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IN THE MATTER OF the *Ontario Energy Board Act, 1998*,
S.O. 1998, c. 15, Sched. B, section 92;

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AND IN THE MATTER OF an Application by Hydro One
Networks Inc., for an Order or Orders granting leave to con-
struct a transmission line to supply the City of Ottawa.

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BEFORE:

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Arthur Birchenough
Presiding Member

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Ken McCann
Member

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DECISION AND ORDER

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An application, dated February 28, 2003, (the “Application”) has been filed by Hydro One Net-
works Inc. (“Hydro One”) with the Ontario Energy Board (the “Board”) pursuant to section 92(1)
of the Ontario Energy Board Act, 1998, S.O. 1998, c.15 (schedule B), seeking an Order of the Board
granting leave to construct approximately 5.6 kilometers (km) of 115 kilovolt (kV) transmission
line from Hawthorne Transformer Station (TS) to Russell TS and associated facilities and modifi-
cations at Hawthorne TS, all in the City of Ottawa. The Application has been assigned Board File
No. RP-2003-0038/EB-2003-0044.

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The proposed 5.6 km long 115 kV transmission line consists of a new 2.7 km double circuit 115 kV
transmission line on an existing transmission right-of-way, from Hawthorne TS to Blackburn Junc-
tion; and one new single circuit to be installed on the existing 115 kV double circuit transmission
line along about 2.9 km of existing right-of-way from Blackburn Junction to Russell TS. The pro-
posed project also includes 2 new 115kV breakers and associated protection and control facilities
at Hawthorne TS to terminate the new line. In addition, as part of the proposed reinforcement,
Hydro One would modify protection settings at Russell TS, Riverdale TS, and Overbrooke TS.

The proposed double circuit transmission line would commence at Hawthorne TS, run northeasterly towards Highway 417, follow Highway 417 on a northwesterly path and cross Greens Creek and Highway 417 ending at Blackburn Junction. From Blackburn Junction the new single circuit would be installed on the existing towers, running in an easterly direction, parallel to the railway, crossing Innes Road, following Innes Road in a southwesterly direction, crossing St. Laurent Boulevard and ending at Russell TS. A map showing the proposed route is attached as Appendix "A". (not available in ERF format)

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The Board issued a Notice of Application on March 19, 2003. The Notice of Application was served and published as directed by the Board. The intervention period ended on April 24, 2003. There were no intervenors or observers in the proceedings. Board Staff sent written interrogatories to Hydro One on May 5, 2003. Hydro One filed responses to the interrogatories on May 16, 2003.

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The proposed in-service date is June 15, 2004. According to Hydro One's evidence the optimal construction schedule requires construction to start by August 1, 2003.

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Need For Project

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Hydro One and Hydro Ottawa conducted a joint study to determine the existing transmission system adequacy to meet the projected load growth in the Ottawa area. The existing transmission facilities deliver about 1600 MW of electrical power to the Ottawa area. The need for the proposed reinforcement is based on the forecast load growth in the Ottawa City Centre District; the impacts on service availability due to potential loss of circuits, and the need to keep power flow within circuit ratings.

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According to the evidence, the peak load in the Ottawa City Centre District is forecast to grow by 2.5% annually for 2003 and 2004, 2.2% for 2005 and 2006, and 1.6% for the remaining period up to 2011. The Joint Study determined that the projected load growth could be met by constructing the proposed project as described in the Application, and by adding a 230 to 115 kV network auto-transformer at Hawthorne TS, for which leave to construct is not required.

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The capacity limits of the existing 115 kV lines would be 487 MW after a loss of one of the three 115 kV circuits supplying the Ottawa City Centre District. The evidence shows that the projected load would exceed 487 MW by the summer of 2004 and that the loss of one circuit at that time would cause curtailment of the service to Ottawa customers.

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Hydro One also provided evidence that without the reinforcement, the service during peak hours would have to be curtailed at the rate of 8 to 11 MW per year, commencing in the summer 2004. The proposed reinforcement will keep power flows below circuit ratings as required by the Transmission System Code ("TSC") and Independent Market Operator Rules.

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Alternatives to Proposed Project

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Hydro One and Hydro Ottawa evaluated two alternatives to the proposed project: re-conductoring of existing 115 kV circuits; or building a new 230/44kV transformer station near Albion TS. The evaluation of the two alternatives and of the proposed project compared timing, cost, availability, reliability and quality of service, and pricing.

Re-conductoring of the existing 115 kV circuits was rejected mainly because of significant potential load interruptions during the construction period.

Building a new transformer station was rejected primarily because of much higher cost estimated at \$ 29 million compared to \$ 12.32 million for the proposed project, and because the new auto-transformer at Hawthorne would still be required. Neither alternative would eliminate the need for additional transmission facilities beyond 2011.

Hydro One selected the proposed reinforcement project because of lower relative cost, adequate supply capacity until year 2016, increased reliability and quality of service, absence of adverse long term impacts on existing transmission rates, and reduced electricity losses on the transmission system.

Cost of Proposed Project

Hydro One estimated the total project cost for lines and station works at \$ 12.32 million: \$ 6.225 million for lines work and \$ 5.99 million for station work.

The total lines work cost of \$ 6.225 million includes \$ 5.26 million for construction of 2.7 kilometers of a new double circuit 115 kV line between Hawthorne TS and Blackburn Junction and \$ 965,000 for installation of one new circuit on the 2.9 kilometres of the existing double circuit 115 kV line from Blackburn Junction to Russell TS.

Estimated cost of station work is \$ 5.99 million and includes breakers, bus and structural steel, disconnects and ground switches, protection and control and other costs such as environmental, outage co-ordination, and project management. Due to increased civil design and construction labour risks between Hawthorne TS and Russell TS, Hydro One assigned 12.56 % of the total construction cost for contingencies.

Project Economics and Capital Contribution

For the purpose of economic feasibility assessment and rate-making, Hydro One allocated the cost of the proposed 5.6 km line facilities in line connection pool and the cost of the new facilities at Hawthorne TS in network pool. Under this premise, Hydro One conducted an economic evaluation as set out in the TSC.

Hydro One's economic assessment, using a net present value methodology, indicated that in order for the project to break even (Profitability Index of 1), Ottawa Hydro is required to contribute \$

550,300 plus GST in addition to the incremental revenues from new loads over a 25 year study period. Hydro Ottawa and Hydro One entered into a Connection and Cost Recovery Agreement. Hydro One provided a letter dated February 21, 2003, from Hydro Ottawa, confirming that Hydro Ottawa is committed to provide a customer contribution of \$ 550,300 as well as a commitment for the 25 year forecast of incremental revenues. According to the evidence, there would be no long-term rate impacts on the line connection rates attributable to the line connection portion of the project, while the short-term impact on the line connection rates would be less than 1%.

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Hydro One allocated the Hawthorne TS facilities part of the project to network pool for rate making purposes. The Discounted Cash Flow assessment, conducted by Hydro One, indicated that the network part of the project is feasible, with no long term impact on transmission network rates, and with a short term impact of less than 1%.

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Hydro One maintains that the proposed reinforcement would reduce current power losses on the three existing 115 kV circuits by 8,500 MWhrs annually. Hydro One translates this reduction of the power losses to estimated annual cost savings to Ontario consumers of \$ 367,000, based on an energy price of 4.3 cents per kWh.

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Transmission Line Classification and Implication on Project Economic Evaluation

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The classification of the two transmission lines Rh1 and Rh2 was the subject of interrogatories posed by Board Staff. The definition of “Line Connection” is included in the prefiled evidence, Exhibit A, Tab 9, Schedule 1, page 9 - filed on November 24, 1999 for proceeding RP-1999-0044.

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Classification of the two lines has a direct impact on the project economic evaluation. On the one hand, if the classification of the two transmission lines is determined to be “Network Assets”, then the economic evaluation will have to balance the cost of the project against revenues from both the Network Pool and the Line Connection Pool, over the 25 year study period. On the other hand, if the classification of the two transmission lines is determined to be “Line Connection Assets”, then the economic evaluation as presented in the evidence is appropriate and the capital contribution from Ottawa Hydro of \$ 550,300 plus GST would be required.

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In response to the OEB staff interrogatories, Hydro One’s position is that the classification is appropriate. It is also noted that Ottawa Hydro did not dispute the capital contribution requirement as evidenced by the letter dated February 21, 2003, from Hydro Ottawa, but confirmed that it is committed to provide a customer contribution of \$ 550,300 as well as commitment for the 25 year forecast of incremental revenues.

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The Board recognizes that the issue of the classification of such facilities may arise as part of the economic evaluation of any project that involves a dispute as to the appropriate classification of transmission assets.

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System Impact Assessment (IMO) and Customer Impact Assessment (Hydro One)

The IMO completed the System Impact Assessment (“SIA”) as required for all new or modified connections to the IMO controlled transmission system. The SIA report is submitted as part of the pre-filed evidence. The SIA Report finds no negative impacts of the proposed reinforcement on the system operating voltage, system operating flexibility, or on other connections in terms of capacity and deliverability. In the pre-filed evidence, Hydro One stated that it would comply with the requirements of the OEB Transmission System Code for licenced utilities in Ontario.

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Hydro One completed a Customer Impact Assessment (“CIA”) study to examine the impacts of five system aspects on 28 connection stations. The five aspects are: short circuit impacts; voltage performance; supply reliability; supply capacity, and preliminary outage impacts. The 28 connection stations serve Ottawa Hydro, Hydro One Distribution, National Aeronautics and TransAlta’s cogeneration facility located at the Ottawa Health Sciences complex. Regarding the first aspect, the report listed the short circuit levels which increased marginally and informed all customers to review the impact of the increases of short circuit levels on their respective facilities at each connection station. The remaining four aspects had no adverse impacts on the connection stations.

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Land and Landowner Matters

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Hydro One satisfied the requirements of the Ontario Environmental Assessment Act by completing the Class Environmental Assessment Report and submitting it to the Ministry of Environment. There were no unresolved concerns in the environmental assessment process.

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All of the proposed facilities will be constructed in the existing right-of-ways and no new easement agreements will have to be obtained. About 1.4 kilometers of access across National Capital Commission (the “NCC”) lands in the National Capital Greenbelt would be required for construction along Highway 417. For this purpose, Hydro One would apply for a Work Entry Permit/Licence of Occupation from the NCC before construction starts.

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Board Findings

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- 1 The Board finds that the proposed line and station facilities will satisfy for the need for the increased load supply as forecast in the Ottawa City Centre District until year 2016.
- 2 The Board notes that availability, reliability and quality of service in the Ottawa area will be increased with the proposed reinforcement. The Board is satisfied that the SIA report by the IMO demonstrates no negative impacts of the new facilities on the transmission grid.
- 3 The Board is also satisfied that Hydro One’s CIA study is completed, and that the only aspect requiring action relates to the marginal increase to short circuit levels. In that regard, all customers have been advised to review the impact of the marginal increases of short circuit levels on their respective facilities at each connection station.

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- 4 The Board notes that Hydro One assessed three alternatives to meet the identified need for the reinforcement and that the proposed project is advantageous in terms of capacity, timing, cost, quality and reliability of service. 49
- 5 The Board finds that the projected cost of construction is reasonable. There is no long-term impact on existing transmission rates in Ontario. Short-term impacts on rates are smaller than 1%. The Board finds the proposed project economically feasible. 50
- 6 The Board is satisfied that Hydro One fulfilled requirements for approvals and will obtain all permits required by relevant authorities before construction starts. 51
- 7 The Board notes that the construction of the proposed facilities will be completed under the existing easement rights and that no new easement agreements will be needed. 52
- 8 The Board finds that for the purpose of determining whether approval should be granted for this project, it will accept the economic evaluation of Hydro One, including the proposed classification of the transmission lines, subject to the attached conditions. However, the classification of these assets may be reconsidered by the Board in a future proceeding. If such reclassification occurs, Hydro One should reevaluate the economics of the project, particularly the amount of contributions required from Hydro Ottawa. The Board has attached two project specific conditions to this Order to deal with this eventuality. The Board notes that this issue has been raised in the Transmission System Code review proceeding (RP-2002-0120) where transmitters and their customers (Consumers, Distributors and Generators) have an opportunity to participate. 53
- The Board finds that it is in the public interest to approve the construction of the proposed electricity transmission reinforcement as described in Hydro One's application. 54

THEREFORE THE BOARD ORDERS THAT: 55

- 1 Hydro One Networks Inc. is granted leave pursuant to section 96 of the *Ontario Energy Board Act, 1998* to construct a new 2.7 km double circuit 115 KV transmission line on an existing transmission right-of-way, from Hawthorne TS to Blackburn Junction; and to install one new single circuit on the existing 115 kV double circuit transmission line along about 2.9 kilometers of an existing right-of-way from Blackburn Junction to Russell TS, and to install associated station facilities, all subject to the Conditions of Approval set forth in Appendix "B". [[oeb:12T3Q-0:1](#)] 56

DATED at Toronto, July 10, 2003 57

Peter H. O'Dell
Assistant Board Secretary