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Achieving a Balanced Decision to Reallocate C-Band Spectrum

by

Gregory J. Vogt *

I. Introduction and Summary

After a fulsome on-the-record debate, it appears that the Federal Communications Commission may be close to a decision regarding reallocation of a significant amount of C-Band spectrum for flexible use, including 5G. The FCC's July 2018 *C-Band NPRM*[1] proposed as one option a private secondary market transaction that would transfer significant spectrum from existing satellite services to terrestrial flexible use. The C-Band Alliance (CBA or Alliance) has championed that proposal by offering 300 MHz of spectrum, with a 20 MHz guard band, in exchange for compensation, payment of the costs of necessary reconfiguration of earth station services, and a substantial contribution to the U.S. Treasury. While it is not the purpose of this paper to endorse any particular proposal, I submit that achieving a proper balance in the reallocation decision is an opportunity that holds the promise of a win-win-win situation for consumers, license holders (both current and future), and government alike. And I submit that adoption of some form of private market auction achieves the proper balance and offers the best chance for enhancing overall consumer welfare.

On this score, FCC Chairman Ajit Pai has identified four goals he is striving to balance in resolving this admittedly complex proceeding: (1) reallocate a significant amount of mid-band spectrum; (2) quickly make that spectrum available for 5G use; (3) generate revenue for the federal government; and (4) continue existing services to existing C-Band customers. Representative Greg Walden (R-OR), Ranking Member of the House Energy and Commerce

[1] *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Order & Notice of Proposed Rulemaking, GN Docket No. 18-122, FCC 18-91, 2 (rel. Jul. 13, 2018) (*C-Band NPRM*).

Committee, added two more goals that the *C-Band NPRM* already has teed up: (5) protect against harmful interference; and (6) ensure that the reallocation and assignment process is fair, open, and transparent.

As a threshold matter, there is no question that adding more mid-band spectrum to existing allocations, such as has already been accomplished in the 3.5 and 2.5 GHz bands, is critical to achieving and maintaining U.S. leadership in 5G. The economic benefits to U.S. consumers are enormous. CBA estimates that, under its proposal, spectrum could be moved to terrestrial 5G use in 18 to 36 months, faster than an incentive auction conducted by the FCC. The Analysis Group estimated that with 400 MHz of mid-band spectrum 5G could spur $274 billion in GDP growth, adding 1.3 million new jobs.[2] The Brattle Group has estimated that every year of delay in reallocating a portion of the C-Band may create a total social costs of $10 to $20 billion per year.[3] And NERA estimates that rapidly reallocating C-Band spectrum to 5G could add approximately $540 billion of annual tax revenues.[4]

In a July 2019 *Perspectives from FSF Scholars*, Free State Foundation President Randolph May and I supported the adoption of some form of free market-oriented approach that would allow incumbent Fixed Satellite Service (FSS) operators to clear part or all of the C-Band spectrum using negotiated secondary market transactions in exchange for compensation.[5] On balance, evaluation of the CBA proposal in light of the six goals identified above points toward adoption of a private market option, subject to FCC oversight, for reallocating a significant portion of the C-Band for terrestrial 5G use.

First, the free market option, as now represented by the updated CBA proposal, promises to free up 300 MHz of spectrum, with a 20 MHz guard band, for terrestrial flexible use. The CBA's updated commitment to relinquish 300 MHz of spectrum, if all goes according to plan, would result in much needed certainty. Other proposals still suffer from a lot of unknown variables, including the amount of spectrum to be repurposed and whether existing licensees would opt to participate in the incentive auction.

Second, the private market option should lead to quick reallocation and assignment of spectrum. The Brattle Group estimated that for every year of delay in reallocating a portion of the band, the value of the spectrum decreases 7 to 11 percent a year, imposing total social costs of $10 to $20 billion. Given the past history of FCC-run auctions, CBA's estimate of an 18 to 36 month time frame would be a substantial improvement over FCC-run incentive auctions. The innovative nature of the private market approach is particularly justified in the C-Band given that each of

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[2] *See* David W. Sosa & Greg Rafert, Analysis Group, The Economic Impacts of Reallocating Mid-Band Spectrum to 5G in the United States 1, 4-5 (Feb. 2019), https://api.ctia.org/wp-content/uploads/2019/02/The-Economic-Impacts-of-Reallocating-Mid-Band-Spectrum-to-5G-1.pdf (Analysis Group White Paper).

[3] Joint Comments of Intel Corporation, Intelsat, License, LLC , & SES Americom, Inc., Appendix A, C. Bazelon, The Brattle Group, Maximizing the Value of the C-Band, GN Docket No. 18-122, 27 & note 72 (Oct. 29, 2018) (Brattle Group White Paper).

[4] Reply Comments of The C-Band Alliance, GN Docket No. 18-122, Reply Declaration of Jeffrey A. Eisenach, NERA Economic Consulting, ¶ 30 (Dec. 7, 2018) (NERA White Paper).

[5] Randolph J. May & Gregory J. Vogt, "A Free Market Approach Should Be Used to Reallocate C-Band Spectrum," Perspectives from FSF Scholars, Vol. 14, No. 17 (Jul. 17, 2019).

the current FSS licensees is legally entitled to use the full 500 MHz of spectrum. Absent incentives for the incumbent operators to reach a voluntary agreement to relinquish, the likelihood of "holdouts" is increased.

Third, as a taxpayer I appreciate that auction revenues would be contributed to the public treasury in a public auction. But CBA offers to make a "substantial voluntary contribution" to the U.S. Treasury after a private auction. Thus, obtaining revenues for the Treasury could be met under either the FCC-run auction or private market proposals.

Fourth, ensuring that existing users can continue to receive their current service is important. Earth station owners rely on C-Band transmissions to provide video and other services to their subscribers, which contribute billions of dollars to the U.S. economy. Because CBA has committed to preserving current service by reconfiguring equipment necessary to operate in a smaller portion of the C-Band, either procedural option can meet this goal. The FCC's oversight to ensure that existing users are not disadvantaged is crucial.

Fifth, protection against harmful interference depends on the operating parameters the FCC establishes for terrestrially-based licensees that operate in the relinquished portion of the C-Band. Again, meeting this goal is in the hands of the FCC and should be achieved under either procedural option.

Sixth, providing new licensees a fair opportunity to participate in the procedural process to reassign spectrum is important to achieving competition and an open market for 5G. Because the FCC has not yet reached a final decision, it is an open question about the fairness of either procedural option. However, a recent joint filing by CBA and potential 5G bidders indicates that there is substantial agreement in principle among key players as to how a secondary market transaction could meet fairness goals.

The private market procedure, as represented by the modified CBA proposal, appears to be superior in meeting the first two goals, certainty in reallocating a significant amount of mid-band spectrum and doing so in a prompt fashion, especially important in advancing the national interest in preserving U.S. wireless and 5G leadership. And it is neutral with respect to the remaining four. Therefore, on balance, I remain of the view, as Randolph May and I concluded in our July 2019 *Perspectives*, that the private market option more likely would enhance overall consumer welfare and reduce overall societal costs than would other proposed approaches such as a traditional government-run auction.

II. The Market-Based Approach to Reallocating C-Band Spectrum

C-Band spectrum currently is allocated to FSS on a co-primary basis with fixed service. The rules provide that licenses in the C-Band are non-exclusive and entitle the licensee to operate throughout the 500 MHz band.[6] Four FSS licensees, Intelsat, SES, Telesat, and Eutelsat, operate approximately 90 percent of the authorized satellites in the band and serve nearly 120 million

[6] There are a relatively small and declining number of fixed service licensees in the C-Band, which do not present the same challenges as allowing terrestrial mobile use adjacent to satellite downlink transmissions.

American households that receive programming content over facilities operating in the C-Band.[7] The 3.7 - 4.2 MHz band is reserved for downlink transmissions paired with the 5.9 - 6.4 GHz uplink portion, collectively referred to as the C-Band. Only spectrum from the downlink portion of the C-Band would be reallocated.

The *C-Band NPRM* proposes as one option a market-based approach to clear some or all of the 500 MHz that comprises the 3.7 - 4.2 MHz C-Band and make the cleared spectrum available for flexible mobile use, including 5G.[8] Existing FSS operators would use secondary market transactions to repurpose the spectrum in exchange for compensation. The FCC's proposal would rely on a Transition Facilitator, a private cooperative entity created by FSS operators "to coordinate negotiations, clearing, and repacking the band."[9] The Transition Facilitator would deal with what is known as the "holdout problem," i.e., satellite operators unwilling to relinquish spectrum voluntarily. FSS operators would be required to notify incumbent earth station operators who receive signals in the C-Band to take steps to change their earth station facilities to reduce potential interference from new mobile licensees in the band.

The C-Band Alliance, currently made up of the three major FSS licensees,[10] has urged the FCC to adopt the market-based approach in reallocating a portion of the band.[11] In recent months, CBA proposals have been modified to address public interest issues raised by interested parties and government officials. The CBA now proposes clearing 300 MHz of the C-Band, including a 20 MHz guard band,[12] by repacking existing users into a smaller portion of the C-Band and make it available for terrestrial mobile use, including 5G services. It proposes to utilize a transition facilitator to effectuate the transition. Alliance members would launch eight new satellites to ensure that the same FSS capacity was available both before and after the repacking. At the same time, the CBA committed to protect earth station operators in their receipt of primarily video service transmission in the band, including upgrading current earth station facilities to higher compression technologies, to be reasonably selected by the user.

The CBA would use secondary market transactions by conducting a private auction overseen by the FCC. CBA has recently modified its initially announced approach to conduct a multi-round, ascending clock auction format available to all eligible bidders, and subject to FCC prohibited communications rules.[13] Once the private auction is complete, winning mobile users would file FCC license applications.[14] The mobile licenses would include conditions agreed upon by the

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[7] Comments of the C-Band Alliance, GN Docket No. 18-122, 2 (Jul. 3, 2019).
[8] *C-Band NPRM*.
[9] *Id*., ¶ 70.
[10] Eutelsat, originally a member of the C-Band Alliance, has since withdrawn, but continues to be interested in participating in the C-Band secondary transaction proposed by the Alliance. Letter from Carlos M. Naida, LMI Advisors, to Marlene H. Dortch, FCC, GN Docket No. 18-122, at 1 (Oct. 18, 2019).
[11] Comments of the C-Band Alliance, GN Docket No. 18-122 (Oct. 29, 2018).
[12] Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, FCC, GN Docket No. 18-122, at 1 (Oct. 28, 2019) ("CBA Oct. 28 ex parte").
[13] Letter from Hank Hultquist, AT&T, Ron Smith, Bluegrass Cellular, Peter Pitsch, CBA, John C. Nettles, Pine Belt Wireless, Grant Spellmeyer, U.S. Cellular, and William H. Johnson, Verizon, to Marlene H. Dortch, FCC, GN Docket No. 18-122 (Oct. 29, 2019) ("Private Auction Oct. 29 ex parte").
[14] *C-Band NPRM*, ¶¶ 87, 89. Some commenters believe there is a way to avoid the need to file license applications altogether, a subject that is beyond the scope of this paper.

mobile operators as the winning bidders. Compensation distributed to CBA members would cover repacking costs and ensure uninterrupted service. The CBA has publicly committed to making a "substantial voluntary contribution" to the U.S. Treasury.[15] Since filing its original proposal, CBA has also provided a number of additional details concerning its proposal.[16] As contemplated by the *C-Band NPRM*, a final order in the docket would establish the rules of the road to govern such a market-based approach.

III. The Goals to Be Achieved in the C-Band Proceeding

The C-Band proceeding is one of those rare policy initiatives that offers the opportunity for a win-win-win proposition for consumers, license holders, and government alike. Consumers are seemingly insatiable in their demand for more and better mobile services. Existing license holders are willing to relinquish a significant portion of spectrum they are legally entitled to use. Future license holders are eager to put the spectrum to what they believe is its best and highest use, terrestrial flexible use, including 5G. Government urgently desires to place more mid-band spectrum into the hands of qualified 5G providers to significantly advance consumer welfare by increasing domestic GDP and global productivity, while adding revenues to government coffers.

Additional mid-band spectrum is required in order to permit U.S.-based 5G providers to ensure the United States maintains a leading role in the development of 5G.[17] A number of econometric studies have demonstrated the huge enhanced consumer welfare value associated with wireless services like 5G. For example, in February 2019 the Analysis Group estimated that 400 MHz of mid-band spectrum 5G could spur $274 billion in GDP growth, adding 1.3 million new jobs.[18]

U.S. leadership in 5G will produce enormous benefits for U.S. companies and consumers as well as for the world economy. Some have argued that U.S. leadership in 4G drove a $100 billion increase to the U.S. economy.[19] A major economic spur similarly is expected in the 5G arena as well.

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[15] Testimony of Peter Pitsch, C-Band Alliance, Before the Subcommittee on Communications and Technology of the Committee on Energy and Commerce, U.S. House of Representatives 11 (Jul. 16, 2019), *available at* https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/2_Testimony_Pitsch.pdf ("Pitsch House Testimony").

[16] *See, e.g.*, Letter from Jennifer D. Hindin, Counsel for C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Mar. 4, 2019) (technical statement on protection of earth stations); Letter from Jennifer D. Hindin, Counsel for C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (dated Apr. 9, 2019) (transition implementation process); Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, FCC, GN Docket No. 18-122 (Nov. 8, 2019) (earth station reconfiguration cost reimbursement process).

[17] D. Absecassis, C. Nickerson, J. Stewart, Analysys Mason, Global Race to 5G – Spectrum and Infrastructure Plans and Priorities (Apr. 2018), *available at* https://www.ctia.org/news/global-race-to-5g-spectrum-and-infrastructure-plans-and-priorities.

[18] *See* Analysis Group White Paper, at 1, 4-5.

[19] M. Baker, The Wireless Race the United States Must Win, Morning Consult (Apr. 17, 2018), *available at* https://morningconsult.com/opinions/the-wireless-race-the-united-states-must-win/.

As with most spectrum allocation decisions, multiple goals must be weighed in making a balanced decision as to the spectrum selected and the procedures to be used to accomplish the reallocation. Chairman Pai has expressed his goals for the C-Band proceeding as follows:

> *First*, we are seeking to make available a significant amount of spectrum in the C-Band for 5G. Or to put it another way, the more spectrum that we can make available for 5G, the better. *Second*, we want to make C-Band spectrum available for 5G quickly. *Third*, we believe that this spectrum should generate revenue for the federal government. And *fourth*, we want to ensure that the services that are currently using the C-Band will continue to be delivered to the American people.[20]

Representative. Greg Walden (R-OR), Ranking Member of the House Energy and Commerce Committee, recently seemed to share Chairman Pai's goals, but added three additional ones:

> Third, we must take interference concerns into account when redeploying the spectrum.... Fifth, this process should not overlook the opportunity to also facilitate resources for connecting rural communities with broadband, and upgrading our emergency call centers to Next Generation 9-1-1 (NG911) – all without any deficit spending. Lastly, the process must be fair, open, and transparent.[21]

I submit that Ranking Member Walden's fifth concern, funding rural broadband and NG911, are frequently mentioned legislative goals that are outside the scope of the C-Band proceeding currently being conducted by the FCC. In any event, the C-Band rulemaking proposal makes clear that the FCC is also concerned about protection against interference and ensuring that the allocation process is fair. Therefore, I see substantial agreement between Chairman Pai's and Ranking Member Walden's stated goals, which I share, at least to the extent they serve as pertinent evaluative guideposts. As the analysis below shows, the private market-based approach to allocating C-Band Spectrum appears to hold the promise of meeting all of these goals in a balanced way.

IV. Does the Secondary Market Transaction Option Meet Policymaker Goals?

Robust debate has identified several important issues teed up in the *C-Band NPRM*. All participants agree that repurposing a substantial amount of C-Band spectrum for terrestrial 5G use is of critical national importance. The enormous contribution to overall consumer welfare attributable to such repurposing is widely acknowledged.[22] Although there may be legal issues regarding the lawfulness of a private market auction, I will leave it to others to debate this issue.

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[20] Letter from Chairman Ajit V. Pai, Federal Communications Commission to Senator John N. Kennedy, United States Senate (Oct. 15, 2019), *available at* https://docs.fcc.gov/public/attachments/DOC-360613A1.pdf.

[21] Rep. Greg Walden (R-OR), Testimony Before the Subcommittee on Communications & Technology of the Committee on Energy and Commerce, U.S. House of Representatives (Oct. 29, 2019), *available at* https://energycommerce.house.gov/committee-activity/hearings/hearing-on-repurposing-the-c-band-to-benefit-all-americans.

[22] *See* text accompanying notes 2-4, *supra*.

The crux of the final issues revolve almost entirely around whether a private market option subject to government oversight, or a traditional public auction run by the FCC, would better serve the public interest. I examine below each of the goals set forth by Chairman Pai and Ranking Member Walden to evaluate how the private market procedural option fares.

A. Reallocation of a substantial amount of flexible use spectrum

On October 28, 2019, CBA announced that it would increase to 300 MHz the amount of spectrum it would free up for terrestrial 5G use, including a 20 MHz guard band.[23] This substantial increase in offered spectrum is responsive to public indications from Chairman Pai, and Commissioners Carr and O'Rielly, that 200 MHz of spectrum is an insufficient amount to be reallocated in the C-Band. In order to achieve this substantial increase, CBA committed, at its cost and derived from auction proceeds, to ensure that existing C-band customers could continue to utilize the remaining smaller C-Band spectrum through introductions of "technologies such as advanced modulation, single format transport, and advanced video compression, including High Efficiency Video Coding ("HEVC")."[24]

This larger spectrum commitment helps ensure U.S. mid-band spectrum goals for global 5G leadership are achieved. Coupled with the 70 MHz of mid-band spectrum that could be assigned through Priority Access Licenses granted in the 3.5 GHz band, and the 116 MHz available in the 2.5 GHz band, the CBA proposal would more than double newly available 5G eligible mid-band spectrum. The need for this substantial infusion of new mid-band spectrum is particularly critical because the FCC search efforts for other mid-band spectrum appear to be lagging.

The traditional spectrum reallocation methodology is complicated in the C-Band given its unique licensing scheme where each FSS licensee has the right to transmit over the entire 500 MHz band for the duration of their license terms. Compounding this problem are the thousands of receive-only earth stations (the exact number is not known) owned by independent entities that rely on such transmissions for the delivery of their primarily video and audio content that must be accommodated in the repacking process in the C-Band. All of these operating entities use the spectrum, and the government likely would face serious legal challenges to modify those rights on an involuntary basis. While the FCC can take steps to modify licensee rights, compliance with the statutory method for such modifications is often a lengthy process, and, upon completion, there may be court appeals.

Even setting questions regarding legal rights, the business expectations of the operating entities should not be lightly compromised in the process of changing spectrum usage. Because the operating entities will continue to use a portion of the C-Band, interference concerns must be carefully addressed to ensure continued operations on the repacked portion of the band. The FCC, of course, should recognize the importance of such business expectations and take care to protect incumbent users when transitioning to new licensing schemes.

One has to ask whether it is better to select an option that will certainly achieve 300 MHz, or one where possibly more spectrum could be reallocated, and maybe less. After all, the TV broadcasters offered to sell about 126 MHz of low band spectrum for 5G use in an incentive

[23] CBA Oct. 28 ex parte at 1.
[24] *Id*.

auction, but only 70 MHz were reallocated for licensed use based on actual auction bids. The old adage, "A bird in the hand is worth two in the bush," is pertinent here.

B. Quickly reallocating relinquished spectrum for 5G use

There is little question that a delay in reallocating a portion of the C-Band will risk incurrence of societal costs because the record consensus appears to conclude that the current C-Band licensing structure is not the highest and best use of the band. FCC Commissioner Michael O'Rielly frequently has advocated for a market-based approach for the C-Band precisely because of the promise of a quicker reallocation of the spectrum.[25]

The Brattle Group estimated that for every year of delay in reallocating a portion of the band, the value of the spectrum subject to the delay decreases from 7 to 11 percent per year. This decrease in value for every year of delay in reallocating spectrum would impose total social costs of $10 to $20 billion.[26] In addition, NERA estimates that rapidly reallocating C-Band spectrum to 5G could add approximately $540 billion of annual tax revenues.[27]

One major alternative procedural proposal to reallocate spectrum in the C-Band is an FCC-run incentive auction, such as the one repurposing over-the-air television broadcasting spectrum to flexible mobile use. That auction is taking over six years to complete from the time the FCC decision[28] establishing the auction was released to the date the entire transition process is expected to take place.[29] This is some three years longer than the suggested timetable for the private market-oriented auction approach. Of course, because the TV incentive auction was the first of its kind, another incentive auction might not take quite as long to formulate and complete because some of the initial issues have already been addressed and tested.

But a government-run C-Band auction would be complicated because, among other things, transponder capacity and signal strengths are not consistent within the same band, legal issues regarding compensation to existing users and government proceeds would continue, and the difficulty of dealing with holdouts. And replacing lost capacity will require new satellite launches, which can be more complicated and time-consuming than changing out tower-based transmitters. The anticipated three additional years to complete a government-run auction means a significant delay in the 5G deployment race, one that will entail significant overall societal costs as indicated previously. On July 7, 2019, Chairman Pai indicated that FCC staff believe that an incentive auction in the 2.5 GHz band would have added several years to the process.[30]

While I understand that the projections regarding completion of the repurposing are necessarily estimates – and I don't purport to vouch for their precision – I do think it is likely that a process employing market-based voluntary exchange along the lines proposed by CBA can be completed

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[25] *See, e.g.*, *C-Band NPRM*, Statement of Commissioner Michael O'Rielly.
[26] Brattle Group White Paper at 27 & note 72.
[27] NERA White Paper, ¶ 30.
[28] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report & Order, Docket No. 12-268, 29 FCC Rcd. 6567 (2014).
[29] Public Notice, *Incentive Auction Closing and Channel Reassignment*, 32 FCC Rcd. 2786 (2017) (July 2020 is the expected completion timeframe for the final phase of repacking).
[30] Chairman Ajit Pai, Press Conference (Jul. 10, 2019), *available at* https://www.fcc.gov/news-events/events/2019/07/july-2019-open-commission-meeting.

more quickly than can the Commission's traditional auction process. And although economic estimates of future value are reasonably debatable, the general thrust of the economic benefits realized by early reallocation of C-Band spectrum for 5G service cannot be seriously challenged.

Scheduling an FCC-run auction has been slow for other spectrum, with the 3.5 GHz auction scheduled to commence on June 25, 2020. It is just a fact that government-run processes historically are considerably drawn out, which is a downside to an FCC incentive auction procedure. Indeed, even though the FCC opened up the 2.5 GHz band for 5G reallocation in July 2019, that auction most likely will not even commence until late 2020 or early 2021 because of auction system scheduling issues. Doing the math, if the FCC decides to conduct a government-run auction in December 2019 as is rumored, scheduling of the first round of a C-Band incentive auction might not begin until mid-2021, 18 months after the decision. In contrast, CBA commits to complete its process for the first 100 MHz of spectrum in 46 of the top Partial Economic Areas in 18 months from the date of the CBA conducted auction, with the remainder in 36 months.[31]

And legislation itself, if passed by both houses of Congress and signed by the President, based on historical precedent, would delay the process by at least a year, thus further delaying the entire reallocation process. History shows that new legislation frequently does not eliminate litigation over FCC decisions implementing the legislative text.

In sum, when they are permitted, voluntary, private market-based transactions can produce the opportunity to achieve the highest and best use for spectrum, as opposed to government fiats. Private transactions can reduce overall costs, particularly regulatory and litigation costs, and they arguably can achieve results more swiftly than government decisionmaking. Given the unique characteristics of the C-Band licensing scheme, implementation of a market-based proposal should reduce additional detailed time-consuming processes at the Commission that otherwise would be required in managing the transition to terrestrial mobile use.

C. A substantial contribution to the federal treasury

A significant point of contention about whether C-Band spectrum would be reallocated pursuant to a government-run or private auction revolves around the possibility that the procedure would produce revenues to the government. House of Representatives committees have held two hearings focusing on the potential to achieve significant auction revenues through reallocation of C-Band spectrum, accompanied by the introduction of the bi-partisan legislation.[32] Senator John Kennedy (R-LA), Chairman of the Financial Services and General Government Subcommittee of the Senate Committee on Appropriations, has been vocal about his insistence that a public-run auction is necessary to generate auction revenues.[33]

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[31] CBA Oct. 28 ex parte at 1. I presume that the CBA auction process could be completed fairly promptly after FCC decision because it does not face the FCC's scheduling issues.

[32] Clearing Broad Airwaves for New Deployment (C-BAND) Act, H.R. 4855 (referred to the House Energy & Commerce Committee Oct. 24, 2019) (requires 200 to 300 MHz of C-Band spectrum to be subject of competitive bidding by September 30, 2022).

[33] October 17 Senate Appropriations Spectrum Hearing.

Obtaining a substantial contribution for the U.S. taxpayers is one of the important goals of the C-Band reallocation effort. Radio spectrum is a U.S. resource that ultimately is owned by the American public. No one has a perpetual right to use that spectrum, but licensees must comply with FCC rules, and the FCC has the responsibility of managing that resource for the public benefit of all Americans. Recognition of these facts is consistent with the need to promote consumer welfare in achieving the highest and best use of the radio spectrum.

But as both Chairman Pai and Ranking Member Walden said, it is only one of the factors that should be balanced against the other important goals. It is important to remember that other spectrum allocations do not achieve auction revenue for the U.S. taxpayer. For example, TV broadcasters did not pay for their spectrum when they converted to digital TV frequencies. Unlicensed users do not pay for spectrum in an auction. Thus, other important policy goals apparently have tipped the balance in those cases in favor of foregoing direct government auction revenues to achieve overall consumer welfare benefits. I submit that achieving global leadership in 5G is critical to the American economy, a goal that, if plans are implemented as proposed, could be achieved more certainly and more quickly with a market-based mechanism as proposed in the *C-Band NPRM*.

CBA is offering to make a "significant voluntary contribution" to the U.S. treasury from funds that the members achieve in the market-based transaction process.[34] It is, of course, not possible at this point to estimate a contribution amount before the secondary market transactions are completed and customer and licensee reconfiguration costs are covered. To my mind it is unimportant whether that significant contribution be achieved pursuant to a government law or voluntarily submitted because the end result would be the same. Given CBA's commitment, it does not appear that potential auction revenues are a reason to choose either the government-run auction or private market option.

D. Protection of existing customers

Protection of C-Band earth station customers should be a high priority. Indeed, disruption of the substantial video and other services that C-Band licensees deliver to their customers is an important element of communications competition and GDP. All sides of the debate agree with this goal, although they propose different methods of achieving it.

The *C-Band NPRM* makes this goal a threshold requirement before any reallocation procedure is adopted.[35] CBA has from the beginning made protection of C-Band customers a vital part of its plan, agreeing to pay out of private market transaction revenues the costs for any reconfiguration necessary to preserve existing service, including launching eight new satellites to maintain existing coverage. More recently CBA has agreed to pay an additional $2.5 to 3.5 billion to customers to deploy improved compression technologies that allow existing services to be delivered over a smaller slice of spectrum. Customers would have the option to choose a reasonable, cost-effective alternative that suits their business needs.

The FCC should apply its technology neutral policies to the extent practical. Placing the decisions in the hands of users and satellite providers to improve technology, consistent with

[34] Pitsch House Testimony at 11.
[35] *C-Band NPRM*, ¶ 27.

overarching spectrum needs, can be a more efficient and cost-effective choice that top down government mandates. A free market-oriented approach has repeatedly demonstrated its ability to ultimately deliver the best choices for the American consumer.

But again, because end user protection, subject to FCC oversight, is a threshold requirement of any procedural option, this goal should not be a factor in deciding whether to employ a public-run auction or private market transaction option.

E. Protection against harmful interference

The *C-Band NPRM* highlights the importance of ensuring that spectrum allocation will protect against harmful interference.[36] All customers must be afforded that protection in order to make sure their services are reliable. Consistent with all past spectrum allocations, the FCC is likely to meet this goal through the issuance of technical rules.

Once again, because protection against harmful interference is a prerequisite, it should not be a factor in whether to employ a public-run auction or the private market option.

F. Achieving fairness in the sale process

Another significant debate point has been whether the "private auction" design of the CBA will give potential participants a fair opportunity to participate in the process, something they say can only be guaranteed with a government-run auction. Ranking Member Walden describes this goal as the promotion of a fair, open, and transparent process.

The FCC itself has sought comment on the extent to which it should oversee the private secondary market transaction process to promote competition, an open market, and transparency.[37] The FCC has the ability to achieve this goal in the final order setting the parameters of the C-Band reallocation process.[38] The evidence has shown that free market principles, consistent with a fair and open process, have more often than not achieved positive results for the American public. As long as the FCC establishes the ground rules, fairness is attainable under the private market option.

V. Conclusion

The FCC should strive to reach a prompt balanced decision that reallocates a substantial amount of mid-band spectrum in the C-Band. In light of the trade-offs and complexities involved, from a public policy perspective, I submit that a market-based proposal along the lines of the CBA proposal, relying substantially on a process of private market voluntary exchange, is attractive. All things considered, including the time required to achieve the actual repurposing of this valuable mid-band spectrum, a private auction is most likely to maximize the increase in consumer welfare benefits for the American public.

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[36] *E.g., id.*, ¶ 26.
[37] *Id.*, ¶¶ 83-86.
[38] I should note that recently a consortium of potential C-Band 5G licensees, in conjunction with the CBA itself, agreed that the CBA should use a "multi-round ascending clock auction format" that the consortium describes as transparent to all potential bidders, open to all qualified bidders, and subject to FCC prohibited communications rules. Private Auction Oct. 29 ex parte.

* Gregory J. Vogt is a Visiting Fellow of the Free State Foundation, an independent, nonpartisan free market-oriented think tank located in Rockville, Maryland.

Further Reading

Randolph J. May & Gregory J. Vogt, "NTIA Report Identifies Mid-Band Spectrum Repurposing Opportunities," *Perspectives from FSF Scholars*, Vol. 14, No. 28 (October 2, 2019).

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Gregory J. Vogt, "The Race for Global 5G Leadership: Where Are We Now?" *Perspectives from FSF Scholars*, Vol. 14, No. 7 (March 5, 2019).

Gregory J. Vogt, "STREAMLINE 5G Processes to Match the Speed of Business," *FSF Blog*, (July 9, 2018).

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