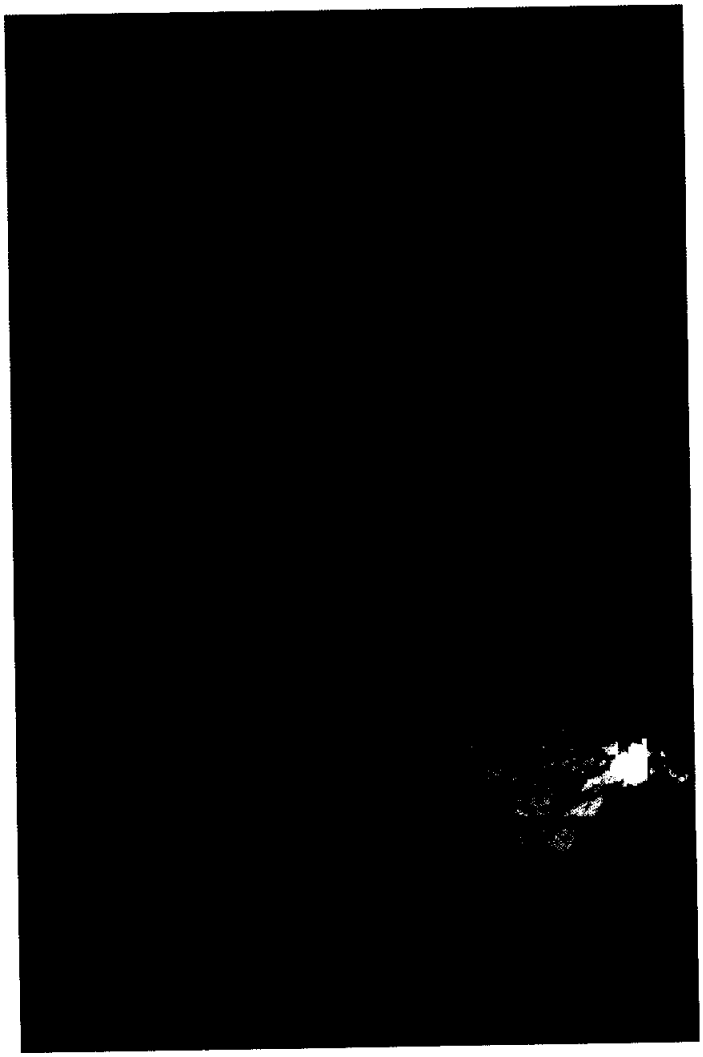
TransGrid

Application for a Variation in TransGrid's Revenue Cap as a result of the change of Ownership of the SMHEA Transmission Assets



1. Background

The Commonwealth, New South Wales and Victorian Governments (the jurisdictions) agreed to a set of "Key Principles" as the basis upon which the Snowy Mountains Hydro-Electric Authority (SMHEA) was to be corporatised in a manner consistent with the National Micro-economic Reform agenda.

Corporatisation of the SMHEA became a complicated process. It did not simply result in the conversion of a public authority into a corporatised entity but rather involved the direct equity participation by the three Governments in a newly created entity. Such participation necessitated agreement over a six-year period on a wide range of issues to each Government's own separate satisfaction to ensure, in particular, that an appropriate balance was struck between electricity and water interests and commercial and environmental interests.

Of the agreed Key Principles, number 9 states "The Snowy Corporation's role in the electricity supply industry will be confined to generation and associated auxiliary electricity services including pumping; provision of grid services (other than transmission) and associated industry development. Snowy assets forming part of the inter-state transmission link will, subject to acceptable compensatory financial arrangements, be vested in the relevant grid or corporation."

For some time, it was considered appropriate that the SMHEA transmission assets forming part of the interstate transmission link be acquired by TransGrid with appropriate financial compensation to the Snowy Mountains Corporation. The assets are

- all located within NSW;
- located within the same area as a number of other TransGrid assets; and
- are of a technology equivalent to assets already managed by TransGrid.

TransGrid's Board agreed to the acquisition of SMHEA Transmission Assets in principle in March 1996. Negotiations in regard to the transfer then continued for over 6 years and were completed in late May 2002.

The SMHEA transmission assets were transferred to TransGrid on the 27th June 2002 under a Ministerial Transfer Order signed by the Commonwealth, New South Wales and Victorian Governments (refer Attachment 3). The SMHEA was corporatised on the 28th June 2002.

The physical items transferred include:

- three 330 kV switching stations;
- all 330 kV transmission lines between those switching stations;
- all 330 kV overhead lines from the power stations to the switching stations;
- the 132 kV link between Murray switching station and Guthega power station;

- together with the group control centre buildings and equipment.

The ACCC issued a revenue determination on the 7th February 2001 in respect of these assets. The determination recognised the proposal to transfer the assets to TransGrid and made reference to a process to transfer the Revenue Determination when the transfer had occurred.

TransGrid now formally seeks a variation to its Revenue Determination issued on the 25th January 2000 to include the revenue cap associated with the former SMHEA transmission assets.

This document sets out TransGrid's request for the transfer of the SMHEA Revenue Determination. Issues addressed in this application are:

- Level of Revenue Cap for 2002/03 and 2003/04;
- Determination of Tax Revenue recoverable by TransGrid;
- Application of GST.

2. Revenue Determination

2.1 ACCC Maximum Allowable Revenue

In its determination of 7th February 2001, the ACCC came to the following conclusions:

- The ACCC determined the relevant Return on Capital as set out in Table 6.1 of the determination.

Table 6.1: SMHEA's return on capital - 1999/00 to 2003/04 ($million)

	1999/00	2000/01	2001/02	2002/03	2003/04
Opening asset base	62.45	59.55	57.76	56.51	55.82
Capital expenditure	-	1.23	1.84	2.20	1.79
Economic depreciation	2.90	3.02	3.09	2.89	3.00
Closing asset base	59.55	57.76	56.51	55.82	54.61
Return on capital	5.11	4.87	4.73	4.63	4.57

- Based on the Return on Capital figures, the Maximum Allowable Revenue (MAR) was determined as set out in Table 6.2 of the determination.

Table 6.2: MAR for the SMHEA - 1999/00 to 2003/04 ($ million)

	1999/00	2000/01	2001/02	2002/03	2003/04
Return on capital	5.11	4.87	4.73	4.63	4.57
Return of capital	2.90	3.02	3.09	2.89	3.00
Operating expenses	2.77	2.84	2.90	2.97	3.04
Unadjusted revenue allowance	**10.79**	**10.73**	**10.72**	**10.48**	**10.61**
Smoothed MAR	**10.79**	**10.75**	**10.71**	**10.68**	**10.66**

The smoothed MAR was based on a CPI – x formula where x = 3.54.[1]

2.2 Application of MAR formula

As SMHEA were not in a position to recover the MAR from customers, no calculation in relation to the MAR formula has been carried out which would allow TransGrid to accurately determine the MAR for the two remaining years of the determination.

If TransGrid had owned the assets for the full period of the determination, the annual MAR would have been as set out in the following table.

[1] Clause 6.3 (page 45) of the ACCC Decision

	1999/00	2000/01	2001/02	2002/03	2003/04
Annual CPI (%)	-	2.80%[1]	4.60%[2]	2.90%[1]	2.50%[3]
Annual Adjustment for CPI-x (%)	-	-0.74	1.06	-0.64	-1.04
MAR exclusive of GST ($ millions)	10.79	10.71	10.82	10.75	10.64
GST ($ millions)	1.08	1.07	1.08	1.08	1.06
MAR inclusive of GST ($ millions)	10.87	11.78	11.90	11.83	11.70

[1] Actual CPI (March Quarter to March Quarter)
[2] Actual CPI less effect of GST introduction on the CPI for 2000/01
[3] Estimated CPI based on Commonwealth Treasury, 2002/03 Budget, 14 May 2002

However, the adjustment applied above includes the "x" factor which recognises the GST impact on TransGrid which occurred in 2001. TransGrid does not have access to information on the impact the GST had on SMHEA and as such cannot be confident that the figures calculated above are accurate.

As the calculated MAR for 2002/03 and 2003/04 (had the assets been owned by TransGrid from day 1) are comparable with the figures set out in the ACCC's SMHEA determination, it is proposed that TransGrid revert to the 2002/03 figure in the determination as the starting point for the MAR to apply to the assets.

It is therefore proposed that the starting point for the MAR for 2002/03 to be applied by TransGrid is $10,680,000.

It is also proposed that the MAR for 2003/04 be calculated in accordance with the formula defined in the SMHEA Revenue Cap determination.

3. Income Tax Implications

In its determination, the ACCC made the following reference to the Income Tax Effect :

> ***Estimated taxes payable***
>
> *In estimating a tax position for the SMHEA, the Commission has undertaken an assessment of the SMHEA's tax paying position, based on the assumptions underlying the building block approach, the SMHEA's tax depreciation profile, and the taxation arrangements, implemented as a result of the Ralph business taxation review.*
>
> *Currently, the SMHEA does not pay any tax, or tax equivalence component. However, this situation will alter after corporatisation, where it is proposed that the transmission network assets will be transferred to TransGrid as set out in Section 14(1) of the Snowy Corporatisation legislation. To account for this, the Commission will allow a pass through of income tax payable should the transfer occur during the regulatory period. Given that the new taxation provisions will apply, the income tax payable would be calculated using straight-line depreciation.*[2]

As the assets will be absorbed into TransGrid's asset base and be subject to similar operation and maintenance activities to those of TransGrid's other assets, it will be difficult to accurately determine the income tax effect of ownership of these assets on TransGrid and thus seek a pass through of the income tax cost.

It is assumed that ACCC determined income tax figures during the progress of making its determination. However, as TransGrid was not a direct participant in the determination process, TransGrid does not have access to this information.

In order to estimate the income tax effect, TransGrid has applied the various values set out in the ACCC determination and established an income tax figure it considers reasonable. The only figure not available from the determination is the effective tax life of the assets. TransGrid has estimated this figure at 25 years. Justification for the tax life figure is set out in Attachment 1.

On the basis of its calculations, TransGrid considers an annual figure of $500,000 should be allowed in lieu of a pass through of income tax.

Details of the income tax calculation are set out in Attachment 2.

[2] Clause 6.3 (page 45) of the ACCC Decision

4. GST Implications

In Clause 5.3.6 of its 7th February 2001 determination, the ACCC stated:

> *The Commission understands that the SMHEA is currently wholesale sales tax exempt. The SMHEA did not include information relating to the application of the GST in its submission. Therefore, it appears that, the GST may result in an increase in the cost of inputs to the SMHEA by close to the full 10 per cent. However, the Commission has not estimated this amount as part of the provision of revenue for opex.*

On the basis that SMHEA was not liable for wholesale sales tax, TransGrid is of the view that the entire 10% GST should apply to Transmission Use of System charges determined under this revenue determination. There is also an implication in the determination that operating expenditure figures should be adjusted as a result of the introduction of GST.

As it is assumed that SMHEA would have incurred GST implementation costs in an earlier period, TransGrid does not propose to submit a claim for any further adjustment in respect to the introduction of the GST.

Attachment 1 – Effective Tax Life

TransGrid has chosen to self-assess the effective life of assets acquired or constructed after 21 September 1999, in accordance with paragraph 40-105 of the Income Tax Assessment Act 1997.

In accordance with Taxation Ruling TR2000/18 Income Tax, the effective life is the period for which an asset can be used for income producing purposes, assuming it will wear out at a reasonable rate and it will be maintained reasonably well.

TransGrid has considered the situation of the assets and estimated the effective life of the SMHEA transmission assets to be 25 years for tax depreciation purposes, taking into account the following factors:

- the physical life of the assets,
- the assets' working environment,
- technical obsolescence,
- regulatory requirements and
- operations and maintenance practices.

Attachment 2 - Income Tax Calculation

	2002/03		2003/04	
		$M		$M
TUOS Revenue		10.680		10.660
O&M		2.970		3.040
Tax Depreciation				
- Opening Asset Value - $M	56.510		55.820	
- Closing Asset Value - $M	55.820		54.610	
- Average Asset Value - $M	56.165		55.215	
- Tax Asset Life - years	25.0	2.247	25.0	2.209
Financing Costs				
- Average Asset Value -$M	56.165		55.215	
- Debt Proportion - %	60.0		60.0	
- Defined Interest Rate - %	6.19	2.086	6.19	2.051
Profit for Tax Purposes		3.377		3.361
Corporate Tax - %	30.0	1.013	30.0	1.008
less Franking Credits - %	50.0	0.507	50.0	0.504
Income Tax Payment		**0.507**		**0.504**

TRANSMISSION UNDERTAKING TRANSFER ORDER

Signed by the Commonwealth, New South Wales and Victorian Governments

TRANSMISSION UNDERTAKING TRANSFER ORDER

DATED **2002**

Attached is the Execution version of the Transmission Undertaking Transfer Order.

TRANSFER ORDER made 2002

We direct that the assets and liabilities of the Snowy Mountains Hydro-electric Authority ("**Authority**"), the Commonwealth, the State of New South Wales, the State of Victoria and authorities of the Commonwealth, the State of New South Wales and the State of Victoria (collectively "**Transferors**") described in the attached schedule be transferred to TRANSGRID established under the *Energy Services Corporations Act (NSW) 1995* and taken to be a continuation of, and the same legal entity as, the former Electricity Transmission Authority of New South Wales, of Level 9 Pacific Power Building, Corner Park & Elizabeth Streets, Sydney NSW 2000 ("**TransGrid**") with effect on and from [Transfer Date] ("**Transfer Date**").

This order is made pursuant to:

(1) section 12 of the *Snowy Hydro Corporatisation Act 1997 (Cth)*;

(2) section 14 of the *Snowy Hydro Corporatisation Act 1997 (NSW)*; and

(3) section 14 of the *Snowy Hydro Corporatisation Act 1997 (Vic)*.

In the attached Schedule:

(1) "**Acts**" means:

(a) the *Snowy Hydro Corporatisation Act 1997 (Cth)* and the *Snowy Hydro Corporatisation (Consequential Amendments) Act 1997 (Cth)*;

(b) the *Snowy Hydro Corporatisation Act 1997 (NSW);* and

(c) the *Snowy Hydro Corporatisation Act 1997 (Vic)*;

(2) "**assets**" has the same meaning as in the Acts;

(3) "**Commonwealth**" means the Commonwealth of Australia;

(4) "**Core Transmission Assets**" means the assets described in **clause 1** of the **Schedule**;

(5) "**including**" is not a word of limitation;

(6) "**interest**" includes any legal or equitable estate, interest, right, power, privilege, immunity, liability or obligation and, in the case of agreements and deeds, the burden of those agreements and deeds;

(7) "**liabilities**" has the same meaning as in the Acts;

(8) "**New South Wales**" means the State of New South Wales;

(9) "**Support Systems**" means the assets described in **clause 2** of the **Schedule**; and

(10) "**Victoria**" means the State of Victoria,

and a reference in this order to an agreement, deed or any other instrument includes any amendment, variation or replacement of any of them.

.....
Hon Ian Macfarlane
Minister for Industry, Tourism and Resources
for and on behalf of the
Commonwealth of Australia

.....
Hon Michael Egan
Treasurer
for and on behalf of the State of New South Wales

.....
Hon John Brumby
Treasurer
for and on behalf of the State of Victoria

SCHEDULE OF ASSETS AND LIABILITIES TO BE TRANSFERRED TO TRANSGRID

1. CORE TRANSMISSION ASSETS

1.1 Switching Stations

The interests of the Transferors in the Guthega Switchyard together with three 330kV switching stations known as Lower Tumut Switching Station ("**LTSS**"), Upper Tumut Switching Station ("**UTSS**") and Murray Switching Station ("**MSS**") including the switchyards, bus bars, connections, circuit breakers, surge diverters, transformers, isolating switches, superstructure, instrumentation, controls, fences, drainage systems and associated plant and equipment but excluding the Snowy Hydro facilities specified in Part 1 of **Appendix 1**.

The interests of the Transferors in all Plant House buildings of LTSS, UTSS and MSS but excluding the Oil Plant House associated with the generator transformers at the Guthega Switchyard.

1.2 330kV Transmission Lines

The interests of the Transferors in the 330kV transmission lines specified in Part 2 of **Appendix 1** including poles, towers, conductors and any control and earth cables associated with these lines.

1.3 Other Transmission Lines

The interests of the Transferors in the 132 kV links specified in Part 3 of **Appendix 1** including poles, towers, conductors and any control and earth cables associated with these lines.

1.4 Other Transmission Facilities

The interests of the Transferors in the steel transmission tower and the 132kV Guthega-Jindabyne line timber power pole contained within the Snowy Adit.

2. SUPPORT SYSTEMS

2.1 Protection and Control Systems

The interests of the Transferors in all 132kV and 330kV line and busbar protection and control systems including equipment at Lower Tumut Group Control Centre ("**LTGCC**"), Upper Tumut Group Control Centre ("**UTGCC**"), Murray Group Control Centre ("**MGCC**") and Guthega Power Station Control Room including all CT and VT secondary circuits and the line protection equipment within power stations but excluding the generator transformer differential protection.

2.2 **National Market Metering Systems**

The interests of the Transferors in all 132kV and 330kV market connection point and validation (check) meters installed at Upper Tumut, Lower Tumut and Murray Switching Stations and Guthega Power Station. The metering systems at each location also includes the communications modem and auxiliary repeat relays associated with each meter.

2.3 **Protection, Metering and Control Panels**

The interests of the Transferors in the protection, metering and control panels specified in Part 1 of **Appendix 2**.

2.4 **Communications Systems**

The interests of the Transferors in the power line carrier network relating to the Core Transmission Assets and Support Systems.

2.5 **Communications Cubicles**

The interests of the Transferors in the communications cubicles specified in Part 2 of **Appendix 2** together with all cabling from these cubicles connecting to main and intermediate distribution frames that are vested in Snowy Hydro Limited.

2.6 **Auxiliary Power Supplies**

The interests of the Transferors in auxiliary power supplies (415/240V Essential AC, 250V and 48V DC) derived from AC primary systems housed within LTGCC, UTGCC and MGCC and the 415 V AC Common Services Boards at LTSS, UTSS and MSS together with the 11/0.415kV station auxiliary transformers and their associated 11kV cables at MSS and LTSS.

The interests of the Transferors in the 11 kV systems including the 11 kV switchboards and the associated protection, metering and control schemes at LTSS and MSS.

The interests of the Transferors in the 11kV auxiliary supply from Munyang Substation to Guthega Power Station including the 11kV cable but excluding the 11kV switchboard at Guthega Power Station.

2.7 **Standby (back up) Systems**

The interests of the Transferors in the standby (back up) diesel generators at LTSS, UTSS and MSS.

3. INTERESTS IN LAND

3.1 **Land**

The interests of the Transferors in the land specified in Part 1 of **Appendix 3** together with all improvements and fixtures situated in or on such land.

3.2 **Existing Easements**

The interests of the Authority in all existing easements specified in Part 2 of **Appendix 3** whether or not appurtenant to land owned by or vested in TransGrid but, in the case of the rights to install telecommunications facilities, telephonic cables and all similar such rights for either or both of the transmission of electricity and purposes incidental thereto under those easements, jointly with Snowy Hydro Limited ACN 090 574 431 as transferee of the assets and liabilities of the Authority.

3.3 **New Easements**

The interests of the Authority in all new easements specified in Part 3 of **Appendix 3** whether or not appurtenant to land owned by or vested in TransGrid.

3.4 **Occupation Permit**

The interests of the Authority in Occupation Permit No 13459 dated 16 March 1982 as amended on 22 November 2000 by "Amendment No 16" issued pursuant to the *Forestry Act 1916 (NSW)*, jointly with Snowy Hydro Limited ACN 090 574 431 as transferee of the assets and liabilities of the Authority.

4. INVENTORIES AND SPARES

The interests of the Transferors in all spare parts relating to the Core Transmission Assets and the Support Systems owned by the Authority immediately prior to the Transfer Date.

5. CONTRACTS

The interests of the Transferors in the benefit and the burden of:

(1) Contract No. 40346 between the Snowy Mountains Hydro-electric Authority and Alstom Australia constituted by documents referred to in the Letter of Acceptance dated 18 September 2000 and the Memorandum dated 25 September 2000 relating to the supply, delivery, installation and commissioning of one 145kV SF6 Circuit Breaker at Guthega Switchyard.

(2) Contract No. 40330 between the Snowy Mountains Hydro-electric Authority and Alstom Australia constituted by documents referred to in the Letter of Acceptance dated 25 June 1999 and the Memorandum dated 22 July 1999 relating to the supply, delivery, installation and commissioning of Eight Replacement SF6 Circuit Breakers at Murray Switching Station.

(3) Contract No. 40358 between the Snowy Mountains Hydro-electric Authority and Alstom Australia constituted by documents referred to in the Letter of Acceptance dated 28 February 2001 and the Memorandum dated 12 March 2001 relating to the supply, delivery, installation and commissioning of Five Replacement 362kv Outdoor Circuit Breakers for Upper Tumut Switching Station at Cabramurra.

(4) Contract No. 40359 between the Snowy Mountains Hydro-electric Authority and TransGrid constituted by documents referred to in the Letter of

Acceptance dated 24 September 2001 and the Memorandum dated 9 October 2001 relating to the provision of maintenance services for SMHEA Transmission Assets.

(5) Contract No. 40333 between the Snowy Mountains Hydro-electric Authority and Ergon Energy Corp Ltd constituted by documents referred to in the Letter of Acceptance dated 5 April 2000 and the Memorandum dated 17 April 2000 relating to the replacement of 330kV and 132kV Bushings and Transformer Oil of No. 2 Interbus Transformer at Murray Switching Station.

(6) Contract No. 40350 between the Snowy Mountains Hydro-electric Authority and TransGrid constituted by documents referred to in the Letter of Acceptance dated 11 October 2000 and the Memorandum dated 18 October 2000 relating to the design, supply, installation and commissioning of 330kV Capacitor Voltage Transformers at Upper Tumut Switching Station.

(7) Contract No. 40367 between the Snowy Mountains Hydro-electric Authority and TransGrid constituted by documents referred to in the Letter of Acceptance dated 9 October 2001 and the Memorandum dated 2 November 2001 relating to the provision of metering services for SMHEA Transmission Assets.

(8) Contract No. 40368 between the Snowy Mountains Hydro-electric Authority and TransGrid constituted by documents referred to in the Letter of Acceptance dated 5 February 2002 and the Memorandum dated 7 February 2002 relating to the supply, delivery, installation and commissioning of eight replacement 362kV Outdoor Circuit Breakers for Murray Switching Station at Khancoban.

(9) Contract No. 40371 between the Snowy Mountains Hydro-electric Authority and Miandele Pty Ltd constituted by documents referred to in the Letter of Acceptance dated 23 January 2002 and the Memorandum dated 24 January 2002 relating to Transmission Line Easement And Spur Track Vegetation Control.

(10) Purchase Order No. D-033038 between the Snowy Mountains Hydro-electric Authority and Powereng Pty Ltd constituted by documents referred to in the Purchase Order dated 11 February 2002 relating to Supply of Four Dry Type, Air Core, Self Cooled 330kV Line Traps for Murray Switching Station.

6. RECORDS

The interests of the Transferors in copies, in machine readable or printed form, of all books, files, reports, records, correspondence, documents, drawings, manuals, technical data and other materials held or controlled by the Snowy Mountains Hydro-electric Authority relating solely to the other assets and liabilities transferred under this order.

Appendix 1

CORE TRANSMISSION ASSETS

Part 1 - Snowy Hydro Facilities Excluded

All 11kV cables associated with Snowy Hydro owned 11kV feeders at Guthega Switchyard, MSS and LTSS;

11/132kV Generator transformers and their associated equipment at Guthega Switchyard;

Lower Tumut Group Control Centre – Tumut 3 Power Station (CTH) – C3.91;

Lower Tumut Group Control Centre – Tumut 3 Pipeline Inlet Structure (CTE) – C3.94;

Lower Tumut Group Control Centre – Tumut 3 Power Station (CTA) – C3.96;

Lower Tumut Group Control Centre – Tumut 3 Power Station (CTB) – C3.98;

Lower Tumut Switching Station Microwave Building – Lower Tumut Group Control Centre (CTK) – C3.100;

Lower Tumut Switching Station Microwave Building – Lower Tumut Group Control Centre (CTL) – C3.101;

Lower Tumut Switching Station Microwave Building – Lower Tumut Group Control Centre (CTM) – C3.102;

Lower Tumut Group Control Centre – Lower Tumut Regional Depot (CTP) – C3.103;

Lower Tumut Group Control Centre – Tumut 3 Power Station (OLA) – C3.104;

Lower Tumut Switching Station Microwave Building – Lower Tumut Group Control Centre (NONE) – C3.147;

Lower Tumut Switching Station Microwave Building – Lower Tumut Group Control Centre (NONE) – C3.148;

Lower Tumut Switching Station Microwave Building Radio Station – C1.12;

Murray Switching Station Microwave Building Radio Station – C1.14; and

All communication cables associated with Snowy Hydro owned communication systems at Guthega Switchyard, LTSS and MSS.

Part 2 - 330kV Transmission Lines

1.1 All 330kV transmission lines between the following switching stations:

(1) LTSS - MSS approximately 73 km;

(2) LTSS - UTSS approximately 40.2 km; and

(3) UTSS - MSS approximately 45.5 km.

1.2 All 330kV lines from the power stations to the switching stations being:

(1) five 5km Group lines joining Murray 1 PS to MSS (8/10 towers within KNP) - TransGrid asset includes the line landing structure at the rear of Murray 1 PS (see Figure 1);

(2) two 3km Group lines joining Murray 2 PS to MSS (all towers outside KNP) - TransGrid asset includes the insulators connecting onto the roof structure of Murray 2 PS (see Figure 2);

(3) three 1km Group lines joining Tumut 3 PS to LTSS (all towers outside KNP) - Snowy Hydro to retain line landing structure on top of T3 but TransGrid assets includes landing insulators (see Figure 3);

(4) two 5km Group lines joining Tumut 1 surface level cableyard to UTSS (all structures within KNP) - boundary point at transmission line dropper to Tumut 1 Cableyard - TransGrid asset includes two line landing structures and the conductor spans to the first tower (see Figure 4); and

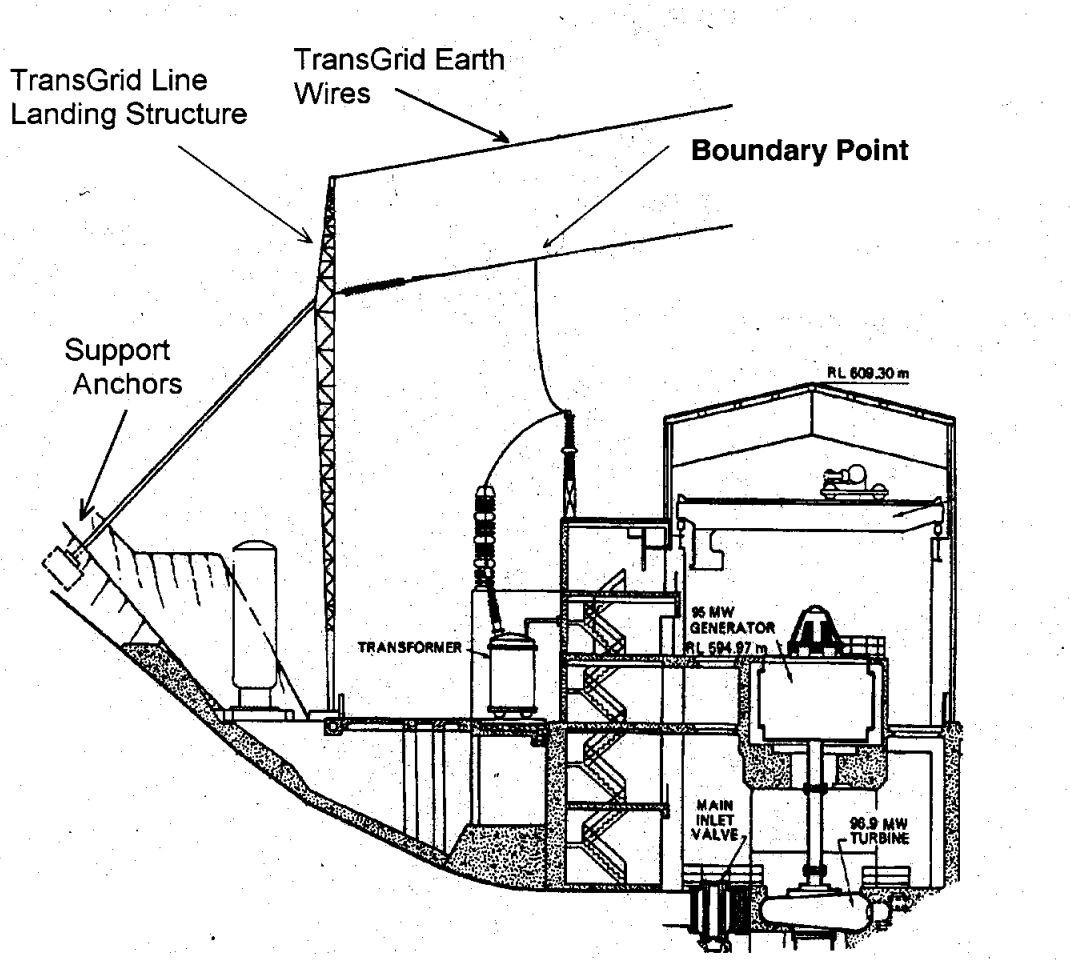
(5) two 4km Group lines joining Tumut 2 PS to UTSS (all structures are within KNP) - boundary point at transmission line dropper to Tumut 2 Cableyard; TransGrid asset includes two line landing structures and conductor spans to the first tower (see Figure 5).

Part 3 - Other Transmission Lines

1.3 The 132kV link between Murray SS and Guthega Switchyard including the 132kV line insulators at the Geehi Dam Tee-off point, the pole structures at the Geehi Tee to Geehi Dam substation but not including the 132kV line isolator at Geehi Dam Substation. The boundary point at Geehi Dam Substation is at the line tap connector of the dropper from the transmission line to Geehi Dam Substation 132kV Isolator. The boundary point at Guthega Switchyard is where the high voltage terminals of the generator transformers connect with 132kV overhead bus (see Figure 6).

1.4 The 132kV link between Guthega Switchyard and Jindabyne Pumping Station and the double circuit steel tower transmission line (Guthega-Jindabyne and Munyang-SNA-Cooma circuits) from Guthega to the Snowy Adit Tee. For Jindabyne Pumping Station, the boundary point is at strung bus end of the dropper from the 132kV strung bus to the power line carrier equipment at the Jindabyne Pumping Station 132/11kV transformer yard (see Figure 7).

Figure 1: Murray 1 Power Station Boundary Point



The boundary is set (Figure 1) at the transmission line end of the dropper from the last catenary. This is the closet physical connection point to the high voltage terminals of the generator transformers. The 330 kV earth switches and surge diverters which allow earthing and protection of the transformers are owned by Snowy Hydro. The line landing structure at the rear of M1 is owned by TransGrid. The 330 kV line tap connectors and droppers are owned by Snowy Hydro.

The Line Landing Structures and Support Anchors pictured above are located within Snowy Hydro's Murray 1 Power Station site and are nominated as TransGrid property.

Figure 2: Murray 2 Power Station Boundary Point

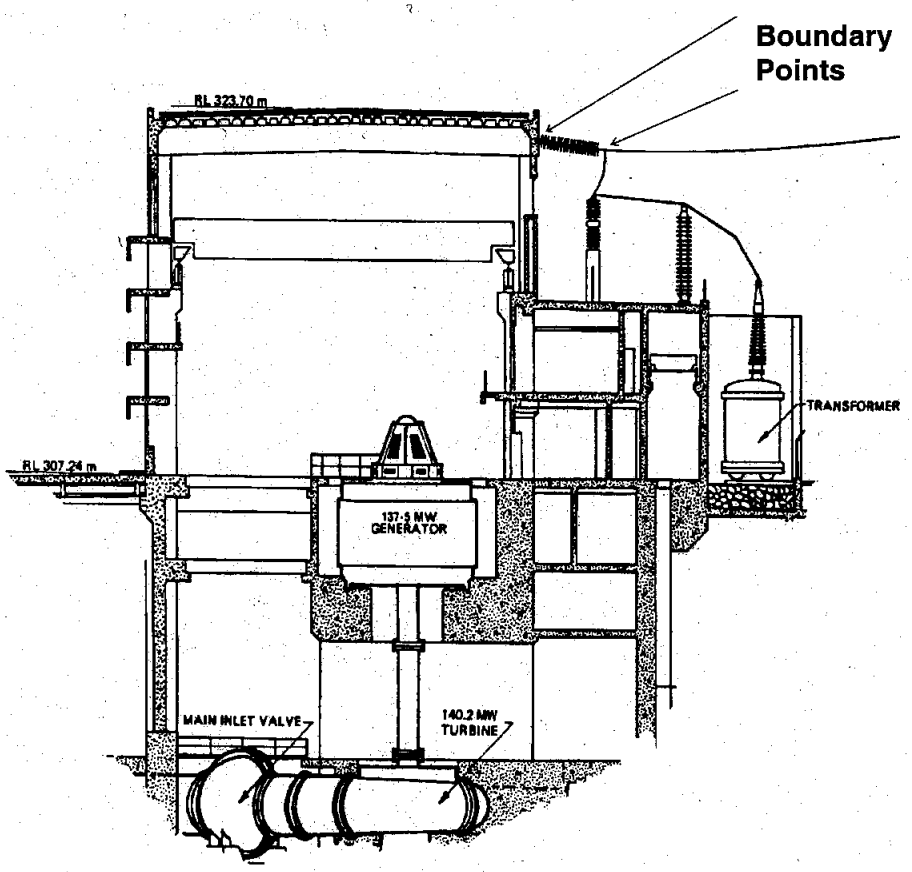


Figure 2 sets the boundary at the transmission line end of the dropper from the last catenary. This is the closet physical connection point to the high voltage terminals of the generator transformers. The 330 kV earth switches and surge diverters which allow earthing and protection of the transformers are owned by Snowy Hydro. The insulators connecting to the roof structure of M2 are owned by TransGrid. The 330 kV line tap connectors and droppers are owned by Snowy Hydro.

Note, there is no direct connection of TransGrid's earth lines to Snowy Hydro's Murray 2 Power Station.

Figure 3: Tumut 3 Power Station Boundary Point

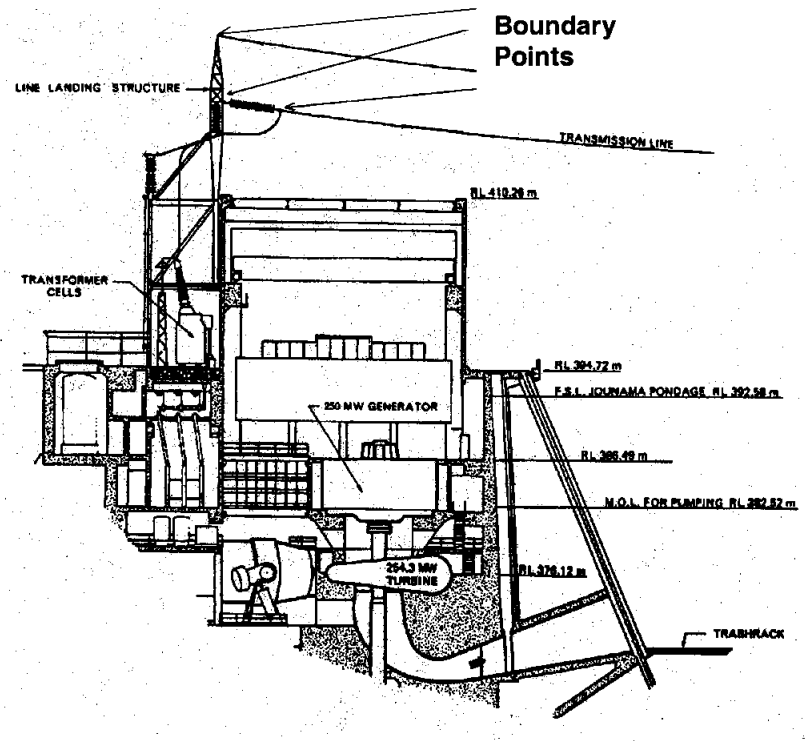


Figure 4: Tumut 1 Power Station Boundary Point

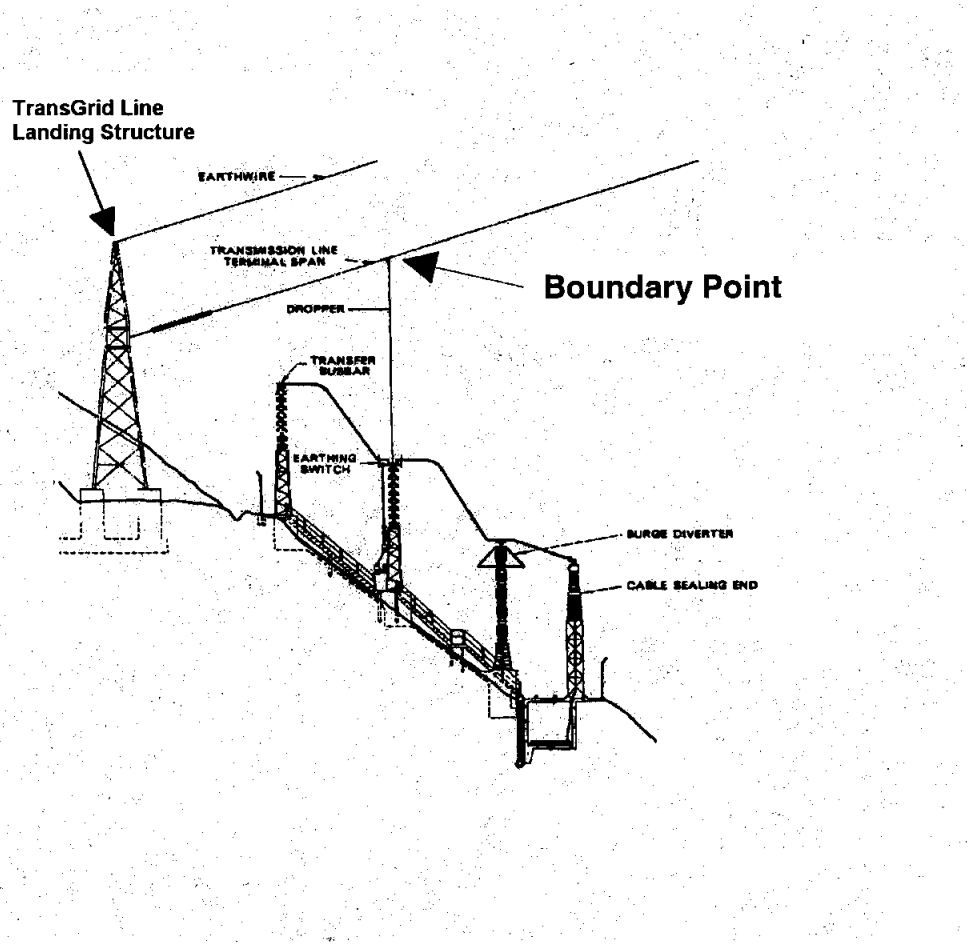


Figure 4 sets the boundary point at the transmission line dropper to T1 Cableyard.

The two line landing structures and conductor spans to the first towers are part of TransGrid. The T1 Cableyard, its elements and droppers are owned by Snowy Hydro. The 330 kV line tap connectors and droppers are owned by Snowy Hydro.

Figure 5: Tumut 2 Power Station Boundary Point

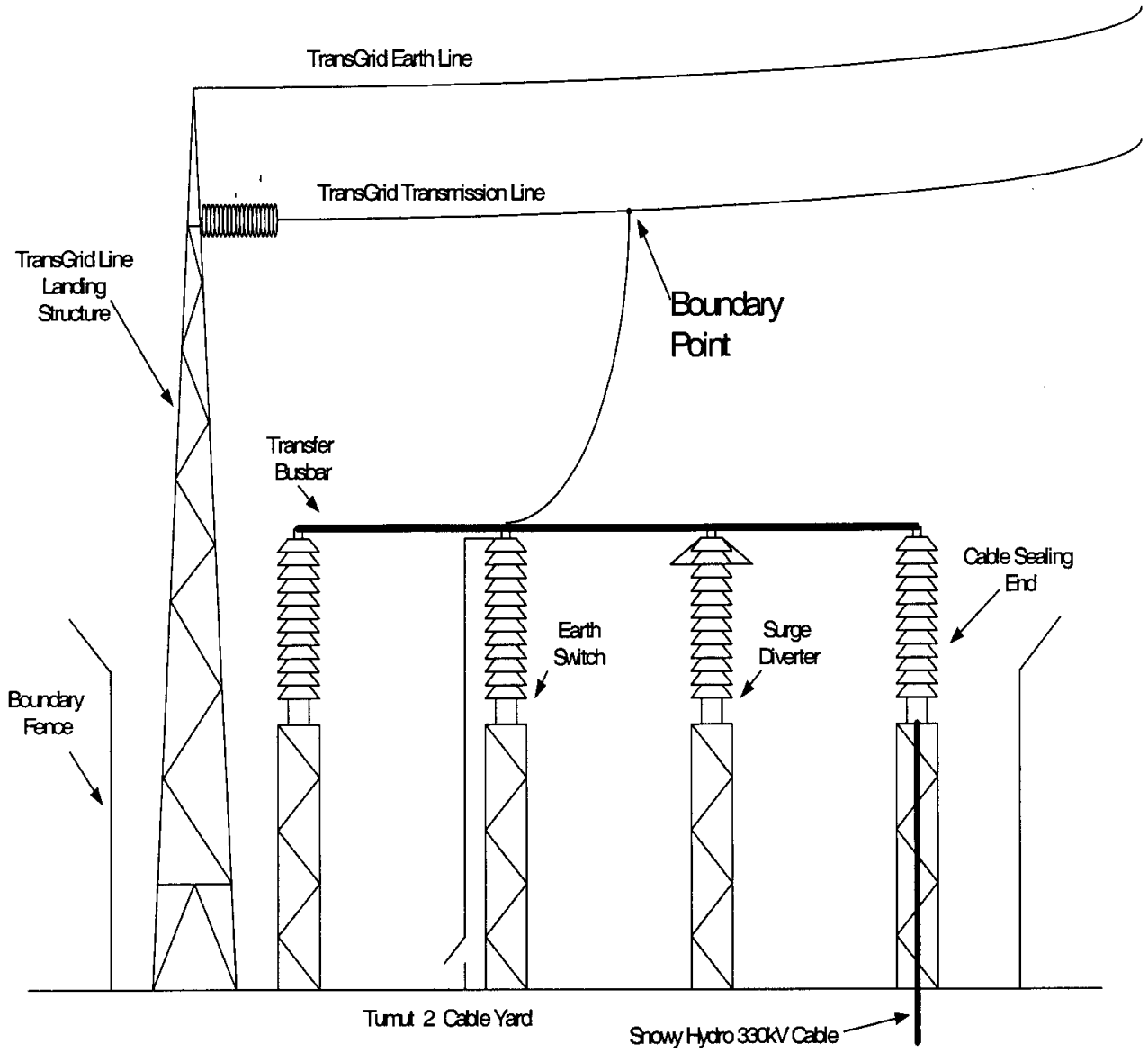


Figure 5 sets the boundary point at the transmission line dropper to T2 Cableyard.

The two line landing structures and conductor spans to the first towers are owned by TransGrid. The T2 Cableyard, its elements and droppers are owned by Snowy Hydro. The 330 kV line tap connectors and droppers are owned by Snowy Hydro.

The Line Landing Structure shown above is within Snowy Hydro's Tumut 2 Switchyard and is nominated as TransGrid property.

Figure 6: Guthega Power Station Boundary Point

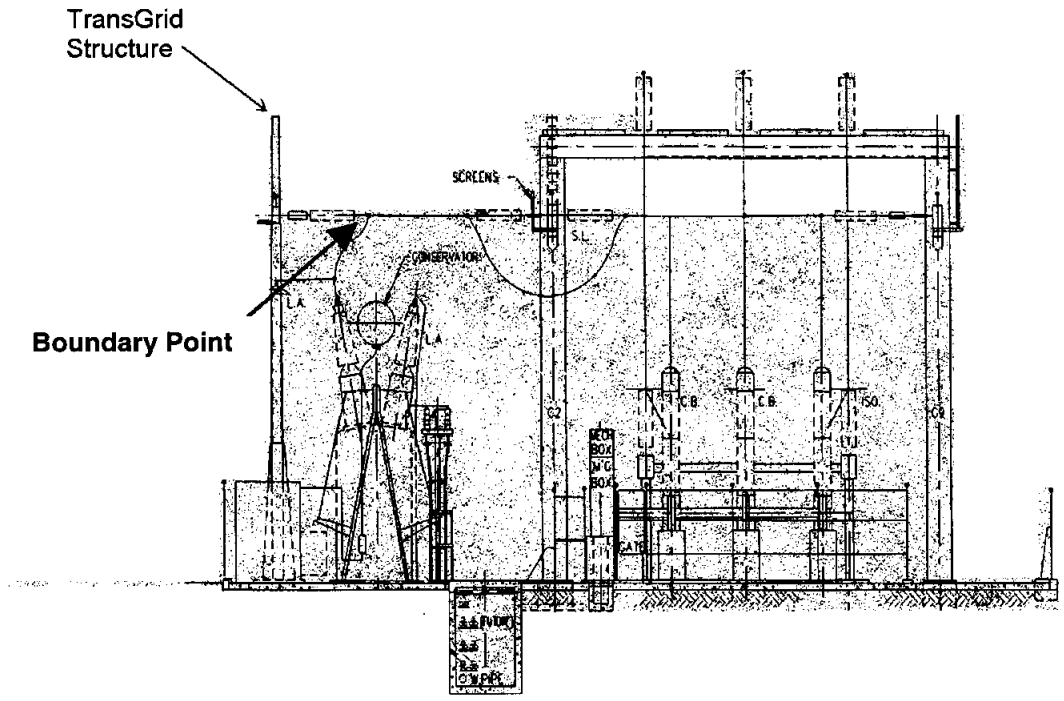
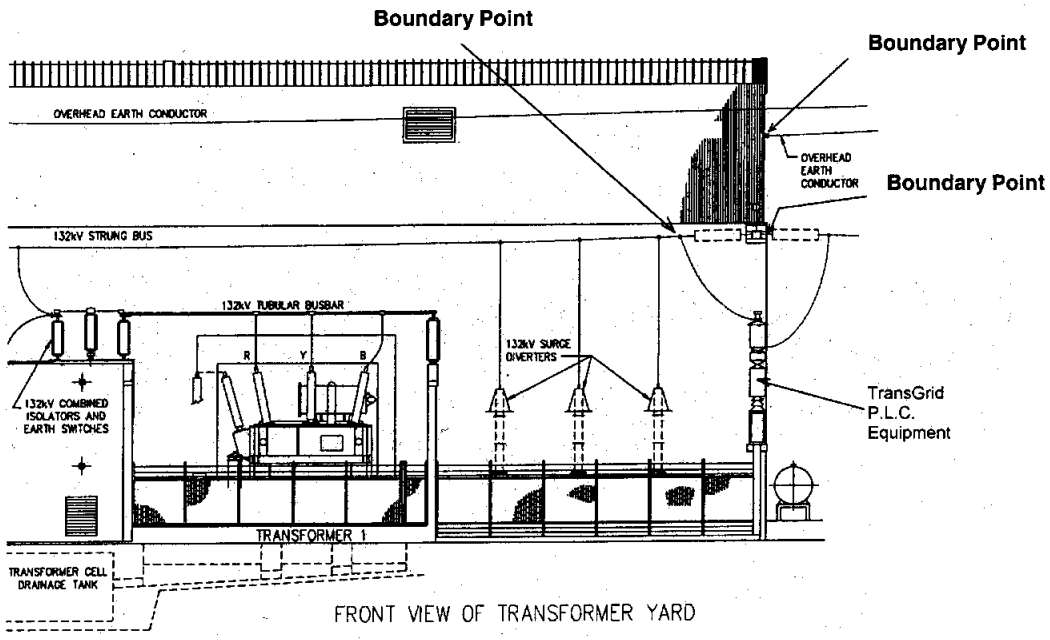


Figure 6 sets the boundary point at the connections from the high voltage terminals of the generator transformers to the 132 kV overhead bus. The 132 kV bus tap connectors and droppers are owned by Snowy Hydro. The generator transformers and equipment and structures directly associated with the transformers ie. transformer blast walls, oil containment facilities etc. are owned by Snowy Hydro.

Figure 7: Jindabyne Pumping Station Boundary Point



The boundary point is set at the strung bus end of the dropper from the 132 kV strung bus to the Power Line Carrier (PLC) equipment at the Jindabyne Pumping Station 132/11kV transformer yard.

Snowy Hydro own and maintain the strung bus and the bus termination insulator within the transformer yard,

TransGrid own and maintain the droppers from the strung bus and its associated line connectors, the PLC equipment and the second connectors from the PLC equipment to the 132 kV incoming line.

The line termination insulators external to the transformer yard and the incoming 132 kV line are owned and maintained by TransGrid.

Appendix 2

SUPPORT SYSTEMS

Part 1 - Protection, Metering and Control Panels

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
UTGCC (Refer to Drawing E-USS-372-6)	Control Panels CP13, 14, 15, 16, 17, 18, 19, 22 & 23. Protection Panels RP24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 38, 39, 40 & 46. Repeat Relay Panel (Down Stairs). Sorel Fault Recorder RP36. Metering Panels MP43 & 44.	Control Panels CP13, 14, 17, 18, 19 & 23. Protection Panels RP24, 25, 26 & 27 Sorel Fault Recorder RP36.	Control Panels CP12 & 21. Transducer Panels TR1, 2, 3 & 4.
Tumut 1 Power Station (Refer to Drawing E-T1-376-4)			Protection Panels (Relay Room) 4 Off Transformer/Line Protection Panels 7(RA1), 8(RB1), 11(RA2) & 12(RB2).
Tumut 2 Power Station (Refer to Drawing E-T2-372-1)			Protection Panels (Relay Room) 4 Off Transformer/Line Protection Panels 26(RA3), 27(RB3), 30(RA4) & 31(RB4).

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
MGCC (Refer to Drawing E-MSS-372-1)	Control Panels AUX, CP(A,3), (L/R), (M/S), (F/EW), (N/X), (P/Y), (Q/Z),(G) & CAA. Protection Panels ZEN (A), ZES (A), ZWN (A), ZWS (A), ZEN (B), ZES (B), ZWN (B), ZWS (B), RP (G), RP (F), RPA (R), RPB (R), RPC (R), BR, RP(Q), RP(P), RP(N), RP(M), RP(L), RPA (S), RPB (S) RPC (S), RPA (X), RPB (X), RPC (X) RPA (Y), RPB (Y) & RPC (Y). Sorel Fault Recorder FR(A) & (B) Metering Panels MGA,MGB, MGC, MTA & MTB. MIT's Panel CTH (TG Owned)	Control Panels AUX, CP(L/R), (M/S), (F/EW), (N/X), (P/Y), (Q/Z), (G) & CAA. Protection Panels RP (G), RP (F), RP(Q), RP(P), RP(N), RP(M) & RP(L), Sorel Fault Recorder FR(A) & (B)	Control Panels CAB & CAC. Transducer Panels TR1
Murray 1 Power Station (Refer to Drawing E-M1-352-37/1)			Protection Panels (Unit Control Suites) 10 Off Transformer/Line Protection Panel XPA & B (1-2) XPA & B (3-4) XPA & B (5-6) XPA & B (7-8) XPA & B (9-10)

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
Murray 2 Power Station (Refer to Drawing E-M2-352-25/1)			Protection Panels (Unit Control Suites) 4 Off Transformer/Line Protection Panel XPA & B (11-12) XPA & B (13-14)
LTGCC (Refer to Drawing E-LSS-372-2)	Control Panels YL, CIX , CI1, CI2, CI3, CI4, CI5, CIG/T, CIH/U, CIEW/V, CIJ/X, CIY/Z, CI6, CAC, CI7 & CI8. Protection Panels LPA & B(G), LPA & B(H), LPA & B(J), ZW(A), ZW(B), ZE(A), ZE(B), LPA, B & C(Z), LPA, B & C(Y), LPA, B & C(T), LPA, B & C(U), LPA, B & C(X), Sorel Fault Recorder FR, Metering Panels RI, MGA, MSA, MTA & MTB.	Control Panels CIX, CIG/T, CIH/U, CIJ/X & CAC. Protection Panels LPA & B(G), LPA & B(H), LPA & B(J), Relay Panels BRB, BR Sorel Fault Recorder FR,	Control Panels CAB. Transducer Panels TR1, & 2. **Panels Owned Exclusively By Snowy Hydro** Control Panels HCA, HCB, HCC, CAA & YR. Relay Panels GS All Relay Panels in Suite H. DAC Panels DAC RTU A, DAC RTU B, DAC Term A & DAC Term B, DAC Interface Cubicle (see E-LSS-112-5). 2 New RTU Cubicles

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
Tumut 3 Power Station (Refer to Drawing ET3-352-17)			Relay Panels (Unit Control Suites) 6 Off Transformer/Line Protection Panels XPA & B (1-2) XPA & B (3-4) XPA & B (5-6)
Guthega Power Station Control Building (Refer to Drawing E-M1B-372-1)	Control Panels MSS Line (D), Jindabyne Line (F), Munyang Line (H). Protection Panels Khancoban Feeder A & B, Jindabyne Feeder A & B, Busbar & Munyang Sub. Metering Panels Gen 1/Gen 2, Station Tx,/Diesel Gen. MIT's Panel C&P Test/Encoder Supplies.	Control Panels Jindabyne Line (F). Protection Panel Jindabyne Feeder A & B.	Control Panels DAC Alarm Panel. Gen 1(J), Gen 2 (G), Transducer Panels TR1 & 2.
Jindabyne Pumping Station (Refer to Drawing E-JP-372-1)			Relay Panels (Unit Control Suites) 2 Off Transformer Protection & Alarms Panels UPX(1) A8 UPX(2) A8

2. Part 2 – Communications Cubicles

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
UTGCC (Refer to Drawing E-USS-512-1)	Panels A1, A2, A3 & A4. B1, B2 & B3. C1, C2, C3 & C4. H1, H2, H3, H4, H5 & H6 Rows A, B & C to be moved to Row G		Panel K3.
MGCC (Refer to Drawing E-MSS-512-3)	Panels B1, B2. G1, G2, G3, G4, G5, G6, G7, G8, G10, G11, G12, G13, G14 & space G9. H1, H2, H3, H4, H5, H7, H8, H9, H10, H11, H12, H13, H15, H16 and spaces H6 & H14. Panel J5 (TG Owned)	Panels B1, B2.	Panels All C1 Verticals. Panels D2 & J3.
LTGCC (Refer to Drawing E-LSS-562-1)	Panels D1. E6, E7 & E8. F1, F2, F3, F4, F5, F6, F7, F8, F9 & F10. G1, G2, G3, G4, G5, G6, G7, G8, G9 & G10. spaces at E3 & E4.	Panel D1. **Panels Owned Exclusively By Snowy Hydro** Panels A2, A3, A4, A5, A6 & A7. B1, B2, B3, B4 & B5. C1, C2, C3, C4, C5, C6, C7 & C8. D2, D3, D4, D5, D6 & D7. E5 & E6. Snowy Hydro's Building Security System. Big Talbingo MITEC Interface panel , cable and Microwave Dish and the Mobile Radio equipment mounted on South-Eastern Wall of building. General Copper and Fibre Optic (Snowy Hydro specific) Communication Cable Reticulation Supplies in the building.	Panel A1.

Location	Description of Panels TRANSFERRED to TransGrid	Description of Panels TRANSFERRED to TransGrid and Jointly SHARED with Snowy Hydro	Description of Panels OWNED by Snowy Hydro and Jointly SHARED with TransGrid
Geehi Sub Station (Refer to Drawing E-GHI-562-1)	Panels B1 marked A1 and B2 marked A2		Panels B3 marked A3
Guthega Power Station Control Building (Refer to Drawing E-M1B-562-1 & E-M1B-562-2)	*TOP COMMS ROOM* Panels A1, A2 & A3. B1, B2 & B3. *BOT. COMMS ROOM* Panels A1 & A2.		*TOP COMMS ROOM* Panels D2 & D3 *BOT. COMMS ROOM*
Jindabyne Pumping Station (Refer to Drawing E-JP-562-1)	Panels B1 & B2.		Panel A1 & D2.
Cooma PLC Building (Refer to Drawing E-CMA-562-5)	Panels B1, B2 & B3. 48 V Batteries A & B. 48 V Distribution Board 48 V Battery Chargers A & B.	Panel 48 V Distribution Board	Panel A3. Provision of cubicle space at A4 & A5.

Appendix 3

INTERESTS IN LAND

Part 1 - Land and Fixtures

1.1 Murray Switching Station and Buffer

All that piece or parcel of land situated at Khancoban in the Local Government Area of Tumbarumba, Parish of Khancoban and County of Selwyn shown as Lot 2 in proposed plan of subdivision of Lot 4 DP 241727 subject to access arrangements for Snowy Hydro Limited in the Snowy Hydro / TransGrid Tenancy Agreement and excluding any assets identified in **Appendix 1** Part 1 of this document.

The whole of the land contained in certificates of title Folio Identifier 4/830807 and Folio Identifier 5/241727 together with the benefit and burden of easements referred to on those certificates of title.

1.2 Lower Tumut Group Control Centre, Switching Station and Buffer

All that piece or parcel of land situated at Boraig in the Local Government Area of Tumut, Parish of Boraig, County of Buccleuch shown as Lot 50 in proposed plan of subdivision of Lot 4 DP 235381 subject to access arrangements for Snowy Hydro Limited in the Snowy Hydro / TransGrid Tenancy Agreement and excluding any assets identified in **Appendix 1** Part 1 of this document.

1.3 Cooma Substation Communications Building

The whole of the land contained in Certificate of Title Folio Identifier 2/229872 together with the benefit and burden of easements referred to on this Certificate of Title.

Part 2 - Existing Easements

2.1 Easements for transmission lines and access described in the First Schedule and Third Schedule of notice of acquisition of easements in *Government Gazette No 94* dated 11 July 1975 on pages 2707 and 2708 and recorded in the Register in resumption application S506851.

2.2 Easements for transmission line 100 links wide, easements for transmission line 633 links wide and easements for transmission line variable width created by instrument N528769 and shown in DP 243983.

2.3 Easement for access described in notice of acquisition of easements in *Government Gazette No 116* dated 13 September 1978 at page 3913 and recorded in the Register in resumption application R120136.

2.4 Easements for transmission lines and access described in the First Schedule and the Second Schedule of notice of acquisition of easements in *Government Gazette No 94* of 11 July 1995 at page 2708 and recorded in the Register by resumption application R804661.

2.5 Easements for transmission lines 1420 and 525 links wide, easements for transmission lines and aerial cable 267.3 links wide and easement for access 50 links wide created by instrument M792968 and shown in DP241727.

2.6 Easements for transmission line and cable 62 wide and restrictions on use created by instrument and DP830807.

2.7 Easement to drain water variable width, easement for transmission lines 285.66 wide and restrictions on use and restrictions on use shown on DP266366.

Part 3 - New Easements

Easements for transmission lines are to be created in favour of TransGrid over the following land to be owned by Snowy Hydro:

1.	**MSS to Murray 2 PS**
·	Lot 4 DP 243983
·	Lot 2 DP 553618
2.	**Across Khancoban Creek (immediately to the north of F/I 2/833361)**
·	Lot 3 DP 243983
3.	**T3 to LTSS**
·	Lot 51 in proposed plan of subdivision of Lot 4 DP 235381
·	Lot 18 DP 728290
·	Lot 1 DP 728290
·	Lot 17 DP 728290
·	Lot 5 DP 235380
4.	**UTSS to LTSS**
·	Lot 51 in proposed plan of subdivision of Lot 4 DP 235381
·	Lot 5 DP 235380
·	Lot 3 DP 235380
·	Lot 18 DP 728290
·	Lot 1 DP 728290
·	Lot 17 DP 728290
5.	**MSS to LTSS**
·	Lot 2DP 728290
·	Lot 2 DP 235380
·	Lot 18DP 728290
·	Lot 3 DP 235380
·	Lot 1 DP 235381
·	Lot 17 DP 728290