

Transmission investment

Note on distinction between economic and
reliability investment

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1 Should there be a distinction between economic and reliability transmission investments?

- 1.1.1 The TPAG analysis makes a distinction between economically-driven transmission investments (economic investments) and reliability-driven investments (reliability investments). The discussion paper concludes that there is no benefit in a locational signal for economic investments but there may be a benefit for deferring or avoiding reliability investments. Some commentators consider this distinction to be arbitrary because all transmission investments should pass a cost-benefit test that includes the cost of non-supply (reliability), and if one concludes there is no fundamental distinction, why would there be, potentially at least, a benefit from locational-signalling for reliability investments but not economic investments. The discussion paper then goes on to suggest that an enhanced transmission pricing locational signal may be superfluous even for reliability investments given that there is already a locational signal provided by the transmission alternatives regime (the investment test), the regional coincident peak demand allocation method, nodal pricing and the current deep definition of connection.
- 1.1.2 The distinction between economic and reliability investments has been made because:
- Economic investments are opportunistic transmission investments that seek to minimize energy costs by minimizing constraint costs and line losses, whereas
 - Reliability investments are transmission investments required to minimize unserved energy.
- 1.1.3 Reliability investments are made in the core grid¹ in order to meet the deterministic grid reliability standards even where the cost-benefit analysis evaluating the investment has a negative NPV i.e. it is not simply a valuation of loss of supply as Biggar² asserts. The choice of investment is then a matter of selecting the least cost investment. The NPV of an economic investment has to be positive. There would be **no** distinction if reliability investments were based solely on a probabilistic standard and they would be effectively the same as economic investments, applying the same cost-benefit approach. As noted in Biggar's report-
- 'In the Victorian region of Australia, all transmission planning is carried out using a probabilistic assessment of the costs and benefits. No distinction is made between economic and reliability investment.'
- 1.1.4 However, this is not the case in New Zealand where deterministic standards are applied to analysing investments in the core grid. Notwithstanding, New Zealand's use mix of deterministic and probabilistic standards, to transmission planners at least, there are practical differences between the two investments related to scale and purpose. The following table highlights these differences.

¹ Defined in the Code as a list of transmission assets but generally applying to any transmission assets servicing over 150MW of load.

² Page 35 Independent Review of Transmission Pricing Advisory Group: Transmission Pricing Discussion Paper – D Biggar – 14 July 2011.

Table 1 Differences between economic and reliability investments

Economic investments	Reliability investments
To reduce generation costs	To support reliable supply to load e.g. NAaN, NIGU
Smaller share of overall investments	Larger share of overall investments
Trade-off: remote v close to load base load generation	Trade-off: peaking generation v transmission augmentation