

**Submission
No 2**

**ELECTRIC BUSES IN REGIONAL AND METROPOLITAN PUBLIC
TRANSPORT NETWORKS IN NSW**

Organisation: Interline Bus Services

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interline Bus Service is currently collecting information and data for the purpose of Procuring Electric powered buses for use in the operations of Region 2 South West Sydney , we are examining and hopefully trialling in the near future a full electronic bus and a Hydrogen Cell Bus we have studied and researched many options for clean energy vehicles, and I will try and explain what we believe is the pros and cons for running such vehicle . we have discussed with local suppliers as well as International suppliers from Europe, USA ,China and more .

Also, we have Discussed with Major Suppliers of buses , Volvo, Mercedes Benz That can also supply an electric bus chassis so that Australian body Bus builders can build a body on chassis .

Buses chassis from Mercedes Benz, Volvo, Scania will not be available for approx. 2 years , we have also we were contacted and are negotiating to trial a full electric bus made completely of composite material , the weight for this vehicle is said to be approximately 4.6 tonne lighter than other electric buses , the manufacturer is keen to manufacture the bus here in NSW Trials that we have been done so far in NSW say that buses will have to be primarily allocated to suitable routes so that batteries can be charged in between shifts , our research has discussed the Composite material .

From our research we believe that the composite vehicle full electric would take over the duties of the diesel-powered bus with no need to charge vehicle mid trip or with chargers at terminus or anywhere along the route

We believe and are informed that this bus will do approximately 500 km or 18 Hrs a day with batteries fully charged in the off-peak time of day for economic power supplies .

We all know the benefits of electric vehicles for the city ,

Electric Buses conventional build

The positive

No pollution in its operating Region

Less noise

Better driver's wellbeing

Cheaper to run (Not when capital cost and infrastructure cost are added ,cost apparently are in line with diesels powered buses for hole of life)

Customer approval is very positive

The Negative

Bus is very heavy

Less Pax capacity

Need major infrastructure build to cater for more than 10 or more buses ,eg for every bus to charge correctly and efficiently we need 100 amps per bus , so for 10 buses we will need 1000 amps and as the procurement of more buses , it gets worse but when you have fleets of say 50 or more you may be able to vary the charging start times to utilise less draw of current from the electricity grid

Batteries are not recyclable at this present point in time only able to be used in domestic application to power a household, no one has informed us what we do with batteries when they reach end of life this also applies to hydrogen cell buses .

Special training for technicians will have to be implemented

Shift allocations would have to be modified to come back to yard or Infrastructure on route would have to be procured to charge the bus when it has a small break .

The Composite Bus has all of the above positive and negative but one advantage , it is lighter and to drive the bus will need less energy so it should last much longer and allow it to do Double shifts or approx. 18 hrs of work on a single full charge per day

Hydrogen cell bus

Is an electric bus but doesn't need the infrastructure for the supply of charging equipment that will put pressure on the electrical grid to supply power to charge multiple buses .

The bus uses a hydrogen cell to produce its own power , minimal infrastructure for depot approx. 7 Min to fully charge the carbon fibre tanks with approx. 32 kg of hydrogen .

The by product of this will be oxygen and water same characteristics as the electric bus

Some workshop sensors would have to be implemented in case of an unlikely gas leak , and in saying this the Hydrogen being lighter than air will disperse up woods.

So the fuel cell and Gas tanks should be on the roof and only electrical cables should deliver a charge to the batteries , that means that there will be no chance of any gases being leaked in the bus , no hydrogen under the floor at rear .

The fuelling system will be at minimal cost , and if need be a hydrogen making station could be precured, but we think this is not necessary , as suppliers would deliver the Hydrogen on truck container .

The only real draw back to Hydrogen cell bus is the cost approximately double the price of electric , but this will go down when more Hydrogen Cell Generators (engines) are manufactured around the globe .

We believe the better option with technology at present would b the Hydrogen Cell Bus , with minimal infrastructure cost , and a direct replacement for diesels buses , also we are hopping that when the technology in batteries and charging develops then the Hydrogen could be removed, extra batteries fitted or more technological superior batteries are invented and they will replace hydrogen and also allow a much more affordable infrastructure built and much less strain on the Electricity Grid

Thanks, you for contacting me , and I hope I could help, we are moving forward and hopefully my next major order of buses ,we can invest on environmentally friendly buses
Please feel free to call or contact me for any information I may be able to assist .

regards

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