



Climate  
Change  
Australia

Clarence Branch  
PO Box 1324  
Grafton NSW 2460

[clarencedclimate@yahoo.com.au](mailto:clarencedclimate@yahoo.com.au)

[www.climatechangeaustralia.org](http://www.climatechangeaustralia.org)

Member group of Climate Action Network Australia

The Director, NSW Department of Planning  
Pacific Highway Assessment Team, Major Projects Assessment

sent by email to: [Kylie.Seretis@planning.nsw.gov.au](mailto:Kylie.Seretis@planning.nsw.gov.au)

### **Submission on Glenugie upgrade of the Pacific Highway**

The Clarence branch of Climate Change Australia was formed as a local community group to respond to climate change issues. We aim to raise community awareness and responsibility about climate change issues and impacts, to encourage everyone to conserve energy and water, to promote the increased use of renewable energy and to lobby all tiers of government to implement genuine and effective mitigation and adaptation measures to address climate change.

Thank you for the opportunity to comment on the proposed Glenugie upgrade of the Pacific Highway, a 7 kilometre section of highway south of Eight Mile Lane.

It is noted that the Pacific Highway upgrade is a Government commitment aimed at addressing the very real safety concerns with the current road. It seems curious therefore that the Glenugie section, which is NOT notorious either as a black spot nor for its traffic congestion, has been identified as a priority for immediate works utilising the Federal Government's infrastructure stimulus funding. If the Government is serious about reducing fatalities on our highways or improving the smooth flowing of traffic, other sections of highway (e.g. Dirty Creek Range, Corindi and the Ulmarra bypass) should be considered higher priorities for an immediate upgrade.

In assessing the need for this proposed upgrade, and its likely environmental impacts, the following needs to be considered:

- The NSW Government, in its Greenhouse Plan, recognises that the transport sector is a significant and growing contributor to greenhouse gas emissions in the state. In 2002, it was estimated that transport contributed 15% of total NSW emissions and that the amount of emissions had grown by 20% over the previous 12 years.
- The NSW Government has committed to reduce greenhouse gas emissions by at least 60% by 2050. The European Union is pushing for reductions of at least 30-35% by 2020 and at least 80% by 2050. The head of the IPCC has recently stated that the world will have to reduce carbon dioxide (CO<sub>2</sub>) emissions more drastically than has been widely predicted, even going into negative emissions by 2050 to avoid catastrophic disruption to the world's climate. As Australia's per capita emissions are among the highest in the world, there is an expectation in the international community that Australia must take responsibility to make drastic cuts in emissions.

- Peak oil (i.e. the point when half the world's easy oil reserves have been exhausted) has been in the headlines over the past few years. As a concept, peak oil was first described in 1956, and the majority of experts believe this point will be reached before 2015. Once this point is reached, the age of cheap road transport will start to disappear and, along with it, the demand for new motorways.
- Recent research conducted at the Australian National University (ANU) has re-defined the importance of forests as carbon stores. Forests sequester and store more carbon than any other terrestrial ecosystem, and constitute an important natural defence against climate change. One hectare of mature, tall, wet forest can store the equivalent of 5500 tonnes of CO<sub>2</sub>. Less productive dry forests and woodlands also store significant amounts of carbon, in the woody biomass of big old trees, dead wood on the forest floor, and in the soil biota.

When the above facts are considered, it is concerning that the Roads and Traffic Authority (RTA) is pushing for wide motorways and triplication of the existing highway through forest, seemingly without any regard to future constraints of a post carbon world.

RTA has obviously heard of climate change, as Section 8.3 of the *Environmental Assessment* does give a cursory mention to greenhouse gas emissions and climate change. This section of the report recognises that global warming will lead to an increased potential for high intensity storm events and floods, and that this will have implications for the design of drainage infrastructure of the road and may impact on the construction phase.

The report then continues to discuss the greenhouse gas emissions of the project, both in its construction and its operational phase.

Climate Change Australia disputes the figures given in the report.

### **Construction phase**

There are three large sources of greenhouse gas emissions during the construction phase:

#### 1. Land clearing

While the Environmental Assessment report admits that carbon will be released due to the clearing of 85 hectares of forested vegetation, it uses outdated figures for the carbon content of an 'average' forest. As highlighted above, recent research at the ANU has re-defined the importance of forests as carbon stores, and the dry forests in the project area may store the equivalent of 1,750 tonnes of CO<sub>2</sub> per hectare. It is likely therefore that the clearing of 85 ha proposed to occur as part of this upgrade would equate to about **150,000 tonnes of CO<sub>2</sub>** being released into the atmosphere. In contrast, the report states that less than 20,000 tonnes of CO<sub>2</sub> will be released due to vegetation loss, with another 6000 tonnes presumably being released from the vehicles used to clear this vegetation (at least, this is assumed to explain the discrepancy between the text of this section and Table 8.3.1).

It appears that the figures used by the RTA are wrong by an order of magnitude, to minimise the significance of the clearing they propose to undertake.

#### 2. Emissions from construction vehicles and plant

Given the RTA's records of fuel use in similar upgrade projects, it is assumed that the estimated figures of fuel use in earthworks and concrete batching are correct.

It is unclear from Table 8.3.1 that emissions associated with transporting all the materials listed in section 4.4.4 have been estimated. These materials should be sourced as close as possible to the site to reduce transport costs. However, they should be explicitly stated as part of the environmental assessment.

The emissions associated with the use of site lighting and air-conditioning the portable sheds (either by the use of generators or mains power) has also not been

considered. If a remote solar powered system is to be used, then this should be stated, along with the backup power source in times of cloudy weather. If mains power is being used, then this should be 100% GreenPower®.

### 3. Emissions from concrete

Concrete as it is currently manufactured is an energy intensive material. After fossil fuels and deforestation, the manufacture of Portland cement, the reactive ingredient in concrete, is the largest man-made source of CO<sub>2</sub>, accounting for 5-8% of CO<sub>2</sub> globally. The production of one kilogram of cement results in the emission of about 0.9 kg of CO<sub>2</sub>, due to the energy required to heat the kiln to the high temperatures required and the calcination of the raw limestone (which accounts for 60% of the CO<sub>2</sub> produced in cement manufacture).

This source of greenhouse gas emissions is not mentioned at all in the Environmental Assessment report.

It is presumed that the RTA will argue that these emissions are off site and not directly related to their project. In this way, they consider cement to be a raw material similar to steel and aggregate, and that they are not directly responsible for the emissions associated with its manufacture and handling before it turns up on site. Climate Change Australia argues that all emissions associated with the project, including the emissions associated with the procurement of raw materials, need to be explicitly considered during this Environmental Assessment phase so that it can be compared with the scenario of "doing nothing" (i.e. not proceeding with this upgrade).

Purchasing decisions by the RTA could reduce the emissions associated with the project. An Australian company (Zeobond Pty Ltd) has started to make geopolymeric concrete which promises to dramatically cut the CO<sub>2</sub> ordinarily emitted during production. According to the company's literature, the overall CO<sub>2</sub> saving is in the order of 80-90% when compared with Portland cement. The use of this concrete should become mandatory in all major projects such as the Pacific Highway upgrade.

## **Operational phase**

It is widely recognised that higher vehicle speeds on highways contribute to increased fuel use (and to levels of both CO<sub>2</sub> and NO<sub>x</sub> emissions). Most publications that provide hints on reducing individuals' emissions, recommend travelling at 90 km/hr on highways. It therefore seems a ridiculous level of over-engineering for the RTA to still be designing roads for traffic to travel safely at 110 km/hr. Peak oil is a consideration here: during the oil crisis of the 1970s, the US introduced a 55mph (88.5 km/hr) speed limit on all its federal highways to reduce fuel consumption. Several states still have this speed limit in place. Why has Australia not adopted this as the standard for highways?

As the transport sector is a significant contributor to the state's greenhouse gas emissions, it must play a role in meeting the NSW Government's promised 60% cut in emissions. A reduction of speed limit from 110km/hr to 90km/hr would reduce average emissions on a long highway trip by approximately 15-20%.

This reduction in speed would also reduce fatalities on the highway (as response time is increased, and braking distances decreased).

Increasing fuel costs associated with peak oil will change the way we transport goods and people around. Electric vehicles have a great potential to help reduce the impact of transportation systems on the environment. But it is important to remember that their adoption must be seen as a part of a larger process of moving toward a more sustainable transportation system, which will see greater reliance on rail. There is never likely to be a time in the future when a 6 lane highway will be needed through the Clarence Valley,

and so the design of a typical cross section should not accommodate this future potential upgrade. Changing the design to 4 lanes will reduce the corridor of disturbance.

Climate Change Australia disputes the claims in the report that upgrading this section of highway will lead to a reduction in greenhouse gas emissions, compared to the existing highway.

As stated above, this is not a congested part of the highway, and so the upgrade to motorway standard will not improve transport efficiency. As vehicle speeds on this section of highway are always in excess of 80km/hr and typically close to 100km/hr, increasing speeds will in fact increase emissions per kilometre travelled.

## **Conclusion**

In this report, the RTA states that it will minimise environmental impacts and greenhouse gas emissions in the upgrade of the section of Pacific Highway at Glenugie. In reality, the proposal involves constructing a Class M motorway separated from the existing highway, and this will involve a 150m-wide easement cleared through the forest along the entire 7 km length of the project. This forest is important for its flora and fauna, and also acts as an important carbon store. The area of forest that will be disturbed will be more than three times the footprint of disturbance of the existing highway, and significantly increase fragmentation of the landscape and edge effects.

If the RTA were to develop this section to an arterial standard highway (A class highway) rather than a motorway, the existing highway could be used as a carriageway of the upgraded highway. This would minimise the area of forest lost (and carbon released). This is what happened further south in the Halfway Creek upgrade. No adequate justification is given in the Environmental Assessment as to why the same could not be done for this section of highway.

Seeking to make this upgrade to motorway standard of up to 6 lanes will unnecessarily increase the impacts and costs of the upgrade.

It is therefore requested that this project be modified to upgrade the road to arterial standard of 4 lane dual-carriageway, utilising as much of the existing highway as possible and reducing the amount of forest that is disturbed.

Janet Cavanaugh  
Secretary, Clarence Branch  
6 September 2009