

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Connect America Fund)	WC Docket No 10-90
)	
Universal Service Reform --Mobility Fund)	WT Docket No. 10-208
)	
ETC Annual Reports and Certifications)	WC Docket No. 14-58
)	
Establishing Just and Reasonable Rates for Local Exchange Carriers)	WC Docket No. 07-135
)	
Developing an Unified Intercarrier Compensation Regime)	CC Docket 01-92
)	

COMMENTS OF THE DEERE & COMPANY

Deere & Company (“Deere”), by its undersigned attorneys, hereby submits these comments in response to the Further Notice of Proposed Rulemaking released on June 10, 2014, in the above captioned dockets.¹

Deere (NYSE: DE) is a world leader in providing advanced agricultural and other equipment and services to customers whose work is linked to the land - those who cultivate, harvest, transform, enrich and build upon the land to meet the world’s dramatically increasing need for food, fuel, shelter and infrastructure. Since 1837, John Deere has delivered innovative farming equipment of superior quality, built on a

¹ *Connect America Fund; A National Broadband Plan for Our Future; ETC Annual Reports and Certifications; Establishing Just and Reasonable Rates for Local Exchange Carriers; Universal Service Reform – Mobility Fund; Developing a Unified Intercarrier Compensation Regime; WC Docket Nos. 10-90, 07-135, 14-58, WT Docket No. 10-208, CC Docket No. 01-92, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 14-54 (rel. June 10, 2014) (“CAF FNPRM”).*

tradition of integrity and, today, Deere is pioneering state-of-the-art data and information solutions designed to greatly enhance productivity and environmental safety.

Deere is intensely interested in expediting the deployment of high speed broadband services, especially high speed wireless and backhaul facilities, to rural areas where, by definition, farming and other agricultural operations are concentrated. Farmers and ranchers in rural America increasingly rely on broadband access to manage and operate their businesses. Accordingly, Deere strongly supports the Commission's efforts to provide targeted and effective support to promote expanded broadband services in rural areas through the Connect America and Mobility funds. To that end, Deere provides the following general input to the *CAF FNPRM*:

I. Future Growth of America's Agricultural Sector Requires Expanded Broadband in Rural Areas.

Expanded broadband facilities and services fostered by the Connect America and Mobility funds are critical economic drivers to rural communities. In particular, high speed broadband is not only essential to business centers in rural towns and traditional anchor institutions, it is also an essential service for agricultural operations that form the economic heart of many American rural communities. Agricultural producers are facing growing demands to produce more food, fuel and fiber for a growing, more prosperous world population, and they must do so with limited resources and increasing regulation. Not only is it critical that farm buildings have access to high speed broadband to communicate with their customers and vendors, follow commodity markets, gain access to new markets around the world, and manage regulatory compliance, but more and more farmers are demanding capability for machine-to-machine communications from the field

that make possible significant improvements in real-time productivity and cost management.

Much of the future of enhanced farming efficiency and productivity turns on the grower's ability to gather, process, and transmit data using advanced information and communications technologies. Technology-equipped machine solutions enable agronomic decision-making to advance productivity, improve agriculture profitability and global competitiveness, and optimize inputs for continuous environmental improvement.² With superior, precise, site-specific data, a farmer can analyze and carefully adjust his or her farming methods to be the most efficient, most economical, and most environmentally friendly possible, thus improving productivity and sustainability. However, enabling farmers to utilize machine-to-machine data fully requires significant improved communications capacity and access to high speed mobile broadband.

Today, many of Deere's customers are challenged with a lack of adequate cellular coverage in the fields where agricultural equipment operates. Deere's JDLINK™ data service, for example, currently relies on the cellular telephone network to transmit telemetric machine operation data. The lack of coverage needed for these solutions to transmit telemetric data from the machines is already a concern, but the shortfall in coverage will only become more problematic as data volumes increase. Due to significant gaps in cell coverage in rural areas where farm machines operate, today JDLINK™ data transmissions have only a 70% successful call completion rate. Absent significant improvements in cell coverage in cropland areas, Deere expects that this

² Deere's FarmSight™ solution, for example, is dependent upon broadband data flow to provide products and services such as Machine Optimization, Logistics Optimization and Agronomic Decision support.

figure will drop to about 50% in two to three years as agricultural demand for broadband services increases.

These services depend on stable, reliable high speed connections to equipment operating in remote locations. This is not a problem that can be resolved by relying on satellite services or even more spectrum. In addition to fiber-to-farm buildings, rural areas need more wireless antenna towers, all of which must be connected by fiber backhaul to the broadband network provider.

II. The Connect America Fund Should Make Support Available for Machine-to-Machine Broadband Operations on Cropland.

Deere recommends that the Commission consider enhancing the definition of unserved and underserved areas to include the USDA definition of “cropland.”³ This inclusion would allow machine-to-machine mobile broadband transmissions by agricultural equipment in the field and associated operators’ mobile devices to be counted in the justification for broadband expansion. It should also be recognized that these machines-with-modems also involve a driver who is communicating separately by cell phone and often using a tablet in the equipment cab.

There are over 350 million acres of major cropland in the United States and as noted above, agriculture is driven more than ever by advanced farming technologies, of which broadband is a key enabler. The potential number of machines with modems working these 350 million acres of cropland should be counted when determining mobile coverage. By counting agricultural machine-to-machine broadband communications and operator mobile devices when analyzing the potential benefits of support in rural areas

³ USDA GIS data for cropland can be found at:
<http://www.nass.usda.gov/research/Cropland/Release/index.htm>.

and by prioritizing funding for areas identified as “cropland,” the Commission can strengthen funding to those areas of the country that need it most.

III. The Commission Should Increase the Minimum Speeds but Retain Flexibility for Carriers to Deploy at Lower Speeds In Unserved and Underserved Communities.

Deere supports the Commission’s initiative to increase the minimum broadband speeds that are promoted through universal service funds to 10 Mbps downstream and to increase the upstream speed requirement to something higher than 1 Mbps.⁴ However, Commission rules should permit deployment of broadband-capable infrastructure at lower speeds where requests for broadband services meeting the new benchmarks are not “reasonable,” *i.e.*, the carrier cannot cost-effectively extend a broadband-capable network meeting the new benchmarks to a requested location.⁵ Some rural areas have *no* effective access to high speed broadband today and therefore delivering to rural areas broadband even at speeds that do not match services that are available in urban areas would produce enormous benefits that the Commission should not overlook by holding recipients to rigid speed benchmarks.⁶

IV. Recipients Should Have Flexibility to Choose Technologies or Combinations Thereof.

Deere also supports allowing Phase II recipients to satisfy their obligations using any technology or combination thereof whether wireline, fixed or mobile, terrestrial or satellite that meets the performance standards for Phase II (speed, latency, usage

⁴ *CAF FNPRM* ¶¶ 138-46.

⁵ *Id.* ¶ 144.

⁶ *Id.* ¶ 146.

allowance and pricing.)⁷ Providers are in the best position to assess the needs of local customers and to choose among technologies that can best serve their needs. Further, Deere strongly supports the Commission's encouragement of wireless providers to participate in Phase II.⁸ For many rural areas, including farm-intensive areas with significant tracts of cropland, wireless service will be the superior technology choice to achieve cost-effective coverage. To that end, Deere endorses the Commission's proposal to allow the use of mobile or satellite technology that meets Phase II requirements, while maintaining the service and pricing standards established by the Bureau for the offer of model-based support.⁹

With respect to mobile service, Deere urges the Commission to adopt requirements that 1) permit consumers subscribing to service to attach or tether their mobile connections to other devices, and 2) permit users to use multiple devices simultaneously.¹⁰ Enabling consumers and businesses the flexibility to use subsidized mobile services in whatever way best meets their needs allows users to shape their own technology solutions based on specific needs and local conditions and is consistent with the experience of urban users.

V. Mobility Phase II Funds Should Be Made Available To Serve Croplands

With respect to the Mobility Fund Phase II, the Commission proposes to target the funds set aside to support mobile services on preserving and extending service in those areas that will not be served by the market without governmental support.¹¹ Deere

⁷ *Id.* ¶ 154.

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.* ¶ 156.

¹¹ *Id.* ¶ 239.

supports greater focus on promoting wireless broadband in rural areas. While rural fixed broadband expansion brings many benefits to rural communities, there remains a significant lack of cellular coverage creating a host of unserved and underserved areas. Additional wireless facilities are needed in America's rural areas to enable broadband services. In the farming context, if we only focus on providing fixed broadband to farm buildings, we will overlook the important need for wireless coverage of cropland necessary to fuel today's farming operations which, in turn, supports essential economic activity and provides jobs throughout rural communities.

Deere recommends that in developing this concept further, the Commission should consider enhancing the definition of unserved and underserved areas to include the USDA definition of cropland.¹² As discussed in Section II above, this step would allow machine-to-machine mobile broadband transmissions by agricultural equipment in the field and associated operators' mobile devices to be counted in the justification for broadband expansion.

VI. Rate of Return Carriers Should Have Greater Access to Funds.

While Deere is not commenting on the details of the Commission's proposed approach to establishing a "Connect America Fund" for rate of return carriers, Deere strongly endorses this step.¹³ Rate of return carriers are subject to the same market and technology pressures as price cap carriers and have a long history of dedication to serving the needs of rural communities. Deere agrees that adopting reforms including longer term reforms to the support mechanisms available to rate of return carriers will further the Commission's overarching goal of fostering deployment of broadband infrastructure and

¹² See footnote 3 *infra*.

¹³ *CAF FNPRM* ¶ 258.

services throughout rural areas. As a part of this effort, Deere also supports adoption of a stand-alone broadband funding mechanism for rate of return carriers.¹⁴

VII. The Connect America Fund Should be Made Available To Rate of Return Carriers to Support Middle Mile Facilities

Deere agrees that the Commission's rules should provide support for middle mile facilities for rate of return carriers.¹⁵ It is well known that one critical barrier to broadband deployment in rural areas is the lack of middle mile transport, *i.e.*, high capacity transport facilities, ideally fiber optics, connecting a remote community to larger communities that either have broadband traffic aggregation points or have access to competitive high capacity transport facilities connecting to traffic aggregation points in metropolitan areas.

Fiber optic networks that form the backbone of the Internet and telecommunications networks often do not reach rural communities; underserved areas also often lack redundant telecommunications facilities necessary for robust availability and reliability leaving some rural communities vulnerable to outages and service disruptions. Without access to high capacity backhaul at reasonable cost, even wireless local broadband service is generally uneconomic in rural areas. For a new broadband wireless provider, backhaul is a major element of its cost structure. Capacity must be purchased in large increments at high costs, well in excess of the immediate needs of a startup service provider, and a significant term commitment is often required. This cost concern continues to deter investment and even when initial investments are made, the high fixed monthly costs for transport place providers under extreme pressure to build a

¹⁴ *Id.* ¶ 269.

¹⁵ *Id.* ¶ 300.

customer base quickly enough to support such costs. Deere expects that making funds available for middle mile facilities will have a significant beneficial impact in promoting expanded broadband deployment in rural areas.

Deere does not oppose providing support to Tribal Lands as the Commission proposes,¹⁶ but encourages the Commission to expand the support for middle mile facilities to include other rural areas that do not qualify as Tribal Lands. Deere also supports the requirement that middle mile funding come with a condition that access to that middle mile connectivity must be provided at a reasonable rate.¹⁷

Respectfully submitted,

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¹⁶ *Id.* ¶ 302-08.

¹⁷ *Id.* ¶ 307.