ECONOMY AND ECOLOGY 15.10.2024 | Tom Courtright

Africa's electric promise

From the international to the street level, the shift to e-mobility is transforming many African cities, one ride at a time

Far from Tesla's troublesome year on the stock exchange, electric vehicles (EVs) are making a splash – or, more literally, kicking up dust – in many African cities like Kampala, Uganda.

As Constant, a boda boda (motorcycle taxi) rider, pulls up to me on the road, the only sounds his motorcycle makes are the running of the chain and the tread of the wheel. Where there would normally be a hot, dusty silver engine behind the front wheel, there is a black box instead, containing a battery that can carry him around 80-100 km, depending on the hills and traffic.

This is the face of e-mobility in Africa, and though it looks small, Constant's e-motorcycle carries enormous promise.

What makes this promise electric

The promise of e-mobility adoption (a more inclusive term than electric vehicles, which in the US and EU are often assumed to refer only to cars, a minority vehicle type in most African countries) ranges from the international to the street level.

Moving to e-mobility has positive implications for African economies, the vast majority of which are dependent on imported refined petrol, which drains countries' foreign exchange coffers. Instead, electric vehicles consume locally produced electricity, mostly from national grids, with some additional localised solar PV. Moreover, many African countries' grids are already quite clean. Uganda and Kenya, for example, already have 95 per cent and 80 per cent clean grids respectively, while Ethiopia, which has just become the first country in the world to ban the import of internal combustion engine (ICE) vehicles, has a 99 per cent clean grid.

The e-mobility story in

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as a means to reduce greenhouse gas emissions, African countries have little to no responsibility for this calamity, having contributed less than one per cent of the world's historic emissions (excluding South Africa, which was a white supremacist regime for most of its history anyway). However, electric vehicles also eliminate roadside air pollution, which kills tens of thousands of Africans a year — and disproportionately affects the poor, who cannot afford the air-conditioned SUVs driven by the elites.

Finally, while some might point out the comparative cost of an electrical BYD Seal to the used ICE car that most African economies are dependent on, the e-mobility story in Africa isn't about cars right now. It's about motorcycles, tuktuks and buses, the former of which makes up over 95 per cent of deployed EVs in East Africa. Financial mechanisms like the battery swap system and the paygo bus system put the upfront costs of motorcycles and buses level with petrol vehicles by removing the cost of the battery from the retail price. In the battery swap model, for instance, motorcycles and tuktuks low on energy can simply swap their depleted battery for a fully charged battery and stay on the road. This allows users to save money over time, reduces range anxiety and ensures the battery swap company is responsible for battery maintenance and health. Constant and other electric motorcycle riders see their take-home income boosted by around a third, from around $25 a week to $36.

Finding the boost button

Three key pathways are needed to accelerate the EV transition in Africa: tax incentives and industry financing in the short to medium term and grid buildout in the longer term.

Togo, Ghana, Benin, Uganda, Tanzania, Rwanda, Kenya and others have all passed some tax incentives for electric vehicles, helping to lower the upfront cost for consumers. However, some of these incentives were included in annual finance bills and have since been removed or replaced or, as in Kenya, have been caught up in parliament-burning riots.

The time required for an investment to lead to vehicles on the ground in Africa can take six months to a year, meaning that the tax regime in place at the time of ordering vehicles may no longer be available by the time the vehicles arrive on the ground. One entrepreneur in Uganda had to pay an additional 25 per cent as a result of this instability. Governments should

pass tax incentives with clear timelines. This could be for the first 100 000 e-motorcycles in the country, for example, or for the next four years. But it is needed to provide certainty to entrepreneurs and consumers alike.

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Industry financing is the second pillar required. As e-mobility start-up fundraising grows and grows, it still falls short of the tens of billions required to transition the entire industry across Africa. An effort should be made to bring in the Asian manufacturers, who dominate the ICE motorcycle market in Africa, and link them with local swap station providers. Concessional debt financing is also key: many African markets face punishing interest rates, constricting paths to growth for local companies in particular. In this financing drive, local ownership is key. While Western venture capital firms have provided most of the start-up capital so far, a transition to e-mobility that sees the further loss of autonomy to the US and the EU is suboptimal. Local pension funds and angel investors need to get involved in order to ensure that Africa benefits on every level from this transition.

Finally, national grids remain under-built in many countries. Some, like Nigeria, are wildly erratic, with consistent power for the wealthy on Victoria Island and constant blackouts for the poor majority. Others, like Uganda and Tanzania, have improved their grids significantly, but rural areas remain mostly disconnected. In order to not leave rural and poor populations behind, it's critical that African countries expand and strengthen their grids.

Additionally, EV adoption will increase grid consumption, and all countries need to add electricity generation to account for this incoming demand. A mix of solar, enhanced geothermal, regional interconnections and storage will be key to providing for the new demand.

E-mobility in Africa is a reality today. While they may not have the gleam of a BYD Seal or a Tesla Model S, electric motorcycles in particular are an undeniable boon to both household and national economies. The demand is there: supply of vehicles and battery swap stations is the only thing missing. Governments and investors should step up to provide the boost e-mobility needs to reduce fuel dependency, clean the air above the

streets and leave a few more notes in riders' leather jacket pockets.



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