

Board Staff Interrogatories
Toronto Hydro-Electric System Limited (“THESL”)
Section 29 Application
EB-2013-0234

Issue 1/Board staff/1

Reference: Pre-Filed Evidence of THESL, page 2, paragraph 13

Preamble: THESL states:

“Since the date of the Board’s Preliminary Decision and Order in EB-2011-0120 there have been 19 permit applications, from two providers, for wireless attachments on THESL and THESI’s poles. To date, one permit has been issued. Of those applications, 18 are for cellular services on 18 THESL poles. The remaining application contemplates WiFi attachments on 2 THESL poles.”

Questions:

- (a) Please describe the permitting process and the significance of holding a permit.
- (b) Beyond obtaining a permit, what is required for a wireless provider to attach to one or more THESL distribution poles?
- (c) What costs are associated with each of the requirements enumerated in (b)?
- (d) Are wireless providers required to fulfill all of the requirements in (b) by using THESL to do the work or it is possible for the providers to do the work necessary to fulfill the requirements themselves?
- (e) How many permit applications for wireless attachments to THESL and THESI poles, for which a permit has not yet been granted or been declined, have been made before and since the Board’s Preliminary Decision and Order in EB-2011-0120 and from which parties? Of those permit applications, how many attachments provide WiFi services and how many provide cellular services?

Issue 1/Board staff/2

Reference: Evidence of Dr. Jackson, Section 4.1.4, page 26

Preamble: The biggest challenges to providing wireless service are providing adequate coverage and capacity. Large cells are used for widespread and affordable coverage; improved technology, additional spectrum, and smaller cells are used to expand capacity.

Question:

With respect to addressing different users in different scenarios, are there new service offerings that might make greater use of pole-attached wireless equipment? As an example, what are your views on the impacts of machine-to-machine traffic which uses more wireless equipment / sensors?

Issue 2/Board Staff/3

For the attachments that do exist, does THESL / THESI provide, or allow access to, a power supply (regardless of what rate they may charge).

Issue 2/Board Staff/4

In the context of any possible reciprocal arrangements that exist between THESL / THESI and existing telecommunication service providers, are there any other attachment arrangements that do not fall into the numbers provided above?

Issue 2b/Board staff/5

Reference: Evidence of Dr. Church, Pages 75-76, paragraph 200

Preamble: Public Mobile also had plans to use 730 DAS nodes to meet the needs of its Toronto area customers for a four-to-five year time period. It originally intended to use THESL poles for 90% of those nodes but claims that it was thwarted by THESL's refusal to accommodate wireless attachments.

Questions:

- (a) In paragraph 200, it is unclear what the situation with Public Mobile was in relation to pole attachments. Did Public Mobile make requests to use poles and was denied, or were no applications ever made?
- (b) Was there a reasonable effort by THESL to accommodate these requests?
- (c) What is the typical time taken by THESL to respond to a request for attachment?

Issue 2b/Board staff/6

Reference: Evidence of Dr. Jackson, Section 4.1.1, page 24

Preamble: Radio waves tend to travel in straight lines—so providing coverage in small valleys or behind hills may require building extra cells to fill in coverage. Also, radio waves weaken as they penetrate buildings or foliage.

Question:

In the context of the propagation of radio waves, are there scenarios where the use of a pole attachment might be preferable to a wall-based attachment point? In other words, aren't siting choices very much determined by the nature of the traffic and the services being used?

Issue 2b/Board staff/7

Reference: Evidence of Dr. Jackson, Section 6, page 28

Preamble: But, if a carrier wants to offer a Wi-Fi-like service, there is no point in paying for licenced spectrum—unlicenced spectrum provides acceptable service and is free.

Question:

As mentioned, the use of Wi-Fi hotspots may provide acceptable service, and is free to use by prospective service providers. THESL evidence has shown that the majority of existing pole attachments are in fact for the provision of Wi-Fi services. With that in

mind, specific to wi-fi provision, discuss the relative merits of pole attachments vs. building side attachments in the case where outdoor attachment is desirable.

Issue 2c/Board staff/8

Reference: Evidence of Dr. Church, Page 19, paragraph 22

Preamble: Wireless service providers can often substitute to alternative inputs rather than use small cells and DAS to augment the capacity and coverage of their networks outdoor. For instance, wireless service providers can mitigate the demands on their wireless networks by offloading traffic to fixed line networks using femtocells and Wi-Fi, *and using data management practices such as pricing, traffic shaping, and data compression*. Wireless service providers can also increase the capacity of their wireless networks by, for example, *acquiring more spectrum*, splitting macrocells, adopting technology that economizes on spectrum, and sharing spectrum and cell sites, perhaps by roaming.

Questions:

- (a) Given the scarcity of spectrum as a general notion, would the lack of spectrum change this argument with regards to substitution?
- (b) The techniques of traffic shaping and data compression can have adverse effects on the performance of services making use of wireless networks. What is the impact of this in the context of the selection of a substitution to small cells and DAS?

Issue 2c/Board staff/9

Reference: Evidence of Dr. Church, Page 46, paragraph 122

Preamble: For example, wireless service providers can engage in traffic-shaping where they can de-prioritise certain interactions (e.g., transfer of very large files from sites using Bit Torrent) that impose disproportionate burdens on the network at certain hours

Question:

In CRTC 2009-657, the policy determining appropriateness off so-called traffic management practices, clearly articulates that the first priority should be to increase

capacity in networks, not undertake traffic—shaping. While not directly aimed at wireless networks, but principle would be the same. In the absence of the traffic-shaping option, is it your view that the need for pole attachments would increase?

Issue 2c/Board staff/10

Reference: Evidence of Dr. Church, Page 51, paragraph 135

Preamble: Consistent with multiple providers of fibre, the CRTC determined in 2008 that the market for wholesale fibre-based transport and access services was competitive, and thus phased out essential facilities regulation applied to these services. One can only reasonably expect the Toronto market for supply of such services to be the most competitive in Canada.

Question:

Although access to fibre infrastructure is important in some cases, new classes of technologies may rely on wireless transport options (e.g. microwave links) to serve wireless attachments. In a scenario with increased reliance on these types of equipment, would THESL still maintain that pole access is not a needed input?

Issue 4/Board staff/11

Reference: Evidence of Dr. Church - page 4, paragraph 13

Preamble: Counsel for THESL requested:

“The preparation of a written report (the “Report”), to be filed as evidence with THESL’s application to the OEB assessing the extent to which wireless telecommunications in THESL’s service territory is, or will be, competitive if the OEB refrains from regulating the rates, terms and conditions upon which access for wireless telecommunications services is made available by THESL.”

Question:

Please explain how the question framed by THESL above is responsive to the test provided in S. 29 of the OEB Act. In your answer please specifically address whether, in the context of this application, section 29 tests for competition in the market in which THESL pole attachments forms a part of the supply, or whether it tests for competition in a market which uses pole attachment access as an input?

Issue 4/Board staff/12

Reference: Evidence of Dr. Church, pages 5/6, paragraph 17; page 53 paragraph 139

Preamble: Expert Report states:

"[...] These possibilities for substitution suggest that there is a broad upstream "input market", and not a market defined by monopoly control over the input provision of pole access for wireless attachments. Consequently, the fact that THESL may be an exclusive supplier in the provision of pole access for wireless attachments does not mean that it has market power in a relevant upstream market."

"The evidence is consistent, therefore with the hypothesis that, in urban Toronto, especially in its downtown core, the availability of upstream alternative inputs, and in particular alternative sites to pole access, is likely to be substantial, and the elasticity of substitution between different inputs is likely to be high."

Questions:

- (a) Please provide any evidence of *economic* substitutability for the assertion of a broad upstream "input market".
- (b) Specifically what costs are associated with alternatives to pole access for small cell and DAS on a per unit of service basis.

Issue 4/Board staff/13

Reference: Evidence of Dr. Church, page 8 paragraph 24; page 39, paragraph 106; page 63, paragraph 168

Preamble: Expert Report states:

"The analysis of the extent to which wireless service providers can and will substitute to alternative inputs and sites is supported by the fact that at regulated rates, the use of THESL poles for wireless attachments to provide wireless services is extraordinarily small."

"The use of utility poles by wireless service providers in Toronto to date is very limited. [...]"

“[...] THESL presently provides pole access for wireless attachments made by wireless service providers on a very small number of poles. This is so even though access is available at a regulated rate. Clearly this indicates that at the regulated rate the extent of substitution identified in our analysis is sufficient that demand for pole access for wireless attachments is minimal at present. The analysis suggests that the demand in the future will be sufficiently elastic that THESL’s market power will be limited.”

Questions:

- (a) Is it Dr. Church’s opinion that the current and likely future size of the pole access market for wireless attachments in Toronto is extraordinarily small and very limited?
- (b) Is it possible that impediments to pole access for wireless attachments currently restrict the use of pole access in Toronto, or that the market is expected to grow significantly in the future?
- (c) Please provide any available evidence relating to the quantum by which wireless service providers are using inputs other than small cells and DAS?
- (d) Please provide any available evidence relating to the quantum by which attachment services other than pole access are being used?
- (e) Regarding the statement to the effect that only a very small number of poles are currently providing attachments for wireless providers what impact does Dr. Church assign to the letter from THESL of November 2010 wherein it stated that it would no longer attach wireless to its poles?

Issue 4/Board staff/14**Reference: Evidence of Dr. Church, Pages 61-62, paragraph 163**

“This does leave open the possibility for localised circumstances in which pole access might be vital. These localised circumstances might suggest that the geographic dimension of the input market be treated in a disaggregated fashion. ...there is only a limited likelihood that wireless service providers will lack for options to provide outside data coverage for non mobile users using small cells mounted on poles.”

Questions:

- (a) Please explain what disaggregating the geographic dimension of the input market means.
- (b) Should the geographic dimension be disaggregated and if so, how should that be done? Please be specific. If not, why not.

Issues 4 – 7; 10/ Board staff/15

Reference: Evidence of Dr. Church, page 64 paragraph 172

Preamble: Expert Report states:

“With respect to the exercise of market power on the prices and quality of downstream services, pole access services for wireless service providers is not and cannot be an appreciable element of downstream costs for the major wireless firms in Toronto. Because of this the ability of the incumbent firms to deploy new networks and services at affordable prices to consumers will not be impacted by the price for pole access for wireless attachments. THESL is not in the position of a firm that can exercise market power in a way that creates substantial harm in the downstream market.”

Question:

What is the basis for the opinion that the competitive impact should be measured in the downstream market and not in the upstream market, given THESL is not vertically integrated?

Issue 5/Board Staff/16

With respect to the number of applications received requesting pole access, what is the general timeframe for THESL / THESI to respond to these requests, and what is the likelihood of receiving permission to attach to a pole?

Issue 5/Board Staff/17

What reasons might THESL / THESI cite if denying attachment to a pole to an applicant?

Issue 5/Board staff/18**Reference: Evidence of Dr. Church, Page 41, paragraph 111**

“These considerations mean that wireless service technology is characterized by variable proportions. Wireless carriers can, and will, choose the relative usage of different inputs, including pole access, based on minimizing costs.”

Question:

What evidence or facts provide support for the above conclusion?

Issue 5/Board staff/19**Reference: Evidence of Dr. Church, page 66, paragraph 176****Preamble:** Expert Report states:

“Third, the entrants into the Canadian wireless market appear to have focused on talk and text, and not on data. Their focus has been on providing low priced voice and text packages. This is reflected in their relatively low average revenue per user and relatively small share of postpaid subscribers relative to the three incumbents. These differences are likely attributable to a large difference in the importance of data service for the incumbents relative to the entrant. [...]”

Questions:

- (a) Who are the new entrants that are being referenced in this statement?
- (b) What specific new entrants are not focussed on data?
- (c) Could there be reverse causality given the observation that entrants focus on voice (and not data) services and have low demand for pole access?
- (d) Please provide any supporting evidence for the statement that entrants focus on voice and text rather than data.
- (e) Please explain what post-paid subscribers are and why this is an important factor is driving entrants’ alleged focus on voice and text.
- (f) Please explain why data service is more important to incumbents than entrants.

(g) Would you expect your answer to (f) to change over time? If so, how?

Issues 5 and 7/Board staff/20

Reference: Evidence of Dr. Church, Page 10, paragraph 30

“The analysis indicates that that the facts do not support the hypothesis that if THESL exercised market power, it would create, maintain, or preserve market power in the downstream market.”

Question:

Please explain why the creation, maintenance or preservation of market power in the downstream market is a relevant or important consideration in this case.

Issue 6/Board staff/21

Reference: Pre-Filed Evidence of THESL, page 2, paragraph 14

Preamble: THESL states:

“With the exception of wireless attachments for Wi-Fi, the THESL and THESI poles on which there are wireless attachments, or for which applications for attachments have been made, are all located outside the downtown core.”

Question:

Where are the poles with wireless attachments located (including those for which a permit application has not yet been granted or been declined)?

Issue6/Board staff/22

Reference: Pre-Filed Evidence of THESL, page 3, paragraph 17

Preamble: THESL states:

“THESL proposes to charge a competitive rate for wireless attachments to its poles. Doing so will improve THESL’s ability to recover its true costs, and provide a benefit to its ratepayers and to its shareholder.”

Question:

Please provide any agreements for the attachment of wireless equipment on THESL/THESI poles, including related term sheets, for which the pole rental rate is not the regulated rate of \$22.35 (including agreements with TTC and OneZone)?

Issue 6/Board staff/23**Reference: Evidence of Dr. Church, Page 10, paragraph 30**

“First the analysis suggests that incumbents do not exercise (inefficient) market power.”

Questions:

- (a) Please explain what “inefficient market power” is as distinguished from “efficient market power”.
- (b) Please explain how efficient market power is relevant to the determination of issues in this case.
- (c) What metrics are used to measure efficient and inefficient market power and what evidence is available on the values of these metrics?

Issue 6/Board staff/24**Reference: Evidence of Dr. Church, page 8, paragraph 25**

Preamble: Expert Report states:

“There are likely only a very limited number of locations where using small cells or DAS mounted on poles is the sole option for wireless service providers to implement outside data coverage and capacity. But, these localized circumstances are not likely to be known by THESL. Hence it is unlikely that THESL can exercise market power in those locations: if it cannot distinguish the locations where it has market power from those where it does not, then the relevant geographic area is no smaller than the footprint of its entire pole network. THESL does not know the value of pole access at a given location to a wireless service provider and hence cannot discriminate if rates were forborne.”

Question:

What is the basis for the opinion that THESL cannot distinguish pole locations with market power from those without, thereby preventing THESL from price discriminating?

Issue 6/Board staff/25**Reference: Evidence of Dr. Church, Page 10, paragraph 30**

“First the analysis suggests that incumbents do not exercise (inefficient) market power.”

Questions:

- (a) Please explain what “inefficient market power” is as distinguished from “efficient market power”.
- (b) Please explain how efficient market power is relevant to the determination of issues in this case.
- (c) What metrics are used to measure efficient and inefficient market power and what evidence is available on the values of these metrics?

Issue 7/Board staff/26**Reference: Evidence of Dr. Church, Page 9, paragraph 26**

...” The exercise of market power by THESL in the provision of pole access for wireless attachments could result in a substantial lessening of competition in downstream wireless broadband markets if:

- The exercise of market power by THESL raises the costs of deploying wireless services resulting in higher prices and lower quality service in the downstream market.
- The exercise of market power by THESL affects wireless service providers asymmetrically, and in doing so, preserves, creates, or enhances the market power of some wireless service providers in the downstream market.

Questions:

- (a) Please explain whether the two bullets above connected by an “and” or an “or”.
- (b) Please explain, with respect to the first bullet above, whether a substantial lessening of competition in downstream wireless broadband markets is an expected result of THESL’s exercise of market power in respect of pole access only when **both** higher prices and lower quality service in the downstream market results, or one or the other results.

- (c) Please explain how THESL's exercise of market power might lower the quality of service in the downstream market.

Issue 7/Board staff/27**Reference: Evidence of Dr. Church, Page 9 paragraph 27**

"Because the expected increase in demand for capacity is likely attributable to an increased demand for data, it is most likely to materialise almost exclusively on the networks of these carriers. Consequently, a significant impact on consumer welfare would arise primarily if THESL were able to exercise market power at the expense of incumbent wireless service providers..."

Question:

Please provide any supporting data on the drivers of increased demand for capacity.

Issue 7/Board staff/28**Reference: Evidence of Dr. Church, Page 9, paragraph 28**

"Pole access services for wireless service providers is not likely, and is not likely to be, an appreciable element of downstream costs for the major wireless forms in Toronto".

Question:

What metrics would support these conclusions? What evidence is available on these metrics?

Issues 7 and 8; 10/Board staff/29**Reference: Evidence of Dr. Church, page 16, paragraph 45**

Preamble: Expert Report states:

"[...] If the owner of the alleged essential facility is not vertically integrated, then mandated access at cost based rates to control its market power in the upstream market is only warranted if the owner of the facility has market power upstream and the effects of its exercise in the downstream market are substantial."

Questions:

- (a) Please explain the basis for the assertion that mandated access at cost based rates to an essential input of a non-integrated owner is only warranted if the impact on the downstream market is substantial.

- (b) Please explain more precisely what is meant by the effects of exercise of market power by THESL on the downstream market.
- (c) Please explain the metrics that would be used determine whether these effects are “substantial” or “insubstantial”.
- (d) Please provide any evidence available on the values these metrics would take.

Issues 9-10/ Board staff/30**Reference: Evidence of Dr. Church, Page 80, paragraph 213**

“Efficiency considerations mean that the greater THESL’s market power in providing pole access for wireless attachments, the greater should be the mark up on pole access for wireless attachments.”

Questions:

- (a) Please explain why the “optimal price” or “socially efficient price” would rise with THESL’s market power.
- (b) Would forbearance provide the best means of arriving at this price, or would regulation? What arguments support your answer here?
- (c) If the OEB was to forbear from regulating the pricing of THESL utility pole access pricing is there anything that would guarantee that THESL’s unilateral exercise of market power would tend towards an outcome close to a socially efficient price?
- (d) Is there any reason to think that free pricing setting after forbearance would be a superior means of arriving at the socially efficient price than would continued regulation?

Issues 9-10/Board staff/31**Reference: Evidence of Dr. Church, Page 81, paragraph 214**

“Errors in setting the access price will induce regulatory distortions in economic activity and associated economic costs.”

Question:

Would the economic costs of any errors in setting the access price referenced above be mitigated if the same access price was set via THESL’s unilateral exercise of market power?

Issues 9-10-11-13/Board staff/32

- (a) Since THESL's distribution poles are rate base assets and since each pole is a single undivided unit, please explain of how, or on what basis, in THESL's view, the Board can forbear from regulating one part of a distribution pole?
- (b) Does THESL agree that there is the potential for cross-subsidization between ratepayers and shareholders under a forbearance scenario? If so, and if the Board determines that it will forbear in whole or part, how should this be addressed? If not, why not?
- (c) How would THESL's rate base be impacted if the Board were to forbear, in whole or in part, from regulating the rates for attachment of wireless equipment to its distribution poles?
- (d) What if any impact would this have on THESL's ratepayers and shareholders? Please be specific.

Issue 13/Board staff/33

- (a) If the Board determined that it would forbear, in whole or in part, from regulating the rates for attachment of wireless equipment to THESL's distribution poles, please indicate whether THESL would agree to each of the following conditions:
 - i. a requirement that THESL provide access for all wireless attachers to its distribution poles on a non-discriminatory basis;
 - ii. compliance with appropriate rules (set by the Board) for non-discriminatory access to THESL's distribution system for wireless attachers; and
 - iii. reporting requirements associated with the requirement to provide non-discriminatory access?
- (b) For (a) (i) through (iii), if the answer is no, please provide a detailed explanation as to why not including any assumptions or dependencies underlying the answers.
- (c) For each of (a)(i) through (iii), if the answer is yes, please provide detailed examples, descriptions and language of the requirement (i), rules (ii) or reporting requirements (iii), as applicable, which in THESL's view, would be appropriate.

Issue 13/Board staff/34

- (a) If the Board determined that it would forbear, in whole or in part, from regulating the rates for attachment of wireless equipment to its distribution poles, please indicate whether THESL would agree to a condition whereby forbearance was limited to a certain number of years (for example 5 years) after which THESL would be required to file evidence sufficient to prove to the Board that the conditions for forbearance from regulation under s. 29 of the *Ontario Energy Board Act, 1998* continue to exist.
- (b) If yes, please provide a detailed description, including the number of years and the nature of the subsequent filing, of the condition that would, in THESL's view, be appropriate. If not, why not.

Issue 13/Board staff/35

- (a) If the Board were to forbear, in whole or in part, from regulating the rates for attachment of wireless equipment to THESL's distribution poles, is THESL or are either of its experts aware of any other post-forbearance criteria or conditions that could apply or that have been applied under similar or analogous circumstances in Canada or in any other jurisdiction?
- (b) Please describe the criteria or conditions fully and explain why, in THESL's view, they should or should not apply.