

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

In the Matter of)
)
Realignment of the 896-901/935-940 MHz) RM-11738
Band to Create a Private Enterprise Broadband)
Allocation)

To: The Commission

**COMMENTS OF
SOUTHERN COMPANY SERVICES, INC.**

Southern Company Services, Inc. (“Southern”), on behalf of itself and its electric utility operating affiliates, hereby submits its comments in response to the Petition for Rulemaking filed by the Enterprise Wireless Alliance (“EWA”) and Pacific Datavision, Inc. (“PDV”) (collectively referred to herein as the “Petitioners”) in the above-captioned matter.¹ The Petitioners request the initiation of a rulemaking proceeding looking toward a mandatory restructuring of the land mobile allocation at 896-901/935-940 MHz (“900 MHz”) to allow PDV, and any similarly-situated Private Enterprise Broadband (“PEBB”) licensees, to aggregate narrowband 900 MHz channels into a 3/3 MHz broadband segment. The Petitioners assert that PEBB licensees will use this broadband spectrum to provide commercial service to utilities and other Critical Infrastructure Industries (“CII”).

¹ The Commission invited comment on the Petition by *Public Notice*, DA 14-1723, released November 26, 2014.

Southern's initial comments are limited to addressing its serious concerns with respect to the potential for interference to Southern's extensive Advanced Meter Infrastructure ("AMI") system that has been deployed in the Narrowband PCS band immediately adjacent to the 900 MHz band. As explained herein, the Petitioners have not met their burden of describing, in specific terms, the rules that would be required to ensure that PEBB systems would not interfere with incumbent systems in the 900 MHz band and in adjacent bands: systems that are relied upon by the CII customer base that PDV states it intends to serve. Because of the lack of information on how a complex restructuring of the 900 MHz band could be accomplished without detrimental impact to CII communications systems, Southern recommends that the Commission issue a Notice of Inquiry, to allow for greater fact-gathering and analysis, before deciding whether to commence a rulemaking proceeding.

I. Background and Introduction

Southern Company Services, Inc. is a wholly-owned subsidiary service company of Southern Company, a super-regional energy company in the Southeast United States. Southern Company also owns four electric utility subsidiaries – Alabama Power Company, Georgia Power Company, Gulf Power Company, and Mississippi Power Company – which provide retail and wholesale electric service throughout a 120,000 square mile service territory in Georgia, most of Alabama, and parts of Florida and Mississippi.

Members of the Southern Company family use a variety of communications technologies to support the safe and efficient delivery of energy services to their customers. Among other technologies and services, Southern uses Narrowband PCS spectrum in the 901-902/940-941 MHz bands to interact with over 4.4 million meters and other devices throughout its electric

operating territory. Southern's AMI system operates in this narrowband spectrum immediately adjacent to the bands in which the Petitioners have proposed broadband operations. Southern therefore has significant interest in this proceeding.

The initial agreements for Southern's AMI system were entered in 2007, and the system reached its initial deployment of 4.4 million devices in 2012.² As explained below, the AMI system is part of a comprehensive smart grid modernization program that provides benefits to electric customers, the environment, and the company far beyond the convenience of remotely reading meters for billing purposes.

II. Petitioners Have Not Addressed Potential Interference from Broadband Operations into Adjacent Narrowband PCS Allocations

The 900 MHz band currently consists of 299 narrowband (12.5 kHz) channels that are available for use in Business/Industrial/Land Transportation ("B/ILT") systems or Specialized Mobile Radio ("SMR") systems. The Petitioners propose major restructuring of this band so that PDV, and any similarly-situated 900 MHz licensees, may obtain a 3/3 MHz block of contiguous spectrum at 898-901/937-940 MHz. PDV proposes that this 3/3 MHz block would be used by these PEBB licensees in build-to-suit broadband systems for the benefit of CII entities and other business enterprise users. The Petitioners state that each PEBB licensee would be required to provide priority access in any build-to-suit contract with a CII entity (but presumably not with other enterprise users) pursuant to an FCC-defined good-faith negotiation process.³

² Further information about Southern's "smart meters" is available at: <http://www.southerncompany.com/what-doing/energy-innovation/smart-energy/smart-grid/smart-meters.cshtml> (last visited January 11, 2015).

³ Petitioners do not explain whether or how this commitment to afford priority access to CII would be affected by any final rules the Commission might adopt regarding network neutrality.

Petitioners state that their proposal has been developed in recognition of the need by CII entities and others for advanced telecommunications capabilities that are not being provided by Commercial Mobile Radio Service (“CMRS”) licensees. They explain that CII entities demand a higher level of reliability, often operate facilities in remote areas, and may need a “ruthless preemption” mechanism if the CMRS network becomes congested with other users.⁴ Petitioners state that utilities and other CII have communications requirements that “often are similar to those of their public safety counterparts in terms of reliability, priority access, and coverage,”⁵ noting that “[b]ecause restoration of power and other critical functions frequently go hand-in-hand with first responder activities during emergency situations, the quality of broadband service available for CII entities must be comparable to the service available for public safety users.”⁶

Southern agrees that utilities must have access to highly reliable communications to maintain the critical infrastructure on which “every individual, town, city, county, and state in this nation relies for day-to-day existence.”⁷ Southern appreciates the Petitioners’ recognition that utilities need highly reliable communications comparable to that available to public safety agencies, and that CII communications should be interference-free.⁸

Based on Petitioners’ strong expressions of support for CII communications, Southern would expect that a commercial broadband allocation at 900 MHz intended to address the special communications needs of CII would, at a minimum, include safeguards to ensure that operation of a PEBB system will not interfere with other utility communications systems. However, and as

⁴ Petition at 6-8.

⁵ *Id.* at 2.

⁶ *Id.* at 7.

⁷ *Id.* at 3.

⁸ *Id.* at 10.

noted in the Petition, Southern has significant unresolved concerns with respect to the potential for interference from a broadband system operating in the 900 MHz band, adjacent to the Narrowband PCS allocation that Southern uses for AMI.⁹

Southern has deployed over 4.4 million devices on Narrowband PCS spectrum, using a FlexNet™ system from Sensus USA, Inc. (“Sensus”). Although one of the primary applications of the AMI system is advanced meter reading, the system is not limited to that. Rather, the AMI system gives Southern significant insights into the operational status of the power grid down to each specific endpoint device. Prior to implementing AMI, Southern could only identify outages on the electric grid at a fairly macro level, and more precisely only if customers called the company to report an outage at their locations.

The near real-time two-way communications afforded by the AMI system means Southern can identify outages to specific device locations, thereby allowing real-time situational awareness and grid stabilization. Following a widespread outage, remote devices on the AMI system can send real-time alerts to the company, thereby giving the Outage Management System (“OMS”) important data on the areas affected, the likely components of the electric system that have failed or tripped, the critical loads (such as hospitals, fire stations, or traffic management facilities) that must be restored on a priority basis, and the status of grid components that are ready to have power restored to them. These are functions that previously would have required site visits, which are especially difficult following a severe storm or other disaster. However, these functions can now be performed remotely with data supplied over the AMI system.

⁹ *Id.* at 12, n. 23. Southern’s AMI system operates in Narrowband PCS spectrum at 901.00-901.20/940.00-940.20 MHz.

The near real-time operation of the AMI system allows Southern to monitor voltage levels at specific devices in the system and to repair or replace failing equipment on the electric distribution system (*e.g.*, transformers) before the equipment actually fails. These proactive measures prevent many outages at customer locations that could occur at any time of the day or night, thereby improving overall reliability of electric service to the public.¹⁰ Monitoring of voltage levels throughout the distribution system also aids in the maintenance of power quality.

AMI enables Time-of-Use pricing, which gives the customer greater control over energy consumption and spending, and in turn, helps reduce overall load on the electric system at peak operating periods. This results in net benefits to all electric consumers by allowing the utility to defer or avoid making significant capital expenditures on additional generating and/or transmission capacity just to meet peak load conditions. AMI reduces costs for all consumers by helping the utility detect meter-tampering or theft, thereby reducing the incidence of uncollected revenue.

Customers can also benefit more directly from the data generated by the AMI system. Southern offers a Web application (“My Power Usage”) that allows a customer to review usage patterns, set alerts on energy usage to help with budgeting, and allow comparisons of energy consumption with temperature changes over time to assist with individual energy conservation

¹⁰ The Commission has recognized the importance of electric power to public safety communications, particularly as traditional circuit-switched networks convert to IP-based systems. See, *e.g.*, In the Matter of Ensuring Customer Premises Equipment Backup Power for Continuity of Communications, *Notice of Proposed Rulemaking and Declaratory Ruling* in PS Docket No. 14-174, *et al.*, FCC 14-185, released November 25, 2014, and In the Matter of Improving 911 Reliability, *Report and Order* in PS Docket No. 13-75 and PS Docket No. 11-60, 28 FCC Rcd 17476 (2013) . Technology does not exist that can prevent *all* commercial power outages, but the use of AMI and other smart grid technologies can significantly reduce the number or scope of outages, and can reduce the mean time to repair many types of outages. This promotes public safety, health and welfare.

measures.¹¹ The AMI data allows Southern to give customers highly accurate billing estimates when requested, and to activate service to new customers quickly and easily without a truck-roll.

Availability of near real-time load data will allow Southern to make more precise forecasting of electric demand (on an instantaneous, hourly, or daily basis), and to thereby make the most cost-effective scheduling of power generation to meet the changing demand for power within Southern's six different load regions. All of these functions will contribute to greater reliability of electric service, faster restoration times, and reduced environmental impacts.

Southern's AMI system was designed to be spectrum-efficient while providing coverage throughout its extensive electric utility service area.¹² The system uses the least fixed infrastructure and spectrum possible, while ensuring that every endpoint device in the service area can achieve two-way communications with the network. Range and coverage are among Southern's most critical design challenges. Southern's operating territory includes extreme variations in climate and topography, ranging from lowlands along the Atlantic and Gulf Coasts, to the mountainous areas of north Georgia and Alabama. Southern Company serves some of the largest urban areas in the country, with high rise buildings that create "urban canyons," and it serves some of the most rural areas in the country.

Given the widely varying topographies and noise environments in which the system must operate, endpoint devices must be able to communicate effectively very near to the noise floor. Even a 3 dB increase in the noise floor could require Southern to lose many of the public interest

¹¹ Information on the use and benefits of "My Power Usage" for customers of Georgia Power Company can be found at <http://www.georgiapower.com/residential/managing-your-account/my-power-usage.cshtml> (last visited January 11, 2015).

¹² The fixed infrastructure currently consists of about 500 tower-mounted transceivers deployed throughout Southern's electric service territory, and uses only 400 kHz (0.2/0.2 MHz) of total bandwidth, for bi-directional communication with over 4.4 million devices.

benefits of this system. For these reasons, unwanted emissions, whether from adjacent channel operations or otherwise, could seriously degrade, obstruct or interrupt Southern's AMI system, and, in turn, negate the significant benefits to customers, the company and the environment already being achieved with this system.¹³

Southern appreciates the Petitioners' willingness to further address these interference concerns, and looks forward to reviewing their specific proposals in connection with the record on their petition for rulemaking. The Petitioners should recommend the level of protection that PEBB licensees will be expected to provide to existing communications networks of the utilities and other critical infrastructure industries to which PDV hopes to offer commercial service. Although Petitioners suggest that these issues can be examined *during* a rulemaking proceeding, Southern strongly recommends that these issues be examined sooner, rather than later.

Among the issues that Petitioners should address before the Commission can decide whether a rulemaking should be initiated are the following:

- How broadband transmissions at 900 MHz, from both fixed devices and mobile units, could impact Narrowband PCS operations in the 901-902/940-941 MHz bands.
- How broadband transmissions at 900 MHz, from both fixed devices and mobile units, could impact 900 MHz narrowband land mobile systems operating in either analog or digital modes.¹⁴
- How the combined impact of broadband operations and land mobile systems operating in a reconfigured 900 MHz band could impact Narrowband PCS.

¹³ Southern's AMI system has become so integral to utility operations that crews are dispatched 24x7 to effect repairs on the AMI system itself.

¹⁴ Considering the ongoing migration of analog mobile radio systems to digital technologies, it seems likely that many incumbent licensees at 900 MHz will either be moving to digital as a natural evolution of their analog systems, or would elect to move to digital as part of a band realignment. The Petitioners therefore need to address impact on both analog and digital land mobile systems.

- The specific technical limitations and operating rules that would be needed to ensure there is no harmful interference to other licensed radio systems.

Because the need for highly reliable CII communications is so fundamental to both the Petition and good spectrum policy, Southern recommends that the Commission issue a Notice of Inquiry on these and other issues so that a more complete record can be developed on whether a mandatory restructuring of the 900 MHz band can be accomplished without disruption to the CII customers that Petitioners state will be served by PEBB licensees.

III. Conclusion

Southern looks forward to reviewing the Petitioners' comments and reply comments with respect to the interference concerns that Southern and others raised with them before the Petition was filed. Based on recent discussions with the Petitioners, Southern hopes they will describe in the record of this proceeding or in a follow-up Notice of Inquiry, the specific rules that would be required to ensure that a mandatory band realignment would not result in interference to incumbent 900 MHz licensees or licensees in adjacent bands, such as the Narrowband PCS band.

The Petitioners have made a general commitment to afford incumbents "every protection against interference to which they are entitled under the FCC's rules."¹⁵ However, incumbent CII licensees, both within the 900 MHz land mobile band and in the Narrowband PCS allocation, are entitled to know specifically how their operations will be protected if the 900 MHz band is subject to a massive mandatory band reconfiguration process that is primarily intended for the commercial benefit of one of the Petitioners and any similarly-situated licensees.

¹⁵ Petition, at 14, n.25.

WHEREFORE, THE PREMISES CONSIDERED, Southern Company Services, Inc.
respectfully requests that the Commission take action on this matter consistent with the views
expressed herein.

Respectfully submitted,

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