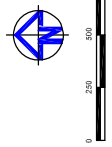


LEGEND

- RESIDENTIAL BUILDING OR OTHER STRUCTURE 
- RIVER, CREEK OR GULLY DRAINAGE LINE 
- PARKES PEAKING POWER PLANT FOOTPRINT 
- PROPOSED GAS LINE EASEMENT (ALTERNATIVE SECTION LIGHT BLUE) 
- PRIMARY VIEW CATCHMENT 
- INDICATIVE CADASTRAL BOUNDARIES 
- RIDGELINES 
- VEGETATION 
- RAILWAY LINE 
- LOCAL ROAD 
- TRACK / ACCESS ROAD 



NOTE:  
Roads, boundaries and buildings have not been surveyed. All base information obtained from aerial photography and is not survey accurate.



|        |                                                                     |              |                          |                       |
|--------|---------------------------------------------------------------------|--------------|--------------------------|-----------------------|
| Client | Project                                                             |              | Title                    |                       |
|        | INTERNATIONAL POWER (AUSTRALIA) PTY LTD                             |              | POTENTIAL VIEW CATCHMENT |                       |
| URS    | PRELIMINARY ENVIRONMENTAL ASSESSMENT - PARKES PEAKING POWER STATION |              | Figure: 9-3              |                       |
|        | Drawn: AH                                                           | Approved: CD | Date: 21/03/07           | File No: 43177456.003 |

## 9.3.4 Photo Locations



**Photo Location 1** – View northwest from top of dam in front of residence toward Parkes Peaking Power Plant.



**Photo Location 2** – View northeast from garden in front residence toward Parkes Peaking Power Plant. Site screened by existing trees



**Photo Location 3** – View east from residence access track toward Parkes Peaking Power Plant



**Photo Location 4** – View south from access road to existing substation and power plant site beyond. Parkes Peaking Power Plant screened by existing tree planting around substation site

## Chapter 9

## Landscape and Visual



**Photo Location 5** – View north from substation access road toward Condobolin Road illustrating existing power line easements



**Photo Location 6** – View south east from access road to existing substation facility



**Photo Location 7**– View north, northeast from dirt road adjoining Parkes Peaking Power Plant. Existing substation screened by existing tree planting



**Photo Location 8** – View north/northeast from dirt road south of Parkes Peaking Power Plant. Distant view to site partially screened by existing tree planting along road



**Photo Location 9** – View east along Condobolin Road corridor. View to Parkes Peaking Power Plant screened by roadside tree planting.



**Photo Location 10** – View west toward Parkes Peaking Power Plant from access track to residence (View Location 4).

## 9.4 Visual Assessment

### 9.4.1 Introduction

The potential visual impact of the Parkes Peaking Power Plant could result primarily from the combination of two factors:

- The level of visibility or extent to which the Parkes Peaking Power Plant structures would be visible from surrounding areas; and
- The degree of visual contrast between the Parkes Peaking Power Plant structures and the landscape surrounding the site that would form a background that would be visible from surrounding view locations.

The potential visual impact from particular view situations is strongly dependent on the level of visibility from that location, which in turn is dependent on a number of criteria that are defined in **Table 9-1**.

### 9.4.2 Visibility

Visibility is a measure of the extent to which particular structures of the Parkes Peaking Power Plant would be visible from surrounding areas, the relative number of viewers, the period of the view, view distance and context of the view.

The underlying rationale for this component of the visual assessment is that, if a part of the Parkes Peaking Power Plant is not visible from a particular area then the potential visual impact will be nil. Similarly, if the number of people who would potentially see the Parkes Peaking Power Plant is low, then the visual impact would be low compared to a situation in which a large number of people have the same view. Distance is a strong influence on potential visual impact as the proportion of the total

## Chapter 9

## Landscape and Visual

view occupied by the structure decreases with distance and atmospheric effects reduce the visual contrast between the structure and the surrounding landscape.

### 9.4.3 Visual Contrast

Visual contrast between the Parkes Peaking Power Plant and the background against which it is viewed determines the capacity of the existing landscape setting to visually absorb the new structures without creating a significant change in visual character or producing a reduction in visual quality of the landscape. The capacity to absorb new development is dependent on existing structures, vegetation cover and landform.

At a distance, atmospheric effects could reduce the level of visual contrast between the Parkes Peaking Power Plant exhaust stacks and landscape setting in which it is viewed. The reduced visual contrast can result in a lower level of visual impact. If the Parkes Peaking Power Plant exhaust stacks were dark in tone and non-reflective then the visual contrast would be further reduced.

### 9.4.4 Visual Assessment Criteria

The potential visual impact of the Parkes Peaking Power Plant structures from key view situations has been assessed against the criteria described in **Table 9-1**.

**Table 9-1 View Situation Assessment Criteria**

| Criteria                 | Definition                 |
|--------------------------|----------------------------|
| <i>Number of Viewers</i> |                            |
| High                     | >5,000 people per day      |
| Moderate                 | 1,000-5,000 people per day |
| Low                      | 100-1000 people per day    |
| Very Low                 | <100 people per day        |
| <i>View Distance</i>     |                            |
| Long                     | >2km                       |
| Medium                   | 1km-2km                    |
| Short                    | 500-1km                    |
| Very short               | <500m                      |
| <i>Period of View</i>    |                            |
| Long term                | >120 minutes               |
| Moderate term            | 1-120 minutes              |
| Short term               | <1minute                   |

The levels of visibility resulting from various combinations of the above criteria are listed in **Table 9-2**.

**Table 9-2 Visibility Criteria Matrix**

|                         | Long Distance |   |   | Medium Distance |   |   | Short Distance |   |   | Very Short Distance |   |   |
|-------------------------|---------------|---|---|-----------------|---|---|----------------|---|---|---------------------|---|---|
| Period of View          | L             | M | S | L               | M | S | L              | M | S | L                   | M | S |
| High No. of Viewers     | M             | L | L | H               | M | M | H              | H | M | H                   | H | H |
| Medium No. of Viewers   | L             | L | L | M               | M | L | H              | M | M | H                   | H | M |
| Low No. of Viewers      | L             | L | L | M               | L | L | M              | M | L | H                   | M | L |
| Very Low No. of Viewers | L             | L | L | L               | L | L | L              | L | L | M                   | L | L |

- **Period of View** L=long, M=medium, S=short
- **Levels of visibility** L=low, M=medium and H=high

## 9.5 Visibility Matrix

**Table 9-3** presents the results of the visibility assessment from the various potential view situations identified during the field inspection.

**Table 9-3 Visibility Matrix**

| VIEW LOCATION                                            | APPROX DISTANCE TO SITE    | CATEGORY OF VIEWER   | APPROX PERIOD OF VIEW | RELATIVE NO. OF VIEWERS | LEVEL OF VISIBILITY                                                                                                             | VISIBILITY RATING |
|----------------------------------------------------------|----------------------------|----------------------|-----------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------|
| View Location 1<br>Rural residences<br>'Millers Lookout' | Long<br>(around 3km)       | Residents            | Moderate to Long term | Very Low                | Views from residences south toward the Parkes Peaking Power Plant site are blocked by a combination of landform and vegetation. | Nil               |
| View Location 2<br>Condobolin Road - westbound           | Varies, Long to Very Short | Motorist             | Short term            | Low                     | View from road corridor toward Parkes Peaking Power Plant site screened by vegetation.                                          | Nil               |
| View Location 3<br>Rural residence                       | Long<br>(around 2.1km)     | Resident             | Moderate to Long term | Very Low                | View from residence southwest toward Parkes Peaking Power Plant site blocked by vegetation.                                     | Nil               |
| View Location 4<br>Access track to residence             | Medium<br>(around 1.3km)   | Motorist or resident | Short                 | Very Low                | View west from gated access track toward Parkes Peaking Power Plant. The Site partially screened by existing trees.             | Low               |
| View Location 5<br>Rural residence                       | Short<br>(around 900m)     | Resident             | Moderate to Long term | Very Low                | View from residence northwest toward the Parkes Peaking Power Plant site partially screened by vegetation.                      | Low               |

## Chapter 9

## Landscape and Visual

| VIEW LOCATION                                     | APPROX DISTANCE TO SITE                     | CATEGORY OF VIEWER | APPROX PERIOD OF VIEW | RELATIVE NO. OF VIEWERS | LEVEL OF VISIBILITY                                                                                                                                                                     | VISIBILITY RATING |
|---------------------------------------------------|---------------------------------------------|--------------------|-----------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| View Location 6<br>Rural residence                | Long<br>(around 3.3km)                      | Resident           | Moderate to Long term | Very Low                | Views north toward the Parkes Peaking Power Plant site from residence generally blocked by a combination of landform and vegetation.                                                    | Nil               |
| View Location 7<br>Rural residence                | Medium<br>(around 1.2km)                    | Resident           | Moderate to Long term | Very Low                | View from residence north east toward the Parkes Peaking Power Plant site is blocked by tree planting.                                                                                  | Nil               |
| View Location 8<br>Access track to residence      | Varies Medium to Short (around 800 to 900m) | Motorist           | Short term            | Very Low                | View from access track east toward the Parkes Peaking Power Plant site is generally blocked by a combination of landform and trees. Some partial views to the Site occur between trees. | Low               |
| View Location 9<br>Access road toward sub station | Short                                       | Motorist           | Short term            | Very Low                | View from access road toward sub station and potentially Parkes Peaking Power Plant beyond.                                                                                             | Low               |
| View Location 10<br>Dirt access track             | Varies Long to short                        | Motorist           | Short term            | Very Low                | Views toward Parkes Peaking Power Plant site generally screened by existing trees along track. Occasional short distance views available adjacent to site.                              | Low               |
| View Location 11<br>Condobolin Road - eastbound   | Varies, Long to Very Short                  | Motorist           | Short term            | Low                     | View from road corridor toward Parkes Peaking Power Plant site screened by vegetation.                                                                                                  | Nil               |
| View Location 12<br>Residence                     | Medium                                      | Resident           | Moderate to Long term | Very Low                | View southeast toward Parkes Peaking Power Plant site screened by a combination of landform and vegetation.                                                                             | Nil               |
| View Location 13<br>Residence                     | Long<br>(around 2.8km)                      | Resident           | Moderate to Long term | Very Low                | View southwest toward Parkes Peaking Power Plant site generally screened by tree planting along Condobolin Road and around existing sub station.                                        | Nil               |
| View Location 14<br>Residence                     | Long (around 3.3km)                         | Resident           | Moderate to Long term | Very Low                | View southwest toward Parkes Peaking Power Plant site generally screened by tree planting around residence, along Condobolin Road and around existing sub station.                      | Nil               |

| VIEW LOCATION              | APPROX DISTANCE TO SITE | CATEGORY OF VIEWER | APPROX PERIOD OF VIEW | RELATIVE NO. OF VIEWERS | LEVEL OF VISIBILITY                                                                                                      | VISIBILITY RATING |
|----------------------------|-------------------------|--------------------|-----------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|
| View Location 15 Residence | Long (around 2.9km)     | Resident           | Moderate to Long term | Very Low                | View west toward Parkes Peaking Power Plant site generally screened by tree planting along the Condobolin Road corridor. | Nil               |
| View Location 16 Residence | Long                    | Resident           | Moderate to Long term | Very Low                | View west toward Parkes Peaking Power Plant site generally blocked by landform of 'Millers Lookout' hill.                | Nil               |
| View Location 17 Residence | Long                    | Resident           | Moderate to Long term | Very Low                | View west toward Parkes Peaking Power Plant site generally blocked by landform of 'Millers Lookout' hill.                | Nil               |

### 9.5.1 Summary of Visibility Assessment

A total of 17 view locations were identified as part of the visual assessment process, and included views from:

- residences;
- vacant/rural land;
- public road corridors (motorists); and
- private access roads.

An assessment of the visibility rating for each view location indicated that:

- 12 of the 17 view locations have been determined to have a **NIL** visibility rating;
- 5 of the 17 view locations has been determined to have a **LOW** visibility rating;

Only one of the view locations from residences included in the visual assessment was determined to have a direct line of sight to the Parkes Peaking Power Plant site.

## 9.6 Natural Gas Supply Pipeline

The Parkes Peaking Power Plant would be supplied with natural gas from an off-take from the existing Central West Pipeline at Parkes.

The preferred route for the underground natural gas pipeline extends from the existing supply line as depicted in **Figure 9-1** and **Figure 1-2**.

The majority of the natural gas pipeline route would be located beneath existing agricultural land, apart from relatively short sections that occur beneath road and rail lines

## Chapter 9

## Landscape and Visual

### 9.7 Visual Simulations

To illustrate how the site would look after construction, visual simulations were prepared to determine the potential view from View Location 5 as indicated on **Figure 9-2**. This location was selected due to the direct line of sight to the site noted during the field inspection.

The visual simulations were generated through the following steps:

- Photographs were taken from the view simulation location point and then digitised. A standard 50mm focal length camera was used to take the photographs, as this is generally accepted as most closely representing the primary view cone of the human eye. However the human eye also has peripheral vision and consequently the view from the visual simulation locations would include other structures within the peripheral vision of the viewer.
- The view location (camera position) was fixed by coordinate points.
- The camera angle and direction was then matched to the model by reference to the existing elements.
- The 3-D model of the proposed facility was then electronically placed into the electronic photograph images to accurately locate the portions of the Parkes Peaking Power Plant that would be visible.
- Finally the images were imported to Adobe Photoshop to be digitally stitched together, and for redundant objects to be removed from the background of the original image.

**Figure 9-4** shows the existing view from the site. The visual simulations are illustrated in **Figures 9-5, 9-6, and 9-7**.

The visual simulations are indicative and prepared for illustrative purposes only. Actual views may vary depending on final layout and design of the site and prevailing environmental conditions influencing rates of tree growth.

**URS**

|                         |              |                       |
|-------------------------|--------------|-----------------------|
| Drawn: BH               | Approved: CJ | Date: 18/12/2006      |
| Job No: <b>43177456</b> |              | File No: 43177456.033 |

URS

|                                                                                    |                   |                    |                                                                      |                                                                          |                                                              |                  |                                                         |                        |
|------------------------------------------------------------------------------------|-------------------|--------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------|------------------|---------------------------------------------------------|------------------------|
| <div> <div>INTERNATIONAL POWER<br/>(AUSTRALIA) PTY LTD</div> <div>URS</div> </div> | <div>Client</div> | <div>Project</div> | <div>ENVIRONMENTAL ASSESSMENT<br/>- PARKES PEAKING POWER PLANT</div> | <div>Drawn: BH</div> <div>Approved: CJ</div> <div>Date: 18/12/2006</div> | <div>Job No: 43177456</div> <div>File No: 43177456.033</div> | <div>Title</div> | <div>VISUAL SIMULATION<br/>FOLLOWING CONSTRUCTION</div> | <div>Figure: 9-5</div> |
|------------------------------------------------------------------------------------|-------------------|--------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------|------------------|---------------------------------------------------------|------------------------|



INDICATIVE VIEW NORTH WEST  
FROM VIEW LOCATION 5 TOWARD  
DEVELOPMENT SITE 10 YEARS  
POST CONSTRUCTION



NOTE: The visual simulation is indicative and prepared for illustrative purposes only. Actual views may vary depending on final layout and design of the power station site and prevailing environmental conditions influencing rates of tree growth.

|                                                                       |        |         |                                                          |                       |                  |  |       |                                                 |
|-----------------------------------------------------------------------|--------|---------|----------------------------------------------------------|-----------------------|------------------|--|-------|-------------------------------------------------|
| <div>INTERNATIONAL POWER<br/>(AUSTRALIA) PTY LTD</div> <div>URS</div> | Client | Project | ENVIRONMENTAL ASSESSMENT<br>- PARKES PEAKING POWER PLANT |                       |                  |  | Title | VISUAL SIMULATION<br>10 YEARS POST CONSTRUCTION |
|                                                                       |        |         | Drawn: BH                                                | Approved: CJ          | Date: 18/12/2006 |  |       |                                                 |
|                                                                       |        |         | Job No: 43177456                                         | File No: 43177456.033 |                  |  |       |                                                 |
|                                                                       |        |         | Figure: 9-6                                              |                       |                  |  |       |                                                 |



INDICATIVE VIEW NORTH WEST  
FROM VIEW LOCATION 5 TOWARD  
DEVELOPMENT SITE 20 YEARS  
POST CONSTRUCTION



NOTE: The visual simulation is indicative and prepared for illustrative purposes only. Actual views may vary depending on final layout and design of the power station site and prevailing environmental conditions influencing rates of tree growth.

|                                                                                       |                                            |             |                                                          |                       |                  |       |                                                 |
|---------------------------------------------------------------------------------------|--------------------------------------------|-------------|----------------------------------------------------------|-----------------------|------------------|-------|-------------------------------------------------|
| Client                                                                                | INTERNATIONAL POWER<br>(AUSTRALIA) PTY LTD | Project     | ENVIRONMENTAL ASSESSMENT<br>- PARKES PEAKING POWER PLANT |                       |                  | Title | VISUAL SIMULATION<br>20 YEARS POST CONSTRUCTION |
|                                                                                       |                                            |             | Drawn: BH                                                | Approved: CJ          | Date: 18/12/2006 |       |                                                 |
|                                                                                       |                                            |             | Job No: 43177456                                         | File No: 43177456.033 |                  |       |                                                 |
|  |                                            | Figure: 9-7 |                                                          |                       |                  |       |                                                 |

### 9.7.1 Summary of Visual Simulations

The visual simulations, illustrate that:

- Immediately following construction, the site will be visible from View Location 5, including views to the power plant exhaust stacks and storage tanks, as well as other auxiliary structures within the site.
- At ten years post construction, the site would be partially screened, although the upper half to third (5 to 7m) of the exhaust stacks may still be visible. Glimpsed views to auxiliary structures may also be possible through gaps in tree canopy, but views of the site would be largely screened by tree planting around the site boundary.
- At twenty years post construction, the power plant and auxiliary structures would be generally screened by tree planting around the site boundary, although it may still be possible to view the top portions (2 to 3m) of the exhaust stacks through upper sections of the tree canopy.

It is possible that some beneficial screening of the site may occur following tree planting prior to the ten year period, although this would be restricted to the lower portions of structures within the site and also depend on the success of tree establishment and initial growth rates of tree planting.

## 9.8 Mitigation Measures

While the overall potential visual impact of the Parkes Peaking Power Plant has been assessed as low the following mitigation measures would potentially reduce the level of visual impact.

The mitigation measures involve a combination of screening of views (tree planting) and reducing the visual contrast between the visible portions of structure and the surrounding landscape.

### 9.8.1 Structures

The colour and texture of structures in the Parkes Peaking Power Plant would be selected to blend with the surrounding landscape and utilise non-reflective materials. This would potentially minimise the visual contrast between the structures and existing tree cover to the north and west of the site.

### 9.8.2 Screen Planting

Tree and shrub planting within the boundary of the site, utilising woodland species indigenous to the area, would provide additional screening to views from the south and west of the site. Possible species suitable for screening purposes include the following:

- *Callitris glaucophylla* (White Cypress Pine)
- *Eucalyptus microcarpa* (Grey Box)
- *Eucalyptus blakelyi* (Blakely's Red Gum)
- *Eucalyptus melliodora* (Yellow Box)
- *Eucalyptus conica* (Fuzzy Box)
- *Eucalyptus macrocarpa* (Western Grey Box)

## Chapter 9

## Landscape and Visual

## 9.8.3 Lighting

- Lighting associated with the Parkes Peaking Power Plant would be designed to minimise direct line of sight from homesteads surrounding the site.
- The top of the exhaust stacks would not have permanent lighting.
- Large floodlights would generally not be used, although it is likely that some lights may be required for emergency lighting to allow emergency maintenance.
- Security lighting would be designed not to spill light onto surrounding residences.

## 9.8.4 Summary of Mitigating Measures

A summary of the visual mitigation measures is presented in **Table 9-4**.

**Table 9-4 Summary of visual Mitigation Measures**

| Mitigation Measure                                                                                                                                                 | Implementation    |              |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|-----------|
|                                                                                                                                                                    | Planning & Design | Construction | Operation |
| Colour and texture of structures in the Parkes Peaking Power Plant should be selected to blend with the surrounding landscape and utilise non-reflective materials | ✓                 |              |           |
| Tree and shrub planting should be carried out within the site to provide additional screening to views from surrounding areas.                                     |                   |              | ✓         |
| Lighting should minimise direct line of sight from homesteads to the east of the site.                                                                             | ✓                 |              | ✓         |
| Top of the exhaust stacks should not normally have lighting attached to them.                                                                                      | ✓                 |              | ✓         |
| Large floodlights should generally not be used other than for emergency lighting.                                                                                  | ✓                 |              | ✓         |
| Security lighting should not spill onto surrounding residences.                                                                                                    | ✓                 |              | ✓         |

## 9.9 Conclusion

This Visual Assessment concludes that the Parkes Peaking Power Plant would have a low visual impact on people in areas surrounding the site due to a combination of the following factors:

- Existing trees and natural landforms generally screen the majority of views to the site and would, in most instances, screen the up to 20m high exhaust stacks from surrounding areas.
- Distant and partial views to the upper portions of the exhaust stacks may occur from a limited number of surrounding properties or road corridors, although views would generally be restricted to areas of unoccupied agricultural land surrounding residences.
- The exhaust stacks, which are the highest structures, would only be directly visible from a limited number of surrounding properties, and views to the exhaust stacks would generally be restricted to partial views of the exhaust stack structures.
- The use of colours selected to blend with the surroundings and non-reflective materials would minimise the visual contrast between the Parkes Peaking Power Plant structures and tree canopy background to the north of the site from potential surrounding views.
- In the long term, tree planting around the boundary of the site would provide additional visual screening to potential views from surrounding areas.
- Lighting design would generally minimise direct line of sight from residences that are located to the west of the site.
- No visible emissions are expected to be discharged from the gas turbine exhaust stacks.
- The visibility of machinery and excavations for the construction and installation of a natural gas supply pipeline would be temporary during the installation of the pipeline. Existing surface areas would be expected to be returned to largely existing ground conditions. The preferred route for the natural gas supply pipeline would require minimal disturbance to existing trees along the pipeline alignment.