



Before the
DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, DC 20230

In the Matter of: National Spectrum Strategy Implementation Plan Request for Input

COMMENTS OF THE NATIONAL SPECTRUM CONSORTIUM

The National Spectrum Consortium (“NSC”) appreciates the chance to respond to NTIA’s Public Notice of Opportunity for Public Input (“PN”) on the Implementation Plan for the National Spectrum Strategy (“the Strategy”) released in November. NSC and its members are enthusiastic about the possibility of coordinated federal action to unlock more innovation in spectrum policy, and the opportunity to create a foundation for mobile communications development that is built on American strengths.

NSC believes that it can be a close partner for NTIA in the implementation of the Strategy, as it is uniquely positioned to provide insight and experience based on our track record hosting other successful public-private partnership efforts in spectrum and wireless technology innovation. NSC can also provide a non-biased perspective on reasonable timelines for addressing spectrum matters through its diversity of membership, balancing the economic urgency for new commercial spectrum with the need for practical solutions that satisfy the government’s operational and security requirements.

I. INTRODUCTION

The NTIA’s National Spectrum Strategy strongly affirms the role that spectrum plays in national security, consumer broadband access, public safety, medical care, education, multimodal transportation, and commercial industry operations. It also persuasively makes the argument that multiple stakeholder interests must be considered as demand for spectrum continues to grow, and that current government systems and policies must evolve to meet this challenge.

As the NTIA develops its Implementation Plan, it is understood that the principles outlined in the Strategy and informed by the White House memorandum will guide its effort.

Implementing the Strategy will require creating: a pipeline of spectrum bands to meet commercial and government needs; new data-driven processes for long-term spectrum planning; methods to assess different types of spectrum governance; plans for investing in emerging technologies to improve efficiency of spectrum use, including spectrum sharing; and recommendations for a mechanism to manage shared spectrum access going forward.

In the immediate term, the NTIA has also been tasked with developing a schedule for detailed studies of pipeline spectrum bands to be completed within two years.

Toward the objectives of the Implementation Plan, the NSC is providing specific recommendations and input on the following items:

- **Development of a multistakeholder process** for examining current usage of and requirements for priority spectrum bands, helping to achieve Pillar One in the Strategy
- **Guidelines for sharing study outcomes**, with appropriate guardrails in place to protect classified information, and developing concrete actions based on those outcomes, aligned with achieving Pillar Two
- **Creation of a clear path for developing new spectrum management solutions** with incentives that include funding to support research and prototyping work, per Pillar Three

II. PILLAR ONE: MULTISTAKEHOLDER PROCESS

The NTIA's Strategy clearly states the need for a new process for managing spectrum access that addresses the requirements of both commercial and government spectrum users. In its introduction, the Strategy asserts that, "simply put, the United States needs a better and more consistent process for bringing the public and private sectors together to work through the difficult issues surrounding access to spectrum, including dynamic forms of spectrum sharing."

Further, Pillar One of the Strategy lays out five spectrum bands targeted for immediate investigation. Investigating these initial bands should form the basis for the longer-term goal of establishing "a persistent strategic spectrum planning process," and developing "an evidence-based national spectrum decision-making methodology."

NSC is in full support of the need for better, closer coordination across existing federal advisory groups, industry trade groups, researchers, and innovators in the spectrum space. In many cases, private spectrum users lack full understanding of federal uses of spectrum, while federal spectrum stakeholders focused on a particular mission are not always aware of technology development and innovation that could make sharing or repurposing spectrum more feasible.

In order to bring the public and private sectors together, NSC recommends the creation of a multistakeholder process to supplement the existing spectrum repurposing process under the Commercial Spectrum Enhancement Act (CSEA). This process would be facilitated by an NSC-hosted working group, called here the Spectrum Solutions Group (SSG). It would run as a joint industry-government effort through which detailed technical analysis could be conducted, and any required research and development or prototyping to facilitate clearing or sharing would be orchestrated.

Technical study has historically been a friction point in spectrum repurposing or clearing efforts. Generally, the process begins with NTIA conducting an analysis of bands for clearing or sharing. Then the affected agencies themselves conduct a more detailed analysis and make recommendations back to NTIA about the extent to which, and under what circumstances (e.g., use cases, costs, time, technical considerations) the band could be repurposed or shared.

However, agencies, including the military services, generally lack the resources, personnel, and industry knowledge to effectively conduct the right level of analysis. This results in distractions from their missions, incomplete analysis, and industry backlash. The SSG would enhance current government agency efforts by assisting NTIA in conducting studies of priority spectrum bands identified by the NTIA and combining those studies with a multi-stakeholder process for technical review and analysis of the results.

NTIA has long supported the multi-stakeholder process as a means to globally govern the Internet; a replicated formula for spectrum study allows all interested parties to participate in the process leading to better outcomes.

The process would build on the model of the Partnering to Advance Trusted and Holistic Spectrum Solutions (PATHSS) working group, and its classified subgroup (PATHSS-C). PATHSS was initiated by DoD to enable robust collaboration across government, industry, and academia and convened by the NSC from November 2021 through September 2023. PATHSS included more than 50 commercial members across a number of industry segments, including defense, communications, satellite, and IT companies. In addition, the group has significantly benefited from the added input of over a dozen academic researchers, and an even larger number of small, non-traditional performers.

The SSG would expand on this effort by using NSC and its consortium to become a national resource for optimizing spectrum management and coexistence through joint study, testing, and ultimately technology development.

The experience gained as the sponsor of the PATHSS working group has further convinced NSC leadership and its members that the honest, direct, and candid sharing of technical details regarding both military and civilian communications systems is necessary to further the technology of spectrum sharing and coexistence. The PATHSS working group included the frank exchange of complex, detailed, and sometimes classified information about the current uses and future needs of spectrum by federal users. It also successfully brought together defense industrial partners, federal spectrum users, communications companies and their vendors, academics, policy leaders, and innovators in a way no other forum has before. Representation from these important stakeholders is necessary to solve the thorny problems that arise in spectrum discussions, and each of these groups will be necessary to further the innovation that will power new spectrum technology.

To meet NTIA’s two-year deadline to produce studies of targeted spectrum bands, we recommend taking advantage of NSC’s infrastructure, membership, and experience with the PATHSS working group. NSC can immediately convene stakeholders and act on the NTIA’s requirements for new spectrum study efforts.

III. PILLAR TWO: STUDY OUTCOMES THAT LEAD TO CONCRETE ACTIONS

Pillar Two of the Strategy calls for “collaborative long-term planning to support the Nation’s evolving spectrum needs.” Ensuring collaboration in this complex and technical field requires building faith in any new spectrum planning efforts. As the Strategy states, “there are no easy spectrum allocation choices.” It follows that without trust in the process, spectrum stakeholders are likely to mount significant resistance when spectrum decisions require difficult compromise. Resistance may create delays and technology deployment obstacles, which then have the potential to negatively affect the nation’s security and economic interests.

Specifically, Strategic Objective 2.2 sets forth the requirement to “develop and document an evidence-based national spectrum decision-making methodology.” Two issues have previously hampered trust and collaboration across spectrum stakeholder groups. The first is a lack of common, shared data on spectrum use and requirements, both for federal systems and commercial systems using spectrum. The second is a lack of defined next steps after advisory studies and calls for stakeholder input are completed. These initiatives often require stakeholders to invest large amounts of time and effort, and when concrete actions do not result from that investment, trust in the process may reasonably be forfeited. Further spectrum studies without a plan of action are not likely to encourage robust voluntary participation from a wide set of stakeholders and will result in fewer pathways to innovation in spectrum use and sharing.

Discussions of spectrum sharing up to this point have often been focused on solutions that modify defense uses to make room for commercial auctions. However, the notion of spectrum sharing must be expanded to include sharing across federal users, sharing among various systems and use cases, network slicing and virtualization, and other more complex – but achievable – technical advances.

Any study of spectrum bands should include workshops and technical spectrum modeling to understand the current uses of a particular band and opportunities to share. However, it is critical that this effort also include joint concept development and other technical brainstorming efforts to produce novel and creative spectrum management solutions.

Crucially, spectrum stakeholders must proceed beyond theoretical studies and modeling of possible new spectrum technologies. The output of future spectrum studies must produce timely recommendations to government agencies on ways in which to share, economize, or otherwise use more efficiently the spectrum bands of interest, and must lead to further funding for the development and prototyping of recommended spectrum sharing approaches.

NSC urges the use of the Spectrum Solutions Group described above to develop recommendations for further spectrum sharing technology development.

Often, as with the recent report on the lower 3GHz band, participants are left disagreeing with each other about the feasibility of spectrum sharing approaches after reviewing the results of simulations and technical models. By adding an opportunity to develop, prototype, test, and even publicly demonstrate proposed solutions, NTIA can build confidence and trust among spectrum stakeholders as to the likelihood of success across different spectrum coexistence models.

IV. PILLAR THREE: INCENTIVES FOR DEVELOPING NEW SPECTRUM MANAGEMENT SOLUTIONS

As discussed above, NTIA has acknowledged the importance of developing new technologies that better enable spectrum coexistence and sharing. Specifically, the Strategy makes the point that “embracing and promoting innovative technologies that can expand the overall capacity or usability of spectrum is vital to our Nation.”

The NTIA also recognizes in the Strategy that investment is required to stimulate that technology development. With its fellow federal agency partners, the NTIA intends to identify methods for driving government investment toward efforts that effectively tackle “spectrum efficiency, improved system flexibility, and enhanced adaptability.”

NSC agrees wholeheartedly with this conclusion, and we believe it is critical for NTIA to create a funding mechanism to support the research and prototyping work required to make repurposing spectrum possible. In addition to its unique convening expertise, NSC has been successful in using an Other Transaction Authority (OTA) contract to offer a rapid and flexible pathway for funding competitive prototyping and demonstration efforts to test new spectrum-based technologies. NSC would work with NTIA, DoD, and other interested agencies to provide a contracting mechanism for spectrum technology development projects prioritized by the government, and can offer access to telecom industry incumbents, new entrants, traditional government contractors, and innovators looking for federal partnerships.

As it has with over 100 spectrum technology projects worth over \$1.2B, NSC would assist NTIA in the development and release of competitive solicitations to its membership of nearly 400 companies and academic institutions focused on telecom, information technology, aerospace, and defense for R&D awards. NSC would then facilitate the sharing of results from these awarded projects to inform future spectrum policy decisions, both with its in-house communications team as well as via coordination with its nearly 400 industry members and their broad reach.

Furthermore, NSC has recently reorganized into a 501(c)6 non-profit organization in order to broaden its ability to match federal government technology needs to the abilities of its membership. NSC's new structure allows it to not only accept OTA contracts and opportunities, but also to also pursue grants from other federal agencies that are aligned with its mission and vision. This can include both formal US government challenge programs as well as grants and other partnerships that can be structured to achieve some of the rapid, flexible, and competitive benefits of OTA or challenge programs while using the same basic financial, administrative, and programmatic infrastructure that already exists within NSC.

One potential source of funding for this effort is the Spectrum Relocation Fund (SRF). As stated above, true innovation in the use and sharing of spectrum will require more than simple relocation of federal spectrum users and their systems. We believe that the mission and goals outlined above are well aligned with the statutory purpose of the SRF. Furthermore, the effectiveness of the SRF is diminished substantially if it cannot allow for the study and demonstration of new spectrum sharing methods prior to an auction and relocation.

Use of the SRF in this way may require changes to the administration of the SRF and or its authorizing legislation; this has been done before in 2015 and is critical to ensuring that the Strategy is fully implemented and the benefits of new spectrum technology are fully realized.

V. CONCLUSION

NSC shares NTIA's commitment to a forward-focused National Spectrum Strategy. NTIA has released the Strategy, but now the real challenge begins: implementation. NSC stands ready to support this next phase and hopes to work closely with NTIA to create a multistakeholder process, study key bands, and help create the right incentives for spectral efficiency, coexistence, and sharing.

Respectfully submitted,

National Spectrum Consortium



Joseph Kochan
CEO

January 2, 2024