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CT-2022-002

THE COMPETITION TRIBUNAL

OTTAWA, ONT.

Doc. # 251

IN THE MATTER OF the *Competition Act*, RSC 1985, c C-34;

AND IN THE MATTER OF the proposed acquisition by Rogers Communications Inc. of Shaw Communications Inc.;

AND IN THE MATTER OF an application by the Commissioner of Competition for one or more orders pursuant to section 92 of the *Competition Act*.

B E T W E E N :

COMMISSIONER OF COMPETITION

Applicant

- and -

**ROGERS COMMUNICATIONS INC. AND
SHAW COMMUNICATIONS INC.**

Respondents

- and -

**ATTORNEY GENERAL OF ALBERTA AND
VIDEOTRON LTD.**

Intervenors

WITNESS STATEMENT OF STEPHEN HOWE

INTRODUCTION

1. I am Chief Technology and Information Officer of BCE Inc. ("**Bell**") since February 2022. I became Chief Technology Officer of Bell on January 1, 2010 and prior to that I was Senior Vice President and Chief Technology officer for Bell Mobility, Bell's wireless operations. I joined Bell in 2006 and have been a network executive in the Canadian telecommunications industry for 25 years. I hold a Bachelor of

Engineering Physics degree from McMaster University and an MBA from the Johnson Graduate School of Management at Cornell University.

2. As Chief Technology and Information Officer I lead Bell's Network and Technology Services team responsible for designing, building and operating Bell's industry-leading broadband fibre, wireless, satellite and media networks as well as application development, infrastructure and cloud management. Both in my current role and previously as Chief Technology Officer, I have led the rollout of both the Bell Fibe all-fibre network in 7 provinces and a national 4G LTE wireless footprint that now covers more than 99% of the Canadian population, as well as Bell's 5G and 5G+ networks that together cover more than 70% of the population.

BACKGROUND


3. I understand that this proceeding relates to the proposed acquisition of Shaw Communications Inc. ("**Shaw**") by Rogers Communications Inc. ("**Rogers**") which was publicly announced in March 2021.
4. The purpose of this witness statement is to provide information regarding Bell's experience with wireless network deployment and in particular (i) the benefits for wireless network deployment associated with owning an extensive wireline access network in the same footprint, including lower costs, shorter deployment times, and greater ability to innovate; and (ii) the importance of network resiliency in competition among carriers in Canada.

BELL'S WIRELINE AND WIRELESS NETWORKS

5. Bell is the historical telecommunications company or incumbent local exchange carrier, deploying and operating its own comprehensive residential and business wireline access network, in the vast majority of communities in Manitoba (since the acquisition of Manitoba Telecommunications Services in March 2017), Ontario, Quebec, and Atlantic Canada. In recent years, we have been upgrading our historical all copper access infrastructure by deploying fibre closer to our customers

using fibre to the node (“**FTTN**”) technology, and overlaying both traditional copper and FTTN networks with fibre to the premises (“**FTTP**”).

6. Bell is also a national wireless carrier, operating national HSPA+, LTE, LTE-Advanced, 5G, and 5G+ networks with coverage of at least 99% of the Canadian population at December 31, 2021. The vast majority of the site connectivity for the HSPA+ network was built with high-speed fibre and an all-IP architecture in order to enhance reliability and resiliency, and these fibre connections are also leveraged for our subsequently deployed LTE, LTE-Advanced, 5G, and 5G+ networks.
7. This fibre connectivity is critical to support peak and expected average speeds. For example, our LTE networks have theoretical mobile data peak download speeds of up to 1.5 Gbps and expected average download speeds of 25 to 325 Mbps, and our 5G network has theoretical peak download speeds of up to 1.7 Gbps and average expected speeds between 76–469 Mbps. Future 5G technology deployments will have theoretical peak download speeds that are up to 100x faster than 4G LTE. 5G will also provide faster Internet speed to users in remote areas that currently don't have access to wireline Internet connections (e.g., through our Wireless Home Internet network). All of these speeds and use cases depend on fibre connectivity.
8. Fibre backhaul plays a critical role both in expanding the capacity, performance, and reliability of a wireless network to serve customers and in realizing the benefits of 5G. Our website emphasizes the importance of our fibre network to our 5G deployment:



The screenshot shows the Bell Mobility website's 'Our network' page. The header includes 'Mobility' and navigation links: 'Why Bell', 'Our network', 'Devices', 'Bring your own device', 'Plans', 'Prepaid', 'Accessories', 'Connected things', 'Promotions', and 'Travel'. The main content area has a dark blue background with a glowing fiber optic image on the left. The headline is 'The Bell 5G difference.' followed by a paragraph: 'Not all 5G networks are created equal. While many may say they have 5G, it takes a leader in network innovation to build Canada's best 5G network. Bell has the world-class infrastructure required to provide the coverage, reliability and support needed to deliver the network of the future.' To the right, there are four sections: 'Most awarded 5G network²', 'Fibre' (with text: 'Bell's 5G is backed by fibre, the world's best network technology. This allows for a faster and more reliable network. Bell has Canada's largest fibre-optic network with more than 240,000 total kilometres – providing the best foundation for 5G.'), 'More cell towers', 'Investing in innovation', and 'Network professionals'.

RELATIONSHIP BETWEEN BELL'S WIRELINE AND WIRELESS NETWORK DEPLOYMENTS

9. Bell's wireless network is deployed in part through a network reciprocity arrangement with Telus, pursuant to which, among other things, Bell and Telus each build and operate radio access networks ("RANs") in certain regions of Canada and provide reciprocal access to each other to those RANs. A RAN comprises the radios, base station, and radio controller (including backhaul to the radio controller). Bell and Telus each deploy separate network components for the remainder of their wireless networks. The network reciprocity arrangement does not extend to wireless transport or core networks or to any aspect of Bell and Telus' respective wireline networks.
10. The locations in which each of Bell and Telus have deployed Radio Access Networks in connection with the network reciprocity arrangements overlap to a large

degree – but not entirely – with our respective wireline network footprints. Accordingly, in most areas in Alberta / British Columbia, where Telus operates an extensive residential wireline network, Telus has deployed a RAN and Bell has not, while in most areas in Ontario / Quebec / Atlantic Canada, where Bell operates an extensive residential wireline network, Bell has deployed a RAN and Telus has not. This is because there are significant advantages to deploying a wireless network within your wireline network footprint. While our experience demonstrates that it is possible for an established national wireless operator to successfully deploy a wireless network outside an existing wireline network footprint, deploying in an area where we have such a footprint provides us with significant opportunities to reduce costs, reduce deployment timelines, and increase innovation. The same would be true for other companies, including Shaw (Shaw Mobile and Freedom), deploying a wireless network within their traditional wireline footprint.

11. *First*, it makes it possible to leverage a single construction process to build infrastructure for both the wireline and wireless networks. For example, when building FTTP in a given area [REDACTED]
[REDACTED]
[REDACTED]. This strategy is enabled by the fact that we are deploying both wireline and wireless networks in the area. To illustrate the benefits of this strategy:

- In a typical suburban community in Ontario where the fibre and cable infrastructure is found in underground ducts, the cost to Bell of building backhaul fibre from a wireless tower back to a location such as a Bell central office (“CO”), from which transport back to the carrier’s core network is available, would be in the range of approximately [REDACTED], depending on specific characteristics of the community and the distance from the wireless tower to the CO. By contrast, the cost of [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

- The time required to complete the build of a fibre backhaul connection from an interconnection point, such as a CO, all the way to a tower somewhere in an urban or suburban community would typically be in the range of [REDACTED], including time required to obtain the required permissions to install the fibre, and complete the work. By contrast, the time required to [REDACTED]

[REDACTED]

12. *Second*, a combined wireless and wireline build process can take advantage of strong relationships with the local municipality based on an established history of operating a wireline network. Municipalities play a critical role in approving and facilitating the deployment of wireless networks. For Bell, strong long-standing relationships with municipalities in the areas where we have traditionally operated a wireline network have allowed us to build and deploy our wireless network on a more timely and cost effective basis.

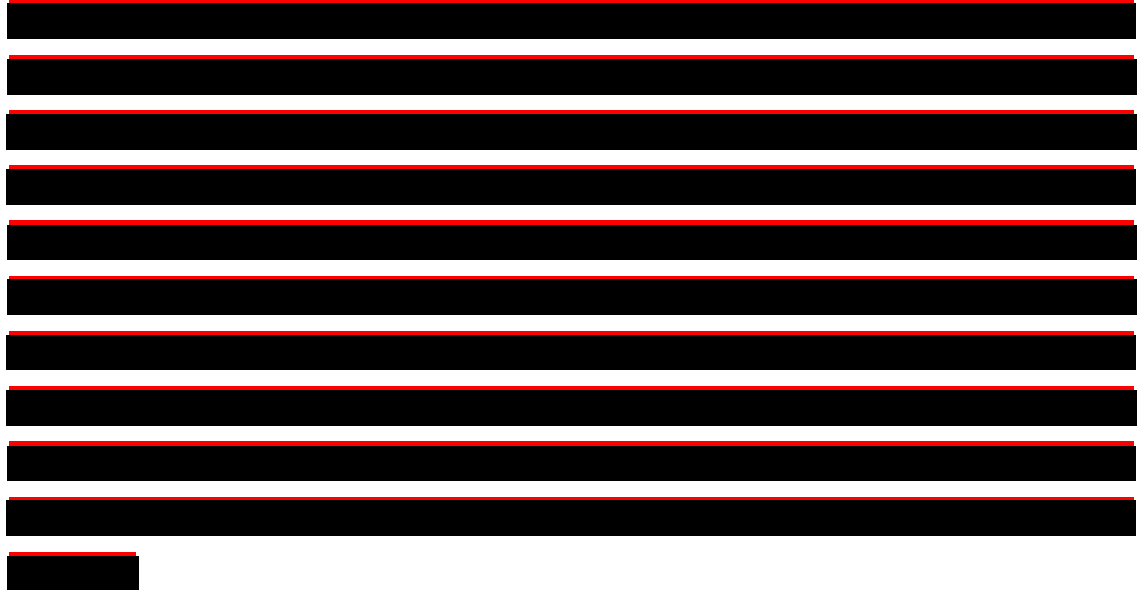
13. *Third*, deploying and operating both a wireless and wireline network in a given area, particularly where there are common vendors, provides lower costs (which can also be spread over a larger number of wireless and wireline customers), improved support, and the ability to create a more resilient overall network architecture.

14. *Fourth*, operating a wireline network in an area where you are deploying a wireless network also creates additional opportunities for innovation. For example, a wireline operator deploying a wireless network within its wireline footprint can:

- Leverage its in-home wireline connections to increase the quality of its mobile service. For example, [REDACTED]

[REDACTED]

¹ Bell0773643, attached to my witness statement as Exhibit "A".



- Build more economical, targeted, and complete service offerings for enterprise customers. For example, dedicated WiFi, 4G and 5G in-building systems, and Internet of Things (“IoT”) solutions can be integrated with wireline connectivity at key locations to provide a comprehensive service offering. Similarly, a wireless back-up service could be included with wireline connectivity to provide a more reliable overall service offering for enterprise customers.

BELL’S INVESTMENT IN NETWORK RESILIENCY

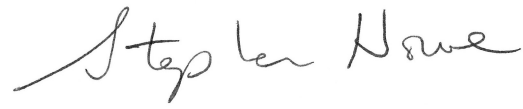
15. In my experience, network resiliency is a critical element of network quality and a reduction in the resiliency of the networks serving customers – even if it is not experienced day to day but instead only when there is a problem – is a reduction in the quality of the services made available to them. The importance of network resiliency in competition between carriers, and the focus carriers place on it, is reflected in the fact that for many years carriers in Canada have competed to offer Canadian consumers and businesses the “most reliable” network.
16. Bell engineers its networks and directs its investments to support network reliability and resiliency. First, our wireless and wireline networks use different network infrastructures so that a major disruption on the wireline network will not create an outage on the national wireless network. Second, we have segmented our national

IP transport network into multiple geographic zones, and each zone is connected by at least three separate transport routes. This means that if one transport route fails, traffic is automatically routed to one of the other two routes and again to the third in the very unlikely event of a double failure. Third, we use a highly survivable routing information exchange architecture, which separates routing control traffic away from the actual customer traffic. This design is intended to prevent Internet traffic instability from overloading our core network, and therefore avoid a full network outage.

17. We have invested in this resilient network design for decades because we want to provide the best and most reliable services to our customers in order to compete effectively in the market.
18. For the same reason, we also place significant emphasis on supporting network resiliency through people and processes. In addition to always seeking to provide attractive career pathways and certification programs to attract and retain the best people, we instill governance and adherence to operational procedures as a core part of the culture within our Network and Technology Services team. We track resiliency and reliability (network uptime) as a key performance metric and we have implemented a variety of processes in this regard. These include a daily stand-up with me as Chief Technology and Innovation officer to debrief from the previous day and review upcoming changes, ensuring executive governance and visibility to maintenance activities; strict change management protocols including extensive pre-production testing, peer review, mandatory post-implementation validation, and back-out procedures; and extensive disaster recovery and continuity planning measures including diverse network operations centres in Halifax, Montreal, and Toronto with dual out-of-band connectivity and diverse communication methods from other service providers (SIMs and satellite phones).

19. Our recent accelerated investments in our network have included investments to support reliability and resiliency. These investments began in early 2020 in response to the COVID crisis and an expansion of the initiative was planned in advance of and then announced on February 4, 2021, with a further expansion announced on May 31, 2021. The initiative was undertaken in response to the needs of our customers and the long-standing competitive dynamic in the marketplace. Press releases regarding these investments are attached as Exhibits "B" and "C".

Signed, this 23rd day of September, 2022

A handwritten signature in cursive script that reads "Stephen Howe". The signature is written in black ink and is positioned above a horizontal line.

Stephen Howe

EXHIBIT A

EXHIBIT B

[Back to all news](#)

Bell to advance fibre, wireless and rural network rollouts with at least \$1 billion accelerated capital investment over the next 2 years

- Bold infrastructure program to support national economic and employment recovery from COVID-19 while enabling Canada's continued leadership in advanced communications
- Biggest ever annual capital plan in Bell history: investment acceleration is in addition to Bell's typical capital expenditures of approximately \$4 billion a year
- Enhanced capital plan will add up to 900,000 additional fibre and rural Wireless Home Internet locations while also doubling Bell's 5G population coverage year-over-year

MONTRÉAL, Feb. 4, 2021 /CNW Telbec/ - Underscoring the essential role Bell networks have played in Canada's COVID-19 response, and how important it will be to the country's economic recovery and future growth, Bell today announced it will rapidly expand its broadband fibre and wireless networks with a \$1 billion to \$1.2 billion acceleration in capital expenditures over the next 2 years.

"Bell has offered critical support to Canadians throughout COVID-19, and we are proud to ensure our networks will play a key role in the country's move forward as we announce our plan to accelerate the rollout of Bell network connections to hundreds of thousands of additional locations in urban and rural communities alike this year," said Mirko Bibic, President and CEO of BCE Inc. and Bell Canada.

"With network leadership driving Bell's momentum in the marketplace, BCE's rock-solid financial position and a stable federal regulatory environment supporting spending on new network infrastructure, it's the right time to step up with the unprecedented investment that Canada needs to build back. As we mark our company's 141st year of leading the way in communications innovation, the Bell team remains committed to advancing how Canadians connect with each other and the world with this bold new investment in our country's future," said Mr. Bibic.

This investment acceleration is in addition to Bell's typical annual capital expenditures of approximately \$4 billion over the last decade (which grew to \$4.4 billion in 2020 due to investment in network capacity and digital platforms in response to unprecedented usage demand during COVID-19). Funded from the proceeds of [Bell's sale of data centres](#) in 2020, the additional \$1 billion to \$1.2 billion investment is expected to generate an estimated \$2 billion in new economic activity and create approximately 5,300 additional direct and indirect Canadian jobs. The program will also leverage accelerated expensing of capex under the federal capital cost allowance program, generating cash tax savings that can be reinvested in infrastructure development.

Bell expects to invest approximately \$700 million of this additional capital in 2021 to accelerate both our wireless and wireline network footprints. This includes an incremental increase of up to 400,000 more homes and businesses covered by fast fibre and rural Wireless Home Internet service (which will increase new locations covered this year to as many as 900,000, for a total broadband footprint of approximately 6.9 million locations by the end of 2021). At the same time, Bell plans to double the national population coverage of Bell 5G, the fastest wireless network in the country, which currently serves more than 150 million Canadians across Canada.

"The COVID crisis has reinforced the importance of fast, reliable and high-capacity broadband network connections in every part of Canadian society, and this will be just as critical to our ongoing national leadership in a converged digital world," said Mr. Bibic. "Building the best networks is a strategy that benefits all stakeholders: our customers and communities with access to the latest communications innovations and 99.99+% network service reliability; our company with the leading market growth that propels Bell's broadband investment strategy; and our country with the next-generation infrastructure and support necessary to compete and prosper in a rapidly evolving global digital economy."

The capital acceleration will mean an incremental increase of up to 400,000 new homes and businesses covered with broadband service this year, including many as 250,000 additional [all-fibre connections](#), delivering the fastest home Internet speeds available and access to Fibe TV and other exclusive digital platforms, and up to 150,000 more homes covered by our unique [WHI service](#), which is blazing a broadband Internet trail to rural Canada, including many locations previously unserved by any provider. Bell's 5G network, [certified as Canada's fastest mobile service](#), will also double its current population coverage year-over-year.

Providing advanced broadband wireless, TV, Internet, media and business communications services, Bell is the largest communications company in Canada with more than 22 million consumer and business connections. Bell was founded in Montréal in 1880 and is wholly owned by BCE Inc. (TSX, NYSE: BCE). To learn more, please visit [Bell.ca](#) or [BCE.ca](#).

The Bell Let's Talk initiative promotes Canadian mental health with national awareness and anti-stigma campaigns like Bell Let's Talk Day and significant funding of community care and access, new research and workplace leadership initiatives nationwide. Please visit [Bell.ca/LetsTalk](#) to learn more.

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85

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Caution Concerning Forward-Looking Statements

Certain statements made in this news release are forward-looking statements, including statements relating to our anticipated capital expenditures and the benefits expected to result therefrom, including our two-year increased capital investment program to accelerate fibre, Wireless Home Internet and 5G for expansion, our business outlook, objectives, plans and strategic priorities, and other statements that are not historical facts. All such forward-looking statements are made pursuant to the "safe harbor" provisions of applicable Canadian securities laws and of the United States *Private Securities Litigation Reform Act of 1995*. Forward-looking statements are subject to inherent risks and uncertainties and are based on several assumptions which give rise to the possibility that actual results or events could differ materially from our expectations. These statements are not guarantees of future performance or events, and we caution against relying on any of these forward-looking statements. The forward-looking statements contained in this news release describe our expectations at the time of this news release and, accordingly, are subject to change after such date. Except as may be required by applicable securities laws, we do not undertake an obligation to update or revise any forward-looking statements contained in this news release, whether as a result of new information, future events or otherwise. Our capital investment and network deployment plans and the benefits expected to result therefrom are subject to risks and, accordingly, there can be no assurance that our capital investment and network deployment plans will be completed or that the benefits expected to result therefrom will be realized. The value of the planned investment assumes our ability to access or generate the necessary sources of capital. However, there can be no certainty that the necessary sources of capital will be available with the result that the actual investment made by us could materially differ from current expectations. For additional information on assumptions and risks underlying certain of our forward-looking statements made in this news release, please consult BCE's Safe Harbour Concerning Forward-Looking Statements dated February 4, 2021, filed by BCE with the Canadian provincial securities regulatory authorities (available at Sedar.com) and with the U.S. Securities and Exchange Commission (available at SEC.gov). This document is also available at BCE.ca.

SOURCE Bell Canada

EXHIBIT C

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Bell's biggest-ever network acceleration plan gets bigger with additional investment now up to \$1.7 billion over the next 2 years

- Greater regulatory certainty and positive investment climate supports increased capital investment in Canada's network infrastructure, including expansion rollouts
- Builds on Bell's historic plan announced earlier this year to invest in Canada's COVID-19 recovery, growing employment and the country's leadership in broadband communications
- With additional network investment in 2020 to manage unprecedented usage increases during the COVID crisis, Bell's 2020-2022 capital investment plan will reach up to approximately \$14 billion – almost \$2 billion more than originally planned

MONTRÉAL, May 31, 2021 /CNW/ - Bell today announced that its [accelerated capital investment plan](#) announced earlier this year will now increase by up to \$1.7 billion, or as much as \$500 million more, in response to the support for infrastructure investment reflected in recent federal regulatory and policy decisions.

This \$1.7 billion in accelerated Bell investment for 2021 and 2022 is in addition to the approximately \$4 billion in capital that Bell has typically invested each year in network expansion over the last decade. With an additional \$200 million also invested in capacity and coverage in 2020 to respond to the unprecedented usage demands of the COVID crisis, Bell's total capital investment from 2020-2022 will be as high as \$14 billion.

"Since 1880, the Bell team has ensured Canadians have the critical network infrastructure necessary to build a prosperous society and a sustainable economy and we're accelerating our commitment as we all look forward to our country's future beyond COVID-19," said Mirko Bibic, President and CEO of BCE Inc. Bell Canada. "The unprecedented impacts of the crisis have necessitated a bold response from all stakeholders in Canada's economy, and Bell is responding with the largest capital acceleration project in our company's 141-year history. Now, with greater regulatory stability fostering an improved investment climate, we're proud to take our plan even further by growing our investment to advance how Canadians in communities large and small connect with each other and the world."

Bell's accelerated capital investment plan announced in February 2021 originally consisted of \$1 billion to \$1.2 billion in additional network funding to help Canada's recovery from the COVID crisis. With the CRTC's recent decision and ongoing government policy support for facilities-based competition and investment, Bell has now increased the amount of accelerated funding to \$1.5 billion to \$1.7 billion. This investment will significantly increase the number of wireline and wireless connections in Canada's rural and urban centres alike over the next 2 years, including significantly expanded plans for all-fibre connections while creating additional employment as network construction activity speeds up.

"The policy approach of the federal government and the CRTC is an expression of confidence in our country's future and the importance of network investment to ensure consumers and businesses have access to next-generation communications services in a digital economy. We expect communications providers to also step up with investments and innovations of their own to drive competition and deliver outstanding value to Canadians nationwide," said Mr. Bibic. "World-leading network investment by Canada's communications providers has played a key role in seeing the country through COVID-19 and laying the foundation for recovery. The Bell team is proud to have been here to support our customers and communities through the challenges of the past year and by what the future has in store."

With 5G coverage now at approximately 35% of the Canadian population, Bell recently announced the [expansion of Canada's fastest-ranked and most-advanced 5G network](#) to a further 23 cities and towns in Québec, Ontario and Manitoba, on track to reach up to 70% national 5G coverage this year.

About Bell

The Bell team builds world-leading broadband wireless and fibre networks, provides innovative mobile, TV, Internet and business communications services and delivers the most compelling content with premier television, radio, out of home and digital media brands. With a goal to advance how Canadians connect each other and the world, Bell serves more than 22 million consumer and business customer connections across every province and territory. Founded in Montréal in 1880, Bell is wholly owned by BCE Inc. (TSX, NYSE: BCE). To learn more, please visit [Bell.ca](#) or [BCE.ca](#).

Bell supports the social and economic prosperity of our communities with a commitment to the highest environmental, social and governance (ESG) standards. We measure our progress in increasing environmental sustainability, achieving a diverse and inclusive workplace, leading data governance and protection, and building stronger and healthier communities. This includes confronting the challenge of mental illness with the [Bell Let's Talk](#) initiative, which drives mental health awareness and action with programs like the annual Bell Let's Talk Day and Bell funding for community care, research and workplace programs nationwide year round.

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SOURCE Bell Canada

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