No case for WACC uplift

A brief review of the 17 September Dobbs paper in the context of the WACC uplift question

NZIER report to MEUG

30 September 2014

Final

About NZIER

NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

NZIER is also known for its long-established Quarterly Survey of Business Opinion and Quarterly Predictions.

Our aim is to be the premier centre of applied economic research in New Zealand. We pride ourselves on our reputation for independence and delivering quality analysis in the right form, and at the right time, for our clients. We ensure quality through teamwork on individual projects, critical review at internal seminars, and by peer review at various stages through a project by a senior staff member otherwise not involved in the project.

Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges.

NZIER was established in 1958.

Authorship

This paper was prepared at NZIER by David de Boer. It was reviewed by Mike Hensen.

L13 Grant Thornton House, 215 Lambton Quay | PO Box 3479, Wellington 6140
Tel +64 4 472 1880 | econ@nzier.org.nz

Contents

1. This submission

1. In July the Commerce Commission (Commission) released a paper[1] which proposes to change how they estimate the regulatory cost of capital (WACC) applied to energy businesses which are regulated under Part 4 of the Commerce Act. Submissions on this paper closed on 29 August following which 35 documents from interested parties and their advisors were posted on the Commission's website. Cross submissions on the 35 documents closed on 12 September.

2. Amongst other matters in our cross submission advice to MEUG we suggested that there were ways forward toward a more New Zealand based empirical answer regarding uplift than had been offered to date. In our 9 and 12 September papers we described an approach that could be used to identify linkages between investment and reliability and a methodology to gain a more realistic assessment of consumers' willingness to pay for reliable electricity supply.

3. The Commission considered that some of our views may have raised issues on which other submitters could usefully comment, along with the advice of Franks Ogilvie. They also seek submissions on two other topics (the RAB multiplier and a paper from Ian Dobbs on the use of his 2011 Dobbs model) that emerged from the cross submission process and are likewise regarded as new evidence.

4. For us the most important of the three topics for this new consultation is the Dobbs model and in particular the views in the new paper by Ian M Dobbs on the model he proposed. These comments shed considerable light on the applicability and limitations of the abstract model that he proposed in his 2011 paper for setting WACC uplift for electricity lines companies.[2] Essentially he reminds us of the severity of the limitations of an abstract model not developed for the purpose to which it is being put.

5. Much of what we have offered in our advice to MEUG since March this year is discussed by Dobbs in this new paper (Dobbs 2014) and it is fair to say that we have considerable agreement with his analysis and assessments.

6. We have argued that in the context of WACC uplift for the energy sector, his 2011 analytical model is being used for purposes it was not intended for. It was developed as an abstract model to try to identify the role of the 'regulatory rate of return' in investment decisions in the telecommunications sector that relate to new products, technology innovations and the like. In this sense, if they rely on the model, the Commission has and is making a category error as we suggested was possibly the case.[3]

---

1 "Proposed amendment to the WACC percentile for electricity line services and gas pipeline services" Commerce Commission 22 July 2014.

2 Dobbs (2011) 'Modelling welfare loss asymmetries arising from uncertainty in the regulatory cost of finance' Journal of Regulatory Economics, vol 39, no.29, pp 1-28.

3 See 'Changing the WACC percentile' NZIER advice to MEUG 29 August 2014. Section 5.5

7. The Dobbs 2014 paper identifies a number of quite important matters that the Commission would no doubt have already recognised but for the sake of completeness we briefly review them in this submission.

2. Fitness for purpose?

8. Many of the matters that Dobbs raises in his 2014 paper concern the suitability of the design of the 2011 model for setting a WACC uplift to encourage reliability investment. In particular Dobbs notes that:

    - a judgement is required on the goodness of fit of the model to the electricity and gas transmission[4] and on the weight that can be put on the predictions of the model for quantifying a WACC uplift
    - the model includes a service obligation and is not a peak load pricing model that considers the costs and benefits of degradation of reliability[5]
    - firms may not respond to investment incentives in the 'neo-classical' way assumed by the model[6]

9. Other matters that he raises question whether the core assumptions that Frontier make to derive model outputs are likewise fit for purpose. In particular Dobbs comments that:

    - the demand inelasticity and maximum willingness to pay parameters assumed by Frontier are likely to seriously over-estimate the consumer surplus at risk[7]
    - the Commission may want to consider whether the Frontier base case estimate of the loss in consumer surplus is sensible[8]

10. The bulk of this submission considers the important elements Dobbs calls into question. Given his views we wonder whether the use of the 2011 Dobbs model is, in the same way as the Oxera model, simply too abstract from real world conditions in New Zealand to be considered as 'fit for purpose' Dobbs para 5 page 4;

    > *'Thus there is a question of 'goodness of fit' of the model assumptions; there are further questions regarding 'goodness of fit' with regard to its application to the industry sectors under consideration (electricity and gas transmission and distribution).'*

4 See paragraph 5 p4 and paragraph 27 p10

5 See paragraph 11 p5 and paragraph 28 p10 -11,

6 See paragraph 36 p13-14

7 See paragraph 66 p23

8 See paragraph 62 p22

2.1. Suitability of the model

2.1.1. An abstract model - goodness of fit

11. In our March 2014 advice to MEUG we noted[9] the various concerns that had been expressed about asymmetric impacts from WACC estimation errors had their basis in analytical models that abstract away from the real world in order to focus on the issue of interest and to keep the research tractable. From a research point of view, this is understandable - it is usual to see this type of research with focus on a singular objective.

12. The matter of WACC uplift that the Commission face is anything but singular. It is not suited to a solution with singular focus because it is complex, has many moving parts and cries out for real world input information. There is a lot at stake. Dobbs notes that his model is based on qualitative arguments for a WACC uplift but that it is not well-suited to providing a quantitative estimate of the WACC uplift and expresses his reservations - para 4 page 4;

> *'This kind of model articulates why a significant uplift is warranted, but in my opinion, it is unclear how much quantitative significance should be placed on the model predictions.'*

13. From our earlier work on extending the Dobbs 2011 model we had and have further concerns. Our May 2014 advice to MEUG on our analytical work suggested results that were broadly in line with Dobbs 2011. We advised that once the model assumptions were replaced with more realistic New Zealand network assumptions (using Transpower data for instance), then the loss function exhibited a discontinuous relationship between welfare and WACC percentiles. For us the shape of the 'loss function' is very sensitive to industry and firm specific factors.

14. We understand that the original thinking behind the model was developed to assist Dobbs with his advice to the telecommunications sector but that the analytical model itself is an abstraction of that research and thinking. Dobbs has confirmed the status of the model, para 8 page 5;

> *'The Dobbs [2011] model is presented in abstract terms, although it was originally developed with telecoms as an expected application. Telecoms is clearly a highly innovative sector, with new services continually being developed and rolled out.'*

15. In this regard we continue to question whether the concerns regulators have over innovation and investment in energy networks is somewhat misplaced, excepting the need to be innovative about cost reductions when

[9] See WACC uplift: Preliminary advice, NZIER note to MEUG, 13 March 2014. Pp 2-3

the networks are subject to quality standards. We have previously suggested that these concerns stem from a category error

2.1.2. What are networks obliged to invest?

16. There has been a persistence of assumption that networks will reduce or stop network investments if they perceive that the regulated WACC is less than their real WACC. We have argued against this presumption and have tried to demonstrate using local network investment data that the apparent disconnect between investment decisions and regulated WACC supports our arguments.

17. We agree with Dobbs that this quality of service obligation is important and deserves specific consideration within the decision of the WACC percentile. Dobbs para 11 page 5;

> *'The model also assumes service obligations – that when a service is launched and in operation (or already in operation, in the case of category 1), QOS must be maintained, and incremental investment must be made to cope with any increments in demand for that service over time. This is an important assumption because, if there is no service obligation, then ongoing investment (in all categories) becomes optional.'*

18. We have also argued that there are other mechanisms to incentivise investments in reliability assets to maintain quality of service standards. The Commission is apparently consulting with the industry on one such alternative, a revenue based scheme with capped incentives and penalties scheme for lines companies based on maintaining distribution network within a band around an agreed level of average reliability. We would point readers to the Commissions recent consultation on 'Proposed Quality Targets and Incentive for Default Price-Quality Paths From 1 April 2015'.

19. The key element so the proposed quality target scheme are :

    - distributor revenue is dependent on the average reliability of the network. If the average reliability is better than expected distributors receive additional revenue and if it worse than expected distributors incur a penalty
    - revenue at risk is proposed to be 1 percent of the starting price maximum allowable revenue[10] and the maximum incentive or penalty is capped. In setting the minimum spread of the revenue at risk the Commerce Commission considered both the level required to ensure distributors "faced desirable marginal incentives"[11] and

[10] The Commerce Commission has considered rates of revenue at risk of up to 5precent and notes that Ofgem in the United Kingdom applied revenue at risk of 3 percent under its revenue linked quality scheme

[11] 'Proposed Quality Targets and Incentive for Default Price-Quality Paths From 1 April 2015', paragraph 6.8, p 33

an incentive rate comparable to measures of the value of lost load.[12]

- lines company targets for average reliability of the network are based on annual normalised SAIDI and SAIFI over a reference period for example 2004 to 2014
- the band for reliability over which the incentives apply is set at the benchmark for average reliability plus or minus one standard deviation. In setting this band the Commission consider that:
    - SAIDI and SAIFI given equal weightings
    - unplanned interruptions weighted at 100 percent and planned interruptions are weighted at 50 percent.

20. The revenue based incentives for reliability suggest that many of the issues we have raised in our discussion of the WACC uplift (particularly the loss function for consumers and the drivers of investment in reliability in the New Zealand network) have been considered by the Commission in the development of this proposal. In particular the Commission has clearly formed a view on the following:
    - feasibility of an alternative to WACC uplift to encourage lines companies to deliver a standard of reliability,
    - how the incentive/penalty regime could be based on empirical data on the reliability of the New Zealand network by basing the reliability measures on historical SAIFI and SAIDI data,
    - a range for the improvement in reliability that can be expected from normal lines company business decisions, by setting the range for reliability at plus or minus one standard deviation, and
    - the size of the marginal incentive/penalty required to change lines company behaviour, in particular that the incentive/penalty needs to be larger than measures of the value of lost load

2.1.3. Response to incentives to invest

21. Again, we have previously questioned the nature and strength of the connections between network investment and service reliability and particularly whether WACC uplift is, in fact, the mechanism of choice in this regard. Dobbs shares our concerns, making the following observations at para 36 page 13;

> *'A final observation regarding the applicability of the model concerns whether firms respond to incentives. The Dobbs model (and hence the Frontier submission) assumes that they do (and do so in a 'Neo-classical economics' rational way). If they do*

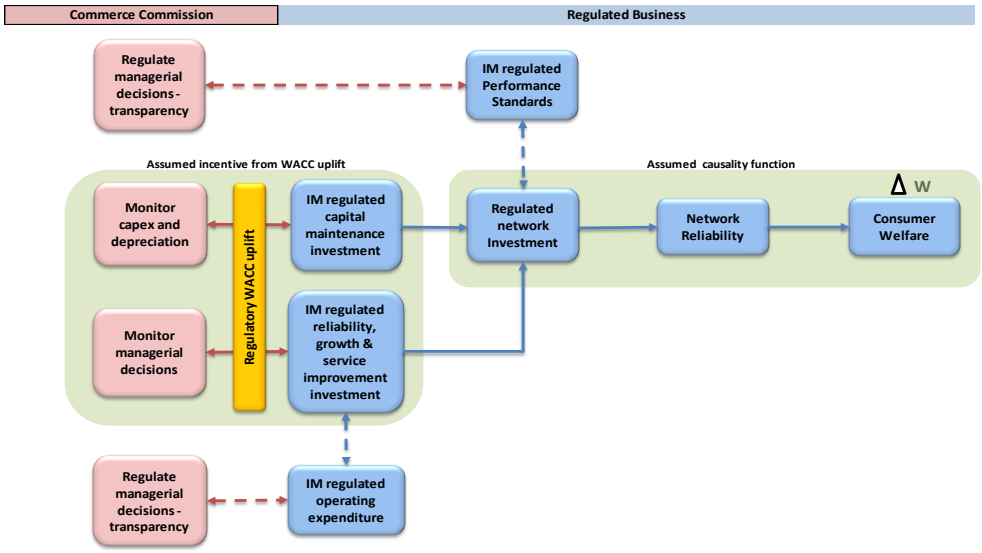
[12] The Commerce Commission has apparently decided that the using measures of the value of lost load to set the spread or revenue at risk would result in a very narrow band for most distributors and by implication would not provide the strength of incentive for investment in reliability that the Commerce Commission believes is required. See 'Proposed Quality Targets and Incentive for Default Price-Quality Paths From 1 April 2015', paragraph 6.9, p 33

> *not, then any uplift in AROR is simply a windfall benefit to them and a loss to consumers. A regulator may reasonably be concerned over whether this is the case or not. Likewise, this point applies to the models developed by Lally and NZIER. There is plenty of evidence that individuals do not behave as 'homo economicus' – and there is plenty of evidence that 'competitive pressure' is less than severe, such that managers have considerable scope to pursue their own objectives – that is, managers of firms are not necessarily incentivised to make decisions in the interests of shareholders or customers, or indeed, anyone but themselves (as events in Banking industry over the last 20 years testify).'*

22. This being the case, the regulator is then faced with sector and firm specific judgements as to which tools or mechanisms are required to incentivise the required outcomes, Dobbs para 36 again;

> *'It then becomes a judgement call for the regulator – if the regulator believes that firms are unresponsive, then there is no reason to give them an uplift. Perhaps what is needed is to think concretely about the types of project that are on the horizon, and how firms may deal with them – to decide on whether non-investment, or undue deferment are likely to be real issues. That is, it may be that judgemental assessments of likely consequences may well be needed when finally deciding an appropriate percentile for a particular sector'.*

23. We have considerable accord with much of what he is saying here. We were motivated for these very reasons to offer our analysis of real world investment behaviour of the EDB's and Transpower in our 29 August advice to MEUG. It seemed to us that there was very likely a disconnection between the left and right hand sides of our diagram (Figure 1 in the 9 September cross submission and shown again below) and that the influence of WACC on reliability investments was indirect at best.



2.1.4. Sector specific factors matter

24. At the risk of sounding like a broken record – we have been banging this drum for months and it is refreshing to read Dobbs views.

> *'I tend to agree with NZIER; the argument for consistency (using the same rate across sectors) is in my opinion more powerful within the public sector than in a regulated private sector. I do think it is important to consider carefully what the likely impact of the choice of allowed rate of return (AROR) is likely to have; after all, if the choice of AROR is unlikely to affect the pace of new investment, there is little point in offering a higher rate'*

2.2. Frontier's extension of Dobbs model

2.2.1. Bias from iso-elastic demand function

25. In our previous advice to MEUG we have presented argument and analytical evidence to support our views that the nature of the demand function and the elasticity estimates are critical to the estimation of the costs to consumers of WACC uplift.

26. The interactions between consumer demand and the estimation of the welfare impacts of WACC uplift have also been recognised by most submitters as core to the analysis. Dobbs makes a number of observations and comments regarding the importance of the demand function and the application of demand assumptions in the Frontier model.

27. His advice is that demand uncertainty needs to be handled with great care, para 18 page 7;

> *'Demand is modelled as growing exponentially. Again, some care needs to be exercised with this (the original paper mainly used low or zero growth rates in the numerical computations).'*

We agree absolutely. Our May 2014 analytics looked carefully at the form of the demand function and the relationship between demand and capacity. Dobbs 2011 had assumed demand was equal to capacity, whereas we included a 'wedge' function which established a proportion of spare capacity over and above actual and expected demand.

28. Dobbs makes note of another important point regarding pass through to end consumers of the costs of the WACC uplift. In our view this issue is very much at the heart of what the High Court was referring to when it questioned the basis for using uplift to the WACC, Dobbs at para 12 page 6;

> *'The model assumes that the firm supplies final retail demand. In electricity supply, clearly a portion will go as an input to commercial and industrial firms, who may then 'pass through' such costs to final customers. Consideration of how to model this 'pass through' is then needed'*

29. In our May paper we described the sensitivities of assumptions regarding the form of the demand function and the impact that rising prices will have on what is (seemingly!) inelastic demand for electricity. We found that the welfare maximising WACC level was materially dependent on the form of the demand function and the assumption regarding elasticity. Dobbs has concerns with how these aspects of the model are implemented by Frontier, para 17 page 7;

> *'Some care also needs to be taken with the measurement of economic welfare in the case of inelastic demand. The point is that an iso-elastic demand curve which is assumed inelastic will have unbounded (infinite) consumer surplus; empirically therefore it is a poor assumption to maintain that demand stays inelastic as price is increased – clearly demand elasticity must change (become more elastic at some point).'*

30. Again in our May report we reported on the results of using both different forms of demand and substantially lower elasticity estimates. We agree with Dobbs' view here regarding the use of iso-elastic demand with the supply response to small changes to prices but not with the estimation of welfare losses, para 54 page 18;

> *'Thus iso-elastic demand is satisfactory for considering/predicting supply response for the price variations under consideration since these are relatively **small** ……. are unlikely to induce such large changes in (p) that would render the assumption of iso - elastic demand unreasonable. However,*

*the shape assumed for the demand curve has **great** impact on the value estimated for consumer surplus (that which is lost if the investment does not take place).*

31. Other than changing the form of the demand curve, there is a need to choose a point to truncate their demand curve to overcome the implied (unbound) magnitude of the welfare loss. Dobbs is right in his focus on this matter and the imperative of getting it right.

2.2.2. Bias from 'maximum' value of reliability

32. Dobbs has considerable difficulty with the Frontier benchmark maximum willingness to pay assumption, para 48 page 16;

> *'In my opinion, this assumption needs to be examined carefully, as results produced by the model are likely to be highly sensitive to alternative specifications regarding maximum marginal willingness to pay. In particular, the way maximum willingness to pay is used in the modelling undertaken by Frontier in my opinion is likely to lead to a significant over-estimate of the extent of welfare loss arising from non-investment, and this will lead to an over-statement of optimal percentile for the allowed rate of return.'*

33. We agree totally with his concerns. This is why we set about investigating another, more plausible real world, approach to estimating consumer willingness to pay that was offered in our 9 September advice to MEUG. Dobbs rightly challenges the $20,000/MWh figure and towards the end of his paper he reverse engineers a likely more realistic willingness to pay estimate that is only a fraction of the Frontier benchmark estimate. We discuss his calculations further in paragraphs 39 to 41 below.

34. We make note here that the Commission also appear to have taken a view on the value of reliability within their proposal to incentivise networks regarding service reliability that we commented in para 20 earlier.

2.2.3. Compared to common sense calculations?

35. This section summarises Dobbs' comments[13] on the outputs from the Frontier model. Dobbs states that he is not an expert on electricity or gas transmission and therefore unable to comment on the parameter values used by Frontier for demand growth, elasticities or proportions. However Dobbs' overall conclusion is that the approach taken by Frontier is likely to seriously overestimate the consumer surplus at risk.

36. Although Dobbs is reluctant to suggest alternative values he notes that the:

[13] See paragraphs 44 to 79 p16 to 26.

- electricity demand elasticity assumptions made by Frontier make their estimates highly sensitive to the maximum willingness to pay or 'choke price'
- Frontier estimates of lost consumer surplus from underinvestment seem to be high in comparison to GDP
- plausible alternative specifications of the truncation[14] of electricity prices produce lower estimates of the loss of consumer surplus.

37. Dobbs first questions the Frontier assumption that the same demand elasticity should be used for both existing demand and demand supported by new investment, para 47 page 16;

> *'Although all commentators are in agreement concerning the inelasticity of existing demand, it is a moot point whether the same level of inelasticity should be used for new investment. In the Frontier scenarios, the elasticity is always the same for existing and for new investment; if anything, one might expect the demand associated with new investment to be more elastic and possibly, much more elastic. It is a straightforward matter to allow these to vary across categories (I actually did this in my original paper), and it would be interesting to see the consequences of such variation. …'*

38. Dobbs then moves on to his main points which are the:
    - selection of the parameter value for maximum willingness to pay
    - estimates of consumer surplus that result from that parameter selection
39. In respect of parameter value for maximum willingness to pay used in the Frontier model Dobbs makes the following comment:

> *'Frontier consider a range of choke prices, with $20,000/Mwh as a base case … Other figures ($3,000 and $1,000) are also discussed in looking at what figures might need to be in order to get an optimal percentile of 67% or thereabouts – these figures are not regarded by Frontier as in any sense 'realistic'.*[15]
>
> *Not being an expert in Electricity or Gas supply economics, I have no idea what a reasonable estimate for the choke price should be. All I can say is that the figure used is an important input into determining the model's output.'*[16]

[14] Truncation of demand refers to the price at which demand for electricity falls to zero. A demand truncation assumption is necessary in the Frontier model to limit the estimate of consumer surplus to a finite number when demand is assumed to be inelastic. However the choice of both price at which demand falls to zero and the decay in demand as prices reach extreme levels become key drivers of the estimate of consumer surplus.

[15] See paragraph 50 p17

[16] See paragraph 51 p17

40. In respect of the Frontier model estimates of consumer surplus foregone Dobbs suggest considering how realistic the estimates are by noting:

    - that the estimates conceptually represent the removal of the network
    - the level of GDP compared to the consumer surplus estimates.

    'The Commerce Commission may wish to consider whether that reflects a sensible estimate; in considering this question it is worth pondering 'the wealth of the nation' (NZ GDP was approximately $212 billion in 2012/13), and also the fact that, for long term electricity supply, willingness to pay ought to be limited by the costs of alternative electricity/energy supply.'

41. Dobbs concludes as follows

    '… but it is clear that we are all in agreement that the iso-elastic demand curve (with demand inelastic at the current price) with the truncations at $10,000-$30,000/Mwh) as used by Frontiers likely to seriously over-estimate the consumer surplus at risk[17]….

    This analysis buttresses what Lally and NZIER have to say about potential consumer surplus loss. If it is accepted that linear demand is a better approximation for the shape of the demand curve, this would be equivalent to using a maximum willingness to pay in the Frontier model of Pm =$567 (when the demand elasticity is -0.3).'

[17] See paragraph 66 page 23.

3. Choice of welfare test

3.1. A legal not an economic question

42. The Commission's treatment of producer surplus in assessing the welfare gains from additional reliability has been vigorously debated in the submissions. In the following paragraphs we discuss the observations of Dobb's and other submitters on this issue. However the primary issue for the Commission is the interpretation of the welfare test that it is required to apply under the Commerce Act. The discussion in the following paragraphs may inform the Commission's views on the possible consequences of applying a particular test but they cannot provide the primary guidance for the welfare test the Commission should apply.

3.2. Economic considerations

43. We have argued throughout the submission process that consumer welfare needs to be at the centre of the Commission's decisions. Other submitters have as well. It is worth repeating that the ability of producers to rent seek is what motivates regulation in the first case. Producer surplus matters in the long run because we need investment in network industries, but is subordinated to consumer interests and should be subject to conditions. The resulting balance between consumers and producers is a tricky issue for the regulator, as Dobbs suggests para 20 page 8;

> *'In the extreme, for existing assets (the existing network), consumer surplus is strictly decreasing in retail price, and hence in the choice of AROR. This point is recognised by NZIER (NZIER; para 3, page 12), but they do not then discuss the dramatic implications of the point; for existing sunk assets, the optimal solution is to reduce he AROR to zero. However, the Lally report very clearly points out this consequence (Lally; para 2, page 22, also Lally; para 2 page 20 commenting on the Covec report); in the absence of any new investment, the model would recommend complete exploitation of the sunk nature of the existing network.'*

44. Picking up on the point that Dobbs makes in the middle of this paragraph we would note that we did not delve into the implications of the point he makes simply because they were obvious and are the corollary of the core regulatory-control problem for the regulator.

45. Further, we recognise that we could be seen here as being overly picky but we believe that the form of the welfare function is critical and need to point out another correction to the Dobbs paper at para 22 page 8;

> *'I am also largely in agreement with the Lally report's assessment of NZIER's general equilibrium arguments that*

producer surplus in my analysis is illusory and should be ignored (Lally; para 2 p.22);'

46. What we actually said was that 'excess profits' are illusory benefits, by which we meant that not all of the producer surplus should be counted in the welfare function - that is, if the regulator was inclined to include a weighting on firm profit at all.[18]

47. In section 3.2 of his paper Dobbs illustrates the importance of the weighting of consumer surplus in the welfare function and the impact of the inclusion of firm profits when demand is relatively inelastic. His paragraph 3 suggests that predictions from the 2011 model are likely to be sensitive to this weighting. We disagree! We believe that the choice of the WACC percentile will be **totally dominated** by the assumption about welfare weightings which is why we dedicated so much time and effort in Section 3 of our May advice to MEUG explaining this matter and testing the sensitivities around the assumptions.

48. Most submitters also recognise this importance which is why the debate has been strong on this point. BARNZ and Covec have argued strongly that the economic and legal interpretation of the purpose of Part 4 of the Act are very straight forward and that there can only be one welfare standard. In their 12 September advice to MEUG, Franks Ogilvie take a stronger view and submit that the Commission would err in law if it was to apply a total welfare standard. Unsurprisingly, arguments to the contrary feature prominently in the submissions of the regulated suppliers.

49. It is also important to repeat another point we made in our May advice, not discussed in this Dobbs 2014 paper, which concerned the omission of the supply response parameter in the Dobbs model (and the Frontier model).[19] This response function is important because, as we note above, over the longer term firms will respond to regulatory rates of return that are inadequate by withholding investment leading to a deterioration in quality of service with welfare implications for consumers.

[18] This is one of the 'conditions' that we think should be carefully considered by the Commission (para 43 above).

[19] Section 3.1.1 of our May paper includes a discussion of possible supply responses to WACC settings.

4. Summary

50. During the course of these submissions on WACC uplift we have put forward analytics and evidence that suggests the High Court questions were well made – we see little supporting evidence for uplift. We have also put forward sound argument that there are other mechanisms of achieving the investment outcomes that the Commission believes are desirable.

51. Those mechanisms are independent of the WACC estimation. We see no reason why moving to the mid-point estimate should depend on previously settling on any such mechanism. If proper investigation of the evidence suggests that such a mechanism is desirable, it can be built into the price quality regulation at that time.

52. Many submitters have expressed views on how the effect of WACC uplift on producer surplus should be considered by the Commission in applying the consumer welfare improvement test required under the Commerce Act. We argue that this is a legal not an economic or modelling issue.

53. The Commerce Commission has sought expert advice on models that link WACC uplift to consumer welfare enhancing investment in reliability but these models do not provide simple or precise quantitative guidance on the effect of WACC uplift on the welfare of consumers.

54. Dobbs, the author of arguably the most usable model so far, has clearly stated his model is not suited to quantifying the benefits of WACC uplift and that the extension to his model proposed by Frontier Economics will overstate the gain in consumer surplus from WACC uplift.

55. We have also previously put forward a structured approach that can be further developed to inform a fresh start to assessing the value of marginal investment in network reliability, and identifying more narrowly focused incentives than WACC uplift. We suggest the Commission should be prepared to take this fresh start.

56. We further note that the Commission itself has proposed an alternative revenue based incentive/penalty regime to encourage lines companies to deliver network reliability that:

    - responds to many of the points we have raised including a specific incentive regime for reliability, use of New Zealand reliability data, consideration of estimated value of lost load
    - implies the Commission has formed a view on the capacity of lines companies to influence reliability, the incentive required to change lines company behaviour and the welfare effects of different levels of reliability
    - developed a regime that seems to be a lot less expensive for consumers than a WACC uplift[20]

[20] The proposed revenue at risk seems to be of the order of $10 million per year for all of the lines companies. See 'Proposed Quality Targets and Incentive for Default Price-Quality Paths From 1 April 2015' Table 5.1: Revenue at risk by electricity distributor, p31.

- While they go about that work we remain unconvinced that a WACC at anything other than the mid-point is the way to go at this stage.

57. Throughout this consultation process the Commission has had the opportunity to examine current evidence as well as several analytical approaches to estimating losses from mis-estimating WACC that simply do not stand up to real world testing.

58. Given that the last six months of evidence gathering has revealed that the use of WACC uplift appears to be a very costly mechanism to achieve what seem unclear goals, we suggest that now is the time to set the regulatory WACC for gas and electricity networks at the mid-point and, as appropriate, review the cost of capital IM in 2017, along with the other IM reviews.