UN Clean Mobility week: A presentation on feebate system in Uganda, and policy recommendations

By

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Outline of the Presentation

- **Brief Findings from the Baseline**
- **Policy Recommendations Derived from the Baseline study**
- **Current Policies in Uganda aimed at reducing carbon emission**
- **Data Capture Tool**
- **Proposed policies for Feebate study**

Vehicle Inventory by status at Registration: 2000-2014

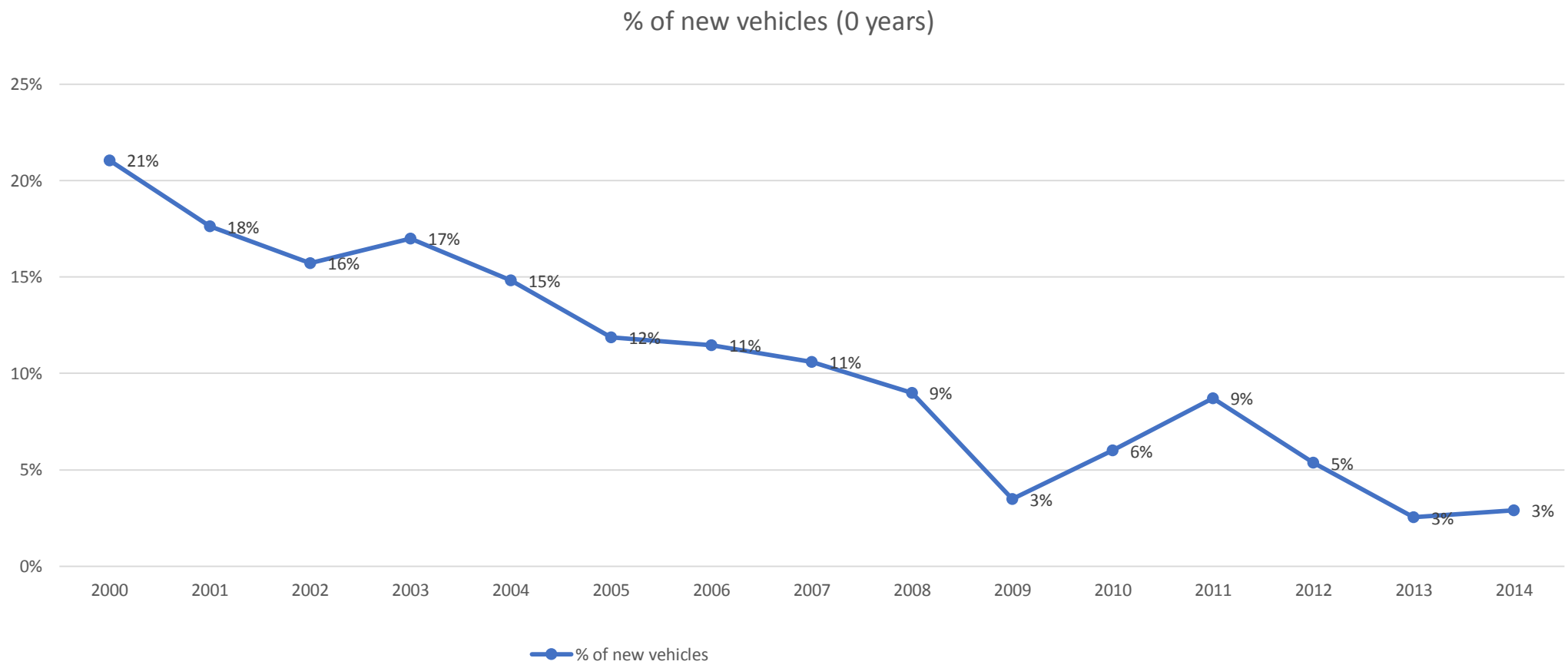
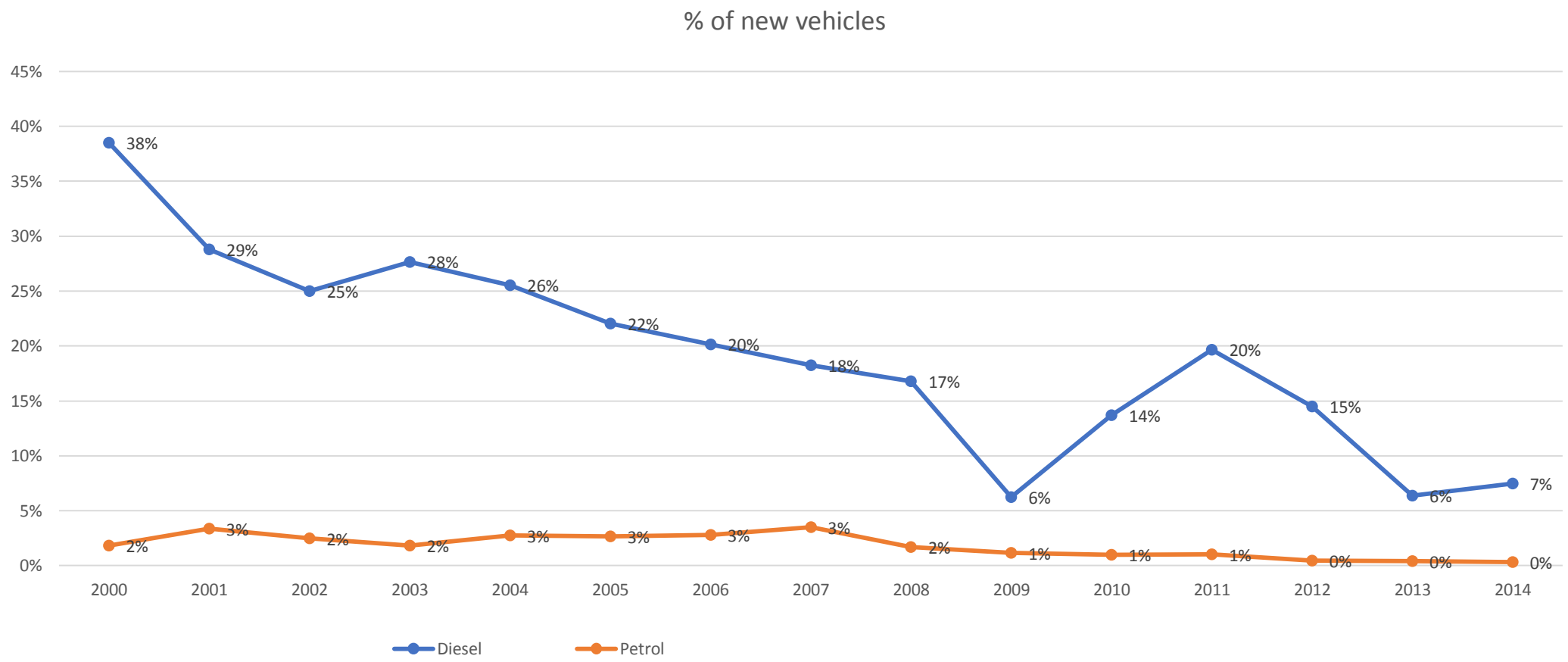
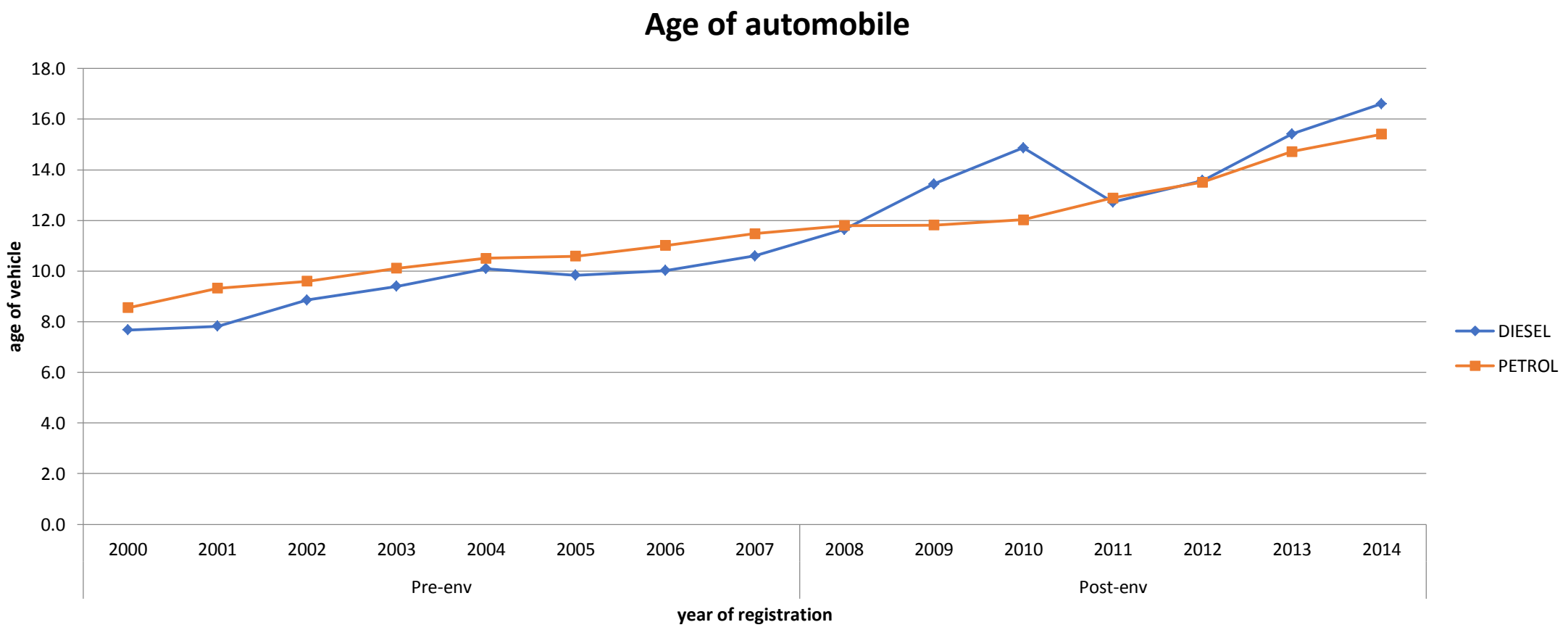


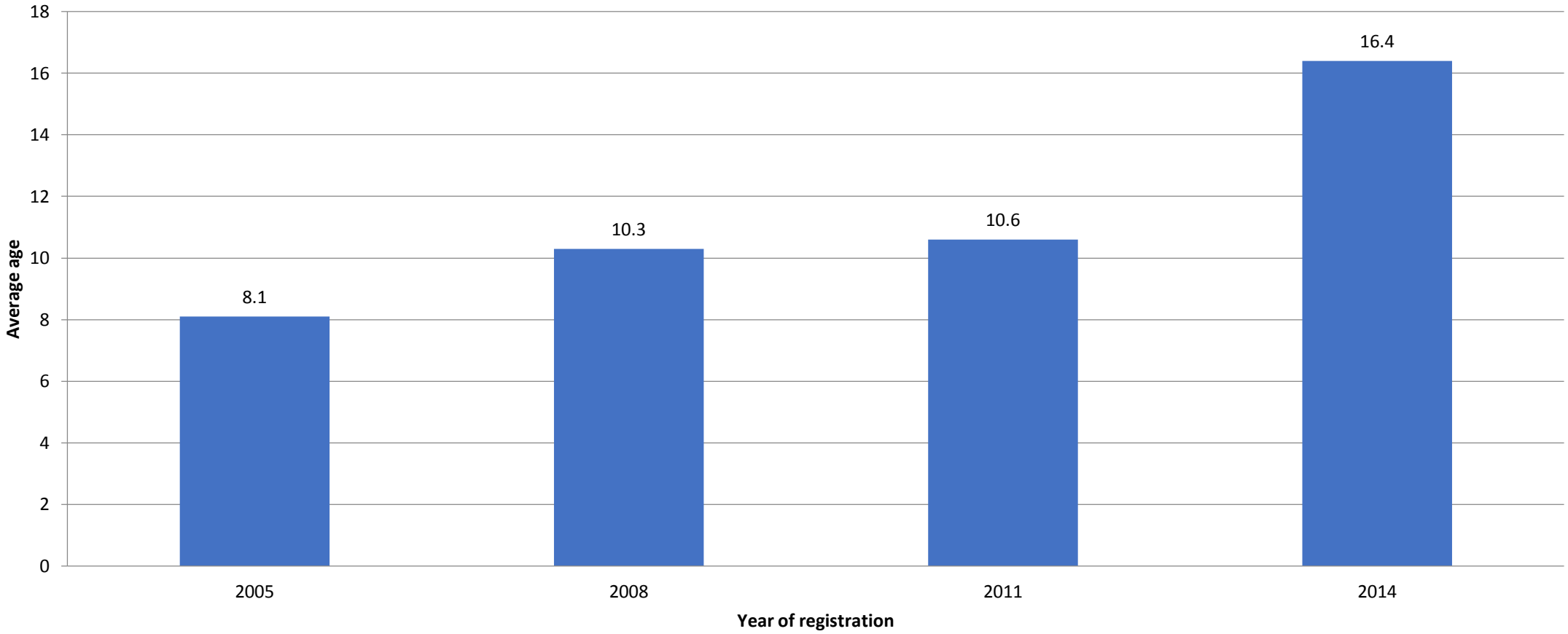
Figure 2: Vehicle status by Fuel type



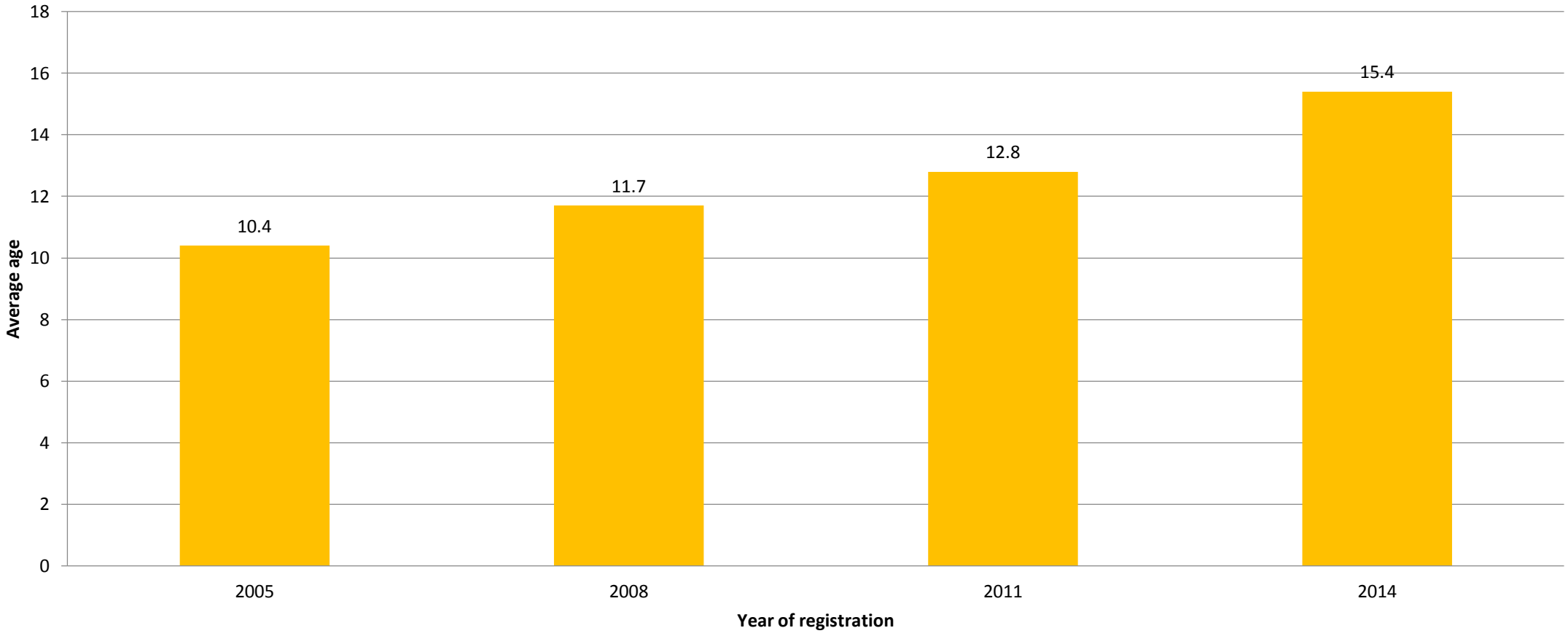
Average age of Imported vehicles before and after the Environmental Levy



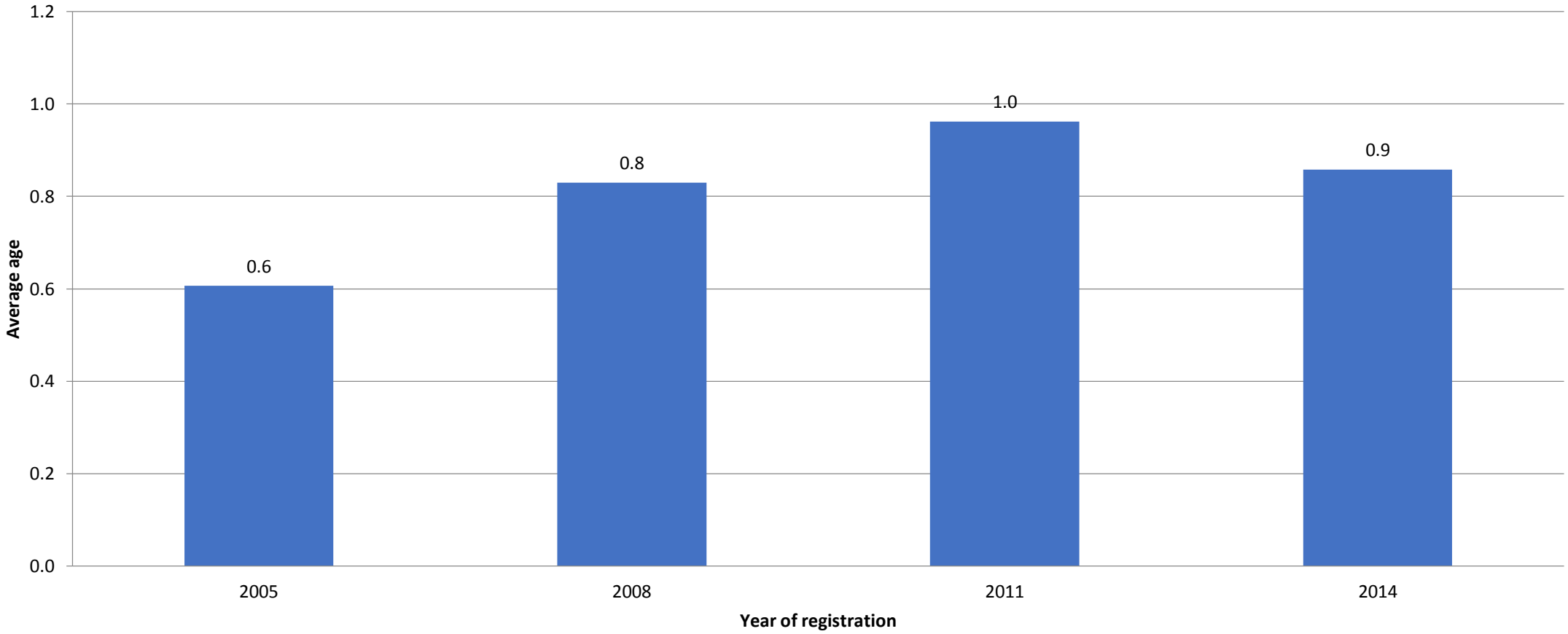
Average Age of Diesel vehicles



Average age of Petrol engine vehicles



Average Age of Motorcycles



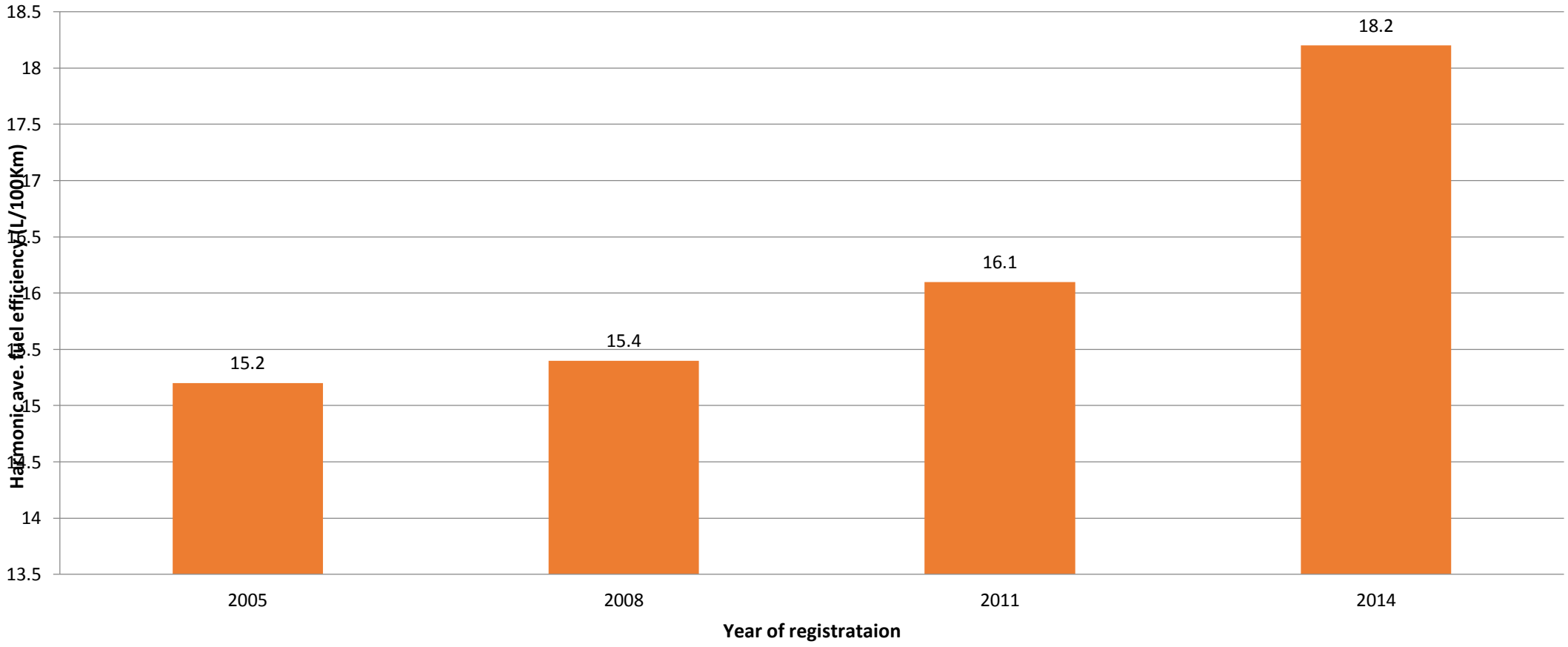
Effect of the Environmental tax on age of vehicle. (Alfa Romeo 147, saloon 2009 cif, USD 8829.48)

COMPUTATION OF TAXES ON IMPORTED VEHICLES	
Year of Manufacture (YOM) *	2009
Year of Import *	2018
Number of Years Since YOM	9
CIF in USD *	8,829.48
Exchange Rate	3,664.23
CIF in UGX	32,353,245.50
Import Duty	8,088,311.38
VAT	7,279,480.24
Withholding Tax	1,941,194.73
Environmental Levy	11,323,635.93
Infrastructure Levy	485,298.68
Registration Fees	1,200,000.00
Total Taxes	30,317,920.95

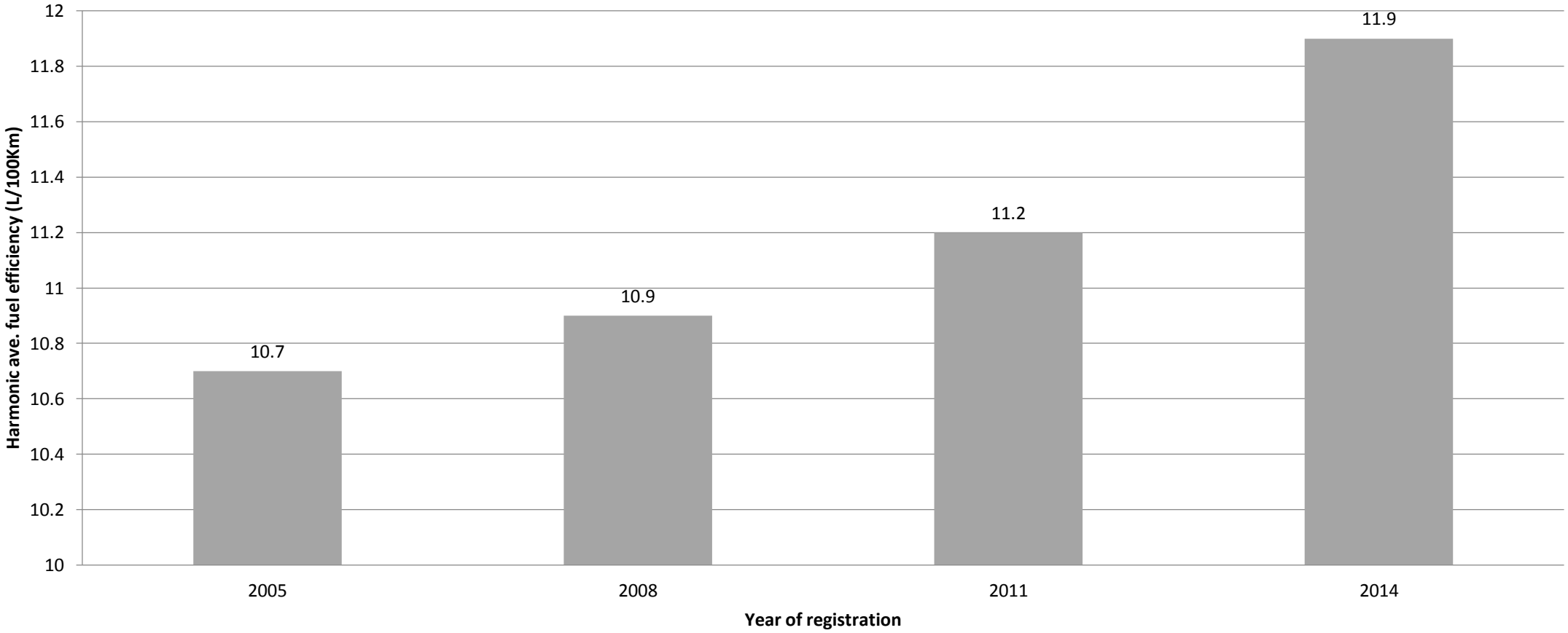
Effect of the Environmental tax on age of vehicle Alfa Romeo 147, saloon 2002 cif, USD 3931.27

COMPUTATION OF TAXES ON IMPORTED VEHICLES	
Year of Manufacture (YOM) *	2002
Year of Import *	2018
Number of Years Since YOM	16
CIF in USD *	3,931.27
Exchange Rate	3,664.23
CIF in UGX	14,405,077.47
Import Duty	3,601,269.37
VAT	3,241,142.43
Withholding Tax	864,304.65
Environmental Levy	7,202,538.74
Infrastructure Levy	216,076.16
Registration Fees	1,200,000.00
Total Taxes	16,325,331.35

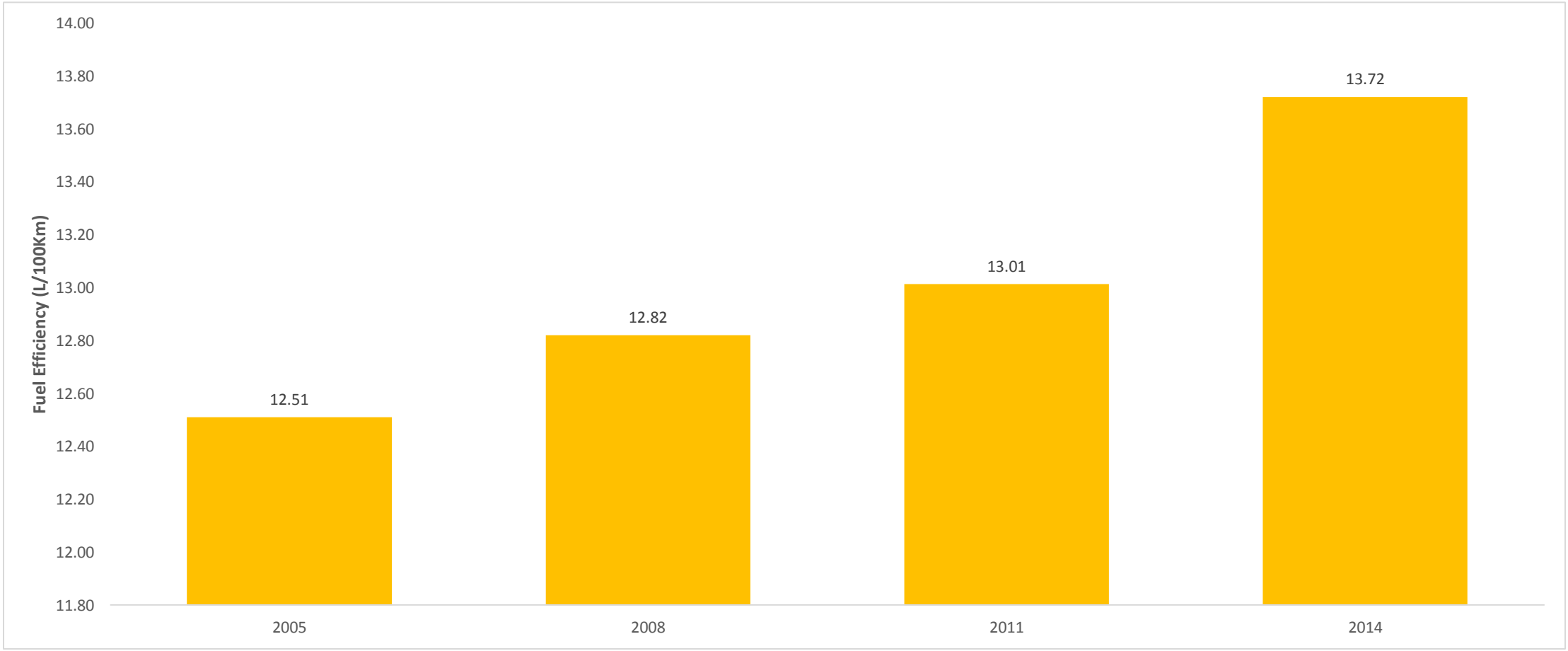
Harmonic average fuel efficiency of diesel fleet



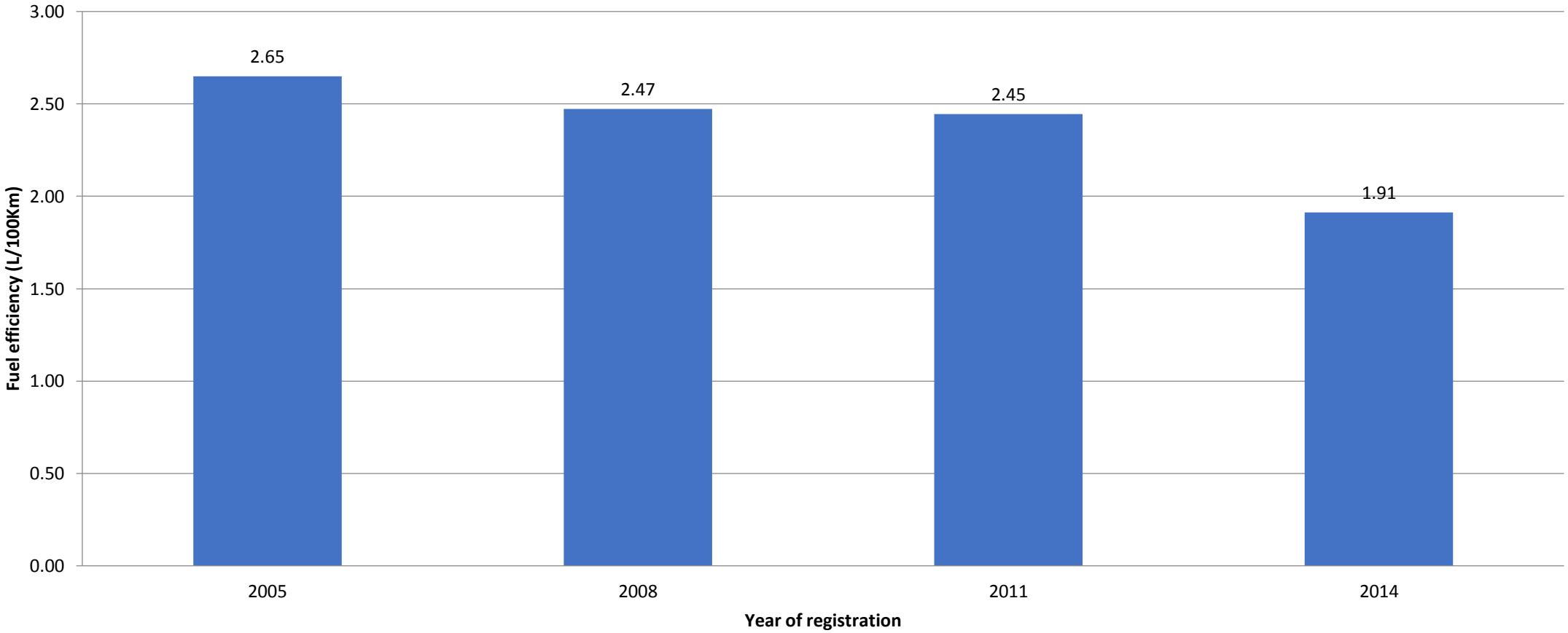
Harmonic average fuel efficiency of petrol fleet



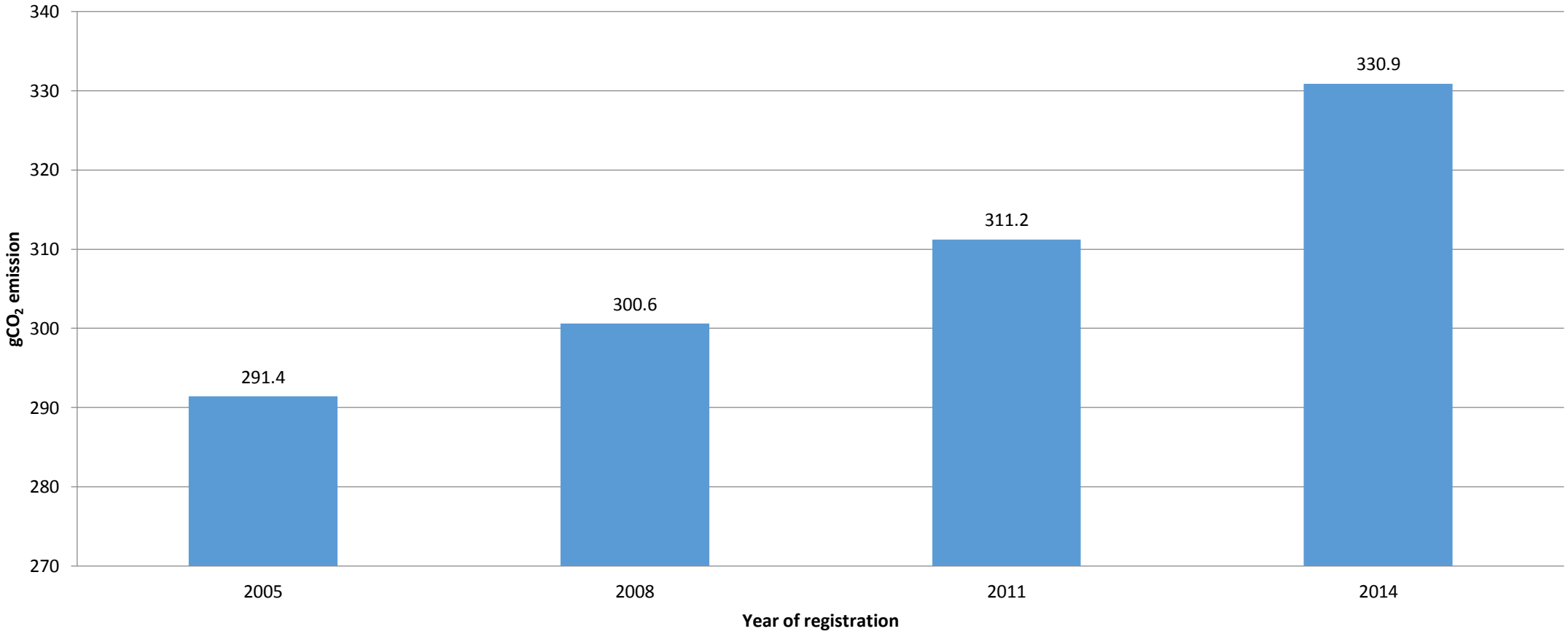
Average Fuel efficiency for vehicle fleet



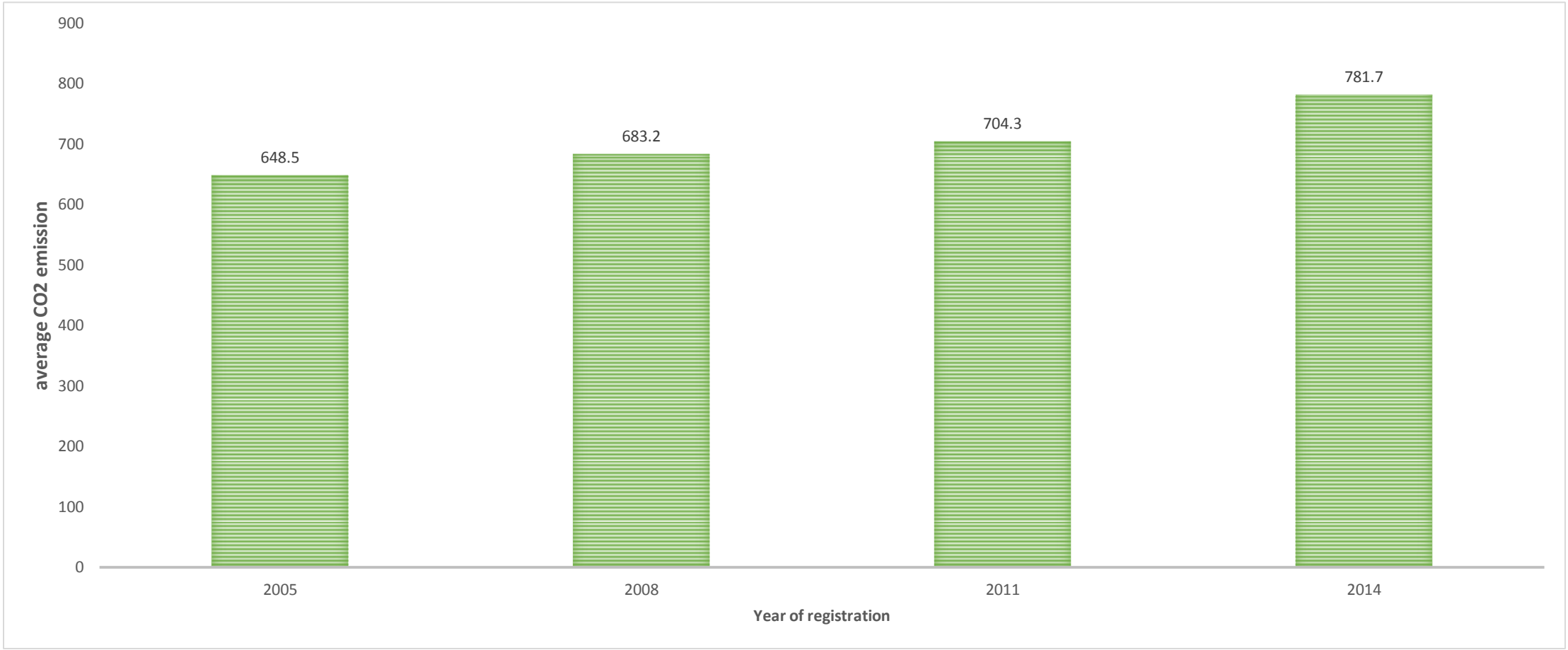
Average Fuel Efficiency of motorcycles.



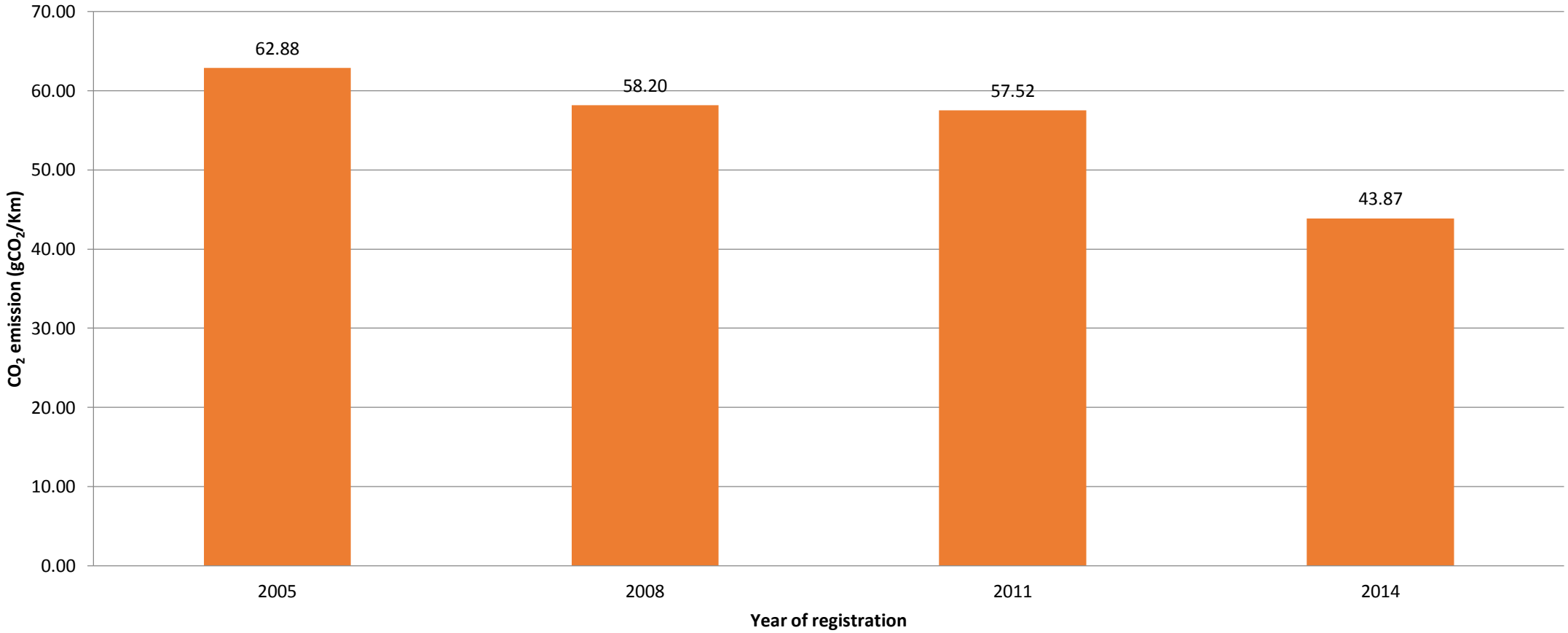
Average carbon emission for Petrol fleet



Average carbon emission for Diesel fleet



Average carbon emission of motor cycles



2.Policy Recommendations Derived from the Baseline study: To Government-UNBS, MoWT

- There should be periodic inspection of all automobiles (vehicles and motorcycles) for carbon emission levels and other requirements. Those that exceed the allowable emission levels should pay a fee or get off the road.
- Car inspection before importation should include carbon emission levels in addition to other specifications.

- Vehicles that are to be imported into the country should be labeled with “Fuel economy and Environmental Labels,” for easier comparison during shopping.
- Import restrictions such as a ban on importation of vehicles older than a given number of years, say 20 years

Policies cont’d

Policies to Uganda Revenue Authority:

- A differential/progressive Environment tax rates based on age/engine capacity due to Polluter Pay Principle
- Capture fuel economy ratios at registration.
- Restrict importation of vehicles over 20 years
- URA needs to harmonize its datasets i.e. e-tax and customs.
- URA and MoW&T need to build a strong business intelligence to check consistency of entries made by custom and importing agency.

Policy options for Kampala City Counsel Authority:

- Encourage public transportation
- Encourage non-motorized transport.
- widening the roads and installing traffic lights.
- Discourage private transport into the City by increasing parking fees;
- Make it a mandatory for every new building to have parking space.
- Discourage daytime loading and offloading of goods/merchandise
- Safe parking for non-motorized transport

3.Current Policies in Uganda aimed at reducing carbon emission

- A differential Environment tax based on age is in place
- KCCA ic currently widening roads and installing traffic lights
- There are plans by KCCA to Promote the Use of Non-Motorized Transport (NMT):

3.Current Policies in Uganda cont..

- Construction of ring-roads, and flyovers by Government and KCCA.
- Development of an Integrated Public Transport System in GKMC

- A draft air quality standard is in place.
- Inspection of all vehicles and motorcycles for road worthiness-MoWT

4. Data Capture Tool

- We have designed a Data Capture Tool that captures data on vehicle registration sources (URA and MoWT).
- The Tool is web-based and it is supposed to updates on a daily basis.
- A profile of vehicle specifications plus fuel economy ratios, which will be used to update the database is under construction so that the tool can be free from manual intervention. Users will be defined depending on their desired level of usage.

Data Capture Tool cont..

- The Tool will be able to provide customized reports tailored to the user.
- The Tool will process information and provide snap charts of the simulations on the policies.
- It shall be used as a monitoring tool, to track progress on fuel economy and carbon emissions.

DATA CAPTURE TOOL cont’d

Objectives

- The tool will provide timely information to inform the policy mechanisms employed to improve fuel efficiency in the transport sector, and achieving the global fuel efficiency targets.

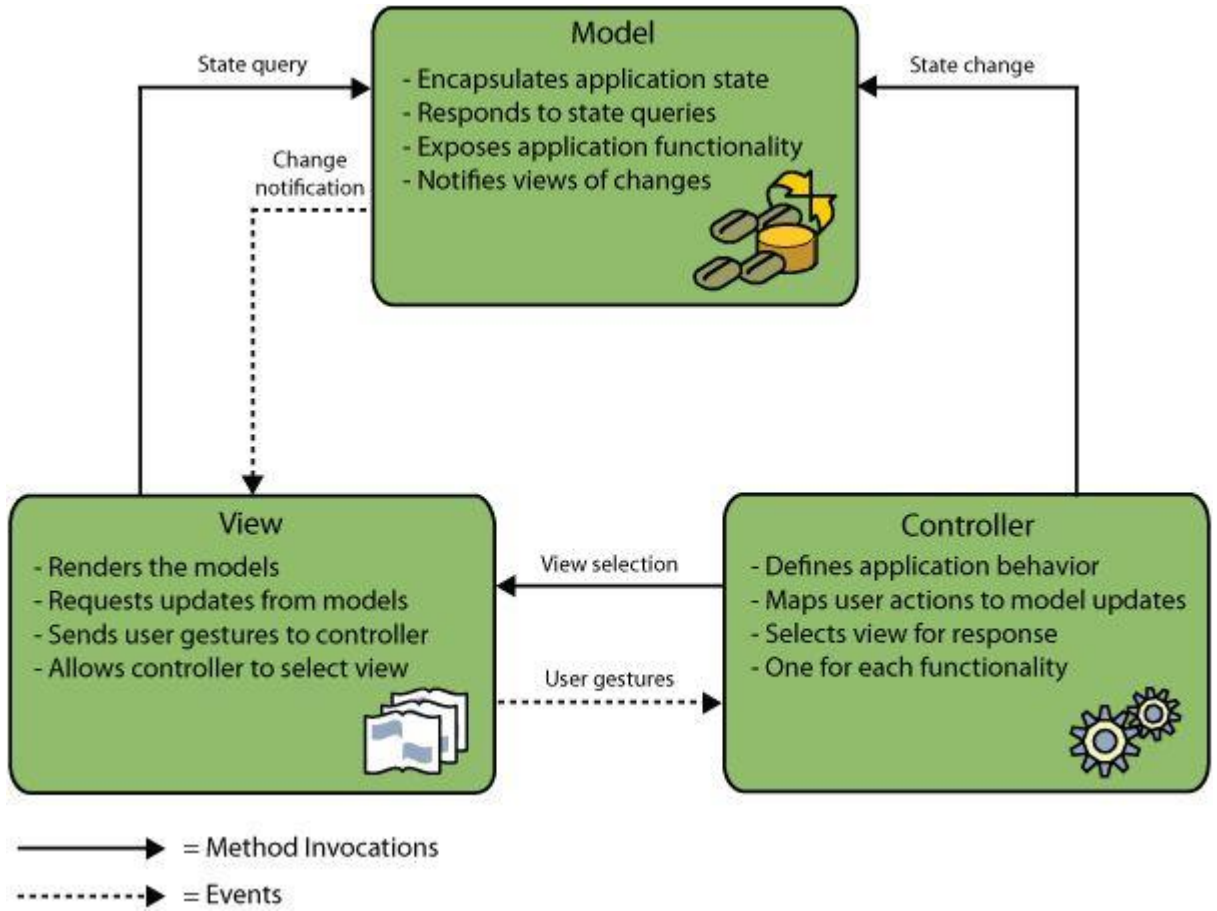
- To create a system that broadly captures, stores, processes and shares multi-source connected vehicle data with stakeholders for purposes of research, analysis, and testing vehicle carbon emissions in Uganda.

Architecture of the Tool

- The tool uses Model View Controller (MVC) architecture.

- MVC is a software architectural pattern for implementing user interfaces on computers. It divides a given application into three interconnected parts in order to separate internal representations of information from the ways that information is presented to and accepted from the user.

Architecture of the Tool, cont..



Architecture of the Tool, cont..

Component	Description	Technology Used
Model	This is the Database, the part responsible for storing data	Postgres
View	This is the client side of the tool. It is responsible for capturing data from the user and presenting reports to the user.	HTML5 (Responsive) and JQuery for client end logic.
Controller	This is the brain of the system, it captures data from the user and sends it to the model. When requested, it gets data from the model, analyzes and processes it, then sends it to the view for the user as a report.	PhP

Linking to the custodians Database

- The tool shall connect to the different databases available with the custodians (URA) through a web-service developed by the custodians. This will include registration data and inspected data (automobiles on the road). The databases will be updated on a daily basis from both web-services.
- It will be a single multi-dimensional Array with a list of vehicles that were registered within the date range that was supplied to the data capture tool.
- URA has already created the web-service and provided the Research team with a link for test environment which has been successful, and currently awaiting data.

Outputs


DATA CAPTURE
Search for...
Main Navigation
DASHBOARD
REPORTS
FE DATABASE
UPDATE FE DATABASE
REFERENCE DATA
MODELS - ADMIN
USERS - ADMIN
Dashboard
/ Elite / Dashboard
75552
AUTO MOBILES
87%
PETROL
13%
DIESEL
8.51
FE (L/100KM)
Fuel Efficiency Since 2005
Fuel Efficiency in L/100Km
20 L/100km
15
10
5 L/100km
0 L/100km
2010
LDV: 8.28 L/100KM
MDV: 9.97 L/100KM
HDV: 17.03 L/100KM
0
2010
2011
2012
2013
2014
Trial Version
LDV
MDV
HDV
Carbon Dioxide Emisions by Fuel Type
Carbon Dioxide in g/Km
300 g/km
200 g/km
100 g/km
0 g/km
Trial Version
Petrol
Diesel
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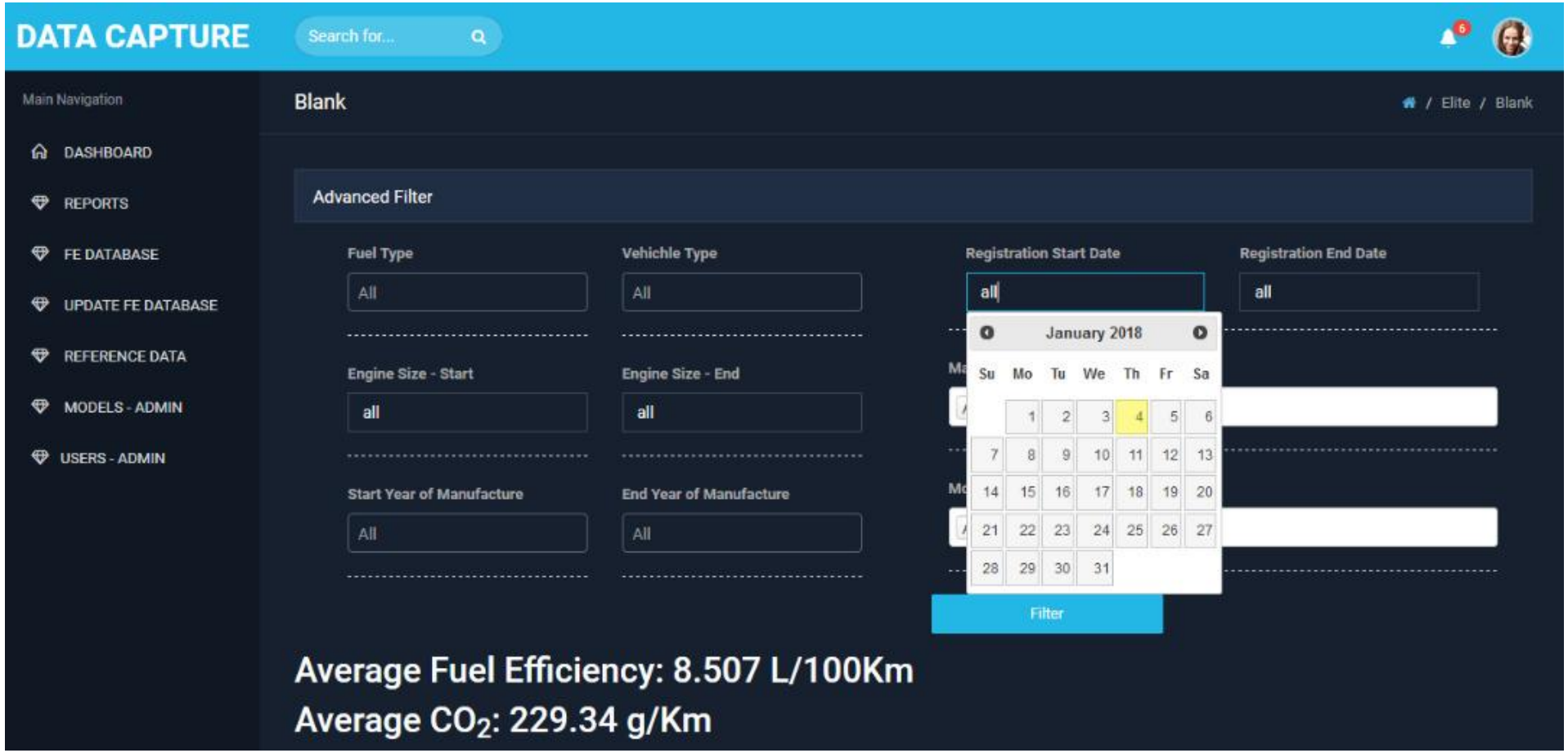
Refined Reporting.



Proposed policies for Feebate study

- Pre-inspection (before importation) and post-inspection (those on the roads) should include testing for fuel economy ratios and carbon emission,

- Given that Uganda is a developing country, this study recommends a progressive carbon-tax instead of the feebate/Rebate system. The carbon- tax should be in line with the “polluter pay principle” to deter heavy polluters.

Policies cont’d

- The study also recommends an increase in excise duty on private vehicles with big engines (i.e. SUVs) since they pollute more than small vehicles.

- We recommend that the profiled fuel efficiencies and carbon emissions be included on the vehicle labels.

cont..

- THANK YOU FOR LISTENING