

South Africa: Vehicle fuel quality and economy progress

Stuart Rayner: National Association of Automobile Manufacturers of South Africa Mauritius : October 2017

Presentation sections

- South Africa market background
- South Africa fuel and emissions standards
- SA Department of Energy/fuel economy labelling
- SA National Treasury CO₂ vehicle taxation
- Summary and lessons learnt

South Africa : Key Points

- Significant producer of new vehicles : BMW, Ford, GM, Mercedes Benz, Nissan, VW and Toyota all have assembly plants supporting local and export markets. EU Trade agreements in place. Used vehicles prohibited
- SA follows Europe in terms of vehicle design. SA participates in WP 29 and adopts ECE vehicle regulations.
- Fuel quality aligned with that of Europe is seen as a key enabler for local producers to import and manufacture latest generation fuel efficient vehicles.
- Repeated Requests made for improved fuel quality made by NAAMSA.
- Movement by Treasury came only after the CO₂ tax discussions highlighted the restrictions on new technology vehicles posed by fuel issues.

South Africa fuel and emission standards

2006 'Clean Fuels 1'

- lead phase out. 93 and 95 Metal free unleaded grades introduced
- Diesel sulphur reduced to 500 ppm
- 50 ppm diesel grade introduced
- EU stage 2 vehicle emission legislation

2016 Biofuels program E10/B5 – not implemented due to unfavourable costs

20XX 'Clean fuels 2' – delayed from 2017 intro

- Sulphur reduction to 10 ppm
- EU Stage 5 vehicle emission legislation
- Implementation timing now TBE but market forces now coming into play driving up 50 ppm demand

SA Government initiatives(1) Department of Energy • Energy Efficiency Strategy • Energy Efficiency Accord

Department of Energy: Energy Efficiency Strategy 2009: Objectives

- Targets to be met by 2015
- Industry and Mining 15% final energy demand reduction
- Power Generation 15% reduction in parasitic electrical usage
- Commercial and Public Sector Buildings 15% final energy demand reduction
- Residential sector 10% final energy demand reduction
- Transport sector 9% final energy demand reduction (achieved)

South Africa: New passenger car Fuel Economy/CO₂ label

FUEL CONSUMPTION

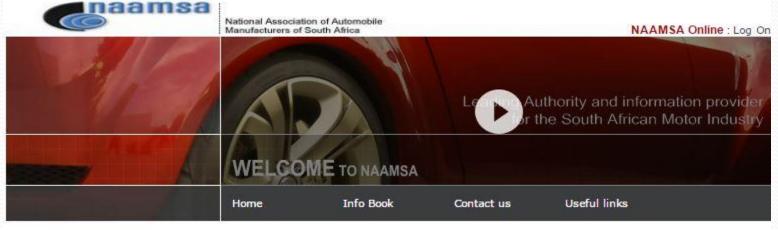
MORRIS MINOR 1200

Comparative fuel consumption
6.8 litres per 100km
Comparative CO ₂ emissions
159 grams per km

- Carbon dioxide (CO₂) is the main greenhouse gas responsible for global warming
- Actual fuel consumption and CO₂ emissions depend on factors such as traffic conditions, vehicle condition and haw you drive



NAAMSA Fuel Economy/CO₂ Database



COMPARATIVE PASSENGER CAR FUEL ECONOMY AND CO2 EMISSIONS DATA

Firstly, please select the MAKE of your vehicle.

Then select from the next dropdown box for the TYPE of your vehicle (eg FORD Focus).

Then click the SHOW MODELS button. Upon clicking this, your results will appear.

Make: FORD Type: FORD Fiesta						
Model	Body shape	Transmission	Fuel	CC	Consumption (I/100KM)	CO2 Emissions (g/KM)
Fiesta 1.0 EcoBoost Ambiente 5-dr MY15 Powershift	Hatch (5-dr)	Elec	Petrol	1.0	4.9	114
Fiesta 1.0 EcoBoost Ambiente 5-dr MY16	Hatch (5-dr)	Man	Petrol	1.0	4.3	99
Fiesta 1.0 EcoBoost Titanium 5-dr MY13	Hatch (5-dr)	Man	Petrol	1.0	4.3	99
Fiesta 1.0 EcoBoost Titanium 5-dr MY15 Powershift	Hatch (5-dr)	Elec	Petrol	1.0	4.9	114
Fiesta 1.0 EcoBoost Trend 5-dr MY13 Powershift	Hatch (5-dr)	Elec	Petrol	1.0	4.9	114
Fiesta 1.0 EcoBoost Trend ESP 5-dr MY16	Hatch (5-dr)	Man	Petrol	1.0	4.3	99
Fiesta 1.4 Ambiente 5-dr MY14	Hatch (5-dr)	Man	Petrol	1.4	5.7	130
Fiesta 1.5 TDCi Ambiente 5-dr Dsl MY16	Hatch (5-dr)	Man	Diesel	1.5	3.6	94
Fiesta 1.5 TDCi Trend 5-dr Dsl MY16	Hatch (5-dr)	Man	Diesel	1.5	3.6	94
Fiesta 1.6 ST 3-dr MY13	Hatch (3-dr)	Man	Petrol	1.6	5.9	138
Fiesta 1.6 TDCi Trend 5-dr Dsl MY13	Hatch (5-dr)	Man	Diesel	1.6	3.6	95

SA Government initiatives (2) National Treasury

- Environmental based taxation proposals: April 2006
- CO2 taxation: New passenger cars and D/Cab LCV's.

National Treasury Environmental Fiscal Reform Draft: Reforming existing tax

Table 7: Options for reforming existing environmentally-related taxes

Theme	Instrument	Incentive mechanism	Shortcomings and key			
			technical considerations			
Transport (National Government)	General fuel levy Vehicle	 Increases the price of transport fuels, thereby suppressing demand; Discourage vehicle use; Encourage the use of public transport / vehicle sharing; Encourage the development of fuel efficient technologies; and Could encourage the use of certain fuels over others. Increase the price of certain unbialse (huilding on the idea) 	 Not differentiable for time and location of infrastructure use; Relatively far removed from the main source of environmental externality; Complementary policies required to increase its effectiveness such as information campaigns; Potentially regressive. High information 			
	customs and excise duties	 vehicles (building on the idea of a luxury tax) thereby suppressing demand for passenger and light commercial vehicles; Encourage the use of public transport / vehicle sharing; Could encourage the use of selected types of vehicles / technologies through differential taxation. 	 requirements on vehicle types and technologies; Difficult to link tax to the time and frequency of infrastructure use (if desirable); 			
Transport (Provincial Government)	Vehicle licensing fees	 Increase vehicle ownership costs and therefore suppress vehicle demand; By altering the fee structure to include environmental criteria, appropriate incentives could be offered to vehicle users; Could be used to increase scrapping rate of older vehicles (i.e. differentiate fees according to the age of the vehicle). 	 The environmental incentive is likely to be small; Must avoid over-complication of fee structure; and Potentially regressive. 			

Final CO2 Standards and Taxation

- The rate of emissions tax on passenger vehicles is **R75*** per gram CO2 emissions in excess of 120 g/km based on ECE 101 based test reports.
- The rate of emissions tax on double cabs is R100 per gram CO₂ emissions in excess of 175 g/km based on ECE 101 based test reports.
- Not applied to heavy commercial vehicles
- If **no test report** is available the CO₂ emissions will be calculated according to the following formula:
 - Passenger vehicles < 3000 cm^3 : $120 + (0.05 \text{ x cm}^3) = g/\text{km} \text{ CO}_2$
 - Passenger vehicles > 3000 cm³: 175 + (0.05 x cm³) = g/km CO₂
 - Double-cabs: $195 + (0.07 \text{ x cm}^3) = g/\text{km CO}_2$

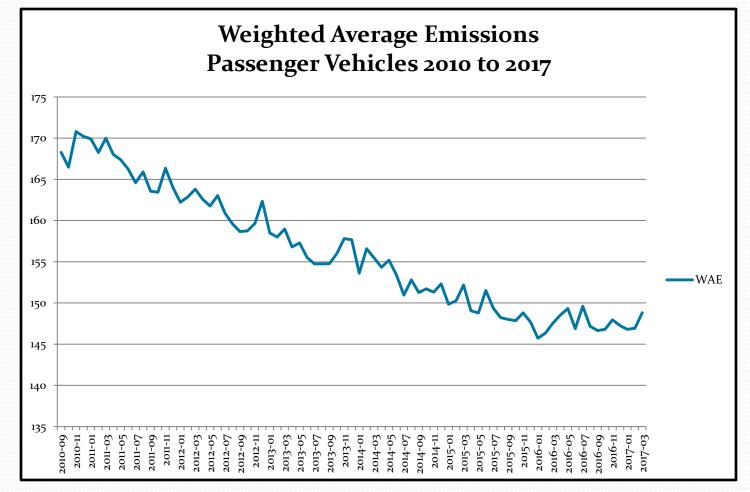
* R100 per gram CO2 from April 2016

BUSINESSREPORT

The Press comments.....

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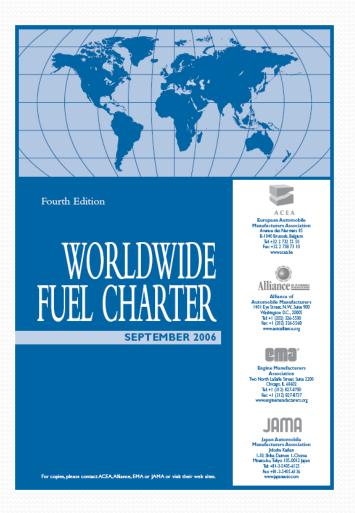
South Africa: Passenger car CO₂ emission data and trend



South Africa: Key points

- Fuel economy in South Africa has improved at approx' 1% per annum since measurements began, utilising progressively available **reduced sulphur level diesel and metal free petrol and used import restriction**
- In line with many 'developing market' spec vehicles significant improvements in CO₂/fuel economy are possible, given the appropriate fuel quality.
- While diesel vehicles are becoming less popular in Europe the introduction of the latest generation petrol vehicles is **not possible in most African countries due to the presence of high petrol sulphur levels**
- Significant further fuel efficiency progress is now largely dependant on the 'Clean Fuels 2' program however this is not envisaged to be implemented prior to 2022

World-Wide Fuel Charter



- First established in 1998 to promote greater understanding of fuel quality needs of motor vehicle technologies and to harmonize fuel quality worldwide in accordance with vehicle needs
- This is the go-to document for fuel quality information.
- Covers both gasoline and diesel, with four levels of each for fuel quality based on emission requirements
- Biofuels covered by separate document
- Access from AutoAlliance.org
 - http://www.autoalliance.org/files/WWFC.pdf



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