

The Tender scope

The tender document will be asking for the cost of building and operating the envisaged new broadband network (NBN). A Telecommunications Infrastructure Corporation (TIC) should be formed to own and manage the network, aligned in structure with that of BT Openreach in relation to existing or new Telecommunication companies (Telcos) wishing to use the NBN. The NBN will be fully funded by those seeking capacity in it in conjunction with the government contribution.

Multi-stage tender process

A multi-stage negotiation process is envisaged in which after the first evaluation phase tenderers only adjust price, either for construction, or their bid for NBN capacity, unless the government initiates negotiations on other aspects. Ideally, the Panel should invite further comment on the structure of the tender before its final release.

Share of NBN capacity

The tender should ask how much the tenderers are prepared to pay for capacity in the NBN with cash at an input rate over time commensurate with construction. The answer to that question will also determine the equity share the tenderer receives in the TIC.

The government will forgo capacity in respect of its contribution, but will retain equity on the same terms as Telcos acquiring capacity and equity: That means that nominally for the first round, capacity allocation is proportional to the cash committed by each tenderer for capacity. It is possible that the cash offered may be less than the NBN projected cost. This is dealt with in the subsequent stages.

Capacity share negotiations can be conducted in parallel to negotiations on the construction of NBN. However transparency is required on the least total cost of what will be described as the benchmark response. Existing Telcos will be advised of their nominal share and the least cost benchmark immediately tenders are processed. Several rounds of capacity offerings are envisaged until the selected NBN total cost is matched. These should take place on a weekly cycle. When the final NBN cost is determined, further capacity purchase rounds may be required. If the funds offered for capacity don't match the expected cost of providing the NBN, then either equity in the TIC will need to be offered to private investors and there will be additional usage charges to Telcos, or Telcos or NBN tenderers or banks will need to make loans to the TIC and equity returns will be reduced. To resolve this quickly, tenderers are required to commit to building the NBN and of having a consortium partner willing to buy at least half the capacity by equity contribution. In the event that equity offered for capacity is insufficient to build the NBN the consortium partners must have loan funds sufficient to make up the difference at their quoted rates. Loan funds do not buy capacity. Return on equity investment criteria are set out later in this document.

Zones

The NBN will be divided into a few zones representing number of persons per square kilometre, and low or high usage. Capacity is based on an even share across all zones. Telcos can cross sell parts of their capacity entitlement, by zone or usage level. The TIC should be restricted to only providing digital capacity at speeds and volumes for service levels to retail Telcos. There should be no tie allowed to ownership of content such as data, voice over internet or video.

Construction & Maintenance

The TIC will outsource future infrastructure upgrades, and later maintenance contracts once the initial maintenance period has ended. Only NBN construction tenderers should be considered for the initial maintenance contract.

The NBN construction may be let to multiple contractors. No tie between NBN construction allocation and capacity is permitted.

More detail is provided later on certain aspects.

Benchmark criteria - share of capacity

Each tenderer is likely to have a preferred technology solution with different offerings to different geographic and demographic zones based on cost considerations. The tender needs to establish benchmark criteria as well as allowing preferred offerings by tenderers. Only a handful of these criteria are necessary.

The benchmark service areas should be divided into zones which can have any existing technology as the service mechanism. The tender document will have specific zones for the benchmark response, but the tenderers may construct their own for their preferred response.

The benchmark is needed so that comparisons can be made in an accurate manner. The hurdle for benchmark criteria should not be set at an ambit level. Some already achieved service level criteria should be set based on actual implementations. The point is to be able to make comparisons not to increase the risk of failure to get a response. Tenderers should be required to specify their required margin for low (residential) and high volume customers. From this Telco and end user pricing can be aligned.

As an example: For some zone's residential users set:

- Monthly rental of \$60 for some total download less than 300gb, and
- 12 mb/s for 95 % of users within 2km of an exchange over 95% of 15 minute intervals
- 95% availability over all 15 minute periods in a month for scheduled service
- No more than 8 hours in a month of scheduled maintenance for any exchange.
- An average service level speed for 95% connected users for a zone should be a required commitment, but not specified in the tender.

For a zone's high volume users set a base fee and rate per mb per month at 12 mb/s within 2km of an exchange, per billing unit (which may comprise an applicable base fee, with a break even point commensurate with typical residential users volume requirements). It would be up to Telcos to set their own retail billing structure in relation to the two zone breakpoints.

The tender document should require the responder to give an answer for the government one time contribution required for that zone, subject to the total government contribution for the whole NBN to be within limit. Tenderers are required to respond for all benchmark zones.

A layout like the following might be used.

Zone	Monthly rental for a base level of service	12 mb/s for x% users 95% of 15 minute periods	y% availability over all 15 minute periods	Volume	etc

Residential, More than x users per sq.km.	\$60	X=95	Y=95	<=300gb	
Some high usage	\$30	some	some	>=300gb + rate per gb, eg \$0.10	

The tenderer may want to have quite different numbers in the corresponding columns, but must respond to the benchmark before any alternative preferred response will be considered. A further requirement is that the tenderer provide tables varying only one benchmark column at a time between the benchmark and preferred response.

As a consequence, the government will be able to make accurate comparisons across all tenderers using straightforward calculations. Furthermore, by using mathematical optimization procedures, an overall trade-off can be obtained for each significant criteria. This would facilitate later negotiations.

Exceeding benchmark criteria

It is conceivable that the benchmark NBN might require less than the government committed contribution. In that case, higher service levels can be obtained.

Alternatively, the government may wish to make use of loan funds to achieve a better outcome than the benchmark.

The tender document should ask for NBN cost differentials which minimise the number of persons beyond 2km from an exchange for each zone, noting the government contribution required, up to its committed limit.

Immediacy versus size

On-line conferencing requires high bandwidth. A video download isn't always required to be immediate. Different retail rates are applicable to different demand patterns. A one size fits all set of assumptions in the tender process would neither allow for changing consumer patterns, business offerings or changing technologies. That's one reason for not setting an ambit level in the benchmark table. Tenderers who wish to provide differential rates are nevertheless required to provide response to the zone rows and specify one column value for each criteria, before separating out such cases elsewhere, in a similar format for any variations they wish to make for service type. The government should make it clear that it need not be bound to such variations. The TIC should restrict its charge profile to the benchmark criteria unless there are speed and volume advantages to do otherwise.

The TIC

It is wasteful to have multiple hardware investments at a location, tied to a particular provider, which are each under-utilized. It is better to have fewer technical solutions at exchanges or distribution points which are shared. Access rights to a common infrastructure can be separated from ownership.

The TIC is in effect a Telco joint venture with the government as a partner.

Government may choose to indicate that it will sell of its share at some stage.

Individual Telcos will have some freedom to act independently to install their own infrastructure if the TIC is unwilling to do so in a timely manner or at acceptable cost, once the new infrastructure is in place.

The role of the TIC is to ensure that it meets or exceeds the benchmark criteria.

In addition, the TIC will be expected to meet target criteria from its own resources over time: As an example, where there are more than 500 residential users more distant than 2km from an exchange, the TIC should ensure that additional infrastructure is deployed to get below that bar or that other action is taken to upgrade the service to 95% of those users beyond that range.

Price regulation

The TIC's charges need to be regulated on a simple basis that is easily understood by all stakeholders, and reconciled to the successful zone based NBN tender, for example:

- a maximum return on equity of 20% and a minimum of cash rate plus 3.5% will be set. Return on depreciated assets will be set at a minimum of five year rolling cash rate plus 2%.
- Price increases will otherwise be limited to the five year rolling CPI .

It will be apparent that as assets are depreciated but not require replacement, return on assets will rise as will return on equity.

An important criteria for eventual higher speed and volume levels needs to be built into the commitments on future pricing in the tender document. As higher speeds are achieved and more exchanges are built (or better technology is available), the ROE can rise towards the upper level. The basis for doing so would be that average speeds for all users in a zone are improved while maintaining volumes or the converse. This will drive the TIC to look for higher ROE wherever it can increase the number of users who receive better service. Depending on the nature of tenders for NBN, rates above the benchmark minimum could commence at the outset:

If everyone received 12 mb/s the ROE could be 20% in the example. If only those inside 2km receive 12mb/s then the ROE could be set at the lower limit.

The tender should outline the ROE setting criteria for the regulatory authority in terms of the benchmark and average service for each zone.

The TICs relationship to its clients

The tender document should outline the on-going nature of the TIC's relationship to Telcos, and make clear that the no Telco will have exclusive capacity in respect of any zone. It will charge out usage of its infrastructure at declared rates regardless of who the user might be, but in the event that in the future some particular resource has greater demand than its capacity, it can auction chunks of capacity. At the time of tender response, tenderers may indicate charge-out patterns that are preferred as an alternative to the base user monthly charge. However, the TIC will reserve the right to set charges at a level which achieves a reasonable commercial rate of return, specified in the tender itself, subject to regulatory authority.

Where different technology is required, or additional capacity is required, the TIC will outsource by tender the provision of that technology or capacity. It may contract with particular clients to provide a particular level of service, speed and capacity for a determined period at a price for new infrastructure. Any excess capacity is required to be made available on the same terms. Thus a Telco may approach the TIC for a certain amount of new capacity, the parties may agree on terms, and the TIC may install more than that in the expectation of demand from other Telcos. Once tenders are let, the TIC may negotiate for higher service levels in specific zones, or even by postcode or premise.

Telcos relationship to the TIC

Subject to capacity, each Telco has the same access rights to TIC infrastructure as any other Telco. Generally, it will be Telcos who initiate new capacity or technology requirements and who will provide at that time a bid price for what they want implemented and what they are willing to pay for using it. The TIC will then ask for tenders to see if it can achieve a better outcome and still meet the service levels required. In the event that the TIC does not agree to provide the capacity or technology, the Telco may act separately. For example, a Telco may implement its own wireless network at some locations or its own broadband say at some major resort or CBD.

Telcos relationship to one another

In the new environment it is assumed that some Telcos may have more capacity allocated to them than some others. It could be the case that one Telco has no capacity at a particular exchange but some of its retail clients have moved there. The industry, with the ACCC, needs to agree the price premium and cross-billing arrangements for carrying other Telco's traffic, transparently to the retail consumer of those services. The TIC may be best placed to administer those arrangements.

Requirements of a good tender document

Technology projects often fail and amongst the most common reasons are:

- Over-specifying or over-designing the solution, or
- Taking a risk on unproven technology, or
- Requiring flexibility in incorporating new technology

The panel should endeavour to avoid these risks by taking the following steps:

1. Leave out any technology requirements other than service levels, bits down a 'pipe' at some rate and volume with required levels of availability. (The tenderers are required to have consortium partners who have to live with what they build. Let them take the design risk).
2. Specify that the tendered solution must be working somewhere on a commercial basis
3. The only technology changes allowable are those that satisfy (2), and which are demonstrated to be working with the tendered technology already. The TIC can introduce new technology after it has NBN working, at least by geographic area.

The panel are under some time pressure. Luckily this is an advantage. One should only need to ask the question of those preparing the tender documents, if you prioritize the most important 100 questions, how important can the 101st be? The answer to this should present a clue to the criteria to be applied in structuring the tender process under consideration. After coming up with a hundred or so questions, after another twenty or so, are there any which make it into the top 100, if so, continue, if not, stop.

A second consideration are those questions which go to the issue of quality. Quality criteria are to be found in words that end in "ity" and a few that end in "ness". Surprising as it may seem, all of them fit on one page and are known to most graduates of IT who bothered to do their homework.

Tenderers should be required only to specify how they will meet quality requirements as seen by the end user, or client Telco, as appropriate, and not at the level of components.

Finally, some percentage of the government contribution should be set aside for contingency for the TIC controlling project office, so that the nominal contribution for the NBN funding by the government is less by that amount.