Northconnex EIS Submission - Air Quality - SSI 31_6136

Air Quality is the title of EIS Appendix G – Technical Working Paper but the subject matter includes **Ventilation** and **Filtration**, although the latter word will not be found in the Paper's Executive Summary or Introduction.

Filtration and the F3 (now M1) to Sydney Orbital Link is a long story:

- in May 2004 the Australian Government issued a media release that, in regard to the preferred tunnel link, stated '*the Government will ensure the ventilation stacks use the world's best practice filtration suitable to Australian standards'*.

- in March 2005 the NSW Government (and the RTA) was considering the question of air filtering systems in Sydney's polluted road tunnels and the prospect of a trial. These considerations also included the NSW Government's non-committal to filtering the F3 to M2 Link in spite of the Federal Government's commitment.

- in mid 2007 approval for the planning of the M5 East Trial was finally granted. The trial period was eventually conducted in 2010 / 2011, and the reported results were subject to considerable dispute.

- through 2012 / 2013 the NSW Government worked through Transurban's 'unsolicited proposal' including the proposal's approach to ventilation and filtration and agreed to proceed with a 'no filtration' proposal.

- and now, in September 2014 NSW Roads Minister Duncan Gay, a Country Party member of the Legislative Council, told the communities of Wahroonga and West Pennant Hills that *'if there is an air quality issue it is not the 7% of particulate matter that comes from vehicles, but rather the 50% that comes from the wood fire heaters they enjoy with their chardonnay of an evening'*.

As the governing elite's position and language weakened through the community information process, the medical and environmental argument and language has strengthened.

The Submission seeks to examine the Government's reasoning relative to:

- Tunnel Filtration and International Experience
- The M5 East Filtration Trial
- Longitudinal Ventilation, and
- Air Quality

Conclusion

Government, considering its primary duty of care for public health, would appear to have been seriously mislead by the bureaucracy and / or seduced by Transurban's unsolicited proposal. The entire air quality issue within the proposal needs to be tested by an independent investigatory body.

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International Experience.

In October 2013 , the Northconnex Community Information program was initiated including the release of factsheets such as the 'Air Quality and the Northern Interchange at Wahroonga' factsheet dated June 2014. This Northconnex factsheet states that –

> ***- filtration technology is not proposed as it does not deliver any benefits to the surrounding community because international experience demonstrates the use of filtration systes is not an efficient and sustainable option for managing external air quality via the ventilation outlets.***.

- but what **International Experience** was never explained.

Question – on which international long tunnel(s) studies was this conclusion based?

Was it for example –

- the Spanish **Madrid (Calle 30) Ring Road Tunnel System**
  - 40km of interconnected twin tube tunnels
  - with its axial fans, extraction support fans and jet fans **and**
  - 30 stacks or vents, each fitted with particulate filtration by electrostatic precipitators
  - with removal efficiency in excess of 95% down to 0.03 micron
- the Japanese **Kanetsu (11km) Tunnel**
  - which was converted from a longitudinal ventilated tunnel to
  - a ventilation layout using progressive filtration with electrostatic precipitators (EP)
  - a change that enabled a direct comparison of costs
  - with the EP system proven to be a 55% - 65% saving in electricity consumption
  - so much for the **Northconnex "*filtration does not represent value for money*" argument**
- the French Paris (A86) 10km Ring Road Tunnel
  - or the Norway Drammen Tunnel
  - both worthy of study

How exactly does the study of these '*International Experience(s) demonstrate that the use of air filtration systems is not an efficient and sustainable option"?* If not other international tunnels were studied then they should be named and the analysis made public.

Conclusion

The Northconnex claim that *"filtration is not effective in removing tunnel pollution*" (Factsheet March 2014)" and not *"not value for money"* must be tested in the EIS process.

The EIS process must provide for an independent expert review of the International Experience studies including, if necessary, the powers to order participation and elicit evidence. All findings must be made public.

The EIS should explain why the internationally adopted in-tunnel electrostatic precipitator technology is not proposed for the Northconnex tunnels.

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M5 East Filtration Trial

In October 2013 , the Northconnex Community Information program was initiated including the release of factsheets such as the 'Air Quality and the Northern Interchange at Wahroonga' factsheet dated June 2014. This Northconnex factsheet states that –

> ***- filtration technology is not proposed as it does not deliver any benefits to the surrounding community because the M5 East filtration trial demonstrates the use of filtration systes is not an efficient and sustainable option for managing external air quality via the ventilation outlets.***.

- but the **details of the M5 East filtration trial were explained.**

The following is provided to fill this gap –

* The aim of this trial, as initially announced, was to examine the feasibility and effectiveness of electrostatic precipitators and nitrogen dioxide removal technologies

  But – informed local sources have advised that at no stage was there any mention of the effects on the external air quality, and the trial succeeded in its initial purpose

* What is known about the trial:

  - the RTA selected a supplier who had never installed a full scale filtration system, in spite of well qualified alternate bidders
  - the average monthly availability of the equipment was 84% against a 99.5% availability target
  - over the 56 week trial period, no week included 5 days fault free operation
  - the filter system was only operated weekday afternoons for 5 – 6 hours
  - the operating results quoted by the RTA were reduced by 75% as a result of averaging over a 24 hour period, and
  - the cost benefit calculation was based on the final total trial costs of approximately $65m which included costs extraneous to a realistic operational cost profile

* This trial was clearly not well conducted and is highly suspect in terms of its contribution to the very significant 'no filtration' decision concerning public health.

Conclusion

The NSW Government's decision to accept the M5 East experience as a sound basis for its support of the Northconnex proposal should be examined in the EIS process..

The EIS process must provide for an independent expert review of the M5 East Trial including, if necessary, the powers to order participation and elicit evidence. All findings must be made public.

Northconnex EIS Submission - Air Quality

Longitudinal Ventilation

In October 2013 , the Northconnex Community Information program was initiated including the release of factsheets such as the 'Tunnel Ventilation Systems' factsheet dated June 2014. This Northconnex factsheet describes the proposed '**longitudinal ventilation system'** as one that draws air in at one end and extracts at the other end, with the aid of fans if necessary.

* the **NorthConnex** tunnel proposal is –

- 9 kilometres long, twin tube tunnel
- 14 metres wide and 8 metres high, or a cross-section of 112 square metres,
- an internal space of 1,008,000 cubic metres
- a height that should avoid over-sized truck incidents
. a width sufficient for an emergency lane (and a third traffic lane in the future)

* the **Ventilation** proposition is –

- one ventilation stack at the end of both 9km tunnels
- fed by powerful fans capable of extracting 100% of tunnel air every 24 minutes.
- with the piston effect of every vehicle of forcing tunnel air forward and dragging a parcel of fresh air into the tunnel (if external motorway air at the entry point is fresh!)
- **but** – given the excess space in the tunnel
  - vehicles will push the air aside not forward
- the 'fresh' air is immediately contaminated with in-tunnel vehicle exhausts
- the piston (or vacuum) effect of every vehicle will continue to churn the in-tunnel air
- any air freshness will quickly and continually deteriorate
- until nearing 9 kilometres in the air quality will be extremely toxic
- the use of in-tunnel jet fans will simply accelerate the process.

* **Questions** –

- what 'international experience' is there to support the 'longitudinal ventilation' proposition for tunnels of this size?
- will the health of the regular weekday two-way commuter from the Central Coast be exposed to hazardous unfiltered vehicle emissions?
- will local residents, living in the vicinity of a stack continuously emitting concentrated unfiltered vehicle emissions from a 9 kilometre tunnel into the atmosphere, really be free of any health impacts?
- have the two localities been thoroughly examined with regard to the geography, the wind patterns, and thermal inversion patterns?

Conclusion

The Northconnex tunnel is designed to maximise traffic and toll revenue. Longitudinal ventilation in a tunnel of the proposed dimensions must be tested within the EIS process. As proposed this tunnel presents health risks that have not been sufficiently addressed and in the absence of a progressive in-tunnel filtration system the NorthConnex tunnel proposal should be refused.

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Air Quality

The Northconnex ventilation and dispersal proposition, according to the EIS, is based on the belief that **NSW** is considered to have generally good air quality in comparison to international standards.

Northconnex promotional material narrows it down claiming that **Sydney** has very good air quality by national and international standards

By way of comparison the OECD (the Organisation for Economic Cooperation and Development) in a May 2014 report tells us –

- in Australia deaths related to air pollution have significantly increased when most of the worlds big economies have seen their death rates decline
- and the same applies to the "years of life lost"
- Australia has failed to halt the dangerous rise in air pollution, and
- the health impacts of air pollution, particularly from road transport, were "much higher than previously thought"

- and if the above is an Australia wide assessment Sydney will presumably be a dragging factor.

But, narrowing down further, what about Wahroonga and West Pennant Hills?

In the various Northconnex community information sessions we have heard mention of Lindfield, Prospect, Terry Hills and Sydney Airport in relation to the assessment of climatic conditions at the above two proposed Northconnex stack sites.

In 2008 the NHMRC (National Health and Medical Research Centre) in its '*Air Quality In and Around Traffic Tunnels'* reported that –

> *-"the methods used to monitor air quality may not be the most appropriate in terms of the measured quantities being representative of health risks. The commonly employed approaches are biased towards complance with national environmental protection measures (NEPMs), even though the NEPM explicitly does not apply to localised impacts such as emissions from road tunnel stacks"*

Evidence has been presented at public meetings clearly demonstrating local climate conditions, including wind and temperature inversion characteristics that are fundamental to the question of effective unfiltered traffic emissions dispersal in Wahroonga and West Pennant Hills areas.

Conclusion

In the absence of any local climatic assessment, and considering the strength of the health risks identified by the medical fraternity, the precautionary principle should apply and 'best practice filtration' included within the proposal. Alternatively the NorthConnex proposal to be refused.