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# Can the SA Auto Sector close the Carbon chasm?

Presented by Gavin Maile

25 August 2011



# Overview

1. SA's commitment
2. KPMG's credentials
3. South Africa's Carbon Chasm
4. Automotive opportunities
5. Green IT opportunities
6. Conclusion

# 1. South Africa's commitment

- Kyoto Protocol 34%  by 2020
- Conditional on support
- Achievements 42%  by 2025
  - National Climate Change Response Green Paper 2010
  - Carbon Tax Discussion Paper
  - Policy incentives
- Conference of the Parties (COP17) – Durban

## 2. KPMG's credentials

- Yvo De Boer, KPMG global advisor for climate change was until 2010 the Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC).
- KPMG South Africa has 24 dedicated staff members in the Climate Change and Sustainability (CC&S) unit
- 52 CC&S practices globally

**KPMG's network of firms are committed to making a positive impact on the environment and addressing local environmental challenges**

## Racing Green Endurance (RGE)

### Can a 26,000 kilometre race change the world?

KPMG member firms think so. From Alaska to Argentina, the SRZero will advance green technologies, encourage innovation and education, and fundamentally change the world's perception of electric vehicles (Evs).





# 3. South Africa's Carbon Chasm – Background

[Click here to view a video message from Rupert Murdoch](#)



[Click here to view Bill Clinton's 2007 launch speech](#)



[Download Angela Merkel's letter](#)



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The Carbon Disclosure Project (CDP) is an independent not-for-profit organisation which holds the largest database of corporate climate change information in the world.

The data is obtained from responses to CDP's annual Information Requests, issued on behalf of institutional investors, purchasing organisations and government bodies. Since its formation in 2000, CDP has become the gold standard for carbon disclosure methodology and process, providing primary climate change data to the global market place.

Click [here](#) to view the data.

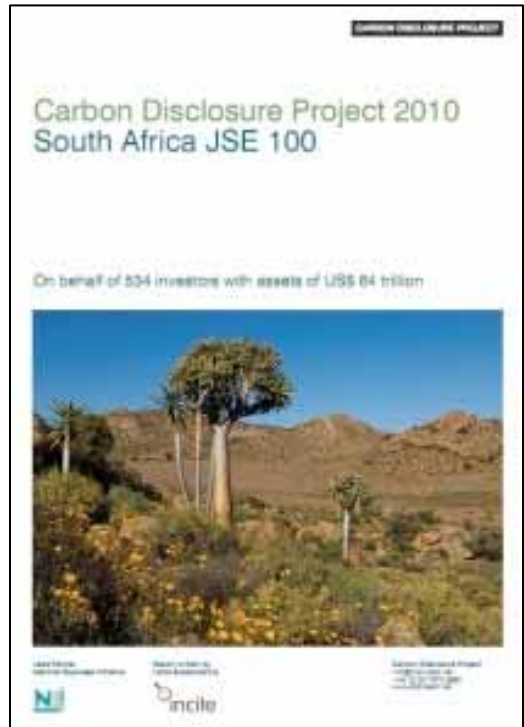
### CDP News

**New Research Reveals Increasing Impact of Climate Change on Investment Decisions.** Please [click here](#).

**CDP Supply Chain Report Launch: 5 March.** Please [click here](#) for details.

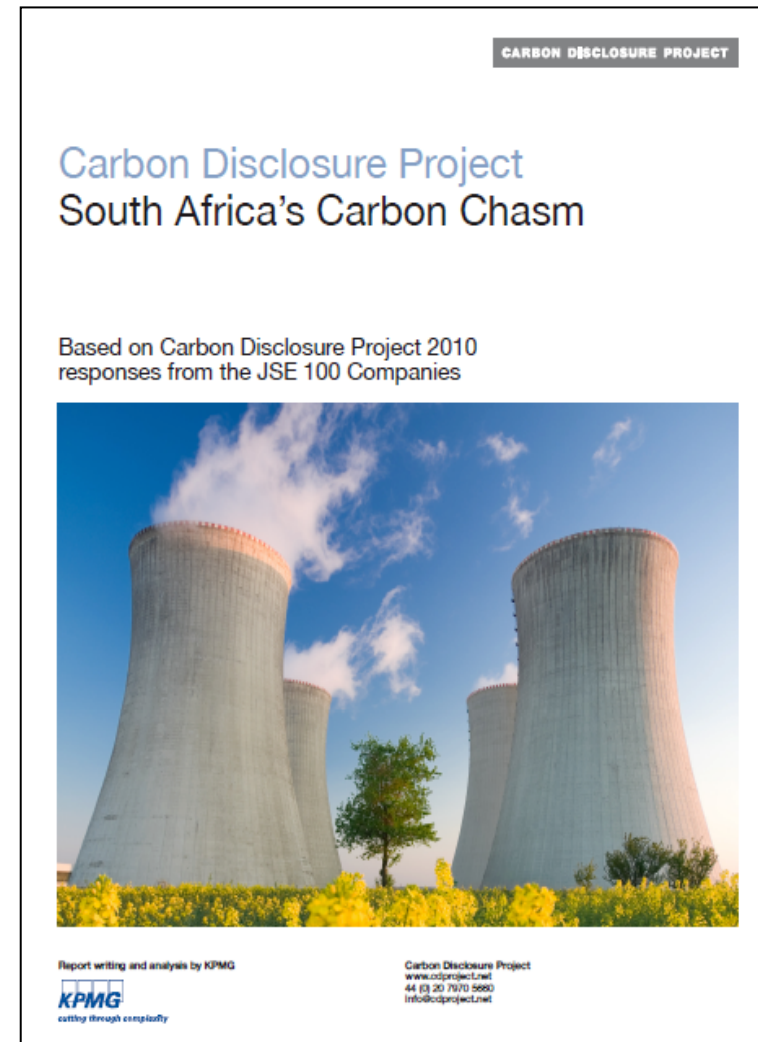
**Membership for 2009 is now available to institutional investors.** Please [click here](#).

**Companies are invited to join the CDP Supply Chain 2009.** Please [click here](#).



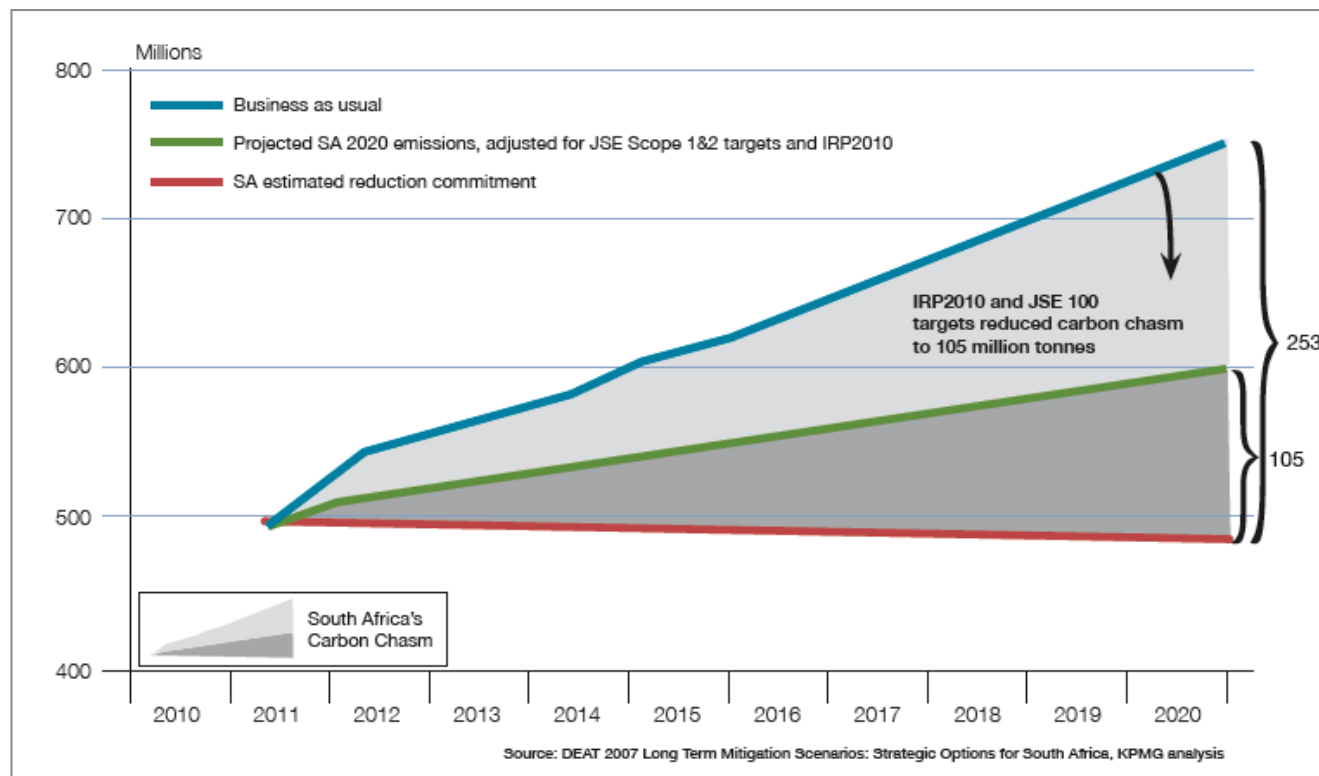
# South Africa's Carbon Chasm – Key Findings

- South Africa faces a carbon chasm
- Emissions from electricity generation is primary driver in SA's annual total emissions growth
- If achieved and maintained, targets from JSE Top 100 companies could result in a 0.5% annual reduction



# South Africa's Carbon Chasm – Recommendations

- The target setting behaviour of the JSE Top 100 carbon intensive companies needs to extend to all sectors of the economy, including private households
- An appropriate policy environment to encourage the transition to a low carbon economy
- Commitment is conditional on international financing, technology and capacity-building support – influence at COP17



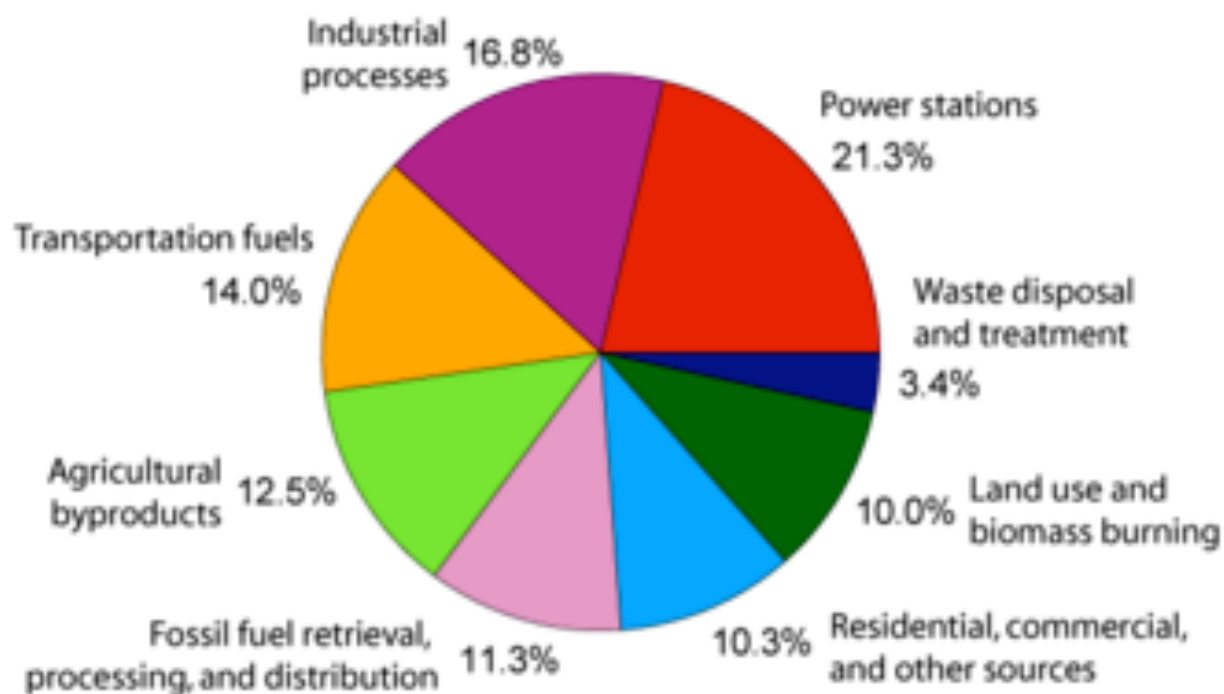
# Climate Change Challenges

- Population growth
- Consumption increasing
- Resources being depleted
- Emissions increasing



# Emissions by sector

## Annual Greenhouse Gas Emissions by Sector



Seven main fossil fuel combustion sources	Contribution (%)
Liquid fuels (e.g., gasoline, fuel oil)	36 %
Solid fuels (e.g., coal)	35 %
Gaseous fuels (e.g., natural gas)	20 %
Cement production	3 %
Flaring gas industrially and at wells	< 1 %
Non-fuel hydrocarbons	< 1 %
"International bunker fuels" of transport not included in national inventories	4 %

Source: Wikipedia

# Carbon dioxide emissions globally

- Road Transport - 14%
- Utilities (power, gas, oil etc) - 21%
- Industrial production - 17%

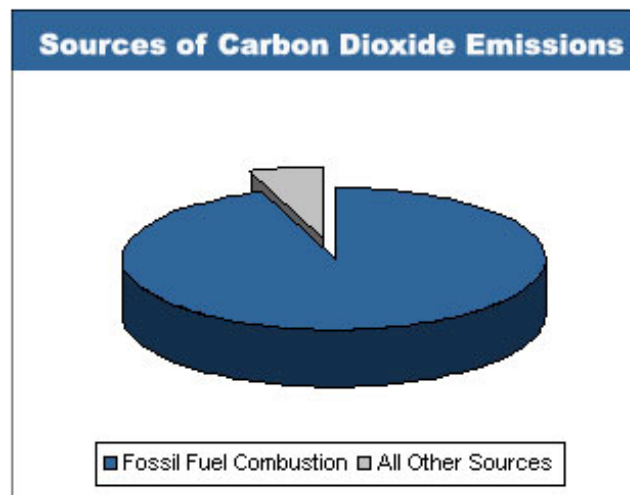
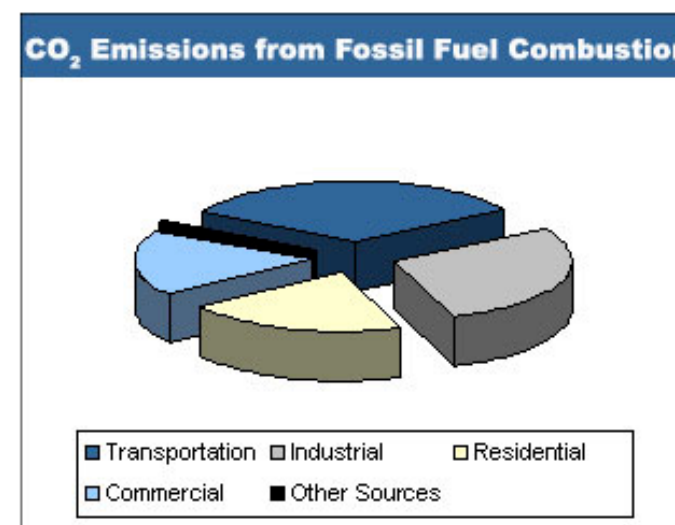


Table 1:

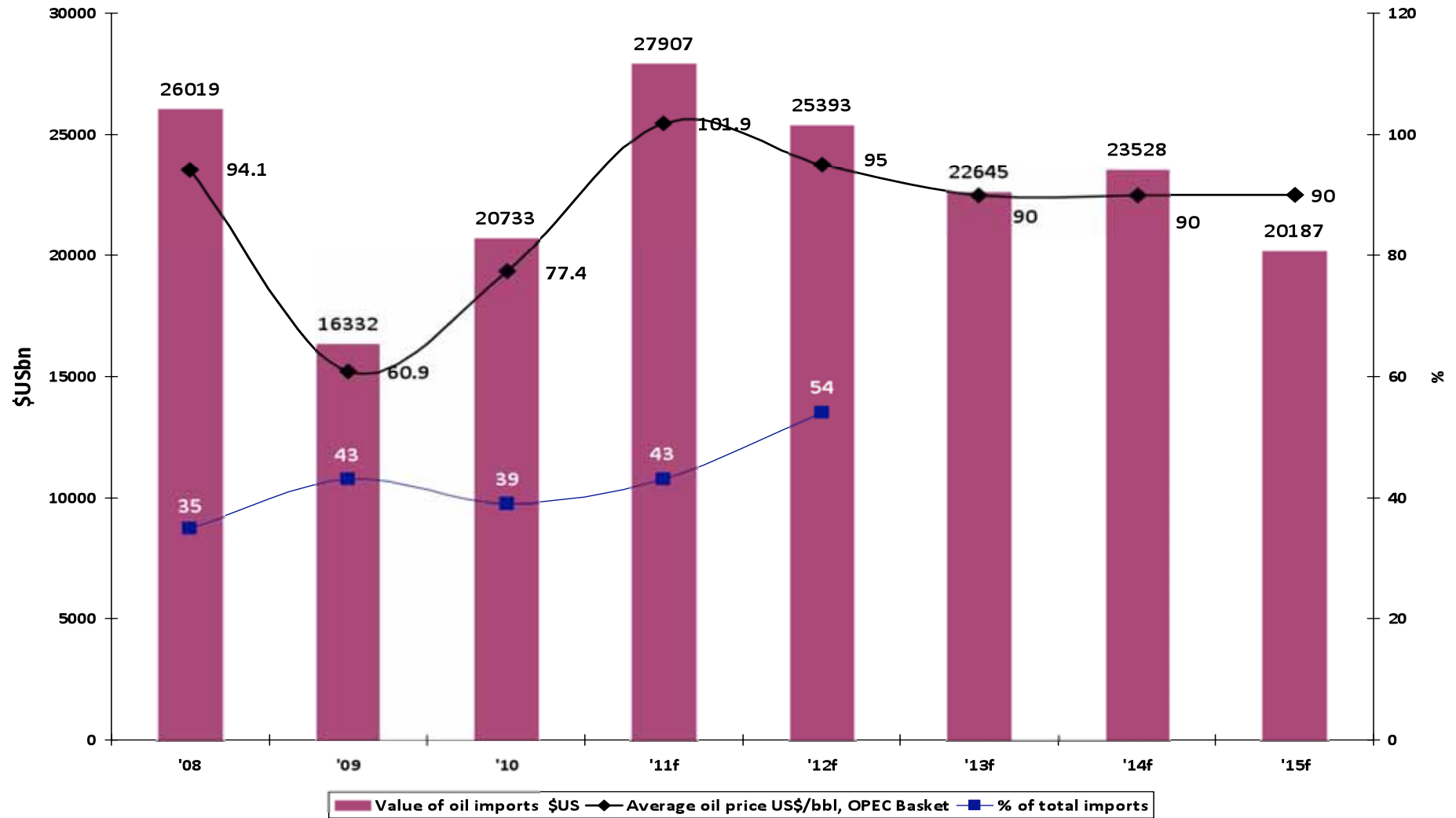
<b>Electrical Energy Produced By Fossil Fuel Combustion</b>			
(Billion Kilowatthours)			
<b>G8 Nation</b>	<b>Fossil Fuel Combustion</b>	<b>Total</b>	<b>%</b>
Canada	154.55	569.41	27.1%
France	52.23	535.45	9.8%
Germany	354.78	561.57	63.2%
Italy	223.16	268.18	83.2%
Japan	640.17	982.76	65.1%
Russia	569.72	869.07	65.6%
United Kingdom	278.21	373.26	74.5%
United States	2,758.65	3,891.72	70.9%

Source: International Energy Database (2008), Energy Information Administration



Source: Inventory of U.S. Greenhouse Gas Emissions and Sinks (2008), EPA.

# Oil imports as a % of total imports (US\$bn)



Source: Various

## Possible Solutions

- Mixed City Districts
- Congestion Tolls
- Intelligent traffic management systems
- Restructuring tram systems



## 4. Automotive Opportunities

- The aim: remaining mobile without generating emissions
- Alternative solutions
- Challenges
- Achievements

**“We are in the midst of a great crisis, but even great crises generate great opportunities” *Matthias Horx, futurist***

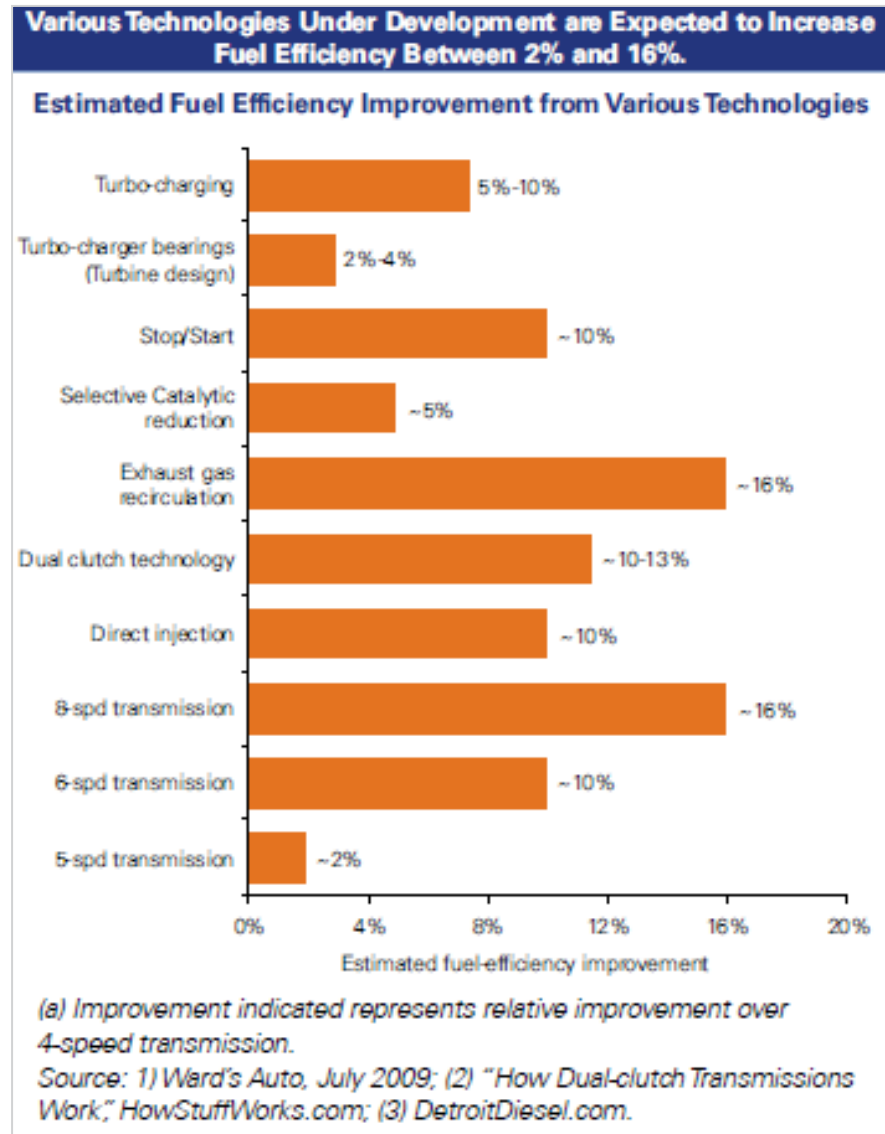
## Types of alternatives to Internal Combustion Engines (ICE's)

- **Pure electric vehicles**
- **Range-extenders**
- **Hybrids**
- **Single fuel source**
  - Solar
  - Biofuels
  - Compressed Natural Gas
  - Hydrogen
  - Liquid Nitrogen Car
  - LPG or Autogas



# Strategies to reduce CO2 emissions

- Improving fuel efficiency
- Reducing carbon emissions
- Alternative fuel vehicles
- Electrification technologies
- Systematic downsizing
- Super charging



## Top carbon polluters

- Top two carbon polluters are power stations and industry, not cars and aircrafts
- Average new car fuel consumption for petrol cars fell from 8.28 litres per 100km in 1997 to 6.93 litres per 100km in 2008
- Biggest single consumer is the energy generating industry itself when it converts one form of energy into another (for example oil to electricity) and through energy lost in distribution



Source: IAM Report

## Challenges that impede penetration of EV's

- Technology
- Infrastructure
- Space
- Payment mechanisms
- Start up costs
- National power grid
- Price & availability



# Visionaries

- Agassi Concept
- “Car2go”
- Ecotricity



## SA Carbon Tax

- Effective 1 September 2010
- New cars and light commercial vehicles
- R75 for each g/km above 120g/km
- Estimated R2.5 billion
  
- CO2 Vehicle tax issues
  - Should be applied at point of sale
  - Discriminates against buyers of new motor vehicles
  - Lack of incentive schemes
  - Fuel quality



# Indexes with automotive values

- DJSI World
- FTSE4GOOD
- Ethibel Sustainable Index
- JSE SRI



## FTSE4Good

**Dow Jones Sustainability Indexes**  
In Collaboration With SAM



# Automotive Challenges

- Confused market with regards to green claims
- Green technological uncertainty
- Financial constraints
- Regulatory uncertainty & variances between countries



## 5. Green IT Opportunities

- Environmental impact per industry
- Green IT baseline
- User environment (Desktop)
- General office



# Environmental impact per industry

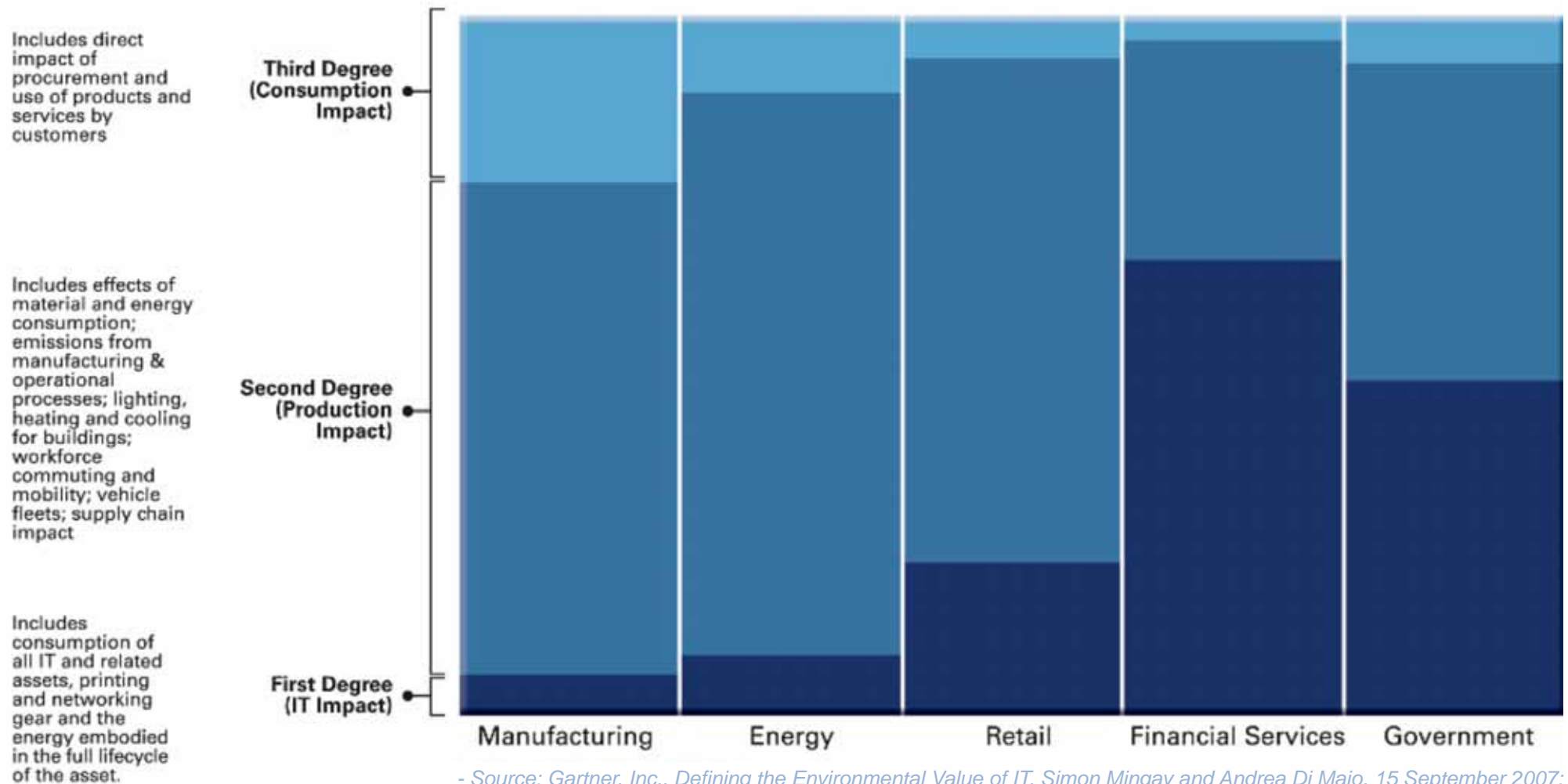
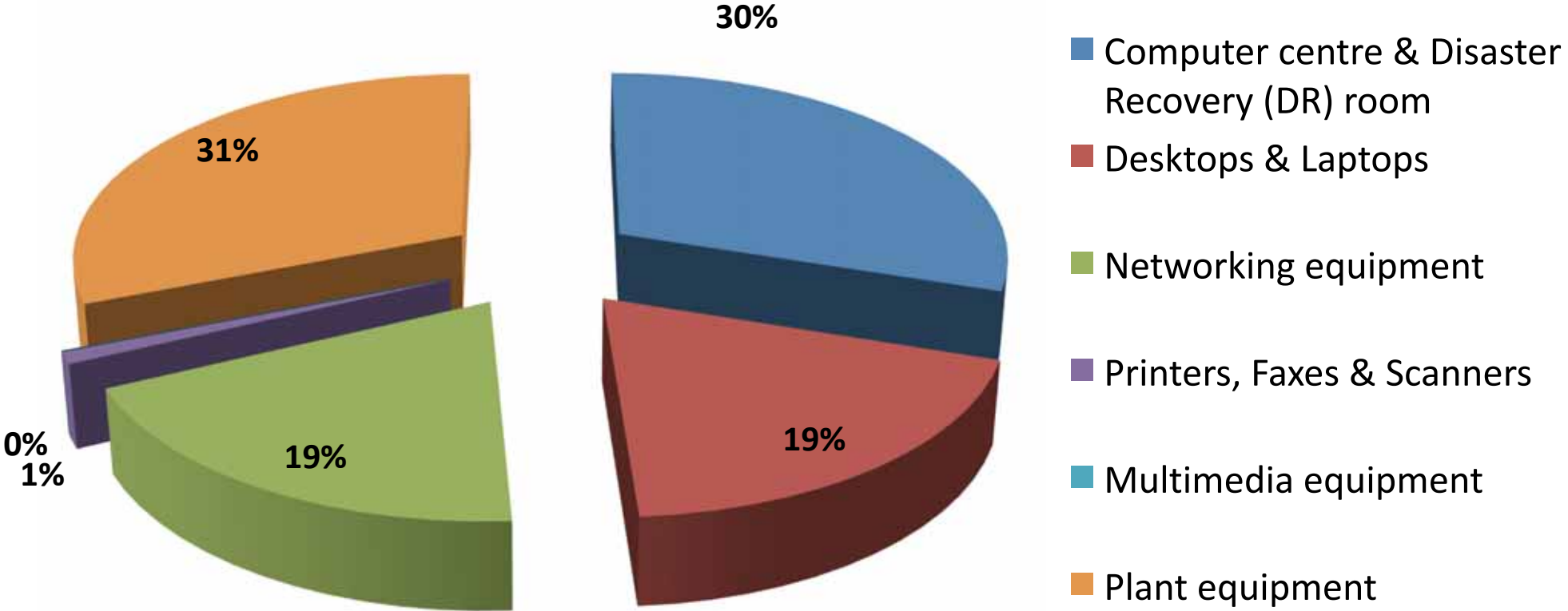
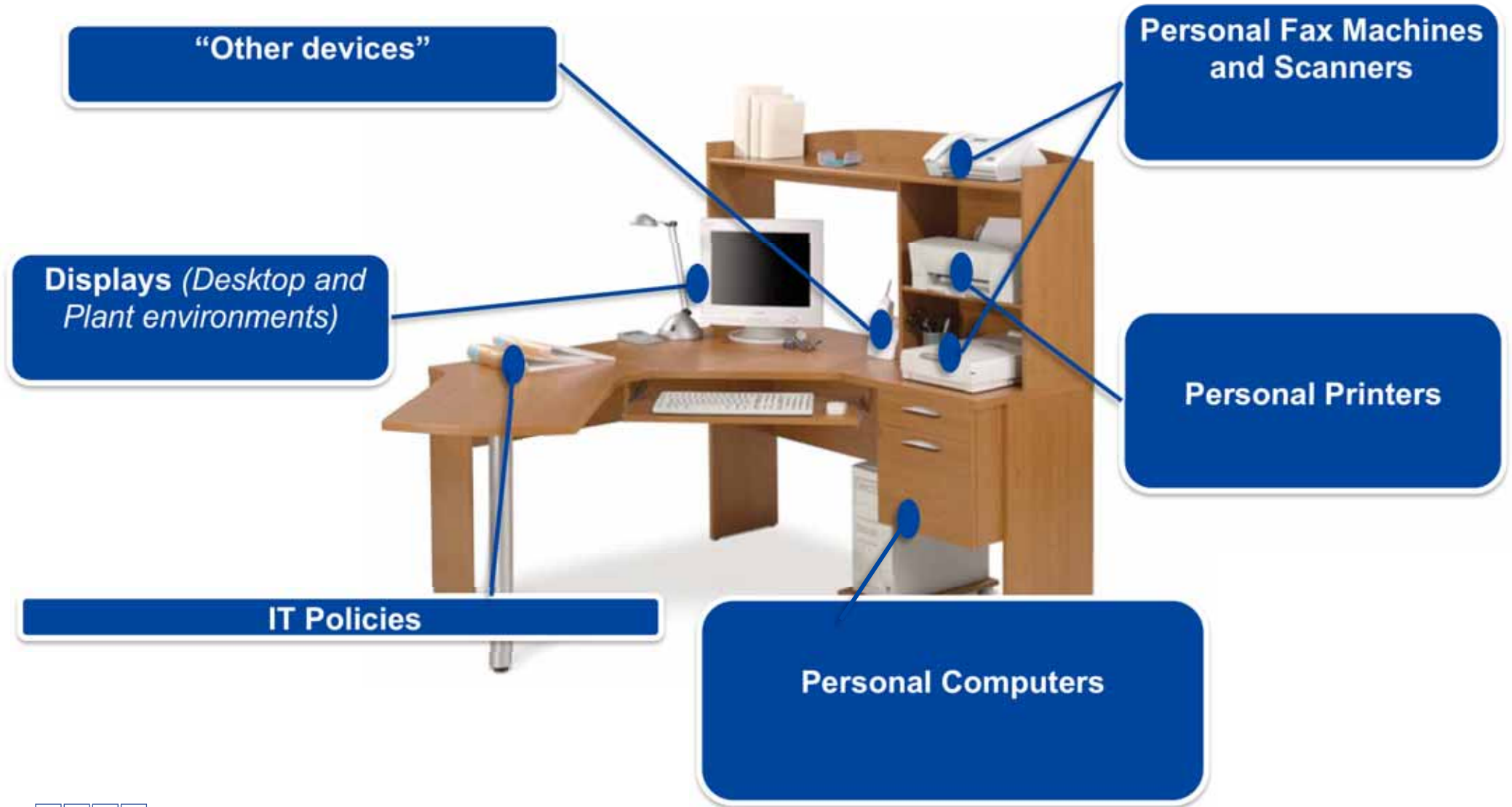


Figure 1. Three Degrees of IT's Environmental Impact by Industry Sector

# Green IT baseline – electricity consumption



# User environment (Desktop)



# General office



# CO2 Comparisons

## ➤ Calculations based on the following assumptions

- With 54KWh an electric vehicle can go approximately 500km
- Therefore for an electric car: 10.8kWh/100km

## ➤ Emission factors

- Petrol: 2.32kgCO<sub>2</sub>e per litre (*Source: DEFRA 2010 GHG Conversion Factors for Company Reporting, Annex 6, Table 6a*)
- Diesel: 2.67kgCO<sub>2</sub>e per litre (*Source: DEFRA 2010 GHG Conversion Factors for Company Reporting, Annex 6, Table 6a*)
- Electricity: 1.03kgCO<sub>2</sub>e/KWh (*Source: Eskom 2010 Sold Grid Emission Factor – note: there is some debate about whether using a sold or generated factor for 2011 – may potentially be closer to 0.98kgCO<sub>2</sub>e/KWh*)

**\*Please note: calculations based on assumptions**

## CO2 Comparisons continued

### ➤ CO2 comparisons (to drive 100kms)

#### ▪ Petrol car

- Average efficiency of 8litres/100km
- Therefore 8 litres of petrol \* 2.32kgCO<sub>2</sub>e/litre petrol = **18.56kgCO<sub>2</sub>e**

#### ▪ Diesel car

- Average efficiency of 8litres/100km
- Therefore 7.5 litres of diesel\* 2.67kgCO<sub>2</sub>e/litre diesel= **20.03kgCO<sub>2</sub>e**

#### ▪ Electric car which takes 10.8KWh

- To charge the car: 10.8KWh \* 1.03kgeCO<sub>2</sub>/KWh = **11.124kgCO<sub>2</sub>e**

**\*Please note: calculations based on assumptions**

## 6. Conclusion

- The SA Auto sector can assist to close the Carbon chasm
- BUT could create a greater impact if our power mix improved



# Thank you

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