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# **REPORT OF THE INDEPENDENT HEARING & ASSESSMENT PANEL**

Pursuant to s75G of  
*Environmental Planning and Assessment Act 1979*

## **Vineyard to Rouse Hill Electricity Upgrade**

Report by

Mr Barrie Unsworth (Chair)  
Mr Charles Hill  
Dr Colin Roy

March, 2006

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## PANEL DECLARATION

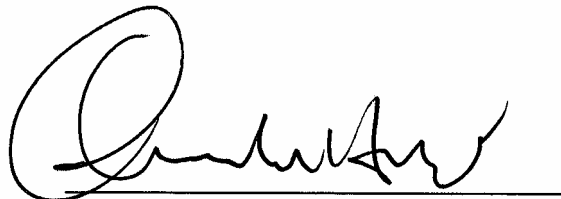
We have been appointed by the Minister for Planning on 18 January 2006 under s75G of the *Environmental Planning and Assessment Act 1979* to:

Independently consider and advise on the issues raised in public submissions on the proposal's Environmental Assessment (EA), taking into account the essential need to augment the electricity supply by December 2007, and (the) economic, social and environmental justification for the proponent's preferred option.

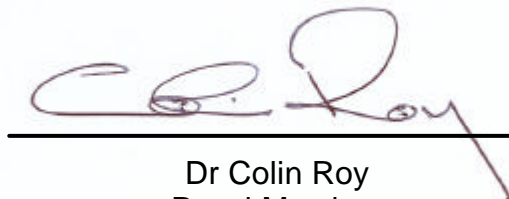
The attached report details our findings and recommendations for the Director-General of Department of Planning's consideration.



Mr Barrie Unsworth  
Panel Chair



Mr Charles Hill  
Panel Member



Dr Colin Roy  
Panel Member

6 March 2006

# EXECUTIVE SUMMARY

## INTRODUCTION

Integral Energy is proposing an upgrade of the existing Feeder 9JA including:

- Reconstruction of a 8.5 km section of an existing overhead 132 kV transmission line between the Vineyard bulk supply point and a future switching station near Schofields Road at Rouse Hill;
- Substantial upgrading of the transmission line capacity and replacement of the existing single circuit arrangement with two single circuit overhead transmission lines; and
- Installation of forty-three twin sets of steel support poles (average height 22 m) largely within the existing 30 m easement.

The Minister for Planning (the Minister), the Hon. Frank Sartor MP, is the approval authority for the project, and the Department of Planning is currently assessing the project application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP & A Act).

Under Section 75G of the EP & A Act the Minister has constituted an Independent Hearing and Assessment Panel (Panel of Experts) to

*“Consider and advise on issues raised in public submissions on the proposal’s Environmental Assessment (EA), taking into account the essential need to augment the electricity supply by December 2007, and the economic, social and environmental justification for the proponent’s preferred options.”*

The public notification of the Independent Hearing and Assessment Panel (IHAP) appeared in the 17/18 January 2006 edition of the *Sydney Morning Herald* and local papers. The advertisement called for separate submissions to the Panel, as relevant to the Terms of Reference until 3 February 2006.

The Panel was briefed on the proposal by representatives of the Department of Planning, and staff of Integral Energy in the company of representatives from Blacktown City Council on 1 February 2006. A site inspection was also carried out by the Panel in the company of Integral Energy, Council and Department representatives.

Round Table meetings were held on the 9 and 10 of February 2006. A number of residents, community representatives, Blacktown City Council, NSW Department of Health and Integral Energy made submissions to those meetings.

A further site inspection of selected dwellings affected by the transmission easement was carried out in the company of a number of residents, representatives from the Department of Planning and a representative from Integral Energy on 10 February 2006.

## SUBMISSIONS

Approximately 1,200 submissions were received by the Department of Planning as a result of the exhibition of the Environmental Assessment (EA) Report. The majority of these were form letters but also included a large petition objecting to the proposed development.

Ten parties also made oral presentations to the Panel. A list of the issues raised is addressed in **Section 7** of this report.

## MAIN FINDINGS

It is expected that some 60,000 new dwellings will be developed in the North West Growth Centres over the next 25 to 30 years, in addition to other commercial and employment developments within the North West Sector.

The proposal involves a significant increase in the capacity of an existing 132 kV transmission line between the Transgrid bulk supply point at Vineyard and a planned Integral Energy switching station at Rouse Hill to service the future population in the North West Growth Centres.

There are conflicting views as to whether the use of the easement for the upgrading of the transmission line is permissible within the various zones in the locality and whether it is appropriate for the upgrade to be dealt with in accordance with Part 3A of the EP & A Act.

The Transgrid bulk supply point has been designated the principal location for connection between the statewide 330 kV network and Integral Energy for the provision of electricity to the North West Growth Centres.

The requirement for electricity to be transmitted in a south-east direction from the Vineyard bulk supply point to new consumers in the North West Growth Centres, is accepted by the Panel.

In addition it is clear that to provide a secure electricity supply to existing consumers in recently developed adjoining precincts, additional circuits must be installed prior to the time when load growth forecasts exceed alternate feeder capacity.

It is appropriate to adopt the principle of Prudent Avoidance when considering magnetic fields and new or upgraded high voltage power lines.

The Panel agrees with the desirable objective of the NSW Department of Health to avoid creating levels of magnetic field exposure higher than that existing prior to the upgrade.

If the desired objective of the NSW Department of Health is adopted and the future magnetic fields are maintained at current levels, the easement would need to be increased to 45 m by June 2031.

There are 8 properties which would be affected by the increased magnetic field at the boundary of the existing easement by the year 2031.

Consideration should be given to compensating landowners with existing (approved) dwellings that fall partly or fully within 22.5 m from the centreline of the 9JA easement to allow them to reconfigure their dwelling or relocate within the property or elsewhere, prior to operation of the transmission line.

In terms of the economic justification the Panel noted that an economic assessment was performed for all options to satisfy ACCC Regulatory Test and the National Electricity Rules. The cost of all options was independently reviewed by Maunsell Australia. Further the economic assessment / modelling was independently reviewed by KPMG who found that the preferred option minimised the net present value of economic costs.

The Panel was satisfied that the preferred option utilises the existing easement whereas other options require additional properties to be encumbered by new easements.

The Panel was satisfied that the Environmental Assessment prepared on behalf of Integral Energy satisfactorily addresses the key environmental issues related to flora and fauna, visual, heritage, operational, and construction.

## **CONCLUSION**

That the Minister notes:

- Submissions from residents, community interest groups, Blacktown City Council, the NSW Department of Health, Sydney West Health Area Service and Integral Energy.
- That the area in which the transmission line is to be upgraded is part of the North West Sector Growth Area which will accommodate up to 60,000 dwellings within the next 25 to 30 years.
- An increase in capacity of the existing 9JA transmission line is required as a key element in the future planning of the area to provide a safe, secure and reliable supply of electricity to existing and future residents in the North West Sector.
- The NSW Department of Health (DoH) has adopted the concept of prudent avoidance when considering magnetic fields and new or upgraded high voltage power lines, and a desirable goal of not exposing residents to higher levels of magnetic fields than those which were in existence prior to the upgrade.
- That based on the DoH's desirable goal the preferred option is predicted to produce a magnetic field level similar to that which exists at present by the year 2031.
- The Panel are satisfied that:
  - i. The provision of a secure supply of electricity to the community is of paramount importance;
  - ii. The undergrounding of 9JA would not represent a prudent investment for Integral Energy;
  - iii. The use of the existing easement is the preferred route for the upgrade of electricity supply as proposed; and
  - iv. The Environmental Assessment prepared on behalf of Integral Energy satisfactorily addresses the key environmental issues.

## **RECOMMENDATIONS**

1. That the proponent's preferred option be endorsed for consideration by the Minister for Planning.
2. That in approving the preferred option consideration be given to providing that the proponent compensate landowners with existing approved dwellings within 22.5 metres of the centreline of the 9JA easement to enable them to reconfigure their dwelling or relocate within their property or elsewhere prior to the operation of the transmission line.
3. That when the area traversed by the 9JA easement is considered for rezoning for urban development, that the question of underground construction of the cables be examined by the North West Growth Centres Commission on the basis of the easement being relinquished by the proponent as partial compensation for the cost of laying underground cables and that the balance be provided by the developers.

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# 1. INTRODUCTION

On 18 January 2006 the Minister for Planning appointed an Independent Hearing and Assessment Panel under Section 75G(1)(a) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to advise the Minister in respect of the Vineyard to Rouse Hill Electricity Supply Upgrade.

The terms of reference for the Panel are to

*“Consider and advise on issues raised in public submissions on the proposal’s Environmental Assessment (EA), taking into account the essential need to augment the electricity supply by December, 2007, and the economic, social and environmental justification for the proponent’s preferred option.”*

The appointed members to the Panel are:

- Mr Barrie Unsworth (Chair)
- Mr Charles Hill – Director of Planning Workshop Australia
- Dr Colin Roy – Director (Non-Ionising Radiation Branch) at the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

Under Section 75G, for the purposes of an assessment, a Panel of experts may receive a new submission, from interested persons and submit a report to the Director-General of the Department of Planning. A Panel is to exercise its function in accordance with arrangements approved by the Minister, but a Panel is not subject to the direction of the Minister on the findings or recommendations in its report.

# 2. BACKGROUND

The proponent claims that the proposal is subject to the provisions to Part 3A of the EP&A Act and requires the approval of the Minister for Planning. This issue is addressed in **Section 8** of this report, as is the permissibility of use.

The Environmental Assessment Report (EA Report) for the proposal was publicly exhibited for six weeks between 7 November and 16 December 2005 with submissions accepted until 20 January 2006. Approximately 1,200 submissions were received by the Department of Planning as a result of the exhibition. The majority of those were form letters but also included a large petition objecting to the proposed development.

The public notification of the Independent Hearing and Assessment Panel (IHAP) appeared in the 17/18 January 2006 edition of the Sydney Morning Herald and bcal papers. The advertisement called for separate submissions to the Panel as relevant to the Terms of Reference until 3 February 2006.

The Panel were briefed on the proposal by representatives of the Department of Planning and staff of Integral Energy on 1 February, 2006. A site inspection was also carried out by the Panel on that day in the company of Integral Energy, Blacktown City Council staff and representatives of Department of Planning.

Round Table meetings were held on the 9 and 10 of February 2006 at the Blacktown City Council. Ten parties made oral presentations to the Panel. **Appendix 1** details the names

of persons who appeared before the Panel. **Appendix 2** provides a list of submissions received by the Panel and **Appendix 3** is a list of documents referred to the Panel by the Department of Planning.

A site inspection of selected dwellings affected by the 9JA easement was carried out in the company of a number of residents and representative from Integral Energy and Department of Planning on the afternoon of 10 February 2006 following the conclusion of the Panel meeting. **Appendix 4** is a list of the properties visited.

Mr Unsworth (the Chair) was independently briefed by Mr Ian Reynolds, General Manager of the North West Growth Centres Commission in respect of the proposed Rouse Hill Release Area. Mr Unsworth and Mr Hill were also briefed by Landcom representatives in relation to the progress of their discussion with the Riverstone/Vineyard Scheduled Lands owners and future master planning for the area.

In accordance with the Panel's terms of reference, the Panel have reviewed all submissions received by the Panel including those referred to it by the Department of Planning as well as the EA Report.

It should be noted that the Panel will report to the Director-General, who in preparing the Department's assessment report to the Minister will take into account the Panel's recommendations. The Panel's report will be made publicly available and parties appearing at the Panel Meeting will be advised of the Panel's recommendations accordingly.

### **3. OVERVIEWS OF STUDY AREA**

The defined Study Area of some 30 square kilometres comprises an area to the west of Windsor Road, south of Bandon Road, east of Eastern Creek and north of Schofields Road (Figure 4.1 of the EA Report, Vol. 1).

The Study area lies entirely within the Blacktown Local Government Area and borders the Baulkham Hills Local Government Area (to the east of Windsor Road) and the Hawkesbury Local Government Area (to the north of Barton Road).

The EA Report (Volume 1, Section 4.2) describes the key features of the study area and which are illustrated in Figures 4.2, 4.3 and 4.4 of that report.

### **4. ALTERNATIVE OPTIONS**

A detailed analysis of the feasibility of a range of transmission and sub transmission alternatives was undertaken by Integral Energy and these are described in detail in Section 4 of the EA Report (Vol. 1).

A number of non-network and network alternatives and project options were assessed including development of four (4) strategic corridors, development of twelve (12) route options, various design configuration (overhead and underground and combination) and different conduction technologies.

Figure 4.5 of the EA Report (Vol. 1) indicates the Potential Development corridors; and Figures 4.6 and 4.7 also of the EA Report (Vol. 1), illustrate the different route and support structures considered.

## 5. THE PROPONENT'S PREFERRED OPTION

The proponent's preferred option is an overhead transmission line largely along the existing Feeder 9JA easement.

This proposal is described in Section 5 of the EA Report (Vol 1) and can be summarised as follows:

- Reconstruction of a 8.5 km section of an existing, overhead 132 kV transmission line between the Vineyard bulk supply point and future switching station near Schofields Road at Rouse Hill;
- Substantial upgrading of the transmission lines capacity and replacement of the existing single circuit arrangement with two single circuit overhead transmission lines;
- Installation of forty-three twin sets of steel support poles (average height 22 m) largely within the existing 30 m wide easement; and
- Figure 0.1 of the EA Report (Vol. 1) provides an overview of the scope of the proposal.

According to the EA Report the proponent's preferred option would cost \$16.8 million (2004 dollars) and would be fully funded by Integral Energy.

Subject to planning approval it is anticipated that the first circuit to provide backup supply would be completed by December 2007 and the second circuit to provide new services to the North West Growth Centres would be completed by December 2008.

## 6. STATUTORY CONTEXT

The route of the proposed Vineyard to Rouse Hill Electricity Upgrade is wholly within the Blacktown Local Government Area.

According to Integral Energy the proposal is contained wholly within the Blacktown Local Environmental Plan 1988 and passes through four different land use zones including 1(a) General Rural, 5(a) Special Uses – General, 5(b) Special Uses – Arterial Road and Arterial Road Widening Zone and 6(a) Public Recreation zone (Figure 2.2 of the EA Report Vol 1).

The proposal is described as a "Utility Installation" in accordance with the Blacktown LEP (1988) and according to Integral Energy, is a use which is permissible **without** Council consent in the abovementioned zones.

There are also a number of other statutory documents which apply to the site including: *Draft Riverstone Local Environmental Plan*, the *Sydney Regional Environmental Plan No. 9 (Rouse Hill Development Area)*, the *Sydney Regional Environmental Plan, Hawkesbury-Nepean River*, and *State Environmental Planning Policy No. 19: Bushland In Urban Areas*.

Whilst each of these environmental instruments are relevant to the consideration of the proposal, none have an effect on the permissibility of the proposal.

The issue of the permissibility of use is addressed in Section 8 of this report.

## **7. SUBMISSIONS**

### **7.1 LIST OF ISSUES RAISED BY WRITTEN SUBMISSIONS**

The EA report for the proposal was publicly exhibited for six weeks between 7 November and 16 December 2005 with submissions accepted until 20 January 2006. Approximately 1,200 submissions were received as a result of the exhibition including a large petition objecting to the proposed upgrade.

The following is a summary of those submissions:

- The urgency of need for augmentation of transmission line;
- The proposal is not an upgrade;
- Health risks from magnetic fields;
- Adverse impact on property values;
- Doesn't comply with the principle of "Prudent Avoidance";
- There are alternative options that have not been considered including but not necessarily limited to the co-location with the North West Rail Link, Eastern Creek Flood Plain, First Ponds Creek Flood Plain, use of existing roads, etc.;
- Undergrounding of transmission line;
- Costs of undergrounding;
- Substantial clearing;
- True cost of proposal not reflected in economic assessment;
- Visual impact;
- The terms of the easement;
- Permissibility of use
- The number of lines and conductors;
- The size and thickness of the poles;
- The increase in the magnetic field;
- The health risks;
- Land devaluation and environmental damage;
- Area was being victimised for the benefit of new developments within the North West sector, which will enjoy reliable underground power at this area's expense;
- Requested that Integral Energy be required to either underground the proposal or relocate it away from future homes and schools;
- Forfeiture of easement;
- Appropriateness of Part 3A process;
- Increased energy consumption;
- Availability of new technology;
- Adequacy of Environmental Assessment report; and
- Adequacy of width of easement.

## **Petition**

A lengthy petition titled “No Transmission Poles – Bury the Cable”, was received in respect of the exhibition of the Environmental Assessment. A summary of issues raised by the petition is as follows:

- Objected to the upgrade;
- The number of lines;
- The size and thickness of the poles;
- The increase in the magnetic field;
- The health risks;
- Land devaluation and environmental damage;
- Area was being victimised for the benefit of new developments within the North West sector, which will enjoy reliable underground power at this area’s expense; and
- Requested that Integral Energy be required to either underground the proposal or relocate it away from future homes and schools.

## **7.2 SUBMISSIONS TO THE PANEL**

In addition to the above, further submissions were made to the Panel (written and verbal). As a result of the public notification of the Independent Hearing and Assessment Panel, the additional issues raised by these further submissions are summarised below:

### **7.2.1 Residents**

Presentations were made to the Panel at the Round Table meeting by Mrs Helen Traill and Mr Alex Traill and Ms Sue Pedersen. A summary of their submissions are as follows:

#### Mrs Helen Traill & Mr Alex Traill

- Proposal is a new project, not an upgrade;
- Impact of the proposal particularly in relation to the future planning of the area;
- The potential loss of value to their property;
- Transmission line should be placed underground;
- No objection to undergrounding on existing easement; and
- Adverse impact of magnetic field.

#### Ms Sue Pedersen

Ms Pedersen’s property is bounded in the north-west by the Transgrid easement which accommodates a 330 kV line and the Integral Energy Easement along the south-west boundary of the property. Ms Pedersen had concerns in relation to

- The effect of the magnetic field on her health and the health of her children;
- The potential loss of value to her property;
- No objection to undergrounding of line on her property; and

- Integral Energy should be required to move the line or else acquire her property.

A copy of her submission is representative of persons in close proximity to the transmission line and is attached for your information at **Appendix 6**.

## **7.2.2 Public Interest Groups**

### Anti Transmission Tower Action Group (ATTAG)

ATTAG was established 18 months ago. It is a local group objecting to the current proposal and has the following concerns:

- New project and not an upgrade;
- There is no time crisis;
- Health risks arising from the electromagnetic field and the prudent safe level for the radiation field at the edge of a corridor proposed for a Greenfield site;
- Adequacy of width of the easement;
- Sterilisation of future urban land, true costs of land not reflected in economic assessment;
- The need to properly investigate new technology for a facility which is going to adversely affect the area for the next 100 years;
- The community strongly expressed desire is that the transmission lines be buried or moved onto flood prone land; and
- Objected to Integral Energy's attitude to release of the easement to accommodate future urban development.

### Schofields Road, Railway Terrace, Riverstone Parade Residents

Supports the upgrade of Feeder 9JA along the existing easement and preferably underground (Option E) and has the following concerns:

- Opposed to any alternative option particularly those options which propose to use the alignment of Schofields Road and Railway Terrace;
- Questioned ATTAG's economic assessment;
- Easement has been in existence for over 50 years;
- Existing property owners would gain financially if easement were to be relocated;
- Capital cost of upgrading along existing easement is low and an efficient and prudent investment; and
- Other options would require removal of native vegetation, and crossing of a number of water courses etc.

### Marsden Park Scheduled Lands Committee

This committee represents landowners west of the railway line, Marsden Park and Riverstone Area. The summary of their concerns are as follows:

- No objection to the proposal;
- Supports undergrounding on existing easement so long as no cost to Marsden Park Scheduled Landowners;

- Growth Centres Commission should finance undergrounding;
- Object to any proposal to relocate the easement west of railway line as the area already has four existing power lines and three proposed without relocating 9JA;
- Landowners in the flood plain area have enough restrictions on their land already;

#### Rouse Hill Heights Action Group (RHHAG)

Rouse Hill Heights is the area north of Schofields Road between Windsor Road and the easement and adjacent to Area 20. The following is a summary of their submission.

- Accepts that there is a need for the proposal;
- Has concerns in relation to the future planning by Integral;
- The economic justification for the proposal;
- The environmental impact of the upgrade;
- The adverse impact on land values;
- Health affects;
- Adverse impact on future planning for the area; and
- Preferred option is for the lines to be underground.

#### Vineyard, Riverstone and Marsden Park Development Inc. (VRMPD)

The VRMPD represent some 300 Scheduled Lands owners of Vineyard, Riverstone and Marsden Park. A summary of their submission is as follows:

- Legality of the use of the easement;
- Questioned timing and need for proposal;
- Adequacy of easement width;
- Impact on the future planning for the Scheduled Lands;
- The impact of other existing power lines on adjoining property owners;
- Lack of consideration of co-location within a Transgrid Easement or other measures such as the use of the future rail corridor between Rouse Hill Town Centre and the Richmond railway line;
- Suggests undergrounding along Schofields Road if within road reserve; and
- Adverse impact on land values.

### **7.2.3 Blacktown City Council**

A summary of Blacktown City Council's (BCC) submission is as follows:

- Timing and need for proposal;
- Prefers undergrounding;
- Objects to the proposed upgrade because of its impact on the future urban development of the Riverstone Release Area (especially the Scheduled Lands);

- Contributes to visual blight;
- Detracts from the future residential character and amenity of the Release Area;
- Contributes to the community's perceptions and anxieties;
- Health risks;
- Detracting from the economic value of properties affected by and adjoining the electricity easement;
- Limiting the potential for other services such as the existence of future rail lines, roads and drainage services to be co-located in a common corridor with the transmission line;
- Permissibility of proposal;
- Undergrounding should be paid by users;
- Sterilisation of land within easement;
- The inadequacy of economic assessment impact on property market values;
- Questions the costs associated with undergrounding and the investigation of alternative funding arrangements to help meet the cost of undergrounding;
- Undergrounding in existing easement is worst option;
- Supports undergrounding along Schofields Road in road reservation;
- Second option would be for the transmission line to be redirected along First Ponds Creek Flood Plain corridor; and
- The proponent should consult with the Department of Planning to identify an appropriate service corridor consistent with the proposed North West Growth Centre draft Structure Plan.

#### **7.2.4 NSW Department of Health**

The following is a summary of the issues raised by the NSW Department of Health:

- Has concerns in relation to magnetic fields and health;
- Endorses the policy of "prudent avoidance" (Gibbs Inquiry into Community needs and high voltage transmission lines development, Sydney, NSW Government, 1991);
- Desirable to avoid creating levels of magnetic field exposure higher than those that exist prior to the upgrade;
- Need to explore options that decrease magnetic field exposure to levels below those which existed prior to the upgrade;
- The level identified as abnormal operation conditions at 9JA: 2005/6 should be used as a benchmark against which to compare the magnetic fields produced by the options considered;
- The upgrading of power transmission lines in existing easement has the potential to increase levels of magnetic fields above those that already exist; and
- Recommends that further consideration be given to options for the reduction of density of residential development adjacent to the proposed upgrade, increasing the width of the easement, and introducing an element of underground cabling.

## **7.2.5 Sydney West Area Health Service (SWAHS)**

The following is a summary of the issues raised by SWAHS:

- The uncertainty regarding health effects resulting from long term exposure to electromagnetic fields (EMF);
- The exposure of the current and future local population to electromagnetic fields associated with the upgrade;
- Supports the application of “prudent avoidance”;
- The best option from a health risk minimisation perspective is Option E in which all cables are placed underground followed by Option I, in which some cables are placed underground;
- Actual potential costs associated with future health impacts not currently factored into the environmental assessment; and
- Supports the investigation of new technologies for renewable sources of energy as well as the implementation of strategies to reduce energy usage.

## **7.2.6 Integral Energy**

The summary of Integral Energy’s submission is as follows:

- 9JA supplies power to Parklea and West Castle Hill;
- Bulk supply points are Sydney West, Sydney North and Liverpool;
- Vineyard is the principal supply for the NW Sector;
- Secure supply means one primary supply line plus one backup supply line;
- Proposal for two 500MVA lines, one as primary supply and one as backup. Thus at any one time, only 500MVA runs through the line;
- No primary supply available to new customers after 2008 if the proposal is not approved;
- Target first circuit to provide backup by December 2007 and second circuit to provide new services by December 2008. Reason for targeting December is to ensure supply is there prior to beginning of summer season;
- Existing capacity 84MVA is supplied from Carlingford and Vineyard;
- Easement width dictated by the need to meet national guidelines and depends on span length, conductor blow out and electrical safety;
- 9JA easement is a strategic route;
- Integral would have no objection if developer is willing to pay for relocation or undergrounding lines as in the case of Stanhope Gardens and Newbury;
- Will only relinquish the easement if there is no further use of it and a payment to Integral is required;
- The proposal is a backbone supply to the NW sector;
- Between Schofields Road and Vineyard, the easement affects 80 landowners (220 properties) including Scheduled landowners;
- Neither the Picnic Point to Haymarket nor the Homebush project had the same capacity (500MVA) as proposed here. Thus cost of undergrounding is not comparable;

- Regulatory framework would not allow investment return for projects not considered prudent investment;
- No fundamental issue to co-locate with other infrastructure;
- Pole heights on floodplain need to be about 36 m (clearance above Probable Maximum Flood height);
- Original policy – not to acquire new easement on properties that are unencumbered by an easement, hence First Creek Ponds option was not considered as an option;
- Compulsory acquisition could be done by the Minister for Energy; worst case could take a few years;
- If easement is required to be widened on the principle of health, it would not be required until 2031;
- 45 m wide easement would meet the Department of Health’s concern;
- The physical structure of the Switching Station would be built at the outset, but capacity would be augmented as required;
- Height of tower determines the span length and the number of towers; and
- When considering location of poles, social equity is an issue that needs to be taken into account, particularly for those landowners that do not have poles on their properties at present.

## **8 ASSESSMENT OF KEY ISSUES**

Following a review of all documents referred to the Panel by the Department of Planning and submissions received by the Panel, this section canvasses the various economic, social and environmental issues raised in these documents/submissions.

### **8.1 FUTURE PLANNING (AN OVERVIEW)**

The NSW Government announced new releases of land in the North West Growth Centres for residential development in 2004 including the growth centres at Vineyard, Riverstone, East Riverstone, Box Hill, Schofields, Alex Avenue and Area 20 (**Appendix 7a**).

It is expected that some 60,000 new dwellings will be developed in the North West Growth Centres over the next 25 to 30 years. In addition, commercial developments and employment areas at Mile End Road, Rouse Hill Regional Centre and Norwest Business Park are also being developed. Infill development and urban consolidation will also continue in existing areas of Parklea, West Castle Hill, Kellyville and Castle Hill.

More particularly and as part of the North West Growth Centres proposals, the town centres of Riverstone and Schofields are expected to reach over 14,500 new dwellings created in the Riverstone and East Riverstone areas (Figure 4.2 of EA Report Vol 1). There are also plans to expand the Rouse Hill Regional Park, which is located in the south-east of the study area bordering Windsor Road.

The Vineyard, Riverstone and Marsden Park Scheduled lands, are on the eastern and western sides of the Blacktown to Richmond Railway respectively. The Scheduled Lands comprise a large number of small individually owned lots, and have been a significant obstacle to an orderly and integrated development of the area over several decades.

Landcom has been given the responsibility of preparing a master plan for the locality to facilitate its future rezoning for urban purposes.

Figure 3.5 of the EA Report (Vol 1) shows the location of the North West Sector and the North West Growth Centres announced by the NSW Government, and the catchments of the Parklea and West Castle Hill sectors serviced by Feeder 9JA.

## **8.2 NEED AND TIMING TO AUGMENT ELECTRICITY SUPPLY**

The proposal involves a significant increase in the capacity of an existing 132 kV transmission line between the Transgrid bulk supply point at Vineyard and a planned Integral Energy switching station at Rouse Hill.

The Transgrid bulk supply point has been designated the principal location for connection between the statewide 330 kV network and Integral Energy, for the provision of electricity to the North West Growth Centres.

Integral Energy submit that an increase in capacity of the transmission line is required, as a key element in its planning to provide a secure electricity supply, for current and future consumers in the North West Growth Centres.

Figure 3.3 of the EA Report (Vol. 1) shows the current peak demand forecast over the next ten years. This graphic shows that forecast demand would exceed supply from 2003 – 2004. Integral Energy advises however that this is manageable up until 2008 – 2009, a point at which the forecast demand equals the combined capacity of Feeder 9JA and 229. Beyond this point however Integral Energy claims that there is no ability to supply any additional customers.

Further if an unplanned event were to occur in summer, widespread blackouts would occur.

A reduction in maximum demand and load at risk will occur after 2005 – 2006 due to the anticipated commissioning of a new zone station at Bella Vista. Whilst this new substation will provide some temporary relief, however, the implication of increasing load at risk is shown in Figure 3.4 of the EA Report Vol 1, which indicates the number of existing and future Integral customers potentially affected by a supply interruption.

Accordingly Integral Energy claims that if a fault was to occur in either Feeder 9JA or 229 at a time of peak electricity demand, there would be no ability to meet any increase in demand beyond 2008 to 2009.

Blacktown City Council is of the view that the need to augment the electricity supply by December 2007 is not essential as “the new zone substation at Bella Vista will essentially result in an improvement in the reliability of electricity services provision from 2006 / 2007 to 2009 / 2010.”

The requirement for electricity to be transmitted in a south-east direction from the Vineyard bulk supply point to new consumers in the North West Growth Centres, is accepted by the Panel.

In addition it is clear that to provide a secure electricity supply to existing consumers in recently developed adjoining precincts, additional circuits must be installed prior to the time when load growth forecasts exceed alternate feeder capacity.

The wider community interest demands such action and foresight on the part of any electricity supply provider.

Therefore the Panel is convinced that it is essential that electricity supply to the region be augmented by December 2007.

### **8.3 PART 3A OF EP & A ACT AND PERMISSIBILITY OF USE**

Section 2.12 of the EA Report Vol 1 refers to the order of 29 July 05 and the subsequent amending legislation in August 2005 and concludes that the proposal is appropriate for consideration under Part 3A of the Act.

The EA report also concludes that use of the land which the transmission line passes through for the purposes of “utility installation” is permissible without consent under the *Blacktown Local Environmental Plan 1988*.

Further Integral Energy concludes that, as Clause 11 of *State Environmental Planning Policy No. 4: Development without consent and Miscellaneous Exempt and Complying Development* also provides that development for the purpose of electricity transmission lines may be carried out without development consent,

*“the proposal does not require development consent and constitutes an activity under Part 5 of the NSW Environmental Planning and Assessment Act 1979 for which an environmental assessment is required to be undertaken by the proponent, Integral Energy (Section 2.13 of EA Report).”*

Mr Bisits, a solicitor representing the VRMPD, in his advice to the Panel (21 February 2006) submits that the Environmental Assessment:

- Erroneously implies that the 9JA feeder is permissible without consent in the rural 1(a) zone in the Scheduled Lands – although consent is required;
- Fails to consider whether there was any development consent or existing use right for the existing line – although the existing line is an existing use;
- Erroneously states that *State Environmental Planning Policy No. 4* provides that development consent is not required for the proposed line – when the proposed line falls within the existing use exception to the SEPP; and
- Erroneously states, in sec 2.1.2 of the EA Report Vol 1, that the proposed line is a project under part 3A of the EPA Act.

The points made in the submission by Mr Bisits have been noted.

It is the Panel’s view that the proposal is within the provisions of Part 3A of the Act in that it falls within the provisions of Item 2(c) in Schedule 1 to Clause 35 of the Model Provisions.

It is the Panel’s view that the proposal is “...erections by way of addition to or replacement or extension of plant or structures or erections already installed or erected, including the installation in an electrical transmission line of substations, feeder pillars or transformer housing...”.

Further, in relation to the point regarding “existing use”, the land remains zoned under the *Blacktown Local Environmental Plan* as it was under the *County of Cumberland Planning Scheme Ordinance*. It is also noted that the same exemption provisions applied as they did

under *Ordinance 105*. Consequently, the provisions of *State Environmental Planning Policy No. 4* Clause 11(1) apply.

The effect of these various provisions is that the matter is able to be dealt with under Part 3A.

Notwithstanding the above comments, given the significance of this issue the Panel recommends that the Minister seek the Crown Solicitors advice in relation to this matter, prior to determination of the development proposal.

## **8.4 ALTERNATIVE ROUTES**

Integral Energy has considered 12 options for the project including overhead, underground or a combination of two on various routes. (Figures 4.8a to 4.8l, EA Report Vol 1).

A significant consideration involved the planning of the transmission lines either overhead or underground.

Those who oppose the proponent's preferred option indicated support for an undergrounding solution on various routes (including the existing easement) for different reasons.

Various overhead/underground options were put forward by the community. In the main the options include: co-location with the future North West Rail Link, use of the Eastern Creek Floodplain, use of First Ponds Creek Floodplain or along major arterial roads. These alternatives are discussed briefly below.

### **8.4.1 Co-Location with the Future North West Rail Link**

In relation to the issue of a potential co-location of an upgraded Integral Energy 9JA electricity easement with a possible option for extension of the North West Rail Link (NWRL) corridor from Rouse Hill to Vineyard on the existing Richmond line, RailCorp has advised (email of 3 February 2006) that it is likely that any future NWRL extension will go via Box Hill to the Richmond line, and it would not necessarily follow the existing 9JA easement (**Appendix 7b**).

Further, given the timing differences between the extension of the NWRL (not before 2020) and 9JA upgrade, RailCorp is not prepared at this time to enter into a commitment to any design discussions that could lead to co-location with 9JA and the NWRL extension stating that:

*"On a balance of probability the ultimate NWRL is likely to be on a totally different alignment to the 9JA easement."*

In addition, RailCorp advised:

*"If co-location is forced on NWRL, the risk of getting either 9JA and/or NWRL planning 'wrong' at this point of time without a fuller understanding of wider planning / land uses issues – cost implications may be considerable. Hence RailCorp prefers an alignment via Box Hill."*

#### **8.4.2 Eastern Creek Floodplain**

In relation to the Eastern Creek Floodplain the Panel notes (Integral Energy Submission to Panel) that it will be necessary to establish a switching station at Railway Terrace / Schofields Road; construct transmission line from Schofields Road to Vineyard via Eastern Creek floodplain, and construct additional transmission line from switching station to link to existing 9JA.

According to Integral Energy this option requires acquisition of a new easement through privately owned properties currently unencumbered by an easement and acquisition of individual properties to enable a suitable corridor to be established. This would result in many new additional landowners being affected and the proposed location of the switching station would require connections to 9JA, and pole heights in the flood plain would need to meet Probable Maximum Flood levels.

#### **8.4.3 First Ponds Creek**

In respect of First Ponds Creek, the Panel notes that it would be necessary to establish the switching station at Hambledon Road / Schofields Road, and construct a transmission line along First Ponds Creek Floodplain to Vineyard Bulk Supply Point and construction of additional transmission line to link to switching station to existing 9JA.

According to Integral Energy this option would require acquisition of a new easement through privately owned lands currently unencumbered by an easement and acquisition of individual properties to enable a suitable corridor to be established. This would result in many additional landowners being affected and the proposed location of the switching station would require connections to 9JA alignment and the creation of a new alignment in order to connect to Vineyard. Pole heights in the floodplain would also need to meet Probable Maximum Flood levels.

#### **8.4.4 Along major arterial roads**

Potential development corridors for the proposal were identified between Vineyard bulk supply point and the future site of the Rouse Hill Switching Station including:

- Riverstone Parade, Railway Terrace, Schofields Road;
- Hamilton Street, McCulloch Street, Boundary Road, Schofields Road;
- The route of the Feeder 9JA alignment; and
- Windsor Road, Schofields Road.

The Panel agrees with Integral Energy that options using the road reservations were inappropriate as it was not consistent with the principle of “Prudent Avoidance”, would remove the source of the problem from one location to another and that location of a corridor using road reservations was not practical because it would necessitate the partial or fully undergrounding of the transmission line within the respective road reservations, and as such would not be consistent with the Regulatory Bodies requirement for a prudent investment for Integral Energy.

The issue of undergrounding of the line or otherwise is discussed below.

## 8.5 THE PROPONENT'S PREFERRED OPTION

The proponent's preferred option which was the existing easement with overhead transmission line construction of the two circuits, in the opinion of the Panel, provides the most effective solution to balance the needs of existing and future electricity consumers and the long term interests of landowners in areas adjoining the easement.

It is important to recognise that if the line were to be placed underground in the easement prior to the release and development of the affected and adjoining properties, that the easement would remain for all time and the opportunity to reroute the underground cable would be lost.

As was the case in the land release in Stanhope Gardens and Newbury, it is possible to underground and reroute the cable in conjunction with development in the longer term.

This procedure if applied to the area in question could enable progressive undergrounding of the transmission lines as development occurs, partially funded by the release of land currently sterilised in the easement.

Therefore the proponent's preferred option provides flexibility to effectively plan and develop the whole region, and at the same time construct the desired underground cable solution in the most cost effective manner.

## 8.6 TERMS OF EASEMENT

A number of representations were made to the Panel in respect of the terms of the existing easement which carries the existing Feeder 9JA 132 kV transmission line. Essentially the claim is that the easement only allows it to be used for "railway purposes" and not for the construction of a transmission line.

Following representation from resident action groups, BCC sought legal advice from Phillip Fox (Solicitors) as to whether the proposed upgrade was permissible. The advice is summarised by Norman Waterhouse (Solicitors) in their advice to Blacktown City Council on 28 July 2005 as follows:

- "(a) The proposed change in use of the easement, or the relevant part of it, fell within the terms of the easement as granted and hence was permitted.*
- (b) Even if it were not, the Court would be unlikely to grant an injunction to restrain the upgrade.*
- (c) In any case, if the proposal were held not to be permitted by the terms of the easement, the matter would be rectified by legislation."*

Not content with this advice, the action group and/or individual members, sought advice from a Melbourne Lawyer, Mr A Bisits. His advice is also summarised by Norman Waterhouse as follows:

- "(a) The proposed upgrade was outside the terms of grant of the easement, not being for railway purposes.*
- (b) The prospects of obtaining an injunction, at least to prevent the construction of the upgraded facilities, were reasonably good.*

- (c) *It would be “odd” if legislation were now passed to alter the terms of the easement when it had been allowed to pass through several hands with no such change being made.”*

Faced with the conflict, Council sought Norman Waterhouse's advice on the questions raised. Their advice is summarised as follows:

1. *“The proposed installation of a high voltage transmission line by Integral Energy on the site of the easement created by Gazette notice of 8 April 1951 and affecting lot 100 in DP 632421 is outside the terms of grant of that easement, and is therefore impermissible.*
2. *The proposed high voltage line could be restrained by injunction at the suit of an affected owner or owners, subject to their giving an undertaking as to damages.*
3. *The possibility of legislative intervention to allow the proposed line to proceed cannot be discounted and it would be a matter for the individual owner or owners to decide whether legal action is warranted.”*

Subsequent to the above Clayton Utz (lawyers) on behalf of Integral Energy advised by letter dated 22 November 2005 that:

- *An analysis of legislative history indicates that “railway purposes”, when used in the context of the Easement, includes those purposes which were ordinarily conducted by the Commissioner for Railways including, in this instance, the provision of electricity.*
- *“the use of the Easement for the purpose of the existing line fell within the terms of the initial agreement of the Easement”.*
- *“the fact that the Easement refers to ‘railway purposes’ and uses ‘deemed to be requisite and convenient for the use of the railways’ does not preclude the Easement from providing a property basis for the supply and generation of electricity.”*

The letter concludes by advising Integral Energy that it

*“has an appropriate proprietary interest in the easement for the existing time and the proposed upgrade .....*”

On 3 February 2006 Mr Bisits wrote to the Panel on behalf of the Vineyard Riverstone Marsden Park Development Incorporation. Mr Bisits claims (for reasons set out in his letter) that the preferred option is not permitted by the easement over the Scheduled Lands, as

*“the terms of the easement to be used for the preferred option do not allow a general electricity transmission line of the kind proposed, but only high tension lines for railing purposes (which the proposed line is not).”*

Further the

*“Failure to recognise this limitation means that the true economic cost of Integral’s preference for using the easement route has not been taken into account.....”*

Mr Bisits also disagrees with the advice provided by Clayton Utz for the reasons set out in his letter.

Given the conflicting advice provided by the various parties and the significance of the easement in accommodating the upgrade, the Panel has sought the Crown solicitor’s view on this issue.

At the time of writing this report the Panel had not received the Crown Solicitor's advice.

Accordingly the Panel is of the view that the Minister should await receipt of that advice before determining the subject application.

## **8.7 MAGNETIC FIELD AND HEALTH**

### **8.7.1 Background**

Power frequency (50/60 Hz) magnetic fields have never been considered to be of particular concern for human health. A study published in 1979 however claimed that magnetic fields from high current installations such as power lines and substations in the proximity to residences were associated with increased risks of childhood cancer.

After more than 25 years of significant research worldwide there appears to be a general agreement amongst the experts that no adverse health effects results following exposure to 50/60 Hz electric and magnetic fields at levels found in the environment. This has been confirmed by major international reviews.

However, some studies have found that prolonged (residential) exposure to magnetic fields at levels above what is normally encountered, ~4 milligauss (mG)), is associated, statistically, with an increased incidence of childhood leukaemia. This research is not supported by animal or cellular studies.

The International Agency for Research in Cancer (IARC), part of the World Health Organization (WHO) is responsible for expert assessments on the carcinogenic potential of chemical and physical agents. In 2002 IARC concluded that 50/60 Hz magnetic fields are possibly but neither probably nor definitely carcinogenic to humans (classification Group 2B). Group 2B includes substances, physical agents and exposure situations for which the evidence falls short of strongly suggesting carcinogenicity but for which the evidence is suggestive. Society responds to these risks in various ways - not always by limitation or prohibition.

Standards currently applied around the world include limits to protect against known, short-term, effects. Typical exposure limits are 1000 mG for magnetic fields and 5 kV/m for electric fields. In applying the standards many authorities recommend a precautionary approach for magnetic fields but not for electric fields.

Some countries, including Australia have adopted a prudent avoidance approach '...doing whatever can be done at modest cost and without undue inconvenience to avoid the possible risk (to health)...'. Other countries apply non mandatory quality goals or installation limits.

### **8.7.2 Discussion**

There was a general concern expressed in all submissions (verbal and written) in relation to the potential health affects arising from power frequency electromagnetic fields (EMF).

The Panel notes that there was general agreement amongst the experts that questions have been raised over the past almost three decades as to whether the magnetic field associated with powerlines and electrical equipment may be harmful to health. Over the same period few questions have been raised about the electric field.

The Panel recognises that the issue of potential health affects from everyday exposure to magnetic fields has not been conclusively resolved despite intensive worldwide research.

The Panel agreed with the experts, however, that whilst potential health affects cannot be confirmed they cannot be ruled out.

In that regard it was the view of the NSW Department of Health that it was appropriate to use the principle of Prudent Avoidance when considering magnetic fields and new or upgraded high voltage power lines.

The Panel also agreed with the objective of the NSW Department of Health that, it is desirable to

*“avoid creating levels of magnetic field exposure higher than those exhibited prior to the upgrade.”*

and to

*“explore options to decrease magnetic field exposure to levels below those that existed prior to the upgrade.”*

In that regard, the Panel noted that based on the present magnetic field levels as a benchmark, all options identified in the EA will decrease magnetic fields in the short term (Figures 4.16 and 7.3 of EA Report Vol 1) but levels will increase with increasing load.

In particular, the preferred option is predicted to produce a magnetic field level similar to that which exists at present by the year 2031 and exceed it by 9 mG in 2043.

It is also noted that land releases in this area are likely to be developed over the next 25 to 30 years (although in the Scheduled Lands it may be earlier) with other areas developing much later.

Of those options identified, only those with an underground cabling element (I & E) will produce a magnetic field level similar or lower than existing levels in 2043.

Integral Energy acknowledges that the scientific uncertainty surrounding the issue of potential health affects from exposure to magnetic fields results in it being an important issue of concern for members of the community. However they also note that most people are exposed daily to magnetic fields irrespective of their location, since all electrical wiring and appliances generate magnetic fields when in use. Table 7.2 of the EA Report Vol 1 sets out typical magnetic fields from common electric appliances.

Further whilst Integral Energy notes that the predicted magnetic fields associated with the preferred option are substantially less than existing international guidelines or those established by the Australian National Health and Medical Research Council (NHMRC 1989), the Panel is inclined to adopt the more precautionary approach advocated by the NSW Department of Health.

The Panel is also aware that recent major international reviews including those by the International Commission on Non-Ionising Radiation Protection and the United Kingdom National Radiation Protection Board (now part of the UK Health Protection Agency) have found that the overall evidence for adverse health effects resulting from exposure to magnetic fields normally experienced by the general public is fairly weak and inconsistent.

Based on the above and having regard to the fact that the easement is only 30 m wide, it can be anticipated that if the preferred option goes ahead, an increased number of people in

the newly developed area would be exposed to higher magnetic field levels than those that currently exist unless the cable is undergrounded.

In that regard the NSW Department of Health has suggested that options such as undergrounding of the transmission line, reducing future dwelling density in the vicinity of the easement and increasing the width of the easement be explored. These options are discussed below.

### **8.7.3 Undergrounding of Transmission Line**

This option of undergrounding is discussed in **Section 9** of this report.

It is noted that magnetic fields at the edges of the existing easement will not reach existing levels until 2031 at a time when the majority of lands should be ready for urban development as foreshadowed by the North West Growth Centres Strategy. That is apart from the Riverstone Scheduled Lands which, could be available as early as 2011.

Undergrounding of the transmission line within the existing easement would be of no benefit to the existing landowners as it does not remove the sterilisation of land from future urban development as once the line was in place it would not be practical to design future development around it.

Undergrounding is feasible for the 1 km section within the scheduled lands near the town centre if, as foreshadowed, development were to take place in the next five years. In that regard if Landcom and the landowners are able to fund the undergrounding, this should be explored with Integral Energy.

Given the need to augment supply as soon as possible however, the upgrade should not be delayed, if the parties are unable to agree on immediate funding for the undergrounding of this section of the transmission line.

In relation to undergrounding the Panel have been advised that the ACCC would not approve Integral Energy funding the undergrounding of the transmission line as "prudent investment".

### **8.7.4 Future Density of Development**

The thrust of this option is that the density of development would be decreased in the vicinity of the transmission easement.

This option is likely to be impractical in particular for the Scheduled Lands and would have the affect of further sterilising other private lands traversed by the easement.

### **8.7.5 Increased Width of Easement**

The Panel notes that if the desired objectives of the NSW Department of Health were adopted and the future magnetic fields retained at current levels, the easement would have to be increased to 45 metres by, if not before 2031. In that regard the Panel notes that a typical transmission line easement for Transgrid is 45 metres in width for 132 kV double circuit steel tower of approximate 30 m in height and a 132 kV single circuit wood pole of approximately 15 m in height (**Appendix 7c**). The towers in the application are approximately 22 m in height.

The Panel also noted that the extent of the magnetic field at ground level decreases with increase in height of the towers.

In that regard the Panel is of the view that, notwithstanding the lack of scientific data in respect of the adverse impact of magnetic fields, it would not be unreasonable to adopt the NSW Department of Health's desirable goal of ensuring that magnetic fields do not increase beyond their current levels at the edge of the easement.

That is not to say that the easement should be widened for its entire length as this would raise issues of extended negotiations with landowners to widen the easement, and which could take considerable time to finalise when there is an urgency to ensure there is a safe, secure and reliable source of electricity to future home owners within the North West Growth Area.

The Panel in assessing the issue also takes into consideration that if the easement is widened now as suggested by some parties, this may represent an economic loss to property owners when the area is rezoned for urban development, notwithstanding that they would be compensated for the acquisition of the easement.

The Panel have been provided however with information which suggests that there are about 8 properties which would be affected by the increased magnetic field at the boundary of the existing easement by the year 2031. These are shown at **Appendix 7d**.

It is the view of the Panel in recommending approval of the proponent's preferred option that consideration should be given to compensating the landowners with existing (approved) dwellings that fall partly or fully within 22.5 m from the centreline of the 9JA easement to allow them to reconfigure their dwelling or relocate within the property or elsewhere, prior to operation of the transmission line.

## 9 ECONOMIC

Integral Energy considered twelve options for the project which entailed overhead and underground construction on various routes. The cost of each of the options were estimated and independently assessed in a report by Maunsell Australia which has been provided to the panel.

The proponent's preferred option comprises the construction of two single poles and twin mango conductors – overhead and fibre optic cabling, largely along the existing 9JA easement at a cost of \$16.8 million.

Whilst this was not the lowest cost option it was selected by the proponent following an assessment process which considered a range of factors.

A significant consideration involved the issue of placing the conductors overhead or underground.

In all of the community submissions opposing the proponent's preferred option, there were support for an underground solution, for a variety of reasons.

Persons living in close proximity to the existing easement expressed concern at the visual impact of the proposal and the potential increase in electromagnetic fields.

A consideration for those landowners whose properties were traversed by the easement was the adverse economic impact suffered by them at some time in the future when their

properties could be subdivided for urban development as part of the North West Growth Centres.

Residents at locations in the immediate precinct whose properties were not affected by the easement, indicated concern at the possible depressing effect on property values generally that may occur as the result of the proponents preferred option.

A particular concern was raised by resident groups representing landowners in the "Scheduled Lands" traversed by the easement and existing transmission line.

Due to the unique nature of their land subdivision, a multiplicity of owners and the desire to find a solution to the development impasse which has confronted them for many years, a solution in which cable undergrounding and relocation of the easement was the preferred option.

Underground options were considered by the proponent and the cost ranged from \$72.8 to \$130.3 million depending on the route.

Opponents to the proponent's preferred option argued that if the land sterilized in the easement, was released for subdivision, it would have a value which could contribute to the cost of underground installation (360 dwellings for the 30m wide easement).

Opponents have highlighted the circumstances where the transmission line in question 9JA, has been placed underground between Kellyville Ridge and Balmoral Road Parklea, to enhance the development of the suburbs of Newbury and Stanhope Gardens.

In this case the developers contributed through Landcom the cost differential between overhead and underground construction.

The Panel is of the view that a similar approach could be adopted between the Vineyard "Scheduled Lands" and the Rouse Hill switching station when these areas are rezoned for development.

Information received by the panel from the Growth Centres Commission, regarding proposed land release and rezoning for urban development within the North West Structure Plan, indicates that much of the land traversed by the easement for line 9JA is not subject to early consideration.

The Panel also notes many objectors to the proponent's preferred option have indicated they would accept an interim overhead solution if there is certainty that the long term solution is undergrounding the transmission lines when the area is redeveloped.

A number of parties also indicated that to relocate the transmission lines to other routes would have negative economic impact on land owners that are unencumbered by easement at the present while providing an economic benefit to owners along the existing easement.

The Panel agrees with this view.

In these circumstances on economic grounds there are no practical alternative to the proponent's preferred option, given the requirements of ACCC, the Australian Energy Regulator for prudent economic investment as defined by them.

## 10 SOCIAL

The key social issues identified by the community were:

- Electric and magnetic fields and perceived impacts on health;
- Visual impacts;
- Effects on property values; and
- Environmental assessment and options assessment process.

The Panel has considered the potential social impact of the proponent's preferred option. The issue of magnetic fields and health is addressed in **Section 8**, impacts on land values in **Section 9** and visual impacts in **Section 11**.

The Panel is of the view that the provision of a secure supply of electricity to the consumer is of paramount importance in today's society, due to the absolute reliance of the community, on electricity as an energy source, for lighting, cooking, heating, cooling, entertainment, and information.

The Panel is satisfied that the Environmental assessment and options assessment process is satisfactory and meets the objectives and requirements of the EP & A Act.

The establishment of the Rouse Hill switching station supplied by twin circuits from the Vineyard bulk supply point is an essential element in providing that security for the present and future residents of the North West Growth Centre.

Integral Energy has demonstrated the requirement for the switching station to be strategically located within the projected electricity distribution network for the region, at its proposed location on Schofields Road.

The connection between the Vineyard bulk supply point and the Rouse Hill switching station was described by Integral Energy as the "backbone" of the system; with twin circuits each rated to 500 MVA and initially configured to carry much of the electricity supply for the development of the North West Growth Centre.

The requirement for the proposal on the grounds of serving the wider community interest is therefore irrefutable.

The interest of the landowners affected by the proposal must also be considered on social grounds.

Those landowners, whose lands are currently traversed by the transmission line easement, are socially impacted in various ways, depending on the distance of their residence, from the support poles and electrical conductors of the proposed new transmission line construction.

For some the line is at a distance and the impact is visual, those adjacent to the easement, have indicated to the panel a psychological impact, and also a concern regarding the potential presence of an increased electromagnetic field.

From our inspection of the transmission line easement there would appear to be very few landowners in this latter category, however in our view their concern should be given special consideration in the consideration of the approval of the proponent's preferred option.

The easement was established under the provisions of the Government Railways Act 1912 for the purpose of constructing the Lithgow to Carlingford transmission line. At the time the easement acquired for this purpose was 30.48 metres wide.

A small number of residential buildings have been constructed adjacent to the easement and may be subject to a greater electromagnetic field as the transmission line carries an increasing load.

The projected electromagnetic field strength measurement for the proponent's preferred option was provided in Figure 5.5 of the EA Report Vol 1, and reveals that 22.5 metres from the centre of the easement operating at the load projected in year 2043 the Magnetic Field reading in milligauss would be the same as it is now.

The NSW Department of Health indicated that its preferred policy was for exposure levels to be decreased rather than increased, and that consideration be given to "including an element of underground cabling, restricting density of adjacent development, and increasing the width of easement"

Information was provided to the panel that Transgrid when establishing 132kV easements provides for a 45 metre width.

To respond to this question the panel believes that in determining the application consideration should be given to ensuring that landowners who currently occupy (approved) residential dwellings within a 22.5 metres from the centerline are provided fair compensation by the proponent prior to the operation of the commencement of operation of the line, to enable them to reconfigure their dwelling or to relocate within the property or elsewhere.

We estimate that this provision will not apply to many landowners and the cost will not be onerous for the proponent.

In respect to the general issue of constructing an underground line, on social grounds it could not be justified, as the wider community would be required to pay for a project which cannot be justified on economic grounds, for the financial benefit of a small number of landowners who seek an unquantifiable profit from their property at some time in the future.

If an underground solution was to be considered, then that should occur when the precinct in question is capable of rezoning for urban development.

## **11 ENVIRONMENTAL**

The Environmental Assessment prepared by the proponent deals extensively with the impact on Flora and Fauna, Visual, Heritage, Operational, Construction, and Electric and Magnetic Field issues.

In the previous section the Panel referred to the latter issues, and provided a course of action for consideration.

The Panel believes that the Flora and Fauna, Heritage, Operational impacts to be minimal, and the construction impact to be manageable.

The Panel observed that the existing Feeder 9JA easement passes through a variety of landscapes and urban and rural conditions.

The Panel was of the view that the support structure are relatively visually unobtrusive as they generally do not exceed the height of the tree canopy and apart from selected areas, impacts were considered to be acceptable in this particular instance.

Notwithstanding the above a new visual impact will be experienced by those persons currently living adjacent to or within sight of the proposed transmission line. However the proponent has put forward a number of construction and designed features for the purpose of softening the impact of the new line.

In the course of the enquiry the prospect of co-locating the transmission easement with the extension of the North West Rail Link beyond Rouse Hill, at some time in the future, was raised by various parties.

It was suggested that when the rail line is extended to the Richmond Line that an opportunity would arise to reroute the transmission line via the rail corridor.

An enquiry was directed to RailCorp who advise that any rail corridor to be considered would likely be well to the north of the existing 9JA transmission corridor.

In the circumstances the Panel is satisfied that the environmental issues have been satisfactorily addressed.

## **12 MAIN FINDINGS**

It is expected that some 60,000 new dwellings will be developed in the North West Growth Centres over the next 25 to 30 years, in addition other commercial and employment developments within the North West Sector.

The proposal involves a significant increase in the capacity of an existing 132 kV transmission line between the Transgrid bulk supply point at Vineyard and a planned Integral Energy switching station at Rouse Hill to service the future population in the North West Growth Centres.

There are conflicting views as to whether the use of the easement for the upgrading of the transmission is permissible within the various zones in the locality and whether it is appropriate for the upgrade to be dealt with in accordance with Part 3A of the EP & A Act.

The Transgrid bulk supply point has been designated the principal location for connection between the statewide 330 kV network and Integral Energy, for the provision of electricity to the North West Growth Centres.

The requirement for electricity to be transmitted in a south-east direction from the Vineyard bulk supply point to new consumers in the North West Growth Centre, is accepted by the Panel.

In addition it is clear that to provide a secure electricity supply to existing consumers in recently developed adjoining precincts, additional circuits must be installed prior to the time when load growth forecasts exceed alternate feeder capacity.

It is appropriate to use the principle of "Prudent Avoidance" when considering magnetic fields and new or upgraded high voltage power lines.

The Panel agrees with the desirable objective of the NSW Department of Health to avoid creating levels of magnetic field exposure higher than that existed prior to the upgrade.

If the desired objective of the NSW Department of Health is adopted and the future magnetic fields are maintained at current levels, the easement would need to be increased to 45 metres by June 2031.

There are 8 properties which would be affected by the increased magnetic field at the boundary of the existing easement by the year 2031.

Consideration should be given to compensating landowners with existing (approved) dwellings that fall partly or fully within 22.5 m from the centreline of the 9JA easement to

allow them to reconfigure their dwellings or relocate within the property or elsewhere, prior to the operation of the transmission line.

In terms of the economic justification the Panel noted that an economic assessment was performed for all options to satisfy ACCC Regulatory Test and the National Electricity Rules. The cost of all options was independently reviewed by Maunsell Australia. Further the economic assessment / modelling was independently reviewed by KPMG who found that the preferred option minimised the net present value of economic costs.

The Panel was satisfied that the preferred option utilises the existing easement whereas other options require additional properties to be encumbered by new easements.

The Panel was satisfied that the Environmental Assessment prepared on behalf of Integral Energy satisfactorily addresses the key environmental issues related to flora and fauna, visual, heritage, operational, and construction.

## **13 CONCLUSION**

That the Minister notes:

- Submissions from residents, community interest groups, Blacktown City Council, the NSW Department of Health, Sydney West Health Area Service and Integral Energy.
- That the area in which the transmission line is to be upgraded is part of the North West Sector Growth Area which will accommodate up to 60,000 dwellings within the next 25 to 30 years.
- An increase in capacity of the existing 9JA transmission line is required as a key element in the future planning of the area to provide a safe, secure and reliable supply of electricity to existing and future residents in the North West Sector.
- The NSW Department of Health (DoH) has adopted the concept of prudent avoidance when considering magnetic fields and new or upgraded high voltage power lines, and a desirable goal of not exposing residents to higher levels of magnetic fields than those which were in existence prior to the upgrade.
- That based on the DoH's desirable goal the preferred option is predicted to produce a magnetic field level similar to that which exists at present by the year 2031.
- The Panel are satisfied that:
  - i. The provision of a secure supply of electricity to the community is of paramount importance;
  - ii. The undergrounding of 9JA would not represent a prudent investment for Integral Energy;
  - iii. The use of the existing easement is the preferred route for the upgrade of electricity supply as proposed; and
  - iv. The Environmental Assessment prepared on behalf of Integral Energy satisfactorily addresses the key environmental issues.

## **14 RECOMMENDATIONS**

1. That the proponent's proposed option be endorsed for consideration by the Minister for Planning.
2. That in approving the proposed option consideration be given to providing that the proponent compensate landowners with existing approved dwellings, within 22.5 metres of the centreline of the 9JA easement to enable them to reconfigure their dwelling, or relocate within the property or elsewhere, prior to the operation of the transmission line.
3. That when the area traversed by the 9JA easement is considered for rezoning for urban development, that the question of underground construction of the cables be examined by the North West Growth Centres Commission on the basis of the easement being relinquished by the proponent as partial compensation for the cost of undergrounding the transmission line and that the balance be provided by the developers.