

**COMPETITION BUREAU MARKET STUDY
COMPETITION IN BROADBAND SERVICES**

SUBMISSION OF CANADIAN NETWORK OPERATORS CONSORTIUM INC.

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EXECUTIVE SUMMARY^{1 2}

ES1. Canada's markets for wireline broadband services are characterized by market failures attributable to the presence of significant barriers to entry and expansion and the exercise of market power by jointly dominant Incumbents.

JOINT DOMINANCE IN CANADA'S RETAIL BROADBAND MARKETS

ES2. The joint dominance of the Incumbents is confirmed by an application of the Bureau's Abuse of Dominance Guidelines, which look to market concentration, barriers to entry and expansion and other factors.

ES3. *With respect to market concentration*, the 11.9% market share of non-Incumbent providers is juxtaposed against an 88% market share of purely facilities-based Incumbents. These market shares are indicative of a highly concentrated market that is jointly dominated by ILECs³ and Cable Carriers.

ES4. Lessons can be learned from flawed FTTN⁴ regulation that prevented competitors from accessing FTTN facilities on terms and conditions that would allow them to compete with Incumbent retail offerings. Incumbents enjoyed competitive head-starts lasting more than twelve years. This head-start accounts for the slow pace of competitor market share gains and protects the market power of the Incumbents.

ES5. *With respect to barriers to entry*, the Commission has confirmed that prospective entrants cannot feasibly or practically duplicate last-mile HSA⁵ facilities on a sufficient scale to compete effectively with Incumbents due to barriers including securing sufficient capital, securing rights-of-way, and construction challenges that require significant lead time to complete. In other words, there are substantial barriers to "end-to-end"⁶ entry.

¹ Note: Capitalized terms in the Executive Summary are defined in the body of the Submission. However, the long form versions of short-form terminology is set out in footnotes throughout the Executive Summary for convenience.

² This Executive Summary does not include content from Section 3, which sets out the regulatory and factual background for the CNOC submission.

³ "Incumbent Local Exchange Carriers".

⁴ "Fibre-to-the-Node".

⁵ "High-Speed Access".

⁶ That is, pure facilities-based entry whereby the entrant deploys all network facilities necessary (including the last-mile access portion of the network) that are necessary to reach a customer.

ES6. The Commission has also confirmed that Incumbents collectively have market power in the provision of wholesale HSA services and that without mandated wholesale HSA services, there would be a substantial lessening or prevention of competition in downstream retail markets.

ES7. Barriers to entry: Aggregated HSA. Although there are significant costs to entering retail markets on an aggregated HSA platform, those costs fall short of the threshold for what might reasonably be considered an insurmountable barrier to entry. Beyond upfront and recurring costs of deployment, competitors using aggregated HSA face barriers including Incumbent use of bundles and long-term contracts.

ES8. Barriers to Expansion: Aggregated HSA Service. Competitors face significant barriers to expansion stemming from: (1) gaps in the regulatory framework (in paras ES25 to ES35); (2) Incumbent use of bundles and long-term contracts; (3) Incumbency advantages benefiting the Incumbents and exacerbating their market power, including: established brands and customer bases, existing network infrastructure including support structures, national fibre backbone networks, pre-existing municipal access agreements, various economies of scale, and greater access to capital markets.

ES9. The above-listed incumbency advantages help to explain how Incumbents have 87% of retail Internet subscriptions in Canada while competitors offer seemingly comparable services at prices that can be as much as 30% lower than those of the Incumbents.

ES10. Barriers to Entry: The Disaggregated HSA Model. Competitors face virtually insurmountable barriers to entry under the disaggregated HSA model, as it currently stands. These barriers consist of prohibitive costs, unrealistically prolonged deployment times and other constraints imposed by the wireline wholesale services framework. All other barriers to entry characterizing the aggregated HSA model also apply.

ES11. Barriers to Expansion: The Disaggregated HSA Model: As with the barriers to entry, Competitors face virtually insurmountable barriers to expansion under the disaggregated HSA model, as it currently stands. These barriers consist of prohibitive costs, unrealistically prolonged deployment times and other constraints imposed by the wireline wholesale services framework. All other barriers to entry characterizing the disaggregated HSA model also apply.

ES12. *Other Factors.* Incumbents do not engage in retail price rivalry. Competitors push prices down to competitive levels, as much as 30% lower than Incumbent prices, and yet are unable to make more significant market share gains due to Incumbent market power and incumbency advantages. A low industry-wide 1.74% churn rate confirms that competition from existing rivals is very unlikely to defeat the profitability of a price increase.

ES13. Information regarding rivals' prices, product offerings and market conditions is readily available to industry participants and Incumbents, as wholesale service providers, enjoy a unique vantage point over wholesale customers who are also their competitors. In this capacity, Incumbents gain competitively advantageous information over their wholesale customers and have opportunities to engage in anti-competitive customer winback activities.

ES14. The Ware Report concludes that the potential for coordinated Incumbent activity in the broadband services market is high. Synchronized price increases from the Incumbents during 2017 and 2018 also suggest a high probability of collusive activity, which does not require an overt collusive agreement.

ES15. *Conclusion: State of Retail Competition.* Applying the Bureau's Abuse of Dominance Guidelines to prevailing market conditions confirms that Incumbents are jointly dominant. The joint dominance of Incumbents facilitates their ability to engage in anti-competitive conduct such as the pre-emption of scarce wholesale inputs (such as FTTN access facilities in the past and currently FTTP⁷ access facilities) required by competitors to compete in downstream retail markets. Such practices substantially lessen or prevents competition in both wholesale and downstream retail markets for broadband services. The Incumbents' joint dominance also facilitates their ability to engage in coordinated pricing at the retail level, which, coupled with their exclusionary conduct in wholesale markets, further exacerbates the lessening or prevention of competition in retail markets for broadband services.

⁷ "Fibre-to-the-Premises".

RETAIL BROADBAND COMPETITION IS INSUFFICIENT DESPITE THE PRESENCE OF FACILITIES-BASED COMPETITION

ES16. Despite Canada's commitment to facilities-based competition since as early as 2006, the state of competition in Canada's broadband service markets is far from healthy.

ES17. The Ware Report concludes that facilities-based competition may harm static and dynamic efficiency. More specifically, forced construction of facilities leading to duplicate fixed inputs can result in dead weight costs to society and is pure economic inefficiency.

EFFICIENT SERVICE-BASED COMPETITORS ARE CRITICAL TO SUSTAINABLE COMPETITION IN CANADA'S BROADBAND MARKETS

ES18. *Service-Based Competitors Offer Pricing at Competitive Levels.* The Wall Report concluded that service-based competitors offer services at prices that can be as much as 30% lower than those advertised by Incumbents. The more recent 2017 Nordicity Report concludes that across all service baskets, service-based competitors offer substantially lower prices than Incumbents with discounts ranging from 17.91% to 34.33%.

ES19. The Incumbent ARPU⁸ is \$9.87 higher than that of service-based providers, thereby indicating supra-competitive pricing by the Incumbents.

ES20. *Service-Based Competitors Inject Innovation in the Market.* Competitive service providers generate innovations that are valued by Canadian consumers of broadband services. These innovations, which are ignored or underserved by Incumbents, fall into four broad categories: (i) customer service; (ii) unique service offerings; (iii) technical advances; and (iv) the provisioning of quality telecommunications services in underserved rural and minority communities.

ES21. *Other Benefits of Service-Based Competition.* Competitors increase broadband input, from a strictly economic perspective. By historically offering higher data caps and more flexible data usage options and lower prices, service-based competitors play an important role in making more broadband available to Canadian consumers.

⁸ "Average Revenue per User".

ES22. Relatedly, and as concluded in the Ware Report, service-based competition promotes broadband diffusion while inter-platform competition generally does not lead to faster broadband roll-out.

ES23. Over time, service-based competitors also increase their investment in facilities when and where it is efficient to do so. Most commonly, these investments occur in transmission facilities such as fibre transport paths.

ES24. Conclusion: Service-based Competitors are Essential to Canada's Broadband Service Markets. Service-based providers offer Canadian Internet consumers a level of choice when it comes to high quality services, service features and price levels that simply would not exist in their absence. And yet, systemic barriers prevent service-based competitors from operating anywhere near full efficiency.

REMOVING BARRIERS TO EFFICIENT SERVICE-BASED COMPETITION

ES25. Relief is necessary to ensure that service-based competitors can be on an equal footing with facilities-based competitors, to the betterment of competition and the ultimate benefit of Canadian consumers. CNOC proposes that the Bureau recommend that the Commission adopt relief comprised of the measures outlined below.

ES26. Addressing the Problems with the Current Regulatory Framework for Wholesale HSA Services. Most importantly, measures are required to address the fundamental problems with the current wireline wholesale services framework. The final section of this summary addresses these problems and the relief that is necessary to correct them.

ES27. Access to Incumbent Retail Service Qualification and Service Provisioning Information. Incumbents control key information such as service qualification databases and information regarding applicable intervals for retail service provisioning when it comes to installations, repairs and disconnections. CNOC requests that the Bureau recommend that the Commission grant competitor access to this information, which will eliminate opportunities for anti-competitive conduct by the Incumbents. Periodic monitoring should also be employed to ensure that Incumbents live up to their obligations with respect to providing access to these categories of information.

ES28. Implementing Data Barriers between the Wholesale and Retail Arms of Incumbents. Incumbents gather information about wholesale customers that can be used to create a retail advantage (e.g. customer winbacks). CNOC therefore requests that the Bureau recommend that the Commission implement data walls between the wholesale and retail arms of Incumbents' operations to ensure that an Incumbent's retail operations do not act on strong incentives to exploit information gathered during wholesale service provisioning.

ES29. Enforcement of Competitor Quality of Service Regime Including Standards Based on Equivalent Incumbent Retail Performance and Financial Deterrence for Non-Compliance. Changes to the competitor Q of S⁹ regime are necessary to ensure that Incumbents are subject to Q of S standards that are equivalent to the Incumbent's retail Q of S performance for the same aspect of service provisioning. Furthermore, Incumbents must be subject to financial deterrents if they fail to deliver standards of performance to their wholesale customers.

ES30. No More Incumbent Head-starts in Offering New Broadband Technologies and Speeds. Incumbents profit from competitive head-starts when it comes to offering new broadband technologies and speeds. Historically, regulation has struggled to keep Incumbent head-starts in check with respect to new technologies, such as FTTN and FTTP. These prolonged and systemic head-starts constitute a main reason why competitors have struggled to gain market share. Head-starts also occur due to inflated interim rates for new services or time-consuming modem certification requirements. CNOC therefore requests that the Bureau recommend that the Commission implement a strict no head-start policy built on speed-matching principles. This policy should be a core pillar of the regulatory framework going forward.

ES31. Simplified and Accelerated Wholesale Rate Decision Making. The current Phase II Costing Methodology for setting wholesale service rates is complex, lacks transparency, and is very time consuming for all interested parties. CNOC therefore proposes that the Bureau recommend that the Commission initiate a proceeding to thoroughly examine alternate costing methodologies that are capable of setting rates that accurately reflect underlying economic costs albeit on a much shorter timeline than what can be expected via Phase II Costing.

⁹ "Quality of Service"

ES32. Alternatively, if a more efficient costing methodology cannot be applied, the Commission should be urged to make a commitment to improving Phase II Costing via a set of measures that could include:

- A requirement that Incumbents must actively keep methodology and costing information up to date;
- Periodic audits of Incumbent Phase II Costing processes including applied methodologies, assumptions and cost inputs;
- Industry Phase II Costing education programs to build industry-wide capacity;
- Proactive review of wholesale rates when they do not appear to be cost-based anymore; and
- Adoption of benchmarking practices to compare rates yielded by Phase II Costing against other rates for similar retail services.

ES33. Testing of Incumbent Retail Bundle Pricing for Anti-Competitive Conduct. CNOC recommends ongoing reviews of Incumbent retail bundle pricing. The object of this monitoring activity would be to detect any anti-competitive conduct analogous to predatory pricing.

ES34. A Robust Regulatory Framework for Access to Incumbent Support Structures. Efficient and timely access to support structures is a critical condition for supporting competitive transport supply markets, which, in turn, are critical for the viability of the disaggregated HSA model. Incumbents sometimes deny support structure access to competitors on arbitrary grounds. Access to support structures can also be subject to prohibitive charges. Competitors can also be harmed by lengthy delays until an Incumbent approves an application for support structure access.

ES35. To address all of the chronic support structure issues listed above, CNOC recommends the adoption of a more robust and streamlined regulatory framework for support structures. The objectives of this modernized framework should be to: (1) completely eliminate the potential for anti-competitive conduct relating to support structure access; (2) ensure that all rates for support structure access are just and reasonable; and (3) eliminate any unnecessary delays that competitors currently face when attempting to access Incumbent support structures.

THE CURRENT TRAJECTORY OF THE WIRELINE WHOLESALE SERVICES FRAMEWORK WILL GREATLY UNDERMINE COMPETITION

ES36. Although much of the Commission's wireline wholesale services framework is based on sound economic theory, critical aspects of the Commission's analysis are flawed. Unfortunately, these analytical flaws have consequences that ripple throughout the disaggregated HSA model and the Commission's transition plan for the wireline wholesale services framework.

ES37. *Incorrect Assessment of Transport Duplicability.* A critical theoretical foundation to the current wireline wholesale services framework rests on the Commission's determination that transport facilities are practically and feasibly duplicable from the perspective of a reasonably efficient competitor. This assessment is incorrect if applied to Incumbent operating territories as a whole.

ES38. While it is true that transport segments have been duplicated and other segments may still be economically duplicated, it is not true that transport can be practically or feasibly duplicated throughout Incumbent serving regions.

ES39. Some transport segments cannot be duplicated for reasons including: (1) the location of the POI¹⁰ is too remote; (2) the distance between the POI and neighbouring interconnection points or fibre facilities is too great; (3) the socio-economic characteristics of the customer base served by the POI cannot support a positive business case for the deployment of transport facilities; and (4) there may not be a secondary market to sell excess transport capacity to other service providers.

ES40. The fact that the Commission's policy framework presumes that transport is universally duplicable when it is not will consequently foreclose disaggregated HSA customers from competing in areas where transport duplication is not feasible – thus leading to substantial prevention or lessening of competition in those areas.

ES41. The theoretical problems with the Commission's analysis may be traced back to the Commission's conclusion that the Incumbent's entire serving area constitutes the appropriate geographic market definition. While this may be an administratively simple geographic market to analyze, it simply does not make sense for disaggregated HSA services. Under a disaggregated HSA model, service is supplied from the POI and the range of customers that can be reached is

¹⁰ "Point of Interconnection".

also determined by the coverage boundaries of the POI. Thus, a buyer (the wholesale customer) can only choose between disaggregated HSA service from, at most, Bell and a Cable Carrier in Ontario and Quebec if the coverage area of their respective POIs happen to overlap. Thus, the largest appropriate geographic market area should be the boundary of overlapping Bell and Cable Carrier POI coverage areas, as confirmed in the Ware Report.

MAJOR DISAGGREGATED HSA IMPLEMENTATION ISSUES

ES42. *The CBB Justification for Disaggregated HSA Must be Re-examined.* One of the principal justifications cited by the Commission for moving to a disaggregated HSA model was to cut out the higher CBB¹¹ cost included in the aggregated HSA model. At the time when TRP 2015-326 was issued, the high cost of CBB was indeed one of the greatest threats to the continued survival of competitors relying on aggregated HSA services. However, since TRP 2015-326, the Commission has drastically reduced CBB rates for all Incumbent aggregated HSA services and by as much as 85.61%.

ES43. Although the Commission has yet to set final rates for aggregated HSA services, the CBB trade-off justification anchoring the Commission's decision to move to a disaggregated HSA model must now be re-examined in light of the radically lower interim CBB rates established by TO 2016-396.

ES44. *Costs.*¹² The start-up costs of transitioning to disaggregated HSA on a Cable Carrier platform are very substantial whereas the cost to do so on Bell's disaggregated configuration is simply unfathomable for any size of competitive service provider. Consider the following figures, keeping in mind that a competitor would have to deploy disaggregated HSA at each of the 1016 Bell COs¹³ or all 149 Cable Carrier head-ends in order to duplicate the competitor's current coverage area under the aggregated HSA model (bear in mind that none of these costs include the cost of borrowing):

¹¹ "Capacity-Based Billing".

¹² Note: the costs reported throughout this section are derived from analysis conducted by CNOC members. CNOC members relied on inputs including: (i) the rates set out in relevant tariffs, (ii) the proposed disaggregated HSA configurations of the Incumbents; and (iii) best estimates and assumptions where necessary.

¹³ "Central Offices".

- 1) **Bell Disaggregated HSA Service Via Co-location.** the one-time cost to interconnect at 1016 COs would be \$81,280,000 to \$232,664,000 with recurring costs in the range of \$4,064,000 to \$12,192,000 per month.
- 2) **Bell Disaggregated HSA Service Via Outside-meet-me-point.** the one-time cost to interconnect at 1016 COs would be \$147,828,000 to \$378,460,000 with recurring costs in the range of \$3,556,000 to \$12,192,000 per month.
- 3) **Rogers Disaggregated HSA Service.** The one-time cost to interconnect at 36 Rogers head-ends would be \$3,258,000 to \$7,398,000 with recurring costs in the range of \$144,000 to \$432,000 per month.
- 4) **Cogeco Disaggregated HSA Service.** The one-time cost to interconnect at 60 Cogeco head-ends would be \$5,430,000 to \$12,330,000 with recurring costs in the range of \$240,000 to \$720,000 per month.
- 5) **Videotron Disaggregated HSA Service.** The one-time cost to interconnect at 53 Videotron head-ends would be \$4,796,500 to \$10,891,500 with recurring costs in the range of \$212,000 to \$636,000 per month.

ES45. By contrast, start-up and recurring costs associated with aggregated HSA service are as follows:

- 1) **Bell Aggregated HSA Cost.** The one-time costs to obtain Bell's aggregated HSA service is between \$16,500 and \$31,500 with recurring costs between \$2,500 and \$10,000 per month.
- 2) **Cable Carrier Aggregated HSA Service.** The one-time costs to interconnect at a single Cable Carrier head-end for the purpose of obtaining aggregated HSA service is between \$15,500 to \$30,500 with recurring costs between \$2,500 and \$10,000 per month.

- 3) **Additional one-time POP build cost:** A single POP¹⁴ is necessary for aggregated HSA with either Bell or a Cable Carrier, at a cost of between \$75,000 and \$175,000, with recurring costs between \$1,500 and \$2,000 per month

ES46. Based on the current market share distribution for competitive service providers, the staggering start-up costs of Bell's disaggregated HSA configuration will never be offset by the lower CBB rates that disaggregated HSA provides compared to aggregated HSA. In other words, competitive service providers could never hope to generate \$81,280,000 to \$232,664,000 of CBB savings to offset the equivalent \$81,280,000 to \$232,664,000 of one-time start up costs of deploying disaggregated HSA throughout Bell's serving area in Ontario and Quebec – leaving aside the \$4,064,000 to \$12,192,000 in recurring monthly charges associated with disaggregated HSA.

ES47. The prospect of deploying disaggregated HSA throughout Bell's serving area becomes even more improbable when considering that Bell's tariffed monthly FTTP access charge to wholesale customers is \$121.79, which is \$46.84 higher than Bell's promotional rate for the retail equivalent 1 Gbps / 750 Mbps or \$21.84 higher than the non-discounted rate for that service. This leaves no margin for competition over Bell's FTTP access facilities, which wholesale customers can only access via Bell's disaggregated HSA service.

ES48. *Disaggregated HSA Configurations Should not Strand Canadian Consumers from Competition.* As a counter-point, one might argue that a competitor could selectively deploy disaggregated HSA at a small subset of Bell COs (e.g. those with the highest density of customers) to control costs. However, this necessarily presumes that the competitor would abandon existing and potential customers that are not served by those few COs.

ES49. This idea is at odds with the fundamental purpose of the wholesale services framework – which is to facilitate competition and choice of providers, services and price throughout as much of Canada as possible. No Canadian customer should be stranded simply because they happen to reside in a low-density area that is a particularly weak candidate for disaggregated HSA deployment.

¹⁴ "Point of Presence".

ES50. The Cost of Disaggregated HSA in an Industry that is Subject to Regulatory Uncertainty. Competitors seeking to invest in a disaggregated HSA transition face an omnipresent risk of future changes to aspects of the wireline wholesale services framework in the future. If such changes were to occur, investments in disaggregated HSA could be lost or devalued substantially. Therefore, the high price tag and commensurate risk of disaggregated HSA deployment in an uncertain regulatory environment elevate the barriers to entry and expansion using this model.

ES51. Timelines to Transition to Disaggregated HSA. The timelines to achieve a transition to disaggregated HSA is relevant to the implementation issues surrounding the Commission's transition plan for the wireline wholesale services framework. The timelines for a single competitor to complete a full disaggregated HSA deployment are as follows:

- 1) 43 years to deploy to 1016 Bell COs;
- 2) 3.2 years to deploy to 60 Cogeco head-ends;
- 3) 2.2 years to deploy to 36 Rogers head-ends;
- 4) 2.9 years to deploy to 53 Videotron head-ends

ES52. To make matters worse, Bell's tariff includes a provision that allows Bell to limit the number of concurrent disaggregated HSA deployments to two COs per province. At a minimum, this restriction would prolong the deployment timeline to all 1016 Bell COs to 255 years.

DISAGGREGATED HSA IMPLEMENTATION ISSUES AND REQUIRED RELIEF

ES53. 100 Mbps Speed Cap on Aggregated HSA. A 100 Mbps speed cap will apply to aggregated HSA services once disaggregated HSA service tariffs are approved on a final basis. In light of the barriers to timely and efficient disaggregated HSA deployment, the practical implication of the 100 Mbps speed cap on aggregated HSA services is that competitive service-providers will be foreclosed from competition in substantially all of the downstream retail markets for Internet services in excess of 100 Mbps download.

ES54. Success in this segment of what is a rapidly evolving marketplace geared towards increasingly faster speeds is critical to the survival of competitors going forward. So long as this speed cap is in effect, it means that jointly dominant Incumbents will effectively be pre-empting the availability of their wholesale customers to access the FTTP facilities that the competitors

require to provide the same faster retail broadband speeds that the Incumbents can provide. The outcome is a corresponding substantial lessening or prevention of competition in the increasingly relevant higher speed retail broadband services markets.

ES55. Removal of the 100 Mbps Speed Cap. CNOC therefore recommends the elimination of this condition, which, in conjunction with the other relief sought in this submission, will facilitate an effective transition to disaggregated HSA.

ES56. Bell's Disaggregated Configuration is Unworkable. The extent of disaggregation in Bell's configuration (1016 COs vs 149 combined Cable Carrier head-ends) is simply unworkable. Moreover, the length of time it would take to deploy disaggregated throughout Bell's serving area is measured in decades or even centuries if Bell's tariff restriction on concurrent deployments is enforced. The fact that this configuration is unworkable means that competitors will be deprived of access to FTTP facilities and speeds in excess of 100 Mbps on Bell's wholesale platform.

ES57. A Mid-Level of Disaggregation is Required for Bell. CNOC requests that the Bureau recommend for the Commission to direct Bell to offer a mid-level disaggregated HSA configuration that features a level of disaggregation that is comparable to the cable carriers. This relief will greatly reduce the upfront and recurring cost of interconnection to serve Bell's entire footprint in Ontario and Quebec via disaggregated HSA. Moreover, the need to interconnect at fewer COs will translate into a shorter timeframe for deployment.

ES58. Bell should not be required to abandon full disaggregation. Separate full and mid-level disaggregation configurations will ensure that competitors have the greatest opportunity to maximize economic efficiencies where it is practical and feasible to deploy greater levels of disaggregation while falling back on mid-levels of disaggregation when it is not possible to do so.

ES59. The Lack of Port and Fibre Sharing. Disaggregated HSA configurations and tariffs do not allow competitive service providers to share ports and fibre used in conjunction with disaggregated HSA service. CNOC calculates that port and fibre sharing between three ISPs could result in approximated \$119,000 in upfront savings per ISP and an additional \$2,500 in monthly savings, per ISP.

ES60. Without the efficiencies created by port and fibre sharing, the disaggregated HSA model and tariffs would result in economic waste. Without the opportunity to share such costs,

competitive service providers are deprived of the opportunity to re-invest cost savings into additional disaggregated HSA deployment or into other aspects of their businesses.

ES61. Port and Fibre Sharing is Required. CNOC requests that the Bureau recommend that the Commission ensure that port and fibre sharing be made available on all Incumbent disaggregated HSA offerings. The opportunity for competitors to share costs and excess capacity will allow them to re-invest their savings into more disaggregated HSA deployment or allocate those savings to producing new innovations or to further other aspects of their businesses.

ES62. Port and fibre sharing can be implemented in a simple and straightforward manner. This functionality will not require the Incumbents to re-design their disaggregated HSA configurations. Likewise, port and fibre sharing will not impose a cost burden on Incumbents.

ES63. The Wireline Wholesale Services Framework Will Strand Competitors on Access Facilities that Do Not Include FTTP. The wireline wholesale services framework includes a condition whereby competitors cannot access FTTP facilities unless it is via disaggregated HSA services. However, the cost and deployment timeline barriers to accessing disaggregated HSA services will ensure that competitors and their customers will be stranded on facilities that do not include FTTP.

ES64. Another important dimension to this problem is that the regulatory process to introduce disaggregated HSA available to provinces other than Ontario and Quebec has only recently begun. Therefore, competitors in other regions of Canada face a much longer wait until they can finally hope to reach customers over FTTP access facilities using disaggregated HSA.

ES65. Access to FTTP over Aggregated HSA, Subject to a Forbearance Framework. CNOC requests that the Bureau recommend that the Commission eliminate the condition that competitive service providers may only access FTTP access facilities via disaggregated HSA services. This relief will ensure that competitors are not irreparably harmed during a necessarily progressive transition to disaggregated HSA service. In doing so, competitive providers can work towards building capacity and targeting areas that will allow for economically efficient entry via disaggregated HSA.

ES66. However, CNOC agrees that it is undesirable from an economic perspective to perpetuate the availability of both wholesale HSA models in areas that demonstrate market conditions that can clearly support efficient entry via disaggregated HSA service.

ES67. Therefore, CNOC proposes that the Bureau recommend that the Commission establish an appropriately calibrated forbearance framework that is capable of detecting market conditions that are reflective of the conditions precedent for economically efficient entry using disaggregated HSA service. If such conditions are found to be present, the Commission could then order phase out of aggregated HSA in the area (i.e. the POI) in question, subject to a reasonable phase out period of three years. This phase-out period will allow competitors remaining on the aggregated HSA platform to invest in, migrate to, or negotiate appropriate alternatives to their current aggregated HSA supply.

MAKING KNOWN THE LOCATIONS AND CAPACITY OF TRANSPORT SUPPLY

ES68. CNOC proposes that the Bureau recommend that the Commission take measures to request that all transport providers in Canada make known the locations and capacities of their transport facilities.

ES69. The public disclosure of this information will facilitate the disaggregated regime by providing valuable insight for the network planning that is to be undertaken by competitive service providers vis-à-vis a disaggregated HSA transition.

ES70. Equally importantly, this information would inform the Commission's regulatory decisions regarding the wireline services framework going forward, including determinations as to whether forbearance is appropriate at a given POI location, taking into consideration all relevant factors that would indicate that efficient entry is possible via disaggregate HSA.

1.0 INTRODUCTION AND STRUCTURE OF SUBMISSION

1.1 Introduction

1. Canada's markets for wireline broadband services are characterized by market failures attributable to the presence of significant barriers to entry and expansion and the exercise of market power by jointly dominant incumbent carriers¹⁵. These market failures were repeatedly recognized by the Canadian Radio-Television and Telecommunications Commission ("Commission") and are apparent based on observable indicators derived from data and the conduct of market participants.

2. In an effort to correct these market failures, the Commission has consistently reaffirmed its commitment to regulatory intervention consisting of mandated wholesale access to essential bottleneck facilities. The resulting regulatory framework provides competitive telecommunications service providers¹⁶ with access to Incumbent owned bottleneck network facilities that are necessary to reach customers in downstream retail markets for broadband services. This mandated access is packaged as services called wholesale high-speed access ("HSA") services. Wholesale HSA services are subject to regulated terms, conditions and cost-based rates that are set by Commission approved tariffs.

3. Since the introduction of wholesale HSA services, downstream retail markets have shown modest signs of competitive improvement resulting from the entry and expansion of predominantly service-based competitors. While these improvements are undoubtedly significant, they are overshadowed by the continued presence and exercise of market power by Incumbents in both upstream and downstream markets for broadband services.

¹⁵ For the purposes of this submission, "Incumbents" refers to both Incumbent Local Exchange Carriers "ILECs", which includes Bell Canada (including the operations that were previously operated by Bell Aliant Regional Communications, Limited Partnership and MTS Inc., collectively "Bell"), Northwestel Inc., TELUS Communication Inc. and Saskatchewan Telecommunications and the Cable Carriers including Bragg Communications Inc. c.o.b. Eastlink ("Eastlink"), Rogers Communications Canada Inc. ("Rogers"), Cogeco Communications Inc. ("Cogeco"), Quebecor Media Inc. on behalf of its affiliate Videotron Ltd. ("Videotron") and Shaw Cablesystems G.P. For simplicity, this submission strives to refer to Incumbents generally as much as possible. It bears noting that in Ontario and Quebec the only ILEC required to provide disaggregated wholesale high-speed access service is Bell while the Cable Carriers required to provide these services are Rogers, Cogeco and Videotron.

¹⁶ Another note on nomenclature: This submission refers synonymously to "service-based providers", "competitive service providers", "competitors", "independent service providers" and "wholesale customers". All of this terminology refers to Internet service providers who are not affiliated with the Incumbents.

4. Service-based providers face daunting obstacles, constraints and disadvantages when it comes to accessing wholesale inputs. Such hindrances prevent service-based providers from accessing wholesale inputs on terms and at a quality of service that will allow them to compete on an equal footing with Incumbents in downstream retail markets. In addition to the systemic disadvantages that service based-providers face due simply to their reliance on wholesale services, the significant retail market power and incumbency advantages of Canada's large Incumbents further prevent and / or limit the ability of service-based competitors to compete effectively at retail.

5. In short, Canada's broadband service markets do not demonstrate healthy levels of competition. Still, service-based competitors have proven that they can ameliorate competition levels, which translates into corresponding benefits for consumers. Unfortunately, so long as this class of market participants is prevented by Incumbent conduct from operating at full efficiency, so too will consumers be deprived of the maximum yield of competitive benefits that service-based providers can generate.

6. This submission, with the support of the expert evidence tendered by professor Roger Ware (the "Ware Report"),¹⁷ describes the *status quo* and proposes a series of measures for improving the efficiency of service-based competition. CNOC urges the Competition Bureau ("Bureau") to reflect these measures in the recommendations that will be included in the published results of its market study.

7. The Bureau's market study could not come at a more opportune time. The competitive side of the broadband industry faces a critical turning point brought about by the Commission's most recent review of the wireline wholesale services framework. Although the change introduced in this latest regulatory review was a well-intentioned attempt to improve the competitive landscape, the current regulatory framework is on a new trajectory that will not increase but rather, greatly undermine, competition in downstream markets.

8. The issues with the current regulatory framework are steeped in complex regulatory context and economic principles. Given the depth of this subject and the importance of the relief

¹⁷ Competition Issues in Facilities-Based Versus Service Based Competition and Disaggregated Wholesale HSA Transport, Roger Ware, August 2018 ["Ware Report"].

that is required to ensure that the wireline services framework can support sustainable competition, these matters constitute a predominant focus of this submission.

9. Although this submission recommends several headings of relief, the remedies advocated by CNOC are not complex or burdensome. In fact, following implementation of CNOC's proposals will simplify and streamline rather than complicate regulation. The idea is to entrench principles that can drive efficient and effective wholesale service policy making. In doing so, we avoid years or decades of relitigating wholesale services policy – a cycle which harms competition and more importantly, Canadian consumers of broadband services.

1.2 Structure of the Application

10. The structure of the balance of this submission is described hereunder.

11. Section 2.0 of this submission summarizes the relief that is necessary to maximize competition in Canada's broadband markets.

12. Section 3.0 then goes on to describe the factual and regulatory background to set the stage for the balance of this submission.

13. Section 4.0 makes the case for why equal footing between service-based competitors and facilities-based Incumbents is required to achieve vigorous and sustainable competition in Canadian broadband markets.

14. Section 5.0 explains why the current trajectory of the wireline wholesale services framework will greatly undermine competition and also makes recommendations for remedying the fundamental issues that threaten the continued viability of wholesale HSA services.

15. Finally, Section 6.0 sets out CNOC's conclusions.

2.0 RELIEF NECESSARY TO MAXIMIZE COMPETITION IN CANADA'S BROADBAND MARKETS

16. In order to maximize the efficiency of service-based competitors and correct the fundamental issues threatening the wireline wholesale services framework, CNOC recommends the following headings of relief:

- (1) Measures to correct fundamental issues with the wireline wholesale services framework:

- i. Removal of the 100 Mbps speed cap on aggregated HSA services;
 - ii. Establishment of a mandated mid-level of disaggregation on the Bell network;
 - iii. The addition of port and fibre sharing functionality for all Incumbent disaggregated HSA services;
 - iv. Access to FTTP facilities over aggregated HSA services, subject to a forbearance framework;
 - v. Making known the locations and capacity of transport supply.
- (2) Improved access to comprehensive and accurate Incumbent retail service qualification and service provisioning information and related monitoring;
 - (3) Implementation of data barriers between the wholesale and retail arms of the Incumbents and related monitoring;
 - (4) Enforcement of a robust competitor quality of service regime including standards based on equivalent Incumbent retail performance and financial deterrence for non-compliance;
 - (5) Implementation of a strict no Incumbent head-start policy, whether resulting from new technologies or service speeds;
 - (6) Adoption of measures to simplify and accelerate wholesale rate decision making including either the adoption of a more efficient costing methodology that continues to be based on an economic incremental costing approach or, alternatively, improvements to Phase II Costing including:
 - i. A requirement that Incumbents must actively keep methodology and costing information up to date;
 - ii. Periodic audits of Incumbent Phase II Costing processes including applied methodologies, assumptions and cost inputs;
 - iii. Industry Phase II Costing education programs to build industry-wide capacity;

- iv. Proactive review of wholesale rates when they do not appear to be cost-based anymore; and
 - v. Adoption of benchmarking practices to test the viability of wholesale rates yielded by Phase II Costing against rates for retail services requiring the corresponding wholesale inputs.
- (7) Testing of Incumbent retail bundle pricing for anti-competitive conduct; and
 - (8) Implementing a more robust regulatory framework for support structures.

3.0 FACTUAL AND REGULATORY BACKGROUND

17. The factual and regulatory background that informs this submission is voluminous, layered and complex. This section 3.0 of CNOC’s submission provides a description of regulated wholesale HSA services together with an overview of the major regulatory developments surrounding these services and corresponding markets for broadband services, from 2015 to present day. As a first order of business, this background section begins with a primer on the constituent elements of wholesale HSA services.

3.1 Constituent Elements of Wholesale HSA Services

18. There are two different models of wholesale HSA services: (i) the aggregated HSA model; and (ii) the disaggregated HSA model.

19. Currently, competitors rely almost exclusively on the aggregated HSA model. Aggregated HSA services include the following three main components: access, aggregated transport and an interface component. Each component warrants further discussion.

20. First, the access component allows competitors to reach end customers via the last-mile facilities (e.g., copper (or joint fibre-copper) or coaxial cable¹⁸) that connect the wholesale HSA provider’s network directly to the end customer’s premises. Second, aggregated transport provides the competitor with packet-based transport throughout the wholesale HSA’s provider’s network from the point-of-interconnection¹⁹ (“POI”) interface at which the wholesale customer connects

¹⁸ There are also fibre-to-the-premises last-mile access facilities, however the Commission has determined that competitors may only provide services over such facilities via the disaggregated HSA model.

¹⁹ Note that there are two different kinds of POIs: Bell’s POIs are called Central Offices (“COs”) while the Cable Carrier’s POIs are called “head-ends”.

to the access components of the wholesale HSA provider's network. This transport component is aggregated or bundled in that it includes as many transport paths as are necessary to reach the last-mile access facilities. Notably, the aggregated transport component is highly usage sensitive and drives the capacity-based costs of aggregated wholesale HSA services. Finally, the interface component consists of the actual physical interconnection port at the wholesale HSA service provider's (i.e., Incumbent's) POI.

21. In contrast, a fully disaggregated HSA model includes only access and interface components. The main distinguishing feature of full disaggregation is that it does not include any form of transport component, aggregated or otherwise. This has two practical implications for wholesale HSA customers: (1) wholesale HSA customers must supply their own transport throughout their coverage area; and (2) given that transport is not aggregated or bundled, wholesale HSA customers must establish a presence at many Incumbent POIs to duplicate existing coverage areas served via the aggregated model.

22. For technical reasons, it turns out that not all Cable Carrier head-ends can accommodate POIs and thus, the disaggregated HSA services of the three major Cable Carriers operating in Ontario and Quebec (namely, Cogeco, Rogers and Videotron) must, by necessity, include some degree of transport aggregation. This means that the Cable Carriers provide complete coverage of their territories in Ontario and Quebec with a total of 149 major head-ends.²⁰ By contrast Bell's wholesale HSA service is technically capable of much higher level of disaggregation, Accordingly, full coverage of its operating territory throughout Ontario and Quebec via its disaggregated HSA requires interconnection with almost each one of its 1016 COs²¹ in those provinces.²²

²⁰ These cable head-ends are listed in: Rogers Access Services Tariff, CRTC 21530, Part G, Item 704; Cogeco TPIA Tariff CRTC 26400, Item 104; and in a spreadsheet included in Videotron Tariff Notice 53.

²¹ Note: This number of Bell COs is cited in a Bell response to a Commission request for information labeled Bell Canada(CRTC)22Jul15-1 Telecom Regulatory Policy CRTC 2015-326, CRTC File No. 8663-C12-201313601, available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?Key=108884&Type=Notice>.

²² A further note on CO numbers: Bell's above referenced response to the Commission's request for information noted that 1016 was the total number of Bell COs as at 2015 while 891 of those COs were capable of broadband using DSL and / or FTTP. However, Bell's disaggregated HSA configuration features a full level of disaggregation, it should therefore be assumed that disaggregated HSA deployment at nearly all 1016 COs would be required to reach customers throughout Bell's serving area. Nevertheless, even if the number of required interconnecting CO turned out to be 891 instead of 1016, the analysis set out in this submission concerning Bell's disaggregated HSA services would not be materially different from the analysis provided assuming 1016 COs.

3.2 Telecom Regulatory Policy CRTC 2015-326

A. *The Revised Wholesale Wireline Services Framework*

23. Telecom Regulatory Policy CRTC 2015-326²³ (“TRP 2015-326”) sets out the Commission’s latest regulatory framework for wholesale wireline services. The regulatory policy directed the implementation of disaggregated wholesale HSA services, including over Incumbent fibre-to-the-premises (“FTTP”) access facilities.²⁴ The Commission determined that the implementation of disaggregated wholesale HSA service would occur in phases in accordance with an implementation plan set out in the regulatory policy.²⁵ The Commission also determined that aggregated wholesale HSA services would be phased out in conjunction with the implementation of disaggregated wholesale HSA services.²⁶

B. *Application of the Essentiality Test*

24. To reach the above-listed determinations, the Commission applied the “Essentiality Test”²⁷, which is comprised of the following three components:²⁸

- **The input component:** the facility²⁹ is required as an input by competitors to provide telecommunications services in a relevant downstream market³⁰;
- **The competition component:** the facility is controlled by a firm³¹ that possesses upstream market power such that denying (or withdrawing) access to the facility would likely result in a substantial lessening or prevention of competition in the relevant downstream market; and

²³ *Review of wholesale wireline services and associated policies*, Telecom Regulatory Policy CRTC 2015-326, 22 July 2015 [“TRP 2015-326”].

²⁴ *Id.*, at para 143.

²⁵ *Id.*, at para 152.

²⁶ *Id.*, at para 155.

²⁷ Note for background on the Essentiality Test, see the Commission’s review of the test at paras 15 to 53 of TRP 2015-326.

²⁸ TRP 2015-326, at para 15.

²⁹ As per TRP 2015-326, footnote 7, “In [the] decision, a reference to a facility or service may be taken as a reference to a facility, function, or service (or all three), as appropriate in the context.

³⁰ As per TRP 2015-326, footnote 8, “Generally, the downstream market represents the market for retail services that rely on underlying telecommunications facilities as an essential input. In contrast, the upstream market represents the market for the underlying telecommunications facilities themselves.”

³¹ As per TRP 2015-326, footnote 9, “In the context of [the] decision, the term “firm” includes a group of firms exercising collective market power.”

- **The duplicability component:** it is not practical or feasible for competitors to duplicate the functionality of the facility.

25. The Commission then proceeded to apply the Essentiality Test to wholesale HSA services. First, it was determined that the relevant geographic market was the Incumbent serving territory.³² Next, the Commission found that wholesale HSA services met the input component of the Essentiality Test based on current and projected demand levels.³³

26. When assessing the competition component of the Essentiality Test, the Commission concluded that Incumbents collectively have market power in the provision of wholesale HSA services in their serving regions.³⁴ By extension, the Commission confirmed that there would be a substantial lessening or prevention of competition in the downstream retail Internet services market by denying mandated access to wholesale HSA services.³⁵

27. Finally, with respect to duplicability, the Commission declared that this component of the Essentiality Test would be assessed from the perspective of a reasonably efficient competitor.³⁶ Accordingly, the Commission found that competitors cannot feasibly or practically duplicate last-mile HSA facilities on a scale sufficient to compete effectively with Incumbents within their serving regions due to significant barriers to duplicating access facilities, including securing sufficient capital, securing rights-of-way, and construction challenges that require significant lead time to complete.³⁷

28. The Commission also assessed duplicability of FTTP access facilities more specifically. TRP 2015-326 explains that although there is some small deployment of FTTP access facilities by non-Incumbents, the capital investment required by competitors to reproduce the deployment of an ILEC's FTTP access facilities in the ILEC's serving territory would be very significant, excluding the additional challenges associated with the myriad of other network facilities, infrastructure, office facilities, and back office support staff and systems that would be required.³⁸

³² TRP 2015-326, at para 116.

³³ *Id.*, at para 120.

³⁴ *Id.*, at para 124.

³⁵ *Id.*, at para 130.

³⁶ *Id.*, at para 44.

³⁷ *Id.*, at paras 133-134.

³⁸ *Id.*, at para 134.

The regulatory policy went on to recognize the significant advantages that allow Incumbents to build widespread FTTP access facilities: decades of incumbency in the provision of wireline services, with all the associated advantages, including established brands and customer bases, existing network infrastructure including support structures, national fibre backbone networks, pre-existing municipal access agreements, various economies of scale, and greater access to capital markets.³⁹

29. Finally, the Commission concluded that transport facilities are generally duplicable in all incumbent carrier serving region from an economic, technical and implementation perspective and that no compelling evidence was filed in the proceeding to substantiate a case to the contrary.⁴⁰

C. Policy Considerations

30. As a new consideration following the application of the Essentiality Test,⁴¹ the Commission assessed relevant policy considerations. In this context, the Commission focused on “Innovation and Investment”⁴² and made the following determinations:

- A decision to no longer mandate the provision of aggregated HSA would not impact investment in high-speed facilities by Incumbents or competitors, nor would it affect consumer adoption of Internet access services, so long as a disaggregated HSA service is made available;⁴³
- Implementing disaggregated HSA may raise Incumbent concerns regarding recovery of costs and disruption of network evolution plans;⁴⁴
- On the other hand, disaggregated HSA would enable competitors to become more innovative by giving them a greater degree of control over their service offerings;⁴⁵
- Disaggregated HSA could also encourage competitor investment in alternate transport facilities;⁴⁶

³⁹ *Ibid.*

⁴⁰ *Id.*, at paras 135-136.

⁴¹ *Id.*, at para 51.

⁴² *Id.*, at para 137.

⁴³ *Id.*, at para 138.

⁴⁴ *Id.*, at para 139.

⁴⁵ *Ibid.*

⁴⁶ *Ibid.*

- Disaggregated HSA is more appropriate than an aggregated solution as a means forward to support the sustainability of competitive service offerings;⁴⁷
- No negative impact on Incumbent FTTP investment would result from mandating access to Incumbent FTTP facilities because Incumbents will continue to invest in FTTP in response to consumer demand and wholesale rates would be compensatory resulting in profit on associated investment;⁴⁸ and
- The Commission recognized that one of main drawbacks of the then aggregated HSA service is the high cost incurred by competitors when inefficiently transporting large amounts of traffic over Incumbent networks.⁴⁹

D. Mandating Decision and Transition Plan

31. The Commission decided to mandate disaggregated HSA services beginning in the provinces of Ontario and Quebec, where demand for competitor service is highest.⁵⁰ The Commission also indicated that other phases would be identified at a later stage⁵¹ (the second phase has been initiated and is discussed in Section 3.9, below). Implementation of disaggregated HSA service would be demand-based in recognition that there may initially be limited demand for disaggregated HSA and some competitors may have a preference to continue to use aggregated HSA.⁵² The Commission emphasized the importance of a smooth-transition to disaggregated HSA over time.⁵³

32. However, the Commission also determined that incentives would be required to encourage migration to disaggregated HSA services⁵⁴, which would be created through two regulatory conditions associated with HSA services going forward: (1) competitors desiring access to customers served by FTTP access facilities will only be able to do so by using a disaggregated wholesale HSA service;⁵⁵ and (2) a 100 Mbps download speed cap would apply to aggregated wholesale HSA services, to take effect upon final approval of the Incumbent disaggregated HSA

⁴⁷ *Id.*, at para 140.

⁴⁸ *Id.*, at para 141.

⁴⁹ *Id.*, at para 145.

⁵⁰ *Id.*, at para 152.

⁵¹ *Ibid*

⁵² *Id.*, at para 148.

⁵³ *Id.*, at para 150.

⁵⁴ *Ibid.*

⁵⁵ *Id.*, at para 153.

service tariffs, at which time existing aggregated services at speeds in excess of 100 Mbps would be grandfathered.⁵⁶

33. According to the Commission's transition plan, implementation of disaggregated HSA service would be triggered by competitor requests for service at a given ILEC CO or cable head-end location.⁵⁷ Upon implementation of disaggregated implementation at a CO or cable head-end location, aggregated HSA service at the same location would be phased out over a period of three-years.⁵⁸

34. After phase out, Incumbents will have the ability to: (i) continue offering aggregated HSA at tariffed rates; (ii) cease providing the service for COs / head-ends served by disaggregated HSA (i.e., "withdraw" the service"); or (iii) file for forbearance one year prior to the end of the phase out period if they wish to continue to provide the service on a forborne basis.⁵⁹

35. The Commission acknowledged that while transport facilities that support a disaggregated wholesale HSA service model were previously forborne from price regulation on a national basis, there is a risk that, in specific geographic markets, there may be limited availability of such facilities.⁶⁰ Further, while investment in and deployment of competitive transport facilities was no doubt impacted by the availability of aggregated wholesale HSA services, it may take time for competitors to build the necessary transport facilities, a factor to consider when phasing out aggregated wholesale HSA services.⁶¹

36. The Commission noted that the market conditions associated with the provision of appropriate transport facilities will be assessed during the forbearance process.⁶²

⁵⁶ *Id.*, at para 154.

⁵⁷ *Id.*, at para 155.

⁵⁸ *Ibid.*

⁵⁹ *Id.*, at para 156.

⁶⁰ *Id.*, at para 149.

⁶¹ *Id.*, at para 149.

⁶² *Ibid.*

3.3 Follow-up to TRP 2015-326 and Telecom Decision CRTC 2016-379

37. A follow-up proceeding was launched to establish disaggregated wholesale HSA service configurations.⁶³ Bell, Cogeco, Rogers and Videotron filed proposed disaggregated wholesale HSA configurations that were subject to comment from interested parties, including CNOC. The Commission issued its determinations in Telecom Decision CRTC 2016-379⁶⁴ (“TD 2016-379”), after a very long process that was subject to several delays.

38. As noted above, the Commission confirmed that the level of disaggregation should be at the CO level for ILECs and at the major head-end level for cable carriers.⁶⁵ This translates to a disaggregated HSA configuration for Bell featuring 1016 COs in Ontario and Quebec alone⁶⁶ – an extremely high number when compared to the approved number of POIs featured in the Commission approved disaggregated HSA configurations of the cable carriers in their respective Ontario / Quebec serving areas: 36 for Rogers in Ontario;⁶⁷ 37 and 23 for Cogeco in Ontario and Quebec, respectively;⁶⁸ and 53 for Videotron in Quebec.

39. The Commission’s TD 2016-379 determinations also included: (i) a direction that Rogers and Videotron file configuration proposals excluding transport components;⁶⁹ (ii) clarification that Incumbents are only required to provide solutions that utilize Layer 3 routing and switching techniques;⁷⁰ (iii) a direction that Bell, Cogeco, Rogers and Videotron are required to provide an outside meet-me point for interconnection to the disaggregated wholesale HSA service;⁷¹ (iv) denial of CNOC’s request that Rogers be required to allow virtual-colocation and CNOC’s request

⁶³ *Follow-up proceeding to consider implementation issues of disaggregated wholesale HSA services, including over FTTP access facilities*, Follow-up to Telecom Regulatory Policy CRTC 2015-326, initiated by Commission Staff letter dated 22 July 2015, CRTC File No. 8638-C12-201509663, available at <https://crtc.gc.ca/eng/archive/2015/lt150722.htm>.

⁶⁴ *Follow-up to Telecom Regulatory Policy 2015-326 – Implementation of a disaggregated wholesale high-speed access service, including over fibre-to-the premises access facilities*, Telecom Decision CRTC 2016-379, 20 September 2016 [“TD 2016-379”].

⁶⁵ *Id.*, at paras 33 and 38.

⁶⁶ Bell Canada(CRTC)22Jul15-1 TRP 2015-326, as filed in Follow-up to Telecom Regulatory Policy CRTC 2015-326, CRTC File No. 8663-C12-201313601, available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?Key=108884&Type=Notice>.

⁶⁷ Rogers Access Services Tariff, CRTC 21530, Part G, Item 704.

⁶⁸ Cogeco TPIA Tariff, CRTC 26400, Item 104.

⁶⁹ TD 2016-379., at para 38.

⁷⁰ *Id.*, at para 74.

⁷¹ *Id.*, at para 85.

to remove the primary purpose restriction for disaggregated HSA;⁷² and (v) a determination that the Incumbents are to provide competitors with the ability to buy capacity in 50 Mbps increments for their disaggregated wholesale HSA services.⁷³ The Commission noted a proposal made by CNOC in that proceeding for port/fibre sharing but stayed silent when it came to mandating it.⁷⁴

40. Finally, the Commission also directed the CRTC Interconnection Steering Committee (“CISC”) to establish a working group to address the resolution of interconnection and related technical and operational issues associated with implementation of the disaggregated wholesale HSA service.⁷⁵

3.4 CISC Network Working Group

41. CISC Network Working Group (“NTWG”) Task Identification Form (“TIF”) 35 was originated December 14, 2016. The scope of the task identified by TIF 35 was described as follows: “... the implementation of the disaggregated wholesale HSA service model in Ontario and Quebec by resolving interconnection and related technical and operational issues. While this task will address issues related to connectivity, it will not provide specifications at the application or service level.” Within this scope, the NTWG covered topics including: IP Address Allocation (IPv4 / IPv6), POI identification (POI Maps & Qualification Tools) and outside meet-me points.

42. During meetings of the NTWG TIF 35 working group, CNOC raised the issue of port and fibre sharing functionality. Meeting participants debated whether the issue was in scope. Ultimately, Commission staff confirmed that port and fibre sharing functionality was not within the scope of NTWG TIF 35.

43. The NTWG TIF 35 working group is currently late in the report writing stage for TIF 35.

⁷² *Id.*, at para 106.

⁷³ *Id.*, at para 123.

⁷⁴ *Id.*, at para 86.

⁷⁵ *Id.*, at para 150.

3.5 Bell Application to Review and Vary TD 2016-379 and Telecom Decision CRTC 2017-459

Bell Application to Review and Vary TD 2016-379

44. On 2 December 2016, Bell filed an application to review and vary TD 2016-379 to eliminate the requirement that Bell implement an outside meet-me point of interconnection (“Bell R and V Application”). In essence, Bell took the position that the Commission erred in law and in fact by requiring Bell to provide an outside meet-me point interconnection option in addition to the co-location options that Bell already offers for interconnection at a CO.⁷⁶

45. CNOC opposed the Bell R and V Application on the grounds that co-location in the CO, as the only means of interconnection for disaggregated wholesale HSA service, would constitute a barrier to entry given the high-costs associated with co-location compared to the costs associated with interconnection at an outside meet-me point.⁷⁷

Telecom Decision CRTC 2017-459

46. Telecom Decision CRTC 2017-459⁷⁸ (“TD 2017-459”) was issued, which set out determinations regarding the Bell R and V Application.

47. In TD 2017-459 the Commission dismissed the Bell R and V Application on the basis that a meet-me point would be less costly than co-location⁷⁹ and that the Commission’s determination in TD 2016-379 for Bell Canada to implement an outside meet-me point was consistent with the Policy Direction⁸⁰ requirement: (1) to ensure that regulatory measures, to the greatest extent possible, be implemented in a symmetrical and competitively neutral manner; and (2) that

⁷⁶ *Id.*, at para 3.

⁷⁷ Intervention of CNOC dated 23 January 2017 in proceeding initiated by Bell R and V Application. CRTC File No. 8662-B2-201612391, available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID=2855464>

⁷⁸ *Bell Canada – Application to review and vary Telecom Decision 2016-379 regarding the implementation of an outside meet-me point for disaggregated wholesale high-speed access service*, Telecom Decision CRTC 2017-459, 20 December 2017 [“TD 2017-459”].

⁷⁹ TD 2017-459, at para 24.

⁸⁰ Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives, SOR/2006-355 [“Policy Direction”].

regulatory measures be efficient and proportionate to their purpose and interfere with market forces to the minimum extent necessary.⁸¹

3.6 Telecom Order 2017-312 / Telecom Order 2017-312-1

Telecom Order CRTC 2017-312

48. On 29 August 2017, in Telecom Order CRTC 2017-312⁸² (“TO 2017-312”) the Commission approved, on an interim basis, rates for disaggregated wholesale HSA services in Ontario and Quebec. As context for this interim approval, the Commission referenced competitors’ concerns regarding the unavailability of FTTP access.⁸³ According to the Commission, interim approval of the disaggregated wholesale HSA tariffs would provide competitors with the ability to use disaggregated wholesale HSA services (including FTTP access) and the opportunity to more effectively compete prior to the finalization of the rates, to the benefit of Canadians.⁸⁴ The interim approval took place before the record of the underlying tariff proceedings closed.

49. In setting interim rates, the Commission determined that the rates proposed by Bell, Cogeco, Rogers and Videotron were not reasonable and made a number of adjustments to the proposed rates based on the Phase II costing methodology,⁸⁵ previous Commission determinations,⁸⁶ Bell Canada-specific determinations related to the access component⁸⁷ and cost model errors.⁸⁸ Further adjustments are likely when final rates, terms and conditions are eventually approved.

Telecom Order CRTC 2017-312-1

50. Following the release of TO 2017-312, CNOC sought clarification as to whether TO 2017-312 was intended to grant interim approval of the Incumbent disaggregated wholesale HSA service tariff applications, including proposed terms and conditions contained therein. This clarification

⁸¹ TD 2017-459, at para 32 and 41.

⁸² *Interim rates for disaggregated wholesale high-speed access services in Ontario and Quebec*, Telecom Order CRTC 2017-312, 29 August 2017 [“TO 2017-312”], at para 19.

⁸³ *Id.*, at para 17.

⁸⁴ *Id.*, at para 18.

⁸⁵ *Id.*, at para 24.

⁸⁶ *Ibid.*

⁸⁷ *Id.*, at para 25.

⁸⁸ *Id.*, at para 26.

was necessary given that TO 2017-312 only granted interim approval of “rates” for disaggregated wholesale HSA service. On 12 September 2017, the Commission issued Telecom Order CRTC 2017-312-1⁸⁹ (“TO 2017-312-1”), clarifying that the Commission approved on an interim basis the Bell, Cogeco, Rogers and Videotron tariff applications, inclusive of the terms and conditions associated with the approved rates. The Commission did not make any changes to the terms and conditions proposed by the Incumbents in granting that interim approval.

3.7 CNOC Application for Transitional Aggregated HSA over FTTP and Telecom Decision CRTC 2018-44

CNOC Application for Transitional Aggregated HSA over FTTP

51. On 30 March 2017, CNOC filed a Part 1 Application requesting relief consisting of a transitional form of aggregated wholesale HSA service over Incumbent FTTP facilities.⁹⁰ CNOC argued that this relief was necessary to address a progressively worsening situation of wholesale HSA service gaps in areas where an Incumbent has deployed FTTP access facilities and where no other wireline access facilities from that Incumbent are capable of providing high-speed Internet services (“Wholesale HSA Service Gaps”).⁹¹ As CNOC explained, this situation is a result of the lengthy and still ongoing process to implement the Commission’s TRP 2015-326 policy linking mandated wholesale access to FTTP access facilities with the future deployment of disaggregated wholesale HSA services.⁹²

52. To rectify Wholesale HSA Service Gaps, CNOC requested relief consisting of transitional access to aggregated wholesale HSA over FTTP facilities for all speeds up to the highest speed offered on a wholesale basis by an Incumbent including speeds in excess of 100 Mbps (“Transitional FTTP Access”).⁹³

⁸⁹ *Interim rates for disaggregated wholesale high-speed access services in Ontario and Quebec*, Telecom Order CRTC 2017-312-1, 12 September 2017 [“TO 2017-312-1”].

⁹⁰ CNOC Application For Transitional Aggregated Wholesale High-Speed Access Services Over Incumbent Fibre-to-the-Premises Facilities, 30 March 2017, CRTC File No. 8663-C182-201702598 available at <https://services.crtc.gc.ca/pub/TransferToWeb/2017/8663-C182-201702598.zip>.

⁹¹ *Id.*, at para 2.

⁹² *Id.*, at paras 3-5.

⁹³ *Id.*, at para 12.

53. As proposed by CNOC, Transitional FTTP Access would be subject to the following terms:⁹⁴

- (1) Scope of the Transitional FTTP Access: CNOC requested Transitional FTTP Access throughout Canada, wherever an Incumbent offers FTTP retail high-speed Internet access services but does not offer any wholesale HSA Services to Competitors at speeds currently supported by FTTN technologies (since this condition represents a Wholesale HSA Service Gap);
- (2) Incumbent providers of Transitional FTTP Access: The obligation to provide Transitional FTTP Access would apply equally to the ILECs and Cable Carriers that were directed to continue to provide mandated wholesale HSA services in TRP 2015-326;
- (3) Transitional nature of the relief: Transitional FTTP Access would be necessary in the circumstances described above until: (i) wholesale disaggregated HSA service is made available in an ILEC central office or cable head-end that is capable of serving a Wholesale HSA Service Gap; and (ii) a three-year phase out period has elapsed, consistent with the determinations in TRP 2015-326;⁹⁵
- (4) Rates applicable to Transitional FTTP Access: Transitional FTTP Access would be subject to the rates applicable to equivalent service speeds available over FTTN facilities.

Telecom Decision CRTC 2018-44

54. On February 2, 2018, the Commission issued Telecom Decision CRTC 2018-44⁹⁶ (“TD” 2018-44”) denying CNOC’s Application for Transitional Aggregated Wholesale HSA Services over Incumbent FTTP Facilities.

55. The Commission emphasized that the transition plan was intended to limit disruption in the wholesale services market and provide time for competitors to build or lease transport facilities to gradually expand the network facilities available over disaggregated HSA.⁹⁷ Further, the Commission acknowledged that it considered service gaps over aggregated HSA when it made its

⁹⁴ *Ibid.*

⁹⁵ TRP 2015-326, at para 155.

⁹⁶ Telecom Decision CRTC 2018-44, *Canadian Network Operators Consortium Inc. – Application for transitional access to incumbent carriers’ fibre-to-the-premises facilities through aggregated wholesale high-speed access services*, 2 February 2018, at para 74 [“TD 2018-44”].

⁹⁷ *Id.*, at para 18.

TRP 2015-326 determinations and expected those gaps to continue during the transition phase.⁹⁸ The Commission also acknowledged that a delay in access to FTTP would be inevitable given the need for follow-up implementation proceedings to consider configurations, costs and demand for disaggregated HSA and how FTTP would be integrated into those services.⁹⁹

56. Ultimately, the Commission concluded that the record did not demonstrate significant harm to competition or competitors resulting from Wholesale HSA Service Gaps.¹⁰⁰

57. The Commission also emphasized the role of regulatory incentives intended to encourage competitors to migrate to disaggregated HSA:¹⁰¹ (i) limiting mandated access to FTTP facilities through the new disaggregated HSA services; and (ii) adopting a maximum download speed threshold of 100 Mbps with respect to the existing aggregated HSA services once final rates for disaggregated HSA have been approved. According to the Commission, CNOC's proposed relief would undermine these incentives and many competitors would therefore opt to remain on aggregated HSA as long as possible, thereby limiting investment in transport networks and discouraging facilities-based competition.¹⁰²

3.8 Disaggregated and Aggregated HSA Costing Processes

58. The Commission process to review both aggregated and disaggregated wholesale HSA rates, as well as other tariff terms and conditions, is still ongoing. Recently, the Commission issued extensive requests for information directed at the Incumbents with respect to both aggregated and disaggregated HSA.¹⁰³ CNOC filed voluminous requests for disclosure of information of information that was filed in confidence by the Incumbents contrary to the Commission's disclosure guidelines.¹⁰⁴ Thereafter, the Commission ordered several Incumbents to disclose

⁹⁸ *Id.*, at para 19.

⁹⁹ *Id.*, at para 21.

¹⁰⁰ *Id.*, at para 55.

¹⁰¹ *Id.*, at para 67.

¹⁰² *Id.*, at para 71.

¹⁰³ Commission staff letters dated 2 March 2018 in Follow-up to Telecom Order CRTC 2016-396 and Telecom Order CRTC 2016-448 and Follow-up to Telecom Decision CRTC 2016-379 – Requests for information, available at <https://crtc.gc.ca/eng/archive/2018/lt180302a.htm> & <https://crtc.gc.ca/eng/archive/2018/lt180302b.htm>

¹⁰⁴ See CNOC letter dated 8 June 2018 in Follow-up to TD 2016-379; See also CNOC letter dated 8 June 2018 in Follow-up to Telecom Order CRTC 2016-396 and Telecom Order CRTC 2016-448.

information filed in confidence.¹⁰⁵ Additional process for the costing proceedings for aggregated and disaggregated HSA is expected soon.

3.9 Process for Introducing Disaggregated HSA Outside of Ontario and Quebec

59. A process has been initiated to examine implementation issues for the introduction of disaggregated HSA outside of Ontario and Quebec.¹⁰⁶ At this stage of the process, proposed configurations from the Incumbents are expected by 25 September 2018 with interventions scheduled to be filed by October 25, 2018 and Incumbent replies to be submitted by November 8, 2018.

3.10 Regulatory and Competitive History of Fibre-to-the-Node (“FTTN”)

60. Regulatory and competitive lessons can be learned from the history of FTTN facilities regulation. This section summarizes the major milestones in FTTN regulation. More importantly, this section highlights the avoidable competitive harms that resulted from flawed regulation that did not proactively eliminate the potential for Incumbent head-starts in the retail market.

61. FTTN facilities have succinctly been defined as follows: “FTTN technology upgrades the telephone company’s access network by extending fibre-based facilities closer to the customer’s premises (but not directly to the premises as with FTTP) in order to provide increasingly high-speed access services.”¹⁰⁷

62. The history of FTTN deployment and regulation can be summarized as follows:

- Bell was offering FTTN services to end-users as early as 2004.¹⁰⁸

¹⁰⁵ Commission staff letter dated 27 July 2018 in *Follow-up to Telecom Order CRTC 2016-396 and Telecom Order CRTC 2016-448 – aggregated wholesale high-speed access (HSA) service – Requests for disclosure and additional information*, CRTC File No. 8740-B2-201700055, available at <https://crtc.gc.ca/eng/archive/2018/lt180727a.htm>.

¹⁰⁶ Initiated by Follow-up process to consider implementation issues of disaggregated wholesale HSA services, including over FTTP access facilities, in other regions, Commission Staff letter dated 9 March 2017, in *Follow-up to Telecom Regulatory Policy CRTC 2015-326 (CRTC File No. 8638-C12-201509663)* available at <https://crtc.gc.ca/eng/archive/2017/lt170309a.htm>.

¹⁰⁷ Telecom Notice of Consultation 2013-551, *Review of wholesale services and associated policies*, 15 October 2013 at Footnote 20 [TNC 2013-551].

¹⁰⁸ BCE Inc., *2004 Annual Report*, at pg 6.

- In Telecom Order CRTC 2007-22¹⁰⁹ (“TO 2007-22”), Bell was ordered to make its aggregated ADSL access services “available to competitors at speeds that match the speeds they offer to their retail Internet service customers (the speed-matching requirement.)”¹¹⁰
- However, this victory for competitors was short-lived as later in 2007 the Commission rescinded the speed-matching requirement as it applied to Bell and other ILECs¹¹¹ due to “the uncertainty regarding the regulatory framework for wholesale services arising from a proceeding, then underway, to review the regulation of wholesale services.”¹¹²
- Following the rescinding of the speed-matching requirement, Bell then proceeded to limit the wholesale service speeds available to competitors to speeds below Bell’s own retail offerings.¹¹³
- In June 2008, Cybersurf Corp (“Cybersurf”), a competitor and wholesale customer, filed an application to the Commission requesting that it reinstate the speed-matching requirement for all ILECs.¹¹⁴
- As a result of Cybersurf’s application, in December 2008 the Commission restored the speed-matching requirement on the ILECs via Telecom Decision CRTC 2008-117 (“TD 2008-117”).¹¹⁵
- However, Bell was of the view that TD 2008-117 did not require it to provide wholesale customers with access to speeds that Bell offered its own retail customers over its FTTN facilities and that the speed-matching requirement was limited to speeds available over its end-to-end copper facilities.¹¹⁶

¹⁰⁹ Telecom Order CRTC 2007-22, *Bell Canada and Bell Aliant Regional Communications, Limited Partnership for services provided in Ontario and Quebec*, 25 January 2007 [“TO 2007-22”].

¹¹⁰ Telecom Regulatory Policy CRTC 2010-632, *Wholesale high-speed access services proceeding*, 30 August 2010 [“TRP 2010-632”], at para 10.

¹¹¹ Specifically, Bell Aliant, Saskatchewan Telecommunications, and TELUS Communications Company. See TRP 2010-632 at para 11.

¹¹² *Id.* at para 11.

¹¹³ *Id.* at para 12.

¹¹⁴ *Id.* at para 13.

¹¹⁵ Telecom Decision CRTC 2008-117, *Cybersurf Corp.’s application related to matching service speed requirements for wholesale Internet services*, 11 December 2008 at para 25 [“TD 2008-117”].

¹¹⁶ Telecom Order CRTC 2009-111, *Cybersurf’s application related to the implementation of Telecom Decision 2008-117 regarding the matching speed requirement*, 3 March 2009 at para 4 [“TO 2009-111”].

- The Commission disagreed with Bell’s interpretation and in March 2009, following another application by Cybersurf, the Commission clarified in Telecom Order CRTC 2009-111 (“TO 2009-111”)¹¹⁷ that the speed-matching requirement also applied to wholesale services delivered over FTTN facilities.¹¹⁸
- However, competitors’ rights to access FTTN facilities still was not secure as a few days after the release of TO 2009-111, Bell, along with TELUS Communications Company petitioned the Governor-in-Council to reverse the speed-matching decisions.¹¹⁹ The Commission did not seek to enforce its determination requiring wholesale access to FTTN facilities pending the resolution of this petition.
- In December 2009, the Governor-in-Council directed the Commission to reconsider its speed-matching decisions, and, in particular to reconsider whether speed-matching should apply to FTTN facilities.¹²⁰ The Governor-in-Council specifically directed the Commission to consider whether the speed-matching requirement would “unduly diminish the incentives to invest in new network infrastructure in general and, in particular, in markets of different sizes.”¹²¹
- Finally, with Telecom Regulatory Policy 2010-632 (“TRP 2010-632”)¹²², issued in August 2010, the Commission affirmed that the speed-matching requirement should apply to FTTN facilities.¹²³ The Commission did not find that incentives to invest would be unduly impaired.¹²⁴ However, the Commission did not extend the speed-matching requirement to “fully fibre-based network solutions” such as FTTP, which had started being deployed more extensively by ILECs by then.¹²⁵
- However, the issuance of TRP 2010-632 did not actually provide competitors with meaningful access to Incumbent FTTN facilities as the Commission still needed to

¹¹⁷ TO 2009-111.

¹¹⁸ *Id.* at paras 12-15.

¹¹⁹ TRP 2010-632 at para 15.

¹²⁰ *Id.* at para 16.

¹²¹ *Id.* at para 17.

¹²² TRP 2010-632.

¹²³ *Id.* at para 78.

¹²⁴ *Id.* at paras 41-47.

¹²⁵ TRP 2015-326 at Footnote 1. See also BCE Inc., *2010 Annual Report*, at pg 15.

determine the terms and conditions, including wholesale rates, under which competitors would be able to access these facilities.

- The Commission did not grant interim approval to the tariffs filed by the Incumbents as a result of TRP 2010-632 until June 2011, when it issued Telecom Order CRTC 2011-377¹²⁶ (“TO 2011-377”). To the best of CNOC’s knowledge CNOC took little or no advantage of this interim regime which did not feature cost-based rates, given lingering uncertainty over what the final rates would be and whether any potentially harmful retroactive adjustment of interim rates to the final rates would occur in respect of the period when interim rates were in effect.
- The Commission did not grant final approval to the tariffs filed by the Incumbents as a result of TRP 2010-632, as well as confirm the acceptable billing models for wholesale services provided by the Incumbents until Telecom Regulatory Policy 2011-703 (“TRP 2011-703”)¹²⁷ and Telecom Regulatory Policy 2011-704 (“TRP 2011-704”)¹²⁸, which were issued in November 2011.
 - As part of its determinations in TRP 2011-703, the Commission rejected a Usage Based Billing (“UBB”) model whereby competitors would be charged for usage above a pre-determined cap.¹²⁹ Previously, from August 2009 to February 2011, when the Commission ordered Bell to suspend the implementation of UBB until it had determined appropriate wholesale billing models, Bell had been imposing UBB on competitors, despite significant resistance from both competitors and consumers.¹³⁰ A significant problem with the UBB model was that by imposing UBB on competitors, the Incumbents were in effect forcing the competitors to impose UBB on their own retail customers in order to recover the costs, which

¹²⁶ Telecom Order CRTC 2011-377, *Interim rates for wholesale residential and business high-speed access services*, 15 June 2011 [“TO 2011-377”].

¹²⁷ Telecom Regulatory Policy CRTC 2011-703, *Billing practices for wholesale residential high-speed access services*, 15 November 2011 [“TRP 2011-703”] at paras 180, 190, and 192, as amended by Telecom Regulatory Policy CRTC 2011-703-1, 22 December 2011.

¹²⁸ Telecom Regulatory Policy CRTC 2011-704, *Billing practices for wholesale business high-speed access services*, 15 November 2011 [“TRP 2011-704”].

¹²⁹ TRP 2011-703 at paras 8-13, see also Footnote 6.

¹³⁰ *Id.* at paras 8-14.

would eliminate the ability of competitors to differentiate themselves and to innovate unique service offerings for end-users.¹³¹

- Instead, in TRP 2011-703 the Commission determined that only Capacity Based Billing¹³² (“CBB”) or flat rate models were acceptable methods for Incumbents to bill competitors for wholesale access.¹³³
- There then followed a series of regulatory battles between competitors and Incumbents lasting over two years as the Incumbents sought to delay the implementation of the Commission’s determinations in TRP 2010-632, TRP 2011-703, and TRP 2011-704 and competitors sought to expedite their implementation as well as to correct various issues with the Commission’s plan and related rates that were approved that made it practically unworkable for competitors. For example, in January 2012, CNOC filed an application with the Commission seeking to modify certain determinations that, amongst other problems, hindered the ability of competitors to effectively make use of wholesale services provided over FTTN.¹³⁴ Similarly, in March 2012 Bell Canada filed an application with the Commission to increase certain elements of its wholesale rates.¹³⁵ Other Incumbents and independent service providers made their own applications.¹³⁶ It was not until February 2013, with Telecom Regulatory Policy 2013-70¹³⁷, that the Commission disposed of these various applications to review and vary the Commission’s determinations.

¹³¹ *Id.* at para 15.

¹³² Capacity-based billing has been defined by the Commission in Telecom Decision CRTC 2013-659, *Review of outstanding wholesale high-speed access service issues related to interface rates, optional upstream speed rates, and modem certification requirements*, 6 December 2013 at Footnote 1 as a billing model “wherein independent service providers pay a monthly access rate per end-user (excluding usage) and a rate for the capacity that they require to support the usage demand of their end-users.”

¹³³ TRP 2011-703 at para 62.

¹³⁴ Telecom Regulatory Policy CRTC 2013-70, *Disposition of review and vary applications with respect to wholesale high-speed access services: Introductory statement*, 21 February 2013 at para 11 [“TRP 2013-70”].

¹³⁵ Telecom Decision CRTC 2013-71, *Bell Aliant Regional Communications, Limited Partnership and Bell Canada – Application to review and vary Telecom Regulatory Policy 2011-703*, 21 February 2013, at para 1.

¹³⁶ Applications were made by Bell Canada, Bell Aliant Regional Communications Limited Partnership, CNOC, MTS Inc. and Allstream Inc., Quebecor Media Inc. and Videotron G.P., Rogers Communications Partnership, Shaw Cablesystems G.P., and Telesave Communications Ltd.

¹³⁷ TRP 2013-70. See also the following decisions dealing with specific applications which were all released on February 21, 2013: Telecom Decision CRTC 2013-71, Telecom Decision CRTC 2013-72, Telecom Decision CRTC 2013-73, Telecom Decision CRTC 2013-74, Telecom Decision CRTC 2013-75, Telecom Decision CRTC 2013-76, Telecom Decision CRTC 2013-77, Telecom Decision CRTC 2013-78, as well as two notices of

- After all of this, the CBB rates of the Incumbent operators were still far too high for competitors to effectively compete using the Incumbent’s FTTN facilities. The Commission belatedly recognized this, following an application from CNOC in which CNOC argued that “certain usage-sensitive rates for the aggregated wholesale HSA services were no longer just and reasonable”¹³⁸, and, in October 2016, with Telecom Order CRTC 2016-396¹³⁹ (“TO 2016-396”) slashed the CBB rates for the Incumbents’ aggregated wholesale HSA services. The specific case of the CBB rates of the Incumbent cable operator Eastlink was similarly dealt with in Telecom Order CRTC 2016-448¹⁴⁰ (“TO 2016-448”).
- Nonetheless, the rates established by the Commission in TO 2016-396 and TO 2016-448 are still only interim.¹⁴¹

63. In sum, it took competitors over twelve years, until the issuance of TO 2016-396 and TO 2016-448, from the time that Bell Canada started offering service over FTTN facilities to its end-users in 2004 for competitors to have access to those same facilities on usable terms and conditions thus be in a position to economically match the speeds offered by Bell Canada and other Incumbents over FTTN facilities. However, to this day, there remains uncertainty over the final rates, which have yet to be established by the Commission.

consultation, Telecom Notice of Consultation CRTC 2013-79 and Telecom Notice of Consultation 2013-80 that were issued examining issues with the implementation of the Commission’s wholesale services framework.

¹³⁸ Telecom Order CRTC 2016-396, *Tariff notice applications concerning aggregated wholesale high-speed access services – Revised interim rate*, 6 October 2016, at paras 2 [“TO 2016-396”]. See also CNOC Application to make usage sensitive rates interim, 30 April 2015, CRTC File No. 8661-C182-201503946 available at <https://services.crtc.gc.ca/pub/TransferToWeb/2015/8661-C182-201503946.zip>.

¹³⁹ TO 2016-396 at paras 27-28.

¹⁴⁰ Note that Eastlink required additional time to file a tariff application and cost study as it had previously not been subject to requirements to file cost studies and needed to retain costing experts and the Commission granted an extension to Eastlink via a procedural letter dated 28 July 2016 (CRTC File No. 8661-C12-201504829) available at https://crtc.gc.ca/eng/archive/2016/lt160728.htm?_ga=2.267692745.632308469.1535377409-605354119.1501867826. Eventually, in Telecom Order CRTC 2016-448, *Bragg Communications Incorporated, operating as Eastlink – Revised interim rates for aggregated wholesale high-speed access service* [“TO 2016-448”] at para 12, the Commission also slashed the proposed CBB rates of Eastlink similar to what it had done with the other Incumbents in TO 2016-396.

¹⁴¹ *Id.* at para 24.

3.11 Regulatory and Competitive History of FTTP

64. FTTP technology is no longer in its infancy. The regulatory history surrounding this technology platform is repeating the same kinds of patterns that were experienced with FTTN. In order to avoid an even more prolonged period of regulatory lag before competitors can have access to FTTP facilities on equitable terms and conditions, it is important to recognize these patterns of regulatory inefficiency and break the cycle. Breaking the cycle must start with the kinds of relief that CNOC proposes throughout this submission.

65. Much like the above section on FTTN, this section outlines the major milestones in FTTP regulation and highlights the avoidable competitive harms that resulted from flawed regulation that did not proactively eliminate the potential for Incumbent head-starts in the retail market.

66. First however, a definition for FTTP is warranted. The term has been defined as follows: “FTTP facilities, which include fibre-to-the-home (FTTH) and fibre-to-the-building (FTTB) facilities, bring optical fibre directly to a customer’s home or building, where electronics are installed to convert optical signals to electrical signals.”¹⁴²

67. The history of FTTP deployment and regulation can be summarized as follows:¹⁴³

- Bell commenced offering services to end-users over FTTP by 2010.¹⁴⁴ As noted above, while TRP 2010-632 established a right of access for competitors to the speeds available over the FTTN facilities of Incumbents, no such right existed for speeds available over FTTP.¹⁴⁵
- It was not until the Commission issued TNC 2013-551 in October 2013 that the Commission turned its mind towards the prospect of competitors gaining access to the speeds enabled by FTTP.¹⁴⁶
- After a very lengthy proceeding, in TRP 2015-326, which was issued in July 2015 the Commission affirmed that competitors would be able to access the FTTP facilities of Bell

¹⁴² TNC 2013-551 at Footnote 10.

¹⁴³ Note: this summary focuses predominantly on Bell’s FTTP facilities as an illustrative example.

¹⁴⁴ BCE Inc., *2010 Annual Report*, at pg 15.

¹⁴⁵ TRP 2015-326 at Footnote 1.

¹⁴⁶ TNC 2013-551 at para 19.

and the other Incumbents.¹⁴⁷ However, the Commission decided to only allow competitor access to FTTP facilities through disaggregated wholesale HSA services.¹⁴⁸

- Following the issuance of TRP 2015-326, the Commission commenced a follow-up proceeding to determine the appropriate configuration of the new proposed disaggregated wholesale HSA service.¹⁴⁹ The Commission noted that it intended to first implement the new disaggregated wholesale HSA service for access to Incumbent FTTP facilities in Ontario and Quebec and that it would expand the applicability of disaggregated wholesale HSA to the rest of the country at a later date.¹⁵⁰
 - However, while this this follow-up proceeding was getting under way, Bell Canada filed a petition in October 2015 to the Governor-in-Council requesting that the Commission’s decision to mandate any access to Incumbent FTTP facilities be overturned due to alleged negative impacts on investment.¹⁵¹ While the Governor-in-Council ultimately rejected the petition in May 2016 and the argument that mandated access to FTTP facilities would negatively impact investment¹⁵², this petition caused seven additional months of regulatory uncertainty.
- It was not until TD 2016-379 was issued in September 2016 that the Commission approved, with modifications, the configurations of the new disaggregated wholesale HSA services to be offered by the Incumbents in Ontario and Quebec.
 - However, TD 2016-379 still did not offer competitors immediate access to the FTTP facilities of the Incumbents, despite six years having elapsed from when Bell first started offering services over FTTP to its own end-users. Several technical

¹⁴⁷ TRP 2015-326 at para 143.

¹⁴⁸ *Id.* at para 153.

¹⁴⁹ *Id.* at para 158

¹⁵⁰ *Id.* at para 152.

¹⁵¹ Bell Canada, “Petition to the Governor in Council to Vary Telecom Regulatory Policy CRTC 2015-326, *Review of wholesale wireline services and associated policies*” 20 October 2015, at pg 16., available at [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/trp-crtc-2015-326-bell-canada-petition-en.pdf/\\$file/trp-crtc-2015-326-bell-canada-petition-en.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/trp-crtc-2015-326-bell-canada-petition-en.pdf/$file/trp-crtc-2015-326-bell-canada-petition-en.pdf).

¹⁵² Government of Canada, “Statement by the Government of Canada on Bell Canada petition of CRTC wholesale decision”, 11 May 2016 available at <https://www.canada.ca/en/innovation-science-economic-development/news/2016/05/statement-by-the-government-of-canada-on-bell-canada-petition-of-crtc-wholesale-decision.html>.

and operational issues remained to be resolved and so in TD 2016-379 the Commission referred these issues to the CRTC Interconnection Steering Committee (“CISC”) for resolution.¹⁵³

- In TO 2017-312, released in August 2017, the Commission approved, on an interim basis, the tariffed terms and conditions for access to disaggregated wholesale HSA services in Ontario and Quebec proposed by the Incumbent operators.¹⁵⁴
- Despite the interim rate approval in TO 2017-312, and the subsequent clarification a few weeks later by the Commission that it was providing interim approval of proposed Incumbent terms and conditions for access to FTTP as well as rates¹⁵⁵, as of August 2018, CISC has still not submitted a final report on the remaining technical and operational issues related to the introduction of disaggregated wholesale HSA service in Ontario and Quebec to the Commission for approval. Thus, practically speaking, competitors still do not have meaningful access to Incumbent FTTP facilities. In addition, the terms and conditions proposed by the Incumbents that the Commission approved on an interim basis have proven unworkable for competitors, as explained further in subsection 5.2 of this submission.
- Finally, the Commission only recently commenced a proceeding to consider implementing disaggregated wholesale HSA in regions of Canada outside of Ontario and Quebec.¹⁵⁶

68. In sum, as of August 2018, competitors still do not have widespread access to Incumbent FTTP facilities more than eight years after Bell commenced offering services to its own end-users over FTTP.

¹⁵³ TD 2016-379 at para 150.

¹⁵⁴ TO 2017-312 at para 49.

¹⁵⁵ Telecom Order CRTC 2017-312-1, *Interim rates for disaggregated wholesale high-speed access services in Ontario and Quebec*, 12 September 2017 at para 2.

¹⁵⁶ Initiated by *Follow-up process to consider implementation issues of disaggregated wholesale HSA services, including over FTTP access facilities, in other regions*, Commission Staff letter dated 9 March 2017, in Follow-up to Telecom Regulatory Policy CRTC 2015-326 (CRTC File No. 8638-C12-201509663) available at <https://crtc.gc.ca/eng/archive/2017/lt170309a.htm>.

4.0 EQUAL FOOTING BETWEEN SERVICE-BASED AND FACILITIES-BASED COMPETITORS IS REQUIRED TO ACHIEVE VIGOROUS AND SUSTAINABLE COMPETITION IN CANADIAN BROADBAND MARKETS

4.1 The State of Competition in Canada’s Broadband Internet Services Industry

4.1.1 Joint Dominance in Canada’s Retail Broadband Markets

69. Canadian retail broadband markets are jointly dominated by Incumbents. ILECs and Cable Carriers constitute a duopoly of wireline broadband service platforms. The collective market power possessed and exercised by this duopoly translates into anti-competitive conduct that results in market failures that permeate Canadian broadband service markets. While the degree of market failure may vary from one geographic area to another, the presence and exercise of market power by Incumbents in an anti-competitive manner throughout all markets is an observable constant.

70. The Bureau’s guidelines concerning the abuse of dominance provisions of the *Competition Act* (the “Abuse of Dominance Guidelines”) provide a helpful framework for assessing the state of retail competition in Canada’s broadband markets.¹⁵⁷ Invoking these guidelines but stopping short of applying each individual statutory requirement of Sections 78 and 79 of the *Competition Act* produces an informed analysis but one that does not step outside of the scope and focus of the Bureau’s market study.

71. Section 2.4 of the Abuse of Dominance Guidelines explains that when the Bureau assesses joint dominance, it will consider the ability of a firm or firms to exercise market power within that market, taking into account market shares, barriers to entry and expansion and any other relevant factors. The subsections that follow examine each of these factors, in turn, as they pertain to Canada’s retail broadband service markets. As demonstrated herein, the characteristics of Canada’s interrelated retail and wholesale markets for broadband services are consistent with indicators of joint dominance. The joint dominance of Incumbents facilitates their ability to engage in anti-competitive conduct practices that substantially lessen or prevents competition in both wholesale and downstream retail markets for broadband services..

A. Market Shares and Market Concentration

72. The latest market data available from the 2017 Communications Monitoring Report (“CMR”) reveals that non-Incumbent providers account for 11.9% of residential Internet access

¹⁵⁷ http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03497.html#s2_4.

service revenues.¹⁵⁸ By contrast, the ILEC market share is 38.9% and Cable Carriers possess the remaining 49.1%.¹⁵⁹

73. Incumbents would be quick to point out that the market share of non-Incumbent providers has steadily increased over the years. Indeed, the retail Internet access market shares of independent Internet service providers has slowly increased from 7% in 2010 to 11.9% in 2016.¹⁶⁰ As signalled in the introduction to this submission, these modest improvements are encouraging indicators that wholesale regulation, and in particular, the regulatory policy requiring speed matching¹⁶¹ between an Incumbent's retail and wholesale service offerings, has made a difference in downstream markets.

74. However, as summarized in Section 3.10 above, the regulatory history surrounding FTTN and speed-matching over this technology is troubled and discouraging. Incessant regulatory delays obstructed access to FTTN facilities on terms and conditions that would allow competitors to economically match the service offerings of Bell and other Incumbents offering FTTN services in retail markets. Incumbents enjoyed head-starts on the FTTN platform for a period of no less than twelve years. CNOC submits that this period of competitive disadvantage accounts for the slow pace of market share gains throughout the period of 2010-2016.

75. A similar cause-and-effect relationship between Incumbent head-starts on FTTP technology and slow market share gains for competitors will manifest unless the relief proposed in this submission is implemented. Unfortunately, as canvased in Section 3.11, patterns of inefficient regulation due largely to obstructionist conduct by the Incumbents have shown signs of repeating themselves.

76. Overall, the modest inroads achieved by competitive providers have been constrained by factors that are both symptomatic of the joint dominance of Incumbents and contributory to the continued possession and exercise of market power by those dominant players. These factors,

¹⁵⁸ 2017 CMR at Table 5.3.2.

¹⁵⁹ *Ibid.*

¹⁶⁰ Based on the "Internet access revenue share, by type of entity" data from the 2011 to 2017 Communications Monitoring Reports.

¹⁶¹ TRP 2010-632 at para 78.

which prevent service-based competitors from operating at maximum efficiency, are discussed at greater length in Section 4.3 below.

77. Even without further qualification of the market share gains achieved by competitors over a prolonged period, the most recent data surrounding Internet access revenue shares is alarming. Altogether, the 11.9% market share of non-Incumbent providers is juxtaposed against an 88% market share of purely facilities-based Incumbents. These market shares are indicative of a highly concentrated market that is jointly dominated by ILECs and Cable Carriers.

78. Of course, market concentration alone is not sufficient to conclude that a market is jointly dominated. As aforementioned, the Abuse of Dominance Guidelines provide that barriers to entry and expansion are also a relevant consideration.¹⁶² When it comes to barriers to entry and expansion, it is important to assess the conditions that exist at both the wholesale and retail levels. There is also an additional layer of complexity that warrants particular scrutiny from the Bureau. That is, there are distinct barriers to entry and expansion depending on whether competitive Internet service providers are required to use either aggregated HSA or disaggregated HSA. As further discussed below, the barriers to entry and expansion resulting from the current disaggregated HSA model, without the relief proposed in this submission, are virtually insurmountable.

B. Barriers to Entry: The Relationship between Retail and Wholesale Market Power

79. Purely facilities-based entry into retail markets for wireline broadband services requires massive capital investments. But upfront cost is not the only barrier to facilities-based entry. The Commission found that prospective entrants cannot feasibly or practically duplicate last-mile HSA facilities on a sufficient scale to compete effectively with Incumbents due to barriers including securing sufficient capital, securing rights-of-way, and construction challenges that require significant lead time to complete.¹⁶³

80. Not surprisingly, aside from a few small-scale end-to-end facilities projects (mostly small FTTP builds), there are no instances of successful widescale facilities-based entry into Canada's wireline broadband markets by non-Incumbents. If entry in the form of an end-to-end network

¹⁶² Abuse of Dominance Guidelines, at Section 2.4.

¹⁶³ TRP 2015-326, at paras 133-134.

build is not feasible or economically efficient, the next question is naturally whether there exists an upstream wholesale market that can provide access to bottleneck facilities on reasonable terms and conditions such that competitive downstream entry can be facilitated. On this front, the Commission’s analysis of upstream market conditions provides helpful guidance.

81. Notably, the Commission determined that the Incumbents collectively have market power in the provision of wholesale HSA services in their serving areas.¹⁶⁴ Furthermore, the Commission found that there would be a substantial lessening or prevention of competition in the downstream retail Internet services market by denying mandated access to wholesale HSA services.¹⁶⁵ In other words, the Incumbents are jointly dominant over the wholesale market for HSA services. Using the language of the Abuse of Dominance Guidelines, the Incumbents “jointly control a class or species of business such that they hold market power together”¹⁶⁶.

82. Mandated access to wholesale HSA services has facilitated a level of entry into downstream retail markets for broadband services. The above-cited alternative service provider market share data confirms this result. However, market share data alone does not tell a complete story.

83. Notwithstanding mandated access policies, competitors face a difficult business case for entry and also significant barriers to expansion when competing based on the aggregated HSA platform. That is because although mandated access helps to discipline the market power of Incumbents it is not up to the task of completely preventing anti-competitive conduct, whether overt or not, by these jointly dominant entities. In response, the relief proposed in this submission is intended to ensure that facilities-based Incumbents and service-based providers can compete on an equal footing.

84. By contrast, the current iteration of the disaggregated HSA model imposes extreme barriers to entry and expansion. These barriers consist of prohibitive costs and prolonged timelines for transitioning existing coverage areas supplied by aggregated HSA to disaggregated HSA service. Worse, disaggregated HSA is also vulnerable to the anti-competitive conduct at the hands of jointly dominant Incumbents.

¹⁶⁴ *Id.*, at para 124.

¹⁶⁵ *Id.*, at para 130.

¹⁶⁶ Abuse of Dominance Guidelines, at Section 2.4.

C. Barriers to Entry: The Aggregated HSA model

85. Under the aggregated HSA model, there are high costs to enter the retail market for broadband services as a competitive provider. However, these costs are short of the threshold for what might reasonably be considered an insurmountable barrier to entry. Certainly, CNOC's very existence is a testament that competitive service providers have successfully entered retail Internet service markets via aggregated HSA services, despite the significant challenges that complicate their business models.

86. Leaving aside all general operational costs, such as establishing a retail location, employing personnel, implementing business systems and processes, etc., the costs associated with building a retail Internet service offering supplied by aggregated wholesale HSA service are substantial. For instance, the entrant must first strike an arrangement with the wholesale HSA service provider which requires dedicated legal and operational resources. Initial ordering of wholesale HSA service is subject to various tariffed fees (e.g. "ISP registration Fees"¹⁶⁷) followed by a set of significant charges associated with interconnection. On the Cable Carrier side, these costs include "Initial Report Fees"¹⁶⁸, "POI Entrance Fees"¹⁶⁹ and "POI Configuration fees"¹⁷⁰. On the ILEC side, interconnection involves:¹⁷¹ an activation fee, domain path mapping, gateway mapping administration, and AHSSPI Service Charges.

87. Thereafter, whether on the ILEC or Cable Carrier platform, the entrant must pay service charges per end-user activation, recurring access and capacity charges, charges for diagnostic and service calls – just to list a few of the tariffed charge items. Further, these are merely the costs associated with ordering wholesale HSA service. This doesn't even account for the cost of backend network equipment (e.g. routers, switches, etc.) and facilities or high-volume orders of customer premise equipment (e.g. modems, routers, power supplies, etc.) that a competitor must self-supply. Nor do these costs account for the cost of maintaining peering relationships. Finally, there is a cost of actually provisioning Internet connections and service to individual end-users. After all,

¹⁶⁷ See for example Rogers TPIA Tariff CRTC 21530, at Item 703 Section 1.15; Other Cable Carrier tariffs include similar fees.

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

¹⁷⁰ *Ibid.*

¹⁷¹ Bell Access Services Tariff CRTC 6716 Item 5410, Section 4, sets out the rates for Gateway Access Service ("GAS"); Bell Access Services Tariff CRTC 6716 Item 5440, Section 4, sets out the rates for Gateway Access Service - FTTN ("GAS-FTTN").

wholesale HSA is not a product that is simply resold to residential customers. Rather, wholesale HSA service is but one input in a service that the independent service provider designs, develops, packages and provisions, with value-added.

88. Incumbent use of product bundles and long-term contracts also raises additional barriers for new entrants looking to attract new customers. The Bureau explicitly referenced this category of barrier to entry in its submission on the record of the Commission's proceeding to review the regulatory framework for mobile wireless services.¹⁷²

89. In summary, a prospective entrant faces considerable challenges and barriers to entry. The preceding paragraphs barely scratch the surface of the costs and effort required to successfully enter a Canadian market for residential Internet services. Yet while entry under an aggregated HSA model is difficult; it is not improbable or even unlikely. Thus, other characteristics of Canada's retail Internet service markets account for the existence of joint dominance of the Incumbents. Going back to the Bureau's Abuse of Dominance Guidelines, one such characteristic is market concentration, which CNOC already addressed above. Another indicator of joint dominance is the presence of barriers to expansion. Barriers to expansion under an aggregated HSA model is the focus of the next section.

D. Barriers to Expansion: The Aggregated HSA Model

90. Competitive Internet service providers that rely on wholesale HSA services¹⁷³ are subject to several barriers to expansion. These barriers consist of significant competitive disadvantages vis-à-vis the Incumbents. Some of these competitive disadvantages stem from gaps in the regulatory framework and anti-competitive conduct of the Incumbents that exploits such gaps. These chronic problems can be addressed and indeed must be addressed to ensure that service-based providers can compete at maximum efficiency. Other competitive disadvantages consist of the inability of competitive Internet service providers to match longstanding incumbency advantages enjoyed by the Incumbents. Addressing such barriers is a long-term objective that

¹⁷² See Submission by the Commission of Competition dated 15 May 2014 in the proceeding initiated by Telecom Notice of Consultation CRTC 2014-76, at para 27, CRTC File No. 8620-C12-201401489 available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID=2131726>.

¹⁷³ Which currently happen to be predominantly delivered throughout the industry via the aggregated HSA model.

begins with ensuring that competitive Internet service providers are allowed to compete at maximum efficiency and on an equal footing with the Incumbents.

91. With respect to the barriers to expansion stemming from gaps in the regulatory framework, Section 4.3 of this submission is dedicated to a discussion of these systemic issues and the relief that is necessary to remedy the problems at their root. By way of a concise summary, these barriers to expansion are comprised of or result from: (1) limited and inaccurate competitor access to Incumbent retail service qualification and service provisioning information; (2) lack of data walls between an Incumbent's wholesale and retail arms allows the Incumbent to leverage information about its wholesale customers to generate competitive advantages; (3) lack of a competitor quality of service framework that sets standards related to order processing installations, repairs, etc. that are equivalent to those applied by the Incumbent to their own retail operations and imposes financial consequences on Incumbents for non-compliance; (4) Incumbent head-starts when offering new tariff speeds or technologies; (5) complex and lengthy costing processes that (i) delay the final approval of just and reasonable rates and (ii) favour proceeding participants with extensive regulatory resources and costing expertise; (6) anti-competitive Incumbent retail bundling pricing; and (7) lack of efficient and fair access to Incumbent support structures.

92. All of the above-listed competitive disadvantages deny competitors the opportunity to engage the retail market on an equal playing field with Incumbents. Collectively, these limitations significantly constrain the potential growth of all competitors. Each such limitation therefore consists of a barrier to expansion that furthers the case that the Incumbents enjoy joint dominance of Canada's broadband service markets.

93. Just as Incumbent use of product bundles and long-term contracts represents a barrier to entry, these factors also represent a barrier to expansion for competitive Internet service providers seeking to attract additional customers.

94. The Incumbents also benefit from incumbency advantages that tilt the market heavily in their favour. In fact, the Commission explicitly recognized these incumbency advantages in TRP 2015-326 when weighing the respective capacity of competitors and Incumbents to deploy access facilities.¹⁷⁴ Specifically, the Commission determined:

¹⁷⁴ TRP 2015-326, at para 134.

“...the incumbent carriers’ ability to deploy such facilities is largely based on their decades of incumbency in the provision of wireline services, with all the associated advantages, including established brands and customer bases, existing network infrastructure including support structures, national fibre backbone networks, pre-existing municipal access agreements, various economies of scale, and greater access to capital markets.”¹⁷⁵

95. These decades’ worth of advantages permeate the Incumbents’ entire operations. Established customer bases, brand recognition and enormous marketing budgets are perhaps the most difficult advantages to compete with from the perspective of an independent Internet service provider. By contrast, small entrants will have a limited timeline to build reputation and customer goodwill. Moreover, new entrants must necessarily prioritize investment in operations, which leaves scarce budgeting for marketing.

96. CNOC submits that incumbency advantages, which are also indicators of the Joint dominance of Incumbents and Cable Carriers, help to explain why, as the Bureau’s market study notice puts it, 87% of retail Internet subscriptions in Canada were purchased from a traditional telephone or cable company while resellers are offering seemingly comparable services at prices that can be as much as 30% lower than those advertised by telephone and cable companies.¹⁷⁶ While CNOC is not suggesting that Incumbents should be artificially stifled in their growth by regulation, simply because they have accrued certain incumbency advantages, it is critical for regulators not to allow such advantages to be leveraged through the exercise of insufficiently constrained market power. Thus, for example, CNOC is not suggesting that Incumbent spending on marketing budgets should be constrained, but CNOC is saying that other barriers to entry favouring Incumbents that prevent competitors from being able to grow their businesses and generate the kinds of revenues needed to create their own significant marketing budgets need to be eliminated through regulation that better disciplines the market power currently exercised by the Incumbents.

E. Barriers to Entry: The Disaggregated HSA Model

97. The barriers to entry under the disaggregated HSA model are extreme and virtually insurmountable. In addition to all of the barriers associated with aggregated HSA, which also apply to disaggregated HSA, the barriers faced by entrants under the disaggregated model includes

¹⁷⁵ *Ibid.*

¹⁷⁶ Competition Bureau, “Market Study Notice: Competition in Broadband Services”, 10 May 2018, at para 6.

additional massive costs and unrealistically prolonged timelines to transition from aggregated HSA to disaggregated HSA. Section 5.0 of this submission is dedicated to an overview of these barriers and how to address them.

98. As argued throughout this submission, the current trajectory of the wireline wholesale services framework will greatly undermine rather than improve competition in downstream retail markets for Internet services. This substantial lessening or prevention of competition will be driven by the barriers to entry and expansion imposed by the disaggregated HSA model. In such conditions, the jointly dominant Incumbents will tighten their grasp over broadband markets. By extension, the potential for anti-competitive conduct will increase significantly.

F. Barriers to Expansion: The Disaggregated HSA Model

99. As above, the Section 5.0 discussion of barriers to expansion resulting from the disaggregated HSA model is incorporated into this part by reference. It also bears noting that Section 5.0 explains why the “incentives” that the Commission created to encourage a transition to disaggregated HSA constitute an obstructive barrier to expansion. More specifically, these incentives are comprised of:¹⁷⁷ (1) the condition that competitors may only access Incumbent FTTP access facilities via disaggregated HSA service; and (2) a 100 Mbps download speed cap on aggregated HSA services upon final approval of the disaggregated HSA tariffs.

100. Beyond the barriers to expansion that are unique to the disaggregated HSA model, all of the barriers that are generally associated with the mandated wholesale HSA framework, regardless of which model (i.e. aggregated or disaggregated) is in force, also apply. As summarized above in Subsection D, these barriers are caused by competitive disadvantages including: (1) limited and inaccurate competitor access to Incumbent retail service qualification and service provisioning information; (2) lack of data walls between an Incumbent’s wholesale and retail arms allows the Incumbent to leverage information about its wholesale customers to generate competitive advantages; (3) lack of a competitor quality of service framework that sets standards related to order processing installations, repairs, etc. that are equivalent to those applied by the Incumbent to their own retail operations and imposes financial consequences on Incumbents for non-compliance; (4) Incumbent head-starts when offering new tariff speeds or technologies; (5)

¹⁷⁷ TRP 2015-326, at paras 153-154.

complex and lengthy costing processes that (i) delay the final approval of just and reasonable rates and (ii) favour proceeding participants with extensive regulatory resources and costing expertise; (6) anti-competitive Incumbent retail bundling pricing; and (7) lack of efficient and fair access to Incumbent support structures.

101. Just as Incumbent use of product bundles and long-term contracts represents a barrier to entry, these factors also represent a barrier to expansion for competitive Internet service providers seeking to attract additional customers.

102. Likewise, competitors relying on the disaggregated HSA model would also continue to face barriers to expansion resulting from decades of compounding incumbency advantages enjoyed by the Incumbents. These barriers are also summarized above in Subsection D.

103. Altogether, the barriers to expansion under the current wholesale wireline services framework would greatly exacerbate the joint dominance of the Incumbents. As a consequence, retail residential markets for broadband services would be at risk for a higher incidence of anti-competitive conduct by the Incumbents, including coordinated conduct, and would succumb to no less than a substantial lessening or prevention of competition.

G. Other Factors

104. Section 2.4 of the Bureau's Abuse of Dominance Guidelines provides further instruction for assessing joint dominance, coordinated anti-competitive conduct and substantial lessening or prevention of competition in relevant markets.

105. For instance, the Bureau notes that vigorous price and non-price rivalry among firms is an indicator of competitive markets.¹⁷⁸ The Bureau will also assess the extent to which competition from existing rivals and from potential rivals outside the allegedly dominant group is likely to defeat the profitability of a price increase.¹⁷⁹ If these two sources of competition are not likely to constrain a price increase, the Bureau will then consider the nature of competition within the allegedly jointly dominant group.¹⁸⁰

¹⁷⁸ Abuse of Dominance Guidelines, Section 2.4.

¹⁷⁹ *Ibid.*

¹⁸⁰ *Ibid.*

106. The problem with assessing market responses to price increases from a jointly dominant group such as the Incumbents in an existing market is that it presupposes that current pricing is set by competitive forces. As CNOC demonstrates throughout this section, that is not the case in Canada’s broadband markets, which exhibit market failures attributable to the joint dominance of Incumbents. Current Incumbent pricing is undoubtedly above competitive levels. Nowhere is this more evident than the baseline query included in the Bureau’s notice of market study: how can Incumbents possess 87% of retail Internet subscriptions while their wholesale customers / competitors offer comparable services at prices that are as much as 30% lower? To put this further into perspective, the CMR reports a mere 1.74% churn rate for residential high-speed Internet access service subscription.¹⁸¹ In other words, despite the presence of attractively priced alternative service offerings, Incumbents are not experiencing a significant rate of customer churn – either to competitive service providers or any other Incumbent. Based on these considerations, CNOC submits that competition from existing or potential rivals is very unlikely to defeat the profitability of a price increase. In these circumstances, the Abuse of Dominance Guidelines provide that the Bureau will consider the nature of competition within the allegedly joint dominant group.¹⁸²

107. On the record of the Commission proceeding reviewing the regulatory framework for mobile wireless services, the Bureau stated:

“Furthermore, Canadian retail mobile wireless services markets are characterized by other factors that, when combined with high concentration and high barriers to entry and expansion, create a risk of coordinated conduct in these markets.”¹⁸³

108. The Bureau then went on to explain in a footnote that these factors include the availability of information regarding rivals’ prices, product offerings and market conditions, and the existence of joint ventures and industry organizations that could facilitate the communication and dissemination of information among market participants.¹⁸⁴ These factors apply equally to Canada’s markets for broadband Internet services. For example, Incumbents benefit from a wealth

¹⁸¹ 2017 CMR, at p. 254; note, the CMR reports that this is the churn rate reported by “larger ISPs”, which account for approximately 90% of total high-speed subscriptions. Incumbents account for substantially all of this share of subscriptions.

¹⁸² Abuse of Dominance Guidelines, Section 2.4.

¹⁸³ See Submission by the Commission of Competition dated 15 May 2014 in the proceeding initiated by Telecom Notice of Consultation CRTC 2014-76, at para 28, CRTC File No. 8620-C12-201401489 available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID=2131726>.

¹⁸⁴ *Id.*, at footnote 14.

of information regarding competitors who also happen to be wholesale customers. From the vantage point of a wholesale HSA supplier's perspective, Incumbents know when their wholesale customers gain or lose a retail customer because either event requires corresponding wholesale service provisioning. More broadly, competitor pricing and service information is readily available throughout the industry via company websites.

109. The Ware Report further confirms that coordinated conduct does not need to involve explicit agreements between dominant firms because of the ease of monitoring competitors' actions and detecting deviations (e.g, price cutting) due to the limited number of competitors.¹⁸⁵

The Ware Report explains that in this scenario:

“Firm A can decide to raise its price knowing that Firm B will follow since the price increase is beneficial for both dominant firms in a given industry. Neither firm will undercut each other's price because doing so would lead to a price war which would not be profitable for either dominant firm. The effects of such behavior could include higher price levels, lower product quality or lower service levels.”¹⁸⁶

110. The potential for coordinated activity in the markets for Internet services is also especially acute given the vertically integrated nature of the Incumbents and the fact that they compete with each other in other product markets such as mobile wireless, wireline voice and TV.¹⁸⁷ As posited in the Ware Report, this dynamic is predicted by standard unilateral effects analysis that derives from oligopoly theory.¹⁸⁸ Now, to unpack this concept; put simply, the repeated interactions of the large competitors in many markets facilitates collusion without recourse to collusive agreements.¹⁸⁹

111. Recent Incumbent activity seems to confirm that carriers within this jointly dominant group are engaged in coordinated conduct.

112. In March 2018 Bell and Rogers almost simultaneously raised prices of their Internet services.¹⁹⁰ Rogers raised the price of all of its then current Internet plans by \$8.00 a month, with

¹⁸⁵ Ware Report, at para 15.

¹⁸⁶ *Ibid.*

¹⁸⁶ *Ibid.*

¹⁸⁷ *Id.*, at para 16.

¹⁸⁸ *Ibid.*

¹⁸⁹ *Ibid.*

¹⁹⁰ Big telcos set to hit many Canadians with internet price hikes, <https://www.cbc.ca/news/business/internet-bell-rogers-telus-price-hike-1.4564644>, 9 March 2018.

the exception of its cheapest package that increased in price by \$4.00 a month.¹⁹¹ Bell increased Internet prices by \$5 a month for customers in Ontario and \$3.00 a month for customers in Quebec.¹⁹² Bell also increased data overage charges in both provinces by \$3.00 per gigabyte.

113. A near identical cycle of price increases occurred in the preceding year. In February 2017, Bell imposed a \$5 price increase on most plans in both Ontario and Quebec.¹⁹³ Rogers also increased the price of legacy plans by \$5.¹⁹⁴ Interestingly, sources reporting these price increases by Incumbents also reported price decreases by competitive Internet service providers during the same period.¹⁹⁵

114. The near simultaneous timing and similar quantum of these price increases suggest something more than simple coincidence. Given the existence of other conditions-*precedent* to a high likelihood of coordinated conduct in this marketplace, the Incumbents should not be granted the benefit of the doubt.

H. Conclusion: State of Retail Competition in Canada's Broadband Markets

115. As posited at the outset of this section, Canadian retail broadband markets are jointly dominated by Incumbents. This assessment is informed by the Abuse of Dominance Guidelines, which provide that market concentration, barriers to entry and expansion and other factors are indicative of joint dominance.

116. The joint dominance of Incumbents facilitates their ability to engage in anti-competitive conduct such as the pre-emption of scarce wholesale inputs (such as FTTN access facilities in the past and currently FTTP access facilities) required by competitors to compete in downstream retail markets. Such practices substantially lessen or prevents competition in both wholesale and downstream retail markets for broadband services. The Incumbents' joint dominance also facilitates their ability to engage in coordinated pricing at the retail level, which, coupled with their

¹⁹¹ *Ibid.*

¹⁹² *Ibid.*

¹⁹³ “Bell, Rogers, Telus raise some internet prices — while small providers drop theirs” <http://www.cbc.ca/news/business/bell-rogers-telus-internet-crtc-basic-service-1.4142304>, dated 4 June 2017.

¹⁹⁴ *Ibid.*

¹⁹⁵ *Ibid.*

exclusionary conduct in wholesale markets, further exacerbates the lessening or prevention of competition in retail markets for broadband services.

4.1.2 Retail Broadband Competition is not Sufficient Despite the Presence of Facilities-Based Competition

117. As discussed in the Ware Report, the idea of facilities-based competition has long been a focus of policy makers.¹⁹⁶ In Canada, the Policy Direction¹⁹⁷, which has been in effect since 2006, provides that the Commission should complete its review of the regulatory framework regarding mandated access to wholesale services with a view to increasing incentives for innovation and investment in and construction of competing telecommunications network facilities.¹⁹⁸

118. Yet, as demonstrated throughout the preceding section 4.1.1, the state of competition in Canada's broadband industry is far from healthy despite this policy focus on facilities-based competition. From a strictly economic perspective, this result is perhaps not all that surprising. The Ware Report contends that there is weak academic evidence supporting the notion that compelling firms that do not compete on an end-to-end basis to invest in their own facilities will translate to increased competition in both the short and long run.¹⁹⁹

119. There is also economic evidence that a disproportionate focus on facilities-based competition can lead to economic inefficiency. For instance, the Ware Report posits that a policy focus on facilities-based competition may harm static and dynamic efficiency (i.e. efficient allocation of resources at a given point in time).²⁰⁰

120. More specifically, forced construction of facilities is especially prone to economic inefficiency. The Ware Report cites the example of a vertically integrated Incumbent that possesses an input that is essential for operating in the industry.²⁰¹ Assume that the input could be duplicated, has unlimited capacity and is subject to a large fixed cost that is incurred annually.²⁰² Economic efficiency requires that the input be shared between the competitor and the

¹⁹⁶ Ware Report, at paras 1-5.

¹⁹⁷ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, P.C. 2006-1534, 14 December 2006. (the "Policy Direction")

¹⁹⁸ Policy Direction, at subparagraph 1(c)(ii).

¹⁹⁹ Ware Report, at para 5.

²⁰⁰ *Id.*, at paras 5 and 53.

²⁰¹ *Id.*, at para 22.

²⁰² *Ibid.*

Incumbent.²⁰³ Forcing the competitor to duplicate the fixed input is a dead weight cost to society and is pure economic inefficiency²⁰⁴.

121. Of course, this example assumes that the input can be duplicated. Where duplication is not even feasible, a regulatory policy that forces duplication will be even more out of sync with the economic characteristics of the market and will result in additional harmful market distortions.

122. All this is not to say that investments in network facilities are not important. To the contrary, investment in network facilities is critical to the advancement of Internet technology and the broad reaching innovation that it fosters. However, policy must reward efficient network investments while also ensuring that proper market conditions exist to support the entry and expansion that is necessary to foster vigorous and sustainable competition. To that end, service-based competition must play a bigger role. All that it takes to get there is removing obstacles that prevent today's service-based competitors from competing at maximum efficiency.

4.2 Efficient Service-Based Competitors are Critical to Sustainable Competition in Canada's Broadband Markets

4.2.1 The Value of Service-based Competition

123. Additional service-based competitors in the retail Internet services market bring competition, pricing discipline, innovation and choice to Canadian consumers. The yield for such competitive benefits is only capped by the ceiling imposed on the efficiency of service-based competitors by gaps in the regulatory framework (i.e. the issues identified in Section 4.3) and the anti-competitive conduct of the jointly dominant Incumbents.

124. In this section, CNOC demonstrates the benefits of service-based competition in terms of lowering prices to competitive levels and injecting innovation into the markets for broadband Internet services.

A. Service-based Competitors Offer Pricing at Competitive Levels

125. As noted in the Bureau's notice of market study²⁰⁵ and referenced throughout this submission, the 2015 Wall Report measured similar services offered by competitive service

²⁰³ *Id.*, at para 23.

²⁰⁴ *Ibid.*

²⁰⁵ Bureau Market Study Notice, at para 6.

providers (service-based competitors) and Incumbents.²⁰⁶ The Wall Report concluded that service-based competitors offer such services at prices that can be as much as 30% lower than those advertised by Incumbents.²⁰⁷

126. The more recent 2017 Nordicity Report²⁰⁸ confirms that service-based competitors offer lower prices than Incumbents across all service baskets.²⁰⁹

| Service Provider | Fixed Broadband Internet Service Basket | | | | |
|---|---|----------------|----------------|----------------|----------------|
| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Incumbent | \$ 46.57 | \$ 63.37 | \$ 66.18 | \$ 83.47 | \$ 100.63 |
| Reseller | \$ 37.20 | \$ 41.62 | \$ 49.95 | \$ 57.60 | \$ 82.61 |
| Difference | -20.12% | -34.33% | -24.52% | -30.99% | -17.91% |
| Based on simple average of minimum incumbent's and minimum reseller's price in each city Resellers include Primus, TekSavvy, and Distributel | | | | | |

127. For reference, the Nordicity Report defines its service baskets as follows (footnotes omitted):²¹⁰

- Level 1 Speed: “basic” Internet service with advertised download speeds of 3 to 9 Mbps .
Data usage per month: 10 GB.
- Level 2 Speed: “average” (Canadian) high-speed Internet service with advertised download speeds of 10 to 15 Mbps.
Data usage per month: 50 GB.
- Level 3 Speed: high-speed Internet service with advertised download speeds of 16 to 40 Mbps.
Data usage per month: 100 GB.
- Level 4 Speed: high-speed Internet service with advertised download speeds of 41 to 100 Mbps.
Data usage per month: 150 GB.
- Level 5 Speed: high-speed Internet service with advertised download speeds of over 100 Mbps (targeted speed in the 100-1,000 Mbps range).
Data usage per month: 500 GB.

²⁰⁶ Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2015 Edition" Wall Communications, 2015, Section 5.2: Canadian Broadband Service Prices, Table 10, available at <https://crtc.gc.ca/eng/publications/reports/wall2015/rp1506wall.pdf>

²⁰⁷ 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions, NGL Nordicity Group Ltd., Oct. 5, 2017, (the “Nordicity Report”) at p.48, available at [https://www.ic.gc.ca/eic/site/693.nsf/vwapj/Nordicity2017EN.pdf/\\$file/Nordicity2017EN.pdf](https://www.ic.gc.ca/eic/site/693.nsf/vwapj/Nordicity2017EN.pdf/$file/Nordicity2017EN.pdf)

²⁰⁸ *Ibid.*

²⁰⁹ *Ibid.*

²¹⁰ *Id.*, at p. 43.

128. Thus, across all service baskets, service-based competitors offer substantially lower prices with discounts ranging from 17.91% to 34.33%.

129. The CMR's Average Revenue Per User ("ARPU") data is also revealing of supra-competitive pricing by the Incumbents. More precisely, the difference between the ARPU of the Incumbents and that of service-based competitors confirms that Incumbents are generating significantly more than their competitive counterparts.²¹¹ In 2016, the difference between Incumbent²¹² and service-based provider ARPU was \$9.87.

130. Overall, an ARPU difference of nearly \$10.00 combined with the findings of the Wall Report and Nordicity Report tells a very clear story. Incumbent pricing is set at supra-competitive levels while service-based competitors attempt to push pricing levels down to more competitive levels.

131. Importantly, the benefits of service-based competition are not limited to price discipline. Service-based competitors generate a myriad of innovations that are a direct benefit to their customers.

B. Service-based Competitors Inject Innovation in the Market

132. Competitive differentiation is essential for a service-based competitor looking to put its best foot forward in a market jointly dominated by large carriers enjoying major incumbency advantages. This drive for competitive differentiation is a catalyst for service-based innovation. CNOC members constantly strive to meet consumer needs in new and creative ways. Innovations by service-based competitors generally fall within four broad categories: (i) customer service; (ii) unique service offerings; (iii) technical advances; and (iv) the provisioning of quality telecommunications services in underserved rural and minority communities. Each of these categories of service-based innovation are discussed below, in turn.

²¹¹ CMR 2017, at Table 5.3.7.

²¹² That is, the average between the "Incumbent TSP" and "Cable-based carriers" data reported in Table 5.3.7 of the CMR 2017.

133. As background, the evidence in this section is derived directly from CNOC members. During the proceeding leading to TRP 2015-326, CNOC received requests for information²¹³ (“RFIs”) from the Commission and Bell asking CNOC to (i) list the service innovations that its membership has introduced; and (ii) explain how CNOC members differentiate their services. CNOC’s membership responded directly to these RFIs. The evidence below is a summary of the responses that CNOC members provided. The innovative output of CNOC members serves as a case study for the class of service-based providers as a whole.

134. Customer service is a high business priority for service-based competitors. CNOC members have indicated that they are focused on fostering rich customer relationships through personalized, responsive and compassionate customer service and support. CNOC members identified a diverse array of innovative policies and services to ensure that consumers receive high-quality customer service. Whether these initiatives are minor, major, simple or complex, they have translated in tangible value for consumers served by CNOC members. These innovations include:

- 24 / 7 support in both official languages and in several cases, in a variety of ethnic minority languages;
- Domestic (and generally locally-situated) customer service departments and call centres employed with Canadians;
- Knowledgeable support staff with network experience;
- Network monitoring and reporting features so that customers are promptly notified of network issues;
- Accurate and timely reports on subscriber data usage and billing data;
- Remote management of customer equipment and software for technical support purposes; and
- Customer controlled account management capabilities enabling subscribers to make changes to their services and plans remotely.

²¹³ CNOC(CRTC)28Mar14-4 and CNOC(Bell Canada)28Mar14-4 – both issued in the proceeding leading to TRP 2015-326 available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?Key=108876&Type=Notice>.

135. When it comes to service offerings, several CNOC members have made flexible and customizable solutions the defining feature of their businesses. Other members have assembled a catalogue of service offerings that are markedly different than those of the Incumbents in order to empower consumers with real choice when it comes to the main categories of telecommunications services. The innovative service offerings of CNOC members are especially evident when it comes to monthly data cap packages and data management options. A considerable portion of CNOC's membership offered unlimited data and flexible usage options such as off-peak usage incentives for many years, including throughout periods where restrictive usage caps and high overage charges by Incumbents plagued the industry.

136. Some CNOC members have also developed unique service specializations over time. For example, some CNOC members focus primarily on providing quality services to a business clientele. These solutions are highly configurable and include services such as IP-Hosted PBX SOHO, IP-PBX SME solutions and Hosted Virtual Server. Business specialists among CNOC's membership also provide managed connectivity options that utilize redundant paths for failover and resiliency in addition to secured data backup and recovery solutions. Customers value these solutions and the specialized experience of the providers that offer them.

137. CNOC members have also successfully deployed a great number of technical innovations to bolster both their business and residential service offerings, including:

- The introduction of unique IPTV offerings;
- The introduction of feature-laden Voice over Internet Protocol ("VoIP") services;
- The deployment of FTTP networks in limited situations where feasible;
- The development of IPv6 ready networks;
- Custom-built customer portals and account management tools;
- The development of web-based (office extensions, web-based softphone applications, etc.) and social media innovations;
- The adoption of crowd sourced customer-initiated innovations;
- The development of smart home applications;
- The development of a variety of Blackberry, Iphone and Android applications;
- Redundancy and failover solutions;
- Automatic data backup and storage for PC, MAC and smartphones;

- Internet bonding techniques (including Multilink Point to Point Protocol or “MLPPP”) to increase speed capabilities;
- The development and deployment of Multiprotocol Label Switching (“MPLS”) mechanisms;
- WiFi deployment technologies for campgrounds and other unique cases; and
- Automatic safeguards to protect end-users and mitigate damage from malware and denial of service attacks.

138. Finally, certain CNOC members also focus their operations on serving ethnic minority communities in their serving areas. This often involves providing customer service in the native language(s) of the community in question. In most cases, this level of dedication to local communities simply cannot be replicated by the Incumbents.

C. Other Benefits of Service-Based Competition

139. From a strictly economic perspective, service-based competitors increase output. By historically offering higher data caps, and more flexible data usage options and lower prices, service-based competitors play an important role in making more broadband available to Canadian consumers. From a theoretical perspective, increased output in a healthy market should translate into benefits for buyers such as lower price and more choice.

140. The Ware Report confirms the benefits of service-based competition in terms of broadband diffusion.²¹⁴ Professor Ware explains that a recent study used data from 167 broadband markets over a time horizon of 11 years to assess the effects of competition regulations.²¹⁵ The study found that service-based competition could accelerate the diffusion of broadband access, whereas inter-platform competition generally does not lead to faster broadband roll out.²¹⁶

141. Over time, service-based competitors also increase their investment in facilities when and where it is efficient to do so.²¹⁷ Most commonly, these investments occur in transmission facilities such as fibre transport paths.

²¹⁴ Ware Report, at para 30.

²¹⁵ *Ibid.*

²¹⁶ *Ibid.*

²¹⁷ *Id.*, at paras 32-36.

D. Conclusion: Service-based Competitors are Essential to Canada's Broadband Service Markets

142. The presence of service-based competitors in Canada's Broadband Service Markets is an essential condition for vigorous and sustainable competition. This class of Internet service providers addresses consumer needs that are ignored or underserved by Incumbents. Furthermore, service-based providers push service prices downwards while Incumbents, complacent by virtue of joint-dominance, consistently increase the prices of Internet services year-after-year. Overall, service-based providers offer Canadian Internet consumers a level of choice when it comes to high quality services, service features and price that simply would not exist in their absence.

143. What's more, Canadians have yet to benefit from the full potential of service-based competition. As argued in the next section, systemic barriers prevent service-based competitors from operating at any level approaching maximum efficiency. CNOC therefore proposes relief that will ensure that service-based competition can be on an equal footing with facilities-based competitors, to the betterment of competition and the ultimate benefit of Canadian consumers.

4.3 Removing Barriers to Efficient Service-Based Competition

144. Service-based competitors face several different and sometimes interrelated barriers to engaging the retail market at full efficiency. Each subsection hereunder describes one such barrier and proposes relief that is necessary to eliminate the barrier.

145. As noted in the introduction, this set of relief will not increase or complicate regulation. To the contrary, the measures proposed by CNOC are intended to streamline regulation. Implementing this relief will prevent years or decades of relitigating aspects of the wireline wholesale services framework, as in the case of FTTN and FTTP regulation up to present day (See Sections 3.10 and 3.11 for a thorough background on how inefficient regulatory lag prevented competitors from accessing FTTN and FTTP, respectively, on terms and conditions that would allow them to compete effectively with Incumbents).

A. Addressing the Problems with the Current Regulatory Framework for Wholesale HSA Services²¹⁸

146. First and foremost, the problems with the current regulatory framework for wholesale HSA services are the biggest threat to service-based competition in Canada's broadband service markets. Given the complexity of these issues and the relief required, CNOC has dedicated all of Section 5 of this submission to this topic.

B. Access to Incumbent Retail Service Qualification and Service Provisioning Information²¹⁹

147. The Incumbents control key information such as service qualification databases that determine whether a specific customer address might qualify for either retail or wholesale services. The information provided to competitors is not always accurate and there is no assurance that it is the same as that which the Incumbents provide to their own retail operations or provided via the same types of qualifying tools.²²⁰ Similarly, only the Incumbents have knowledge regarding applicable intervals for retail service provisioning when it comes to installations, repairs and disconnections. They do not appear to offer the same intervals to their wholesale customers. Thus, wholesale customers must rely on whatever the Incumbent claims is the expected service interval for a given wholesale order.

148. Therefore, CNOC requests that the Bureau recommend that the Commission issue a direction to provide service-based providers with access to Incumbent information including accurate and comprehensive service qualification databases and retail / wholesale service provisioning intervals. Importantly, knowledge of Incumbent retail service provisioning intervals will allow service-based providers to determine whether the Incumbent confers any discriminatory disadvantages regarding wholesale service provisioning intervals. In other words, this information would allow a competitive service provider to determine whether the Incumbent provides itself shorter intervals for installations, repairs and disconnections compared to what is experienced on the wholesale side.

²¹⁸ Consistent with the relief proposed in the Ware Report, at para 31(vii) and (ix).

²¹⁹ Consistent with the relief proposed in the Ware Report, at para 31(i).

²²⁰ See for example, the Commission staff letter dated 6 March 2018 confirming errors with Bell's qualifying tool (CRTC file No. 8660-C12-201709510) available at <https://crtc.gc.ca/eng/archive/2018/lt180306.htm>.

149. Finally, periodic monitoring should be employed to ensure that Incumbents live up to their obligations.

*C. Implementing Data Barriers between the Wholesale and Retail Arms of Incumbents*²²¹

150. As wholesale HSA service providers, the Incumbents have opportunities to collect sensitive information about wholesale customers and end-users of wholesale customers. This occurs throughout various stages of wholesale service provisioning: installations, repairs and disconnections. A few examples are warranted.

151. Incumbents know precisely when their wholesale customers gain a customer. They know precisely when wholesale customers lose a customer. Beginning with the first order for wholesale HSA service installation at an end-user premises, the Incumbent learns where the wholesale customer's end-user is located. Based on the wholesale HSA order details, the Incumbent can also determine the service-speed that is being provisioned to the end-user. In cases where trouble tickets have been submitted to the wholesale HSA service provider, the Incumbent also has visibility into service problems that a wholesale customer's end-user may be experiencing.

152. Moreover, a significant proportion of wholesale HSA service provisioning elements (e. installations, repair and disconnections) require that the Incumbent send a technician to the end-user's premises. These unmonitored appointments also afford another opportunity for the Incumbent to collect information from the end-user or to disseminate information (e.g. relating to the Incumbent's service offerings) directly to the end-user.

153. Based on the wealth of information that is collected on a constant basis throughout wholesale HSA service provisioning, it should be plainly obvious that Incumbents have incentives to utilize all such information to create a retail advantage for themselves. For example, Incumbents can and appear to act on this information to upsell or winback an end-user of the wholesale customer.

154. Policing an Incumbent's exploitation of wholesale customer information on an *ex-post* basis²²² is virtually impossible. At best, a wholesale customer can hope to gather weak

²²¹ Consistent with the relief proposed in the Ware Report, at para 31(iii).

²²² Such as an application to the Commission alleging a breach of subsection 27(2) of the *Telecommunications Act*, which prohibits Canadian carriers from unjust discrimination or giving an undue or unreasonable preference toward any person, including itself, or subjecting any person to an undue or unreasonable disadvantage.

circumstantial evidence that an Incumbent has exploited their position as a wholesale service provider for retail commercial gain. Ultimately, only the Incumbent will have actual knowledge of information sharing between its wholesale and retail arms.

155. For these reasons, relief in the form of a data wall between an Incumbent's wholesale and retail operations is necessary. This form of relief will serve as a proactive solution that ensures that an Incumbent's retail operations do not act on strong incentives to exploit information gathered during wholesale service provisioning.

156. Moreover, there should be periodic monitoring to ensure that Incumbents live up to this obligation.

*D. Enforcement of Competitor Quality of Service Regime Including and Standards Based on Equivalent Incumbent Retail Performance and Financial Deterrence for Non-Compliance*²²³

157. The Commission recently reviewed the regulatory Competitor Quality of Service (“Q of S”) regime and issued its determinations in Telecom Regulatory Policy CRTC 2018-123²²⁴ (“TRP 2018-123”). The Commission determined that a Q of S monitoring regime should apply to wholesale HSA services.²²⁵ More specifically, the Commission determined that the monitoring regime would apply to wholesale HSA installations and wholesale HSA repairs.²²⁶ The Q of S indicators for this regime are currently being developed by a CISC working group.²²⁷ Notably, however, TRP 2018-123 does not prescribe a requirement for Q of S indicators to compare performance levels between an Incumbent's wholesale Q of S performance to the Q of S performance standards applicable to the Incumbent's own retail operations.

158. By way of background, the Commission's predecessor competitor quality of service regime for voice services²²⁸ included a rate-rebate program which imposed financial penalties on

²²³ Consistent with the relief proposed in the Ware Report, at para 31(ii).

²²⁴ *Review of the competitor quality of service regime*, Telecom Regulatory Policy CRTC 2018-123, 13 April 2018 [“TRP 2018-123”].

²²⁵ *Id.* at para 121.

²²⁶ *Id.* at para 101.

²²⁷ CISC Business Process Working Group per Task Identification Form BPTF0102 available at <https://crtc.gc.ca/public/cisc/bp/BPTF0102.docx>.

²²⁸ As established in *Finalization of quality of service rate rebate plan for competitors*, Telecom Decision CRTC 2005-20, 31 March 2005.

wholesale service providers who failed to meet a set standard for quality of service performance and also factored retail Q of S data of the Incumbent. However, in TRP 2018-123, the Commission explained that the Q of S regime would operate solely to monitor service provisioning performance and no formal mechanism, such as a rate-rebate program or use of the Commission's Administrative Monetary Penalties ("AMPs") powers²²⁹, would be implemented to address instances of wholesale HSA service providers not meeting competitor service quality standards.²³⁰ The Commission then indicated that Q of S monitoring results will provide information that will allow the Commission to assess whether deterrence mechanisms are required at some future point in time.²³¹

159. Quality of service performance issues have a profound impact on a competitive service provider's retail operations. Missed wholesale HSA service installation and repair appointments translate into significant delays for a competitive service provider's end-users. Moreover, end-users must make arrangements to stay home from work in order to accommodate an installation performed by an Incumbent's technician. Missed appointments therefore cause direct harm to a competitive service provider's end-customers.

160. Incumbents have a greater incentive to deliver lesser, rather than higher, Q of S performance levels to their competitors. Delivering lesser levels of Q of S performance on the wholesale front allows the Incumbent to conserve resources that can then be allocated to retail operations. What's more, any kind of systemic discrepancy between an Incumbent's wholesale and retail Q of S performance puts the wholesale customer at a competitive disadvantage. After all, all other things being equal, wouldn't a subscriber always select the service provider who can schedule and perform installations and repairs more quickly and with a lower likelihood of missed appointments?

161. For competitive service-providers to compete on an equal footing with facilities-based Incumbents, measures must be adopted to ensure a high-level of wholesale Q of S performance. To this end, CNOC proposes the establishment of wholesale Q of S performance standards that

²²⁹ Administrative Monetary Penalties powers under Section 72 of the *Telecommunications Act* and as informed by *Guidelines regarding the general administrative monetary penalties regime under the Telecommunications Act*, Compliance and Enforcement and Telecom Information Bulletin CRTC 2015-111, 27 March 2015.

²³⁰ TRP 2018-123 at para 121.

²³¹ *Id.* at para 121.

are equivalent to the Incumbent's retail Q of S performance for the same aspect of service provisioning. For example, if the Incumbent meets 97% of scheduled installation appointments in a given month, the Incumbent should also be expected to meet 97% of scheduled installation appointments for wholesale customers in that same period. Any discrepancy in the Incumbent's favour perpetuates systemic competitive advantages and abuses.

162. Merely tracking Q of S performance is insufficient. To enforce the delivery of equitable Q of S performance levels at the wholesale level, the Incumbent must be subject to appropriate financial deterrents. A rate rebate program with an additional mechanism to further deter repeated Q of S failures is a model that has proven to be effective in the predecessor regime to TRP 2018-123. Reinstating this mechanism will create a proper incentive for Incumbents to treat wholesale and retail operations on an equitable basis when it comes to Q of S performance delivery.

*E. No More Incumbent Head-starts in Offering New Broadband Technologies and Speeds*²³²

163. Although the speed-matching policy requires Incumbents to offer wholesale service speed equivalents for services offered at retail, Incumbents can still benefit from head-starts when it comes to offering new broadband technologies or speeds. By extension, a head-start allows the Incumbent to capture, uncontested by service-based providers, a significant proportion of the consumer base that expresses demand for the new service speed.

164. Incumbent head-starts on new technology platforms can have a devastating effect on competition. Section 3.10 and 3.11 of this submission thoroughly describe the regulatory history surrounding FTTN and FTTP technologies, respectively, and the prolonged periods while competitors were deprived of access to these facilities on terms and conditions that would allow them to compete on an equal footing.

165. It is also extremely alarming that the Commission has only recently commenced the process to require the introduction of disaggregated wholesale HSA services outside of Ontario and Quebec. Even if one assumes that, with the benefit of the experience gained in the still ongoing process to implement disaggregated HSA in Ontario and Quebec, the Commission is able to move in a more expedited fashion in other regions of Canada, it is unlikely that the Commission could complete such work in less than two years. Thus, without an urgent change in how the Commission

²³² Consistent with the relief proposed in the Ware Report, at para 31(iv).

is approaching this issue, competitors in parts of Canada outside of Ontario and Quebec may not have access to the FTTP facilities before 2020, thus providing Incumbents with a decade long head-start.²³³ With head-starts like those experienced by the incumbents in the cases of FTTN and FTTP it is little wonder that, despite offering service at prices that are up to 30% less than equivalent Incumbent offerings,²³⁴ the competitors have been unable to gain greater market share.

166. Head-starts also occur when Incumbents propose wholesale rates for new service speeds that are highly inflated. Even rates approved by the Commission on an interim basis can have the effect of categorically foreclosing service-based competitors from competing in a particular segment of the market. For example, leaving aside all the fundamental problems with disaggregated wholesale HSA service discussed in Section 5, Bell's monthly (interim approved) access rate for disaggregated FTTP service up to 940 Mbps download / 940 Mbps upload is \$121.79²³⁵. In other words, leaving aside all other massive costs associated with disaggregated HSA service (and even the \$247.90 charge payable to Bell for installing the service at the end-user's premises), a service-based competitor would have to pay Bell \$121.79 per month in order to serve an end-user with FTTP service. Meanwhile, Bell offers FTTP service at retail at speeds of up to 1 Gbps download / 750 Mbps upload at a discounted promotional rate of \$74.95 a month (regular price of \$99.95 per month). This pricing squeeze that exists up to and until the Commission can approve final rates that are just and reasonable (which can take up to 9-12 months or longer) creates what is in effect a competitive head-start in the Incumbent's favor.

167. Sometimes an Incumbent might offer a new service speed at wholesale, but wholesale customers will be outright barred from using the service speed due to technical requirements and processes prescribed by tariff. For example, Shaw recently filed a tariff application to introduce a new wholesale Internet 300 service.²³⁶ However, Shaw insists that this wholesale service must be provisioned using a DOCSIS 3.1 modem.²³⁷ Cable Carrier tariffs require that wholesale customers comply with a modem certification process. It can take up to 9 months or more to certify a new

²³³ See Section 3.11 for a more detailed timeline.

²³⁴ As noted in the Competition Bureau's Market Study Notice, at para 6.

²³⁵ Bell Access Services Tariff, CRTC 7516, Item 151, Section 5(a).

²³⁶ Shaw Tariff Notice ("TN") 26/B (CRTC File No. 8740-S9-201606790) available at <https://crtc.gc.ca/public/8740/2016/s9/3172309.zip>

²³⁷ See Shaw letter dated 17 August 2018 in the tariff proceeding initiated by Shaw TN 26/B, CRTC File No. 8740-S9-201606790, available at <https://crtc.gc.ca/public/8740/2016/b2/2016-396-448-Replies.zip>.

modem for wholesale HSA service. As a consequence, Shaw benefits from a minimum of a 9-month head-start in retail markets for 300 Mbps Internet service.

168. Incumbent competitive head-starts are harmful to competition. Canadian consumers ought to benefit from the competition that service-based competitors can generate – as soon as new technologies service speeds reach the market. CNOC therefore requests that the Bureau recommend that the Commission implement a strict no head-start policy built on speed-matching principles. This no head-start policy must be a core pillar of the regulatory framework going forward. The no head-start policy could drive other changes discussed in this submission, like simplifying and accelerating wholesale rate decision making.

*F. Simplified and Accelerated Wholesale Rate Decision Making*²³⁸

169. The Commission applies Phase II Costing methodology to establish rates for mandated wholesale service such as wholesale HSA services. Phase II Costing and associated tariff proceedings are extremely resource intensive for the industry and the Commission. The methodology is complex, lacks transparency, and is very time consuming for all interested parties. Due to these characteristics of Phase II Costing processes, it can often take up to a year or significantly longer for the Commission to approve final rates for a wholesale service. Case in point, the Commission originally ordered the Incumbents to file cost studies in support of their disaggregated wholesale HSA configurations on 20 September 2016. Almost two-years later, the costing process for disaggregated wholesale HSA continues and final rate approval remains a distant reality.

170. When rates are approved on an interim basis (which also takes time), such prolonged delays until rates are approved on a final basis creates significant market uncertainty. That is especially the case when the prospect of downwards or upwards retroactive adjustments looms over the industry.

171. Phase II Costing presents other challenges as well. In order to meaningfully participate in costing proceedings, service-based competitors must acquire the services of expert personnel or consultants with Phase II Costing knowledge and experience. These resources are costly and very

²³⁸ Consistent with the relief proposed in the Ware Report, at para 31(v).

scarce throughout the industry. Further, a significant proportion of Phase II Costing expertise is perpetually engaged by Incumbents, leaving few options for the competitive side of the industry.

172. Changes are desperately needed to simplify and accelerate wholesale rate decision making such that industry participants with limited capacity can actively participate in proceedings and expect expedited rulings. CNOC therefore recommends that the Bureau recommend the initiation of a Commission proceeding to thoroughly examine alternate costing methodologies that are capable of setting rates that accurately reflect underlying economic costs albeit on a much shorter timeline than what can be expected via Phase II Costing.

173. Alternatively, if a more efficient costing methodology cannot be applied, CNOC might recommend a commitment to improving Phase II Costing via a set of measures that could include:

- A requirement that Incumbents must actively keep methodology and costing information up to date;
- Periodic audits of Incumbent Phase II Costing processes including applied methodologies, assumptions and cost inputs;
- Industry Phase II Costing education programs to build industry-wide capacity;
- Proactive review of wholesale rates when they do not appear to be cost-based anymore; and
- Adoption of benchmarking practices to compare rates yielded by Phase II Costing against other rates for similar retail services.

174. The above-listed improvements are intended to: (1) increase the efficiency of Phase II Costing processes; (2) increase industry participation in Phase II Costing processes; and (3) ensure that the output of Phase II Costing processes accurately reflects underlying economic costs.

*G. Testing of Incumbent Retail Bundle Pricing for Anti-Competitive Conduct*²³⁹

175. CNOC recommends ongoing reviews of Incumbent retail bundle pricing. The object of this monitoring activity would be to detect any anti-competitive conduct analogous to predatory pricing.

H. A Robust Regulatory Framework for Access to Incumbent Support Structures

176. As a final measure, CNOC recommends the adoption of a more robust regulatory framework to facilitate access to Incumbent support structures. Competitors require access to support structures including poles, strands and conduits in order to expand their networks. All such support structures are owned and controlled by the ILECs.²⁴⁰

177. Efficient access to support structures on equitable terms is critical to achieving the Commission's stated goal of encouraging investment in transport facilities.²⁴¹ In turn, improvements in competitive transport supply conditions will greatly facilitate the transition to the disaggregated HSA model.

178. Transport facilities simply cannot be deployed without access to support structures. In effect, constrained access to support structures represents a barrier for competitive service providers that would be otherwise poised to contribute to facilities-based competition.

179. The problems that competitors face when seeking to obtain access to support structures are not new. In fact, CNOC identified these problems on the record of the proceeding leading to TRP 2015-326.²⁴² For example, applications for access to ILEC support structures are often for vague reasons such as "lack of capacity" or "reserved for future growth".²⁴³ ILECs should not have unfettered discretion to deny access to support structures on such obscure and untestable grounds.

180. A set of regulatory rules should establish justified grounds and thresholds for withholding access to support structures. This will create certainty for both parties. More importantly, such

²³⁹ Consistent with the relief proposed in the Ware Report, at para 31(vi).

²⁴⁰ See for example, Bell Tariff CRTC 7400, Item 901 available at <http://www.bce.ca/Tariffs/bellcanada/NSTE/9/901.pdf?version=1535636484422>

²⁴¹ TRP 2015-326, at para 139.

²⁴² See CNOC intervention dated 31 January 2014, at Section 6.1.2.9 in proceeding leading to TRP 2015-326 available at <https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID=2069617>.

²⁴³ *Ibid.*

rules would eliminate the potential for any anti-competitive conduct regarding support structures, which are often a scarce resource.

181. Access to support structures can also involve prohibitive charges consisting of search, permit and inspection fees.²⁴⁴ All such charges should be reviewed in order to confirm whether they remain just and reasonable.

182. Finally, the current regime for support structures is prone to lengthy delays. Application processing delays frustrate competitor network planning and business opportunities.

183. To address all of the chronic support structure issues listed above, CNOC recommends the adoption of a more robust and streamlined regulatory framework for Incumbent support structures.²⁴⁵ The objectives of this modernized framework should be three-fold: (1) completely eliminate the potential for anti-competitive conduct relating to support structure access; (2) ensure that all rates for support structure access are just and reasonable; and (3) eliminate any unnecessary delays that competitors currently face when attempting to access support structures.

5.0 THE CURRENT TRAJECTORY OF THE WIRELINE WHOLESALE SERVICES FRAMEWORK WILL GREATLY UNDERMINE COMPETITION

184. This Section 5.0 describes the fundamental problems with the current trajectory of the wireline wholesale services framework, which is on a course for a full-scale transition from aggregated to disaggregated HSA services, beginning in the provinces of Ontario and Quebec.

185. In this Section, CNOC addresses the problems with the current wireline framework from theoretical and implementation perspectives. First, CNOC explains the theoretical flaw of the Commission's assessment of market conditions for transport facilities. Next, CNOC proceeds to address the major practical implementation problems with the current wireline framework in terms of costs, timelines for implementation and interrelated issues resulting from the Commission's transition plan.

²⁴⁴ Bell Tariff CRTC 7400, Item 901.

²⁴⁵ This initiative is also recommended in the Ware Report, at para 52.

5.1 The Economic Rationale for Disaggregated HSA Services

5.1.1 The Commission's Vision Was Generally Based on Sound Economic Principles

186. At the outset, CNOC must emphasize that the analysis underpinning the Commission's review of the wireline services framework generally reflects the application of sound economic principles.

187. The long-term objective of disaggregated HSA service is to expose additional network elements to market forces by encouraging negotiated agreements on data transport and investment in middle-mile facilities by competitors. In doing so, the Commission sought to remove price regulation and contentious price disputes from the transport segment of the network, which formed a constituent element of aggregated HSA service. The Commission's policy framework reflects principles of technological neutrality by providing for wholesale HSA access over all network platforms including FTTP access facilities. Finally, the framework encourages facilities-based competition while providing a form of access to essential bottleneck facilities that is intended to stimulate competition in downstream retail markets for Internet services.

188. However, while the Commission's vision for the regulatory framework going forward and many of the interlocking pieces that shape that vision are grounded on a sound economic foundation, critical aspects of the Commission's analysis are flawed. Unfortunately, these analytical flaws have consequences that ripple throughout the disaggregated HSA model and transition plan.

5.1.2 Incorrect Assessment of Transport Duplicability

189. The Commission's economic rationale for disaggregated HSA is anchored on a finding that transport is duplicable.²⁴⁶ The Commission referred back to findings from its previous review of the wireline framework in TD 2008-17²⁴⁷, which forbore transport facilities on a national basis.²⁴⁸ In that decision, the Commission determined that transport components were duplicable based on evidence of a high incidence of competitor self-supply or alternative supply of fibre-based

²⁴⁶ TRP 2015-326, at para 135.

²⁴⁷ *Revised regulatory framework for wholesale services and definition of essential service*, Telecom Decision CRTC 2008-17, 3 March 2008 ["TD 2018-17"].

²⁴⁸ As noted in para 149 of TRP 2015-326.

transport facilities.²⁴⁹ Several years later, in TRP 2015-326, the Commission determined that the transport component of wholesale HSA services remains generally duplicable in all incumbent carrier serving regions from an economic, technical and implementation perspective”²⁵⁰ (emphasis added).

190. While it is true that transport segments have indeed been successfully duplicated and other segments may still be economically duplicated, some segments cannot be economically duplicated for a variety of reasons including: (1) the location of the POI is too remote; (2) the distance between the POI and neighbouring interconnection points or fibre facilities is too great; (3) the socio-economic characteristics of the customer base served by the POI cannot support a positive business case for the deployment of transport facilities; and (4) there may not be a secondary market to sell excess transport capacity to other service providers.

191. Where one or more of the above-cited conditions exist at a POI, there will likely be very limited supply options for access to transport facilities. Given the prevalence of these conditions, there are undoubtedly too few supply options to ensure a competitive market for the supply of transport facilities throughout Incumbent serving regions or even a much smaller coverage area.

192. Therefore, what’s most concerning about the Commission’s assessment of transport facilities is that TRP 2015-326 and TD 2008-17 indiscriminately treat the transport component as the same throughout the serving areas of the Incumbents with respect to the practicality and feasibility of duplication independent of the number, location and size of the central offices and head-ends throughout this vast region.

193. In order for the disaggregated HSA model to work, the economic framework underpinning the model must be in sync with the prevailing market conditions. For this to be true, transport facilities would have to be duplicable at 1016 Bell COs that a competitor must go to in order to serve a customer base throughout the incumbent carrier serving region. This scale of duplication is simply not practical or feasible – not for a “reasonably efficient”²⁵¹ competitive provider of Internet services, not for would-be transport service providers and not for both of these potential sources of alternate transport supply combined.

²⁴⁹ TRP 2015-326, at para 132.

²⁵⁰ *Id.* at para 135.

²⁵¹ This being the standard for assessing duplicability as per TRP 2015-326, at para 44.

194. In practice, what this means is that competitive service providers will not be able to secure transport to POIs in order to reach customers that they currently serve under an aggregated HSA model, thereby stranding those customers with no competitive service options.

195. Interestingly, TRP 2015-326 confirms that transport facilities are generally duplicable from an economic, technical and implementation perspective, but then goes on to declare that the market conditions associated with the provision of appropriate transport facilities will be assessed during the forbearance process.²⁵² In doing so, the Commission correctly recognizes that in areas where disaggregated wholesale HSA service has been implemented, there may nonetheless be an absence of competitive transport supply conditions to justify phase-out of overlapping aggregated HSA services in those areas. However, by building in this granular check on local transport conditions at the back-end of the wholesale services framework rather than upfront, the Commission has inadvertently created significant barriers to competition resulting from the transition plan to disaggregated HSA services. These barriers are discussed in greater detail in Section 5.2.3 below.

196. Why does all of this matter? The Commission's transport duplicability finding implies that transport will be practically and feasibly available to competitors everywhere when that is not the case. The result is that one important pillar of the theoretical economic foundation of the Commission's decision is incorrect. The fact that the Commission's policy framework presumes that transport is universally duplicable when it is not will consequently foreclose disaggregated HSA customers from competing in areas where transport duplication is not feasible – thus leading to substantial prevention or lessening of competition in those areas.

197. As an aside, CNOC has concerns regarding the overly aggregated geographic market definition that the Commission applied with respect to the mandated provision of wholesale HSA services.²⁵³ The Commission determined that, with a view to administrative efficiency, the Incumbent's entire serving region is the appropriate geographic market definition.²⁵⁴ This seems to make little sense if wholesale HSA services are provisioned under a disaggregated model. The simplest way to explain this is that if the objective of the buyer (here a wholesale customer) is to purchase disaggregated HSA service to reach a particular customer, the choice of suppliers is

²⁵² *Id.* at para 156.

²⁵³ *Id.* at para 116.

²⁵⁴ *Ibid.*

strictly limited to the ILEC CO and the overlapping Cable Carrier head-end. In other words, from a substitutability point of view, if the wholesale customer is dissatisfied by a price increase at a Bell CO, its only option to reach the same customer is to go to the Cable head-end that serves the same area (and vice-versa) – there are no other options. Therefore, as indicated in the Ware Report, the geographic market definition must be the coverage boundary of the POI or two overlapping POIs from which the customer can be served.²⁵⁵ This problem with the Commission’s geographic market definition is further evidence that local market definitions, such as the potential for transport duplicability, were not accurately taken into account in TRP 2015-326.

198. To return to the crux of the point of this section: limited transport supply conditions constitute a barrier to entry and expansion via the disaggregated HSA model, as currently constructed. This barrier is compounded by the obstacles to obtaining access to support structures, which are discussed in Subsection 4.3.H. With the other barriers to entry and expansion described in the subsequent Section 5.2, the wireline services framework is unworkable without the relief that CNOC is proposing to ensure a path to vigorous and sustainable competition in downstream markets for Internet services.

5.2 Major Disaggregated HSA Implementation Issues

5.2.1 Disaggregated HSA is Cost Prohibitive²⁵⁶

A. The CBB Justification for Disaggregated HSA Must be Re-Examined

199. One of the principal justifications cited by the Commission for moving to a disaggregated HSA model is to cut out “...the high cost incurred by competitors when transporting large amounts of traffic over incumbent carriers’ facilities.”²⁵⁷ As further noted by the Commission, “These costs are expected to exacerbate as consumption increases over time, given that a competitor must pay for all of its data traffic to be routed back to a central point of aggregation, no matter how far away a subscriber is located.”²⁵⁸

200. These excerpts from the Commission are important. It is absolutely correct that at the time of the proceeding leading to TRP 2015-326, competitors faced very high capacity-based billing

²⁵⁵ Ware Report, at para 13.

²⁵⁶ Note: the costs reported throughout this section are derived from analysis conducted by CNOC members. CNOC members relied on inputs including: (i) the rates set out in relevant tariffs, (ii) the proposed disaggregated HSA configurations of the Incumbents; and (iii) best estimates and assumptions where necessary.

²⁵⁷ TRP 2015-326, at para 145.

²⁵⁸ *Ibid.*

(“CBB”) charges associated with aggregated HSA services. In fact, the state of CBB rates during this time was one of the greatest threats to the continued survival of competitors relying on aggregated HSA services. Thus, when the Commission issued its determinations in TRP 2015-326, the notion of trading CBB costs in exchange with the cost of obtaining transport was a logical proposition in the abstract. However, the urgency for CBB relief would ultimately be addressed by the Commission by much more direct means.

201. Shortly after TRP 2015-326 was issued, the Commission initiated a proceeding to review costing inputs for wholesale HSA services.²⁵⁹ Ultimately, this proceeding resulted in TO 2016-396, wherein the Commission concluded that “certain wholesale HSA service providers have not conducted their cost studies in accordance with Phase II costing principles, as detailed in the [Costing Manual], and have not justified departures from the principles and methodologies set out in the [Costing Manual].”²⁶⁰ The Commission went on to correct several other costing issues in TO 2016-396,²⁶¹ which resulted in drastic reductions to the CBB rates of the Incumbents:

- Bell’s CBB rate (per 100 Mbps) was reduced from \$1036.39 to \$149.08 – a difference of \$887.31, for a total reduction by 85.61%;
- Cogeco’s CBB rate (per 100 Mbps) was reduced from \$1118.79 to \$323.73 – a difference of \$795.06, for a total reduction by 71.06%;
- Rogers’ CBB rate (per 100 Mbps) was reduced from \$1400 to \$319.68 – a difference of \$1080.32, for a total reduction by 77.17%; and
- Videotron’s CBB rate (per 100 Mbps) was reduced from \$2031 to \$1285 – a difference of 1635.64, for a total reduction by 36.73%.

202. Although the Commission has yet to set final rates for aggregated HSA services, the CBB trade-off justification anchoring the Commission’s decision to move to a disaggregated HSA model must now be re-examined in light of the radically lower interim CBB rates established by TO 2016-396.

²⁵⁹ *Review of costing inputs and application process for wholesale high-speed access services*, Telecom Notice of Consultation CRTC 2015-225, 28 May 2015.

²⁶⁰ TO 2016-396, at para 17.

²⁶¹ *Ibid.*

203. A much more pressing issue, however, and one that could not have been foreseen when TRP 2015-326 was released, is the prohibitive start-up cost of implementing disaggregated HSA via Bell's proposed configuration.

B. Disaggregated HSA Start-up Costs

204. As a reminder, the disaggregated HSA model requires that wholesale customers interconnect at several POI locations to establish the same retail geographic coverage area that can be served via interconnection at a single POI (CO or cable head-end) under the aggregated HSA model. On that basis and in Ontario and Quebec, competitive service providers would need to interconnect at between 36 and 60 POIs to serve throughout a Cable Carrier's footprint – and at 1016 POIs to serve throughout Bell Canada's footprint.

205. The start-up costs for disaggregated HSA a single CO or cable head-end are substantial. There are two start-up cost scenarios for Bell's disaggregated HSA services and one scenario for Cable Carrier disaggregated HSA services. Each scenario is addressed in turn, below. CNOC has also listed monthly recurring costs associated with each interconnection scenario.

206. **Bell Disaggregated HSA Service Via Co-location.** The start-up costs to interconnect via co-location at a single CO for the purpose of obtaining Bell's disaggregated HSA service is between \$80,000 and \$229,000. These figures are comprised of tariffed charges payable to Bell including make-ready charges²⁶², enablement charges²⁶³, Co-location build costs²⁶⁴ and CBB Order Service Charges²⁶⁵. These costs also include additional non-tariffed costs comprised of leased fibre from the CO to the wholesale customer's single point of presence ("POP") for its network (note: as explained in Section 5.1.2 above, transport supply may not be available at the CO). Unlike Bell disaggregated HSA service via outside meet-me point, co-location does not require the build-out of a POP for each CO.

207. Recurring costs associated with co-location would be between \$4,000 and \$12,000 per CO per month.

²⁶² Bell Access Services Tariff, CRTC 7516, Item 151, 4.(d).(1).

²⁶³ *Id.*, Item 151, 4.(d).(2).

²⁶⁴ *Id.*, Item 110., 4.

²⁶⁵ *Id.*, Item 151, 5.(f).

208. Under this scenario, the one-time cost to interconnect at 1016 COs would be \$81,280,000 to \$232,664,000 with recurring costs in the range of \$4,064,000 to \$12,192,000 per month.

209. There are additional start-up cost considerations related to the options available to a competitor to access transport from its co-location. One such consideration relates to the application of the primary purpose rule, which is intended to ensure that competitors who co-locate with ILECs do so primarily to interconnect with the ILEC services and facilities.²⁶⁶ Due to the manner in which this rule has been applied to date, a wholesale customer co-located in a CO may not be able to make use of competitive transport supply available from another party co-located in the same CO. In these circumstances, the wholesale customer would need to build fibre to a POP outside of the CO and interconnect with the party offering competitive transport supply at that location.

210. It may be possible for a wholesale customer co-located in a CO to avoid these costs if competitive transport supply is available outside of the CO and the third-party transport supplier permits interconnection to such competitive transport supply outside of the CO. However, this will not be the case where competitive transport supply is available only from a party that is also co-located in the CO.

211. This is an important qualification because the start-up cost to deploy a POP is very substantial, ranging from \$75,000 and \$175,000 with an additional \$1,500 and \$2,000 in monthly recurring costs. Therefore, co-location becomes dramatically more expensive in disaggregated HSA deployment scenarios involving third-party transport.

212. **Bell Disaggregated HSA Service Via Outside-meet-me-point.** ~~The start-up costs to interconnect~~ The fibre that connects to an outside-meet-me-point must have another end that connects to suitable facilities. In most cases, this means that the wholesale customer will need to bring back the other end of the fibre to a POP. As listed above, start-up costs to deploy a POP are very substantial, especially when compared to the other cost components of the outside-meet-me-point interconnection option (itemized below).

²⁶⁶ As established in *Co-location*, Telecom Decision CRTC 97-15, 16 June 1997 and reaffirmed in *Canadian Network Operators Consortium Inc. – Application to review and vary Telecom Decision 2012-209 regarding the co-location rule*, Telecom Decision CRTC 2013-100, 1 March 2013, at para 12.

213. The extent of start-up costs for interconnection via outside-meet-me-point at a single CO for the purpose of obtaining is therefore largely driven by the number of POPs that a competitor must build in order to utilize this interconnection option. A full-scale disaggregated HSA deployment in Bell's disaggregated HSA-serving territory using the outside-meet-me-point option exclusively would require POP builds at a very significant number of COs.

214. In certain cases, the wholesale customer might have opportunities to benefit from certain efficiencies. There are four instances where a wholesale customer might benefit from these efficiencies. First, a wholesale customer might leverage a pre-existing POP that it previously deployed (for some other purpose) in proximity to a CO. Second, in a few very dense metropolitan areas with several COs in close proximity to one another, there may be an opportunity to leverage a fewer number of POPs to connect to additional COs. However, this opportunity is largely dictated by the equipment included in Bell's COs.²⁶⁷ Third, if the port and fibre functionality requested by CNOC is implemented, wholesale customers will have an opportunity to share POPs and their associated costs. Fourth and finally, other service providers (e.g., transport providers) may have established POPs in proximity to the CO with excess capacity that it is willing to sell to a wholesale customer looking to connect the other end of their fibre at the outside-meet-me-point.

215. It bears emphasizing that all of the above exceptions are only likely to occur in a limited number of cases that are unique to each wholesale customer. Putting aside these variables, which cannot be factored in a straightforward cost-analysis, it is useful to quantify the range of start-up costs that can be expected assuming that POPs are needed to interconnect at all COs.

209-216. Start-up costs for outside-meet-me-point interconnection at a single CO are between \$145,500 and \$372,500. These figures are comprised of tariffed charges payable to Bell including make-ready charges²⁶⁸, enablement charges²⁶⁹, CBB Order Service Charges²⁷⁰, meet-me-point application charges²⁷¹ and meet-me-point charges²⁷². ~~These~~As noted above, these costs also include additional non-tariffed costs comprised of establishing a ~~point of presence~~POP and

²⁶⁷ In particular, the power of the fibre optics equipment and the corresponding distance of the laser.

²⁶⁸ ~~Id.~~ Bell Access Services Tariff, CRTC 7516, Item 151, 4.(d).(1).

²⁶⁹ *Id.*, Item 151, 4.(d).(2).

²⁷⁰ *Id.*, Item 151, 5.(f).

²⁷¹ *Id.*, Item 152, 4.(a).

²⁷² *Id.*, Item 152, 4.(c).

obtaining leased fibre from the CO to the wholesale customer's POP (note: as explained in Section 5.1.2 above, transport supply may not be available at the CO).

~~210-217.~~ It may seem surprising that the cost range for the outside-meet-me-point scenario in many cases is greater than the cost of the co-location scenario. That is because the entire justification of a meet-me-point configuration is to provide competitive service providers with an interconnection option that is significantly less costly than co-location. Indeed, the Commission even concluded that the outside meet-me-point is cheaper for competitors than co-location option over one, three and five-year periods.²⁷³ ~~However, after further network analysis, it is clear that virtually all outside-meet-me-point configurations will require that the competitor build a POP near virtually every meet-me-point, which entails significant costs that completely offset upfront tariff savings of the outside-meet-me-point option compared to co-location. This surprising outcome is attributable to the need to establish POPs at a substantial number of COs. This consideration was not factored in TD 2017-459 and only became apparent to CNOC after further network analysis.~~

~~211-218.~~ Recurring costs per outside-meet-me-point interconnection would be between \$3,500 and \$12,000 per CO per month.

~~212-219.~~ Under this scenario, the one-time cost to interconnect at 1016 COs would be \$147,828,000 to \$378,460,000 with recurring costs in the range of \$3,556,000 to \$12,192,000 per month.

~~213-220.~~ **Cable Carrier Disaggregated HSA Service.** The start-up costs to interconnect at a single Cable Carrier head-end for the purpose of obtaining disaggregated HSA service is between \$90,500 to \$205,500. These figures are comprised of tariffed charges payable to the Cable Carrier²⁷⁴ including the POI Entrance Fee, POI Configuration Fee, ISP Registration and the Initial Report Fee. These costs also include additional non-tariffed costs comprised of establishing a point of presence and obtaining leased fibre from the head-end to the wholesale customer's POP (note: as explained in Section 5.1.2 above, transport supply may not be available at the CO). As is the

²⁷³ TD 2017-459, at para 22.

²⁷⁴ All tariffed costs are set out in the respective tariffs of the Cable Carriers: Rogers Access Services Tariff CRTC 21530, Part G, Item 703, Section 1, 1.15; Cogeco TPIA Tariff CRTC 26400, Item 103, Section 1, 1.2; Videotron TPIA Tariff CRTC 26950, Item 201, Section 7.

case with Bell disaggregated HSA, Cable Carrier disaggregated HSA requires a wholesale customer POP near every Cable Carrier meet-me-point. Colocation is not available from Cable Carriers.

~~214.221.~~ Recurring costs are between \$4,000 and \$12,000 per head-end per month.

~~215.222.~~ Under this scenario:

- (1) The one-time cost to interconnect at 36 Rogers head-ends would be \$3,258,000 to \$7,398,000 with recurring costs in the range of \$144,000 to \$432,000 per month.
- (2) The one-time cost to interconnect at 60 Cogeco head-ends would be \$5,430,000 to \$12,330,000 with recurring costs in the range of \$240,000 to \$720,000 per month.
- (3) The one-time cost to interconnect at 53 Videotron head-ends would be \$4,796,500 to \$10,891,500 with recurring costs in the range of \$212,000 to \$636,000 per month.

C. Aggregated HSA Start-up Costs

~~216.223.~~ The above-listed start-up costs to deploy disaggregated HSA throughout an Incumbent's serving area are alarming. However, the true gravity of the matter is not evident until these figures are compared with the start-up costs of aggregated HSA services, which are set out below.

~~217.224.~~ **Bell Aggregated HSA Service.** The start-up costs to obtain Bell's aggregated HSA service is between \$16,500 and \$31,500. These figures are comprised of tariffed charges payable to Bell including²⁷⁵ an activation fee, domain path mapping, gateway mapping administration, AHSSPI and CBB Order Service Charges. These costs also include additional non-tariffed costs comprised of leased fibre from the CO to the wholesale customer's single POP for its network (note: as explained in Section 5.1.2 above, transport supply may not be available at the CO).

²⁷⁵ Bell Access Services Tariff CRTC 6716 Item 5410, Section 4, sets out the rates for Gateway Access Service ("GAS"); Bell Access Services Tariff CRTC 6716 Item 5440, Section 4, sets out the rates for Gateway Access Service - FTTN ("GAS-FTTN");

~~218-225.~~ A single POP is necessary for aggregated HSA, at a cost of between \$75,000 and \$175,000, with recurring costs between \$1,500 and \$2,000.

~~219-226.~~ Recurring costs associated with Bell aggregated HSA are between \$2,500 and \$10,000 per month.

~~220-227.~~ Under aggregated HSA, wholesale customers do not need to interconnect at more than one POI. In other words, the above start-up and recurring costs are the bottom line.

~~221-228.~~ **Cable Carrier Aggregated HSA Service.** The start-up costs to interconnect at a single Cable Carrier head-end for the purpose of obtaining aggregated HSA service is between \$15,500 to \$30,500. These figures are comprised of tariffed charges payable to the Cable Carrier²⁷⁶ including the POI Entrance Fee, POI Configuration Fee, ISP Registration and the Initial Report Fee. These costs also include additional non-tariffed costs comprised of obtaining leased fibre from the head-end to the wholesale customer's single POP for its network (note: as explained in Section 5.1.2 above, transport supply may not be available at the CO).

~~222-229.~~ A single POP is necessary for aggregated HSA, at a cost of between \$75,000 and \$175,000, with recurring costs between \$1,500 and \$2,000.

~~223-230.~~ Recurring costs associated with aggregated HSA are between \$2,500 and \$10,000 per head-end.

~~224-231.~~ Again, under aggregated HSA, wholesale customers do not need to interconnect at more than one POI. In other words, the above start-up and recurring costs are the bottom line.

D. Conclusion: Start-up Costs of Disaggregated HSA

~~225-232.~~ It should be readily apparent that the start-up costs of transitioning to disaggregated HSA on a Cable Carrier platform is very substantial whereas the cost to do so on Bell's disaggregated configuration is simply unfathomable for any size of competitive service provider.

²⁷⁶ All tariffed costs are set out in the respective tariffs of the Cable Carriers: Rogers Access Services Tariff CRTC 21530, Part G, Item 703, Section 1, 1.15; Cogeco TPIA Tariff CRTC 26400, Item 103, Section 1, 1.2; Videotron TPIA Tariff CRTC 26950, Item 201, Section 7.

The above-cited figures do not even include the cost of borrowing and other substantial costs that would need to be incurred by the wholesale customer.²⁷⁷

226-233. Based on the current market share distribution for competitive service providers,²⁷⁸ the staggering start-up costs of Bell's disaggregated HSA configuration will never be offset by lower CBB rates ~~compared to the lower CBB rates~~ that disaggregated HSA provides compared to aggregated HSA. As previously noted, tariffed aggregated HSA CBB charges were drastically reduced in TO 2016-396 and CNOC would not expect final rates to be higher. Ultimately, the takeaway is: competitive service providers could never hope to generate \$81,280,000 to \$232,664,000 of CBB savings to offset the equivalent \$81,280,000 to \$232,664,000²⁷⁹ in one-time start-up costs of deploying disaggregated HSA throughout Bell's serving area in Ontario and Quebec – leaving aside the \$4,064,000 to \$12,192,000 in recurring monthly charges associated with disaggregated HSA. Instead, start-up costs would overwhelmingly eclipse the modest CBB savings offered by Bell's disaggregated HSA platform and run competitors out of business in short order.

227-234. The prospect of deploying disaggregated HSA throughout Bell's serving area becomes even more improbable when considering that Bell's tariffed monthly FTTP access charge to wholesale customers is \$121.79, which is \$46.84 higher than Bell's promotional rate for the retail equivalent 1 Gbps / 750 Mbps or \$21.84 higher than the non-discounted rate for that service. This leaves no margin for competition over Bell's FTTP access facilities, which wholesale customers can only access via Bell's disaggregated HSA service. Further, there is no guarantee that final rates will be lower than interim rates. This further drives home the point that there can be no positive business case whatsoever for transitioning to disaggregated HSA over Bell's configuration – even on a long-term horizon.

²⁷⁷ For instance, equipment costs.

²⁷⁸ Non-incumbent providers account for 11.9% of residential Internet access service revenues, as set out 2017 CMR at Table 5.3.2; This market share is distributed amongst a substantial proportion of the more than 550 companies registered as telecommunications service providers (this figure is cited at paragraph 5 of the Competition Bureau's Market Study Notice).

²⁷⁹ This being the co-location scenario, which is cheaper than the outside-meet-me-point interconnection scenario.

E. Disaggregated HSA Configurations Should not Strand Canadian Consumers from Competition

[228-235.](#) As a counter-point, one might argue that a competitive service provider could choose to deploy Bell disaggregated HSA at a subset of Bell CO's to control costs. Effectively, this strategy would have the competitive service provider exclusively deploy at COs which serve the highest number of existing (i.e. under the aggregated HSA framework) and potential customers. The competitive service provider would then ultimately lose any existing customers in areas served by COs where there is a weaker case for disaggregated HSA deployment.²⁸⁰ In doing so, the competitor would also forgo the opportunity to compete for new customers in those areas.²⁸¹

[229-236.](#) This idea is at odds with the fundamental purpose of the wholesale services framework – which is to facilitate competition and choice of providers, services and price throughout as much of Canada as possible. No Canadian customer should be stranded simply because they happen to reside in a low-density area that is a particularly weak candidate for disaggregated HSA deployment.

F. The Cost of Disaggregated HSA in an Industry that is Subject to Regulatory Uncertainty

[230-237.](#) As demonstrated throughout this section, the start-up costs of disaggregated HSA service are staggering. An additional layer of complexity that makes these massive costs even more daunting is the effect of regulatory uncertainty in this industry.

[231-238.](#) The Commission reviews its regulatory framework for wireline services roughly every five years. The Commission also periodically reviews the status of regulated services, issues forbearance orders and changes policies that have a significant impact on the telecommunications industry and Canada's retail Internet services markets specifically. This degree of uncertainty makes it very difficult for a rational investor to justify investments in the tens and hundreds of millions of dollars if one year to the next, the regulatory framework changes in a manner that could completely erase the value of these investments in the short and long term.

²⁸⁰ This would ultimately occur when aggregated HSA service is phased out in the area in question, as per the Commission's direction in TRP 2015-326. Until the conditions for phase-out manifest, it is important to recognize that aggregated HSA services in these areas will be subject to a 100 Mbps speed cap and no service will be available over FTTP facilities. These are factors that severely limit the potential for wholesale-based competition.

²⁸¹ See above footnote.

[232-239.](#) For instance, the Commission could adopt another wholesale HSA model or forbear from the continued regulation of a critical component to the disaggregated HSA configuration (e.g. colocation or the outside-meet-me-point). As a consequence, investments in disaggregated HSA deployment could be lost or devalued substantially.

[233-240.](#) It is understood that there will always be a degree of investment risk in a regulated industry – for Incumbents and competitors alike. However, from the perspective of competitive service providers, the price tag and risk of disaggregated HSA deployment are proportionately so high as to constitute very considerable, and in the case of Bell Disaggregated HSA, insurmountable, barriers to entry and expansion.

5.2.2 Timelines for Transition to Disaggregated HSA Service

[234-241.](#) This section outlines the time that would be required for a competitive service provider to deploy disaggregated HSA service. These timelines are relevant to the implementation issues surrounding the Commission’s transition plan to disaggregated HSA.

[235-242.](#) To produce these estimates, CNOC referred to models that ran aggressive schedules for disaggregated HSA deployment. The models assumed that the competitive service provider would initiate disaggregated HSA deployment at a POI every two weeks. Over the course of time, this leads up to simultaneous disaggregated HSA deployment work at 30 POIs. It should be emphasized the resource burden generated by this scale of deployment would overwhelm the capacity of virtually all competitive service providers in today’s markets. Nevertheless, at this pace, the timelines for disaggregated HSA deployment are approximately the following:

- (1) 43 years to deploy to 1016 Bell COs;
- (2) 3.2 years to deploy to 60 Cogeco head-ends;
- (3) 2.2 years to deploy to 36 Rogers head-ends;
- (4) 2.9 years to deploy to 53 Videotron head-ends

[236-243.](#) To make matters worse, Bell’s disaggregated HSA tariff includes a provision that allows Bell to delay applications for disaggregated HSA service from competitors if Bell has two

ongoing projects in COs in that province.²⁸² This would prolong the timeline for deployment by orders of magnitude. Given that this calculation depends on unknown variables such as the number of applications from other service providers, it is impossible to determine just how long it would take to complete a full disaggregated HSA build with Bell. However, just for perspective, if we were to apply a much more flexible constraint that limits the amount of concurrent disaggregated HSA builds to two COs per wholesale customer, we can predict that it would take 255 years to complete a disaggregated build with Bell!

5.2.3 Implementation Issues due to the Transition Plan for Disaggregated HSA Services

A. 100 Mbps Speed Cap on Aggregated HSA

[237:244.](#) As explained in Section 3.2, the Commission determined that a 100 Mbps download speed cap would apply to aggregated wholesale HSA services.²⁸³ This cap is set to take effect as soon as the Commission approves final rates for disaggregated HSA services, at which point existing aggregated services at speeds in excess of 100 Mbps would be grandfathered.²⁸⁴ In other words, once the cap is triggered, competitive service providers will no longer have the ability to add any new customers at service speeds in excess of 100 Mbps. That is, until the competitive service provider transitions to disaggregated HSA service, which supports speeds above 100 Mbps.

[238:245.](#) The Commission's stated motivation behind the 100 Mbps speed cap on aggregated HSA services is to encourage the migration to disaggregated HSA services.²⁸⁵ At the time, this may have seemed like a logical and proportionate regulatory incentive to stimulate an industry-wide transition to disaggregated HSA. However, the Commission devised this incentive years before any information would surface regarding the details of the disaggregated configurations of the Incumbents.

[239:246.](#) Thus, the Commission could not have known the extreme level of start-up and recurring costs associated implementing disaggregated HSA services, as set out in Section 5.2.1. Nor could the Commission have known about the prolonged timelines for disaggregated HSA

²⁸² Bell Access Tariffs, CRTC 7516, Item 151, Section 3(g).

²⁸³ TRP 2015-326, at para 153.

²⁸⁴ *Id.*, at para 154.

²⁸⁵ TRP 2015-326, at para 150.

implementation, as outlined in Section 5.2.2. Nor would the Commission have known the overwhelming impact of full disaggregation on Bell's network in terms of costs and implementation timelines, as emphasized throughout this submission. Finally, based on the application of the essentiality test in TRP 2015-326, the Commission was not aware that transport is not feasibly or practically duplicable throughout Incumbent serving areas.

[240-247.](#) In light of the barriers to timely and efficient disaggregated HSA deployment, the practical implication of the 100 Mbps speed cap on aggregated HSA services is that competitive service-providers will be foreclosed from competition in substantially all of the downstream retail markets for Internet services in excess of 100 Mbps download. Success in this segment of what is a rapidly evolving marketplace geared towards increasingly faster speeds is critical to the survival of competitors going forward. So long as this speed cap is in effect, it means that jointly dominant Incumbents will effectively be pre-empting the availability of their wholesale customers to access the FTTP facilities that the competitors require to provide the same faster retail broadband speeds that the Incumbents can provide. The outcome is a corresponding substantial lessening or prevention of competition in the increasingly relevant higher speed retail broadband services markets..

B. Bell's Disaggregated Configuration is Unworkable

[241-248.](#) The extent of disaggregation in Bell's configuration is simply unworkable. The total number of Bell COs is equivalent to the number of all Cable Carrier head-ends combined and multiplied several times over. The cost of deploying disaggregated HSA service to each CO is unfathomable and uneconomical. Moreover, the length of time it would take to deploy disaggregated HSA throughout Bell's serving area is measured in decades or even centuries if Bell enforces the concurrent deployment restrictions included in its tariff.²⁸⁶ As a consequence, competitors will not be able to reach a significant proportion of existing or prospective future customers over Bell's fully disaggregated HSA configuration.

[242-249.](#) The fact that Bell's disaggregated configuration is unworkable means that competitors will be deprived of access to speeds in excess of 100 Mbps (which, again, are only available over disaggregated HSA).

²⁸⁶ Bell Access Tariffs, CRTC 7516, Item 151, Section 3(g).

~~243-250.~~ Recall that in addition to the 100 Mbps speed cap on aggregated, the Commission adopted a second measure intended to encourage competitor migration to the disaggregated platform: any competitor desiring access to customers served by FTTP access facilities will only be able to do so by using a disaggregated HSA service.²⁸⁷

~~244-251.~~ This measure, which was intended as an incentive, has lost its purpose. Competitive service providers are unable to access customers served by FTTP via aggregated HSA service due to this condition while also being prevented from accessing customers by FTTP via disaggregated HSA because Bell's configuration is unworkable.

~~245-252.~~ Thus, similarly to the effect of the 100 Mbps speed cap, the condition limiting FTTP access facilities to disaggregated forecloses competition in markets served by FTTP only, as well as markets for service speeds that are only available over FTTP access facilities. The end result is that the joint dominance of Incumbents in FTTP served markets will go unchallenged, leading to an increased likelihood of anti-competitive conduct by the Incumbents, with a corresponding substantial lessening or prevention of competition in those markets.

C. The Lack of Port and Fibre Sharing

~~246-253.~~ To create economic efficiencies, competitive service providers sometimes share the capacity and cost of certain facilities and equipment. In this way, there is an opportunity to create economic efficiencies with respect to start-up and recurring costs associated with disaggregated HSA facilities. More specifically, ports and fibre utilized in an interconnection for disaggregated HSA service could be shared among two or more wholesale customers.

~~247-254.~~ Unfortunately, the disaggregated HSA configurations and tariffs of the Incumbents do not allow competitive service providers to share ports and fibre used in conjunction with disaggregated HSA service. As such, wholesale customers have no choice but to accept the full cost and excess capacity of facilities that could otherwise be more efficiently distributed amongst two or more competitive providers. Importantly, the ability to share disaggregated HSA ports and fibre would translate into additional opportunities to share ancillary costs resulting from the disaggregated HSA model.

²⁸⁷ TRP 2015-326, at para 153.

[248-255.](#) For perspective, port and fibre sharing could translate into significant savings when it comes to upfront circuit installation, router and POP construction costs as well as substantial savings with respect to ongoing circuit costs. Assuming port and fibre sharing between three competitive service providers, CNOC estimates \$119,000 in upfront cost savings per ISP in a deployment at the high end of the cost spectrum²⁸⁸ with an additional \$2,500 in monthly savings per ISP for recurring costs.

[249-256.](#) Without the efficiencies created by port and fibre sharing, the disaggregated HSA model and tariffs result in economic waste. Without the opportunity to share such costs, competitive service providers are deprived of the opportunity to re-invest cost savings into additional disaggregated HSA deployment or into other aspects of their businesses. Meanwhile, delays to disaggregated HSA deployment translate into more time stranded on an aggregated HSA platform that will soon be subject to a 100 Mbps cap and which cannot serve customers via FTTP access facilities – a status which represents the final implementation issue discussed below.

D. The Wireline Wholesale Services Framework Will Strand Competitors on Access Facilities that Do Not Include FTTP

[250-257.](#) The Commission's incentives are no longer in touch with the prevailing market conditions surrounding disaggregated HSA services. CNOC has already made the point that Bell's unworkable disaggregated HSA configuration will strand competitive service providers throughout a major proportion of Bell's serving territory. Stranded providers will be limited to service speeds of 100 Mbps or lower and to access facilities that do not include FTTP. That is because the only option to move ahead on greater speeds and FTTP is to transition to disaggregated HSA – which is simply not a realistic solution for the vast majority of Bell COs.

[251-258.](#) While Bell's disaggregated configuration will undoubtedly have the most harmful effects in terms of stranding competitive service providers, the substantial cost and lengthy deployment timelines attached to the disaggregated HSA configurations of the Cable Carriers will also inevitably create major problems for competition. The pace of the transition to disaggregated HSA on the Cable Carrier networks will be slow. Entry at certain Cable Carrier head-ends may be extremely difficult for a minority of competitive service providers and impossible for the greater

²⁸⁸ Based on the cost ranges cited in Section 5.2.1.

majority. Moreover, the limited availability of transport supply throughout Ontario and Quebec will compound those problems.

~~252-259.~~ Regardless of whether we are looking at disaggregated HSA deployment at a CO or a Cable Carrier head-end, many competitive providers who currently serve Canadian consumers with valued and high-quality services will face the reality that they are simply unable to efficiently enter the market overtop a disaggregated HSA platform. For these service providers the ultimatum becomes: (1) try to survive without the ability to respond to the increasing consumer demand for FTTP and service speeds above 100 Mbps; or (2) exit the market for Internet services altogether. Over time, perhaps it is inevitable that option (1) will lead to option (2) unless the relief set out in this submission comes to bear.

~~253-260.~~ Another important dimension to this problem is the fact that the regulatory process to introduce disaggregated HSA availability to provinces other than Ontario and Quebec has only recently begun. Consequently, competitors in other regions of Canada face a much longer wait until they can finally hope to reach customers over FTTP access facilities using disaggregated HSA services.

~~254-261.~~ This situation is beyond the point of urgency. Unless the competitive industry can obtain the relief proposed by CNOC in Section 5.2.3, the Commission's incentives for transition to disaggregated HSA will inadvertently compromise the capacity of competitive service providers to compete with Incumbents in a critical segment of the market. Without the relief proposed by CNOC, the jointly dominant Incumbents will enjoy a prime opportunity to exercise greater market power in downstream retail markets for Internet services thereby resulting in a substantial lessening or prevention of competition.

5.2.4 Relief Required to Address the Issues with the Wholesale Wireline Services Framework

~~255-262.~~ The issues described in the preceding section are complex and interrelated. CNOC's proposed relief is intended to resolve these problems while disrupting the core mechanics of the Commission's wireline services framework as little as possible. CNOC agrees that competitive service providers should have incentives to transition to a disaggregated HSA model. However, those incentives should stem from the inherent economic efficiencies that the

disaggregated HSA model ought to generate – rather than artificial and debilitating restrictions on the use of aggregated HSA services. To this end, CNOC proposes five headings of relief.

A. Removal of the 100 Mbps Speed Cap on Aggregated HSA Services.

~~256.263.~~ This relief is straightforward. In order to facilitate an effective transition to disaggregated HSA service, the Commission must eliminate the 100 Mbps Speed Cap on aggregated HSA services before it comes into effect (upon the final approval of rates for disaggregated HSA services).

~~257.264.~~ Doing so facilitates a healthy and progressive transition to disaggregated HSA because it allows competitive service providers to continue to compete vigorously in retail markets up to and until the point where they may have the capacity to adopt disaggregated HSA and benefit from the long-term efficiencies that the model ought to generate.

~~258.265.~~ If the speed cap is not eliminated, many competitors will be at risk of going out of business before an opportunity for economically efficient entry via disaggregated HSA presents itself.

B. A Mid-Level of Disaggregated is Required for Bell

~~259.266.~~ As emphasized throughout this submission, Bell's disaggregated HSA configuration is unworkable because of the extremely high-level of disaggregation that it features. By extension, this level of disaggregation greatly increases costs and timelines for deployment.

~~260.267.~~ To address this fundamental problem, CNOC proposes a requirement for Bell to create an additional and alternate configuration featuring a mid-level of disaggregation that is similar to the level of disaggregation characterizing the configurations of the Cable Carriers.

~~261.268.~~ This relief will greatly reduce the upfront and recurring cost of interconnection to serve Bell's entire footprint in Ontario and Quebec via disaggregated HSA. Moreover, the need to interconnect at fewer COs will translate into a shorter timeframe for deployment.

~~262.269.~~ Naturally, a mid-level of disaggregation would require Bell's network to include additional traffic aggregation, which will result in modest CBB increases. As an aside, the Cable Carrier CBB rates are currently inflated and CNOC expects the Commission to further adjust these rates downwards upon final tariff approval. Thus, downward adjusted Cable Carrier CBB rates

could serve as an approximate point of reference for increases to Bell CBB rates brought on by a mid-level of disaggregation. With this approximate point of reference, CNOC is confident that modest CBB increases will not come remotely close to offsetting much of the massive upfront and recurring costs to deploy disaggregated HSA throughout Bell's fully disaggregated configuration, as summarized in Section 5.2.1.

~~263-270.~~ As a final note, CNOC should clarify that Bell should not be required to abandon its full disaggregation option. Rather, Bell should offer separate models offering full and mid levels of disaggregation. This will provide competitors with the greatest opportunity to achieve to maximize economic efficiencies where it is practical and feasible to deploy greater levels of disaggregation while falling back on mid-levels of disaggregation when it is not possible to do so.

C. Port and Fibre Sharing

~~264-271.~~ CNOC requests that the Bureau recommend for the Commission to ensure that port and fibre sharing be made available for all Incumbent disaggregated HSA offerings.

~~265-272.~~ The availability of port and fibre sharing is critical to the viability of disaggregated HSA services. The opportunity for competitors to share costs and capacity will allow them to re-invest their savings into more disaggregated HSA deployment or allocate those savings to producing new innovations or other aspects of their businesses.

~~266-273.~~ Port and fibre sharing can be implemented in a simple and straightforward manner. This functionality will not require the Incumbents to re-design their disaggregated HSA configurations. Likewise, port and fibre sharing will not impose a cost burden on Incumbents.

D. Access to FTTP over Aggregated HSA, Subject to a Forbearance Framework

~~267-274.~~ CNOC proposes relief that would eliminate the condition that competitive service providers may only access FTTP access facilities via disaggregated HSA services.

~~268-275.~~ This relief will ensure that competitors are not irreparably harmed during a necessarily progressive transition to disaggregated HSA service. Access to FTTP access facilities and speeds in excess of 100 Mbps (consistent with the relief proposed in Subsection A, above) over an aggregated HSA platform will ensure that competitors can continue to put their best foot forward in competing with the Incumbents, to the benefit of competition and Canadian consumers

more broadly. In doing so, competitive providers can work towards building capacity and targeting areas that will allow for economically efficient entry via disaggregated HSA.

[269-276.](#) Removing these conditions, which are not in sync with prevailing market conditions, is imperative for the future of competition in Canada's retail broadband services markets.

[270-277.](#) Notwithstanding, CNOC agrees that it is undesirable from an economic perspective to perpetuate the availability of both wholesale HSA models in areas that demonstrate market conditions that can clearly support efficient entry via disaggregated HSA service.

[271-278.](#) Accordingly, CNOC proposes the establishment of an appropriately calibrated forbearance framework that is capable of detecting market conditions that are reflective of the conditions precedent for economically efficient entry using disaggregated HSA service. If such conditions are found to be present, the Commission could then order phase out of aggregated HSA in the area (i.e. the POI) in question, subject to a reasonable phase out period of three years.²⁸⁹ This will allow competitors remaining on the aggregated HSA platform to invest in, migrate to, or negotiate appropriate alternatives to their current aggregated HSA supply.²⁹⁰

[272-279.](#) These changes would replace the current phase-out plan for aggregated HSA.²⁹¹ By way of background, TRP 2015-326 provides that aggregated HSA services at a given POI will be subject to a three-year phase-out period that begins the moment disaggregated HSA is deployed at the same POI. This approach is highly problematic because the fact that one service provider deployed disaggregated HSA at a POI is not necessarily an indication that entry is objectively efficient. If the wireline service framework purports to phase out a regulated service that supports downstream competition, the Commission must be certain that the prevailing market conditions will provide for an economically efficient substitute.

[273-280.](#) CNOC firmly believes that this heading of relief will avoid catastrophic harms to competitors while also sending the correct economic signals to industry participants.

²⁸⁹ The three-year phase out period aligns with the Commission's prescribed phase out period for aggregated HSA in TRP 2015-326 (see para 155), which is set to be triggered once disaggregated HSA service is implemented at a given POI.

²⁹⁰ This is aligned with the purpose of the three-year phase-out period, as described in TRP 2015-326, at para 155.

²⁹¹ TRP 2015-326 at para 155.

5.2.5 Making Known the Locations and Capacity of Transport Supply

[274-281.](#) CNOC proposes that the Bureau recommend that the Commission take measures to request that all transport providers in Canada make known the locations and capacities of their transport facilities.

[275-282.](#) The public disclosure of this information will facilitate the disaggregated regime by providing valuable insight for the network planning that is to be undertaken by competitive service providers vis-à-vis a disaggregated HSA transition.

[276-283.](#) Equally importantly, this information would inform the Commission's regulatory decisions regarding the wireline services framework going forward, including determinations as to whether forbearance is appropriate at a given POI location, taking into consideration all relevant factors that would indicate that efficient entry is possible via disaggregate HSA.

6.0 CONCLUSION

[277-284.](#) Canada's Internet service markets are dominated by two jointly dominant Incumbent facilities-based service platforms. The joint dominance of Incumbents facilitates their ability to engage in anti-competitive conduct such as the pre-emption of scarce wholesale inputs (such as FTTN access facilities in the past and currently FTTP access facilities) required by competitors to compete in downstream retail markets. Such practices substantially lessen or prevents competition in both wholesale and downstream retail markets for broadband services. The Incumbents' joint dominance also facilitates their ability to engage in coordinated pricing at the retail level, which, coupled with their exclusionary conduct in wholesale markets, further exacerbates the lessening or prevention of competition in retail markets for broadband services.

[278-285.](#) Service-based competitors have proven their value. They push pricing downwards to competitive levels and inject innovations in the marketplaces where they operate. Even so, service-based providers face significant barriers to success imposed by flaws and gaps in the regulatory framework and the exercise of market power by the Incumbents in both wholesale and retail markets for Internet services.

[279-286.](#) The relief described in this submission is intended to empower service-based providers to operate at maximum efficiency and to generate the maximum yield of competitive benefits for Canadian consumers of broadband services. The headings of relief requested by

CNOC also includes urgent measures to correct fundamental issues with the wireline wholesale services framework that threaten the entire competitive side of the industry.

~~280-287.~~ Although this submission recommends several headings of relief, the remedies advocated by CNOC are not complex or burdensome. In fact, following implementation CNOC's proposals will simplify and streamline rather than complicate regulation. The idea is to entrench principles that can drive efficient and effective wholesale service policy making. In doing so, we avoid years or decades of relitigating wholesale services policy – a cycle which harms competition and more importantly, Canadian consumers of broadband services.

~~281-288.~~ Altogether, the relief proposed by CNOC is aimed at breaking the cycle of inefficient regulation traced back to the history of FTTN and now repeating itself for FTTP technology. Canadian consumers of broadband Internet services should not be forced to endure stagnant competition that is the result of regulatory lag and years or decades of relitigating the same fundamental policy points. To prevent this outcome, regulation must be streamlined and driven by basic and universal principles such as no Incumbent head-starts on broadband technologies and speeds.

~~282-289.~~ CNOC wishes to thank the Bureau for taking the initiative to assess the state of competition in Canada's broadband markets. Please take this submission as proof that all is not well in these markets. Fortunately, the relief prescribed herein consists of economically sound and practically feasible measures to right the ship. Much is at stake and we hope that the Bureau heeds our warnings and recommendations when rendering its final determinations at the conclusion of the market study.

~~283-290.~~ CNOC is poised for further participation in the Bureau's market study and welcomes any questions that the Bureau may have regarding this submission.

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