

REVIEW OF ANCILLARY SERVICES ARRANGEMENTS (AND THE ROLE OF SYSTEM CONTROL)

Background

Under section 38 of the *Electricity Reform Act 2000*, the system controller for a power system in the Northern Territory is assigned the functions of monitoring and controlling the operation of the power system with a view to ensuring that the system operates reliably, safely and securely.

System control is itself a monopoly service subject to regulation by the Commission under both the *Electricity Reform Act* and the Network Access Code. The Commission has a range of regulatory powers that relate to, or impact on, these system control functions.

Some of these powers have already been exercised by the Commission, such as:

- the granting of a licence to undertake the system control functions in the power system, pursuant to section 14(3)(d) of the *Electricity Reform Act*;¹
- the approval of a technical code governing the system control functions, pursuant to section 38(1) of the *Electricity Reform Act*;²
- the approval of economic dispatch arrangements, pursuant to chapter 9 of the Network Access Code;
- the approval of power system control charges, pursuant to section 39(2) of the *Electricity Reform Act*;³ and
- the findings and recommendations of the Commission regarding the reliability and performance of the Territory's power system, pursuant to section 45(1) of the *Electricity Reform Act*.

By contrast, the Commission has yet to exercise other relevant powers, most notably, under Regulation 3 of the *Utilities Commission Act 2000*:

- the making of rules relating to the provision of ancillary services in the electricity supply industry; and
- the making of determinations relating to the prices for providing such ancillary services.

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¹ In June 2003, the Commission renewed Power and Water's system control licence for a period of five years. The system control licence is issued separately from generation and retail licences

² The System Control Technical Code was re-approved by the Commission in August 2003.

³ Since the establishment of the regulatory regime, the system control charge has been 0.10 cents per kWh applied as a postage stamp amount to all energy use in the interconnected Darwin-Katherine system.

Ancillary services

Ancillary services are services provided in support of the basic service of generating real power and injecting it into the grid, and in ensuring that the supply of delivered power is reliable and of high quality. Ancillary services benefit the entire market and are either public goods or have large external effects. Consequently, the market for ancillary services has a fully regulated demand side.

Apart from network security services,⁴ Power and Water Generation has been the sole supplier of ancillary services, as part of the bundle of services provided to its customers.

Regulation 3 of the *Utilities Commission Act 2000* defines “ancillary services” to include:

- reserve capacity;
- frequency support;
- load following services; and
- services necessary for the efficient and reliable operation of a power system (“other ancillary services”).

Reserve capacity includes spinning reserves and several lower qualities of operating reserves. Operating reserves are those reserves required to maintain *system security*⁵ by handling short-term disturbances to the system.

Frequency support involves real-power balancing (frequency stability) and voltage stability (for customers). Whenever a customer encounters trouble with the supply of power, either voltage or frequency will have deviated from its allowed range. In the extreme, a power outage is defined by zero voltage.

Load following services are subject to particular treatment in the Network Access Code.

Included in the *other ancillary services* category is black-start capability and post-trip management. If frequency and voltage drop too far for too long, load must be shed to rebalance demand with the diminished supply. Load shedding is a substitute for the service of restoring system frequency. (Shedding load always means the involuntary disconnection of load.)

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⁴ These services are supplied by Power and Water Networks. Compared with other networks, the electricity transmission and distribution system is quite fragile. Overuse can cause lines to overheat which can cause them to sag permanently or even to melt. It can also cause complex electrical problems that interfere with power flow. Because of such problems, most high-voltage power lines have automatic protective circuitry that can take them out of service almost instantly for their own protection. But protecting one line can endanger another and can cut off service to customers. The ancillary service of transmission security keeps the power grid operating.

⁵ System security is the ability of the power system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements.

Purpose and scope of a review

The Commission is mindful that ancillary services are integral to the management of the power system and so interrelate with the system control functions.

While a number of models are evident elsewhere, the Commission sees little alternative in implementing ancillary services arrangements in the NT context than to develop arrangements whereby ancillary services are purchased centrally by the system controller in the regulated power systems from Power and Water Generation. The main task therefore is distinguishing between (and making transparent) the purchaser and provider requirements.

In order to ensure that the decisions it takes with respect to ancillary services are consistent with the broader requirements of system control and management – and that any previous decisions are reconsidered where appropriate – the Commission has decided to develop purchaser and provider arrangements relating to ancillary services against the background of a wider consideration of the role of system control in the NT context.

In doing so, the Commission intends to consider:

- the most appropriate scope of ancillary services in the NT context; that is, which such services should the system controller be responsible for *purchasing* on behalf of all system participants and which can be left to the generators to determine for (or among) themselves;
- how the scope of ancillary services, and the associated arrangements, needs to differ between different sized (non-interconnected) systems in the Territory;
- the operational requirements necessary to ensure that ancillary services are purchased in the interests of all industry participants (and so is competitively neutral);
- the appropriate structure of charges for ancillary services, including between usage-based charges and common services fees and among different types of system participants (e.g., generators, end-users); and
- the conditions necessary before more market-based arrangements might play a role in the procurement of ancillary services from alternative providers.

In the process (or as a result), the Commission intends to revisit:

- the current system control charge (0.10 cents per kWh applied as a postage stamp amount to all energy use in the interconnected Darwin-Katherine system); and
- the role of the system controller in influencing ‘planning reserves’ as well as operating reserves (where planning reserves are those reserves required to maintain system adequacy⁶ by meeting annual demand peaks).⁷
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⁶ System adequacy is the ability of the power system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements.

⁷ Operating reserves can be purchased directly by the power system controller, but the market must be induced to provide adequate planning reserves. In the NT context, there

Review process and timetable

In the circumstances, the Commission has decided to proceed by first asking Power and Water, in its capacity as the holder of the *system control* licence in the regulated power systems, to develop an “ancillary services arrangement” for the Commission’s consideration and approval.

Following receipt of the proposed arrangement, the Commission intends to publish its preliminary assessment of those arrangements in the widest possible context and to seek the comments of interested parties. This would be followed by publication of the Commission’s draft decisions.

The Commission’s intention is for this consultation process to be completed in time for the Commission to finalise the necessary determinations and approvals for the resultant arrangements to have effect from 1 July 2004.

The timetable that will be guiding the Commission’s consultation process is attached.

Commission’s objectives for the review

The Commission will be guided by the objectives and principles set out in section 6(2) of the *Utilities Commission Act*.

Although these require the Commission to balance often conflicting objectives, the Commission’s aim for this review will be specifically to ensure:

- the costs of providing system control services (including the procurement of ancillary services) are reasonable and transparent;
- the associated arrangements and prices are competitively neutral;
- the system controller has an incentive to maintain and invest in efficient systems and continue to improve operational efficiency; and
- in the interests of all stakeholders, the associated regulatory costs are both proportionate and minimised.

Further inquiries

Any comments or inquiries should be directed in the first instance to:

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are reasons to believe that there might be scope for market failure in the provision of planning reserves. Currently, if the Commission finds in its power system reviews that planning reserves may be insufficient, its powers are limited to reporting such a finding, and its recommendations for addressing such a problem, to the Regulatory Minister.

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Timetable

Target	Event
8 October 2003	System control licensee to submit its proposed ancillary services arrangement
end October 2003	Publication of the Commission's preliminary assessment paper
end November 2003	Submissions due in response to the Commission's preliminary assessment paper
end January 2004	Publication of the Commission's draft decision, including a draft ancillary services code or rules
end February 2004	Submissions on the draft decision due, including relevant pricing submissions from the system control licensee
end March 2004	Publication of final report, including publication of the Commission's pricing determinations and the ancillary services code or rules