

24 June 2011

Ms Bridget Lally  
Spectrum Engineering Section  
Australian Communications and Media Authority  
PO Box 78  
Belconnen ACT 2616

Dear Ms Lally

**Western Power submission – The 900 MHz band – Exploring new opportunities**

Western Power is grateful to the Australian Communication and Media Authority (ACMA) for the opportunity to provide information to assist in planning future arrangements for the radio frequency spectrum in the 900 MHz band.

Currently, Western Power operates communication equipment in the 900 MHz band. Services carried by this equipment are critical to our requirement to provide safe, reliable and cost effective distribution of electricity to our customers. Hence any variation on the guidelines/policy regarding the use of the 900 MHz band would immediately affect Western Power.

Western Power strongly recommends that ACMA:

- Retains the current allocation for the two-frequency single channel fixed service structure catering for both point-to-point and point-to-multi-point services since equipment on this band carries critical operational services. Changes to this allocation would incur costs for Western Power which would have to be effectively recovered from our customers through our tariffs.
- Allows radio mesh network technology used in SmartGrid/Advanced Metering Infrastructure (AMI) systems to operate in the 915-928 MHz band - Low Interference Potential Devices (LIPD) Class Licence. Western Power has made considerable investment in the equipment operating in this band, and we consider that it is currently the only mature technology suitable for this type of application
- Abandons the plan to utilise a harmonized 928-933 MHz band for radio mesh technology since the limited bandwidth would render radio mesh network technology less effective.

Yours sincerely,

Dugald Bell  
Secondary Systems Asset Manager  
Western Power

## Western Power submission – The 900 MHz band – Exploring new opportunities

### Introduction

Western Power is the sole electricity transmission and distribution utility company for the southwest region of Western Australia. Telecommunications play a critical role in maintaining the safe and reliable distribution of electricity within the South West Interconnected System (SWIS) operated by Western Power.

The following radio equipment types with corresponding specifications are being operated by Western Power in the 900 MHz band:

Type of Equipment	Operating Frequency	Application	Quantity
Fixed point to point radio	852 / 929 MHz	Tele-Protection System	32
Fixed point to multi-point radio	853 / 929 MHz	SCADA	11
Mesh radio and repeater system and smart meters	915-928 MHz	Smart Grid	12,000

### Role of Telecommunication in the Electricity Supply Industry

#### Point to point and point to multipoint radio

Microwave radio equipment operating in the 900 MHz band provide point-to-point and point-to-multipoint communication links between locations such as substations, depots and radio sites.

Western Power is dependent upon microwave radio links to provide reliable transmission of key operational data required for:

- Tele-Protection Schemes (TPS)
- Supervisory Control and Data Acquisition (SCADA)
- Operational voice services to depots, substations and generators
- Control and monitoring of Private Power Generators (PPG)
- Smart grid backhaul

#### Radio mesh networks

Radio mesh networks operating in the 915-928 MHz band appear to be developing as the dominant international solution for AMI as evidenced by systems operating across the United States and Europe servicing at least 10 million meters. A radio mesh network system is currently the only mature technology suitable for Western Power's service area and with 12,000 smartmeters already installed and a further one million meters planned, uncertainty around this frequency band will, in the short term, at best delay or at worst stop Western Power's rollout of smart meters. This will have a significant impact on the people of Western Australia in terms of managing their energy usage.

Having a harmonized band in the 915-928 MHz band for radio mesh network technology appears to be the most appropriate approach and it appears that this is the direction that other Australian distribution utility companies are taking for their smart infrastructure

build. At present, utilities in Victoria have now deployed and are in communication with 680,000 Smartmeters in the 915-928 MHz band. At the completion of the ACMA review of the 900 MHz band plan, it is likely that Jemena Electricity Networks, United Energy Distribution and Powercor Australia may have as many as 2.6 million devices in operation within the 915-928 MHz band.

### **Comments and Recommendations**

- Retain the current allocation for the two-frequency single channel fixed service structure catering for both the point-to-point and point-to-multi-point services since equipment on this band carries critical operational services, the loss of which would affect Western Power customers in terms of service provision and cost. Changes to this allocation would incur costs for Western Power which would have to be effectively recovered from our customers through our tariffs.
- ACMA to allow the use of the 915-928 MHz LIPD Class Licence band and/or expansion of the ISM band for radio mesh technology for SmartGrid/AMI systems as Western Power considers radio mesh to be the only mature technology suitable for this type of application. Other Australian utility companies have already invested heavily in this technology. This recommendation aligns with the ACMA's intention and purpose on the 900MHz band review to utilise spectrum efficiently to its highest value under the LIPD class license category. Mesh radio technologies operating in this band require minimal regulatory intervention. If the ACMA were to prevent existing users of the 900 MHz ISM band from operating radio mesh networks in this band, there could be significant unforeseen costs for utilities to redeploy.
- The ACMA's preliminary option of allocating a harmonized 928-933 MHz band for radio mesh technology would render the radio mesh network technology less effective since the limited bandwidth would degrade performance characteristics. The use of 915-928 MHz appears to be the emerging dominant international solution shown by its widescale use in the United States and Europe. Expanding the ISM band to international standards can be an option to allow better utilization of the band. There has been no reported or observed instances of overcrowding or even interference on the ISM band in Australia even with the current deployment of smart meter technologies.