EB-2007-0791

ONTARIO ENERGY BOARD

IN THE MATTER OF sections 25.20 and 25.21 of the *Electricity Act, 1998*;

AND IN THE MATTER OF a Submission by the Ontario Power Authority to the Ontario Energy Board for the review of its proposed expenditure and revenue requirements and the fees which it proposes to charge for the year 2008.

BOOKLET OF MATERIAL SUBMITTED BY THE ONTARIO POWER AUTHORITY

POLLUTION PROBE MOTION
MARCH 28, 2008

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Brookfield Place, Suite 1800
181 Bay Street
Toronto, Ontario
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EB-2007-0791

BOOKLET OF MATERIAL SUBMITTED BY THE ONTARIO POWER AUTHORITY

POLLUTION PROBE MOTION
March 28, 2008

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TAB 1

Fees and charges

25.20 (1) The OPA may establish and impose fees and charges to recover,

(a) the costs of doing anything the OPA is required or permitted to do under this or any other Act; and

(b) any other type of expenditure the recovery of which is permitted by the regulations, subject to any limitations and restrictions set out in the regulations. 2004, c. 23, Sched. A, s. 31 (1).

Collection

(2) The IESO shall, in accordance with the regulations, collect and pay to the OPA all fees and charges payable to the OPA. 2004, c. 23, Sched. A, s. 31 (1).

May recover costs of procurement contracts

(3) For greater certainty, the OPA may, subject to the regulations, establish and impose charges to recover from consumers its costs and payments under procurement contracts. 2004, c. 23, Sched. A, s. 31 (2).

Board deemed to approve recovery

(4) The OPA's recovery of its costs and payments related to procurement contracts shall be deemed to be approved by the Board. 2004, c. 23, Sched. A, s. 31 (2).

Review of requirements and fees

25.21 (1) The OPA shall, at least 60 days before the beginning of each fiscal year, submit its proposed expenditure and revenue requirements for the fiscal year and the fees it proposes to charge during the fiscal year to the Board for review, but shall not do so until after the Minister approves or is deemed to approve the OPA's proposed business plan for the fiscal year under section 25.22. 2004, c. 23, Sched. A, s. 32.

Board's powers

(2) The Board may approve the proposed requirements and the proposed fees or may refer them back to the OPA for further consideration with the Board's recommendations. 2004, c. 23, Sched. A, s. 32.

Same

(3) In reviewing the OPA's proposed requirements and proposed fees, the Board shall not take into consideration the remuneration and benefits of the chair and other members of the board of directors of the OPA. 2004, c. 23, Sched. A, s. 32.

Changes in fees

(4) The OPA shall not establish, eliminate or change any fees without the approval of the Board. 2004, c. 23, Sched. A, s. 32.

Hearing

(5) The Board may hold a hearing before exercising its powers under this section, but it is not required to do so. 2004, c. 23, Sched. A, s. 32.

Transitional, 2005 fiscal year

(6) Despite subsection (1), the OPA shall submit its proposed expenditure and revenue requirements for its 2005 fiscal year and the fees it proposes to charge during that fiscal year to the Minister for review not later than 30 days after the Minister approves or is deemed to approve the OPA's proposed business plan for the 2005 fiscal year under section 25.22. 2004, c. 23, Sched. A, s. 32.

Same

(7) Despite subsections (2) and (4), the fees for the OPA's 2005 fiscal year or for part of that year may be established and imposed by regulation. 2004, c. 23, Sched. A, s. 32.

TAB 2

Filed: February 11, 2008
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Minister of Energy
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Ontario

January 31, 2008

Dr. Jan Carr, Chief Executive Officer
Ontario Power Authority
1600—120 Adelaide Street West
Toronto ON M5H 1T1

Dear Dr. Carr:

Re: Procuring Approximately 350 MW of New Gas-Fired Electricity Generation for Northern York Region

I write in connection with my authority as the Minister of Energy in order to exercise the statutory power of ministerial direction which I have in respect of the Ontario Power Authority (the "OPA") under section 25.32 of the *Electricity Act, 1998* (the "Act").

Background

As noted in the proposed Integrated Power System Plan, submitted to the Ontario Energy Board (the "OEB") by the OPA in August of this year, there are significant challenges facing the ability of the current electricity system to meet increasing demand in the Northern York Region ("NYR") and to continue to support the economic growth of the area with existing supply. The load in NYR is forecast to grow at above 3 per cent per annum. This rate is significantly higher than the provincial average.

In order to assist the government in assessing the extent of this particular growing demand-supply challenge, the OPA was requested by the province in the summer of 2005 to examine potential solutions to address NYR's electricity supply situation. During this examination, the OPA consulted local communities and local distribution companies in the area.

The results and recommendations from the NYR study were outlined in a submission to the OEB on September 30, 2005. This study identified four conservation and new infrastructure components that would be required in order to augment the existing electricity supply to NYR:

1. The building of a new transformer station in the vicinity of Holland Junction;
2. The addition of capacitor banks at the existing Armitage station;
3. The implementation of a demand response program; and

.../cont'd

4. Development of local area generation.

Pursuant to an order of the OEB dated November 22, 2005 (EB-2005-3015) and the Minister's direction to the OPA on demand response dated June 15, 2005, the first three components are currently being implemented. Conservation is an important part of the NYR electricity solution, and the OPA has contracted for up to 30 megawatts (MW) of demand response in NYR. In addition, the residents and businesses of NYR are participating in a broad range of OPA-funded conservation programs delivered by their local distributors. The capacitor banks at the Armitage Station came into service in 2006 and the new Holland Junction transformer station is expected to come into service in 2009.

It is now necessary to proceed with the fourth element identified in the above-noted Board order: namely, the procurement of approximately 350 MW of new gas-fired electricity generation supply for NYR.

Direction

Therefore, pursuant to my statutory authority under subsection 25.32(4) of the *Electricity Act, 1998*, I hereby direct the OPA to assume responsibility for the Ministry's initiative aimed at addressing the generation needs of the NYR in a manner consistent with the above-noted order of the OEB.

Specifically, the OPA is directed to procure a simple (single)-cycle gas-fired electricity generation facility with a rated generation capacity of approximately 350 MW and not more than 400 MW. It is expected that the OPA will procure this generation plant through a competitive procurement process, and that the plant will have an in-service date of not later than December 31, 2011. It is further expected that due consideration be given to locating the generation facility in the vicinity of the 230 kilovolt transmission lines supplying the Armitage and Holland transformer stations, in order to assure an efficient connection platform for the new plant. In addition to relieving local supply inadequacy, it is also expected that the new facility be capable of contributing to the province's overall need for gas-fired peaking plant capacity in an efficient, cost-effective and environmentally sound manner.

Finally, in light of the lead time required to procure, site, permit and construct a new gas-fired generating station in the area, it is expected that the OPA would move expeditiously to commence the above-noted competitive procurement process in order to fulfil its responsibilities under this direction.

This direction shall be effective and binding as of the date hereof.

Sincerely,

Gerry Phillips
Minister

TAB 3

Speaking Notes

For

Jack Gibbons, Chair
Ontario Clean Air Alliance

Re:

Too Big, Too Costly, Too Polluting: The Proposed Power Plant for Northern York Region

Town of Aurora

Council Meeting

Tuesday, March 25, 2008

7 PM

Thank you very much for the opportunity to speak to you once again about the proposed power plant for Northern York Region (NYR).

The proposed power plant is too big, too costly and too polluting.

NYR does need more locally supplied electricity, but the proposed power plant is simply too big. If it is built, NYR's electricity supply capacity will be ***double*** its peak day demand.

According to Ontario's Energy Minister, Gerry Phillips, we need a new 350 megawatt (MW) power plant because the demand for electricity in NYR is forecast to grow by more than 3% per year.

Let's look at the facts. First, even if demand were to grow by 3% per year, we wouldn't need such a large power plant until 2032.

Second, according to the Ontario Power Authority (OPA), Ontario's province-wide electricity demand is forecast to grow by only 4/10ths of 1% per year. That means Minister Phillips is forecasting that the rate of electricity growth in NYR will be **7.5 times greater** than the provincial average.

Finally, it is important to note that electricity demand actually **fell** last year in NYR.

The good news is that we can meet NYR's electricity needs at a lower cost by a combination of energy conservation and demand management, renewable energy and combined heat and power. Finally, if we do need a simple-cycle power plant its size should be capped at 30 MW.

Unfortunately, Minister Phillips has directed the OPA to contract for **at least** 350 MW of simple-cycle generation. This is clearly excessive.

Recommendation #1: Therefore I urge Aurora to ask Minister Phillips to amend his directive to permit the OPA to contract for a small 30 MW simple-cycle power plant if such a power plant is in the best interests of NYR.

I would also like to suggest some additional steps that the Town of Aurora can take.

The best options for meeting our electricity needs on peak demand days are energy conservation and demand management.

PowerStream's *peaksaver* programme, which cycles central air conditioners on and off on peak demand days, is an excellent demand management programme which should be very aggressively promoted.

Recommendation #2: Aurora Town Council should ask PowerStream to provide it with the following information: a) how many residential and small business central air conditioners are located in Aurora; b) how many of these air conditioners have

enrolled in the *peaksaver* programme; and c) what are its *peaksaver* participation targets for 2008 and 2009?

The OPA has established an excellent programme to pay large commercial, institutional and industrial customers in NYR (e.g., Magna, Royal Group Technologies, Teknion Form, Protemp Glass, Ontario Sawdust, Vins Plastics, York Catholic District School Board) to reduce some of their electricity consumption on hot summer days. This programme, which is administered by Rodan Energy, reduced NYR's demand by 16.6 MW last year.

Unfortunately, the OPA has arbitrarily capped the amount of demand reductions it is willing to purchase via the Rodan programme at 30 MW. In addition, the OPA's payments to customers for demand reductions in NYR are ***substantially lower*** than its payments for similar demand reductions in downtown Toronto. This is unfair and economically irrational.

Recommendation #3: The Town of Aurora should ask Minister Phillips to direct the OPA to remove its cap on the quantity of demand reductions it will purchase in NYR; and to pay the same price for demand reductions in NYR as it is paying for demand reductions in downtown Toronto.

In the second quarter of 2008 the OPA will be launching its standard offer programme to encourage the development of small-scale (10 MW or less) natural gas-fired combined heat and power plants. This programme will pay a fixed price for the output of combined heat and power plants and should make many such projects in NYR economically viable.

Recommendation #4: Aurora should create a list of its municipal buildings that could be cost-effective hosts for small-scale combined heat and power plants.

Finally, I would like to thank the Town of Aurora for passing a resolution, in February, requesting Minister Phillips to direct the OPA to re-constitute the NYR Working Group to develop a better electricity plan for the region. Hopefully other NYR municipalities will pass similar resolutions in the near future.

Thank you.

TAB 4

Ontario Power Authority

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Northern York Region
Electricity Supply Study

Submission to the
Ontario Energy Board

September 30, 2005

EXECUTIVE SUMMARY

I. Introduction

As a result of the rapid growth of York Region, the electricity supply infrastructure in the area has been approaching, and in some cases exceeding, its planned capability. The Ontario Power Authority (OPA) has developed a recommendation on the best way to meet the growing need for power, and is submitting this report to the Ontario Energy Board in response to a letter of direction received on July 25, 2005.

The focus for this study was limited to the most urgent areas of need: the communities served by Armitage Transformer Station (TS), including the northern portion of York Region and Bradford West Gwillimbury in Simcoe County (referred to as "Northern York Region"). The process used to develop this recommendation included extensive consultation, technical and financial analysis of the options, as well as a procurement process. The OPA's goal is to recommend a long-term solution that is technically feasible, timely, and cost effective, while considering its impact on communities.

II. Load Forecast and Conservation & Demand Management

The forecast for load growth at Armitage TS is 3.25% per year for the next 10 years before adjustment for conservation and demand management. The total demand has been adjusted down by 5% in 2007 to account for the effect of existing conservation and demand management programs. While there are some shortcomings in the Northern York Region forecast, the OPA considers the forecast sufficient for this initiative.

Recognizing the important role that conservation and demand management will play in Northern York Region, the OPA has initiated a procurement process for a target of 20 MW of demand response. The OPA has further adjusted the load forecast to incorporate this. There are also a number of province-wide conservation initiatives being developed, and given the urgent need in Northern York Region, the OPA would like to pilot such projects in the area.

III. System Capability and Need

Presently at Armitage TS there is transformation capability of 317 MW and the capacity to serve up to 16 feeder lines. The planning limits for the transformers have been exceeded since 2002, and there is a need for four new feeders and no positions are available. As a result, a new transformer station is required immediately, which will provide 150 MW of new capacity and eight feeder positions. By the end of the study horizon, factoring in the existing 53 MW shortfall, 173 MW of new transformation capacity will be required as well as eight new feeders in addition to the current need for four. Therefore, as a result of the need for both transformation capability and feeders beyond what a single transformer station can provide, as well as the need to provide feeders geographically close to the new and growing loads, the solution will require two transformer stations within the study horizon.

The main source of bulk electricity supply to the area is a 230 kV double-circuit line from Claireville TS in Vaughan travelling 35 km northeast to Holland Junction. From there, a line tap travels 8 km southeast to Armitage TS. The thermal capability of the line is limited by the line tap to 470 MW. Voltage collapse on the line limits the ability to supply the area to 375 MW.

After demand response is factored in, there is a need for at least an additional 140 MW of new bulk supply to Northern York Region. This can be supplied either by new local generation providing supply to the area or new system generation transmitted into the area through upgraded transmission capability.

IV. Distribution & Transformation

The preferred site for the first new transformer station is in the vicinity of Holland Junction. Connecting to the existing 230 kV line at this point avoids using up the limited capability of the line tap. Additionally, the site is closer to the supply at Claireville and provides a location for new capacitor banks, both of which reduce the risk of voltage collapse. The location does not provide added diversity of supply, but with proper switching could be served from either the north or south.

The preferred site for the second new transformer station depends on the bulk supply option. If the bulk supply is met through new generation servicing the area, then the preferred site is in Aurora. This station would be located in an industrial area and would require less than two kilometres of upgraded transmission lines along the existing Buttonville-Armitage right-of-way. This location does not provide a new source of power to the area, but can be connected to the local generator in a manner that would provide a diversity of supply.

If the bulk supply requirement were to be met through upgraded transmission facilities, the preferred location for the second transformer station would be in Gormley on the existing Buttonville-Armitage right-of-way. This option would provide diversity of supply to the area, but would require 10 km of upgraded transmission line.

V. Bulk Supply

One proposal to meet the need for bulk supply through new transmission is to upgrade the 22 km line from Buttonville TS to Armitage TS with a double-circuit 230 kV line. As a variation on this proposal, the OPA has considered upgrading the line from Buttonville TS only as far as Gormley, approximately 10 km. This option, at a cost of $23 million, has the benefit of being $27 million cheaper in transmission costs, assuming all overhead, but with added distribution costs of $9 million. If the entire line is undergrounded, the transmission cost will rise to $67 million. This option does not provide the same level of diversity as the Buttonville-Armitage option.

Local generation with a firm capacity of at least 200 MW to 350 MW can also meet the bulk supply need. As well, this option would provide diversity of supply and maintain continuous load supply to the area after the loss of the transmission line from Claireville. Local generation can be best provided by a gas-fuelled simple cycle generator, which would provide peaking power to both Northern York Region and the rest of the Ontario system.

When the options of new local generation and new system generation with upgraded transmission capability are compared, the new local generation option is less costly by approximately $40 million (net present value) and is generally more acceptable to the community. Local generation would also provide much needed relief to the autotransformers at Claireville TS.

The OPA believes that the bulk supply bottleneck for Northern York Region can be best addressed through generation installed locally.

VI. Recommendations

Immediate action for summer 2006 is focused on increasing the amount of static capacitors at Armitage TS and implementing as much of the planned demand response as possible. In conjunction with this, the OPA recommends proceeding with the construction of a new transformer station in the vicinity of Holland Junction, along with static capacitors at this station.

To provide the longer term relief to the supply bottleneck, the preferred solution is to provide local generation, required to be in service by 2011. However, the existing level of security of supply to Northern York Region is below the Independent Electricity System Operator's guideline. As such, the OPA will endeavour to acquire the recommended generation resources as early as 2008 in order to improve the security of supply.

Along with the development of local generation, there will be a need for another transformer station. This is also required by 2011, but may be deferred by successful conservation and demand management initiatives. For the local generation solution, the preferred site for a new transformer station has already been identified and is in northern Aurora, a short distance from Armitage TS.

If no generation procurement contract is concluded, the OPA recommends supplying the area from new system resources via an upgraded line from Buttonville to Gormley and a new transformer station in the vicinity of Gormley.

VII. Regulatory Approvals Required

The OPA will apply to the OEB for recovery of its costs under a local generating contract, if and when the OPA has entered into such a contract following a successful procurement process. In order to quickly procure demand response in York Region, the OPA intends to act under the Ministerial direction contained in a letter dated June 15, 2005 to contract for "250 MW or more of demand side management and/or demand response initiatives across the province." In acting under the authority of this directive, no OEB approval of the costs related to such contracts will be required.

Northern York Region Electricity Supply Study

Exhibit A:
Consultation Report

Prepared for

Ontario Power Authority

Prepared by

Armen Kulidjian, P.Eng, M.B.A
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Ontario Clean Air Alliance

Jack Gibbons, the chair of the Ontario Clean Air Alliance and a working group representative, expressed his support for the OPA's proposal and submitted the following to the Town of Newmarket.

"We believe that this proposal is in the best interest of the people of Newmarket and Ontario for the following reasons.

- It will lead to a net reduction in air pollution in Ontario and Newmarket by facilitating the phase-out of Ontario's dirty coal-fired power plants.
- It will dramatically reduce the probability of an electricity brownout or blackout in Newmarket
- It is a lower cost option to meet Newmarket's electricity needs than importing electricity from outside of York Region by a new or upgraded electricity transmission line."

York Catholic District School Board

At a recent board meeting, the York Catholic District School Board passed a motion to formally endorse and support the draft recommendation that was released on the September 9th briefing. They were pleased with the consultation process as implemented and followed by the OPA over the summer months. In addition to this letter, another letter was received that stated that the school board was in support of the integrated solution but was strongly opposed to the transmission contingency plan because it would affect its school enrolment at St. Monica's in Markham.

STOP Transmission Lines Over People (STOP)

STOP is a public interest group which advocates stopping construction of high EMF emitting hydro towers and lines in close proximity to residents, schools and businesses. They support the OPA recommendation subject to the following:

- All of the initiatives included in the plan undergo proper environmental review
- An energy conservation plan be developed as part of Phase 1 to achieve and hopefully surpass provincial conservation goals
- The need for Phase 2 measures be thoroughly and publicly assessed after Phase 1 steps have been taken, but that in any event the recommendation for expanding transmission, if the procurement of local generation fails, be removed from the Plan; and
- That a more coordinated approach be established to integrate energy and development planning in the Region to ensure that necessary services are, or will be in place to support development before it is approved.

Ontario Nature - Federation of Ontario Naturalists

Ontario Nature has a mandate to protect and restore nature through research, education and conservation action. One method by which they carry out this mandate is through the purchase of properties that are added to their nature reserve system. Their property at 18462 Bathurst Street, Newmarket is the 108-hectare Cawthra Mulock Nature Reserve that Holland Junction is located on, is managed for nature conservation purposes. There are many outstanding natural features on the property, including extensive mixed and deciduous forests, wetland complexes, old field habitats, and creeks. The property has been identified as part of the Regional Greenlands System under the York Region Greening Strategy. Their primary concern along with other area landowners was that they were not contacted to participate in the working group

TAB 5

Claire Willison

From: Claire Willison
Sent: February 5, 2008 12:46 PM
To: 'jack@cleanairalliance.org'
Subject: RE: Northern York Region Questions
Attachments: OPA NYR Specific Answers Response 1feb08.pdf

Mr. Gibbons,

As requested, attached is the OPA's response to the specific questions in the OCAA memo which have been sent to the Mayor and Council of the Town of Aurora.

Claire Willison
Corporate Communications
Ontario Power Authority

From: Jack Gibbons - OCAA [mailto:jack@cleanairalliance.org]
Sent: January 31, 2008 9:15 AM
To: Claire Willison
Subject: Northern York Region Questions

<<...>>

Hi Claire,

Last week Jason Chee-Aloy promised the Aurora Town Council that the OPA would provide Aurora with written responses to the questions in the attached Ontario Clean Air Alliance memo. Could you please forward a copy of your responses to me?

Thank you.

Jack

Jack Gibbons
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Draft

Meeting Northern York Region's Electricity Needs

The OPA's Proposal

The Ontario Power Authority (OPA) is proposing to contract for the construction of a 350 megawatt (MW) simple-cycle natural gas-fired power plant in northern York Region to meet the electricity needs in the Armitage Transformer Station service area of northern York Region.

According to the OPA, the capital cost of this power plant would be approximately $230 million and it will be operated for only approximately 2.5% of the year.

Simple-cycle gas turbines are the least-efficient gas technology for electricity generation. According to the OPA, simple-cycle gas turbines have an energy efficiency of only 36%.

Natural gas-fired combined-cycle turbines and combined heat and power plants are much more efficient than simple-cycle gas turbines. Specifically, natural gas-fired combined-cycle turbines can have an energy efficiency of 55 to 60%; and natural gas-fired combined heat and power (cogeneration) systems can have energy efficiencies of 80 to 90%.

As shown below, a simple-cycle gas turbine's fuel cost per kWh of electricity produced is much higher than that of a combined-cycle or combined heat and power plant.

Fuel Costs per kWh of Electricity Produced

Simple-Cycle Gas Turbine	Combined-Cycle Gas Turbine	Natural Gas-Fired Combined Heat and Power Plant
7.6 cents per kWh	4.6 to 5.0 cents per kWh	3.0 to 3.4 cents per kWh

As shown in the below, the greenhouse gas emission rate of a simple-cycle natural gas turbine is more than double that of a combined heat and power plant.

Greenhouse Gas Emission Rate per kWh of Electricity Produced

Simple-Cycle Gas Turbine	Combined-Cycle Gas Turbine	Natural Gas-Fired Combined Heat and Power Plant
506 grams per kWh	303 to 331 grams per kWh	202 to 227 grams per kWh

The Ontario Clean Air Alliance's (OCAA) Recommendation

The OCAA does not believe that simple-cycle gas turbines are a cost-effective or socially responsible option to meet northern York Region's electricity needs.

The OCAA's preferred options, in order of preference, are:

1. Energy conservation and demand response;
2. Renewable energy;
3. Natural gas-fired combined heat and power; and
4. Natural gas-fired combined-cycle generation.

Questions for the OPA

1. What was the peak demand (MW) in the Armitage Transformer Service Area in 2007? On what day and time did it occur? Please provide your best estimate of the electricity demands by end-use (e.g., residential cooling, commercial cooling, water heating, lighting) in the Armitage Transformer Service Area at the time of its 2007 peak demand.

2. Please state how many MW of demand were curtailed in the Armitage Transformer Service Area at the time of its 2007 peak demand pursuant to your: a) demand response contract with Rodan Energy; b) Peaksaver contract with PowerStream; c) Peaksaver contract with Hydro One; and d) Peaksaver contract with Newmarket Hydro?

3. Please state how many homes in the Armitage Transformer Service Area have: a) central air-conditioning; and b) enrolled their air-conditioners in the Peaksaver programme.

4. Please state how many commercial, institutional and industrial electricity consumers are located in the Armitage Transformer Service Area. Please state how many of these consumers have enrolled in one of the following OPA demand response programmes: Northern York Region/Rodan Energy; DR1; DR2; or DR3.

5. Commercial and institutional customers are now permitted to use natural gas instead of diesel oil for their emergency back-up generators. Natural gas-fired back up generators can serve two functions, namely provide power to a building during a blackout or provide power to the grid during peak demand hours and thereby reduce the need stand-alone simple-cycle gas generators. How many MW of diesel back up generation capacity currently exists in the Armitage Transformer Service Area?

6. How many dollars has the OPA spent to date to reduce the demand for electricity in the Armitage Transformer Service Area? How many MW of load reductions has it obtained?

7. Please describe the OPA programmes to provide financial support for geothermal cooling (and heating) in the Armitage Transformer Service Area.

8. Virtually every building in the Armitage Transformer Service Area uses natural gas to produce just one service, namely, heating. It is much more efficient to use the same molecules of natural gas to simultaneously produce two services, i.e., heat and power. The Highland Green condominium in Aurora has recently installed a natural gas-fired combined heat and power system in its building. Furthermore, the OPA will soon be launching a standard offer programme to purchase electricity from small-scale (10 MW or less) combined heat and power systems. What is the total combined heat and power supply potential (MW) in the Armitage Transformer Service Area?

9. What is the current electricity capacity of the Armitage Transformer Service Area? By how many MW will this capacity be increased when the Holland Junction Transformer Station comes into service?

For more information

For more information please download *The Ontario Power Authority's Coal Phase-Out Strategy: A Critical Review* (September 24, 2007) from www.cleanairalliance.org.

Ontario Power Authority

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February 1, 2008

Her Worship Phyllis Morris
Mayor
Town of Aurora
Box 1000
1 Municipal Drive
Aurora, ON L4G 6J1

Dear Mayor Morris:

On behalf of the OPA team, I would like to thank you for the opportunity to make the presentation to Council on January 22, 2008, regarding our activities to procure electricity generation for Northern York Region and the associated timelines of our process.

As you know, a number of questions were raised at the Council meeting, and, as we promised, we are attaching the responses to those questions, as well as a briefing note. A copy of this letter and the attachments are being provided to the Clerk's office, as well, for distribution to Council members and other staff.

For your reference, information on Northern York Region is posted on the OPA's website (www.powerauthority.on.ca) under the section OPA Initiatives – Local Area Supply. The web link is:
http://www.powerauthority.on.ca/Page.asp?PageID=1224&SiteNodeID=383&BL_ExpandID=

Again, thank you for the opportunity you afforded the OPA Team. Should you have any additional questions regarding Northern York Region electricity supply, please do not hesitate to contact me.

Yours truly,

Jason Chee-Aloy
Director, Procurement
Electricity Resources

Attachments

c.c. Clerk's Office

Ontario Power Authority

SPECIFIC ANSWERS

1. *What was the peak demand (MW) in the Armitage Transformer Service Area in 2007? On what day and time did it occur? Please provide your best estimate of the electricity demands by end-use (e.g., residential cooling, commercial cooling, water heating, lighting) in the Armitage Transformer Service Area at the time of its 2007 peak demand.*
   The peak demand on Armitage TS was reached on August 1, 2007 at 16:00 hours. The net demand that day was 359 MW after accounting for load transfers to Brown Hill TS in Georgina Township, Conservation measures, and Keele Valley generation. End use information is only available at a provincial level.

2. *Please state how many MW of demand were curtailed in the Armitage Transformer Service Area at the time of its 2007 peak demand pursuant to your: a) demand response contract with Rodan Energy; b) Peaksaver contract with PowerStream; c) Peaksaver contract with Hydro One; and d) Peaksaver contract with Newmarket Hydro?*
   The IESO did not call on demand response at the time of the 2007 Armitage peak, but they did call on Rodan twice during the summer. Rodan provided 16.6 MW of DR capacity on August 2, 2007 from 1:00 PM to 7:00 PM and a yet undetermined amount on September 6, 2007 from 3:00 PM to 9:00 PM. Provincial Evaluation, Measurement, & Verification results for the Peaksaver program are still being tabulated.

(**Note**...Questions 3, 4 and 5 are not answered either because the information has been aggregated by LDCs in order to provide a regional load forecast or because it cannot currently be segregated in the manner requested.)

3. *Please state how many homes in the Armitage Transformer Service Area have: a) central air-conditioning; and b) enrolled their air-conditioners in the Peaksaver programme?*
   See Note, above.

4. *Please state how many commercial, institutional and industrial electricity consumers are located in the Armitage Transformer Service Area? Please state how many of these consumers have enrolled in one of the following OPA demand response programmes: Northern York Region/Rodan Energy; DR1; DR2; or DR3.*
   See Note, above. In terms of Demand Response, Rodan has an exclusive contract as the load aggregator in NYR, with a current capacity of 16.4 MW.

5. *Commercial and institutional customers are now permitted to use natural gas instead of diesel oil for their emergency back-up generators. How many MW of diesel back up generation capacity currently exists in the Armitage Transformer Service Area?*
   See Note, above.

6. *How many dollars has the OPA spent to date to reduce the demand for electricity in the Armitage Transformer Service Area? How many MW of load reductions has it obtained?*
   Program results and spending are currently not tracked by transformer service area.

7. *Please describe the OPA programmes to provide financial support for geothermal cooling (and heating) in the Armitage Transformer Service Area.*
   The OPA does not have specific programs for geothermal cooling (and heating), but the Hot/Cool Savings Program will support replacement of an existing central air system with geothermal technology, as long as it meets Energy Star requirements.

8. *What is the total combined heat and power supply potential (MW) in the Armitage Transformer Service Area?*
   An estimate of potential provincial savings from the Clean Energy Standard Offer Program is included in the customer-based generation category of Conservation in the Integrated Power System Plan. The OPA expects to obtain station-specific potential through program uptake as program delivery experience is gained.

9. *What is the current electricity capacity of the Armitage Transformer Service Area? By how many MW will this capacity be increased when the Holland Junction Transformer Station comes into service?*
   Armitage station can currently supply 340 MW of demand. Holland Junction TS is expected to provide an additional 150 MW of transformation capacity, for a total of 490 MW. However, increased transformation capacity does not satisfy the thermal constraint on the transmission line, which is reached at 420 MW. Additional supply, in the form of gas-fired generation is therefore required to meet this thermal constraint. The gas-fired generation will also address the lack of supply diversity to the area.

Ontario Power Authority

Briefing Note

Response to Municipal Interest

BACKGROUND

From the outset, it is important to view the recommendations of the OPA-led teams—representing both industry and community—in light of how Northern York Region's electricity needs have been identified, who has planned the solutions and how that plan was developed.
In this regard, it is important to consider the following:

1. All parties involved in the solutions to northern York Region's urgent electricity needs have co-operatively collaborated, for more than three years, to serve customers in the region:
   - **Local Distribution Companies** (LDC) —Newmarket Hydro, Powerstream and the distribution group of Hydro One—have contributed system information and lead conservation efforts that reflect an intimate understanding of their communities; and
   - **Hydro One Networks**, the Transmitter whose transmission facilities serve the area has completed upgrades at Armitage station and is currently developing a new transformer station at Holland Junction.
   - The **Independent Electricity System Operator** (IESO) directs the operation of the bulk electricity system in Ontario as well as operating the IESO-administered markets. Its responsibilities include establishing reliability standards including planning criteria, and monitoring the performance of distribution and transmission facilities connected to the IESO-controlled grid.
   - The **Ontario Power Authority** (OPA) is responsible for planning Ontario's electricity system, conservation and demand management program development, and resource procurement. In northern York Region the OPA has provided leadership in the collaborative development of an integrated plan to ensure adequate, reliable and secure electricity supply for the region.
   - In 2005, a **Community Working Group** made up of some 20 local residents and municipal staff (chosen by their communities) worked with a cross-industry technical team to shape recommendations that were presented at community meetings in the region and submitted to the Ontario Energy Board.

2. The plan and recommendations developed by this collaboration focused on two specific needs:

   Capacity Growth in the region's demand for electricity, particularly at times of peak use—typically daytime in the summer—has outstripped supply for many years.

   Security This large region is being served by a single source of supply from a transmission line originating from the City of Vaughan. In the event of a major system interruption due to a failure of this line, a large part of the region could be without electricity for an extended period (in terms of days) until the line is repaired. An additional supply source—generation or transmission—would address this problem.

3. It is important to be clear that northern York Region's most urgent need is the supply of electricity during high-cost, high-demand periods—roughly 10 per cent of the time or 800-900 hours a year. Choosing solutions that are designed to operate for longer periods is not necessarily helpful, economic or environmentally sound.

4. The OPA recommendations for the northern York Region include:

   Conservation—Encourage all the achievable and economic demand response conservation possible. (Demand Response is the reduction of electricity use at specific times when the system is at the most risk or power is the most expensive).

   Transmission System—Upgrades to the existing Armitage Transformer Station and a new Transformer Station at Holland Junction. This is to provide transformer capacity and distribution expansion capability.

   Gas-fired Generation—Natural gas-fired generation offers the most environmentally-friendly and cost-effective power source to meet the region's specific peak-energy needs.

   Renewables and Combined Heat and Power (CHP)—The OPA and the provincial government recognize the need for both these important sources of electricity. In the last three years, the OPA has successfully undertaken a number of procurement initiatives to encourage both electricity sources, including: a Renewable Standard Offer Program, three larger renewable procurements and a major two-phase CHP procurement. These initiatives have attracted over 2300 megawatts (MW) of renewable and CHP projects province-wide, including 5 MW in York Region. Momentum for such programs will increase in the coming months and years.

OPA RESPONSES

During the course of our recent interaction, municipal questions have fallen broadly into two areas (this Briefing Note will respond to each in turn):

Does the plan take conservation efforts seriously enough? Does the Plan (and the subsequent actions of the industry and the communities) exhaust all potential conservation and demand management available?

While conservation and demand management efforts are important to the solution, they cannot be the only solution. Prudent planners consider not only the availability of a solution but also the degree of confidence they have in it. No one would want planners to develop answers that could not be relied on—the risk to the community would be unacceptable. In 2005, assisted by information provided by the team, the OPA determined that an initial goal of 20 MW of demand reduction (at peak times) was reasonable and achievable and could make a meaningful contribution to addressing the Region's challenges.

That 20 MW target is on track to be achieved and collaborative efforts to surpass the target are continuing. The northern York Region conservation team is impressive: all your Local Distribution

Companies are participating in all the province-wide CDM programs available including, in 2007, Every Kilowatt Counts, Summer Savings, Peaksaver, Great Refrigerator Roundup, Electricity Retrofit Incentive Program. The ground-breaking Demand Response program developed by Rodan specifically for businesses in the York Region is gaining momentum everyday...some York Region municipalities have already "signed-on" in this aggregated conservation effort. Add community organizations such as Chambers of Commerce and Business Improvement Areas, and virtually everyone in York Region has the tools to help them conserve.

Further, the number and scope of these programs will more than double in 2008.

As effective as this effort is, reducing peak energy use cannot be the only answer. It will not alter the need for either new generation or transmission to ensure an adequate, secure supply of electricity to the region. In 2005, the message was clear...new high-voltage transmission lines are not a preferred solution. The OPA's recommendations reflected that community preference.

Wouldn't other forms of gas-fired generation than simple-cycle be less expensive and be more environmentally acceptable?

Other forms of gas-fired generation—combined-cycle and co-generation—can be very effective in many circumstances, but not for the specific needs of northern York Region. Both are more expensive to build and must be operated virtually full-time to realize operating and environmental benefits over simple-cycle generation. Northern York Region requires additional electricity only during periods of high demand—approximately 10% of the time. This is also consistent with the use of this generation for meeting the peaking needs of the Ontario system as a whole. This distinction between full-time and part-time operation is extremely important:

Cost Implications—Although the operating costs of a simple-cycle system are marginally higher (operating efficiency is less than the two alternatives), the shorter hours of operation and a lower initial capital cost means the actual cost to customers, both locally and across the province, will be significantly lower.

Environmental Considerations—As with cost, the alternatives can have fewer emissions per megawatt of generation, than simple-cycle, *if they are operated full time.* However, the proposed northern York Region simple-cycle generation is expected to operate approximately 900 hours a year, with total annual emissions well below either combined-cycle or CHP generators. All three options would, of course, conform to Ministry of the Environment standards.

Security Issues—Co-generation or CHP projects clearly have role to play in the Region. In the right circumstances they represent a very efficient use of limited resources. Both current government policy and the OPA's Integrated Power System Plan for the province encourage its contribution. But dozens of small CHP plants, operated by dozens of owners, with dozens of different needs, cannot be counted on to effectively respond to urgent system events in a timely, organized manner.

Simple-cycle generation is the least costly, most environmentally sound, and responsive option to address the specific peak demand needs of the region.