



**Vector Limited**  
101 Carlton Gore Road  
PO Box 99882, Newmarket  
Auckland, New Zealand  
[www.vectornetworks.co.nz](http://www.vectornetworks.co.nz)

Corporate Telephone  
+64-9-978 7788

Corporate Facsimile  
+64-9-978 7799

Jenny Walton  
Electricity Commission  
PO Box 10041  
Wellington

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## **SUBMISSION ON DRAFT GRID INVESTMENT TEST**

### **Purpose**

This letter, and attachment, constitutes Vector's submission on the draft grid investment test ("the GIT"). Vector appreciates the opportunity to make a submission on this important component of the transmission investment decision-making framework.

Vector's submission comprises, in the attachment, responses to the helpful list of questions framed by the Commission for feedback. An overall summary of Vector's view is provided in this letter.

### **Overall view**

The key points Vector would like to make on the GIT are as follows:

- a *net public benefits* test should be adopted given this test is well known and tested; the Commission's proposed *expected net market benefit* test is new and unproven and risks imposing costs as a result of its unfamiliarity. Further, the assessment should not be constrained to costs and benefits in the electricity market (as the Commission proposes to do), as this has the effect of favouring transmission-related investments in the economy above all others. More fundamentally, the Commission does not need to constrain the assessment to the electricity market (as the Commission's interpretation of the objectives is, in Vector's view, incorrect);
- consistent with Vector's support for a net public benefits assessment, *all* costs and benefits should, in principle, be considered by the Commission. Where specific costs and benefits are identified by the Commission, they should be accompanied by catch-all provisions to provide for others to, where appropriate and rationalised, be considered;

- in respect of benefits that are somewhat “softer” (or more difficult to quantify than others), particularly competition benefits and real options analysis, Vector suggests the extent to which they are included in the net public benefit assessment should be constrained. Further, such benefits should not (given their uncertainty and difficulty estimating), in themselves, be the definitive factor that results in a grid investment being made;
- as a general comment, Vector found some of the Commission’s drafting of various components of the test, specifically with respect to different sets of criteria, too loose; given the criticality of a clearly defined test, the Commission needs to ensure all parts of it are clear and unambiguous; and
- having considered comments from interested parties, the Commission should re-release its proposed GIT, including the exact specification of the GIT as set out in Appendix 2, and seek further input from interested parties, even if only over a short time period.

Vector also notes that its submissions to improve the GIT should be seen within the broader view held by Vector that erring on the side of over-investment (as opposed to under-investment) in the grid is preferable, provided that is not taken too far. Further, even if investments are not imminently required (but are reasonably expected to be necessary in future), Vector supports Transpower taking all reasonable steps now to facilitate that future investment. Vector is keen for the Commission to adopt an approach that facilitates preparatory work (e.g. acquisition of easements) being undertaken for future grid investments. If projects are reasonably likely to be approved in the future, Vector considers the Commission should somehow seek to encourage their ex ante development. Not to do so may risk important projects for the future sitting dormant until GIT approval looks imminent.

### **Closing comment**

Thank you for considering Vector’s submission. Should you require further assistance, please contact Peter Alsop, Vector’s Regulatory Manager, (021 370 869; [peter.alsop@vectornetworks.co.nz](mailto:peter.alsop@vectornetworks.co.nz)).

Kind regards



**Simon Mackenzie**

Group General Manager Networks

## Vector's response to the Commission's questions

Q1: Do you agree with the Commission's interpretation of the objectives of the GIT, and if not, why not?

Broadly speaking yes, but with some important caveats.

Overall, it is clear that the Commission is seeking to elaborate a test to facilitate efficient transmission investment. Further, Vector strongly agrees with the Commission's sentiment that "*in undertaking a quantitative analysis, it is essential to have a well-specified objective function*". However, Vector has concerns regarding the Commission's interpretation of the Part F objectives for developing the GIT as set out below.

It is not clear to Vector why the Commission has opted for, to Vector's knowledge, a new economic assessment measure called *expected net market benefit*. Instead, Vector supports the Commission adopting a net public benefits test, as has been successfully applied by the Commerce Commission in much of its work over a number of years. A net public benefits test is well understood by interested parties, whereas the expected net market benefit, notwithstanding the 4-bullet explanation of each component term, is not.

In interpreting the Part F objectives for developing the GIT, the Commission refers to 2 of the 6 objectives (6.3.1 and 6.3.4). While the Commission notes that 6.3.1 ("promoting economic efficiency") would imply a "broad social cost-benefit test" (in Vector's view, the net public benefits test advocated above), the Commission forecloses that option by stating "*the presence of rule 6.3.4 narrows the GIT to focusing on net benefits to the electricity market*". While stated by the Commission as a matter of fact, that assumption is a matter of interpretation of the rules and, in Vector's view, the Commission's interpretation is incorrect.

Specifically, the Commission must only '*have regard to*' (not necessarily strictly adhere to) each of the relevant objectives. Further, the Commission itself does not explain how *all* objectives are binding or met (and Vector suspects some will not be in entirety, for example, it will not always be possible to facilitate outcomes "acceptable to Transpower and designated transmission customers"). This suggests to Vector that the Commission need not rule out a net public benefits test simply because one of 6 objectives refers to the electricity market.

More fundamentally, limiting a net benefits assessment to pros and cons in the electricity market (as the Commission intends) has the effect of placing electricity considerations ahead of others in the economy. As the Commission explicitly notes (para 31), "*this means, for example, costs and benefits falling on other sectors of the economy, such as*

*the gas industry, are not to be taken into account in the GIT*". Vector considers this a dangerous approach to take. While perhaps hypothetical, it is conceivable that a transmission investment, or transmission alternative investment, could impose significant costs or benefits elsewhere in the economy. In the Commerce Commission's context of merger/acquisition clearances, the Electricity Commission's proposed approach would be tantamount to, say, tourism pros and cons being excluded from the Air New Zealand/Qantas merger assessment. Clearly such ancillary costs and benefits are central (albeit difficult to quantify) to answering an overarching economic question of whether a particular action in the economy is appropriate/worthwhile.

Constructing the GIT with an electricity-centric boundary also runs the risk of the GIT being undermined in practice if non-electricity pros and cons are significant in a particular instance. If a proposed, or approved investment, did have major ramifications for non-electricity interests, Vector suspects the Commission would have no choice but to recognise these in some way. This would only serve to undermine the credibility and durability of an electricity-centric GIT. For example, in respect of transmission alternatives, it is conceivable that demand-side measures have benefits in terms of New Zealand's international climate change obligations. If tangible and measurable, these may be a relevant consideration for the Commission that would otherwise be excluded by the proposed GIT.

In Vector's view, the above problems with the Commission's proposed approach would be avoided by the adoption of a net public benefits test, including as a result of the familiar nature of this test and its economic efficiency centrality. If the Commission's concern is that non-electricity pros and cons are difficult to identify and measure, then this should be addressed through discounting such assessments; but not by preventing other relevant considerations being brought to bear on the Commission's decision making.

In respect of the net public benefits test, or whatever test the Commission ultimately adopts, Vector considers it should be noted that the sphere of consideration is New Zealand. As the proposed test is currently worded, this may be implicit, but is not explicitly noted.

Q2: Do you agree with the Commission's specification of the principal purpose of the GIT, and if not, why not?

No. Vector considers the Commission has overcomplicated the specification of the principal purposes of the GIT. Vector considers a simpler specification of the purpose is more appropriate. Specifically:

*The purpose of the GIT is, when applied by the Commission and based on best available information to it, to determine the most efficient investment (based on a net public benefits test) for the electricity system, whether that investment be transmission-related or a transmission alternative.*

As discussed above, consideration of efficient investments for the electricity system should also consider externalities in other sectors of the economy. It is conceivable that two projects, equal in all other respects, impose different pros and cons elsewhere in the economy that should legitimately be considered in a final decision.

As a second purpose of the GIT (32(b)), the Commission has suggested a principal purpose of the GIT is to "provide information, including efficient location signals ....". In Vector's view, that is not a principal purpose of the GIT, if a purpose at all. The GIT is, as its name suggests, a decision-making test. While the application of the GIT will invariably inform future decisions (and, therefore, have an information effect – like any decision-making precedent), it is not expressly designed in Vector's view to provide information, such as location signals, to market participants. Such information will be part of the Statement of Opportunities, which conceptually is the primary input to the GIT.

Further, it is difficult and dangerous, in Vector's view, to try and provide location signals via an ancillary (regulatory) process that is outside the market. To do so risks the Commission planning the location of all generation investment in New Zealand. An appropriate counterparty arrangement (with generators sharing in use of system) and a well specified transmission pricing methodology will, when combined with the nodal pricing system, provide locational signals for investment. The financial incentive needs to come from the market mechanisms; not regulatory intervention through the GIT.

Q3: Do you agree that cost-benefit test (incorporating probabilistic planning analysis) can be used even if a deterministic grid reliability standard is adopted, and if not, why not?

Yes.

Q4: Do you agree with the Commission's proposal to apply a cost-benefit test to all reliability investment proposals, and if not, why not?

Yes. In Vector's earlier submissions on Part F, specifically on the draft Part rules, we commented on this issue. Specifically (noting that Vector considers all of the text below

relevant to the Commission's consideration now, including the Commission's interpretation of the objectives of the GIT and its specification):

Where a test is required, Vector does not consider there to be benefit in providing for separate tests – a reliability test and an economic test – to determine whether transmission investment should occur. Just like for any other business, all of Transpower's investments should be made on economic grounds alone, appropriately taking into account all relevant factors, including reliability considerations.

As Part F stands, the indications from Transpower, as revealed through comments by its Chief Executive as part of the Regional Forums to present Transpower's plans for future development of the national grid, are that it will greatly rely on the reliability test for advancing investments. This potentially indicates that Transpower sees the reliability test as a 'soft option' and something that it can readily convince the Commission of to proceed with investment it considers necessary (but which may not be economic and, because of that, not accepted by designated transmission customers).

One test should be provided for in Part F; that being an efficiency test (or economic / net public benefit assessment). If considered necessary for purposes of transparency, that test could reference the importance of reliability being considered as part of it (although Vector does not see the need for this, given it would be naturally and appropriately considered as part of the test's application).

In suggesting a test be applied (when required), Vector is cognisant that the process provides opportunity for a range of parties to put forward a range of matters to be included, some of which may be only tangentially related to the investment proposal. While it is important that all potential costs and benefits are identified (including intangibles), a pragmatic approach is required to assessing the legitimacy of costs and benefits fed into the economic test. It is likely to be necessary for the Commission to 'rule the line' at some point if some suggested inclusions are seen to push vested interests or loosely related considerations. Vector sees no way that this can be robustly prescribed in advance, other than potentially noting the importance of a pragmatic approach being taken.

Regarding definitions, Vector notes the importance of being unequivocally clear on what is meant by reliability. To some people, reliability includes security of supply; but to others reliability is a separate concept. The Commission's view should be clarified.

(Extract from Vector submission to MED, 4 December 2003).

**Q5: Do you agree that the time available to research and select a private sector rate is too short, and therefore the most practicable approach is to adopt Transpower's WACC?**

No. While appreciative of the Commission's desire to make decisions quickly, this is an example of pragmatism and haste being put above all other considerations, particularly analytical rigor.

Vector sees no problem, given availability of a range of relevant practitioners and time until the GIT is first applied, with the Commission eliciting expert advice in this area at short notice. Further, the fundamental nature of WACC to considering investment proposals necessitates the Commission choosing the appropriate rate carefully. While

pragmatic, it is not acceptable in Vector's view for the Commission to simply reach for Transpower's WACC given its accessibility.

Further, Transpower's WACC is set by its own Board (and not by an external party) and, therefore, is potentially open to selection bias since Transpower will be promoting many of the investments to be subjected to the GIT.

As an input to the Commission's decision-making, Vector notes that the Commerce Commission has undertaken work on WACC for electricity lines businesses. This is not to suggest Vector agrees with that work; rather, the Commission should be openly exploring all evidence and information available to it before making decisions.

Q6: Is the choice of discount rate likely to materially affect which projects are selected under the GIT?

In many instances, no, but in some it will be of importance, and so the discount rate is not a trivial issue for all proposals. At the most general level, a higher discount rate will favour projects with higher near-term benefits; thereby disadvantaging projects that may deliver a steadier stream of benefits over time, or greater benefits in out years.

Q7: Do you agree that a 20-year timeframe be adopted for the GIT, and if not, why not?

Yes, given there is scope in the proposed approach for considering the terminal value. The assets involved are generally long-lived and so a lengthy time frame is appropriate. However, too long a timeframe risks introducing further uncertainties. 20-years, with the potential to consider terminal value when it is potentially significant, appears to strike a good balance between these matters.

Q8: Should terminal values be added if substantial net benefits are expected beyond the 20-year timeframe? In what circumstances should terminal values be used?

Yes, when substantial net benefits are expected beyond 20-years and the data is robust enough to support this conclusion.

As a general comment, Vector feels that, whenever complex or uncertain issues arise, the Commission's natural tendency is to put such issues to the side, or cast dispersions on the appropriateness of their inclusion.

Vector accepts that pragmatism and difficult judgements are required. However, issues or relevant considerations, irrespective of how difficult or uncertain, should not be excluded from the Commission's assessment *in principle*; the more appropriate approach in Vector's view is to treat such issues with caution when including them in an assessment (e.g. through discounting of benefits, escalation of costs, or placing a high burden of proof on the project proponent).

Q9: Does an initial central value for unserved energy of \$20,000/MWh reflect a balanced assessment of current New Zealand and international evidence? If not, how would you assess that evidence?

Vector does not have a view on the evidence referenced by the Commission, other than to note much of it is potentially outdated and related to other countries.

Vector notes that "*the Commission agrees with Frontier's assessment that further empirical research is required to form robust values for the cost of unserved energy for New Zealand*". In the presence of that statement, which Vector agrees with, Vector is surprised that the Commission is promulgating a value that by its own admission is not robust.

As for WACC (refer comments above), Vector again considers that pragmatism and haste are being put above analytical rigor. The value of lost load is a key assumption/input to the GIT's application and, therefore, should be as accurate as possible. Vector considers the Commission has time to commission specific work in this area, and consult with interested parties on a draft report.

Q10: Referring to the discussion in section 6.3 of the Frontier report, are there other empirical studies that should be reviewed to form an initial value for unserved energy?

None that Vector is aware of within the New Zealand context.

Q11: Should a central value for unserved energy be adopted, or should separate values be assigned for different categories of consumer? If separate values should be assigned, what categories would you adopt and what values would you assign? Would consumers expect to pay different transmission charges if the transmission services they received reflected consideration of different unserved energy values?

On the separate values issue, the practicality of achieving this should be one of the objectives of the New Zealand analysis the Commission undertakes.

On the different charges issues, Vector supports transmission customers who receive different paying prices that reflect the services they receive (and different prices when the service, including its quality, differs). This principle should apply broadly in the Commission's decision-making, not just in relation to the value of lost load. As noted below (with reference to Vector's previous statements on this issue), this principle is also relevant to determining who should pay for Transpower returning its services to levels they ought to have been at (in Vector's view, this should be Transpower's shareholder).

Consistent with an outputs-based approach (and the Commerce Commission's treatment of Transpower), the *quality* of service must also be considered. Not all services are provided equally across New Zealand and, as such, there should not be a uniform cost (even though the service may, by name, be the same). From Vector's own experience, service and quality-differentiated pricing is not the norm at the moment, but should be going forward.

Transpower has also not had a strong focus on service quality to date. For example, Transpower has not invested for service quality reasons, even though the service provided does not meet its own standards. More generally, Transpower does not, to Vector's knowledge, have a robust measurement of the level of service it provides to its customers, which must be remedied going forward.

Transpower's underinvestment historically, and consequential service deterioration, raises the question as to who should pay for returning Transpower's service quality to an appropriate level. Investment required by Transpower to simply return its service to an acceptable level (i.e. what should have happened anyway historically) should be at its own expense. A related issue is that customers who have historically had low service levels (and over-paid for those, relative to those with higher service, due to Transpower's average pricing system), should not be required to pay for upgrades to bring their service up to an appropriate level. If they were required to pay, this would be inherently unfair.

While ultimately a transmission pricing issue, when service definitions are considered, service quality and price need to be explicitly linked. Service quality is inherently part of the service provided and it is meaningless to define or price a service without reference to its quality.

(Extract from Vector submission to MED, 4 December 2003).

Q12: Do you agree that sensitivities of \$10,000/MWh and \$30,000/MWh be used where the size and cost magnitude of the project warrant the additional analysis, and if not, why not?

Vector considers that the analysis the Commission commissions should form the basis for this decision. As a general comment, however, Vector supports sensitivity analysis of a range of assumptions given uncertainties and the reasonableness of different judgements that could be made.

Q13: Do you agree the materiality threshold should be set at \$1 million, and if not, why not?

Vector supports this proposal. It would be overly intrusive in Vector's view to apply the GIT to transmission investments costing less than \$1M. In other words, Transpower can make whatever investments it considers necessary, provided they cost less than this amount.

Vector supports the level of \$1M (and not higher), including, as noted by the Commission, to provide the Commission with greater oversight of grid expenditure decisions at the level relevant for some alternatives to transmission. Over time, the threshold may be able to be increased as experience is gained in the new investment decision-making environment.

While supportive of a threshold, Vector notes that the mere existence of a threshold creates an incentive for gaming by splitting investments into smaller increments to avoid application of the GIT. The Commission should ensure it has a process in place to deter and, if required, address any such behaviour. This could be addressed by the Commission publicising and briefly explaining the rationale for non-GIT-tested investments, with the broader benefit of ensuring all such investments have merit. In Vector's view, this is a low cost means of ensuring the merit of such investments is considered.

Q14: Should the GIT be applied with less rigour and comprehensiveness for grid investments with capital costs between \$1 million and \$5 million than for investments costing more than \$5 million? If yes, is it necessary to specify what must be included in such analyses?

Yes. Vector supports a moderate-GIT being applied for relatively low cost investments.

As above, the \$5M threshold potentially creates an incentive to split larger investments into smaller increments. The Commission should ensure it has a process in place to deter and monitor any such behaviour.

In Vector's view, there is merit in the Commission specifying on broad terms what the moderate-GIT will entail. In Vector's view, it should still be based on a net public benefits framework, but perhaps be more qualitative in nature, i.e. the degree of analytical rigor and quantification of costs and benefits could be smaller. As always, the emphasis should be on transparency as a key discipline on the merit of proposals and decisions.

Vector cautions, however, that a number of bad small investments could still impose large costs on the industry (and potentially result in higher flow-on costs in future). The Commission should, therefore, err on the side of conservatism – i.e. more rigor as opposed to less – at least initially while experience is gained in the new investment decision-making environment.

Q15: Are there other variables the Commission should include in its description of the current status of the electricity industry, and if so, what are those variables?

None that Vector has identified.

Q16: Do you agree that the primary issue with wrongly predicting new generation capacity is that projects would be approved when none were needed, and vice versa?

Yes, Type I and Type II errors are the dangers with the application of the GIT.

When reading this question, it became apparent to Vector that by referring to 'projects', the Commission may not be envisaging that such projects include generation (or at least large-scale generation directly connected to the grid). Were generation a 'project', the above question would be circular in reference and somewhat non-sensical. While this may reflect a lack of understanding on Vector's part of the types of transmission alternatives that may qualify for consideration under the GIT, Vector considers there would be merit in the Commission carefully defining and explaining terms, such as 'projects' and 'transmission alternatives'. These may be meaning different things to different people and nipping any such confusion in the bud now could avoid further problems later in the decision-making process.

Q17: Is the choice between least-cost and bidding approaches likely to materially affect the choice of grid investment versus alternatives to transmission, and if so, why?

Vector does not have a view on this question at this time.

Q18: Do you agree that the least cost approach, supplemented with sensitivity analysis of 'realistic bidding' approaches, is the most practicable approach for New Zealand?

Vector does not have a view on this question at this time.

Q19: Do you agree with the above criteria for committed projects? Should criteria be added or deleted, and if so, which ones?

Vector largely agrees, however, offers the following comments:

- in criteria (a), there is no need in Vector's view to refer to environmental impact assessments, as this reference is redundant in the presence of requiring all planning consents to have been obtained (which, by definition, address any environmental effects);
- criteria (c) may need clarification, as it is not clear to Vector whether or not land has had to be purchased/owned; presumably leasing land is also an option?
- criteria (d) refers to contracts having been "executed"; however, in practice, it is possible that such contracts refer to execution dates for various provisions in the future and there is nothing inherently wrong with this in the circumstances of a committed project; what the Commission specifically means by "executed" should be clarified; and
- criteria (e) refers to financing arrangements being "completed"; as for (d), it is conceivable such arrangements may pertain to the future and the criteria should provide for this.

As a general comment, while well intentioned and generally supported by Vector, care must be taken by the Commission to carefully craft such criteria so that they are unequivocally clear and interpretable in only one way.

Q20: Is there value in distinguishing between anticipated and modelled projects?

Yes, but only in terms of creating a simple hierarchy of 'very likely' and 'possible' projects for the Commission to consider (and place greater scrutiny on the former). In reality, both sets of projects are possible of being implemented, and all are possible of not being implemented, irrespective of how far advanced. The main focus should be on

making quality decisions overall, with an open mind to just how far projects are advanced. The simple distinction proposed, however, does seem useful in terms of channelling the Commission's consideration.

Q21: Is the description of modelled projects clear and unambiguous?

To the extent that the criteria are clear and unambiguous, yes. As noted above, the Commission needs to take care in its drafting to ensure this.

Q22: Is the description of existing and decommissioned projects clear and unambiguous?

For existing projects, yes, but for decommissioned projects, no. In (a)(i), Vector questions the significance of plans being 'publicly announced'. In practice (a)(ii) is likely to be the pivotal consideration but, as noted above, the term "executed" needs clarification as the contracts may pertain to future work in which case the contractual clauses may not yet have been executed. In the presence of (a)(ii), Vector queries whether (a)(i) is required at all. In (b), it is not clear whether the agreements referred to in the last clause are different to those in (a)(ii). Overall, Vector suspects this specification of decommissioned projects could be tightened and clarified.

Q23: Which criteria do you disagree with, and why? What other criteria should be considered? Are the above criteria clear and understandable?

The intent is clear, but Vector considers the use of 5 criteria potentially over complicates the definition of qualifying alternative projects. In Vector's view, criteria (e) may suffice in entirety, i.e. the only real requirement necessary for alternative projects, in Vector's view, is that they are "reasonably expected to enable the deferment of the type contemplated by the proposed grid investment for a period of 1 year or more". If such projects are reasonably expected to achieve this then, by definition, they are viable alternatives for the Commission to consider. A different slant on this is that alternatives satisfy the reasonable expectations of end users; and such an end user focus could usefully be woven into this (or other) criteria.

While unclear how it could work in practice, criteria (d) seeks to limit the number and technology of projects to the broad magnitude of the proposed grid investment. However, Vector questions why the Commission would want, ex ante, to rule out possible alternatives that may, for example, in aggregate (for a large number of

projects) deliver significant benefits, or be innovative in the use of technology (and otherwise may be deterred by the criteria limitation).

Vector suggests the Commission simplify and clarify the criteria for alternative projects, with the key plank of a reworked set being criteria (e) with an amended focus on end users.

Not specifically questioned by the Commission, but important nonetheless, is the Commission's proposal to include in transmission alternatives the GIT without project proponents. It is not clear that any project would be without a proponent given someone would have to put a project forward (as an aside, necessitating a definition of 'proponent'); however, more fundamentally, Vector considers that only projects with investment proponents should be considered. Not to do so risks a range of "woolly" projects being put forward for consideration, with no reasonable prospect of implementation. In Vector's view, any project worth its grain of salt will find an investment proponent, or should be encouraged to find such, as opposed to encumbering the regulatory process for a very uncertain outcome. As an important aside, the Commission should also define what is meant by a 'proponent'.

Finally, irrespective of the criteria finally adopted, Vector suggests that the Commission make clear that the burden of proof for feasible implementation of a project rests with the proponent. This reinforces the need to rule out projects without proponents, as otherwise the Commission will be left to do the work (or at least more work) to establish the credibility and workability of proposals before it.

Q24: Are there other variables that should be included in the definition of market benefits, and if so, what are those variables? Are the variables defined clearly and unambiguously?

Vector considers the list provided is clear; however, it is presented in a way that suggests no other possible benefits (other than competition benefits) will be considered. It may be desirable to have a catch all at the end to provide for other benefits, where rationalised, to be included. In that way, the list provided would constitute comprehensive examples of the likely benefits, but not be exhaustive. This may be intended by benefit category (i), although it is not entirely clear to Vector that this is a catch all. The sort of catch-all Vector has in mind is project cost category (d) in para 98.

In category (j), Vector suggests removal of reference to Transpower and the Board. The list should focus on possible benefits – as it does for other criteria – not prescribe who may consider what to be appropriate.

Q25: Should competition benefits be included in the GIT, and if so, how should they be measured?

Yes in principle, but Vector has no specific comments on how they should be measured. Vector also agrees with the Commission's sentiment that "*where material benefits and costs of a grid investment cannot be quantified, the direction and likely magnitude should be identified.*"

Vector is concerned that competition benefits, if not properly constrained, will be seen as an avenue for Transpower, with support from generators, to oversell the merit of transmission investments, on the basis of the grid being a silver bullet for generation security of supply. Availability of the transmission grid, while undoubtedly important, is only one requirement for a generation investment to proceed. While Vector accepts there are some competition benefits from grid investments, this has to be balanced against the fact that, if desirable and economic, the grid could likely readily be extended/augmented in a similar lead time to that required for a major generation investment. That being the case, there is arguably no need to favour transmission investment in advance, in expectation of further competition, to investment just in time in response to the emergence of further generation competition.

Given the above concern, and the concern noted by the Commission about difficulty quantifying competition benefits, Vector suggests that they should not, in themselves, be the definitive factor that results in a grid investment being made. In other words, competition benefits need careful sensitivity assessment, including the scenario where they are set to zero. In general terms, Vector is suggesting that the extent to which uncertain competition benefits are included in the net public benefit assessment should be constrained.

As an aside, the very argument that the grid generates competition benefits for generators suggests to Vector that generators have a legitimate interest in the grid at large (besides connection), which supports Vector's suggestion previously made to the Commission that generators share in use of system charges.

Q26: Are there other variables that should be included in the definition of project cost? Are the variables defined clearly and unambiguously?

The list seems comprehensive and clearly defined. As noted above, the inclusion of (d) is important as a catch all to costs not foreseen and prescribed ex ante.

Q27: Should Government policies that reflect externalities and that explicitly impose costs or benefits on electricity market parties be included in the GIT?

Yes in principle (as Vector's view is all relevant costs and benefits should, at least in principle, be part of an assessment), provided the policy has been legally adopted in the form of legislation or regulations, or some other official means. A mere announcement by a Minister of something proposed should not be treated as implemented policy. It is also not clear to Vector what the Commission specifically means by 'government policies that reflect externalities'. Vector suggests examples be given and/or the phrase clarified in its meaning.

Q28: Should the Commission assess projects against several base case scenarios? If not, how should the Commission deal with uncertainty regarding future generation location?

Yes. This is sensible, and the choice of five seems to appropriately strike a balance between managing the cost of preparing multiple base cases and providing enough information to assist weighing up an uncertain future.

Vector notes that, while possibly implicit in the Commission's expectations for base case scenarios, as well as application of the GIT, generation market dynamics need to be considered. For example, generation may not always be available, or operated at its capacity, including as a result of strategic behaviour (e.g. different fuel considerations in the presence of low hydro storage). While difficult to predict, Vector nonetheless considers the Commission should consider this issue.

Q29: Do you agree with the Commission's approach of replacing proposed grid investments with alternative arrangements if they are already in a base case scenario? If no, what other approach should be adopted?

It seems intuitively correct to Vector to remove investments from the GIT if those investments are already part of base case scenarios. However, this is somewhat of a paradox in that investments are removed from the GIT as they are assumed to be made, even though the purpose of the GIT is to assess whether they should be made. Nonetheless, Vector accepts that, to have credible meaning, base case scenarios do need to assume that investments have been made, so Vector sees no way around the paradox noted.

Q30: Do you agree sensitivity analysis should be conducted on the parameters listed above? What other variables should be considered for sensitivity analysis, and why?

Yes. Vector cannot think of any other variables; however, suggests the Commission adopt a catch all criteria for sensitivity testing of "any other variable that the Commission thinks is reasonably practicable and reasonably necessary". The Commission should, again (like for other examples noted above), leave itself more open to things it has not thought of, rather than tightly ring fence and prescribe a process that, with the benefit of time, proves overly narrow.

Q31: Should the Commission use real options analysis where it is practicable to do so? How important do you think it is to value flexibility in regard to decisions to be made under the GIT, and in what circumstances is it most important to value flexibility?

Real options analysis is a legitimate form of analysis, as investments do often open up the opportunity to do other things in the future (and vice versa, they close off options as well). However, many of the inputs into real options analysis are necessarily subjective, and the approach taken can be open to manipulation. At the extreme, any investment could, in theory, be justified solely on the "real options" it opens up.

As such, any use of real options analysis should be done in a very transparent way. Further, as noted for competition benefits above, real options benefits should not, in themselves, be the definitive factor that results in a grid investment being made. In other words, real options benefits need careful sensitivity assessment, including the scenario where they are set to zero. In general terms, Vector is suggesting that the extent to which real options benefits are included in the net public benefit assessment should be constrained.

Q32: If it is complicated to apply real options analysis, should the Commission initially focus on the scenario analysis approach and develop real options analysis at a later stage?

This approach would be consistent with Vector's general suggestion of applying real options analysis with prudence.

Q33: In regard to the NPV analysis, which decision rule should be adopted, and why? Is the probability-weighted approach likely to be too complicated, and achieve spurious accuracy?

Vector supports the probability-weighted approach as an acceptable procedure, and is not aware of any other preferable means.

Q34: Is a decision rule required now to choose between the NPV result and the real options result if they conflict?

No, but if the NPV is negative then the Commission needs to be very sure that the "real options" have "real value" in practice before a decision to proceed is made. As noted above, great care is needed in this area. One way to deal with the matter may be to seek guarantees of parties, such as Transpower, of compensation if the "real options" they suggest turn out to be of no value.

Q35: Do you agree with the assessment in Table 2? If not, what assessments do you think should be changed and why?

Vector does not have any specific comments on the assessment at this time. Vector suggests that, having considered comments from interested parties, the Commission re-release its proposed GIT, including the exact specification of the GIT as set out in Appendix 2, and seeks further input from interested parties, even if only over a short time period.

**END**