



**PRODUCTIVITY COMMISSION REVIEW
OF RADIOCOMMUNICATIONS ACTS**

**AND THE ROLE OF THE
AUSTRALIAN COMMUNICATIONS
AUTHORITY**

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1. EXECUTIVE SUMMARY

There are three characteristics of the environment in which Hydro Tasmania operates, which are pertinent to the Productivity Commission inquiry. The electricity industry in Tasmania:

- Is unique in the dispersion of its assets, and operates in a State with the most mountainous and rugged terrain in Australia;
- Provides an essential service to the entire community; and
- Operates in a highly regulated industry.

In respect of spectrum allocation and availability, Hydro Tasmania proposes that the Productivity Commission Inquiry gives consideration to the following proposals:

- That the electricity supply industry, particularly in Tasmania, be given a degree of priority to spectrum assignment needs, above users with a purely commercial motive;
- That a spectrum reservation system be devised and implemented to facilitate the earlier planning and procurement stages for the implementation of new radio systems;
- That the existing informal arrangements for using priority user spectrum such as that assigned to the Department of Defense be given more formality and certainty;
- That the technical guidelines for apparatus licences be reviewed with a view to providing greater differentiation between the requirements in metropolitan, regional and remote areas;
- That, where required, the ability to plan and migrate to systems that are shared with emergency services organisations in a cost effective and timely manner is accounted for in spectrum planning;

Security of tenure is an important issue. To encourage and justify the capital investment required for large radio systems, Hydro Tasmania proposes that the period of tenure be extended to 10 years with an option to extend by another 5 years. A system of compensation should also be introduced, if the licence is terminated prior to the expiry date.

Spectrum charges must also be kept to affordable levels. To this end, Hydro Tasmania proposes that the spectrum auction system be restricted to areas of the spectrum that are suitable for commercial exploitation.

Finally, Hydro Tasmania supports a review of the ACA's processes and procedures:

- to reduce the administrative burden and to ensure that they keep pace with industry developments; and
- to ensure that differences between metropolitan, and regional and rural areas are accounted for.

2. BACKGROUND

The electricity supply industry in Tasmania comprises three organisations. Hydro Tasmania is responsible for the electricity generation function, Transend Networks the electricity transmission function and Aurora Energy is the electricity distributor and retailer.

The electricity system in Tasmania is unique in respect of the geographical dispersion of the electricity generation and transmission assets. Reliance on telecommunications to facilitate control of the power system from a central location is therefore far greater than that of other electricity systems. In addition, because Tasmania has the most mountainous terrain of any State in Australia, the most cost effective choice of telecommunications medium is often microwave radio link systems. Hydro Tasmania is also an extensive user of mobile radio for field operations where occupational health and safety considerations are paramount.

Hydro Tasmania owns and operates an extensive communications network throughout the State of Tasmania. The network comprises a 51 hop, 34 Mb/s digital microwave radio network. It is used to provide operational (ie. power system control and data acquisition, power system protection and operational voice communications) and administrative communications (ie. administrative voice and data) to all three Tasmanian electricity supply industry participants.

The Tasmanian electricity supply industry along with Tasmania Police also relies on Ericsson Australia for the provision of mobile radio services. The contract with Ericsson expires in 2010. The licences for this system are currently held by the network operator, Ericsson.

Table 1 summarises Hydro Tasmania's existing radio spectrum use:

Table 1: Hydro Tasmania Radio Spectrum Use

Item	Description	Band
1	34Mb/s digital microwave radio network	8 GHz
2	2Mb/s digital microwave radio	10.5 GHz
3	Sub-2Mb/s radio systems	900 MHz
4	2Mb/s digital radio system	1.8 GHz
5	(4 x 2)Mb/s digital radio system	7.5GHz
6	(2 x 2)Mb/s digital radio system	1.5GHz
7	Some land mobile radio equipment	400MHz and 160MHz
8	Single channel radio systems	400MHz
9	Power Line Carrier	Note 1
Indirect Use:		
10	Ericsson's EDACS mobile radio system;	800 MHz
11	Ericsson radio linking equipment for above mobile radio system;	900 MHz

Note 1: spectrum use is a byproduct of the Power Line Carrier equipment.

Furthermore, Hydro Tasmania is currently investigating its options in respect of upgrading its 34 Mb/s digital microwave radio network. The investment required for a system upgrade is substantial. It is therefore essential that certainty is created in respect of the availability of spectrum, before such investments can be justified.

3. ISSUES FOR THE PRODUCTIVITY COMMISSION REVIEW

The electricity supply industry provides an essential service to the community and to industry. To provide this essential service in an efficient and cost effective manner, Hydro Tasmania is very reliant on affordable access to radio frequency spectrum.

Hydro Tasmania would like to raise the following issues for consideration by the Productivity Commission Inquiry.

3.1 Spectrum Allocation and Availability

The Electricity Supply Industry

The essential services nature of the electricity supply industry is exemplified by the fact that almost without exception, every residence and business in Tasmania is a customer. It is axiomatic therefore, that where required by the electricity supply industry, affordable access to radio frequency spectrum provides a major benefit to the broader community, not just selected interests.

Hydro Tasmania also operates in a regulated environment. This regulation places particular obligations and restrictions, particularly in relation to the price the electricity supply industry can charge for its product. Price reviews by the regulator are periodic which means that there is less opportunity to recover the spectrum costs, should a rapid and unforeseen escalation in those costs occur, as a result of for example, the spectrum auction process.

In general, the electricity supply industry should be recognized for its need to have access to certain areas of spectrum, particularly in light of:

- the broader community benefit such access would provide; and
- the limitations in the extent to which increased spectrum costs can be passed on to customers.

It should be noted that the electricity industry is singled out in the *Telecommunications Act 1997* for a carrier licence exemption in recognition of the essential service nature of the industry and its reliance on telecommunications.

It is proposed that as part of this inquiry, the Productivity Commission give consideration to the special operational needs of the electricity supply industry, particularly in Tasmania, with a view to giving a degree of priority to assignment of spectrum, above users with a purely commercial motive.

Spectrum Reservation

As stated earlier, Hydro Tasmania owns and operates extensive radio communications assets either directly or via service providers, in purpose built microwave radio link and mobile radio systems, which are critical for the control of the electricity system in Tasmania. Managing these radio communications assets requires:

- Ongoing expansion of the network to ensure that it continues to serve individual business needs as they arise from time to time;
- Improving the functionality of the network over time, as technology advances, to meet business needs and ensure benefits are maximised;
- Forward planning to ensure an appropriate asset management and replacement strategy.

These management functions require major investment over the asset life cycle. The nature of these systems is that planning and procurement cycles are relatively long (1-5 years) and that a case exists for the ability to reserve spectrum to allow planning and procurement to occur with minimal risk of the required frequencies becoming unavailable.

A spectrum reservation system is crucial in that the availability of specific frequency bands has a major impact on the design, technical feasibility, environmental impact, availability and cost of suitable equipment and is limited by the topography on a case by case basis.

The existence of a suitable spectrum reservation system may also serve to reduce the opportunity for those intent on buying up application licences to prevent others from using them and lessening competition.

Priority User Interaction

Hydro Tasmania has in the past sought to use areas of the spectrum reserved for priority users (in this case, the Department of Defense), and is in fact still reliant on permission granted by the Department of Defense and the ACA on a “no interference to /no protection from Defense systems basis”.

Although it dates back to 1995, it is understood that this permission is an informal arrangement. This, along with the above quoted basis for use, still leads to uncertainty in security of tenure of the spectrum.

Hydro Tasmania proposes that a formal system, governing these arrangements be introduced. Compensation should be paid in the event that the spectrum is reclaimed.

Regional and Remote Areas

A vast number of Hydro Tasmania’s microwave radio links are situated in remote locations. The guidelines for apparatus licence technical requirements do not currently differentiate between densely populated metropolitan areas, and less densely populated regional and remote areas. The whole of Tasmania fits into the regional and remote category. It is considered that these stringent guidelines have the potential to add significant cost to radio system development in regional and remote areas.

Although the ACA has generally been open to relaxation of some of the apparatus licence technical requirements (eg. minimum parabolic antenna sizes, path length restrictions etc.), this is often by informal agreement.

The centralisation of the ACA’s spectrum management resources in the recent past has diminished and is likely to further diminish the ACA’s

knowledge of local conditions, and therefore its flexibility to appropriately deal with such requests in the future.

Hydro Tasmania proposes that the guidelines be reviewed with a view to providing greater differentiation between the requirements in metropolitan, regional and remote areas.

Emergency Services Interaction

Hydro Tasmania has major land holdings throughout the State of Tasmania. These land holdings along with Hydro Tasmania power station assets and environs are susceptible to bush fires.

A close working relationship has been developed over time with organisations such as Fire, the State Emergency Service and Tasmania Police, and Hydro Tasmania often assists with the provision of resources during emergency situations, for example, to fight bush fires.

Ready and joint access to spectrum and the ability to plan and migrate to shared systems in a cost effective and timely manner is seen as an important long term goal.

3.2 Spectrum Tenure

As an organisation for which access to digital microwave radio and mobile radio systems is mission critical, Hydro Tasmania needs to set aside capital for the significant investments that are required.

As stated earlier, the nature of these systems is that planning and procurement cycles are relatively long, depending upon the nature and size of the system or network. Also, a minimum operational life of 10 years needs to be extracted from such a system to encourage and in fact justify the required investment.

It follows that the necessary spectrum (apparatus licence) needs to be secured for at least 10 years. Hydro Tasmania is also of the view that a

case exists for a mechanism to permit the licence holder to take up an option to extend the period of tenure by a further 5 years, upon expiry.

Hydro Tasmania also believes that one of the fundamental tenets behind the concept of security of tenure, is that if spectrum tenure is terminated prior to the licence termination date, then compensation must be paid to cover

- the loss suffered, or
- re-location of the incumbent to another part of the band.

3.3 Spectrum Charges

It is evident that some radio frequency spectrum is more suited to commercial exploitation than others. A case in point is spectrum that is suited to the mobile telephone industry.

The auction process has been designed to extract the best return for those areas of the spectrum that are suited to that need.

As an organisation that provides an essential service to the community, and which operates in a regulated environment, Hydro Tasmania is concerned that the auction process be restricted to those areas of the spectrum for which it is most suited.

Hydro Tasmania does not object to paying reasonable fees, as is currently the case, for the use of the spectrum it currently has. It would be a serious concern if the level of fees were to be impacted by the auction process, or if other commercial organisations were to use the auction process to reserve and restrict spectrum with the aim of using this to commercial advantage.

3.4 The ACA and the Spectrum Management Role

Hydro Tasmania supports a review of the ACA with a view to improving the efficiency and effectiveness of processes that it has put in place for frequency assignment and management.

Hydro Tasmania has extensive experience in dealing with the ACA, and has found in recent years that there are two undesirable elements relating to the process for frequency assignment. They are:

- The necessity to deal directly with both the accredited frequency assignment organisation engaged by Hydro Tasmania and the ACA, where it should only be necessary to deal through the former; and
- The necessity to pay licence fees based on an initial quotation but without an invoice from ACA, only to find that when the design and assignment have been completed, a refund is generally payable. The additional steps pose inconvenience from a resource and accounting perspective.

Hydro Tasmania proposes that the licence categories, ie. spectrum licence, apparatus licence and class licence be reviewed with a view to reducing the administrative burden in the issuing and administration of the system and that consideration be given to a licence amalgamation system for large radio frequency spectrum users.

Finally, in the past the ACA has consulted widely with industry using forums. These forums and briefings have diminished over recent years. Hydro Tasmania believes that once again, industry consultation should become a priority.

4. CONCLUSION

Ready access to affordable radio frequency spectrum is mission critical to Hydro Tasmania and the rest of the electricity supply industry participants in Tasmania. The electricity supply industry provides an essential service to the community and is also a highly regulated industry.

This brief submission to the Productivity Commission Inquiry covers a broad range of topics that are of concern to Hydro Tasmania. They include:

- Special needs of the electricity industry and Hydro Tasmania;
- Special needs of the State of Tasmania;
- The need for longer term tenure of spectrum as a result of technology developments and capital investment requirements;
- The need to restrict the auction process to those areas of the spectrum where the community will benefit from maximising the commercial returns; and
- The need to review the processes and procedures of the ACA to ensure its ongoing efficiency and effectiveness.