

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Inquiry Concerning Deployment of Advanced
Telecommunications Capability to All Ameri-
cans in a Reasonable and Timely Fashion

GN Docket No. 17-199

COMMENTS OF DEERE & COMPANY

Deere & Company (“Deere”), by its undersigned attorneys, submits these Comments in response to the Notice of Inquiry in the above-captioned docket.¹ Deere is a world leader in the manufacture of agricultural, construction, and forestry machinery, diesel engines, and other machinery equipment. It provides advanced construction equipment to builders of infrastructure, and agricultural and other equipment and services to customers that cultivate, harvest, transform, enrich and build upon the land to meet the world’s dramatic increasing need for food. Deere has delivered innovative equipment since 1837, and today, is pioneering state-of-the-art data and information solutions designed to greatly enhance productivity and environmental safety.²

Deere appreciates the opportunity to provide input on the state of broadband availability in the United States, especially in rural and agricultural areas, as well as suggestions on how FCC policy can be directed towards bridging the gaps between those that have access to broadband and those that do not. Deere respectfully asserts that it is time for the FCC to view broadband availability through an expanded lens--one that incorporates a geographic and functional

¹ *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, GN Docket No. 17-199, Thirteenth Section 706 Report Notice of Inquiry, FCC 17-109 (rel. Aug. 8, 2017) (hereinafter, “NOI”).

² Additional information about Deere’s innovations in adapting information technology to the needs of farmers, construction crews, and other business users is contained in the Comments of Deere & Company in GN Docket No. 15-191 (filed Sept. 15, 2015) (copy attached hereto as Exhibit A).

usage metric aimed at advancing broadband deployment to industries and economic activities where access to this key input has fallen behind. In this context, Deere believes that the FCC should be open to new approaches to examining and ultimately expanding broadband availability and usage in rural areas of the United States. In particular, the Commission can make new progress toward its broadband goals by making rural broadband deployment in the agricultural context a priority. The current framework overlooks geographic and functional usage areas that lack broadband availability.

To improve the validity and usefulness of the Commission’s broadband analysis, Deere urges the Commission to evaluate broadband deployment based on the availability of *both* fixed and mobile services, not just one of the two. Deere also urges the Commission to evaluate deployment at multiple speed tiers, and to include “cropland” or “crop operations” as a key indicator of where demand for broadband deployment exists in America.

I. THE FCC SHOULD MEASURE FIXED AND MOBILE BROADBAND DEPLOYMENT SEPARATELY

Deere supports the proposal set forth in paragraph 10 of the NOI to evaluate deployment “based on the presence of both fixed *and* mobile services.” (Emphasis in original.) As the Commission correctly recognizes in paragraph 5, the capabilities and use cases for fixed and mobile services are different, and the two are not fully substitutable for each other. Mobile services, in particular, are essential to broadband deployment in rural and remote areas where infrastructure, land acquisition and right of way costs are higher on a per capita basis than that of urban and suburban areas and where deployments have lagged.

To enable real-time sharing of data and communications, precision agriculture technology requires access to reliable broadband services, *both* mobile and wireline. Through these advanced systems, mobile broadband is now an essential service for agricultural operations that

form the economic heart of many American rural communities. As these machine populations continue to grow and our solutions continue to rely on high speed machine connections, our reliance on rural broadband coverage will only increase, and the ability of farmers using Deere’s agricultural equipment and systems to improve efficiency, yield, and smart resource use will depend on their ability to leverage high speed broadband connections capable of enabling real-time M2M and machine to farm (“M2F”) interaction. The “Internet of Things” in rural America will include not only smart meters and smart appliances, but also smart farming equipment and systems needed to drive local economies.

For agricultural operations in particular, it is essential that the Commission monitor and take steps to ensure timely deployment of advanced mobile services. Wireless service – both fixed and mobile – will be the superior technology choice to achieve cost-effective coverage for many rural areas including farm-intensive areas with significant tracts of cropland. Fixed broadband brings many benefits to rural communities containing farm buildings, but additional wireless facilities are needed in America’s rural areas, including croplands, to meet the growing demand for mobile broadband.

Accordingly, Deere recommends that the Commission reject the option of measuring the extent of deployment based on the presence of *either* fixed *or* mobile broadband in an area, as suggested in paragraph 9; and instead adopt the more robust proposal in paragraph 10 to evaluate whether *both* fixed and mobile broadband are being deployed to all Americans on a reasonable and timely basis.

II. THE COMMISSION SHOULD MEASURE MULTIPLE TIERS OF BROADBAND SPEED AVAILABILITY

In paragraph 13 of the NOI, the Commission proposes “to continue use of a specific speed benchmark to evaluate advanced telecommunications capability.” Deere suggests that this

approach is too narrow, and that the Commission should evaluate deployment progress at several different speed tiers, to get a more complete picture of broadband availability.

The consumer-centric 25/3 Mbps standard may be useful for purposes of considering fixed broadband coverage in residential areas, but it may not be flexible enough to accommodate different use cases. Rather than adopt a single, one-size-fits-all broadband speed standard, the Commission should take a nuanced approach and determine whether the needs of the various functional use markets are being met. A 25/3 Mbps standard may be the correct standard for residential-centric fixed broadband availability. But different functional use groups may not need that broadband speed—or may need an even higher speed.

In this regard, the Commission should consider alternative frameworks to incentivize other levels of broadband to geographic and functional areas that currently lack coverage. Current demand for broadband is to support telematic services including voice communications, and the transfer of up-to-date data on environmental, market, weather, and other data to support agricultural operations. Some of these use cases require improved upload speeds; for example, Deere's equipment both sends and receives very large field map data files, so a symmetric broadband service would be more useful than a download-focused consumer service, even if the total bandwidth is the same or even somewhat lower than the consumer service. In other words, a 10/10 Mbps service will be more beneficial to some users than a 25/3 service, and the Commission should not ignore the former in evaluating broadband deployment.

Paragraph 18 of the NOI seeks comment on whether a speed standard should be set for mobile broadband services. As in the case of fixed broadband, Deere suggests that the Commission should evaluate mobile service deployment at several different speed levels. After all, deploying even a lower-speed-tier broadband service in an area that previously lacked any

mobile broadband coverage at all would be progress, and should be taken into account in evaluating whether timely deployment is occurring. Carriers should be incentivized to deploy at least some broadband coverage as early as possible, instead of waiting years until higher capacity (that gets “credit” in the Commission’s report) becomes feasible. The Commission should recognize the fact that different broadband speed tiers may be suitable for different use cases, and to structure its policies and programs accordingly. It should not tie speed benchmarks to technologies, but rather should examine the uses of the different forms of broadband services, and create a more nuanced view towards determining if broadband is available, at the speeds necessary, to support different uses beyond basic consumer broadband.

The Commission’s focus on examining a single speed tier appears to be based on the need to determine annually “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.” 47 U.S.C. § 1302(b). As this is a binary determination, the Commission understandably seeks to adopt a process that allows it to make a simple yes-or-no finding each year. But that sentence of the statute does not stand by itself; it is part of a paragraph that also directs the Commission, if its “determination is negative,” to “take *immediate* action to accelerate deployment of such capability[.]” *Id.* (emphasis supplied). The Commission cannot fulfill its responsibility to take “immediate” action under the third sentence of § 1302(b) unless its annual inquiry provides it with sufficient information to understand the nature and extent of any shortcomings in deployment. Simply analyzing the extent of deployment of services at a single speed tier will not give the Commission a sufficiently detailed or nuanced view of market conditions to enable it to act *immediately* in response to a negative determination. The Commission therefore should evaluate deployment of both fixed and mobile

services at a variety of speed levels, to obtain a more complete picture of where measures may need to be taken to accelerate deployment of advanced telecommunications capability.

III. THE COMMISSION ALSO SHOULD MEASURE MULTIPLE GEOGRAPHIC DEPLOYMENT CRITERIA

For reasons similar to those discussed in the previous section, the Commission should also adopt a variety of geographic metrics, not just one, to evaluate deployment of advanced telecommunications capability. In paragraph 32 of the NOI, the Commission asks whether, “[r]ather than measuring broadband deployment based on census blocks, should we consider another geographic metric ...?” The way the question is framed, however, implies that there must be only one metric, whatever it may be. Deere respectfully suggests that there are multiple geographic dimensions to broadband deployment, and the Commission will never obtain a complete picture of the market if it insists on adopting a single, one-size-fits-all metric. Relevant geographic metrics for mobile services include population coverage, cropland coverage, geographic area (square miles) coverage, and road coverage.

To take a concrete example, a typical rural census block may contain a small town along with many square miles of surrounding farmland. If broadband is available in the town, but not in the outlying areas, an analysis based solely on census blocks would completely miss the lack of farmland coverage. On the other hand, it would make no more sense to adopt farmland coverage as the *sole* geographic benchmark, since then the analysis would likely fail to detect urban areas where deployment issues remain.

In its comments in response to the 2015 Section 706 Notice of Inquiry (Exhibit A hereto), Deere offered extensive discussion of how the Commission could identify croplands (or “agricultural lands”) and obtain data regarding broadband coverage of these areas. These proposals remain relevant, and Deere urges the Commission to consider the information attached hereto in

refining its geographic measures of broadband deployment. As a first step, the Commission should count machine-to-machine mobile broadband transmissions by agricultural equipment in the field and associated operators' mobile devices when assessing the status of mobile broadband deployment. By counting the number of machines with modems working the 300+ million acres of cropland in the United States, the Commission will have better information to more accurately assess the availability and lack of availability of advanced broadband services in rural areas, and can then consider targeted ways to accelerate deployment to those rural areas of the country that need it most. (*See Exhibit A, pp. 19-20.*)

IV. CONCLUSION

Deere appreciates the Commission's efforts to accelerate deployment of broadband services and encourages consideration of the steps described in these comments.

Respectfully submitted,

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