

DEVELOPING VEHICLE FUEL ECONOMY STANDARDS FOR SOUTH AFRICAN PASSENGER VEHICLES



transport

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Transport
REPUBLIC OF SOUTH AFRICA



environmental affairs

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Environmental Affairs
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THE INTERNATIONAL COUNCIL
ON CLEAN TRANSPORTATION

“Developing FES and the linkages with The Green Transport Strategy” ...

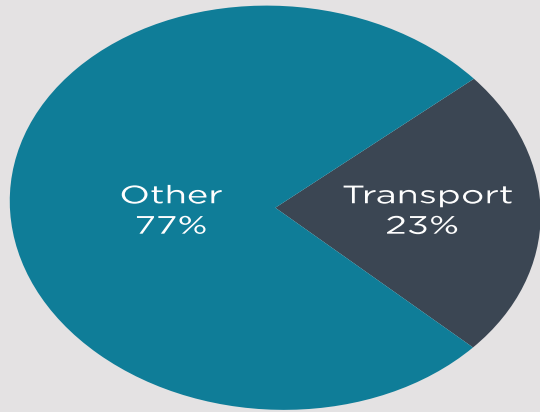
The Development of the Fuel Economy Standards falls under the purview of the Draft Green Transport Strategy, which is a strategic document that INFORMS, and sets out the environmental directive of the DoT.

“OBJECTIVE of The Green Transport Strategy” ...

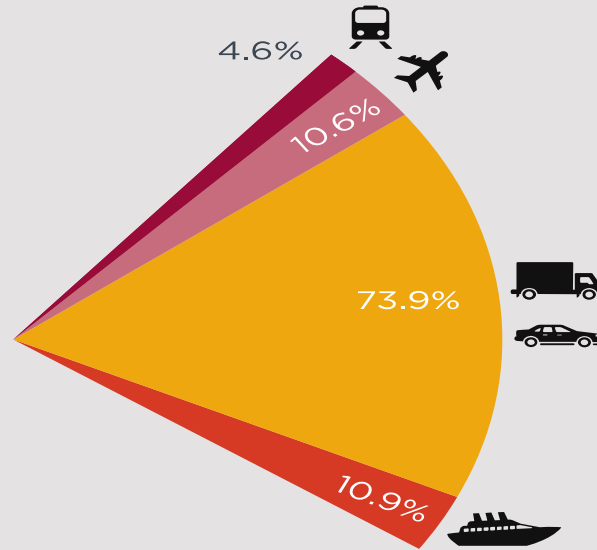
- The GTS will be the cornerstone of policy development within the transport sector regarding the lowering of GHG emissions, the contribution of transport into the green economy, the promotion of green sustainable mobility and the uptake of cleaner and more efficient technologies.
- The Green Transport Strategy (GTS) serves as a guide to the DoT to implement a “basket of measures” that will significantly:
 - Reduce Green House Gas (GHG) emissions produced by the transport sector,
 - Reduce the environmental and human health impacts associated with the transport sector, and result in a more resilient sector
 - To reduce the impact of transport infrastructure on the environment.
 - To ensure integrated transport systems provide equitable access to economic opportunities for all South Africans and support economic growth and development.
 - To ensure that the provision of transport services and infrastructure involve use of resources sustainably.

MOTIVATION FOR GTS & FES

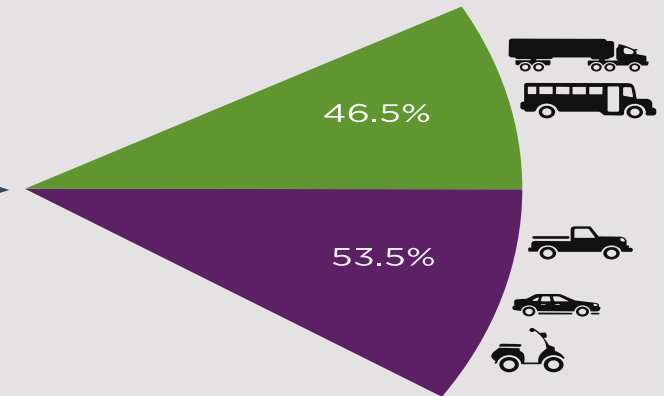
GLOBAL ANTHROPOGENIC EMISSIONS
≈ 38 GtCO₂



TRANSPORT EMISSIONS
≈ 8.8 GtCO₂



ROAD TRANSPORT EMISSIONS
≈ 6.5 GtCO₂



LEGEND



Notes:

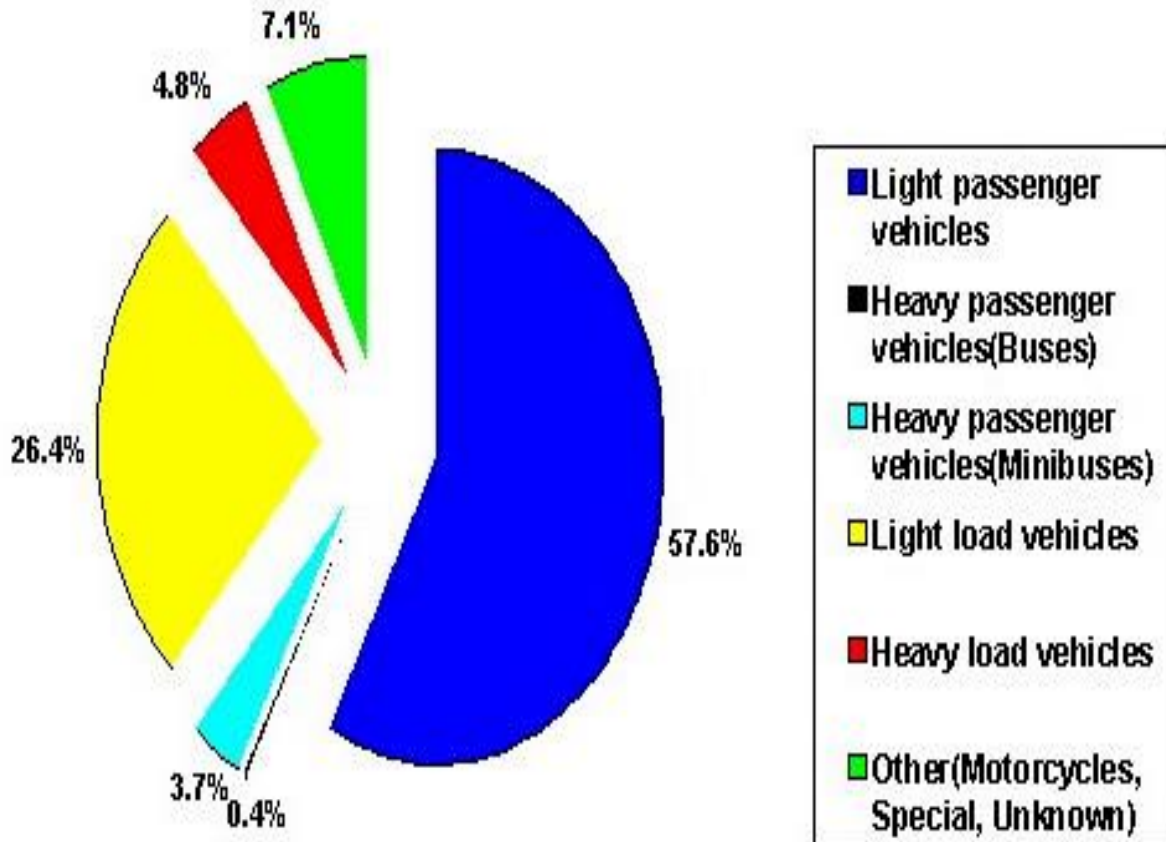
Global anthropogenic CO₂ emissions in 2010 based on IPCC (2014).

Transport CO₂ emissions in 2010 estimated by ICCT (2014) include the full fuel lifecycle, including direct emissions from combustion & upstream emissions from extraction, refining, & distribution of fuels.

South Africa's transport sector: 10.8% of national GHG emissions
91,2% of that comes from road transport.

FES INTRODUCTION

- South Africa has a total automobile fleet of 12 027 860 registered vehicles in South Africa at the end of February 2017, according to the National Administration traffic Information System.



VEHICLE TYPE	AVERAGE AGE YEARS
Light Passenger Vehicles	7 - 12
Light Load Vehicles	11
Minibuses	13
Busses	15
Heavy Load Vehicles	16

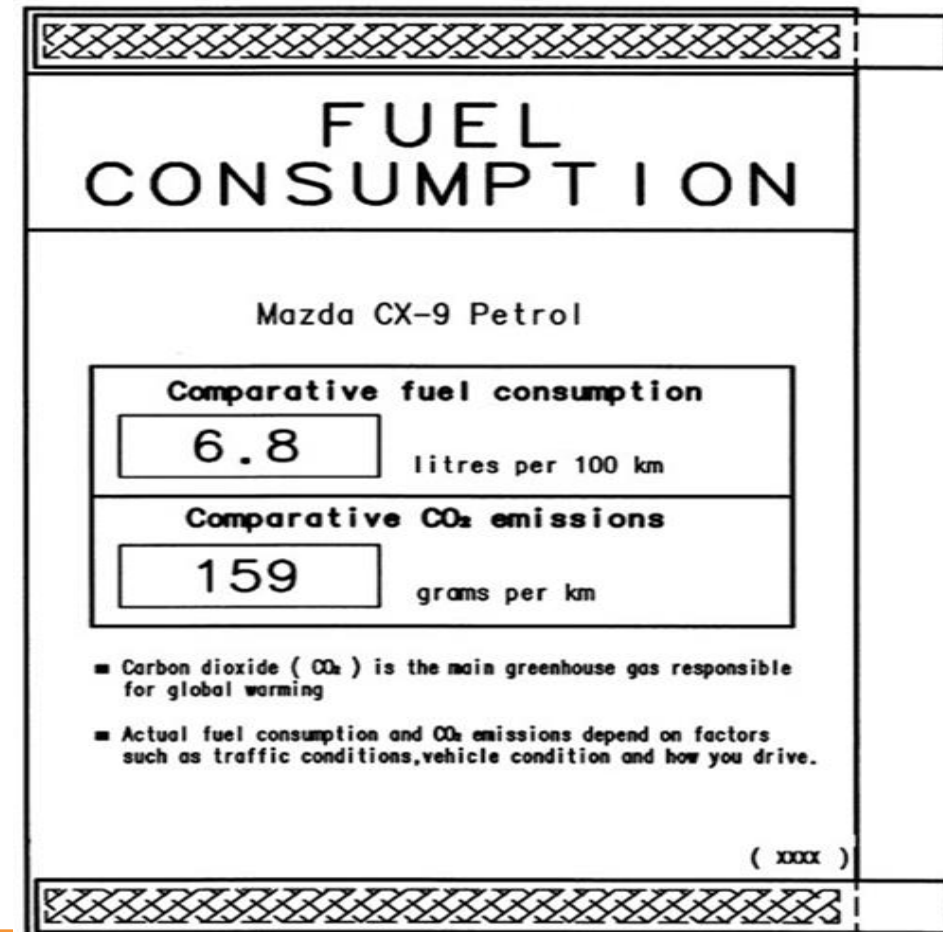
CURRENT MARKET BASED MEASURES FOR IMPROVING FUEL EFFICIENCY

"VEHICLE FUEL CONSUMPTION LABEL"...1

- We have taken steps to reduce the carbon footprint of the vehicle fleet by adopting policies that target vehicle demand, specifically fuel economy label programs and vehicle taxation programs based on CO₂ emissions.
- The "**Fuel Economy Label**" displays vehicle energy consumption accompanied by legislation on the 'fee bate system.

Fuel Economy Label must have the following points of information:

- Point of sale
- EU based
- Fuel Economy l/100 km: Combined Cycle
- CO₂ emissions g/km
- Standard test cycle
- Reference fuel
- Allows model to model comparisons



CURRENT MARKET BASED MEASURES FOR IMPROVING FUEL EFFICIENCY

“VEHICLE FUEL CONSUMPTION LABEL” ... 2

- The objective of the CO₂ emission tax is to influence the composition of South Africa's vehicle fleet to become more energy efficient and environmentally friendly. This tax will be implemented as a specific tax, based on new passenger car certified CO₂ emissions at R75 per g/km for each g/km above 120 g/km, in addition to the current ad valorem luxury tax on new vehicles', technology upgrade leading to more efficient vehicles/turnover in the vehicle park

CO₂ vehicle emissions tax – tax incidence

CO ₂ emissions g/km	Average CO ₂ emissions g/km	Number of vehicles, 12 months	% of vehicles 12 months	CO ₂ emissions above threshold: g/km > 120	Tax @ R75 per g/km	Average price	Average tax rate
Below 120	110	342	0.2%	–	–	R 177 000	0.0%
	120	493	0.2%	–	–	R 170 000	0.0%
	130	10 904	4.9%	10	750	R 121 000	0.6%
	140	15 856	7.2%	20	1 500	R 164 000	0.9%
	150	20 794	9.4%	30	2 250	R 169 000	1.3%
	160	21 694	9.8%	40	3 000	R 181 000	1.7%
	170	33 552	15.2%	50	3 750	R 166 000	2.3%
	180	46 664	21.1%	60	4 500	R 164 000	2.7%
	190	24 224	11.0%	70	5 250	R 244 000	2.2%
	200	10 183	4.6%	80	6 000	R 293 000	2.0%
	250	22 928	10.4%	130	9 750	R 391 000	2.5%
	300	8 083	3.7%	180	13 500	R 552 000	2.4%
	350	4 161	1.9%	230	17 250	R 551 000	3.1%
	400	778	0.4%	280	21 000	R 947 000	2.2%
Above 400	450	25	0.01%	330	24 750	R 606 000	4.1%
Average/Total	178	220 681	100.0%	58	4 350	R 227 000	1.9%

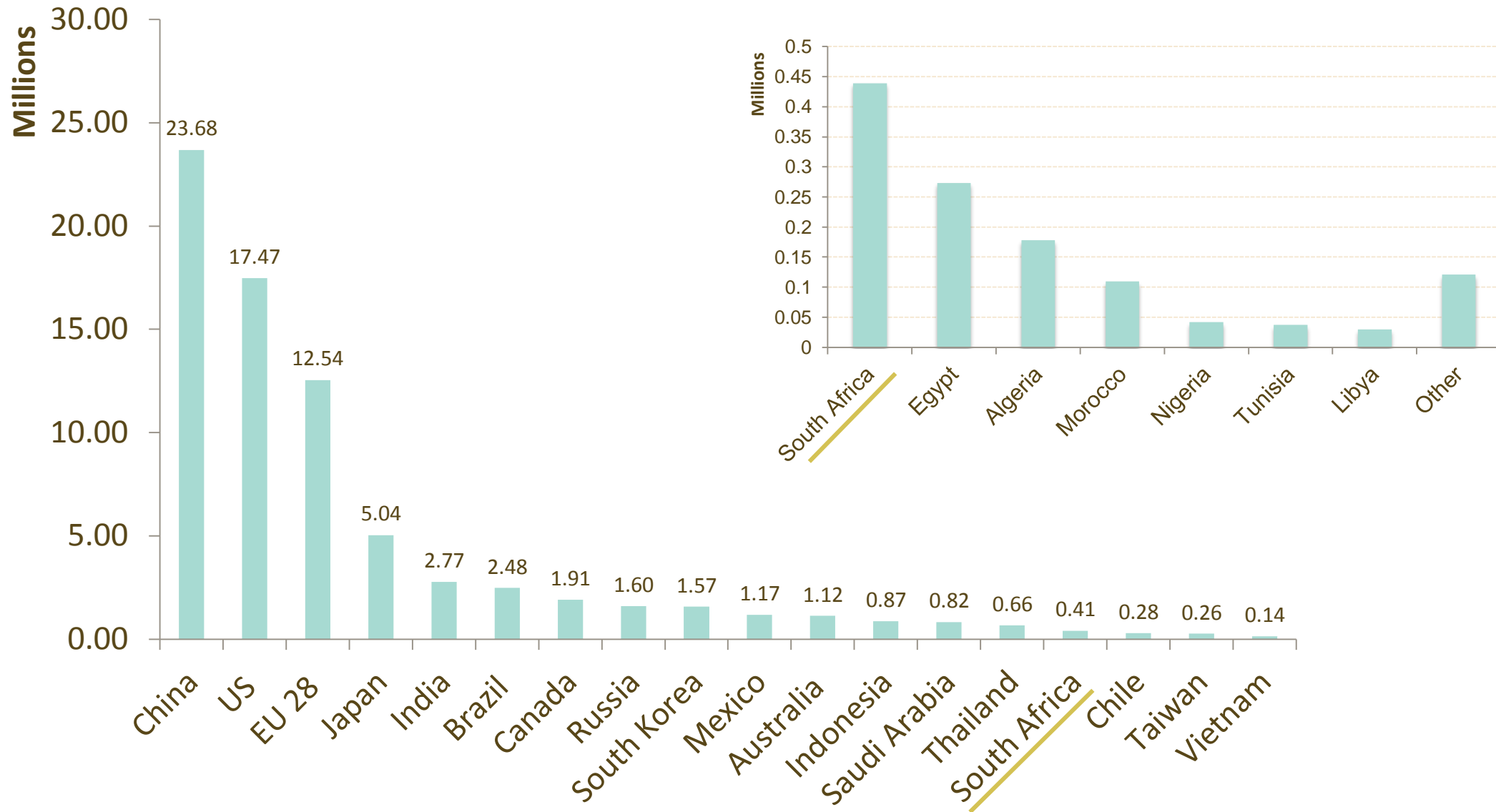


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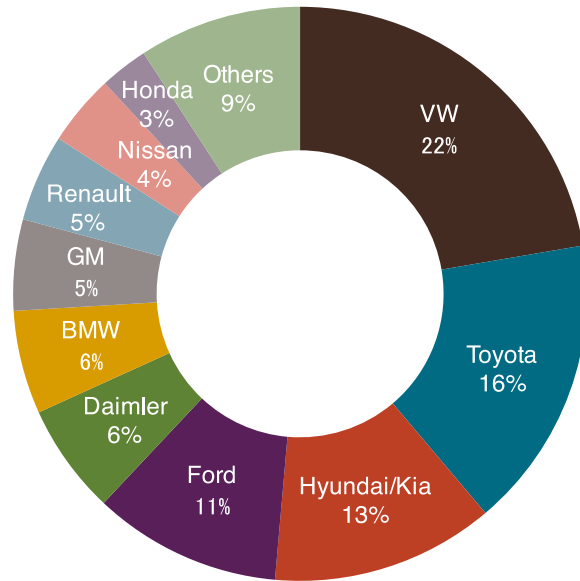
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THE SOUTH AFRICAN NEW PASSENGER VEHICLE FLEET:

The largest in the African continent and the 18th largest globally.

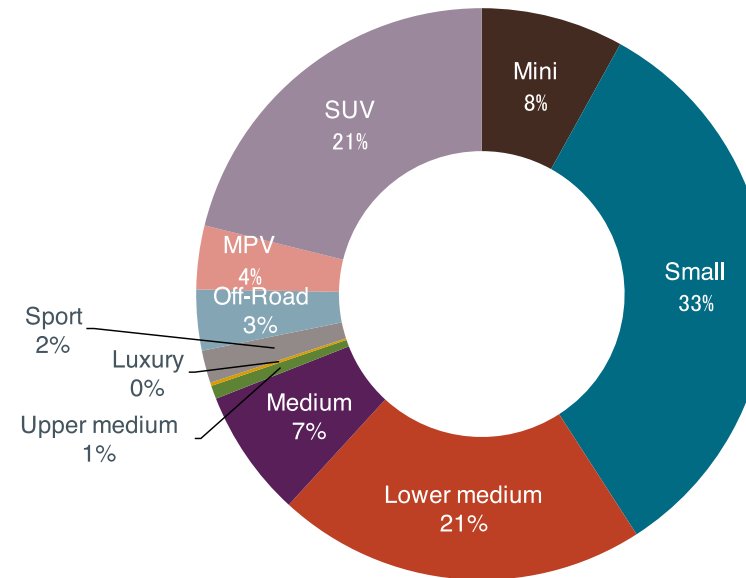


SA PASSENGER CAR MARKET CHARACTERISTICS.



VW and Toyota are the two largest manufacturers

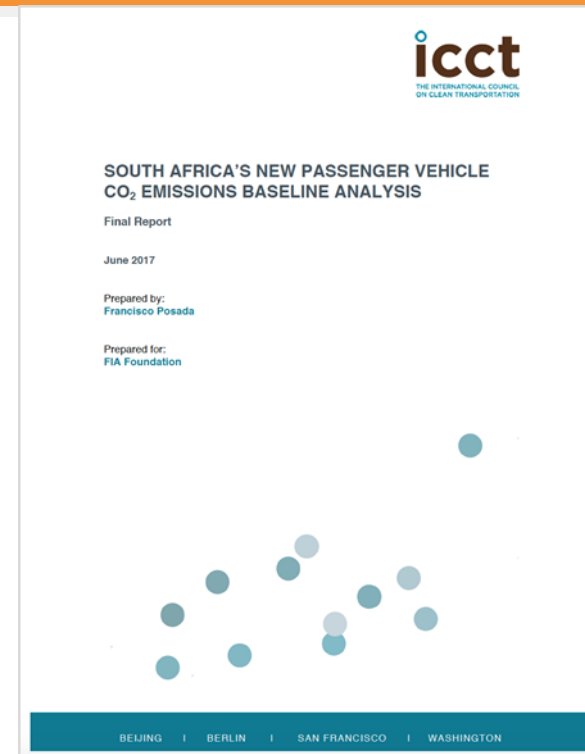
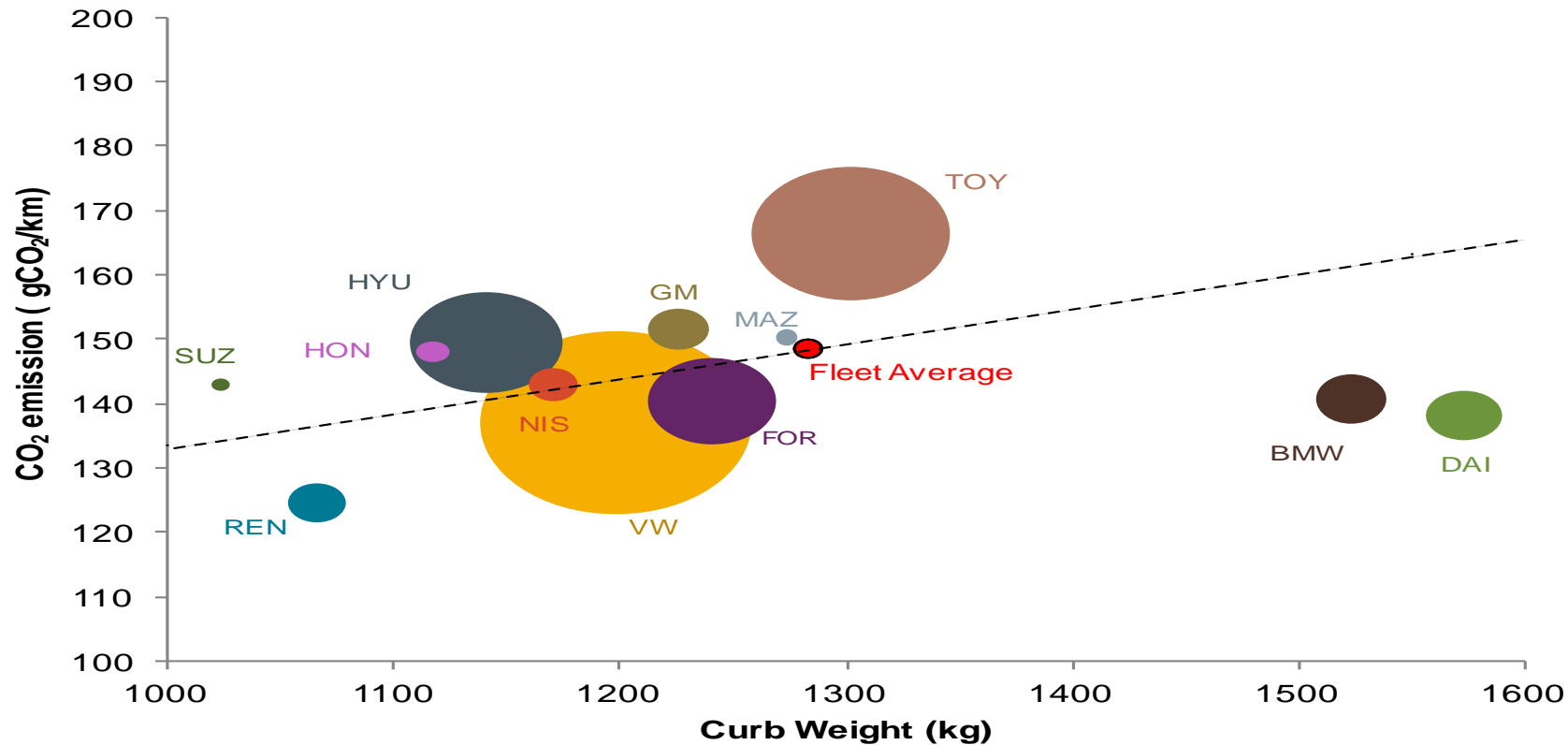
Diesel share: 17%



The South African market aligns in terms of market composition with most global markets: a contrasting combination of large shares of small vehicles and SUVs

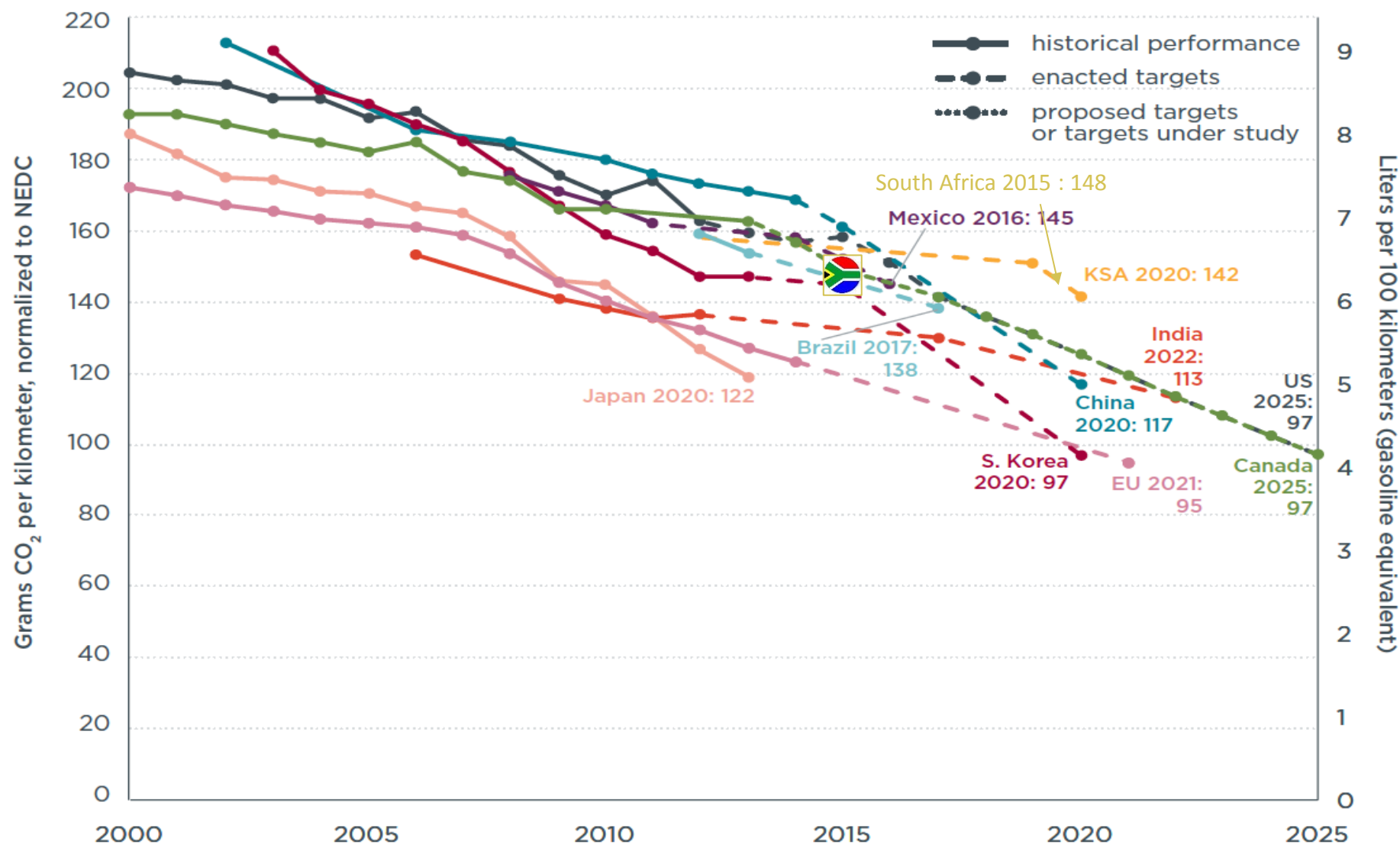


ICCT'S BASELINE ANALYSIS FOR NEW PASSENGER CAR FLEET



- Renault presents the best average fuel consumption
- Despite producing heavier vehicles, BMW and Daimler achieve lower CO₂ emissions than many of the lighter car manufacturers
- Toyota produces the least efficient cars on average, while paradoxically close to average fleet weight

AVERAGE PC IN SA EMITS 148 GCO₂/KM. SIGNIFICANT POTENTIAL FOR IMPROVEMENT WHEN COMPARED TO OTHER MARKETS



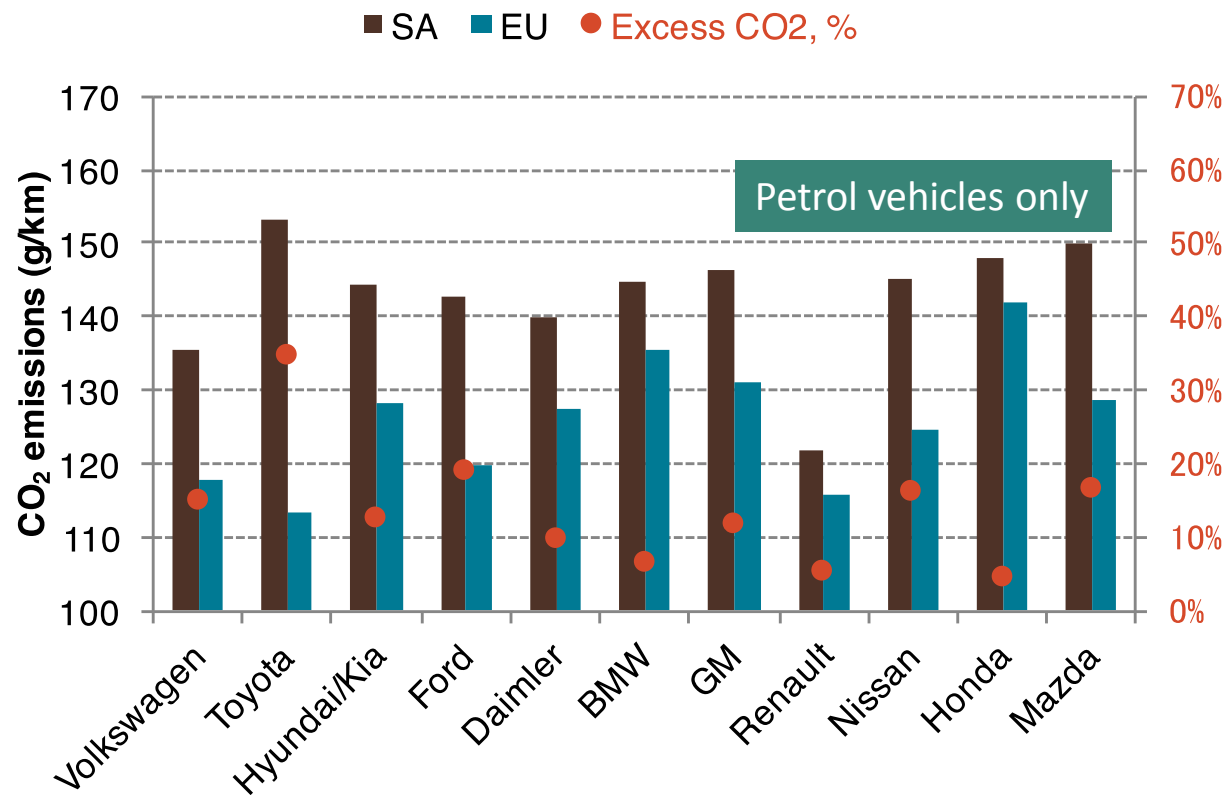
Source: <http://www.theicct.org/info-tools/global-passenger-vehicle-standards>



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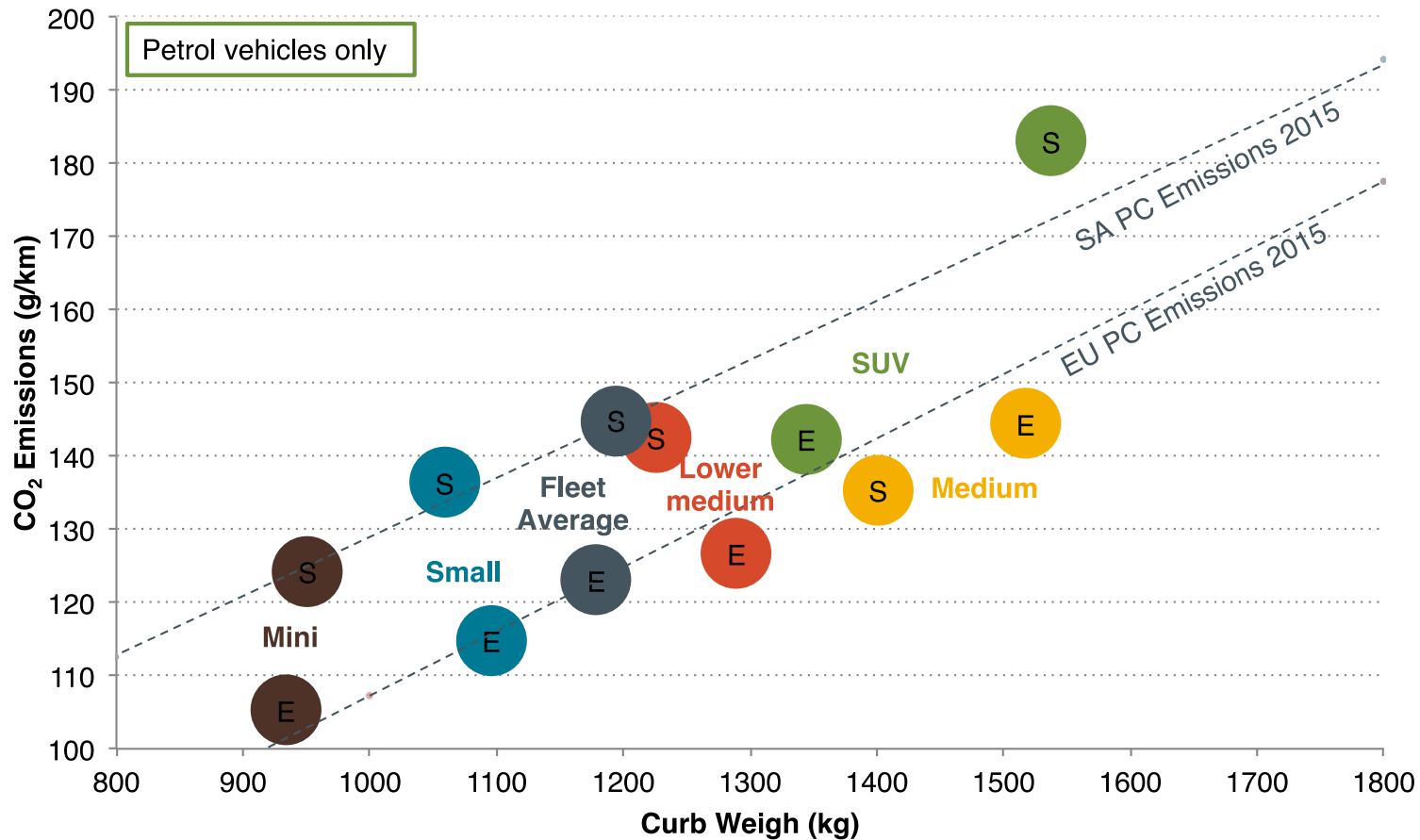
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COMPARISON OF AVERAGE NEW VEHICLE CO₂ EMISSIONS BY MANUFACTURER IN SOUTH AFRICA AND EUROPE.(GASOLINE VEHICLES ONLY)



- Fleet average difference is 20% higher CO₂ emissions in SA
- The **red dot** shows the excess CO₂ that the average PV is emitting in SA with respect to the European market, by manufacturer.
- Toyota presents the largest difference, partially explained by high SUV share in SA and reduced uptake of efficient technologies

AVERAGE NEW VEHICLE SALES-WEIGHTED CO₂ EMISSIONS AS A FUNCTION OF CURB WEIGHT, BY SEGMENT - GASOLINE VEHICLES ONLY

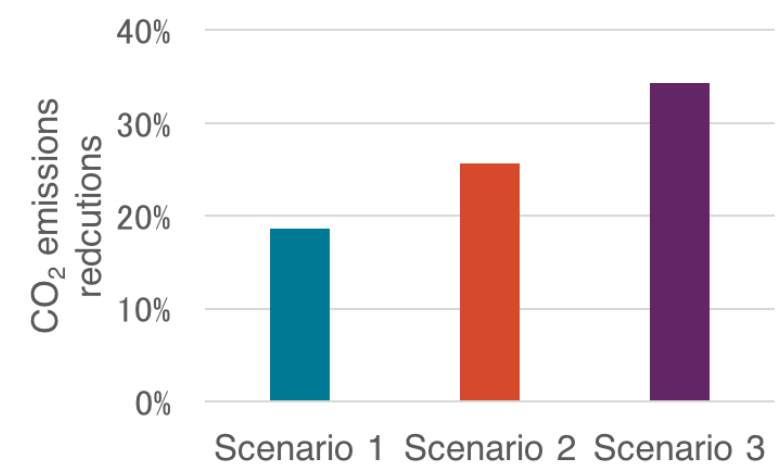
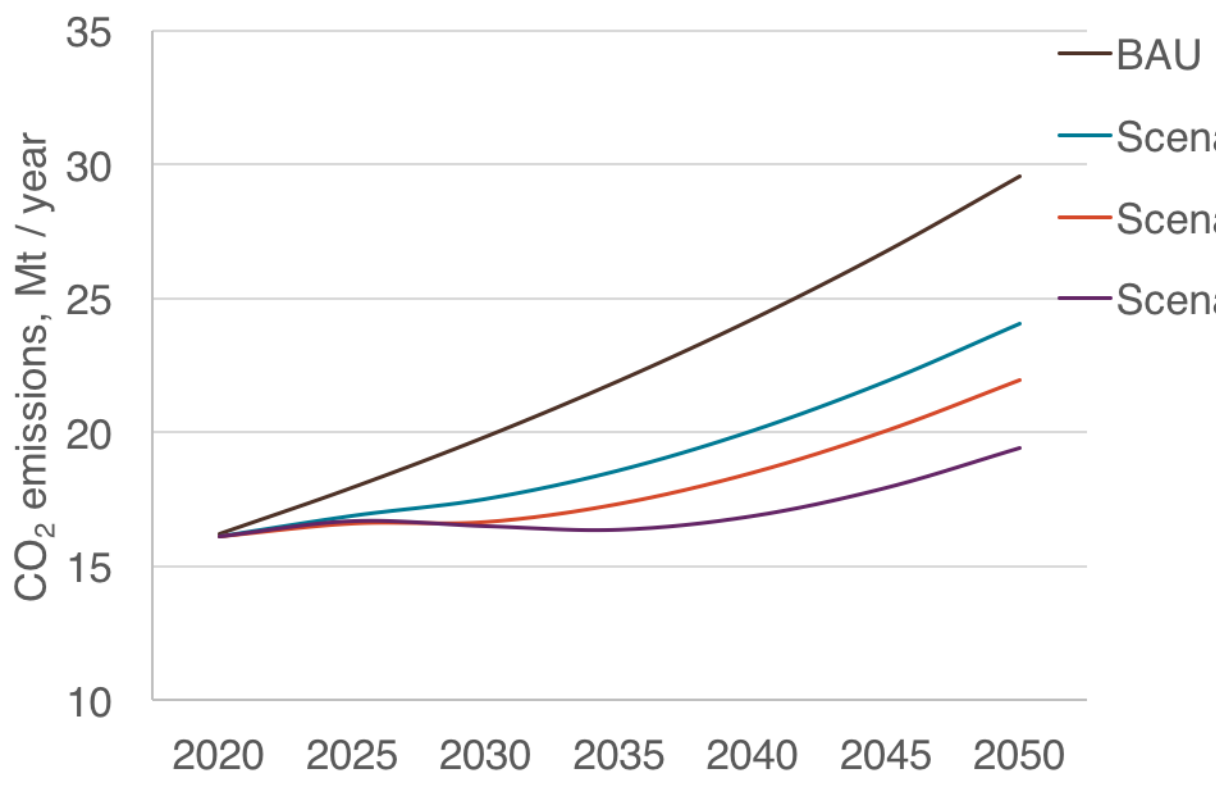


- Compared to Europe, South African SUVs are 14% heavier and 29% less efficient
- Small vehicles are more efficient in Europe by around 18%.

FES CHALLENGES

- The availability of the appropriate “**Fuel Mix**” within the country, (CLEAN FUELS II, PETROLEUM ACT AMENDMENT),
- The cost of refurbishing Refineries,
- Gradual changes within the current specification of vehicles available to enable a shift to a higher Euro Standard (e.g Euro 6),

FE POLICY SCENARIO AND BENEFITS ASSESSMENT – PRELIMINARY RESULTS – SHOW LARGE CO₂ REDUCTIONS EVEN WITH DOUBLE THE FLEET SIZE BY 2050



Assumptions

- Projected fleet growth 2%/year
 - **PV Fleet size doubles: from 6 MM in 2015 to 12 MM by 2050**
- Scenario 1: assumes 4%/year FE improvements BY2020-25
- Scenario 2: assumes 5%/year FE improvements BY2020-25
- Scenario 3: assumes 4%/year FE improvements BY2020-30

NEXT STEPS

1. Technical analysis phase the main steps are the technology potential analysis, which is key to better understand the technology requirements and burden to manufacturers,
2. The costs of compliance and payback analysis needs to be conducted,
3. A new vehicle FE standard will provide a solid regulatory framework for manufacturers to bring the most efficient technologies to the market: Hybrid and Electric vehicles. This will align two of the most important elements of the Green Transport Strategy.



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END

THANK YOU...

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