



**SUBMISSION  
TO THE  
QUEENSLAND COMPETITION AUTHORITY:**

***SKM Asset Valuation Issues Paper***

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## 1. EXECUTIVE SUMMARY

ENERGEX's electricity distribution network is currently regulated by the Queensland Competition Authority (QCA) under a revenue cap arrangement. The existing regulatory Determination expires in June 2005, and the QCA is now in the process of developing its draft Determination to apply from this date. As part of this process, it is seeking to determine the depreciated optimised replacement cost (DORC) of ENERGEX's and Ergon's electricity distribution assets, to be used as one element in the calculation of the annual revenue stream that the distribution companies will be allowed to earn for the provision of electricity distribution services.

Electricity distribution supply is a long term, capital intensive business. Capital related costs are used for calculating the return on the asset base and the return of the asset base, representing the bulk of ENERGEX's revenue stream. The appropriate valuation of the asset base used to supply electricity distribution services is a critical step in determining the revenue stream necessary to support the business.

The valuation methodology applied needs to be transparent, consistent, and logical. It also needs to meet the objectives of the National Electricity Code, including the requirement to provide a fair and reasonable rate of return on efficient investment (clause 6.10.3(e)(5)), and to provide a commercial economic return on efficient investment (clause 6.10.3(e)(5)(iv)).

ENERGEX supports the DORC methodology to value its electricity distribution asset base. This methodology is well accepted, reflects the opportunity costs of supplying electricity to users, and is a good proxy for the valuation that would apply in an open, efficient market. This methodology was also used to value ENERGEX's and Ergon's electricity distribution assets for the purposes of the current regulatory Determination.

ENERGEX considers some details of the application of the DORC methodology as applied in the 1999 valuation of Queensland electricity distribution assets should be reviewed in light of accountancy developments and refinements in best practice valuation in interstate jurisdictions.

In particular, ENERGEX believes that unit rates applied in the valuation process should be based on realistic estimates of the current costs of constructing new works. The costs should be those typically achievable by ENERGEX for incremental network expansion, subject to an efficiency assessment. In some cases, the unit rates adopted in the 1999 valuation did not include full attribution for indirect and overhead costs. In these cases, ENERGEX's current internal rates used in estimating capital construction costs are considered to be more reflective of realistic costs. Accurate unit rates are important since they form the basis for capital expenditure programs going forward. If unit rates were to be set too low, ENERGEX would have insufficient capital expenditure to build required works – in the longer term, resulting in the degradation of service quality and reduced reliability.

Generally, ENERGEX supports the approach adopted in other jurisdictions and canvassed in the Issues Paper of applying differential unit rates and standard lives to different assets within the same asset class based on their location and relevant unit adjustment factors, reflecting the true costs of construction. In particular, in some cases, ENERGEX considers that asset lives should be extended from current standard asset life assumptions, based on greater understanding of the expected lives of relevant units of plant from engineering experience.

ENERGEX considers that the optimisation principles should operate on the assumption of:

- a brownfields network;
- incremental expansion to meet demand from time to time;

- economic ratings for lines; and
- overcapacity to be judged after consideration of the likely uptake of capacity over reasonable timeframes.

These factors reflect the minimal long term efficient costs of constructing a network to meet customer demand from time to time.

ENERGEX considers its network contains few, if any, underutilised assets that should be optimised out given:

- the network has very high levels of utilisation compared to other electricity distribution networks in Australia; and
- customers are increasingly expecting higher levels of security, reliability, and quality of supply, implying higher levels of prudent reserves.

ENERGEX supports an allowance for depreciation calculated using the straight line approach. This approach is favoured due to its simplicity and consistency with current ENERGEX and interstate valuation and accounting practice.

ENERGEX considers land, buildings, and easements should be valued at fair market value, consistently with other assets and the underlying economic justification of the DORC valuation methodology, and that non-system assets should be valued at written down book value, also indicative of their replacement cost.

ENERGEX looks forward to ongoing involvement in the development of the asset valuation methodology and the application of the methodology.

## **2. INTRODUCTION**

The Queensland Competition Authority (QCA), as part of the 2005 electricity regulatory Determination, is seeking to determine the depreciated optimised replacement cost (DORC) of ENERGEX's and Ergon's electricity distribution assets, to be used as one element in the build-up of the annual revenue stream that the distribution companies will be allowed to earn for the provision of electricity distribution services.

The QCA announced in July 2003 that it had appointed Sinclair Knight Merz (SKM) to conduct the DORC valuation, and that the valuation would be conducted in two stages.

In the first stage, the QCA and SKM are seeking to finalise the application of the major issues associated with the asset valuation process and the proposed methodology to be employed. It is expected that, at the end of stage one, all the parameters of the valuation will have been agreed. The second stage is the conduct of the valuation itself, based on audited records of asset quantities and ages.

This submission is a response to the Issues Paper released by SKM as part of the first stage of the asset valuation process. The submission responds to the high level methodological and application issues raised in the Issues Paper. It is expected that a number of subsidiary questions may remain for resolution in stage two of the valuation, for resolution among the distributors, the QCA, and SKM.

SKM proposes to use a DORC methodology to value the distributors' electricity distribution asset bases. ENERGEX supports the use of the DORC methodology to value its electricity distribution asset base. Depending on how it is applied, the DORC methodology can replicate the business value that would arise in an open, efficient market, and provides accurate signals to users of the opportunity costs of assets used to distribute electricity. The DORC methodology is consistent with the valuation methodology applied in the last valuation of Queensland electricity distribution assets in 1999, and the approach generally adopted in other Australian jurisdictions. The DORC methodology is superior to other valuation methodologies in promoting the Code objectives (specified in clause 6.10.2) of encouraging efficient levels of investment and efficient use of existing infrastructure, providing a fair and reasonable rate of return on efficient investment (clause 6.10.3(e)(5)), and providing a commercial economic return on efficient investment (clause 6.10.3(e)(5)(iv)).

ENERGEX considers that the valuation exercise will be necessary to:

- ensure the value of the regulated asset base aligns with current market value and is up to date;
- avoid any divergence between the value of the regulated asset base and the fair value as certified by the Queensland Audit Office, which requires ENERGEX to conduct a periodic valuation of its electricity distribution assets; and
- take account of changes in relative costs and policies that have occurred since 1999 (for example, changes in modern equivalent unit rates relative to indexation of 1999 unit rates, and changes in effective lives).

As a general point, ENERGEX considers that the valuation methodology needs to be consistent as far as possible with audit, reporting, accounting and operational standards that apply to ENERGEX. These standards include the regulatory reporting requirements applied by the Queensland Government to Government Trading Enterprises, the Australian Accounting Standards (AASBs), Generally Accepted Accounting Principles (GAAPs), the new international financial

reporting standards due to be introduced in July 2005 (at the start of the next regulatory period), and reasonable internal accounting practices.<sup>1</sup> This avoids the creation of different sets of accounting books and records for different purposes, and ensures consistent statutory reporting, auditing, and regulatory bases.

### **3. KEY FACTORS IMPACTING THE ASSET BASE SINCE 1999 VALUATION**

A range of factors will impact the final valuation of ENERGEX's electricity distribution asset base since the 1999 valuation. These factors, discussed in the body of this submission, include:

- changes in asset lives reflecting best current industry information on the expected maximum lives for a range of assets; and
- changes in unit rates based on changes in modern equivalent assets (MEA) and operating conditions.

A host of factors have increased the costs of constructing new assets since the 1999 valuation, with flow-on impacts to the determination of MEA unit costs. These factors include:

- increased traffic control and site security requirements (particularly in CBD, urban, and suburban areas);
- fire and precautionary measures;
- new requirements for disposal of acid sulphate soil dug up during excavations;
- impending changes in Council charges for having open trenches;
- more costly installation of services due to greater crowding of easements and road reserves;
- introduction of the practice of backfilling underground cable paths with flowable fill to provide greater thermal resistivity and protection, and thus longer cable life;
- an increasing proportion of capital works being conducted in brownfields locations; and
- new safety requirements under the *Electrical Safety Act 2002*.

### **4. RESPONSE TO ISSUES RAISED IN SKM ISSUES PAPER**

This section provides ENERGEX's responses to the specific issues raised in section 2 of the SKM Issues Paper. Based on its understanding of the asset valuation process, ENERGEX's responses are aimed at resolving the high-level methodological issues that need to be determined before an asset valuation can be conducted. Having said that, after resolution of the high level issues, there will clearly remain a number of issues to be resolved, such as the exact definition of units of plant and applicable unit rates. ENERGEX wishes to be consulted in determining these issues. In particular, ENERGEX wishes to be involved in the workshop on unit rates that SKM has proposed in discussions with ENERGEX and Ergon to be held in early 2004.

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<sup>1</sup> At this stage, ENERGEX has taken no account of potential accounting changes that may be required by the introduction of international financial reporting standards in July 2005. The full impacts of these changes cannot be ascertained yet as the new standards are still being settled. Any significant issues or potential impacts on the Determination will be advised to QCA as they become known.

#### **4.1 Reference date for valuation**

The Issues Paper proposes that the reference date for capture of asset data should be 31 December 2003.

While ENERGEX supports the adoption of this reference date, it has some concerns regarding the overall timetable for completion of the asset valuation task. ENERGEX's main concern is meeting the date by which distributors will be required to provide data, given that the project is currently running about 6 to 8 weeks behind the original schedule.

ENERGEX currently has developed extraction scripts to extract data from the Network Facilities Management database (NFM) in the same manner as was used in 1999. Presuming that existing unit of plant definitions can be mapped fairly easily across to the new categories, and that no major changes are required to the scripts, ENERGEX should be able to extract, validate and format the data within 2 to 3 months of receiving a detailed data request. If, however, major changes are required to the unit of plant categories, then ENERGEX would need time to reassess the resources required to provide data, and the timeframe in which data could be supplied according to the new categories.

#### **4.2 Determination of Asset Categories and Sub-categories**

SKM's Issues Paper states that the asset categories and sub-categories are likely to be based on a combination of the categories used in the 1999 Queensland electricity distribution valuation and those used in the 2002 NSW electricity distribution valuation conducted for NSW Treasury. SKM states it will attempt to categorise assets as accurately as possible, subject to data limitation in the distributors' asset registers.

SKM proposes the following changes compared with the 1999 Queensland valuation:

- introducing light/medium/heavy categories for conductor size;
- introducing rural/urban and wet/dry categories for feeder location;
- providing a range of establishment costs to capture those costs not captured in the substation bay costs or primary plant; and
- introducing new asset sub-categories for distributor owned generation.

ENERGEX agrees that categories need to be defined in a manner which will provide as accurate a valuation as possible. The categories need to take into account the physical assets, data availability and the materiality of individual items. The categories need to also reflect the general philosophy of valuing assets on the basis of the replacement cost of MEAs.

ENERGEX considers that the MEAs should reflect current industry practice.

Current industry practice has changed in a number of areas in recent years. For example, ENERGEX has a number of sizes of underground and overhead 33 kilovolt (kV) conductors due to historical reasons. However, for a number of years now it has had a policy of designing and constructing using a limited number of standard conductor sizes. For example, for 33 kV lines:

- 19/3.75 millimetre (mm) All Aluminium Conductor (AAC) for overhead lines; and
- 630 mm<sup>2</sup> single-core Cross Linked Poly-Ethylene (XLPE) insulated cable for underground lines.

Hence, in the context of MEAs, ENERGEX is of the view that only these sizes of conductor should be applicable to the asset valuation exercise for 33 kV feeders. Similar design philosophies are also applied at all other voltage levels within the ENERGEX network.

Secondly, practices have changed with regard to construction of new assets, leading to different MEAs. For example, underground cables are now laid using flowable fill. This material provides more consistent thermal resistivity (thereby guaranteeing ratings) and to provide increased protection to the cable (the material fills the entire trench to just below the ground level). Using flowable fill therefore increases the life and improves the efficiency of underground cables. Thus, the MEAs for underground cables should reflect the use of flowable fill.

ENERGEX considers that in the main, the 1999 categories are sufficient for categorising the majority of assets. Having said that, ENERGEX is not, in principle, opposed to the adoption of new proposed categories where the 1999 categories can be readily mapped directly across to the proposed new ones. ENERGEX reserves the right, after fully working through the categories listed in Appendix A, to propose further categories as may be necessary to ensure all the assets used to provide electricity distribution services are covered. ENERGEX looks forward to working with SKM to further develop appropriate definitions for asset categories.

#### *Information Technology (IT) Issues*

A requirement to further divide existing categories will require IT resources and take time. Scripting currently being used does not extract conductor sizes.

Requiring the categorisation of all feeders into additional categories of light/medium/heavy conductor would necessitate changes to the data extraction scripts which ENERGEX has already spent considerable time developing. Such changes may be unrealistic within the very short timeframe in which it would be required to meet the overall project schedule.

#### *Wet – Dry Zoning Category*

SKM proposes to classify parts of the network that typically experience more than 900 mm rainfall as wet areas, and states that, on this basis, all of ENERGEX's distribution area should be classified as wet.

ENERGEX agrees with the proposed categorisation, and with SKM's proposal to classify ENERGEX's distribution area as a wet area.

#### *Substation Establishment Costs*

SKM proposes to change the treatment of zone substation buildings, ancillaries and establishment costs to provide a range of 'establishment' costs that include all those costs not captured in the substation bay costs or primary plant.

ENERGEX agrees with SKM's proposed arrangements for valuing substations, so long as all appropriate costs are captured either within the substation establishment costs or other units of plant.

### **4.3 Determination of MEA Unit Rates**

The Issues Paper states that the standard unit rates are meant to reflect the typical base case construction costs for MEA assuming a greenfields site and typical site and construction difficulty. SKM notes that its objective will be to derive rates that are consistent with recent industry experience, sustainable in a competitive market, reflective of December 2003 prices, and Queensland-specific.

ENERGEX considers it is critical that the unit rates adopted in the valuation accurately reflect the true costs of construction, both to ensure the asset base is fairly valued and to ensure that the related capital expenditure program for the coming regulatory period is sufficient to fund required works.

SKM's proposed approach raises a number of issues. Below, ENERGEX has provided comments on the following issues:

- greenfields versus brownfields rates;
- typical site and construction difficulty;
- sources of unit rates;
- use of adjustment factors; and
- approach to valuing non-system assets.

#### *Greenfields versus brownfields rates*

ENERGEX considers that greenfields site assumptions should not be used, as by far the largest proportion of ENERGEX construction activity occurs in a brownfields situation. A brownfields assumption was applied in the 1999 valuation.

This issue is discussed in greater depth in section 4.6.

#### *Typical site and construction difficulty*

Unit rates must allow for both the easier and more complex site characteristics encountered by ENERGEX across all construction activity. Accordingly the unit rates should embody *average* construction costs encountered over a variety of sites.

#### *Sources of unit rates*

ENERGEX submits that its current construction costs are efficient and competitive with respect to other utilities. These costs compare favourably with overall costs of construction work carried out by external contractors for ENERGEX. Under these arrangements, ENERGEX generally performs planning and design work and then contracts out construction works.<sup>2</sup> Contractors' quotes are based on a schedule of rates agreed in an open, competitive market. These rates, together with inclusion of ENERGEX's initial work and 35 per cent loading for project management of the contractors, align with ENERGEX's unit costs where it undertakes the whole construction process internally.

ENERGEX considers that there are significant difficulties with the information sources nominated in the Issues Paper and makes the following comments:

- *1999 Queensland electricity distribution valuation*

These rates were not derived in a considered and bottom up fashion in that the labour rates used were considerably less than the actual cost being incurred by ENERGEX at the time. ENERGEX understands these rates do not reflect the actual costs that were being incurred at that time by either NSW or Queensland distributors. This is because the labour rates were

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<sup>2</sup> ENERGEX sometimes performs only initial concept design work and contracts out detailed design work.

based on rates for external work that did not incorporate all relevant indirect and overhead costs involved in the construction of new works. Thus, these rates are flawed for use in this asset valuation. ENERGEX further discusses the types of overheads that might not have been included in the unit rates in the discussion below of the rates adopted in the market price survey.

- *2002 NSW electricity distribution valuation*

ENERGEX has not been able to source any detailed information on the derivation of these rates and their components. ENERGEX understands that they were not ultimately used to value the distribution networks in NSW. It would be unsafe to rely on these unit rates as they have no official status, and their basis and composition has not been stated.

- *SKM price book and valuation database*

ENERGEX has no information to date on the assumptions or source of data included in this price book and valuation database. Information on some ENERGEX rates has been provided to SKM to compare and contrast ENERGEX rates with SKM database amounts. However, ENERGEX does not yet have the benefit of this analysis.

It may be that some of the rates in the SKM price book have been constructed from sources and environments different to those in which ENERGEX operates, and thus may not be applicable to the environment within which ENERGEX operates. SKM also note that the prices in the valuation database have in part been determined by the other three sources quoted in this section, which have the shortcomings discussed in this submission.

ENERGEX submits that the SKM price book will be of interest as a high level check of the reasonableness of unit rates, but that it cannot be definitive.

- *Market price survey of construction and maintenance activities*

SKM conducted a market price survey of construction and maintenance rates in 2002-03. ENERGEX and a range of other distributors provided information to this survey on the prices ENERGEX's Asset Solutions department would quote to external parties to construct capital works.

ENERGEX submits it would be unsafe to use these rates, as ENERGEX and other utilities provided them on a very different basis to the basis on which internal costs of construction are calculated. The rates ENERGEX quoted to the survey were on a 'body shop' basis, that is, excluding overheads such as planning, design, project management, and network support that are not incurred by ENERGEX Asset Solutions staff when they perform external contracting and consulting work for other networks. In these circumstances, it is the other networks that incur overheads through back-office and network support infrastructure services for the works ENERGEX has contracted to perform. If these additional costs were not included in the unit rates, the derived unit rates would be too low, resulting in ENERGEX being only partially funded in respect of its capital works program, and leaving it unable to achieve full economic returns on its asset base.

ENERGEX emphasises that overhead costs are still allocated to external contracting works on a causation basis, consistent with the QCA-approved cost allocation guidelines. However, ENERGEX allocates lower overheads in external quotes given its external works incur fewer overheads than internal works.

### *Alternative source suggested for unit rates*

Data sources relied upon for the asset valuation should be relevant to Queensland conditions and transparent in their composition. ENERGEX submits that the primary data source should be audited and verified unit rates produced from ENERGEX's capital estimation models. These models are appropriate and suitable for this purpose as they are:

- built on modern capital recording and scheduling software (ENERGEX's Mincom Ellipse software);
- based on current construction costs in Queensland (and form the basis for determining the necessary funds for the capital expenditure program going forward);
- verifiable at a very detailed level, to the last nut, bolt and washer;
- auditable by SKM for material costs, labour hours, labour rates, labour on-costs and indirect cost allowances; and
- as discussed above, consistent with the schedule of rates adopted for external contracting work after allowing for ENERGEX's internal indirect and overhead costs.

Below, ENERGEX discusses the issue of the allocation of indirects and overhead costs in deriving ENERGEX unit rates.

### The theory of cost allocation

Joint costs (or overhead costs or indirect costs) arise when there is a pool of costs incurred in the production of multiple cost objects (such as products or services) and these costs cannot be traced directly to a specific cost object in an economically feasible way. Examples of joint costs can include lease costs on buildings, depreciation on plant and machinery used for multiple production runs or activities, and most administrative costs. Joint costs are problematic because they must be allocated to cost objects in some systematic and rational way rather than being traced directly to the relevant cost object.

In theory, it is possible to classify all costs as direct costs, ie to trace every cost to its specific cost object. In practice however, a number of factors preclude classification of all costs as direct. Generally a cost will be allocated rather than directly traced when it is relatively immaterial and/or the costs of tracing it directly to a cost object outweigh the benefits yielded by the increased precision in accounting data.

The US Financial Accounting Standards Board recognised the unique issues surrounding the capitalisation of costs within regulated utilities and issued Statement of Financial Accounting Standards (SFAS) 71, *Accounting for the Effects of Certain Types of Regulation*. SFAS 71 allows public utilities subject to rate regulation to capitalise certain expenditures that would otherwise be expensed as incurred under the USA GAAP. In this way the US accounting bodies ensured that regulated firms included the full costs of related overheads in regulated assets. ENERGEX is similarly concerned to ensure that the full costs of relevant overheads are included in the regulated assets.

### ENERGEX's cost allocation process

At the time of the 1999 asset valuation exercise, there were no defined cost allocation rules in place. In part as a consequence of this, the allocations applied in constructing the labour rates used in the 1999 valuation did not adequately recognise all of the costs associated with the construction of capital. As a result, the 1999 labour rate, even including an allocation for indirect

and overhead costs, was well below ENERGEX's labour costs including *actual* indirect and overhead costs.

The additional indirect and overhead costs not recognised in the last valuation are now being recognised as capital costs in ENERGEX's regulatory accounts, under the Regulatory Accounting Guidelines issued by the QCA. ENERGEX's preference is for the current cost allocation process to be reflected in the asset valuation exercise, to ensure consistency. As previously discussed with the QCA, ENERGEX's capitalisation policies have been accepted by auditors and independent experts as reasonable, and represent good accounting, recording, and reporting practice.

However, if these costs are not to be recognised as capital, ENERGEX would argue they should be included in its operating cost allowance approved by the QCA, as these costs are legitimate in running a network business. ENERGEX is happy to be subject to testing of the efficiency of its costs in accordance with the QCA's normal processes, but stresses that it is important that all efficient costs be included in its cost structure as either capital or operating.

### Support for ENERGEX's cost allocation process

Under QCA requirements, ENERGEX must allocate and capitalise all costs associated with the internal construction of assets. Accordingly, the accounting issue reduces to ensuring that the method of allocation is rational and systematic. Other firms and utilities can and do have different steps in the process of attributing overheads to capital works, including different computer systems and models. However the final result should be similar in all firms from both an economic and accounting perspective – capital assets must bear their fair share of related indirect and overhead costs.

Capital works unit construction rates must include full costs of construction, including both direct costs and a full allowance for associated indirect or overhead costs. If unit rates do not include the full costs of capital works construction the consequences would be:

- the DORC value would be understated and ENERGEX and its shareholders would not receive the full return on assets to which it is entitled; and
- ENERGEX would not be able to complete its full capital expenditure program as only partial reimbursement of total costs would be provided. The capital works budget would not fully fund all required works.

ENERGEX engaged Professor Ian Zimmer (Executive Dean, Faculty of Business, Economics and Law) and Dr Julie Walker (Senior Lecturer, UQ Business School) from the University of Queensland to conduct an independent review of ENERGEX's policy for allocation of indirect and overhead costs (Walker and Zimmer, 2003). This review found that ENERGEX's allocation policies were appropriate. Walker and Zimmer's overall review finding was that:

*It is our assessment that, given the regulated status of ENERGEX, its policies and procedures with respect to the capitalisation of costs for constructed assets are systematic, rational and efficient, as well as being highly consistent with current generally accepted accounting practices (GAAP). However, it is not as advanced in some respects as US accounting standards for regulated utilities, particularly those that allow for the capitalisation of some costs that are not normally capitalised in other contexts. (p. 1)*

A copy of the Walker and Zimmer paper is attached as appendix 1.

It is extremely difficult to accurately benchmark companies on indirect and overhead cost as all firms are unique, with differing organisation structures, regulatory regimes, local operating and political constraints, environmental factors and each with a unique range of activities. However,

the operating expenditure efficiency study undertaken in 2000 by Tasman Asia Pacific (Tasman) and Pacific Economics Group (PEG) for the QCA provides evidence that the level of indirect and overhead costs allocated to capital expenditure are efficient. Operating expenditure attracts shared services and holding company overheads in the same way, using the same methodology, and the same allocation drivers, as capital expenditure, consistent with the cost allocation guidelines approved by the QCA. The Tasman/PEG study found that ENERGEN was at Australian best practice for operating expenditure efficiency, and within 17 per cent of world best practice (represented by the top quartile of US utility performance). Since the Tasman/PEG review, ENERGEN has made further efficiency gains and reduced operating costs, as evidenced by its 2001-02 and 2002-03 regulatory accounting statements.

ENERGEN asserts that the overhead levels found by Tasman/PEG to be efficient and at best practice in relation to operating expenditure should also be taken to be efficient and best practice in relation to capital expenditure.

### Current ENERGEN unit construction rates

ENERGEN has reworked and recalculated all of the unit rates applying to the ENERGEN network using the recently installed Mincom Ellipse estimating tool. A selection of these rates has been provided to SKM for their review and analysis, and to compare with other data sources available to them. The unit rates models used by ENERGEN are very detailed, as the Ellipse software allows the rates to be constructed to the lowest levels, specifying every last nut, bolt, and washer required for that job.

The recalculation of unit rates by ENERGEN, referred to above, has reconfirmed that current construction costs exceed those allowed in the 1999 valuation. This situation was also confirmed through the 2002-03 financial year when ENERGEN tracked construction costs as one of the key performance indicators of the regulatory line of business and found actual costs to be consistently above the 1999 rates. Along with higher demand, this has been a contributing factor in ENERGEN being required to overspend its capital expenditure allocation simply to complete the majority of its capital program of works.

If a full allowance for capital construction costs is not allowed in the unit rates for the next regulatory period, then ENERGEN will be unable to complete its capital program of works for that period, and also will be unable to achieve an appropriate economic return on its existing and newly constructed asset base.

### Conclusion

In conclusion:

- ENERGEN's current accounting processes on the allocation of overhead costs to capital works are systematic, rational and efficient and consistent with GAAPs;
- this position has been confirmed in an independent review by Professor Ian Zimmer (Executive Dean, Faculty of Business, Economics, and Law) and Dr Julie Walker (Senior Lecturer, UQ Business School) of the University of Queensland;
- ENERGEN's accounting practices and policies have also been audited and certified by the Queensland Audit Office as complying with all relevant accounting standards, with the Corporations Law, and with the QCA-approved cost allocation guidelines;
- total ENERGEN indirect and overhead costs are efficient and competitive and comparable with other regulated utilities, and were found to be at Australian best practice in Tasman/PEG's study of our operating expenditure in 2000; and

- unit construction rates for capital works must include a full allocation of all related indirect and overhead costs to avoid inadequate returns and insufficient funds for new capital works.

### *Adjustment factors*

ENERGEX endorses that some allowance needs to be made for special construction conditions and that the adjustment factors quoted in Appendix A of the Issues Paper are an appropriate manner to do this. ENERGEX notes that adjustment factors were applied in the QCA's decision on Queensland gas distribution networks, including factors for rock and soil types, and the additional costs of construction in city and other built-up areas (QCA 2001b). However, ENERGEX would suggest that a simple practical approach to their application needs to be developed.

For example, ENERGEX does not have historical records of all areas in which heavy rock excavation has been required. However, it is suggested that adjustment factors could still be applied through some engineering analysis to determine approximately what percentage of all underground works requires heavy rock excavation. The factor can then be applied across the board as:

*All underground unit rates = base unit rate + (rock adjustment factor \* percentage of areas in which rock could be expected).*

A similar approach could be taken for most other adjustment factors where specific record are not available.

ENERGEX generally agrees with the type of adjustment factors that have been suggested, but also believes that several others should also be added.

Examples of additional factors include:

- costs due to working in fire ant declared areas;
- costs due to the treatment and/or disposal of acid-sulphate soils; and
- the application by some local councils of charges for excavation on roads or footpaths. (These are not related to reinstatement costs but are rather 'permit' type charges).

### *Non-system assets*

ENERGEX supports the use of written down book value for non-system assets such as vehicles and equipment. These items are currently recorded on ENERGEX's financial register at written down value, and thus, reporting on them in this manner will not present a problem.

## **4.4 Determination of Standard Asset Lives**

SKM sets out proposed standard lives for a range of electricity distribution assets in table 2-1 of the Issues Paper. The Issues Paper notes that the proposed standard lives are longer in some cases than the standard lives adopted for the purposes of the 1999 valuation, due to current industry expectations of longer lives for those assets.

The Issues Paper seeks feedback on:

- the proposed changes to asset lives;
- minimum remaining life;

- adoption of different lives in different climatic zones; and
- adjusting remaining life to reflect major refurbishments.

### Changes to Asset Lives

ENERGEX endorses the majority of proposed changes in asset lives to reflect current practices and opinions in the Australian electricity industry concerning the average asset class lives.

Having said that, ENERGEX considers that the appropriate life span for low voltage, 11 kV and 33 kV wood poles should be 45 years for wet areas and 55 years for dry areas, compared with the 35 years for wet areas and 45 years for dry areas proposed in the Issues Paper. There is a strong consensus of opinion among assets managers that treated poles are not subject to significant decay except at the groundline. Since 2001, ENERGEX has, in accordance with general industry practice, moved to a policy of 'nailing' or 'rebutting' all wood poles to extend their lives. ENERGEX believes this process will extend the life of poles up to 25 years beyond the time of remediation. An independent review of pole lives conducted by PB Power for the Essential Services Commission in 2000 indicated that pole nailing could increase poles lives significantly. It noted that:

*The trend world-wide is towards longer asset lives as utilities improve their asset management capabilities. In Victoria typical examples of measures that are being used to extend asset lives include staking [nailing] of wood poles (life extension of up to 25 years) ... (PB Power 2000, p. 8).*

Moreover, a life of 45 years or more for wood poles in Queensland is consistent with or less than the lives recommended or adopted in other jurisdictions. ENERGEX notes that wooden pole lives adopted or recommended in other jurisdictions for asset valuation and capital expenditure assessment are generally 45 years or more:

- New South Wales – 45 years for wet areas (rainfall greater than 900 mm per year) and 55 years for dry areas (NSW Treasury Guidelines 2003);
- Victoria – mean lives of 50 – 76 years for staked poles (PB Power 2000, Appendix D, p. 3)
- tax depreciation schedule – 45 years (Australian Tax Office, TR 2000/18, Electricity generation, transmission and distribution (36100));
- New Zealand – 45 years (New Zealand Ministry of Economic Development 2000, pp. 49 – 51).

The jurisdictions surveyed include ones with equally wet or harsh weather conditions as Queensland.

ENERGEX would welcome the opportunity to discuss with SKM detailed statistical data on the typical life of ENERGEX's pole population.

### Minimum Remaining Life

ENERGEX supports the continued use of a minimum remaining life (MRL) concept when valuing assets. This approach provides recognition that in a large network, some assets will continue to be of use for a time period in excess of generally expected useful lives.

Using an MRL concept provides an incentive to distributors, where economical, to continue to maintain and use old equipment in an efficient manner utilising condition monitoring programs, rather than potentially inefficient bulk replacement programs based solely on asset ages.

The use of a five year MRL, as is endorsed in the draft NSW Treasury Guidelines, is supported by ENERGEX as being the most appropriate figure to use. This support is on the basis that, as stated in the Issues Paper, lead times of up to five years for distribution projects could be typical, and secondly that maintenance cycles of up to five years could be expected on equipment. A good example of this is power poles which (due to legislative requirements) are inspected every five years. At each inspection poles assessed to have less than 5 years remaining life, are 'nailed', 'rebutted' - thus extending their lives well beyond 5 years - or alternatively are replaced.

To determine average ages for unit of plant categories all individual plant items within five years of their standard asset life should be assigned a minimum remaining life of 5 years.

#### *Climatic Zones*

The Issues Paper suggests differential lives for some asset classes depending on whether the assets are located in 'wet' or 'dry' areas. The Issues Paper suggested that areas with greater than 900 mm of rain per year should be classified as wet. Under the Issues Paper classification, this would mean ENERGEX's entire distribution area would be classified as wet.

ENERGEX agrees with the use of the wet area climatic zone classification for all of its network.

#### *Adjustments to Remaining Lives to Reflect Major Refurbishment*

ENERGEX supports making adjustments to the remaining lives of assets where major refurbishment has been undertaken, which can be easily integrated into the valuation process. An example of equipment refurbishment which could be included in this category is power transformers which have been rewound or had major overhauls.

These type of adjustments provide ENERGEX with maximum incentives to care for and extend the lives of its assets where it is economically efficient to do so. Not adjusting remaining lives may provide incentives to replace assets earlier than efficient after comparison of the costs of refurbishing and maintaining older assets and the costs of replacement.

### **4.5 Optimisation Process**

The Issues Paper seeks comment on a number of factors to be considered in determining the appropriate optimisation methodology:

- incremental versus greenfields optimisation;
- economic ratings versus technical ratings
- optimisation planning horizons;
- network security, reliability, and quality of supply; and
- optimisation of non-network assets.

These are addressed in turn below.

#### *Incremental versus greenfields optimisation*

The Issues Paper states that the greenfields optimisation approach asks how the network would be redesigned tomorrow to meet the present load and customer mix if the existing network were removed. The incremental approach seeks to take account of the stock of existing development decisions taken over time, including the location of generators, substations, customers, feeder

routes and distributor boundaries, and determines the cost of replacing a component of the network on the assumption that the rest of the network exists.

The Issues Paper notes some of the obvious impracticalities of the greenfields optimisation approach, including that the greenfields approach “makes no recognition of the somewhat random nature of customer and load growth, and the historical factors associated with that growth and development” (p. 9). The Issues Paper notes that “feeder requirements and feeder routes are generally defined by customer location and transport infrastructure corridors, factors that are generally beyond the control of the [distributor]” (p. 9).

ENERGEX strongly supports the incremental approach, which, as the Issues Paper states, “reflects the gradual development of the network over many years” (p. 9). Distributors must design networks to cater to the needs of users over time, extending and augmenting the network as customers emerge in new locations or demand changes. This involves, when deciding how to meet new demand, examining the most efficient way to meet new demand taking into account the configuration of the existing network and existing planning restrictions. In other words, the most efficient way to meet new demand must take account of the options presented by existing networks. A pure greenfields approach may imply a network that is more costly to construct in order to most efficiently meet the need of customers through time.

The Issues Paper states that the incremental approach has been applied generally throughout Australia. The approach has been adopted in the draft NSW Treasury guidelines for the valuation of electricity network assets (May 2003), which argue that incremental optimisation properly recognises the historical development of networks, the time lags in asset planning and construction, the very long lives of assets, and the fact of replacement of components in the normal course of business. The guidelines argue that, as “systems expand and change, a degree of suboptimality at any point in time is inevitable and is part of the total cost of output” (p. 11).

#### *Economic ratings versus technical ratings*

The issue of capacity optimisation of lines requires consideration of the appropriate sizing of lines for expected loads. The Issues Paper raises two possible standards for assessing the sizing of lines with respect to expected customer load: (i) economic ratings; and (ii) technical ratings.

As current passes through lines, the resistance in the lines and the amount of current causes the lines to heat. Thermal ratings are based on the maximum safe temperature that lines can rise to based on expected customer load, including voltage fluctuations. As the Issues Paper points out, thermal ratings are set based on externally determined drivers such as ambient climatic conditions, ground clearances, limits on allowable conductor temperature, safety considerations, and statutory requirements.

Economic ratings take account of not only of the thermal capacity of lines, but also the electricity losses that occur when lines heat up. These losses are part of the costs ultimately paid by consumers through distribution loss factor adjustments.

ENERGEX strongly supports the use of economic ratings in determining the long-term optimal design of line capacities. The use of economic ratings in the optimisation process provides incentives for distributors to size the capacity of lines to optimise the overall costs of services to users.

#### *Optimisation planning horizon*

The Issues Paper notes that electricity distribution assets typically have long lives. Costs of installation are high, and the capacities of installed assets are typically fixed. Under these

conditions, it is sensible to build assets that have capacity to absorb expected growth in demand over a certain time horizon.

The issue is the optimal planning horizon to cater to growth in demand without leaving assets under-utilised for long periods of time. This requires an assessment of the size of existing demand, the size and likelihood of expected growth, and the costs of building spare capacity to meet future needs relative to building sufficient capacity just to meet current needs. In ENERGEX's case, there is a strong case for building some spare capacity to meet future demand. This is because the network is already near maximum capacity, demand is growing strongly, and the cost of building some spare capacity for future needs is low relative to building just to meet current needs. As the NSW guidelines for the valuation of electricity network assets argue, it often makes "good commercial sense" to provide additional capacity "at initial construction rather than on an incremental basis in response to actual demand growth" given the relative costs (p. 12).

The Issues Paper proposes planning horizons of:

- five years for distribution level assets (11-22 kV);
- ten years for zone substations and power transformers (converting 132, 110, 66, and 33 kV to 11 kV); and
- fifteen years for subtransmission systems (33, 66, 110, and 132 kV).

ENERGEX considers that these planning horizons are generally appropriate. These horizons are consistent with generally accepted planning and capacity utilisation practices and standards. The horizons allow for distributors to plan and invest prudently, and in particular to take account of investment lumpiness, economies of scale, and any other 'whole of life' factors.

Having said that, in some cases the difficulty in acquiring land and uncertainty about the pattern of future urban development make it prudent to purchase substation land outside these horizons. Consequently, ENERGEX would argue for a degree of flexibility in the optimisation process for the regulator to consider case-by-case arguments to extend these planning horizons for particular assets.

#### *Network security, reliability, and quality of supply*

As a general proposition higher levels of security, reliability, and quality of supply lead to less optimisation of network assets while lower levels of security, reliability, and quality of supply lead to more optimisation.

The Issues Paper notes that the present network planning criteria deliver certain levels of reliability and quality, and that in the absence of regulated targets for reliability and quality, these planning criteria may be appropriate as the measure against which the optimisation of equipment and network should be conducted.

ENERGEX considers that customers expect distributors to improve current levels of security, reliability, and quality of supply. Customers' expectations and requirements are growing as they connect more sophisticated and electrically sensitive equipment to the network. The costs of interruptions in terms of lost production also contribute to the view that service levels should be improved from current levels. From an economic perspective, the distribution networks should continue to improve security, reliability, and quality of supply until consumers, the community, and governments are satisfied with the outcomes.

ENERGEX is currently developing proposals to go to the regulator as part of its capital and operating expenditure bids for the next regulatory period to improve security, reliability, quality of

supply, and a range of other service quality measures. As part of these proposals, ENERGEX will be suggesting that security should be upgraded to provide for an 'n-2' target for the central business district, an 'n-1' target for urban areas, and a range of reliability targets for different geographic areas.<sup>3</sup> ENERGEX has argued that these proposals should be 'locked in' under regulatory contracts with the QCA under a service quality incentive (SQI) mechanism. The regulatory contract will set reliability and other service quality targets, and specify rewards and penalties for achieving or failing to achieve the targets.

Accordingly, ENERGEX would suggest that these security and reliability targets should be the basis for the optimisation exercise.

#### *Optimisation of non-network assets*

ENERGEX considers that it would not be practical to conduct an optimisation exercise in relation to non-network assets. This is because the optimisation process involves a judgement about the level of excess capacity, which would be difficult to apply to non-network assets, where technical engineering experience of the appropriate levels of capacity to meet demand are less applicable and benchmark information may not be applicable given the unique properties of the relevant network. For example, there is little available information on the appropriate levels to hold of non-system assets such as passenger vehicles, commercial vehicles, IT equipment, office buildings, particularly given the appropriate levels and optimal mix of such assets may vary from network to network. In particular, some networks may find it efficient to own significant storage facilities given long delivery times and the low cost of warehouse rents in their local region while other networks may find it more efficient given shorter delivery times and higher warehouse rents to own less storage facilities.

Given the small contribution made by non-system assets to the asset base, and the high degree of subjectivity involved in making judgments about the appropriate levels of assets to be held, ENERGEX agrees with the position suggested in the Issues Paper that the valuer's contribution should be limited to an assessment of whether the inventory of non-network assets and the applied book values are accurate.

#### **4.6 Brownfields Factors**

The Issues Paper states that a "brownfield situation occurs when a new asset is being installed in close proximity to existing assets, or in proximity to other infrastructure or services (eg. buildings, roadways, areas of high public activity, telecommunications, water, gas) and where that proximity increases the time, complexity, and cost of the new installation". (p. 11) The increased construction costs resulting from a brownfields situation can be included through the incorporation of such costs in the derivation of unit rates.

ENERGEX strongly advocates the adoption of a brownfields approach to the determination of unit rates. Around 75 per cent of ENERGEX's construction activity occurs in a brownfields situation as ENERGEX's network is generally constructed through small extensions of the existing network through established areas. This percentage is increasing and likely to continue increasing as ENERGEX's network ages and requires greater levels of refurbishment and replacement capital in brownfields locations. Using a greenfields assumption will imply longer and larger construction activities that embody economies of scale not achievable in the construction of capital works within the annual capital program of works. Using a greenfields assumption will lead to lower unit rates than those actually incurred, leading to uneconomic returns and a reduced capital expenditure

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<sup>3</sup> An 'n-1' supply system means a supply system that can continue to supply electricity at time of peak demand when the line with the largest capacity fails. An 'n-2' system can continue to supply electricity when the two largest lines fail.

allowance for new construction. Finally, the ageing profile of the network will exacerbate the underrecovery of costs that would occur using a greenfields assumptions.

For example, ENERGEN generally estimates that the cost of building one kilometre of 33 kV overhead feeder is approximately \$90,000. However, when a 33 kV feeder is built over the top of existing 11 kV line, the 11 kV lines will not generally be suitable for the overbuild of the 33 kV lines. Unless a wide easement or road reserve is available and planning permission is given to construct dual lines, the entire feeder will have to be rebuilt, necessitating the complete replacement of the existing 11 kV line. The total cost of establishing a 33 kV feeder in these conditions is likely to be approximately \$350,000 per kilometre.

ENERGEN notes that regulators have generally adopted a brownfields approach in conducting valuations of regulated infrastructure. For example, the QCA adopted a brownfields approach in determining the valuation of Queensland Rail's rail network (QCA 2001a) and Queensland gas distribution networks (QCA 2001b). In the 1999 valuation, a brownfields assumption was applied by the QCA's consultant, GHD, and accepted by the QCA.

#### **4.7 Staged Development of Assets**

A DORC valuation notionally involves determination of the cost of the complete replacement of an existing network with similar assets providing the same service potential. This approach may appear to imply that the unit costs of developing a replacement network should be the average costs that would be incurred in a complete replacement of the network. Such a large scale replacement of the network might occur at low average unit costs because it could be achieved at significant economies of scale.

In reality, electricity distribution networks develop over time in a staged or incremental way, in step with increases in demand. The unit rates incurred during small scale, incremental expansion of the network are higher than the unit rates that would apply if replacing the network.

ENERGEN considers that for network industries, staged development is both unavoidable and optimal. Clearly, the incremental expansion of the network in step with growth in demand will deliver the lowest average costs to users over time.

To consider why this is the case, it is worth assessing the options involved in delivering electricity to users at least cost over the longer period. Clearly, it makes sense to expand distribution networks incrementally over time rather than seek to take advantage of economies of scale by either: (i) overbuilding the network early and incurring significant costs associated with underutilisation for significant periods of time until capacity is taken up; or (ii) postponing development (and thus imposing significant costs in terms of unmet demand) until demand is large and a major expansion can be undertaken. The discussion above of incremental versus greenfields optimisation argued that optimisation of the network should occur against the reality of incremental development of the network. While the DORC valuation is intended to remove over-capacity and over-engineering and encompass industry best-practice costs, it would be unsustainable to impose unit rates that an infrastructure developer acting in a commercial and prudent manner would be unable to achieve.

The least cost long-term solution involves selecting optimally among a number of drivers:

- the high costs of holding unutilised capacity (where the network is developed well in advance of needs);
- the higher costs of small scale expansion compared to large scale expansion (where the network is developed roughly as needed); and

- the high costs of unmet demand or increased system risk where utilisation rates are high (where network development is delayed until demand has already emerged).

In relation to distribution networks, the cost difference between incremental and large scale expansion, and between overbuilding and not meeting demand, would suggest that incremental expansion is economically optimal.

If staging costs are not included in unit rates, asset owners may be discouraged from investing in future network upgrades because of the potential write-down in the capital value of new assets that could occur at the next regulatory reset (when the full capital cost is not recognised). This would be perverse given that the capital expenditure program to build the network upgrades had been previously approved by the regulator as prudent and sensible.

Consequently, staging costs need to be recognised through some mechanism in the asset valuation. ENERGEX considers that appropriate mechanism is to base unit rates on the average unit rates achieved across a reasonably small scale or incremental range of development rather than across a large scale development.

The Issues Paper suggests that distribution networks may develop through large scale developments while electricity transmission networks or major port and water infrastructure projects may be developed through small augmentations. In fact, the opposite is likely to be true. The development of a distribution network is *more* likely to occur on an incremental or small scale basis rather than on a 'once-off' basis. In other words, the optimal balance between the drivers mentioned above is likely to be different for very large transmission, port, or water projects than for distribution projects.

There is support for the recognition of staging costs in previous decisions of the QCA. The QCA considered the issue of staging costs in its Final Decision on Queensland Rail's Draft Undertaking. Queensland Rail submitted that staged development adds significantly to the construction cost of various parts of the network. It identified, for instance, that the cost of the earthworks required to duplicate a section of existing track is 40 per cent higher (per cubic metre) than the cost of the original earthworks. The QCA accepted that the cost of future expansions should be recognised. The QCA recognised the appropriateness of basing unit rates on the incremental costs of expansion (QCA 2001a).

#### **4.8 Land Issues**

ENERGEX notes the comment in the Issues Paper that, in relation to land and buildings, SKM proposes to review the 2003 valuations that have been done by the distributors.

ENERGEX is presently conducting a valuation of system and non-system land and buildings for the 2003 valuation, and has consulted with SKM and Herron Todd White (HTW) in relation to the appropriate methodology.

In an overall sense, ENERGEX considers system and non-system land and buildings used to provide electricity distribution services should be valued at their current market value for the existing use to which they are being put.

Consistent with this, ENERGEX supports the view that land should be valued per title or contiguous area on a square metre or hectare basis depending on current use, and that buildings should be valued on a replacement cost less depreciation rate per square metre basis. HTW and SKM have indicated in initial discussions that ENERGEX should adopt this methodology for the purposes of inclusion in the 2003 DORC valuation.

This approach is consistent with the Fair Value Model promulgated in the Queensland Government Treasury *Non-Current Asset Accounting Guidelines* (May 2001).

The Issues Paper notes that Ergon has historically adopted the unimproved capital value as determined by the Department of Natural Resources and Mines as the land value. ENERGEX considers that the adoption of an Unimproved Capital Value for land and buildings within ENERGEX's distribution area would be totally inappropriate. ENERGEX's land portfolio exists within a strong property market where the real opportunity cost of acquiring and holding land is far in excess of the unimproved capital value.

In relation to buildings, ENERGEX supports the asset lives referred to in the Issues Paper of:

- 80 years for dwellings (with provision to increase to more than 100 years subject to maintenance and refurbishment);
- 60 years for office buildings (with provision to increase to 100 years with refurbishment); and
- 40 years for 'tin sheds' and other substation buildings (but depending on climate and wear and tear, up to 80 years).

The proposed asset lives reflect the reasonable life expectancies of this asset class based on ENERGEX experience. Shorter standard lives would artificially accelerate the depreciation of ENERGEX's buildings portfolio.

#### **4.9 Allocation of Shared Assets**

The Issues Paper notes that the use of some assets, such as corporate offices, is shared between regulated and non-regulated activities. It considers that the regulated distribution business should only earn a return on that portion of the assets used to provide regulated services. The paper sets out two options for allocating the use of shared assets for the current valuation:

- Option 1 - including the total value of shared assets in the regulated asset base, and implementing a system of internal billing for the use of these assets in non-regulated activities. ENERGEX acknowledges that an alternative to this option would be to exclude the total value of shared assets from the regulated asset base, and charge for the use of these assets by regulated services; and
- Option 2 - allocating a proportion of the shared asset value to regulated and non-regulated activities based on expected usage or some other appropriate allocation driver. Regulated revenue would only be earned on the proportion of the shared assets used to provide regulated services.

ENERGEX abandoned internal charging at the end of the 2000-01 financial year because it created significant inefficiencies in the distribution business and created a lack of transparency for effective management and reporting of costs and results. The current accounting and management systems have been found to be far more efficient, effective and less costly than those involving transfer pricing, and for these reasons ENERGEX would strongly recommend against any proposals that involve reintroducing internal billing of services. Moving back to internal billing would also pose significant challenges in terms of determining the reasonableness of the charging rates to be used.

ENERGEX strongly prefers the second option. During the current regulatory period, ENERGEX has progressed this option by restructuring its accounting systems to provide transparency to the allocation process. A cost allocation manual has been prepared with the involvement of the QCA detailing the process for allocating shared assets between regulated and non-regulated activities.

ENERGEX suggests the current allocation percentages be used to allocate a portion of shared assets to the regulated business for the purpose of the valuation exercise.

#### **4.10 Interest Costs during Construction**

The Issues Paper notes that recent transmission and distribution asset valuations in Australia and New Zealand included the costs of interest and other finance charges incurred in construction in the asset base. SKM suggested that interest costs should be included where the project time period was significant, which was likely to apply to projects covering subtransmission and transmission voltages but not distribution voltages.

ENERGEX strongly supports inclusion of interest costs for asset classes which incur material charges and which take a significant period of time to construct. ENERGEX notes that the QCA included financing costs during construction in Queensland Rail's asset base (QCA 2001a).

The Australian Accounting Standards require capitalisation of financing costs. Australian Accounting Standard *AASB 1036 Borrowing Costs* states:

*Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset must be capitalised as part of the cost of that asset in accordance with paragraphs 5.1 to 5.3. Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset must be determined as those borrowing costs, which would have been avoided if the expenditure on the qualifying asset had not been made. (paragraph 4.2)*

To the extent that funds are borrowed generally, the amount of borrowing costs to be capitalised to qualifying assets must be determined by applying a capitalisation rate to the weighted average accumulated expenditures relating to qualifying assets during the financial year. Such expenditures must give rise to borrowing costs that could have been avoided and must be incurred in making qualifying assets ready for their intended use or sale.

Borrowings may be made through a central treasury function within an entity when it is opportune to do so. In such cases it may be difficult to identify a direct relationship between funding and the acquisition, construction and production of particular qualifying assets. Nevertheless, borrowing costs that could have been avoided will have been incurred. In these circumstances, it is appropriate to apply a general rate, that is, the weighted average cost of borrowings for the financial year, to the average amount of accumulated expenditures on qualifying assets during the financial year.

Based on the above accounting standards, interest cost should be applied to capital expenditure and hence assets. The two areas of concern are the application methodology and the calculation of the interest rate.

ENERGEX's internal criteria for the application of interest to capital expenditure is to apply interest charges to all construction project lasting one year or greater which expect to incur expenditure of more than \$100,000. Under these criteria, ENERGEX applies between \$2 million and \$3 million interest per year to capital expenditure. This then flows through to the asset base on capitalisation.

In terms of the types of assets which typically incur interest charges, ENERGEX has reviewed the projects to which its internal interest charging applies. The results are shown below in Table 1 below.

**Table 1: Assets to which ENERGEX applies interest charges**

Project Type	% Meets Interest Application Criteria	Average Construction Duration Period
Bulk supply and zone substations	100%	1.5 yrs
110 kV construction	100%	1.5 yrs
33 kV construction	100%	1.5 yrs
11 kV construction	0%	-

Accordingly, ENERGEX advocates that a loading should be applied to the following asset classes:

- Bulk supply and zone substations;
- 110 kV construction; and
- 33 kV construction.

The loading should be 1.5 times the opportunity cost of the funds expended (that is,  $\frac{1}{2}$  Asset Value \* Duration of 1.5 years \* Weighted Average Cost of Capital). A value of ' $\frac{1}{2}$ ' the asset value has been selected on the assumption that the expenditure will be incurred evenly over the length of the construction period.

As Table 1 shows, these assets invariably take a significant period to construct. Due to their size, projects to construct these assets would also invariably incur material interest cost charges.

ENERGEX considers the interest rate applied should be the QCA cost of debt rate.

#### **4.11 Depreciation Methodology**

The Issues Paper raises two issues as to the methodology used to measure the decline in service potential of assets:

- whether the loss of service potential should be recognised through a renewals annuity approach or depreciation charges;
- the appropriate depreciation methodology for calculating depreciation charges.

##### *Recognising loss of service potential*

ENERGEX strongly supports the use of depreciation charges to reflect the costs associated with the loss of service potential. The renewals annuity approach assumes that regular planned maintenance maintains the service potential of the asset base at current levels, meaning that it does not depreciate. The renewals annuity approach assumes that assets can be maintained in perpetuity and that they will continue to be required in perpetuity. These assumptions do not apply to ENERGEX's asset base. In particular:

- many of ENERGEX's distribution assets tend to be replaceable rather than renewable in perpetuity. This is true even though these assets have long lives which can be extended through maintenance; and

- demand is unpredictable over the longer term, making it difficult to assume particular assets have an indefinite life. Moreover, an assumption of indefinite life is inconsistent with the optimisation approach required under the DORC methodology.

As the Issues Paper notes, the renewals annuity approach effectively transfers the requirement to cover the loss of service potential to a maintenance program aimed at ensuring assets do not lose service potential. This places a heavy burden on the asset valuation process to monitor maintenance programs to verify that these programs have preserved service levels across the length of the regulatory period.

#### *Appropriate depreciation methodology*

A number of different depreciation approaches could be used, including units of production, accelerated depreciation, and straight line depreciation.

Units of production depreciation is best suited to those assets whose life is closely linked to or dependent upon the hours of use or the physical output of the asset. Such assets will normally deteriorate and expire in direct relationship with the units of output or production. There is no clear output/life relationship for the large majority of ENERGEX's network assets, so this depreciation method is inappropriate for ENERGEX's network business.

Accelerated depreciation would have clear economic benefits to ENERGEX by increasing revenue in the early years of an asset's life. This would also help offset the current imbalance faced by ENERGEX where a rapidly growing network requires capital expenditure far in excess of depreciation allowances on existing assets. To date, technical obsolescence has not been a significant issue with regard to most network assets, although clearly this will always remain a risk factor that could emerge, particularly with very long lived assets. At this stage, ENERGEX does not support the use of the accelerated depreciation approach.

On balance, ENERGEX supports straight line depreciation because:

- it is simple and transparent to apply;
- it is the methodology ENERGEX currently uses to depreciate the assets on its asset registers. Using this methodology will eliminate the overhead and additional costs that would be required to maintain separate books for annual statutory reporting and QCA reporting;
- it is consistent with the requirements of the Corporations Law and Australian Accounting Standards;
- it is widely used by other regulated transmission and distribution companies;
- the QCA has adopted straight line depreciation in other regulatory decisions, for example in its decision on Queensland gas distribution networks (QCA 2001b);
- it represents a reasonable approximation across the collective electricity distribution asset base of the actual loss of service potential due to ageing; and
- it is much less information intensive than methods such as the units of production methodology, which requires estimation of the annual rate of use of particular asset classes.

#### **4.12 Roll Forward Methodology**

The Issues Paper notes that the asset valuation figure will need to be rolled forward from the reference date (proposed to be 31 December 2003) to the start date of the new regulatory period

(30 June 2005), accounting for new capital expenditure, retirements, changes in unit rates, and depreciation in the interim.

The Issues Paper raises the issue of whether to include assets built during the roll forward period in the asset base.

ENERGEX agrees with the proposal in the Issues Paper to take an asset count as at the reference date of 31 December 2003 and then to include actual capital expenditure for the period from 1 January 2004 to 30 June 2004 and then forecast capital expenditure for the 2004/05 financial year. This would mean there would be no further update of the asset count during the roll forward period.

#### *Asset retirement*

The value of assets retired during the roll forward period is likely to be minimal (around 0.1 per cent of the asset base). Accordingly, ENERGEX suggests that these costs are not sufficiently material to be considered as part of the roll forward adjustment. ENERGEX notes that no allowance was made for retirements in the roll forward conducted for the current Determination.

#### *Changes in the Unit Rates*

The Issues Paper suggests that unit rates be indexed at the consumer price index (CPI) for the roll forward period.

ENERGEX supports the use of a composite index based on escalation in labour (35 per cent), Australian materials (50 per cent), and overseas materials (15 per cent). This index would involve data sourced from ABS 6312.0 (labour index), 6407.0 (Australian materials), and 6414.0 (overseas materials).

ENERGEX uses this composite index for its annual indexation of the regulated asset base (between formal valuations) as it is considered to more accurately reflect growth in the underlying value of assets.

#### *Depreciation of work-in-progress (WIP)*

The Issues Paper suggests that depreciation on WIP be calculated on the basis of the weighted average asset life. ENERGEX considers this methodology would be heavily weighted towards the supply system assets and hence may understate depreciation of non-system assets due to their shorter lives.

ENERGEX advocates that depreciation on WIP be calculated based on expenditure classified into broad subcategories (eg Supply System, Land and Buildings, and Other), rather than the overall WIP value.

### **4.13 Valuation of Easements**

ENERGEX considers that the value of easements should be determined consistently with the valuation of other real property asset classes. ENERGEX submits that an appropriate valuation methodology would be a fair market value methodology such as the DORC methodology. In particular, the DORC methodology accords with the objectives of the National Electricity Code, in particular the objective of providing the distributors with a fair and reasonable rate of return on efficient investment (clauses 6.10.2 (b)(2) and 6.103(e)(5)).

ENERGEX presented its arguments for valuation of easements at DORC in its submission to the QCA in May 2003 (ENERGEX 2003). In brief these arguments centred on:

- the need for the value assigned to easements to reflect the opportunity costs of holding these assets;
- the fact that other valuation approaches, and in particular historical cost, are not consistent with economic principles;
- the fact that the DORC methodology provides the correct investment incentives, including the incentives to hold an efficient asset mix;
- the fact that the DORC methodology addresses inflation risk, unlike the historic cost approach; and
- the fact that valuation at DORC accords with good accounting practice (as evidenced in a supporting submission by Ernst & Young); and
- the fact that DORC valuation of easements is consistent with the valuation applied to other land and building assets in the 1999 valuation process and proposed to be applied in this valuation.

ENERGEX considers that these arguments remain valid, and support a DORC valuation of easements. Alternative valuation methodologies such as historical cost or indexed historical cost could provide incentives for ENERGEX to change its current policy of easement ownership, eg. future easements could be leased based on market rates.

#### **4.14 Recognition of Capital Contributions**

The Issues Paper raises the issue of how capital contributions should be recognised in the asset base. SKM notes two options: (i) quarantining capital contributions; and (ii) including capital contributions in the asset base (with the opportunity to earn a return on these assets) offset by an equivalent adjustment to revenue in the year of contribution.

ENERGEX supports continuation of the current approach of including capital contributions in the asset base with an offsetting adjustment to revenue in the year of contribution.

ENERGEX believes the quarantining of assets subject to capital contributions would mean increased overhead due to the creation of separate asset registers. It would also raise questions about the classification of future augmentation or refurbishment capital expended by ENERGEX on these assets.

The Issues Paper notes that including capital contributions in the asset base requires the distributor to forecast capital contributions for each year of the future regulatory period. However, ENERGEX considers that the 'unders and overs' adjustment mechanism caters adequately for variances between actual and forecast capital contributions. Moreover, the alternative approach of quarantining capital contributions also requires the distributor to estimate expected capital contributions for the purposes of determining forecast capital expenditure.

ENERGEX notes that it is currently working with the QCA to devise an alternative to the current '22½ per cent' policy for determining the size of capital contributions.

## **5. CONCLUSIONS**

Electricity distribution networks are long term capital intensive businesses. Fair valuation of the regulated asset base using realistic, bottom-up constructed unit rates is crucial in determining the

appropriate revenue stream to sustain and reward efficient management and provision of electricity distribution services. Return of and on the asset base represents the majority of the income earned for these services.

ENERGEX supports the broad methodology and direction proposed by SKM in the Issues Paper with suggested changes in the following areas:

- the determination of unit rates, and in particular, using sources of information that ensure attribution of the full range of overhead and indirect costs incurred in constructing units of plant;
- adopting a 45 year standard asset life for 33kV, 11 kV, and low voltage wood poles;
- including staging costs in unit rates; and
- valuing easements at market rates.

With these changes, ENERGEX considers that the methodology as proposed will provide a suitable basis for valuing ENERGEX's electricity distribution assets, providing appropriate signals for efficient investment and management of distribution assets.

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## **APPENDIX 1: WALKER AND ZIMMER PAPER**