

Electric Mobility in Kenya
Crowne Plaza
21st February 2020

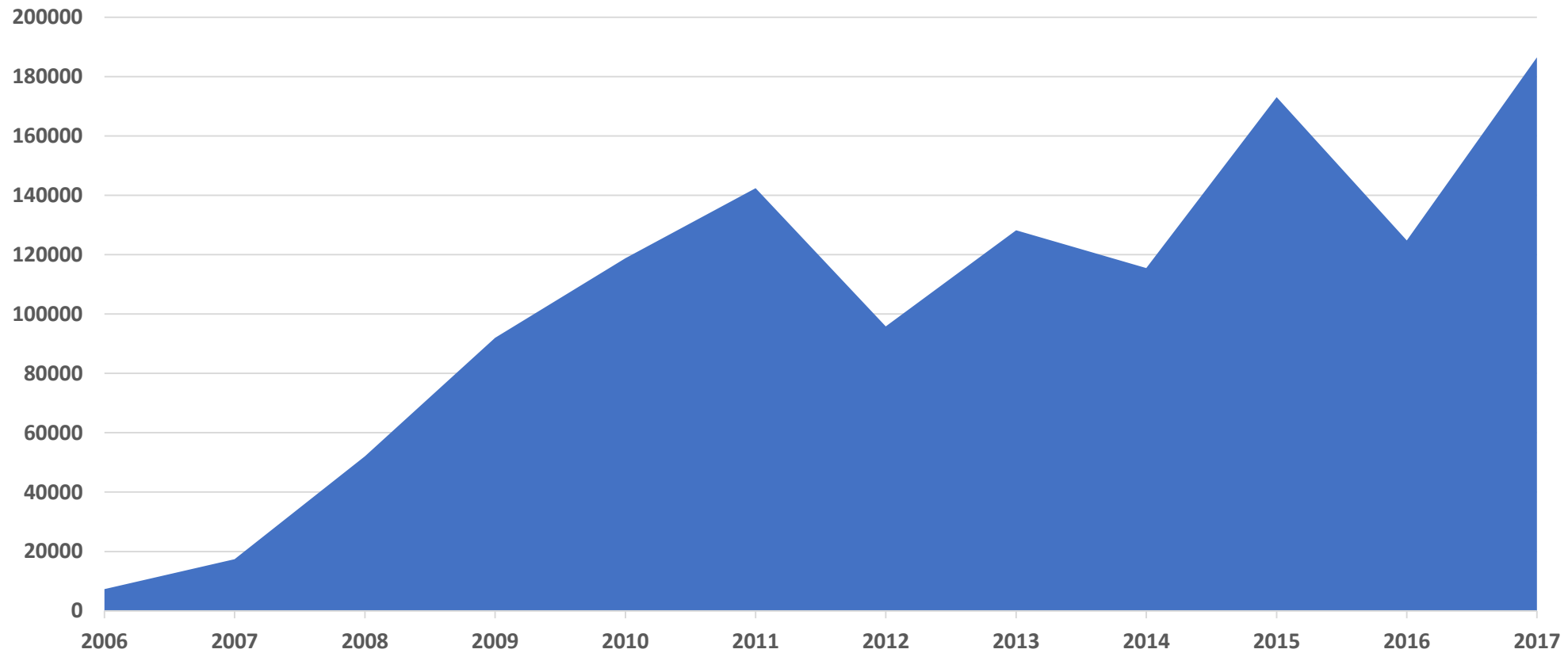
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Introduction

- The car is at the centre of our transportation system
- It is the most common means of transport
- A new type of engine appears to be the solution to lower emissions (Example)
- Electric vehicles have potential to improve the efficiency, affordability and sustainability of the transport system
- Electric vehicles has become the most prominent technology to decarbonize transport

How many 2/3 wheelers are in Kenya?

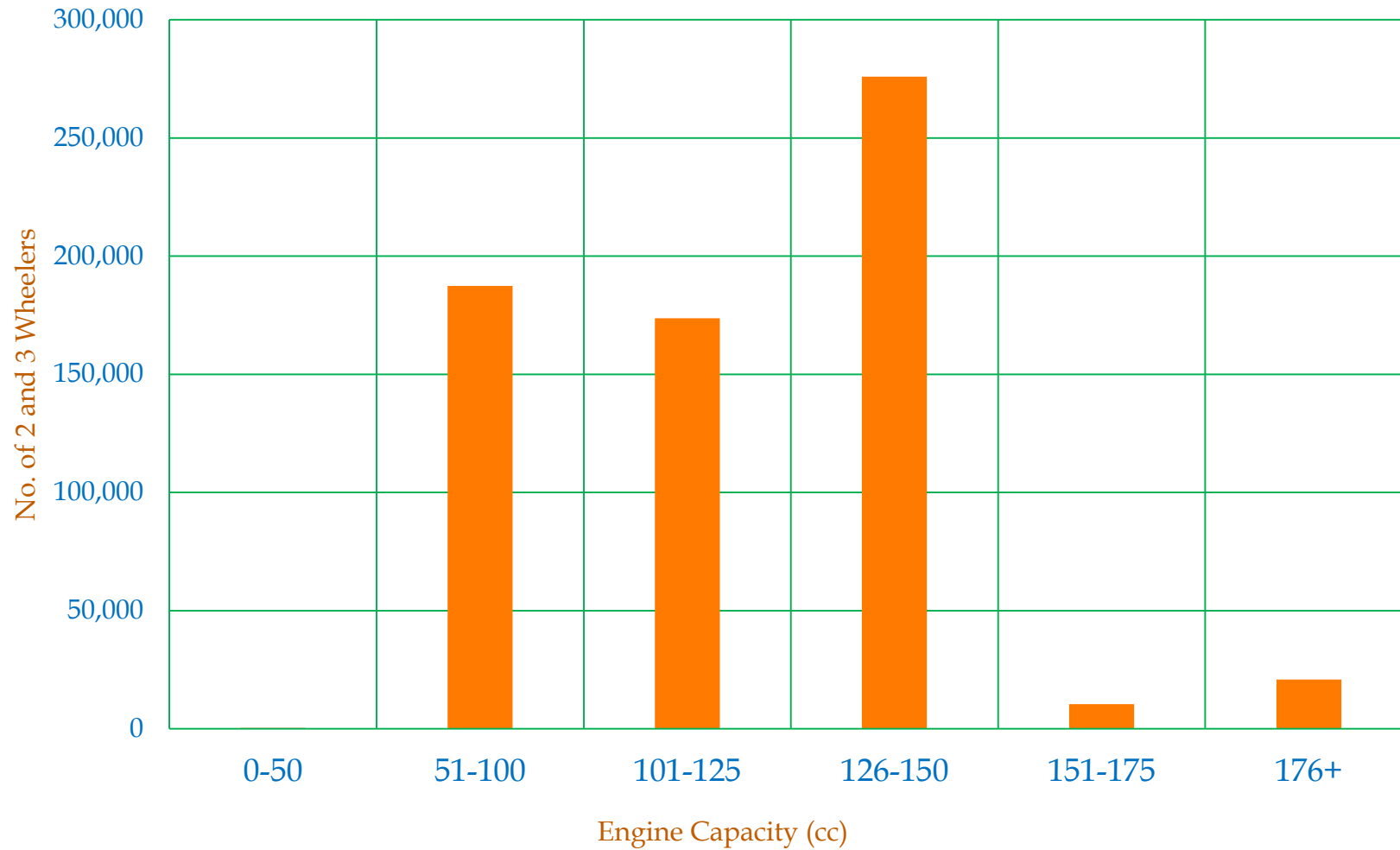
No. of 2/3 Wheelers Registered in Kenya 2006 - 2017



Characterization

- No. of registered motorcycles is 2.3-2.5 million, with average rate of registration at 150,000 units per year.
- Currently 2/3 wheelers in local market are of both 2 and 4 stroke type of engines but predominantly of 4 stroke.
- Information on number of strokes is not documented in registration records.

Characterization by Engine Capacity



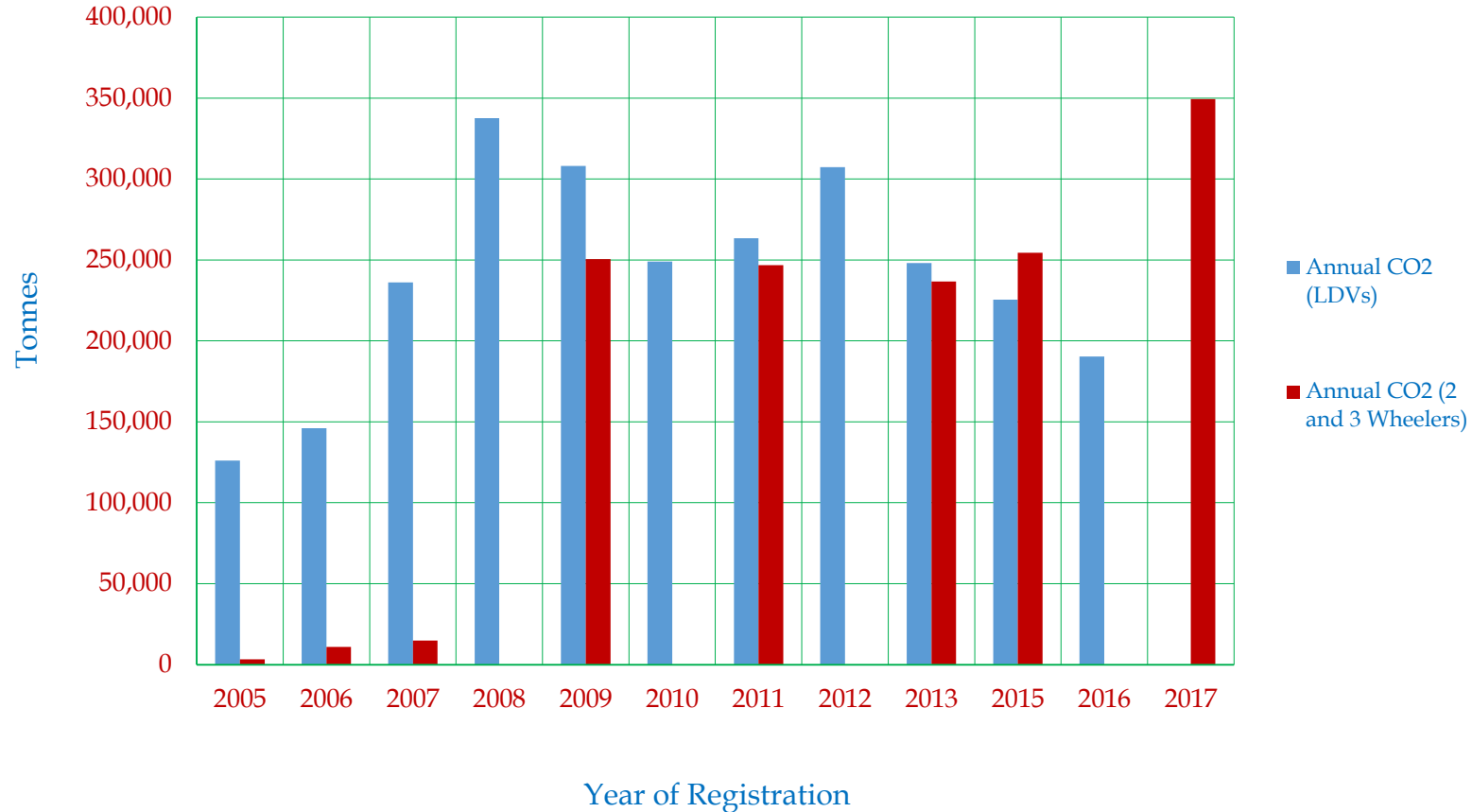
Fuel Supply System

- All 2/3 wheelers used for taxi (Bodaboda) have carburetors.
- Carburetors supply fuel with less precision than Electronic Fuel Injection (EFI) system used in Light Duty Vehicles.
- It is noted that Light duty vehicles manufactured after 1985 did not have the carburetor as the standard fuel supply system.
- Carburetors are responsible for high evaporative emissions (hydrocarbons) through breathing losses and leakages in fuel lines and conduits.

Vehicle Kilometers Travelled (VKT)

- Annual Vehicle Kilometres (VKT) travelled for 2/3 wheelers was approximated at 31,200 km which was derived from 100 km/day rate of travel.
- Annual Vehicle Kilometres (VKT) travelled for Light Duty Vehicles was approximated at 15,000 km

Comparison of CO₂ Emissions for 2 & 3 Wheelers and of Light Duty Vehicles

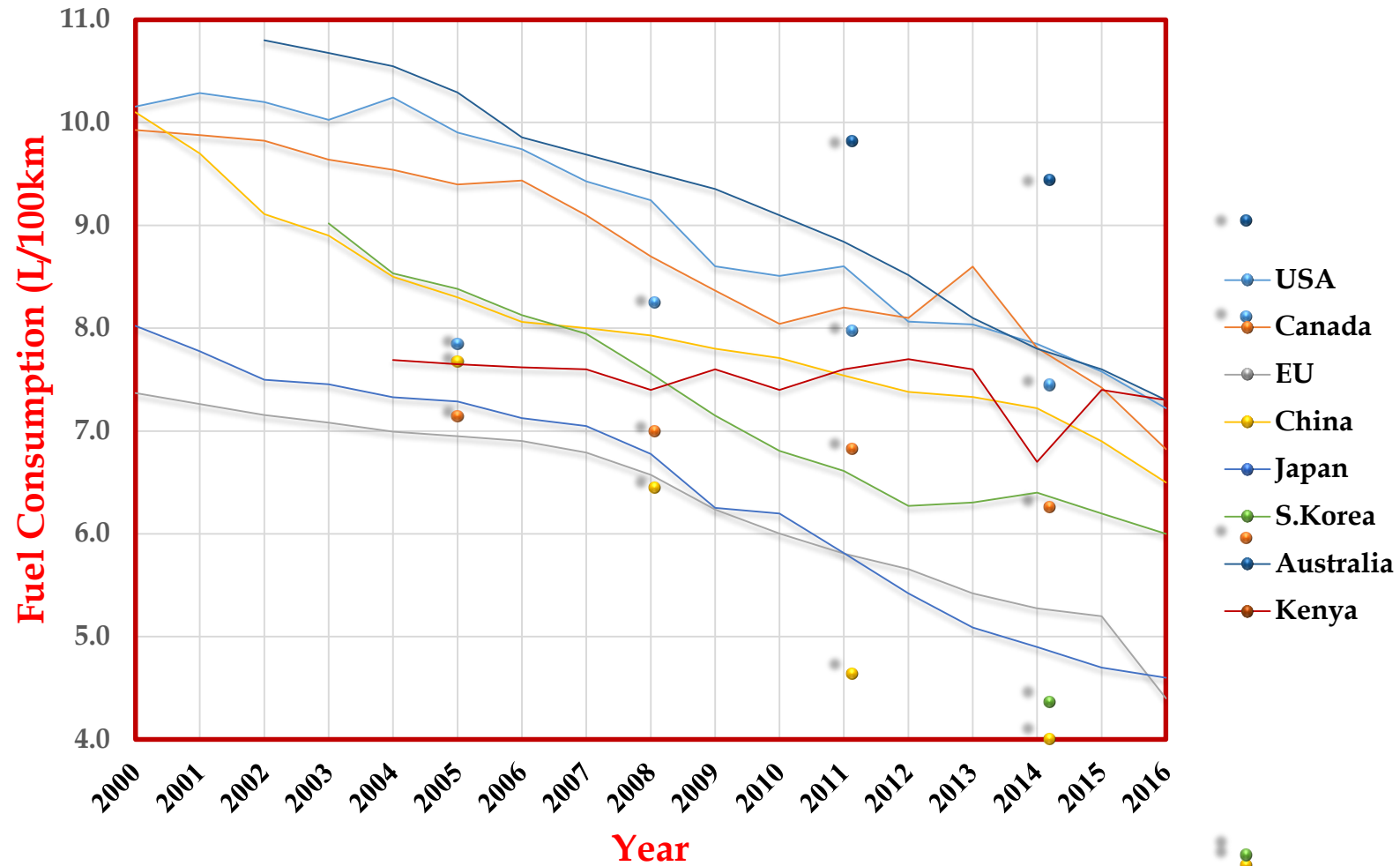


Emissions of other Pollutants (Red Flag).

Use of carburettor and absence of pollutant emission controls like catalytic converters result in emission of more potent GHG (HCs, CO, NO_x) from 2/3 wheelers of the following order of magnitudes:

- 12 times more HCs compared to that of LDVs per km
- 3 times more CO compared to that of LDVs per km
- 4 times more NO_x compared to that of LDVs per km

Comparison of Average Fuel Economy (L/100km) for LDVs of selected countries



Why are the profiles different?

- Existence of strong regulating policies and institutional arrangements
- Increased presence of electric mobility

Barriers for uptake of Electric Mobility

Identified barriers include:

- High upfront purchase cost.
- Limited driving distances due to battery capacity
- Absence of service/charging infrastructure for flexibility and convenience.
- Absence of regulating policies and Institutional arrangements.
- Lack of awareness by the public.

Basis of improvement in selected countries

- Set targets for electric drive vehicle sales
- Develop coordinated strong policies to support the market introduction of electric drive vehicles.
- Develop and implement recharging infrastructure

Announced Electric Mobility targets

- Australia-June 2009
- Canada-June 2008
- China-April 2009
- Denmark-
- France- October 2009
- Germany- Nov 2008
- Ireland- April 2009
- Israel- September 2009
- Japan- August 2008
- New Zealand- October 2007
- Spain – July 2007

Advantages of Electric Vehicles

- High efficiency of power train – 90% compared to 30% of ICE
- Recharge ability of battery system
- Outstanding acceleration and power transfer in comparison with ICE
- Lower maintenance costs
- Local free emission of electrical drives.

Recommendations

- Set targets for electric drive vehicles
- Develop policies and standards to support introduction of electric drive vehicles
- Develop and implement recharging infrastructure