



**TransGrid Submission on the  
Backhaul Blackspots Initiative  
Stakeholder Consultation Paper**

**12<sup>th</sup> May 2009**

Confidential

## 1 Background

- 1.1 This submission has been prepared in response to the Department of Broadband, Communications and the Digital Economy's request for consultation on the development of optical fibre backhaul transmission services to regional and rural areas.
- 1.2 TransGrid is a NSW State Owned Corporation (SOC) constituted by the Energy Services Corporation Act 1995 (NSW). TransGrid's corporate objectives are;
  - to be recognised as a world-class electricity transmission company; and
  - to provide safe, reliable and efficient transmission services and to be commercially successful.
- 1.3 As part of its core business of electricity transmission, TransGrid operates a significant telecommunications networks within the state of NSW. TransGrid's telecommunications network has been developed for the operation, protection, control, security and maintenance of the NSW High Voltage (HV) electricity network.
- 1.4 In formulating this response to the Backhaul Blackspots Initiative Stakeholder Consultation Paper, TransGrid is mindful of it's obligations as a state owned electricity transmission company and its obligations to the National Electricity Market (NEM).

## 2 Supporting the Government's Telecommunications Objectives

- 2.1 TransGrid is supportive of the Federal Government's objectives to deliver backhaul telecommunications transmission services to regional and rural areas. TransGrid is also interested in:
  - Further development of the TransGrid optical fibre network to deliver long term strategic value.
  - Extending TransGrid's telecommunications network to meet current and future communications requirements for its regional electricity infrastructure.
  - Utilising TransGrid's spare telecommunications capacity to generate an additional return on investment.
- 2.2 TransGrid's existing telecommunications business delivers backhaul capacity to a number of regional locations within NSW. TransGrid is keen to continue delivering backhaul capacity to regional NSW, and develop opportunities to deliver additional capacity to backhaul blackspots within the state where there are synergies with the needs of the regulated electricity network requirements.

### 3 TransGrid Key Communications Assets

- 3.1 As part of its core business of electricity transmission in NSW, TransGrid has developed a telecommunications network for the secure operation, protection, control and maintenance of the High Voltage (HV) electricity network. The telecommunications network consists of optical fibre, microwave radio, VHF radio and power line carrier.
- 3.2 TransGrid's telecommunications network currently consists of approximately 1800km of optical fibre, 1200km of microwave radio, and an extensive VHF and UHF radio network. TransGrid operates a number of network technologies over this infrastructure including an SDH network, ethernet and VOIP. TransGrid is also currently developing plans to rollout a high capacity DWDM network to meet its increasing bandwidth requirements.

### 4 Coverage of the TransGrid Fibre Network

- 4.1 TransGrid's optical fibre network already passes a number of major regional centres with a population of more than 1000 people. These population centres are listed in Table 1 below.

Regional Centre	Distance to TransGrid POP	Population (Approx)	Interconnection to Regional Centre
Armidale	5km	21,000	Yes
Tamworth	7km	32,000	Yes
Muswellbrook	7km	10,000	Yes
Lithgow	11km	11,000	Yes
Yass	3km	5,000	No
Wagga	2km	43,000	No

*Table 1 - TransGrid Existing Fibre Points of Presence*

- 4.2 The TransGrid substations that form each Point of Presence (POP) are generally located a short distance away from the nearest urban centre. To deliver services to the urban centre, an interconnection must be created by a licensed carrier between TransGrid's substation and a point in the regional centre. A number of these interconnections between the regional centre and TransGrid's optical fibre network already exist and are noted in Table 1 above.
- 4.3 The TransGrid optical fibre network also has POP's within 5-10kms of a number of smaller localities with populations less than 1000 including Wallerawang, Albion Park, West Wallsend, Talbingo, Cabramurra, Khancoban, Jindera and Uranquinty.

## 5 Blackspots

5.1 TransGrid is currently expanding its telecommunications network to meet its reliability obligations under the NEM. TransGrid is primarily rolling out microwave based telecommunications solutions to its remote substation sites to achieve this goal, however some new optical fibre is also being rolled out with new transmission line assets. Table 2 below shows the regional centres which will be covered by these committed rollouts and the expected completion time.

Regional Centre	Distance to TransGrid POP	Population (Approx)	Expected Completion
Inverell	4km	9,000	February 2010
Glen Innes	6km	6,000	February 2010
Lismore	13km	28,000	December 2011
Casino	16km	10,000	December 2011
Tumut	7km	6,000	2013
Orange	2km	30,000	2013

*Table 2 - TransGrid Planned Fibre Points of Presence*

5.2 TransGrid has reviewed its future telecommunications requirements and identified a number of locations where the rollout of new fibre on its existing transmission lines could provide long term strategic value to TransGrid's regulated electricity business. A number of these rollouts would also provide optical fibre to existing regional blackspots thereby concurrently achieving the goal of the Federal Government's Blackspots Initiative. The population centres that TransGrid could assist in providing broadband services to are listed in Table 3 below.

Regional Centre	Population (Approx)
Mudgee	8,000
Gulgong	2,000
Wellington	5,000
Cooma	7,000
Jindabyne	4,000
Perisher Valley	2,000
Griffith	14,000
Cowra	8,000
Tumut	6,000
Hay	3,000
Balranald	1,500
Mildura	24,000
Broken Hill	21,000

*Table 3 – Possible Blackspots TransGrid Could Service*

## 6 TransGrid's Telecommunications Business

- 6.1 TransGrid operates its existing telecommunications business without the need to hold a carrier license based on an exemption under Section 49 of the Telecommunications Act 1997 (Cth), which allows TransGrid to provide services to members of the Electricity Supply Industry (ESI), or to licensed telecommunications carriers on a wholesale basis. TransGrid is unable to provide telecommunications services directly to other organisations, including other government instrumentalities, without a carrier license. Therefore TransGrid operates primarily as a telecommunications wholesaler to other licensed carriers. TransGrid does not intend to seek a carrier license and sell services direct.
- 6.2 TransGrid provides telecommunications services based on an open access model and on a non-discriminatory basis. TransGrid currently provides telecommunications services to a number of existing licensed carriers on this basis. TransGrid also currently provides telecommunications services to a number of NSW based members of the ESI.
- 6.3 TransGrid provides both 2Mb/s E1 capacity over its SDH network, and Ethernet capacity up to 1Gb/s for its existing customers. TransGrid provides a competitive level of pricing for these telecommunications services.

## 7 Control of Electricity Assets

- 7.1 TransGrid's core business is the construction, operation and maintenance of the HV electricity network in NSW. TransGrid's telecommunications network is a vital component in providing a secure and reliable supply of bulk electricity with the NEM. In order to guarantee the reliability of the HV electricity network, TransGrid has developed a telecommunications network where it has control of all aspects of redundancy, availability and operational performance. In particular, TransGrid retains a level of independence from telecommunications infrastructure owned by commercial licensed carriers. There is a risk that infrastructure owned or controlled by commercial licensed carriers would be impacted during a crisis involving supply of electricity. By retaining a level of independence, TransGrid can control the reliability of its telecommunications infrastructure should a crisis of this nature occur, thereby ensuring electricity supply can be restored.
- 7.2 TransGrid would continue to require that it retain control of any new optical fibre used for its regulated core business. In particular, TransGrid would strongly prefer that it retain ownership and maintenance responsibility for any fibre installed on its transmission lines. Should this fibre be provided to the National Broadband Network, this could be provided on a long term Indefeasible Right of Use basis (IRU).

7.3 TransGrid is currently discussing the Broadband Backhaul Initiative with other third party organisations and is willing to consider a partnership or consortium. However TransGrid would need to retain control over the portions of any fibre network that are used for its core regulated business.

## 8 Design and Operational Parameters

8.1 TransGrid can provide a number of different types and capacity of telecommunications services. TransGrid currently provides SDH and layer 2 Ethernet capacities over its existing infrastructure. TransGrid is also finalising plans for the development of a DWDM network across its optical fibre network which will provide the capability to deliver optical wavelengths up to 10Gb/s in capacity.

8.2 TransGrid has developed a standard procedure for points of interconnect with third party organisations. TransGrid does not allow third party organisations to install equipment inside its existing communications rooms for reasons of security of the HV electricity network. However TransGrid does allow third parties to install separate equipment shelters on its property and within the substation boundary fence. A fibre interconnection is then made between TransGrid's Optical Fibre Distribution Frame (OFDF) in its communications room, and the third party's equipment shelter. Power can be physically provided to the third party equipment shelter from the substation switchyard. This power is then metered by a local distribution company. This procedure has been successfully used on a number of occasions and has proven to be acceptable to the licensed carriers. The licensed carriers have 24/7 access to the substation site which is secure but readily accessible.

8.3 TransGrid's optical fibre network is completely independent of any infrastructure owned by licensed carriers including Telstra. Therefore services supplied over the TransGrid network are independent of the Telstra network and other carrier owned infrastructure. This has benefits in that any fault affecting the Telstra network will not affect the TransGrid network and vice versa. A carrier can acquire a telecommunications service from TransGrid and another service from an independent infrastructure provider such as Telstra, and be confident of receiving truly redundant and resilient services.

8.4 TransGrid's optical fibre network does not currently form any rings. Fibre currently under construction in the Snowy Mountains will create a fibre ring in conjunction with a third party electricity utility in Victoria. TransGrid currently creates rings for its telecommunications services by connecting its microwave network to strategic points on its optical fibre network. However TransGrid is looking to develop optical fibre rings in the future.

## 9 Conclusions & Summary

- 9.1 TransGrid is supportive of the Federal Government's objectives to deliver backhaul telecommunications transmission services to regional and rural areas.
- 9.2 TransGrid currently provides backhaul telecommunications transmission services to a number of regional locations.
- 9.3 TransGrid has identified a number of opportunities for the rollout of new optical fibre to benefit TransGrid's core regulated electricity business and which may assist in the delivery of broadband capacity to regional blackspots.
- 9.4 TransGrid is willing to consider participation in new fibre rollouts on the basis that TransGrid retains control of its regulated telecommunications services.

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