An independent review of reports by Professor Menezes

A report prepared by Professor Stephen P. King

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Introduction

1. I am currently a Professor of Economics in the Department of Economics at Monash University, a Member of the Economic Regulation Authority of WA (ERA), and a Member of the National Competition Council (NCC). Before joining Monash University in January 2009, I was a Member of the Australian Competition and Consumer Commission (ACCC) from 2004 to 2009. I have a PhD in Economics from Harvard University.
2. I have extensive experience in microeconomics, industrial economics and regulation, both through my work as a Member of the ACCC, the ERA and the NCC and through my academic work and other professional activities. I am an active researcher in the field of competition and regulation and have published my research in both Australian and International refereed economics journals. I have taught courses on regulation at both the University of Melbourne and the Australian National University and have consulted to a variety of organisations on issues of industrial economics, competition policy and regulation.
3. I have been asked to carry out an independent review of a number of economic reports prepared for the Queensland Competition Authority (QCA) by Professor Flavio Menezes of the University of Queensland relating to Queensland Rail's 2015 Draft Access Undertaking (DAU).
4. Professor Menezes' reports cover three topics:
    a. The opening asset value of the West Moreton network;
    b. The economic effects of the treatment of tariffs since 1 July 2013; and

c. The allocation of costs between coal and non-coal services.

5. Professor Menezes' reports are:
    a. *A preliminary view: Regulatory economics assessment of the proposed Western System asset valuation approaches* (8 April 2015);
    b. *A regulatory economics assessment of the proposed Western System asset valuation approaches* (undated);
    c. *The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report* (undated);
    d. *Assessing three options to allocate common costs – draft* (4 April 2016); and
    e. *Response to Stakeholder comments on comments on "A regulatory economics assessment of the proposed Western System asset valuation approaches" and "The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report"* (13 April 2016)
6. I have prepared this report myself and all views and opinions expressed in this report are my own. I have no duty or obligation to the QCA and do not advocate on its behalf. My opinions presented in this report are based wholly or substantially on my knowledge in the fields of microeconomics, industrial economics and regulation as outlined in paragraph 2.

Summary of my opinion on Professor Menezes' reports and conclusions

7. For the reasons discussed in detail in this report:
    a. I consider that all of Professor Menezes' reports are based on a high standard of rigorous economic analysis.
    b. The conclusions reached by Professor Menezes in each of his reports are reasonable as a matter of economics.
    c. While I raise some relatively minor issues in my discussion of Profesor Menezes' reports below, overall I agree with the conclusions reached by Professor Menezes.[1]

[1] My agreement is predicated on the assumptions provided to Professor Menezes. There appears to be some debate about these assumptions. However, this is beyond the scope of this review.

Professor Menezes' reports on the methodology for valuing QR's regulatory asset base.

8. The first two of Professor Menezes' reports, listed in paragraphs 5a and 5b, consider the relevant economic principles (within the context of the QCA's legislative framework) for the asset valuation (for regulatory purposes) of Queensland rail's western system network.[2] Professor Menezes further addresses issues of asset valuation in his fifth report listed in paragraph 5e above.[3]
9. As the Queensland Competition Authority notes:[4]

> The valuation of the initial asset base for the West Moreton network has never been settled, because an initial asset base was not established when the West Moreton network was declared.

10. In its DAU, Queensland Rail used a "value [that] was based on a brownfields DORC methodology that included values for all assets".[5] This value included a value for assets that had exceeded their expected useful life.
11. The QCA states that "The West Moreton network remains, as it has for the two decades since export mining began, an old network, never designed for heavy-haul coal trains".[6] It "was constructed in the 19th century for regional traffic (e.g. livestock, grain and other agricultural commodities, passenger and general freight). It does not provide the service potential of a modern engineering equivalent asset as it was not designed for coal transport".[7]

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[2] *A preliminary view: Regulatory economics assessment of the proposed Western System asset valuation approaches* (8 April 2015) and *A regulatory economics assessment of the proposed Western System asset valuation approaches* (undated).
[3] *Response to Stakeholder comments on comments on "A regulatory economics assessment of the proposed Western System asset valuation approaches" and "The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report"* (13 April 2016).
[4] Queensland Competition Authority, *Queensland Rail's 2015 Draft Access Undertaking, Draft Decision*, October, at p.159.
[5] Ibid at p.160.
[6] Ibid at p.162.
[7] Ibid at p.166.

Discussion of *A preliminary view: Regulatory economics assessment of the proposed Western System asset valuation approaches*

12. In his Preliminary View paper, Professor Menezes presents the economic principles behind the use, for regulatory purposes, of both depreciated actual cost (DAC) and depreciated optimized replacement cost (DORC) valuations of existing assets. He analyses these alternative approaches to establishing an opening asset value in the context of the legal constraints facing the QCA (summarized on p.6).
13. Professor Menezes considers two alternative DORC valuations. These differ in terms of the treatment of assets that have been 'fully depreciated' or, in other words, "whose actual life has exceeded their expected useful life" (p.23). These assets may have a positive value or a zero value placed on them when establishing the opening asset value. Professor Menezes notes that placing a positive *ex post* value on these assets provides a windfall gain to the relevant owner of the regulated assets (p.2).
14. From an economic perspective, Professor Menezes' analysis is excellent. His paper covers the relevant economic differences between DAC and DORC. In particular, he correctly emphasizes that, in general, different asset valuation methodologies will involve trade-offs between different elements of economic efficiency. There will not generally be a unique asset valuation methodology that is unambiguously the 'best' to achieve the QCA's statutory requirements. Professor Menezes' 'conceptual framework' is extremely useful to highlight this indeterminacy.
15. Professor Menezes notes the linkages between the alternative asset valuation regimes. Thus, he notes that if the DAC value is more than the DORC value (for example, where replacement costs to provide the regulated services have fallen significantly due to technological progress) then the use of DAC may lead to inefficient bypass.
16. Professor Menezes appropriately considers the opening asset value in the context of the (somewhat unique) history of the Western System. He correctly notes how this history is relevant for the application of the DORC methodology. He also correctly concludes that including a windfall gain in the opening asset value will have consequences for allocative

efficiency. He concludes that:

> [T]he DORC approach put forward in the discussion paper, which values assets whose actual life has exceeded their expected useful life, is not appropriate" (p.23).

I agree with this conclusion.

17. Professor Menezes discussion of the inclusion of a windfall gain in the DORC valuation is particularly instructive:

> [A]llowing QR to earn a return on assets with an expired expected useful life is not necessary to ensure that QR recovers efficient costs. … Note that whether QR (or previous entities) has fully recovered the investments associated with the assets with expired lives is not relevant for this discussion (p.25).

18. Professor Menezes concludes at the bottom of page 25 and the top of page 26 by noting that the two key approaches that he analyses "have advantages and disadvantages and there is no clear cut way to choose between them". I agree with this conclusion.
19. I have only two minor comments on the paper. First, when presenting the conceptual framework, I would have preferred Professor Menezes to further emphasize the interconnections between depreciation, asset value and revenue. As he states on page 10, under certain conditions:

> [T]here is a continuum of asset valuations, depreciation schedules and allowed rates of return that will satisfy *NPV = 0* without distorting the firm's investment decision (although they will likely be associated with different levels of allocative efficiency).

In my opinion, this is a key point. In the case of an initial valuation of an asset base for regulatory purposes, allowing the regulated entity to incorporate a windfall gain into its asset base will not alter the firm's future investment decisions. Preventing the regulated entity from incorporating a windfall gain into its asset base will not distort investment decisions. However, that does not mean the decision is neutral. Raising the asset base by including a windfall gain, under building block regulation, will in general lead to higher prices for access seekers and will lead to a lower level of allocative efficiency.

20. Second, Professor Menezes does not emphasize how changes to the valuation of particular assets in the opening asset value might alter the

incentives for the regulated business to try and 'artificially' accelerate the replacement of those assets. For example, if an asset has a low value in the regulated asset base *and* if the regulator *both* allows a rate-of-return for the regulated business that is above its true cost of capital and does not appropriately vet new investment to ensure that it is needed, then the regulated business may have an incentive to artificially write-off and replace the low valued assets.[8] This is not, however, an argument in favour of including windfall gains in the opening asset value. Rather, it reflects the need for vigilance by a regulator who faces a regulated business that may have an incentive to over-invest.

21. Overall, I consider that the Preliminary View paper presents a high standard of rigorous economic analysis and I agree with its conclusions.

Discussion of *A regulatory economics assessment of the proposed Western System asset valuation approaches*

22. There is significant overlap between this Final paper and the Preliminary View paper. The key differences relate to section 3 of the Final paper that considers the issues raised by QR and QR's consultants. As such, I will only consider this section in my discussion below.
23. In section 3 of his report, Professor Menezes responds to the issues raised by PwC and Frontier Economics regarding the 'stage 1 report'. He also considers issues raised by PwC regarding the 2015 DAU. In my opinion. Professor Menezes carefully and clearly considers each of the relevant issues and deals with it appropriately using rigorous economic analysis. The issues raised and the discussion do not alter Professor Menezes' conclusions. In my opinion, that is appropriate.

[8] See p.24 with the discussion of the valuation of the pre-1995 assets under DAC.

Discussion of relevant parts of *Response to Stakeholder comments on comments on "A regulatory economics assessment of the proposed Western System asset valuation approaches" and "The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report"*

24. Section 2 of Professor Menezes' Response report considers further comments made by PwC in relation to asset value. As Professor Menezes notes, the criticisms by PwC are largely the same as the criticisms provided by PwC to the 'stage 1 report'.
25. Professor Menezes reiterates and expands upon his response to the PwC criticisms in his Response. Again, he carefully and clearly considers each of the relevant issues and deals with it appropriately using rigorous economic analysis. The issues raised and the discussion do not alter Professor Menezes' conclusions. In my opinion, that is appropriate.

Professor Menezes' report on the economic impact of QR not making an adjustment for tariff over-recovery.

26. The third of Professor Menezes' reports listed in paragraph 5c considers the economic impacts of the absence of an adjustment charge to recoup or refund any price difference since 1 July 2013, in circumstances where access holders and seekers may have had an expectation of such an adjustment charge.[9]
27. Professor Menezes' report develops a simple stylised example to show how a change in the payment of an adjustment (against the interest of access seekers but in the favour of the access provider) could alter:
    a. The initial investment for a risk neutral access seeker who must make an upfront investment; or
    b. The solvency of an access seeker who must make an upfront investment but relies on 'outside' debt funding.

    Professor Menezes also briefly comments on the issues for a risk-averse access seeker who must make an upfront investment.
28. Professor Menezes approach is both economically rigorous and balanced. He notes that the potential for distortion due to insolvency is much weaker than the risk associated with 'up front' investment distortion. With regards to the risk of insolvency, he states that "[s]uch a knife-edge example is included here for completion and to illustrate that static efficiency can be compromised by a change in regime only under very specific conditions" (p.9).
29. It should be noted that the focus of Professor Menezes' analysis is regulatory risk. In other words, to the degree that access seekers have previously made sunk investments, the change in the tariff adjustment would not 'undo' these sunk investments (with the possible exception of insolvency). Rather the concern highlighted by Professor Menezes is that the failure to provide a symmetric approach to tariff adjustment in the current regulatory period will create a 'concern' by investors that such a failure will also occur in future regulatory periods. It is this risk of

[9] *The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report* (undated).

'regulatory opportunism' that will lead to the distortion to investment and the dynamic inefficiency.

30. Professor Menezes correctly concludes that the economic impact of QR not making an adjustment for tariff over-recovery, in a situation where access seekers expected such an adjustment, is a potential adverse impact on future investment (p.12). I agree with both his analysis and his conclusion.
31. Professor Menezes further addresses issues of tariff adjustment in his fifth report listed in paragraph 5e above.[10] Professor Menezes responds to a number of issues raised by PwC. He carefully and clearly considers each of the relevant issues using rigorous economic analysis and deals with it appropriately. The issues raised and the discussion do not alter Professor Menezes' conclusions. In my opinion, that is appropriate.

[10] *Response to Stakeholder comments on comments on "A regulatory economics assessment of the proposed Western System asset valuation approaches" and "The economic impact of QR's proposal not to include an adjustment to refund or recoup differences in tariffs: Stage 1 report"* (13 April 2016).

Professor Menezes' report on an appropriate cost allocation methodology for QR's fixed costs.

32. The fourth of Professor Menezes' reports listed in paragraph 5d considers "three different options for allocating forward looking common cost" for the West Moreton network.[11] Professor Menezes notes that there is mixed traffic using the network and that "the reference tariff only applies to coal with the tariff for non-coal services reflecting other market forces" (p.2). He also notes that "[w]hile the system had historically been capacity constrained …[t]here is currently around 40 percent spare capacity on the network" (p.2). Professor Menezes notes that his task is limited and that he "only assesses the three options described above in terms of their impact on efficiency" (p.3).
33. In section 2 of his report, Professor Menezes reviews the economic literature on the allocation of common costs. He correctly notes that there is no single 'correct' way to allocate common costs and that "[t]he most appropriate price then will depend on the objective of the regulator" (p.5).
34. Synergies, in its report for QR,[12] considers a 'constrained market pricing methodology' for the allocation of common costs. They state that "this pricing framework allows the infrastructure provider to recover common costs from users according to their capacity to contribute to those costs" (p.21). As Professor Menezes correctly notes, this approach seems to be based on a (rather loose) application of Ramsey-Boiteux prices. Professor Menezes correctly notes the economic limitations of this approach in practice (see p.6). He also notes that such an approach may also lead to prices that can be "seen as unequitable or unfair" (p.6). I agree with Professor Menezes' analysis of the 'constrained market pricing methodology'. It is interesting to note that Synergies, in its report, seems to criticise the QCA's cost allocation approach because "the QCA's view appears to be based more on a concept of fairness rather than on

[11] *Assessing three options to allocate common costs – draft* (4 April 2016).
[12] Synergies Economic Consulting, *Queensland Rail's Cost Allocation Methodology: A Review*, March 2016.

economic principles". However, such a criticism appears to ignore the underlying ambiguity of economic analysis of common costs.

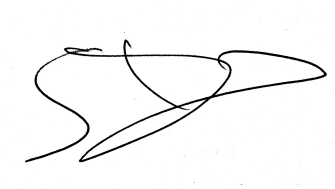
35. Both the report by Professor Menezes and the Synergies' report note that QR may not be able to 'fully recover' its efficient forward looking costs under some of the approaches. Professor Menezes correctly considers this issue in the context of QR being required to provide certain non-coal services (p.11).
36. However, a further issue that could be explored in more depth by Professor Menezes is the issue of excess capacity and cost recovery. If there is currently excess capacity on the network, but this excess capacity is 'efficient' in the sense that there is likely to be increasing demand for rail services on the network in the future, then it may be economically efficient not to fully recover the common costs in the short term. Rather, it would be recognised that these costs were in part an investment today in the future use of the network and should be allocated over time as well as over current users. Put simply, in a situation of current excess capacity, allocation of common costs can be considered in a dynamic sense, not merely in a static sense. The inability of QR to be able to 'fully recover' its efficient forward looking costs in the short term under a specific allocation method *does not*, as a matter of economics, mean that either:
    a. The allocation method is inconsistent with economic efficiency; or
    b. An allocation method that does 'fully recover' efficient forward looking costs in the short term is preferable.
37. Such a dynamic approach is similar to the 'real options' approach adopted by Professor Menezes (p.12). However, in my opinion, the issues are distinct and deserve a more complete analysis. I note that the Synergies' report does not appear to address this issue.
38. I have a minor comment on Professor Menezes' statement on p.7 where he notes that if there were only coal traffic then:

> [T]he network would likely have been designed differently, to serve only coal traffic, and leading possibly to different (lower) fixed cost levels. This suggests that such extreme allocation of common costs would be inconsistent with the current network configuration.

I find Professor Menezes' statement slightly unclear. If a coal-only network would involve a lower fixed cost then the relevant costs that would be avoided if the network were only used for coal transport would be incremental costs associated with non-coal traffic. Thus, under the incremental cost 'minimum' allocation principle, such costs should not be allocated to coal transport. This is, of course, the same conclusion as Professor Menezes reaches.

39. In conclusion, I consider Professor Menezes' report on cost allocation carefully and clearly presents the relevant economic issues. He correctly notes the 'indeterminacy' of cost allocation as a matter of economics.[13] He provides a balanced assessment of the three alternative approaches. I agree with Professor Menezes when he states that "[l]ooking at the allocation of common cost as pricing an option to use capacity beyond expected usage suggests that that (sic) the 80/112 rule as per the QCA draft decision approach may be superior to both QR's and the Miners' proposals" (p.15).

40. I have made all the inquiries that I believe are desirable and appropriate and there are no matters of significance that I regard as relevant that have, to my knowledge, been withheld from the report



Stephen P. King

[13] As he concludes on p.15, "there is no generally acknowledged single correct method to make such an allocation".