

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
)
Amendment of the Commission's Rules with)
Regard to Commercial Operations in the 3550-)
3650 MHz Band) GN Docket No. 12-354
)
Appropriate Method for Determining the)
Protected Contours for Grandfathered 3650-)
3700 MHz Band Licensees)
)

COMMENTS OF SACRED WIND COMMUNICATIONS, INC.

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Sacred Wind Communications, Inc. (“Sacred Wind”), by its undersigned counsel, respectfully submits these comments in response to the public notice released in the above-referenced proceeding by the Wireless Telecommunications Bureau (“Bureau”) of the Federal Communications Commission (“FCC” or “Commission”) on October 23, 2015.¹ The Public Notice seeks comment on the appropriate method for determining the protected contours for grandfathered 3.65 GHz band licensees pursuant to the *Report and Order and Second Further Notice of Proposed Rulemaking* that established the Citizens Broadband Radio Service (“CBRS”) in the 3550-3700 MHz band (“3.5 GHz R&O”).²

¹ See Public Notice, *Wireless Telecommunications Bureau Seeks Comment on an Appropriate Method for Determining the Protected Contours for Grandfathered 3650-3700 MHz Band Licensees*, GN Docket No. 12-354, DA 15-1208 (Oct. 23, 2015), 80 Fed. Reg. 69662 (Nov. 10, 2015) (“Public Notice”).

² *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, Report and Order and Second Further Notice of Proposed Rulemaking*, GN Docket No. 12-354, FCC 15-47 (rel. April 21, 2015).

INTRODUCTION AND SUMMARY

In the 3.5 GHz R&O, the Commission adopted rules governing the 3.5 GHz band, including rules for incorporating the existing 3.65 GHz band into the new CBRS, and adopted rules protecting the operations of existing 3.65 GHz licensees (i.e., “Grandfathered Wireless Broadband Licensees”), during a transition period, within their “Grandfathered Wireless Protection Zones” (“Protection Zones”). Sacred Wind is an incumbent 3.65 GHz licensee, and appreciates the Commission’s efforts to provide some level of incumbent protection within the Protection Zones during the transition period ending April 17, 2020.

In the Public Notice, the Bureau proposes and seeks comment on a two-pronged approach to define the Protection Zones around each registered base station of a 3.65 GHz licensee. The first prong applies to sectors with unregistered customer premises equipment (“CPE”) that operates below the power limits for mobile and portable stations in the 3.65 GHz band technical rules.³ The proposed contours for a Protection Zone for base stations with unregistered CPE would be a sector, based on a 4.4-km radius and the base station antenna parameters.

The second prong, which applies to registered CPE (i.e., CPE that operates as a fixed station above the mobile and portable power limits), is the primary focus of Sacred Wind’s comments. Under the second prong, the Protection Zone for registered CPE would extend to the furthest CPE unit registered in the Universal Licensing System (“ULS”), and also be a function of the base station’s antenna parameters registered in ULS (azimuth and beamwidth), creating wedge-shaped protection zones extending to the furthest registered CPE.

For the reasons discussed below, Sacred Wind urges the Bureau to clarify the ambiguous phrase “the furthest CPE unit registered in ULS” in the proposed second prong. The Bureau

³ Under the 3.65 GHz band technical rules, “[m]obile and portable stations are limited to 1 watt/25 MHz EIRP. In any event, the peak EIRP density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum.” 47 C.F.R. § 90.1321(c).

should adopt a protection approach for fixed CPE, whereby CPE is not required to be registered by any particular date, but instead may be added to expand the Protection Zones around existing base stations during the entire transition period. As an alternative, the Bureau should clarify that either the proposed contours for 3.65 GHz networks that use fixed CPE extends 18 km from the base station within the provider's territory, or for providers serving Tribal lands, establish Tribal Protection Zones as discussed more fully below. Through these approaches, the Bureau would ensure that providers like Sacred Wind, a carrier of last resort serving remote Navajo Reservation and near-Reservation lands in New Mexico, can realize the benefits of its significant investments to expand its service, free from interference, to its remote, historically un- and under-served subscriber base.

DISCUSSION

A. Background on Sacred Wind

Sacred Wind is a privately owned, New Mexico-based corporation formed in 2004 to introduce basic telephone and broadband services to the many thousands of unserved homes on the Navajo Reservation and near-Reservation lands in New Mexico, as well as to Navajo schools, businesses, and government locations, such as local Chapter houses. In 2006, the company acquired from Qwest Corporation a portion of Qwest's service territory comprising approximately 3,200 square miles in northwestern New Mexico on the Navajo Reservation and near-Reservation lands known as the "checkerboard," as well as limited Qwest copper loop facilities in this territory.

Sacred Wind serves a population of approximately 23,300, 98 percent of whom are Navajo citizens. The population density of its service territory is about 7.3 people per square mile, one of the most sparsely populated areas in the country. Sacred Wind is a carrier of last resort for 6,300 households, meaning that it cannot terminate or withdraw from providing

telephone service unless the New Mexico Public Regulatory Commission (“PRC”) finds that another telecommunications company is able to provide service without interruption. No other such company exists in Sacred Wind’s service area at this time.

Last-mile wireline technologies are particularly ill-suited for remote Tribal lands, such as Sacred Wind’s service territory. As the Commission recognized in its 2000 Report and Order on extending wireless service to Tribal lands, “[v]arious factors contribute to the low penetration rates on tribal lands. Chief among these factors are geographic remoteness, sparse population clusters, low income levels and high unemployment rates.”⁴ In general, the sparse population over a vast land area makes deployment of a wired telecommunications network cost prohibitive. For that reason, Sacred Wind has built out an alternative to a wireline network that still allows Sacred Wind to bring voice and broadband services to its service area. That alternative is an IP-based hybrid fiber/point-to-point microwave backbone network integrated with a 3.65 GHz WiMAX fixed wireless local loop (“FWLL”) access network.

For remote subscribers, the FWLL system replaces the typical copper, twisted pair distribution system with a point-to-multipoint radio access network operating on a 3.65 GHz WiMax platform. This system has been deployed and is operating under Sacred Wind’s non-exclusive 3.65 GHz nationwide license, with local database registrations. System reliability on its network approaches the network reliability of Tier 1 providers – 99.999 percent reliability (or downtime of 5 minutes per year). Sacred Wind is also operating an all-IP network, using IP-based Ethernet transmission across its entire network, including the last mile, using WiMAX IEEE 802.16 equipment. The use of WiMAX technology and the managed nature of IP transmission throughout the Sacred Wind network provide residential subscribers with wireline

⁴ See *Extending Wireless Telecommunications Services to Tribal Lands*, Report and Order and Further Notice of Proposed Rulemaking, 15 FCC Rcd 11794 ¶ 10 (2000).

quality service and broadband service of up to 10 Mbps, with broadband service to schools and businesses of up to 100 Mbps.

To achieve this level of reliability, Sacred Wind has incorporated redundancy and protection into its 3.65 GHz WiMAX network, relying on physically separate WiMAX networks for working and protection channels, including separate frequencies, separate tower equipment (including separate amplifiers and antennas), and separate baseband processing units with redundant power supply for the working and protection equipment. The system relies on 45 MHz of spectrum in the 3.65 GHz band.

B. The Protection Zone Approach Must Allow For the Protection of Later-Deployed Fixed CPE Within a Provider's Service Territory, and Alternative Approaches Must be Considered that Protect Ongoing Build Out into Remote Tribal Areas

1. The Bureau Should Adopt an Approach that Allows for Protection of Later-Registered CPE

The second prong proposed in the Public Notice, specifically the use of the phrase “the *furthest* CPE unit *registered* in ULS,”⁵ is ambiguous and should be clarified by the Bureau. The Public Notice did not specify whether CPE registrations are required by a particular date in order for registered CPE to be considered within the second prong Protection Zone. But presumably the Public Notice is defaulting to language from the 3.5 GHz R&O, which provides that interference protection is afforded to incumbents within “Protection Zones around base or fixed stations that are registered in ULS on or before April 17, 2015 and constructed, in service, and fully compliant with the rules in part 90, subpart Z . . . as of April 17, 2016.”⁶ However, the 3.5 GHz R&O allows deployment of CPE during the transition period, and for that equipment to be

⁵ Public Notice, at 2 (emphasis added).

⁶ 47 C.F.R. §§ 96.21(a)(2), 90.1338(a); 3.5 GHz R&O ¶ 403; *see* Public Notice, at 1, 3.

protected from harmful interference within a Protection Zone.⁷ Even in the case of registered CPE, the Protection Zone is around and defined with respect to operations from a base station, and the Bureau should clarify that additional CPE may expand a Protection Zone if deployed around existing 3.65 GHz base stations.

Sacred Wind understands that the 3.5 GHz R&O fixes the covered *base stations* to those registered on or before April 17, 2015, and constructed by April 17, 2016, which prevents creation of new Protection Zones using later-deployed base stations. The Commission reasoned that the April 17, 2015 deadline was “necessary to prevent a speculative ‘land rush’ in site registrations during the period between the adoption date and the effective date of the new and revised rules.”⁸ The same reasoning does not apply to defining Protection Zones for additional CPE deployed during the transition period around such base stations. As the Commission explained:

[I]t is appropriate to define the Grandfathered Wireless Protection Zones based on the contour of base and fixed access points that define the network. As such, in this context, “fixed or base station” does not include subscriber units, customer premise equipment, or remote terminals that communicate with base stations or access points. . . . Grandfathered Wireless Protection Zones will not be specifically defined for subscriber units operated by Grandfathered Wireless Broadband Licensees, regardless of whether they have been registered in ULS.⁹

Sacred Wind is concerned that, if additional CPE cannot be added during the transition period to extend, and be included in, a Protection Zone, its ability to provide adequate last-mile telecommunications service without experiencing harmful interference during the transition period will be impeded. Sacred Wind cannot predict the extent of the potential impact or the

⁷ See 47 C.F.R. § 90.1338(b).

⁸ See 3.5 GHz R&O ¶ 405, n. 859. As stated in the R&O: “In defining the Grandfathered Wireless Protection Zone, we intend to distinguish between ‘real’ networks that have received substantial investment and provide socially productive service from ‘paper networks’ whose only effect is to restrict spectrum accessible by the Citizens Broadband Radio Service.” *Id.* ¶ 402.

⁹ *Id.* ¶ 405 n. 859.

amount of service disruption that the influx of Citizens Broadband Radio Service Devices (“CBSDs”) will have in its current service areas. However, if and when the technologies encroach into the Sacred Wind customer service areas, it is possible – if not likely – that a remote customer that is not protected will experience service interference from a foreign device and be cut off from voice and broadband services, including critical services, such as 911.

Accordingly, Sacred Wind urges the Bureau to clarify that it is not imposing any deadline on CPE registration in a manner that would prevent incumbents from including within Protection Zones additional CPE deployed during the transition period around existing base stations. Otherwise, 3.65 GHz incumbents like Sacred Wind would be prevented from having interference protection for later-deployed CPE that might be located beyond the furthest CPE currently deployed.

2. The Commission Should Clarify the “Furthest CPE” Distance Limit, or, Alternatively, Establish Tribal Protection Zones

The Bureau’s concept of the “furthest CPE unit” also requires clarification. The Bureau has calculated “that a typical registered CPE would have a maximum range of approximately 18 km from a base station,” and, therefore, “caution[ed] licensees that any CPE distances in excess of this will be evaluated for legitimacy.”¹⁰ Based on this statement, it seems that the Bureau can clarify the proposed contours for 3.65 GHz networks that use fixed CPE by setting the distance limit at 18 km, without any reference to the “furthest CPE unit.” Although the Bureau may believe this is overprotective, it should have the added benefits of providing certainty and would cut down on the sheer information and ULS updating necessary to define the Protection Zone.¹¹ In other words, for operators with fixed service territories, like Sacred Wind, existing base

¹⁰ Public Notice, at 2-3 n. 7.

¹¹ *See id.* at 3.

stations utilizing fixed CPE would have a Protection Zone that extends 18 km from the station within their service territory for protection of registered CPE and later-deployed CPE.

Sacred Wind also urges the Bureau to consider an alternative methodology for determining Protection Zones to serve Tribal lands, which it refers to as a Tribal Protection Zone. Specifically, to qualify for protection through a Tribal Protection Zone, the following would be appropriate considerations:

- The 3.65 GHz licensee must be an incumbent provider of last resort providing access to emergency voice 911 services;
- The provider must predominantly serve Tribal lands in the targeted area, or be a Tribally-owned carrier serving the targeted area;
- The provider must have a substantial record of serving the area with 3.65 GHz technology; and
- The target area must be within a census tract area, the centroid of which is located on Tribal lands.

This type of Tribal Protection Zone would be defined by the census tract(s) within the overlap between the incumbent service territory and the Tribal lands, where at least one existing 3.65 GHz base station has been previously deployed to serve parts of the target area, but additional base stations will be necessary to serve more insular areas on the Tribal lands. This approach would allow for growth to serve more remote areas, while protecting carriers of last resort using 3.65 GHz technology from potential interference from new CBSDs.

3. The Public Notice Proposed Static Contours Would Not Protect Sacred Wind's Existing Deployment Plans and Investment

Depending on the Bureau's resolution of the ambiguities described above regarding "the furthest CPE unit registered in ULS," Sacred Wind's significant investment and plans to serve additional last-mile customers may be in jeopardy. Assuming that the Bureau's definition of the Protection Zone is based on the furthest, registered *CPE as of April 17, 2015*, the Public Notice envisions static outward boundaries for Protection Zones that may only contract, rather than expand, under the rules.¹² If so, Sacred Wind's Protection Zones would be limited and unable to expand upon deployment of additional CPE. Sacred Wind is already in the midst of deployment of voice and broadband to additional remote customers, and the Bureau's proposed approach would not protect Sacred Wind's plans and existing investment as a carrier of last resort during the transition period. It would also undermine the notion of "grandfathering" during the transition period by limiting CPE to existing subscribers.

As a carrier of last resort in New Mexico, Sacred Wind is obligated to ensure that interference-free telecommunications services are provided to its customers.¹³ Sacred Wind has the ability to reach potential customers in need by building out CPE around its existing base stations, and new base stations necessary to serve more remote areas on Tribal lands. Like other carriers of last resort, Sacred Wind utilizes the 3.65 GHz band for voice and broadband services, but is probably unique in its customers' circumstances. Because of their remote locations, Sacred Wind's historically underserved Navajo customer base is highly dependent on Sacred Wind's 3.65 GHz technology to communicate with the outside world. Sacred Wind arguably possesses the largest fixed wireless system for voice and broadband in the country and the largest

¹² See 3.5 GHz R&O ¶ 406; 47 C.F.R. § 96.21(a)(2) ("Grandfathered Wireless Protection Zones will be reduced in geographic area and/or applicable frequency range if portions of the protected network fail to meet the above criteria after April 17, 2016.").

¹³ See, e.g., N.M. Stat. §§ 63-9A-6.2, 63-9-7.

911 fixed wireless-delivery system. The goal is to provide this critical access to most, if not all, of the Navajo households in Sacred Wind's service territory. Sacred Wind's job is not done.

To this end, Sacred Wind has developed a five-year plan, recently approved by the New Mexico PRC for expansion of its network to serve some of the most remote customers in its service territory. That order granted Sacred Wind's petition to receive support from the State Rural Universal Service Fund ("SRUSF"), pursuant to the New Mexico Rural Telecommunications Act, in the amount of \$1.4 million per year for a five-year period from January 2016 through December 31, 2020, which largely coincides with the 3.65 GHz transition period. This authorization for SRUSF funding took Sacred Wind approximately four years to secure, and required submission of detailed plans concerning how it will use funding over the five-year period. In addition, to implement its expansion plan, Sacred Wind is pursuing additional federal funding from the U.S. Department of Agriculture's Rural Utilities Service ("RUS") program that aims to ensure access to affordable and reliable telecommunications services to rural communities. With this funding, Sacred Wind intends to build out its voice and broadband network, expand and improve its existing service, and introduce broadband where it was previously not available.

The SRUSF is intended to ensure that telecommunications service is provided at affordable rates in rural, high-cost areas throughout New Mexico. To obtain approval, Sacred Wind was required to show how it will use the funding through submission of a five-year plan.¹⁴ Sacred Wind plans to serve as many as 800 new customers, including by expanding service to

¹⁴ Order Adopting Amended Recommended Decision with Modification, Case No. 15-00058-UT, Ex. A, at 7, 10 (New Mexico Public Regulatory Commission Sept. 23, 2015) (adopting PRC Hearing Examiner's Amended Recommended Decision attached to Order as Exhibit A) ("PRC Order").

currently unserved customers.¹⁵ Sacred Wind expects that most, if not all, of its new customers will be low-income individuals in remote, high-cost areas of New Mexico that qualify for the Tribal Lifeline program.¹⁶ The Lifeline customers live in the most remote areas of the Navajo Reservation and near-Reservation lands, and Sacred Wind is committed to reaching them with interference-free service as soon as possible.

The importance of this mission, plans for expansion, and the need for interference-free service cannot be understated, as new customers will have access to 911 services and will be able to communicate with their doctors, employers, and extended family members from their homes.¹⁷ Service is anticipated at additional public housing projects expected to be completed in the coming years, as well as in homes that currently lack electricity, but may have it in the future.¹⁸ Although imminent, build-out has not yet occurred in some locations, not only because of the need to secure required support, but because legal hurdles often delay the process of obtaining rights-of-way on Navajo and federal lands that predominate Sacred Wind's service territory.¹⁹ These issues demonstrate that the Protection Zones should not be limited by CPE that is currently in place around Sacred Wind's base stations. Instead, Sacred Wind should be permitted to expand its Protection Zones with additional CPE, as well as new base stations necessary to serve the most remote areas on Tribal lands where at least one existing 3.65 GHz

¹⁵ *Id.* Ex. A, at 10-11. As stated in the PRC Order: "Sacred Wind proposes to increase the number of subscribers in its territory by extending its network to extremely remote locations where low-income consumers currently have no access to telecommunications services. Sacred Wind expects to add 100 to 150 customers per year – consumers who do not currently have telecommunications services." *Id.* Ex. A, at 24.

¹⁶ *Id.* Ex. A, at 14, 24.

¹⁷ *Id.* Ex. A, at 24.

¹⁸ *Id.* Ex. A, at 23. "[T]here remain over 2,000 households in Sacred Wind's territory that do not have home-base telecommunications services, with approximately 1,200 of these lacking electric power to their Homes." *Id.* Ex. A, at 9.

¹⁹ See generally Comments of Sacred Wind Communications, Inc. in WC Docket No. 11-59 (July 18, 2011), available at <http://apps.fcc.gov/ecfs/document/view?id=7021693588>.

base station has been previously deployed, without fear of interference to critical services during the transition period.

Ultimately, the PRC has declared that “[t]he projects Sacred Wind has detailed for which SRUSF support funds are requested will further the public interest by ‘increasing Sacred Wind’s ability to maintain its network and continue to expand services to some of the most unserved or underserved members of our society.’”²⁰ To accomplish its plans, Sacred Wind has committed to matching the \$1.4 million funding and spending over \$10.5 million in the next five years for capital investment upgrades, as well as over \$4.5 million for network upgrades, maintenance, and other operational expenses.²¹

Sacred Wind plans to use additional fixed 3.65 GHz CPE to serve these remote customers pursuant to its obligations as a carrier of last resort. It is important that the Bureau recognize the unique situation of Sacred Wind and ensure that the protection methodology it adopts will protect additional CPE Sacred Wind deploys from base stations that are beyond the boundary of its currently deployed fixed CPE, and alternatively, establish Tribal Protection Zones that will allow it to bring service to the most remote, insular Tribal areas free from the risk of potential interference.

²⁰ PRC Order, Ex. A, at 25.

²¹ *Id.* Ex. A, at 11.

