

**From:** Inquiry into Electric Vehicles [REDACTED]  
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Inquiry Name: Inquiry into Electric Vehicles

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## **SUBMISSION CONTENT:**

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Full Electric Vehicles have demonstrated rapid technology advances worldwide with numerous benefits for environment, operational advantages, and overall significant cost savings.

In General for larger volumes smaller passenger cars are being manufactured and marketed for enhanced convenience and usability aspects. This is mainly due to battery range limitations and infrastructure support. In time, with additional support, market will demand various options and introduction of vast array in vehicle types.

Heavy Commercial Vehicles in Passenger and Goods categories are most beneficial for the operator with reductions in maintenance and running costs.

Route Service Buses are found across all continents with a blend of Hybrid, Full Electric and Fuel Cell Electric versions. Although vast driving ranges are not a necessity for operational requirements [usually around 250 kms per day], the high performance batteries in these vehicles are able to further reduce associated costs [i.e, less charge/downtime, extended battery life, less disruptions to services, charging frequency costs].

Some smaller passenger vehicles are equipped with control systems permitting direct plug into grid without the need for stand alone charging units. This is now possible with Heavy Vehicles [e.g, Avass Integrated Systems] providing operators an option to either plug directly into a 3 Phase Power Socket or to a stand alone charging unit [charging units may cost up to AUD\$50K].

Some advantages of Stand Alone Charging Units are rapid charging, when compared to direct plug in technology.

Regeneration of electric power in Full Electric Vehicles is generally around 30% and in hilly terrains is not a significant advantage. Combination of alternative systems and advancements in regenerative or supplement systems in the near future may introduce "real" benefits in Full Electric Vehicles.

Hydrogen Electric Vehicle Technology [Fuel Cell] may be considered the future of EV and perhaps more sustainable in Commercial Passenger applications. In this configuration, the EV is identified as a "True Full Electric" and higher level of "clean energy". Fuel Cell EV requires optimum safety design and applications. Current technology has gained immense advancements in this field [Avass Group will introduce fully compliant vehicles in AU end of 2017].

The Regulatory Definitions in Vehicle Standards [Australian Design Rules] as well as ECE [European Standards] do not differentiate nor compensate certain aspects of EV's with exclusive design requirements. For example, a Tare Mass of a vehicle is specified with 10 litres of fuel [All Fossil Fuel Vehicles]. This is a major disadvantage for EV Manufacturers continually endeavoring to reduce construction and components mass. The batteries in an EV is a predominant large mass component and compared to the fuel system of a fossil fuel is determined as integrated vehicle component. Specifically in Heavy Vehicles such as Trucks or Touring Coaches with fuel tanks storing up to or more than 1000 litres, the Tare Mass of these vehicles only consider 10 litres during compliance. This is a high consideration for Heavy Vehicle [HV] Electric Vehicle Manufacturers being subjected to outdated regulations.

Route Service Buses operating in Metro and Urban zones should be imposed with additional light and sound system features to provide optimum safety for consideration of hearing and vision impaired citizens.

Manufacturing Compliance should incorporate such systems within Australian Design Rules [ADR]. For example low light emitting strobe lamps designed into front of buses which vary strobe rate during slow, parking movements and road speed movements. A unique standard sound system should be introduced for all EV's. A suggestion is requirement for Manufacturers to incorporate mandatory "unique" sound systems which differ for Light Vehicles and Heavy Vehicles.

Introduction of further Incentive Systems for EV's may be a method of "fast-tracking" uptake of EV use in market. Many regions throughout Europe and South America have implemented various incentives for EV Options.

Currently Australia has only 1 HV Electric Vehicle Manufacturer [Avass Group] producing entire vehicles [chassis and body]. There are other small number of Coach Builders utilising Foreign Chassis into AU produced Bodies. Stronger support for 100% Australian Manufacturing benefits Australia in many ways. Government Purchasing should consider discussions with home based Manufacturers at first option rather than opting for Foreign Organisations.

Automotive Manufacturing in Australia has seen a large dent with Major Brands departing her shores. It is an opportunity for Government to provide Administrative, Regulatory, Campaign and Purchasing support for it's home based Manufacturer(s).

Electric Vehicle Technology is advancing at a significantly faster rate than the beginnings of Fossil Fuel Vehicles whilst at same time contributing to a cleaner, efficient world.

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File1:

File2:

File3: