

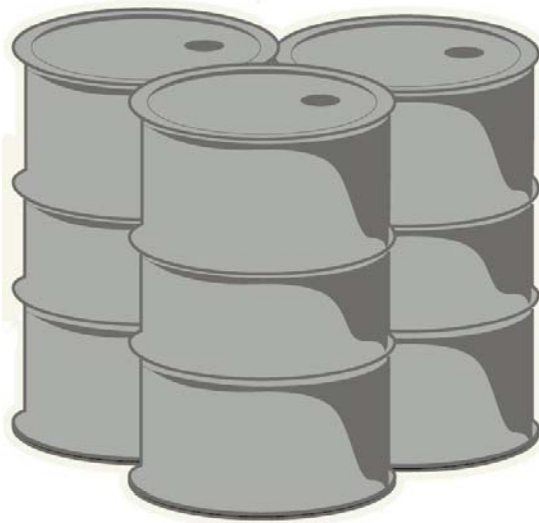


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Transport and Climate change Emission and Efficiency

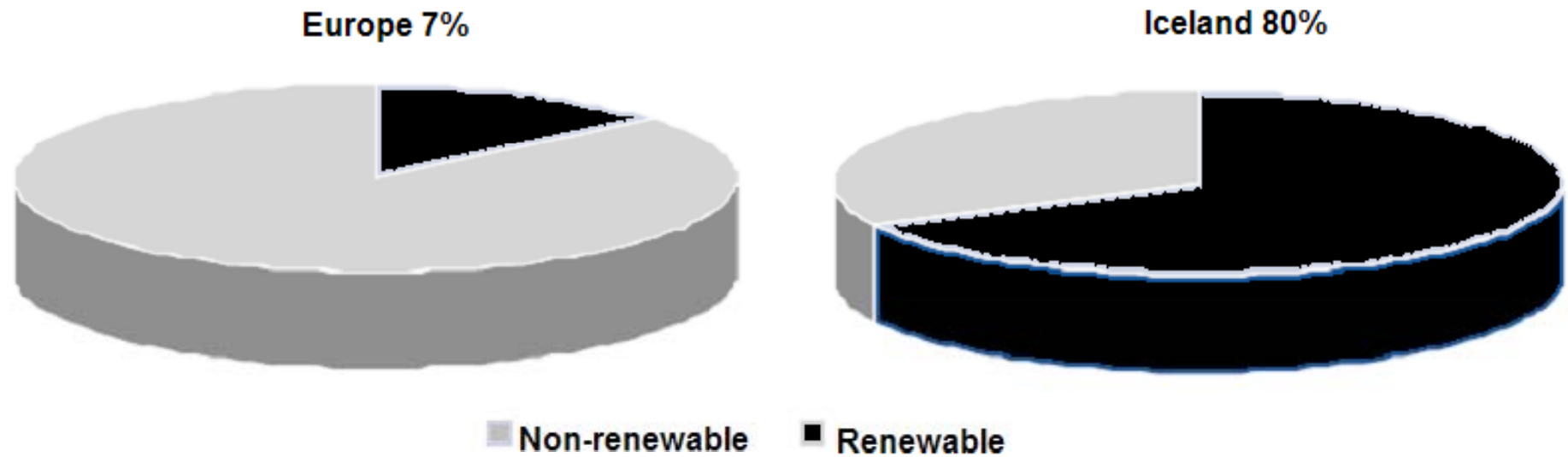


The transport sector



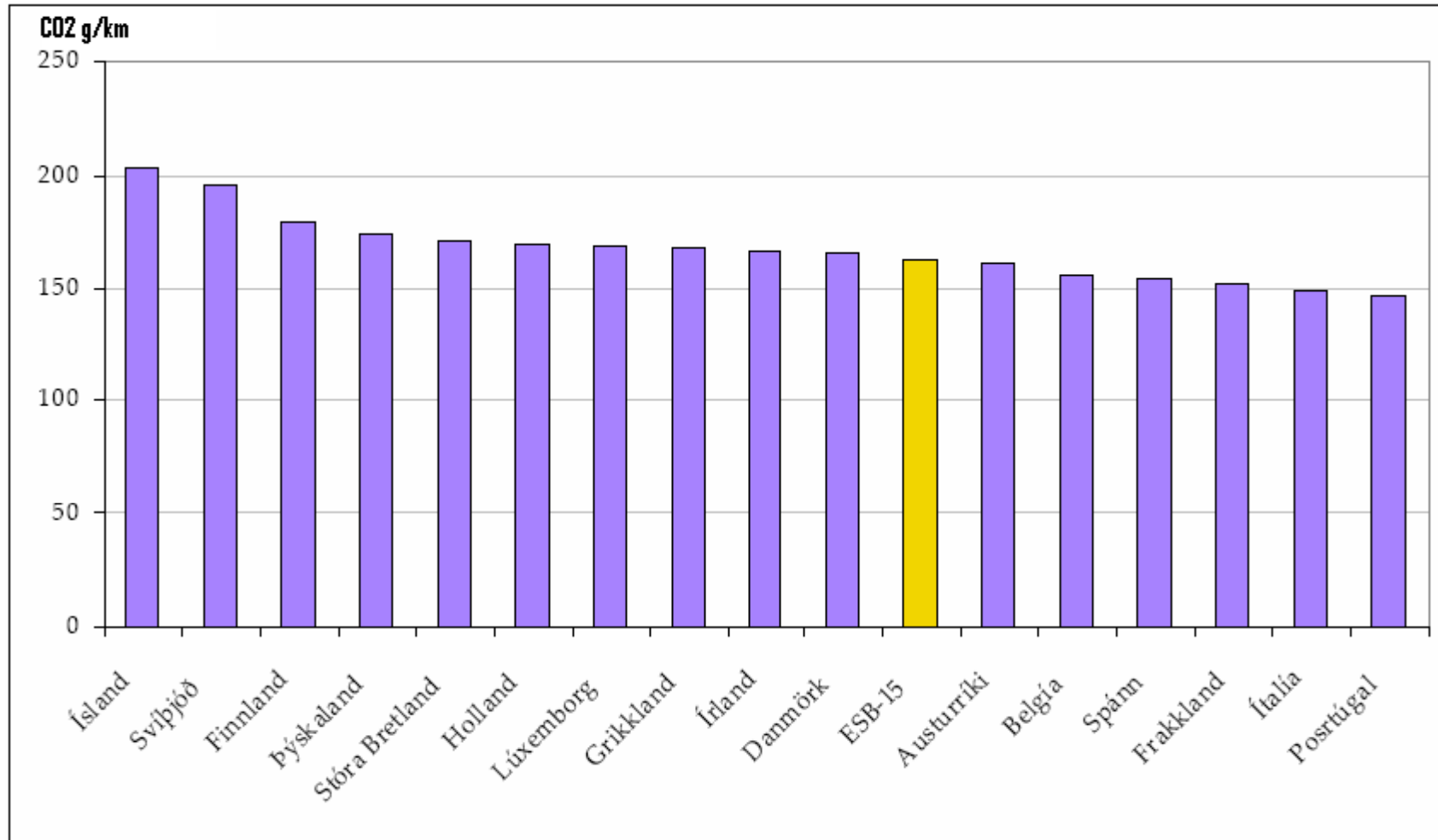
= CO₂

Iceland - The Best

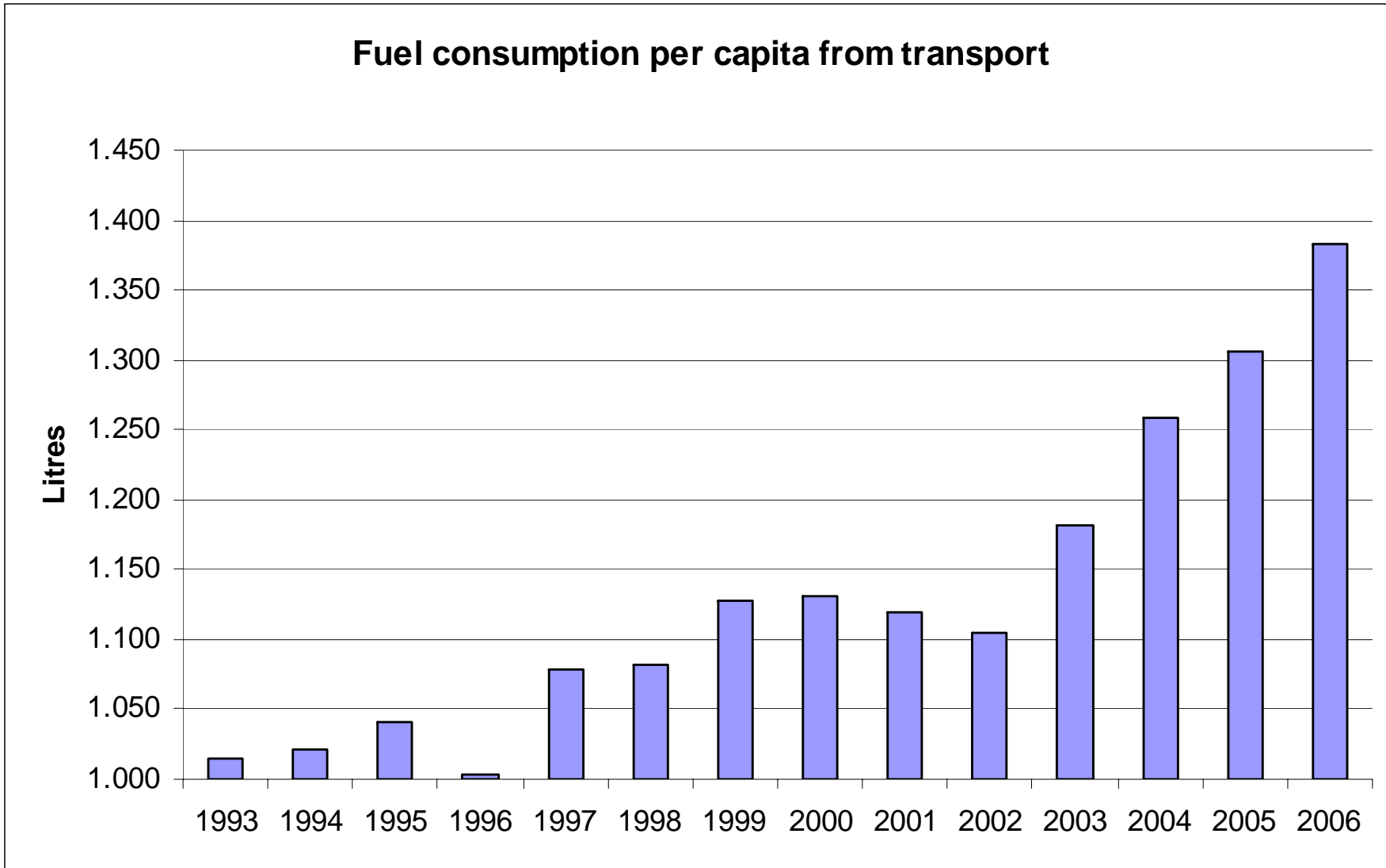


The renewable energies share of primary energy consumption

Iceland - The worst



The forgotten slides

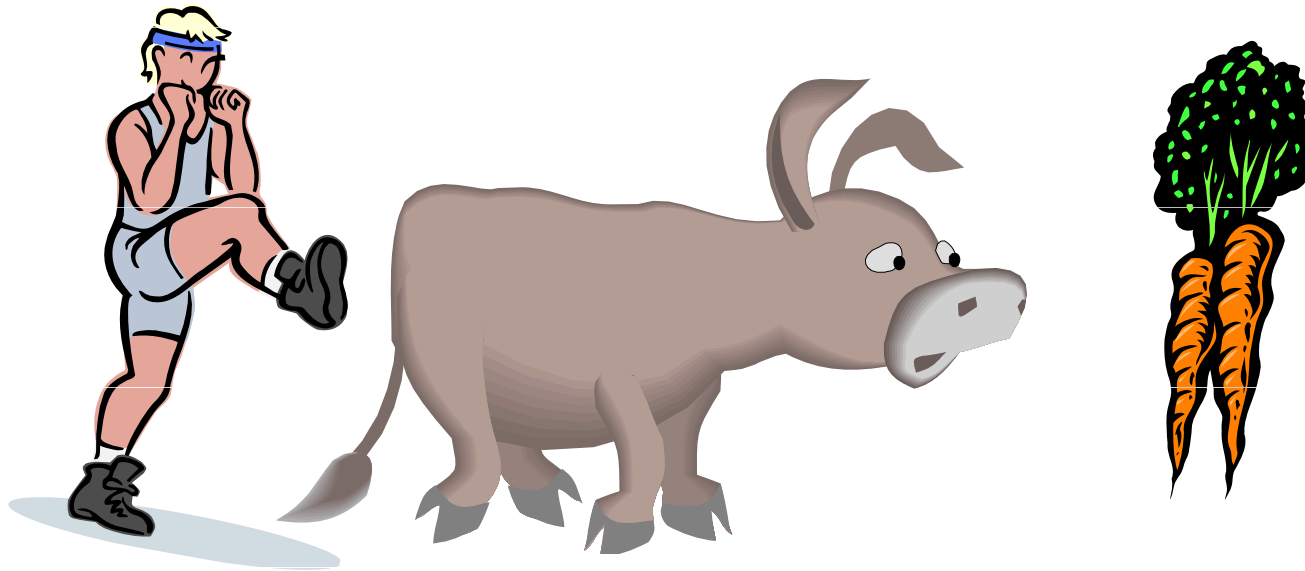


How can we tame the CO₂ beast?

- Increasing environmental pressure to reduce transport because of CO₂ emission
- The answer for the industry is to start transporting in the “right way”
- Use the best available technique
- Switch to better technique

The authorities

- Put a price on CO₂
 - Pay for emission
 - Reward reduction



The right way →

Engine size

Assumption:	Price of Gasoline	1,40 €/ltr	Price of Diesel	1,45 €/ltr
	Price of Ethanol	1,20 €/ltr	Price of Methane	0,88 €/Nm ³
	Price of Electricity	0,10 €/kWh		
	Annual Driving	20.000 km	Calculate for	10 year

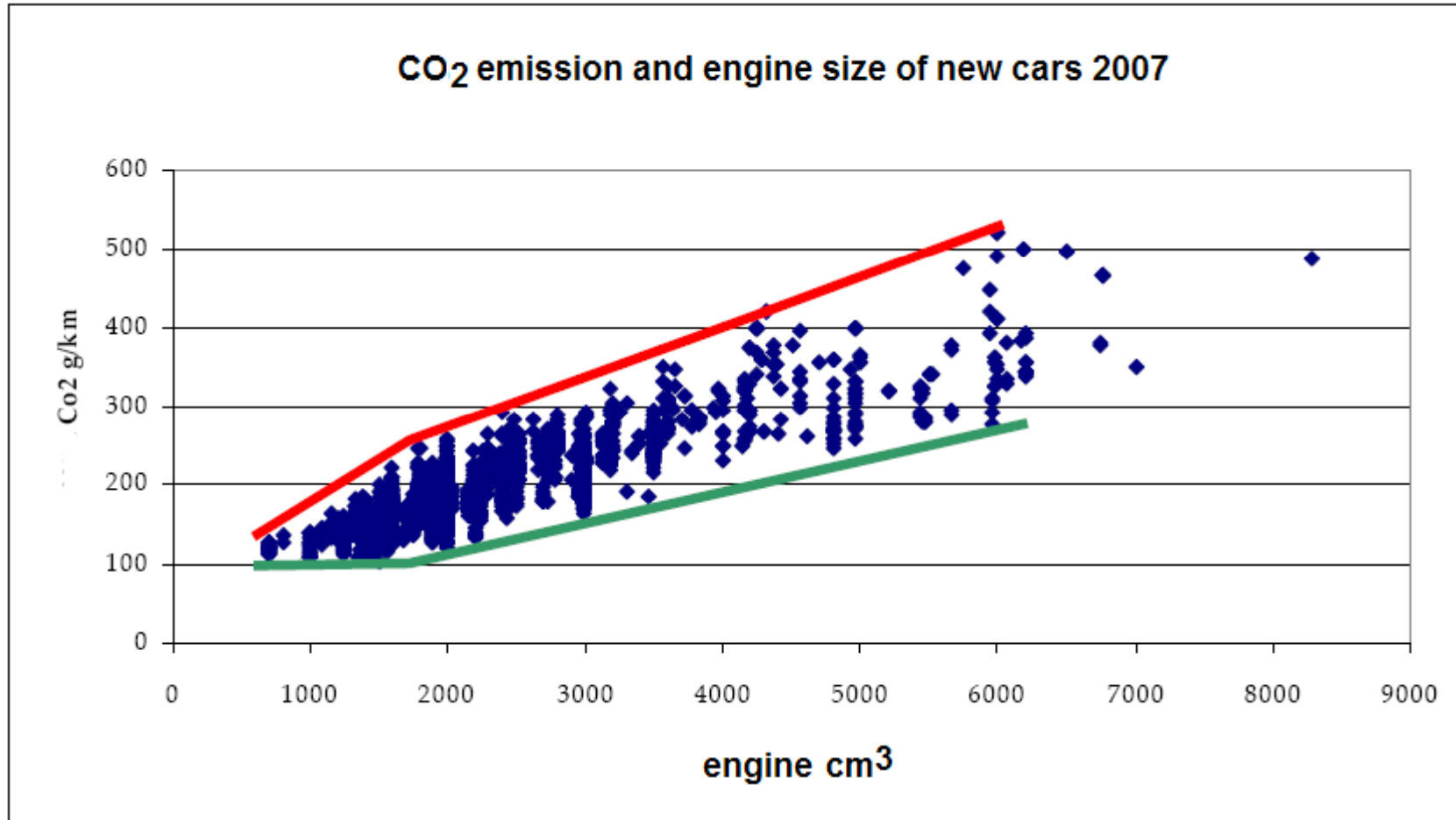
	Car 1			Car 2		
Manufacturer	Volkswagen			Volkswagen		
Model	Golf			Golf		
Type	Engine	Transm.	Cubic cm	Engine	Transm.	Cubic cm
	Gas 4	Stick	1390 cm ³	Gas 4	Stick	1390 cm ³
	Gas 4	Auto	1390 cm ³	Gas 4	Auto	1390 cm ³
	Gas 4	Stick	1598 cm ³	Gas 4	Stick	1598 cm ³
	Gas 4	Auto	1598 cm ³	Gas 4	Auto	1598 cm ³
	Gas 4	Stick	1781 cm ³	Gas 4	Stick	1781 cm ³
	Diesel 4	Stick	1896 cm ³	Diesel 4	Stick	1896 cm ³
	Diesel 4	Auto	1896 cm ³	Diesel 4	Auto	1896 cm ³
	Gas 4	Stick	1984 cm ³	Gas 4	Stick	1984 cm ³
	Gas 4	Auto	1984 cm ³	Gas 4	Auto	1984 cm ³
	Gas 4	Auto	2324 cm ³	Gas 4	Auto	2324 cm ³
	Gas 6	Stick	2792 cm ³	Gas 6	Stick	2792 cm ³
	Total for 10 year			Total for 10 year		
	Fuel Consumption	12.800 ltr		Fuel Consumption	22.000 ltr	
	Fuel Cost	17.920,00 €		Fuel Cost	30.800,00 €	
	CO ₂ Emission	30,8 tons		CO ₂ Emission	52,8 tons	



Difference

Total Cost: **12.880,00** € CO₂ Emission: **21,0** tons





Real changes

Assumption:	Price of Gasoline	1,40 €/ltr	Price of Diesel	1,45 €/ltr
	Price of Ethanol	1,20 €/ltr	Price of Methane	0,88 €/Nm ³
	Price of Electricity	0,10 €/kWh		
	Annual Driving	20.000 km	Calculate for	10 year


	Car 1	Car 2															
Manufacturer	Toyota	Toyota															
Model	Land Cruiser 200	Prius															
Type	<table border="1"> <thead> <tr> <th>Engine</th> <th>Transm.</th> <th>Cubic cm</th> </tr> </thead> <tbody> <tr> <td>Gas 8</td> <td>Auto</td> <td>4464 cm³</td> </tr> <tr> <td>Diesel 8</td> <td>Auto</td> <td>4461 cm³</td> </tr> </tbody> </table>	Engine	Transm.	Cubic cm	Gas 8	Auto	4464 cm ³	Diesel 8	Auto	4461 cm ³	<table border="1"> <thead> <tr> <th>Engine</th> <th>Transm.</th> <th>Cubic cm</th> </tr> </thead> <tbody> <tr> <td>Hybrid 4</td> <td>Auto</td> <td>1497 cm³</td> </tr> </tbody> </table>	Engine	Transm.	Cubic cm	Hybrid 4	Auto	1497 cm ³
Engine	Transm.	Cubic cm															
Gas 8	Auto	4464 cm ³															
Diesel 8	Auto	4461 cm ³															
Engine	Transm.	Cubic cm															
Hybrid 4	Auto	1497 cm ³															
	Total for 10 year Fuel Consumption 28.800 ltr Fuel Cost 40.320,00 € CO ₂ Emission 68,0 tons	Total for 10 year Fuel Consumption 8.600 ltr Fuel Cost 12.040,00 € CO ₂ Emission 20,8 tons															
	Difference																


Total Cost: 28.280,00 € CO₂ Emission: 47,2 tons



25.000 cars = 1.180.000 T CO₂

Assumption:	Price of Gasoline	1,45 €/ltr	▲▼	Price of Diesel	1,52 €/ltr	▲▼
	Price of Ethanol	1,20 €/ltr	▲▼	Price of Methane	0,88 €/Nm³	▲▼
	Price of Electricity	0,08 €/kWh	▲▼			

Manufacturer	Toyota ▼				
Model	Land Cruiser 200 ▼				
Type	Engine Transm. Cubic cm Gas 8 Auto 4464 cm ³ Diesel 8 Auto 4461 cm ³				
City Driving	Distance 20 km ▲▼	Cost: 5,51 €	CO ₂ Emission 6,8 kg		
Long Distance Driving	Departing City Brussels ▼	Arriving City Athens ▼	Distance: 3.021 km	Cost: 512,51 €	CO ₂ Emission: 1.027,1 kg

Manufacturer	Toyota ▼				
Model	Prius ▼				
Type	Engine Transm. Cubic cm Hybrid 4 Auto 1497 cm ³				
City Driving	Distance 20 km ▲▼	Cost: 1,45 €	CO ₂ Emission 2,0 kg		
Long Distance Driving	Departing City Brussels ▼	Arriving City Athens ▼	Distance: 3.021 km	Cost: 183,98 €	CO ₂ Emission: 314,2 kg

New Mercedes-Benz Actros in the Guinness Book of Records:



The world's most economical series-production truck

Use the best available technique

- *Actros' record-breaking drive over 12,728 km:
19,44 l /100 km*

Savings champion also with CO₂ : minimal emissions of 20,5 g/tkm

- The new BlueTec diesel technology has brought further substantial improvements: annual savings of **1500 litres** to **2000 litres** of diesel per truck.
- That means up to **5280 kg** CO₂ saved annually

Another example



Creating an improved aerodynamic shape for heavy-duty truck trailers by mounting sideskirts can cut fuel consumption and emissions by up to **15%**

Testing by the Dutch research partnership PART

- PART expects that the cost of fitting aerodynamically-shaped sideskirts will be recouped within **two years**.
- Furthermore, the sideskirts can be fitted to approximately half the trucks currently in use in the Netherlands as the skirts can also be retrofitted.



Testing by the Dutch research partnership PART

- *“In 2005, 10,000 new trailers were taken into use in the Netherlands. With an average fuel consumption of 30 liters per 100 kilometers that translates into 750 million liters of diesel consumption in the Netherlands each year. We can cut fuel consumption by 5% or more for 50% of those trailers. That means a reduction of **50 million kg of CO₂** emissions a year.”*

Next step....the alternatives

- Electricity is the answer
- The best energy efficiency
- No tailpipe pollution
- Hybrid->plug in hybrid-> Pure electric
- Perfect in Iceland with 100% green electricity
- **Transfer the CO₂ problem from the transport to the energy industry**

Two examples

- Smith electric vehicles



Smith electric vehicles

- Top speed 80 km/h (enough for city driving)
- Range on one battery up to 240 km
- Payload of up to 7400 kg
- *“This is a huge step forward for our fleet. Not only is this one of the most environmentally friendly vehicles on the market, there are also potential significant cost savings in the long-term. “*

- *Tom Bell, Managing Director of TNT Express Services UK & Ireland*



Moddec

- Top speed 80 km/h (enough for city driving)
- Range on one battery up to 160 km



We have to push the electric vehicles into the market

- 1000 € 100 €





THE CHRISTIAN SCIENCE MONITOR *Bennett*

Thank you!

During this lecture the CO₂ emission
from the use of fossil fuel in Iceland was

87.356 kg



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