



DETERMINATION OF FUEL ECONOMY BASELINE IN GHANA, FINDINGS AND TRENDS

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OUTLINE



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2 FUEL ECONOMY POLICIES IN GHANA

3 OBJECTIVE OF THE VEHICLE INVENTORY PROCESS

4 VEHICLE INVENTORY DATABASE

5 FINDING OF ANALYSIS

6 CONCLUSIONS AND POLICY RECOMMENDATIONS

• Population : 28.0million

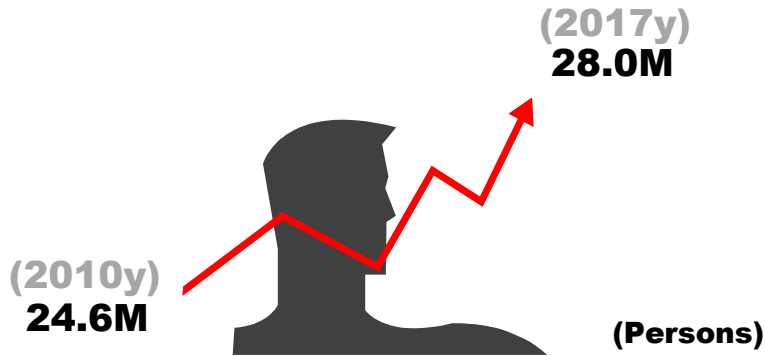
• Vehicles : 2,098,726

• Area : 239,460km²

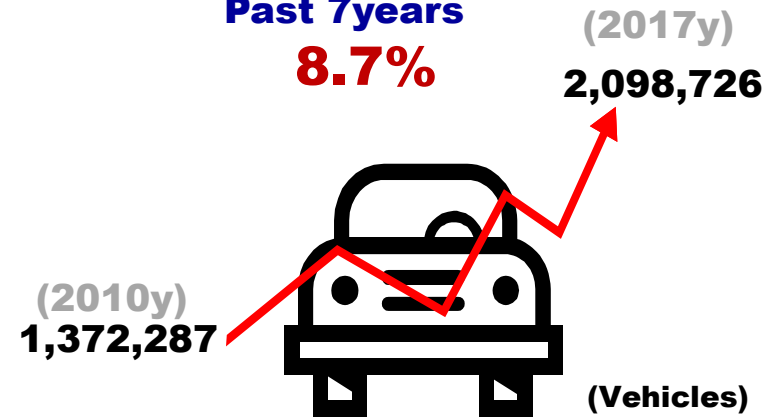
• Road :

73,000km

Past 7years

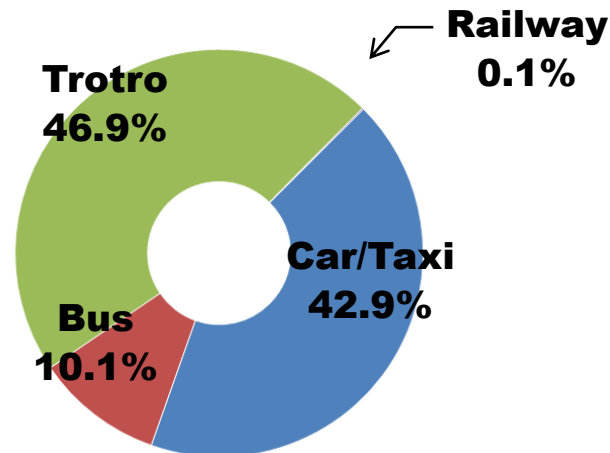


Past 7years



Source : DVLA

Modal Split



OBJECTIVES OF STUDY

- ▶ To carry out an inventory of LDVs (new and used) imported between 2005 and 2016 using the GFEI Methodological Guide to Developing fuel economy database.
- ▶ Use the data from the inventory to estimate baseline and average fuel economy for Ghana
- ▶ Estimate CO₂ emissions for LDVs imported between 2005 and 2016
- ▶ Review policies and regulations in place to promote the use of cleaner and fuel efficient LDVs in Ghana.
- ▶ Conduct Cost Benefit analysis of key policy interventions to promote fuel economy in Ghana
- ▶ Provide policy recommendations aimed at reducing carbon emissions and promoting vehicle fuel efficiency

FUEL ECONOMY POLICIES

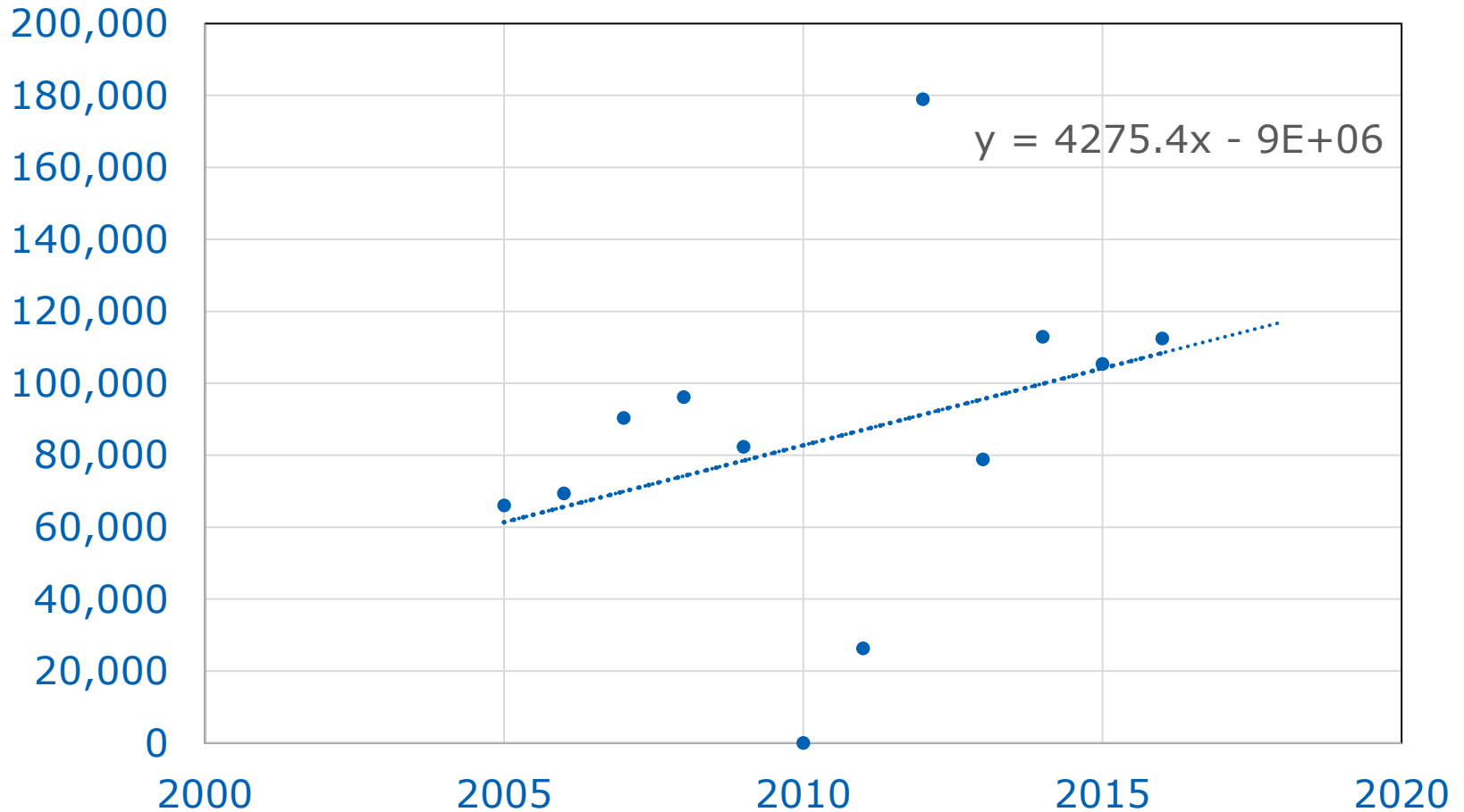
- No specific fuel economy policy or regulation
 - Vehicle Import Ban on vehicles older than 10 years
 - Revised to a penalties system with graduated fees to serve as a disincentive for importing vehicles over 10 years old
 - Vehicle Valuation which makes it more expensive buy import new technology
 - Reducing Sulphur contents in fuels which encourages the uptake of low sulphur diesel vehicles
 - The maximum specification for sulphur content in fuels was 5000ppm but reduced to 3000ppm in 2014
 - Revised to 500ppm (for refineries) and a maximum of 50ppm Sulphur
 - Revised to 500ppm (for refineries) and a maximum of 50ppm sulphur
 - Fleet Renewal Policy which support quasi government transport service providers and the private sector to renew their fleet.
 - Enforcement and regulatory oversight of the petroleum sector (Adulteration of fuels)

OVERVIEW OF VEHICLE INVENTORY IN GHANA

<u>Year</u>	<u>No. of LDVs Imported</u>
2005	66,036
2006	69,316
2007	90,312
2008	96,128
2009	82,301
2010	NIL
2011	26,297
2012	178,948
2013	78,835
2014	112,921
2015	105,366
2016	112,424
Total	1,018,884

OVERVIEW OF VEHICLE INVENTORY IN GHANA

No. of LDVs Imported per Year



OVERVIEW OF VEHICLE INVENTORY IN GHANA

Gaps Identified in the data

- Incomplete Data
 - 2016 Jan-Oct
 - No data for 2010
 - 2011 No data for Nov and about 1 week transaction for each month.
- Spelling Mistakes
- Wrong Inputs
- Incomplete information on LDVs

FINDING OF ANALYSIS

YEAR.	DIESEL	PETROL	Grand Total
2005	7.41	7.37	7.38
2008	7.33	7.46	7.41
2011	6.84	7.57	7.26
2013	6.52	7.33	7.05
2015	6.62	7.06	6.99
Grand Total	7.03	7.29	7.21

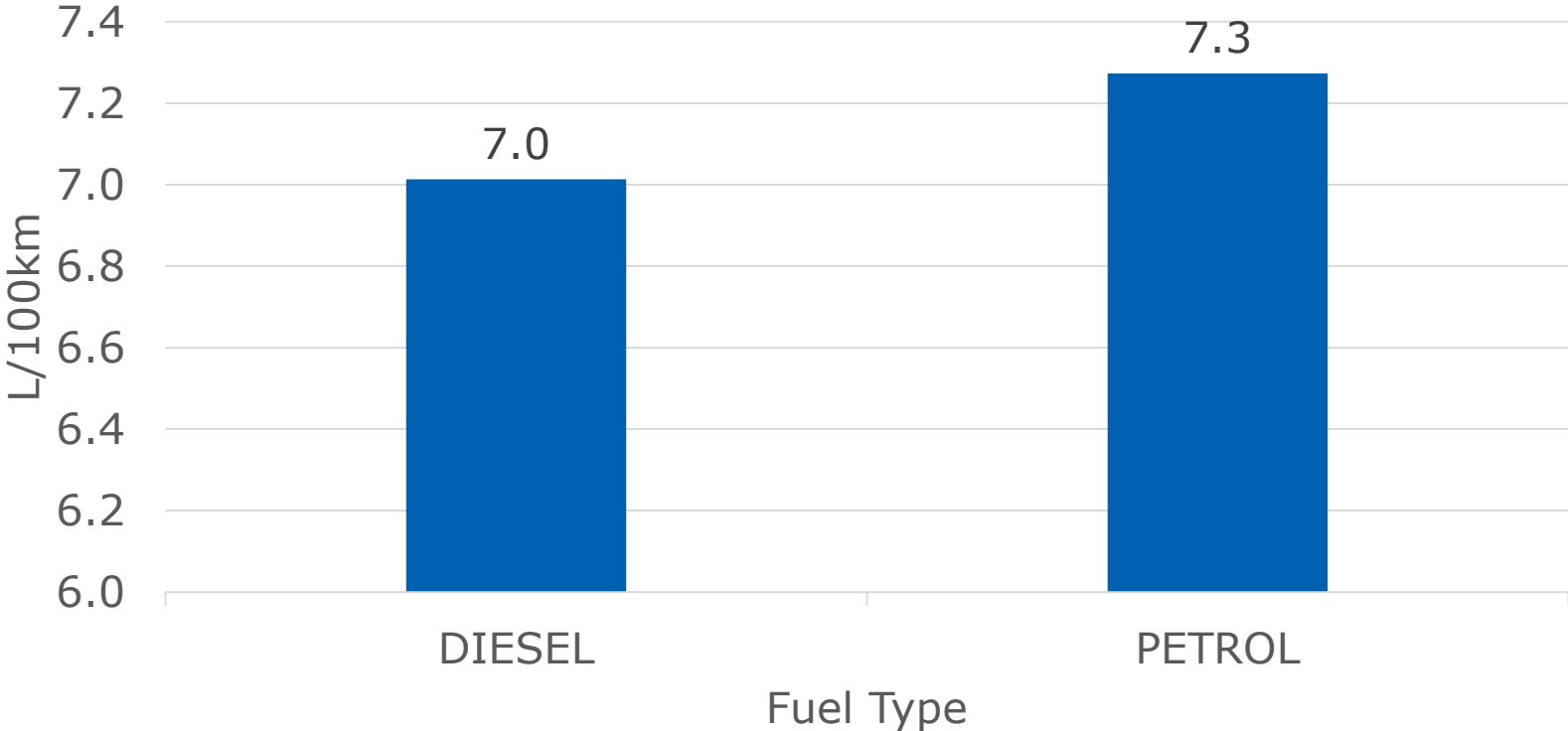
FINDING OF ANALYSIS

Av. Fuel Efficiency per Year



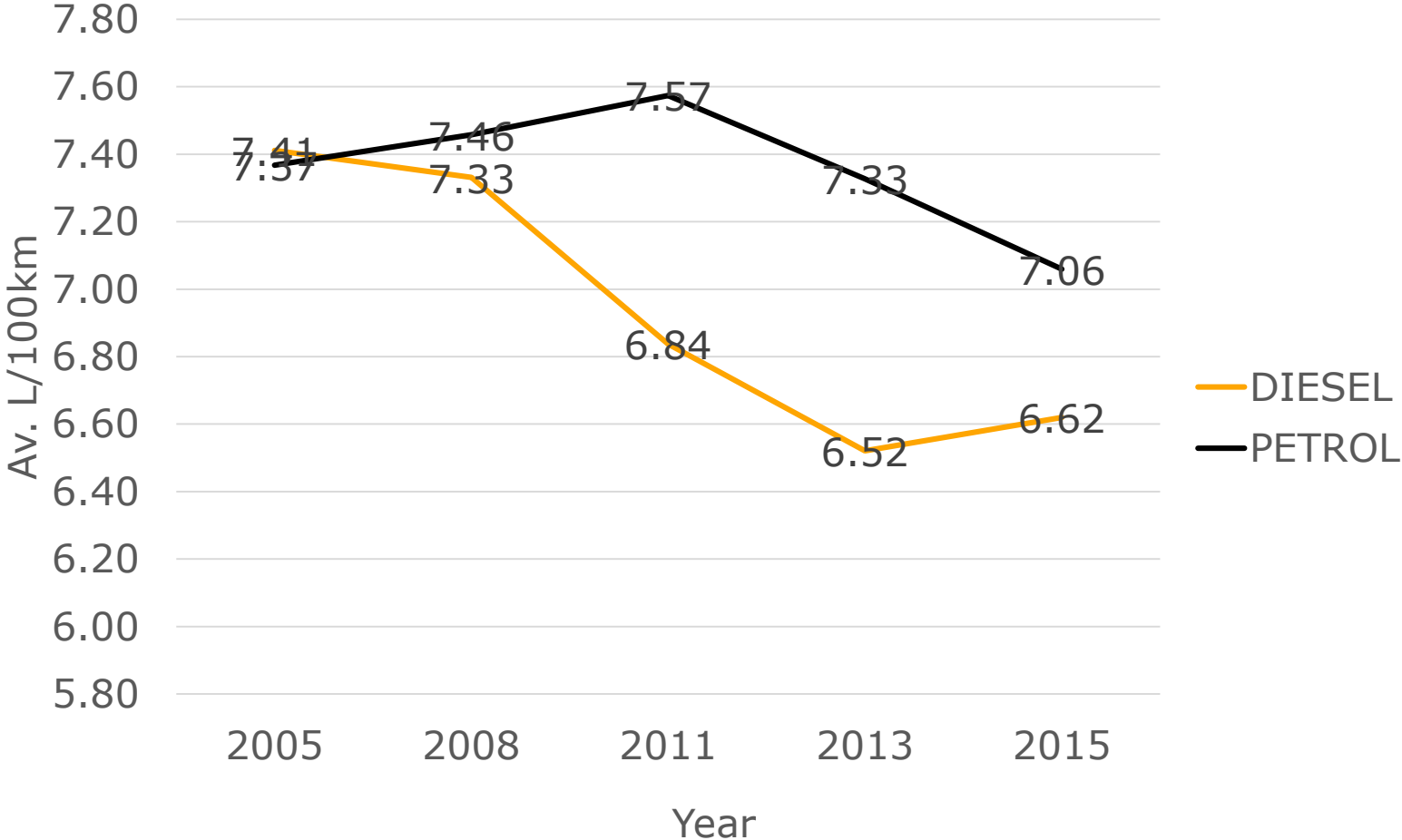
FINDING OF ANALYSIS

AV. FUEL ECONOMY BY FUEL TYPE



FINDING OF ANALYSIS

AV. FUEL EFFICIENCY BY YEAR

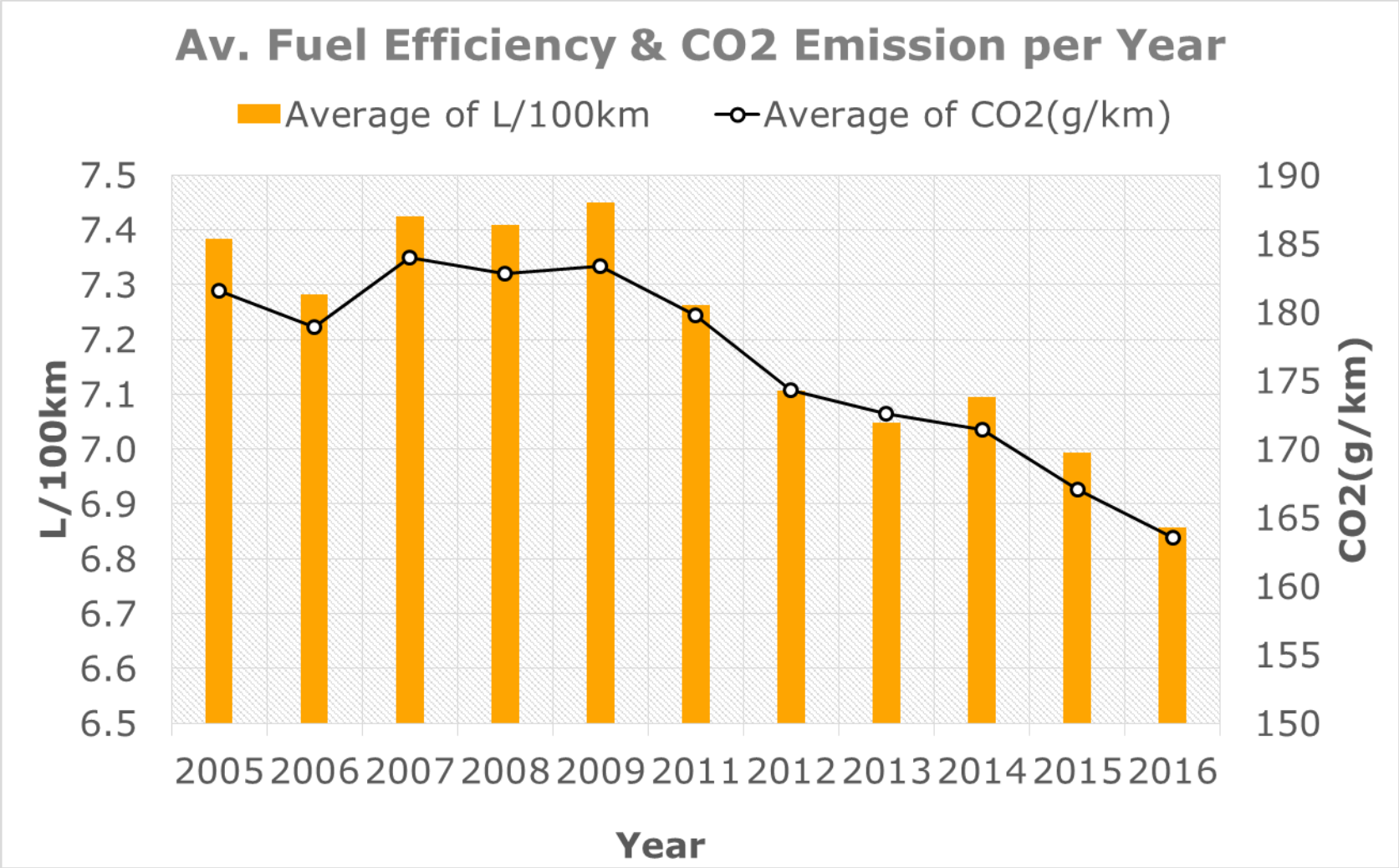


FINDING OF ANALYSIS

Av. Fuel Economy and CO₂ Emission

Years	Av. L/100km	Av. CO ₂ (g/km)
2005	7.4	182
2006	7.3	179
2007	7.4	184
2008	7.4	183
2009	7.5	183
2011	7.3	180
2012	7.1	174
2013	7.0	173
2014	7.1	171
2015	7.0	167
2016	6.9	164
Grand Total	7.2	176

FINDING OF ANALYSIS

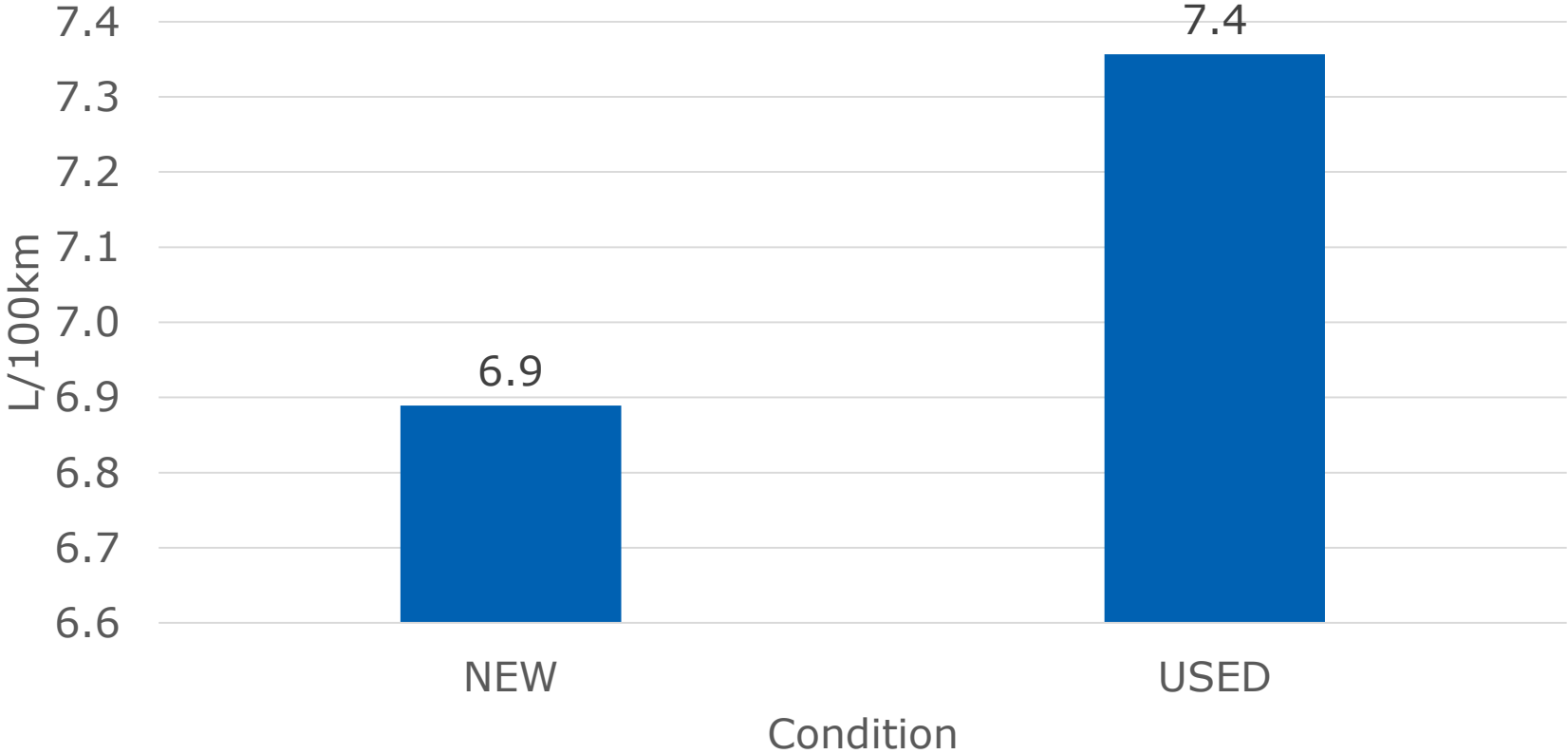


FINDING OF ANALYSIS

	AV. FUEL ECONOMY (L/100KM)		
<u>YEAR</u>	<u>NEW</u>	<u>USED</u>	<u>Grand Total</u>
2005	7.3	7.4	7.4
2006	7.1	7.4	7.3
2007	7.4	7.4	7.4
2008	7.2	7.6	7.4
2009	7.2	7.6	7.5
2011	6.9	7.6	7.3
2012	6.5	7.5	7.1
2013	6.5	7.4	7.0
2014	6.6	7.4	7.1
2015	6.4	7.1	7.0
2016	<u>6.4</u>	<u>7.0</u>	<u>6.9</u>
Grand Total	6.9	7.4	7.2

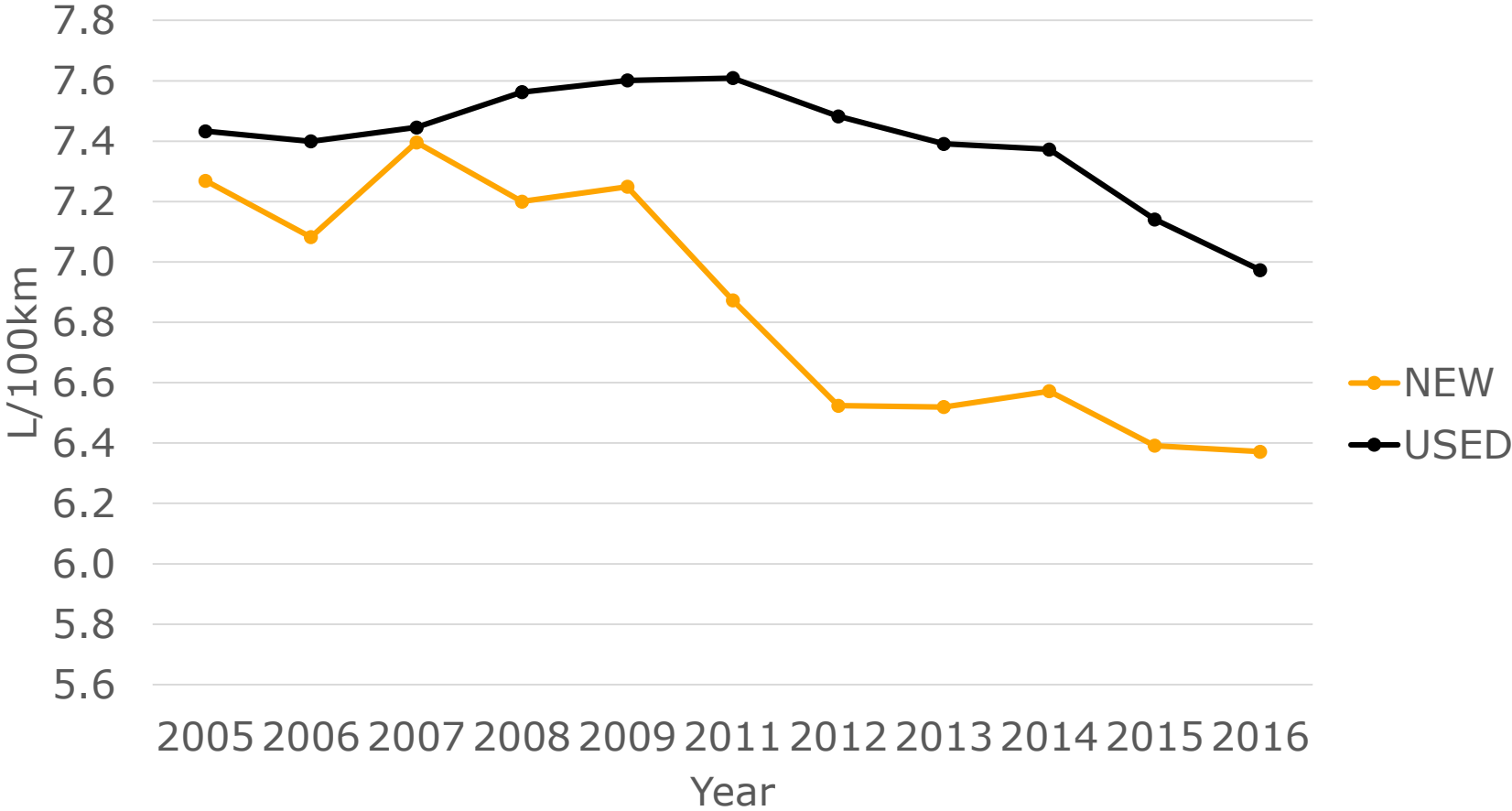
FINDING OF ANALYSIS

Fuel Efficiency by LDV's Condition



FINDING OF ANALYSIS

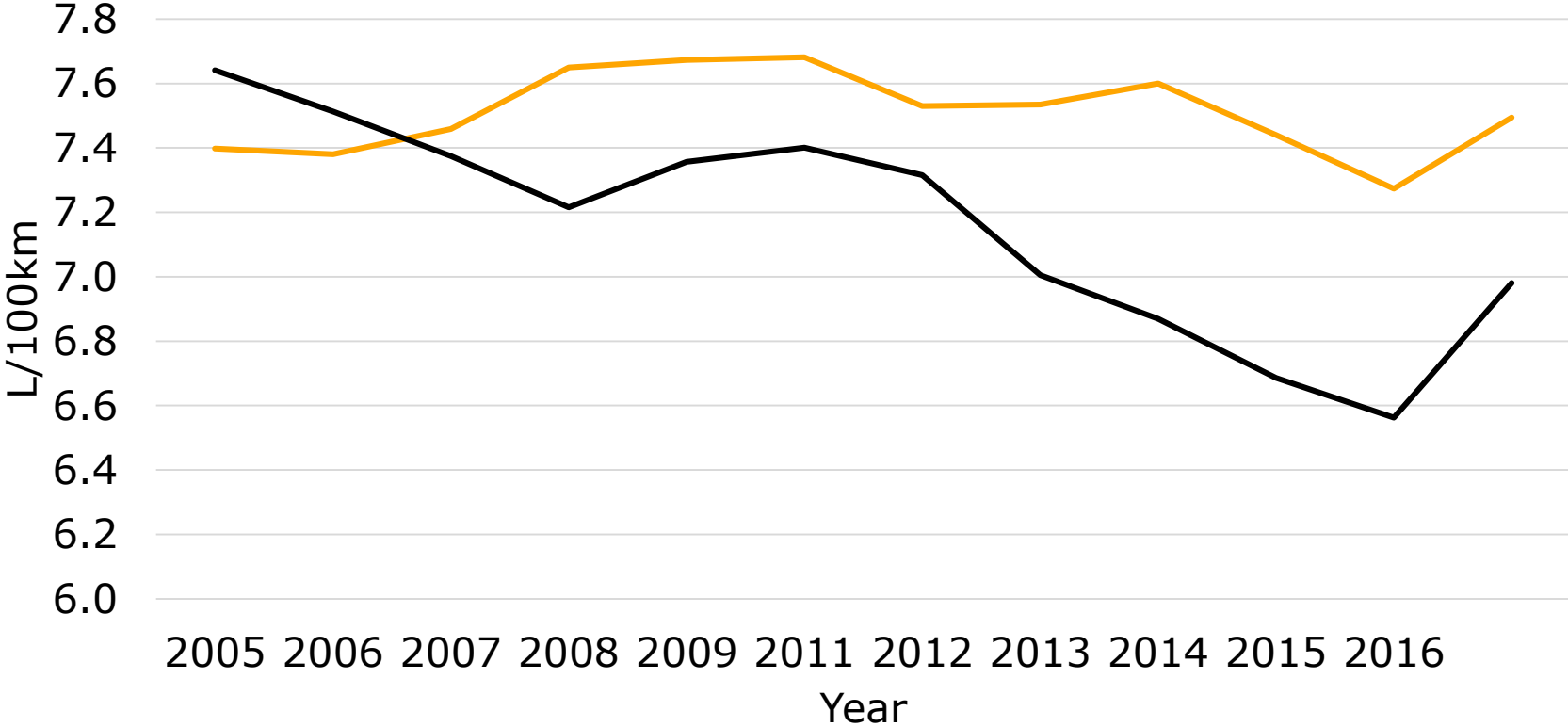
Fuel Economy of New and Used LDVs



FINDING OF ANALYSIS

Fuel Economy of Used LDVs

— >5years — ≤5years



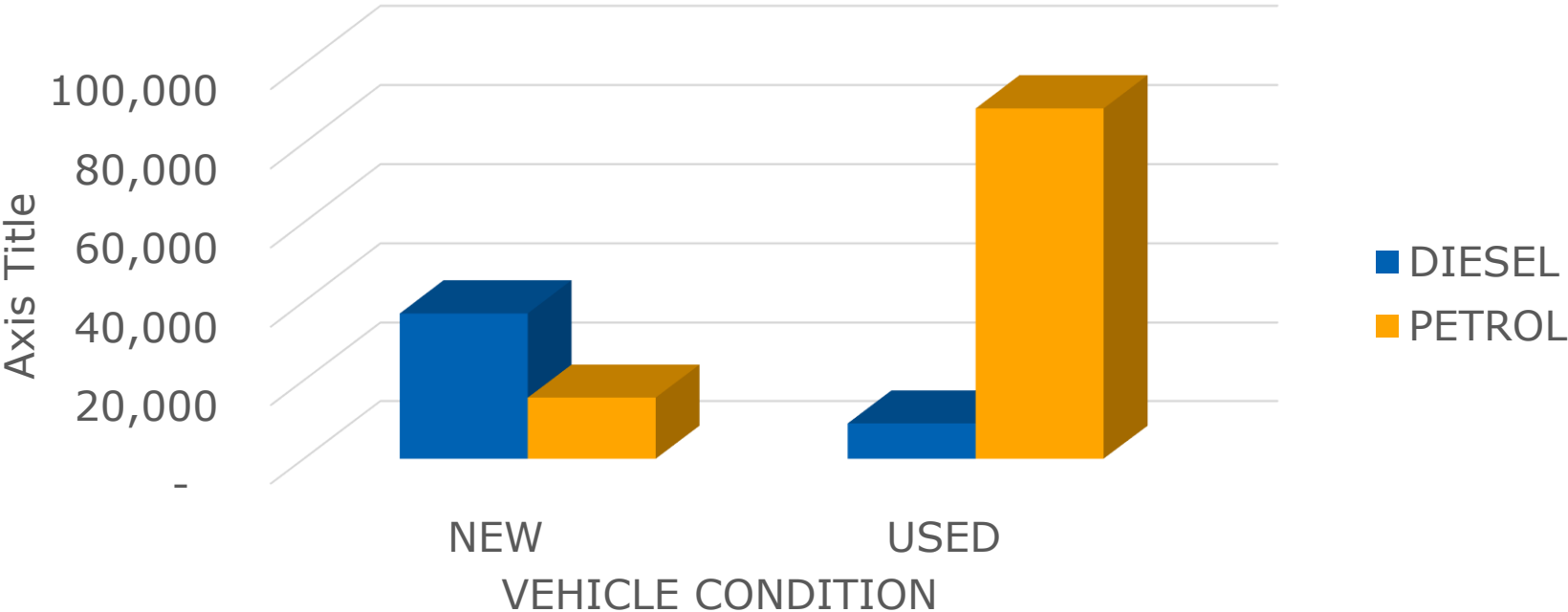
FINDING OF ANALYSIS

LDV Population Distribution by fuel type and condition

Row Labels	DIESEL	PETROL	Grand Total
NEW	36,999	15,584	52,583
USED	9,003	88,778	97,781
Grand Total	46,002	104,362	150,364

FINDING OF ANALYSIS

DISTRIBUTION OF VEHICLE BY FUEL TYPE AND CONDITION



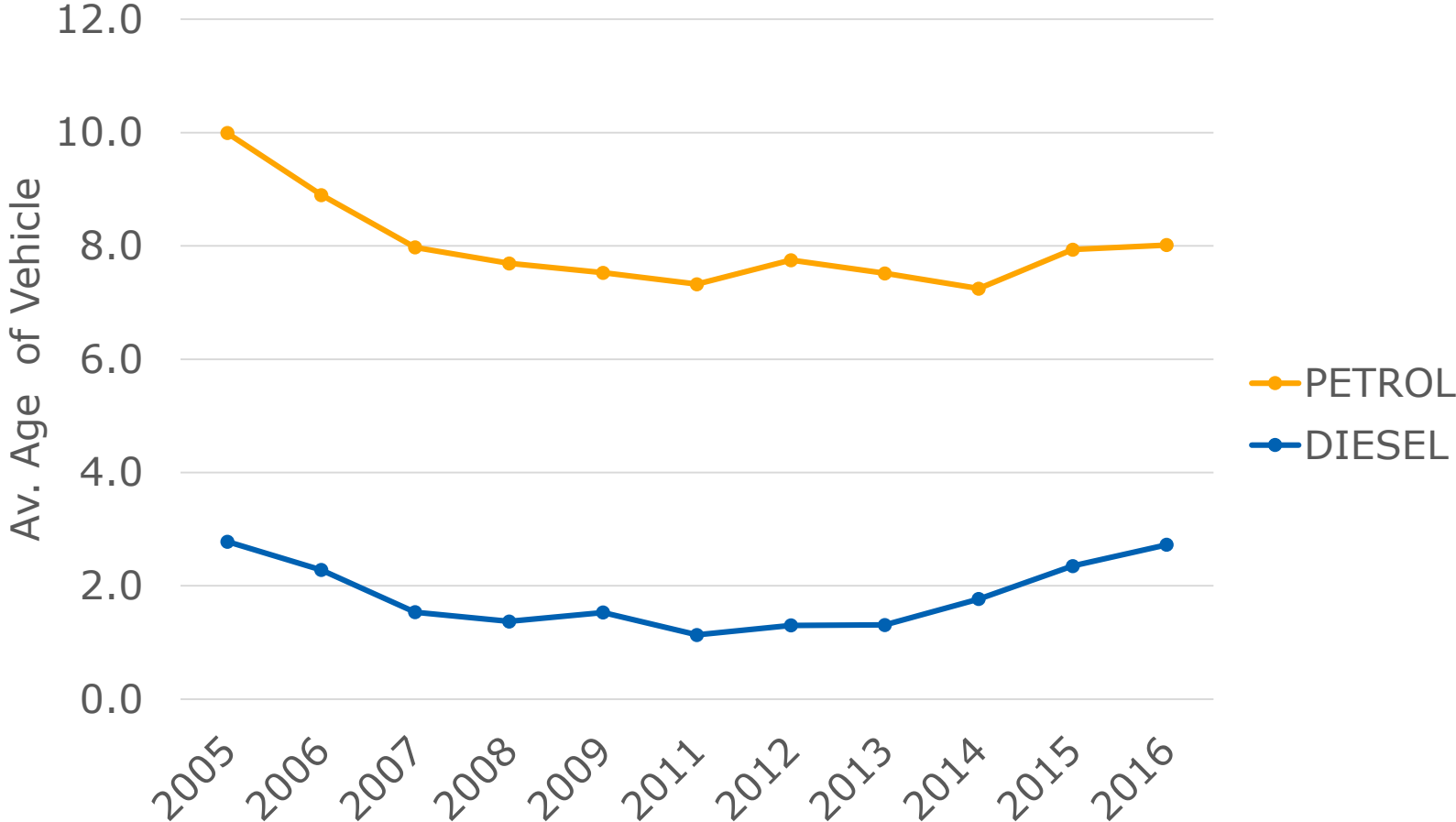
FINDING OF ANALYSIS

Average Age of Vehicle by fuel type

Year	DIESEL	PETROL	Grand Total
2005	2.8	7.2	5.7
2006	2.3	6.6	5.1
2007	1.5	6.4	4.5
2008	1.4	6.3	4.4
2009	1.5	6.0	4.4
2011	1.1	6.2	4.1
2012	1.3	6.4	4.6
2013	1.3	6.2	4.5
2014	1.8	5.5	4.6
2015	2.3	5.6	5.1
2016	2.7	5.3	5.0
Grand Total	1.7	6.1	4.7

FINDING OF ANALYSIS

Av. Age of Vehicle by Fuel Type



FINDING OF ANALYSIS

Row Labels	DIESEL			PETROL		
	NEW	USED	TOTAL	NEW	USED	TOTAL
2005	67%	33%	3,770	10.6%	89.4%	7,014
2006	74%	26%	4,034	17.1%	82.9%	7,618
2007	82%	18%	6,017	18.0%	82.0%	8,932
2008	85%	15%	5,594	16.4%	83.6%	9,202
2009	84%	16%	5,256	19.8%	80.2%	9,285
2011	90%	10%	1,649	15.6%	84.4%	2,262
2012	85%	15%	7,938	13.6%	86.4%	14,166
2013	87%	13%	3,711	14.1%	85.9%	6,988
2014	82%	18%	3,428	19.9%	80.1%	10,829
2015	72%	28%	2,332	10.4%	89.6%	13,207
2016	66%	34%	2,273	12.1%	87.9%	14,859
Grand Total	80%	20%	46,002	14.9%	85.1%	104,362

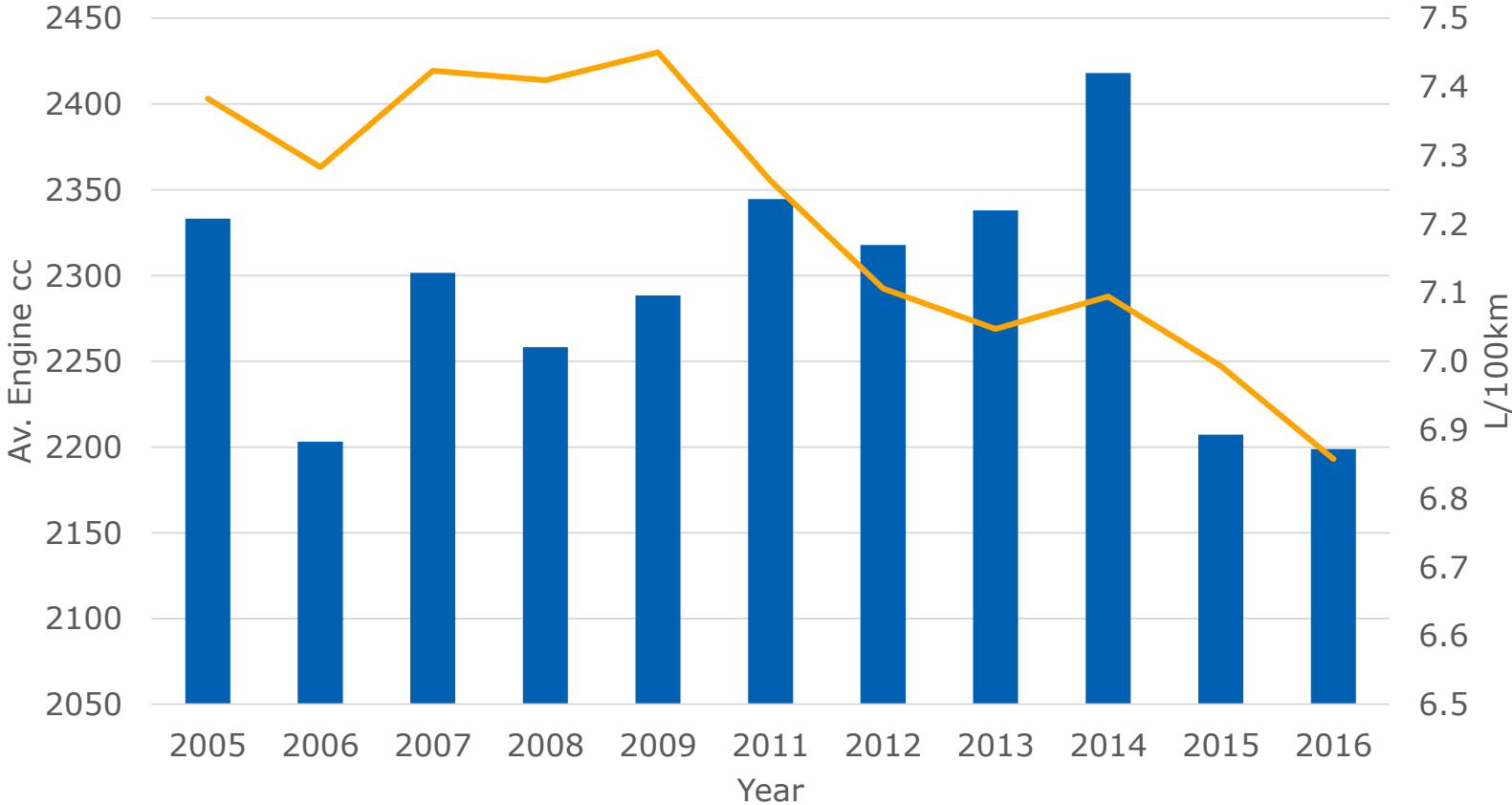
FINDING OF ANALYSIS

<u>Year</u>	<u>Average Engine cc</u>	<u>Average L/100km</u>
2005	2333	7.4
2006	2203	7.3
2007	2302	7.4
2008	2258	7.4
2009	2288	7.5
2011	2345	7.3
2012	2318	7.1
2013	2338	7.0
2014	2418	7.1
2015	2207	7.0
2016	<u>2199</u>	<u>6.9</u>
Grand Total	2286	7.2

FINDING OF ANALYSIS

Engine Displacement against Fuel Economy

Average of Engine cc Average of L/100km

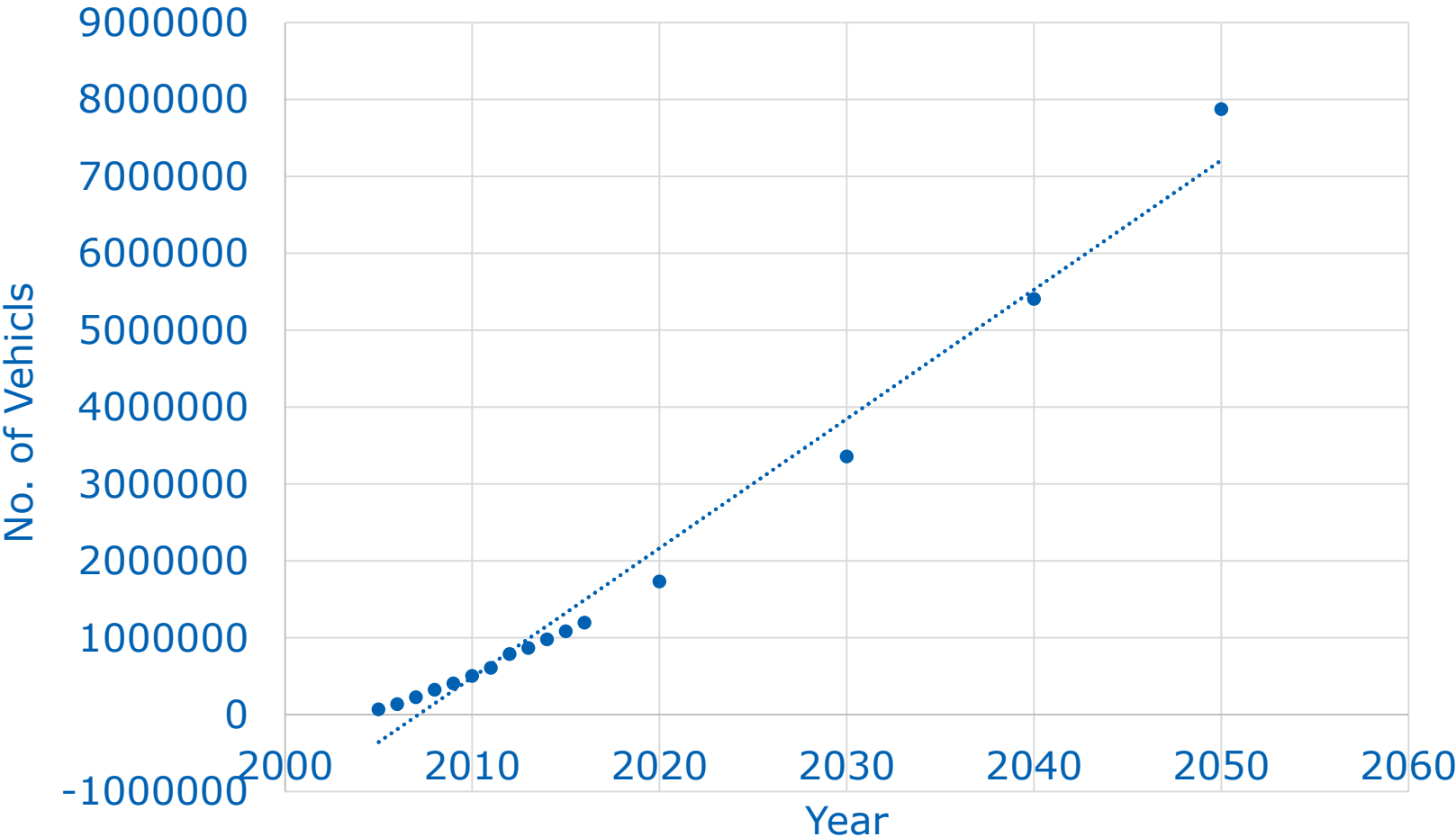


FINDING OF ANALYSIS

<u>YEAR</u>	<u>CUMULATIVE NO. OF LDVs</u>
2005	66,036
2006	135,352
2007	225,664
2008	321,792
2009	404,093
2010	502,714
2011	607,270
2012	786,218
2013	865,053
2014	977,974
2015	1,083,340
2016	1,195,764
2020	1,728,885
2030	3,355,979
2040	5,403,490
2050	7,871,418

FINDING OF ANALYSIS

CUMMULATIVE NUMBER OF LDVs



CONCLUSIONS

- Ghana imported more petrol fuelled LDVs (104,362) than diesel fuel LDVs (46,002) in 2005 to 2016
- The fuel economy of LDVs have been reducing over the years
- Only 15% of imported petrol fuelled LDVs are new while 80% of imported diesel fuelled LDVs are new
- The fuel economy of new LDVs imported into Ghana from 2005 to 2016 have lower fuel economy(6.9) than used LDVs (7.4)
- The fuel economy of used LDVs less than 5 years is lower than used LDVs greater than 5 years old
- Diesel fuelled LDVs have lower fuel economy(7.0) than petrol fuelled LDVs (7.3)

POLICY RECOMMENDATION

- Regulatory Policies
 - Importation restrictions
 - Development of Vehicle emission test standards and mandatory vehicle emission testing
 - Possible revision of custom procedures to encourage the import of clean vehicle technologies
- Fiscal measures and economic instruments
 - Feebate
 - Buy-back
- Traffic control measures
 - Improvement in public transport
- Information
 - Labelling: Label of fuel economy rating of vehicles

