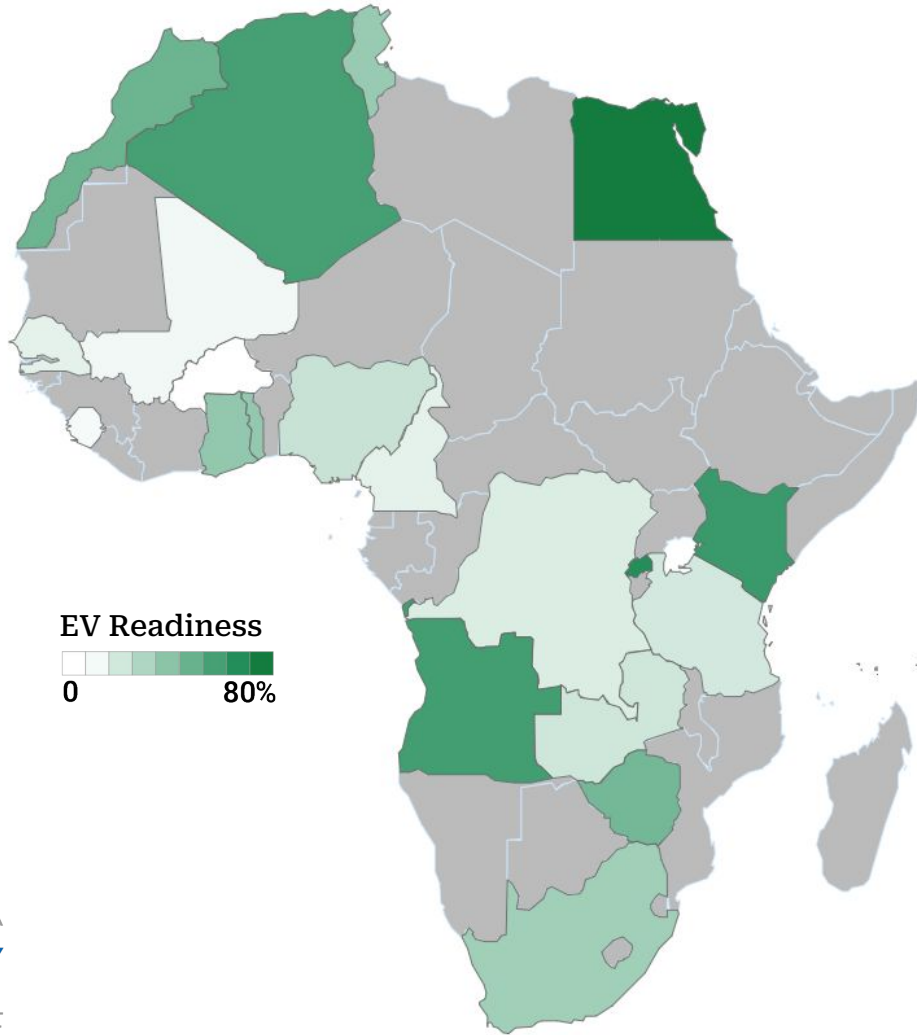




Africa E-Mobility Readiness Tool

October 2023



A F R I C A
E-MOBILITY
A L L I A N C E



Data Partners

This data portal was built from contributions of different stakeholders in e-mobility who recognized the urgent need for a centralized hub.

We engaged electric vehicle manufacturers, government agencies, research institutions, and environmental organizations to create a comprehensive repository. Now, we invite and encourage other stakeholders to actively engage by submitting updates and contributing to the ongoing evolution of this valuable resource.

Current contributors





E-Mobility Readiness Tool

The UNEP Sustainable Mobility Unit and AfEMA have developed a tool to assess the EV readiness of **21 African countries**.

This can be used by companies, investors, policymakers and other stakeholders to identify gaps and opportunities, and benchmark different African countries.

The tool consists of **23 indicators**, divided into **4 categories**: Finance, Deployment, Policy, Energy.

Each indicator is weighted to create category scores.

The overall **EV Readiness Score** is an average of all four category scores.

These indicators and weightings will need revision as circumstances in these complex and dynamic markets change from year to year.

Category	# Indicators
Finance	9
EV Deployment	7
Policy	6
Energy	4
Total	23



Methodology – EV Deployment

To measure EV technology adoption, **sales** and **stock** data were compiled from government sources, newspaper publications, and interviews with electric mobility actors.

Due to the early nature of the e-mobility industry across most African countries, no single unified source is currently available for these key metrics.

For **charging stations**, interviews with electric mobility companies and [chargemap.com](https://www.chargemap.com) provided data.

2W includes e-motorcycles and e-scooters, but not standing e-scooters or e-bicycles. 3W includes e-tuktuks.

LDV includes 4W passenger cars and light vehicles.





Buses includes all bus sizes.

Latest EV annual sales data

- LDV - EV sales
- 2&3W - EV sales
- Buses - EV sales

Known stock of

- Buses - EV stock
- LDV - EV stock
- 2&3W - EV stock
- Charging stations

EV Deployment			100%
vehicle class		stock	sales/yr
 2w/3W		12.50%	12.50%
 4W/LDV		12.50%	12.50%
 Buses		12.50%	12.50%
 Charging stations			25.00%

Subcategory weighting

Methodology – Finance



Market players companies involved with charging, importation, manufacturing or assembly of EVs, from AfEMA’s internal database

Fuel price from globalpetrolprices.com

Savings difference when driving ICE and electric 2Ws, 4Ws and buses over 100km

Power price residential & commercial prices were derived from globalpetrolprices.com except where EV tariff was available (Egypt, Kenya and Rwanda)

Price spread difference between cost of litre of petrol normalized to kWh and a kWh of electricity (provides a simple way to compare national prices of petrol and electricity, but ignores efficiency rates)

vehicle class	ICE EV	fuel/100km energy/100km
2W	Average ICE 2W Average E2W	3.74l 4 kWh
car	Average ICE 4W 2019 Nissan Leaf	8.6l 15.62 kWh
bus	ICE 33-seater bus BYD K9M	34.5l 124 kWh

Finance		100%		
Market players	25.00%			savings /100km
Fuel Price	0.00%			
		residential	commercial	2w/3W 16.67%
Power price	0.00%	0.00%		4W/LDV 16.67%
Price spread	25.00%			Buses 16.67%

Subcategory weighting



Methodology – Policy

Targets/strategy national targets for phasing out ICEs, or mention of e-mobility in NDCs

Regulations safety or quality standards

Incentives (fiscal) import tax waivers, VAT exemptions, one-off/annual registration fee waivers

Incentives (non-fiscal) provision of land for charging stations, low-emissions zones, free parking, etc.

Industrial policy incentives for EV manufacturing or assembly

Energy policies EV charging tariffs or related policies

Yes/no labels were assigned to each indicator:

EV Policies	100%
Targets/strategy	16.67%
Regulations	16.67%
Incentives (fiscal)	16.67%
Incentives (non-fiscal)	16.67%
Industrial policies	16.67%
Energy policies	16.67%

Subcategory weighting

Methodology – Energy



Data was collated from unified sources such as the World Bank Data Catalogues and Ember Electricity Data Explorer for the grid carbon intensity data.

Urbanization Urban population as % of total population

Electricity grid access Percentage of population with access to electricity via the grid

Grid stability Comparing power outage frequencies in a typical month against median power outages

Grid carbon intensity Carbon dioxide (CO₂) produced by electricity on the national grid, measured as g CO₂ per kWh

Energy	100%
Urbanization	25.00%
Grid access	25.00%
Grid stability	25.00%
Grid carbon intensity	25.00% gCO ₂ e / kWh
Subcategory weighting	



Methodology – Score Calculation

$$\textit{Category Readiness Score} = \sum_{i=1}^n w(i) \cdot x(i)$$

i = subcategory index

n = number of subcategories

w = subcategory weight

x = subcategory normalised value

Scores for each category are combined to create the overall EV readiness score for a country:

Country EV Readiness Score = ¼ (EV Deployment Score + Policy Score + Finance Score + Energy Score)