

Transmission Pricing for Prescribed
Transmission Services
*Submission to the Australian Energy
Market Commission*

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The Conceptual Framework

The NEM objective is to promote efficient investment. Price levels in the proposed rule cover the allocation of costs and the levying of charges that cover those costs to promote efficiency.

The Objective is seen to have implications for the means by which the regulatory arrangements operate as well as the ends. With regard to the former, it sees goals of ‘stability and predictability’ and of ‘transparency’.

Stability as a goal is different from predictability. Rules set out to create stability can be inimical to efficiency when the underlying conditions are highly unstable. Predictability can also be questioned as a goal of regulations in conditions where market conditions are not predictable.

In seeking to promote stability where volatility is the normal situation, regulatory agencies might involve themselves in attempting to smooth out pricing perturbations. While this appears to be a meritorious goal it can be harmful where the regulatory agency is mistaken on the overall trends of the market. A regulatory agency under a form of political control is especially vulnerable to such errors. One of the more injurious failures of an agency pursuing this approach was that of the Australian Wool Corporation which set an intervention price for wool during the 1980s that was too high and which culminated in vast over production and a stockpile that overhung the market for a decade proving ruinous to many farmers. Even regulatory agencies not explicitly favouring a particular interest group may well get things wrong – the more spectacular market failures as in California were certainly compounded by the regulator seeking to favour consumers in the narrow sense of shielding them from necessary price rises.

Similarly, in seeking to promote predictability inappropriate signals could be given. Thus the spot market for electricity is highly unpredictable at certain junctures. Trying to prevent such unpredictability is the goal of those promoting a price cap and an associated capacity payment to generators. The nature of electricity is that it is at times inherently unpredictable and attempting to reduce that can reduce incentives that firms have to ameliorate it.

Setting a price cap offers retailers a degree of security that the regulator is unable to deliver in any scenario likely to prove acceptable in Australia. One possible such initiative would involve the regulator fully owning a dedicated reserve supply of electricity to be called upon only in extreme price periods. Even if this worked, it is unlikely to be realistic for the government to hold a plant fully in reserve. That aside, promoting greater predictability than is inherently present can bring inadequate signals to market participants to contract for or supply

capacity needed for those occasions where the unpredicted occurs.

There are limits to what a regulator can and should try to achieve. Regulation is not introduced to improve the operations of the market. Rather it is in place because it is perceived that the market itself cannot work: that there is market failure. In the case of electricity transmission lines (and even more so with distribution lines) this is because there are seen to be valuable externalities that cannot be fully captured by the provider, ‘free rider’ features that might bring the buyer to seek to avoid payment and natural monopoly traits that prevent suppliers and customers from finding alternative means of transacting business with each other.

Ambition to create conditions that are more potent in reducing risk than might be the outcome of the free play of demand and supply can be dashed on the shoals of unforeseen surprises. It may well be that the Commission is aware of these considerations and its proposed measures to promote means as well as ends are a codicil that is intended better to describe the main ends and not to supplant them should there ever be any conflict. In that event it should specify the limits to its rule making and ensure that participants are aware that it is simply recreating the conditions normally found in markets, departing from these only where it has a clear political requirement to do so.

Reducing the Need to Intervene in Markets

The Overall Approach

The Commission sees its role as providing the best signals for investment and to combat market power on the part of network operators.

The Commission considers that these outcomes can be best achieved by:

- clarifying that the ‘causer pays’ principle is to be applied in linking the prices paid by consumers and producers of electricity to transmission costs;
- permitting the recovery of the efficient costs of transmission service provision, including ‘sunk costs’;
- ensuring that the transmission prices provide efficient locational and investment signals to participants; and
- ensuring the pricing rules take account of other aspects of the NEM arrangements, such as transmission investment regulatory arrangements, in order to avoid inefficient ‘oversignalling’ of the value or cost of transmission.

It generally regards the current approach whereby generators only pay ‘shallow’ connection costs and the mix between locational and ‘postage stamp’ price determination as being satisfactory.

Revenue Based Regulation

It endorses the revenue regulation approach rather than its cost based alternative. This leads to a provision for ‘prudent discounts’ and a consequent additional impost on those parties that do not receive the benefit of the discounts.

Revenue as a base for charges rather than costs is set because the service is considered to have no material affect in encouraging increased usage of the product due to its relatively low (10 per cent) share in overall costs. In previous times and perhaps still, there was also the notion that increased usage of electricity should not be encouraged and that a revenue cap avoids network providers seeking to promote usage by reducing prices.

The Commission traverses the arguments for and against price and revenue caps. It considers the main deficiency of price caps is that they may not be applied to take fully into consideration the future network investment. This is however not an argument that has persuaded the distribution regulators which see price cap regulation as offering more potent efficiency driving signals than revenue cap regulation. In opting to retain a revenue cap approach the Commission offers no arguments in its favour.

Causer Pays

The Commission also sees the need for ‘causer pays’ principles which offer a more market based signal to investment.

It argues, ‘In order to promote allocative efficiency, transmission prices should be set on a ‘causer pays’ basis where possible. This means that where transmission costs are incurred following a direct request by (or agreement with) a particular network user or users, those user(s) should be required to pay the relevant costs.’ (p. 27).

It takes the view that the meshed nature of the network makes this difficult to assign to particular parties and that as most transmission investment is undertaken to meet reliability obligations to satisfy consumers, the main locus of charges should remain with consumers. With regard to this latter factor, it matters little why the obligations are in place since, whether levied initially on consumers or suppliers, the charges will always fall upon the former. More persuasive in not modifying the present arrangements is the fact, acknowledged by the Commission, that they are in place and changing them would create transitional gains and losses without any apparent improvement in efficiency resulting.

The Commission recognizes that investments may be inappropriately located because of the charging approach. It favours prices being set on the basis of short run marginal costs which it argues is supported by economic theory and competitive market experience.

This is subject to a great many caveats. Importantly, prices set on the basis of marginal costs are not found in many markets—they are characteristic of markets under stress (for example where there are few suppliers engaged in a ‘price war’) or facing long term decline (so that sunk costs need not be recouped). Even the market for highly perishable goods like vegetables seldom sees produce offered at marginal cost and only then is this seen at the end of the trading day.

The Commission recognizes that if charges are set to meet short run marginal costs and there is spare capacity, consumers may locate too far away from generation, especially if reliability standards are in place to fortify the initial decision.

It considers that prices based on long run marginal costs may lead to inefficient by-pass. This leads it to support the notion of efficient discounts being offered which may be recouped by de facto surcharges on other customers. It is likely that the conditions under which these would be permitted would be accompanied by protracted and heated negotiations.

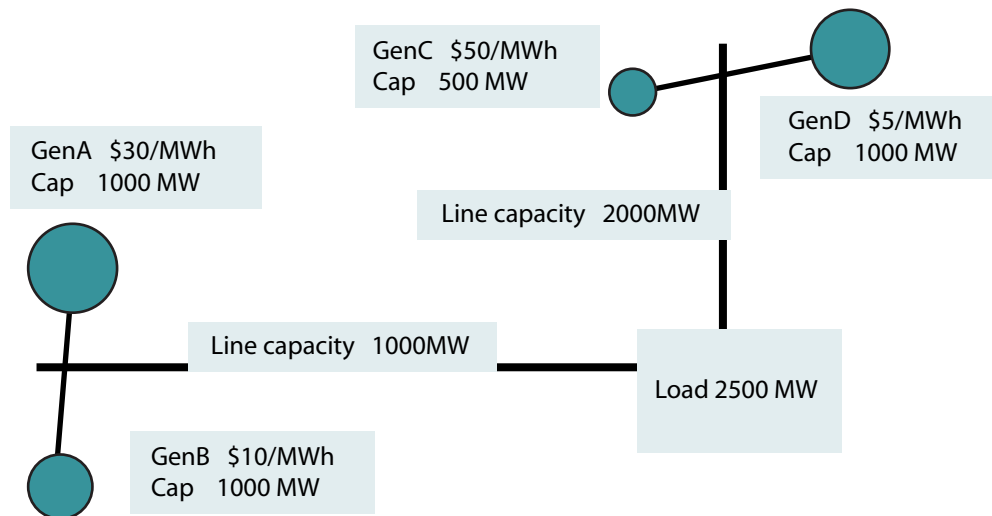
One suggestion draws on and amplifies work published by the IPA¹. Put forward in two submissions by a group of generators and by AGL, it seeks to introduce a mechanism that would provide greater market orientation to transmission investment other than the meshed network which supplies major consumer loads.

The latter are more akin to distribution systems in that their usage cannot be ascribed to particular generation facilities or groups of such facilities. By contrast, the long lines connecting a single generation unit or a series of such units are supplying electricity to major nodes, often in competition with each other.

The practice in Australia is to charge the customers for the transmission use, rather than generators. Generators do not however have a property right to the transmission to the major hub. This means that a new generator with costs and a consequent a bidding strategy lower than an incumbent generator would force the latter off the line once it was at full capacity. This might mean an alternative supplier with a higher total cost (including transmission costs to the major node) would replace the incumbent generator.

This is illustrated in the diagram on page 4.

If generator B locates next to generator A, the latter is constrained out and replaced by the higher cost generator C. Costs are \$1000 higher. Generators A or B may have incentives to build additional transmission capacity but only if they can be assured of some exclusivity or some priority in its use. A customer coalition would also be willing to finance such an investment but the transmission business may face no such incentive, while generators B, C and D would prefer the augmenta-



tion not take place since they are beneficiaries of the higher price set by generator C. Allocation of a form of property right would bring about the optimal investment without the rancour of a series of bureaucratic hearings and extensive lobbying.

A more complete depiction of the different costs and the appropriate strategies for payment is on the opposite page.

In determining the best means of arranging for new capacity it is useful to consider four models. The first is that which normally applies to roads and bridges. The usage both origin and destination is highly atomized. Governments charge road specific taxes and provide new and improved facilities according to their measures of demand. Road specific taxation is about twice the level of road specific expenditure and in many areas roads are clearly underprovided and the consequent congestion brings about a political reaction as well as increasing travel time and its variability.

A second model is that for new housing subdivisions. In the local road, electricity, water and other service provision, the new home builder (and hence the home buyer) pays for the infrastructure. This has generally been found to be satisfactory, although it does bring about a fairness issue since established areas were paid for by debt and much of their on-going upkeep is paid out of general revenue.

A third model is that in place for most gas, electricity and rail infrastructure. An independent operator is in charge of the main transport system and operates it as a common facility. Normally the access to this and its price is controlled by a government agency.

A fourth model has the producer controlling its own transport system. In one sense this is the model operating in manufacturing industry where an automated car plant is the transport medium for a firm which combines bought-in and internally produced components into a finally assembled product. Most manufacturers would resist having to make their facilities available to other businesses, even if they were not competitors because of the difficulties of ensuring against disruption.

The Hilmer recommendations and the Part IIIA provisions of the Trade Practices Act were careful to exclude manufacturing facilities from the ambit of control. Rio successfully argued before Justice Kenny in the Federal Court that its iron ore transportation facility in the Pilbara was akin to a manufacturing facility and thereby avoided a requirement to have it covered by Part IIIA (the applicant for coverage was actually bought by Rio and there was therefore no further appeal).

Nonetheless, the NCC and ACCC continue to regard such facilities as being prospectively subject to coverage. In the case of telecommunications, the ACCC's refusal to give Telstra assurances on coverage matters has led the firm to abandon plans to build a national fibre network.

Most gas carriage is contracted under arrangements whereby the supplier has some priority to use a specific level of capacity on a pipeline (Victoria has a unique 'market carriage' system under which no such rights are involved). The gas 'contract carriage' approach is a variant of the fourth model.

All of these models have their strengths and weaknesses.

- The first often leads to under provision as in the case of roads or it may lead to excessive expenditure if the government is highly risk averse and feels it can avoid political opprobrium by such expenditure.
- The second may be difficult to arrange, particularly where there are many consumers all with different degrees of preference for trading off greater security for lower costs.
- The third model involves a departure from true market conditions and an attempt by a regulator to mimic the conditions that would prevail if a genuine market with many buyers and sellers were to exist; it remains vulnerable to all the conceits and inefficiencies that often characterize regulatory agencies.
- The fourth model might set up a monopoly that could exercise price discrimination and extortion in later years².

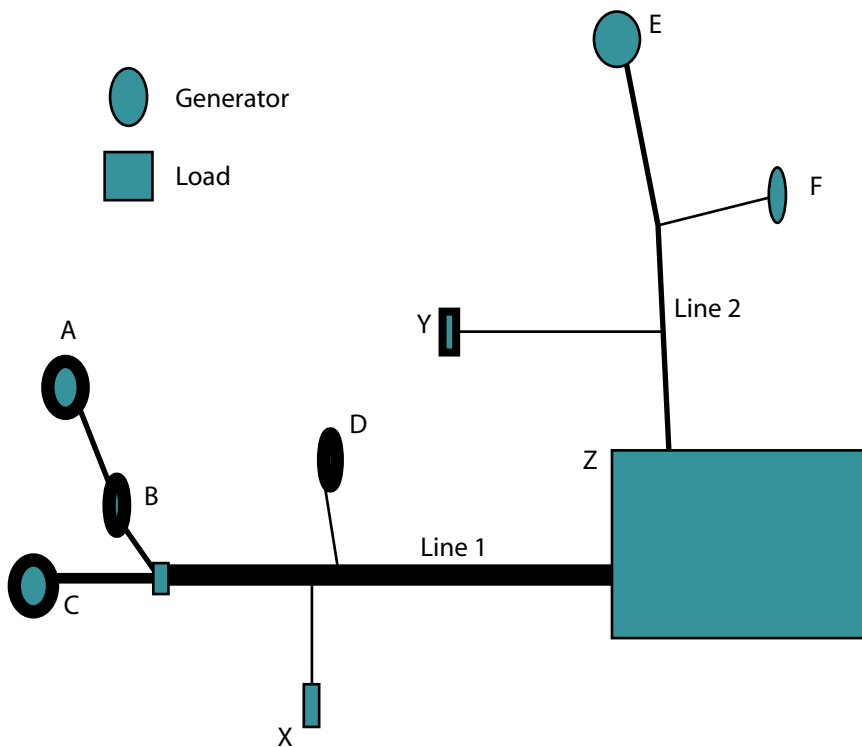
A new generation unit or an expansion of an existing unit should be required to pay for any augmentation needed to allow its power to be transmitted. This, implicit in which is some form of nodal pricing, gives a better market signal than if the determination is left to a regulator or to a transmission business since it allows the transposition of commercial forces for those that are

actually or mainly controlled. As AGL argue, 'Applying deep connection charging to generators at the time of connection would allow the network costs to be included in their decision process on location and allow for appropriate development of networks to efficiently transfer power from generators to customers.'³

With rights over their current levels of service, existing generators have options about augmentation that ensure the full costs of their decisions are taken into account. They may also downsize by selling part of their carriage rights to a new player thereby avoiding wasteful duplication of capital.

The advantages of such are best seen in allowing a market based decision to be made on where a transmission augmentation should best be made. There may be several alternatives (e.g. in Victoria by reinforcing the lines from the Latrobe Valley as opposed to the interlink with Snowy and NSW) but requiring a new supplier to undertake the expenditure (or buy out the rights of an existing unit) introduces a market mechanism.

A market mechanism along these lines is consistent with the Code⁴ and with the light handed regulation that governments and their agencies promote in the electricity market.



Generator A should pay for A to B.

Generators B and A should share the costs of B to main transmission line 1.

Generator C should pay for C to main transmission line 1.

Generator D should pay for the link to main transmission line 1.

Generators E and F should pay for the lines to main transmission line 2.

Generators A,B,C, and D should pay for main transmission line 1 with the share of generator D being reduced as a result of the diminished distance involved.

Customers in X and Y should pay for the lines and the meshed networks connecting them to the main transmission lines.

Customers in Z should pay for the meshed network within their areas.

References

1. Alan Moran, Firm access rights: The key to efficient management of transmission, Submission to the NECA transmission pricing review, Institute of Public Affairs Energy Issues paper no. 12, June 1999
2. The common law evolved to ensure that at some time the monopoly was required to open up its services to all comers. Frequently, as in the case of nineteenth century railways, this led to political control, underpricing and reduced efficiency of operations.
3. <http://www.aemc.gov.au/pdfs/reviews/Review%20of%20electricity%20transmission%20revenue%20and%20pricing%20Rules/Issues%20paper%20submissions/Issues%20Paper%20Transmission/000AGL.PDF>
4. 5.5 (f) of the Code specifies
The Network Service Provider and the Generator shall negotiate in good faith to reach agreement as appropriate on the:
 - connection service charge to be paid by the Generator in relation to connection assets to be provided by the Network Service Provider;
 - use of system services charge to be paid by the Generator in relation to any augmentations or extensions required to be undertaken in respect of all affected transmission networks and distribution networks;
 - amount to be paid by the Generator to the Network Service Provider in relation to the costs reasonably incurred by the Network Service Provider in providing generator access;

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