



TRANSPOWER

Keeping the energy flowing

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27 April 2009

Broadband Investment Submissions
Ministry of Economic Development
PO Box 1473
Wellington

Dear Sir / Madam

New Zealand Government Broadband Investment Initiative

1. Thank you for the opportunity to make a submission on the draft proposal for the New Zealand Government Broadband Initiative. No part of Transpower New Zealand Limited's (Transpower) submission is confidential and we are happy for it to be made publicly available.
2. Transpower supports the Government's initiative to create a step change in the provision of ultra-fast broadband services across New Zealand through the development of a wholesale market for the provision of "dark fibre" network access services in key regional centres.
3. Transpower recommends that consideration be given to extending the scope of the initiative to develop a robust national or "back haul" infrastructure to provide competitive and cost effective interconnectivity between regions.
4. We have assets that could play a significant role in a national infrastructure, and would look forward to participating.¹
5. However, there are some legal constraints which may, at present, inhibit the use of our existing transmission networks and assets as a conduit for fibre deployment, and we propose that these be removed by a statutory amendment to the Electricity Act.

The need for a national network capability

6. The regional approach described in the proposal is expected to lead to a nationally cohesive network through the requirement for regions to provide open access to dark fibre and the introduction of common technical standards.

¹ Transpower's current network already supports telecommunication services in New Zealand.

Transpower believes that facilitating the development of a competitive national fibre infrastructure network, running in parallel to the regional development, is also essential in order to ensure interconnectivity between regions.² Enabling new entrants to develop the national network capability could produce significant competition benefits.

7. Transpower considers that the proposal could be enhanced by the creation of national fibre companies (NFCs), similar in structure and form to the proposed local fibre companies (LFCs), but with a focus on providing long-haul dark fibre between interconnection points. The benefits of such an approach are:
 - a. it would better enable the Crown Fibre Investment Company to ensure the consistency of nationwide architecture and avoid duplication;
 - b. national fibre infrastructure could be made available to the market at prices determined by an open and competitive market;
 - c. it would avoid connectivity problems which might result from a diverse range of design standards;
 - d. the potential difficulties associated with the demarcation of regional boundaries would be lessened;
 - e. it would promote speedier and more cost effective access to the assets and services owned by incumbent Telcos; and,
 - f. it would enable parties which already own national fibre infrastructure to contribute to the "broadband initiative".
8. The geographic spread of the majority of Transpower's transmission assets means that Transpower would have a limited interest in or need to participate at a regional (i.e. LFC) level as either an investor or a purchaser of dark fibre capacity.³ Transpower's asset configuration and service requirements lend themselves more to supporting the development of a competitive national fibre backbone infrastructure.
9. Transpower has the potential to participate in a NFC type arrangement by:
 - a. providing access to Transpower's existing national fibre assets including those across Cook Strait;
 - b. where circumstances permit, providing access to the HVAC network infrastructure through optical ground wire (OPGW) deployment;
 - c. providing investment in new national fibre routes where Transpower needs to support the provision of its regulated transmission services;⁴
 - d. providing experience, skills and capability in the building, management and operational control of national fibre assets.
10. However, there are potential technical and legal impediments that currently constrain Transpower's participation, particularly in relation to the use of Transpower's existing network for fibre deployment. Refer below.

² Transpower notes that the government has signalled the importance and impact that international bandwidth capacity and pricing also have in relation to domestic ultra-fast access networks.

³ Transmission lines are mainly located away from regional centres

⁴ For some parts of Transpower's network, fibre technology is not economically viable on a standalone basis to meet Transpower's own service requirements. A co-ordinated national initiative could introduce scale economies especially in more rural parts of the country.

The use of fibre cable deployment on electricity poles

11. The Government's proposal seeks comments on a range of complementary measures aimed at supporting the "broadband initiative". From Transpower's perspective, the issue of how best to facilitate access to, and use of, fibre cable deployment on electricity poles is particularly relevant.
12. The use of high voltage network assets as a conduit for fibre deployment is technically feasible under certain circumstances and a number of construction methods exist. The use of OPGW is the most common method used and is the approach preferred by Transpower – this is where the steel earth-wire, which can run along the tops of towers, is modified to include a number of optical fibres.
13. OPGW is significantly more expensive on a per metre basis than the equivalent capacity fibre for direct burying, and has a shorter life in some environments. However, partially offsetting this is a much higher availability (or reliability) since it is relatively immune to mechanical damage (by spade or digger).

Fibre deployment on new network assets

14. Currently, only 3 per cent (385km) of Transpower's existing network carries OPGW but, due to the low incremental cost, it is Transpower's policy to install OPGW on all new transmission lines including the 400kV line from Auckland to Whakamaru, which currently is the subject of a Board of Inquiry consent application the interim decision on which is expected in May 2009, and the new line on from Whakamaru to Wairakei.
15. Transpower currently has a major network reinforcement and new-build programme in progress, which includes building or leasing new dark fibre capacity to support its network operations. This new infrastructure has the most potential to play an active role in supporting the provision of a high performance national fibre infrastructure. Operating as part of a NFC, Transpower could potentially lease "spare fibre capacity" in locations where fibre has been historically unavailable, or could participate in joint ventures for new build where this was considered to be cost effective and the least cost solution to deliver the services required.

Fibre deployment on existing network assets

16. The deployment of fibre on existing transmission network assets, including both new and replacement OPGW is more problematic and potentially is constrained by both technical and legal considerations.

Technical considerations

17. Not all of Transpower existing lines network carry an earth-wire (only 39 per cent or 4682km). For those assets that do, replacement by OPGW would require site specific investigations to confirm whether or not fibre could cost effectively be carried on a particular line. However, there should not be major engineering reasons why the existing steel earth wire could not be replaced by OPGW.
18. In cases where the network does not currently carry an earth wire (61 per cent or 7180km) the installation of OPGW would be more complex and costly and, in Transpower's view, opportunities for new fibre deployment would be somewhat limited. In the majority of cases, some tower foundation reinforcement and

strengthening would be required to support new earth peak and earth wire/OPGW assets.

19. However, the engineering constraints are not insurmountable and Transpower's existing transmission network has the benefit of being nationally dispersed in regions where duplication or new build is unlikely and, as such, could support the development of broadband access to less populated centres around New Zealand. Transpower considers that this would support the Government's longer term objective to improve rural broadband accessibility.

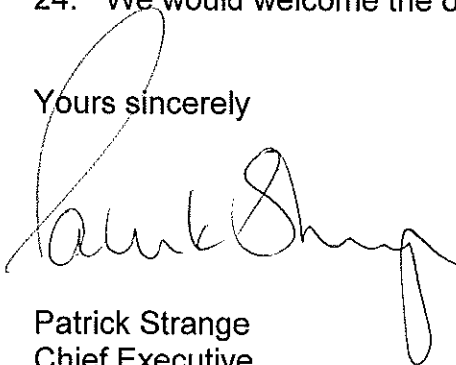
Legal considerations

20. Transpower is aware that, for transmission lines built before 1992 (that is, those where land access for maintenance or upgrade is by statutory right rather than express easement), arguments exist that the use of existing or new fibre assets for third-party transport (ie for other than Transpower's exclusive and express provision of transmission services) is beyond Transpower's current statutory rights of use.
21. While Transpower does not necessarily agree with these arguments, it has, nonetheless, sought to limit its use of such existing fibre assets for the purposes of the provision of its transmission services in order to ensure that there is no potential threat to Transpower's existing rights, however small.
22. To ensure that Transpower could participate in the Government's broadband proposal more fully and could, without challenge, apply all of its new and existing fibre assets on existing lines to assist the proposal, a statutory amendment may be necessary. Transpower considers that such an amendment would be relatively straightforward and non-contentious and would amount to simply expressly including Transpower's fibre assets in the description of existing works under the Electricity Act 1992, where the assets are only implicitly included now, and to ensure that any third party use is expressly authorised. Transpower would be happy to work with MED to clarify the specifics of what is needed.

Conclusion

23. Transpower believes that the modest policy actions proposed by this submission could, in time; result in very substantial competition, operational and access benefits for the provision of broadband services to all New Zealanders.
24. We would welcome the opportunity to discuss this further.

Yours sincerely



Patrick Strange
Chief Executive