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With an air of uneasiness

By Sue Williams
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WHEN it was announced recently that air filtration would be trialled in one tunnel in the growing labyrinth of subterranean tollways beneath Australia's cities, the news was a breath of fresh air.

Community groups that had been campaigning against exhaust stacks belching unfiltered fumes over whole suburbs at last saw some light at the end of their particular tunnels.

The move by NSW Roads Minister Carl Scully was a small but significant crack in the stonewall denials from NSW's Roads and Traffic Authority, at least, that there was any problem at all, and that filtration systems inside the tunnels would fix it.

With Sydney at the forefront of the country-wide trend of burrowing underground to ease traffic congestion in a nation hopelessly in love with the car, Scully had remained a steadfast critic of filtration as a means of protecting the health of motorists and people living and working near exhaust stacks. But while a report from an RTA delegation sent late last year to investigate filtration technology installed in 40 of Japan's road tunnels finally convinced him to institute a pilot program back home, the pressure on him is by no means easing.

His final acceptance of a need to trial filtration is set to be compounded by a dramatic about-turn on the issue by the expert whose findings he had consistently used to bolster his case against the developing technologies. In addition, another key report, due to be released later this year, contends that more people die from vehicle pollution in Australia each year than from road accidents.

"The change in direction is great, but we now have some indications that there's real progress in technology," admits leading independent air quality consultant Noel Child, who just last year reported for the RTA that "air cleaning or filtration technology could not be relied on". Now, he tells The Weekend Australian, he has changed his mind in a new report, still being kept secret by the RTA.

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"I have to be careful, but there's been quite a breakthrough in the technology over the last couple of years and now it offers us some real options," says Child. "I think there's been a reluctance in the past to open the issue right up for fear that suddenly there's pressure to put [filtration] devices in all the tunnels we build. But if that's a sensible thing, then you have to put that into the cost ... air quality is increasingly important to people today."

Nationally, the cost risk to governments is plain. If the experiment in Sydney proves successful, then the pressure to install electrostatic precipitators in all seven of NSW's existing and proposed tunnels - the Sydney Harbour Tunnel, the Eastern Distributor, the M5 East, the Cross-City Tunnel (due to open 2005) and the Lane Cove Tunnel (2007), as well as the Sydney Orbital and M4 East which are being debated - could prove irresistible.

The problem then for governments in Victoria, Western Australia and Queensland, where up to five new tunnels could soon be built in Brisbane, is whether to hold off and let NSW do the hard work to follow the example of a half-dozen overseas countries from Norway and Japan to South Korea and Vietnam, where filtration is operational.

Child's report is set to bring to a climax years of impassioned debate over the quality of air inside, around the portals of, and close to the stacks serving the rapidly increasing number of tunnels just beneath Australia's skin, and the best way to ensure clean air for the future.

Indeed, the tide of public opinion flowing against stack-tunnel systems has become so strong that even a recent NSW health department report on Australia's longest and most contentious tunnel, the 4km M5 East, has been dismissed as a smoke and mirrors attempt to underplay the problems. A consortium of local councils has been formed to challenge this report, which dismissed claims that exhaust fumes were harming the health of local residents around the stacks.

Mark Curran, until recently a professional officer at the University of Sydney's school of biological sciences, claims the report is fundamentally flawed, technically and analytically. Basic factors such as wind direction and the narrowness of the comparatively uneventful four-week period examined skewed the results, he says.

"The CSIRO expert involved agrees with our concerns, as do other reputable air quality, health and statistical experts who have agreed ... its findings [are] scientifically invalid," says Curran.

Controversy has dogged the M5 East over health complaints and poor visibility at times in the tunnel because of the build-up

of emissions from the 80,000 cars and trucks driving through it each day.

Similarly, there have been protests over the plans for the 2.1km Cross-City Tunnel, which will have a secondary \$36 million ventilation tunnel - large enough to drive a car underneath its entire length - to more effectively pump accumulated unfiltered fumes out of a stack at Darling Harbour, in the city's heart.

In Victoria, Environment Protection Authority regional manager George Tsivoulidis says extensive monitoring and tighter limits on emissions than international standards at the time on the state's biggest tunnel network, the Burnley and Domain tunnels, have found no problems. Alarm about poor visibility at times in the longer 3.5km Burnley, caused principally by trucks climbing the steep gradient on the way out, is "an aesthetic issue, not an air quality issue", he says.

But executives admit privately there are concerns. "I certainly wouldn't want to work in them or have to get out of my car in them," one EPA officer says. "And while we've been happy in the past about the quality of the air outside, now there've been high-rise buildings put up near the vents which are similar heights, so you could, in theory, have a plume going straight in."

A Bureau of Transport and Regional Economics report due to be released later this year on the health effects of vehicle emissions in Australia's capital cities will add further fuel to the furnace. A paper from the report of the bureau, which operates within the commonwealth Department of Transport and Regional Services, compares road fatalities with deaths "that may be associated with motor vehicle pollution".

While there were 740 deaths on the road nationally in the capital cities in 2000, it says vehicle pollution was calculated to be responsible for 758 to 1703 deaths in the cities in that year - 339 to 762 in Sydney; 213 to 478 in Melbourne; 94 to 210 in Brisbane; and 54 to 120 in Adelaide. In addition, motor vehicle pollution accounted for about 2400 hospital admissions and 21,000 asthma attacks in the same year. The total economic cost of health problems arising from vehicle pollution - some experts are calling it the "new asbestos" - in 2000 was estimated for Sydney alone to be about \$1.5 billion.

Lydia Morawska, of the Queensland University of Technology, recognised internationally for her work on respirable particles with the World Health Organisation, says sometimes she has been baffled at why Australia seems to be dragging its heels over the issue.

"I think it's really very obvious that we need filtration in tunnels," she says. "Sending plumes up out of stacks is

dependent on meteorological conditions, and they could well be affecting residential areas and places where people work. In tunnels, there have also been many studies showing increased concentrations inside the vehicles.

"The question of why we don't have filtration is one I ask myself often. I think it goes back to economic and financial issues. Those who are paying for the project try to save as much as possible, and governments only think from one election to the next. The cost on our health won't be paid until the future, so right now no one budgets for it. There's no long-term vision."

Scully, however, is still talking tough. "The decision to pilot filtration technology in Sydney does not mean the practice of building tunnels in Sydney, Melbourne and Perth without filtration has been wrong," he says. "However, filtration technology has now developed to a level that the RTA considers it worth piloting in Sydney."

Yet, with underground tunnels seen increasingly as a solution to a rising volume of traffic on roads, others say the effect of a whole network of tunnels isn't being taken into account.

In Sydney, for instance, what about the effect of journeys that routinely involve several different tunnels - say, the Harbour Tunnel, the Eastern Distributor, then the M5 East?

CSIRO deputy chief of atmospheric research Peter Manins also raises the question of multiple journeys through a single tunnel.

"In accepting the health guidelines as they exist, about one truck driver going through once a day, what if that same driver goes through a couple of times a day or more, which is fairly common? Then these drivers will be at some risk from exposure," he says.

Long-term campaigner for in-tunnel filtration Ray Kearney, of the University of Sydney, believes much damage is being done, particularly by the ultra-fine exhaust particles that are associated with cancers, cardiovascular disorders, asthma and other respiratory diseases. Unlike Victoria, NSW doesn't include these in calculations of air quality. "The risk to our health is deliberately being underestimated," he says. "Our health is being consistently compromised, but we're always hopeful of a breakthrough."

Thanks, ironically, to Scully, it may finally be on the way.

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