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August 19, 2011

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
PO Box 2319, 27th Floor
Toronto, ON
M4P 1E4

Dear Ms. Walli:

RE: Application by Canadian Distributed Antenna Systems Coalition ("CANDAS");
Board File No.: EB-2011-0120

We represent CANDAS in connection with its application to the Board regarding access to the power poles of licensed electricity distributors for the purpose of attaching wireless telecommunications equipment ("**Application**").

In accordance with Procedural Order No. 1, CANDAS is filing the Responses to Interrogatories of Canadian Electricity Association.

CANDAS will file two paper copies of the above-noted evidence as soon as possible.

Yours very truly,

(signed) H.T. Newland

HTN/ko

cc: Mr. George Vinyard
ExteNet Systems, Inc.
Mr. Mark Rodger
Borden Ladner Gervais
All Intervenors

EB-2011-0120

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an Application by the **Canadian Distributed Antenna Systems Coalition** for certain orders under the *Ontario Energy Board Act*, 1998.

RESPONSES TO INTERROGATORIES OF

CANADIAN ELECTRICITY ASSOCIATION

(on the evidence of the Applicant, CANDAS)

August 19, 2011

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I. CANDAS Application

Questions:

1. At paragraph 2.1, page 3 of the application, CANDAS states that "[i]n making the CCTA Order, the Board drew no distinction between wireless and wireline carriers or equipment."

   (a) Are there any notable differences between wireline and wireless attachments?

   (b) Did the Board explore these differences in the CCTA Decision?

   (c) Please identify all of the specific references contained within the evidentiary record of the proceeding that led to the CCTA Order where the subject of wireless attachments to utility poles was discussed.

   (d) Please provide specific references contained within the evidentiary record of the proceeding that led to the CCTA Order to support the claim at paragraph 2.1, page 3 of the application that the CCTA Order "required" electricity distributors to grant Canadian carriers access for the purpose of attaching their wireless equipment to utility poles.

Responses:

(a) CANDAS does not believe there are any significant differences. See responses to THESL 2(d) and Staff 6.1, 13.3 and 13.4.

(b) The Decision speaks for itself. The Board did not explore these differences in the CCTA Decision. The Board order was applicable to all "Canadian carriers", as defined in the *Telecommunications Act*, and cable companies. "Canadian carrier", as defined in the *Telecommunications Act*, includes both wireline and wireless carriers. The Board did not distinguish between wireline and wireless carriers at any point in the Decision.

(c) See response to CEA 1(b).

(d) The Decision is clear. Access is to be granted to all "Canadian carriers" within the definition of the *Telecommunications Act*. See response to CEA 1(b).

Question:

2. Please provide copies of the agreements that THESL entered into permitting the attachment of both wireless and wireline equipment charging the OEB approved rate per pole. Reference is made to these agreements at paragraph 2.2, page 3 of the application.

Response:

See response to Board Staff 8. The agreement in question is confidential.

Questions:

3. The Application states that Canadian carriers "require" access to poles at paragraph 2.8, page 4 of the application.

   (a) Please indicate what efforts have been made to seek attachment agreements from private sector suppliers of structures that are capable of accommodating DAS antenna attachments.

   (b) Please identify all potential attachment options other than utility poles (i.e. buildings, roof tops, traffic lights, street lights, bus shelters, street signs, billboards and signage).

Responses:

(a) Members of CANDAS have not made any attempts to seek attachment agreements from alternative suppliers of support structures for the reasons set out in the responses to Staff 6.1 (*viz.* row 9) and 14.1, THESL 3(a), 3(b) and 8(a), and Written Evidence of Tormod Larsen (Q.4 and Q.9).

(b) While the structures identified in this question are potential options, they are not in CANDAS' view, practical options for reasons set out in the responses referred to above in CEA 3(a).

Questions:

4. CANDAS states that electricity distributors have "monopoly power" at paragraph 2.9, page 4 of the application.

   (a) Please provide all evidence to support this claim.

   (b) Please provide CANDAS's definition of "monopoly power" as referred to at paragraph 2.9, page 4 of the application, having regard to (i) available alternatives for the attachment of wireless antenna; and (ii) alternative technologies available to wireless carriers to enhance capacity and network coverage.

Responses:

(a) To the extent that electricity distributors own their power poles they have "monopoly power" over such poles. The Board, in the CCTA Order, determined that electric distributors have monopoly power with respect to their poles.

(b) As stated in response to CEA 4(a) above, only distributors own power poles; accordingly, they have monopoly power in respect of such poles. The Board has so found.

While CANDAS does not believe that alternative support structures offer a meaningful, practical, or cost effective option (for reasons set out in responses referred to above in CEA 3(a)), whether there are or are not alternatives to power poles or alternatives to DAS-based wireless service does not, in any way, mean that distributors have any less monopoly power or control over their power poles.

Question:

5. Please provide CANDAS's definition of "essential facilities" as referred to at paragraph 3.9, page 6 of the application, having regard to (i) available alternatives for the attachment of wireless antenna; and (ii) alternative technologies available to wireless carriers to enhance capacity and network coverage.

Response:

CANDAS relies on the determination of both the OEB and the NBPUC that power poles are, indeed, "essential facilities" (Application, para. 10.19).

Question:

6. At paragraph 3.10, page 7 of the application, reference is made to the Settlement Agreement that was entered into on October 20, 2004. Please provide the reference in the Settlement Agreement that provides wireless carriers with access to pole tops for the purpose of attaching their wireless equipment.

Response:

The Settlement Agreement speaks for itself. See also CANDAS responses to THESL 2(b) and 22(b), which set out CANDAS' position with respect to the meaning of the "communication space" and the feasibility of attaching within or outside of the so-called communication space.

Question:

7. At paragraph 3.10 of the application, "Canadian carriers as defined in the *Telecommunications Act*" (the "Act") are referenced. Please confirm which members of CANDAS are Canadian carriers as defined in the *Telecommunications Act*, and which are not.

Response:

See responses to THESL 4(a) and (b). In addition, Public Mobile is a wireless carrier registered with the CRTC and is a Canadian carrier defined in the Telecommunications *Act* and within the meaning of the CCTA Order.

Question:

8. Please provide the names of each of the wireless carriers that are currently deploying DAS technology in Canada and identify the markets in which these wireless carriers are seeking to attach DAS systems to utility poles.

Response:

See Written Evidence of Tormod Larsen (Q.8).

Question:

9. At paragraph 3.11, pages 8-9, the CANDAS application asserts that it would be "quite remarkable" if the OEB never turned its mind to the issue of whether the definition of "Canadian carrier" included wireless carriers between May, 2004 (when the CCTA proceedings were convened) and March, 2005, when the OEB released its decision. Isn't it true that the DAS equipment, technology and design that is the subject matter of this application (i) was not widely commercially available in Ontario between May, 2004 and March, 2005 and; (ii) was not being deployed by any wireless carriers as the primary means of providing network coverage in Ontario between May, 2004 and March, 2005?

Response:

The question misrepresents what is stated in the Application. What the Application actually states is that to "suggest that the Board never turned its mind to the issue [of wireless connections] is to suggest that the Board and Board counsel did not apprehend [i.e. understand] that the definition of "Canadian carrier" included wireless carriers". It is this suggestion that would be remarkable. If the Board had intended to exclude wireless carriers from the scope of the CCTA Order, it would have done so. For parties to suggest that, notwithstanding the definition of "Canadian carrier" in the *Telecommunications Act*, the Board really did not intend to include wireless carriers because there was no debate on the issue in the oral phase of the CCTA proceeding, is to suggest that the Board did not understand that "Canadian carriers" includes <u>both</u> wireline and wireless carriers. That is what is quite remarkable.

Toronto Hydro Telecom announces blanket Wi Fi coverage in downtown Toronto core

MAR 7, 2006 - 11:00 ET
TORONTO, ONTARIO — (CCNMatthews - March 7, 2006)

TORONTO HYDRO TELECOM INC. (www.thtelecom.ca) today announced plans to provide a blanket of Wi Fi coverage in the downtown core of Canada's largest city, making Toronto the largest Wi Fi zone in Canada.

"We are proud to be the first company in Canada to deliver a ubiquitous Wi Fi zone, which will provide Internet access as well as next generation applications," said David Dobbin, President, Toronto Hydro Telecom. "Wi Fi technology is the new benchmark for urban living. It's standard equipment in many electronic devices, from laptops to portable entertainment units. We think it's time to enable that technology to be used in what will be the largest Wi Fi zone in Canada. Today we're opening the door for Toronto to join the ranks of other major international cities such as San Francisco, Philadelphia and London, England."

The plan calls for Toronto Hydro Telecom - the competitive telecommunications subsidiary of Toronto Hydro Corporation - to install radio access points on streetlighting poles throughout the six square kilometer area that stretches from Jarvis Street west to Spadina Avenue, and from Front Street north to Bloor Street. Installing the access points on streetlighting poles, which are evenly situated throughout the downtown service area, will enable Toronto Hydro Telecom to avoid the pitfalls of most Wi Fi service offerings whose access points are predominantly housed in coffee shops and restaurants, making connectivity sporadic or non-existent. The streetlighting poles are assets owned by Toronto Hydro Street Lighting Inc.

"This is both an exciting and very important initiative for the City of Toronto," said Mayor David Miller. "It puts us on the leading edge of the telecommunications industry nation-wide and globally. The applications for Torontonians and our various City agencies

from libraries to public transportation and safety to economic development make this a historic moment in Toronto's development as a world-class city."

The new Wi Fi zone will be implemented in stages. The first phase - located in the City's financial core from Front Street to Queen Street, between Spadina Avenue and Church Street - is planned for completion at the end of June, 2006. The entire Wi Fi zone will be completely operational by December 31, 2006.

During the first six months of operation, Toronto Hydro Telecom will offer customers free access to its new Wi Fi zone, after which time a variety of access packages will be available at competitive rates.

An RFP for equipment vendors was issued on February 8, 2006. Once the vendor of record has been selected, installation of the radio access points will be entrusted to Toronto Hydro Streetlighting employees who are members of CUPE Local 1.

Toronto Hydro Telecom Inc. is the telecom subsidiary of Toronto Hydro Corporation, which is fully-owned by the City of Toronto. A highly specialized and innovative provider of telecom services to businesses in Toronto, Toronto Hydro Telecom owns and operates a fibre optic network that spans 450 kilometres and connects more than 450 commercial buildings in Toronto and with interconnections to utility-affiliated telecom networks bordering the GTA.

(*) A Service Area Map and Fact Sheet are available with this release and can be downloaded from www.thtelecom.ca. A photo from today's announcement is available on the CP Photo network to members of the Canadian Press.

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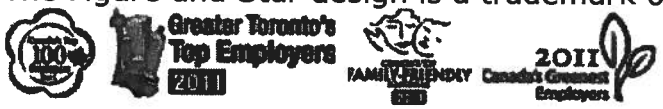

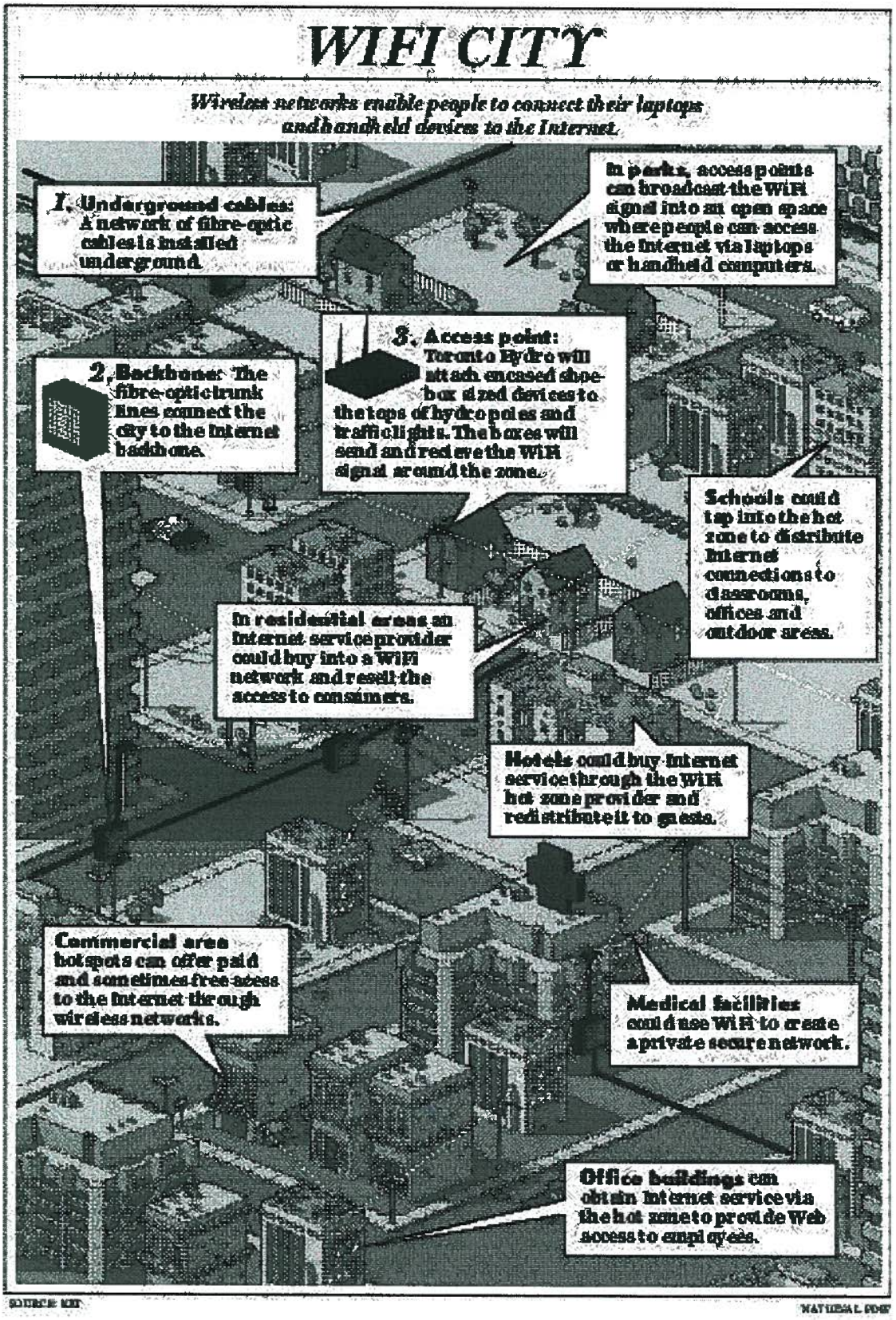
WIFI CITY
Wireless networks enable people to connect their laptops and handheld devices to the Internet.
1. Underground cables: A network of fibre-optic cables is installed underground.
2. Backbone: The fibre-optic trunk lines connect the city to the Internet backbone.
3. Access point: Toronto Hydro will attach encased shoebox sized devices to the tops of hydro poles and traffic lights. The boxes will send and receive the WiFi signal around the zone.
In parks, access points can broadcast the WiFi signal into an open space where people can access the Internet via laptops or handheld computers.
Schools could tap into the hot zone to distribute Internet connections to classrooms, offices and outdoor areas.
In residential areas an Internet service provider could buy into a WiFi network and resell the access to consumers.
Hotels could buy Internet service through the WiFi hot zone provider and redistribute it to guests.
Commercial area hotspots can offer paid and sometimes free access to the Internet through wireless networks.
Medical facilities could use WiFi to create a private secure network.
Office buildings can obtain Internet service via the hot zone to provide Web access to employees.

Question:

10. At paragraph 3.12, pages 9-10, CANDAS cites the March 2005 decision of the OEB in the CCTA proceeding, and states that "...it is equally important that costs be properly allocated and that the electricity distributor (and ultimately, the electricity ratepayer) receives its fair share of revenue." Without conceding the applicability of this decision to the matter at issue, please indicate CANDAS's view on how this OEB conclusion is to be accommodated if CANDAS's recommended terms and rates of access are adopted by the OEB.

Response:

CANDAS is of the view that the rate set by the Board in the CCTA Order remains applicable to all attachers. In the event that electricity distributors bring an application to have the rates amended and to distinguish different categories of users, the Board has the jurisdiction to adjust those rates provided there is a satisfactory evidentiary basis for doing so. To date such an application has not been brought.

Questions:

11. CANDAS describes the three main elements of a DAS system at paragraph 5.1, page 12.

    (a) Is CANDAS seeking to attach each of the three main elements of a DAS system described, namely, (i) the antenna and low power radio units; (ii) the fibre optic cabling that connects the nodes to the network; and (iii) the central hubs; to the utility poles?

    (b) Is CANDAS seeking to attach equipment to the pole tops and to the communications space?

Responses:

    (a) CANDAS is seeking to attach the (i) antenna and low power radio units; and (ii) the fibre optic cabling that connects the nodes to the network to the utility pole. Item (iii), the central hubs, are located in separate facilities leased by Public Mobile.

    (b) See responses to Energy Probe 4(a), 10(b) and CEA 66(b

Questions:

12. Paragraph 5.2, pages 12-13, describes the wireless and wireless components of a DAS network, and state that the fibre optic cabling required is "most effectively and efficiently deployed by aerial suspension from support structures in public rights-of-way or established utility easements."

    (a) Have CANDAS members examined deploying a new structure within the rights-of-way to support their antenna systems and ancillary components?

    (b) Is CANDAS aware of DAS deployments in any jurisdiction that are deployed without use of utility poles?

    (c) Are there any other pieces of equipment that form part of a DAS network (i.e. back up batteries) that require attachment to utility pole infrastructure or rights of way that are not identified in the application? If yes, please identify those pieces of equipment and describe the nature, dimensions and weight of the required attachment.

Responses:

Refer to Application, Tab 10, p. 5, s. 3(i)(a).

(a) See response to THESL 3(b) and CEA 71.

(b) No. See response to THESL 3(d). For clarity, if the reference to "utility poles" is meant to exclude newly placed poles, including streetlight poles, then the ExteNet Systems deployment in Las Vegas might be characterised as such a deployment. See responses to Energy Probe 7 and THESL 37(b).

(c) All equipment attachments, including battery packs, are identified in the Application or the Written Evidence. See response to Staff 13.3-13.4.

Questions:

13. The Macro Cell Site technology is described at paragraph 5.5, page 13 of the application.

    (a) Please identify the wireless carriers currently operating in Canada that operate their wireless businesses using Macro Cell Site technology.

    (b) What percentage of wireless carriers operating in Canada today operate their wireless networks using Macro Cell Site technology?

Responses:

    (a) All wireless carriers in Canada operate using Macro Cell Site technology (not necessarily exclusively).

    (b) 100%.

Questions:

14. At paragraph 5.7, page 14 of the application, CANDAS states that the "upfront capital costs of a DAS network may be higher than that of Macro Cell Site deployment designed to cover the same geographic area".

    (a) Please provide a comparison of the respective upfront capital costs to deploy a DAS network over an assumed geographic area as compared to a Macro Cell Site deployment. Please provide all underlying assumptions.

    (b) What is the cost difference, in percentages, of deploying a network utilizing existing utility infrastructure, versus new infrastructure in rights-of-way?

Responses:

(a) The information requested is not relevant to the issues raised by the Application. CANDAS is not requesting a determination from the Board that a DAS deployment is less or more expensive than a macro-cell deployment.

(b) See response to CEA 14(a).

Questions:

15. At paragraph 5.8, page 14 of the application, reference is made to a "partially completed network" that DAScom and ExteNet are constructing with a local fibre provider in Montreal.

    (a) Is this DAS network attached to utility poles?

    (b) How many nodes are there in each of these networks?

    (c) How many carriers are tenants on the networks?

    (d) How many attachments were made to the utility infrastructure in each network?

Responses:

(a) Yes. See responses to Staff 9.1 to 9.3.

(b) See responses to Staff 9.1 to 9.3.

(c) One.

(d) See responses to Staff 9.1 and 9.2.

Questions:

16. At paragraph 6.3, page 15 of the application, reference is made to CANDAS seeking to attach to 790 poles within the City of Toronto.

    (a) Are the proposed nodes designed to accommodate multi-carriers?

    (b) If yes, how many attachments per pole are contemplated?

    (c) Is it one attachment per pole for each piece of equipment described at paragraph 5.1, page 12 of the application, i.e. one antenna and a neutral host piece of equipment for each node/carrier?

    (d) How much existing fiber is scheduled to be utilized to support the 790 node deployment?

Responses:

(a) The Toronto DAS Network, as proposed, included antennas that could accommodate multiple carriers. The DAS nodes, as designed and installed, did not include equipment that would be required to support additional carriers. See responses to THESL 10(a)(i) and (ii), THESL 11(b) and Energy Probe 8(b) and 8(c).

(b) CANDAS assumes that the reference to "attachments per pole" refers to "DAS attachments per pole". See response to THESL 16(c).

(c) No. As noted in CEA 16(a) and 16(b), a single DAS antenna attachment can support multiple carriers. The same may or may not be true of a single DAS equipment enclosure or back up power unit. However, depending on the wireless technologies and specific equipment configuration involved, one additional DAS attachment below the communication space on a pole could accommodate from one to four additional carriers.

(d) This response will be provided as soon as possible.

Questions:

17. At paragraph 6.6, page 16 of the application, CANDAS states that without access to existing power and lighting poles upon commercially reasonable terms and conditions, neither the Toronto DAS Network, nor any other DAS network deployment in Toronto, would be economically or technically feasible.

    (a) Please provide coverage characteristics, broadband capabilities monthly/annual costs, and/or per subscriber costs of DAS to traditional wireless Macro Cell Site based systems.

    (b) Please provide any other particulars in support of this statement, including all reports, analyses, studies, working papers, memoranda, correspondence, and other documents.

Responses:

(a) See response to identical question THESL 13(a).

(b) See response to THESL 13(b).

Questions:

18. Paragraph 6.7, page 17 of the application discusses the costs of creating a new corridor in Toronto, and notes that construction of a duplicative system of poles within City rights-of-way is not permitted under the terms of the Municipal Access Agreement (the "MAA").

    (a) Has any CANDAS member proposed deploying stealth pole/infrastructure to support such a node network to the City of Toronto?

    (b) Has any CANDAS member proposed utilizing underground conduit infrastructure to support their fiber network?

Responses:

    (a) CANDAS has not proposed stealth pole/infrastructure to support structure for the City of Toronto.

    (b) No CANDAS member has proposed an underground conduit infrastructure to support the Toronto network.

Questions:

19. Public Mobile's use of Macro-Cell Sites is noted at paragraph 7.10, page 21 of the application.

    (a) Please confirm that Public Mobile is currently using Macro Cell Sites to serve its customers.

    (b) What is the difference in total cost between Public Mobile's "Macro Cell Site" alternative currently being used by Public Mobile and the forecasted costs of the Toronto DAS Network proposed by ExteNet and DAScom?

    (c) What is the total cost being paid by Public Mobile for use of the Macro Cell Site in the exact service area that is proposed to be covered by the Toronto DAS Network?

Responses:

(a) The information requested is not relevant to the issues raised in the Application.

(b) The information requested is not relevant to the issues raised in the Application.

(c) The information requested is not relevant to the issues raised in the Application.

Question:

20. CANDAS references discriminatory actions on the part of THESL, whereby access is granted to some wireless attachers, but not DAScom, at paragraph 10.11, page 29. How can equal access to poles by all Canadian wireless carriers be achieved, in light of the limited space on utility poles for attachments and the need for utility providers to accommodate their own future growth initiatives (i.e. smart grid requirements)?

Response:

CANDAS members are not aware of the future demands of utilities due to smart grid requirements. These have not been identified in any information available to CANDAS members. CANDAS' position is that all users should have equal access. If there are constraints on capacity, that capacity should be allocated in a fair and equitable manner.

See responses to THESL 45(a) to 45(d), THESL 47(c), and VECC 2(a).

Question:

21. CANDAS maintains, at paragraph 11.4, page 39 of the application, that if its nodes are not permitted to attach to Toronto utility poles, "the lost opportunity created by such consumer choices... simply cannot be recouped". Please explain this statement in light of the availability of in-building DAS solutions.

Response:

Utility pole DAS installations are intended to provide coverage at street level in a large number of small and medium sized buildings. In-building DAS provides radio coverage in specific high customer density venues (e.g. PATH, Air Canada Centre, large shopping malls, large office buildings downtown). As previously indicated, CANDAS members do not believe in-building DAS solutions are meaningful, cost effective alternatives to access to utility poles.

See response to THESL 36(b) and (c).

II. Written Evidence of George Vinyard - July 26, 2011

Questions:

22. At question 3, pages 3-4 of Vinyard's evidence, Vinyard discusses ExteNet's interest in this proceeding as a party to the development of Toronto's "DAS Network Design, Provisioning, and Services Agreement" with Public Mobile.

    (a) Why did ExteNet offer a service when they had no agreement with THESL?

    (b) What is the nature of the agreements that ExteNet has with Cogeco and DAScom as well as Public Mobile?

    (c) How many carriers beside Public Mobile were intending to sign, or signed, agreements with ExteNet for the Toronto system?

    (d) If ExteNet's revenues increase with little or no additional infrastructure by providing a service to multiple carriers, is it not in the public and rate-payers' interest that the pole-owner also receives increased revenue from carrying the signals of these additional carriers?

    (e) Who owns the existing attachments?

    (f) If multiple owners, then how many does each owner have?

    (g) How large is the "partially constructed" network, geographically?

    (h) How many attachments are part of the "partially constructed" network, and of what type?

    (i) How large was the DAS network to be, geographically?

    (j) How many attachments were to be part of the full network, and of what type?

    (k) Explain the reason for utilizing Cogeco and DAScom to provide attachment rights.

    (l) What is the duration of the contract with Public Mobile?

    (m) Why is the development of a DAS network not feasible without THESL's poles?

    (n) Please indicate if, during the planning stages of the DAS Network, installation of node attachments on structures besides THESL and THESI poles were considered,

and, or whether there was/is a "Plan B" scenario whereby installation of node antennae would not be limited to utility poles?

Responses:

(a) ExteNet planned to develop the Toronto DAS Network in conjunction with DAScom and Cogeco who had or were in the process of obtaining agreements with THESL.

(b) The information requested is not relevant to the issues raised by the Application.

(c) No carriers beside Public Mobile signed agreements with ExteNet for the proposed Toronto DAS Network. CANDAS has no knowledge of other carriers' intent.

(d) The information requested is not relevant to the issues raised by the Application.

(e) See response to THESL 11 for information relating to the planned ownership of the attached equipment. At the current time, the DAS nodes that have been constructed are not operational and as a result ExteNet retains ownership of the attached antennas and backup battery power units.

(f) The ownership of the attached items is the same for each of the existing DAS nodes in Toronto.

(g) See response to THESL 12(a)–(c). None of the existing DAS node sites in Toronto has fibre connectivity to a hub facility and CANDAS does not have current knowledge of the geographic extent of the optical fibre that was planned for use in connection with the Toronto DAS network and is currently in place.

(h) See response to Staff 2.2 and 2.3. CANDAS does not know the number of existing fibre attachments that might be considered part of the partially constructed network.

(i) See response to THESL 12(a).

(j) Assuming that within the meaning of the question, the antenna and each equipment enclosure affixed to a pole would count as an attachment, the full network would include 3 attachments to each of the approximate 790 THESL and THESI poles hosting DAS nodes. The number of fibre attachments required for the full network is indeterminate – presumably not more than one attachment per pole for the number of poles ultimately required for new aerial fibre

installations that would not otherwise have been constructed by Cogeco but for the requirements for connecting all of the nodes.

(k) The information requested is not relevant to the issues raised by the Application.

(l) The contract has been terminated. The information requested is not relevant to the issues raised by the Application.

(m) See responses to THESL 3(b), 7(b) and (c), 8(a). See Written Evidence of Tormod Larsen (Q.9).

(n) See responses to Staff 14.1, THESL 3(a) and (b).

Question:

23. At question 3, page 3 of Vinyard's evidence, he references "...expressions of interest from Public Mobile and other new entrant wireless carriers with respect to DAS network deployments in areas outside the City of Toronto." Please identify the new entrant wireless carriers that expressed interest in DAS networks in areas outside of Toronto.

Response:

The information requested is commercially sensitive and proprietal. Moreover, this information is not relevant to the issues raised by the Application. The Application is founded on the principle that a public utility, with a monopoly over services or facilities of fundamental importance to the public, has an obligation to provide such service or grant access to such facilities to all who request it, without unjust discrimination.

Question:

24. At question 3, page 3 of Vinyard's evidence, he states that "ExteNet's objective for participating in this proceeding is to obtain appropriate rulings from the OEB to make the ongoing development of DAS network infrastructure in Ontario a feasible alternative for meeting the needs of wireless carriers". Please provide evidence of what the other alternatives are for meeting the needs of wireless carriers

Response:

The information requested is not relevant. What alternatives to DAS technology may or may not be available is not the issue in this proceeding.

Questions:

25. At question 5, page 4 of Vinyard's evidence, reference is made to "approximately 80 attachment agreements with over 35 utilities, most of which involve attachment to power poles".

    (a) Please also identify the number of agreements that ExteNet Systems, or any other member of CANDAS has entered which do not involve attachment to power poles.

    (b) Please identify the parties to, and describe those agreements which do not involve power poles.

    (c) Please provide copies of all of these attachment agreements.

    (d) For each of these DAS networks, please indicate what percentage of all of the wireless attachments that constitute that network rely on distribution utility poles to attach to, and what percentage rely on attachments to other types of infrastructure (traffic lighting pole, side of building, rooftop, macro cell tower, stand alone tower, billboards, signage, etc.).

Responses:

(a) See response to THESL 18(c).

(b) See response to CEA 25(a)

(c) See response to CEA 25(a). Requested information, beyond the information provided in that response, is not relevant to the issues raised by the Application; moreover, production of such information would be unduly onerous relative to its probative value, if any.

(d) See responses to THESL 18(a) and THESL 19(b)(ii). Requested information beyond the information provided in that response is not relevant to the issues raised by the Application; moreover, production of such information would be unduly onerous relative to its probative value, if any.

Question:

26. At question 6, page 5 of Vinyard's evidence, Vinyard, in discussing his recommended terms and conditions of access to serve the interests of various constituencies in this matter, notes that "[b]y virtue of the nature of DAS network technology, specifically the substantial fiber optic cabling component and the large number of antenna sites...DAS deployments require substantial up-front capital investments".

    (a) The City of Toronto MAA agreement, noted in the Lemay-Yates Report at page 26, records the fiber optic cabling required for Toronto as 690 kilometres. Please elaborate on the relative costs of DAS antenna mounts on hydro poles relative to the overall project costs.

Response:

    (a) The information requested is not relevant to the issues raised by the Application. CANDAS is not requesting that the Board make any determination about the costs of a DAS installation. The referenced comment was made in the context of the need for commercially reasonable terms and conditions of access to induce investment in DAS networks.

Questions:

27. At question 6, page 5 of Vinyard's evidence, he states that terms must "establish time frames for the processing of attachment permits or license applications and for the performance of any required "make ready" work that are both reasonable and reasonably predictable" and must provide for "the duration of any attachment [to be]...of sufficient length to justify the necessary capital investments..."

    (a) The Ontario Energy Board requires its LDCs to be aggressive with meeting the agreed upon OEB filing for asset management and new electrical connection requirements. Do you believe it to be reasonable to have LDC's stop this work to provide CANDAS members with "prompt" service for any make-ready work required for their proposed installations? It is reasonable to believe this will occur?

    (b) If ExteNet succeeds in building its DAS network, should it be considered a monopoly provider of DAS sites and be required to publish tariff rates and standard terms and conditions?

    (c) Considering that Public Mobile expects these antennae to have a 4-5 year life (see written testimony of Brian O'Shaughnessy, question 10, page 7), why is there a necessity for "assurances that the asset will continue to be available for use over a sustained period" later described to be "at least 15 years" with a minimum of three 5-year extensions – a total of 30 years?

Responses:

    (a) Any answer would be entirely speculative. CANDAS members have no knowledge as to why a utility's new work requirements would require it to discriminate against wireless installations as opposed to wireline installations or cable installations. See also responses to THESL 24(c)(ii) and (iii).

    (b) A decision in this regard would be within the discretion of the regulator with jurisdiction over the DAS system, or its components, once constructed. These are matters that are not relevant to the issues raised in the Application and fall outside the jurisdiction of the Board. See also response to THESL 28.

    (c) Public Mobile does not expect the antennae to have a 4-5 year life. The referenced statement has nothing to do with the useful life of the antennae or even of the Toronto DAS network, as proposed, but rather the time period over which it was expected to satisfy Public Mobile's network capacity requirements.

Further, even if the antennae or other DAS node equipment had a more limited useful life, the useful life of the DAS network itself, including the fibre optic components, would not be limited by the life of the DAS node components which could be replaced as needed. See also Written Evidence of George Vinyard (Q. 6) and (Q. 8).

Questions:

28. At question 6, page 5 of Vinyard's evidence, Vinyard states that "[w]ithout such provisions, DAS technology cannot be made available in a given market and any policy mandating access to electricity distribution poles is likely to be severely undermined, if not rendered entirely illusory."

    (a) The claim that "without such provisions, DAS technology cannot be made available" suggests that it will not be available in wholly underground areas that have been the norm since the mid-1970's. Is this what CANDAS believes?

    (b) If DAS technology is not made available, what services will not be provided in areas with electric utility poles? In areas without electric utility poles?

    (c) In 2004 during the CCTA application to the OEB about access to power poles, the OEB reviewed the negotiated agreement terms and conditions and did not apply regulatory oversight to the agreement but only determined an annual attachment rate. What has changed for the OEB to now consider CANDAS's application for oversight on the agreement terms and conditions?

Responses:

    (a) No. The quoted statement was made in the context of a discussion of the terms and conditions that should apply with respect to areas in which there are, in fact, above-ground utility poles. While it is possible that DAS network deployments may not be permitted or economically feasible in some areas where utilities are "wholly underground", CANDAS believes that in many such areas, the availability of underground ducts and other factors (such as greater willingness of local authorities to allow installation of DAS nodes on existing or new street lamp posts or other poles in the public rights-of-way) may enable successful DAS deployments. See responses to THESL 3(d).1, 37(c) and EDA 7.

    (b) See Application, section 5, Written Evidence of George Vinyard, and Written Evidence of Tormod Larsen (Q. 6).

    (c) The question misrepresents the facts. In the CCTA Proceeding, the Board did exercise regulatory oversight over conditions of pole access in the CCTA Order. The CCTA Order states as follows: "Under the Settlement Agreement, the parties agreed to negotiate the terms and conditions once the Board has made its determination as to the rate. The parties agreed to report back to the Board in four months as to the progress of these negotiations. The Board accepts this

approach". See also Application, Section 10, as to the reasons why the determination of terms and conditions of access cannot be left to negotiations between utilities and attachers.

Questions:

29. At question 6, pages 5-6 of Vinyard's evidence, Vinyard states that "...if the public interest is to be served, access to electricity distribution poles for telecommunications facilities attachments cannot be granted on a basis that is neither competitively neutral nor non-discriminatory". Vinyard goes on to state that "...to minimize the potential for abuse of monopoly power in the negotiation of attachment agreements, ExteNet requests that approved terms and conditions of access be published in a tariff or rates schedule".

    (a) Although Industry Canada requires Cell Tower owners to provide access to other carriers, do any cell tower owners publish attachment rates and terms and conditions?

    (b) Since ExteNet's services are offered "for profit", how is it that the "public interest" is not served if electric utility poles, owned either privately or by rate-payers, are offered in negotiated attachment agreements whether confidential or not?

    (c) Are all ExteNet agreements open to the public?

    (d) Does ExteNet have an agreement with THESL? If not, why is there a concern about the nature of the agreement that Cogeco and DAScom have with THESL?

    (e) Describe the nature of the monopoly in an environment where supports for DAS antennae can be other poles and structures.

Responses:

    (a) See response to CEA 27(b).

    (b) As a general rule, the terms and conditions governing the provision of a regulated service are not confidential. In any event, the status of any attacher (or of ExteNet) as a "for profit" (or not-for-profit) enterprise is irrelevant and certainly not a justification for anti-competitive or discriminatory behaviour among different categories of Canadian carriers.

    (c) Not relevant.

    (d) No, it does not. The concern of ExteNet and the other members of CANDAS is not limited to the nature of the agreements Cogeco and DAScom may or may not have with THESL. However, the experience of CANDAS members in connection

with the Toronto DAS Network project, as set out in the Application, illustrates the need for regulated and published terms and conditions of attachment.

(e) See Responses to CEA 4(a) and (b).

Questions:

30. At question 8, pages 7-8 of Vinyard's evidence, Vinyard addresses what he views as reasonable terms and conditions governing the duration of any given pole attachment.

    (a) Since Public Mobile has stated that its requirements are for 4-5 years, why should an attachment, once granted, continue indefinitely?

    (b) The typical pole attachment agreements are for 5 years in Ontario. What is the basis for CANDAS's view that it should receive preferential treatment with longer term agreements?

    (c) Would the attacher commit to pay the outstanding rent owing if it terminates before 30 years?

Responses:

(a) Public Mobile has not stated that its requirements are limited to 4-5 years. See response to CEA 27(c).

(b) CANDAS is not arguing for preferential treatment. The reasons for CANDAS' view that longer than five year terms are necessary are set out in its Application and the written Evidence of George Vinyard. Moreover, regardless of the nominal contract term, CANDAS does not believe that, in practice, "typical pole attachment agreements" in Ontario are interpreted and administered in a way that subjects most attachers to complete loss of access to poles on which they have installed communications systems, after only 5 years, without regulatory or legal recourse.

The Board should determine the appropriate terms and conditions governing the duration of access and attachment rights and approve a standard form agreement. Submissions regarding these terms and conditions should be heard from all parties whose interests would be affected by the terms and conditions governing the duration of attachment arrangements.

(c) No.

Questions:

31. At question 8, pages 7-8, Vinyard references a proposed "minimum initial term of 15 years, with a minimum of three, five year renewals".

    (a) What is the expected physical and economic/depreciation life of the DAS pole apparatus and also the BTS without which the DAS pole apparatus cannot function?

    (b) How does this relate to the terms proposed, considering the rapid pace of technology development and obsolescence in the telecommunications industry?

    (c) Please elaborate on the circumstances and conditions associated with termination. For example, if a municipality initiated a road widening, how would the participants manage and fund the associated relocation and rebuilding?

Responses:

(a) The useful lives, physical or economic, of the referenced DAS network elements are not relevant to the useful life of a DAS network deployment. As described elsewhere, a principal element of a DAS network deployment and the initial cost of a new network installation is the fibre optic cabling. This cabling can have a useful life far in excess of 15 years. Moreover, the nature of communications networks and the ways in which they are used, is that they must be constantly in service. They also must be maintained and repaired. Components with shorter lifespans must be replaced or upgraded when they cannot be repaired or when they become obsolete. Accordingly, a DAS network cannot be viewed as a one-time investment with a limited useful life.

(b) The expected useful lives of any or all of the physical components of a DAS network, however measured, are not relevant to the terms proposed because they do not reflect either: (i) the full value of the investment made by the DAS network provider and the users of the DAS network; nor (ii) the requirements of the relevant commercial and financial markets with respect to the capital and other commitments that are necessary for the creation of sustainable communications infrastructure.

(c) See response to EDA 8.

Question:

32. At question 9, page 8 of Vinyard's evidence, Vinyard addresses terms for assuring compliance with safety regulations.

    (a) Wireless equipment evolves rapidly and varies widely and therefore presents novel situations to utilities, whereas, the long established standards and practices for traditional cable attachments to poles have been essentially stable for many years, even with the introduction of fibre cables (with respect to the attachment aspect). Please comment on the extent that wireless equipment of the type used by ExteNet, and in the industry generally, presents novel situations regarding safety, security, engineering and operational issues.

Response:

(a) See the responses to Staff 6.1, 9.6, and 17 and THESL 20(a), 24(a) and (24(b).

Questions:

33. At question 10, page 9 of Vinyard's evidence, he states that "[t]he principal method for avoiding the imposition of costs on utility ratepayers should be the establishment of appropriate rates..."

    (a) Please provide the rates that attachers pay to access utility poles in other jurisdictions as well as the rates that attachers pay in other jurisdictions for attachments to structures other than utility poles.

    (b) Please provide all underlying assumptions to support this response.

Responses:

    (a) The information requested is not relevant to the issues in this Application. No party has asked the Board to review and vary the approved pole access rate.

    (b) See response to CEA 33(a).

Questions:

34. At question 10, page 9, Vinyard goes on to state that "[s]uch an approach appears to be reflected in the current rates for attachments established by the Board." The evidence alludes to the 2005 CCTA decision when Vinyard references "current rates for attachments established by the Board".

    (a) Please confirm that the CANDAS Application is limited to wireless attachments that can all be contained within the communication space as defined in the CCTA decision.

    (b) If CANDAS believes that there is additional space outside of the communication space where wireless attachments may be placed, please provide the legal basis for that position from the CCTA decision.

Responses:

(a) Not confirmed. See response to THESL 22(a) and (b).

(b) See response to CEA 34(a).

Question:

35. At question 11, pages 9-10 of Vinyard's evidence, he provides his opinion on the reasonable terms and conditions relating to liability in relation to DAS attachments.

    (a) So that participants in this proceeding may better understand the magnitude of exposure to any possible liability, please provide the approximate value of the apparatus placed in an individual DAS installation (hypothetically, a utility boom truck could accidentally sideswipe some or all of the DAS apparatus on a pole).

Response:

    (a) The information requested is not relevant to any determination that the Board is being asked to make in this proceeding.

Questions:

36. At question 12, page 10 of Vinyard's evidence, he references apparent discrimination "between wireless and wireless attachments".

    (a) What are the differences observed in such situations?

    (b) Why does ExteNet believe these differences are not valid for a DAS type installation and wireless equipment installations in general?

    (c) What are the engineering, design and equipment differences between a typical DAS attachment and a typical wireline attachment?

Responses:

(a) Examples of historical discrimination by some US utililities between wireline and wireless attachments, as alluded to in the referenced statement, include, but are not limited to, arbitrary denials of access for wireless equipment attachments, discriminatory imposition of charges that were inconsistent with the regulated rate formulas for communications attachments and other discriminatory or arbitrary limitations on equipment configurations permitted on the poles.

(b) This question appears to be based on a misapprehension caused by a typographical error in the transcription of the text of the quote into the question. It appears that there was also a typographical error in the parenthetical phrase following the misquoted text in which the word following "conduit" should have read "wireline".

(c) See Responses to THESL 2(e), and Staff 6.1.

Questions:

37. At question 12, pages 10-11 of Vinyard's evidence, Vinyard discusses the laws and practices which have evolved in the U.S. regarding telecommunications attachments to electricity poles, and ExteNet's experiences reaching agreements with U.S. utility companies.

    (a) Please identify the utilities that ExteNet has failed to reach an agreement with.

    (b) Please describe the differences between the Canadian Standard CSA C22.3 No.1-10 that puts strict limitations on the use of pole-top wireless attachments and the U.S. Standard(s) that allow the FCC to reject a blanket refusal to allow pole-top antenna attachments.

Responses:

(a) To the extent the question relates to US utilities, the information requested is not relevant to the issues raised by the Application; moreover, production of this information would be unduly onerous relative to its probative value, if any. See Staff 7 with respect to Extenet's Ontario experience in this regard.

(b) The question is premised based on an inaccurate interpretation of CSA C22.3 No. 1-10 ("CSA 22.3"). CSA C22.3 prescribes a standard for separation of the antenna from supply plant, but it does not limit or restrict pole top antennas. The relevant references are 5.7.3, 5.10.2.2 and A5.10.2.2 as set out below:

Provided pole top antennas are placed with these separations factored into the engineering and design of a node pole and provided the pole top antenna is attached and conforms to these separations, pole top antennas can be safely placed at the pole top as direct attachments. To facilitate compliance with the separation requirements, it might be beneficial to use commonly used and approved pole top extension methods, rearrangements of the power conductors, pole replacements if necessary and desirable, or other similar accommodations.

The FCC's interpretation of the US standards likely made a similar determination that as long as pole top antennas conform to applicable standards, it would be unreasonable for a pole owner to issue a blanket refusal of pole top antennas. However, all FCC procedural documents and transcripts can be found in the public domain and have been introduced as evidence in this proceeding.

Questions:

38. At question 13, page 12 of Vinyard's evidence, he suggests that the viability of DAS networks depends on whether the OEB grants the relief that CANDAS is seeking in relation to Toronto utility poles.

    (a) Regardless of apparent difficulty in Toronto, please explain why DAS is not a viable option in other areas of Ontario and appealing to the interests of wireless service providers?

    (b) If DAS is a benefit primarily in congested urban areas, please explain why LDCs outside urban areas should be concerned or involved at all?

    (c) Given the design specifications for the Toronto DAS network, what alternatives can be deployed in the event that poles are not available? For example, the following would appear to be suitable: low rise commercial buildings, telephone booths, transit shelters, telephone service poles and other street furniture.

Responses:

(a) The feasibility of DAS deployments in whatever jurisdiction depends, in part, on access to poles within public rights-of-way, on commercially reasonable terms and conditions. See response to Staff 7 regarding pole access issues outside the City of Toronto.

(b) The issues raised by the Application are not limited to DAS network technology. Wireless carriers that are not involved in deploying DAS networks should be afforded the same access rights as wireline carriers and all cable companies and all Canadian carriers should have access to electric distribution poles on competitively neutral and non-discriminatory terms and conditions that are commercially reasonable. Further, as technology and the demands for wireless services evolve, DAS may become a viable option in less densely populated areas.

(c) See responses to Staff 14.1, THESL 3(b).

Questions:

39. At questions 14, page 12, Vinyard states that "[i]f the Board grants the relief that CANDAS is seeking as described above, it will mean that ExteNet and DAScom, along with other potential providers of DAS network infrastructure and services, will have the opportunity to obtain contracts from wireless carriers..."

    (a) Please confirm that the DAS application is a one time backbone service which is thereafter resold to resellers, i.e. that following the first installation of a DAS network application, there is no opportunity for other backbone providers to also attach.

    (b) Please indicate whether the first provider of DAS network infrastructure that attaches, for all intents and purposes, becomes the monopoly provider of DAS.

Responses:

    (a) See responses to THESL 28 and 30(a).

    (b) See responses to THESL 28 and 30(a).

III. Written Evidence of Tormod Larsen - July 26, 2011

Question:

40. At question 2, page 2 of Larsen's evidence, he states that he has focused on DAS technology and on designing, equipping and optimizing DAS networks. How many outdoor DAS networks has Larsen been responsible for designing for wireless telecom providers? Please provide details of each of these projects (size, scale, location).

Response:

Mr. Larsen has been involved with DAS since 1995. This includes DAS networks for indoor, outdoor and in confined environments like tunnels and subways. During this period, Mr. Larsen has been involved in the design of several hundred outdoor DAS networks for use by wireless telecom providers. The designs involved DAS networks ranging in size from fewer than 10 DAS nodes to several hundred DAS nodes. Beyond the information provided above, in Mr. Larsen's Written Evidence and in responses to the other interrogatories in this proceeding, detailed information regarding of these designs is not relevant to this Application; moreover production thereof would be unduly onerous having regard to its probative value, if any.

Question:

41. At question 2, page 2 of Larsen's evidence, reference is made to the "essential need to deploy DAS networks on existing utility poles". Leaving initial and recurring costs aside, please explain how virtually the same coverage and capacity can or cannot be achieved by deploying DAS nodes on other than utility poles.

Response:

See responses to Staff 14.1, THESL 3(b) and 36(c).

Questions:

42. At question 3, page 3 of Larsen's evidence, he describes the key components and characteristics of outdoor DAS network technology, including a BTS Hub and DAS antennae.

    (a) Please compare the node site as described in this section with the mechanical "attachment" that securely grips or clamps a linear cable to a pole.

    (b) Where are the BTS Hubs located?

    (c) How many pieces of equipment of a DAS network have to be attached to a utility pole on a per pole basis? Please answer with reference to the equipment described on pages 2 and 3 of Larsen's evidence.

    (d) Please identify any other attachments that are not referenced in the written evidence.

    (e) Since 9-14 metres is the length of a typical distribution pole, the installation of DAS antennae would almost always require a new pole. How does this not suggest a very expensive installation if the poles need to be replaced?

Responses:

    (a) See Written Evidence of Tormod Larsen (Q.3(i)) as to "node sites" and response to EDA 11(d).

    (b) Public Mobile built 4 BTS Hubs in Toronto in preparation for the Toronto DAS Network. They are located in buildings on private property situated along major fibre corridors in the Southwest, Central, North Central and Eastern areas of Toronto.

    (c) See response to CEA 11(a).

    (d) See response to THESL 2(b).

    (e) CANDAS agrees with neither the premise of the question not its conclusory suggestion. See response to EDA 14.

Question:

43. At question 4, page 3 of Larsen's evidence, Larsen states that "[a] DAS network is typically designed to meet the known needs...for improved coverage and/or enhanced capacity in a specific geographic area". Aside from DAS, what other ways do carriers have to achieve "improved coverage and/or enhanced capacity"?

Response:

The information requested is not relevant to the issues raised by the Application. Alternatives to DAS technology have nothing to do with the issue of whether wireless attachers should be afforded the same pole access as wireline attachers.

Question:

44. At question 4, page 3 of Larsen's evidence, Larsen states that "[t]he design process begins with a survey and inspection of existing utility infrastructure within the coverage area." Were other support structures other than existing utility poles were surveyed and considered by CANDAS for Toronto, specifically?

Response:

See responses to Staff 14.1 and THESL 3(b).

Questions:

45. In relation to the evidence provided at question 4, page 4 of Larsen's evidence:

(a) What are the Industry Canada requirements to limit harmful radiation exposure for locating an antenna away from the general public?

(b) From line workers?

(c) From occupied indoor spaces?

(d) What specific regulations are being referred to here?

(e) How would electric utility workers be protected?

(f) Since the "public right of way" where poles are located is generally a street or a lane, it's not clear how that provides separation from the public. Would electric utilities bear any potential liability for hosting antennas if there is harm to the public?

Responses:

(a) The information requested is not relevant. The Board does not have jurisdiction to hear these matters. Other regulators with jurisdiction over telecommunication and electrical equipment are the proper bodies to make these determinations. CANDAS' evidence is that Board-approved terms and conditions of access should include a requirement that all attachers be required to follow the requirements of all applicable safety legislation, standards codes and guidelines.

(b) See response to CEA 45(a).

(c) See response to CEA 45(a).

(d) See response to CEA 45(a).

(e) See response to CEA 45(a).

(f) See response to CEA 45(a).

(g) See response to CEA 45(a).

Questions:

46. At question 4, pages 3-6 of Larsen's evidence, Larsen discusses how DAS networks are typically designed and constructed.

(a) In relation to Larsen's evidence at page 4, A(i) - Node Site Locations, given the densities of initial and full deployment, what flexibility in horizontal deployment is available? That is, if a target pole turns out to be unsuitable due to capacity, age, aesthetic or other reasons, how far afield can the next best pole be chosen – one pole along the route, two, ten, etc.? Or would adjacent and taller antenna mounts be sought so as to eliminate the difficult spot?

(b) In relation to Larsen's evidence at page 4, A(i) – Node Site Locations, if a competing DAS service provider appeared, how would their coverage and node placement generally be similar to or different from the approach taken by CANDAS and DAScom? If the competing DAS provider also went for a full and dense build out, does that mean an additional large number of nodes in the public space?

(c) In relation to Larsen's evidence at page 4, A(i) – Node Site Locations, how is line-of-sight propagation to end users achieved with only 3-7 nodes per square kilometre given the presence of trees and buildings?

(d) Larsen's evidence at page 4, A(ii) – Antenna Height, provides that typical DAS networks have from 3 to 7 node sites per square kilometre. Elsewhere in CANDAS's application, the Lemay-Yates report at page 26 provides evidence that the number of intended DAS nodes in Toronto to be 730. Given that the area of the City of Toronto is 641 km^2, this suggests 1.1 node sites per square kilometre, rather less than the 3 to 7 node sites per square kilometre described. Please elaborate on the initial and projected node density. If the upper range of 7 is applied across the full city, does this mean a full and dense build out would reach some 7x641 = 4487 nodes?

(e) In relation to Larsen's evidence at page 4, A(ii) – Antenna Height, if the preferred height is 9-14 m, please identify the other structures that could be utilized.

(f) In relation to Larsen's evidence at page 4, A(ii) – Antenna Height, given the example of the antenna node installation by DAScom in Exhibit D, as well as electric utility preference for avoiding the street corner for reliability and safety, does the number of node sites go beyond 7 per square kilometre?

(g) In relation to Larsen's evidence at page 4, A(ii) – Antenna Height, do all the existing DAS installations in Toronto meet the requirements of CSA C22.3 No.1-10?

(h) In relation to Larsen's evidence at page 4, A(iii) – Fibre Connectivity, explain the need for DAS to have dedicated fibre rather than use existing fibre already installed.

(i) In relation to Larsen's evidence at page 5, A(v) – Physical Access, is it not true that ease of access to antennae would be greatest if the installation would be on a structure that had no energized high voltage electric lines attached to it as shown in Exhibit C slide on the Las Vegas deployment?

(j) In relation to Larsen's evidence at page 5, A(v) – Physical Access, explain how ease of access would be a characteristic of a pole-top installation where qualified electric utility line staff with live line capabilities would be required.

(k) In relation to Larsen's evidence at page 5 that there is a "vast number...of utility poles in most populated areas" - as most developments since the 1970's in Canada have been underground, where there are no or only single utility poles, how is DAS offered to modern residential developments?

(l) Larsen states at page 5 that "the design process begins with a survey and inspection of existing utility infrastructure within the coverage area." When a DAS network is in the initial design stages, are other support structures other than existing utility poles surveyed?

(m) Larsen states at page 5 that "utilizing utility poles has therefore been the predominant approach for the design of DAS networks".

(i) This statement implicitly acknowledges that there are other support structures that can be utilized for the design of DAS networks. Please describe what other approaches for the design of DAS networks have been utilized. Please provide full details of these installations.

(ii) Please describe the differences in terms of utilization of the pole between a typical DAS network and a wireline attachment. Please compare using the following metrics as well as any others that are relevant: (i) number of attachments per pole; (ii) location of each attachment; (iii) extent of make ready work; (iv) safety considerations; (v) amount of fibre on the pole, and; (vi) nature, dimensions and weight of the equipment being attached.

(n) In relation to Larsen's evidence regarding a typical configuration of a DAS node site, at page 5, A(i) – Pole Top Access, Larsen describes a pole top antenna as being part of a typical DAS node configuration. Are pole top antennae typically considered to be located within the "communications space" on a pole?

(o) In relation to Larsen's evidence regarding a typical configuration of a DAS node site, at page 5, A(i) – Pole Top Access and its reference to "designated communications space", on average, what percentage of the communications space would all the constituent elements of a typical DAS network occupy on a pole?

(p) In relation to Larsen's evidence regarding a typical configuration of a DAS node site, at page 5, A(i) – Pole Top Access and its reference to "designated communications space", on average, what percentage of the space below the communications space would a typical DAS network configuration occupy?

(q) In relation to Larsen's evidence at page 6, A(ii) Remote Radio Unit, (iii) Backup Battery Power Unit and (iv) Fibre Optic Interconnection, as well as Exhibit D, slides 3 and 4, are the sizes and weights for the radio unit, the battery power unit, the fibre optic interconnection and the pole top antenna always the same and as shown on Exhibit D, slides 3 and 4? Please provide the average sizes and weights for each of these pieces of equipment.

(r) Larsen states, at page 5, that a DAS network has the "potential to spread the capital cost of the initial DAS deployment costs over multiple users who can be added at relatively low incremental design and construction cost".

(i) Please provide evidence to support this claim including projections on capital cost recovery and potential recurring revenues to be generated from multiple users of the installed network.

(ii) Please supply any business plan projections available to support this claim.

Responses:

(a) If a target pole turns out to be unsuitable, several options would be considered, including the next pole over or several poles over. The selected solution will depend on the overall design, as the objective is to provide a seamless well performing network. ExteNet will predict and in some cases physically test the propagation characteristics for the alternative poles, including modelling/replicating the actual location and antenna attachment height.

(b) If a competing or additional DAS service provider appeared, we would expect them to take a similar approach as the one described. The number of nodes and density would be pure speculation at this time and depend on the technical requirements and needs of prospective wireless carrier users that the network would be designed to meet.

(c) A DAS network does not require line of sight from a node to each mobile user. The comment made in the evidence was related to the fact that the output power of the mobile device will be lower when probability of line of sight to a DAS node is higher (i.e. a DAS node located on a utility pole) DAS networks are operational in a wide variety of environments where buildings and trees are obviously present. In general, these networks have turned out to work well with 3-7 nodes/sq. km.

(d) The final design of the proposed Toronto DAS Network (with 791 nodes) covered only a portion of the City of Toronto (See THESL 12(a)). There were no specific plans to add additional nodes at a later stage, but it is typical of DAS deployment that a few additional be added as users gain actual experience with the performance of a DAS network and identify higher demand areas. The upper limit of 7 nodes per square kilometre applies to only very dense urban areas (e.g., city centres) for wireless carriers, with extremely high capacity requirements and would not be applicable over a wide area.

(e) See responses to THESL 3(b) and 8(a), Staff 14.1, Written Evidence of Tormod Larsen (Q.4) and (Q.9).

(f) Without conceding that the question is premised on anything accurate, the answer is no. See response to CEA 46(d).

(g) To ExteNet's and DAScom's knowledge, all of the existing DAS installations in Toronto, comprising a part of the Toronto DAS Network as proposed, comply with all applicable standards and were properly permitted by THESL on the basis of applications prepared and submitted in accordance with THESL's requirements. Any deviation from applicable standards would be entirely unintentional.

(h) The question draws an incorrect distinction between "dedicated fibre" and "existing fibre". DAS nodes require connectivity with fibre capacity that is dedicated to use for purposes of transmitting signals to and from each DAS node. Fibre dedicated to this use may be obtained from the owners of existing fibre

where it exists and is available on commercially reasonable terms and conditions. See response to THESL 34(a).

(i) Yes. See response to THESL 31(a).

(j) This question is taken out of context and conflates access to the node site with access only to the poletop (the latter being required for the initial installation only). In any event, see responses to Staff 23.1.4 and 23.1.5 and THESL 31(a).

(k) Such instances are limited. See response to THESL 3(d)1 and CEA 28(a).

(l) See response to THESL 3(a) and 3(b).

(m)

(i) See responses to THESL 3(b) and 3(d), Staff 14.1, Written Evidence of Tormod Larsen (Q.4) and (Q.9).

(ii) See response to Staff 6.1, 13.3-13.4, 16, THESL 8(c), 19(c), 45(a), and CEA 11(a).

(n) See response to THESL 19(c).

(o) See response to THESL 19(c).

(p) For a typical DAS node with an antenna in the communications zone and the equipment in the unused space or common area, the node equipment in the unused space utilizes less than 1/3 of the pole circumference and less than half of the vertical space below the communication space leaving 2/3 of the pole's circumference available for climbing.

(q) See responses to Staff 13.3 and 13.4. The equipment configuration is typically consistent within a particular DAS network deployment.

(r)

(i) The information requested is not relevant to the issues raised by the Application. CANDAS should not be required to provide detailed and sensitive cost and business data in order to get the same pole access that is offered to wireline attachers

(ii) The information requested is not relevant to the issues raised by the Application. CANDAS should not be required to provide a detailed

business plan in order to get the same pole access that is offered to wireline attachers.

Question:

47. At question 5, page 7 of Larsen's evidence, Larsen states that Toronto's DAS Network design "called for all the antennae to be mounted on cross-arms attached to poles in or near to the communications space", resulting in the need for more node sites in Toronto. How many more antennae are required with the use of the communications space?

Response:

Antennas attached at side-arms in the communication space can increase the number of antennas by an estimated 12-23%. Twelve percent assumes a 9 metre attachment height for antennae as opposed to the average 6 metre height. Twenty-three percent assumes a 14 metre attachment height for antennae as opposed to the 6 metre average height. Note, these figures are specific to Toronto.

Questions:

48. At question 6, pages 7-10 of Larsen's evidence, Larsen describes how DAS networks differ from traditional Macro Cell Sites or self-contained Micro Cells with mounted antennae, and the benefits which flow from this.

    (a) In relation to Larsen's evidence at page 7, please indicate whether it is true that DAS is an alternative wireless technology which can offer some economic benefits but it does not offer wireless services that aren't already provided by macro-cell wireless?

    (b) In relation to Larsen's evidence at page 7, please indicate if, with a DAS system, it is true that increases in the demand for high data rate services can only be met through the addition of nodes or higher capacity nodes, similar in concept to Macro Cell Sites?

    (c) In relation to Larsen's evidence at pages 8-9, please confirm that all the benefits of DAS networks described herein are conveniences, efficiencies and potential efficiencies, but that there are no additional services that DAS provides over Macro Cell wireless.

    (d) In relation to Larsen's evidence at page 8, (i) Improved coverage, reference is made to DAS technology use "...for years in tunnels, canyons, indoors and other hard to reach areas:"

        (i) Please provide examples, Canadian if possible, of this usage.

        (ii) Please explain how these can be successful without the preferred heights of 9-14 meters identified in Question 4.

        (iii) If DAS technology can be deployed in tunnels, canyons and indoors where there are no utility poles, what structures were used for attachments in these examples?

    (e) In relation to Larsen's evidence at page 8, (i) Improved coverage and (ii) Increased capacity, why can these benefits not be achieved through continued use of Macro Cell Sites, or all the other options available?

    (f) In relation to Larsen's evidence at page 9, (iii) Greater spectrum efficiency, did Industry Canada state that DAS on electric utility poles was required to increase the spectrum efficiency?

(g) In relation to Larsen's evidence at page 9, (v) Improved signal transport and backhaul efficiencies:

(i) If backhaul is 30% of a carrier's operating expense and macro-cell technology does not have the antennae required, or the backhaul requirements of DAS, and its tower electronics system is similar to that of DAS, is DAS more expensive to operate?

(ii) What else would have to occur for the DAS operating cost to be competitive to Macro Cell Sites besides the desired low rate for the pole attachment?

(h) In relation to Larsen's evidence at page 10, (vi) Flexibility and scalability, using Larsen' lawn sprinkler analogy, many sprinkler heads mean many hoses and higher monitoring and maintenance. Please confirm that this translates into higher operating costs.

(i) In relation to Larsen's evidence at page 10, page 10, (vi) Flexibility and scalability, should competing DAS providers appear, what rules if any would be required regarding use of the same pole, adjacent pole or nearby pole? What entity would establish and manage those rules?

Responses:

(a) DAS is an alternative technology for supporting wireless services that provides both economic and technical/operational benefits, particularly for data intensive advanced wireless services. See Written Evidence of Tormod Larsen (Q.6).

(b) No. DAS systems are much more flexible and scalable than Macro Sites. A DAS network can generally support increases in high data rate services much more efficiently, without the need of adding more nodes or higher capacity nodes. See also Written Evidence of Tormod Larsen, (Q.4) in particular.

(c) Not confirmed. See response to CEA 48(a).

(d)

(i) As stated in Mr. Larsen's evidence DAS has been used for years in various applications. Examples of such implementations in Canada include the PATH (Toronto), Lester B. Pearson International Airport (Toronto), Rogers Centre (Toronto), Air Canada Centre (Toronto), Bel Adeline Building

(Toronto), Scotia Tower (Toronto) Olympic Venues (Vancouver), Canada Line (Vancouver).

(ii) See response to THESL 36(b). The objective for DAS deployed indoors or tunnels is to provide coverage and capacity throughout these facilities. The selection of antenna location within these facilities will follow the same logic as outdoor site selection – determining where to place the antennas in order to provide the desired service. For indoor deployments and deployments in tunnels this implies either interior ceiling or wall mounted antennas. The 9-14 metre elevation range is not relevant in this context.

(iii) See response to CEA 46(d)(ii) and THESL 36(b), (c) and (d). The lack of utility poles within tunnels and buildings is not relevant as the desired propagation can be achieved with other placements. Outdoor DAS networks in canyons are typically deployed on utility poles.

(e) Refer to the Application, the Written Evidence of Tormod Larsen (Q.6) specifically and the Written Evidence of CANDAS in its entirety.

(f) Industry Canada's pronouncements are publicly available.

(i) CANDAS cannot understand the premises asserted in the question. However, a DAS network is generally less expensive to operate with respect to backhaul.

(ii) CANDAS does not agree with the implied premise of the question and does not believe it is intended to elicit relevant information.

(g) It is not necessarily the case that DAS has higher operating costs. Regardless, these issues are not relevant to this proceeding.

(h) This calls for speculation and in any event, exceeds the scope of this proceeding. Nonetheless, see response to THESL 45(d).

Questions:

49. At question 7, page 11 of Larsen's evidence, Larsen references "work in international standardization bodies" as illustrative of the fact that distributed network architectures are the way of the future.

    (a) Please identify the work by international standardization bodies that require DAS antennae to be on electric utility poles.

    (b) If DAS networks are the way of the future, please elaborate on its value as presented to and as desired by DAS wireless service provider customers and potential customers in terms of a) time-to-market b) initial cost c) recurring cost.

    (c) Please comment if this value varies with DAS customer type – that is, a new entrant might prioritize time-to-market whereas an established provider might prioritize cost savings relative to other choices.

Responses:

(a) The referenced Written Evidence does not contain the statement that forms the premise of the question.

(b) a) See Larsen Written Evidence, (Q.4), page 6.

b) & c) The information requested is not relevant to the issues raised by the Application; moreover, production of this information would be unduly onerous relative to its probative value, if any.

(c) The information requested is not relevant to the issues raised by the Application.

Questions:

50. At question 8, page 11 of Larsen's evidence, Larsen describes examples of initial DAS deployments in Canada.

    (a) Please indicate if it is likely that BCTel (now Telus) and Rogers describe these installations as DAS networks?

    (b) Were these installations installed only on electric utility poles?

    (c) What are the pole attachment rates and the methodology for access to Montreal's street light poles?

Responses:

    (a) The information requested is not relevant to the issues raised by the Application. Moreover, CANDAS is not aware of how Telus and Rogers think.

    (b) See responses to Staff 9.1 and 9.2.

    (c) This information requested pertaining to rates in respect of the Montreal DAS Network is not relevant to the issues raised by the Application. Neither CANDAS nor any other party is requesting, in this proceeding, that the Board review and vary the current Board approved rate. As to the question regarding the methodology for pole access in respect of the Montreal DAS Network, see response to Staff 9.5.

Questions:

51. At question 9, page 12 of Larsen's evidence, Larsen states that electric utility poles are a "practical necessity for outdoor DAS deployments" and that "[t]here are no real practical alternatives to electricity utility infrastructure for large scale outdoor DAS deployments."

    (a) Please provide evidence to support the statement that "there are no real practical alternatives to electricity utility infrastructure".

    (b) What alternatives, if any, exist for wireline service providers in lieu of attachments to utility poles?

    (c) In downtown office areas and in newer residential communities, there can be little or no electric utility poles. Since this presumably is a major part of the DAS market, are there no alternative methods of building a network in these areas?

    (d) Please indicate whether it is possible to deploy a DAS network in downtown Toronto using an indoor DAS network?

    (e) Are you aware of any U.S. cities that deploy indoor DAS networks for concentrated areas (downtown core, specific shopping areas, large office towers, etc.)?

    (f) Explain the inconsistency between the statement that "there are no real practical alternatives to electrical utility infrastructure for large scale outdoor DAS deployments" and the photos of the Las Vegas deployment in Exhibit B that show attachments to non-electric utility poles.

    (g) If there are no electric utility poles available, as in the downtown of cities like Winnipeg, does this preclude the deployment of DAS networks?

    (h) If a CANDAS member uses streetlight poles, would it not have to bury fibre optic cables and electric service lines?

    (i) Since CANDAS members can own poles within public right-of-ways and private properties, why can CANDAS not use its own poles or other poles (eg. telecom poles, commercial parking lot poles)?

    (j) The City of Toronto has undertaken a city wide program with a single provider (Astral Media) of street furniture, including transit shelters with electrically illuminated advertising space. This would seem to fit a DAS deployment (single

provider, well placed at street corners, electricity present, uniform construction) and at a scale of 730 installations would surely attract their interest. This would be pertinent in Toronto, which has been presented in this evidence as a key starting point for ExteNet in Ontario. Please outline what discussions with alternate providers of antenna space (including Astral Media) have taken place regarding the Toronto installation and the outcome of those discussions.

(k) Please provide evidence to support the contention that power poles are a necessity for a DAS network rather than a preferred option or an economic convenience?

Responses:

(a) See responses to THESL 3(b), Staff 14.1, Written Evidence of Tormod Larsen (Q.4) and (Q.9).

(b) Refer to Application and Written Evidence of CANDAS in its entirety, and see response to THESL 3(b), Staff 14.1, Written Evidence of Tormod Larsen (Q.4) and (Q.9).

(c) This is not relevant to the issues in this proceeding. In any event, wireline service providers are in a better position to answer this question.

(d) See response to THESL 36(c).

(e) See response to THESL 36(d).

(f) There is no inconsistency. The Las Vegas network involves an extraordinary locale and a tiny portion of the minority of ExteNet Systems' total nodes placed on non-distribution poles as shown in the response to THESL 8(b)(ii). See also response to EDA 13 and THESL 3(d)(i).

(g) See response to EDA 13.

(h) The answer depends on the particular circumstances, but generally the fibre optic cable and electric service points of interconnect are on a utility pole or accessible in a manhole in the vicinity so that only relatively short fibre and power laterals segments must be newly constructed underground. Obviously, the further the node pole is located from the fibre and power sources, the greater will be the engineering and construction costs and the disturbance of the area in or through which the underground construction must extend.

(i) See response to CEA 51(h).

(j) Not relevant. Speculative and beyond the scope of the Application.

(k) Refer to the Application and the Written Evidence of CANDAS, including, but not limited to the Written Evidence of Tormod Larsen, (Q.4) and (Q.9).

Questions:

52. At question 9, page 13 of Larsen's evidence, he states that "[t]he estimated impact on construction costs could exceed $200,000/node site" if utility poles cannot be used for the DAS network.

    (a) Please provide all the underlying assumptions to support this cost estimate.

    (b) Please provide a breakdown of the major cost components of this estimate.

    (c) Please identify how often this trade-off is assessed in actual projects, with examples.

    (d) Please provide evidence to support the contention of the report that if node costs are $200,000 per node, the Toronto DAS network would be "economically unfeasible". In particular, please provide all recurring revenue and expense projections from multiple users of the installed network over the 15 year attachment period.

Responses:

    (a) See response to THESL 35(a).

    (b) See response to THESL 35(a).

    (c) See response to THESL 35(d).

    (d) The information requested is not relevant to the issues raised by the Application. CANDAS should not be required to provide a detailed business plan in order to get the same pole access that is offered to wireline attachers.

Questions:

53. Exhibit B, slide 6, entitled "DAS – The wireless solution for modern cities" and Exhibit C, slide 2, entitled "Las Vegas – DAS Nodes" provide photos showing antennae and remote radio units on street lighting pole (Exhibit B) vs. a standalone pole adjacent to a street lighting pole (Exhibit C).

    (a) What are the total dimensions (width and height) of each component of this equipment?

    (b) Does this installation fit entirely within the two foot communications space?

    (c) Why did ExteNet use a stand alone pole in Las Vegas rather than attaching to the adjacent street lighting pole?

Responses:

    (a) See response to THESL 37(a).

    (b) See response to THESL 37(b).

    (c) See response to THESL 37(c).

Questions:

54. Exhibit C, slide 5 shows photos of Toronto DAS Sidearm Installations.

(a) Please explain why the presence of one cylinder, one finned box, and one flat box does not count as three attachments.

(b) Please explain why, when mounting on a wood pole, which results in six holes for mounting bolts drilled completely through the pole, this does not count as six attachments.

Responses:

(a) The question is not relevant. The CCTA Order refers to "attachers".

(b) See response to CEA 54(a).

Questions:

55. At Exhibit D, slide 4, the pole profile in the drawing shows the total assembly of DAS equipment between 3.9 and 6.4 meters elevation above ground, spanning a total of 2.5 meters or over 8 feet (not counting the additional grounding connection to the base of the pole).

    (a) Please explain how the space occupied by the total assembly of DAS equipment relates to the area of the pole often known as the communications space, considered to be one or two feet in most jurisdictions.

    (b) When a DAS attachment is approved, does ExteNet consider it covers 360 degrees around the pole?

    (c) What concerns or restrictions does ExteNet foresee with attachments of everyday items such as signs, banners, planters, etc., also to poles?

Responses:

    (a) CANDAS does not agree that the communications space is "considered to be one or two feet in most jurisdictions". See responses to THESL 2(b), 2(c), 19(c), 22(b), 25(b), 25(c), 38(a) and 45(a).

    (b) No. See Response to CEA 46(p).

    (c) None.

IV. Written Evidence of Bob Boron - July 26, 2011

Question:

56. At question 1, page 2 of Boron's evidence, he states that he is "a Co-Founder and President of Jade Tower Inc., a company focused on owning and managing wireless communication (cellular) towers and antenna sites…."

    (a) Given the foregoing professional experience, please provide a breakdown of market prices that exist for the different types of communication towers and antenna site alternatives utilized for wireless attachments (tops of buildings, sides of buildings, stand alone towers, utility poles, traffic lights, billboards, signage, attachments inside buildings, etc.).

Response:

(a) See response to THESL 41(a).

Questions:

57. At question 4, page 3 of Boron's evidence, Boron states that "there is no alternative but to attach DAS equipment to existing power poles, [thus] access to such power poles does constitute a monopoly-controlled resource".

(a) Please clarify whether Boron's evidence is that there are no alternatives but to attach to existing power poles?

(b) If the answer to (a) is yes, please provide the relevant particulars in support of this position, including all reports, analyses, studies, working papers, memoranda, correspondence, and other documents.

(c) If the answer to (a) is yes, please explain this answer by reference to Exhibit B of Larsen's written testimony showing a DAS deployment does not need to attach to existing electric utility poles and the Lemay-Yates report at page 26, which declares with respect to Toronto that "730 DAS nodes throughout the city of which approximately 90% would be on hydro poles" (meaning 10% are not) and notes only 10 of Montreal's 12-15 Videotron DAS nodes are on hydro poles.

(d) If the answer to (a) is no, please explain the alternatives options that exist, including providing the relevant particulars of same.

(e) Please define the term "monopoly-controlled" as it is used in this context.

Responses:

(a) This question mis-states Mr. Boron's evidence.

(b) See responses to CEA 57(a), THESL 3(b), Staff 14.1, Written Evidence of Tormod Larsen (Q. 4) and (Q.9).

(c) N/A.

(d) See response to THESL 3(b).

(e) See response to THESL 43(d).

Questions:

58. At question 5, page 3 of Boron's evidence, Boron states that "[i]t would be strange indeed if power poles were classified as essential facilities for cable companies and wireline attachers, but not for wireless attachers."

(a) Please define the term "essential facilities" as it is used in this context.

(b) Please explain the extent to which Boron and/or Public Mobile, Inc. view THESL's poles as "essential facilities" within the context of Public Mobile's provisioning of wireless services in and around Toronto.

Responses:

(a) CANDAS relies on the determination of both the OEB and the NBPUC that power poles are "essential facilities" (Application, para. 10.19). See response to THESL 44(a).

(b) See response to CEA 58(a).

Question:

59. At question 7, page 4 of Boron's evidence, Boron states that "[l]ack of capacity can never justify discriminatory access." If the pole line does not have adequate additional capacity, why is it discriminatory to permit existing wireline attachments to remain and possibly allow their owners some additions, provided that their attachments do not overstress the pole?

Response:

See Written Evidence of Bob Boron (Q. 7) and response to THESL 45.

V. Written Evidence of Brian O'Shaughnessy – July 26, 2011

Questions:

60. At question 3, page 3 of O'Shaughnessy's evidence, he describes the nature of Public Mobile's interest in the proceeding, including "the creation of a level playing field with our competitors who do have access to power poles in Ontario" and desire for "access to such poles on commercially reasonable terms and conditions".

    (a) Please indicate whether and to what extent Public Mobile's competitors use access to utility poles for purposes of constructing, maintaining and/or operating an outdoor DAS in Toronto.

    (b) Please identify the difference in compensation paid for wireless attachments associated with tower structures, traffic lights, signage, roof tops, other alternatives CANDAS and/or O'Shaughnessy is aware of, and distribution utility poles.

    (c) Since Public Mobile is currently operating in the marketplace with an alternative technology, why is access to utility poles a requirement for "good public policy" and "in the public interest"?

Responses:

    (a) See response to THESL 47(b).

    (b) The information requested in this question is not relevant. No party to this proceeding is requesting that the Board review and vary the current Board-approved pole access rate.

    (c) See the entirety of Mr. O'Shaughnessy's Written Evidence, including without limitation (Q. 10).

Questions:

61. At question 9, page 6 of O'Shaughnessy's evidence, he states that four times as many transmission towers, or "Cell Sites" would be required to transmit the frequencies Public Mobile is licensed to transmit.

    (a) Is it true that cell towers alone could offer the service that Public Mobile wanted to provide?

    (b) Why would Public Mobile have to build these towers? Were there not enough available already from the various communication tower owners?

Responses:

    (a) See the entirety of Mr. O'Shaughnessy's Written Evidence, including without limitation (Q. 10).

    (b) Existing tower structures are, for the most part, fully utilized by existing operators and therefore it is not possible to add additional Public Mobile antennas to provide the required coverage.

Questions:

62. At question 10, page 7 of O'Shaughnessy's evidence, O'Shaughnessy states that Public Mobile looked to DAS technology as a new way of providing increased cell density.

    (a) How are other carriers providing increased cell coverage in areas where DAS deployment is not feasible?

    (b) If DAS is not feasible in an area, how do wireless carriers increase their cell density?

Responses:

    (a) See Written Evidence of Brian O'Shaughnessy (Q.5) through (Q.9).

    (b) See Written Evidence of Brian O'Shaughnessy (Q.5) through (Q.9).

Questions:

63. At question 10, page 7 of O'Shaughnessy's evidence, O'Shaughnessy states that the Toronto DAS Network would have been built "to provide the capacity to meet the needs of Public Mobile's customers for four to five years. Public Mobile also entered into agreements with ExteNet to build a DAS network on the Island of Montreal, in partnership with Hydro Québec and the Municipality of Montreal."

(a) Was the planned Toronto deployment to last only for 4-5 years?

(b) Was the Toronto deployment planned to be increased or decreased after that?

(c) Please provide copies of all said agreements for development of a DAS network on the Island of Montreal between Public Mobile and ExteNet.

(d) Please provide copies of all said partnership agreements involving Hydro Quebec and/or the Municipality of Montreal.

(e) Are any other parties involved in the development of this Island of Montreal network? If so, please provide details of their roles and any understandings and agreements that have been reached.

Responses:

(a) Public Mobile, like other wireless operators, plans its capacity needs on a 3-5 year timeline. The DAS network capacity, as planned to provide initial coverage, would meet the needs of the business for 4-5 years. Public Mobile intends to re-evaluate its capacity needs based on actual sales results and traffic patterns during that initial window. It is expected that the as designed DAS network would meet the capacity requirements across most of the city, and that a few areas would require additional node construction to meet that future need; but projecting the quantity and location of these additional nodes would be speculative at this time.

(b) See response to CEA 63(a).

(c), (d) & (e) These documents are not relevant to the issue raised in this Application.

Questions:

64. At question 12, page 8 of O'Shaughnessy's evidence, O'Shaughnessy states that Public Mobile switched to Macro Cell Site strategy as a result of an inability to proceed using DAS technology.

(a) Please confirm that Public Mobile was able to offer its service despite the loss of the DAS network.

(b) Please provide the location of each of the "Macro Cell Sites", and please indicate whether and to what extent each site is located on a roof top, balcony, special-purpose structure or other location (specify if other).

(c) Please provide copies of the agreements entered into by Public Mobile associated with the said Macro Cell Site strategy including pricing paid by Public Mobile for these attachments.

(d) Please indicate how the costs of using the Macro Cell Site differs from the projected costs of using the DAS network.

Responses:

(a) Confirmed.

(b) The information requested is not relevant to the issues raised in the Application.

(c) The information requested is not relevant to the issues raised in the Application.

(d) The information requested is not relevant to the issues raised in the Application.

Question:

65. At question 14, page 9 of O'Shaughnessy's evidence, O'Shaughnessy states the Public Mobile will consider restoring its network build planning process with ExteNet if "pole access is affirmed on commercially reasonable terms and conditions". Do commercially reasonable terms include a benefit to the electric utility that owns the poles and is liable for their existence?

Response:

This question is argumentative and, thus, improper.

Questions:

66. At question 15, page 10 of O'Shaughnessy's evidence, O'Shaughnessy states that antennae should be installed at the top of a utility pole to facilitate better node coverage.

    (a) Given that poletop antennae installations always require the replacement of the pole with a larger pole, is it not more cost-effective and practical to utilize an existing space that is already designated for communication attachments?

    (b) Is CANDAS asking the OEB to mandate pole top antenna placement?

    (c) Does CANDAS acknowledge the Ontario Regulation 22/04 that allows each utility to develop its own Standards?

Responses:

    (a) CANDAS does not agree with the premise of the question. Poletop antenna installations do not always require pole replacement.

    (b) CANDAS is not suggesting that the Board mandate poletop antenna placements. CANDAS is suggesting that the Board should mandate access to the poletops for purposes of antenna placements where there is no legitimate basis for denying such access - as the FCC has done. Among other benefits, this would help to deal with the alleged scarcity of attachment space.

    (c) O. Reg. 22/04 speaks for itself. In addition, see the Written Evidence of Tormod Larsen, Exhibit D, Sheet 4.

VI. Lemay-Yates Report – July 26, 2011

Questions:

67. At page 7 of the Lemay-Yates Report, "consumers" are repeatedly referenced in noting that "investment in wireless telecommunications infrastructure is an investment in the future that is beneficial to consumers and to their communities..."

    (a) Please clarify if this refers to electricity consumers, which are the focus of the OEB, or to wireless service consumers.

    (b) If the reference is to wireless service consumers, please suggest how this may be relevant to the OEB.

Responses:

(a) Ms Lemay uses the term "consumers" in its ordinary sense. Thus, it refers to consumers of both wireless telecommunications services and electricity services. Given the nature of both wireless telecommunications and electricity services today, consumers of the former are in all likelihood consumers of the latter and vice versa.

(b) See the response to CEA 67(a) above.

Questions:

68. At page 8 of the Lemay-Yates Report, the Rogers network densification program is referenced as an initiative to add further capacity in major urban centres.

(a) Please comment on what this "network densification program" entails, and more specifically, whether it is any different than the Macro Cell splitting that wireless providers routinely undertake.

(b) Please indicate why, if Rogers is densifying, there is no evidence in this proceeding that Rogers is clamouring to adopt DAS or any other form of wireless apparatus on poles?

(c) Is Rogers deploying DAS systems to implement this network densification program or Macro Cell tower technology?

(d) If not, what technology is Rogers deploying in lieu of DAS systems?

Responses:

(a) As noted at page 8 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011, Rogers Communications has stated that it was undertaking a network densification program in order "to add further capacity to our network in major urban markets." This announcement by Rogers Communications illustrates the fact that mobile wireless carriers, including the largest and most established of these, need to add antenna sites to support rapidly increasing usage of mobile broadband applications and services. As of 16 August 2011, Ms Lemay is not aware of any additional public information released by Rogers Communications and has no other information in relation to this Rogers Communications announcement**.**

(b) See response to CEA 68(a) above.

(c) See response to CEA 68(a) above.

(d) See response to CEA 68(a) above.

Question:

69. Page 13 of the Lemay-Yates Report references the fact that Globalive Wireless, Mobilicity, Public Mobile and Videotron all secured spectrum licences to provide wireless services in Toronto and that all of these new entrants, with the exception of Videotron, have launched service in the Toronto area.

    (a) Please describe the technology that each of these new entrants are deploying in order to provide wireless service in the Toronto area.

Response:

    (a) It is public knowledge that Globalive Wireless and Mobilicity have deployed High-Speed Packet Access (HSPA) technology and Public Mobile has deployed CDMA technology to provide their respective mobile wireless services.

Question:

70. Page 17 of the Lemay-Yates Report references the fact that there are six wireless carriers operating in Toronto. How many of these six carriers are providing service using outdoor DAS technology?

Response:

As noted in Section 4 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011 (the LYA Report), Ms Lemay is aware of the outdoor DAS deployment of Videotron and of Public Mobile in Montreal.

As per the Application, Ms Lemay is aware that Public Mobile fully intended to use outdoor DAS technology to deploy its new mobile network in Toronto. For the reasons described in the Application, Public Mobile was not able to do so.

Question:

71. Page 19 of the Lemay-Yates Report states that denial of access to utility poles and lampposts would have a significant impact on the development of a competitive wireless market, Since electric utility poles and lamp standards are never the only infrastructure available to provide adequate service coverage, describe the "impact" that using dedicated antenna structures would have on the "development of a competitive wireless market based on current technological trends".

Response:

This Interrogatory is argumentative and does not appear to be intended to elicit information from Ms Lemay. Moreover, Ms Lemay does not understand the meaning of the reference to "dedicated antenna structure" in this interrogatory. However, as set out in Section 5 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011 (the LYA Report), Ms Lemay considers that utility poles, including hydro poles, lampposts and streetlights are the support structure networks that exhibit the key characteristics required to support the deployment of outdoor DAS systems.

Assuming that the CEA's reference to "dedicated antenna structures" means the deployment of a new, duplicate pole network to support a DAS deployment, Ms Lemay notes that the CCTA Order clearly states that "[d]uplication of poles is neither viable nor in the public interest."[1]

[1] CCTA Order, page 3; CANDAS Application, Tab 6, page 113 of 1378.

Question:

72. Page 20 of the Lemay-Yates Report contends that a DAS network requires new fibre. Since the wireline infrastructure likely already exists and access to it can be obtained according to CRTC and Industry Canada rules, why must new wireline infrastructure be installed?

Response:

Ms Lemay disagrees with the two premises underlying CEA 72. First, fibre optic transmission facilities between utility poles (including hydro poles, lampposts and streetlights) and a mobile wireless provider's hub locations do not actually exist in the vast majority or even in many cases. Second, even if such fibre optic transmission facilities existed from each and every utility pole in a given utility pole network, mandated access to such fibre optic transmission facilities cannot be obtained under the Canadian Radio-television and Telecommunications Commission rules.

Question:

73. Page 20 of the Lemay-Yates Report states that "using fibre optics to provide backhaul links to central hub locations is increasingly *de reguer* to deploy future-proof networks". Please provide a definition of "future-proof" networks in the context of an ever-changing communications world.

Response:

In the context of the statement at page 20 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011, "future proof" networks refers to the fact that sound network provisioning principles require networks to be built to meet future demand and capacity needs. The proliferation of mobile data applications and services continues to drive demand for additional capacity on mobile wireless networks. Fibre-optic backhaul systems provide for the most capacity to meet current and future mobile data communications demand.

Question:

74. At page 21 of the Lemay-Yates Report, one of the advantages articulated of the DAS system is that DAS can provide a speedier deployment, compared to the development of large Macro Cell Sites which may take more than one year. Given that a BTS hub is the equivalent of a Macro Cell tower site without a tower, how does one get to a 9-month deployment?

Response:

The process of acquiring roof-top and tower sites is becoming more and more difficult and drawn out, particularly in urban and suburban settings. Rogers Communications, one of the largest and most established incumbent mobile wireless providers in Canada, made the following submission to Industry Canada on 28 February 2011, at paragraphs 40 and 41:

> As the Department is aware, it is becoming increasingly difficult for wireless carriers to add new roof-top and tower sites, particularly in urban and sub-urban areas, due to local concerns. This challenging site acquisition environment has increased the amount of time it takes to acquire sites. In Rogers' experience, the amount of time to acquire a site has increased on average from 494 days in 2006, to 596 days in 2007, 613 days in 2008, 598 days in 2009, and 776 days in 2010. It currently takes well over two years to secure a new site.[2]

Ms Lemay notes that the site-by-site delays associated with acquiring *ad hoc* roof-top and tower sites would not apply to access to utility pole networks. Therefore, with respect to the timing of deployment, it is not the case that a "BTS hub site is the equivalent to a Macro Cell tower site without a tower."

[2] Comments of Rogers Partnership Limited, Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum (SMSE-018-10), February 28, 2011 ABRIDGED.

Question:

75. Page 21 of the Lemay-Yates Report states that "...neutral DAS deployments, such as those contemplated by CANDAS, can be accessed by more than a single mobile carrier which provides additional significant benefits..."

(a) Explain what is meant by "neutral DAS deployments, such as contemplated by CANDAS".

Response:

(a) A "neutral DAS deployment" means that it can be used by more than one service provider. See page 21 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011.

Questions:

76. At page 22 of the Lemay-Yates Report, ACT Presentation's to the FCC was cited as stating "DAS is a targeted solution that is becoming a carrier necessity".

(a) This presentation addressed deployment in San Diego in 2007.

(i) Was this San Diego deployment as large as that contemplated for Toronto?

(ii) How much of it was on electric utility poles? How much on lamp-standards?

(iii) What other structures were used?

(b) Since six wireless carriers are providing service in Toronto without DAS, it would appear as if, in Canada, DAS is not a carrier necessity. When will it be, since all areas are covered today?

(c) Since DAS is only deployed in the City of Montreal and cannot be deployed on electric utility structures in many large centres in Canada because these structures do not exist, please provide evidence to support the contention that it is a "critical and necessary tool" for wireless carriers.

Responses:

(a)

(i) The ATC Presentation to the FCC[3] does not address a deployment in San Diego in 2007. However, on the same page of the LYA Report, Ms Lemay refers to the deployment of an outdoor DAS network in San Diego that was completed in nine months according to a press release from NextG Networks.[4] This NextG Networks press release mentions that at the time (more than four years ago) the NextG Networks DAS deployment contemplated more than 300 plus nodes and 300 plus miles of fibre.

(ii) See response to CEA 76(a)(i) above.

(iii) See response to CEA 76(a)(i) above.

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[3] Referred to at page 22, footnote 23 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011 (the LYA Report).
[4] See LYA Report, page 22, footnote 22.

(b) As per the Application, Ms Lemay is aware that Public Mobile fully intended to use outdoor DAS technology to deploy its new mobile network in Toronto. For the reasons stated in the Application, Public Mobile was not able to do so.

However, assuming that there is no mobile wireless operator in Toronto providing service using an outdoor DAS deployment, the fact that access to utility poles to permit a DAS deployment in Toronto has not materialised does not imply that "DAS is not a carrier necessity." DAS deployments will become more common in Canada, especially as mobile penetration, which has been lagging in Canada compared to the US, continues to increase. In the United States, outdoor DAS systems are increasingly being deployed by both larger and smaller mobile carriers. DAS deployments enable mobile wireless carriers to add antennae closer to users on the network, thereby greatly enhancing coverage and adding capacity. Mobile wireless operators have always had and continue to have the need to add antenna sites to enhance coverage and increase capacity, as illustrated by the Rogers network densification program referenced on page 8 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011.

(c) Ms Lemay understands that utility pole networks, comprised of hydro poles, lampposts and streetlights, exist throughout Canada. Ms Lemay has no information to the contrary. The fact that some of these structures, for example, hydro poles, may not exist in some locations in a given urban or rural centre, does not mean that access to hydro poles or other types of utility poles, where they exist, should not be treated as a necessity.

Question:

77. At page 23 of the Lemay-Yates Report, the DAS networks of AT&T, Cricket Communications, T-Mobile and Metro PCS in the U.S. are referenced. Are these DAS networks deployed exclusively using electrical utility poles (i.e. transmission or distribution lines, not streetlights)?

Response:

LYA has no additional specific information on the details of the support structure network(s) used to support the U.S. outdoor DAS networks referenced in this interrogatory.

Questions:

78. At page 26 of the Lemay-Yates Report, it states that DAScom "contemplated the deployment of 730 DAS nodes throughout the city of which approximately 90% would be on hydro poles."

(a) Please provide the relevant particulars in support, including all reports, analyses, studies, working papers, memoranda, correspondence, and other documents regarding the specific infrastructure (non-hydro poles or otherwise) to which the remaining 10% of DAS nodes were to be attached.

(b) Regarding the response to (a), please include the location and elevation of the attachments.

Responses:

(a) See response to THESL 57.

(b) See response to CEA 78(a) above and response to THESL 57(b).

Questions:

79. At page 27 of the Lemay-Yates Report, the deployment of DAS in Montreal is discussed.

(a) Please provide a copy of the agreement between DAScom and the City of Montreal for the deployment of DAS on 259 lampposts.

(b) Please verify that the City of Montreal has deployed a DAS network without the requirement for electric utility poles.

(c) Please verify that the City of Montreal was not only compensated for the attachments but also received direct benefits from the DAS network.

Responses:

(a) See response to THESL 48 (c) and 48 (d).

(b) See response to CEA 79(a) above. See responses to Board Staff 9.1 and 9.2.

(c) See page 27, footnote 34 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011.

Question:

80. At page 27 of the Lemay-Yates Report, Lemay-Yates references its analysis of Industry Canada's spectrum direct database, which, according to Lemay-Yates, identifies approximately 300 antennae located at heights comparable with installations on utility poles. Please provide a breakdown of these 300 antennae with reference to whether they are attached to electrical utility poles or other structures. For those that are attached to other structures, please describe the type of structure (i.e. streetlight, rooftop, building).

Response:

The Spectrum Direct database does not provide information as to the type of structure used to support the radio antenna. See page 27 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011. Ms Lemay has no other information of the type requested in this interrogatory.

Questions:

81. Page 29 of the Lemay-Yates Report describes the characteristics of support structures that are used to deploy DAS Networks and states that "utility poles including hydro poles, lampposts and streetlights are clearly the support structure that best fulfils these requirements".

    (a) Please clarify why DAS networks require support structures that can be found almost everywhere when only 3-7 are required per square kilometre.

    (b) Please clarify why DAS networks require support structures that are recurrent and evenly spaced when only 3-7 are required per square kilometre.

    (c) Please clarify why DAS networks require support structures that are of a relatively uniform height when they are installed at heights between 5 and 14 metres successfully.

    (d) Is Lemay-Yates aware of DAS systems that have been deployed in North America or Europe via attachments to structures other than utility poles? If yes, please provide details of these installations.

Responses:

    (a) The number or density of support structures in a utility pole network required for a particular outdoor DAS deployment will vary according to the topography of the terrain, the frequency used as well as the services to be provided.

    See also responses to THESL 3(b), Board Staff 6.1 and 14.1 and Written Evidence of Tormod Larsen (Q.4) and (Q.9) for clarification of why a support structure network exhibiting the characteristics outlined at page 29 of the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011 is required for an outdoor DAS deployment as opposed to *ad hoc* support structure that may exhibit one or more of the listed characteristics in discrete locations.

    (b) See response to 81(a) above.

    (c) Heights of between 5 and 14 metres are considered to be relatively uniform compared to the differences in heights among rooftops and radiocommunications tower sites. It is also generally the case that the height of attachment points on utility poles available for the placement of antennae within a given area will be relatively uniform so that within each DAS network

the range of heights would not typically range between 5 and 14 metres. See response to THESL 8(a) for discussion of optimal elevations.

(d) See for example the Lemay-Yates Associates Report presented to CANDAS dated 26 July 2011, Section 4 at page 26, third paragraph and at page 27, top paragraph and a Section 5 at page 30, second paragraph. Ms Lemay does not have information on a full catalogue of the types of support structures that may have been used in DAS deployments in North America and Europe.

Question:

82. Page 30 of the Lemay-Yates Report states that "deployment of DAS networks cannot only be done only with rooftops". Please provide evidence to support the statement.

Response:

See responses to THESL 3(b) and THESL 8 (a) for a discussion of optimal elevation of support structure in a DAS deployment, responses to Board Staff 6.1 and Board Staff 14.1, the response to CEA 74 and the Written Evidence of Tormod Larsen (Q.4) and (Q.9).

Question:

83. Page 31 of the Lemay-Yates Report quotes the U.S.' FCC's and CTIA's statements in regards to utility poles. Please explain why this technology is described as critical and necessary for Canada when it isn't deployed in more than one city.

Response:

See response to CEA 76(b).

Questions:

84. Page 32 of the Lemay-Yates Report states that "[w]e conclude that wireless attachments to utility poles including hydro poles are necessary for the deployment of DAS networks..."

(a) Please provide evidence to support the contention that electric utility poles are necessary when there are many alternative suitable structures for DAS antennae.

(b) Please comment on the use of Femtocell technology as a substitute for outdoor DAS.

Responses:

(a) See responses to THESL 3(b) and THESL 8(a), responses to Board Staff 6.1 and Board Staff 14.1, the Written Evidence of Brian O'Shaughnessy (Q. 10) and the Written Evidence of Tormod Larsen (Q. 4), (Q. 8) and (Q.9).

It would appear that CEA has misunderstood Ms Lemay's evidence. Ms Lemay's evidence is that utility poles, including hydro poles, lamppost and light standards are support structures suitable to support the deployment of an outdoor DAS network. Ms. Lemay's evidence does not support a conclusion that there are many structures for DAS antennae other than utility poles or that any of the types of utility poles other than hydro poles are always available as alternatives to hydro poles.

(b) Ms Lemay does not refer to the use of Femtocell technology in the Report. Femtocells are generally used to enhance indoor coverage within a house.