

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Parts 1, 2, 15, 74, 78, 87, 90, and 97	)	
of the Commission's Rules Regarding	)	
Implementation of the Final Acts of the World	)	ET Docket No. 12-338
Radiocommunication Conference (Geneva, 2007)	)	
(WRC-07), Other Allocation Issues, and Related	)	
Rule Updates	)	

**NOTICE OF PROPOSED RULEMAKING AND ORDER**

**Comment Date:**

**Reply Comment Date:**

*Submitted by Great River Energy (GRE)*

Great River Energy strongly opposes the allocation of the 135.7-137.8 kHz band to amateur radio service on a secondary basis. GRE uses power line carrier (PLC) for protection of many of its bulk transmission lines and substation equipment facilities. The specific frequency band proposed for shared use is used on 10 of GRE's transmission lines.

**Great River Energy Background**

Great River Energy is a not-for-profit generation and transmission electric cooperative owned by its 28 member distribution cooperatives. Those 28 member cooperatives in turn provide electrical service to approximately 1.7 million people in a 56,000-square-mile area from Minneapolis-St. Paul suburbs to very rural areas of the north shore of Lake Superior to the farmlands of southwestern Minnesota. The loads served by the member system are primarily residential, seasonal and agricultural loads. GRE owns and operates 12 power plants which generate more than 3,500 megawatts (MW) of electricity. GRE's generation capability is a diverse mix of baseload and peaking power plants, including coal, refuse-derived fuel, natural gas and fuel oil, as well as wind generation.

GRE owns and operates nearly 4,600 miles of transmission lines and owns or partly owns 109 transmission substations. Additionally, GRE interfaces with 28 distribution cooperatives at over 500 distribution substations and has over 150 downline motor-operated switches to which it communicates. All substations and motor operated switches require telecommunications for Supervisory Control and Data Acquisition (SCADA). Additionally, the 28 member distribution cooperatives require telecommunications for Distribution Automation of downline switches, regulators, reclosers, and motor operated capacitor banks. They also use telecommunications for Advanced Metering Infrastructure (AMI) and Automated Meter Reading (AMR).

In addition to SCADA communications, GRE owns and operates a trunked land mobile radio system that is used for voice communications for GRE and 14 of its member distribution cooperatives. GRE also has a very extensive Load Management/Demand Response system that controls air conditioners, water heaters, electric heat storage and irrigation systems during peak electrical usage. This system has the capability of shaving over 380 MW of load from the system. GRE uses synchrophasors for wide area situational awareness. These synchrophasors require very low latency, highly reliable telecommunications.

### **Specific Comments**

**16. Because the 135.7-137.8 kHz band is now allocated internationally to the amateur service on a secondary basis in all ITU Regions, we conclude that it is an appropriate time to re-examine the potential for shared amateur service-PLC use of the band. We seek comment on whether the 135.7-137.8 kHz band should be allocated to the amateur service on a secondary basis and restricted in accordance with RR 5.67A. Commenters should address, in particular, any recent developments that would prompt a re-evaluation of the Commission's prior decision.**

Great River Energy does not think the 135.7-137.8 kHz band should be allocated to the amateur radio service on a secondary basis. GRE uses this frequency band for protective relaying of bulk transmission lines. Interference that potentially could cause protective relaying equipment to misoperate or fail to operate could result in damage to transformers and other equipment that

cost millions of dollars in addition to causing outages to thousands of people. Additionally, PLC technology is not going away. PLCs continue to be used for protective relaying to newly built transmission lines if that is the most appropriate protection solution for a particular transmission line.

**17. Because PLC systems operating under Section 15.113 of the rules serve important functions, such as tripping protection circuits if a downed power line or other fault is detected in the power grid, we would only consider adding an amateur allocation if we were comfortable that amateur radio and utility PLC systems could successfully co-exist in the band. We seek comment on technical rules or methods that could be implemented to assure such coexistence. How do other nations accommodate amateur radio use in this band, and are there differences in PLC systems deployment that might make those models more or less useful in the United States? Are there other segments within the 9-490 kHz band where use by amateur stations would be a better fit from a spectrum sharing viewpoint?**

The safety and reliability of the electric grid is of utmost importance to Great River Energy and anything that could compromise either of those two essential elements is not something that Great River Energy thinks should be considered even on a secondary basis. Additionally, since these frequencies are not coordinated and licensed, it would be difficult, if not impossible, to be assured that interference will not occur and if interference does occur, how to alleviate it in the very short time frame that would be required. It is GRE's experience when dealing with interference, tracking the interference, and determining who to contact and getting them to shut down the offending transmitter can take days or weeks. This is not a scenario that GRE thinks is an appropriate way to deal with power system protection.

**18. We seek comment on the advantages and disadvantages, and other costs and benefits associated with changing our rules. For example, what benefits might accrue to the amateur radio community? To what extent do utilities deploy PLC systems on distribution lines in the 9-490 kHz band under our Part 15 rules, and how would those operations be affected were we to add a new secondary amateur radio service allocation in this band? What specific actions would PLC systems operators need to take if there were a secondary amateur radio service allocation in the band, and what are the associated costs?**

GRE is a generation and transmission cooperative, and as such uses PLC systems on its

transmission lines. PLCs are used on approximately 72% of GRE's transmission lines and substations greater than 115 kV. As mentioned before, by allowing secondary amateur radio service in this band, there is a risk of not being able to operate the electric grid safely and reliably. If GRE were to need to change to different PLC frequencies, the cost is approximately \$10,000 to \$50,000 per line. More problematic than the cost is that these lines are bulk transmission lines that serve tens of thousands or hundreds of thousands of people and businesses and are extremely difficult to obtain and coordinate outages on to make required changes to PLC equipment. If GRE were to change to fiber for protective relaying, the cost is considerably higher at approximately \$18 to \$36 million and is cost prohibitive.

**19. We seek comment on whether the concept of requiring individual amateur stations to be “quasi-coordinated” for fixed use at a specified location – an option that we did not pursue in 2003 – still holds merit. Are there other steps, such as limiting operating privileges in this frequency band (e.g., to Amateur Extra Class licensees), that would better facilitate amateur use of the band? We also seek comment on the relevance of studies that discuss the potential for in-band amateur service radio transmitters to operate compatibly with PLC systems in light of any developments since our 2003 decision. In particular we seek comment on the appropriate maximum field strength level and minimum separation distance from PLC systems for secondary amateur service operations in this band.**

“Quasi-coordination” would not protect electric utilities using PLCs from interference nor give them any recourse if they are interfered with. GRE's position is that the severity of allowing another user to potentially interfere with protective relaying of the electrical system far outweighs the benefit to amateur radio operators and that amateur radio operators could be allocated spectrum in a frequency band where the interference ramifications are not as great to the welfare of the public.

## **Conclusion**

Great River Energy does not think that the FCC should allow amateur radio service to use the 135.7-137.8 kHz band on a secondary basis. The potential for interference and the ramifications of that interference to the electrical power grid are too great. PLCs continue to be used by

electric utilities for protective relaying to protect the electrical power system and as such their integrity should not be compromised.

Respectfully Submitted,

Great River Energy