

June 29, 2005

Collective Response

By:

Aurora Hydro Connections Limited, Hydro One Networks Inc.,  
Newmarket Hydro Ltd. and PowerStream Inc.

To:

The Ontario Energy Board's Direction on York Region Supply  
Dated June 8, 2005

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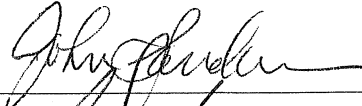
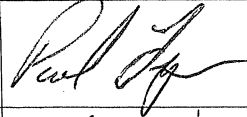

**Foreword**

This response is the result of a collective effort by Aurora Hydro Connections Limited, Hydro One Networks Inc., Newmarket Hydro Ltd. and PowerStream Inc. The respondents were:

Mr. John Sanderson, Aurora Hydro Connections Limited  
Mr. Irv Klajman, Aurora Hydro Connections Limited  
Mr. Ron Salt, Hydro One Networks Inc.  
Mr. Paul Ferguson, Newmarket Hydro Limited  
Mr. Dave Akers, Newmarket Hydro Ltd  
Mr. Ted Wojcinski, PowerStream Inc.

Signatures:

We have reviewed this response and concur with its contents. The specific comments that are expressed in Section 6 by each of the companies we represent are made at the sole discretion of that company.

Utility	Signature	Title
Aurora Hydro Connections Limited		President & CEO
Hydro One Networks Inc.		Manager Dist: Network Strategy
Newmarket Hydro Ltd		President
PowerStream Inc.		DIRECTOR ENGINEERING PLANNING

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## **1.0 Introduction**

On June 8, 2005 the Ontario Energy Board (the "Board") issued a direction (the "Direction") to each of Aurora Hydro Connections Limited ("AHCL"), Newmarket Hydro Ltd. ("NHL") and PowerStream Inc. ("PowerStream") to comment on a distribution option (the "Buttonville Option") for supply to York Region (the "Region") that Hydro One Networks Inc. ("HONI") proposed in its report "Hydro One's Report on the Status of Critical Transmission Reinforcements for the period 2005-2008" (the "Transmission Report"). On June 15, the Board issued the Direction to HONI Distribution.

Prior to this, on June 1, 2005 representatives from AHCL, HONI Distribution, NHL and PowerStream (the "Utilities") met with the Ontario Power Authority (the "OPA") to discuss their information needs for some preliminary supply options which includes the Buttonville Option and a mechanism to request further information as the OPA's consultative planning process develops.

On June 17, 2005, representatives from the Utilities met to formulate a response to the OPA's request, and agreed to collectively respond to the Board's Direction.

This report gives a distribution assessment of the Buttonville Option and an alternative distribution option for consideration. In both cases, a description of the option is given, followed by a discussion on its technical feasibility, ability to serve load, cost, time to construct and other considerations. Individual commentary by each Utility on the Directive is included in Section 6.

## **2.0 Background**

A joint study (the "Study") by Hydro One Networks Inc. ("HONI") and the York Region local distribution companies, completed on July 10, 2003, concluded that there is a need for reinforcement of the electric power facilities to ensure reliable supply in the Region. The facilities identified were:

- bulk power supply (transmission lines or firm generation); and
- transformation (transformer stations).

This need has not changed in the two years since the Study was completed, however the Utilities note that the risk of rotating blackouts during supply contingency conditions has increased during this period.

The Study recommended that reinforcement of the bulk power supply be achieved by building a new 230 kV double circuit line from Parkway TS in Markham to Armitage TS in Newmarket on an existing transmission right of

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way. The Study also noted that this bulk power reinforcement would provide supply for new transformation facilities including new 230/28 kV transformer stations in southern York Region and a new 230/44 kV transformer station in the north.

The Utilities believe the Study identified a sound electricity supply reinforcement option for the Region based on sound electric energy system engineering principles. Alternative solutions should be tested against this benchmark to determine their worth.

Optimum near-term electricity supply solutions should contain common or complimentary elements of long-term solutions, adhere to sound electric energy system engineering principles and control the risk of being able to serve load. Ideally, they should not place stress on other facilities within the regional supply system that are approaching their ability to meet load demands, and enhance operating flexibility.

### **3.0 Electricity Supply and Distribution in York Region**

Distribution in York Region consists of two primary voltages at connection facilities. The southern tier consisting of Markham, Richmond Hill and Vaughan has traditionally experienced the most significant load growth and is predominantly served using 28 kV distribution voltage from PowerStream owned transformer stations. PowerStream has transformer stations in each of the Towns of Markham, Richmond Hill and the City of Vaughan. The northern tier consisting of the Towns of Aurora, East Gwillimbury, Georgina, Newmarket, Whitchurch-Stouffville and the Township of King are served at 44 kV from two HONI pooled transformer stations, Armitage TS located at one site in the Town of Newmarket. These transformation facilities also provide distribution service to communities outside of York Region including Bradford-West Gwillimbury and Uxbridge (Durham Region).

With specific respect to facilities serving HONI Distribution, NHL, AHCL and the northern tier communities of the Region, the capabilities of the supply to the affected areas face three distinct constraints. These can be defined by:

- a) A transformation constraint
- b) A bulk power supply constraint
- c) A distribution feeder constraint

#### **3.1 The Transformation Constraint**

Loading at the Armitage TS facilities has exceeded transformation capacity limits since 2003. The entire northern tier load, supplied by

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Armitage TS has grown in the past two years, and the situation is certain to worsen in the summer of 2005 and beyond.

Table 1 below illustrates the load at risk due to inadequate transformation<sup>1</sup>.

Table 1: Northern Tier Transformation Facility Supply Risk

Year	Transformation Risk (MW)
2003	39
2004	22
2005	58
2006	71
2007	83
2008	96
2009	110
2010	123
2011	137
2012	151
2013	163

The 2003 transformation risk of 39 MW is equivalent to approximately 13,000 residential homes.

### 3.2 The Bulk Power Supply Constraint

The existing 230 kV transmission lines from Claireville TS to Brown Hill TS for bulk power supply are expected to be at their load serving capacity in the winter of 2006/07. This bulk power supply capacity restriction is due to the static stability limit of the lines. Exceeding the static stability limit will result in a voltage collapse of the circuit and a loss of supply to all customers served from those transmission lines.

The static stability of a transmission line can be increased by adding static capacitance up to the thermal limit (which is the maximum safe current carrying capability of the wires). Adding static capacitance at existing and new transformation facilities connected to the Claireville TS to Brown Hill TS lines will increase their static stability limit. The most restrictive

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<sup>1</sup> Data sources "Armitage TS – Projected Peak Loads March 14, 2005", compiled by HONI based on Utilities' Load Forecasts.

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thermal limit for the transmission lines is on the portion of line from Holland Marsh Junction to Armitage TS.

### 3.3 The Distribution Constraint

All distribution feeder positions at Armitage TS are in use. Given the limited transformer capacity, adding more feeder positions is not practical. There is also no readily available feeder egress for additional feeders if the station were to be expanded.

### 3.4 Prioritizing the Constraints

Clearly, when seeking any near or long-term solutions to the northern tier's supply issues, the immediate focus should be on transformation facilities. This is especially true when there are possible alternatives to enhance bulk power supply facilities such as new or upgraded transmission lines, addition of static capacitors and firm generation. There are no immediate alternatives for increasing transformer station capacity in the northern tier other than building new transformer stations.

With specific respect to facilities serving PowerStream's service territory in the Region's southern tier, transformer stations are located at the south end of the Region. For the most part, these stations are supplied from the Parkway Belt 230kV transmission line system. PowerStream is currently constructing a new transformer station for a 2006 in-service date. Given current load projections, PowerStream expects to require its next transformer stations in 2009 and 2012.

## **4.0 Buttonville Option Assessment:**

This option consists of building a 230/44 kV transformer station at the site of the existing Buttonville TS ("Buttonville 44 TS") in the Town of Markham and constructing 44 KV feeders to the Aurora/Newmarket/Stouffville area to reduce the loading on Armitage TS as well as serve new load growth in the northern tier. The bulk power supply facilities serving Armitage TS would remain adequate as Buttonville 44 TS would be supplied from different 230 kV transmission lines with adequate static stability and thermal limits. The southern tier would be supplied from new transformer stations along the Parkway Belt which runs along the southern end of PowerStream's service area.

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**4.1 Technical Feasibility:**

Buttonville 44 TS, in addition to serving load growth must also relieve the projected 2005 overload of approximately 60 MW at Armitage TS. The Utilities determined feeder allocations that would accomplish both requirements, shown in Table 2 below:

**Table 2: Buttonville 44 TS Feeder Allocation**

<b>Utility</b>	<b>AHCL</b>	<b>HONI Distribution</b>	<b>NHL</b>
<b>Feeders To Relieve Armitage TS 1&amp;2</b>	1	1	1
<b>Feeders for Load Growth</b>	2	1	2
<b>Total</b>	3	2	3

Feeder egress options from Buttonville 44 TS and routing to the load centers in the Town of Aurora (AHCL Service Area), the Town of Stouffville (HONI Distribution Service Area) and the Town of Newmarket (NHL Service Area) were then examined. Three possible routing options were selected for providing preliminary cost estimates that could be compared against a benchmarking standard such as the initial overhead transmission line proposal.

1. Use of municipal roadway allowances to construct overhead feeder lines.
2. Use of the Buttonville TS to Armitage TS right-of-way (the "R of W") to construct overhead feeder lines.
3. Use of the R of W to construct underground feeder lines.

In all three routing options, the feeders for HONI Distribution supply to Stouffville are constructed along municipal road allowances as the R of W provides no access in the direction of this load centre.

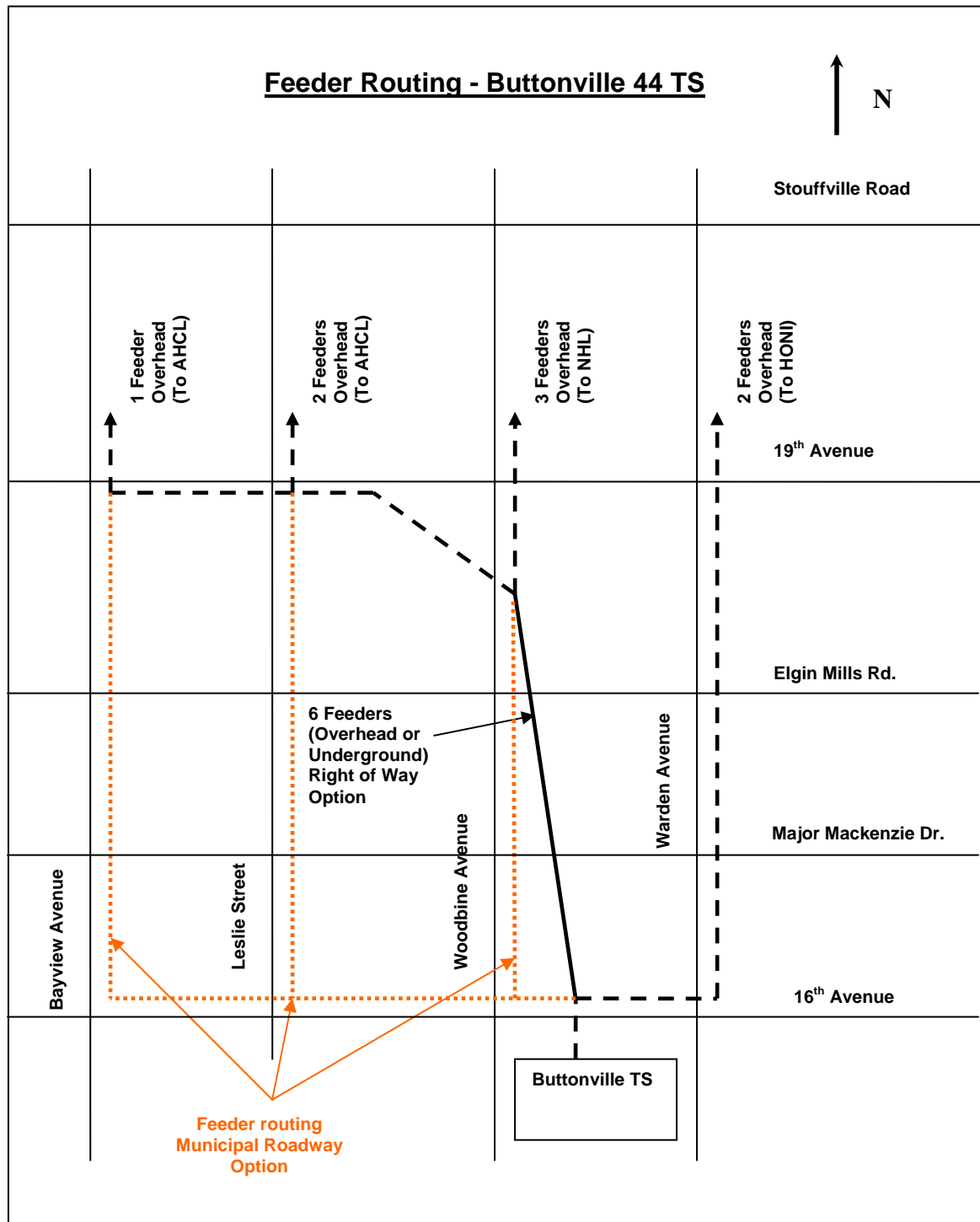
As shown in Figure 1, the R of W options plan six feeders to be constructed within it from Buttonville 44 TS to the point at which the R of W intersects Woodbine Avenue at 19<sup>th</sup> Avenue while leaving adequate space for transmission line construction. The feeders are then routed north on each of Bayview Avenue, Leslie Street and Woodbine Avenue to Aurora and Newmarket. It is the Utilities' understanding that the R of W is constrained in the area of Stouffville Road such that it cannot accommodate feeder lines while leaving adequate space for transmission line construction. Exiting the R of W at Woodbine and 19<sup>th</sup> Avenue addresses this constraint and provides required diversity in feeder routes to address Utility reliability design criteria.

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Figure 1



The municipal roadway option is also shown in Figure 1. It routes three feeders north on Woodbine Avenue to serve NHL, two feeders north on Leslie

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Street and one on Bayview Avenue to serve AHCL. This arrangement accommodates existing feeder lines on these roads and provides diversity in feeder routes to address Utility reliability design criteria. This option may require pole lines on both sides of the roadways indicated.

Preliminary analysis of the feeders to supply AHCL and NHL indicate that they will each consume 1.5 MW in losses at full load and require voltage regulation equipment to maintain voltages above the Canadian Standards Association requirement of 94% of nominal voltage at full load<sup>2</sup>. HONI Distribution will not incur any additional losses or need for additional voltage correction equipment other than that presently existing to serve the Stouffville load centre from Armitage TS.

#### 4.2 Cost:

Preliminary cost estimates for each of the feeder routing options noted in Section 4.1 were prepared by the Utilities. They are shown in the Table 3 below:

Table 3: Buttonville 44 TS Feeder Cost Estimates

	Item	Option 1 Road Allowances	Option 2 RofW Overhead	Option 3 RofW Underground
1	Egress from Buttonville 44 TS	\$2,000,000	\$2,000,000	\$2,000,000
2	R of W Occupancy	N/A	\$1,220,000	\$1,220,000
3	PowerStream Service Area Costs	\$16,750,000	\$11,020,000	\$21,500,000
4	HONI Distribution Service Area Costs	\$9,600,000	\$9,600,000	\$9,600,000
5	HONI Distribution Specific Costs	\$3,500,000	\$3,500,000	\$3,500,000
6	AHCL Specific Costs	\$4,900,000	\$4,900,000	\$4,900,000
7	NHL Specific Costs	\$2,613,000	\$2,613,000	\$2,613,000
8	AHCL Voltage Regulators	\$6,000,000	\$6,000,000	\$6,000,000
9	NHL Voltage Regulators	\$6,000,000	\$6,000,000	\$6,000,000
	<b>TOTAL COSTS</b>	<b>\$51,363,000</b>	<b>\$46,853,500</b>	<b>\$57,333,000</b>

Table 3 is an estimate only of distribution costs. The cost to construct Buttonville 44 TS and any capital contributions required for it as well as associated connection assets and ancillary equipment in accordance with the

<sup>2</sup> CSA Standard CAN3-235-83



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Transmission System Code (“TSC”) and HONI’s capital cost recovery methodology for transmission investments have not been included in these estimates.

Item 1, egress costs contains the amounts required to construct underground cable duct banks from the feeder positions within the station to the R of W and 16<sup>th</sup> Avenue.

Item 2, R of W occupancy costs are the estimated one-time costs that the Ontario Realty Corporation is expected to charge for feeder occupancy. These amounts are subject to final confirmation by HONI and the Management Board Secretariat.

Items 3 and 4 are the estimated costs of constructing the feeder lines through PowerStream’s and HONI Distribution’s service areas to AHCL’s and NHL’s service areas.

Items 5, 6 and 7 are the Utility specific costs that each has estimated to integrate the new feeders into their existing distribution networks.

Items 8 and 9 are costs for voltage regulation equipment for each of AHCL and NHL.

#### 4.3 Ability to Serve Load:

Based on information from the OPA, the Utilities understand Buttonville 44 TS can supply 160 MW. With a feeder loss of 1.5 MW on each of the six feeders supplying AHCL and NHL, 9 MW will be consumed in losses at full load, leaving a load supply capability of approximately 150 MW. Table 1 shows that based on each of ACHL, HONI Distribution and NHL’s current load forecasts, Buttonville 44 TS will be supplying approximately 151 MW in 2012.

The Utilities observe that the Buttonville Option provides load serving capability up to 2012, at which point consideration will need to be given to constructing additional supply facilities to serve the northern tier.

#### 4.4 Time to Construct:

The Utilities estimate the total construction time for all distribution facilities to be in excess of 2 years from the time of project approval given resource expectations (labour and material availability) and current license obligations to adequately service existing customer bases during the implementation phase of this proposal. This estimate also assumes that required approvals from road authorities and any land occupancy needs are obtained without undue delay.

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The Utilities expect that HONI could construct the transformer station in a similar timeframe assuming favourable equipment and resource availability conditions.

#### 4.5 Other Considerations:

Of the routing options considered, the construction of feeder lines from Buttonville 44 TS on roadways provides ready access for work equipment and personnel. The result is fast and efficient construction, maintenance and emergency repair. Work on feeder lines within the R of W requires extra time and depending on soil and climatic conditions, may require specialized work equipment that is not readily available. The Utilities also note that the R of W from Buttonville TS to Woodbine Avenue passes through an area that has proven to be very controversial and subject to significant public opposition to HONI's plans to rebuild the existing 115 kV transmission line at 230 kV. The Utilities fully expect the same reaction to overhead feeder lines on this section of the R of W.

This option provides 150 MW of load serving ability with a capital cost of distribution of approximately \$47,000,000 to \$57,000,000 or \$320,000 to \$380,000 per MW. It requires adding significant distribution infrastructure within the Region and in doing so, introduces additional systemic losses of at least 9 MW at peak load, the costs of which will be borne by its electricity consumers. The costs of the additional losses are estimated at \$180,000 annually per feeder for a total in excess of \$1,000,000 per year.<sup>3</sup>

The length of the feeders required to serve AHCL and NHL will have a detrimental effect on reliability in these areas. With Armitage TS 1&2 situated within these load centers, the average feeder length is approximately 10 km. Feeders from Buttonville 44 TS will be between 20 and 25 km in length. This represents an increase in exposure to interruptions due to feeder trouble (weather, equipment failure, wildlife, vegetation and vehicle contact) of up to 250 %.

The Utility service area costs noted in Items 3, 4, and 5 of the Cost Estimate table in Section 4.2 consist of make-ready costs for joint use of pole lines and cable duct banks as well as costs that one Utility may incur solely to provide access to Buttonville 44 TS for another.

The Utilities have a number of questions and concerns with regard to responsibility for the construction of these distribution assets respecting, ownership, payment of make-ready costs, capital contributions, joint-use

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<sup>3</sup> Based on a 44 kV feeder, 20 km in length with 25 MVA load. Network Service Charge is \$2.83/kW/month. Line Connection Charge is \$0.82/kW/month. Loss Factor of 0.377 (Canadian Electrical Association, "Distribution Planner's Manual"). Load factor = 0.55. Energy price = \$0.055/kWh.

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costs, specific facility charges and the ultimate rate treatment for all costs incurred.

Should the Board determine the Buttonville 44 TS distribution solution is prudent for York Region, the Utilities respectfully request the Board to consider further consultation with them to make a determination on these issues.

The Utilities observe that, should some or all of the supply facilities identified in the Study be implemented in the future to respond to long-term growth in the Region, the high capital, maintenance and electric loss costs of this option will remain systemically embedded in the regional supply system.

**5.0 Utilities’ Distribution Option Assessment – Holland Junction TS**

This option was presented to the Utilities by the OPA. It consists of building a 230/44 kV transformer station (“Holland Junction TS”) on the Claireville TS to Brown Hill TS right of way at the Holland Marsh Junction. This construction technique has been employed by HONI at Brown Hill TS. Static capacitors would be added at Armitage TS as well as Holland Junction TS to increase the static stability limit of the transmission lines.

**5.1 Technical Feasibility:**

Like Buttonville 44 TS, in addition to serving load growth, Holland Junction TS must also relieve the projected 2005 overload of approximately 60 MW at Armitage TS. The Utilities determined feeder allocations that would accomplish both requirements, shown in Table 4 below:

Table 4: Holland Junction TS Feeder Allocation

Utility	AHCL	HONI Distribution	NHL
<b>Feeders To Relieve Armitage TS 1&amp;2</b>	0	2	2
<b>Feeders for Load Growth</b>	0	2	2
<b>Total</b>	0	4	4

In this case, it is more economic and technically advantageous to HONI Distribution and NHL to move two existing feeders from Armitage TS to the new transformer station and supply their future load requirements from this facility. This allows AHCL to maintain its current load and supply its future load requirements from Armitage TS. An option for feeder egress from Holland Junction TS and routing to the load centers of AHCL, HONI

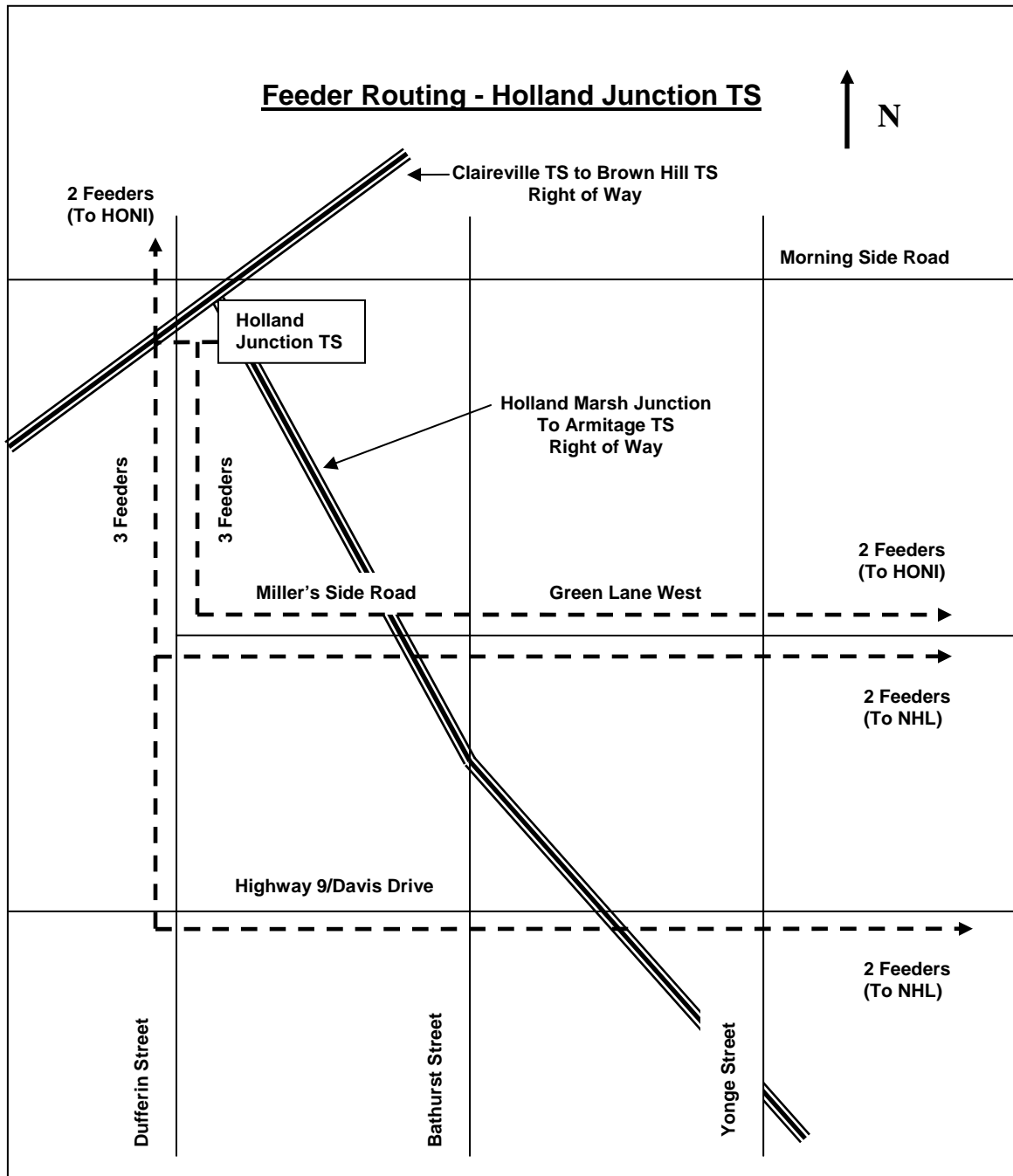
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Distribution and NHL was then prepared. The result is an economic feeder arrangement from a capital cost, feeder loss and reliability perspective. Feeder routing for this option is shown in Figure 2.

Figure 2



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The space and equipment availability for installation and connection of additional static capacitors at Armitage TS may be constrained. The Utilities have been unable to obtain detailed information in this regard within the timeframe of the Direction.

## 5.2 Cost

Preliminary cost estimates for the feeder routing noted in Section 5.1 were prepared by the Utilities and are given in Table 5 below:

Table 5: Holland Junction TS Feeder Cost Estimates

	<b>Item</b>	<b>Cost</b>
1	Egress from Holland Junction TS	\$2,000,000
2	HONI Distribution Service Area Costs	\$1,800,000
3	NHL Service Area Costs	\$858,000
4	AHCL Specific Costs	\$2,900,000
5	HONI Distribution Specific Costs	\$5,440,000
6	NHL Specific Costs	\$747,500
	<b>TOTAL COSTS</b>	<b>\$13,745,500</b>

Table 3 is an estimate only of distribution costs. The cost to construct Holland Junction TS and any capital contributions required for it as well as associated connection assets and ancillary equipment such as static capacitors in accordance with the TSC and HONI's capital cost recovery methodology for transmission investments have not been included in these estimates.

Item 1, egress costs contains the amounts required to construct underground cable duct banks from the feeder positions within the station to Dufferin Street.

Item 2 is the estimated cost of constructing the feeder lines from Holland Junction TS through HONI Distribution's service area to NHL's service area.

Item 3 gives to cost of routing new feeders from Armitage TS through NHL's service area to AHCL.

Items 4, 5, and 6 are the Utility specific costs each Utility has estimated to integrate the new feeders into their existing distribution networks. There is no requirement for new voltage regulation equipment with this option.

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### 5.3 Ability to Serve Load:

Assuming Holland Junction TS is constructed with static capacitors and they are added to Armitage TS, the static stability limit of the transmission lines will be respected. The Utilities understand that Holland Junction TS will be capable of serving 140 MW of load. The feeder lengths involved with supply to HONI Distribution and NHL will not result in extraordinary losses beyond those each typically incurs in supplying their respective loads from Armitage TS. Table 1 shows that based on each of ACHL, HONI Distribution and NHL's current load forecasts, Holland Junction TS will be supplying approximately 137 MW in 2011.

The Utilities observe that the Holland Junction TS option provides load serving capability up to 2011. At this time, consideration will need to be given to constructing additional supply facilities to serve the northern tier.

### 5.4 Time to Construct:

The Utilities estimate the total construction time for all distribution facilities to be in excess of 1.5 years from the time of project approval given resource expectations (labour and material availability) and current license obligations to adequately service existing customer bases during the implementation phase of this proposal. This estimate also assumes that required approvals from road authorities and any land occupancy needs are obtained without undue delay.

The Utilities have no reliable information on HONI's time to construct Holland Junction TS. This option sees the station constructed adjacent to the existing right of way. An environmental assessment is likely required in this case. Annotated photographs of the Holland Marsh Junction area and Brown Hill TS are given in Figures 3 and 4.

### 5.5 Other Considerations:

This option provides 140 MW of load serving ability with a capital cost of distribution of approximately \$14,000,000. This represents \$100,000 per MW. It minimizes distribution infrastructure serving the Region and in doing so, does not introduce any significant new systemic losses.

As with Buttonville 44 TS, the Utility service area costs noted in Items 2 and 3 of the Cost Estimate table in Section 5.2 consist of both make-ready costs for joint use of pole lines and cable duct banks as well as costs that one Utility may incur solely to provide access to Holland Junction and Armitage TS for

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another. These costs are not nearly as significant as those for Buttonville 44 TS, and consist mainly of make-ready costs and joint use rental rates.

The Utilities have some questions with regard to responsibility for construction of distribution egress facilities at the existing Armitage TS respecting ownership, payment of capital contributions and specific facility charges. Should the Board determine the Holland Junction TS distribution solution is prudent for York Region, the Utilities respectfully request that the Board consider further consultation with them to make a determination on these issues.

This option can be integrated into the Study's recommendations for long-term supply. The proposed location of Holland Junction TS makes it capable of connection to either the Claireville TS to Brown Hill TS or the Holland Marsh Junction to Armitage TS 230 kV lines. While it does not address any of the issues in the southern tier with respect to supply from the Parkway Belt, it does not introduce any additional systemic costs into the regional supply system using the Study as the base case.

## **6.0 Utility Specific Commentary:**

The following commentaries are provided by each Utility for the Board's consideration. They provide any unique perspectives the individual Utilities may have on the Board's Direction.

### **6.1 AHCL:**

AHCL acknowledges the Board's role in ensuring adequate, cost effective and reliable electrical supply to the consumers within the province.

AHCL has actively participated in this joint Utility report on the Distribution Option as requested by the Board's directive of June 8, 2005, and is providing, in addition to the cooperative report, an individual commentary from AHCL's viewpoint.

The planning process to provide adequate, cost effective and reliable electrical supply to the Aurora service territory was recognized as early as 2002. The 2003 joint Study demonstrated the need for system reinforcement and proposed a sound solution.

Considerable opposition to the proposed solution has resulted in a deceleration of the activities required to provide adequate, cost effective and reliable electrical supply to the municipality.

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The recent formation of the OPA has allowed the regional supply planning function to once again become prominent.

AHCL has been and continues to be fully supportive of the solution proposed in the Study, but at the same time, has not been opposed to alternative solutions provided that the criteria of reliable, safe, efficient, cost effective delivery of capacity to our service territory is respected.

With reference to the Board's directive, distribution options were examined with the above noted criteria in mind.

The OPA has identified an alternative distribution option at the Holland Marsh junction. A comparative analysis of the two options, as detailed in this report, in our view, demonstrated that the Holland Marsh option is far superior to the Buttonville options when the above noted criteria are applied.

AHCL supports the Holland Marsh Junction TS as a distribution option. AHCL cannot support the Buttonville distribution option as an adequate, reliable and cost effective electrical supply to the customers within our service territory.

#### 6.2 HONI Distribution:

No comments.

#### 6.3 NHL:

Neither NHL nor its shareholder, the Town of Newmarket (the "Town") has expressed any opposition to the supply option identified in the Study. The 230 kV lines serving Armitage TS have a significant impact on the Town as they diagonally bisect the municipality from the northwest to the southeast. In the course of three public meetings hosted and facilitated by NHL on August 25, September 30 and October 20, 2004 less than 20 NHL customers were in attendance. Significant public sensitivity to new transmission facilities was not evident. NHL respectfully suggests that the Board, in its consideration of ordering any distribution options thoroughly examine the merits of the Holland Junction TS option presented in this response. Our experience from the public meetings noted indicates an environmental assessment, if required, could well be met with little or no public opposition.

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#### 6.4 PowerStream:

PowerStream is participating in the OPA's York Region Electricity Supply Consultation. A more comprehensive discussion of all alternatives will be presented in the consultation process.

A clear direction must be established on how these capital assets are financed. Losses and asset impacts related to this option must be grandfathered should the OEB implement a PBR regime in the future.

#### 7.0 Summary:

The table below summarizes the Utilities observations on the two options presented:

<b>Option</b>	<b>Cost to Construct</b>	<b>Distribution Capital Cost \$/MW</b>	<b>Impact on Area Losses</b>	<b>Time to Construct</b>	<b>Load Serving Ability</b>
<b>Buttonville</b>	\$47,000,000 to \$57,000,000	\$320,000 to \$380,000	Typical + 9 MW on peak	In excess of 2 Years	7 years
<b>Holland Junction</b>	\$14,000,000	\$100,000	Typical	In excess of 1.5 Years	6 years

Costs are for distribution only, no transmission costs are included.

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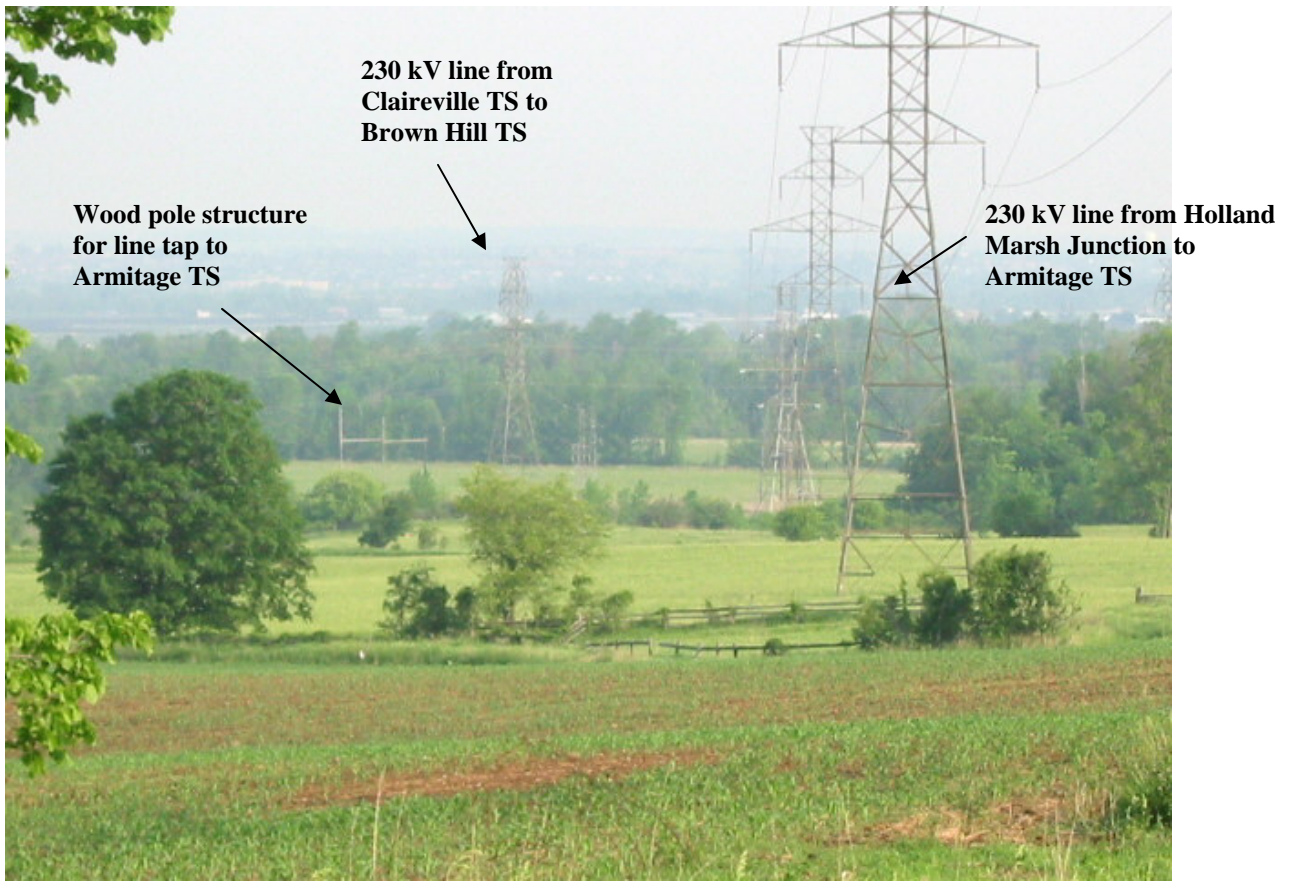
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**Figure 3**

**Photograph of Holland Marsh Junction**



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**Figure 4**

**Photograph of Brown Hill TS**

