

**Submission
No 2**

EMISSION FREE MODES OF PUBLIC TRANSPORT

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There are three issues that I submit for consideration of the committee.

1. Modern commuter bus design.

Australia in general is about 20 years behind best practice, most efficient and most passenger-friendly commuter bus design as practised in Europe. The dominant feature of this is the stepless, level access, fully-low floor as we see here in trams for example. This enables and encourages better flow and distribution of people throughout the bus, ease of access to the back of the bus for less mobile people and elimination of trip and fall hazards. An electric bus, with no motor under the floor, is readily amenable to a stepless interior but the Chinese buses that we have been importing so far have outdated stepped floors. However, the locally built Custom Denning Element is designed to the best European standards with a stepless floor (with the motor and driveline on one side under the seats) and this should be the mandatory minimum standard benchmark for all suppliers of new electric buses.

2. Passenger capacity.

Electric buses have been around for a century or so in the form of the trolleybus, which takes its power from overhead wires or from a small battery bank that is charged on-wire in order to operate away from wires where needed. These buses are relatively light and a typical 12 metre trolley electric bus is able to carry 80 to 90 passengers, a little more than a diesel bus. What we are finding with battery buses is that the weight of the batteries is so massive that the axle load pushes the limits of the Heavy Vehicle Regulations and mandatory passenger capacity is reduced to the low 60s. This is a serious problem in crowded city operations as, with less capacity per bus, more buses are needed (thus more drivers too), increasing the cost and reducing the productivity of the operation. This issue needs to be addressed.

3. Encouragement of local manufacture.

Electric buses are more amenable to complete local manufacture because it's not necessary to import a chassis with a diesel engine any longer. At present we have been importing complete electric buses (or at best with a local body) from China, which is very undesirable. Once again, Custom Denning in Sydney is building a complete local product, although the drive system and electronics are imported from France. With volume, this is amenable to change as these components could readily be made in Australia ultimately. There should be maximum incentive given to any manufacturer who can build the complete bus in Australia, using the greatest amount of local OEMs possible within cost limits.

These are the main issues I wish to present to the committee, with an endorsement that electrification of the bus fleet is a highly desirable objective, but not at the cost of reducing the functionality of the bus through negative design features resulting in reduced passenger capacity and inefficient and unsafe stepped floors. Thank you for hearing me.