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Innovation, Science and Economic Development Canada  
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Dear Sirs / Mesdames,

TerreStar Solutions Inc. ("TerreStar") commends Innovation, Science and Economic Development Canada ("ISED" or the "Department") for undertaking SLPB-006-21 *Consultation on a Policy and Licensing Framework for Spectrum in the 3800 MHz Band* (Canada Gazette, Part I, December 2021) (the "Consultation"). TerreStar supports the Department's continuing efforts to improve and update spectrum policies and licensing frameworks and to enhance competition in the broader telecommunications sector for the benefit of all Canadians.

As the Department is aware, TerreStar, founded in 2008, is a licensed Canadian mobile-satellite service ("MSS") operator which actively markets and delivers retail wireless connectivity services throughout Canada under the "Strigo" brand name. TerreStar is also a Canadian licensee of AWS-4 Ancillary Terrestrial Component ("ATC") spectrum at a national Tier 1 level and is registered with the Canadian Radio-television and Telecommunications Commission ("CRTC") as a Wireless Carrier and as a Reseller of Telecommunications Services. TerreStar's vision and strategy underscore the importance of offering innovative, tailored, and competitively priced telecommunications services to customers across the nation.

In these reply comments, TerreStar addresses only those comments from selected industry stakeholders concerning issues which may have a direct or indirect impact on TerreStar's current operations and future development plans.

**Q1** - ISED is seeking comments on its proposal to extend the mitigation measures described in SRSP-520 to protect radio altimeters from flexible use operations in the 3500 MHz band to flexible use operations in the 3800 MHz band (3650-3900 MHz). This extension is proposed until domestic and international studies are completed.

1. TerreStar agrees with ISED that the safety of Canadians is paramount but has also expressed the view that 5G equipment manufacturers - if they haven't done so already, will soon be capable of ensuring that radio altimeters operating in adjacent bands are protected from any spurious emissions originating from their 5G equipment.
2. TerreStar therefore supports ISED's proposal to extend the mitigation measures as described in SRSP-520 to protect radio altimeters from flexible use operations in the 3500 MHz band to flexible use operations in the 3800 MHz band. TerreStar's support is based on the understanding that ISED will continue to monitor the evolution of the situation while international and domestic studies continue and that the deployment restrictions will be temporary in nature.
3. TerreStar however notes that the question has generated many comments from industry stakeholders, with entities such as TELUS, Rogers and Québecor adopting an approach compatible with TerreStar's, i.e., the Department should complete its review and studies and ensure that restrictions, if they are required, are evidence-based and limited in the duration and period of application.
4. Other participants, such as Bell Mobility, SaskTel and the CWTA conducted a significant amount of research, citing numerous international reports and highlighting the fact that other international jurisdictions where C-band spectrum has been deployed to support 5G systems have not had a reported case of interference with altimeters. They therefore rejected the extension of the 3500 MHz mitigation measures to the 3800 MHz band. Bell Mobility further suggested that the aviation industry should carry the cost of updating altimeters if required and SaskTel requested that the auction be delayed until the issue is resolved, arguing that the prescribed deployment restrictions prevent prospect bidders from assessing the true value of the 3800 MHz spectrum.
5. TerreStar supports Iristel's constructive comment, which highlights the fact that the 3800 MHz band will not be available for use in Canada before March 31st, 2025 – the earliest date at which FSS and WBS users of certain areas will have to vacate the spectrum. This leaves plenty of time for ISED and the international community to complete their studies and for the aviation industry to apply corrective measures to altimeters as required. TerreStar therefore supports the view that the extension of the 3500 MHz deployment restrictions to the 3800 MHz band to protect altimeters from flexible use is not required, since the concerns will undoubtedly be resolved prior to the 3800 MHz band becoming available to new licensees.

**Q3** - ISED is seeking comments on its proposal to use Tier 4 service areas for the 3800 MHz licensing process.

6. TerreStar notes that almost all stakeholders supported the use of Tier 4 service areas for the 3800 MHz licensing process, except Cogeco, CanWISP and Comcentric Networking. Even NMSPs, which normally support the use of larger services areas in spectrum auctions, supported the use of Tier 4 service areas in the 3800 MHz licensing process. TerreStar notes the nearly unanimous industry consensus regarding the administrative efficiency of using the same tier level for the 3800 MHz auction that was used in the 3500 MHz auction.
7. Consequently, TerreStar continues to support ISED's proposal to use Tier 4 service areas for the 3800 MHz licensing process.

**Q4** - *ISED is seeking comments on its proposal to implement pro-competitive measures in the 3800 MHz auction.*

8. TerreStar notes that, with the exception of Bell Mobility and Rogers, all telecommunication service providers supported ISED's proposal to implement pro-competitive measures, including TELUS and SaskTel.
9. TerreStar believes that the wide industry support for pro-competitive measures is aligned with ISED's own consistent recognition of the need for pro-competitive measures to support its policy objectives.
10. TerreStar submits that the evidence demonstrates that pro-competitive measures are required and urges ISED to ensure they are implemented for the 3800 MHz auction.

**If pro-competitive measures are to be implemented**

**Q5** – *If adopted, ISED is seeking comments on three proposals for pro-competitive measures in the 3800 MHz auction. Three options are proposed:*

- *Option 1: a 50 MHz set-aside*
- *Option 2: a 100 MHz cross-band cap across the 3500 MHz and 3800 MHz bands or*
- *Option 3: a 50 MHz set-aside and 100 MHz cross-band cap across the 3500 MHz and 3800 MHz bands*

**Q6** – *ISED is seeking comments on alternative options for pro-competitive measures for the 3800 MHz auction.*

11. TerreStar supported Option 3 as preferred among the options proposed by ISED; but demonstrated that the proportion of spectrum set-aside from past auctions where the

measure was used was much higher than 20% of total spectrum on offer. TerreStar also argued that in consideration of the needs of regional and smaller service providers, 50 MHz of set-aside spectrum would be insufficient. In its submission, TerreStar therefore proposed an Option 4, wherein the set-aside would be ten blocks instead of five and showed that this approach would be more consistent with past auctions where a set-aside was employed.

12. TerreStar notes that Québecor, Eastlink, and Sogetel also made similar requests for additional set-aside spectrum, and proposed an option that would combine a 100 MHz cross-band cap with a 100 MHz set-aside. These entities also argued that ISED's set-aside proposal for the 3800 MHz licensing process is insufficient and deviates from precedents established in past spectrum auctions.
13. Iristel also proposed that the set-aside be increased to 100 MHz along with a reduction of the spectrum cap to 80 MHz in rural and remote areas. ECOTEL provided a similar view as Iristel but with a 60 MHz set-aside rather than a 100 MHz set-aside.
14. SaskTel opposed the implementation of a cross-band cap and rather supported Option 1 (50 MHz set-aside). TerreStar notes that SaskTel already owns between five and 12 blocks of 3500 MHz spectrum in service areas in Saskatchewan. SaskTel's opposition to a cross-band cap is therefore not surprising in the circumstances.
15. TerreStar submits that except for Bell Mobility and TELUS, there is clear support for a set-aside among industry players. Even Rogers, which chronically opposes pro-competitive measures, supports the use of a set-aside as the least damaging measure should ISED decide to proceed with pro-competitive measures.
16. TELUS requested the implementation of ISED's Option 2 (100 MHz cross-band cap) and proposed that the cap be increased to 110 MHz. The cross-band cap requested by TELUS is perhaps an attempt by the incumbent to bridge what it claims to be a spectrum holding imbalance among national mobile service providers, and which should be rejected.
17. In its submission TerreStar demonstrated that a 100 MHz cross-band cap on its own would be insufficient to ensure regional and smaller service providers have access to adequate 3800 MHz spectrum. In 92 of the 172 service areas, these regional service providers would only be able to secure four blocks or less, and in five of these 92 service areas, no spectrum would be available to them.
18. Assuming that, as per TELUS's proposal, the spectrum cap was increased to 110 MHz, then entities outside of the three national carriers would have access to only three blocks of spectrum or less in 114 of the 172 Tier 4 service areas, and no spectrum at all in 24 service areas. TerreStar urges ISED to reject TELUS's proposal, as the proposed 110 MHz cross-band cap is the pro-competitive measure discussed that would be the least effective in putting spectrum in the hands of regional service providers.

19. TerreStar therefore reiterates that a cross-band spectrum cap alone is not sufficient to ensure availability of an appropriate quantity of spectrum for regional service providers. Although the prospect of a cross-band spectrum cap is attractive from the perspective of fair asset distribution, the addition of a set-aside would ensure 3800 MHz spectrum is available to regional carriers in every service area.
20. TerreStar submits that widespread industry support for a set-aside is clear; but that the set-aside proposed by ISED deviates from past auctions in terms of the proportion of spectrum outside of the reach of national mobile service providers at a crucial moment in the history of Canadian wireless services. At the moment when the CRTC is about to approve mobile wholesale tariffs for a new Canadian facility-based MVNO regime intended to improve competition in the Canadian mobile landscape, TerreStar submits that it is not the time for ISED to decrease the proportion of spectrum to be included in the set-aside of the 3800 MHz licensing process relative to previous auctions, thus perhaps unintentionally risking starving regional and smaller service providers from access to 3800 MHz spectrum needed to build the facilities-based networks contemplated by the CRTC.
21. TerreStar urges that ISED implement the proposed new Option 4 (a 100 MHz cross-band cap with a 100 MHz set-aside) and ensure consistency and coordination with CRTC policy efforts.

**If a set-aside is to be applied**

***Q7** - ISED is seeking comments on its proposal to limit the eligibility to bid on set-aside licences to those registered with the CRTC as facilities-based providers that are not NMSPs, and that are actively providing commercial telecommunications services to the general public in the relevant Tier 2 service area of interest, effective as of the date of application to participate in the 3800 MHz auction. If not supporting ISED's proposal, provide alternate eligibility criteria.*

22. TerreStar notes that despite being strongly opposed to the pro-competitive measures, Bell Mobility proposes several modifications to set-aside eligibility rules. However, these modifications would effectively obstruct the very intent of the set-aside as a pro-competitive measure. These obstructions include the following: requiring set-aside entities provide services in the relevant Tier 4 area rather than Tier 2 area, registration as a wireless service provider with the CRTC, existing spectrum ownership, excluding the provision of wholesale services as a qualifier for set-aside eligibility, modifying the definition of actively providing telecommunication services, and a redefinition of the term 'general public'.
23. TELUS on the other hand states that set-aside eligibility should be granted at the Tier 1 level to increase competition in the set-aside - - only to contradict itself later in its submission and

argue that eligibility to bid on set-aside spectrum should be limited to those that already have a track record of investing in a network in the area where it is bidding.

24. Rogers proposed the Department modify set-aside bidder eligibility to only include facilities-based operators currently serving the local market with actual facilities, and that over-the-top services be excluded; a measure that appears expressly designed to prevent Videotron's Fibrenoire subsidiary to again claim set-aside eligibility outside of its Quebec footprint.
25. TerreStar submits that ISED should disregard the national carriers' comments on set-aside eligibility criteria given that they have no interest in seeing any set-aside succeed. TerreStar views these proposed modifications to the set-aside eligibility criteria from the national carriers as another attempt to influence and control the telecommunications market. TerreStar further submits that ISED should focus on implementing criteria for set-aside eligibility that will increase ISED's chances of fulfilling its policy objectives.
26. TerreStar notes that Cogeco requested that set-aside eligible entities be providing services in the Tier 4 area of interest rather than the Tier 2, and Eastlink requested that set-aside eligibility be restricted to mobile or FWA service providers. TerreStar submits that these proposals are basically aimed at reducing the level of competition amongst set-aside eligible bidders, without real evidence that not granting them would impede the fulfilment of ISED's policy objectives.
27. TerreStar also notes that Iristel requested that one-way satellite services be excluded from set-aside eligibility. TerreStar understood in its original submission that the measure was already in place, but subsequently realized that even though ISED had excluded services regulated under the Broadcasting Act from set-aside eligibility in the 3500 MHz auction - thus preventing Shaw's national set-aside eligibility, this provision was dropped in the current consultation process. TerreStar agrees with Iristel that the Broadcasting Act exclusion criteria should be maintained. This is consistent with TerreStar's support for the use of the same set-aside eligibility criteria used in the 3500 MHz auction expressed in the Comment phase of this consultation process.
28. Québecor and ECOTEL supported ISED's proposed set-aside eligibility criteria, along with Iristel except for the modification discussed above.
29. TerreStar submits that, with the exception of the minor change requested by Iristel to exclude services regulated under the Broadcasting Act, ISED's set-aside eligibility criteria should be adopted as proposed. Other entities have requested modifications that would reduce the likelihood of success of the set-aside as a competitive measure for their own commercial interests. They have not demonstrated that their proposed changes would further ISED's policy objectives.

30. TerreStar therefore supports ISED's proposal for the set-aside eligibility criteria - with the minor modification requested by Iristel regarding the exclusion of services regulated by the Broadcasting act.

**If a cross-band spectrum cap is to be applied**

**Q10** - ISED is seeking comments on its proposal that the cross-band cap be applied across the 3500 MHz and 3800 MHz bands.

**Q11a** - ISED is seeking comments on its proposal that the maximum amount of spectrum that bidders in the 3800 MHz auction can acquire is a total of 100 MHz across the 3500 MHz and 3800 MHz bands.

31. TerreStar notes that Bell Mobility and TELUS - entities that would be ineligible for set-aside - are the only stakeholders which support a cross-band cap rather than a set-aside. TELUS supports the implementation of a cross-band spectrum cap and proposed to increase it to 110 MHz. Bell Mobility rejects pro-competitive measures but stated that a cross-band cap would be the least damaging measure.
32. Rogers discussed at considerable length in its submission its view that the Bell/TELUS network sharing agreement is unfair. Rogers indicated that the spectrum cap would only be acceptable if it is applied at the "network level" (rather than at the carrier level). The already mid-band spectrum rich SaskTel and Xplornet also rejected the use of a cross-band cap, preferring to support ISED's Option 1: a 50 MHz set-aside.
33. The rest of the industry supported the implementation of a cross-band cap, if used in conjunction with a set-aside. Some stakeholders proposed a variation to the number of blocks in the cap. However, in general, industry players support a combination of both measures.
34. TerreStar already demonstrated that a 100 MHz cross-band cap as a standalone pro-competitive measure, would be insufficient to help non-national carriers to acquire spectrum.
35. TerreStar therefore reiterates its support for the implementation of a 100 MHz cross-band cap across the 3500 MHz and 3800 MHz bands, provided that the implementation of a cross-band cap does not prevent ISED from also adopting a set-aside or increasing the quantity of spectrum of this set-aside to 100 MHz.

**Q13** - ISED is seeking comment on:

- c. *If a set-aside is applied, stakeholder preference on whether the set-aside should be wholly contained in the unencumbered category or in the encumbered category in the 43 service*

*areas with encumbrances, and the proposal to consider all blocks won by set-aside eligible bidders as set-aside blocks.*

36. TerreStar notes that all three national carriers are requesting that a potential set-aside be placed in the encumbered portion of the band. Rogers argues that would maximize the clean spectrum that the national networks can access, allowing two nationwide networks to serve these markets with a comparable amount of spectrum across the 3500 MHz and 3800 MHz bands.
37. TerreStar submits that Roger's argument is weak, as a large proportion of encumbrance is in satellite-dependent areas, areas that Rogers typically does not cover with its RAN. TerreStar further questions why unencumbered spectrum should have any priority for allocation to national carriers, when regional service providers and WISPs have a greater need for rural and remote spectrum than the three national carriers.
38. The remaining industry players generally support ISED's proposal that the set-aside be wholly contained in the unencumbered category. Should ISED agree with TerreStar's proposal to increase the set-aside to ten blocks, then the creation of two different set-aside products in the 43 Tier areas having encumbrance would be required.

**Q14** - *ISED is seeking comments on its proposal to use anonymous bidding during the auction.*

39. TerreStar already stated in the Comment phase that it supports the use of anonymous bidding. However, TerreStar notes that while the entire industry supported anonymous bidding, Bell Mobility, TELUS, Rogers, and Xplornet requested that the identity of set-aside eligible bidders as well as the service areas where they are eligible, be revealed prior to the auction.
40. TerreStar opposes the request by Bell Mobility, TELUS, Rogers, and Xplornet for the following reasons:
- i.* it would have no positive impact on the spectrum allocation process,
  - ii.* it would put anonymous bidding at risk in areas where only one or a few entities are set-aside eligible,
  - iii.* it would invite national carriers to launch legal challenges on the regulator's assessment of who's eligible where, placing more control in the hands of the national carriers and potentially generating delays in the spectrum allocation process.



41. TerreStar therefore submits that proposals to reveal the identity of set-aside eligible bidders and the service areas where they are eligible, be rejected.

**Q23** - ISED is seeking comments on its proposal to issue new flexible use spectrum licences in the 3800 MHz band with a 20-year licence term and the proposed wording of the condition of licence.

42. TerreStar notes that Bell Mobility, TELUS, Rogers, Xplornet and the CWTA, while in support of the proposed 20-year license term, highlighted the burden placed on successful bidders by the requirement for final payment of spectrum two years before the spectrum resource is available. TerreStar agrees that early payment before having access is illogical on its face; and would further impair the ability of service providers to invest in their networks by tying up significant capital during a crucial capital-intensive period of network deployment. Those entities requested that spectrum payment be delayed until the spectrum is available. TerreStar is also sensitive to the fact that spectrum payment two years prior to clearance by the satellite industry would frustrate the overall ISED spectrum policy objectives by holding back the ability for service providers to meet the connectivity needs of Canadians.
43. Eastlink and Videotron (Quebecor), both CWTA members, supported the license term but expressed that the term should begin when spectrum is actually available.
44. TerreStar understands that ISED would be interested in aligning all 3800 MHz licenses to the same start date, if only for administrative efficiency. However, TerreStar submits that ISED delay the beginning of these licenses until March 31, 2025 – the date at which FSS operations and WBS urban users are required to clear the band. New licensees could then negotiate early displacement of WBS users on an ‘as needed’ basis in areas where they can use the spectrum until 2027.
45. Despite initially supporting ISED’s license term and payment schedule as proposed in its original submission, TerreStar now believes that ISED should defer payment of licenses by two years until the spectrum is usable and adjust the license term accordingly. As pointed out by other stakeholders, this would free up capital for carriers in the near term to make substantial investments in Canada’s 5G networks.

**Q25** - ISED is seeking comments on the proposed deployment condition of licence as stated above as well as on the proposed levels of deployment as specified in annex B.

**Q26** - ISED is seeking comments on whether to accelerate the proposed timelines for deployment from what is proposed in annex B.

46. TerreStar notes that entities generally accepted the deployment requirements proposed in annex B – except for the request discussed above that the licence term be delayed until the spectrum is available and that the timing of deployment requirements be aligned with the adjusted licence term.
47. TerreStar also notes that industry stakeholders generally rejected the imposition of more stringent deployment requirements.
48. The asymmetrical deployment requirements (based on LTE coverage of mobile network operators, presented in annex C of the Consultation paper) were rejected by Bell Mobility, Rogers, TELUS, Videotron and Eastlink. TerreStar also rejected these additional deployment requirements as they are not applied equally among service providers and penalise service providers who invested early in serving Canadians.
49. TerreStar reiterates its support for deployment requirements as a measure to ensure spectrum is utilized to serve and benefit Canadian consumers. However, TerreStar believes that deployment requirements need to respect the principle of fairness and be equally applied among all service providers. TerreStar is surprised that ISED would impose different deployment requirements to service providers owning spectrum in the same licence area based on their mobile LTE coverage at a given point in time when the spectrum has been acquired in the same licencing process.
50. Considering these arguments, TerreStar urges ISED to ensure deployment requirements are uniform among all service providers for a given band across a given licence area.

**Q28a** - ISED is seeking comments on potential measures or conditions of license that could accelerate Canada's Connectivity Strategy's target of 100% of the households covered with 50/10 Mbps within the timeframe of 2030.

**Q28b** - ISED is seeking comments as to the potential to increase deployment requirements in any relevant spectrum bands to increase both fixed and mobile services in rural and remote areas, and potentially provide coverage to currently underserved locations, such as roads.

51. TerreStar notes that industry stakeholders generally aligned with TerreStar's position that ISED needs to assess the impact of recently implemented measures to accelerate Canada's Connectivity Strategy target of 100% of the households covered with 50/10 Mbps by 2030, prior to determining whether additional measures are required.
52. TerreStar believes ISED should interpret the widespread industry support for its position as a sign that the industry might feel a bit saturated or overwhelmed by all these new measures. TerreStar therefore urges ISED to assess the impact of new measures recently implemented,

or in process of being implemented, before it determines that additional measures are required.

TerreStar thanks the Department for the opportunity to provide reply comments in this Consultation.

Yours truly,

A handwritten signature in black ink, appearing to read 'S. Gibson', with a long horizontal flourish extending to the right.

Scott Gibson  
General Counsel & Corporate Secretary  
TerreStar Solutions Inc.