Lansink
Appraisals and Consulting

Real Estate Appraisers & Consultants
A Division of Wellington Realty Group Inc.

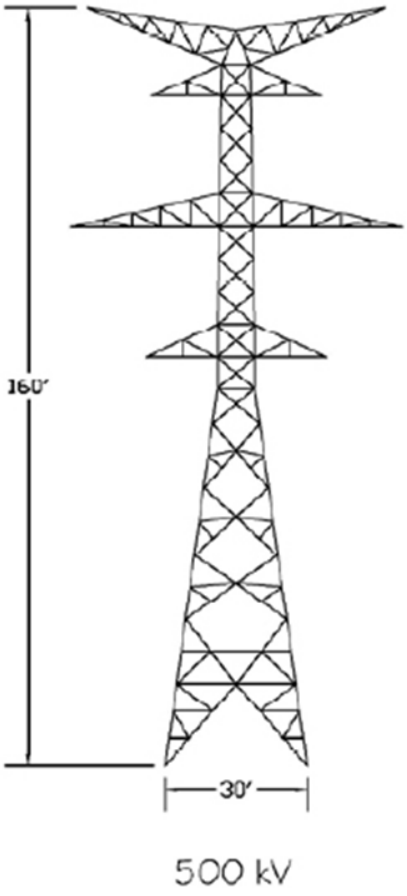
Case Studies Power Corridors

Diminution in Price

regarding

230kV and a 500kV* Industrial High Voltage Electrical Power Transmission Corridors Located in Ontario, Canada
*(1.0 Kilovolt (kV) = 1000 volts)

Estimated Diminution in Price and / or Estimated Injurious Affection, if any.



Report Author
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The study that follows is not a static document. It will continue to evolve and be edited as new research and Price evidence is collected.

Table of Contents

Methodology to Measure Injurious Affection

To estimate the detrimental effect, harm or *injurious affection* to a property, it is necessary to consider the following:

(a) Has the property been ***harmed or injured*** by the power corridor?
(b) Is there ***obsolescence*** resulting in value diminution (incurable by the owner)?
(c) Is there a ***reduction in market value***?
(d) Is there an ***improvement or set-off*** that has increased the market value?

Value diminution, if any, is best measured by an analysis of the actions of **willing buyers** and **willing sellers** functioning in the **open market**. Does the construction and use of a high-voltage power transmission corridor on all or part of a property cause a diminution in value? Price is an historic fact, value is an opinion.

Appraisers utilize three methods to estimate value diminution:

1. Case (Market) Study Method: The most reliable method
(This is the method used by Lansink in this report)

   The most reliable evidence is represented by Market Case Studies, or individual property value loss, if any, directly linked to the cause of the Price loss. The purchase of land for an Industrial High Voltage Electrical Power Transmission Corridor use, the taking of the required easement, and then the re-sale of the property provides the best evidence of diminution in Price, hence value. Minimal judgement opinion of an appraiser is required.

2. Paired Sales Method: The second most reliable method
(This method has been used by HONI's appraisers.)

   The second most reliable basis for demonstrating "detrimental conditions" valuation opinion, when one does not have enough factual background for a Case Study, is the use of "paired sales." That is, the comparison of one sale near an Industrial High Voltage Electrical Power Transmission Corridor to one sale far away in order to isolate the impact of the corridor on value. The appraiser must make subjective adjustments with the result that the Paired Sales Method is much less reliable than the Case Study Method.

3. Regression Analysis Method: The least reliable method

   The Appraisal Institute (US) recognizes this technique as the third and least reliable method, which should only be used in the absence of case study or paired sale data. This type of study is very dependent on subjective variables inserted by the author of the report.

Notwithstanding that the Market Study is a good indication of diminution in value, it is not perfect. There was variation in the diminution in value among properties with similar distances from the corridor. It is reasonable to conclude that there are many unknown variations, including buyer motivation, health issues, loss of control of land uses, and loss of efficiencies that may account for these variations.

It is impossible to account for all of these other factors, some of which may be specific to individual buyers. This Study nonetheless demonstrates a consistent and strong correlation between closeness to the transmission corridors and diminution in Price.

The Market Study Method, despite some of the variance in the data, is still the best method available. The study looked at elements of comparison: the differences in vacant land or building improved land; whether it was next to an existing corridor or not; the distance in feet from the corridor to a building; and whether the corridor traversed the land diagonally, along its property line, or through the center of the land.

The Study properties were affected by a 1970s-1980s 500kV Industrial High Voltage Electrical Power Transmission Corridor. In some areas there was an existing 230kV corridor that had the 500kV corridor constructed next to it.

Based on the data and patterns in the study, a Distant Grid was established as a reasonable estimate of the average diminution in value based on the distance between the corridor and the buildings.

Case Study – Hydro One vs. Lazar

The Case Study Method was used to support an injurious affection claim before the Ontario Municipal Board, File LC010005, June 11, 2002 – Hydro One v. Lazar. The Ontario Municipal Board accepted the Case Study Method and was satisfied that the erection of the towers would have an injurious effect on the value of the lands.

In the 1990s Hydro One intended to increase the width of an existing 100-foot wide hydro power corridor easement in the Municipality of Clearview by 20 feet, replacing the existing 35-foot high wooden poles with 130-foot high metal towers, and replacing the existing 44kV lines with 230kV lines.

The Ontario Municipal Board decided that

"[the injurious affection] would be in the range of 30% to 54%"

based on

"*open market evidence*" gathered and analyzed by Ben Lansink.

In *Lazar*, the Ontario Municipal Board concluded -30 percent injurious affection and the decision was not appealed by Hydro One.

Market-Based Case Study – Effects of a Visible Transmission Corridor

The first part of this study is a market-based case study pertaining to the effects of visible Industrial High Voltage Electrical Power Transmission Corridor. Ontario Hydro constructed, 1970s-1980s, a 500kV transmission line and corridor from Bruce to Milton.

Ontario Hydro purchased numerous properties on the open market and resold the properties on the open market after creating an easement for the construction, use, and maintenance - all in perpetuity – of the additionally required strip of land to accommodate the 500kV hydro power transmission line.

The second part of this study is a market-based case study pertaining to the effect of widening an existing hydro power corridor in the 1990s.

Hydro One widened an existing 100-foot wide easement by 20 feet and constructed a second corridor of wooden poles and wires next to the existing corridor of wooden poles and wires.

Case Study Findings

In Groups A and B, there was an existing hydro corridor next to the new corridor. Notwithstanding the existing corridor, the value diminution ranged from -4.76 to 54.23 percent, while in Group C, with no existing corridor, the value diminution ranged from a low of -10.5 percent to a high of - 46.65 percent due to the new corridor. In the Steel Towers - Clearview case, existing wooden poles were replaced with new wooden poles and there was still a value diminution.

Case Study – Open Market Sales	**Minimum Diminution in Value**	**Maximum Diminution in Value**	**Average Diminution in Value (**
Bruce to Milton 1977 to 1986			
Group A: Vacant Land, Existing Hydro Power Corridor	-4.76%	-54.23%	-27.80%
Group B: Land with Dwelling/Building, Existing Hydro Power Corridor, distance from the towers varied from 279 feet to 2,096 feet.	-6.29%	-53.50%	-22.57%
Group C: Land with Building(s), New Hydro Power Corridor, distance from the towers varied from 123 feet to 1,863 feet	-10.50%	-46.65%	-36.39%
Steel Towers – Clearview - 1990s, existing wooden towers replaced by steel towers	-30.65%	-56.76%	-43.71%

Injurious affection varied with corridor distance to buildings which suggests other factors were at play. Corridor distance results illustrate the difficulties in estimating injurious affection derived from the imperfect market place. Another factor is the location of a corridor, at the rear vs. diagonally. In the case study, Hydro One did not expropriate ingress/egress but does so now.

Generally, the greater the corridor distance to a building, the lower the value diminution. This statement is confirmed by a decision of the Assessment Review Board (ARB) February 19, 2010, released May 11, 2010 (ARB File WR85716). It is quoted in part:

> *"The subject property is 1.04 acres with a one and a half storey, single-family home, built 1946…*
>
> *The easement's edge is 20 feet from their house and the easement itself affects approximately half of their 1.04 acres. They cannot build on or alter the land that is subject to the easement…*
>
> *Based on the Lansink case study, the Board finds that 54% more suitably reflects the diminution of value as a result of this particular easement."*

Injurious Affection – Distance to Corridor

The Distance Grid on the right was created to show how the distance from a building to a corridor affects diminution in value, injurious affection.

Distance Grid	
Feet	Distance Injurious Affection
0-246	-54.0%
246-600	-45.0%
600-800	-35.0%
800-1,000	-25.0%
1,000-plus and / or Vacant Land	-15.0%

Hydro One Networks Inc. (HONI) has a Voluntary Buyout Policy that can apply if the primary residence is within 75 meters or 246 feet of the corridor. Using this HONI policy and the -54 percent accepted by the Assessment Review Board, the starting point for injurious affection is -54 percent.

The market data analyzed suggest that the percentages shown in the Distance Grid are reasonable.

The Distance Chart can be applied as an objective starting point to measure distance injurious affection. It is the most significant factor in an analysis; however, it is not the only factor to consider.

In addition to the distance injurious affection obtained from the Distance Grid, other injurious affection factors, if any, that pertain to a specific subject property must be considered on the bases of that factor being overall inferior, overall similar, or overall superior.

Summary of Findings

When confronted with an Industrial High Voltage Electrical Power Transmission Corridor traversing a property, potential buyers could view the transmission corridor as aesthetically "ugly"; potentially hazardous to their health and their animals' health; disruptive to the rural lifestyle; an increase in liability; and causing the agriculture land use to be less efficient while the owner continues to pay realty taxes on the land subject to the corridor easement (unless the expropriation was the Fee Simple).

The main concerns are:

(a) Human health issues.

Property owners are concerned about the effect of electric and magnet fields on the health and welfare of their families.

(b) Animal health issues resulting from air borne disease, electric magnetic fields, and stray voltage. Interviews with twenty farmers confirmed animal health concerns. Cows and goats have milking problems when close to a corridor. An Ontario horse farmer stated that a horse in foal in pasture next to an existing 500 kV corridor had an 85 to 95 per cent chance of still birth but away from the corridor, the birth rate was normal.

Dr. Sue Burlatschenko, B.Sc., Dipl. ABVP-SHAP states *"…buildings housing animals must be constructed the furthest distance possible from a road towards the rear of the land; however, this is not possible if there is an Industrial High Voltage Electrical Power Transmission Corridor at the rear"*

Dr. Sue Burlatschenko also states: *"A decision to move livestock out of the corridor area and re-siting them away from overhead power lines may result in decreasing the distance between neighbouring barns and/or pastured livestock. This in itself can result in an increased risk of disease transmission, either through direct animal-to-animal contact (fence line) or airborne transmission."*

(c) Loss of control of land use. Buildings and other structures and growing tree crops are not possible in the corridor. The non-corridor lands' "right to build" is reduced or eliminated due to air borne disease, electric magnetic fields, and stray voltage.

(d) Loss of efficiencies. Steel towers interfere with the efficient operation of farm equipment. The towers are disruptive and time consuming; there is a loss of crop yields; trees cannot be grown; land owners' liability increases; and land owners must continue to pay realty taxes on the tower easement lands.

Although concerns can be real or perceived; all result in a diminution in value.

In *Lazar v. Hydro One*, Ontario Municipal Board (OMB) File LC010005, June 11, 2002, OMB Decision No. 0781, the issue was to determine if there was "injurious affection" caused by the widening of an easement and the erection of a 130-foot metal tower on the easement.

The Lazar property is within the Township of Clearview, now the Municipality of Clearview.

The appraiser for Hydro One claimed that the towers had no impact on the value of the lands; however, the appraiser for Mr. Lazar conducted a thorough market analysis that supported a negative impact caused by the towers.

The Ontario Municipal Board was satisfied that the erection of the towers would have an injurious effect on the value of the lands. The OMB decided that

"[the injurious affection] would be in the range of 30% to 54%"

based on

"open market evidence" gathered and analyzed by Ben Lansink.

In *Lazar*, the Ontario Municipal Board concluded **-30 percent** injurious affection and the decision was not appealed by Hydro One.

Photo By Ben Lansink – Lazar Property
Corridor is Wooden Poles and Wires, NOT 160 foot Steel Towers, Photo Date November 20, 2012

Ontario Municipal Board (OMB) Decision

ISSUE DATE:
June 11, 2002

DECISION/ORDER NO:
0781

Ontario

LC010005

Joseph Paul Lazar (Claimant) has made an application to the Ontario Municipal Board under section 26 of the *Expropriations Act*, R.S.O. 1990, c. E.26, as amended for determination by this Board of the compensation to be paid by Hydro One Networks Inc. (Respondent) for lands described as part of the south half and part of the north half of Lot 28, Concession 5, in the Township of Clearview (formerly the Township of Nottawasaga), County of Simcoe, more particularly described as Parts 1 and 3 on Expropriation Plan 01252818, registered in the Land Registry Office for the Registry Division of Simcoe (No. 51), municipally known as 6678 Nottawasaga 27/28 Side Road
O.M.B. File No. L010005

APPEARANCES:

Parties	**Counsel**
J. P. Lazar	P. Scargall
Hydro One Networks Inc.	Ljuba Djurdjevic

DECISION DELIVERED BY M. HUBBARD AND S. W. LEE AND ORDER OF THE BOARD

These proceedings relate to the expropriation of an easement by Hydro One across a parcel of lands in a rural area in Clearview Township. The easement is to enable Hydro to construct a one or more 130' steel tower for a high voltage transmission power line across the claimant's lands.

The claimant's lands, consisting of a 90 acres parcel, mostly cleared and partially bush covered, are improved with a residence which is a converted bank barn as well as a small horse stable, fenced paddock areas and a dug out pond. The evidence is clear that the claimant had over the years worked on the converted barn and made improvement to the lands as a residence and for recreational use.

What the claimant seeks from Hydro One is a compensation for the partial taking and the injurious affection in the order of $130,000. Hydro One, on the other hand,

claimed that no injurious affection should be allowed and the only compensation allowed is for the easement. Since there are existing easements for erecting wooden posts, some credit should be given to Hydro One and the legitimate amount is no more than $3,000.

There are altogether three qualified realty appraisers that testified at these proceedings. In quantum terms, there is a difference between the parties as to the value of the home and lands worth to a willing buyer as of the agreed valuation date in May 1994. As a corollary, there is a dispute as to the impact in value to the lands after the expropriations. There is also a dispute whether there is a devastating impact as to contribute a diminution in value. In fact, the Board is asked to determine whether there is in fact an "injurious affection" at all.

Firstly, with respect to the question of the valuation of the lands as at May 3, 1994, the differences among the three appraisers are not that drastic. Mr. Rodgers held that it would be $195,000 and Mr. Lansink and Mr. Stroud held that it should be $260,000 to $270,000. On the whole, the Board finds of the three, the choice of the comparables made by Mr. Landsink to be the more thoughtful, cautious and cogent. Furthermore, the Board is impressed with the care he took with each of the properties and the very detailed adjustments he had applied to ensure that the direct comparison approach is sensible and not subject to variable vicissitude. While Mr. Rodgers' comparables are not outlandish or way out of the orbit of reasonableness, the Board prefers the approach and analysis chosen by Mr. Lansink both in terms of quantum and methodology and as such, we find that the acreage rate of over $3,000 giving rise to the value of $270,000 to be valid. As for the credit to be given for the existing easement, the Board adopted what was recommended by Mr. Scargall at the closing argument and finds the easement value to be $8,000.

Secondly, the Board needs to determine whether there is in fact an "injurious affection" that might result from the acquisition or the use of the works thereon. The Board finds that the subject property is within 10 kilometres from the ski resorts, golf destination and the beaches and the subject property can be used as a hobby farm or for recreational purposes. It is also our finding that the proposed towers would be tall steel towers and they are unlike the wooden poles that would blend with the landscape. They would interfere with the views to the escarpment or Blue Mountains. Furthermore, there is the likelihood that the towers might be marked or lit because of there proximity to the airport.

The appraiser Mr. Rodgers asserted that the towers had no impact on the value of the lands at all. However, the Board finds that this hypothesis was refuted by the investigation conducted by Mr. Lansink, who was able to delineate a number of sales that reflect or define such an "incurable factor" pursuant to a very thorough research he had conducted. One such sale was in London, two in Ottawa and two were on the very Tower line imposed on the claimant. It is important to point out that these paired sales demonstrate that regardless whether the impact to the views is perception or reality, it will affect market values. All in all, the Board is well satisfied that the erection of such towers would have such injurious effect on the value of the lands.

Thirdly, there is a finding required as to the extent of the impact. Here, the evidence of Mr. Lansink has not been controverted by Hydro One at all. The evidence is clear that it would be in the range of 30% to 54%. Counsel for the claimant urged the Board to adopt the rate of 44.6% for a whole range of reasons. There is some concern expressed that the paired sales of Hydro One were chosen within these sale comparables. The Board would be concerned if the only sales used in this connection had been only Hydro One sales as we share to some degree the misgivings of relying only on such sales made by the expropriating authority. However, there are other sales that satisfied us that the range cited is not entirely unreasonable. We do, however, find that the 30% drop is the more reasonable than the upper range that is preferred by the claimant. The amount that ought to be awarded pursuant to the figure chosen by the Board should be $77,751.

In conclusion, the compensation found by the Board is as follows:

Easement lands, 3.61 acres	**$ 8,000**
($3,000 per acre x 3.61 acres x 75%)	
Injurious affection 30%	**$77,751**
($3,000 x 86.39 acres x 30%)	
Total compensation	**$85,751**

The parties requested that the submission for costs be made after we issue our decision.

All of which is so ordered.

"M. Hubbard"

M. HUBBARD
VICE-CHAIR

"S. W. Lee"

S. W. LEE
MEMBER

Authored by Ben Lansink and Ward Lansink December 2010,
Revised and Updated February-March-April 2013 by Ben Lansink.
Supporting Book of Authorities dated February–March 2013 by Ben Lansink

Market Study: Introduction

Opinions about power transmission corridors - and their effect on property values - have been discussed for many years. Most people have an opinion regarding hydro power transmission corridors and their effect on themselves, their surroundings, and society. Hydro power transmission corridors are a necessity of modern age.

The Final Environmental Impact Statement, Arrowhead—Weston Electric Transmission Line Project states:

> *"A power transmission corridor may either increase or decrease an individual's perception of a property's worth. This perception is indicative of how much one is willing to pay for the property (the fair market value).*
>
> *Value of property traversed by (or located close by) a power transmission corridor may decrease for a variety of reasons, including:*
>
> - *Concern of fear of health effects from electric magnetic fields (EMF).*
> - *The potential noise and visual unattractiveness of the transmission line.*
> - *Potential interference with farming operations and foreclosure of present or future land uses.*
>
> *On properties that are being farmed, installation of a power transmission corridor can remove land from production, interfere with operation of equipment, create safety hazards, and foreclose the opportunity to consolidate farmlands or develop the land for another use, such as a large scale livestock operation and the inherent airborne disease issues."*
>
> "Final Environmental Impact Statement, Arrowhead—Weston Electric Transmission Line Project," Public Service Commission of Wisconsin, 2004. This 600 page study is no longer available on-line.

Are hydro power transmission corridors safe? Are there health impacts related to hydro power transmission corridors? Would someone choose to live close to a hydro power transmission corridor? If a hydro power transmission corridor crossed a property, would that property have the same market value as without the power corridor? Are crops under a hydro power transmission line affected by the power corridor? Does a hydro power transmission corridor cause an increase or decrease in property value? There may be endless questions from a potential buyer and/or seller when dealing with a property affected by a hydro power transmission corridor. When considering property value, these questions are difficult to quantify; however, the overall impact of a hydro power transmission corridor can be analyzed within the actions of an open real estate market.

This market based case study endeavors to isolate any loss in value caused by a hydro power transmission corridor. The construction and use of a hydro power transmission corridor is an event over which the property owner has no control. Each example in this study illustrates some type of 'harm' or 'injurious affection' that can be caused to a real property as a result of a hydro power transmission corridor. The harm may be real or perceived and it may be different for each property and to each property seller and buyer.

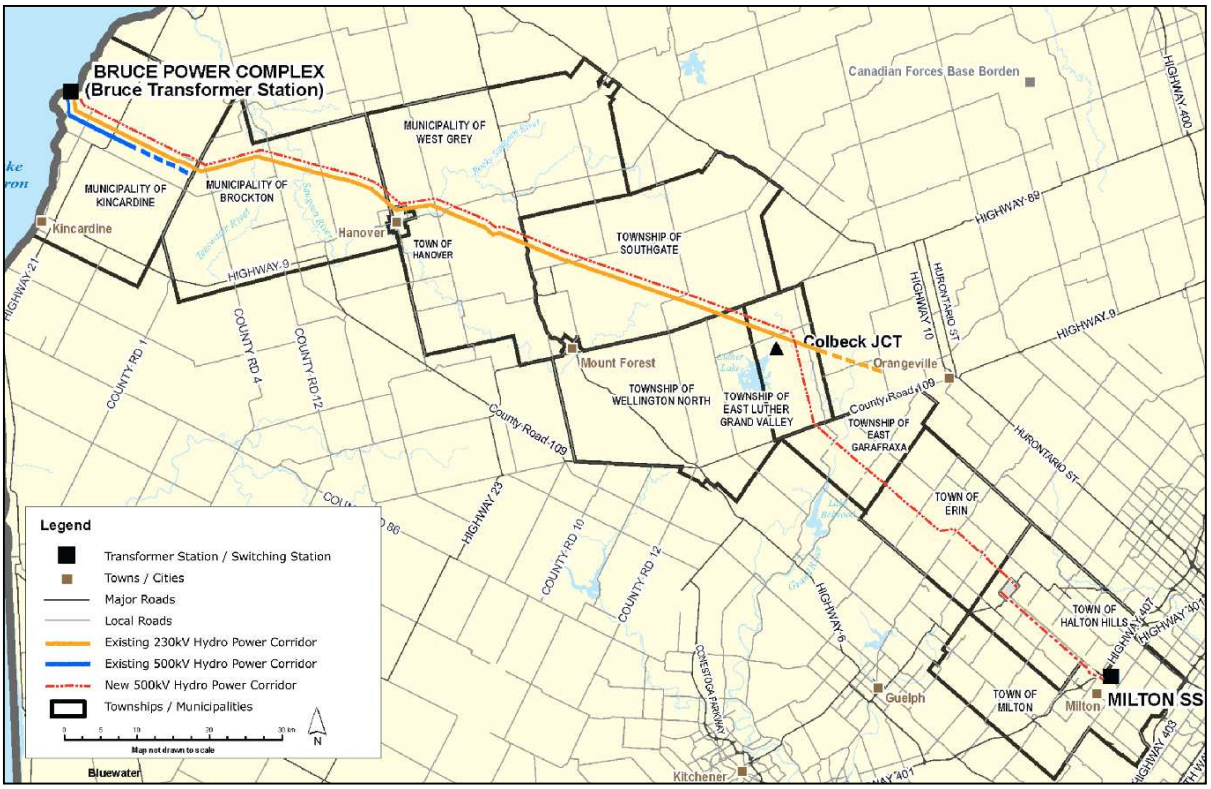
This study analyzes specific examples that occurred within the open real estate market value in order to isolate the impact on property value caused by a hydro power transmission corridor.

Background

In the late 1970s and early 1980s, an existing hydro power transmission corridor stretched easterly and southerly from the Bruce Transformer Station, Lake Huron, Ontario, Canada. The existing power corridor consisted of a 230kV transmission line that ran easterly from the Bruce Transformer Station past the Colbeck Junction in the Municipality of East Luther Grand Valley and a 500kV transmission line that ran easterly from Bruce Transformer Station and turned south at the Willow Creek Jet Junction in Bruce Township.

In this era, Ontario Hydro constructed a <u>new</u> (second) 500kV transmission line and corridor from Bruce to Milton to serve the greater Toronto area. This was accomplished by purchasing or expropriating easements over privately owned land.

The new 500kV hydro power corridor parallels portions of the existing 230kV and the existing 500kV power transmission corridor. The expansion of the corridor consists of a strip of land about 190 feet wide (widths vary) to house the new 500kV hydro power transmission line and the corridor extends from the Bruce Transformer Station to Milton.



Source: Hydro One Networks Inc. Environmental Assessment November 2008, modified by Lansink.

Between 1977 to 1986, in accordance with the corridor expansion plan, Ontario Hydro purchased numerous properties (on the open market) and resold the properties (on the open market) <u>after</u> creating an easement for the construction, use, and maintenance - all in perpetuity – of the additionally required strip of land to house the new 500kV hydro power transmission line.

Market Study

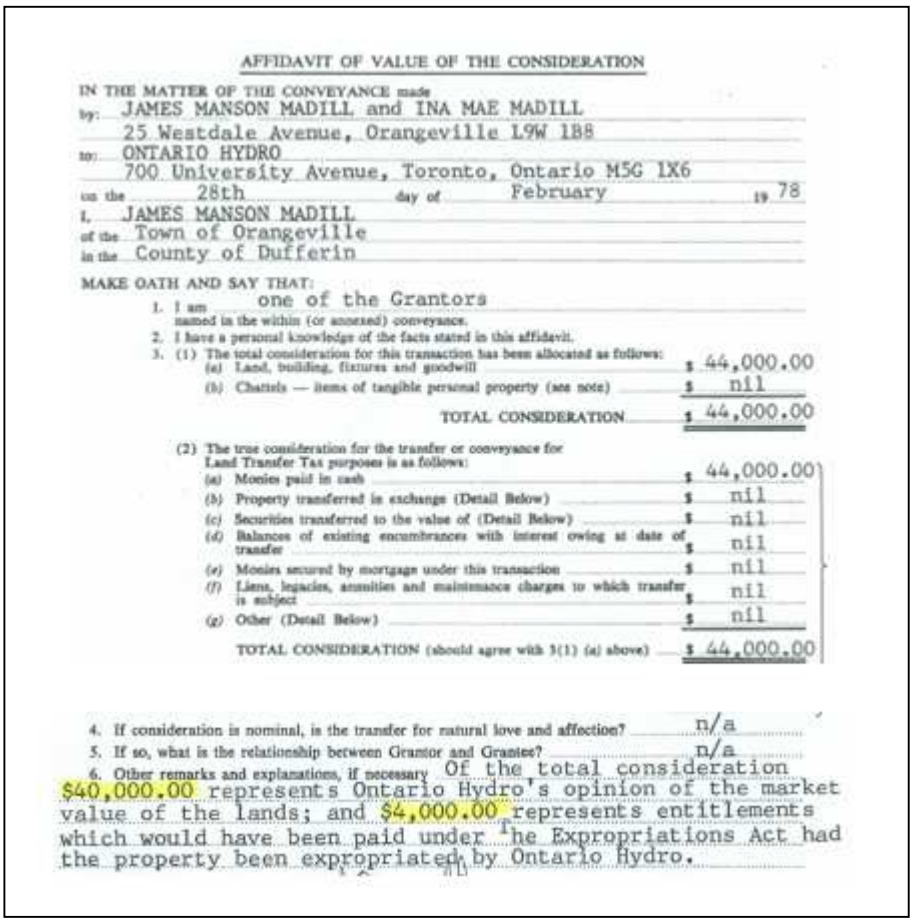
In this market study, properties bought and sold by Ontario Hydro were identified and analyzed. To estimate any diminution in value and the resulting injurious affection due to a hydro power corridor over 60 properties were analyzed, of which 37 properties are detailed in this study. All but two of the properties were purchased and sold by Ontario Hydro in the 1977 to 1983 era. The remaining two properties were purchased and sold by Ontario Hydro in the 1990s.

It has been argued that the Ontario Hydro purchases should not be considered open market sales as they do not meet the willing seller/willing buyer, open market concept. It may be considered that the purchases were made under a direct or an implied threat of expropriation, and theoretically at least, are not free and voluntary. However, when purchasing the property, Ontario Hydro received and accepted a deed signed by a grantor (seller). In each deed analyzed in this study, the following remarks and explanations regarding the market value of the lands and other entitlements (compensation) were stated:

> *'…total consideration $x represents Ontario Hydro's opinion of the market value of the lands; and $y represents entitlements which would have been paid under The Expropriations Act had the property been expropriated by Ontario Hydro.'*

The consideration that Ontario Hydro paid for the land in the transactions analyzed in this study is stated to be the "market value of the lands" and therefore all transactions analyzed in this study represent fair market value.

An example of part of a typical deed Affidavit is shown below:



AFFIDAVIT OF VALUE OF THE CONSIDERATION

IN THE MATTER OF THE CONVEYANCE made
by: JAMES MANSON MADILL and INA MAE MADILL
25 Westdale Avenue, Orangeville L9W 1B8
to: ONTARIO HYDRO
700 University Avenue, Toronto, Ontario M5G 1X6
on the 28th day of February 19 78

I, JAMES MANSON MADILL
of the Town of Orangeville
in the County of Dufferin

MAKE OATH AND SAY THAT:

1. I am one of the Grantors named in the within (or annexed) conveyance.
2. I have a personal knowledge of the facts stated in this affidavit.
3. (1) The total consideration for this transaction has been allocated as follows:
   (a) Land, building, fixtures and goodwill $ 44,000.00
   (b) Chattels — items of tangible personal property (see note) $ nil
   TOTAL CONSIDERATION $ 44,000.00

   (2) The true consideration for the transfer or conveyance for Land Transfer Tax purposes is as follows:
   (a) Monies paid in cash $ 44,000.00
   (b) Property transferred in exchange (Detail Below) $ nil
   (c) Securities transferred to the value of (Detail Below) $ nil
   (d) Balances of existing encumbrances with interest owing at date of transfer $ nil
   (e) Monies secured by mortgage under this transaction $ nil
   (f) Liens, legacies, annuities and maintenance charges to which transfer is subject $ nil
   (g) Other (Detail Below) $ nil
   TOTAL CONSIDERATION (should agree with 3(1) (a) above) $ 44,000.00

4. If consideration is nominal, is the transfer for natural love and affection? n/a
5. If so, what is the relationship between Grantor and Grantee? n/a
6. Other remarks and explanations, if necessary Of the total consideration $40,000.00 represents Ontario Hydro's opinion of the market value of the lands; and $4,000.00 represents entitlements which would have been paid under the Expropriations Act had the property been expropriated by Ontario Hydro.

Once Ontario Hydro took the land requirements for the new 500kV hydro power transmission line, it marketed and sold the lands (via the open market), providing an Affidavit stating the 'Total Consideration.' For each property purchase analyzed in this study, Ontario Hydro signed a deed that included an Affidavit stating the 'Total Consideration' that 'represents Ontario Hydro's opinion of the market value of the lands'.

To determine the diminution in value (if any) after the easement, each property sale and resale was analyzed. The Ontario Hydro purchase price (before) was compared to the Ontario Hydro sale price (after). With regards to marketing, it is believed the majority of the properties were sold by a Realtor® and had been exposed to the open market. It seems logical that a meeting of the minds has occurred when a purchaser acquires rights for an advertised price and that such a sale constitutes competent market evidence. Also, Ontario Hydro is a public corporation and as such it must obtain fair market value for any property it sells. It does not give an 'equity gift' to a stranger. This further supports the assumption that all transactions analyzed in this study represent "fair market value". Also, during the sale and resale period, it is understood that no other changes were made to the properties detailed in this study.

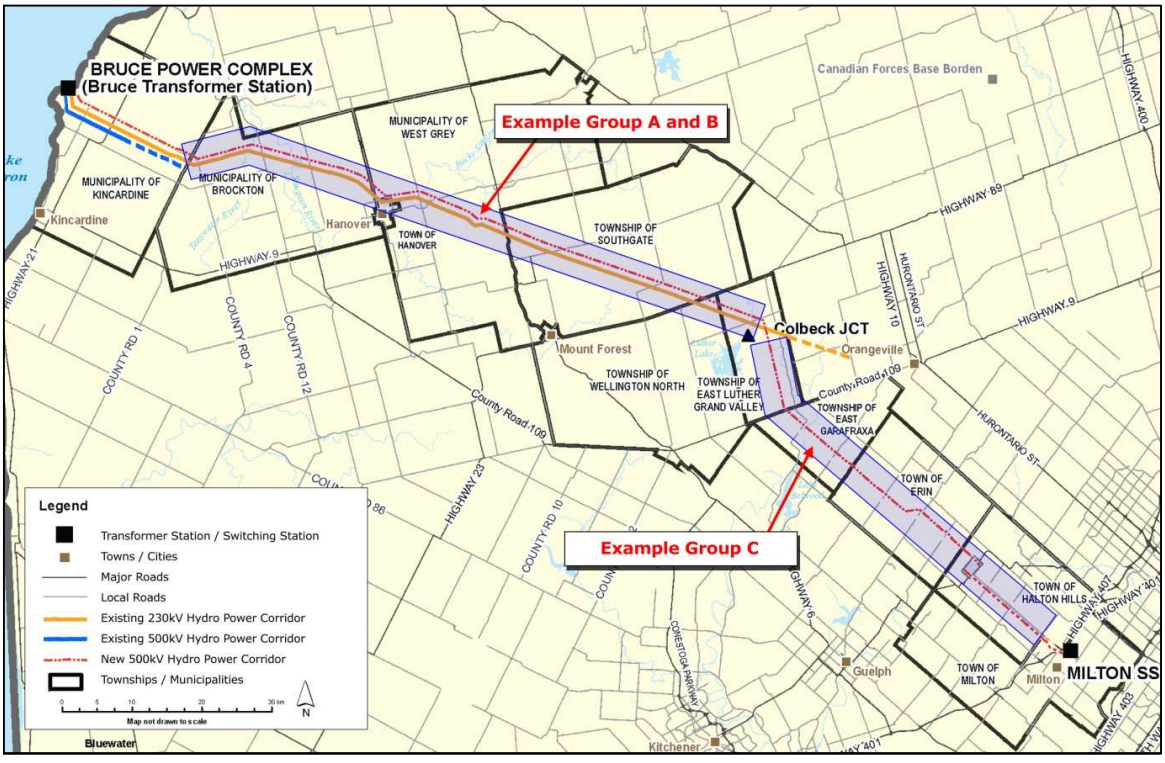
The properties studied were grouped into the following example groups:

- Example Group A
  Vacant Land, Existing Hydro Power Corridor, Visible Easement

- Example Group B
  Land with Building(s), Existing Hydro Power Corridor, Visible Easement

- Example Group C
  Land with Building(s), New Hydro Power Corridor, Visible Easement

The following map indicates the study areas.



Source: Hydro One Networks Inc. Environmental Assessment November 2008, modified by Lansink.

Below is an example of the calculations performed for each property sale and resale:

Sale Date 1 (Before)	*Month Day 1977*
Sale Price 1 per Acre	$10,000

Sale Date 2 (After)	*Month Day 1979*
Sale Price 2 per Acre	$7,000

Adjustment for Time from Sale Date 1 to Sale Date 2			
Average Price *: Sale Date 1 (1977)			$39,218
Average Price *: Sale Date 2 (1979)			$37,535
% Change	from: Average Price (Sale Date 1) to: Average Price (Sale Date 2)	A	-4.29%
Sale Price 1 per Acre		B	$10,000
$ Adjustment		A x B = C	-$429
ADJUSTED Sale Price 1 per Acre		B + C	$9,571

Conclusion	
The property should have sold for… (adjusted for time)	$9,571 per Acre
The property sold for…	$7,000 per Acre
Monetary Loss	-$2,571
Percentage Loss (Diminution in Value)	**-26.86%**

* Note: Average price includes sold residential property and does not include sold commercial or industrial real property. The average price used to adjust for time is provided by the Canadian Real Estate Association (based on the example property board-specific statistics).

Example Group A
Vacant Land, Existing Hydro Power Corridor, Visible Easement

Example Group A illustrates the effect of a hydro power corridor on the property value of vacant land located along an existing power corridor.

Illustration

Before
230kV Transmission Line

After
230kV + New 500 kV Transmission Lines

Summary of Findings

Example #	Lot	Concession	Vacant or Building	Existing Corridor	Feet to Building	Diminution in Value
1A	5	2 NDR	Vacant	230kV	N/A	-10.60%
2A	13	2 NDR	Vacant	230kV	N/A	-4.76%
3A	6	11	Vacant	230kV	N/A	-20.40%
4A	4	12	Vacant	230kV	N/A	-25.22%
*5A	27 w1/2	4	Vacant	No *	N/A	-51.43%
6A	7	1	Vacant	230kV	N/A	-19.43%
7A	20	11	Vacant	230kV	N/A	-37.96%
8A	18 W1/2	12	Vacant	230kV	N/A	-28.07%
9A	19	12	Vacant	230kV	N/A	-54.23%
10A	16	2	Vacant	230kV	N/A	-28.35%
11A	17	2	Vacant	230kV	N/A	-28.48%
12A	16, 17	14, 13	Vacant	230kV	N/A	-24.65%
					Average Loss (Diminution in Value)	**-27.80%**
					Median Loss (Diminution in Value)	-26.65%
					Min Loss (Diminution in Value)	-4.76%
					Max Loss (Diminution in Value)	-54.23%

* Note: Example 5A was not next to an existing hydro power corridor.

Example Group B
Land with Buildings, Existing Hydro Power Corridor, Visible Easement

Example Group B illustrates the effect of a hydro power corridor on the property value of building-improved land located along an existing power corridor.

Summary of Findings

Example #	Lot	Concession	Vacant or Building	Existing Corridor	Feet to Building	Diminution in Value
1B	45 E1/2	2 SDR	Dwelling	230kV	789	-29.09%
2B	2,3,4	3 NDR	Dwelling	230kV	851	-31.55%
3B	50	3 NDR	Dwelling	230kV	666	-16.45%
4B	52, 53	3 SDR	Dwelling	230kV	1,378	-16.80%
5B	31, 32	6	Dwelling	230kV	378	-17.57%
6B	8	11	Dwelling	230kV	500	-8.77%
7B	1,2,3	12	Dwelling	230kV	981	-12.87%
8B	22, 23	11	Dwelling	230kV	1,681	-27.91%
9B	23	11	Dwelling	230kV	1,356	-19.67%
10B	24	3	Dwelling	230kV	1,768	-11.78%
11B	26, 27	10	Building	230kV	279	-46.54%
12B	22	10, 11	Dwelling	230kV	1,289	-6.29%
13B	20	12	Dwelling	230kV	480	-23.21%
14B	3, 4	15	Dwelling	230kV	797	-9.97%
15B	18, 19	1	Dwelling	230kV	2,096	-22.04%
16B	15	2	Dwelling	230kV	1,062	-18.26%
17B	18	2	Building	230kV	1,826	-16.67%
18B	13	3	Dwelling	230kV	1,143	-46.50%
19B	2,3,4	6	Dwelling	230kV	1,010	-15.98%
20B	15	14	Building	230kV	1,676	-53.50%
					Average Loss (Diminution in Value)	**-22.57%**
					Median Loss (Diminution in Value)	-17.92%
					Minimum Loss (Diminution in Value)	-6.29%
					Maximum Loss (Diminution in Value)	-53.50%

Note: The feet to building (distance) from the building/dwelling to the corridor were scaled.

Example Group C
Land with Buildings, New Hydro Power Corridor, Visible Easement

Example Group C illustrates the effect of a new hydro power corridor on the property value of building-improved land.

Illustration

Before
No Transmission Line

After
New 500 kV Transmission Line

Summary of Findings

Example #	Lot	Concession	Vacant or Building	Existing Corridor	Feet to Building	Diminution in Value
1C	6	11	Dwelling	No	1,863	-10.50%
2C	26, 27	5	Dwelling	No	410	-32.18%
3C	15	4	Dwelling	No	542	-46.38%
4C	16	4	Building	No	666	-46.65%
5C	16	5	Dwelling	No	123	-46.26%
					Average Loss (Diminution in Value)	**-36.39%**
					Median Loss (Diminution in Value)	-46.26%
					Minimum Loss (Diminution in Value)	-10.50%
					Maximum Loss (Diminution in Value)	-46.65%

Note: The feet to building (distance) from the building/dwelling to the corridor were scaled.

Effects of a Visible Hydro Power Corridor Easement: Steel Towers to replace Wooden Poles - 1990s

This section of the study illustrates the effect on property value when an existing hydro power corridor is widened and higher towers are installed.

The Township of Clearview is located approximately 100 kilometers northwest of Toronto and consists of the west portion of the County of Simcoe. The area includes Collingwood, the Blue Mountain ski resorts, golf destinations, and Wasaga Beach on the shore of Georgian Bay.

During the 1990s, Hydro One intended to increase the width of an existing 100-foot wide hydro power corridor easement by 20 feet and replace the existing 35-foot high wooden poles with 130-foot high metal towers. The existing 100-foot wide easement has wooden poles and anchors, with guys, braces, and string wires housing a 44kV line and a 115kV line. The new towers will house a 230kV line. Due to the proximity of the Collingwood Airport, some of the transmission lines may need to be lit by red aircraft warning lights.

Hydro One purchased numerous properties (on the open market) and resold the properties (on the open market) after creating an easement for the construction, use, and maintenance - all in perpetuity – of the additionally required strip of land to house the 230kV hydro power transmission line.

To determine the diminution in value (if any) after the easement, each property sale and resale was analyzed. The Hydro One purchase price (before) was compared to the Hydro One sale price (after).

Summary of Findings

Example #	Lot	Vacant or Building	Existing Corridor	Proposed Corridor	Diminution in Value
1D	1270 Fairgrounds Road	Building	44kV and 115kV	230kV	-56.76%
2D	1636 Centre Line Road	Building	44kV and 115kV	230kV	-30.65%
				Average Loss (Diminution in Value)	**-43.71%**
				Median Loss (Diminution in Value)	-43.71%
				Minimum Loss (Diminution in Value)	-30.65%
				Maximum Loss (Diminution in Value)	-56.76%

Market Study: Conclusion, Lazar Decision

Market evidence suggests that properties, vacant or building improved, will be harmed or injured by the construction, use, and maintenance of a hydro power corridor. Diminution in value to a property is a result of buyer resistance which may be real or perceived.

The construction of a hydro power corridor carrying high voltage electricity across a tract of land creates apprehension in the general public, which makes the property less desirable and thus diminishes the market value of the property. The continuing scientific uncertainty over the adverse health consequences of electric and magnetic fields only serves to perpetuate the debilitating effect of power lines on property values.

A real estate appraiser is not expert at electric and magnetic fields and cannot conclude that there are health risks associated with living close to power transmission corridors. A real estate appraiser can only analyze the actions of willing sellers and willing buyers acting in the open market place, sellers and buyers who may believe or who may perceive health risks and other consequences associated with power transmission corridors.

Example	Minimum Diminution in Value	Maximum Diminution in Value	Average Diminution in Value
Bruce to Milton 1977 to 1986			
Example Group A: Vacant Land, Existing Hydro Power Corridor	-4.76%	-54.23%	-27.80%
Example Group B: Land with Building(s), Existing Hydro Power Corridor	-6.29%	-53.50%	-22.57%
Example Group C: Land with Building(s), New Hydro Power Corridor	-10.50%	-46.65%	-36.39%
Steel Towers to replace Wooden Poles	-30.65%	-56.76%	-43.71%
Lazar v. Hydro One, Ontario Municipal Board (OMB)	-30.00%	-54.00%	-30.00%

Based upon real or perceived fear and other consequences of the construction, use, and maintenance of a power corridor in the market place, this analysis concludes that there is a diminution in value to a property that is subject to a visible easement such as a power transmission corridor.

Ontario

Assessment Review Board

Commission de révision de l'évaluation foncière

File No: WR 85716

Region Number: 18
Municipality: City of Thorold
Roll Number: 2731-000-027-06600-0000
Hearing Number: 173495
Appeal Numbers: 2104260 and 2339542

In the matter of Section 40 of the *Assessment Act*, R.S.O. 1990, c. A.31, as amended, and in the matter of appeals with respect to taxation years 2009 and 2010 on premises known municipally as 2092 Hansler Road.

BETWEEN: John Palcic
Susan Helen Morrison — Assessed Persons/ Appellants

- and -

The Municipal Property Assessment Corporation, Region No. 18 and the City of Thorold

Respondents

APPEARING:

J. Palcic S. H. Morrison	- for the Assessed Persons/Appellants
J. Young	- for the Municipal Property Assessment Corporation
No one appeared	- for the Municipality

DECISION OF THE ASSESSMENT REVIEW BOARD delivered by:

J. Laws

These appeals came before the Assessment Review Board on February 19, 2010 in the City of St. Catharines.

ISSUE

Whether the current value of the subject property for taxation years 2009 and 2010, of $148,000, is correct and whether it is equitable with the assessment of similar lands in the vicinity.

Ms. Susan Morrison and Mr. John Palcic, the appellants, argue that the value of the property is reduced due to recent changes in the hydro corridor which includes an easement across their property.

Mr. John Young, representing the Municipal Property Assessment Corporation (MPAC), argues that the subject property is correctly assessed because the current value reflects the standard reduction for the hydro corridor and easement.

DECISION

Based on the evidence before it, the Board finds that the current value of the subject property, as of the valuation day of January 1, 2008, is $98,000.

The Board finds that there is no evidence before it leading to the conclusion that the assessment of the subject property, as determined above, requires a further reduction below current value in accordance with subsection 44.(3)(b) of the *Assessment Act* (*Act*).

Accordingly, the assessment of the subject property, as at January 1, 2008, for the 2009 and 2010 taxation years, is reduced from $148,000 to $98,000.

REASONS FOR DECISION

Background:

The subject property is 1.04 acres with a one and a half storey, single-family home, built in 1946.

Position of MPAC:

Mr. Young states that the subject property has received a 30% reduction since 1997 due to a hydro easement and tower on the property.

In support of the assessment as returned, Mr. Young presented two sets of suggested comparables. The first set (Exhibit 1) contains five properties with sales close to the valuation date of January 1, 2008 which, he argues, illustrate that similar properties located in the vicinity of the subject property are correctly assessed. The five sales have a median assessment to sales ratio (ASR) of .99 and an average ASR of .96.

The second set of suggested comparables (Exhibit 2), contain three properties with sales. While these suggested comparables are not in close proximity to the subject property, they are similar in that they have nearby hydro corridors. The ASRs and sale dates for these three properties are 1.07 (June 2008), .92 (May 2009) and .92 (December 2008).

Mr. Young argues that MPAC's valuation method is working well for similar properties in the vicinity and for properties where hydro corridors are in close proximity. Therefore, he argues, no further reduction to the subject property's assessment is warranted.

Yellow Emphasis added by Lansink

Ms. Morrison and Mr. Palcic argue that MPAC's suggested comparables of properties with nearby hydro corridors (Exhibit 2) do not reflect their situation because none of the lands are affected by a hydro easement.

The Position of the Appellants:

Ms. Morrison and Mr. Palcic do not question the accuracy of the base assessment but argue that the 30% reduction for the hydro corridor's proximity and easement is no longer sufficient.

The easement's edge is 20 feet from their house and the easement itself affects approximately half of their 1.04 acres. They cannot build on or alter the land that is subject to the easement. They argue that the 30% reduction, first granted in 1997, was sufficient until recent changes to the hydro corridor occurred. In 2006, and without consultation, the hydro corporation replaced the existing towers increasing their height from 100 to 130 feet and doubling the kilovolts from 115 to 230. They argue that this is a significant change to the property visually, with regard to noise and with regard to the electromagnetic field.

In support of their argument the appellants submitted *"A Case Study: Injurious Affection, Lazar v. Hydro One"* by Ben Lansink, AACI, P.App. of Lansink Appraisals and Consulting prepared for the Appraisal Institute of Canada. The case study reviewed an Ontario Municipal Board (OMB) decision, *Lazar v. Hydro One*, (Ontario Municipal Board File LC010005, June 11, 2002, OMB decision No. 0781,) in which it was determined that injurious affection was caused by changes to a hydro easement. The details of the study are:

Yellow Emphasis added by Lansink

- A hydro easement crossed a corner if Mr. Lazar's 90 acre property and the easement's edge was located 560 feet from his home.
- Hydro One increased the width of the easement from 100 feet to 120 feet, replaced 35 foot wooden hydro poles with 130 foot metal towers and increased the power transmission from 44kV to 115kV.
- The lines emit a buzzing noise at 130 feet and that noise is above a hum.
- The public perceives health risks and other stigmas associated with close proximity to metal towers and wires carrying high voltage electricity.
- Sales analysis showing the effect of incurable factors, such as hydro towers and roadways on market values indicate that, even where additional land was not taken, the market value of the land decreased.
- The OMB was satisfied that the erection of the tower(s) has an injurious affect on the value of the lands in the range of 30% to 54% based on the Mr. Lazar's appraiser's thorough market analysis.
- The OMB granted Mr. Lazar a 30% reduction due to the injurious affection of the hydro easement and corridor.

Mr. Young objected to the Lansink case study as the author was not called as a witness and, therefore, could not be cross-examined.

The Legislation:

In determining the value at which land shall be assessed, the Board must have regard to the following provisions of the *Act*:

Subsection 9.(1) of the *Act* provides that:

> *Where an easement is appurtenant to any land, it shall be assessed in connection with and as part of the land at the added value it gives to the land as the dominant tenement, and the assessment of the land that, as the servient tenement, is subject to the easement shall be reduced accordingly.*

Subsection 19.(1) of the *Act* states that *the assessment of land shall be based on its current value.* Current value is defined in section 1 of the *Act* to mean, *in relation to land the amount of money the fee simple, if unencumbered, would realize if sold at arm's length by a willing seller to a willing buyer.*

Subsection 19.2(1)2 of the *Act* provides that for the 2009 taxation year, land is valued as of January 1, 2008

In determining the value at which any land shall be assessed, subsection 44.(3)(a) and (b) of the *Act* requires the Board to do two things: to determine the current value of the land, and have reference to the value at which similar lands in the vicinity are assessed, adjusting the assessment of the land to make it equitable with that of similar lands in the vicinity if such an adjustment would result in a reduction of the assessment of the land.

Subsection 40.(17) of the *Act* provides that, where value is a ground of appeal, the burden of proof as to the correctness of the current value of the land rests with the assessment corporation.

After hearing the evidence and the submissions of the parties, the Board shall determine the matter pursuant to subsection 40.(19).

Subsection 40.(26)(b) states:

> ***40.(26) Deemed appeals, 2009 and subsequent years. –*** *For 2009 and subsequent taxation years, an appellant shall be deemed to have brought the same appeal in respect of a property,*
>
> *(b) in relation to the assessment, including assessments under sections 32, 33 and 34, for a subsequent taxation year to which the same general reassessment applies, if the appeal is not finally disposed of before March 31 of the subsequent taxation year or, if an assessment has been made under section 32, 33 or 34, before the 90th day after the notice of assessment was mailed.*

Determination of Current Value:

The current value of the subject property without a hydro easement is not in dispute. Based on MPAC's Property Assessment Details (Exhibit 12), the current value before an adjustment for the hydro easement adjustment is $212,383.

The Board finds that the hydro corridor and easement impacts negatively on the subject property's current value and that the impact is not accounted for in the 'model approach' of multiple regression.

The Board gives weight to the Lansink study as it is an independent analysis of an OMB decision regarding the effect road and hydro easements have on market values. The Board accepts the report's estimate that the external obsolescence value of easements falls between 30% and 54%. The subject property currently receives a 30% reduction for an easement which affects approximately 50% of the property, the edge of which is 20 feet from the appellant's home, prevents any improvements or changes to the affected land and the hydro lines carry 230 kilovolts. The Lansink study specifies that Mr. Lazar was also granted 30% from the OMB yet his easement is some 560 feet away

from the residence and affects only a small corner of his land and the hydro lines carry only 115 kilovolts.

In light of the Lansink case study, the Board finds that MPAC's 30% reduction for the easement does not adequately reflect the extent of the encroachment of the hydro easement on the subject property. Based on the Lansink case study, the Board finds that 54% more suitably reflects the diminution of value as a result of this particular easement.

Pursuant to subsection 9.(1) of the *Act*, the reduction for the easement is applicable to the land component only; however, MPAC's evidence shows that the 30% reduction was applied to the entire valuation, not just the land component. The reason for this deviation was not given; however, the Board adopts it for the purpose of this decision.

Based on above findings, the best evidence of current value for the subject property without a hydro easement is the valuation prepared by the assessor for the valuation day January 1, 2008. The assessment before MPAC applied its 30% adjustment for the hydro corridor and easement is $212,383. Applying the 54% reduction for the hydro corridor and easement results in a value of $97,696 or $98,000 rounded.

Accordingly, the current value is reduced from $148,000 to $98,000.

Equity with Similar Lands in the Vicinity:

The second issue is whether an adjustment to the assessed value is required to make it equitable with similar lands in the vicinity. Subsection 44.(3)(b) of the *Act* states that the Board shall have reference to the value at which similar lands in the vicinity are assessed and adjust the assessment of the land to make it equitable with that of similar lands in the vicinity if such an adjustment would result in a reduction of the assessment of land.

Yellow Emphasis added by Lansink

The Board has evidence of five residential sales which occurred close to the valuation date in the vicinity of the subject property (Exhibit 1). The Board finds these properties significantly dissimilar to the subject property in that they are not in close proximity to hydro corridors and are not affected by easements.

The Board prefers the second set of sales (Exhibit 2) as similar in the vicinity. While none of these properties have easements, each is in close proximity to a hydro corridor. Of the three sales, the Board disregards the sale for May 2009 as it occurred too far from the January 1, 2008 valuation date. The average assessment to sales ratio of the two remaining sales is .995. While the Board acknowledges that two sales are insufficient to determine a market, the individual sales give no assistance to the Board in determining whether an adjustment should be made in terms of equity.

Therefore, the Board finds that there is no evidence before it leading to the conclusion that the current value of the subject property, as determined above, requires a further adjustment in accordance with subsection 44.(3)(b).

Conclusion:

The Board finds that the current value of the subject property, as of the valuation day January 1, 2008 is $98,000.

The Board finds that no adjustment to the current value is warranted under subsection 44.(3)(b).

Deemed Appeal for 2010:

The appellants appealed the assessment for the 2009 taxation year. The general reassessment for the 2009 taxation year applies to the 2010 taxation year. The Board has not disposed of the 2009 appeal before March 31, 2009. Subsection 40.(26) provides that the appellant is deemed to have made the same appeal for the 2010 taxation year. For that reason, this decision applies to both the 2009 and 2010 taxation years.

Accordingly, the assessment of the subject property, as at January 1, 2008, for the 2009 and 2010 taxation years, is reduced from $148,000 to $98,000

"J. Laws"
J. Laws
Member

/pn
DECISION RELEASED ON: May 11, 2010

The erection of hydro power transmission towers, telecommunication towers, and wind turbines require the use of lands owned by other parties. This study investigates the affect on the property owner.

Hydro One Networks Inc. (HONI) expropriates land for the use of a hydro power transmission corridor. A transmission corridor generally consists of large overhead high-voltage wires suspended between large metal tower structures across large stretches of land. The landowner receives a one-time payment and cannot refuse to have the transmission corridor on his land.

Roger Wireless Inc. negotiates land leases with land owners on the open market to use land for a telecommunications tower. A telecommunications tower consists primarily of a large single tower structure, sometimes supported by guy wires, which supports equipment that transmits communication related data. A Rogers Wireless Inc. lease is for '*…the erection, replacement, maintenance, and operation of telecommunications facilities and equipment and the provision of telecommunications services'.*

Wind turbine developers also negotiate leases with land owners on the open market to use land for wind turbines. A wind turbine is a rotary device that extracts energy from the wind and consists primarily of a tubular steel tower, ranging from 60 to 90 meters (200 to 300 feet) tall, that usually supports a three-bladed turbine. A wind turbine lease is for '…*the erection, replacement, maintenance, and operation of wind turbine facilities and equipment and the provision of wind turbine*'.

Lease vs. Easement Analysis

For the purpose of this study, a typical Rogers Wireless Inc. telecommunication tower land lease was compared to a typical Hydro One Networks Inc. rural land easement expropriated along the Bruce to Milton corridor, Ontario, Canada, 2009/2010. Details of the Roger Wireless Inc. lease:

Property:	3119 Bruce County Road 3, Ontario (1 mile south of Paisley)
Owner:	Hutton Land and Cattle Limited
Tenant:	Rogers Wireless Inc.
Land/Tower Area:	Land area is 1.370 hectares or 3.385 acres:

A public open house was held in the area on August 31, 2001 and leases were negotiated in the open market. The lease commenced on December 27, 2001 for a term of 25 years.

The rent is outlined as follows:

Years 1 to 5 >	$5,000 per year
Years 6 to 10>	$8,000 per year (negotiated and extended in 2006)
Years 11 to 15>	To be negotiated
Years 16 to 20>	To be negotiated
Years 21 to 25>	To be negotiated

The tenant was granted further options to extend for five year periods commencing Nov 1, 2011, 2016, and 2021. The tenant, Rogers Wireless Inc., pays pro-rationed realty taxes and liability insurance. The land owner, Hutton Land and Cattle Limited, has the right to farm on the leased area not occupied by the tower and guy wire footprint areas.

Rogers Wireless Inc. states it pays a 'market rate per year' regardless of the land area required. For example, if a telecommunication tower can be constructed on 2.0 acres, it would pay $8,000; however, if the land area is 6.0 acres, it still pays $8,000.[1]

Value capitalization for the price per acre is illustrated below:

Example Area Requirements						
Net Rent	**Acres**	**$/Acre**	**Cap Rate**	**Value/Acre**	**Cap Rate**	**Value/Acre**
$8,000	2.0	$4,000	5.0%	$80,000	8.0%	$50,000
$8,000	3.0	$2,667	5.0%	$53,333	8.0%	$33,333
$8,000	4.0	$2,000	5.0%	$40,000	8.0%	$25,000
$8,000	5.0	$1,600	5.0%	$32,000	8.0%	$20,000
$8,000	6.0	$1,333	5.0%	$26,667	8.0%	$16,667

Hutton Land and Cattle Limited Lease						
Net Rent	**Acres**	**$/Acre**	**Cap Rate**	**Value/Acre**	**Cap Rate**	**Value/Acre**
$8,000	3.4	$2,363	5.0%	$47,267	8.0%	$29,542

In a typical rural Rogers Wireless Inc. lease, the estimated land price is between $16,667 to $80,000 per acre given the lease is paid yearly. In the Hutton Land and Cattle Limited lease, $8,000 divided by 3.385 acres equals $2,363.36 per acre rent per year. The net rent of $2,363.36 capitalized at 5.0 percent is $47,267 per acre price. The net rent of $2,363.36 capitalized at 8.0 percent is $29,542 per acre price.

The value of the Hutton Land and Cattle Limited land was not $30,000 to $47,000 per acre. Land prices in the Hutton neighbourhood leading up to December 2006 are examined:

[1] The $8,000 is rural locations; an urban location will be a higher amount.

Hutton Neighbourhood Sold Land (January 1, 2005 to December 31, 2006)					
Search parameter: 5 km radius from the Hutton lands (PIN 33181-0644)					
PIN	**Address**	**Sale Price**	**Sale Date**	**Acres**	**Sale Price/Acre**
331800078	1269 Concession 8	$190,000	Jan/05	103.80	$1,830
331890041	461 Brant-Elderslie	$180,000	Mar/05	101.32	$1,777
331890055	329 Brant-Elderslie	$243,000	Jun/05	73.37	$3,312
331810571	963 Bruce Road 11	$200,000	Sep/05	148.68	$1,345
332390015	S/S Concession Rd 16	$200,000	Dec/05	100.50	$1,990
331800102	3506 Bruce Road 3	$335,000	Dec/05	135.33	$2,475
332400011	1720 Sideroad 5	$250,000	Dec/05	100.52	$2,487
331890011	2497 Bruce Road 3	$131,250	Feb/06	100.69	$1,304
332800042	N/S Concession Rd 8	$280,000	Mar/06	200.43	$1,397
331890003	1752 Greenock-Brant	$207,500	Jun/06	57.88	$3,585
332400015	W/S Baseline South	$283,000	Sep/06	138.00	$2,051
				Average price per acre	**$2,141**
				Median price per acre	**$1,990**

Rogers Wireless Inc. pays Hutton $8,000 per year. HONI typically pays a farmer a one-time payment of approximately $4,000 to $5,000 per acre depending on land value.[2] HONI then discounts this value per acre by 25 percent claiming this is an "industry standard". It is not an industry standard as Union Gas, Bell Canada, and TransCanada Pipelines pay 100 percent of the fee simple value (and in some cases more).

The differences between HONI and Rogers Wireless Inc./wind turbine developers are summarized in the table below.

Hydro One Networks Inc. (HONI)	**Rogers Wireless Inc./Wind Turbine Developer**
• land use is "industrial". • land is taken against the will of the owner (via expropriation). • landowners receive a one-time payment. • payment is 75% of the market value estimated by HONI appraisers. • easement is in perpetuity and is not by consent. • land owner does not receive a proportional share of realty taxes or insurance.	• land use is "industrial" • lease is negotiated on the open market. • payments are YEARLY • land owner is paid $8,000 per year or $1,333 to $4,000 per acre per year for the term of the lease with rent escalating provisions every five years. • lease is terminal, usually 20 years, and is by consent. • land owner is reimbursed a proportional share of the realty taxes and insurance.

[2] As estimated by a HONI selected appraiser 2008-2009.

One Acre: Payment illustration via expropriation by HONI

Easement payment per acre	$5,000	75%	$3,750
Injurious Affection payment per acre	$5,000	10%	$500
Total one-time payment for one acre			$4,250

One Acre: Payment illustration via market negotiation by Rogers Wireless Inc.

Rent payment per acre (as per Hutton Land and Cattle Limited lease)	$8,000	3.4	$2,353
	Rate	Factor	Total in 5 Years
Each payment invested each year for five years	5.0%	5.525631	$13,001

One Acre: Payment illustration Summary

	Payment received for one acre over five years
Telecommunication Tower (similar for a wind turbine)	$13,001
HONI	$5,424
$ Difference	$7,577
% Difference	140%

It is also noted that for intensively farmed land particularly, telecommunication towers and guy wire infrastructure can impose significant operating costs. Telecommunication towers and structures increase the time and financial costs of applying fertilizer or controlling pests and impede the movement of machinery to prepare or harvest crops. Similar impositions are experienced with wind turbines.

Conclusion - Telecommunication Towers and/or Wind Turbines

It is reasonable to assume that Rogers Wireless Inc. and wind turbine developers are aware of the market value per acre. It is also reasonable to assume that a premium is paid for the use of land as they are aware that telecommunication towers and wind turbines cause a diminution in value.

Wind turbine land leases are very similar to telecommunication tower leases and similar conclusions can be considered.

Therefore, it is reasonable to conclude that a significant portion of the Rogers Wireless Inc. and wind turbine land lease payment is made in acknowledgement of a diminution in value. In other words, the land has been injuriously affected by the use.

RBC
Royal Bank

Royal Bank of Canada
136 Broadway
Orangeville, Ontario L9W 1J9
Tel.: 519-941-2610
Fax.: 519-941-2095
1-800-769-2511

August 18, 2011

Mr. Paul D. Thompson
214242 Tenth Line
Grand Valley, On
L0N 1G0

Dear Paul:

It is with regret that I must advise that we are unable to put a secured credit line on your property. The property was appraised and based on the report and the health concerns mentioned therein, the report is hypothetical in nature and the health risks caused by the hydro station located close to your home, we find your property a high risk and its future marketability may be jeopardized.

Please rest assured that you are a high value client with RBC and your credit with us has never been an issue, however, the property at this time has caused some concerns.

Please feel free to contact me at 519 -943 -0012 if you require further clarification.

Regards,

Belinda S. Reid

Ms. Belinda S. Reid
RBC Mortgage Specialist

Source is Mr. Paul Thompson

Perception motivates a buyer to make a buying decision. Examples are perceived enjoyment of a dwelling home and perceived income stream from a property. Perception is the result of knowledge obtained through literature, print media, electronic media, and the internet.

Perception need not be based on a proven or scientific fact.

The buyer, acting on his/her perceptions, purchases a property with the result that market *price* has been established. The buyer price is analysed by a real estate appraiser.

Value is an estimate. Price is an historic fact.

Overall, the majority of the articles indicate a "fear" of an Industrial High Voltage Electrical Power Transmission Corridor with health concerns appearing to be the primary factor together with stray voltage issues (mainly in rural publications) and aesthetics. It is clear that most of the information the public receives about Industrial High Voltage Electrical Power Transmission Corridors is negative.

For rural properties the most likely buyers would be those who:

(1) desire a rural lifestyle vs. the urban lifestyle;

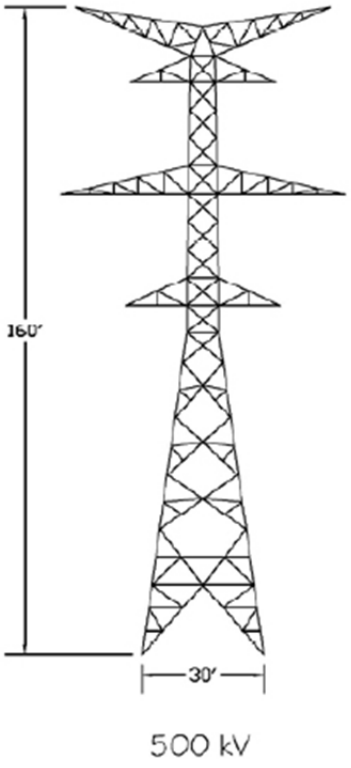
(2) typically generate income from working in the agricultural field (farmers);

(3) are sensitive to environmental issues that affect the uses of the land and the land vistas; and

(4) are sensitive to health and safety issues relating to the land and its uses.

Transmission **Lines vs.** ***Distribution*** **Lines**

The new 500kV HONI Industrial High Voltage Electrical Power Transmission Corridor as well as the existing corridors are ***transmission*** lines that transport high voltage electrical power from the generating source or from one substation to another.



These lines have steel support towers 160 feet in height and have more than one set of wires.

Electrical transmission lines do not directly serve electric utility customers. Transmission line wires are not insulated and are "bare".

Typically, they are constructed to have at least 20 feet of clearance between the ground elevation and the bare wire at low sag.

An electric ***distribution*** line is a power line that transports electricity from the substation to the electric utility customers.

These lines are of less voltage, typically under 65kV, are carried on wooden poles and usually hold one pair of wires.

The voltages on distribution lines are downgraded before the electricity is brought to the customer's residence, institution, farm, industrial, or commercial buildings.

The focus of this report is on *transmission* lines, not *distribution* lines.

When an Industrial High Voltage Electrical Power Transmission Corridor and the required easement to Hydro One Networks Inc. traverse a farm property, the consequences to the land owner include:

1. Reduction in fee simple, loss of control of the use of the corridor land;
2. Foreclosure of present or future land use;
3. Interference with operation of equipment;
4. Loss of land use efficiencies, loss of crop yields;
5. Loss of vistas, visual nuisance;
6. Creation of safety hazards;
7. Real or perceived health issues and quiet enjoyment;
8. Electric magnetic fields, stray electricity issues;
9. Owner continues to pay realty tax on the easement land; and
10. Owner has increased liability responsibilities.

1. Loss of control of the use of the corridor land

- Ontario Hydro has control of the use and maintenance of the corridor land.

  "*Ontario Hydro used Agent Orange to clear power line corridors across the province, through city backyards and thick rural brush from 1950 to 1979.*

  Hydro's own records, obtained by the Star, boast that in one 12-year period, the power company dropped enough chemicals in Ontario to cover a 30-metre-wide swath travelling "four-fifths the distance around the world…

  'Every power line in Ontario was sprayed," said Sidney Rodger, a former Hydro supervisor who worked in eastern Ontario from 1958 to 1968.' "

  Diana Zlomislic, "Ontario Hydro sprayed Agent Orange to clear corridors," Toronto Star, 26 February 2011.

- Crops may be destroyed, no trees are allowed to be grown beneath a tower or wires, no buildings or structures are allowed;

- Owners along an existing corridor complain that hydro power corridor maintenance has resulted in messy downed trees and brush left randomly to rot, often across existing paths and trails;

- At various times, a range of maintenance activities are conducted with the property owner having no control over when property entry can occur;

- Inspection of the hydro power lines may be conducted by foot patrol and climbing crews without regard to crops and farm animals.

Example: Clause (b) below is a portion of a typical HONI easement registered on lands where power corridors are located . The control given to HONI is set out in the easement :

> *"(b) To enter on and selectively cut or prune, and to clear and keep clear, and remove all trees (subject to compensation for merchantable wood values), branches, bush and shrubs and other obstructions and materials in, over or upon the Strip, and without limitation, to cut and remove all leaning or decayed trees located on the Lands whose proximity to the Works renders them liable to fall and come in contact with the Works or which may in any way interfere with the safe, efficient or serviceable operation of the Works or this easement by HONI."*
>
> Typical Expropriation Certificate

2. Foreclosure of present or future land use

- Removal of land from food production;
- Proximity to hydro power lines restricts the placement of residential and agriculture structures;
- Current structures may now be too close to the hydro wires to allow current uses;
- Airborne diseases may restrict placement of large scale livestock buildings;
- When corridors traverse the rear of a farm, buildings cannot be set back the greatest distance possible from the road to avoid possible airborne disease transmission from road animal transportation.;
- A hydro power corridor traversing land may exclude or restrict the location for an intensive livestock or poultry building footprint and the 'as-of-right' land uses.

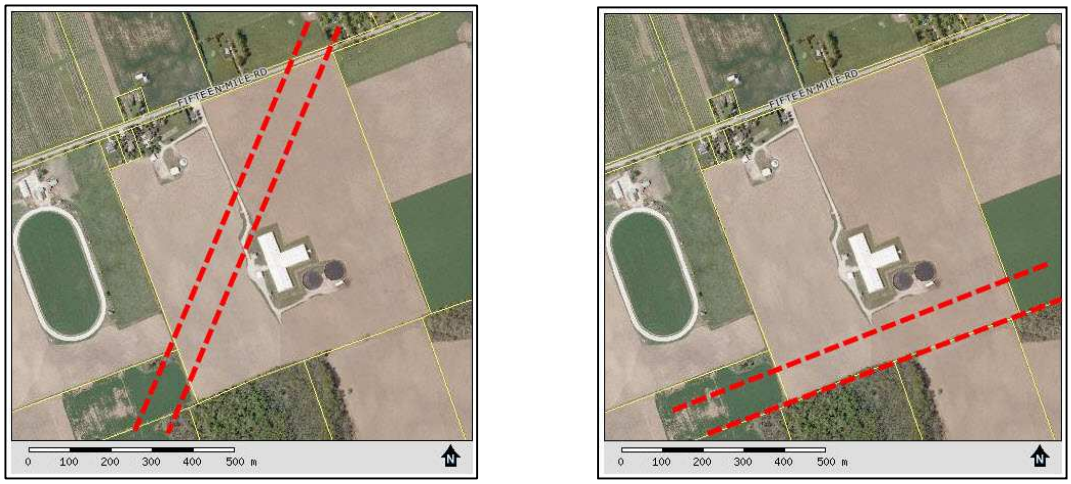
Example : A modern large scale pork complex is set-back from the road to minimize airborne disease. The pork complex is also situated on the land to minimize any extraneous (stray) voltage.

This intensive livestock building was constructed on a site well back from the road due to the fear of airborne diseases that can come from road vehicles.

If there had been an Industrial High Voltage Electrical Power Transmission Corridor on the rear of this land, a knowledgeable farmer would not have constructed the intensive livestock building at this location for fear of stray electricity.

> "*Airborne diseases include any that are caused by pathogens and transmitted through the air. The pathogens transmitted may be any kind of microbe, and they may be spread in aerosols of dust or liquids. The aerosols might be generated from sources of infection such as the bodily secretions of an infected animal or person, or biological wastes such as accumulate in lofts, caves, garbage and the like. Such infected aerosols may stay suspended in air currents long enough to travel for considerable distances on air currents, though the rate of infection decreases sharply with the distance between the source and the organism infected.*"
>
> 'Airborne Disease," Wikipedia,
> <<http://en.wikipedia.org/wiki/Airborne_disease>>

Would a pork-chicken-dairy-horse complex be constructed on this land if a 500kV* corridor existed as indicated in red in the photo below?



Disease expert, Dr. Sue Burlatschenko, B.Sc., Dipl. ABVP-SHAP, , advised *"…no, an informed farmer would not use this land for large scale agriculture purposes if traversed or next to an Industrial High Voltage Electrical Power Transmission Corridor."*

If land use is restricted, is value affected?

3. Interference with operation of equipment

- Towers and wires can prohibit automated crop watering;

Photo by Ben Lansink, land in Southgate, Ontario

- Towers and wires can prohibit aerial crop spraying;

4. Loss of efficiencies

- Negotiating equipment around the towers results in higher costs to cultivate and crop land;
- Financial impact and loss – land may be taken out of production;
- Industrial High Voltage Electrical Power Transmission Corridors with structures increase the time and financial costs of applying fertilizer or controlling pests;
- The movement of machinery to prepare or harvest crops is restricted;
- Farmers cannot run metal fences parallel with lines due to the possibility of induced current;
- HONI controls land use under the lines.

5. Loss of vistas

- Towers and wires are not attractive.

Photo by Lansink: House was demolished by HONI.

6. Creation of safety hazards

Source: Hydro One: Damaged July 2011 Lambton County, Ontario

7. Real or perceived health issues, quiet enjoyment

- Health Issues

"The most serious health endpoints that have been reported to be associated with extremely low frequency (ELF) and/or radiofrequency radiation (RFR) include childhood and adult leukemia, childhood and adult brain tumors, and increased risk of the neurodegenerative diseases, Alzheimer's and amyotrophic lateral sclerosis (ALS). In addition, there are reports of increased risk of breast cancer in both men and women, genotoxic effects (DNA damage, chromatin condensation, micronucleation, impaired repair of DNA damage in human stem cells), pathological leakage of the blood–brain barrier, altered immune function including increased allergic and inflammatory responses, miscarriage and some cardiovascular effects."

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors.
BioInitiative Report: A Rationale for a Biologically-based
Public Exposure Standard for Electromagnetic Radiation at
SUMMARY FOR THE PUBLIC (2012 SUPPLEMENT)
www.bioinitiative.org, December 31, 2012

- Loss of quiet enjoyment:

  Noise and inconvenience from regular inspections of the power corridor.

  > *"Helicopter inspections … twice a year … scheduled to be concurrent with inspection of the adjacent existing transmission lines. In order to ensure that the transmission facilities are operated and maintained in a safe, reliable and efficient manner, management activities within the Project Right of Way would be undertaken by small crews, generally every seven years. These would include activities such as:*
  >
  > - *periodic tree cutting;*
  > - *soil stabilization;*
  > - *inspection patrols; and*
  > - *selective herbicide application"*

ENVIRONMENTAL ASSESSMENT REPORT Bruce to Milton
Transmission Reinforcement Project December 2008 - Introduction
Hydro One Networks Inc, Toronto

Interference during Construction

HONI has the right to construct and then remove temporary access roads during the construction of the hydro towers. Such temporary access roads involve removing the topsoil, laying down landscape cloth, dumping and leveling an aggregate material, removal of the aggregate and landscape cloth, and restoring the topsoil.

This process can result in loss of crops, soil erosion, compaction of the soil, and increased traffic and noise due to the use of large dump trucks and construction vehicles for the access roads and the construction of the towers.

"2.2.1.5 Construction Activities Associated with the Undertaking

Construction activities which may have an effect on the natural and socio-economic (including cultural and agricultural) environment are presented below:

- *Minor clearing needed to establish the centreline and corridor boundaries;*
- *ROW clearing – selective removal of trees/brush from the corridor to permit construction access and to create a vegetative cover compatible with overhead conductors and safe operation of the transmission line;*
- *Access road construction – construction of temporary access roads and watercourse crossings to reach work sites;*
- *Installation of tower footings – auguring of holes at each tower footing for installation of reinforced concrete and anchor bolts;*
-
- *Delivery of tower steel and erection of towers – delivery of tower steel, assembly and erection of towers using cranes;*

- *Installation of conductors – delivery of conductor cable and components and stringing by the tension method; and*

- *Transmission corridor restoration – after construction restoration of the corridor to preconstruction condition, to the extent possible*."

ENVIRONMENTAL ASSESSMENT REPORT Bruce to Milton
Transmission Reinforcement Project December 2008 - Introduction
Hydro One Networks Inc, Toronto

Interference with Vegetation

The hydro power corridor operator has the right to control all land uses within the corridor including removal of vegetation which can include crops and trees.

> *"(e) Except for fences and permitted installations, to clear the Strip and keep it clear of all buildings, structures, erections, installations or other obstructions of any nature whether above or below ground, including removal of any materials and equipment or plants and natural growth which in the opinion of HONI, endanger its Works or any person or property or which may be likely to become a hazard to any Works of HONI or to any persons or property or which do or may in any way interfere with the safe, efficient or serviceable operation of the Works or this easement by HONI."*

Typical Expropriation Certificate

8. Electric magnetic fields, stray electricity issues

- Reduction in milk production due to stray electricity creating electric shocks from milking equipment

  " …because stray voltages on a farm do not exceed 0.5 V does not mean that the farmer will be free of stray voltage problems. In addition, because sensitivity to electrical current varies with parts of the body through which it passes, it is possible that cows might be even more sensitive to stray voltage if the current passes through the teat or tongue."

  Dr. Donald Hillman, PhD., "Effects of Electrical Shock on Cattle,", Professor Emeritus,
  Department of Animal Science, Michigan State University
  https://www.msu.edu/user/hillman/elecshok.htm

- *"Stray, tingle or neutral to earth voltage has been implicated as a problem for dairy and other livestock herds for approximately twenty years*." Many believe the problem may not be curable if poultry and animals are housed and kept close to a hydro power corridor.

  Jack Rodenburg – Dairy Productions Program Lead
  "Dairy Cattle – Stray Voltage Problems in Livestock Production,"
  Ontario Ministry of Food and Agriculture. September 2010
  http://www.omafra.gov.on.ca/english/livestock/dairy/facts/strayvol.htm

- A hydro power corridor traversing land may exclude or restrict the location for an intensive livestock or poultry building footprint and the 'as-of-right' land uses'.

- *"A large number of studies have been carried out investigating the effects of EMF on circulating melatonin levels in animals, because of the possible links between EMF and breast cancer. The impact of melatonin on reproduction is particularly pronounced in seasonally breeding animals, where the effect varies depending on the length of gestation in order to ensure that the offspring are born in late spring when food is plentiful."*

"Environmental Health Criteria 238. Extremely low frequency fields," SECTION 6,
World Health Organization, Geneva, Switzerland, 2007.
http://www.who.int/peh-emf/research/health_risk_assess/en/index2.html

- An Ontario horse farmer complained that a horse in foal while in pasture next to an existing 500 kV corridor had an 85 to 95 percent chance of still birth. When not kept next to the 500kV corridor, the birth rate was normal.

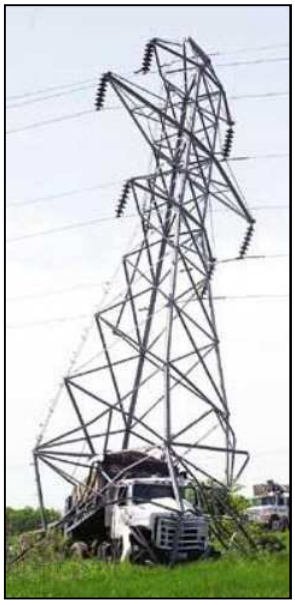
9. Owner continues to pay realty tax

- Owners are forced to pay realty taxes on land they may not be able to use and over which they no longer have control;

- Many appraisers and HONI argue that it is an 'industry standard' to pay 75 percent of the Fee Simple value of an easement. There is no support for this statement, most utility companies pay 100 percent, and some pay more. Given the lost rights and additional liabilities, payment must be based on 100 percent of the Fee Simple value for a 500kV easement.

10. Owner has increased liability responsibilities

- Increased insurance premium



There are real or perceived effects, risks, and concerns when a hydro power corridor is constructed, used, and maintained. There are many reasons why property buyers discount the price of land near hydro power corridors.

Proximity to Towers and Power Lines

A particular concern of property owners and property buyers is the proximity of the land to a hydro power corridor.

> *"Electric and magnetic fields are strongest when close to their source. As you move away from the source, the strength of the fields fades rapidly. This means you are exposed to stronger electric and magnetic fields when standing close to a source (e.g., right beside a transformer box or under a high voltage power line), and you are exposed to weaker fields as you move away."*

Health Canada, "Healthy Living/Electric and Magnetic Fields at Extremely Low Frequencies," It's Your Health. April 2004 http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/magnet-eng.php

Interference caused by Maintenance of the Power Corridor

> Owners along an existing corridor complain that hydro power corridor maintenance has resulted in messy downed trees and brush left randomly to rot, often across existing paths and trails.

Various property owners along an existing corridor as reported to Lansink Appraisals and Consulting 2008/2010.

> At various times, a range of maintenance activities are conducted with the property owner having no control over when property entry can occur. Inspection of the hydro power lines is conducted by foot patrol and climbing crews.

Various property owners along an existing corridor as reported to Lansink Appraisals and Consulting 2008/2010

Health Concerns

Childhood Cancer and Leukemia

> "*Sufficient evidence from epidemiological studies of an increased risk from exposure to EMF (power frequency magnetic fields) that cannot be attributed to chance, bias or confounding. Therefore, according to the rules of IARC such exposures can be classified as a* ***Group 1 carcinogen (Known Carcinogen).***"

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Radiation," SUMMARY FOR THE PUBLIC (2012 SUPPLEMENT) at www.bioinitiative.org.

"Scientific evidence suggesting that every day, chronic, low-intensity ELF [extremely low frequency] magnetic field exposure poses a possible health risk is based on epidemiological studies demonstrating a consistent pattern of an increased risk of childhood leukaemia [sic]."

"Acute biological effects have been established for exposure to ELF electric and magnetic fields in the frequency range up to 100 kHz that may have adverse consequences on health."

"Consistent epidemiological evidence suggests that chronic low-intensity ELF magnetic field exposure is associated with an increased risk of childhood leukaemia [sic]."

"Environmental Health Criteria 238. Extremely low frequency fields," SECTION 12,
World Health Organization, Geneva, Switzerland, 2007.
http://www.who.int/peh-emf/research/health_risk_assess/en/index2.html

"A major new study found that children whose birth address was within 200 meters of an overhead power line had a 70% increased risk of leukemia. Children living 200 to 600 meters away from power lines had a 20% increased risk."

Jenny Griffin, "Electromagnetic Fields and Public Health,"
www.carbonon.me/electromagnetic-fields-and-public-health/

Adult Cancers

"A very recent study by Lowenthal et al. (2007) investigated leukemia in adults in relation to residence near to high-voltage power lines. While they found elevated risk in all adults living near to the high voltage power lines, they found an OR of 3.23 (95% CI = 1.26-8.29) for individuals who spent the first 15 years of life within 300 m of the power line. This study provides support for two important conclusions: adult leukemia is also associated with EMF [electrical magnetic fields] exposure, and exposure during childhood increases risk of adult disease." Page 10

"The evidence for a relationship between EMF exposure and adult cancers and neurodegenerative diseases is sufficiently strong at present to merit preventive actions to reduce EMF exposure." Page 11

"For a decade, there has been evidence that human breast cancer cells grow faster if exposed to ELF at low environmental levels. This is thought to be because ELF exposure can reduce melatonin levels in the body. The presence of melatonin in breast cancer cell cultures is known to reduce the growth of cancer cells. The absence of melatonin (because of ELF exposure or other reasons) is known to result in more cancer cell growth." Page 12

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors.
"BioInitiative Report: A Rationale for a Biologically-based Public
Exposure Standard for Electromagnetic Radiation"
SUMMARY FOR THE PUBLIC at
www.bioinitiative.org, December 31, 2012

Nervous System and Brain Function Changes

"New research indicates that ELF MF [extremely low frequency electromagnetic field] exposure, in vitro, can significantly decrease melatonin activity through effects on MT1, an important melatonin receptor…."

"… There is considerable in vitro and animal evidence that melatonin protects against AD. Therefore it is certainly possible that low levels of melatonin production are associated with an increase in the risk of AD."

"There is now evidence that (i) high levels of peripheral amyloid beta are a risk factor for AD [Alzheimer's Disease] and (ii) medium to high ELF MF exposure can increase peripheral amyloid beta. High brain levels of amyloid beta are also a risk factor for AD and medium to high ELF MF exposure to brain cells likely also increases these cells' production of amyloid beta."

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors.
"BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Radiation,"
SUMMARY FOR THE PUBLIC (2012 SUPPLEMENT) at
www.bioinitiative.org, December 31, 2012

Noise Emissions

Owners along an existing corridor complain that the hydro power lines emit a 'buzzing' noise that is considered above a 'hum'. The noise depends on the weather, the observer's location, and observer's proximity to the hydro power line.

Various property owners along an existing corridor as
reported to Lansink Appraisals and Consulting 2008/2010

Cow Behaviour Issues and Lower Milk Production

"…behavior, health, and milk production of cows were impaired by transients and by the 3rd, 5th, 7th, and triplen harmonic electrical currents from utility power lines."

"Primary neutral voltage and 3rd, 5th, 7th and other harmonics on dairy farms were reduced to near zero when a shielded neutral isolation transformer was installed between the utility and the dairy. Animal behavior improved immediately, and milk production which had been depressed for 3 years, gradually returned to normal within 18 months after installation of the shielded transformer."

Donald Hillman, Ph.D., Charles L. Goeke, M.S., and Richard Moser,
"Electric and Magnetic Fields (EMF) Affect Milk Production and Behavior of Cows ; Results Using Shielded Neutral Isolation Transformer,"
Shocking News, Michigan, July 2004.

Limitations on Development Potential

A parcel of land, say 50 to 100 acres, with road frontage may be vacant or it may have buildings with limited use value. This parcel has development potential for intensive livestock and poultry production use which may be 'as-of-right' permitted via land use (zoning) controls. Poultry, dairy and other livestock herds can be and are affected by stray, tingle, or neutral to earth voltage. Many believe the problem may

not be curable if poultry and animals are housed and kept close to a hydro power corridor.

While not an issue historically, today the developer will want the buildings set back the greatest distance possible from the road to avoid possible airborne disease transmission from road animal transportation. A hydro power corridor traversing land may exclude or restrict the location for an intensive livestock or poultry building footprint and the 'as-of-right' land uses'

Financial Impact and Loss

Overhead lines and structures increase the time and financial costs of applying fertilizer or controlling pests. The movement of machinery to prepare or harvest crops is impeded. Farmers have limited ability to run metal fences parallel with lines or near the corridor lines due to the possibility of induced current.

Observations by Ben Lansink.

Diminution in Value: Industry Research

This section provides a selection of references to other industry research supporting the diminution in value related to a hydro power transmission corridor.

"Power Lines and Property Values: The Good, the Bad, and the Ugly"

> *"Overhead transmission lines can reduce the value of residential and agricultural property. The impact is usually small (0-10%) for single-family residential properties. The greatest impacts have been measured in intensively managed agricultural property (irrigators, etc., and in rural, second (vacation) home developments."*
>
> *"In late 1994, Arthur Gimmy, MAI, presented a seminar before the EMF Regulation and Litigation Institute. In part, the seminar presented a matched-sales analysis of California residential property that indicated diminutions in lot values from properties abutting power line easements of 18% to a whopping 53.8%."*

David R. Bolton, MAI, Kent A. Sick, "Power Lines and Property Values: The Good, the Bad, and the Ugly". The Urban Lawyer, The National Quarterly on State and Local Government Law, Spring 1999, Volume 31, Number 2.

Thomas A Jaconetty,
Chief Deputy Commissioner of the Cook County Board of Review

"… there have been several other noteworthy studies. One estimated a valuation loss of only 2-3 percent for properties in very close proximity to such lines (Colwell and Foley 1979; Colwell 1990). Another suggested a loss of about 10 percent (DeLaney and Timmons 1992). So did a 1993 review of 100 Houston residential properties that abutted a power line corridor, which found that there was a measurable loss of value relative to non-abutting peer properties (Bolton and Sick 1999; Bolton 1994). A late 1994 California matched-sales analysis showed that vacant lot values were adversely affected by 18-53.8 percent (Bolton and Sick 1999, 336).

Considering all of the market evidence, a value loss of less than 10 percent may be a reasonable expectation for residential properties. The negative impact is possibly greater for other types of properties. "

Thomas A Jaconetty, "Do you want your children playing under those things?: The continuing controversy about high voltage electromagnetic fields, human health, and real property values", Assessment Journal, Chicago, May/Jun 2001.

The Real Estate Center

"According to [a Minnesota] study, 50 percent of those that sold a home with overhead power lines said the property's market value was adversely affected. Two-thirds of the sellers indicated that a longer market time was required for the property to sell.

'Half of homeowners near overhead power lines did not consider homes with overhead power lines,' says Jones, vice president and chief economist with Stewart Title Guaranty Company.

'Forty-four percent said they would have lowered their offering by an average of 7.6 percent if the home they had purchased had been within 200 yards of overhead power lines.'

More than 83 percent of residential appraisers indicate a negative influence on property market value arising from the lines, with an estimated average of 4.1 percent reduction in value for homes with high-voltage overhead power lines. Each respondent appraised an average of 54 residential properties near overhead power lines. A similar 84 percent indicate an average 62 days longer marketing period for residential homes affected by power lines."

The Real Estate Centre, "Overhead Power Lines Impact Residential Sales," Ad Valorem Forum, Volume XVI, October 2007 http://www.tax.ok.gov/oktax/advform/avfOctober07.pdf.

Dr. Sue Burlatschenko was retained and paid a fee by Lansink Appraisals to provide a literature review regarding high voltage power corridors. Her 2012 work follows.

Impacts on Biosecurity, Disease Transmission

A. Health Impacts of Electromagnetic Frequencies

The health impact of high voltage lines, particularly electromagnetic frequencies (EMF) on humans and livestock has been extensively studied. Purported negative effects in livestock include impacts on milk production. Studies have linked effects of electromagnetic frequencies on the pineal gland and secretion of melatonin[1]. Melatonin regulates release of LHRH in the hypothalamus, and thus influence FSH and LH release from the pituitary gland. A review article suggests that the production of gonadal sex steroids may be altered after acute exposure, thus affecting reproductive cycles of cows[2]. A report reviewing the epidemiologic literature on EMF and health (in humans) by the International Commission for Non-Ionizing Radiation Protection (Standing Committee on Epidemiology) concluded that childhood leukemias as related to postnatal exposures above 0.4 uT shows the most evidence of an association. There is evidence for occupational EMF exposure and ALS while breast cancer, cardiovascular disease and suicide and depression remain equivocal. Effects both positive and negative (burchard, korean study) have been ascribed to EMF, and other health effects on humans and animals remain inconclusive[3].

More recent research is revealing that there are some disturbances manifesting at the molecular level, reporting breaks in DNA strands, and upregulation of stress response genes and production of increased levels of stress proteins[4,5].

B. Standards for Limits of Exposure

Legal aspects of EMF exposure in Europe include standards that describe maximum limits of exposure and standards that fix distances between power installations and houses. The International Radiation Protection Association (IRPA), under the World Health Organization published a document in 1990 titled *Interim guidelines on limits of exposure to 50/60 Hz electric and magnetic fields.* For the public, general maximum limits of exposure are 5 kV/m for electric fields and 0.1mT for magnetic fields[6]. These limits were instituted under a precautionary principle. A definition of precautionary principle from The Canadian Environmental Law Association is: "The precautionary principle denotes a duty to prevent harm, when it is within our power to do so, *even when all the evidence is not in*."[7]

In Canada, this principle is not invoked with respect to limits for EMF exposure. The Federal-Provincial-Territorial Radiation Protection Committee – Canada (FPTRPC) in a 2005 position statement suggest that "moderate measures and participation in the process of acquiring new knowledge are sufficient."[8]

In June 2007 the Ground Current Pollution Act was passed in the Ontario Legislature. The Ontario Energy Board was ordered to deal with the stray voltage issue. Producers with electrical problems are directed to contact their electricity distributor. The Dairy Farmers of Ontario asked for a reduction in current thresholds for acceptable levels of Neutral to Earth Voltage (NEV) and Animal Contact Current. The Ontario Federation of Agriculture has concurred with this request[9].

C. Public Perceptions and Impact on Property Values

Elliott and Wadley describe a mounting concern of people regarding outcomes of exposure to different kinds of radiation. This concern is reflected in how potential purchasers view the value of properties where transmission lines transverse or are in close proximity. These authors report that per acre values analyzed in Eastern Canada showed a decrease of 16 – 29 percent in properties with easements for transmissions lines than for similar properties without easements[10].

Public opinion reflects a hesitant attitude to full opposition to hydro lines. An internet search revealed numerous blogs, articles and opinions on the location of energy lines. A sample piece from The Western Producer a producer comments that he has abandoned any future plans for expansion of his dairy farm as either rights-of-way prohibit expansion, and full market resale value would not be gained[11]. Elliott and Wadley refer to the negative impact of electricity lines on property values results from the formation of "stigma". Stigma has been defined as "a market imposed penalty that can affect a property that is known or suspected to be contaminated…"

In the Better Farming article by Kate Proctor, some dairy farmers in Ontario have experienced declines in dairy health and deaths due to stray voltage issues. Bridlewood Electromagnetic Fields Information Services (Richard Woodley) compiled an extensive list of legal filings by property owners across North America and some international location. These filings dealt with the impact of cell phone towers and hydro transmission towers; many owners claimed health concerns and reduction of property value issues.

Don Crosby in the Ontario Clean Air Alliance, wrote an article regarding Ontario Hydro's plans to install a new transmission line from Bruce Power to Milton. In this article, an agricultural landowner complained that market value alone was insufficient compensation He felt that replacement value of homes and buildings would be a better valuation for compensation to landowners.

In Manitoba, a consequence of hydro towers being placed on agricultural properties was the inability of crop dusting planes to service the farm. Obviously it is illegal for planes to fly underneath the towers. The result of this unforeseen circumstance may be the avoidance of certain crops and income reduction.

D. Biosecurity Considerations

Location of hydro corridors may result in repositioning of livestock pastures and barns due to concerns regarding stray voltage or electromagnetic frequencies. Barns may be sited relative to the dwelling on the property, for ease of moving back and forth between buildings. A decision to move livestock out of the corridor area and re-siting them away from overhead power lines may result in decreasing the distance between neighbouring barns and/or pastured livestock. This in itself can result in an increased risk of disease transmission, either through direct animal-to-animal contact (fenceline) or airborne transmission.

Biosecurity is a term that is used extensively in livestock production. Biosecurity refers to those practices that prevent or mitigate disease from entering, spreading within or being released from operations that may contain livestock
Recognition of transmission of animal pathogens have resulted in the development of biosecurity programs in various livestock groups. For example, swine biosecurity programs have been designed and implemented to prevent the incursion of domestic swine disease agents, but also to prevent potentially devastating foreign animal diseases. A National Level Swine Biosecurity Standard has been developed to enable producers to develop best management practices for disease prevention and control. Other biosecurity evaluation programs include the Production Animal Disease Risk Assessment Program (PADRAP) and the Canadian Quality Assurance Program.

A separation distance is critical in the maintenance of swine health, of which the Ontario swine industry is fully aware. Since some pathogens e.g. Porcine Reproductive and Respiratory Syndrome virus (PRRSv) may be transmitted via contaminated vehicle tires, contaminated manure in truck contents, insects and rodents as well as airborne transmission, efforts are being undertaken to minimize transfer of disease agents.

A critical pathogen of note in the North American swine industry is PRRSv. This virus initially appeared in the late 1980s and early 1990s as clinical outbreaks in swine herds. The virus caused severe reproductive failure abortions, stillbirths, premature parturition, neonatal deaths, post weaning pneumonia and other impacts on performance and growth. The economic impact was and remains very large, despite attempts to control this virus. This virus is readily transmitted by aerosolization; this was demonstrated in an elegant study by Pitkin and Dee in 2009[13]. Otake demonstrated that the virus may be found up to 9 kilometres from the source herd and remain infectious[14].

A movement has been undertaken to organize swine producers to limit the area transmission of this virus. Under various Area Regional Control and Elimination (ARC & E) programs, producers agree to review the health status of their herds, reduce or eliminate the virus dynamics within the herd, and monitor the herd for the presence of this virus.

The Canadian Food Inspection Agency (CFIA) produced the National On-Farm Avian Biosecurity Standard. This was developed with the Avian Biosecurity Advisory Council and focused on prevention of avian influenza and other diseases spread through respiratory transmission and addressing gaps in existing on-farm food safety systems. This document noted that recent [avian] disease outbreaks in Canada and overseas demonstrated that there was a serious impact on business, individual livelihoods and local communities.

One of the major concerns with avian influenza breaks is the consideration of zoonoses (an infectious disease of animals that can cause infections humans, sometimes by a vector). This CFIA document noted that stringent biosecurity was important for the prevention of human illnesses.

WHO continues to monitor high pathogenic avian H5N1 influenza , which has infected 608 people as of August 2012 and killed 359[15].

Swine influenza viruses may be transmitted to turkey flocks. In 2003, influenza viruses were isolated from two geographically distinct turkey farms in Minnesota. The viruses were identified as closely resembling a swine influenza (H3N2) virus, with >97% homology between the two. Turkeys are also susceptible to H1N1 swine influenza viruses[16]. Corzo et al (AASV 2012) demonstrated that swine influenza A viruses could be airborne and thus aerosolized. The authors also concluded that influenza infection status in turkeys was associated with proximity to pig premises and the size of the turkey flock[17].

In 2004 a highly pathogenic avian influenza (H7N3) was initially diagnosed in Abbotsford, B.C., and spread through the Fraser Valley. This virus resulted in the culling and destruction and disposal of 17 million birds. Gross economic costs were estimated at $380 million.[18]

It is critical that new poultry barns be sited in such a manner that potential airborne transmission of pathogens be minimized. The economic losses resulting from a catastrophic disease break in a barn may spread to other barns in the neighbourhood.

The Beef biosecurity document states that “animals of other species, whether from the same or a different operation, may present disease risks that are not being managed within the beef cattle in question. The same is true for cattle from other operations.” In other words, cross-species interaction should be at a minimum for cattle in order to avoid transfer of infectious organisms.

The document also recommends that “minimizing direct and indirect contact, where practical, with animals from another operation, or from other species, helps prevent the introduction of diseases that are not being managed on farms.”[12]

E. Summary

In considering the effects of transmission lines on living things, causation needs to be established. Epidemiologic findings have produce evidence of association of postnatal childhood leukemia with exposures above 0.4 uT. There is also an association of ALS with occupational EMF expsoure. There is yet inconclusive evidence regarding effects of EMF on breast cancer, cardiovascular disease, suicide and depression.

Transmission line installations on farmland may result in re-siting of barns. This may have negative impacts on biosecurity. Towers may impact the ability of the farm to conduct normal activities, such as crop dusting.

The Ontario Federation of Agriculture supports farmers but lacks manpower, expertise and money. Landowners who are impacted by transmission lines are encouraged to unify when new lines are being proposed.

Several countries in Europe have invoked the precautionary principle and have set standards for exposure to electric and magnetic fields. No such standards exist as yet in Canada.

Finally, a consideration must be given to the stigma of high voltage overhead powerlines as a sufficient reason in itself for **property devaluation.**

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End of Dr. Sue Burlatschenko's Literature Review

Certification

I, Ben Lansink, certify to the best of my knowledge and belief that:

The statements of fact contained in this Study report are true and correct, the reported analyses, opinion, and conclusion are my personal impartial, and unbiased professional analyses, opinion, and conclusion only pertaining to Injurious Affection.

Other than as stated, no one provided professional analysis assistance to me, the sole report signer.

I have no bias and no present or prospective personal interest with respect to the issues that are the subject matter of this Case Study report.

My work was not contingent upon developing Price diminution or Injurious Affection, or a conclusion favouring anyone.

My analyses, opinion, and conclusions were developed, and this report has been prepared, in conformity with (1) the Canadian Uniform Standards of Professional Appraisal Practice (CUSPAP), Appraisal Institute of Canada; (2) the Uniform Standards of Professional Appraisal Practice (USPAP), Appraisal Standards Board, United States; and (3) the International Valuation Standards (IVS). I have the knowledge and experience to complete the assignment competently.

The Appraisal Institute of Canada has a Continuing Professional Development Program. As of April 2013, I have fulfilled the requirements of this Program. I am a member in good standing of the Appraisal Institute of Canada.

I inspected the new and existing HONI 500kV Industrial High Voltage Electrical Power Transmission Corridor, existing corridors, and also inspected the neighbourhoods and the communities.

For the purpose of this Case Study report, I, Ben Lansink, did NOT estimate the market value of any one property.

April 2013

End of Report

This is the last page of this report.

