



Montreal, November 30<sup>th</sup>, 2020  
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Senior Director  
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**RE: Reply Comments - Consultation on the Technical and Policy Framework for the 3650-4200 MHz Band and Changes to the Frequency Allocation of the 3500-3650 MHz Band.  
(Canada Gazette, ...Part I, Gazette Notice SLPB-002-20, August 2020)**

Dear Sir / Madam,

1. ECOTEL Inc. ("ECOTEL") is pleased to submit these reply comments to Canada's Minister of Innovation, Science and Economic Development on the Technical and Policy Framework for the 3650-4200 MHz Band and Changes to the Frequency Allocation of the 3500-3650 MHz Band.
2. Based on comments provided by Industry players and other entities in the current consultation by ISED, ECOTEL would like to further refine key concepts put forward in its initial submission and highlight the value of certain comments provided by other parties.

#### **Alignment with US regulation**

3. As explained in ECOTEL initial submission and validated by a vast majority of comments sent to ISED, alignment with FCC technical regulations will be a key factor to allow Canada to maximize the benefits of reusing the US driven equipment ecosystem.

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## Maximizing the benefits of 5G for Canadian Industries

4. The 5G technology biggest benefits for the economy, as already recognized globally by the wireless Industry manufacturers and regulators, will be its positive impact on the various Industries competitiveness. 5G has to been seen as an enabler that allows various technologies such as AI, Big Data, real-time augmented reality and others to converge into solutions that will allow a quantum leap in terms of productivity increase. The government initiated ENCQOR project, backed by large corporations such as Ericsson, Ciena, Thales, IBM and CGI which is acting as an incubator for this upcoming new “solution” new ecosystem is a tangible recognition of the importance given to 5G by governments.
5. These economy changing solutions will require, for the vast majority of them, to run on private 5G Networks which will need spectrum. Unfortunately, all these upcoming networks could not be “confined” into buildings or campuses mostly due to their nature. One can easily understand that solutions targeting niche markets such as cities, public utilities or even public safety entities will require outdoor coverage to some extend.
6. However, even if these 5G networks cannot be confined, that doesn’t mean they can’t be shared in a safely manner using network slicing or RAN sharing. ECOTEL revised spectrum arrangement presented further is taking this into consideration.

## Re-establishing the facts

7. "In order to keep Canada competitive in our increasingly global economy, and connect all of Canada by 2030, ISED needs to make as much mid-band TDD spectrum as possible available, as soon as possible". Telus, by this affirmation, clearly illustrates the Game plan of the dominant players to keep the level of competition as low as possible.
8. In their attempts to lure the reader toward their playbook, which is basically releasing the maximum amount of spectrum for auction as fast as possible, the largest Canadian Wireless players put forward some half truths that need to be brought back to reality. The next paragraphs will list them and provide facts that will help put them back in perspective.

### *Benefits of 5G*

9. The first implicit assumption made by the large “legacy-model” operators is that 5G benefits will come from the public networks (theirs). Here are some reasons why this is half true.

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10. Canadian wireless business market accounts for 48 billion (which represents 2.5% of the Canadian GDP)<sup>1</sup>. However, if we add the contribution to the GDP of the primary sectors where ECOTEL is providing private LTE/5G networks to improve productivity such as mining, oil&gas, utilities, agriculture , rail and forestry we get to a 30% (or 600 billion) of the GDP. This means that 5G can potentially impact more than 30% of the current GDP going forward and this is just on the sectors where ECOTEL is active. If we scale that number to account for all industries that will benefit from 5G , one can easily understand that the impacts of 5G will extend over many folds over the contribution of the current “legacy-operator” business and that some provisions has to be taken, as Ofcom already did, to create proper conditions to maximize the benefits of 5G and foster this new “solution provider” ecosystem.
11. ECOTEL would like to bring to the Department’s attention on TELUS visionary approach, depicted in paragraph 15 of its submission, to plan on reserving spectrum for shared access which could eventually be used for private Network. TELUS proposal, when added to the 80 MHz WBS block, calls for almost 200 MHz of spectrum (3900-4195MHz). The only caveat is that until FCC releases the upper portion of that spectrum block (3980-4195 MHz), the ecosystem in this portion of the band where TELUS is proposing to allocate the shared spectrum risks to be nonexistent. Thus, to maximize the benefits of 5G in the context of Industry 4.0, ECOTEL kindly suggests that it may be wise to assign the shared block in a portion of the band where equipment is currently available namely, the n78 band.

*100 MHz block requirement*

12. The second assumption made by many large MNO’s is that a) 100 MHz of spectrum is required by each operator to deliver efficient 5G service since the n77 band is b) “THE 5G band” and that it is necessary to offer landline equivalent services. As such, band 3500 MHz and 3800Mhz should be opened and auctioned as one. Some of them even refer to delaying the deployment of 5G in rural areas if they don’t get what they want.
13. First and foremost, MNO’s have been deploying 5G compatible radios for the last few years in the various bands they currently own. In their submission, the MNOs forgot to specify that these radios can already dynamically allocate resources to both LTE and 5G at the same in a given TTI (shortest allocation slot). This means that as their subscribers will migrate to 5G devices, they will be able to accommodate them in a smooth and transparent transition. So, the 3800 MHz band is not “required” to offer 5G services. ECOTEL would also add, that this is even more relevant in rural areas where large portions of already allocated spectrum assets, better suited to deliver

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<sup>1</sup> <https://www.newswire.ca/news-releases/canada-s-wireless-industry-contributes-48-2-billion-to-canada-s-economy-and-generates-327-000-high-paying-jobs-according-to-new-report-833274115.html>

basic decent service, are sleeping in the hands of the licensees. This contributed, for sure, in part, to the current digital divide.

14. The efficiency improvement of having a 100 MHz block, when compared to a 50 MHz channel, as demonstrated by TELUS in its submission (paragraph 21) is 2.5%. Ecotel believes that this 2.5% loss in "efficiency" is largely compensated if spectrum is made available to a larger number of entities. This will foster innovation, improve competitiveness (in the context of private networks) and stimulate competition.
15. In their claim to have a contiguous block of spectrum between 3500 MHz and 3800 MHz Band, MNOs seem to forget that the current trend adopted by OEM is to have one set of radio for the lower portion of the n77 band (likely a retuned version of existing n78 radios doing 3300-3800) and another set for the upper part (3700-3980 MHz for now and likely to become 3700-4200 MHz in future). Knowing that, there will always be a point where an operator (having spectrum on the border) will likely have to use a second set of radios. The other fact that came up during recent discussions ECOTEL had with OEMs, is the capability of a radio to process large chunk of more than 100 MHz of bandwidth at once, especially on the context of Massive MIMO. When taking these radio limitations into account, the presence of a block (WBS for now) in the middle of the n77 band acts as a natural boundary that matches the limitation of the existing and upcoming radios.
16. As per the landline equivalent service experience referred earlier, ECOTEL believes that millimeter waves bands will be required to offer fiber-like type of services. To this aspect, ISED can refer to Verizon, in US, who deployed millimeter waves 5G networks to enter markets where it did not already have landline facilities.
17. At the lights of these last debunked affirmations made by the large MNOs, the real tangible benefits of having 100 MHz contiguous blocks of spectrum in the n77 band are minimum, especially when compared to the benefits associated with the ECOTEL proposal to re-organize the band.

#### **Requirement for a WBS block or shared block**

18. Submissions provided by WISPs, local authorities, public safety and public utilities groups illustrate the broad range of the users requiring an access to spectrum to continue to deliver their services. It also provides an idea of the scale of the impact of moving the WBS users somewhere else in the band.
19. ECOTEL initially contemplated the idea of a proposal in which the whole 3800 MHz band would be offered in a shared mode as per the CBRS block in the US. However, ECOTEL rapidly realized that the large "legacy-model" MNOs could easily monopolize

the band by reusing their Inukshuk-like strategy of “deploying” phantom networks, i.e. turning-on umbrella sites in a given area without any means, intention nor requirement of using it, thus preventing anyone else to use it in a secondary access manner.

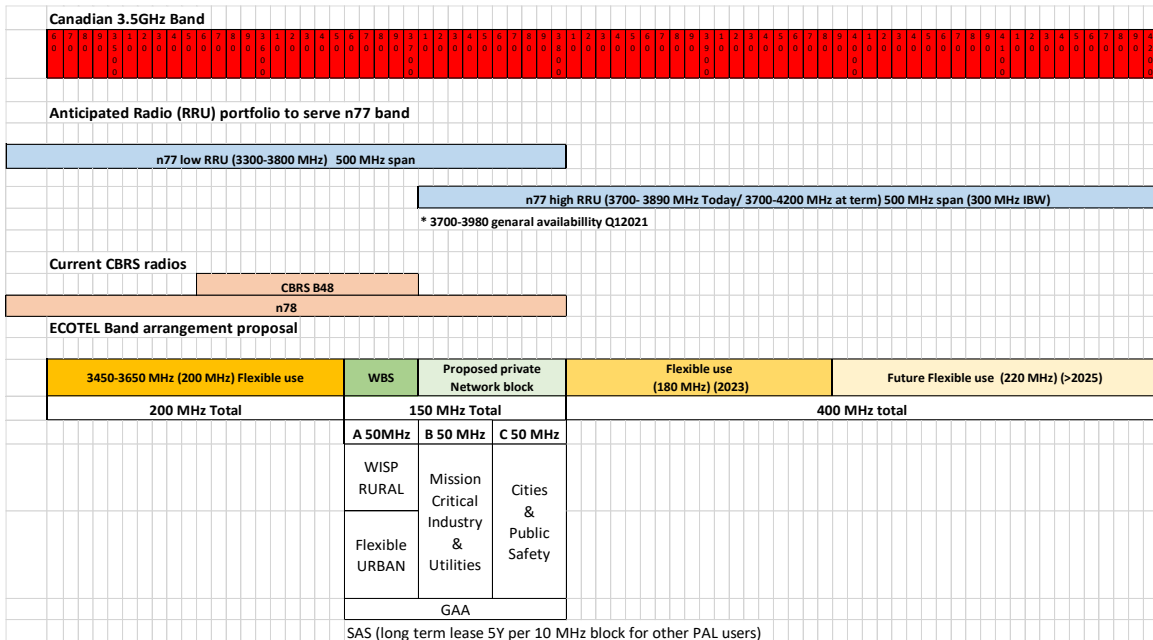
20. For some WISPs the uncertainty around the long-term availability of the WBS block translated into a hold on investments, thus impairing their capability to deliver high quality services to customers. ECOTEL, believe it is time to address this situation. By permanently allocating spectrum to deliver IP services in areas served by WISPs.
21. This current uncertainty prevents WISPs from using current federal subsidies to connect remote citizens not served by large MNOs.
22. In the previous section, ECOTEL demonstrated that there are no tangible reasons or benefits to move the WBS users somewhere else in the band. Even Bell partially recognized that moving the WBS higher in the band would be a costly and inefficient exercise. ECOTEL however does not concur with Bell’s conclusion that B48 equipment ecosystem could be retuned to 3400MHz. ECOTEL noted that many other entities arrived at the same conclusion that there are no reasons for ISED to move the users out of the current block.
23. In order to address the large requirement for a shared access block, ECOTEL would like to further refine its initial submission by combining the WBS and private network requirement in a holistic manner to make it a shared block with priority access to certain niche market users.
24. ECOTEL is proposing to keep the WBS block where it is and to combine it with the adjacent 100MHz block thus creating a shared block from 3650 MHz to 3800 MHz. This 150 MHz block would then be divided in three distinct blocks to address the need of three specific niche users. The three blocks will provide priority access respectively to A) WISP, B) Mission Critical Industrial & Utilities operations and C) Public Safety & Cities.
25. By keeping the shared block in the already existing n78/B48 ecosystem, ISED would allow its users to immediately gain access to existing 3GPP equipment ecosystem which will provide a boost to private networks solutions.
26. In this proposal, other entities such as MNOs or priority users of other shared blocks would have access to these blocks in General Authorized Access (GAA) manner (refer to CBRS) as long as this won’t make them exceed the spectrum cap of the 3500 MHz band. However, the lease, for GAA, would be allocated on a longer term as opposed to CBRS as proposed by REDLINE COMMUNICATIONS in its original submission.

ECOTEL believes that a 5-year lease would provide the required predictability and visibility to potential investors in their projects. This approach, using long term lease, would also prevent to bring a third party into the equation to provide a Spectrum Access System (SAS) which would turn out to be quite expensive for users. Thus, in lieu of a SAS, ECOTEL recommend that ISED manages the process and repays itself using part of the GAA licence fees.

27. In ECOTEL proposal, this 150 MHz shared block would be subject to the same technical rules as the rest of the 3500 MHz and 3800 MHz band, thus removing the actual power limitation. This will maximize the spectral efficiency of the band by indirectly motivating the existing users to migrate toward 3GPP equipment.
28. In the next paragraphs, ECOTEL will describe the mechanic of the spectrum allocation for the shared block it proposes.
29. The block A, or “WISP block”, would have a different use depending if it is a rural or remote tier-5 or an urban one. A rural or remote tier-5 will be defined as a tier-5 in which a WISP is currently offering service using the WBS block OR any tier-5 where there is at least one CRTC hexagon of under or unserved internet service.
30. In the WISP block, any current WISP will automatically be granted a priority access license for the area and the bandwidth it is currently using to serve its customers, for example 2x 20MHz. Note that it may be likely to be on a smaller size than a tier-5. This “existing WISP” license will be granted at no charge nor recurring fees. As explained earlier, the WISP will have to comply with the same technical rules as the ones in the 3500 MHz band in order to keep its licence. A reasonable transition period should be allowed to comply to this.
31. The remaining licenses for rural and remote areas of the block will be offered on the first-come-first-serve basis to other new or existing WISPs. For example, a current WISP who is using 2x20MHz may want to add another 10MHz. These licenses will have a yearly fee associated with them. The users of the other shared blocks (B & C) would also have the possibility to lease spectrum in that block on an GAA basis using 5-year term lease with no guarantee to have it after the term. This would allow, for example, a private mining company operating in remote area to secure more spectrum to conduct spectrum intensive operations such as remote or autonomous operations for a given time.
32. The MNOs will have access to that 50 MHz rural & remote block upon two conditions. 1) they will have to show that they exhausted all their existing spectrum assets and 2) this additional spectrum will not make them exceed the spectrum cap of the 3500

MHz band. At these conditions, they would be able to lease the spectrum on a GAA basis on a 1-year term.

33. In urban tier-5, priority access licences (PAL) will be sold via an ISED managed auction, likely per 10 MHz blocks. This block would be opened to any entities, including MNO's. Again, the spectrum cap of the 3500 MHz band should be applied, i.e. an entity could not exceed the spectrum cap when acquiring a block in this Shared A-Block.
34. The "B" and "C" blocks, would provide priority access license respectively to Mission critical Industrial & Public Utilities and Cities & Public safety organizations. These PAL licenses would be subject to a yearly fee and be sold on a first-come-first-served basis in 10 MHz block. The users of these block will have an inherent obligation to share or coordinate with other priority users of that block in the case where spectrum demand would exceed the offer. To illustrate this, let's assume a power utility company has deployed a private network to cover a given city and that there is no spectrum left in that area. Then, let's assume that the port authority of the same city wishes to deploy a private network to automate its operations. It would request the right to use the spectrum. In that case the sharing clause would apply, forcing the two entities to either share (via MOCN or Network Slicing) or coordinate their networks. As per the WISP block, users of other shared blocks could gain access to unused spectrum of these 2 blocks on a GAA basis. ECOTEL believe that a 5-year lease would provide enough predictability for organization to invest.
35. The figure below summarizes a few key points about the ecosystem and the n77 band radios as well as the ECOTEL proposal regarding the Shared-Block. The reader could appreciate that the propose private network blocks fall right on the predicted overlap of the n77 high and n77 low band radios.



## Requirement to maximize the spectrum utilization

36. ECOTEL strongly believes that establishing a shared block will not be sufficient for private networks and WISPs' requirements going forward. To put an end to spectrum hoarding, which contributed in part to the current digital divide, Ecotel recommends that from now on, all new spectrum released should include a mandatory subordination clause. It also recommends applying the same type of rules to all other mobile spectrum assets, as it was done recently by Ofcom. This will maximize the benefits of this finite resource for all Canadians wherever they reside. The current deployment/coverage targets associated with license conditions have shown to be of no use outside of urban area and used in some areas as a tool to keep user captive of the satellite service.
37. The subordination request should be a smooth and simple process that provide results within 30 days as compare to the painful, inefficient and subjective current one as depicted in REDLINE COMMUNICATION's submission.

### TELESAT PROPOSAL

38. The vast majority of the submissions expressed a real concern about the Telesat's proposal. ECOTEL will only restate that letting a private actor of the Wireless Canadian



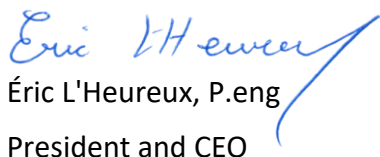
Industry substitutes itself to the regulator is a dangerous precedent that should be avoided at all cost. The only benefit that ECOTEL sees in this proposal is to allow Telesat to finance its activities. The additional 100 MHz block to be free up early is of no use to Canadians nor the Canadian Wireless industry until an ecosystem gets in place, which is driven by the US market.

## Conclusion

39. 5G benefits will come in large part from the impact it will have on keeping all Canadian industries competitiveness going forward. Without minimizing the contribution of current Wireless industry to the Canadian GDP, it is important to put it in perspective and understand that 5G will have an impact on portion of the economy equivalent to more than 10 times the contribution of the Wireless industry.
40. In order to help Canadian industries to get on board of the 5G train, some measures have to be taken today. We see that other countries' regulator have already adopted such measures.
41. WISPs played and will continue to play a vital role to help bridge the digital divide between urban and rural population. As such, it is imperative to provide them with a long-term security in terms of spectrum access which would allow them to further invest in their infrastructures.
42. For all these reasons, ECOTEL recommends to let the WBS users where they are and to open a 100 MHz adjacent shared block to allow the Canadian Industries to benefit today from the available 4G & 5G equipment ecosystem.
43. ECOTEL is also asking the Department to rapidly develop new regulations and policies to enforce a better and larger use of all the spectrum assets to maximize the impacts of 5G to all Canadians. This should include strict subordination rules and process.

ECOTEL thanks the Department for the opportunity to provide these replies on comments.

Yours truly,

  
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President and CEO