Revocation of Coverage for the Moomba – Sydney Pipeline

attachment in support of EAPL response to NERA/ACCC submissions

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1 Introduction

On 16 September, the NCC advised EAPL of a new submission by the ACCC, supported by a study by NERA which comments on aspects of EAPL's February 2002 submission in favour of revocation of coverage for the Moomba – Sydney Pipeline (MSP). As submitted in February 2002, EAPL believes that revocation should be granted to the MSP as the statutory tests for continued coverage are not met—most particularly, coverage would not promote competition in another market.

The new ACCC/NERA submissions set out to demonstrate that the MSP is earning monopoly rents under its current pricing. Before turning to the specific content of these new submissions, it is important to note that the mere earning of monopoly rents—even if it were taking place—is not a criterion for coverage under the Gas Code.

Having said that, the ACCC/NERA submissions do not in fact demonstrate the existence of monopoly rents. The substance of these new submissions will be analysed in the following manner:

1. First, we draw a distinction between aspects of the ACCC submission which are directly relevant to revocation of the MSP, and those which are more properly part of the separate process of evaluating the MSP Access Arrangement;

2. Then, we note the points of agreement between NERA and NECG;

3. Next, we identify a number of errors of principle made in the NERA report;

4. Finally, adjusting NERA's results by correcting these errors, we compare NERA's findings regarding monopoly rent to those presented in NECG's February 2002 submission.

2 ACCC submission

The ACCC submission responded to two sets of issues, as noted in the executive summary:

> "*NECG argued that, firstly, the ACCC did not correctly apply the provisions of the Gas Code in its tariff calculations, and secondly, even if it did, tariffs calculated using the principles of the Code are somewhat irrelevant as an indicator of contestable market prices, as the Code does not apply the 'hypothetical new entrant test' (HNET).*"[1]

2.1 Hypothetical new entrant approach

The ACCC commissioned NERA to address the second set of issues, and section 4 of the ACCC submission simply summarises NERA's conclusions on the HNET. The ACCC summarised NERA's conclusions in these terms:

> "*While NERA agreed that the HNET may be an appropriate benchmark to gauge monopoly pricing, it was critical of the manner in which the NECG applied the test to the MSP.*"[2]

The ACCC conceded that:

> *"The HNET is one mechanism for deriving a competitive (hypothetical) market price for an industry that may not be subject to competition."*[3]

The ACCC also accepted that reference tariffs under the Gas Code were not necessarily comparable to these competitive market prices derived from the HNET:

> *"Having said that, however, the tariff determined in accordance with the HNET is not necessarily the appropriate value of the reference tariff that the Commission would derive from the application of the code. Replication of a competitive market is only one of many factors that the Commission must consider in determining reference tariffs."*[4]

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1 ACCC submission, p. ii.

2 Ibid.

3 Ibid., p. 1.

4 Ibid., p. 2.

2.2 Regulatory compact approach

NERA also discussed an alternative to the HNET involving a 'regulatory compact' approach. Such an approach seeks to make a link between an approved access arrangement under the Gas Code and the so-called 'regulatory compact.' NERA themselves appear unsure whether the regulatory compact (or 'regulatory contract' as it is called in the NERA report) is applicable in the present context. They say:

> *"**If it is determined** that a regulatory contract exists, there would be a number of implications for the assessment of the price level beyond which it can reasonably be said the owners of the MSP are exercising market power."*
>
> *"**To the extent that the Gas Code represents the best description of the regulatory contract** then the prices determined under the Gas Code may be a valid test for the exercise of market power."*[5] [emphasis added]

The ACCC appears to doubt the existence of a regulatory compact in this case:

> *"Given the history of the MSP – Commonwealth ownership before 1994 and the subsequent sale to EAPL – the Commission questions whether in fact a regulatory compact, as described by NERA, existed prior to the introduction of the Gas Code."*[6]

One of the facts relevant to the existence of a regulatory compact is that the MSP was privatised in 1994, but the Gas Code was enacted four years later, in 1998.

In any case, a full implementation of the regulatory compact concept as described in the NERA report would require consideration of the pattern of over or under-recoveries over the life so far of the MSP. The ACCC's Draft Decision on the MSP Access Arrangement presents a calculation of past recoveries on the MSP from its construction in 1977 to its privatisation in 1994.[7] The ACCC's own calculation shows that tariffs on the MSP over every year of that period were so low that the implied depreciation charge was negative. The regulatory compact approach described by NERA would require capitalisation of these past under-recoveries. The ACCC's calculation shows that this approach would lead to an economic

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5 NERA submission, p. 41.

6 ACCC submission., p. 12.

7 ACCC Draft Decision on MSP Access Arrangement, Table 2.7, p. 37.

value of the MSP in 1994 of $1.29b.[8] It seems clear that the regulatory compact approach described by NERA would justify tariffs which significantly over-recover current costs in order to compensate for past under-recoveries which approach $1b on the ACCC's own numbers.

2.3 Irrelevance of Gas Code tariff to question of coverage

Therefore, NECG's primary point, that the HNET is a more appropriate basis than the Gas Code on which to judge monopoly pricing, appears to have been accepted at least by the ACCC. Effectively, the ACCC has accepted that the Gas Code tariff is not relevant to the coverage question. Given that acceptance, any criticisms of the ACCC's application of the Gas Code are now essentially irrelevant to the question of coverage of the MSP. Therefore, while NECG stands by those criticisms, it may be more appropriate to reserve further debate on that topic (and therefore on the points raised in section 3 of the ACCC submission) for the ACCC's own Access Arrangement process.

3 Points of agreement between NERA and NECG

At the outset, one should recognise the limitations that are inherent in any hypothetical construct, such as the hypothetical new entrant test. The more the hypothetical scenarios relate to actual facts, the more useful they are as a guide to regulatory policies.

Subject to the reservations just noted, NERA and NECG agree that the hypothetical new entrant test may be an appropriate benchmark to gauge monopoly pricing. Indeed the NERA report is mainly devoted to applying this test for that purpose.

Despite different approaches to estimating it, NERA and NECG are also substantially in agreement concerning the quantum of the revenue requirement of a hypothetical new entrant pipeline, as the table below shows.

8 This asset value is $1b more than the opening asset value in 1977 of $227m.

Revenue requirement	NECG analysis	NERA analysis	Reference to NERA figures
ORC value	$1,058.3	$976.1m	p. 28
Return on assets	$60.63m	$61.3m	p. 28
Depreciation	$16.4m	$5.2m	p. 32
Non-capital charges	$12.2m	$12.2m	p. 32
Tax		$1.4m	p. 34
Total HNE cost	$89.2m	$80.1m	p. 34

The only element of the revenue requirement on which NERA and NECG have derived significantly different values is the depreciation.

3.1 NERA's depreciation treatment

NERA's calculation of the depreciation charge to a hypothetical new entrant follows an approach explained in the ACCC's Draft Statement of Regulatory Principles of Transmission Revenues, in which the annual rate of decline in the replacement cost of the pipeline is taken into account, along with other factors.

As applied by NERA, this approach leads to the curious result that the year 1 depreciation is only 0.5% of the initial asset value. On a straight line basis, such a low rate of depreciation would correspond to an asset life of 188 years. Of course the ACCC depreciation formula does not involve linear depreciation—it leads to a heavily "back-loaded" depreciation profile. For the 80 year investment recovery period assumed in NERA's calculation, only 10% of the capital investment is recovered in the first 20 years. The basis for adopting a quite so heavily backloaded depreciation schedule is not set out.

As a general matter, the setting of depreciation schedules ought to take account of commercial practice in the industry at issue. Additionally, it is important to note that

NERA's approach to implementing the HNET – because it would essentially make an entrant that secured less than all of market output unviable[9] -- would increase, perhaps greatly, the risk attached to entry.[10] Adopting so deferred a path of capital recovery in the context of a highly risky investment is both unusual analytically and commercially unrealistic.

This is all the more the case as, given the NERA approach to unitizing the revenue requirement, the asset owner would know that, if further entry occurred at any time prior to when the bulk of capital recovery occurred, its asset would very likely be heavily or entirely stranded. This is because the NERA approach (which involves unitizing costs by the entire market demand, even when that demand is in fact split among competing pipelines) would set the unit price to a level at which full capital recovery could never occur. Under normal assumptions[11], when entry will result in asset stranding, the only depreciation profile that matches economic depreciation will involve a geometric profile – i.e. a **front-loaded** path of capital recovery. NERA advances no reason in economic theory or commercial practice for departing from this accepted result.

While NERA has employed the competition depreciation formula cited in the ACCC's Draft Statement of Regulatory Principles for Transmission Revenues, they have departed from the intended use of that formula. In particular, in that Draft Statement, the ACCC noted that the approach to depreciation was made up of two aspects, of which the second was adjustments to reflect the impact of future potential stranding of identified assets (and possible redundancy of assets). They noted further that:

> "*The factor that dominates depends on the expected rate of technological change* ***and anticipated pressures for potential by-pass***."[12] *[emphasis added]*

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9 As discussed in greater detail below, NERA's approach involves unitising the revenue requirement for the new entrant by the entirety of industry output. This sets a ceiling on the prices any actual market participant could charge.

10 As also noted below, NERA's approach creates an asymmetric risk. Statements that that risk is diversifiable are without foundation.

11 That the entry decision can be modelled as a Poisson distribution, with a shift variable that reflects aggregate market size.

12 Draft Statement of Principles for the Regulation of Transmission Revenues, p. 47.

NERA has encapsulated this asset stranding concern in their parameter "p" which they have estimated with regard solely to rates of technological change. Asset stranding through by-pass may occur quite independently of technological change. In the scenario studied by NERA, for example, both of the existing pipelines, the MSP and the EGP, are assumed to have been stranded by the hypothetical new entrant. Any actual new entrant would therefore have heightened concerns about the stranding risks they would face themselves. The Draft Statement of Regulatory Principles recognises the legitimacy of reflecting this type of asset stranding risk in the depreciation charge.[13]

NERA's use of the competition depreciation formula, which is intended to reflect by-pass risks generally, not merely stranding due to technological change, inappropriately ignores the major source of asset stranding risk in this situation. That risk can be captured quantitatively within the competition depreciation formula, as the worked example below explains.

The consequences of altering NERA's assumptions can be seen by assuming that capital recovery for an entrant, building facilities in a competitive market, should occur over a 30 year time period – the duration that corresponds to a lengthy foundation contract. If such a 30 year period were used instead of the 80 year engineering life, the year 1 depreciation charge using the NERA formula would be $15.9m, rather than the $5.2m NERA has in fact used.

In short, NERA's results differ from those set out by NECG essentially because of the difference in the depreciation charge. NERA adopts a depreciation profile that is extraordinarily backloaded, but provides no reasoning for doing so. The approach NERA has adopted to the setting of this schedule is inconsistent with the ACCC's Draft Statement of Regulatory Principles for Transmission Revenues. If the profile were adjusted to reflect the contracts an entrant could plausibly enter into, and with the considerations set out in the Draft Statement, then NERA's estimate of the hypothetical new entrant revenue requirement may actually be somewhat higher than NECG's.

Finally, it needs to be noted that depreciation profiles cannot be regarded as irrelevant to the risk profile of the revenue base. If an extremely backloaded profile is adopted, then this needs to be recognized in determining the risk to which the revenue stream is exposed. The appropriate compensation of risk is considered in more detail below.

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13 For example, see pages 47-48, and 52,

4 Errors of principle in NERA submission

In addition to serious concerns about the method NERA has adopted for calculating the benchmark level of charges, there are a number of analytical flaws in NERA's approach to the hypothetical entrant test. This section discusses these flaws.

More specifically, NERA accepts that in assessing whether current prices are excessive, there is merit in considering a hypothetical new entrant's costs. However, the approach NERA adopts to defining the capacity of the infrastructure an efficient entrant would construct reflects an inappropriate specification of the nature of the efficient entrant test, and then seriously affects the results obtained. The difficulties inherent in the NERA approach can be seen from the implications of adopting it. From this flawed approach, NERA has drawn unsubstantiated inferences with regard to market power. Each of these points is examined below.

4.1 Price or revenue test for monopoly rent?

One aspect of NERA's argument is worth stressing at the outset. NERA claims that assessments of market power must involve comparing the firm's **unit** charges to the unit charge that would prevail in a competitive market.[14] While this sounds innocuous, the obvious effect of such an approach is to avoid a comparison of the firm's **aggregate** revenues with its **aggregate** costs. Thus, the essence of what NERA claims is that a price analysis may reveal a firm to have market power **even though its aggregate revenues may fall short of covering total costs**.

While it is obviously the case that a monopolist can incur losses (if aggregate demand falls below the level required for cost-coverage), it would be unusual for a net income test to be used to diagnose monopoly power in the way NERA suggests. Rather, net-income based tests for monopoly power generally involve a comparison of the aggregate revenues of the firm with its aggregate economic costs *so as to determine whether the rate of return on its assets*

[14] At page 10, NERA says, "It is important to note that it is prices, not revenues, which are subject to the hypothetical new entrant test. This is because in a competitive market potential new entrants compare market prices to their own expected unit costs when deciding on entry." Page 11 of NERA's report contains a box entitled, "Irrelevance of HNE Revenue".

durably exceeds the competitive cost of capital.[15] It is this comparison that NERA says is irrelevant.

If it is to give weight to the ACCC Submission, the NCC must clarify whether the ACCC is in fact adopting NERA's version of this test. As this test is inconsistent with evidence the ACCC has led in a number of proceedings (including for example the section 46 proceedings involving parallel importation of CD's), acceptance by the ACCC of this test would clearly be a matter of significant importance to the public, as would any endorsement of this test by the NCC. EAPL is therefore entitled to be aware of whether the test for monopoly power as set out by NERA is in fact being accepted by the ACCC and by the NCC. In other words, it is reasonable for EAPL to expect the NCC and the ACCC to be clear as to whether they believe a firm can have substantial market power regardless of whether or not that firm is able to durably earn returns in excess of its cost of capital.

4.2 NERA's approach to defining an efficient entrant's capacity

Even putting aside the issue of whether the appropriate comparisons are or are not at the aggregate level, it is clear that the volumes that are to be handled by the efficient entrant are key to NERA's analysis.

This issue centres on the determination of the capacity of the efficient asset – that is, the asset that it is assumed the efficient entrant will construct. NERA approaches this by assuming that what is being sought is cost minimisation – in other words, the assets deployed by the efficient entrant will be those that minimise costs. In and of itself, that assumption is correct. However, the approach adopted by NERA to cost minimisation is highly questionable.

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15 It is worth noting that this may seem at odds with the Lerner index, which involves a comparison of price and marginal cost. However, it is widely recognised that where marginal costs are not constant, the Lerner index is misleading. Non-renewables are a well-known instance in which comparisons of unit prices with unit costs are highly problematic and a full specification of costs and returns is required – see for example Gregory Ellis and Robert Halvorsen (2002) "Estimatation of Market Power in a Non-Renewable Resource Industry" 110 *Journal of Political Economy* 4, 833. Obviously, in the context of a multi-product firm, the comparison of aggregate revenue and costs would be carried out at the level of the product line that corresponded to the market in terms of which market power is being assessed. The general point is that market power centres on the ability to persistently earn monopoly rents, and the test for monopoly rents is whether the firm can durably secure a rate of return that exceeds the competitive cost of capital.

At a very general level, NERA seems to recognise that what is being minimised is the delivered cost of gas. However, when it comes to implement its test, and more specifically in considering whether a single pipeline would or would not serve the market, NERA argues as if the objective were to minimise transport costs alone. It is on this basis alone, that it asserts the reasonableness of assuming that a single pipeline would serve the market.

NERA's assertion in this respect is unsubstantiated. What consumers seek to minimise is not the transport cost as such (which in and of itself is a matter of indifference to consumers) but the delivered cost of fuel. Achieving this may involve duplication of transport costs, if the long run cost of supply from two basins is less than the long run cost of supply from one basin alone. It is entirely plausible that there would be gains from such diversity of supply.

The gains are principally of three types. First, the ability to buy gas from two separate basins increases aggregate supply and may lower the gas supply cost curve. Secondly, the availability of two sources is valuable to gas purchasers as it gives them an opportunity to reduce gas charges by negotiating with the two producers.[16] Thirdly, pipeline redundancy provides greater security of supply—the enormous value of this redundancy was illustrated during the Longford plant crisis and the more recent, although less publicised, Moomba plant disruption.

It follows that it is incorrect to say, even putting aside the value of redundancy, that duplication of transport costs will in and of itself increase prices. Rather, if relying on two basins is efficient, then an increase in the transport cost would not imply an increase in final price: final prices (the delivered cost of gas) would be lower as a result of competition, even if the transport component of that cost was greater. NERA's repeated assertion that NECG's analysis implies that prices rise as a result of competition is simply not correct. Prices will fall, but some components of cost may rise.

In short, NERA is in error in assuming that it is **pipeline** costs that are being minimised in a competitive market rather than the **aggregate** costs of delivered gas. One element of that aggregate cost is the cost of securing a desirable level of redundancy. Another is the price of well-head gas. Not surprisingly, a lower price of delivered gas with an efficient degree of back-up requires additional pipeline services. The total cost of these services cannot be ignored in calculating whether rents are earned at current prices.

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16 This effect is primarily but not solely a transfer.

4.3 The hypothetical entrant test

NERA argues that the hypothetical entrant test should involve a collective negotiation of consumers with potential suppliers, with the outcome that those consumers allocate the entirety of demand to a single pipeline. There are a number of obvious difficulties with this approach:

- it assumes consumers would allocate all of supply to a single pipeline, when no such inference (as explained above) can be drawn;
- it assumes the output demanded by the single buyer would be efficient, but to the extent that incremental cost rises, price and output levels negotiated by a monopsonist would be inefficiently low; and
- to the extent to which there are already sunk pipeline assets in the market, it assumes the single purchaser can commit future gas purchasers to purchase gas from the hypothetical entrant (if this were not the case, then, due to the sunk nature of gas pipelines, lower prices could be negotiated with the stranded pipeline by a promise to switch back, but if this were true, the hypothetical entrant would not agree to prices that only covered its costs if it garners the entire market for the lifespan of the pipe).[17]

These difficulties arise from the attempt to use the analogy of Chadwick-Demsetz competition 'for the market' in a context in which the analytical assumptions underpinning the Chadwick-Demsetz model are not met. It is more plausible, and at least analytically tractable, to treat rivalry between the basins as involving Hotelling competition.[18] This is the

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17 The assumption of a linear price itself requires explanation, since a nonlinear price that recovered inframarginal costs inframarginally, and set marginal price to marginal cost would be more efficient and possibly feasible for a single purchaser. One explanation would be that the single purchaser cannot be expected to obtain an agreement among its constituents as to who will pay for the inframarginal costs, or prevent resale among them (which would undermine a nonlinear tariff). However, if this is true then the monopsonist's ability to commit future consumers to the present agreement must be, *a fortiori*, called into question.

18 More careful analysis would seek to account for cost of extraction at the wellhead and for the value attached to redundancy. Other forms of effective competition where normal profits are earned (for example, monopolistic competition) are also more suitable than NERA's approach, though, less *a propos* than Hotelling competition.

conventional approach to modelling competition in which suppliers are differentiated by location – for example, as in suppliers transporting goods in a linear city, with free entry subject to a fixed set-up cost and then marginal costs that depend on distance. In this type of competition, no supplier will charge a price in excess of average cost – in other words, no monopoly profits are being earned. However, NERA's assumption that the entirety of the market will go to a single supplier will not hold.

Hotelling competition is clearly not perfect competition. There may indeed be excess entry, as each entrant firm does not take account of the impact of its entry on the fixed costs of other firms. (In this context, NERA's claim that competition never gives rise to cost increases in equilibrium is simply incorrect, as economists have known for many years – see Mankiw, N. Gregory and Whinston, Michael (1986) "Free entry and social inefficiency", *Rand Journal of Economics*, 17, Spring, 48-58).

Having said that, Hotelling competition is a realistic and well understood form of competitive discipline in cases where location is an issue. Moreover, it is more obviously applicable to an industry in which sunk costs are substantial and wellhead and customer location are largely determined exogenously. As a means of modelling hypothetical entry, it is more appropriate than that proposed by NERA.

4.4 Inferences with respect to market power

Having identified what it believes to be the least cost configuration of supply, and the unit costs associated with it, NERA states that the difference between those unit costs and EAPL's charges is indicative of market power. However, because the basis of their conceptual model is flawed, it does not demonstrate market power. For one, NERA's benchmark unit costs have been determined on the basis of volumes (the entire market) that the incumbent could not achieve.

Additionally, even if EAPL's unit prices and aggregate revenues (at notional efficient volumes) did exceed the long run costs of supply, the inference that EAPL revenues in excess of those costs reflect the exercise of market power does not follow. Rather, EAPL may simply be obtaining a share of the Ricardian rents associated with gas supply from Moomba. In natural resource industries, infra-marginal supply sources obtain Ricardian rents (rather than rents from market power[19]) even under conditions of perfect competition.

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19 Rents from market power involve price-setting behaviour; Ricardian rents accrue to inframarginal low-cost sources of supply independently of any power over price.

It is true that if EAPL were in a perfectly competitive market, and upstream molecule supply were not, EAPL would not be able to obtain a share of the Ricardian rents associated with the basin. However, it is a leap to say from the fact that a firm is not in a perfectly competitive market that the firm has a degree of market power that would warrant policy intervention. Additionally and importantly, there are no normative implications associated with particular allocations of those rents, and hence there is no efficiency basis for preferring one allocation of those rents to another.[20] Indeed, the NCC itself has emphasized that distributional issues should play no role in access issues.[21]

In short, NERA and (the ACCC when it endorses NERA) propose a novel test of market power, in which a firm whose aggregate revenues have for some time now fallen below its aggregate long term costs can be said to have and exercise market power. While it is possible for firms with market power to incur losses, the fact of persistent losses should place a heavy burden of proof on any allegations of market power.

Additionally, NERA and the ACCC do not appear to distinguish between rents from market power and Ricardian rents. They assume, without advancing any facts, that any rents that they allege accrue to EAPL must arise from the exercise of market power – that is, from the fact of setting price above, and hence causing output to fall below, the socially desirable level. While it is true that a perfectly competitive pipeline would not share in upstream rents, the fact of doing so does not invoke any normative inferences. Even if the upstream Ricardian rents did flow to EAPL, it would be no less efficient for them to do so than to any other step in the vertical chain. Concerns about the distribution of rents are a poor basis for public policy.

4.5 Implications of adopting NERA's approach

For reasons set out in the appendix, applying NERA's approach would discourage efficient entry by competing pipelines in all cases in which efficient entry did not involve capturing the entirety of the market. This outcome is clearly inconsistent with the objectives of economic policy in this area.

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20 In its Draft Decision, the NCC seems to claim that allowing those rents to accrue to gas producers will incent competition in gas supply. This is incorrect as a matter of economics. By definition, rents are not required to incent the socially desirable level of investment.

21 See NCC Submission to the PC Review of the National Access Regime (Sub. 43) at page 28.

5 Conclusion on monopoly rent

To summarise the points made in this submission, NECG continues to note that no credible link has yet been made between any perceived monopoly pricing by the MSP and the statutory coverage criteria. Additionally, the evidence advanced by NERA and the ACCC does not establish the existence of monopoly rents in MSP pricing.

The ACCC submission is primarily directed to criticisms of its own application of the Gas Code. For the reasons discussed earlier, the discussion of those criticisms is irrelevant to the question of coverage of the MSP.

Apart from depreciation, NERA's practical calculation of a hypothetical new entrant's revenue requirement is surprisingly similar, in its results, to NECG's own analysis. Allowing for and correcting an implausible depreciation charge, NERA's revenue requirement may actually be somewhat higher than NECG's.

However, NERA has made a number of errors of principle both in defining the conceptual framework for its test and in going from its revenue requirement calculation to a conclusion on whether EAPL earns monopoly rents:

- NERA asserts that unit price, rather than the comparison of total revenues to total costs, should be the determinant of whether monopoly rents are being earned.

- NERA's model of a hypothetical entrant rests on flawed assumptions. Most importantly, despite the decision in the EGP proceedings[22], NERA continues to assert that an efficient entrant would supply the entire Sydney market with only one pipeline. This viewpoint replaces the competitive process' workings in minimizing total delivered gas costs with the desire to minimise pipeline costs only. As demonstrated above, the higher pipeline costs involved in having two pipelines may lead to net benefits for consumers for three reasons which were overlooked by NERA:

[22] The argument was put in those proceedings that the construction of the EGP was inefficient and hence ought not to be considered in assessing whether an alternative to the pipeline could be developed.

- Two pipelines may lower the gas supply curve;
- Two pipelines give gas consumers the ability to reduce prices paid to gas producers by threatening to switch suppliers; and
- The route redundancy offered by two pipelines gives the customers security of supply benefits.

? The NERA approach fails to distinguish between monopoly rents and Ricardian rents.

Adjusting NERA's tariff calculations for these errors, we obtain a range of possible HNE tariff values (Phne) which range from nearly equal to substantially higher than the present MSP tariff, as shown in the table below.

Comparison of MSP tariffs with range of HNE tariffs
For the year 2002

Pmsp ($/GJ)	0.66
Vmsp (PJ/yr)	89.8
Vmkt (PJ/yr)	114.8
MSP revenues ($m/yr)	81.2

	Scenario				
	NERA	NECG	mixed		
revenue assumption	per NERA	per NECG	per NERA	NERA with plausible depreciation rate -- 30 yr contractual certainty	
HNE cost est ($m/yr)	80.1	89.2	80.1	90.79	90.79
volume assumption	whole mkt	MSP vol	MSP vol	MSP vol + 10%	MSP vol
Vhne (PJ/yr)	114.8	89.8	89.8	98.78	89.8
Phne ($/GJ)	0.51	0.73	0.65	0.67	0.74
Pmsp ($/GJ) 0.66					

Note: These calculations use the formula employed by NERA, equation 5.2 on page 35, except that Vmkt has been replaced with Vhne. As discussed in this NECG submission, Vmkt is not likely to be equal to Vhne.

Given these results, it is submitted that no weight can be put on NERA's analysis or the claim that EAPL is earning monopoly rents.

6 Appendix—The implications of adopting NERA's approach

For reasons set out below, applying NERA's approach would discourage efficient entry by competing pipelines in all cases in which efficient entry did not involve capturing the entirety of the market. This outcome is clearly inconsistent with the objectives of economic policy in this area. This appendix elaborates on this point.

The flaws inherent in NERA's approach are clear when the implications of adopting it are considered. These implications involve outcomes that are inconsistent with the objectives of the Gas Code and more generally of sound economic policy. The approach would discourage both efficient investment and entry. This appendix elaborates on these points.

In considering these issues, it is useful to begin by considering the impact of adopting the approach on assets that already exist and then look at the implications for investment decisions going forward.

The stranding of assets

With respect to decisions already taken, NERA's approach to calculating the unit charge would punish EAPL for what the ACCC seems to assume is inefficient entry that has already occurred by EGP.

To see this note that NERA's "efficient" price is set by covering cost when and only when **all** gas is carried on the hypothetical entrant's pipeline from Moomba to Sydney. Using this approach to determine unit prices would have the effect that whenever either:

1. inefficient bypass occurred or

2. bypass that was efficient (because it lowered overall prices), but which was deemed inefficient (because it raised pipeline costs), occurred

then covered pipelines that had been bypassed would be forced to adopt prices that could never recover long run costs. This is because these prices would be determined on the basis

of volumes that (once entry had occurred) the regulated incumbent either could not achieve or could only achieve at prices that never recovered sunk costs.[23]

Such an approach creates pure asymmetric risk. EAPL is punished for entry without there being any corresponding upside for EAPL when that entry does not occur. Moreover, it is quite inconsistent with previous positions adopted by both the ACCC and NERA (for example, as expressed in consideration of Telstra's PSTN undertaking). It corresponds, in other words, to what economists refer to as a retroactive rule change[24], and which, at least in a regulatory context, is usually regarded as requiring full compensation.

Absent that compensation, such a change would amount to a form of regulatory expropriation in EAPL's case. Creating this risk by such rule changes, and then not fully compensating it, will deter efficient investment.

The impact of stranding on investment

Neither NERA nor the ACCC in its submission provide any justification whatsoever for creating such an asymmetric risk: that is, the risk that absent bypass, prices are set to efficient costs; once bypass occurs, prices are set at a level at which aggregate costs cannot be recovered.

It is worth noting that such an approach bears no resemblance to what would happen in a competitive market. In such a market, when lumpy capacity additions result in periods in which prices are depressed, these periods are followed by phases in which prices rise to levels above replacement costs. Commercial real estate is an obvious example.

The adjustment processes markets of this kind display have been extensively studied by economists. The impact on efficiency when prices are capped – that is, when the 'up-side' is truncated, while the 'down-side' remains (as would be the case were the NERA / ACCC approach adopted), is to reduce investment below efficient levels, in the sense that

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23 Even if the incumbent were forced to price at the level that corresponds to the NERA approach, the entrant would presumably price so as to secure some share of industry output (with the bulk of its costs sunk, this would be profit-maximising).

24 See Daniel Shaviro *When Rules Change*: Chicago University Press, (2000) 45 and follows.

investment is deferred beyond the date at which it would optimally occur.[25] This outcome seems plainly inconsistent with the Code, or at least with sound economic policy.

Adjustment of the WACC

It could be argued that the effects of the asymmetric risk could be offset through appropriate adjustments to the WACC. While this may be the case, it would essentially require providing a WACC uplift that fully offset asymmetric risk. This adjustment could be very material, as it would need to insure the firm against the type of approach to determining volumes that NERA proposes and the ACCC adopts.

There are considerable difficulties involved in determining accurately the amount of the compensatory adjustment required. As a result, it is better to simply not introduce the asymmetric risk NERA and the ACCC propose to create. The fact that there is no efficiency justification for creating such a risk, as it will deter efficient investment, and that there is no equivalent to this risk in a competitive market, makes the case for forbearing from arbitrarily introducing it all the greater.

Additionally, the fact of the matter is that the ACCC has made it abundantly clear that it has no intention of making any such adjustment. Indeed, in its submission, the ACCC says (seemingly in contradiction to the Epic decision) that the Gas Code **requires** it to implement the CAPM in a way that excludes making adjustments that might be needed to ensure *ex ante* capital maintenance.

In seeking to justify this position, the ACCC says that to make such adjustments would be *ad hoc*. This completely misses the point.

The CAPM WACC relies on a symmetric distribution of the underlying cash flows. The ACCC is not obliged by the Code to use the CAPM, and in principle, if the conditions underpinning the CAPM are not met, then its use cannot be justified.[26] If the ACCC chooses to use the CAPM, then it should either ensure that the underlying cash flows are indeed symmetric or make adjustments to secure consistency with that assumption. As the NERA / ACCC approach must result in an asymmetric distribution of cash flows, applying

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25 See generally, Avinash Dixit "Irreversible Investment with Price Ceilings" The Journal of Political Economy 99 (1991) 541.

26 If the conditions underpinning the CAPM do not hold, then relying on the CAPM can cause major efficiency losses.

the CAPM without any adjustments is *ad hoc*, incorrect and inconsistent with *ex ante* capital maintenance. In other words, the ACCC cannot make any normative claims on behalf of the approach it adopts to capital costing, as it applies a model in circumstances which bear no relation to those required for the model to be valid.

It is important to note that the position adopted by the ACCC contradicts views the ACCC has put in other contexts. Thus, in its Submissions to the Productivity Commission's Review of the National Access Regime, the ACCC endorsed an increase in the allowed rate of return for a risk that though clearly not systematic, was asymmetrical.[27] The need for such adjustments was also endorsed by the NCC[28].

It is submitted here that the NCC should be clear as to whether it shares the ACCC's position, as that position, were it adopted, would potentially have major implications for the efficiency consequences of coverage or revocation. The fact that the ACCC's submission here is inconsistent with what it has said elsewhere, and contradicts the position adopted by the Council on other occasions, makes it all the more important that the NCC be transparent and explicit as to its view of these matters.

The impact on efficient entry

The impact on future entry must be considered. Here the rule would only be efficient if the industry is indeed a natural monopoly. This is not surprising as price is estimated based on the assumption of natural monopoly.[29] That is, **the approach assumes an important issue that the whole coverage process is intended to test**. In situations where the industry is not a natural monopoly, adoption of this rule would ensure that a range of, indeed likely all, efficient competitors would be prevented from entering the market. Consequently, it serves merely to entrench unnecessary regulation.

To see this, note again that:

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27 See Productivity Commission *Review of the National Access Regime: Inquiry Report*, at page 297.

28 Ibid, at page 298.

29 Note that the assumption underlying the NERA approach is that the facility not merely has natural monopoly characteristics (so that it is efficient to have a single pipeline from point A to point B) but that the market (eg the destination market) is a natural monopoly market, in the sense that it is efficient for only one supplier to face the entirety of market demand.

1. in natural gas, the laying of a second pipeline almost universally increases unit ***pipeline*** costs (the exception is where an existing pipeline is capacity constrained relative to demand); so

2. the price determined under NERA's approach to precluding monopoly rents makes it impossible for either entrant or incumbent, once a second pipeline is laid, to recover costs.

Thus, regardless of whatever other benefits a second pipeline brings (for example, the shifting outward of total supply, a reduction of market power at the wellhead, or redundancy), the likelihood is that it can never be profitable.

This has important implications for the NCC's consideration of the revocation application. In essence, the ACCC is saying that it intends to adopt an approach to determining whether or not monopoly rents are being earned that must, as a matter of economics, discourage efficient entry into markets affected by the NCC's decision (unless those markets are all natural monopolies). More specifically, the ACCC's approach necessarily means that if EAPL is covered, the ACCC will regulate it in a way that discourages, if it does not entirely prevent, efficient competition from developing.

Conclusions

In short, the adoption of NERA's approach to a hypothetical entrant as a means of determining whether prices contained monopoly rents would result in regulatory stranding, inefficient incentives to invest and foreclosure of efficient entry.

It is worth noting that although NERA proposes this approach, and the ACCC endorses it, both NERA and the ACCC are being inconsistent with their own approach in other instances. For example, in its consideration of Telstra's PSTN Undertaking, both NERA as the ACCC's consultants and the ACCC used Telstra's traffic volumes to calculate unit costs. No adjustment was made for the by-pass that has occurred both of the CAN and of the IEN. The ACCC has elsewhere described the extent of that by-pass as substantial.[30] There is no

30 See, for example, ACCC Deregulates Local Call Services in Major Capital Cities, http://203.6.251.7/accc.internet/digest/view_media.cfm?RecordID=754.

better reason for assuming that by-pass to be efficient than there is for assuming the pipeline duplication at issue here to be inefficient.[31]

The approach proposed by NECG, as well as being consistent with the ordinary economic model of locational competition, is consistent with *ex ante* expectation of cost coverage. Additionally, it does not introduce asymmetric risks above those inherent in the Code itself.

[31] Indeed, while there are clear social gains to providing Sydney with access to gas from two basins, it is not clear that there are any matching efficiencies from Optus deploying cables which cannot, as a practical matter, provide redundancy to Telstra's matching assets.