Electric vehicle industry

Sales of electric vehicles (EVs) – these include ***battery electric, plug-in hybrid electric***, and ***fuel-cell electric vehicles*** - are on the rise and demand in SA is expected to grow.

In it's **IPAP 2015/2016 – 2018/2019**, the Department of Trade and Industry (DTI) includes electric EVs as one of its projects earmarked for investment. This is intended to break through the so-called **"chicken and egg dilemma"**, whereby without the necessary supply and distribution infrastructure for green transport fuels in place, consumers will be reluctant to buy green vehicles, while without adequate levels of consumer demand, there is little or no incentive to invest in a local supply, distribution and production infrastructure. These initiatives are expected to enable the **growth of the EV manufacturing industry**.

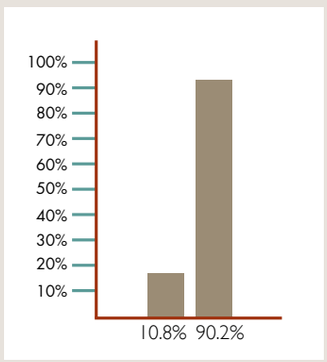
According to the University of Cape Town's Energy Research Centre, net job creation is possible if South Africa increases vehicle / component manufacture for export. The **production of lithium ion batteries** (as a component in the e-mobility value chain) may prove a viable option for **developing the local manufacturing sector**. South Africa has a **patent on lithium manganese dioxide**, which is currently the cheapest, and preferred cathode technology used in lithium ion batteries.

South Africa is also the world's largest producer of manganese and so there may be the potential to obtain this input at favourable prices.

Where electricity is produced locally, EVs can mitigate risks associated with reliance on oil imports eg. rising oil prices, supply disruptions due to political volatility of many oil-producing countries. In some countries, EV charging has also proved beneficial in **stabilising the grid** by **storing electricity in EV batteries and feeding any surplus back into the grid during peak demand periods**. Thus, the potential benefit linked to the reuse of second life EV batteries in the distributed storage sector warrants further investigation. EVs also have the potential to reduce carbon emissions, especially where generation is via renewable fuel sources, as well as to reduce noise and air pollution, which in itself, is a compelling motive.

According to the **Department of Transport's (DoT) Green Transport Strategy (2017 – 2050)**, **emissions** from the **transport sector** account for **10.8%** of the country's total **greenhouse gas emissions**, with **road transport** being responsible for **91.2%** of these GHG emissions (DEA, 2010).

The DoT has committed to a **5% reduction** of emissions in the transport sector by 2050. This forms part of South Africa's Nationally Determined Contribution (NDC), which obligates the country to limit its GHG emissions to peak at a range between 398 and 614 Mt CO2eq over the period 2025-2030.



South Africa's submission to the Paris Agreement on climate change says the country will have more than 2.9-million electric cars on the road by 2050, with R6.5-trillion to be invested in the industry over the next four decades. According to data analytics company Lightstone, 375 EV cars have been sold in the country since their inception in 2013, with sales of the BMWi3 model, in particular, increasing year-on-year (BusinessTech, 2018). It is anticipated that more affordable EV models will enter the country should the market become more attractive and existing barriers to entry are relaxed. This will render the technology more accessible to customers across a wider range of income levels. In addition, the potential environmental and cost benefits associated with EVs in the mass transportation sector warrants intensive investigation and would dispel possible misconceptions that the technology is a luxury item only accessible to a select, affluent market.

Accelerating **EV uptake** will naturally require substantive policy support, but **Government is already doing a fair amount in developing an inter-departmental framework that will promote the sales and manufacturing of EVs**. Financial incentives and the availability of charging infrastructure will also help boost the attraction of EVs.

The transformation of the transport sector from ICEs (internal combustion engine) to EVs is complementary to Eskom's growth strategy, and offers the opportunity for the organisation to fulfil a pivotal role in economic development while reducing the net environmental impact of the transportation sector.

As South Africa's primary electricity supplier, generating **90%** of the electricity used, **Eskom** will play an important role in **supporting the EV industry in planning and preparing for the uptake of EVs**, especially in respect of the requirements for a sustainable charging infrastructure.

References:

1. Department of Transport. Draft Green Transport Strategy: (2017-2050). Available: ***http://www.governmentpublications.lib.uct.ac.za/news/draft-green-transport-strategy-2017-2050***. **Accessed 19 October 2017**.
2. Department of Trade and Industry: Industrial Policy Action Plan, 2017/18 - 2019/20. Available: ***https://www.thedti.gov.za/parliament/2017/IPAP_13June2017.pdf***. **Accessed: 15 May 2017**.
3. Parker, C. August 2017. Assessing the Viability of e-Mobility Business Case Scenarios. Frost & Sullivan research presentation for Eskom.
4. Dane, A. The potential of electric vehicles to contribute to South Africa's greenhouse gas emissions targets and other developmental objectives. Energy Research Centre, UCT. Available: ***http://www.erc.uct.ac.za/sites/default/files/image_tool/images/119/Papers-2013/13-Dane-Electric_vehicles.pdf***. **Accessed 18 October 2017**.
5. BusinessTech. 2018. Here's how many electric cars have been sold in South Africa. Available: ***www.businesstech.co.za/news/motoring/*** here's how many electric cars have been sold in South Africa. **Accessed 31 January 2018**.