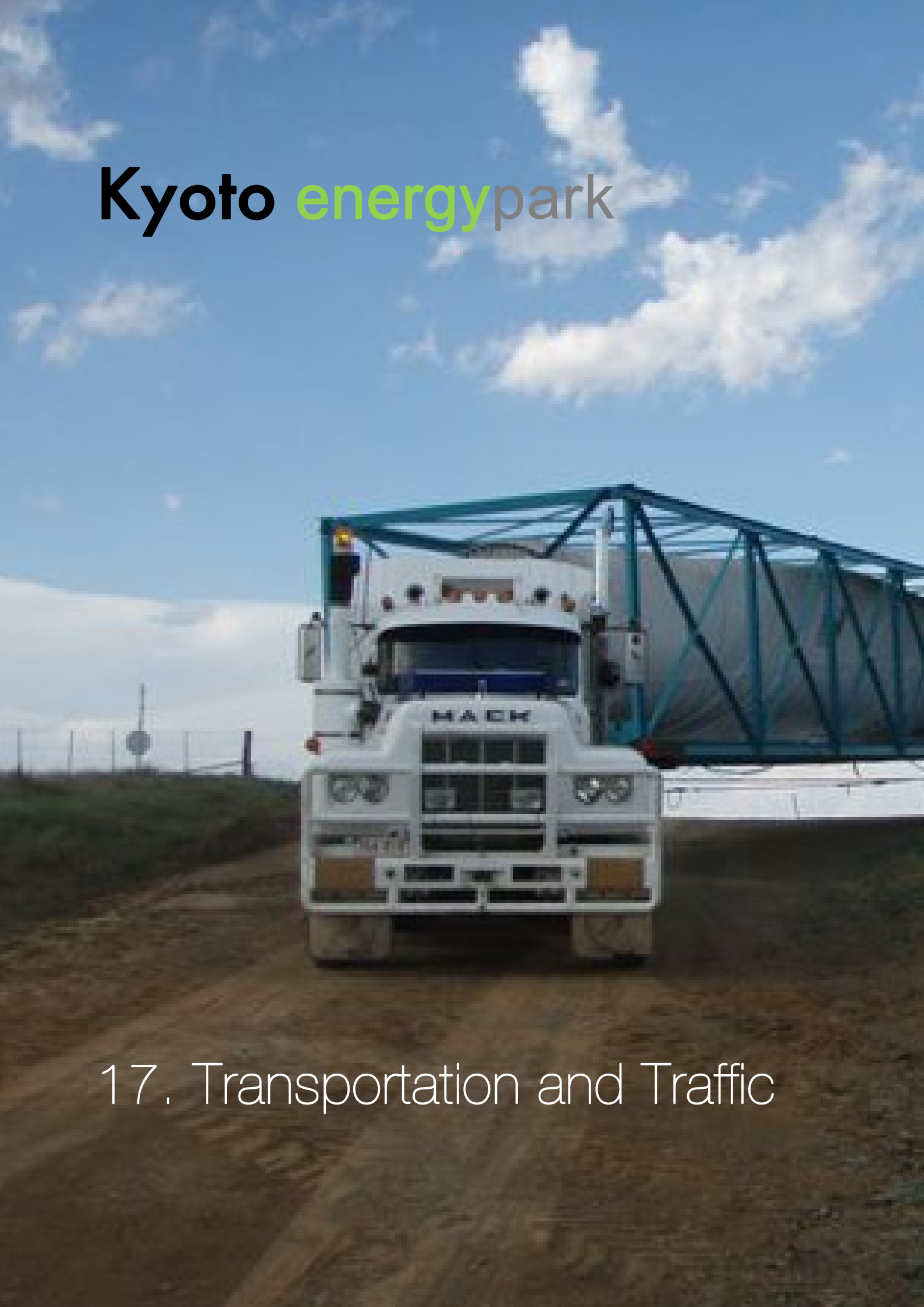
Kyoto energypark



17. Transportation and Traffic

17.0 TRANSPORTATION AND TRAFFIC

17.1 Introduction

The Traffic and Transportation Assessment was undertaken by Pamada Pty Ltd and is contained in *Appendix J Traffic and Transportation Impact Assessment (May 2008)*.

Pamada Pty Ltd have been involved with construction and logistics operations for wind farm projects in South Australia and therefore have the experience for detailed logistical planning and consultation in wind farm development.

This assessment is limited to traffic issues external to the proposed Kyoto Energy Park sites. The report took in to consideration transportation and traffic impacts for construction, operation and decommissioning stages. The detailed assessment includes consideration of the following:

- The suitability of the existing road infrastructure for overmass and oversize special purpose vehicles accessing the site;
- The type and number of vehicles generated during the construction and operational phases;
- Statutory and permit requirements for oversize and overmass vehicles and access on local road networks;
- Traffic generation and safety issues;
- Port of entry options for safe and efficient handling of over-dimensional components.
- Recommendations to be included in Environmental Management during construction and operation.

17.2 Transport of Oversize and Over Mass Components

During the construction phase of the project it will be required to transport oversize and/or overmass components consisting of the following:

Wind Turbine Components

The report considered the transport requirements for the Suzlon s88 2.1 MW Wind Turbine Generator. For the purposes of this report the Vestas V90 3.0MW is similar in size and weight of the components to the Suzlon machine.

The components of the turbines are transported in the following way:

- Tower sections or tubes - transported individually using low bed or multi-axle truck trailers. Currently manufactured in Victoria and South Australia and Queensland. The tubes will most likely transported by road and require an oversize and overmass permit from the RTA. Currently there is an option to manufacture tubes within the Newcastle area which is being investigated.
- Blades - which are transported individually or in pairs on registered extendable trailers. The blades will require an oversize permit from the RTA.
- Nacelles - transported individually using low bed or multi-axle truck trailers (see typical transport arrangement Figure 17.0). Nacelles will require an overmass and oversize permit.
- Nose cones - transported in pairs on a flat bed truck. No permits are required for transport.
- Hubs - transported individually using flat bed truck or semi-trailer. No permits are required for transport.

Substation Transformer

Up to 2 transformers will be transported separately on a large multi-axle low loader trailer with assisted pilot vehicle and police escort. At 55-70 tonne, it will require an over mass permit for transportation.

Concrete Batching Plant

The plant will be mobile and of a size that will require a permit from the RTA for transportation.

Earthmoving equipment and Heavy Cranes

Heavy earthmoving equipment will be transported during site establishment stages on multi-axle low load trailers. Large and small cranes will be needed during loading, unloading and erection.

Figure 17.0 Transportation of a turbine nacelle with pilot vehicle at rear

17.3 Roads and Traffic Authority Requirements

Over size and over mass permits are required from the NSW RTA for load-carrying and Special Purpose Vehicles (SPVs) exceeding standard dimensions and mass limits. Oversize permits are required for loaded vehicle dimensions exceeding maximum standard dimension limits of 19.0 m long, 2.5 m wide and 4.3 m high. Mass limits are based on axle spacing of the truck and trailer and requirements from the RTA.

The RTA Special Permit Unit was consulted and advised that the dimensions of all oversize and overmass components would be required by permit application prior to transportation being approved. Also prior to transportation and of heavy components and subject to RTA requirements for permits inspections and dilapidation surveys may be required on local roads. Dilapidation surveys may also be required following the construction period to determine extent of damage on local roads from oversize and overmass vehicles.

17.4 Port Options

Wind turbine components including nacelles, blades, hubs and nose cones, panels and accessories will be manufactured oversees and shipped to Port. Four wind turbine models are being considered for the purpose of the assessment, the Traffic and Transport report considered the transport requirements for the Suzlon s88 2.1 MW Wind Turbine Generator which is one of the most common turbines currently used within Australia.

Approximately 3-4 ships will be required to transport turbine parts (excluding tower tubes), docking at 1-2 monthly intervals. The ports must have the capacity to handle ship dimensions (normally 150 metres length and 25-30 width), and berths must have capacity for lifting of heavy components (up to 100 tonne capacity).

Four port options were considered in the Assessment. Based on discussion with the Port Authorities, local Haulage Contractors and a site inspection of the Newcastle Port. The Port of Newcastle is the favoured option, as it is the most feasible option commercially and logistically. It can accommodate the specific requirements needed for unloading the components from the ship to the dock. Sufficient storage area is also available as shown in Figure 17.1 below.

Figure 17.1 – Proposed storage at Eastern Basin Port Newcastle

17.5 Transportation scheduling

The process of transportation will occur in the following manner:

1. Turbine components will be unloaded at the dock and generally stored at the port storage areas prior to scheduling transportation to site. Components may be stored at dock for 2 weeks prior to road scheduling for transportation to site;
2. Components will then be transported to the Mountain Station site by road;
3. On arrival to the Mountain Station site, components will be taken directly to hardstand areas for erection by heavy lifting cranes or unpacked in the laydown area and prepared prior to installation at turbine locations.

17.6 Transportation Routes

A survey of the proposed routes was undertaken in May 2008 by Pamada Pty Ltd. Transportation options considered include rail, road and shipping.

Rail Transport

Rail transport was not considered as a feasible option from Newcastle Port due to the potential to damage to sensitive turbine components, rail width, height clearance restrictions, and logistics constraints.

Road Transport

The preferred transport method is haulage by road. By the nature of design, the Kyoto Energy Park components will generate minimal traffic movements once operating.

17.7 Preferred Route Port Newcastle to Kyoto Energy Park Route

For trips with restrictive mass and length diversion, limitations routes were investigated. Prior to inspection of the proposed routes discussions were held with the RTA Special Permits Unit, Newcastle Stevedores and a local Heavy Haulage Contractor specialising in transport of oversize components in the area, such as 45m conveyors and 90 tonne capacity earthmoving equipment for the Hunter mines.

11 routes (including diversion routes) were surveyed by Pamada by vehicle for possible 'pinch' locations and areas where diversions around rural population centres such as Singleton, Muswellbrook and Scone could be made. A more detailed evaluation will be made by the RTA upon receipt of a permit application.

17.8 Site Access

The Mountain and Middlebrook Station sites are accessed from the main access points on Bunnan Road. The Mountain Station access will require relocation of the entryway to meet sight distance requirements while the current Middlebrook entry is adequate.

An internal track network will be developed for the purpose of accessing all components of the energy park. Any existing roads on the sites will be upgraded where necessary.

The existing and proposed Mountain Station access points are shown in Figure 17.2. The existing (same as proposed) access point for Middlebrook Station is shown in Figure 17.3.

Figure 17.2 Existing and proposed Mountain Station Site Access Point

Figure 17.3 Existing Middlebrook Station Site Access Point

17.9 Traffic Generation

Traffic Generation from site activities has been split into heavy and light vehicle movements for various construction activities as detailed in Appendix J and summarised in Section 3.1.15.

Heavy vehicle movements would be generated for larger components including substation transformers and turbine components. Light vehicle movements (Cars and 4WDs) would be used to transport workers and staff during construction periods.

Heavy vehicle movements would generally access the site via the indirect route (bypassing Scone), with the light vehicle access route via Bunnan Road to both site access points.

For traffic generation the worst case scenario has been assumed based on construction timeframe outlined in Table 3.2 and traffic generation activities outlined in Table 3.0. The maximum heavy vehicle movement is 8 one way movements per day (loaded) or 16 two way movements for a two month period. This would occur during concrete pours. As heavy vehicles would use the indirect route negligible impact is envisaged. While traffic on this section of the route is very low escorts and pilots will ensure free flow and access for intermittent vehicles. The Noise assessment has conservatively doubled predicted movements i.e. 20 one way heavy vehicle movements.

The Traffic and Transportation Report (*Appendix J*) highlights various mitigation measures that can be implemented to address impacts arising through transportation effects and traffic impacts. Traffic generation is likely to be minimal in relation to existing traffic conditions on schedules and local road networks. Localised impacts as a result of moving overmass and oversize components will be managed effectively to reduce road disruptions.

A Transport Management Plan (TMP) will be required and is allowed for. The TMP will address all aspects of road transportation and quantify impacts and amelioration procedures for improvements to local roads, community consultation and awareness, traffic and safety management.

An increase in traffic through Scone and the surrounding area will occur. The level of increase will vary between the construction and operational periods.

The main sources of construction traffic are:

- Tower & Turbine Traffic and Electrical Component Delivery
- Heavy Earthmoving and Erection Equipment;
- Foundation Construction / and Rock Anchors;
- Concrete aggregate, Sand and Cement;
- Water Supply for Concrete and Dust Suppression;
- Supply and Installation of the Solar PV Plant;
- Supply and Installation of the Closed loop Hydro Plant;
- Construction of Electrical transmission line connecting to the local grid;
- Employee Traffic

The main sources of traffic during the operational period are:

- Employee and Maintenance traffic
- Traffic associated with the Visitor's and Education Centre.

Kyoto Energy Park Scone is wholly an Australian Enterprise. The Management is 100% Australian.
The funding of this proposal and report is 100% Australian.
An Australian Project

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