Ian Martin Advisory

Response to BCR consultation paper

NBN non-commercial services funding options

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Ian Martin

Ian@martinadvisory.com.au

The context of this assessment: what happened to competitive neutrality?

The background section of the BCR's consultation paper notes the Government's NBN reform agenda as the context in which the BCR has been asked to assess the non-commercial losses expected from building and operating satellite and fixed wireless services and consider options for funding these losses. In particular the consultation paper highlights the report of the Vertigan Panel in undertaking an Independent Cost-Benefit Analysis of the NBN and Review of Regulation.

It is important but far from sufficient to note the concerns highlighted in the Vertigan Panel's reports with the use of internal cross-subsidies within the NBN and the Government's Telecommunications Regulatory and Structural Reform policy paper. Both are important contributions in returning the telecommunications sector to the path of economic reform.

But simply noting these is not sufficient. There are extensive references to the reform agenda, the National Competition Review (Hilmer), the Competition Principles Agreement and competitive neutrality in the Vertigan report and reflected in the Government's telecommunications policy paper but not in the BCR's consultation paper. There is no mention of competitive neutrality, the key principle in this exercise.

It is fundamentally important that the BCR demonstrate that this exercise is undertaken in the wider context of national competition principles. In large part this context should guide the resolution of many issues raised in the consultation paper. In particular in relation to estimation of cross-subsidies and related funding are the recommendations of the Hilmer Inquiry regarding competitive neutrality and the objective of the Competition Principles Agreement between Australian governments to eliminate resource allocation distortions arising from government business activities:

- "Some of the other special advantages often enjoyed by government businesses by virtue of their ownership include: immunity from various taxes and charges; immunity from various regulatory requirements; explicit or implicit government guarantees on debts; concessional interest rates on loans; not being required to account for depreciation expenses; not being required to achieve a commercial rate of return on assets; and effective immunity from bankruptcy. In some cases a government business will also operate in both monopoly and competitive markets, presenting opportunities for cross-subsidisation." (National Competition Review, aka Hilmer review 1994, pp 296-297.)

- "The objective of competitive neutrality policy is the elimination of resource allocation distortions arising out of the public ownership of entities engaged in significant business activities: Government businesses should not enjoy any net competitive advantage simply as a result of their public sector ownership." (Clause 3.1, Competition Principles Agreement – 11 April 1995. As amended to 13 April 2007.)

Of the special advantages referred to by Hilmer and the focus of CPA clause 3.1 many are resolved relatively readily through corporatisation of government business enterprises. However, cross-subsidies are a more pervasive, enduring and pernicious form of net competitive advantage (or distortion) in government enterprises such as the NBN. In the case of the NBN the distortions are so substantial that they significantly undermine the benefits of microeconomic reform and national competition policy.

The Government's telecommunications policy paper says that the purpose of this assessment and consideration of funding options is to ensure competitive neutrality. However, neither of the terms 'competitive neutrality' nor 'net competitive advantage' are mentioned in the BCR's consultation paper. They are central to the purpose of the costing exercise and the most appropriate point of reference when considering the range of issues raised in the consultation paper.

As far as the BCR's assessment of non-commercial costs and funding options goes there are several good reasons to establish the wider national competition principles context for an economically rigorous assessment of NBN's net loss from non-commercial services and funding options:

- The Federal Government is a signatory to the Competition Principles Agreement. As the Federal Government it should be the driving force behind the agreement including by example. Its sole responsibility for telecommunications, which has a central role in our economy, provides a great opportunity to contribute to and guide the national competition agenda by example. For instance, many of the recommendations of the Hilmer Inquiry derived from earlier reform in the telecommunications sector including assessment and funding of cross-subsidies as a necessary precondition for effective competition.

- Many of the key issues raised in the BCR's consultation paper have been raised, extensively considered and responded to or adopted previously in the establishment of competition policy. In that context there is an extensive literature on measurement of cross-subsidy and competitive neutrality available to the BCR which should be the starting point in this exercise.

- Over several years prior to the Vertigan Review and the Government's policy paper, the reform agenda in telecommunications had regressed in favour of a form of preferred industry policy including the promotion of the NBN at the expense of competition and capital efficiency with significant negative consequences for sector productivity, capital investment and economic contribution. Along with the NBN reforms now being implemented, this assessment provides a good opportunity to put economic rigor back at the centre of related competition policy and regulation. The nation would benefit from an agency such as the BCR that understood and applied the economic rationale that underpins meaningful and worthwhile economic reform in this sector.

Our responses to the questions raised in the consultation paper are offered in this context of competitive neutrality and competition principles and deal mainly with the issues around the assessment of relevant costs and the cost of capital.

Question 1 **Is measuring NBN satellite and fixed wireless service costs on a commercially focused basis appropriate?**

The measurement of NBN satellite and fixed wireless service costs needs to be commercially focused because that is the only way to tell the extent to which the these services are non-commercial. If the BCR applied a cost measurement focus other than a commercial one it wouldn't be measuring the losses related to these services but rather some arbitrary amount.

The test for commerciality is that the return on invested capital (RoIC) of the relevant services at least equal their cost of capital. The extent to which actual ROIC falls below the cost of capital is the most appropriate measure of the losses incurred as required by section 1.a of the Terms of Reference. The commerciality test should be applied jointly and separately to relevant subgroups of services as far as practicable. (This is an economic measure of loss, or net cost, after relevant capital costs rather than an accounting profit or loss which is typically reported prior to equity return.)

One implication of a 'commercial approach' is that the benchmark return be based on efficient costs (and revenue) and the actual (or modeled) return on satellite and fixed wireless services reflect this as closely as practical.

A second implication is that the commerciality test doesn't require necessarily any contribution to costs which are common between these services and commercial services the firm may supply. For commerciality it is simply sufficient that the services at least cover their own directly attributable costs. This is an important point in relation to question 14.

Question 2 **Is it appropriate to consider commerciality on a network 'cluster' basis?**

It is not appropriate to consider commerciality on a network 'cluster' basis, at least not unless this is the only basis on which a commercial telecommunications business would make its key resource allocation decisions. Such a business would be likely to be very inefficient in its resource allocation and (conceptually) in a competitive setting likely to lose business to rivals that were more flexible in their decision making and accounting information.

The microeconomic and accounting concepts of 'relevance' and 'cost object' should guide this question. In accounting, the term relevance means 'will it make a difference to a decision maker' while the cost object is the item or set of outputs for which costs are being separately measured for decision making purposes. The question of commerciality is decided at a number of different levels within a business from individual units of output, to various groups or sets of output and so on up to the whole business unit (and ultimately the whole enterprise). At each level different measures of cost become relevant to the commerciality decision. (The related principle of 'cost causality' is considered in response to question 14.)

As far as measuring cross subsidy goes the microeconomic theory is well laid out in Faulhaber (American Economic Review, 1975) and has been widely referred to subsequently. Indeed there is extensive economic and management accounting literature on the subject. Faulhaber's multilevel approach to identifying cost objects and relevant costs was the key to the Bureau of Transport and Communications Economics (BTCE)study of 1989. It is incorrect to say BTCE used a 'granular' approach in assessing costs on an exchange area basis. The BTCE study assessed costs at several different levels as shown in table 4.1 of the BTCE study.

It is likely that there are several levels of analysis or at least some flexibility required in considering the issue of commerciality in the case of the NBN in particular in considering network extensions from potentially commercial clusters and non-commercial subsets within commercial clusters.

A key caveat of course is that it is not practical to measure commerciality of all possible subsets as the Faulhaber approach suggests. Modeling inherently involves a trade-off between capturing as much useful information and analysis as possible to guide decision making without adding so much complexity as to make the analysis impractical. As well the commerciality model shouldn't itself be a substitute for management decisions. But it does need to be sufficiently close to inform the commerciality assessment and given the nature of NBN FW&S resource decision-making that is unlikely to be achieved by simply considering network clusters. For example, even where a network cluster was considered to be commercial there may well be parts of this cluster which are not commercial and may not be provided by a normal commercial operator. To the extent that these are separable resource decisions by NBN Co, the net cost of such subsets should be considered as part of the measurement of non-commercial costs.

The extent to which the BCR goes down this disaggregated multilevel path should depend on whether it makes a significant different difference to the outcome. A useful test may be to what extent of disaggregation a firm acting commercially in a setting of contestability (ie where it might risk losing business opportunity) might consider its use of resources. Rather than assessing the issue across the breadth of NBN Co's satellite and fixed wireless operations, a well-designed pilot study might provide useful guidance.

(As an aside 'granularity' isn't a meaningful accounting concept compared with 'cost object', 'relevance' and 'causality'. One problem with it is that it risks chasing detail for its own sake rather than because it is relevant to a particular decision.)

Question 3 Is FY2040 at an appropriate time period for assessing NBN non-commercial services?

In principle the appropriate time period is a relatively arbitrary matter. In practice, given NBN Co is effectively a start-up rather an established operation, the appropriate time period needs to be long enough to capture all the relevant costs through the life cycle of the relevant long term assets, but not so long that there is a risk of inter-temporal inequity (ie tax payers in one period in effect subsidising users in another period.) For this reason, terminal valuation (or terminal net cost as the case may be) is not relevant to this exercise.

Given the nature of this exercise the most practical time period would relate to the life cycle of the main set of assets, probably the satellites. A further reason for this choice is that the cost (and benefit) of replacing these at the end of the life-cycle is very uncertain at this time. An arbitrary period to, say, 2040 risks inclusion of a predicted 2nd substantial capital outflow period that may not occur and without a sufficient period for realisation of related benefits.

A key question is the method of inclusion of capital costs over time as either capital spend through the life cycle (as in a cashflow approach) or annualised as depreciation and capital charge. A related question is how the net costs over the life cycle are annualised for the purpose of subsidy and funding.

Question 4 Are the proposed principles relevant and applicable when considering NBN noncommercial service funding arrangements?

Question 5 Should the BCR consider additional principles? If so what are they?

Surely 'competitive neutrality' is the core principle given the context of the assessment. "The intention of this reform is to ensure that the funding required to support non-commercial services is transparent and contributions are made to these costs in a competitively neutral manner." (Government policy paper Dec 2014, section 2.6.)

An issue with having lots of principles to draw on is that they may be applied to 'justify' any approach. Too many principles devalues the benefit of having principles.

If the BCR is to adopt all of these principles it is worth highlighting competitive neutrality as the core principle among other reasons because of the possibility that there is conflict between the list of principles proposed. For example, a principal conclusion from the Vertigan report on market structure was the primacy of competition and the promotion of long-term interests of end-users over other objectives.

"Consistent with the Competition Principles Agreement, creating an environment that supports competition and promotes the long-term interests of end-users should take precedence over any impacts microeconomic reform might have on NBN Co's financial position." (Principal conclusion no 4, Independent Cost-Benefit Analysis of Broadband and Review of Regulation Report. Volume I – the Market and Regulatory Report. August 2014, p 11.)

Question 6 To what extent could financial reporting support transparency of the allocation of equity, debt and revenues towards non-commercial services?

Financial reporting isn't ideally suited to the measurement of NBN satellite and fixed wireless service costs; measurement is more closely suited to management accounting supported by microeconomic principles. In particular, equity, debt (together as capital costs) and revenue need to be attributed to non-commercial services following the same causality principle as operating costs.

Nevertheless, a well-designed financial report for NBN's non-commercial services could aid transparency.

Question 12 Is a DCF methodology based on NBN Corporate Plan projections an appropriate approach to modeling NBN non-commercial service losses? If not, why not?

Discounted cashflow analysis over the life cycle of the main set of assets is an appropriate approach to modeling NBN non-commercial service as it captures the relevant costs and revenue as they vary through the life-cycle. A DCF analysis can be designed with a useful level of disaggregation of information to guide commerciality assessment at different levels without adding undue complexity.

As noted in relation to question 3 there is a need to relate a DCF assessment with annualised operating performance both to guide any financial reporting (ie for transparency) as well as annualise net cost for the purpose of subsidy and funding.

Question 13 What, if any, issues arise in using NBN Co Corporate Plan financial estimates for the purpose of assessing NBN non-commercial service losses?

Previous NBN Co Corporate Plans were not sufficiently reliable to guide commercial decision making. Commercial capital markets would not have relied on them if they had been called on to contribute capital to the NBN. The Terms of Reference for this study tacitly reflect this noting the BCR should take into account information from NBN Co's Corporate Plan process rather than previous Corporate Plans. The BCR will need to consider whether the forthcoming Corporate Plan is sufficiently reliable to aid analysis of commerciality at the level required.

In any case the forthcoming Corporate Plan (judging by the level of detail provided in previous publications) is unlikely to provide a sufficient level of detail by itself to support a multi-level commerciality analysis. Information is provided at a relatively high level and provides little if any insight into cost causality (see our response to question 14).

The forthcoming Corporate Plan may provide a useful framework with more rigorous information than previous plans, and may provide a point of reference for reconciliation. However, it will almost certainly require supplementary information through a well-designed pilot study to guide practical assessment of commerciality.

Question 14 Is a fully allocated cost approach appropriate for the treatment of NBN non-commercial services? What are the strengths and limitations of this approach?

Taking competitive neutrality as the key principle a fully allocated cost approach has no place in measuring the level of loss incurred by NBN fixed wireless and satellite services.

It is readily demonstrated conceptually that the allocation of common costs to subsidised non-commercial services (NCSs) provides a net competitive advantage to the enterprise with these subsidised NCSs:

- assume two or more firms compete in the provision of commercial services and have identical cost structures;
- one of these firms is then required to provide NCSs;
- the additional cost incurred by that firm is directly or causally attributable to the NCSs;
- however the NCSs may also use resources in common with commercial activities;

- if a share of these common costs are allocated between commercial and non-commercial services it would it would increase the assessed cost of the NCSs above their directly attributable level and leave fewer costs to be recovered from commercial services;
- the resulting lower cost required to be recovered from commercial services offers a 'net competitive advantage' relative to the other firms which are not able to reallocate costs from commercial to non-commercial services.

As Hilmer puts it "Where a government business enjoys net competitive advantages it may be able to price below more efficient or equally efficient rivals. This has the potential to reduce economic efficiency and community welfare by distorting the allocation of resources between advantaged government firms and other firms. ... From an equity perspective, the disadvantaged firm may feel justifiably aggrieved in this situation, particularly if its owners consider they are, in effect, subsidising their rival through their tax contributions." (Hilmer p 297) (Or subsidising NBN Co through contribution to a levy based on costs incurred in common with commercial activities.)

As well the inclusion of common costs violates the Competitive Neutrality Policy and Competition Principles agreed between Australian governments. "The objective of competitive neutrality policy is the elimination of resource allocation distortions arising out of the public ownership of entities engaged in significant business activities: Government businesses should not enjoy any net competitive advantage simply as a result of their public sector ownership." (Clause 3.1, Competition Principles Agreement – 11 April 1995. As amended to 13 April 2007.)

The terms of reference require the BCR to "include the reasonable share of costs associated with commons such as NBN's Operations Support Systems/Business Support Systems (OSS/BSS), transit network and corporate functions." To the extent these costs are truly common none of them should be included as a reasonable charge to non-commercial services.

However, simply classifying costs as common does not make them so. A significant part of NBN's OSS/BSS, transit network and corporate functions may be incurred incrementally (or causally) as a result of the requirement to provide NCS. The relevant test here is the economic or management principle of cost causality. The causality principle is the relationship between the cost object in question (ie relevant sets of non-commercial services) and the resources that must be, or must have been, consumed if the output is to be achieved. Either the costs are incurred as a result of the cost object or they are not. In the causality assessment there is no middle ground for arbitrary cost allocation.

Many costs are classified as 'common' for reporting convenience particularly for external or financial reports. Many industrial firms have a low level of common costs and so allocation across divisions or subsets may make little difference to presented results. However, that is typically not the case for network businesses which have high levels of joint or common cost. In any case it does not follow that reporting arrangements for such costs are necessarily relied on internally for resourcing decisions.

As a general point the BCR should not be constrained by financial accounting reporting practices such as fully distributed cost allocation in assessing what is fundamentally an economic or management question of cost causality. There are many techniques available to assess cost causality at different levels and different subsets of NBN non-commercial services.

Question 15 What are the relevant issues in determining a discount rate for NBN non-commercial services?

Question 16 What relevant discount rate should be considered for NBN non-commercial services?

Taking competitive neutrality as the key principle the BCR should use a commercial rate as its discount rate in measuring the level of loss incurred by NBN fixed wireless and satellite services or as the benchmark rate of return. The use of a materially different rate would either impose an unfair burden on NBN Co (under-estimating the level of funding required) or provide it with a net competitive advantage. "Competitive neutrality is achieved by ensuring that, inter alia, industrial relations, financing and taxation arrangements are the same as apply in the private sector." (Hilmer pp 300-301).

A more difficult question is what is the appropriate commercial rate for a set of activities that are by definition non-commercial. Ordinarily if the expected outcomes are negative or lower than a benchmark capital cost the activities wouldn't attract funding either debt or equity.

It is worth noting Hilmer's recommendations regarding competitive neutrality extend to "explicit or implicit government guarantees on debts; concessional interest rates on loans; not being required to account for depreciation expenses; not being required to achieve a commercial rate of return on assets; and effective immunity from bankruptcy." As far as debt goes that implies a commercial rate and gearing that would ordinarily apply to such a business (ie without explicit or implicit government guarantee) should be used.

The cost of equity is a more difficult consideration as the return expected by (commercial or private) equity investors would vary depending on the range of expected returns (or risk). In general the wider the range of possible outcomes, the greater is the required equity return or cost of equity. This might be informed by the scenario analysis contemplated in question 18.

A key issue here is the likely asymmetry of returns typical of such regulated businesses. This has significant implications for capital efficiency and cost of equity. If the range of returns is asymmetric to the downside this will increase the cost of equity. Conversely if there are risks to the upside equity costs may be lower. The potential to do better than a normal capital return, or limit the range of possible downside outcomes, is a key driver of capital efficiency. Where there are such expectations firms are incentivised to develop specialist expertise to assess such projects, identify, quantify and manage such risks, become better at assessing and managing ongoing risks and learn from outcomes when risk is realised. The risk assessment and management process is well established in capital markets and is a powerful driver of efficiency and wealth creation.

As far as NBN's non-commercial services goes, there doesn't seem to be any possibility of upside to expected returns; the inclusion of NCS funding would at best raise the expected return to a normal benchmark or cost of capital level. (If NBN earned a better-than-expected return on non-commercial services after receipt of funding, would it be allowed to keep the excess or would future levels of funding be adjusted downwards?)

Where is the return incentive for NBN to develop specialist expertise (of the kind that improves financial performance rather than achieve technological objectives), to better assess such projects, identify and quantify risks, become better at assessing and managing ongoing risks and learn from outcomes when risk is realised? Without this incentive, the cost of equity becomes a circular question perhaps most easily resolved by using a benchmark commercial rate of return on equity (although this doesn't resolve the capital efficiency issue).

In any case the issue of capital efficiency in regulated infrastructure businesses goes well beyond the question of assessing costs of non-commercial services.

Question 17 What issues arise when considering the application of a terminal value for calculating NBN non-commercial services?

On the basis that a terminal 'value' for non-commercial services is likely to be substantially negative and that the discount period captures the life cycle of the main asset base (and appropriately includes charges for other assets in that period) a terminal valuation is not relevant to this exercise. To do so risks creating a substantial inter-temporal inequity by bringing forward to users of the current asset base costs which benefit users in some distant subsequent period. In any case who knows currently how a future government and future industry may best meet non-commercial needs.

Question 18 What are the key sensitivities or scenarios which should be considered?

The scenario analysis is the next most important question after the issues of determining the relevant sets of NCS activities and their cost causality. The scenario analysis should inform the range of possible outcomes for the various sets of NCS activities.

While some key sensitivities may seem fairly obvious ex ante (for example pricing and price caps, take up and mobile substitution) the question is more readily addressed as the NCS model is built and relevant cost objects and causality are established. Establishing and evaluating a workable and useful set of scenarios and their impact on the likely range of outcomes will also help inform the discount rate.

Question 28 To what extent will elements of the SAU need to change to accommodate the introduction of NBN non-commercial service funding arrangements?

NBN Co's SAU is constructed poorly on a misguided set of assumptions including internal cross-subsidy, industry protection and previous corporate plan assumptions which lack credibility and reliability. In particular the initial cost-recovery account (which is largely but not entirely influenced by NCS) is fanciful and unreliable as a construct in the SAU. A workable set of cross-subsidy arrangements along the lines envisaged by Vertigan and the industry restructure contemplated post 2016 would require a substantial reworking of the SAU in a more credible regulatory framework.