Distribution System Assessment

Service Area Amendment Application EB-2012-0047

Horizon Utilities Corporation

November 27, 2012

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Executive Summary

Burman Energy Consultants Group ("Burman Energy") undertook an independent assessment of the current and proposed electrical distribution systems in existence and proposed by Horizon Utilities Corporation ("Horizon Utilities") and Hydro One Networks Inc. ("HONI") in respect of the five Parts which constitute Horizon Utilities' Service Area Amendment Application (EB-2012-0047) ("SAA Application"). All five Parts fall within what has been described as the Summit Park Development.

Specifically, Part I of the SAA Application deals with Phase 7 of the Summit Park residential development, which will involve more than 280 residences and may involve two schools.

Part II of the SAA Application deals with three legacy properties on Fletcher Road which are served by HONI. These legacy properties are now part of a residential subdivision which is served by Horizon Utilities, and the developer has given a commitment to remove the legacy HONI poles and pay for underground service to these homes.

Part III of the SAA Application deals with a number of residential and small commercial properties on the south side of Rymal Road, which are also legacy HONI customers. Several are embedded within Horizon Utilities' service area, being surrounded by a new residential subdivision. These are the residences west of Fletcher Road. The properties east of Fletcher Road exist between the proposed Summit Park Phase 7 subdivision and the two commercial plazas to the east, both of which are served by Horizon Utilities.

Part IV of the SAA Application consists of two parcels – one being the Bishop Ryan Catholic Secondary School, the construction of which is well advanced. A smaller parcel of this Part IV, at the southeast corner of Trinity Church Road and Rymal Road East, is proposed as a small commercial development by the developer of Summit Park, Multi-Area Development Inc. ("Developer"). The Hamilton-Wentworth Catholic District School Board has requested service from Horizon Utilities.

Part V constitutes the remainder of the Summit Park Development lands running east from the earlier Phase 6 residential subdivision which has been built and is in Horizon Utilities' service territory and the proposed Phase 7. These are lands immediately south of the two commercial plazas which are served by Horizon Utilities. These lands are zoned for future residential subdivision development.

All of the Summit Park Development is bounded on the south by a HONI high voltage transmission corridor. To the south of the corridor are rural lands, much of which are restricted in terms of development under the *Greenbelt Act.*

Burman Energy considered all factors it considered relevant, including those identified in the Ontario Energy Board's ("OEB" or "Board") Decision with Reasons in the Combined

Proceeding (RP-2003-0044) with a view to offering an opinion as to the preferred distributor for the five Parts in question. Our review involved the examination of the materials filed by Horizon Utilities and HONI with the OEB, a detailed examination of the existing electrical distribution system infrastructure, and a site visit to examine the placement and location of relevant assets.

Our conclusion is that the factors which we examined and analyzed heavily favour Horizon Utilities' expansion of its dense urban 27.6/16kV system into the balance of all of the Summit Park lands.

Introduction

Retention of Burman Energy

Burman Energy was retained by Aird & Berlis LLP to conduct an independent assessment of the electricity distribution system serving commercial and residential loads in proximity to the customer locations identified, and to provide an opinion with supporting analyses on the best way to serve existing and new loads. By means of an introduction, the primary author of this report is Bart Burman, P. Eng., a former member of senior management with Ontario Hydro/HONI with more than 30 years' experience in the consideration of distribution system planning and asset management alternatives.

Mr. Burman started working at Ontario Hydro in 1981 and took the position of a Distribution Planning Engineer for the Niagara and northwestern Ontario operating regions in 1983. In this position, his job involved analyzing system configurations for the purposes of addressing supply constraints and required system expansions.

Several years later, Mr. Burman moved to the Finance Group as a Senior Business Analyst valuating and analyzing proposed projects. In the early 1990s he transferred to Energy Management with significant responsibility for ensuring field implementation of energy management programs (the forerunner of Conservation and Demand Management ("CDM") programs today).

He was then transferred to Ontario Hydro's Orangeville office as the Supply Planning Manager for Ontario Hydro's Newmarket, Bowmansville, Orangeville, Guelph, Listowel and Dundas operating centres. He remained there until 1997 and had responsibility for planning and developing the Ontario Hydro infrastructure in these operating areas. In 1997, he was named Director, Distribution System Engineering and Sustainment, with responsibility over existing assets in all of Ontario. In 1998, Mr. Burman was named Director of Investment Strategy with responsibility to analyze, monitor and approve proposed investments in new expansion assets. These two successive roles carried the "designation" of chief engineer of Ontario Hydro's distribution system. About one year later, Mr. Burman was named Director of Distribution Operations Management, where his role was pivotal in creating the first centralized operations management centre for Ontario Hydro's distributions system province wide.

Starting in 2000, Mr. Burman was Director of Corporate Development, with significant responsibilities for the acquisition of more than 80 LDCs by HONI. In this role, on various occasions, Mr. Burman had responsibility to undertake a due diligence-type assessment of the various systems under consideration for acquisition to assess their state of repair, state of congruency relative to HONI's existing systems, and the value that should be placed on the assets.

Since leaving HONI, Mr. Burman has worked with dozens of utilities across the province undertaking analyses of system adequacies and loss mitigation, support for regulatory rates submissions, CDM program implementation and customer impact assessments of

connections to distribution assets required for proposed new generating facilities.

In summary, Mr. Burman has several decades of experience and indeed became one of HONI's most senior engineers with responsibility for reviewing, analyzing and considering various distribution electrical system configurations and the economics, reliability and other factors associated with expansion and sustainment projects.

Scope of Undertaking

Burman Energy was retained by Aird & Berlis LLP to undertake an independent assessment of five Parts of the Service Area Amendment Application made by Horizon Utilities. For the purposes of this assessment, Burman Energy interviewed employees at Horizon Utilities, assessed information gleaned from public and internal sources, and attended a site visit with Horizon Utilities on November 5, 2012. The scope of this assessment was to:

- Review Horizon Utilities' SAA Application and relevant associated correspondence and documents filed with the Ontario Energy Board;
- Provide an opinion with supporting analyses on the best way to serve existing and new loads in the identified locations, given their proximity to two possible service providers HONI and Horizon Utilities;
- Examine the economic efficiency of the two possible service providers providing service; and
- Render a complete analysis of all factors considered, including those raised in OEB RP-2003-0044 Decision with Reasons of the Board, dated February 27, 2004 re: Amendments to LDC Licensed Service Areas

Disclaimers

This report and the conclusions herein reflect the reasonable application of recognized engineering principles and practices in the Province of Ontario taking into account the purpose for which it was prepared.

This report may only be relied on for the purpose for which it was prepared except with the prior written authorization of Burman Energy Consultants Group Inc.

This report and its supporting analyses are based on documentation available in the public domain (including materials filed in the Horizon Utilities SAA Application), technical supporting information obtained from Horizon Utilities staff, a site visit, and interviews with Horizon Utilities' staff members. It should be noted that Burman Energy Consultants Group Inc. did not independently verify any of such documentation, materials, or information.

Burman Energy shall have no liability arising from this report except to the party to whom this report is addressed. Burman Energy's liability is limited to damages that arise directly out of the gross negligence or the willful misconduct of Burman Energy.

Under no circumstances whatsoever will Burman Energy be liable for any indirect, incidental, speculative, remote, or consequential damages, or for loss of profit or

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Factors Considered

This report has been organized into the following subheadings which represent the major factors considered:

- Distribution Systems Configuration and Development
- Infrastructure
- Economic Efficiency
- Customer Impact
- Service Reliability
- Other Contributing Factors

SAA Locations

Specific locations considered under this assessment were as specified in the Horizon Utilities Service Area Amendment Application EB-2012-0047, identified as Parts I through V. Recent uncontested additions to Horizon Utilities service area, known as Summit Park Phases 1-6, and two commercial developments on the south side of Rymal Road East were also considered in conjunction with distribution system facilities supplying customer loads in these areas.

Approximate boundaries for the above are the plans which were included in Horizon Utilities SAA Application filings. Specific references to distribution system facilities outside these boundaries were made, as necessary.

Historical Development

There have been a series of SAA Applications by Horizon Utilities and its predecessor with respect to the lands generally described as Summit Park. These include 6 earlier phases of the Summit Park development and 2 commercial developments on the south side of Rymal Road East, just west of Swayze Road. These commercial developments consist of a SmartCentres commercial plaza and another commercial development described as the Brooks of Rymal/20. The Decisions of the OEB with respect to each of the SAA Applications indicate that HONI either consented to or did not oppose each of these 8 Applications.

The only system expansion work of relevance undertaken by HONI are HONI's efforts made in the summer of 2012 initiating work on a new 27.6 /16kV supply line commencing at the M3 and M4 feeders tracking east along Rymal Road East on the south side.
By comparison, Horizon Utilities has continued with its expansion into the Summit Park lands south of Rymal Road East in accordance with each of the 8 earlier SAA Applications. It would appear that the distribution system has been planned and constructed anticipating further residential development. The balance of Summit Park are lands which have been primarily zoned as residential by the City of Hamilton, with the exception of certain parcels designated for schools and additional commercial businesses.

Distribution Systems Configuration

Nebo Road Transmission Station

The distribution system supplying the areas under review and adjacent pre-existing customer loads is energized through the Nebo Road Transmission Station ("Nebo TS") at 27.6/16kV shown in Figures 1 and 2. Plans are currently in place to increase capacity at Nebo TS with an intended in-service date of October 31, 2013.

Figure 1: Express Feeders M3 and M4 tracking east out of Nebo TS and two circuits of 27.6/16kV tracking south

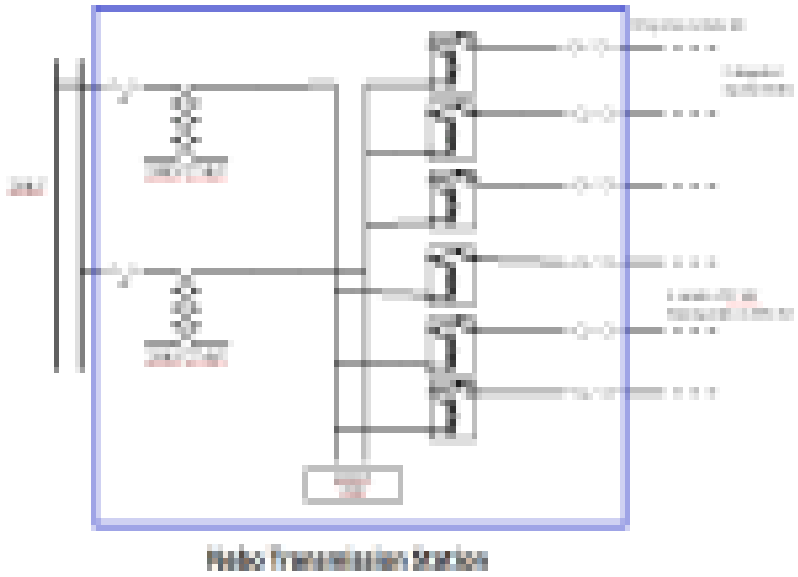

Figure 2: Nebo Transmission Station. Six circuits at 27.6/16kV

Distribution Systems Configuration, continued

27.6kV Circuits & Dickenson Road Distribution Station

A total of 6 circuits egress from Nebo TS; 4 are routed south to supply HONI facilities including the Dickenson Road Distribution Station ("Dickenson DS") which transforms 27.6/16 kV to 8.32/4.8kV rural distribution voltage shown in Figures 3 and 4.

Figure 3: Four circuits tracking south

Figure 4: Dickenson DS

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Distribution System Configuration, continued

Supply to Horizon Utilities' Express Feeders

Two express 27.6/16kV circuits track east and then north out of Nebo TS. These circuits are owned by HONI up to the demarcation point of supply to Horizon Utilities, approximately 3 km from Nebo TS shown in Figures 5 and 6.

Figure 5: Express circuit indicated in black. The express circuits continue eastward from the NEBO TS along the HONI transmission corridor until they meet Glover Road. As the feeders turn north along Glover Road, they enter Horizon Utilities' service area. The point of demarcation between HONI and Horizon Utilities in respect of these feeders is located approximately at the top right corner of the above figure.

Supply to Horizon Utilities' Express Feeders, continued

Figure 6: Demarcation point. Primary metering

These circuits are sub-transmission (ST) feeders which have exclusively served Horizon Utilities and its predecessors. By HONI's definition, these circuits are classified as express feeders because they serve only one LDC, which, in this case, is Horizon Utilities. Beyond the demarcation point, all 27.6/16kV assets and infrastructure belong to Horizon Utilities, which provides service to all 27.6/16kV supplied customers in the area assessed and as noted in the Plans filed as part of Horizon Utilities' SAA Application.

Horizon Utilities' Connection Access to Customer Loads

Horizon Utilities' 27.6/16kV network is extensive in the area assessed and provides connection access to those customers who were the subject of prior Horizon Utilities' SAA Applications and the prospective customers in Parts I to V of the current Horizon Utilities Application.

HONI 8.32kV Circuit

Tracking south out of Nebo TS, the remaining four 27.6/16kV circuits continue into the HONI rural distribution network, one of which supplies Dickenson DS where 27.6/16kV is stepped down to 8.32/4.8kV as shown on Figure 7.

Figure 7:Dickenson DS and 27.6/16kV supply circuit

Dickenson Road Distribution Station and 8.32/4.8 kV supply

Feeders that egress from Dickenson DS (Figure 8) provide supply to HONI's 8.32/4.8kV distribution network within its geographically established boundaries, south of Horizon Utilities' current geographical service area. Customers are typically served by a rural 8.32/4.8kV service as shown in Figures 9 and 10.

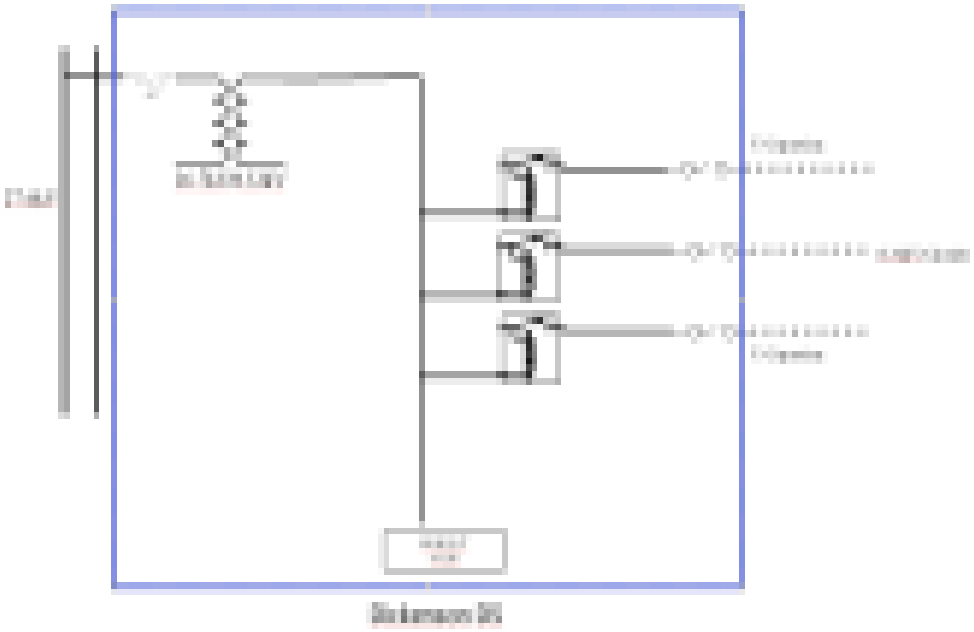

Figure 8: Dickenson DS Single Line Diagram Representation

Dickenson Road Distribution Station and 8.32/4.8 kV supply, continued

Figure 9: Rural 8.32/4.8 kV distribution system

Figure 10: 8.32/4.8kV feeder along Dickenson Road

Distribution System Configuration, continued

HONI 8.32kV Circuit, continued

From the Dickenson DS a single 8.32/4.8kV HONI feeder continues east on Dickenson Road for approximately one kilometre shown as Figure 11.

Figure 11: 1.6km – continues east along Dickenson Road

Over this distance, HONI provides service to customers currently within HONI's service area. It then continues east through the HONI high voltage transmission line right-of-way until it intersects Highway 56 shown as Figures 12, 13, 14, and 15.

Figure 12: HONI's customers along Dickenson Road

HONI 8.32kV Circuit, continued

Figure 13: Rural distribution following transmission line right of way

Figure 14: 8.32/4.8kV feeder coming from the west to Highway No. 56

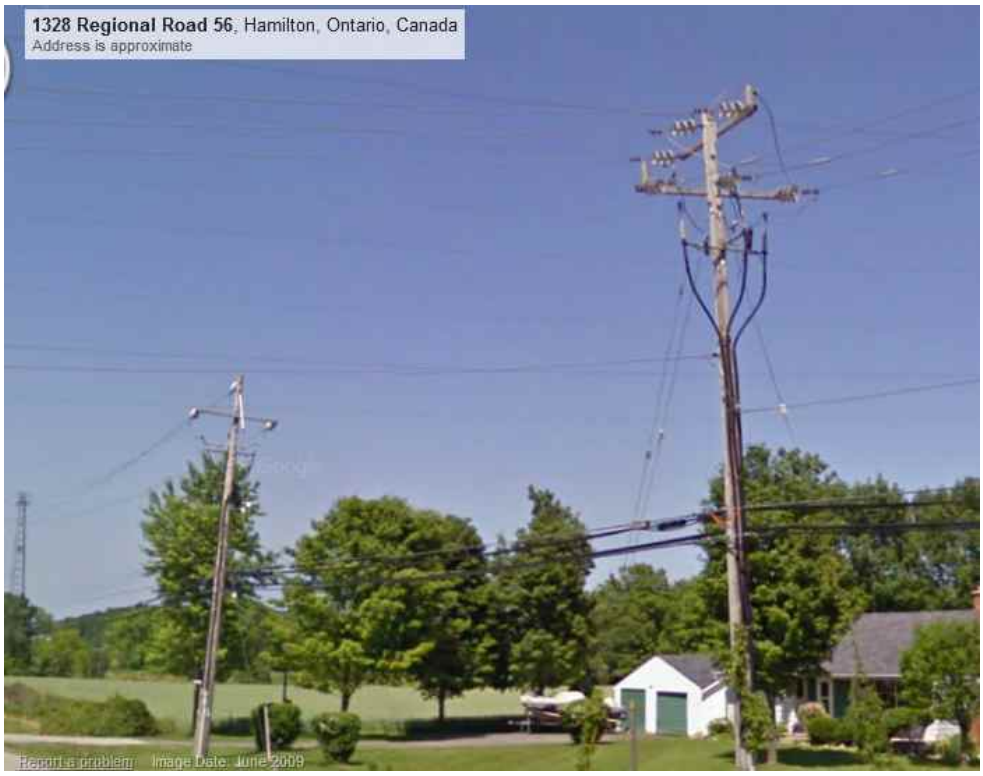

Figure 15: 8.32/4.8kV feeder reaches Highway No. 56

HONI 8.32kV Circuit, continued

At Municipal address 1314 Highway 56, the 8.32/4.8kV continues north to Rymal Road East as shown in Figure 16.

Figure 16: 8.32kV line along Highway No. 56 between municipal address 1314, Highway 56 and Rymal Road East

HONI 8.32kV Circuit, continued

Figure 17: Showing Customers that exist along the approximate 3.1 km stretch between 1314 Highway 56 and Rymal Road East.

The distance from the transmission line right-of-way north to Rymal Road East is approximately 3.1 kilometers. Over this distance, HONI serves approximately 30 customers, as shown in Figure 17.

HONI 8.32kV Circuit, continued

The circuit then continues west on the south side of Rymal Road past Summit Park Phase 7 paralleling Horizon Utilities' 27.6/16kV distribution system located on the north side of Rymal Road, as shown in Figure 18.

Figure 18: HONI's 8.32kV line on the south side (left) of Rymal Road paralleling Horizon Utilities' 27.6/16kV line along the north side (right).

There are no other 8.32/4.8kV sources in the vicinity.

HONI Step Up "Rabbit"

HONI does not currently supply customers in the assessment area at any voltage other than 8.32/4.8kV. The exception is the use of a single phase step up "rabbit" to transform 4.8kV to 16kV.

This "rabbit" transformer is connected just east of Fletcher Road on the south side of Rymal Road East, which steps up the voltage from 4.8kV to 16kV. This temporary facility is assumed to provide supply to the several model homes for the Phase 7 subdivision which are built on the east side of Fletcher Road immediately adjacent to Horizon Utilities' current service area. The "rabbit" transformer (Figure 19) also appears to feed all legacy customers west of Summit Park Phase 7, as these customers are now supplied from 16kV transformers.

Figure 19: 4.8kV to 16kV "Rabbit" located east of Fletcher Road on the south side of Rymal Road East.

HONI proposed 27.6/16kV circuit

During the summer of 2012, HONI began construction of several spans of wood pole circuit framed for 27.6/16kV supply, part of which was observed to be utilizing the existing 35-foot Class 5 poles[1] on the south side of Rymal Road as shown in Figures 20 and Figure 21. Some of these poles exist within Horizon Utilities' current service area.

Figure 20: HONI's pre-existing 35-foot class 5 pole with newly constructed 27.6/16 kV crossarm framing on south side of Rymal Road East.

[1] 35-foot Class 5 poles do not normally meet most current 27.6/16kV pole standards.

HONI proposed 27.6/16kV circuit, continued

Figure 21: HONI pole with 27.6kV on the south side of Rymal Road East.

To date, these 27.6/16kV HONI assets remain disconnected from a permanent 27.6/16kV point of supply from Nebo TS, which are the express feeders (M3 & M4) to Horizon Utilities.

Distribution Systems Configuration, continued

Summary of Distribution System Configuration

Overall, Burman Energy finds that, of the two separate supply voltage levels, the Horizon Utilities' 27.6/16 kV supply configuration represents the most extensive in the assessed area.

No further development or extension of the HONI 8.32/4.8 kV system is apparent. In all cases, extension of the 27.6/16 kV supply to new and future potential customer loads would appear to be preferred over further development of 8.32/4.8 kV supply. This is evidenced by the utilization of the step up 4.8 kV to 16 kV "rabbit". These types of facilities are generally temporary, and remain in service until permanent supply at the higher voltage level can be established.

Horizon Utilities advises that because the bus at the Nebo TS is at or near capacity, particularly at peak periods, it has concern about its 10-day LTR should HONI connect to the M3 feeder. As the in-service date for the Nebo TS upgrades are scheduled for late 2013, and with the work proceeding rapidly on Summit Park Phase 7, HONI's connection to the M3 will give rise to 10-day LTR issues at peak periods in 2013. With a high probability of exceeding capacity, HONI would likely contact Horizon Utilities requesting that Horizon Utilities reduce its load on the M3/M4 feeders by transferring it, through normal open point manipulation of their current supply configuration, to other areas of Horizon Utilities' system. Although this sequence of events would transpire regardless of operational control in the supply area, the operational flexibility of Horizon Utilities would be compromised, unnecessarily complicating the coordination of such events between the two parties, and potentially impacting supply conditions to Horizon Utilities' customers outside the area under consideration. This is less desirable than allowing one utility to operationally manage the distribution system comprehensively and adjust configurations to meet peak load demand using its inherent system flexibility.

It is also my understanding that the Nebo TS upgrade will necessitate that the M3 feeder be taken offline for about one week to proceed with the upgrades. Whereas a short term load transfer to adjacent parts of its 27.6/16 kV supply are possible for Horizon Utilities, there is no apparent replacement of supply, from HONI's current configuration, to those new and legacy customers which will be attached to the new circuit which HONI is proposing along the south side of Rymal Road East from the M3/M4 feeders.

Historically, progression of the 27.6/16 kV system configuration has resulted from extensive development of these facilities by Horizon Utilities. Until recently, no new extension or further development of HONI's 8.32/4.8 kV has taken place since supply was established to legacy customer loads, many currently within Horizon Utilities' service area. HONI has only recently begun development of what would appear to be its own alternate 27.6/16 kV supply configuration. Given the proximity of Horizon Utilities' much more extensive 27.6/16kV system, a rationale for this work from a distribution system configuration perspective is not apparent.

Infrastructure Comparative Analysis

Infrastructure: HONI & Horizon Utilities

The following table provides a comparison of the advantages and disadvantages between HONI's and Horizon Utilities' existing infrastructures.

HONI Infrastructure	Horizon Utilities Infrastructure
• Primarily an 8.32/4.8kV supply to a legacy low customer density rural area by design, installed well before the Summit Park development and other nearby recent subdivision developments. • HONI has no current capability for 8.32/4.8kV loop feeds limiting operational flexibility in response to emergency and/or fault conditions. • Given the proximity and extent of Horizon Utilities' 27.6/16kV supply, constructing additional 8.32/4.8kV supply to connect new customer loads in the area would be redundant and would promote more embedded supply voltage "pocketing". • HONI currently serves approximately 15 legacy residential and commercial customers in the areas under consideration. As 27.6/16 kV supply is readily available, continuing to serve these customers at 8.32/4.8 kV would run counter to the configuration design and operational benefits of a homogeneous voltage supply. • Since all HONI load is currently supplied indirectly from Nebo TS, through Dickenson DS, additional load on either 27.6/16kV or 8.32/4.8kV supply system will face similar capacity constraints (i.e.the Nebo TS LTR). • The capability of HONI's 8.32/4.8 kV system to add additional load without increasing upstream capacity (of Dickenson DS or relevant supply circuits) is unknown. There is no load transfer capability should HONI establish permanent supply at 27.6/16 kV. Load transfer capability to neighboring HONI 8.32/4.8 kV	• Horizon Utilities' 27.6/16kV feeders are, in all cases, directly adjacent to required points of supply for all parts of the Summit Park development area. • These assets provide readily accessible connection points to Horizon Utilities' 27.6/16kV supply for virtually any part of the area's existing or planned customer loads. • From inception, Horizon Utilities' distribution network within the area assessed has been designed solely for 27.6/16kV supply. • As a result, Horizon Utilities' supply affords significant flexibility for load transfers to adjacent supply facilities for operational and/or emergency situations. • No significant or immediate upstream system infrastructure improvements are required in order to connect customer loads associated with Parts I to V of the SAA. • Through discussions with Horizon Utilities' technical staff, there are no capacity constraints on their current 27.6/16 kV supply facilities that would prohibit connecting additional customer load. The most restricting element of supply to the area is the capacity of Nebo TS. In the short term, until capacity is increased at Nebo TS, Horizon Utilities has the flexibility, through connectivity with other parts of its 27.6/16 kV distribution system, to transfer some load to alleviate capacity issues.

supply is unknown, but is expected to be less than Horizon Utilities' in proportion to the relative loading limits of 27.6/16 kV and 8.32/4.8 kV supply respectively.

Historical Perspective

- HONI did not have a well-developed 27.6kV infrastructure to enable standardization when each of the prior phases of the Summit Park development was unveiled.

- The required system infrastructure improvements to bring about this standardization would be considerable.

Summary of Infrastructure Comparative Analysis

Overall, there would appear to be no compelling reasons to promote continued 8.32/4.8 kV supply to the area assessed. 27.6/16 kV supply to the area is extensive and abundant if sourced from Horizon Utilities current infrastructure.

It is anticipated that considerable upstream infrastructure investment would be required by HONI to establish permanent 27.6/16 kV supply to the area from their current facilities. From a conceptual perspective, given no apparent net benefits to the distribution system overall and the potential for poorer overall system performance (e.g., lack of loop feeds). It is not clear how HONI 27.6/16 kV supply could be preferred over Horizon Utilities.

Horizon Utilities currently provides 27.6/16kV service to an existing dense urban customer load. Continuing to extend this service into the balance of the Summit Park lands would be consistent with its existing types of service. By comparison, HONI serves predominantly rural customers and to now provide a service to a new urban subdivision would not be consistent with the service HONI generally provides to the majority of its customers south of the Horizon Utilities' service area.

Economic Efficiency Comparative Analysis

Economic Efficiency Analysis

There are several factors which should be considered for the purposes of undertaking a comparative analysis. Key to the analysis is the work that is required by each of Horizon Utilities and HONI to provide service to the various future customers contemplated by Parts I through V of Horizon Utilities' SAA Application. The objective under this heading is to determine which of the two utilities is able to provide service to each of the perspective customers in the most economically efficient fashion.

The analysis begins with a consideration of the attributable and incremental contribution to costs related to existing distribution system configuration of each of Horizon Utilities and HONI and the requirements of each to serve each of the future customers. The following comparative analysis by cost element compares the work that will be required of each utility.

Cost Element	HONI	Horizon Utilities
Upstream upgrade	It is apparent that HONI must undertake a significant degree of work to provide a 27.6/16kV service to any of the Part I through V potential customers. It has currently started work on a new circuit to just west of the Phase 7 development. Presumably, if it were to provide service at 27.6kV to points east of this, it will have to extend the circuit east. For comparative purposes, a conservative estimate of the cost to construct new 27.6/16kV line is between $150,000 and $200,000, per kilometer. This would generate a cost at the lower end of the range of approximately $540,000 if a new 27.6/16kV circuit with adequate structures and standard framing was extended the full distance from the M3/M4 feeders to Swayze Road. $150,000/km x 3.6km = $540,000	There are no immediate infrastructure upgrades which appear necessary. Horizon Utilities has the ability to provide supply points from the north side of Rymal Road East and from the west side of Fletcher Road from an earlier already built Phase of Summit Park.
Connection cost (This is the actual cost to connect the utilities'	• Removal of existing 4.8kV customer transformers (as required) • Installation of l6kV customer	• Removal of existing 4.8kV customer transformers (as required) • Installation of 16kV customer

assets to the new assets of the subdivision)	transformers • Connect at 16kV Assuming that HONI has a 27.6/16kV circuit in place, the connection costs should be approximately the same as Horizon Utilities.	transformers • Connect at 16kV
Operations, Maintenance and Administration costs	It is not clear that these costs have been fully considered. Should HONI retain part of its 8.32kV circuits, it will then face the additional costs of having to service two voltages which complicates maintenance, servicing and operations.	Blended 27.6/16kV maintenance rate consistent with existing system.

Summary of Economic Efficiency Comparative Analysis	Based upon the above, it appears that Horizon Utilities offers the more economically efficient means of servicing the customers that exist at Parts I through V of the SAA Applications. Unlike HONI, Horizon Utilities will not incur significant upstream costs to serve any of Parts I through V.

Service Reliability Comparative Analysis

Service Reliability Analysis

Service reliability considerations are outlined in the table below:

HONI	Horizon Utilities
System Average Interruption Duration Index (SAIDI) at December 31, 2011 Annual (2011): 21.17	System Average Interruption Duration Index (SAIDI) at December 31, 2011 Annual (2011): 2.23
Customer Average Interruption Duration Index (CAIDI) at December 31, 2011 Annual (2011): 5.38	Customer Average Interruption Duration Index (CAIDI) at December 31, 2011 Annual (2011): 1.28
One of the lowest customer densities in the province (number of customers per kilometer of line): as of December 31, 2011: 10.31	One of the highest customers densities (number of customers per kilometer of line): at December 31, 2011: 68.93
Minimal configuration flexibility in response to supply interruptions (e.g., the Nebo TS Upgrades)	Horizon Utilities has significantly more flexibility than HONI given its existing system configuration
Supply to legacy loads consistent with a rural distribution network	Homogeneous 27.6/16kV supply system contiguous supply from an urban centre LDC. Summit Park is dense urban development.
Higher exposure to outage-causing elements (animal interference, vehicle accidents, equipment failure, weather conditions such lightning, wind, ice, etc.)	
HONI's Service Centre is located in Dundas, approximately 24 kilometres to Summit Park Phase 7	ServiceCentres is approximately three kilometres to the center of the Summit Park Development. The distance to all Parts I through V of the SAA Application is much closer than HONI.
Kilometres of exposed line from source to load point: approximately 12.5 km.	Kilometres of exposed line from source to load point: approximately 3 km.
Limited load transfer capability due to lack of additional 8.32kV in proximity to existing legacy supply	Flexibility in load transfer capability (e.g. to offload upstream facilities nearing capacity limits)

Summary of Service Reliability Comparative Analysis

HONI's legacy supply poses a number of limitations that may negatively impact service reliability in the study area, as is supported by the 2011 SAIDI and CAIDI comparisons. These indices indicate that the average length of interruptions to HONI's customers is many hours greater than those experienced by Horizon Utilities' customers.

Due to the rural nature of HONI's distribution network, it is more exposed to outage-causing elements and is configured to support lower customer density. In contrast, Horizon Utilities' homogeneous urban-based 27.6kV contiguous supply system is more flexible and is equipped to support a higher customer density.

Customer Impact Comparative Analysis

Customer Impact Analysis

Customer impacts are described in the table below:

	HONI	Horizon Utilities
Customer Confusion	If HONI serves customers in Parts I through V of the SAA Application, given the surrounding Horizon Utilities service territory, HONI customers may be confused about who is the incumbent supplier.	If Horizon Utilities' SAA Applications are granted, there will be no customer confusion.
Rate comparison[2]	<u>Medium Density Zone[3] Delivery Rates</u> Monthly Service Charge: $23.64 Distribution Volume Charge: (¢/kWh) 3.317¢ Transmission Network Charge: (¢/kWh) 0.585¢ Transmission Connection Charge: (¢/kWh) 0.464¢ Adjustment Factor: 1.085 <u>Urban High Density Zone[4] Delivery Rates</u> Monthly Service Charge: $18.44 Distribution Volume Charge: (¢/kWh) 2.918¢ Transmission Network Charge: (¢/kWh) 0.575¢ Transmission Connection Charge: (¢/kWh) 0.456¢ Adjustment Factor: 1.078 NB: HONI has used the high-density rate in its OTC, but the total number of customers in the area and line density do not meet the high density criteria.	<u>Residential</u> Monthly Distribution Charge: $15.43 Variable Distribution Charge (RPP) (¢/kWh) 1.426¢ Variable Distribution Charge (Non-RPP) (¢/kWh) 1.496¢ Transmission Connection Charge: (¢/kWh) 0.54¢ Transmission Network Charge: (¢/kWh) 0.72 Adjustment Factor: 1.0407

[2] HONI does not currently have approved 2012 rates and is thereby still applying its 2011 approved rates in connection offers. Horizon Utilities has 2012 approved rates. Comparisons of offers to connect should recognize this difference.
[3] Defined as areas containing 100 or more customers with a line density of at least 15 customers per kilometer
[4] Defined as areas containing 3,000 or more customers with a line density of at least 60 customers per kilometer

	General Service <50kW [GSe] Monthly Distribution Charge: $39.41 Variable Distribution Charge: ($/kW $0.03938 Transmission Connection Charge: ($/kW) $0.00431 Transmission Network Charge: ($/kW) $0.00329 Adjustment Factor: 1.09 General Service 50kW and above [GSd] Monthly Distribution Charge: $51.64 Variable Distribution Charge ($/kW) $10.499 Transmission Connection Charge: $/kW) $1.45 Transmission Network Charge ($/kW) $1.09 Adjustment Factor: 1.061 Sub-Transmission[5] Monthly Distribution Charge: $292.56 Monthly Metering Charge $466.14 Variable Distribution Charge ($/kW) $0.668 Transmission Connection Charge: $/kW) $1.50 Transmission Network Charge ($/kW) $2.65 Adjustment Factor: 1.034	General Service <50kW Monthly Distribution Charge: $43.62 Variable Distribution Charge (Non-RPP): ($/kWh) $0.00826 Variable Distribution Charge (RPP): ($/kWh) $0.00746 Transmission Connection Charge: ($/kWh) $0.0049 Transmission Network Charge: ($/KWh) $0.0062 Adjustment Factor: 1.0407 or 1.0303 for primary metered customers General Service >50kW Monthly Distribution Charge: $311.03 Variable Distribution Charge (Non-RPP): ($/kW) $1.68519 Variable Distribution Charge (RPP): ($/kW) $1.40399 Transmission Connection Charge: ($/kW) $1.9492 Transmission Network Charge: ($/KW) $2.4817 Adjustment Factor: 1.0407 or 1.0303 for primary metered customers
Customer Certainty	To the extent that any of the legacy residences and businesses are not converted to Horizon Utilities, they will remain outposts largely embedded within Horizon Utilities' service territory and may be the subject of an Application in future.	In the event that all Parts I through V of the SAA Application are granted, this will create customer certainty and avoid the cost and delay associated with any further SAA Applications in respect of the Summit Park development lands.
Supplier consistency	Service dispatch complexities, in event of emergency situations and/or power outages Rural service utility – customers receive rural type service standards and utility only required to provide "rural" outage response time	Homogeneous urban service – utility expected to provide "urban" responsiveness in outages
Customer Density	One of the lowest line kilometer customer densities in the province	Less equipment required for smaller geographic area
Designation of Express M3/M4 Feeders	Attached at Appendix A is a description of LDC feeder supply types published by HONI. I am advised that the M3/M4 feeders have never served any other customer other than Horizon Utilities and its predecessors. Because these	

[5] Sub-transmission is load for customers, other than LDCs that meet the following requirements only: "i) is three-phase; and ii) is directly connected to and supplied from Hydro One Distribution assets between 44 kV and 13.8 kV inclusive; the meaning of "directly" includes HONI not owning the local transformation; and iii) is greater than 500 kW (monthly measured maximum demand averaged over the most recent calendar year or whose forecasted monthly average demand over twelve consecutive months is greater than 500 kW)".

Designation of Express M3/M4 Feeders, continued

feeders have been utilized solely for supply to Horizon Utilities and no other load, they therefore meet the definition of "express feeder". HONI's rates for sub-transmission (ST) are different for "common ST lines" and "specific ST lines". The basis for charging a customer utilizing a common ST line is the customer's monthly maximum demand; whereas the basis of the charge for a specific ST line (i.e., an express feeder) is the length of the line within the supplied LDC's service area solely supplying the LDC.

The per kilometer charge for a specific or express feeder in HONI's approved rates is $633.28. Assuming that the M3/M4 feeders are approximately 3 kilometers in length, the monthly charge would be about $1,900, per feeder. By comparison, the charge for a common ST is $0.668 per kW. I am advised by Horizon Utilities that by its calculations, if one of the M3 or M4 feeders is used by HONI to provide service to Summit Park, HONI could then take the position that the feeder no longer remains a specific ST line and should be charged out at the common ST rate. Horizon Utilities' calculates the resulting increase to be between approximately $4,000 and $8,900 per month. The estimated annual impact is estimated to be more than $73,000. This additional amount would then become payable by Horizon Utilities' ratepayers and would constitute a customer impact.

Summary of Customer Impact Comparative Analysis

It is understood that Multi-Area Developments initially requested service from Horizon Utilities for its Phase 7 subdivision development, having received service for the first six phases from Horizon Utilities. After it later received an OTC from HONI, Multi-Area accepted HONI's OTC. While this fact or weighs in HONI's favour, it should be considered in light of the rate impacts on future customers.

The Phase 7 development will consist of more than 280 residences. It is also slated for the construction of two schools. The customers that will purchase the residences, businesses and operate the schools in the Phase 7 subdivision will face higher rates under HONI than under Horizon Utilities.

As well, with the removal of the legacy 8.32/4.8kV service and the legacy poles, the streetscape will be improved.

Overall, the customer impact assessment favours Horizon Utilities.

Other Considerations

Factors Specific to Parts 1 through V of the SAA Application

While the analysis earlier in this report applies generally to each of Parts I through V of Horizon Utilities' SAA Application, there are certain factors specific to several of the Parts of the Application. These are discussed in this section of the report.

PART I

Part I consists of the Summit Park development, Phase 7. It was the subject of Horizon Utilities' June 2012 SAA Application filing. From the materials, it initially appeared that the Developer supported Horizon Utilities' SAA Application. However, after receiving HONI's OTC later, the Developer apparently signed the OTC back.

It is not possible to compare the HONI OTC "as is" to Horizon Utilities' for several reasons. First, the HONI OTC does not appear to include any connection charge. Regardless of whether the Developer elects HONI's Option A or B, HONI will incur costs connecting its system to the Summit Park subdivision and it is not apparent that these costs have been included in its OTC.

Second, HONI does not appear to have included any upstream costs, despite the fact that it has been expanding its system to accommodate Phase 7.

Third, because HONI generally serves rural areas, its specifications permit a less expensive installation of underground wires by the direct-bury method, whereas Horizon Utilities requires developers to use duct work because this will ultimately reduce O&M costs in future. In respect of the Developer and Phase 7, I have been advised by Horizon Utilities that it has agreed to allow the Developer to proceed with the direct-bury method of the underground wires so as to not cause any delay in the completion of the Project. In other words, in the event that Part I of Horizon Utilities SAA Application is granted, it will not require the Developer to convert the underground wiring system to a duct-based system. It is my understanding that the costs of the civil work associated with the direct bury of the wires necessary for Phase 7 as quoted by the contractor pertaining to the work, Conelco, is approximately $562,000 and would be common to both alternative supply options.

Finally, the HONI OTC apparently does not include any costs associated with the steps that it will take in future to make its connection permanent through, for example, the construction of an additional feeder from NEBO TS and the connection of the new 27.6 / 16 kV line to the new feeder. The HONI OTC also does not include any costs for the movement of the poles that will be necessitated along the south side of Rymal Road as required during the planned road widening.

Horizon Utilities informs me that the City of Hamilton plans to widen Rymal Road East to four lanes in or around 2013 and that many of the poles which have recently been framed by HONI will have to be moved. In many instances, it is probable that the existing legacy poles will be replaced with the larger and higher class poles appropriate

PART I, continued

for 27.6 /16 kV circuits. I am advised by Horizon Utilities that the location of the poles it installed 5 years go on the north side of Rymal Road East was selected to avoid having to relocate them later for the road widening.

The Table below is a comparison of the two OTCs as they appear in the SAA Application materials. This Table only includes the figures that each of the utilities have included in their respective OTC, with the exception of the contestable work. The latter will be the same for both utilities. I am advised by Horizon Utilities that it has agreed to accept the direct-bury method of construction. It is understood that the contestable costs to complete the Phase 7 subdivision totals approximately $562,171, according to a quote from Conelco.

SUMMIT PARK RESIDENTIAL DEVELOPMENT, PHASE 7
COMPARISON OF OFFERS TO CONNECT

HORIZON UTILITIES		HONI
$0	Design Costs	$12,877
50,000	Connection Costs	Not Included
127,953	Expansion Costs	Not Included
182,020	Non-Contestable Costs	520,719
562,171	Contestable Costs	562,171
506,042	OM&A (Present Value)	886,979 (does not include any OM&A on connection or expansion work)
0	Cost due to Rymal Road Widening	Not Included
65,637	Inspection Costs	38,253
1,493,823		2,020,999

Horizon Utilities understands that the non-contestable work included in the HONI OTC includes costs for transformers, switches, elbows and associated labour which, under Horizon Utilities' methodology is passed along to the developer customer. Horizon Utilities therefore believes that the following costs should be added to its OTC to assist in the comparison:

Transformer costs (25 transformers)	$ 106,000
SF6 switches (3)	$ 114,000
Primary elbows (50)	$ 5,000
Labour to install	$ 33,000
Total	$258,000

PART I, continued

Horizon Utilities further believes it is appropriate to make a further adjustment to its OTC to assist in the comparison. Horizon Utilities includes an allocated cost for system expansion in its OTCs based upon a pooled approach for such costs. It would appear that HONI does not adopt such an approach and has therefore not included any amount for expansion costs in its OTC. Horizon Utilities therefore believes that the expansion costs in its OTC of $127,953 should be removed for the purposes of the comparison.

The end result is that HONI's OTC acknowledges costs to serve Summit Park Phase 7 which total more than $2 million, whereas the Horizon Utilities' OTC, with the above adjustments, indicates that Horizon Utilities can provide service to Phase 7 for approximately $400,000 less than HONI.

PART II

Part II deals with three single-family legacy homes on Fletcher Road. The SAA Application materials indicate that HONI earlier requested that Horizon Utilities assume these customers, but it is my understanding that HONI has orally rescinded this request. No reason has been given for this change.

Burman Energy understands that the Developer has committed to pay for the conversion to an underground connection to these homes and remove the HONI legacy poles. 134 Fletcher Road is completely embedded within Horizon Utilities' service territory. 70 and 80 Fletcher Road are surrounded on the north, south and west sides. They would be completely embedded within Horizon Utilities' service territory if Part I dealing with Summit Park, Phase 7 is approved. Currently these houses are served by HONI using legacy overhead 4.8 kV wires from the south. Horizon Utilities already has underground services along Fletcher Road. For HONI to supply these houses, it would have to provide an underground connection beneath Fletcher Road from Summit Park, Phase 7 (assuming that it is successful in its opposition to Part I of the Horizon Utilities SAA Application). This would involve a road cut of a newly paved road. By comparison Horizon's existing underground line is nearby on the west side of the street and fronts 134 Fletcher Road. In respect of 134 Fletcher Road, HONI would have to bury supply cable to approximately four (4) houses inside Horizon Utilities' service territory and cut across Fletcher Road.

PART III

There are a total of 12 properties along an approximate 2 km stretch on the south side of Rymal Road East which are legacy customers of HONI. The four (4) customers west of Fletcher Road – 1898, 1900, 1910 and 1912 Rymal Road East – are all completely embedded within Horizon Utilities' service territory. Horizon Utilities' 27.6/16kV system exists on the north side of Rymal Road East. There are no economic or system configuration reasons why these customers should remain outposts of HONI. They are no longer rural properties. They now exist within a subdivision of the City of Hamilton.

It is appropriate, in my view, that these customers be transferred to Horizon Utilities for a number of reasons. By converting these customers to Horizon Utilities, there will be no confusion as to which utility has responsibility for servicing the residences. There will also be no confusion in respect of rates, whereas confusion may arise with some neighbours paying the lower Horizon Utilities' rates and the legacy HONI

customers paying the higher HONI (medium density) rates, even though these residences are no longer in a rural setting. Horizon Utilities offers a more reliable service in comparison to HONI's legacy connections to these properties based on reliability data published by the OEB as noted in the Service Reliability section of this report.

In respect of the properties on the south side of Rymal Road East to the east of Fletcher Road, I note that these properties exist immediately to the east of the Summit Park, Phase 7 residential development and are immediately west to the two large commercial developments which are already served by Horizon Utilities. Horizon Utilities has the capacity and currently has the connection points to provide service to these properties. It is also noteworthy that HONI's 27.6 / 16 kV line from the M3 and M4 feeders which would be required to serve Summit Park, Phase 7 has not been extended east to these properties. Accordingly, HONI would necessarily incur upstream expansion costs to serve these legacy residences that Horizon Utilities would not.

PART IV

This Part of the SAA Application consists primarily of the Bishop Ryan Catholic Secondary School which is under construction and scheduled for completion in the spring of 2013. It also includes a square parcel of land at the south east corner of Rymal Road East and Trinity Church Road where the Developer contemplates a small commercial plaza. The Catholic Secondary School Board has requested that Horizon Utilities provide service to the high school. Horizon Utilities' OTC to the School Board is included in the October 24, 2012 SAA Application materials. It is my understanding that the School Board has requested a comparison OTC from HONI a number of weeks ago, but the comparison OTC has not been received.

This property is embedded entirely within Horizon Utilities' service territory. If this Part of Horizon Utilities' SAA Application is not granted and HONI remains the incumbent distributor, it would become another outpost or island within Horizon Utilities' service territory. Horizon Utilities has a fully developed distribution system surrounding the property and I am advised that no material upstream expansion is required. It is my understanding from correspondence from the School Board that the ownership and future operations and maintenance obligations associated with the required transformer is an important issue. The School Board is desirous of the service provider owning and being responsible for the transformer. HONI earlier informed the School Board that the School Board must supply the transformer. As well, the School Board has indicated a preference for the rates of Horizon Utilities and its quality of service relative to HONI.

PART V

This Part of the SAA Application involves all of the remaining lands east of the Summit Park, Phase 7 development and the earlier built Summit Park subdivision immediately south of Phase 7. Given the likelihood of future development, and in the interest of regulatory efficiency, rendering a decision regarding preferred supply authority at this time would be prudent.

Given all of the past Phases of the Summit Park development and the two commercial plazas which are currently served by Horizon Utilities, for the reasons stated in this

report, Horizon Utilities would appear to be the preferred distributor for these lands. From an economic efficiency perspective, by providing for Horizon Utilities to be the distributor for these lands, HONI would then be in a position to retire its legacy 8.32/4.8 kV line all along the south side of Rymal Road East. This would free up capacity for its remaining 8.32/4.8 kV supply system. It is also anticipated that this would reduce OM&A costs of maintaining this legacy line to the several remaining outposts. This benefit may be offset, at least in part, by recognizing the value of the stranded 8.32/4.8 kV assets, however, assuming an average asset vintage of greater than 25 years, the stranded asset value would be minimal.

Conclusions

The economics of Horizon Utilities providing service to each of Parts I through V of its SAA Application has been compared against that of HONI. It appears that the economics favour Horizon Utilities. This is self-evident given the existence of an extensive 27.6/16kV system which is already in place serving Horizon Utilities' customers, all of which is accessible to provide service to Parts I through V.

In respect of the several HONI legacy customers, it appears that the "do nothing" option is not a feasible alternative. For system reliability reasons and given the fact that these legacy customers are now virtually embedded within a dense urban framework, leaving them as legacy customers of HONI will only necessitate further applications to the Board for SAA Applications in future. This, in and of itself, is not economically efficient.

Part V of Horizon Utilities' SAA Application consists of the balance of the lands which make up the Summit Park development running west of Swayze Road and that have not as yet been approved as Horizon Utilities' service area. Given the zoning of the area for future dense residential and commercial use and the existence of Horizon Utilities' dense 27.6/16kV system, it is my view that the most economically efficient supplier and the most administratively efficient means of dealing with these lands is to approve the SAA Application at this time. This will save the ratepayers of Horizon Utilities and HONI the cost of involvement in yet further SAA Applications.

Generally, for the area being assessed, Horizon Utilities' distribution system is more developed than HONI's. Consequently, customer loads are in much closer proximity to Horizon Utilities' 27.6/16kV facilities than they are to HONI's facilities. Considerable efficiencies are anticipated from the mitigation of the need for additional redundant supply to the area. As well, it is preferable for service to be provided at 27.6/16kV rather than at 8.32/4.8kV. The latter has service limitations over extended distances. It will incur greater losses, in turn reducing supply voltage to new customer loads at the end of the feeder thereby advancing the need for increases to the 8.32/4.8 kV supply capacity.

The historical development of existing infrastructure is relevant. Horizon Utilities has built out its system using a standardized 27.6/16kV supply. It represents the most efficient opportunity to provide a standardized service to all of Parts I through V of the Horizon Utilities' SAA Application. As a result of Horizon Utilities' existing system configuration, considerable efficiencies are anticipated from the mitigation of directly attributable and immediate upstream work which the HONI system will require.

By comparison, the Horizon Utilities' infrastructure requires no major or immediate system infrastructure improvements to accommodate the additional customers' loads.

From a service reliability standpoint, HONI's legacy supply poses a number of limitations that may negatively impact service reliability as is supported by the 2011 SAIDI and CAIDI comparisons. Due to the rural nature of HONI's distribution network, it is more exposed to outage-causing elements and is configured to support lower customer density. In contrast, Horizon Utilities' homogenous urban based 27.6/16kV contiguous supply system is more flexible and equipped to support a higher customer density. The elimination of two separate voltage level protocols is a matter of good operating practice and will lead to the rationalization of unneeded duplicate and/or redundant supply points.

A rough visual inspection of the HONI legacy wood poles leads to the conclusion that the 8.32/4.8kV assets are likely nearing the end of their depreciable life. With the anticipated widening of Rymal Road East, the removal of these poles from the south side represents an opportunity to retire this portion of the circuit.

All of HONI's rate classes which might be applicable are materially higher than that of Horizon Utilities. It should be noted that it does not appear that the HONI Urban High Density Zone rate is applicable as the Summit Park Phase 7 development does not contain 3,000 or more customers. It appears that the more costly Medium Density Zone rate would be applicable. Moreover, HONI's general service (commercial) rates must be compared with transformation included so there is no confusion to the school as a customer.

One must also consider the added operational complexity of allowing pockets of HONI customers to exist embedded within Horizon Utilities' service territory and potential for customer confusion. These are also factors which tend to favour Horizon Utilities being the preferred service provider.

In conclusion, it is my opinion that the factors considered weigh in favour of granting the Service Area Amendment Application, Parts I to V, to Horizon Utilities.

LDC Feeder Supply Types

LDC owned

- Owned by the LDC up to the TS
- Billed by the IESO
- Listed in TCA Schedule A
- Monitoring for > 500 kW

Shared

- Hydro One owned to LDC boundary
- Supplies other H1 customers
- Listed in DCA Schedule D
- Monitoring for > 250 kW

Express

- Hydro One owns a section from the TS (usually outside LDC)
- Only serves one LDC (no other load)
- Listed in DCA Schedule D
- Monitoring for > 500 kW

hydro one

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PROFESSIONAL PROFILE

- Extensive progressive current operational, financial and business management experience within the electricity distribution sector; 25+ years progressive senior management knowledge and expertise,
- Well honed sense of industry issues which allows for applicable and effective action from strategic development to ultimate resolution and implementation.
- Technologically "fluent"; team leader of "state of the art" business approaches such as task cycle approach to work management, various process and improvement techniques.
- Highly developed project management and multi-tasking skills using portfolio management techniques.
- Acute comprehension of regulatory requirements to enable LDC compliance; experienced with regulatory filings.
- Initiated, designed and implemented Ontario Hydro's first distribution operation's management centre to better meet customer needs and improve operations.
- A fair and involved team leader and player; enthusiastic and dedicated to excellence; creative, "out of the box" visionary.
- Quick study; effectively determine and leverage key business drivers for maximum value; lead highly skilled work forces toward goal achievement
- Attentive to needs/delivered presentations to many LDC Boards

CAREER HISTORY

President, Burman Energy Consultants Group Inc. Dec 2009 – pres.

- Successfully transformed the business into a Corporate entity, while seamlessly providing continuity of services to clients,
- Grew annual business revenues from $150,000 to over $4.5M within 3 fiscal years,
- Organically increased staff complement, and acquired contract resources to meet client needs,
- Invested in staff cross training to be able to respond to variations in client work demands,
- Grew client base primarily by maintaining an exceptionally high industry performance standard,
- Sustained a value based suite of service offerings across a broad spectrum of LDC functional areas, ensuring uncompromising due diligence at a competitive market price,
- Ensured safety mission, policies, subcontractor WSIB clearances and all other aspects of requisite client safety due diligence are in place and adhered to.

Career History, continued

Managing Partner, EnerSpectrum Group Dec 2002 –2009.

- Delivered commercially viable suite of product offerings to meet LDC needs including system optimization modeling and analysis, conservation and demand management (CDM) services, total resource cost test, economic model and application services.
- Prepared a $820,000 CDM program plan for Aurora Hydro; co-coordinating its implementation.
- Prepared supporting material for regulatory rates submissions, including responses to interrogatories,
- Initiated and managed all aspects of new service offerings,
- Acquired additional resources, increasing staff complement to 5 to meet new demand for services,
- Presented power point presentations to EDA, OEB, OPA, ADM of Energy, Commissioner for Alternate Energy on industry issues and their solutions.

Hydro One 1981 - 2002
Director, Corporate Development 2000- 2002

- Spearheaded project management of Hydro One's call centre, finance, HR payroll and IT service outsourcing ensuring time lines and budgets were met.
- Delivered effective presentations, key strategies and frameworks; managed information and made practical linkages with key business imperatives.
- Led asset management process design and implementation teams.
- Established practical process inputs/outputs, handoffs, quality/quantity and change management criteria.

Director, Distribution Operation Management 1999-2000

- Designed and implemented emergency event response organization and led operations teams through several response and restoration efforts.
- Analyzed Ontario Hydro's distribution operations, worked with direct reports to identify necessary changes for improvement, worked as a team to brainstorm restructuring of functional areas, design and implement organizational structures, facilities, support I.T., and execution of changes. Held direct report managers accountable for execution and provided coaching and support along the way.
- Managed an annual operating budget of $30M with a staff complement of 150.
- Piloted the first Ontario Hydro distribution network specific GIS system to predict outage cause and effective feedback to the customer.

Director, Investment Strategy 1998-1999
Director, Distribution System Engineering and Sustainment 1997-1998

- Designated chief engineer for the Ontario Hydro distribution system; directed investment planning, asset sustainment and engineering departments.
- Analyzed business decisions to ensure viability of new investments, thereby securing value delivery of the distribution network.
- Developed long range business plans and annual budgets for the distribution network $200M annually. Monitored actual budget performance and projections and adjusted direction as required.

Career History, continued

- Directed implementation and ongoing provision of a province wide computer standard and operating system platform.

Customer Supply Planning Manager, Field Operations 1993-1997
Retail System Utility, Central Bay Utility, Orangeville

- Implemented a process perspective as a management tool to facilitate continuous improvement and extract optimal team and individual performance. Managed 11 Direct Reports.
- Introduced a customer transaction feedback system, which tracked service performance and enabled better response to needs of the end use customer.
- Concluded several supply negotiations with large customers

Held a series of progressive positions prior to 1993.

EDUCATION/COURSES

Masters of Business Administration, University of Toronto	1988
Bachelor of Applied Science, Electrical Engineering, University of Toronto	1981

Coaching for Performance	2002
Covey Leadership Week	2000
Selling Breakthroughs Certification	2000
Process re-engineering – Boston, Mass.	1996
Service Quality/Process Improvement Facilitator Certification	1993

BUSINESS AFFILIATIONS

Professional Engineers of Ontario
EDA Commercial Steering Committee Member

COMMUNITY INVOLVEMENT

Coach boys' baseball
Director of ski program