

## Zimbabwe electric vehicle adoption

The National Electric Mobility Policy Roadmap serves as an action plan with a focus on the development pathways which will achieve wide-scale electric vehicle (EV) deployment in the context of Zimbabwe. For this, a set of policies were selected from the National Electric Mobility Policy and Market Readiness Framework (hereinafter referred to as Policy Framework) for implementation. Electric mobility roadmap is defined here as an action plan that includes targets and policy measures along with their implementation timelines, institutional responsibilities, and resource requirements. For each vehicle a draft roadmap has been prepared, including quantified targets and policies.

Electric vehicles (EVs) have been the subject of debate for the last decade or so. They are among the top contenders to dethrone Internal Combustion Engine Vehicles (ICE vehicles) as mankind's primary mode of transportation. As much as the old way of transportation persists we cannot deny that ICE vehicles have had a significant impact on our environment. To add on to that, the reserves of fossil fuels are finite, so we have to begin to make the shift towards sustainable energy sources.

That shift has been happening at different rates. What I mean by that is governments and businesses have to make significant investments in things that EV's need like charging points. There are countries who have made strides in that respect but for Africa, Zimbabwe in particular, that hasn't been the case.

We seem to move from one economic crisis to another, which results in more pressing issues taking priority. We can't, however, move out of step with developments that are happening elsewhere. There must be a push for adopting and facilitating technologies like electric vehicles.

As previously mentioned we are experiencing difficult times and advocating for electric vehicles might sound a little odd. But I think that if we look at the different types of electric vehicles on offer there could be one or two that could worth considering if we are to accelerate the adoption of EVs in Zimbabwe.

HEVs incorporate both worlds because they are part internal combustion, engine (ICE) and part electric motor. The energy for the electric motor is stored in batteries like all the other EVs. But those batteries are charged by through regenerative braking, the ICE or both and not by an external source.

Typically HEVs startup using the electric motor and the petrol engine comes in when speed and load increase. Both motors are controlled by an internal computer which maximises the economy of both. Examples of HEVs are cars like the Toyota Prius, Corolla Hybrid, and the Honda Fit Hybrid.

PHEVs also referred to as Extended-Range Electric Vehicles are similar to HEV because they run both using an ICE and an electric motor. The difference between the two is that PHEVs allow you to recharge the battery using a power outlet.

PHEVs like HEVs can also charge their batteries using regenerative braking as well as the internal combustion engine.

These vehicles run exclusively on battery power and they require external charging. They do not have any ICE components and have very large batteries which are usually placed under the car's cabin floor.

Like all the other EV types, some BEVs have regenerative braking to assist with charging the battery while on the move. Examples of BEVs are cars like the Nissan Leaf, the entire Tesla range and the BMW i3.

FCEVs generate electricity from an onboard hydrogen fuel cell. They are far more efficient than ICE vehicles and they produce no emissions or pollutants. The only by-products from their activity are heat and water. FCEVs are filled up with compressed hydrogen that is stored in tanks. There are a number of countries that have filling stations like these. But they are few and far between.

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