Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services	**WT Docket No. 11-186**

COMMENTS OF NEXTG NETWORKS, INC.

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NextG Networks, Inc., on behalf of itself and its operating subsidiaries, NextG Networks of NY, Inc., NextG Networks of California, Inc., NextG Networks Atlantic, Inc., and NextG Networks of Illinois, Inc., (collectively "NextG"), files these comments in response to the Public Notice issued by the Wireless Telecommunications Bureau on November 3, 2011 ("Public Notice").

I. INTRODUCTION

NextG deploys next generation networks and services that support the ability of Commercial Mobile Radio Service ("CMRS") providers to deploy wireless services. As more fully explained below, NextG's facilities are comprised of distributed antenna system ("DAS") and other small-cell solution ("SCS") networks that provide scalable infrastructure to support deployment of wireless services, including 3G and 4G, in diverse geographic areas to reach densely-populated and residential areas that are necessary for carriers to compete in light of consumer elimination of traditional landline telephones.

NextG installs many types of SCS networks that all share the common characteristic of distributed antennas fed through fiber from a central control location. A DAS SCS network is an RF-to-optical-to-RF system. The advantage of this DAS configuration is that it interfaces with the operator's traditional base station equipment at its antenna connector. Electronics next to the mobile base station equipment converts the RF signal to an optical signal, which is carried along a fiber strand until it reaches a remote site. At the remote site, additional DAS electronics convert the signal back to the original RF signal. Operators with second- and third-generation technology typically use this type of system. Other SCS networks utilize an optical-driver-to-fiber-to-RF system configuration. This type of SCS is becoming more popular. The optical output of the mobile base equipment drives light along the optical strands until it reaches the remote site, where, for the first time, the signal becomes a licensed mobile RF signal. This

approach avoids one RF conversion step and generally results in a better RF signal. Long term evolution ("LTE") and WiMAX operators often deploy this type of system. The names of SCS system units utilizing this network architecture vary with manufacturer and technology, but examples are picocells and remote radio units. Another SCS network configuration involves a centrally controlled Wi-Fi wireless local area network, where a large number of Wi-Fi Access Points are joined by fiber-fed switches and routers into one large controlled network. These systems have a sophisticated set of protocols for security, monitoring, quality of service, etc. They can support completely isolated private networks, so that multiple mobile operators can share a single infrastructure and air space. As far as smartphone users are concerned, they have attached to their own operator's Wi-Fi network and the users are unaware of the shared network.

As the Commission has recognized, these types of network configurations already play an important role in the deployment of wireless broadband services and will continue to do so.[1] In particular, SCS network architecture plays a critical role in deploying broadband wireless services to hard to reach areas and in strengthening network capacity. Wireless broadband deployment today does not only mean generalized coverage at an "on-street" level. Consumers demand access to wireless broadband in their homes, businesses, and most public facilities, and high bandwidth data uses are driving demand. Thus, providing highly localized service with adequate network capacity is a critical goal for wireless broadband deployment and wireless competition. However, as described in these comments, NextG has encountered many impediments to timely and efficient deployment of its SCS networks, which in turn impedes competition in the wireless services that NextG's services and networks support.

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[1] *See Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting*, Notice of Inquiry, 26 FCC Rcd. 5384 (2011).

NextG has relevant experience regarding the wireless infrastructure questions raised in the Public Notice. For example, the Public Notice seeks comments regarding barriers to entry and exit conditions, including "tower siting policies" and also seeks information regarding access to network infrastructure (including "to what extent do regulatory and zoning approvals from state and local government authorities act as barriers to tower and cell site deployment," Public Notice at 14). As NextG explains below and in its submissions in the Commission's *Broadband Acceleration* Notice of Inquiry Docket, WC Docket No. 11-59, local regulatory barriers are impeding deployment of wireless infrastructure, thus having a significant impact on the state of wireless competition generally.

II. BACKGROUND ON NEXTG

NextG is at the cutting edge of the provision of telecommunications services, using existing advanced technologies and capabilities as well as exploring the development of new technologies. At the most general level, NextG provides telecommunications services to wireless carriers as a carrier's carrier. NextG's telecommunications services allow its wireless carrier customers to increase capacity and bandwidth to provide the next generation of broadband wireless services. NextG provides such a platform for its customers through SCS network architectures primarily utilizing fiber-optic cable and small antennas mounted on infrastructure in public rights-of-way, such as utility poles and lamp posts.

NextG, however, does not itself hold wireless licenses or provide wireless service. Instead NextG provides wholesale telecommunications services, primarily to licensed wireless carriers. To date NextG has been granted certificates of public convenience and necessity to provide telecommunications services in 35 states, Washington D.C. and Puerto Rico. Utilizing existing public infrastructure, NextG has been able to deploy in numerous markets across the country, thereby improving the ability of its carrier customers' to enter the market and/or

compete more effectively with minimally intrusive installations.

NextG s telecommunications service and network are currently utilized primarily by CMRS providers; however, NextG's networks and services are also used to provide service to other wireless broadband service providers. Although networks are typically built at the request of a single provider, NextG can and does host multiple carriers on the same network and is therefore an efficient, cost-effective alternative for the deployment of multiple wireless telecommunications facilities.

As wireless providers seek to deploy the next generation of broadband wireless services, one of the central obstacles they face is the technical limitations of traditional high site antenna towers and local management of their placement. Traditional towers and rooftops are good solutions for providing low-capacity, wide area coverage (assuming the sites can be built or acquired where they are needed). As demand for capacity on the network grows, however, more and more sites must be added to the network so that the frequency spectrum that a particular operator owns can be re-used more often.

One of the most effective ways to add sites is through the use of low site antennas. The low antenna sites facilitate a greater re-use of the wireless spectrum since the antennas are well isolated from each other, thus resulting in a much higher capacity and quality network that cannot be delivered by traditional means. In addition, a network of low sites in an urban area can provide coverage in many areas that would be shadowed by traditional antenna locations. Higher capacity and greater coverage in turn are the necessary building blocks for wireless broadband.

The SCS networks that NextG installs typically are comprised of (1) fiber-optic cable, attached horizontally to utility poles in the traditional manner; (2) small pole-mounted antennas;

and (3) small pole-mounted equipment boxes containing transmission electronics. While NextG serves wireless providers and incorporates antennas into its network, NextG's system consists primarily of wireline (fiber-optic cable) deployments. The equipment NextG is deploying for its current networks typically includes either an omnidirectional antenna or a directional panel antenna, as well as an equipment box located on the pole's unusable space in various sizes depending on the particular deployment.

The benefits and characteristics of SCS network architecture makes it particularly well suited to support innovation in the wireless industry. These characteristics include the following:

- **Wireless Broadband Delivery Platform**. In addition to carrying traditional mobile voice communications, NextG's SCS networks permit carriers to offer a full suite of next generation mobile broadband services, including 3G and 4G services, Internet access, Wi-Fi and WiMAX.
- **Host for Multiple Carriers**. Although frequently focused initially on a specific customer's needs, NextG's SCS networks can and do host multiple carriers and are therefore an efficient, cost-effective alternative for the deployment of multiple wireless telecommunications facilities.
- **Technologically Neutral Platform.** NextG's network solutions are "protocol agnostic" and are optimized to carry all RF traffic including GSM, CDMA, EDGE, EV-DO, 1xRTT, UMTS, WiMAX, LTE, as well as traditional backhaul.
- **Diverse Geographic Options and Scalability**. NextG has deployed SCS networks in a variety of geographic settings, including
    - major metropolitan areas such as New York City, Los Angeles, San Francisco, Chicago, Detroit, Boston, Philadelphia, Atlanta, and San Diego;

- suburban areas such as Carlsbad, Encinitas, Compton, Malibu and Del Mar, California; and Brookline, Cambridge, Somerville Massachusetts;
- on college campuses such as the University of Notre Dame, University of California - Santa Cruz, and San Diego State University;
- and even rural areas, such as Highway 50 in the Sierra Nevada Mountains.

Because NextG's SCS networks are completely scalable, they can range in size from a few nodes covering a limited area (for example, to fill in a discreet wireless coverage gap) to a specific neighborhood, or even a major metropolitan area. This gives SCS networks the flexibility, for example, to facilitate targeted wireless broadband access in underserved areas, such as in low-income neighborhoods or to deliver broader access across a broader region. Although SCS has historically been used primarily in more densely populated areas because it offers the prospect of a higher return on investment, SCS systems are well suited for deployment in rural areas as well.

- **Rapid Deployment**. Because SCS networks use pre-existing infrastructure, such as utility poles, lamp posts, and street lights, these networks are capable of being deployed in a matter of months – ***if*** reasonable access to infrastructure exists and local regulatory approval can be secured in a timely fashion.

III. LOCAL REGULATIONS ARE IMPEDING DEPLOYMENT OF NEXT GENERATION TECHNOLOGY, CREATING BARRIERS TO MARKET ENTRY AND COMPETITION

In the Public Notice, the Bureau recognizes the important impact of infrastructure deployment on market entry and competition. In Section I.D. of the Public Notice, regarding "entry and exit conditions," the Bureau recognizes that barriers to entry in the mobile wireless services industry include factors such as tower siting policies, and seeks comment on the effects of these policies. Public Notice at 5. The Bureau also recognizes that mobile wireless services

depend critically on access to productive inputs such as network infrastructure and backhaul. Accordingly, the Bureau asks "how the structure of the infrastructure sector affects competition…" Public Notice at 14. In particular, the Bureau asks "to what extent do regulatory and zoning approvals from state and local government authorities act as barriers to tower and cell site deployment." *Id.*

NextG agrees with the Bureau's assessment that the ability to deploy new infrastructure and access supporting services, such as NextG's and its competitors', is a critical factor in the ability of wireless carriers to enter new markets, offer new services, reach new customers, satisfy growing consumer demands, and ultimately, therefore, compete. As discussed above, NextG's services and networks help wireless carriers do those things and compete. However, NextG too frequently has encountered local regulatory schemes or local actions that significantly impede or effectively prohibit the ability to deploy NextG's facilities and provide its services to its wireless carrier customers, which means that in turn they are slowed or prevented from competing in the retail market.

NextG has submitted comments and reply comments in the Commission's *Acceleration of Broadband Deployment* Notice of Inquiry, Docket No. 11-59, in which NextG provides detailed discussions of the ways in which local authorities impede the deployment of networks and services. NextG will not repeat its submissions here, but as set forth in detail in NextG's comments in that Docket, local impediments take numerous forms and have various impacts.

As the Commission recognized in its "Shot Clock" Order,[2] speed of deployment is critical, but all too often NextG continues to encounter significant delays in its attempts to

[2] *Declaratory Ruling Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local*

deploy. Significant delays are frequently encountered because of overly complex, burdensome, discretionary, undefined, and discriminatory local permitting processes. The application processes employed in many jurisdictions lack clarity and are applied on a differential basis. Application components and other required submissions often change as the application process progresses, as do critical elements such as hearings. The lack of established timeframes for the permitting process makes it very difficult for companies such as NextG to gauge construction and deployment timelines. The end result is thwarted investment because companies such as NextG cannot construct wireless broadband networks on time or their proposals are rejected during project awards because they cannot provide firm cost and time parameters.

The Commission should understand that NextG spends untold hours simply attempting to obtain from local officials a clear and definitive picture of the permitting requirements. Yet, all of these municipalities already have multiple companies occupying the public rights of way with various poles, lines and equipment. At absolute minimum, operators should be able to fairly quickly and clearly ascertain the process by which they may install facilities in the public rights of way. Unfortunately, that is not the case in numerous communities. Moreover, although these processes are already expensive, cumbersome and protracted, often the only alternative to complying with the municipal requirements is to engage in litigation with the municipality, which then creates an adversarial relationship and does not guarantee a favorable outcome with any investment of time and expense.

A critical issue facing the deployment of SCS is the widespread differential treatment imposed on SCS compared to similarly-situated entities. NextG's telecommunications service is not a wireless service. It is fundamentally a wireline transport service, and thus, it is subject to

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Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance, Declaratory Ruling, 24 F.C.C.R. 13994 (Nov. 18, 2009).

traditional regulation by state public utilities commissions. Moreover, the facilities it installs are the same basic size and shape as the many other telecommunications and public utility facilities that are also installed on utility poles in the public rights of way. Yet, cities frequently subject NextG to radically different, more time consuming, expensive, and discretionary processes (typically under the guise of "zoning") than are imposed on other right of way occupants – including direct competitors of NextG. The sole basis for the differential treatment is the incorporation of small wireless antennas in NextG's network. However, those antennas are still of the same size if not smaller than most other attachments to the poles. Thus, the requirements imposed are a result of the wireless nature of the transmission, not any legitimate, objective right of way management interest.

Moreover, many communities' requirements do not reflect changes in technology. NextG's SCS networks, with antennas as small as 18 inches tall and 1 inch in diameter, installed on existing utility poles, are often lumped into the same local requirements as lattice towers and similar structures. Other delays and impediments are caused because some local authorities simply lack any set procedures and standards, which leads to discretionary, arbitrary, and *ad hoc* treatment (that is, again, not how those cities treats other right of way occupants). Regulatory uncertainty, which inhibits or prohibits investment in deployment, is further exacerbated by the widespread lack of uniformity in treatment. NextG has encountered widely differing local regulatory treatment by closely proximate cities. Thus, when attempting to deploy a regional network, NextG may face radically different procedures, standards, and timeframes.

Local authorities, often with the help of consultants, also are frequently imposing a third tier of regulation, primarily by controlling and denying the issuance of permits based on their own determination of sufficient service coverage and capacity. NextG also has encountered

some states that have inhibited deployment by granting a single entity access and control over state rights of way, placing NextG's and others' ability to deploy in the hands of a competitor.

The result of these barriers is an impediment to the ability of NextG's wireless carrier customers to deploy new services, adequately serve consumers, and enter markets quickly to compete with other carriers. Accordingly, NextG encourages the Bureau and the Commission to acknowledge these problems and the widespread damage that they cause for the deployment of wireless networks in its report to Congress.

IV. CONCLUSION

NextG hopes that the foregoing information helps the Commission understand some of the many impediments that interfere with the deployment of NextG's facilities and services and in turn interfere with market entry and robust competition in the wireless services market. NextG encourages the Commission to use this and its other dockets to take any and all steps within its authority to eradicate the impediments to the deployment of DAS and other SCS network facilities to ensure a national coordinated effort to improve rights of way and wireless facilities siting policies.

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Respectfully submitted,

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