Information Services Group transferred to New Horizon on February 1, 2001. New Horizon will perform infrastructure management, application development, application support and maintenance, network management, data centre operations, and help desk support services for OPG on a contract basis. Although New Horizon initially will deliver information technology services exclusively to OPG, it plans to offer information technology services throughout the energy industry. OPG believes that the New Horizon joint venture will allow it to reduce the costs associated with managing and maintaining information systems internally, while allowing management to focus on core business priorities. The joint venture will also assist OPG in scaling its information technology resources appropriately as it implements measures to meet its decontrol commitments.

OPG recently launched the EBT Express joint venture with Toronto Hydro Corporation. EBT Express is an electronic clearinghouse providing e-commerce services for retail transaction management to market participants in the energy sector including utilities, retailers and other energy services providers. Services offered by EBT Express are expected to contribute to the timely opening of the retail electricity market in Ontario by removing barriers to entry and may also create other commercial opportunities for OPG and Toronto Hydro.

## **Insurance**

The principal types of discretionary insurance carried by OPG include commercial general liability, all risks property, boiler and machinery breakdown, including statutory boiler and pressure vessel inspections, and business interruption. In addition to covering OPG’s non-nuclear facilities, this insurance applies to the conventional operations at OPG’s nuclear generating stations. OPG also maintains property insurance for damage to the nuclear portions of its generating stations which complements the conventional property insurance program. Finally, OPG purchases insurance coverage as required by statute, namely owned and leased automobile and nuclear liability. OPG believes that the coverages, amounts and terms of its insurance agreements are consistent with prudent Canadian industry practice.

OPG maintains \$75 million of nuclear liability insurance, for which there is no deductible amount, for each of its five nuclear generating stations as required by the *Nuclear Liability Act* (Canada) (the “NLA”). The NLA is currently under review, which could result in a requirement for increased insurance coverage. OPG has been advised by its nuclear liability insurers that it would be able to obtain nuclear liability insurance in respect of any increased coverage requirements. OPG expects that the incremental cost of such coverage would not have a material adverse effect on its business, results of operations, financial condition or prospects. See “*Business of OPG – Regulation – Nuclear Regulation*”.

## **Relationship with the Province and Others**

### ***Provincial Authority***

As a corporation governed by the *Business Corporations Act* (Ontario), the Corporation’s management is supervised by its Board of Directors which is obligated to act in the best interests of the Corporation. The Province owns all of the Corporation’s issued and outstanding common shares and thereby has the power to determine the composition of the Corporation’s Board of Directors.

The OEB, the principal regulator of Ontario’s restructured electricity industry, is an independent quasi-judicial tribunal created by the *Ontario Energy Board Act, 1998* (the “OEB Act, 1998”), reporting to the Ontario legislature through the Ministry of Energy, Science and Technology. Although the Province appoints all members of the OEB and determines its composition from time to time, the OEB is independent of that Ministry and other provincial agencies in discharging its functions and responsibilities. The OEB is obligated to implement the Province’s directives concerning general policy matters as well as those intended to address existing or potential abuses of market power by energy sector participants. See “*Business of OPG – Regulation – Ontario’s Electricity Industry – Legislation*”.

Although the IMO is a separate entity operating independently through its board of directors, the Province also exercises statutory powers in relation to the IMO. The IMO's board of directors is responsible for managing or supervising the management of the IMO's business and affairs, and board members are subject to fiduciary obligations in the performance of their duties in accordance with the *Electricity Act, 1998*. Directors of the IMO are appointed by the Province for terms not exceeding three years and may be reappointed, but may only be removed by the Province or the board of directors of the IMO for cause. The Chief Executive Officer of the IMO is selected by the board and also serves as an IMO director. See "*Business of OPG – Regulation – Ontario's Electricity Industry – The IMO*".

### ***Transfer Orders and Indemnities***

On April 1, 1999, pursuant to transfer orders made by Order in Council pursuant to the *Electricity Act 1998*, OPG purchased and assumed all of the interest of Ontario Hydro in all officers, employees, assets, liabilities, rights and obligations of Ontario Hydro directly or indirectly used in or in conjunction with, arising from, acquired or incurred in the conduct, performance or carrying on of, or otherwise supporting or relating in any manner to the activities carried on by Ontario Hydro as a generator as at April 1, 1999. These activities are described in the transfer orders as relating to the ownership, operation or maintenance of generating facilities (other than certain facilities located in remote communities) and all such other activities incidental or ancillary to carrying on such activities, including the sale of electricity produced by those facilities. The transfer orders also included schedules specifically listing and describing certain of the assets, liabilities, rights and obligations transferred. Similar transfer orders were made on the same date in respect of the transfer of certain officers, employees, assets, liabilities, rights and obligations of Ontario Hydro to Hydro One, the IMO, Ontario Electricity Pension Services Corporation (a subsidiary of the OEFC that manages the Ontario Hydro pension plan on an interim basis until such time that the assets and liabilities could be transferred to OPG, Hydro One, the IMO and the Electrical Safety Authority) and the Electrical Safety Authority.

In consideration for the transfer of officers, employees, assets, liabilities, rights and obligations of the electricity generation business of Ontario Hydro, the Corporation issued to the OEFC notes payable in the aggregate principal amount of \$8,526 million, including a note in the principal amount of \$5,126 million (the "Equity Note"), and assumed a capital lease obligation of Ontario Hydro in the amount of \$30 million on April 1, 1999. The Province has assumed all of the Corporation's obligations under the Equity Note and the OEFC has released the Corporation from its obligations thereunder. In connection therewith, the Corporation issued to the Province 256,300,000 common shares as fully paid and non-assessable shares. The OEFC has agreed that, without the consent of the Corporation, it will not sell the \$3,400 million of notes of the Corporation held by it.

The transfer orders provide that if they fail for any reason to fully and effectively in law transfer any asset, right, liability or obligation - or that if such transfer would constitute a breach of the terms of such asset, right, liability or obligation or of any applicable law, decree, order or regulation of any governmental authority having jurisdiction - such assets, rights, liabilities or obligations are not transferred, but are held in trust by OEFC for the relevant transferee. However, under the Corporation's transfer order, all officers, employees, assets, rights, liabilities and obligations of Ontario Hydro that were not transferred by a transfer order to another transferee or specifically retained or held in trust by the OEFC, were transferred to the Corporation.

The transfer orders provide for an allocation of title to and liability for any such assets, rights, liabilities and obligations which relate to the business of two or more transferees, and allow for dispute resolution procedures between transferees to resolve any disagreement among the transferees with respect to the transfer of specific assets, liabilities, rights or obligations. In March 2001, amended transfer orders were made by Order in Council pursuant to the *Electricity Act, 1998* following a process in which OPG, Hydro One, the other transferees and the Province identified certain minor amendments and other corrections to the terms of the 1999 transfer orders. These amendments include the addition of certain previously-omitted real property interests to OPG's transfer order, the reallocation of certain properties and operating equipment at various sites as between OPG and Hydro One and the correction of minor errors or duplication in the descriptions of transferred assets.

The transfer orders do not contain any representation or warranty from the Province or the OEFC with respect to the transferred assets, liabilities, rights and obligations. Under the *Electricity Act, 1998* and pursuant to the transfer orders, the OEFC was released from liability in respect of all assets and liabilities transferred by the transfer orders and is indemnified by transferees. However, the OEFC retained certain specific liabilities, as

described in the transfer orders, including approximately \$30,500 million aggregate principal amount of the former Ontario Hydro's publicly-held debt obligations.

Under the transfer orders, OPG is required to enter into certain agreements with various transferees, including agreements relating to: the administration of pension plans of the transferees; the liability for certain shared assets, rights, liabilities and obligations; the access to certain financial records and relevant personnel; long-term leases between OPG and Hydro One in respect of Hydro One's switchyards at each generating station and easements with respect to the equipment and installations of each of the parties at the generating stations; and agreements relating to the maintenance and operation of shared services and facilities.

OPG has entered into an indemnity agreement with the OEFC in respect of assets, liabilities, rights and obligations pertaining to OPG's business. Under this agreement, the OEFC has indemnified OPG in respect of: the failure of the transfer orders to transfer any asset, right or thing, or any interest related to OPG's business; any adverse claims or interests, excluding certain claims and rights of the Crown, or any deficiency or lack of title in respect of any asset, right or thing or any interest, which was intended to be transferred; and the creation, treatment, payment to or from or other dealing with any equity account previously referred in the financial statements of Ontario Hydro, including certain litigation relating thereto (such as the MEU Litigation described under "*Business of OPG – Legal Proceedings*"). The indemnity specifically excludes: any matter in respect of which OPG has agreed or is required to indemnify the OEFC pursuant to or in connection with any transfer order; any claims related to First Nations title or rights, or the absence of permits, rights-of-way, easements or similar rights in respect of lands held for First Nations bands or bodies under the *Indian Act* (Canada); and any payment made or loss, expense or liability incurred by OPG as a result of the failure of a transfer order to transfer any interest of Ontario Hydro.

The indemnity ceases to be available to any of the Corporation's subsidiaries if the Corporation ceases to control them, unless the cessation of ownership results from the sale of the shares of a subsidiary in connection with the enforcement of security on such shares by an arm's-length creditor of OPG. The indemnity can be assigned under certain conditions with the consent of the Minister of Finance.

The indemnity does not cover the first \$10,000 in value of each claim and only applies to the amount by which the total of all claims exceeds \$20 million. OPG is obliged to pay the OEFC a fee for the indemnity of \$5 million per year, until such time as OPG and the OEFC agree that the indemnity should be terminated. The Province has guaranteed the obligations of the OEFC under the indemnity agreement.

OPG has indemnified the OEFC in respect of any claims, costs and expenses arising from matters relating to OPG's business and any failure by OPG to comply with its obligations to the OEFC under agreements dated as of April 1, 1999.

### ***Relationship with the Province***

#### ***Shareholder's Agreement and Dividend Policy***

The Corporation and the Province have entered into a shareholder's agreement relating to certain aspects of the governance of OPG. The shareholder's agreement addresses such issues as the provision, from OPG to the Province, of the information necessary to allow the Province to periodically inform Ontario's legislature regarding matters such as the ongoing performance of OPG, progress reports concerning compliance with market power mitigation, information in respect of matters requiring shareholder approval and appropriate financial reports. In addition, the shareholder's agreement addresses OPG's governance relationship with the Province with respect to certain actions, including any proposal to issue or transfer shares in the Corporation or any of its subsidiaries, the preparation of long-term business plans, matters concerning dividend policy and the entering into of any major transaction by the Corporation or any of its subsidiaries which would potentially have a material effect on the financial interest of the Province or OPG's ability to make payments in lieu of taxes. The shareholder's agreement also precludes the release by the Province of non-public, commercially sensitive information regarding OPG to Hydro One or others.

The declaration and payment of dividends are at the sole discretion of the Corporation's Board of Directors and will be dependent upon the Corporation's results of operations, financial condition, cash requirements and other factors considered relevant by the Corporation's Board of Directors. The Corporation currently expects to pay

dividends on its common shares to the Province equal to approximately 35% of its net income. In 2000 and 1999, total dividend payments to the Province were \$205 million and \$35 million, respectively.

### ***Nuclear Liability Agreement***

OPG and senior staff of the Ontario Ministry of Finance are currently negotiating the terms of a nuclear liability agreement under which the Province or its agent would provide a degree of risk sharing with OPG in relation to certain nuclear waste management costs. See “*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Waste Management and Decommissioning – Provisions for Future Nuclear Related Costs*”.

### ***Indemnities***

The Province has provided an indemnity in favour of the Corporation and has guaranteed certain obligations of the OEFC to OPG under the indemnity agreements between OPG and the OEFC. See “*Business of OPG – Relationship with the Province and Others – Transfer Orders and Indemnities*”.

### ***Consideration of Divestment by the Province***

The Ministry of Finance and The Ontario SuperBuild Corporation have retained financial advisors to assist them in reviewing options for the divestment of all or a portion of OPG, including an initial public offering of equity of OPG or a sale of all or a portion of OPG’s assets. The Ontario SuperBuild Corporation is an Ontario crown corporation that was created to evaluate and make recommendations to the Province with respect to the appropriate private and public sector involvement in businesses and services that are currently owned or offered by the Province.

### ***Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status***

#### ***Stranded Debt***

One of the OEFC’s purposes under the *Electricity Act, 1998* is to manage its outstanding liabilities, including “stranded debt”. The *Electricity Act, 1998* defines stranded debt as the amount of the debt and other liabilities of the OEFC that, in the opinion of the Minister of Finance, cannot reasonably be serviced and retired in a competitive electricity market. At April 1, 1999, the Province estimated the stranded debt to be \$20,900 million, representing the difference between OEFC’s existing debt and liabilities of approximately \$38,100 million and the aggregate enterprise value of OPG, Hydro One and the IMO of \$17,200 million. OPG has no obligations in connection with the stranded debt.

The *Electricity Act, 1998* provides for stranded debt to be paid over time by payments to be made to the OEFC by participants in the electricity sector including OPG, Hydro One and the local distribution companies. These payments include proxy taxes in lieu of certain federal and provincial income taxes, capital taxes and municipal and school taxes, payments calculated using the graduated tax rates under the new gross revenue tax regime, and by certain amounts which may be payable by local distribution companies or municipal corporations to the OEFC on the transfer of their electricity business. The “residual stranded debt” is the portion of the stranded debt that cannot be paid by dedicated revenue streams. The Ministry of Finance has estimated the residual stranded debt to be \$7,800 million as of April 1, 1999. The residual stranded debt will be paid over time by a proposed debt retirement charge of 0.7 cents per kWh charged to all domestic load (except load supplied by generation that is directly connected to a distribution system or that is part of a consumer’s facility and was in service before October 1998), to be levied on consumers upon Open Access. The *Electricity Act, 1998* provides the authority to make regulations regarding the determination of stranded debt and residual stranded debt, although these regulations have not yet been made.

#### ***Proxy Taxes***

The Corporation and its Canadian subsidiaries except for Kinectrics Inc. and its Canadian subsidiaries are currently exempt from tax under the *Income Tax Act* (Canada) and *Corporations Tax Act* (Ontario) because the Province is the sole shareholder of the Corporation; the Corporation owns not less than 90% of the shares or capital of these subsidiaries; and no non-government entity has an option or other right to acquire more than 10% of such shares. Pursuant to the *Electricity Act, 1998*, however, the Corporation and these subsidiaries are each required to

pay to the OEFC in respect of each taxation year an amount referred to as a “proxy tax”, generally equal to the amount of tax the Corporation or each such subsidiary would otherwise be liable to pay under the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario) if it were not exempt. The Corporation and each of its Canadian tax-exempt subsidiaries will be required to calculate its income, taxable capital and other relevant amounts in accordance with the rules contained in the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario), as modified by the *Electricity Act, 1998* and related regulations. Although the Corporation and its Canadian subsidiaries (other than Kinectrics Inc. and its Canadian subsidiaries) are exempt from tax under the *Income Tax Act* (Canada), they may also be ordered by the Lieutenant Governor in Council to pay to the OEFC such amount as may be specified, provided that no such payment may be required if it would impair the ability of the Corporation or such a subsidiary to meet its financial liabilities or obligations as they come due or to fulfil its contractual commitments.

The *Electricity Act, 1998* also provides that the Corporation and certain of its Canadian subsidiaries are required to make payments in lieu of property tax on their generating assets each year to the OEFC. The payments in lieu of property taxes are equal to the difference between (i) the amount of municipal and school taxes the Corporation and its subsidiaries would have been required to pay if the assets were privately-owned and (ii) the amount of such taxes the Corporation and its subsidiaries actually pay to the municipalities on those assets. One of the purposes of the proxy tax and the requirement to pay the OEFC payments in lieu of property tax is to create a level playing field, from a tax perspective, for purposes of future competition between OPG and other generators seeking to sell electricity in the Ontario market. However, under a new regime applicable to owners of hydroelectric generating stations effective January 1, 2001, the Corporation’s hydroelectric generation subsidiaries are subject to a new tax regime on its generating stations and are only required to pay property tax to municipalities on its administrative buildings and land not used in the generation of electricity. In addition, under this new tax regime, the Corporation’s hydroelectric generation subsidiaries will no longer be required to make payment in lieu of property tax. See “*Special Taxes on Hydroelectric Generating Stations*”.

The Province has indicated that, under the *Electricity Act, 1998*, the Corporation and its tax-exempt Canadian subsidiaries will be entitled to deduct, in computing income subject to proxy tax, the amount of contributions to a nuclear decommissioning fund or nuclear waste management fund and any consideration payable in the year to acquire all or part of an interest in such a fund. See “*Business of OPG – Effect of Change in Ownership on Tax Status*” and “*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Waste Management and Decommissioning – Provisions for Future Nuclear-Related Costs*”.

### ***Effect of Change in Ownership on Tax Status***

The current tax-exempt status of the Corporation and its Canadian subsidiaries under the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario) reflects the fact that the Corporation is wholly-owned by the Province of Ontario. This tax-exempt status might be lost in a number of circumstances, including if the Province of Ontario ceases to own 90% or more of the shares or capital of the Corporation, or if a non-government entity has rights immediately or in the future, either absolutely or contingently, to acquire more than 10% of the shares of the Corporation.

Under the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario), when a corporation ceases to be exempt from tax, its taxation year is deemed to have ended immediately before the corporation ceased to be exempt from tax and a new taxation year is deemed to have commenced immediately thereafter. Immediately before the end of such taxation year, such corporation is deemed to have disposed of each of its assets at their then fair market value and to have reacquired such assets at that amount for purposes of computing its income in the future as a taxable corporation. Under the proxy tax regime described under “– *Proxy Taxes*”, the income deemed to have been realized upon such disposition of assets at fair market value may be subject to proxy tax. In addition, the corporation is deemed to have claimed the maximum amount of reserves that it could claim had it otherwise been a taxable corporation at the time of its change in tax status. For purposes of certain provisions, the corporation is deemed to be a new corporation and, as a result, tax credits, tax losses and resource-based deductions not previously utilized by the corporation will not be available to it after the change in tax status. Essentially, the corporation is taxed as though it had a “fresh start” at the time of its change in tax status.

If there is such a change in the tax status of the Corporation or any of its exempt Canadian subsidiaries, it would be subject to tax under the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario) and would no longer be subject to proxy taxes. The amount of taxes the Corporation would pay under the *Income Tax Act*

(Canada) and the *Corporations Tax Act* (Ontario) may differ from proxy taxes that would be imposed by the *Electricity Act, 1998*. The principal reason for such a change in tax liability would be the difference in the tax value of assets after such change in tax status from that which applied earlier. To the extent the fair market value of the Corporation's depreciable assets is greater than their undepreciated capital cost at the time of change in tax status, its corporate tax liability will likely be reduced, as it will be eligible for higher capital cost allowance claims in the future. The opposite result would arise if the fair market value of the Corporation's depreciable assets should be less than their undepreciated capital cost as future claims for capital cost allowance would be reduced, resulting in a higher corporate tax liability. In addition, there can be no assurance that OPG's contributions in respect of the nuclear decommissioning or waste management funds would continue to be tax deductible in determining the tax liability of the Corporation. These funds are described under "*Business of OPG – Effect of Change in Ownership on Tax Status*" and "*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Waste Management and Decommissioning – Provisions for Future Nuclear-Related Costs*". However, the Corporation is engaged in ongoing discussions with the relevant taxation authorities to review various alternative structures or arrangements whereby such contributions would continue to be tax-deductible.

### ***Special Taxes on Hydroelectric Generating Stations***

Historically, hydroelectric generating stations paid water rental payments to the Province for the use of Crown lands based on both capacity and energy production. In 2000, the water rental payment regime was amended by the Province with payments being based solely on energy production. This resulted in water rental payments increasing between \$3 million to \$4 million based on median production levels. In 2001, the Province introduced major tax reform for hydroelectric generating stations replacing historical municipal and school taxes levied on hydroelectric generating stations, water rental payments paid to the Province, and payments in lieu of property tax made to the OEFC on hydroelectric generating stations (see "*Proxy Taxes*") with a new gross revenue tax.

Under this new gross revenue tax regime, the Corporation will pay tax on the gross revenue derived from the annual generation of electricity from its hydroelectric generating stations at graduated tax rates. The tax will be calculated on a station by station basis. The gross revenue arising from the first 50 gigawatt hours of annual generation from the generating station will be taxed at 2.5%. The gross revenue from the station's next 350 gigawatt hours will be taxed at 4.5%. The gross revenue from the next 300 gigawatt hours of annual production will be taxed at 6%, with the gross revenue arising from the station's generation above 700 gigawatt hours being taxed at 26.5%. The gross revenue tax arising from these graduated tax rates will be paid by the Corporation directly to the OEFC because one of the purposes of this new regime is to maintain the funding for the stranded debt. Since the municipal and school boards no longer receive property tax on land and buildings used in connection with the hydroelectric generating station, the Province will pay the municipalities and school boards directly for this loss in revenue. Property tax on land and buildings not used in connection with the hydroelectric generating station will continue to apply and be paid by the Corporation directly to the municipality and is not expected to be significant.

In addition to the graduated tax rates, the Corporation will pay an additional gross revenue tax charge of 9.5% on the gross revenue from the annual generation of electricity from those hydroelectric generating stations that are located on provincial Crown lands. This additional charge replaces the water rental charge under the old system and therefore will be paid by the Corporation directly to the Province. Of OPG's 69 hydroelectric generating stations, 49 are located on provincial Crown lands and are therefore subject to this additional 9.5% gross revenue tax charge.

Accordingly, the gross revenue tax payable will be dependent on both energy production and gross revenue, the calculation of which will be more precisely known when the Province releases the tax regulations that they are currently developing. The new gross revenue tax legislation also proposes to provide an exemption from both the graduated tax rates and additional 9.5% charge for new, rebuilt or expanded hydroelectric generating stations, whereby the gross revenue resulting from the additional capacity will qualify for a ten year tax holiday from the new gross revenue tax.

In 2000, water rental payments, payments in lieu of property tax and municipal and school taxes on hydroelectric stations paid by OPG totalled approximately \$390 million. Under the new gross revenue tax regime, OPG would expect to pay approximately \$355 million in total gross revenue tax if the annual generation of electricity in Ontario was based on an average of production for the years 1994 through 1998, and an estimated open market clearing price of \$41.4 per MWh was used in calculating the gross revenue from each station. This payment



of \$355 million would increase to about \$370 million if the gross revenue from electricity produced in Québec from the Corporation's generating stations that straddle the Ontario and Québec borders, were included in the gross revenue tax base. The Otto Holden, Chenaux and Des Joachims generating stations all straddle the interprovincial boundary between Ontario and Québec. Approximately 50% of the electricity produced at these three stations is produced in Ontario. OPG is discussing with the relevant taxation authorities whether the gross revenue tax will be limited to the portion of revenue from these stations that is produced in Ontario.

### ***Relationships with Ontario Hydro's Successors***

Although OPG and Hydro One became independent corporations as of April 1, 1999, their operational relationship will be governed during the Transition Period by licence conditions and certain operating agreements with Hydro One and the IMO intended to ensure the continued reliability and safety of electricity service in Ontario. Following Open Access, Hydro One is required to provide generators, retailers and consumers with non-discriminatory access to its transmission and distribution systems. At that time, OPG's operational business relationship with Hydro One will be conducted in compliance with the Market Rules administered by the IMO and the terms and conditions of OEB codes and licences and other contractual arrangements, including transmission connection agreements. See "*Background – Restructuring in Ontario's Electricity Industry*".

During the Transition Period, payments from wholesale customers are made to OPG and allocated by OPG to the successors of Ontario Hydro under the terms of revenue allocation arrangements among OEFC, OPG, Hydro One, the Electrical Safety Authority and the IMO. See "*Business of OPG – Risk Factors – Transition Period Obligations.*" The revenue allocation arrangements currently provide that under certain circumstances affecting OPG's generation or the transmission of such generation, parties to the arrangement may be required by the IMO to share the revenue consequences in the event that OPG suffers a cumulative annual generation loss of 8 TWh relative to forecast levels.

## **Regulation**

### ***Ontario's Electricity Industry***

#### ***Legislation***

During the Transition Period, the electric industry in Ontario continues to be regulated through a variety of different means. OPG is principally regulated through a transitional generation licence, issued by the OEB in May 1999, which contains a number of transitional conditions. These conditions include a requirement to maintain the Ontario market for the procurement of electricity during the Transition Period and gives firm Ontario consumers priority access to output of OPG's generating stations. OPG is also governed by wholesale and retail licences through the Transition Period and extending into Open Access.

Transitional licences have also been issued to Hydro One, the IMO as well as the new municipally owned distribution companies. The OEB has issued revenue requirement orders for Hydro One and the IMO which are incorporated into the revenue allocation agreement and rate orders for the municipally owned distribution companies. Additionally, the OEB has issued various codes relating to the distribution system including affiliates codes, which affects the relationship of the affiliates to the distribution companies during the Transition Period.

The *Energy Competition Act, 1998* was proclaimed in force on November 7, 1998 and through its five schedules, including the *Electricity Act, 1998* and the *OEB Act, 1998*, it establishes the broad legislative framework for Ontario's competitive electricity market. Certain provisions of the *Electricity Act, 1998* and the *OEB Act, 1998* are awaiting proclamation and regulations under these statutes have not yet been made.

The *Electricity Act, 1998* implements the fundamental principles of the restructuring of Ontario's electricity industry. These include the separation of the competitive components of the industry (generation and retail) from the monopolistic components of the industry (transmission and distribution), the establishment of an independent electricity market operator and the implementation of non-discriminatory access to transmission and distribution systems.

The OEB Act, 1998 expands the jurisdiction and mandate of the OEB in the regulation of the electricity and natural gas markets. In its role as regulator of the Ontario electricity market, the OEB has broad powers relating to licensing, rate regulation and market supervision. The OEB is obligated to implement the Province's directives concerning general policy matters as well as those intended to address existing or potential abuses of market power by energy sector participants. Upon the petition of any party or interested person, the Province may require the OEB to review all or any part of an order that the OEB has issued.

The purposes of the *Electricity Act, 1998* and the objectives of the OEB pursuant to the OEB Act, 1998 are to: facilitate competition in the generation and sale of electricity and to facilitate a smooth transition to competition; provide generators, retailers and consumers with non-discriminatory access to transmission and distribution systems in Ontario; protect the interests of consumers with respect to prices and reliability and quality of electricity service; promote economic efficiency in the generation, transmission and distribution of electricity; facilitate the maintenance of a financially viable electricity industry; and facilitate energy efficiency and the use of cleaner, more environmentally benign energy sources in a manner consistent with the policies of the Province. An additional purpose of the *Electricity Act, 1998* is to ensure that OEFC's debt is repaid in a prudent manner and that the burden of such debt is fairly distributed.

The key regulatory instruments authorized by the *Electricity Act, 1998* and the OEB Act, 1998 that apply to OPG and its business are the transfer orders issued by the Lieutenant-Governor in Council; the Market Rules made by the Minister and published by the IMO; and OPG's generation, wholesale and retail licences issued by the OEB. Elements of the restructuring of Ontario's electricity industry are still being developed, including certain regulations and Market Rules that will govern the competitive wholesale and retail electricity markets. These pending regulations and Market Rules include technical provisions dealing with participation in the markets, the delivery of energy through the IMO-controlled grid and the provision of certain ancillary services and the IMO's financial markets arrangements. In addition, the Minister of Energy, Science and Technology, the Minister of Finance and the OEB are each continuing to assess and develop policy positions on various matters that could affect OPG. See "*Business of OPG – Risk Factors – Restructuring of Ontario's Electricity Industry*" and "*Government Regulation*".

### ***Open Access***

The *Electricity Act, 1998* mandates non-discriminatory access to transmission and distribution facilities by providing that upon Open Access every transmitter or distributor must provide generators, retailers and consumers with non-discriminatory access to its transmission or distribution systems in Ontario in accordance with its licence. Unless exempted by regulation, contracts for the supply of electricity entered into by OPG prior to December 11, 1998 with substantially all of its customers will cease to have effect upon the commencement of Open Access. See "*Market Power Mitigation/Decontrol – Rebate Mechanism and Transitional Price*".

For the first 18 months after Open Access, there will be a uniform market-clearing price within Ontario calculated on a congestion-free basis. Settlements for generators and consumers will be based on metered energy multiplied by the uniform market price. If transmission constraints or line losses require less expensive generation to be removed from production and more expensive generation to start producing electricity, the constrained generators will be compensated by an additional payment which will be charged to consumers. During this initial 18 month period, the IMO will collect and publish locational pricing data to determine the extent of congestion in the Ontario market and will recommend whether to move to some form of congestion pricing after this initial period. Depending on the extent of congestion, this change could result in locational pricing, in which market clearing prices would be established by various locations in Ontario. Interconnection with other jurisdictions will be treated as separate zones from the rest of Ontario and separate zone prices will apply when an interconnection is constrained.

### ***The IMO***

The IMO will function both as independent system operator, ensuring overall system reliability and stability through control of physical dispatch, and as independent market operator, the clearing house for the settlement of spot transactions between suppliers and purchasers of electricity participating in the IMO wholesale market.

Under the *Electricity Act, 1998*, the IMO will be authorized to make and enforce the Market Rules which are necessary to perform its function and administer the IMO controlled market. Each market participant will be obliged to follow the Market Rules in accordance with its participation agreement with the IMO and its OEB licence.

In April 1999, the Minister published the first draft of the Market Rules. The Minister proposed that a regulation transferring market rule-making authority from the Minister to the IMO would be made prior to Open Access, on a date established in consultation with the IMO. Since April 1999, the IMO has been refining and completing the Market Rules and developing an implementation plan that includes operational dry runs and market commissioning. The IMO has been providing progress reports to the Minister and has arranged for Ministerial review and approval of rule changes. The Minister has stated that the timetable for market opening must ensure that market participants will have sufficient certainty on the Market Rules in advance of Open Access.

Unless exempted by regulation or the Market Rules, all persons will require authorization from the IMO to participate in the IMO-administered markets or cause or permit electricity to be conveyed into, through or out of the IMO-controlled grid. In addition, the IMO and all generators, transmitters, distributors, wholesale sellers, wholesale buyers and retailers will have to obtain a licence from the OEB in order to participate in the Ontario electricity market.

The IMO will act as a clearing house for the settlement of spot market transactions as well as designated physical bilateral contracts between IMO market participants and will send invoices to market participants. Credit risk in the settlement process will be managed by IMO rules requiring all authorized market participants to satisfy requirements for creditworthiness, with all participants sharing the risk of loss on a market participant's payment default on a *pro rata* basis.

In its capacity as the independent electricity system operator, the IMO will enter into operating agreements with transmission owners who will continue to operate the system, subject to IMO direction and regulation by the OEB. The IMO will incorporate transmission system constraints in its dispatch of energy and will manage congestion and line losses using the established Market Rules. It will also administer the grid connection requirements applicable to market participants connected to the transmission system and will identify any long-run security and adequacy requirements for the transmission system by conducting periodic long-run assessments. In addition, the IMO will advise the OEB and participate in OEB proceedings that consider new transmission investment proposals. Market participants will be free to present transmission investment proposals to the OEB at any time, with or without a supporting assessment from the IMO. The cost of new transmission system investments will be included in a network service charge unless the OEB determines that there is an identifiable beneficiary who should pay.

The IMO also collects the transmission service charges designed to recover the transmission owners' OEB-approved revenue requirements and disburses these revenues to the transmission owners. Consumers of significant amounts of electricity could individually or as a group build their own generation facilities and thereby avoid paying certain transmission charges. In many circumstances, consumer-owned generation will also allow those consumers to avoid IMO uplift charges. This could give rise to the construction of new generation capacity that would not be economic if it were not for this avoidance of transmission charges and IMO uplift charges.

Through its independent market surveillance panel, the IMO will identify and report on any inappropriate market conduct and market inefficiencies. The IMO collects from and provides information to market participants relating to the current and future electricity needs of Ontario and the capacity of the integrated power system to meet those needs.

The IMO has the authority to suspend the IMO-administered market if certain emergency circumstances, such as a failure of the market system or a major blackout, exist or are imminent. For example, if the IMO determines prior to issuing dispatch instructions that market responses will not eliminate an under-generation condition, it can declare an emergency operating state to resolve the conditions. The market cannot be suspended solely because the market price has reached the maximum market clearing price or some demand has been curtailed. Each market participant is required to file with the IMO its emergency plans to assist the IMO in dealing with an emergency operating state. The IMO will endeavour to restore market operations as soon as the conditions requiring suspension are resolved.

The OEB licences the IMO and monitors its operations. The OEB also issues directions to the IMO and hears appeals of certain actions or decisions of the IMO, including any amendments to the Market Rules. After Open Access, the IMO's operating costs will be recovered through OEB-approved fees which it will levy on the market participants.

### ***OEB's Licensing Process and Industry Codes***

The OEB has developed licences for electricity generation, transmission, distribution, wholesaling and retailing. It has also developed several associated codes for transmission and distribution. The OEB issued a transitional generation licence to OPG that will remain in force until April 30, 2003. During the Transition Period, this licence requires OPG to operate the Ontario interim market for the procurement of electricity and provide Ontario consumers with priority access to the electricity it generates and, if necessary, to purchase additional electricity to supply the Ontario market. The licence also includes OPG's market power mitigation obligations that have been approved by the Province. OPG has also received its wholesaler licence and retailer licence, which will remain in force until January 2006 and September 2005, respectively.

### ***Market Power Mitigation***

OPG currently owns approximately 90% of the generating supply options in Ontario. To address the possibility that OPG could exercise market power after the commencement of Open Access, the Province has approved a framework known as the "market power mitigation" framework to protect the interests of consumers while ensuring an orderly and gradual transition to a long-run industry structure in which OPG's share of generating capacity available to the Ontario market is substantially reduced. The market power mitigation obligations applicable to OPG are set out in the conditions to OPG's generation licence.

### ***Rebate Mechanism and Transitional Price***

Upon the commencement of Open Access, the significant majority of OPG's expected energy sales in Ontario will be subject to an average annual price threshold of 3.8 cents per kWh which will not be adjusted for changes in the consumer price index, fuel prices, labour or other price increases. At the end of each 12 month period following Open Access, if the average spot market price as calculated under the framework exceeds 3.8 cents per kWh, OPG will be required to pay a rebate to the IMO equal to the difference between the average spot market price and 3.8 cents per kWh, multiplied by the quantity of electricity to which the threshold applies in that period, referred to as the contract required quantity ("CRQ"). This rebate amount is subject to reductions in the event of system price spikes, the carrying forward of a rebate credit from prior years and *force majeure* events. OPG will pay the rebate amount to the IMO and the IMO will be responsible for allocating the rebate to all Ontario consumers on the basis of energy withdrawn from the IMO-controlled grid.

The rebate mechanism applies only to OPG. It does not guarantee that the spot market price will be 3.8 cents per kWh, nor does it set the price for individual consumers. Rather, OPG will be free to offer electricity into the power pool at whatever price it chooses, as will competing generation companies. The rebate mechanism will not apply to OPG's production above the CRQ but will be calculated as if OPG had produced at least the CRQ regardless of OPG's actual production. The CRQ has been predetermined for the period from 2000 to 2004 and varies over that period within a range of approximately 102 to 106 TWh, subject to reduction with the approval of the OEB as OPG decontrols its generation capacity. In 2001, 105 TWh would have been subject to the rebate mechanism had Open Access commenced in 2000. Based on this CRQ and approval of the corresponding CRQ reductions by the OEB, and assuming completion of the Bruce, Lakeview and Lennox decontrol transactions, OPG estimates that its CRQ would have decreased by approximately 18.4 TWh in subsequent years, depending on the actual date of Open Access and when the decontrol transactions are completed. The potential sale of the Thunder Bay and Atikokan fossil stations and the hydroelectric stations along the Mississagi River would have the potential effect of further decreasing the CRQ.

In addition, the Province has enacted a regulation to provide transitional price relief to current customers of OPG that had contract to purchase some or all of their electricity requirements under one or more of the Surplus Power, Real Time Pricing I, Real Time Pricing II and Load Retention and Expansion Price rate options during a reference period from July 1, 1999 to June 30, 2000. Approximately 80 large power consumers are eligible for this transitional price relief, whose purchases under this program accounted for approximately 5% of OPG's production

in 2000. OPG is required to offer for sale to these customers a volume of energy based on their consumption of special rate power during the reference period. Price is based on the average price paid by each customer during the reference period and is anticipated to be below market price. The maximum anticipated volume is approximately 5.4 TWh in the first year of Open Access; 3.6 TWh in the second year and 1.8 TWh in each of the third and fourth years. The maximum length of the program is four years, with the possibility that it will expire after only two years if certain decontrol targets are met by OPG.

### *Decontrol of Capacity*

Another market power mitigation measure requires OPG to relinquish effective control of some of its generating capacity. This may be accomplished by OPG through various transactions and could be done in a variety of ways, including the outright sale or lease of power stations or by entering into other arrangements provided the result is the transferring control of the timing, quantity and bidding of energy produced by OPG's power stations. OPG's decontrol obligations are specified in terms of Tier 1 and Tier 2 capacity. "Tier 1" capacity is defined as all nuclear and hydroelectric generation in Ontario. "Tier 2" capacity is defined as that portion of Ontario's generation capacity, including fossil generation, inter-tie capacity and demand-side bidding, that is not part of Tier 1 capacity. At the end of 2000, OPG controlled 97% of Tier 1 capacity and 60% of Tier 2 capacity (both assuming Pickering A is out of service). Within 42 months after Open Access, OPG must reduce its share of in-service Tier 2 generating capacity through transfer of effective control of a minimum of 4,000 MW of in-service Tier 2 capacity. At OPG's discretion, it may substitute the transfer of effective control of up to 1,000 MW of hydroelectric power in place of an equivalent amount of Tier 2 capacity. Within 10 years after the beginning of Open Access, OPG must reduce its effective control of total Tier 1 and Tier 2 capacity to 35% or less of the supply options in the Ontario market.

Upon OPG's request, the OEB is required to make a determination as to whether a transaction represents the transfer of effective control and can therefore count towards OPG's decontrol targets and reduce the CRQ. Transfers of Tier 1 and/or Tier 2 capacity will not count towards OPG satisfying its targets or reducing the CRQ if (i) such transfer would result in any one transferee controlling more than 25% of the total relevant capacity in Ontario; or (ii) OPG and the transferees enter into on-going arrangements to facilitate interdependent behaviour.

In keeping with its decontrol obligations, OPG has agreed to lease its Bruce A and B nuclear generating stations to Bruce Power in a transaction expected to close in the second quarter of 2001, subject to the receipt of all required regulatory approvals. OPG has also announced its intention to invite offers for its Lakeview, Lennox, Atikokan and Thunder Bay fossil stations once the current moratorium on the sale of coal-fired generating plants has been lifted as well as the Mississagi River system hydroelectric generating stations. See "*Business of OPG – Generation Operations – Fossil Operations – Fossil Station Decontrol*" and "*Nuclear Operations – Bruce Decontrol*".

### *Import Restrictions*

OPG's ability to import power from interconnected markets will be restricted to 7.24 TWh in the winter season and 6.58 TWh in the summer season. These restrictions are to ensure that OPG does not exercise market power by controlling imports across the interconnection points. These import limits will be increased upon the in-service date of new or upgraded interconnection facilities. Ontario's inter-tie capacity is currently approximately 4,000 MW. Hydro One is obligated under its licence conditions to use its "best efforts" to expand inter-tie capacity to neighbouring jurisdictions by approximately 2,000 MW within 36 months of Open Access. Hydro One recently obtained the approval of the OEB to expand the existing Ontario-Québec inter-tie by 1,250 MW, scheduled to be constructed by 2003. In addition, Hydro One is completing the installation of three phase-shifting transformers and an autotransformer at its interconnection with the Michigan power grid. Depending upon how the phase shifters will be operated, this equipment should provide Hydro One with the ability to better control energy flows at that interconnection point and, indirectly, at the interconnection with the New York power grid. The equipment is expected to increase the available transfer capability between Ontario and Michigan by up to 500 MW.

### *Operating Reserve*

Under the market power mitigation conditions of its OEB licence OPG's offers to provide operating reserve to the IMO are to be capped. The level of this cap will be negotiated between the IMO and OPG before Open

Access begins and will include the actual cost of providing operating reserve, such as additional operating and maintenance costs, additional fuel costs, additional opportunity costs and a reasonable rate of return on incremental capital. OPG will receive the clearing price for operating reserve regardless of how that price is set. OPG is required to offer all available capacity into the operating reserve market.

#### *OEB Review*

42 months following Open Access, the OEB will review and publicly report on OPG's success in attaining its decontrol obligation respecting Tier 2 capacity, as well as upon its plans for meeting its 10-year decontrol obligation. If the 42 month targets are met, the OEB will advise the Minister on the appropriateness and term of ongoing price controls over OPG's Tier 1 generation for the 5<sup>th</sup> through 10<sup>th</sup> years but is not expected to alter the 10-year decontrol target. The OEB will conduct a further review in the 7<sup>th</sup> year following Open Access to determine OPG's progress in meeting its 10-year decontrol obligation. OPG will be required to file annual reports with the OEB in years five through nine following Open Access on its progress in meeting this obligation.

#### ***Environmental Regulation***

OPG is subject to federal, provincial and municipal environmental laws. These include laws relating to the control of discharges to air, land and water, as well as the investigation and remediation of contaminated property and the management and disposal of materials and hazardous wastes, including nuclear wastes. The Federal Government has also entered into various international environmental agreements because of the transboundary nature of discharges into the environment. See "*Business of OPG – Environmental Matters*".

The principal provincial environmental laws that apply to OPG are Ontario's *Environmental Protection Act* ("EPA"), the *Ontario Water Resources Act* (the "OWRA") and the *Dangerous Goods Transportation Act* (which incorporates, by reference, the federal *Transportation of Dangerous Goods Act Regulations*), as well as regulations made under these statutes, including EPA Regulation 346 (air emissions), EPA Regulation 215/95 (the "MISA Regulation"), EPA Regulation 347 (general wastes), EPA Regulation 356 (ozone depleting substances or "ODS"), EPA Regulation 362 (polychlorinated biphenyls or "PCB" wastes), EPA Regulation 153/99 (which regulates SO<sub>2</sub> and NO<sub>x</sub> emissions from OPG's fossil-fuelled generating stations) and EPA Regulation 227/00 (which requires all facilities in the electricity sector to monitor and report on the emission to the atmosphere of a number of substances). The EPA and regulations made thereunder regulate the management and disposal of wastes (including hazardous and non-hazardous wastes), discharges and spills into the natural environment, liquid effluent discharges and emissions into the air. OPG is required under the MISA Regulation to ensure that liquid effluents discharged directly into water bodies are within specified toxicity limits. The OWRA imposes obligations to protect the quantity and quality of water in Ontario. Specifically, the OWRA forbids any discharge of material into water that may impair the quality of water.

There are two outstanding orders issued by Ontario's Ministry of the Environment pursuant to the EPA that require OPG to measure SO<sub>2</sub> and NO<sub>x</sub> emissions and to determine whether there is contaminated property at the generating stations and to take remedial action, if necessary. See "*Business of OPG – Environmental Matters – Overview*" and "*Contaminated Land*".

The principal federal environmental laws that apply to OPG are the *Canadian Environmental Protection Act, 1999* ("CEPA, 1999"), the *Fisheries Act*, and the *Navigable Waters Protection Act*. CEPA, 1999 regulates the use, storage, import and export of toxic substances, such as ODS and PCBs. The *Fisheries Act* prohibits the alteration or destruction of fish habitat, and prohibits the deposit of any substance that would be harmful to water that may be inhabited by fish. An authorization under the *Fisheries Act* is required for the construction of a project that would result in the harmful alteration or destruction of fish habitat. Under the *Navigable Waters Protection Act*, approvals are required for the construction of works that interfere with the public right of navigation and the alterations to the originally approved work.

The federal *Canadian Environmental Assessment Act* requires an environmental assessment of certain projects such as those requiring certain federal regulatory actions, including Canadian Nuclear Safety Commission licences for the construction of nuclear facilities or approval of the disposal of nuclear substances and approvals for projects affecting navigable waters or that impact fisheries. The *Canadian Environmental Assessment Act* may apply to some of OPG's facilities, including its nuclear facilities and hydroelectric modifications or developments that affect navigation or fish habitat. An environmental assessment under the *Canadian Environmental Assessment*

Act was completed for the restart of Pickering A and for dry storage at Bruce B and Pickering A. See “*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Recovery Plan*”.

Ontario’s *Environmental Assessment Act* (“EAA”) traditionally required that only projects initiated by public bodies (which were listed in the regulations and included OPG) be assessed and approved under the EAA. Therefore, OPG was historically required to conduct full environmental assessments of all projects, including new developments or facility modifications, and obtain Ministry of Environment approval, unless otherwise exempted. Private sector companies were not subject to the EAA, except if a project was specifically designated for an environmental assessment. New regulations that recently came into effect under the EAA have changed the environmental assessment requirements to apply equally to projects by both public and private sector electricity companies. These new regulations divide projects into three general categories, depending on the predicted impact of the project on the environment, with either no environmental assessment requirements, screening level environmental assessment requirements, or requirements for a full environmental assessment.

### ***Energy Regulation***

The OEB Act, 1998 authorizes the OEB to operate as an independent, quasi-judicial, regulatory agency of the Province and to regulate the electricity industry. The Corporation is licensed by the OEB as an electricity generator, retailer and wholesaler. See “– *Ontario’s Electricity Industry – Legislation*” and “*Ontario’s Electricity Industry – OEB Licensing Process and Industry Codes*”.

The *National Energy Board Act* (Canada) established the National Energy Board (the “NEB”), an independent Federal regulatory agency that regulates, among other things, the construction and operation of international and designated interprovincial power lines and the export of electricity into the United States. OPG holds permits issued by the NEB for the export of electricity from Ontario into the U.S. interconnected markets. The most significant of these permits provides for the export of 25 TWh of power in any consecutive 12 month period.

In the United States, regulation of electricity is shared among FERC and the Department of Energy, at the federal level, and the State Public Service Commissions, at the state level. FERC has jurisdiction over transmission used in interstate commerce and rate-setting authority over wholesale transactions. The Department of Energy issues presidential permits authorizing the construction of international power lines and permits authorizing the export of electricity. The State Public Service Commissions have rate-setting authority over retail transactions and siting authority for new facilities.

OPG currently purchases and sells electricity with U.S. entities at the international border and is not subject to regulation by FERC. In order to buy transmission rights and to make sales of electricity, either sourced in Ontario or elsewhere, directly to wholesale or retail customers in the United States at market-based rates, the Corporation or a subsidiary must obtain a power marketer’s licence from FERC, after which these transactions would be subject to FERC regulation. In determining whether to issue this licence, FERC considers whether the seller has adequately mitigated its generation market power in the United States and whether the seller or any of the seller’s affiliates that own transmission facilities has adequately mitigated its transmission market power by providing, for example, open access transmission service consistent with FERC Orders Nos. 888 and 889. These orders govern the provision of open access to wholesale transmission services by requiring transmission utilities to transmit electricity to wholesale customers on a non-discriminatory basis, subject to the availability of transmission capacity. Any entity that is not subject to FERC’s jurisdiction and requests transmission service must agree to provide comparable open access transmission service over its own facilities or the facilities of its affiliates. The *Electricity Act, 1998* provides for non-discriminatory access to transmission and distribution systems in Ontario upon Open Access.

### ***Nuclear Regulation***

The *Nuclear Safety and Control Act* (Canada) (the “NSC Act”) created the Canadian Nuclear Safety Commission and authorized it to make regulations governing all aspects of the development and application of nuclear energy. The most significant powers given to the Canadian Nuclear Safety Commission are in the licensing area. A person may only possess or dispose of nuclear substances and construct, operate and decommission its nuclear facilities in accordance with the terms of a Canadian Nuclear Safety Commission licence. The licence incorporates detailed requirements on reporting and numerous international and national standards in relation to matters such as safeguards and radioactive emissions.

A fundamental principle in nuclear regulation is that the licensee bears the responsibility for safety, with the Canadian Nuclear Safety Commission setting safety objectives and auditing performance. The regulations made under the NSC Act include provisions dealing with facilities' licence requirements, radiation protection, physical security for all nuclear generating stations and the transport of radioactive materials. The Canadian Nuclear Safety Commission has also issued guidance documents to assist licensees in complying with regulatory requirements such as decommissioning, containment and shutdown systems for CANDU nuclear generating stations, and reporting obligations. These guidance documents have been incorporated into the operating documents which support OPG's operating licences for its nuclear generating stations.

The NSC Act is the product of a recent update of regulatory requirements by the Federal Government in relation to the effective regulation of nuclear energy in Canada. The NSC Act grants to the Canadian Nuclear Safety Commission the power to act as a court of record, the right to require financial guarantees for nuclear waste management and decommissioning as a condition of granting a licence, order-making powers which are more flexible than those allowed under the predecessor legislation, the *Atomic Energy Control Act*, the right to impose higher monetary penalties than were allowed under the predecessor legislation, the *Atomic Energy Control Act*, and powers in the areas of nuclear operator re-certification, requirements for servicing licences and various nuclear facility securities measures. The NSC Act also provides for more emphasis on environmental matters, including a requirement that licensing applicants make adequate provision for the protection of the environment. The NSC Act grants the Canadian Nuclear Safety Commission licensing authority for all nuclear activities in Canada, including the issuance of new licences to new operators, the renewal of existing licences, and amendments to licences.

The *Nuclear Liability Act* (Canada) (the "NLA") imposes absolute liability on a licensed operator of a nuclear generating station for any damage to property of, or personal injury to, the public arising from a nuclear incident other than damage resulting from sabotage or acts of war. As such, the NLA protects suppliers of nuclear fuel and components used in nuclear reactors. The NLA bans an operator from suing any person in respect of its liability under the legislation.

The NLA requires all operators of nuclear generating stations in Canada to purchase nuclear liability insurance from the Nuclear Insurance Association of Canada in specified amounts. Currently, the NLA requires a nuclear operator to maintain, for each of its nuclear stations, insurance up to a limit of \$75 million against the liability imposed under the NLA. Under Part I of the NLA, an operator is liable for all damages resulting from a nuclear incident. If in the opinion of the Governor in Council, an operator's liability could exceed \$75 million in respect of a nuclear incident, or it would be in the public interest to do so, the Governor in Council must proclaim Part II of the NLA as applicable in respect of a nuclear incident. Under Part II of the NLA, an operator's liability would be effectively limited to the amount of such insurance and the Governor in Council may authorize additional funds to be paid by the Federal Government as may be specified in an order. The NLA is currently under review, which could result in a requirement for increased insurance coverage. See "*Business of OPG – Insurance*".

Since the regulation of nuclear energy could have transboundary impacts, Canada has become a signatory to various international conventions relating to nuclear energy and emergency responses, and is bound by conventions that it has ratified. In addition, the Canadian Nuclear Safety Commission has entered into a five-year, bilateral information exchange and co-operation agreement with the U.S. Nuclear Regulatory Commission, which provides among other things, for the prompt, reciprocal notification of reactor safety problems that could affect both U.S. and Canadian nuclear generation facilities.

### ***Water Rights***

Hydroelectric generation requires ongoing access to an adequate water supply on reasonable terms. The physical availability of water is affected by variations in precipitation and evaporation. Rights to use the water are determined through international treaties, federal and provincial legislation and common law, and leases, licences and agreements with the Federal Government, the Province, neighbouring provinces, municipalities, other utilities and other water users. Restrictions on water use are imposed by those instruments and other agreements.

The *Public Lands Act* (Ontario) grants jurisdiction to the Ministry of Natural Resources ("MNR") to regulate the management, sale and disposition of public lands and forests. OPG has water power leases, licences of occupation, land use permits and Crown leases for the purpose of generating electricity.



The *Lakes and Rivers Improvement Act* (Ontario) regulates the use of the lakes and rivers of Ontario. This statute is administered by the MNR and provides for the preservation and equitable exercise of public rights and natural amenities over water. The MNR authorizes the construction and improvements of dams, water crossing drainage areas, channelling of a river and the covering of a length of a river.

### ***International Rivers***

Seven of OPG's hydroelectric generating stations are supplied by two major international waterways, the Niagara River/Welland Canal and the St. Lawrence River, and are subject to treaties with the United States relating to water use. Those stations represent approximately 45% of OPG's in-service hydroelectric capacity and approximately 54% of OPG's 2000 hydroelectric generation.

A 1909 treaty with the United States (the "Boundary Waters Treaty") governs the rights of Canada and the United States over all lakes, rivers and connecting waterways along the international boundary. A 1950 treaty between Canada and the United States (the "Niagara Diversion Treaty") supersedes the Boundary Waters Treaty with respect to diversions of the Niagara River for power generation purposes. The Boundary Waters Treaty has been terminable by either party on 12 months' notice since 1915 and the Niagara Diversion Treaty became terminable by either party on 12 months' notice in 2000. Given the significant interests of both countries in the water rights which are contingent on the continued effect of these treaties, OPG does not expect that Canada or the United States will exercise their termination rights under either treaty in the foreseeable future. OPG is not aware of any negotiations concerning formal extensions or replacement treaties.

Each of these treaties grants Canada and the United States equal rights to use waters made available for power generation, subject to certain water use restrictions. Additional water is allocated to Canada under the Niagara Diversion Treaty and is used by OPG's Niagara hydroelectric operations to account for water that is diverted from the James Bay watershed to Lake Superior by the Ogoki and Long Lake Diversion in northern Ontario. Canada's rights and obligations under each treaty that relate to power generation on the Great Lakes and the St. Lawrence River are exercised by the Province, which has in turn granted certain of those rights to OPG under legislation and lease agreements.

OPG's operations on the Niagara and St. Lawrence rivers are conducted in accordance with memoranda of understanding with the New York Power Authority which provide for co-ordinated generation at their respective facilities and for certain cost sharing arrangements.

OPG's use of water from the Niagara River, the Welland Canal and the St. Lawrence River is monitored and controlled by international organizations established under the applicable treaty. These organizations have the authority to set operational limits for flows and elevations associated with water power generation in order to maintain adequate water availability for domestic and sanitary uses and for navigation and to minimize negative impacts on other users of these rivers. The amount of water available from the Niagara River for power generation is subject to additional limits to ensure adequate flow over Niagara Falls for scenic purposes.

### ***Niagara Region***

Through a combination of statutory rights and a lease agreement with the Niagara Parks Commission that expires in 2056, OPG has the right to divert water from the Niagara River and construct facilities to generate power. OPG has four stations that use water diverted from the Niagara River and two stations that use water from the Welland Canal. Together, these stations represent approximately 31% of OPG's in-service hydroelectric capacity and approximately 36% of OPG's 2000 hydroelectric generation.

Under a prior Niagara Parks Commission agreement which, subject to certain rights of the Province, expires in 2009, Canadian Niagara Power Company Limited ("CNP") is entitled to generate up to 74.6 MW as part of Canada's share of water under the Niagara Diversion Treaty. Under an agreement between OPG and CNP, OPG uses CNP's water at its higher head stations, returns to CNP the amount of energy to which it is entitled, and keeps the balance. This energy has accounted for an average of 3% of OPG's total hydroelectric generation over the past 10 years. OPG is currently negotiating with the Niagara Parks Commission and CNP regarding CNP's water rights.

The DeCew Falls stations use water that is transported along the Welland Canal from Lake Erie by the St. Lawrence Seaway Management Corporation under an agreement that expires in 2008, but is renewable to 2038.

### ***St. Lawrence River***

The R.H. Saunders station near Cornwall represents approximately 14% of OPG's in-service hydroelectric capacity and approximately 19% of OPG's hydroelectric generation in 2000. By statute, the Province has granted to OPG the right to use water from the international rapids section of the St. Lawrence River for power generation, subject to an agreement between Canada and the Province that requires the Province to construct, maintain and operate the works in accordance with conditions or orders imposed by Canada or the international organization established under the Boundary Waters Treaty. Canada has the right, upon notice and after unsuccessful arbitration, to take over the operation of, and title to, the R.H. Saunders station in the event of a breach of the agreement by the Province.

### ***Interprovincial Rivers***

Four of OPG's hydroelectric stations are located on the Ottawa River which forms part of the Ontario-Québec border. These stations represent approximately 12% of OPG's in-service hydroelectric capacity and approximately 13% of OPG's 2000 hydroelectric generation. Three of OPG's Ottawa River stations are subject to 999 year leases with each of the Province of Ontario and the Province of Québec, and the fourth is subject to a lease with the Province of Ontario that is renewable to 2031. OPG's use of water from the Ottawa River basin is subject to guidelines established by a board comprised of government and industry representatives.

The operations of certain of OPG's stations in northwestern Ontario can impact on users in Manitoba and are subject to guidelines and directions provided by a board comprised of Ontario and Manitoba government representatives. These sites are included under "*Interior Rivers*".

### ***Interior Rivers***

Fifty-eight of OPG's hydroelectric stations, representing approximately 43% of OPG's in-service hydroelectric capacity and 32% of OPG's hydroelectric generation in 2000, are located on 23 other Ontario river systems. OPG holds water power leases and licences with the Province on the river systems that supply 40 of these stations. These leases and licences have expiry or renewal dates ranging between 2012 and 2075. The 40 stations covered by these licences and leases represent approximately 41% of OPG's in-service hydroelectric capacity. Approximately 2% of OPG's in-service hydroelectric capacity comes from the remaining 18 stations.

OPG's use of Ontario's interior watersheds is constrained by restrictions contained in certain water power leases and licences of occupation. OPG also operates within voluntary guidelines established on a watershed basis in consultation with the MNR, federal fisheries authorities and stakeholders such as recreational and commercial users, local communities, environmental groups and First Nations.

## **Environmental Matters**

### ***Overview***

OPG's activities involve risk of adverse consequences to the environment and are subject to extensive governmental regulation. See "*Business of OPG – Regulation – Environmental Regulation*" and "*Business of OPG – Risk Factors – Environmental Risks*". OPG is committed to becoming a sustainable energy development company. In accordance with this commitment, OPG strives to continually improve environmental performance in its operations.

OPG's Sustainable Energy Development Policy commits OPG to meet all applicable legislative requirements and voluntary environmental commitments, integrate environmental factors into business planning and decision-making, and apply the precautionary approach principle in assessing the risks to human health and the environment. This policy also commits OPG to maintain comprehensive environmental management systems ("EMSs") consistent with the ISO 14001 standard. OPG became one of the first electric utilities in North America to obtain ISO 14001 registration for the EMSs at all its facilities in 1999/2000. This registration is obtained and kept current annually by independent audits.

As part of its obligations, OPG monitors emissions into the air and water and regularly reports the results to various regulators, including the Ministry of Environment, Environment Canada and the Canadian Nuclear Safety Commission. OPG has implemented internal monitoring, assessment and reporting programs to manage environmental risks such as air and water emissions, discharges, spills, radioactive emissions and radioactive wastes.

Further, OPG makes regular reports to the Ministry of Environment with respect to its contaminated property remediation program.

In addition to the regular reports made to various regulators, the public receives frequent communications from OPG regarding OPG's environmental performance through community-based advisory groups representing communities surrounding OPG's major generating stations, annual environmental performance reports, community newsletters, open houses and the dissemination of information on OPG's website.

### ***Management of Air Emissions***

OPG is required to comply with provincial and federal air quality requirements in connection with discharges into the air from its generating stations.

#### ***Hydroelectric Operations***

There are no material environmental concerns relating to air emissions from hydroelectric operations.

#### ***Fossil Operations***

A number of government initiatives have been announced regarding air emissions and others can be anticipated to deal with this issue.

OPG's fossil generation is currently limited because Ontario's environmental legislation requires that: (1) annual SO<sub>2</sub> and oxides of nitrogen ("NO<sub>x</sub>") emissions cannot exceed 215 Gg in aggregate; and (2) SO<sub>2</sub> emissions cannot exceed an annual cap of 175 Gg. OPG has established a voluntary cap on NO<sub>x</sub> emissions, net of emission credits used, of 38 Gg per year effective in 2000. In order to assist in meeting these regulatory and voluntary objectives, OPG has implemented air management initiatives to monitor and reduce emissions from its fossil generating stations. See "*Business of the Corporation – Generation Operations – Fossil Operations – Air Emissions and Effective Generation Limits*".

The Province has proposed regulations which would further reduce emissions. SO<sub>2</sub> emissions would be capped at a level of 157.5 Gg annually, net of emission reduction credits used, and at a fossil fleet rate of 4.6 Gg/TWh. SO<sub>2</sub> credit use would be limited to 10% of the cap. NO<sub>x</sub> emissions would be capped at 36 Gg annually, net of emission reduction credits used, reducing over time as indicated below, and at a fossil fleet rate of 1.3 Gg/TWh. Under the proposed regulations, summarized in the following chart, the "Other Fossil Generation" caps would apply to other generators in Ontario and also to generators outside of Ontario selling into Ontario.

**Ontario Proposed Caps for Net NO<sub>x</sub> Emissions for the Electricity Sector (in Gg)**

<b>Year</b>	<b>Lakeview</b>	<b>Other OPG Facilities<sup>(1)</sup></b>	<b>Other Fossil Generation</b>
2001 <sup>(2)</sup>	3.9	32.1	N/A <sup>(3)</sup>
2002	3.9	32.1	N/A
2003	3.9	32.1	N/A
2004	3.9	22.1	10.0
2005	1.3	22.1	12.6
2006	N/A <sup>(4)</sup>	22.1	13.9
2007	N/A	18.0	10.0

#### **Notes:**

1. The proposed caps for OPG's Atikokan, Lambton, Lennox, Nanticoke and Thunder Bay facilities are expressed on an aggregate basis.
2. Numbers may be *pro rated* to reflect a partial year.
3. No annual NO<sub>x</sub> emission limits. All stations must respect other environmental regulations (e.g. Certificates of Approval) under the EPA.
4. Limits for Lakeview if it operates as natural gas fired station are part of the cap for "Other Fossil Generation".

Although the above allocations may change, OPG anticipates that when the new caps are introduced OPG will have to purchase additional emission control technology or take other steps to sustain current fossil production levels within the allocated limits. The proposed regulations are also expected to be consistent with Ontario's emission limits under the Canada/U.S. Ground-Level Ozone Precursors Annex, signed in December 2000.

The United States Environmental Protection Agency has announced plans (the "state implementation plans") to require further air emission reduction measures to be in place in 22 eastern states by 2004, including those states within OPG's potential marketing area. The proposed Ontario regulations will result in Ontario power plants meeting the state implementation plans, although the timelines of the proposed Ontario regulations are somewhat different than the state implementation plans.

Canada has signed and ratified the Framework Convention on Climate Change and has signed the Kyoto Protocol. These initiatives call for reductions in the emission of "greenhouse gases", such as CO<sub>2</sub>. Prior to the Kyoto Protocol, OPG voluntarily committed to reduce its greenhouse gas emissions, net of emission reduction credits used, to 1990 levels in 2000 and beyond. However, future requirements to limit the discharge of CO<sub>2</sub> and other greenhouse gases are unknown and uncertain, and there is no assurance that such limits would not impose significant costs on fossil electricity generators such as OPG. See *"Business of OPG – Risk Factors – Environmental Risks"*.

Since the mid-1990s, OPG has participated in the Clean Air Canada Inc. program ("CACI"), formerly known as the Pilot Emissions Reduction Trading program, a pilot program designed to assess the potential environmental and economic benefits of adopting emission reduction credit trading in Ontario. Emission reduction credits are created when a source reduces emissions below the lower of previous actual emissions or the level required by government requirements. The entity creating the emission reduction credits is required by CACI to prove that the emission reduction credits are real, surplus, verifiable, quantifiable and unique. Emission reduction credits that meet these criteria may then be traded as a commodity or used to meet current or future regulatory limits or voluntary commitments. OPG requires that 10% of the emission reduction credits it acquires in any trade be retired as a benefit to the environment. OPG has purchased emission reduction credits from, and sold emission reduction credits to, parties in the United States and Canada through CACI.

In 2000, OPG used emission reduction credits that had been acquired at an aggregate cost of approximately \$25 million to meet its voluntary commitments (net of emission reduction credits) for NO<sub>x</sub> and CO<sub>2</sub> emissions. In 2001, OPG anticipates that it will use emission reduction credits at an aggregate cost of approximately \$23 million.

Under a letter of understanding issued by the Ministry of Environment to CACI participants, the Province is expected to extend the CACI project until March 31, 2002 and has stated that emission reduction credits accumulated during the CACI project will be recognized against OPG's current voluntary commitments on CO<sub>2</sub> and NO<sub>x</sub>, as well as early progress toward future regulatory requirements or voluntary commitments even if the project does not lead to a legislated trading regime but that the use of such credits would be subject to the rules of the formal trading system. The Province has proposed legislation that would reduce the current aggregate limits for SO<sub>2</sub> and NO<sub>x</sub> as indicated above, and would also permit future trading of emission reduction credits and likely recognize emission reduction credits accumulated under CACI.

### ***Nuclear Operations***

As a condition of licensing, all nuclear operations are equipped with radiation emission monitors to ensure that emissions are below regulated limits. All nuclear operating licences stipulate limits on the rates at which radionuclides may be emitted to the air from each nuclear site. These derived emission limits are site-specific and approved by the Canadian Nuclear Safety Commission. Since the 1970s, actual radiological air emissions from OPG's nuclear facilities have remained a small fraction of the regulatory limit set for each radionuclide.

OPG reports annually on the results of its radiological environmental monitoring programs at each nuclear generating station that estimate the radiation exposure to persons who are assumed to live immediately outside the station fence. This theoretical dose has consistently been estimated to be a small fraction of the public dose regulatory limit set by the Canadian Nuclear Safety Commission. The results of these monitoring programs are reported on an annual basis to the Canadian Nuclear Safety Commission, the Ministry of Environment and the

municipalities in which the nuclear stations are located. They are also reported quarterly in the nuclear report cards that are made available to the public.

### ***All Operations***

OPG has a corporate policy to manage ozone-depleting substances (“ODS”) in a safe, environmentally responsible and cost-effective manner. ODS, including chlorofluorocarbons (“CFCs”) and halons, are used in refrigeration systems and fire fighting systems and can damage the ozone layer if emitted to the atmosphere. The policy requires that emissions of CFCs from chillers be maintained at near zero and all CFCs are to be removed from chillers by December 31, 2015. CFCs are no longer used in mobile vehicle air conditioning systems. All halon fire extinguisher systems have been replaced at the generating stations with the exception of Darlington, where the system will be replaced in 2001. All portable halon fire extinguishers have been removed from service. OPG does not anticipate any material expense in dealing with its remaining supply of ODS.

### ***Management of Water Effluent***

OPG is required to comply with federal, provincial and municipal water quality requirements in connection with the discharge of condenser cooling water and other water effluents from OPG’s generating stations.

### ***Fossil Operations***

OPG has implemented programs to manage the water effluent from its fossil generating stations and is in material compliance with Ontario’s MISA Regulation.

OPG uses chlorine to control zebra mussels at its fossil stations. OPG is, however, exempt from the provincial regulatory limits in the power sector MISA Regulation relating to chlorine-induced toxicity from programs to control zebra mussels. This exemption is scheduled to expire in July 2002. OPG is conducting studies aimed at reducing or eliminating the use of chlorine in the control of zebra mussels at its facilities. To maintain compliance after the exemption ends in July 2002, current cost estimates for dechlorination of effluent from fossil facilities are \$15 million, in aggregate, including upgrades to the chlorination systems. This work is in progress and is expected to be completed in advance of July 2002.

### ***Nuclear Operations***

OPG has implemented programs to manage the water effluent from its nuclear generating stations. Like the fossil stations, the nuclear operations use chlorine to control zebra mussels. See “– Fossil Operations”. The estimated cost to maintain compliance with MISA Regulation chlorine-toxicity requirements at the nuclear facilities when they become applicable to OPG in July 2002 is currently estimated at \$3.0 million but could be more. In 1999, OPG initiated a project to install new equipment at its nuclear generating stations in order to meet the other aspects of the power sector MISA Regulation. Installations to achieve material compliance with all currently applicable MISA requirements was completed by December 31, 1999. Completion of the last part of the MISA project is on schedule, with \$18.6 million of related expenditures approved in July 2000.

OPG has replaced the brass condensers at Pickering B nuclear station, which were a source of contamination from that station. The Pickering A nuclear condensers will be replaced before they are returned to service. The estimated cost of completing the condenser tube replacements at Pickering A is \$38 million.

### ***Underground and Aboveground Storage Tanks***

OPG is in material compliance with regulatory requirements relating to underground and aboveground storage tanks. OPG monitors underground storage tanks for leaks and has implemented fuel handling procedures.

### ***Contaminated Land***

The Ministry of Environment issued a Director’s Order (the “Order”) in September 1997 requiring that Ontario Hydro report on tritium contamination at Pickering and assess potentially contaminated lands at its power generating facilities. In response to the Order, all of OPG’s known and potentially contaminated properties were ranked according to potential risk to human health and the environment in order to develop priorities for corrective

action. Focussing on the high priority sites, OPG prepares an annual site assessment plan, which is submitted to and approved by the Ministry of Environment. The site assessment plan provides a progress report and plans for the current year to address the Order. All commitments made in the site assessment plans for 1997, 1998, 1999 and 2000 have been met. OPG's site assessment plan for 2000 was submitted to the Ministry of Environment in April 2000 and approved by the Ministry of Environment in July 2000.

Since 1997, the number of high priority sites covered by the Order has been reduced from 50 to 16 as of January 15, 2001. Reports on the extent of contamination and risk assessment for the remaining areas which warranted detailed investigation were submitted to the Ministry of Environment. These reports and the independent third party reviews required by the Order are being considered to determine remedial action. The remaining medium priority and all the low priority sites represent a lower concern and may not require detailed assessment or remediation. The need to formally assess these sites will be addressed at a later date.

Five additional priority sites not covered by the Order are currently being assessed under a parallel voluntary program, which started prior to the Order. In addition, voluntary assessments at five other facilities have been completed. OPG estimates the present value of assessment and remediation of the high priority contaminated sites is approximately \$29 million over the next three years, and such amount is fully reserved in the OPG balance sheet. See "*Business of OPG – Regulation – Environmental Regulation*". Additional costs for demolition and site clean up, including assessment and remediation of facilities at Kipling Avenue, Orde Street, and 700 University are estimated at \$22 million.

### ***Management of Wastes***

PCBs have been widely used for a number of industrial applications, and particularly as a coolant and insulating fluid in electrical equipment (for example, in transformers and capacitors). Since 1977, PCB production has been prohibited in North America. In 1996, Ontario Hydro made a policy commitment to eliminate 81% of its in-storage PCB waste and in-service high-level PCBs by December 31, 2005 and the remainder of in-service high-level PCBs by December 31, 2015. As at December 31, 2000, the amounts of PCBs at the fossil and nuclear stations were 885 tonnes and 844 tonnes, respectively, consisting of in-service high-level PCB transformers and small amounts of PCB waste to be shipped for destruction.

At OPG's hydroelectric facilities, transformers with high-level PCBs have been removed from all facilities. There are no power transformers known to be in-service with low-level concentrations of PCBs. Contaminated equipment that remains in-service consists of lighting ballasts, cables, bushings and capacitors. PCB wastes were removed from OPG's hydroelectric facilities for storage and/or destruction. There are approximately 8 tonnes of PCBs remaining to be dealt with in connection with the hydroelectric facilities, at an estimated cost of \$200,000.

At its fossil stations, OPG has removed substantially all low-level PCB equipment, materials and oil from in-service operating equipment. OPG plans to remove all in-service high-level PCB equipment from its fossil operations and ship such waste and the currently-stored PCB waste for destruction by 2005 at a cost of approximately \$16 million. This cost, and the ability to complete the removal of PCBs, will depend on the availability of PCB-destruction facilities, such as the Swan Hills facility in Alberta, which the Alberta government has announced will remain open until at least the end of 2001.

Substantially all of the previously accumulated in-storage PCB waste from OPG's nuclear stations has been destroyed. The Pickering A nuclear station has in-service high-level PCB transformers. OPG plans to phase out these transformers as part of the Pickering A return to service project. There are no in-service PCBs or PCB wastes at the Darlington or Pickering B nuclear stations.

OPG's total projected cost for remaining PCB phase-out and equipment replacement at its fossil and hydroelectric stations and the Pickering A nuclear station is \$23 million. Costs of PCB phase-out and destruction, estimated at \$13 million are covered in the environment provision. The Bruce A station has in-service high-level PCB transformers, but the \$36 million cost of dealing with these will be borne by Bruce Power during the time it operates those facilities.

## ***Nuclear Waste Management and Decommissioning***

OPG has adopted certain management practices and planning assumptions to satisfy its nuclear waste management and decommissioning obligations. See “*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Waste Management and Decommissioning*” and “*Business of OPG – Risk Factors – Nuclear Operations*”.

### **Legal Proceedings**

In connection with the reorganization of Ontario Hydro, OPG has succeeded Ontario Hydro as a party to various pending legal proceedings relating to those assets, liabilities, rights and obligations which were transferred to OPG. OPG will also assume responsibility for the defence of future claims relating to such matters arising out of events that occurred prior to the transfer of Ontario Hydro’s assets, liabilities, employees, rights and obligations to OPG. In addition to claims assumed by OPG, OPG is, from time to time, named as a defendant in legal actions arising in the normal course of business.

The following is a summary description of the current and, to the knowledge of OPG, contemplated legal proceedings material to OPG to which it is a party or of which its property is the subject matter:

**MEU Litigation:** On April 24, 1997, three local distribution companies (the “Applicants”) issued a notice of application against Ontario Hydro in the Ontario Court (General Division) (the “MEU Litigation”). The MEU Litigation has been certified as a class proceeding on behalf of all local distribution companies in Ontario. The Applicants seek declarations that certain rates and pricing options offered by Ontario Hydro to certain non-local distribution company customers contravened provisions of the *Power Corporation Act* (Ontario), and that these rates and pricing options improperly increased costs to the local distribution companies that purchased their power from OPG. They seek recovery of the increased costs in the amount of approximately \$145 million and a declaration that Ontario Hydro improperly diverted, from miscellaneous revenues, monies, in an indeterminate amount, which should have been used to reduce the cost of power supplied to these local distribution companies. The Applicants are also seeking declarations that Ontario Hydro breached legislative provisions prescribing the operation of the Reserve for Stabilization of Rates and Contingencies and an equity account of Ontario Hydro known as the accumulated debt retirement appropriation account (the “ADR account”), and an order requiring repayment to the ADR account in the amount of \$5,050 million. The OEFC and OPG have entered into an agreement under which the OEFC will indemnify OPG from and against all claims relating to the creation, treatment, payment to or from or other dealings with the ADR account, and the financial statements of Ontario Hydro in relation to the ADR account, including any amount relating to any judgment, settlement or other payment in connection with the MEU Litigation, subject to a \$20 million deductible amount.

**IDRA Application:** In May 1999, an application was commenced by the Inverhuron & District Ratepayers Association (the “IDRA”) in the Federal Court Trial Division, requesting judicial review of the decisions of the federal Minister of the Environment, the federal Minister of Fisheries and Oceans and the AECB (now the Canadian Nuclear Safety Commission) relating to the environmental assessment of the Bruce used fuel dry storage facility. The application sought to quash the course of action taken by the Minister of the Environment pursuant to section 23 of the *Canadian Environmental Assessment Act*, to require the Minister of the Environment to comply with the *Canadian Environmental Assessment Act* in respect of the comprehensive study of the project and to quash any decisions of the Minister of Fisheries and Oceans or the Canadian Nuclear Safety Commission based on the comprehensive study already conducted. In addition, the application sought to prevent the Canadian Nuclear Safety Commission and the Minister of Fisheries and Oceans from taking any action to permit the project to proceed until there is compliance with the *Canadian Environmental Assessment Act*.

In May 2000, the Federal Court Trial Division dismissed the application. The IDRA has appealed the Court’s decision to the Federal Court of Appeal. Until the final disposition of the appeal, the Corporation is unable to ascertain the impact of this proceeding on its business, results of operations, financial condition or prospects. The Bruce used fuel storage facility is required by 2003 to allow for the continued generation of nuclear power at the Bruce site, given the remaining storage available for used fuel bundles in the in-station used fuel storage bays. See “*Business of OPG – Risk Factors – Nuclear Operations*”.

## **Risk Factors**

Each of the following risk factors could have a material adverse effect on OPG's business, financial condition, operating results and prospects. Investors should consider these risk factors with other information set forth in this Annual Information Form.

### ***Restructuring of Ontario's Electricity Industry***

The restructuring of Ontario's electricity industry is currently in a state of transition and there remains uncertainty as to certain aspects of the market's structure and the date on which the market will open to competition. The Province has developed regulations and the IMO is developing Market Rules that will govern the competitive wholesale and retail electricity markets. In addition, the Minister of Energy, Science and Technology and the Minister of Finance are continuing to assess and develop positions on various matters related to the industry restructuring that could significantly impact OPG. The IMO is assessing the desirability of implementing new congestion pricing structures such as locational or nodal pricing. The OEB will regulate matters such as transmission tariffs and the nature and extent of new inter-tie capacity and has developed industry codes and connection agreements applicable to all market participants, including OPG.

Prior to Open Access, the regulatory authorities responsible for the structuring, development and operation of the new Ontario electricity market, the IMO and the OEB, and many of the incumbent participants in the Ontario market will have had little or no operating experience in a competitive electricity marketplace. OPG likewise has no previous experience operating in the new regulatory regime. Therefore, OPG expects that there will be further changes in the structure of the electricity industry prior to, and after, Open Access, which will be determined in part by the experience of regulatory authorities and market participants in the competitive environment. Accordingly, the continuing restructuring of Ontario's electricity industry, including the final government regulations or policies, OEB determinations or Market Rules which are adopted, could have a material adverse effect on the business, results of operations, financial position or prospects of OPG. See "*Background –Restructuring of Ontario's Electricity Industry*".

The Province has, and will retain following Open Access, the power to regulate Ontario's electricity industry, such that key elements of the continuing industry restructuring, as well as its scope and timing, are subject to legislative or regulatory enactments or policy determinations made by the Province. In certain jurisdictions where the energy marketplace has been opened to competition, recent episodes of energy price volatility and supply shortages have prompted a re-examination of the market framework by governments, regulatory authorities and consumer groups. Political, regulatory and consumer responses to the competitive wholesale and retail electricity markets in Ontario, and the possible development of a trend toward re-regulation in the North American electricity industry, could impact the successful implementation of OPG's business strategies following Open Access and have a material adverse effect on its business, results of operations, financial position or prospects.

### ***Transition Period Obligations***

During the Transition Period, OPG has an obligation to provide Ontario consumers with priority access to the electricity it generates. If there is insufficient generation to satisfy demand, OPG will purchase available electricity in Ontario and in the interconnected markets.

OPG receives revenue from its Ontario sales during the Transition Period at a rate of 4 cents per kWh based on forecast consumption, regardless of the cost of generation or the cost of purchasing electricity from neighbouring jurisdictions. These revenues are paid into a revenue pool that receives all Ontario wholesale electricity revenues, and OPG receives a portion of such revenues. Other revenue allocations from this pool include payments to Hydro One, the IMO, a one time payment in 1999 to the Electrical Safety Authority and payments to the OEFC, which include the recently announced 0.7 cent per kWh rate increase. Variations in revenues to the pool from forecast, largely those as a result of changes from forecast consumption and consumer mix, change OPG's revenue per kWh. Any shortfall in pool revenues could have a material adverse effect on OPG's business, operating results, financial condition or prospects. See "*Background –Restructuring of Ontario's Electricity Industry*" and "*Business of OPG - Risk Management*".



## ***Competition***

After Open Access, increased competition will result in the loss of market share, some of which will result from OPG's mandated decontrol of Ontario-based assets. For example, Bruce Power recently announced its intention to restart two of the four nuclear units at Bruce A. OPG believes its ability to compete depends upon many factors within and outside its control, including: the entrance of new participants in the Ontario market; the competitive actions of market participants; the extent of self-generation; compliance with market power mitigation obligations; generation performance; changes in the regulatory environment; changes in environmental regulations; access to the interconnected markets; supply, demand and the cost of power in the interconnected markets; weather-related electricity demand levels; wholesale and spot market electricity prices; reliability of supply; customer service and support; and sales and marketing efforts. There can be no assurance that OPG will be able to compete successfully in these circumstances or that competitive pressures will not have a material adverse effect on OPG's business, operating results, financial position or prospects. See *"Background – Ontario's New Electricity Market"*.

## ***Market Prices***

A significant portion of OPG's revenue after Open Access will be tied, either directly or indirectly, to the spot market price for electricity in Ontario. The price of wholesale electricity purchases may vary depending on, among other variables: the availability of generation and transmission systems, economic growth, seasonal and weather-based variations in electricity demand, the plans and activities of other market participants, the evolution of newly deregulated electricity markets, regulatory decisions in Ontario and neighbouring jurisdictions (including deregulation), the exchange rate for the Canadian dollar and wholesale market trading rules, mechanisms for maintaining adequate generation reserves, and the level of competition. Although OPG will engage in trading of electricity and related contracts and risk management activities to mitigate these risks, there can be no assurance that these activities will fully offset OPG's market price exposure. Electricity prices have proven to be extremely volatile at certain times in certain markets. This volatility could have a material adverse effect on OPG's business, operating results, financial condition or prospects. See *"Business of OPG - Risk Management"*.

## ***Market Power Mitigation/Decontrol***

OPG is subject to certain market power mitigation obligations relating to decontrol of generation capacity in Ontario. The fulfillment of these obligations will fundamentally change OPG's competitive position in Ontario. Completion of decontrol initiatives within the mandated time frame is also subject to governmental and regulatory approvals which may affect the economics of a proposed transaction and, ultimately, OPG's ability to decontrol generation assets on favourable terms or at all. To date, OPG has agreed to lease its Bruce A and B nuclear generating stations to Bruce Power which is expected to close by the end of the second quarter of 2001. With the recent completion of the government review on emissions, the moratorium on the sale of coal-fired plants is expected to be lifted in the spring of 2001. OPG has announced that once the moratorium has been lifted by the Province, OPG will complete the decontrol of its Lakeview, Lennox, Thunder Bay and Atikokan fossil generating facilities, as well as the hydroelectric plants on the Mississagi River system. OPG's intention is to complete these transactions as close as reasonably feasible to Open Access. The failure of OPG to obtain satisfactory terms in decontrol transactions could have an adverse effect on OPG's business, operating results, financial condition or prospects. In addition, it is unclear whether OPG will be able to retain the proceeds from such transactions. See *"Background – Ontario's New Electricity Market – Market Power Mitigation and Transition Pricing"*.

OPG's revenue will be affected by a rebate mechanism that will apply to a significant amount of electricity during the period that begins with Open Access and is to end following the completion of OPG's mandated decontrol of generation capacity, unless terminated earlier by the OEB. OPG will have to pay a rebate to the IMO if the average spot market price as calculated under the framework exceeds a threshold of 3.8 cents per kWh for the predetermined amount of electricity. The IMO will pass on this rebate to all Ontario consumers. Accordingly, OPG's ability to maximize its revenue will be affected by the rebate mechanism. See *"Business of OPG – Regulation – Ontario's Electricity Industry – Market Power Mitigation – Rebate Mechanism and Price Relief"*.

There can be no assurance that OPG will not be subject to additional or different market power mitigation obligations in the future which could materially adversely affect OPG's business, operating results, financial condition or prospects. See *"– Restructuring of Ontario's Electricity Industry"*.

## ***Nuclear Operations***

OPG developed its current nuclear recovery plan in 1997 with a group of independent nuclear experts. Its successful implementation will depend on many factors, including: the discovery of unanticipated deficiencies in its nuclear operations or greater-than-anticipated deterioration to its nuclear generating assets; material changes to the current regulatory structure governing nuclear generation; the ability of OPG to hire, train and retain senior management and other qualified personnel; the ability of OPG to increase productivity; the ability of OPG to implement management and operational changes and the sufficiency of the allocated funds for implementing the nuclear recovery plan. OPG had implemented various recovery initiatives in the 1990s which did not significantly improve its nuclear performance. These initiatives did not adequately identify the underlying causes of OPG's declining nuclear performance and generally lacked sufficient levels of planning, co-ordination, resources and accountability.

There can be no assurance that OPG will be able to fully implement its nuclear recovery plan, and even if implemented, that improvements to OPG's nuclear operating performance will be significant and sustainable. In the event that OPG does not fully realize the intended benefits of implementing its current nuclear recovery plan, electricity production from OPG's nuclear facilities may be lower than anticipated; operating costs may be higher than expected; additional regulatory requirements or constraints could be imposed; and OPG would incur significant expenditures to increase fossil generation and/or purchase replacement electricity during the Transition Period. Any one of these results would have a material adverse effect on OPG's business, operating results, financial condition or prospects. See *"Business of OPG – Generation Operations – Nuclear Operations – Generating Facilities – Unit Lay-Up and Restart"*.

The staged restart of the four units at OPG's Pickering A nuclear station, beginning in early 2002, is a key corporate initiative and is expected to enhance OPG's competitive position following Open Access. There can be no assurance that the Canadian Nuclear Safety Commission will approve OPG's licence application for the restart of Pickering A, or even if such approval is granted, that additional licence conditions will not be imposed. In February 2001, the Canadian Nuclear Safety Commission released its decision with respect to an environmental assessment under the *Canadian Environmental Assessment Act*, which allows the Canadian Nuclear Safety Commission to proceed with consideration of OPG's licence application through the normal public hearing process under the NSC Act. Also, if the Canadian Nuclear Safety Commission does not approve OPG's licence application for the restart of the Pickering A units on a timely basis or at all, or if there are significant construction delays, OPG's anticipated average energy production costs would rise. This could adversely affect OPG's business, operating results, financial condition and prospects.

OPG has comprehensive inspection and testing programs in place in order to ascertain the physical condition of its nuclear generating stations. In particular the company has undertaken an ongoing program to assess the condition of its steam generators, fuel channels and related infrastructure such as feeder pipes as part of its nuclear recovery plan. As a result of these programs, OPG has identified equipment life-cycle issues, such as steam generation tube corrosion, feeder pipe wall thinning and pressure tube/calandria tube contact. These conditions were anticipated in the design but experience has shown that the rate of degradation is higher than anticipated. The associated life cycle plans for these components are intended to monitor and mitigate the degradation. In addition, as no nuclear generating station utilizing CANDU technology has yet completed a full life cycle, there is a risk that there could be unforeseen technological or equipment issues that are materially adverse to the business, operating results, financial condition or prospects of OPG. Accordingly, there can be no assurance that OPG will not have to incur significant capital expenditures for repairs or replacements in addition to those contemplated under its nuclear recovery plan. To address these issues, OPG may need to increase preventative maintenance programs and allow for more outage time than currently is planned. Such repairs or replacements could have a material adverse effect on OPG's business, operating results, financial condition or prospects. OPG's success will depend, in part, on its ability to maintain an economically efficient portfolio of nuclear generation assets. See *"Business of OPG – Generation Operations – Nuclear Operations – Generating Facilities"*.

Nuclear reactors outside of Ontario have recently experienced feeder pipe cracking. OPG has not experienced any feeder pipe cracking at any of its nuclear facilities, but it continues to closely monitor this issue.

OPG is subject to extensive federal regulation with respect to its nuclear operations. Risks of substantial liability arise from the ownership and operation of nuclear generating stations, including, among other things,

structural problems, equipment malfunctions, the storage, handling and disposal of radioactive materials and uncertainties with respect to the technological and compliance costs associated with nuclear waste management and decommissioning. An increase in any of these costs may have a material adverse effect on OPG's business, operating results, financial condition or prospects. OPG has implemented risk management strategies, but there can be no assurance that such risks can be minimized. A major accident at a nuclear installation anywhere in the world could impact the regulation of OPG's activities or the future prospectus for nuclear generation. See "*Business of OPG – Regulation – Nuclear Regulation*" and "*Generation Operations – Nuclear Operations*".

OPG is also subject to federal regulation of its nuclear waste management practices. Management of nuclear waste poses unique risks. Failure to comply with the applicable requirements could have a material adverse impact. For example, OPG incurs substantial costs for nuclear waste management. Changes in federal regulation (such as the proposed *Nuclear Fuel Waste Act*, described above) could result in additional costs which could have a material adverse effect on OPG's business, operating results, financial condition or prospects. See "*Business of OPG – Regulation – Nuclear Regulation*".

OPG's nuclear waste management and decommissioning obligations are subject to numerous factors, including: assumptions regarding implementation schedules, cost estimates, discount rates and the rate of return earned on segregated funds established to satisfy these obligations; the tax-deductibility of OPG's contributions paid to the segregated funds should OPG's tax-exempt status change; the tax-exempt status of income earned on the segregated funds; changes in Federal policy or regulation regarding nuclear waste management and decommissioning (including, but not limited to, financial assurance requirements, program standards, the method of long-term waste management and other assumptions under OPG's nuclear waste management and decommissioning programs); and the degree of control OPG will have over the scope and implementation of its programs. Many of these factors relate to matters which are untested or for which there is not a significant degree of certainty. Changes in any of these factors could materially and adversely affect OPG's business, operating results, financial condition or prospects.

OPG and senior staff at the Ontario Ministry of Finance reached an understanding in 2000 on key principles for the development of a nuclear liability agreement under which the Province or its agent would provide a degree of risk sharing with OPG in relation to certain nuclear waste management costs. If those costs were to exceed current estimates, OPG's liability for nuclear waste would effectively be limited. Under these principles, OPG would continue to be responsible for significant nuclear waste management liabilities. OPG is responsible for all decommissioning liabilities and for all nuclear waste management liabilities (including funding obligations) until a definitive nuclear liability agreement has been negotiated and executed with the Province and all necessary authorizations, including Orders in Council, have been obtained. There can be no assurance that such an agreement will be executed on terms satisfactory to OPG or at all. See "*Business of OPG – Generation Operations – Nuclear Operations – Nuclear Waste Management and Decommissioning*" and "*Ownership by the Province; Potential Conflicts of Interest with the Province and Related Parties*".

OPG currently contributes to a segregated fund which was established upon the incorporation of OPG to provide for the future costs of waste management and decommissioning of OPG's nuclear facilities. It is currently envisaged that the segregated fund will be divided into two parts: a risk-shared fund, containing contributions primarily for used fuel management; and a non-risk shared fund containing contributions primarily for decommissioning. Under the proposed nuclear liability agreement, the Province would contribute a total of approximately \$2,378 million as at April 1, 1999 (\$2,622 million at January 1, 2001) to a segregated fund for used fuel management or provide financial assurance in lieu of this contribution. When the segregated fund is created, OPG will deposit the amount recorded in OPG's internal account into the segregated fund. At the end of 2000, OPG had accumulated a net balance in the internal account of approximately \$781 million. Cash contributions approximately \$430 million per year will be made by OPG from the 2001 to 2004 fiscal years. The level of contributions beyond the 2004 fiscal year will be dependent on any changes to waste management reference plans and associated cost estimates including any financial formula approved by the government further to the proposed *Nuclear Fuel Waste Act*, as well as any changes to the remaining planned operating lives of individual generating stations. OPG's contributions to the segregated funds and any consideration payable in the year to acquire all or part of an interest in such funds are deductible under the proxy tax regime currently applicable to the Corporation and certain of its Canadian subsidiaries by virtue of the Province's 100% ownership of the Corporation. If this regime ceased to apply, there can be no assurance that these contributions would continue to be deductible in determining the tax liability of the Corporation or its subsidiaries. Nor is there assurance that the investment income earned on

these funds would continue to be tax-exempt. If these contributions were not deductible in determining OPG's tax liability, OPG's annual tax liability would increase by approximately \$160 million per year, based on an average of the applicable tax rates for the period 2001 to 2004 existing as at April 30, 2001. If the investment income were also taxable, the contributions would increase. While not certain, the Corporation is engaged in ongoing discussions with the relevant taxation authorities to review various alternative structures or arrangements whereby such contributions would continue to be tax-deductible and the related investment income earned on these funds would continue to be tax-exempt. Although the legal status of these funds has not yet been determined, when they are ultimately established, these funds will not be part of the assets of the Corporation or its subsidiaries. Nor will they be available to satisfy the claims of creditors. See *"Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status"*.

OPG will require a dry storage facility for the Bruce nuclear generating station in 2003. OPG obtained the *Canadian Environmental Assessment Act* approval for this facility in April 1999. However, an application was commenced by the Inverhuron & District Ratepayers Association (the "IDRA") in the Federal Court Trial Division in May 1999 to set aside this approval. In May 2000, the Federal Court Trial Division dismissed the application, and the IDRA has appealed the Court's decision. The appeal will be heard by the Federal Court of Appeal on May 16 and 17, 2001. There can be no assurance that this appeal will not delay or prevent the construction of the Bruce dry storage facility. A delay or prohibition in the construction of this facility, or similar delays or prohibitions in respect of other dry storage facilities in the future, could have a material adverse effect on OPG's business, results of operations, financial condition or prospects. See *"Business of OPG – Legal Proceedings"*.

Although reserves of natural uranium are relatively abundant, the market price and available supply of uranium concentrates may be volatile. OPG currently uses one contractor to convert its uranium concentrates into uranium dioxide and two independent manufacturers to process uranium dioxide into finished nuclear fuel bundles. These advanced stages of the nuclear fuel supply chain are more susceptible to supply security, price and quality risks. OPG has entered into various contractual arrangements to mitigate these risks, but these risks cannot be eliminated. Failure by OPG to obtain adequate supplies of nuclear fuel of satisfactory quality and price could have a material adverse effect on OPG's business, results of operations, financial position or prospects. See *"Business of OPG – Generation Operations – Nuclear Operations – Nuclear Fuel Procurement"*.

### ***Human Resources and Labour Relations***

OPG's ability to implement its corporate strategy is dependent upon its success in attracting and retaining senior management and other personnel and the ability of such management and personnel to work together as a cohesive team capable of operating in a competitive environment. OPG must acquire and retain new personnel with the skills required to implement new processes and systems and to develop new lines of business, such as financial risk management products, as OPG positions itself to compete in a competitive market. Skilled managers and other employees are also required to ensure that project management and control objectives are satisfied in connection with major corporate initiatives such as the Pickering A restart, the selective catalytic reduction installations at OPG's Lambton and Nanticoke stations and the planned maintenance programs at the nuclear stations. OPG must also develop training programs and succession plans to ensure that its operational staffing needs are met in the future, as approximately 25% of OPG's personnel are eligible for retirement in the next five years. Many of OPG's employees possess experience and skills that will be highly sought-after by competitors in the open market. There can be no assurance that OPG will be able to attract and retain qualified personnel.

The majority of OPG's employees are represented by either the PWU or the Society. The tenor of negotiations with both unions has varied with the economic climate in Ontario, ranging from challenging and difficult to conciliatory and collaborative. This has resulted in complex collective agreements that, historically, have placed constraints on management's traditional flexibility to operate its business in a cost-efficient manner. In addition, in implementing decontrol transactions, OPG will need to maintain core capabilities in essential areas and to maintain service levels during transition periods, while seeking to achieve optimum staffing allocations. To achieve these objectives, OPG has negotiated collective agreements with its two major unions which OPG believes will facilitate restructuring activities as it positions itself for Open Access and aligns the design and size of its support organizations with staffing requirements following decontrol transactions. The failure to achieve labour productivity increases and reduce associated costs, or to renew current collective agreements with the PWU and the Society upon satisfactory terms, could have a material adverse effect on OPG's business, results of operations, financial position or prospects. See *"Business of OPG – Human Resources"*.

### ***Market Readiness***

OPG's ability to operate effectively and competitively in the new deregulated environment after Open Access is dependent in large measure on the development of critical new information systems and the enhancement or development of certain business processes and operations, such as energy trading and associated risk management operations. The successful completion of these initiatives is dependent on a number of factors including: changes in the Market Rules; the availability of qualified personnel; the ability of OPG to integrate its new systems with existing OPG information systems and with those of other market participants, including the IMO; and the usual risks of delay or failure inherent in any complex information technology project. Delays in completing these systems or future system failures could have a material adverse effect on OPG's business, operating results, financial condition or prospects. See "*Human Resources*" and "*Business of OPG – Information Technology*".

### ***Ownership by the Province; Potential Conflicts of Interest with the Province and Related Parties***

The Province owns all of the Corporation's issued and outstanding common shares. Accordingly, the Province has the power to determine the composition of the Corporation's Board of Directors and thereby influence decisions of the Corporation, including for example, financing, acquisition and disposition decisions, capital structure and dividend policy. The Corporation and the Province have a shareholder's agreement that addresses such issues as the provision, from OPG to the Province, of the information necessary to allow the Province to periodically inform Ontario's legislature regarding matters such as the ongoing performance of OPG, progress reports concerning compliance with market power mitigation, information in respect of matters requiring shareholder approval and appropriate financial reports. In addition, the shareholder's agreement addresses OPG's governance relationship with the Province with respect to certain actions. These include any proposal to issue or transfer shares in the Corporation or any of its subsidiaries, the preparation of long-term business plans, matters concerning dividend policy and the entering into of any major transaction by the Corporation or any of its subsidiaries which would potentially have a material effect on the financial interest of the Province or OPG's ability to make payments in lieu of taxes. The shareholder's agreement also precludes the release by the Province of non-public, commercially sensitive information regarding OPG to Hydro One or others.

The declaration and payment of dividends are at the sole discretion of the Corporation's Board of Directors and will be dependent upon the Corporation's results of operations, financial condition, cash requirements and other factors considered relevant by the Corporation's Board of Directors.

Conflicts of interest may arise between OPG and the Province as a result of the obligation of the Province to act in the best interests of its residents in a broad range of matters, including the regulation of Ontario's electricity industry, the regulation of environmental matters, the allocation between OPG and the Province of the costs involved in nuclear waste management, the reduction of the stranded debt from the revenues of the electricity industry and any future sale by the Province of all or any of the Corporation's common shares and the determination of the amount of payments to be made by the Corporation to the Province by way of dividends. There can be no assurance that OPG and the Province will be able to resolve any potential conflict on terms satisfactory to OPG.

Finally, the Province has the power to alter the proxy tax, the gross revenue tax or other taxes or similar charges imposed on OPG. There can be no assurance that the proxy tax or gross revenue tax regimes will not be amended or that additional charges will not be imposed. In addition, under this regime, the tax-exempt status of the Corporation and certain of its subsidiaries would change if the Province ceased to own 90% or more of the shares or capital of the Corporation. The Ministry of Finance and The Ontario SuperBuild Corporation have retained financial advisors to assist them in reviewing options for the divestment of all or a portion of OPG, although the timing of any potential equity offering or sale of assets has not been announced. Under the current taxation regime, the Corporation and its subsidiaries could incur material tax liabilities, or lose the right to deduct certain material amounts in respect of contributions to, or acquisitions of interests in, nuclear decommissioning and nuclear waste management segregated funds in calculating income subject to proxy tax or income tax, as the case may be, if the Province's equity interest were to fall below the 90% threshold. See "*Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status – Effect of Change in Ownership on Tax Status*".

## ***Environmental Risks***

OPG is subject to federal, provincial and municipal environmental, health and safety laws. Failure to comply with such laws can subject OPG to significant liabilities, including fines and other penalties. The release of certain substances on or from properties owned, leased, occupied or used by OPG or as a result of OPG's operations has resulted, and could further result, in governmental orders requiring the investigation, control and/or remediation of such releases. The presence or release of such substances could have a material adverse effect on OPG's ability to sell its interest in such property or could lead to claims by third parties as a result of the release of such substances.

OPG incurs substantial capital and operating costs to comply with environmental laws and its voluntary environmental programs. The regulatory requirements relate to discharges to the environment; the handling, use, storage, transportation, disposal and clean-up of hazardous materials, including both hazardous and non-hazardous wastes; and the dismantlement, abandonment and restoration of generation facilities at the end of their useful lives. See "*Business of OPG – Regulation – Environmental Regulation*".

Any changes in applicable environmental laws, or their enforcement, may impose material additional costs on OPG and could materially impact the value of certain of OPG's assets. These could include, for example, possible changes to regulations relating to air emissions of SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, mercury and particulates, as well as the accelerated phase-out of PCBs. In addition, new approvals or permits or renewals of existing approvals and permits may require environmental assessment and/or result in the imposition of conditions which may be costly. The process for obtaining environmental permits and approvals, including any necessary environmental assessment, can be lengthy, controversial and expensive. OPG could experience difficulty and significantly increased costs to meet new environmental regulation in Ontario, to obtain permits or approvals or to comply with the conditions of new or revised permits or approvals. Such developments could have an adverse effect on OPG's business, operating results, financial condition or prospects.

In recent years, OPG has relied increasingly on fossil generation to compensate for declining nuclear generation and, starting in 1998, to replace nuclear generation that has been taken out of service as a result of the lay-up of the Pickering A and Bruce A stations under its nuclear recovery plan. OPG's inability to restore nuclear generation would require it to continue to rely upon its current high level of fossil generation.

The amount of electricity that OPG may produce at its fossil generating stations is constrained, in part, by provincial, international and voluntary acid gas and other emission limits. OPG's ability to sustain or increase fossil generation relative to current levels will depend, in part, on the implementation and maintenance of an effective emission reduction credit trading regime in Ontario. The absence of such a regime or the imposition of further, more stringent, air emission limits could have a material adverse effect on OPG's business, operating results or financial condition. See "*Business of OPG – Fossil Operations – Air Emissions and Effective Generation Limits*".

Canadian and international proposals to further limit fossil emissions, if implemented, could have an adverse impact on the cost and amount of OPG's fossil generation.

## ***Reliance Upon Transmission Systems***

OPG depends on the capacity and reliability of the transmission and interconnection systems that connect its generators with customers in Ontario and in the export markets. In Ontario, the capacity of such transmission systems is limited and OEB approval is required for its expansion. An element of OPG's strategy is to increase its export of electricity to the U.S. northeastern and mid-western markets. OPG may also face transmission constraints in its target export markets. The capacity of, OPG's access to, and the operating reliability of such interconnection, transmission and distribution systems are factors beyond OPG's control, and any capacity limitations, restrictions on access or reductions in operating reliability could have an adverse effect on OPG's business, operating results, financial condition or prospects. See "*Business of OPG – Relationship with the Province and Others – Relationships with Ontario Hydro's Successors*", "*Business of OPG – Markets and Customers – OPG's Markets – Interconnected Markets*" and "*– Interconnected Markets*".

### ***Interconnected Markets***

OPG's ability to penetrate interconnected markets will depend upon many external factors, including: the cost to transmit electricity to these markets; the price of electricity in these markets; the competitive actions of other generators and power marketers; the pace of deregulation in Ontario and the interconnected markets; currency exchange rates; any new trade limitations; costs to comply with environmental standards imposed in these markets; and OPG's success in obtaining a FERC marketer's licence in the case of sales to the U.S. interconnected markets. Without a power marketer's licence issued by FERC, U.S. transmission owners may restrict OPG's access to sell electricity in these markets.

OPG's ability to obtain a FERC marketer's licence is contingent upon, among other things, the Province allowing non-discriminatory access to transmission systems in Ontario upon Open Access. Accordingly, the delay in market opening has impeded OPG's access to certain U.S. markets and its ability to participate directly in U.S. wholesale markets. The execution of OPG's corporate strategy in the U.S. interconnected markets could be further delayed by changes in the timetable for market opening or by changes to the regulatory regime that are inconsistent with FERC licensing requirements. There can be no assurance that OPG will obtain a power marketer's licence and, even if such licence is obtained, there can be no assurance that OPG will be able to compete successfully in the U.S. interconnected markets. OPG's inability to access or compete in these markets could have a material adverse effect on OPG's business, operating results, financial condition or prospects, particularly in the context of market power mitigation. See "*Business of OPG – Markets and Customers – OPG's Markets – Interconnected Markets*" and "*Business of OPG – Regulation – Energy Regulation*".

OPG is a full member of the New York ISO and an active participant in the ISO-administered market. When OPG became an NY ISO member, it was expected that Open Access would begin in Ontario in 2000, such that New York market participants would enjoy reciprocal non-discriminatory access to Ontario's transmission system. OPG's ISO membership will expire in December 2001. There can be no assurance that an extension will be granted at the end of 2001, particularly if Open Access does not occur in 2001. OPG believes that it would be able to continue sales of energy production into the ISO-administered market in the absence of an ISO membership, although additional costs would likely be incurred in purchasing energy from the ISO for the Ontario market. See "*Business of OPG – Markets and Customers – OPG's Customers – Interconnected Market Customers*".

### ***Acquisition Opportunities***

OPG's growth strategy includes the potential acquisition or development of additional power generating facilities in the U.S. interconnected market areas close to Ontario. OPG plans to consider opportunities to enter the energy business in one or more regional jurisdictions or elsewhere, directly or in business combinations with others. OPG's success in this process will depend on numerous factors including: the price it pays for any assets or other investments; the continuation of the current regulatory environment in the United States and Canada which has led to the divestiture of generating facilities; OPG's ability to identify and complete appropriate acquisition and development opportunities in a competitive environment on terms acceptable to its shareholder; the ability of OPG's management to successfully manage new businesses in jurisdictions in which it has little experience. The North American power market is characterized by numerous strong and capable competitors, many of whom may have extensive and diversified developmental or operating experience and financial resources similar to or greater than OPG. In recent years, the industry has been characterized by strong and increasing competition among asset purchasers.

### ***Fossil Fuel Supply***

OPG's coal and gas-fired electricity production is dependent on a secure, reasonably priced supply of coal and natural gas. A number of factors, including mine production problems, rail transportation problems and shipping schedule disruptions could lead to temporary shortages in the supply of coal or increases in the price of coal. Similarly, gas price and availability can also be affected by numerous factors. Given the fuel mix of OPG's current fleet, the potential impact of gas supply disruptions on OPG is much smaller than the potential impact of coal supply disruptions.

OPG manages fossil fuel supply issues through its contracting strategy, the use of a diversity of sources and through inventory management. Similarly, gas price and availability risks are managed through a mixture of spot purchases and long-term contracts and the ability to convert floating price contracts into fixed price contracts in a

rising market. A reduction of OPG's coal-fired production because of supply concerns could have a material adverse effect on OPG.

### ***Hydroelectric Generation***

Approximately 45% of OPG's in-service hydroelectric capacity depends on water rights derived from treaties between Canada and the United States which are terminable by treaty parties upon 12 months' notice. Although OPG does not expect that Canada or the United States will exercise their termination rights under those treaties in the foreseeable future, there can be no assurance that such termination will not occur. The loss of the ability to generate power at some or all of its facilities could have a material adverse effect on OPG's business, operating results, financial condition and prospects. See "*Business of OPG – Regulation – Water Rights*".

OPG pays proxy taxes to the Province and makes water rental payments for the use of Crown lands. Significant increases in proxy taxes and water rentals could have a material adverse effect on OPG's business, operating results, financial condition or prospects. See "*Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status*".

The occurrence of dam failures at any of OPG's hydroelectric generating stations could result in a loss of generating capacity, and repairing such failures could require OPG to incur significant expenditures of capital and other resources. Such failures could result in OPG being exposed to significant liability for damages. OPG implemented a dam safety program in 1986 to minimize the risks associated with dam failures. The program consists of inspections, assessments and monitoring to detect potential failures and remediate high risk conditions, and emergency response plans to minimize the consequences of dam failure. There can be no assurance that the dam safety program will be able to detect potential dam failures prior to occurrence or eliminate all adverse consequences in the event of a failure. Upgrading all dams to enable them to withstand all low probability events could require OPG to incur significant expenditures of capital and other resources. The consequences of dam failures could have a material adverse effect on OPG's business, operating results, financial condition or prospects.

### ***Effects of Weather***

By the nature of its business, OPG's earnings are sensitive to weather variations from period to period. Variations in winter weather affect the demand for electrical heating requirements. Variations in summer weather affect the demand for electrical cooling requirements. Variations in precipitation also affect water supplies which in turn affect OPG's generating capacity by limiting OPG's ability to utilize its low-cost hydroelectric generating assets and may result in increased reliance on other sources of generation.

### ***Effects of Ontario Economy***

In the event of an economic slowdown in Ontario, OPG's earnings may be negatively impacted. During the period beginning in the 1950s and ending in the 1980s, the annual growth rate of electricity demand in Ontario declined from approximately 8% to approximately 3% on a weather-normalized basis, a pattern which was typical across North America. In the early 1990s, consumption in Ontario declined both as a result of the recession and due to the substantial electricity price increases in Ontario which were required, in large part, to recover capital costs associated with construction of the Darlington nuclear generating station. Price increases for electricity also precipitated substantial fuel switching from electricity to natural gas. Since 1994, growth in overall electricity demand has resumed at an annual rate of approximately 1.6% on a weather-normalized basis during a period of constant average electricity price and renewed economic activity. OPG expects Ontario primary demand to grow at an average annual rate of 1.2% between 2001 and 2009.

### ***Government Regulation***

OPG's operations are subject to extensive government regulation that may change from time to time. Matters that are subject to regulation include: nuclear operations (including regulation pursuant to *Nuclear Safety and Control Act* (Canada), the *Nuclear Liability Act* (Canada) and the *Emergency Plans Act* (Ontario)), nuclear waste management and decommissioning, water rentals, environmental matters including air emissions, and proxy tax payments. Operations that are not currently regulated may become subject to regulation. Because legal requirements are frequently changed and are subject to interpretation, OPG is unable to predict the ultimate cost of compliance with these requirements or their effect on operations. Some of OPG's operations are regulated by government agencies that exercise discretionary powers conferred by statute. Because the scope of such authority is



uncertain and may be inconsistently applied, OPG is unable to predict the ultimate cost of compliance with these requirements or their effect on operations. See “*Business of OPG – Regulation*”.

### ***Financing Requirements***

OPG operates in a capital-intensive industry and has a significant capital expenditure program. OPG may need to incur significant amounts of debt for capital expenditures and to refinance existing indebtedness in addition to its other liquidity and capital resource requirements. OPG’s debt to OEFC consists of \$2,650 million aggregate principal amount of senior notes and \$750 million aggregate principal amount of subordinated notes. These amounts will have to be repaid over the period from 2001 to 2011, including maturities of \$200 million annually in each of 2001, 2002 and 2003 and \$300 million annually in each of the following three years. See Note 8 to the Corporation’s audited consolidated financial statements for the year ended December 31, 2000.

The Province has not guaranteed the Corporation’s current indebtedness and has advised OPG that it will not guarantee future debt financing. OPG believes that equity contributions from the Province, as sole shareholder of the Corporation, will not constitute a source of capital in the foreseeable future. Moreover, the Province has not announced any decision or plan to permit the Corporation to sell equity to the public or other investors.

OPG expects that cash from its operations, together with additional borrowings available to OPG under existing credit facilities, will provide sufficient financial resources during 2001 and 2002 to satisfy its debt service requirements, based on current levels of indebtedness, and to meet OPG’s currently anticipated capital and other expenditure requirements during that period. OPG expects that its cash flow from generation operations in 2001 and 2002 will be negatively affected by lower generation capacity resulting from the implementation of decontrol initiatives in furtherance of OPG’s market power mitigation obligations and due to the expensing of a significant portion of the expenditures relating to the Pickering A return to service. Revenues from production of the Pickering A units, which are scheduled to be restarted on a staged basis beginning in early 2002, are expected to partially offset these reductions in cash flow. However, there can be no assurance that OPG will not require additional financing to supplement cash from operations to provide sufficient financial resources to satisfy its debt service requirements and to meet currently anticipated capital and other expenditure requirements.

The Corporation’s ability to arrange sufficient debt financing on satisfactory terms could be affected by numerous factors, including: its results of operations and financial condition; conditions in the capital and bank credit markets; the ratings assigned to the Corporation’s debt securities; the regulatory environment in Ontario; general economic conditions; investor confidence in the Ontario electricity industry and the Corporation; investor concerns following a major accident at a nuclear installation anywhere in the world; and the success of OPG’s nuclear recovery plan. Any failure or inability on the part of the Corporation to access debt markets on satisfactory terms could have a material adverse effect on the Corporation’s business, results of operations, financial condition or prospects.

### ***Forward-Looking Information***

This annual information form includes forward-looking statements and information. Words such as “may”, “will”, “expect”, “anticipate”, “believe”, “estimate”, “plan”, “intend” and similar expressions have been used in this annual information form to identify forward-looking statements. These forward-looking statements have been based on estimates and assumptions made by OPG’s management. Although OPG believes that these estimates and assumptions are reasonable, actual results could differ materially from those projected in the forward-looking statements. Forward-looking statements are not guarantees of future performance or results and are subject to various factors, including the risk factors contained herein. OPG is not obligated to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Because of these risks, uncertainties and assumptions, undue reliance should not be placed on these forward-looking statements.

## **ITEM 4 - SELECTED CONSOLIDATED FINANCIAL INFORMATION**

### **Selected Historical Financial Information**

The following table sets forth selected consolidated financial data derived from the audited consolidated financial statements of the Corporation as at December 31, 2000 and for the year ended December 31, 2000 and as

at December 31, 1999 and for the nine months ended December 31, 1999. The selected consolidated financial data for periods prior to April 1, 1999 are derived from the audited consolidated financial statements of the Acquired Business as operated by Ontario Hydro. The financial data for periods prior to April 1, 1999 have been prepared through specific identification of assets, liabilities, revenues and expenses relating to the Acquired Business, and through an allocation of certain common financial statement accounts and items of Ontario Hydro among its successors. The historical results of operations as reflected in the selected financial data below may have been different if OPG actually had been a stand-alone corporation with its own management and capital structure, rather than a business unit of Ontario Hydro, as at the dates and for the periods presented prior to April 1, 1999. Accordingly, the financial information for such periods may not be indicative of the Corporation's future financial performance.

The selected consolidated financial data for the pro forma year ended December 31, 1999 set out in the following table are derived from the Corporation's pro forma consolidated statements of income for the year ended December 31, 1999, (the "Pro Forma Statement of Income"), which assumes that OPG's purchase and assumption of the assets, liabilities, employees, rights and obligations of the Acquired Business had been completed as of January 1, 1999 in respect of the pro forma consolidated statement of income for the year ended December 31, 1999.

(millions of dollars)	Acquired Business		Pro Forma <sup>(1)</sup>	
	3 months ended March 31, 1999	9 months ended December 31, 1999	Year ended December 31 1999	Year ended December 31, 2000
<b>Income Statement Information<sup>(2)</sup></b>				
Revenues	1,769	4,338	5,795	5,978
Operating Expenses				
Operation, maintenance and administration	551	1,770	2,337	2,186
Fuel	335	816	1,116	1,271
Power purchased	45	153	198	180
Depreciation and amortization	385	573	765	764
Property and capital taxes	7	277	369	379
	<u>1,323</u>	<u>3,589</u>	<u>4,785</u>	<u>4,780</u>
Operating income	446	749	1,010	1,198
Interest expense	545	134	179	140
Income (loss) before payment in lieu of income taxes	(99)	615	831	1,058
Income taxes <sup>(3)</sup>	—	(289)	(385)	(453)
Net income (loss)	<u>(99)</u>	<u>326</u>	<u>446</u>	<u>605</u>

(millions of dollars)	As at December 31	
	1999	2000
<b>Balance Sheet Information<sup>(2)</sup></b>		
Assets		
Current	1,798	2,385
Fixed	12,902	12,932
Other	910	1,474
Total	<u>15,610</u>	<u>16,791</u>
Liabilities		
Current	1,149	1,760
Long-term debt	3,422	3,219
Nuclear waste management and asset removal	4,235	4,482
Other post-employment benefits	959	997
Other	428	516
Shareholder's Equity		
Common shares	5,126	5,126
Retained earnings (deficit of assets over liabilities)	<u>291</u>	<u>691</u>
Total	<u>15,610</u>	<u>16,791</u>

	Year Ended December 31				
Operating Information	1996	1997	1998	1999	2000
Total electricity generated (TWh)					
Hydroelectric	37.6	36.4	31.9	33.6	34.0
Fossil	19.0	24.4	34.2	36.1	42.4
Nuclear	77.8	70.3	59.9	61.4	59.8
	<u>134.4</u>	<u>131.1</u>	<u>126.0</u>	<u>131.1</u>	<u>136.2</u>
Total electricity purchased (TWh) (excluding Energy Banking)	<u>1.4</u>	<u>3.4</u>	<u>5.0</u>	<u>5.1</u>	<u>3.3</u>
Generating facilities capacity factor <sup>(4)</sup> (%)					
Hydroelectric	60	58	50	53	54
Fossil (coal only)	29	37	52	51	62
Nuclear	66	61	76	81	78
Generating facilities capability factor <sup>(5)</sup> (%)					
Hydroelectric	91	89	90	91	92
Fossil (total)	69	62	67	68	76
Nuclear	68	62	77	81	79
Electricity sales volume (TWh)					
Ontario energy sales	129.6	128.0	128.7	132.4	135.8
Interconnected market sales	<u>6.1</u>	<u>6.4</u>	<u>3.0</u>	<u>4.5</u>	<u>4.0</u>
Total energy sales <sup>(6)</sup>	<u>135.7</u>	<u>134.4</u>	<u>131.7</u>	<u>136.9</u>	<u>139.8</u>
Ontario market share <sup>(7)</sup> (%)	90%	88%	87%	88%	89%

Notes:

- (1) Assumes the purchase and assumption by OPG of the assets, liabilities, employees, rights and obligations of the Acquired Business had occurred on January 1, 1999 for the year ended December 31, 1999. In consideration for this transfer, the Corporation issued to the OEFC notes payable in the aggregate principal amount of \$8,526 million, including a note in the principal amount of \$5,126 million (the "Equity Note") and assumed a capital lease obligation of Ontario Hydro in the amount of \$30 million. The Province has assumed all of the Corporation's obligations under the Equity Note and the OEFC has released the Corporation from its obligations thereunder, and in connection therewith, the Corporation issued to the Province 256,300,000 fully paid and non-assessable common shares. The pro forma adjustments are calculated after giving effect to the purchase.
- (2) The audited financial statements of the Acquired Business as operated by Ontario Hydro for the three-month period ended March 31, 1999 reflect the historical book values and costs of the assets and liabilities as originally recorded by Ontario Hydro. The audited consolidated financial statements of the Corporation as at December 31, 2000 and for the 12 months ended December 31, 2000 and as at December 31, 1999 and for the nine months ended December 31, 1999 reflect the acquisition of the Acquired Business on April 1, 1999 at its fair value.
- (3) As of April 1, 1999, the Corporation and certain of its Canadian subsidiaries are responsible for making payments in lieu of taxes (referred to as proxy taxes) to the Province. These payments are calculated on the basis of requirements in the *Income Tax Act* (Canada) and the *Corporations Tax Act* (Ontario) and regulations made under the *Electricity Act, 1998*. The Corporation and certain of its subsidiaries are also responsible for making payments to the Province in lieu of property and school taxes on its generating assets. See "*Business of OPG – Relationship with the Province and Others – Stranded Debt, Proxy Taxes and Effect of Change in Ownership on Tax Status*".
- (4) Net capacity factor is an operational statistic which is determined for a period of time, usually one year. The capacity factor is the amount of electricity actually produced in the period as a percentage of its maximum production capacity.
- (5) Net capability factor is the amount of electricity capable of being produced by a generating unit as a percentage of its maximum output, assuming no external constraints such as transmission limitations.
- (6) Total energy sales may be less than the sum of total electricity generated and total electricity purchased due to the existence of an electricity banking arrangement with Hydro Québec.
- (7) Market share is based on the Corporation's total volume of electricity sales in Ontario as a percentage of total Ontario sales volume from all suppliers of electricity.

## Share Capital and Sole Shareholder

The authorized share capital of the Corporation consists of an unlimited number of common shares. As of April 30, 2001, 256,300,010 common shares are issued and outstanding, all of which are owned directly by the Province. Holders of common shares are entitled to one vote per share at meetings of the shareholders of the Corporation and to receive dividends if, as and when declared by the Board of Directors of the Corporation. Holders of common shares would participate, *pro rata* to their holding of common shares, in any distribution of the assets of the Corporation upon its liquidation, dissolution or winding up. See "*Business of OPG – Relationship with the Province and Others – Relationship with the Province – Shareholder's Agreement and Dividend Policy*" for a description of the Corporation's dividend policy. No options to purchase securities of the Corporation or of any of its subsidiaries are currently outstanding.

## ITEM 5 - MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The information which appears under the heading "Management's Discussion and Analysis" in the 2000 Annual Report of the Corporation is incorporated herein by reference.

## ITEM 6 - MARKET FOR SECURITIES

As at April 30, 2001, none of the Corporation's securities are listed and posted for trading or quoted on any exchange or quotation system.

## ITEM 7 - DIRECTORS AND OFFICERS

### Directors and Senior Management

The following table sets forth the name, municipality of residence, position with the Corporation and principal occupation of each of the directors and members of senior management of the Corporation.

Name and Municipality of Residence	Position with the Corporation	Principal Occupation
WILLIAM A. FARLINGER <sup>(1)(6)</sup> ..... King City, Ontario	Director and Chairman of the Board of Directors	Chairman of the Board of Directors of the Corporation
JALYNN H. BENNETT <sup>(2)(3)</sup> ..... Toronto, Ontario	Director	President, Jalyynn H. Bennett & Associates Limited (a consulting firm)
DANIEL J. BRANDA <sup>(2)(3)</sup> ..... Oakville, Ontario	Director	President, INTRIA-HP (an electronic commerce company)
GRAHAM A. BROWN <sup>(6)</sup> ..... Toronto, Ontario	Director and Chief Operating Officer	Chief Operating Officer of the Corporation
O. MARK DE MICHELE <sup>(4)</sup> ..... Coronado, California	Director	Chairman and Chief Executive Officer, Urban Realty Partners L.P. (a real estate limited partnership)
PAUL V. GODFREY <sup>(1)(4)</sup> ..... Toronto, Ontario	Director	President and Chief Executive Officer, Toronto Blue Jays Baseball Club (a professional sports team)
DAVID W. KERR <sup>(2)(3)</sup> ..... Toronto, Ontario	Director	President and Chief Executive Officer, Noranda Inc. (a natural resource company)
RONALD W. OSBORNE <sup>(5)</sup> ..... Toronto, Ontario	Director, President and Chief Executive Officer	President and Chief Executive Officer of the Corporation
BRIAN A. ROBBINS <sup>(2)(3)(4)</sup> ..... Aurora, Ontario	Director	President and Chief Executive Officer, Exco Technologies Limited (a manufacturing company)
ARTHUR R. SAWCHUK <sup>(1)(4)</sup> ..... Mississauga, Ontario	Director	Chairman of the Board of Directors, Manulife Financial Corp. (an insurance company)
RICHARD M. THOMSON <sup>(2)</sup> ..... Toronto, Ontario	Director	Retired Chairman and Chief Executive Officer, The Toronto Dominion Bank (a Canadian chartered bank)

<b>Name and Municipality of Residence</b>	<b>Position with the Corporation</b>	<b>Principal Occupation</b>
LYNTON (RED) WILSON <sup>(1)</sup> ..... Oakville, Ontario	Director	Chairman of the Board, Nortel Networks Inc. (an electronic commerce company) and Chairman of the Board, CAE Inc. (an aerospace engineering company)
WAYNE M. BINGHAM ..... Aurora, Ontario	Executive Vice-President and Chief Financial Officer	Executive Vice-President and Chief Financial Officer of the Corporation
RICHARD DICERNI ..... Mississauga, Ontario	Executive Vice-President and Corporate Secretary	Executive Vice-President and Corporate Secretary
DAVID W. DRINKWATER ..... Toronto, Ontario	Executive Vice-President – Law and Corporate Development	Executive Vice-President – Law and Corporate Development of the Corporation
JOHN D. MURPHY ..... Pickering, Ontario	Executive Vice-President – Human Resources	Executive Vice-President – Human Resources of the Corporation
JOHN C. MATHER <sup>(7)</sup> ..... Oakville, Ontario	Executive Vice-President – formerly Chief Information Officer	Executive Vice-President of OPG and Chief Executive Officer of New Horizon System Solutions Inc.
EUGENE PRESTON ..... Aurora, Ontario	Executive Vice-President and Chief Nuclear Officer	Executive Vice-President and Chief Nuclear Officer of the Corporation
BRUCE BOLAND ..... Etobicoke, Ontario	Senior Vice-President – OPG Energy Markets	Senior Vice-President – Energy Markets of the Corporation
JAMES R. BURPEE ..... Toronto, Ontario	Senior Vice-President – Pickering A	Senior Vice-President – Pickering A
PIERRE CHARLEBOIS ..... Pickering, Ontario	Senior Vice-President – Technical Services and Chief Nuclear Engineer	Senior Vice-President – Technical Services and Chief Nuclear Engineer of the Corporation
GISELLE S. BRANGET ..... Toronto, Ontario	Vice-President and Treasurer	Vice-President and Treasurer of the Corporation
ADELE S. MALO ..... Toronto, Ontario	Vice-President and General Counsel	Vice President Law and General Counsel of the Corporation

Notes:

- (1) Member of the Human Resources and Corporate Governance Committee.
- (2) Member of the Audit Committee.
- (3) Member of the Environment, Health and Safety Committee.
- (4) Member of the Nuclear Review Committee.
- (5) Attends all committee meetings but is not a member of the committees.
- (6) May attend Audit, Nuclear Review and Environment, Health and Safety Committee meetings but is not a member of these committees.
- (7) John Mather resigned from his position as Executive Vice-President of the Corporation and Chief Executive Officer of New Horizon System Solutions Inc. effective May 1, 2001.

All of the directors and senior management of the Corporation have been engaged for more than five years in their current principal occupations except as set out below:

**Ronald W. Osborne** was President and Chief Executive Officer of Bell Canada (a Canadian telecommunications company) from 1997 to March 1998, President of BCE Inc. (a global telecommunications company) from 1996 to 1997, Executive Vice-President and Chief Financial Officer of BCE Inc. from 1995 to 1996;

**Daniel J. Branda** was President and Chief Executive Officer of Hewlett-Packard Canada, Ltd. (a computer company) from 1993 to 1998 and its Chairman from 1997 to 1998;

**Graham A. Brown** joined the Corporation in October 2000. Previous to this, he served as Chief Operating Officer of National Power, plc (a U.K.-based electricity generator and retailer) from 1999 to September 2000, prior to which he served as its U.K. managing director from 1998 to 1999, commercial director from 1994 to 1998, and as a director from 1996;

**O. Mark De Michele** was President and Chief Executive Officer of Arizona Public Service Company (an electrical power utility) from 1988 to 1997;

**Paul V. Godfrey** was President and Chief Executive Officer of Sun Media Corporation (a communications and media company) from 1996 to June 2000, and President and Chief Executive Officer of the Toronto Sun Publishing Corporation (a newspaper publishing company) from 1992 to 1996;

**David W. Kerr** was Chairman and Chief Executive Officer of Noranda Inc. (an international mining and metals company) from April 1995 to November 1997;

**Arthur R. Sawchuk** was President and Chief Executive Officer of Avenor Inc. (a natural resource company) from November 1997 to July 1998 and Chairman, President and Chief Executive Officer of DuPont Canada Inc. (a diversified industrial company) from 1995 to 1997;

**Lynton (Red) Wilson** was Chairman of the Board of BCE Inc. from 1998 to May 2000, Chairman and Chief Executive Officer of BCE Inc. from 1996 to 1998 and Chairman, President and Chief Executive Officer of BCE Inc. prior to 1996;

**Wayne M. Bingham** was Senior Vice-President – Finance of Union Gas Limited (a natural gas storage, transportation and distribution company) from 1998 to March 1999, and Vice-President – Finance of Westcoast Energy Inc. (an energy company) prior to 1998;

**Richard Dicerni** was Senior Vice-President, Corporate and Environmental Affairs and Corporate Secretary of the Corporation from December 1998 to December 1999. Prior to that, he was Senior Vice-President, Corporate and Environmental Affairs, with Ontario Hydro from December 1997 to November 1998. Mr. Dicerni served as President and Chief Executive Officer of the Canadian Newspaper Association (a trade and lobbying organization) from 1996 to December 1997 and held several Deputy Minister positions with the Province from 1992 to 1996, including Deputy Minister of Education and Training and Deputy Minister of Intergovernmental Affairs from 1995 to October 1996;

**David W. Drinkwater** was Special Advisor to the Chairman and Chief Executive Officer of Bell Canada during 1998, Group Vice President, Law and General Counsel of Bell Canada from 1996 to 1998 and, prior to that, a partner of Osler, Hoskin & Harcourt (a law firm);

**John C. Mather** was Executive Vice President and Chief Information Officer of the Corporation since March 1999. He resigned as Chief Information Officer of the Corporation effective November 23, 2000 to become Chief Executive Officer of New Horizon System Solutions Inc. effective February 1, 2001. He resigned as Executive Vice President of the Corporation and Chief Executive Officer of New Horizon System Solutions Inc. effective May 1, 2001. Prior to joining the Corporation, John Mather was a Senior Manager at Deloitte & Touche Consulting in Chicago, Illinois from November 1994 to March 1998, and a partner at Ernst & Young Consulting from March 1998 until joining the Corporation.

**John D. Murphy** was President of the Power Workers' Union, CUPE Local 1000 (a labour union), from 1993 to May 2000. He was appointed to OPG's Board of Directors in December 1998. Upon joining OPG as Executive Vice-President – Human Resources in May 2000, he stepped down from the Board of Directors;

**Eugene Preston** held various positions with the Corporation from January 1997 to December 1999, including Vice-President of Operations, Maintenance and Training and Senior Vice-President – Nuclear Asset Optimization Program. He was Plant Manager of Tennessee Valley Authority's Browns Ferry Nuclear Plant prior to January 1997;

**Bruce Boland** was Vice-President, Regulatory Affairs, of the Corporation from April 1999 to March 2000. Prior to that, he was Senior Manager of Regulatory Affairs from May 1997 to March 1999 and Manager of Pricing from October 1995 to May 1997;

**James R. Burpee** held various positions with the Corporation, including Senior Vice-President, Electricity Production from October 1998 to February 2001, General Manager – Fossil from September 1997 to October 1998, Site Vice-President – Bruce Nuclear Plant from September 1996 to August 1997 and General Manager – Fossil prior to September 1996. He was appointed Senior Vice President, Pickering A, responsible for the project, the safe and economical startup and operation of the Pickering A units in February 2001;

**Pierre Charlebois** was Vice-President, Station Engineering Support of the Corporation from 1998 to 1999 and was a principal of Performa International (a consulting firm) from 1996 to 1998. Prior to 1996, Mr. Charlebois was Technical Manager, Production Manager and Plant Director at Pickering Nuclear Generating Station;

**Giselle S. Branget** was Vice-President and Chief Financial Officer of Integrex, a service-based subsidiary of Owens Corning Corporation (a manufacturing company) from May 1999 to March 2000. Prior to that, Ms. Branget was Vice-President of Strategic Planning and Corporate Development of Owens Corning Corporation, responsible for various finance, strategy and corporate development initiatives, from March 1998 to April 1999, and served as Controller of Fibreboard Corp. (a subsidiary of Owens Corning Corporation) from September 1997 to February 1998. Ms. Branget was Treasurer of John Labatt Limited (a brewing, broadcasting and entertainment company) prior to May 1996; and

**Adèle S. Malo** was Vice-President Legal, General Counsel and Corporate Secretary of Union Gas Limited (a natural gas storage, transportation and distribution company) from May 1998 to August 2000. Prior to that, Ms. Malo was corporate counsel to The Oshawa Group Limited (a wholesale and retail grocery distribution company).

Each director is elected annually to serve for a one year term or until his or her successor is elected or appointed except for Mr. William Farlinger who was elected Chair of the Board of Directors for a term to end at the close of the third annual meeting of shareholders being approximately May 2002.

### **Committees of the Board of Directors**

*Audit Committee.* The Audit Committee's mandate includes meeting with the Corporation's auditors and reviewing the consolidated financial statements of the Corporation prior to the submission of such statements to the Board of Directors. In so doing, the Committee reviews the Corporation's financial and accounting management procedures, including the Corporation's internal accounting and financial controls and procedures, audit procedures and audit plans to ensure compliance with applicable legislative requirements and with generally accepted accounting principles. In addition, the Committee reviews matters relating to the Corporation's risk management programs and policies relating to debt and foreign exchange management. The Committee makes recommendations regarding the mandate and programs of the Corporation's internal auditor and the appointment, terms of engagement and remuneration of the external auditor.

*Human Resources and Corporate Governance Committee.* The Human Resources and Corporate Governance Committee's mandate includes recommending nominations to the Board of Directors. The Committee also advises the Board of Directors on the Corporation's objectives and policies concerning the recruitment, development, placement and promotion of management as well as remuneration. The Committee is also charged with reviewing the terms of reference of Board committees, and ensuring compliance with corporate governance

reporting requirements. The Committee is also responsible for reviewing pension plan and executive and management compensation arrangements.

*Environment, Health and Safety Committee.* The Environment, Health and Safety Committee oversees the Corporation's environment, health and safety policies to ensure compliance with applicable legislative and regulatory requirements. The Committee also evaluates, on an ongoing basis, the adequacy of the Corporation's processes for identifying and managing environmental, health and safety risks and makes recommendations to the Board of Directors to ensure continual improvement in environmental, health and safety performance. The Committee advises the Board of Directors with respect to OPG's operations and maintenance processes to ensure that the radiological risk to workers, the public and the environment is kept within established safety standards. The Committee also monitors and advises the Board of Directors on environmental trends and developments in other jurisdictions that relate to OPG's operations.

*Nuclear Review Committee.* The Nuclear Review Committee's mandate is to monitor the nuclear performance of the Corporation, particularly with respect to safety issues. The Committee advises the Board of Directors with respect to policies and strategies to ensure the safe performance of OPG's nuclear operations. The Committee also advises the Board of Directors with respect to compliance with existing laws and regulations that govern OPG's nuclear facilities, including commitments made to the Canadian Nuclear Safety Commission. The Committee is also responsible for reviewing the scope of nuclear performance audit programs and the appointment of external advisors and assessors.

## Executive Compensation

The following summary compensation table sets forth the compensation paid by the Corporation for the years ended December 31, 1999 and 2000 to the Chief Executive Officer, the Chief Operating Officer and each of the Executive-Vice Presidents of the Corporation, including the five most highly compensated executive officers of the Corporation (the "Named Executive Officers").

**Summary Compensation Table**

Name and Principal Position	Year	Annual Compensation			All Other Compensation (\$)
		Salary (\$)	Bonus (\$)	Other Annual Compensation (\$) <sup>(1)</sup>	
Ronald W. Osborne, Director, President and Chief Executive Officer	2000	775,000	975,000	99,008	-
	1999	750,000	900,000	91,913	-
Graham Brown, Director and Chief Operating Officer	2000	169,000 <sup>(2)</sup>	84,500	19,436	437,500 <sup>(3)</sup>
Wayne Bingham, Executive Vice-President and Chief Financial Officer	2000	306,000	123,000	51,709	45,000 <sup>(4)</sup>
	1999	234,199 <sup>(5)</sup>	135,000	39,917	122,744 <sup>(6)</sup>
Richard Dicerni, Executive Vice-President and Corporate Secretary	2000	300,000	150,000	53,552	-
	1999	260,000	117,000	50,503	11,452 <sup>(7)</sup>
David Drinkwater, Executive Vice-President – Law and Corporate Development	2000	350,000	245,000	50,156	45,000 <sup>(4)</sup>
	1999	335,000	157,500	48,459	-
John Mather, Executive Vice-President and Former Chief Information Officer	2000	357,000 <sup>(8)</sup>	284,000	48,223	-
	1999	291,667 <sup>(9)</sup>	175,000	47,090	240,000 <sup>(6)</sup>
John Murphy, Executive Vice-President – Human Resources	2000	172,011 <sup>(10)</sup>	64,000	38,822	-
Eugene Preston, Executive Vice-President and Chief Nuclear Officer	2000	1,112,148 <sup>(11)</sup>	322,719 <sup>(11)</sup>	32,937	-
	1999	847,927 <sup>(11)</sup>	720,000 <sup>(12)</sup>	26,023	1,372,272 <sup>(11)</sup>

### Notes:

- (1) Includes car allowances, flexible benefits payments and life insurance taxable benefit.
- (2) Mr. Brown commenced employment on October 1, 2000. His salary on an annual basis would have been \$675,000.
- (3) Includes signing bonus plus moving allowance.
- (4) Guaranteed award payment per employment contract.
- (5) Mr. Bingham commenced employment on March 22, 1999. His salary on an annual basis would have been \$300,000.
- (6) Payment made to compensate for remuneration foregone at a previous employer.



- (7) Payment made to the Ontario Pension Board per employment contract. Mr. Dicerni became a member of the Corporation's pension plan on August 1, 1999.
- (8) Mr. Dietmar Reiner was appointed Chief Information Officer effective November 23, 2000. Mr. Mather resigned as Chief Information Officer of OPG effective November 23, 2000 to become Chief Executive Officer of New Horizon System Solutions Inc., which appointment was effective February 1, 2001.
- (9) Mr. Mather commenced employment on March 1, 1999. His salary on an annual basis would have been \$350,000.
- (10) Mr. Murphy commenced employment on May 17, 2000. His salary on an annual basis would have been \$275,000. Prior to commencing employment he resigned as a member of the Board of Directors of OPG. His remuneration as a member of the Board of Directors for 2000 was \$15,769 and for 1999 was \$38,150.
- (11) 2000 salary of US\$750,000 has been converted at an average exchange rate of US\$1.00 = C\$1.4829; 2000 bonus payments of US\$165,000 and US\$50,000 have been converted at the prevailing exchange rates at the time of payment of US\$1.00 = C\$1.4949 and US\$1.00 = C\$1.5212, respectively; 1999 salary of US\$568,774 has been converted at an average exchange rate of US\$1.00 = C\$1.4908; and a payment of US\$902,395 to settle retirement obligations has been converted at a rate of US\$1.00 = C\$1.5207.
- (12) Bonus of US\$500,000 in respect of three prior years was paid on conversion of contract and converted at an exchange rate of US\$1.00 = C\$1.44.

### **Long-Term Incentive Plan**

The Board of Directors approved the establishment of a Long-Term Incentive Plan ("LTIP") for senior executives effective January 1, 1999. The objective of the LTIP is to provide an incentive to achieve outstanding performance over a longer term than the one-year period covered by annual bonus awards.

The LTIP operates over three-year overlapping periods. Each performance period starts on January 1 of the first calendar year and ends December 31 of the third calendar year. To be eligible for a payout under the LTIP, a participant must be employed by the Corporation at the end of the three-year period. The first performance period commenced on January 1, 1999 and will end on December 31, 2001. The next period commences January 1, 2000 and will end on December 31, 2002. The most recent period commenced January 1, 2001 and will end on December 31, 2003.

LTIP payouts will be determined based on corporate results achieved during each performance period and paid out in cash. The Human Resources Corporate Governance Committee of the Board will determine the performance measures and targets applicable to a given performance period at the outset of the performance period. In addition, threshold and maximum performance levels will be established. LTIP payouts will not be paid for performance below threshold. Threshold, target and maximum incentive awards will be expressed as a percentage of the participant's average base salary over the three-year performance period.

To recognize the fact that no LTIP payouts will be made until the completion of the first three-year performance period at the end of 2001, an enhanced award opportunity equal to 50% of the award otherwise payable will be provided to participants with respect to the 1999-2001 award. For example, if a participant's target eligibility is 25% of base salary and performance during the period 1999-2001 was at target levels, the award will be increased at the end of 2001 by 50% to 37.5% of base salary. Thereafter, the size of the LTIP award opportunity will remain consistent with the original plan. Consequently, the LTIP potential payouts for 2000-2002 will reflect a lower potential payout than for 1999-2001.

### **Long-Term Incentive Plans Awards in Most Recently Completed Financial Year**

The following table illustrates the potential future payouts under the LTIP for the two performance periods which commenced January 1, 1999 and January 1, 2000 for those Named Executive Officers, as of December 31, 2000, who participate in the LTIP. Actual LTIP payouts will not be made until the completion of the three-year performance period and will depend upon performance.

Potential Future Payouts in 2002 and 2003 Under Non-Securities-Price Based Plans <sup>(1)</sup>				
Name	Performance or Other Period Until Maturation or Payout	Threshold (\$)	Target (\$)	Maximum (\$)
Ronald W. Osborne, Director, President and Chief Executive Officer	2000-2002 1999-2001	194,000 281,000	388,000 562,000	581,000 843,500
Graham Brown, Director and Chief Operating Officer	2000-2002 1999-2001	203,000 -	406,000 -	608,000 -
Wayne Bingham, Executive Vice-President and Chief Financial Officer	2000-2002 1999-2001	38,000 56,000	76,000 112,500	114,000 169,000
Richard Dicerni, Executive Vice-President and Corporate Secretary	2000-2002 1999-2001	38,000 49,000	75,000 98,000	112,000 146,000
David Drinkwater, Executive Vice-President – Law and Corporate Development	2000-2002 1999-2001	44,000 63,000	88,000 125,500	131,000 188,500
John Murphy, Executive Vice-President – Human Resources	2000-2002 1999-2001	34,000 -	69,000 -	103,000 -
Eugene Preston, Executive Vice-President and Chief Nuclear Officer <sup>(2)</sup>	2000-2002 1999-2001	US\$80,000 -	US\$160,000 -	US\$240,000 -

Notes:

- (1) Calculations are based on 1999 and 2000 salary levels. Mr. Mather did not participate in the LTIP.
- (2) Mr. Preston's LTIP payment is shown in U.S. dollars per his employment contract, with the exchange rate to be determined at the time of the payment for OPG's accounting purposes.

## Pension Plans

Messrs. Osborne, Brown, Bingham, Dicerni, Drinkwater, Mather and Murphy participate in a registered defined benefit pension plan. The plan provides a benefit at age 65 in conjunction with the Canada Pension Plan of 2% of the highest three year average pensionable earnings per year of credited service, subject to the limits imposed by the *Income Tax Act* (Canada). Pensions are paid on a joint and 66.67% survivor basis to members who have a spouse at the time of retirement. The pension is indexed to the Consumer Price Index after retirement to a maximum increase of 8% per annum. There is also a supplementary pension plan that provides benefits in excess of the registered plan benefits up to the level of benefits promised to each executive.

The following table shows, as of December 31, 2000, the pensions payable from the Corporation and the Corporation's pension plan at age 65 at various pensionable earnings levels and years of credited service for the above-noted participants.

Remuneration	Years of Service				
	15	20	25	30	35
\$200,000	\$56,409	\$75,213	\$94,016	\$112,819	\$131,622
\$400,000	\$116,409	\$155,213	\$194,016	\$232,819	\$271,622
\$600,000	\$176,409	\$235,213	\$294,016	\$352,819	\$411,622
\$800,000	\$236,409	\$315,213	\$394,016	\$472,819	\$551,622
\$1,000,000	\$296,409	\$395,213	\$494,016	\$592,819	\$691,622
\$1,200,000	\$356,409	\$475,213	\$594,016	\$712,819	\$831,622
\$1,400,000	\$416,409	\$555,213	\$694,016	\$832,819	\$971,622
\$1,600,000	\$476,409	\$635,213	\$794,016	\$952,819	\$1,111,622

The promised benefits and the credited service for each executive are described below.

Mr. Osborne's credited service at December 31, 2000 is 7.54 years. For each year of service with the Corporation, he will receive 1.25 years of credited service for purposes of calculating his pension plan benefit. Mr. Osborne's pensionable earnings will be comprised of his base salary and the bonus compensation earned in the year

and paid in the following year. On retirement after age 55, he will also receive a lump sum retiring allowance equal to his annual base salary.

Mr. Brown's credited service began on October 1, 2000. Mr. Brown's pensionable earnings will be comprised of salary plus the lesser of actual annual short-term incentive earned in respect of the year and target short-term annual incentive for the year. On termination before the age of 55, he will receive a deferred pension, commencing at age 55, equal to 85% of his annual pension based on service and earnings to the date of such termination. If Mr. Brown retires after age 55 and before age 60, his accrued pension based on service and earnings to the date of such termination, shall be payable immediately but will be reduced by 3% per annum for each year that such retirement precedes attaining the age of 60. If he retires on or after attaining the age of 60, his pension will vest immediately and will be payable without reduction. On retirement in accordance with the terms of the pension plans, Mr. Brown will also receive a lump sum retiring allowance equal to his monthly base salary.

Mr. Bingham's credited service at December 31, 2000 is 3.5 years. For each of his first ten years of service with the Corporation, he will receive 2 years of credited service for purposes of calculating his pension plan benefit. Thereafter he will receive one year credited service for each year of service. Mr. Bingham's pensionable earnings will be comprised of his base salary and the bonus compensation (up to his target bonus) earned in the year and paid in the following year. On retirement after age 55, he will also receive a lump sum retiring allowance equal to his monthly base salary.

Mr. Dicerni's credited service at December 31, 2000 is 30.72 years. This includes credited service transferred from his previous employer. For each of the first 12 years of service commencing January 1, 2000, he will receive 1.5 years of credited service for purposes of calculating his pension plan benefit. Mr. Dicerni's pensionable earnings will be comprised of his base salary and an appropriate portion of his bonus compensation earned in the year and paid in the following year.

Mr. Drinkwater's credited service at December 31, 2000 is 4 years. For each year of service with the Corporation until age 60, he will receive 2 years of credited service for purposes of calculating his pension plan benefit. Thereafter he will receive 1.5 years of credited service for each year of service. Mr. Drinkwater's pensionable earnings will be comprised of his base salary and the bonus compensation earned in the year and paid in the following year. In addition, the Corporation guarantees that if Mr. Drinkwater is terminated (other than for cause), prior to age 55, he will receive a total pension of not less than \$100,000 per annum payable from age 55. If Mr. Drinkwater retires after age 55 and before age 60, his total pension from the Corporation will not be less than \$100,000 per annum. If Mr. Drinkwater retires after age 60, his total pension from the Corporation will not be less than \$200,000 per annum.

Mr. Mather's credited service at December 31, 2000 is 1.84 years. Mr. Mather's pensionable earnings will be comprised of his base salary and the bonus compensation earned in the year and paid in the following year.

Mr. Murphy's credited service at December 31, 2000 is 20.58 years.

Mr. Preston will receive a retiring allowance equal to the amount by which his annualised salary determined as of January 31, 2004 exceeds US\$300,000, if his employment contract has not been terminated prior to January 31, 2004. He will also receive post retirement medical benefits for both he and his spouse. Upon payment of the retiring allowance, OPG shall have no further obligation to provide additional retirement funds to Mr. Preston.

### **Employment Agreements**

The Corporation has employment agreements with each of the Named Executive Officers. In addition to their base salary and other LTIP and pension entitlements described above, Messrs. Osborne, Preston, Brown, Bingham, Dicerni, Drinkwater, Mather and Murphy are eligible to receive annual cash bonus awards based on the achievement of key corporate, business and individual performance measures.

Mr. Osborne's employment agreement provides that upon involuntary termination without cause Mr. Osborne would receive either one year's notice or, at Mr. Osborne's option in the event that the Corporation provides him with notice ending before he attains the age of 55, or at the Corporation's option, a lump sum payment equal to his base salary plus an amount equal to the annual bonus paid the preceding year, discounted for one year at

prevailing interest rates. In addition, all amounts accrued under the Corporation's long term incentive plan will vest immediately and will be paid within 90 days of the date of termination. Mr. Osborne may elect to terminate his employment by giving 180 days' notice if: (1) there is a fundamental change in the policies of the Province relating to the Corporation pursuant to which it is not reasonably possible for Mr. Osborne to continue as President and Chief Executive Officer; or (2) there is a change of control of the Corporation, other than a public offering of shares, to which Mr. Osborne has not consented (such consent not to be unreasonably withheld or delayed). If Mr. Osborne elects to terminate his employment as a result of a fundamental change in policy or a change of control, he will receive the same payments as if he were terminated without cause, except that the notice period shall be two years such two year period to commence on the date on which Mr. Osborne gives notice.

The Corporation has entered into an employment agreement with Mr. Brown under which, in the event that Mr. Brown is terminated without cause by the Corporation, he will be provided a period of notice of one year plus an amount equal to the annual bonus paid for the preceding year (or \$337,500 if employment terminates during the first year), or in lieu of the above, at either Mr. Brown's or the Corporation's option, a lump sum of \$1 million. In addition, Mr. Brown will receive any outstanding signing bonus, all amounts accrued under the long-term incentive plan and project initiatives and, if notice of termination is effective before December 31, 2003, relocation expenses to the United Kingdom and reimbursement for any loss on the sale of his home in Canada. Mr. Brown may elect to terminate his employment if (1) by the end of 2003 if no non-government equity has been invested in the company and there is no reasonable prospect of such equity investment in 2004; or (2) there is a change in control of the Corporation, other than a public offering of shares, to which Mr. Brown has not consented (such consent not to be unreasonably withheld or delayed); and, as a result, there is a material change in Mr. Brown's duties or responsibilities. In such event, he will be entitled to receive \$1 million plus any outstanding signing bonus and all amounts accrued under the long-term incentive plan and project initiatives.

The Corporation has entered into an employment agreement with Mr. Bingham which provides for guaranteed awards payable in 2000 and 2001. The agreement provided for a payment in 1999 to compensate for remuneration foregone at the previous employer. The agreement provides that in the event that Mr. Bingham is terminated without cause by the Corporation within the first 36 months of his employment he will receive a lump sum equal to two years salary; he will receive 18 months' salary if terminated without cause thereafter.

Mr. Dicerni's employment agreement provides that upon involuntary termination without cause, Mr. Dicerni would receive a period of notice of two years, either as continued payment of base salary or, at Mr. Dicerni's option and with the Corporation's consent, a lump sum payment discounted at a rate based on the average prime rate. Mr. Dicerni would be entitled to any annual or long-term incentive plan amounts that have been accrued at the commencement of the notice period and long-term disability coverage for the duration of the notice period. Mr. Dicerni may elect to terminate his employment by giving 60 days' notice.

The Corporation has entered into an employment agreement with Mr. Drinkwater which guarantees awards payable in 2000 and 2001 to bridge to the long-term incentive plan. The agreement also provides for a retiring allowance in the event that Mr. Drinkwater is terminated by the Corporation without cause. The amount of the retiring allowance varies based upon Mr. Drinkwater's age and the level of his pension entitlement at the date of termination. If Mr. Drinkwater is terminated without cause before the age of 55, he will receive an amount by which the aggregate of eighteen months salary plus the target level of his annual bonus exceeds the commuted value of the retiring allowance. In addition, upon termination without cause, all amounts awarded under the LTIP shall immediately vest and be paid within 90 days of the date of termination. Mr. Drinkwater may elect to terminate his employment by giving 180 days' notice if: (1) there is a fundamental change in the policies of the Province relating to the Corporation, or (2) there is a change of control of the Corporation, other than by a public offering of shares, to which Mr. Drinkwater has not consented (such consent not to be unreasonably withheld or delayed); and, as a result, there is a material change in Mr. Drinkwater's duties and/or responsibilities. In such event he will receive the same payment as if he were terminated without cause.

Mr. Preston's employment agreement provides that upon involuntary termination without cause, Mr. Preston would receive 12 months' written notice, or a lump sum in lieu of notice, such lump sum to be calculated on base salary only. Unless extended by mutual agreement, the current employment agreement will terminate as of January 31, 2004, following which he will receive moving expenses to a destination of his choice within North America, provided he returns to the United States within three months of termination of the agreement. Mr. Preston

will also receive the purchase price of his home in Canada if not sold within three months of termination of the agreement.

### **Compensation of Directors**

The Corporation's Chairman, William A. Farlinger, is remunerated at a level of \$250,000 per annum with such perquisites and benefits provided to senior executives of the Corporation, including pension. Mr. Farlinger's credited service at December 31, 2000, is 5.16 years. At retirement, Mr. Farlinger's pension shall consist of \$6,000 per annum for each full year of service, plus a *pro rated* amount for any part years, subject to consumer price index adjustments and with provisions for spousal survivor benefits.

The by-laws of the Corporation provide that directors may receive reasonable remuneration for their services, commensurate with their duties, together with reimbursement for all reasonable expenses incurred in fulfilment of their duties, including travelling expenses. The amount of such remuneration is determined by the Board of Directors from time to time. Directors currently receive a \$25,000 annual retainer (\$15,000 in 2000) plus \$900 for each Board and committee meeting attended. In addition to other fees, the chair of each committee is paid a \$3,000 annual retainer.

## **ITEM 8 - ADDITIONAL INFORMATION**

Additional information, including details of directors' and officers' remuneration and indebtedness, principal holders of the Corporation's securities, options to purchase securities and interests of insiders in material transactions, where applicable, is also contained in the Corporation's annual filing of a reporting issuer, filed with the Canadian securities commissions instead of a management information circular. Additional financial information is provided in the Corporation's annual comparative financial statements for the year ended December 31, 2000.

A copy of:

- this annual information form, together with any material incorporated by reference herein;
- the Corporation's annual filing of a reporting issuer;
- the Corporation's annual comparative financial statements for its most recently completed financial year, together with the accompanying report of the Corporation's auditor, as filed with the Canadian securities commissions; and
- the Corporation's most recent interim financial statements for a period after the end of the Corporation's most recently completed financial year, as filed with the Canadian securities commissions;

may be obtained on written request to the Secretary, Ontario Power Generation Inc., 700 University Avenue, Toronto, Ontario, M5G 1X6 (Attention: Investor Relations). These documents, together with any other requested documents that are incorporated by reference in a preliminary short form prospectus or short form prospectus, will be provided free of charge while the Corporation's securities are in the course of a distribution under the preliminary short form prospectus or short form prospectus. At any other time, these documents will be provided, although payment of a reasonable charge may be required if the request is made by a person who is not a security holder of OPG. These documents are also available on OPG's website, at [www.opg.com](http://www.opg.com).

## GLOSSARY

### Organization Abbreviations

<b>AECB</b>	-	Atomic Energy Control Board (now the CNSC)
<b>AECL</b>	-	Atomic Energy of Canada Limited, a federal crown corporation and Canada's nuclear research and development organization, which is responsible for the design, marketing and construction of CANDU power reactors
<b>CNSC</b>	-	Canadian Nuclear Safety Commission (formerly the AECB)
<b>FERC</b>	-	Federal Energy Regulatory Commission, the independent regulatory agency with the U.S. Department of Energy that regulates the transmission and wholesale sale of electricity in interstate commerce
<b>Hydro One</b>	-	Hydro One Inc. and its subsidiaries
<b>IMO</b>	-	Independent Electricity Market Operator
<b>Minister</b>	-	Ontario Minister of Energy, Science and Technology
<b>OEB</b>	-	Ontario Energy Board
<b>OEB Act, 1998</b>	-	<i>Ontario Energy Board Act, 1998</i>
<b>OEFC</b>	-	Ontario Electricity Financial Corporation

### Technical and Operational Terms

**“Acquired Business”** refers to Ontario Hydro's electricity generation business, the assets, liabilities, employees and obligations of which were purchased and assumed by OPG on April 1, 1999 pursuant to the *Electricity Act, 1998* (Ontario);

**“aggregator”, “broker” and “marketer”** each refer to a profit-motivated entity that acts as an intermediary in arranging transactions between or on behalf of generators and customers. It may assemble load or generation into larger blocks (an aggregator), act as a negotiator between buyers and sellers (a broker), or buy, sell and take physical positions in the marketplace (a marketer);

**“ancillary service”** means a service necessary to maintain the reliability of the IMO-controlled grid;

**“availability”**, when used in reference to a generating unit, is a measure of mechanical reliability represented by the percentage of time a generating unit is capable of providing service, whether or not it is actually in service, relative to the total time for the period;

**“base load capacity”** is generating capacity used to serve an essentially constant level of customer demand; typically, base load units operate whenever they are available and have capacity factors greater than 60%;

**“bilateral contract”** is a contract for the purchase and sale of notional electricity usually entered into directly between a generator and an end-user or between a generator or end-user and a market intermediary;

**“black start capability”** means the demonstrated potential for a generation facility (as established by tests in accordance with the provisions of an ancillary service contract) to start without electrical system supply; it is the intention of the IMO to use the energy of such a generation facility to energize a defined portion of the IMO-controlled grid;

**“CANDU”** is an acronym for Canadian Deuterium Uranium, a family of nuclear fission reactors developed in Canada which use pressurized heavy water coolant or deuterium as a moderating agent and natural uranium (uranium dioxide) as fuel;

**“capability factor”** is the amount of energy capable of being produced by a generating unit as a percentage of its maximum output assuming no external constraints such as transmission limitations;

**“capacity factor”** is an operational statistic which is determined for a period of time, usually one year. The capacity factor of a generating asset is usually specified as a percentage and is defined as the ratio of the amount of energy that the asset actually generated over a period of time; divided by the amount of energy that the asset would have produced over the same period of time if it had operated continuously at full capacity. Capacity factors depend on whether a facility is used for continuous, intermittent or occasional operation, related operational decisions, such as planned outages, and weather. The average capacity factor for a portfolio of generating units may vary from these values due to the number of units in the portfolio and the operating characteristics of those units;

**“capacity reserve”** means generation capacity that would be bid into a real-time market to address concerns about low reserve margins, the security of the electricity system and the adequacy of the electricity system to meet the demand for energy;

**“decommissioning”** refers to those actions taken in the interest of health, safety, security and protection of the environment to retire a nuclear facility permanently from service and render it to a predetermined end-state (final or interim) condition;

**“decontrol”** means the mandated transfer of effective control in respect of output, being control over the timing, quantity and bidding into the Ontario market of such output;

**“demand-side bidding”** means an agreement between the IMO and an electricity user to reduce the user’s consumption (load) of electricity by agreed amounts under specified circumstances;

**“forced outage”** means the removal from service availability of a generating unit, transmission line, or other facility for emergency reasons or unanticipated failure;

**“Gg”** means a gigagram, or one billion grams;

**“head”** means the difference between water levels at the intake and outflow of a hydroelectric generating station;

**“IMO-administered markets”** means the markets established by the Market Rules;

**“IMO-controlled grid”** means the transmission systems in Ontario which are under the direction of the IMO;

**“interconnection”** means a transmission line which carries power across the service area boundary of geographically adjacent jurisdictions;

**“installed capacity”** is the highest level of output which a generating unit is designed to maintain indefinitely without damage to the unit;

**“in-service capacity”** is that portion of installed capacity that has not been removed from service;

**“intermediate capacity”** is generating capacity intended to operate fewer hours per year than base load capacity but more than peaking capacity; typically, intermediate capacity units have capacity factors ranging from 30% to 60%;

**“kilo”** is a prefix meaning one thousand; a kilowatt (kW) is 1,000 watts;

**“kWh”** means a kilowatt hour and is the commercial unit of electric energy. A kWh is the amount of electricity consumed by ten 100W light bulbs burning for one hour;

**“load”** means the quantity of electricity consumption measured as either the energy consumed over a given period of time or the rate of energy consumption at a given time by a particular customer or group of customers;

**“market power mitigation”** is a framework composed of a combination of a price cap and rebate mechanism and decontrol of capacity obligations that was approved by the Province in order to protect the interests of consumers

while ensuring an orderly and gradual transition to a long-run industry structure in which OPG's generating capacity available to the Ontario market is substantially reduced;

**"Market Rules"** are rules made and enforced by the IMO that govern the IMO-controlled grid and that establish and govern the IMO-administered markets relating to electricity and ancillary services;

**"mega"** is a prefix meaning one million; a megawatt (MW) is 1,000,000 watts or 1,000 kW;

**"merit order dispatch"** refers to the dispatch of resources at the lowest possible cost by generally committing them from lowest to highest marginal cost;

**"municipal electrical utility"** or "MEU" refers to an entity that purchases power at wholesale and distributes it at retail prices to connected customers within a defined geographical area, typically a city or town;

**"must-run contracts"** are contracts between the IMO and a generator which allow the IMO to call on a generator's facility, at times when the facility may not otherwise be available for production, in order to maintain the reliability of the electrical system;

**"MWh"** means a megawatt hour and is equal to 1,000 kWh;

**"Open Access"** is the introduction of competition in Ontario to supply electricity in both the wholesale and retail markets through the opening of access to Ontario's transmission and distribution systems. The Province has indicated Open Access should be achieved by May 1, 2002, subject to four conditions being met. Those conditions are: (i) protecting consumers and offering more choice; (ii) creating a strong business climate with a reliable supply of electricity; (iii) protecting our environment; and (iv) encouraging new ways of doing business and supporting the search for alternative sources of power;

**"operating reserve"** means the capacity that can be called upon on short notice by the IMO to replace scheduled energy supply that is unavailable as a result of an unexpected outage or to augment scheduled energy as a result of unexpected demand or other contingencies;

**"peaking capacity"** means generating capacity intended to be operated intermittently to provide power during maximum load peaks; typically, peaking capacity units have capacity factors of less than 20%;

**"planned outage"** means the removal of equipment from service availability for inspection and/or general overhaul of one or more major equipment groups. This outage usually is scheduled well in advance;

**"reactive support/voltage control service"** means the control and maintenance of prescribed voltages on the IMO-controlled grid;

**"Standard Supply Service"** means the sale of electricity in accordance with the provisions of section 29 of the *Electricity Act, 1998* and the OEB Standard Supply Service Code;

**"stranded debt"** is defined under the *Electricity Act, 1998* as the amount of debt and other liabilities of OEFC that, in the opinion of the Minister of Finance, cannot reasonably be serviced and retired in a competitive electricity market;

**"tera"** is a prefix meaning one trillion; a terawatt (TW) is 1,000,000,000,000 watts or 1,000,000,000 kW or 1,000,000 MW;

**"Tg"** means a teragram, or one trillion grams;

**"tonne"** means 1,000 kilograms or 2,204.6 pounds;



**“Transition Period”** is the period between April 1, 1999 and Open Access. During the Transition Period, the Ontario electricity industry will continue to operate generally as it has in the past from the perspective of the consumers, but the successor entities of Ontario Hydro will operate their businesses separately. OPG will provide priority access to Ontario consumers to the electricity it generates during the Transition Period and, if necessary, will purchase additional electricity to supply the Ontario market;

**“TWh”** means a terawatt hour and is equal to 1,000,000 MWh;

**“unit”** means an electrical generator, together with its driving turbine and auxiliary equipment;

**“W”** or **“watt”** is a scientific unit of electric power representing the rate of work of one joule per second; and

**“weather-normalized”** means an adjustment to demand statistics in a market to account for the deviation of weather from normal weather conditions in that market.