Issues Paper

Regulatory Treatment of the Darwin to Katherine Transmission Line

February 2001

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Definitions

"ACCC"	means the Australian Competition and Comsumer Commission
"Act"	means the *Electricity Networks (Third Party Access) Act 2000*
"Code"	means the *Electricity Networks (Third Party Access) Code* attached as a schedule to the Act, as amended
"Commission"	means the Utilities Commission established on commencement of the *Utilities Commission Act 2000*
"DKTL"	means the 132 kV transmission line which extends from the network 132 kV bus at Channel Island Power Station to a 132/22 kV substation adjacent to the Katherine Power Station, with a 132/22 kV substation at Manton and a 132/66 kV substation at Pine Creek
"first regulatory control period"	means the period between commencement of the Code (on 1 April 2000) and 30 June 2003
"NEM"	means the National Electricity Market
"PAWA"	means the Power and Water Authority of the Northern Territory
"PAWA Networks"	means the business division of PAWA with operating responsibility for the electricity networks owned by PAWA
"PAWA Retail"	means the business division of PAWA with operating responsibility for the sale of electricity to final consumers
"Regulatory Minister"	means the Territory Minister responsible for the operation of the Act (currently the Treasurer)

CHAPTER 1

INTRODUCTION

Background

1.1 This Paper addresses matters arising for the Commission following PAWA's acquisition of the 132 kV transmission line between Darwin and Katherine.

1.2 The Commission has approved a variation to PAWA's network licence to include the DKTL. Once legislative amendments necessary to the relevant legislation are enacted, the Regulatory Minister is also expected to prescribe the DKTL as a regulated network.

1.3 Together, these developments oblige the Commission to consider how best to incorporate the DKTL into the regulated network pricing arrangements already operating in the Territory.

Timetable

1.4 The network pricing arrangements previously approved from 1 October 2000 are expected to remain in force until 30 June 2001. Any changes arising out of PAWA's acquisition of the DKTL are not expected to impact on network tariffs until 1 July 2001 at the earliest.

1.5 To this end, the Commission is working towards the following timetable.

Due by Date	Action
1 April 2001	Commission to publish decision on incorporation of DKTL into revenue caps for 2001-02.
1 May 2001	PAWA to submit proposed network tariff schedules for 2001-02 (including any DKTL-related tariffs).
25 May 2001	Commission to consider approval of proposed tariffs.
1 July 2001	If approved, revised tariffs to take effect.

Submissions

Call for submissions

1.6 Public involvement is an important element of regulatory decision-making processes. Submissions are therefore invited from interested parties concerning the issues that need to be addressed before the DKTL can be appropriately included in the network prices regulated by the Commission.

1.7 Submissions, comments or inquiries regarding issues raised in this paper should be directed to:

Executive Officer
Utilities Commission
GPO Box 915
DARWIN NT 0801

Telephone: (08) 8999 5480
Fax: (08) 8999 6262

Email: utilities.commission@nt.gov.au

1.8 The **closing date** for submissions is **Friday, 2 March 2001**.

Confidentiality

1.9 In the interests of transparency and to promote informed discussion, the Commission intends to make submissions publicly available. However, if a person making a submission does not want their submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available.

Public access to submissions

1.10 Subject to the above, submissions will be made available for public inspection at the office of the Commission, or on its website at www.utilicom.nt.gov.au.

1.11 To facilitate publication on the Commission's website, submissions should be made electronically by disk or email. However, if this is not possible, submissions can be made in writing.

1.12 Information about the role and current activities of the Commission, including copies of reports, papers and submissions can also be found on the Commission's website.

CHAPTER 2

REGULATORY TREATMENT TO DATE

Network regulation

2.1 The Territory's electricity network industry is a regulated industry under the *Electricity Networks (Third Party Access) Act 2000*. The Code contained as a schedule to the Act facilitates third-party access to regulated electricity networks.

2.2 The role of the regulator in the Code is assigned to the Commission. The regulator's two principal functions under the Code are:

- to settle any network access disputes through conciliation and, where necessary, by appointing an arbitrator; and
- to regulate access prices.

2.3 Access to PAWA's electricity networks in Darwin, Katherine, Tennant Creek and Alice Springs has been regulated in this way since 1 April 2000.

Regulatory status of the DKTL

2.4 As it stands currently, section 5 of the Act excludes the DKTL from the coverage of the Code. As a result, the Commission has not been authorised to regulate the tariffs and charges for usage of the DKTL.

2.5 However, payments made by a regulated network provider to other network providers – whether the other network provider is regulated or not – are recognised in the Code.[1]

[1] Under the contractual arrangements with the former owners of the DKTL, PAWA has been paying in excess of $5 million per annum for the use of the DKTL.

2.6 In particular, among the factors that the Commission as regulator has been required to take into account in setting a revenue cap for a regulated network provider (set out in clause 68 of the Code) is:

> "...the right of a network provider to recover reasonable costs for tariffs and charges paid to other network providers irrespective of whether these tariffs and charges are regulated under this Code." (clause 68(f)(ii))

2.7 While this provision does not enable the Commission to regulate directly the amount paid by the regulated network provider, as dealt with in more detail below it does permit the recovery of reasonable costs from the users of the regulated network within the regulated network tariffs.

Regulated network tariffs: April-June 2000

2.8 In the network tariffs approved from 1 April 2000, the Commission did not approve recovery of PAWA's DKTL costs.

2.9 In its decision of 24 March 2000, the Commission indicated that it was not prepared to approve PAWA Networks' proposed method of recovery of its DKTL costs. PAWA Networks proposed allocating the cost involved between PAWA Retail and other users of PAWA's networks on the basis of respective shares of nominated peak capacity from the line for various customer locations.

2.10 The Commission did not disagree that the DKTL payments were a cost which PAWA could expect to recover from its own customers. Instead, at issue was which part of PAWA should recover those costs, which customers should pay and whether the costs were reasonable. The Commission considered that – at that time – it did not have the information necessary to decide whether it was appropriate for PAWA's DKTL costs to be recovered from users of PAWA's networks other than PAWA Retail, let alone on what basis.

2.11 The Commission indicated that the parties would need to agree on the nature of the access arrangements before the Commission could determine the appropriate treatment of PAWA's DKTL costs. As to the nature of access to the DKTL, the Commission sought clarification regarding:

- The nature of the contract. Do PAWA's payments confer a right to the line? If so, is it an exclusive right?
- Who are the parties to the contract? Is the contract with PAWA as a network operator or PAWA as a retailer/generator?
- The nature of the service provided by the line. Is the line part of the meshed network that provides part of the general network capacity rather than a dedicated asset?
- The appropriateness of the payments for use of the line. Are the payments cost reflective and non-discriminatory between users (in terms defined under clause 74 of the Code)? Are the payments otherwise reasonable under clause 68 of the Code?

2.12 The net effect of the Commission's decision was that recovery of PAWA's DKTL costs was left (unregulated) to PAWA during the April to June 2000 period on the proviso, in effect, that no part of the amount was to be recovered from third-party users of PAWA's networks. In doing so, the Commission urged the parties involved to address the issues preventing the Commission from adjudicating on the appropriateness of the amount and method of the recovery.

2.13 The Commission nonetheless recognised that the competitive neutrality concerns expressed by PAWA did have some basis – depending upon the charging arrangements applied for usage of the DKTL once there are users of that line other than PAWA. It was the Commission's view, from a competition perspective, the most important requirement for the transmission line was that the pricing for its use be competitively neutral, and so should not favour either PAWA or any potential new entrants.[2]

Regulated network tariffs: 2000-01

2.14 As to the network tariffs to apply in 2000-01, the Commission was not able to reach agreement with PAWA Networks on the tariffs to apply in 2000-01 until August 2000. As a result, the tariffs approved for the three month period through to 30 June 2000 continued to apply until the revised tariffs took effect on 1 October 2000.

2.15 The network tariffs approved by the Commission from 1 October 2000 included the recovery of PAWA's DKTL costs. In particular, in its approval of

[2] In correspondence with PAWA (dated 25 May 2000), the Commission expressed its views as follows:

> "The Commission considers that a network usage charge facing an individual contestable customer should not vary according to the customer's choice of supplier (generator). It was for this reason that the Commission acknowledged PAWA's concerns previously about the competitive neutrality violations arising were PAWA to continue to be the only generator paying for use of the DKTL.
>
> Recovering the DKTL cost by a network charge that takes account of the location of a contestable customer's generator is inappropriate because it would:
>
> - involve overlooking the original purpose of construction of the DKTL (which was not built specifically to enable a power station located between Darwin and Katherine to connect to the line); and
> - imply that the DKTL was a generation connection asset, rather than a system (or meshed network) asset.
>
> The "locational signals" sought by PAWA should be sufficiently met by:
>
> - the impact of energy losses on the effective energy charge imposed on end-use customers by the generators involved;
> - the charges for connection assets at the entry point to the network; and
> - any future augmentation of the DKTL directly resulting from a decision by a generator to connect new or additional generation capacity to the DKTL itself most likely attracting a capital contribution from that generator."

30 August 2000, the tariffs and charges approved for the Northern grid incorporated a surcharge for the purpose of recovering PAWA's DKTL costs.

2.16 This outcome reflected indications, subsequent to the Commission's April-June 2000 decision, that a recovery of PAWA's DKTL costs from users of PAWA's Darwin-Katherine distributions networks would be acceptable to parties with access agreements with PAWA, provided it was done on a competitively-neutral basis.

2.17 In its 2000-01 network tariff submission, PAWA proposed a surcharge that shared the DKTL cost across all users of the distribution part of the network in proportion to their use of the (inter-connected) system. The proposal was to take account of the usage by all end-use customers connected to the Darwin-Katherine system irrespective of their primary source of power.

2.18 The Commission acknowledged that treating PAWA's DKTL costs as a common cost in this way meant that the proportion of costs met by an individual contestable customer using PAWA's distribution networks would not change if the customer chose one supplier over another. The Commission endorsed this approach as it gave rise to a competitively neutral outcome.

2.19 PAWA Networks agreed to structure the DKTL surcharge on a flat cents per kWh basis. The Commission approved the incorporation of a 0.474 ¢/kWh surcharge in the peak and off-peak energy charge components of the Northern grid network tariff, to be paid by all customers connected to the Darwin-Katherine system irrespective of their supplier. PAWA Networks based this surcharge on an estimate of its DKTL costs in 2000-01 of $5.287 million.

Unresolved regulatory challenges

2.20 The Commission's approval of a DKTL surcharge applying to users of PAWA's Darwin-Katherine distribution networks was the best outcome possible given the limited scope available to the Commission in dealing with the DKTL. However, it did not resolve all the outstanding issues from a regulatory perspective.

2.21 As noted at the time, the Commission's approval of the DKTL surcharge did not imply that the current amount payable by PAWA was necessarily a reasonable amount in the longer term. For this reason, the Commission indicated that it was only prepared to use the amount currently payable by PAWA as a basis for the charges to apply in 2000-01.

2.22 Also, the Commission's approval of a DKTL surcharge on users of PAWA's Darwin-Katherine distribution networks did not address the considerable uncertainties that continued to exist about the terms and conditions of third-party access to the DKTL itself.

2.23 In the Commission's view, bringing the DKTL directly under the regulation of the Commission was essential before full scrutiny of the charges borne by electricity consumers for use of the DKTL would be possible. The

Commission was also acutely aware that the hostile and litigious environment between PAWA and the NT Power Group would complicate negotiation of the terms under which the DKTL could become a regulated network under the Territory's network access regime.

CHAPTER 3

THE DKTL ACQUISITION

Terms of acquisition

3.1 On 10 November 2000, PAWA purchased the DKTL from the NT Power Group at a cost of $43 million.

3.2 The Commission understands that, besides the poles and wires involved in the line, the assets purchased included zone substations at Katherine, Pine Creek and Manton and Channel Island switching yards.

3.3 Other aspects of the purchase which have been publicised are:

- NT Power is to continue to operate and maintain the line for two years on commercial terms, after which PAWA will determine if it wants to undertake operation and maintenance or contract it out – a fee of $1.2 million per year has been mentioned, dependent on the specific maintenance needs; and
- land at Channel Island is to be sold at market value to NT Power to enable the company to construct a new power station.

Previous ownership arrangements

3.4 NT Power itself purchased the DKTL outright in September 1998.

3.5 Initially, the line was constructed by the private sector in 1988 and 1989 under a BOOT[3]-type arrangement. Like many such schemes at the time elsewhere in Australia, this private sector involvement owed much to the 'global limits' on public borrowing introduced through Commonwealth-State agreement during the mid-1980s. In these circumstances, the Territory government opted for private sector investment to ensure construction of the transmission line.

[3] Build–Own–Operate–Transfer.

3.6 The DKTL was sold in 1990 to the NT Power Trust for $52 million, with NT Power Pty Ltd operating it on behalf of the Trust for an expected 20 years.

3.7 The arrangement was that PAWA would pay the owner and operating company for its use of the line. That company would then meet the Trust's obligations to its bankers.

3.8 As was usual for such investments at the time, the Government provided the Trust's bankers with a guarantee covering PAWA's obligation to pay sufficient money to operate the line and to service the Trust's debt.

Rationale for the acquisition

3.9 The Government has outlined the reasons for PAWA's acquisition of the DKTL in terms of the acquisition:

- providing a strategic asset for the Territory;
- resolving a potentially expensive legal situation, associated with a New South Wales court case over whether the Territory's guarantee of PAWA's obligations survived the NT Power's 1998 refinancing, thereby reducing the chance of further disputes;[4]
- reducing PAWA's annual financial outlays from $4.1 million in rental to about $3.1 million in interest, a savings of $1 million a year; and
- bringing the transmission line within the regulatory framework, making arrangements for access to the DKTL by present and future electricity producers less complicated and more transparent.[5]

Regulatory implications

3.10 The Act provides that the Code only applies initially to the prescribed electricity networks operated by PAWA.

3.11 However, provision was made in the Act for the DKTL's inclusion in the regulatory regime, based on the DKTL remaining privately owned, notably:

- the current Code was to be reviewed to take into account the characteristics of privately owned networks; and
- the revised Code had to be certified as an 'effective' regime under Part IIIA of the *Trade Practices Act 1974* of the Commonwealth.

3.12 Before the DKTL can be regulated under the Code under government ownership, it will be necessary to amend these particular provisions of the Act.

[4] Hansard: *Parliamentary Record No.26, 28 November 2000*, Minister for Essential Services, Ministerial Statement – PAWA's Purchase of Darwin to Katherine Transmission Line.

[5] Hansard: *Parliamentary Record No.26, 28 November 2000*, Treasurer, Ministerial Statement – PAWA's Purchase of Darwin to Katherine Transmission Line.

3.13 The Commission recognises that PAWA's purchase of the DKTL provides an opportunity to develop a uniform approach to the regulation of the interconnected Darwin/Katherine electricity network. The DKTL is a significant network asset that has the potential to generate considerable economic benefits from its role in developing the Territory's electricity market.

3.14 Equally, consistent with its statutory obligations, the Commission has a responsibility to ensure that network users in the Territory end up only paying a 'fair and reasonable' amount for future use of the DKTL, with any non-networks elements of the transaction being to the account of the shareholder alone.

3.15 In conjunction with network users, PAWA and other interested parties, the Commission must address two questions:

(1) what is an appropriate level of revenue for the new owner of the DKTL to receive for allowing access to the asset; and

(2) how should that revenue be recovered as prices, who should pay and how should the prices relate to the prices that apply to other network assets?

3.16 Before addressing each of these issues in turn (in Chapters 5 and 6), the Commission first explores (in Chapter 4) the role that the DKTL currently plays – and may play in the future – in the Territory's power system, on the grounds that the particular attributes of the line will importantly determine the most appropriate regulatory approach to be taken.

CHAPTER 4

DKTL CHARACTERISTICS

Importance of network characteristics

4.1 By any measure, the DKTL is a significant network asset. Its regulation raises all the economic and technical issues that would be associated with any network asset of this size. However, the DKTL is distinguished by its unique position within the Territory's power system.

4.2 While electricity networks serve the common function of delivering electricity from the point of generation to the point of final consumption (also referred to as load), they can vary greatly in complexity and scale. As complexity or scale increases, so does the range of components that make up the network:

- a relatively simple self-contained network may contain only low voltage wires linking small local generators and loads; and
- a more complex network may contain a mix of high voltage wires that transmit electricity from larger remote generators to areas of load, lower voltage wires that distribute the electricity within these areas to individual loads, and possibly high voltage links to other adjacent networks.

4.3 Typically, in Australia, the local *distribution* network is taken to end at the 66 kV level and the high voltage *transmission* network to begin at 220 kV. Assets that fall within this range are assessed individually, according to their operational characteristics.[6]

[6] The National Electricity Code provides for assets that operate between 66 kV and 220 kV in parallel to and provide support to the transmission network to be considered as part of the transmission network. The classification of other assets in this range is left to the relevant regulator to determine.

4.4 The division of electricity networks into (high voltage) *transmission* and (lower voltage) *distribution* components may be somewhat arbitrary, but it reflects important operational and economic factors:

- the transmission network usually forms the backbone of the interconnected electricity system (or grid) – control of the transmission network is essential to the stability and security of the power system; and
- by providing the primary link between remote generation and areas of load, the availability and cost of transmission can be a key determinant of the effectiveness of the electricity market in meeting end users' energy service needs efficiently.

4.5 In recognition of these factors, it is common (though not essential) for the provision, pricing and regulation of transmission services to be handled separately from distribution.

Role of the transmission line

4.6 Prior to construction of the DKTL, the Darwin and Katherine distribution networks were not connected. The transmission line served to inter-connect the two power systems, thereby:

- improving generation efficiency – by enabling the coordinated operation of large base-load generators at Channel Island, smaller peaking load sets at Katherine, and diverse customer demand profiles in Darwin and Katherine;
- increasing system reliability – with alternative generation available were a generator to fail; and
- providing a capacity to connect mining operations between Darwin and Katherine to the power system.

4.7 As the Commission understands the situation, the relevant features of the DKTL are as follows:

- the DKTL is 132 kV transmission line which extends from Channel Island Power Station to the Katherine Power Station, with substations at Manton and Pine Creek;
- on construction, the service life of the DKTL was anticipated to be 40 to 50 years;
- the regional distribution networks connected by the transmission line contains both load and generation;
- load may flow in either direction along the line, depending on the instantaneous balance of load and generation in each region;
- flows between the regions may occur for reasons of system security and stability (ie in response to unplanned generation outages or unforeseen demand peaks) or for economic reasons (such as

coordinated maintenance outages, the optimisation of plant use in response to fuel costs and availability, or weather or other conditions);

- some generation capacity and loads outside the regional networks (direct supply) are also connected to the line, although the duration of these direct connections can be uncertain – with new loads dropping in and out at relatively short notice;
- the level of usage relative to capability is not known, but it is assumed that, under a range of growth and plant availability scenarios covering the medium term, there would be considerable spare capacity and very low probability of congestion (it should be noted that 'spare capacity' is a general term and that the measurement of usage and congestion is much more time and location specific); and
- in the absence of the line, costs would be incurred through:
  - additional generation capacity to meet load requirements and adequate reserve in Darwin, Katherine and at existing/future direct supply locations (reserve in total may need to be higher due to the concentration of risk ie reduced diversification of supply source); and
  - a loss of plant optimisation opportunities (across existing and future capacity at Darwin, Katherine and direct connection locations).[7]

Issues for consideration

4.8 The Commission invites network users, PAWA and other interested parties to respond to the following types of questions:

(1) Has the Commission correctly identified and characterised the relevant features of the DKTL?

(2) Are there any additional features of the DKTL which the Commission should consider?

(3) Is there any disagreement with the Commission's earlier assessment (cited in footnote 2 above) that:

- *the DKTL was not built with a view to enabling a power station located between Darwin and Katherine to connect to the line; and*
- *the DKTL is a generation connection asset, rather than a system (or meshed network) asset?*

[7] These costs would be partially offset by avoided DKTL operating expenditure.

CHAPTER 5

KEY REVENUE CAP ISSUES

Relevant elements of regulation

5.1 Along with most regulatory regimes for monopoly network services, the Code includes a form of revenue control. Revenue caps set a limit on the maximum aggregate revenues that may be collected from users of the regulated services each year. Based on an analysis of efficient costs, this control is intended to:

- eliminate monopoly pricing and so replicate the revenues that would be earned by an efficient provider of the services operating in a competitive market; and
- provide a fair return to network owners and create incentives for continuing efficiency gains through cost reductions.

5.2 The so-called 'building block' approach is specified as the basis of revenue control in the Code. This caps revenues at the sum of 'efficient' capital and operating costs (including any allocation of overhead costs). Efficient capital costs include a fair return *on* the capital invested in the assets required to provide the services and a return *of* that capital over time. Efficient operating costs take into account the services provided and an estimate of the level of efficiency that may reasonably be expected of the provider.

5.3 This approach establishes the issues that the Commission must consider when incorporating the DKTL into the revenue cap arrangements, notably:

(1) the appropriate value to be used for the additional (DKTL) assets employed;

(2) whether any adjustment to the rate of return is required to take account of the nature of the line as a transmission, rather than distribution, asset; and

(3) the 'efficient' additions to be made to depreciation and operating costs.

Asset value?

5.4 The value of regulated assets is fundamental to the calculation of the allowed return on capital and return of capital. The use of efficient asset values is intended to protect network users from the costs of poor investment decisions and over-building by network providers.

5.5 The principal issue here is the asset value to be included in the revenue cap calculation with respect to the DKTL.

5.6 The Code requires that network assets acquired after commencement of the Code (during the first regulatory control period) are to be valued at cost.[8]

5.7 Revaluations for regulatory purposes (for subsequent regulatory control periods) are to be undertaken on a basis approved by the Commission. Possible approaches are:

- valuing the service capacity that is expected to be required over the life of the line at current efficient replacement costs, which would currently involve the use of a depreciated optimised replacement cost (DORC)[9] value; and
- assessing the costs that would be incurred by market participants if the service provided by the line was not available.[10]

5.8 While departure from "cost" is therefore permitted for regulatory purposes when PAWA's assets are revalued at the commencement of the next regulatory control period (expected to be the five year period commencing 1 July 2003), under the Code the Commission is obliged to value the DKTL assets "at cost" until then.

5.9 However, valuing the DKTL assets at cost does not necessarily mean that the appropriate value for regulatory purposes is the $43 million purchase price.

5.10 At issue for the Commission is not whether the purchase price was sufficiently arms' length or whether the price paid reflects the line's replacement value – both ruled out for the moment by provision of the Code – but whether the $43 million figure includes payment for considerations in addition to the purchase of the transmission assets making up the line itself.

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[8] See para. 5(5) of Schedule 7 to the Code.

[9] The depreciated optimised replacement cost (DORC) of the asset is the cost of meeting current (and projected future) supply needs with the most technically efficient design and configuration of the asset based on the existing system configuration.

[10] These costs would include, for example, the additional generating capacity that may be required to meet demand and reserve margins in Darwin, Katherine and at the direct connection points along the line. There would also be an increase in cost from the loss of plant optimisation opportunities across the interconnected system that the line provides. Offset against this would be the avoided cost of operating and maintaining the line.

5.11 In acknowledging that PAWA "...paid a little more than replacement value"[11], the Government indicated that:

- the transaction was part of a legal settlement;
- legal costs associated with an unfinished court case might be avoided; and
- certain 'hidden costs' in the form of the time and 'distraction' of senior public servants involved in the court case and settlement negotiations could also be avoided.

5.12 Clearly, these additional 'settlement benefits' represented a real value to the Government and may need to be quantified in order to establish an underlying cost price on the DKTL assets themselves.

5.13 Much depends on whether these settlement benefits are ultimately to the benefit of network users alone (in which case users should pay for them just as much as for the assets themselves) or whether the beneficiaries of these 'settlement benefits' include other power consumers as well or indeed whether it is the Territory taxpayers who are the real beneficiaries (and therefore should be the ones directly bearing any cost).

WACC adjustment?

5.14 The next issue for the Commission is whether to adjust PAWA's allowed weighted-average cost of capital (WACC) for differences in business risk arising from including the transmission business along with PAWA's existing distribution businesses.

5.15 In its network determinations to date, the Commission has allowed PAWA to earn 7.94% on a real-terms, pre-tax basis on its distribution assets. This rate was selected following an analysis of risk-adjusted rates of return in comparable industries.[12] A key issue to be determined is whether the level of undiversifiable risk for PAWA Networks is materially affected by the inclusion of the DKTL within its asset base.[13]

5.16 Factors causing business risk to increase may be associated with the characteristics of the line and the prospect that technology and market

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[11] Hansard: *Parliamentary Record No.26, 28 November 2000*, Minister for Essential Services, Ministerial Statement – PAWA's Purchase of Darwin to Katherine Transmission Line.

[12] Utilities Commission, *Revenue Determinations 2000-01 to 2002-03*, June 2000.

[13] Strictly speaking, at issue is whether the asset beta applicable to transmission assets in the NT context is materially different to that applicable to distribution assets. The beta term is a measure of expected volatility of the return on an investment in a particular firm relative to the market as a whole. Beta measures the risk that is particular to that firm and that cannot be eliminated through diversification. The total risk of a business activity can be separated into two distinct classes of risk, being undiversifiable and diversifiable risk. Basically, undiversifiable risk (known as beta) relates to the correlation between the riskiness of an entity compared to the market as a whole.

changes may reduce the economic attractions of using the line over time. Generators connected to the line may relocate, and mines supplied by the line may close down.

5.17 Factors causing business risk to fall may be associated with integration of distribution and transmission operations.

Efficient depreciation and operating costs?

5.18 The building blocks approach also allows a return of capital (depreciation) and of operating costs.

5.19 The Commission's usual approach to depreciation of the DKTL would be to adopt an assumption for the DKTL's economic life consistent with comparable transmission assets in other jurisdictions. There may be climatic factors which should be taken into consideration, or there may be other reasons why the economic life of the DKTL could be less than the remaining physical life of the assets involved.

5.20 On expected operating and maintenance costs and any overhead allocation on account of the addition of the DKTL to PAWA's network operations, the Commission's usual approach would be to seek cost information from PAWA Networks and to consider whether it is necessary to review such costs against appropriate efficiency benchmarks.

Issues for consideration

5.21 In conjunction with network users, PAWA and other interested parties, the Commission must address what is an appropriate level of additional revenue for PAWA to receive for allowing third-party access to the DKTL.

5.22 The Commission therefore invites network users, PAWA and other interested parties to respond to the following types of questions:

(1) What value, if any, should be placed on the 'settlement benefits' component of the $43 million purchase price?

(2) To what extent should network users – as opposed to (a) other power consumers, and (b) Territory taxpayers – pay for these settlement benefits?

(3) What factors should the Commission take into account when assessing whether the business risks facing a network business in the Territory are affected – up or down – by inclusion of a transmission line like the DKTL?

(4) For depreciation purposes, are there any physical, climatic or market factors which mean that the asset life used with respect to the DKTL assets should be less than the asset lives typical for comparable transmission assets in other jurisdictions?

(5) Are there any features of the expected operating and maintenance arrangements associated with the DKTL which might see costs departing from appropriate efficiency benchmarks?

CHAPTER 6

KEY PRICING ISSUES

Relevant elements of regulation

6.1 Besides imposing revenue caps, the Code – like most regulatory regimes for monopoly network services – also includes regulatory oversight of the structure of network tariffs. This reflects the fact that network tariffs, besides recovering the revenue required to maintain the viability of the network business, also provide important signals to electricity market participants.

6.2 The Code requires tariff approval by the Commission on an annual basis. This is achieved by the Commission's approval of PAWA's network pricing principles and methodology at the commencement of a regulatory control period, with the annual tariff approval process within that period being of proposed tariffs against the approved principles and methodology.

6.3 PAWA has established the level of its existing network tariffs by application of the fully distributed cost (FDC) principles and methodology summarised in its approved Pricing Principles Statement.[14] PAWA's approved Pricing Principles Statement gives practical expression to the Code's pricing objectives. That is, the Statement indicates how, in practice, PAWA undertakes network pricing such that the regulator and consumers can have confidence that the pricing objectives set by the Code will be achieved.

6.4 PAWA's network tariffs for contestable customers involve a standing charge as well as both demand and energy related components. This tariff is designed, among other things, to signal to customers that demand carries responsibility for system capacity and hence cost, and to provide incentive to customers to manage their demand on the system.

6.5 PAWA's network tariffs for non-contestable customers consist of a standing charge and an energy charge only, although the energy charge includes a component to reflect demand.

[14] Power and Water Authority, *Network Pricing Principles*, August 2000.

6.6 These tariff structures differ to varying degrees from the present DKTL surcharge (described in Chapter 2).

6.7 Against this background, the issues that the Commission must consider when approving how the DKTL is to be incorporated into the network pricing arrangements are:

(1) whether the DKTL should (continue to) be separately charged, involving a 'transmission tariff' distinct from the existing distribution tariffs; and

(2) what structure the recovery of DKTL revenues should take, in particular the relative weight to be given to fixed, demand, capacity and volume components and to locational signals.

6.8 The first set of issues basically relates to how costs should be allocated among alternative groups of customers. The second basically relates to the translation of allocated costs into network prices.

Separate transmission tariff?

6.9 The separate transmission tariff currently in place (the DKTL surcharge on distribution tariffs) reflects the constraints imposed by the previously unregulated status of the DKTL. With the DKTL becoming a regulated network asset, the Commission can reconsider whether the DKTL should continue to be charged separately, or fully absorbed into the existing distribution tariff structure.

6.10 The main services provided by PAWA as a network provider are:

- connection services – either new or ongoing – relating to exit and entry services and facilities at the point of physical interconnection with the networks which are dedicated to a user (where 'entry assets' refer to connection assets for generators and 'exit assets' are those for end users);
- common services, relating to ancillary services such as control system services (e.g. system control centres, supervisory control and communications facilities) and voltage control services in the networks; and
- use of the network system (use of system services).

6.11 As a network provider, PAWA has a choice as to which of these services are charged for individually and the extent to which the charging for various services may be bundled together. In making these choices, PAWA must also decide the assignment of such tariffs between the different groups of network users, notably generators and end-use consumers.

6.12 The separate pricing of transmission and distribution services in most regulatory regimes essentially reflects a judgment that transmission price

signals are of sufficient importance to the effectiveness of the market to warrant a separate analysis. However, most customers are connected at the distribution level, and therefore receive a bundled network tariff incorporating both transmission use-of-system (TUOS) and distribution use-of-system (DUOS) tariffs.

6.13 Incorporating the DKTL into PAWA's network pricing therefore raises the question of whether a separate transmission price category should be established.

6.14 Transmission pricing arrangements can be a key component of the electricity market, affecting:

- the location and competitiveness of generators and customer loads;
- the efficient use of existing transmission assets and the economic benefits that result;
- decisions on where and when to invest in new transmission assets; and
- the ability of non-network alternatives, such as embedded generation and demand side management, to compete with network service providers.

6.15 A separate TUOS tariff would allow for pricing signals that are specific to the asset. This may lead to more efficient outcomes by avoiding the cost averaging that occurs in distribution pricing. Transmission usage charges could be employed to signal marginal costs to users at points on the line where these are material.

6.16 However, care would be needed to ensure that a separate TUOS tariff did not lead to inconsistencies in the treatment of market participants that were anti-competitive. In the relatively small Darwin/Katherine systems, some network elements that would normally be classified on the basis of size as distribution assets may in practice operate more as transmission assets, by linking generation to load for example. It is equally important to deliver efficient price signals for these assets as for the DKTL.

6.17 The price signalling advantages of a separately-constructed TUOS charge are reduced where congestion costs are low. In these circumstances, greater emphasis would be placed on setting prices to recover the allowed revenue in a manner that minimises distortions to consumption and investment. This objective may be more compatible with the cost averaging that occurs in distribution pricing, thereby diminishing the grounds for a separate transmission tariff.

6.18 To assess the pricing options, the Commission will require information on the level of use of the transmission line and the likelihood and magnitude of congestion costs. If an analysis of congestion costs indicates that these are unlikely to be relevant over a medium term timeframe, a separate TUOS tariff would appear to be unnecessary. This would not, however, preclude the

introduction of such tariffs in the future as and when indicated by usage levels.[15]

Structure of any DKTL network tariff?

6.19 The transmission charge currently in place (the DKTL surcharge on distribution tariffs) involves a 0.474 ¢/kWh surcharge in the peak and off-peak energy components of the Northern grid network tariff (DUOS). Once again, this structure reflects the constraints imposed by the previous unregulated status of the DKTL. With the DKTL becoming a regulated network asset, the Commission can also reconsider whether any DKTL-specific tariff should only have an energy component or also demand and capacity components and the like.

6.20 With respect to its nominated tariffs, the main tariff design issues facing PAWA as a network provider relate to:

- the 'structure' of that tariff, involving the relative weights to be given to fixed and variable components and to demand and capacity charges in any variable component;
- the determination of the number and size of steps to include in its tariff structure;
- the extent of any time of use variations; and
- the inclusion or otherwise of locational (or zonal) variations.

6.21 It is the relevant proportions and method of application of these components of network prices that determine the effect of the prices on economic efficiency. The main guidance provided by economic principles is that network prices should be structured to reflect the key (marginal) cost drivers, such as demand, capacity and volume.

6.22 Currently, the DUOS tariffs applying in the Darwin and Katherine networks involve a standing charge as well as both demand and energy related components with a declining block structure. Network assets are treated as forming a single regional distribution system (the Northern grid).

6.23 The issues worthy of the Commission's consideration in this area have been highlighted by the recent review of transmission pricing arrangements in the NEM. To date, these arrangements require tariffs to be based on a combination of cost reflective network pricing (CRNP), which attempts to allocate asset costs to the users of those assets, and average pricing (postage stamping). Transmission usage tariffs are only levied on customers (offtakes). Generators (injections) only pay the cost of their connection to the system.

[15] There are clearly areas of overlap between these pricing issues and the technical and economic judgments that will be required to reset the regulatory value of the asset prior to the next regulatory control period. In setting the asset value, judgments will be required on the service that the line provides, the optimal means of providing that service and whether and to what extent there is congestion, spare capacity or redundant capacity.

6.24 These arrangements have been criticised for not providing clear and consistent signals to all network users. Following a review by the National Electricity Code Administrator, a number of proposals for modifying the method of calculation have been submitted to the ACCC for authorisation. The ACCC has responded with a draft determination that, if implemented, will lead to significant changes in the approach to transmission pricing in the NEM.[16]

6.25 Among the main findings of the ACCC are that:

- CRNP and postage stamp prices should be replaced by a combination of transmission usage prices and a transmission general charge;
- the objective of the usage price should be to promote efficient use of the transmission network. The prices should:
  - be universal and symmetric (send equivalent signals to all transmission users, both offtakes and injections);
  - reflect the level and location of congestion (by signalling the marginal costs of usage); and
  - take into account other transmission usage signals present in the market (such as losses);
- the general charge should be used to make up any difference between revenue recovered through the usage charge and allowed revenue. The general charge should:
  - be minimally distorting, to preserve the marginal cost signals delivered through the usage charge; and
  - be levied on market customers (offtakes) only; and
- distributors should be required to preserve, as far as practical, transmission usage price signals when formulating bundled network charges for their customers.

6.26 The ACCC analysis of transmission pricing identifies some key requirements of efficient prices, notably that:

- usage prices should reflect the level and location of congestion, be based on marginal costs and apply universally and symmetrically to injections and offtakes (through either charges or rebates); and
- residual revenues should be made up by general charges levied on market customers (offtakes) in a manner that minimises distortions to consumption and investment, minimises price shocks and is practical and stable.

6.27 The Commission is concerned that the method of revenue recovery with respect to the DKTL:

- sends the appropriate signals for the economic use of the line;

[16] Australian Competition and Consumer Commission, *Applications for Authorisation. Amendments to the National Electricity Code. Network Pricing and Market Network Service Providers*, 12 December 2000.

- does not inhibit the competitive development of the market; and
- is consistent with the price signals provided by existing network charges.

6.28 It may be that there are some trade-offs to be made between these various goals.

Issues for consideration

6.29 In conjunction with network users, PAWA and other interested parties, the Commission must address how the additional revenues available to PAWA for allowing access to the DKTL is best recovered as prices, who should pay and how should the prices relate to the prices that apply to other network assets.

6.30 The Commission therefore invites network users, PAWA and other interested parties to respond to the following types of questions:

(1) Should the additional revenues allowed to PAWA Networks on account of its ownership of the DKTL be recovered through a specific DKTL tariff, which could be characterised as equivalent to a TUOS tariff, or through a modified form of the existing tariffs that apply to the Darwin and Katherine distribution networks?

(2) Is there any evidence of congestion problems on the line, or is there any prospect of such in the foreseeable future, that would warrant a separate TUOS tariff on account of the DKTL?

(3) Are specific usage charges warranted with respect to use of the DKTL, in order to send appropriate signals for the economic use of the line, and what importance should be attached to locational signals in this regard?

(4) Is there any disagreement with the Commission's earlier assessment (cited in footnote 2 above) that locational signals should be sufficiently met by:

- *the impact of energy losses on the effective energy charge imposed on end-use customers by the generators involved;*
- *the charges for connection assets at the entry point to the network; and*
- *any future augmentation of the DKTL directly resulting from a decision by a generator to connect new or additional generation capacity to the DKTL itself most likely attracting a capital contribution from that generator?*

(5) If specific usage charges appear to be warranted with respect to use of the DKTL, how should consistency with the price signals provided by existing network tariffs be best achieved?

(6) If the DKTL revenues are to be recovered through the existing types of network tariffs, which could be characterised as equivalent to a DUOS tariffs, should they be incorporated as an additional high voltage element or as an averaged charge?

(7) How might competitive development of upstream and downstream markets be affected by the alternative forms which PAWA's recovery of the DKTL revenues might take?