Integrated Climate Protection in a Megalopolis

– the case of Gauteng, South Africa





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Energy as a Key Element of an Integrated Climate Protection Concept for the City Region of Gauteng, South Africa

A concept for efficient energy and climate protection structures

Socio-demographic determinants

Scenario analysis and policy recommendations

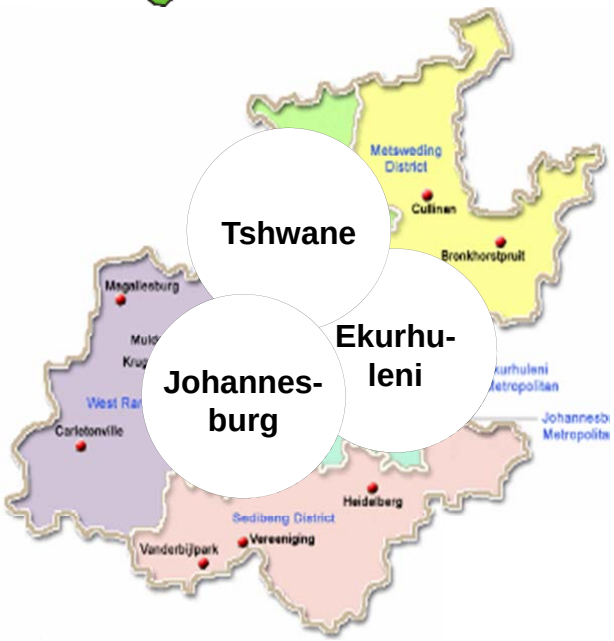
Long term perspective development

Training, capacity building and technology transfer

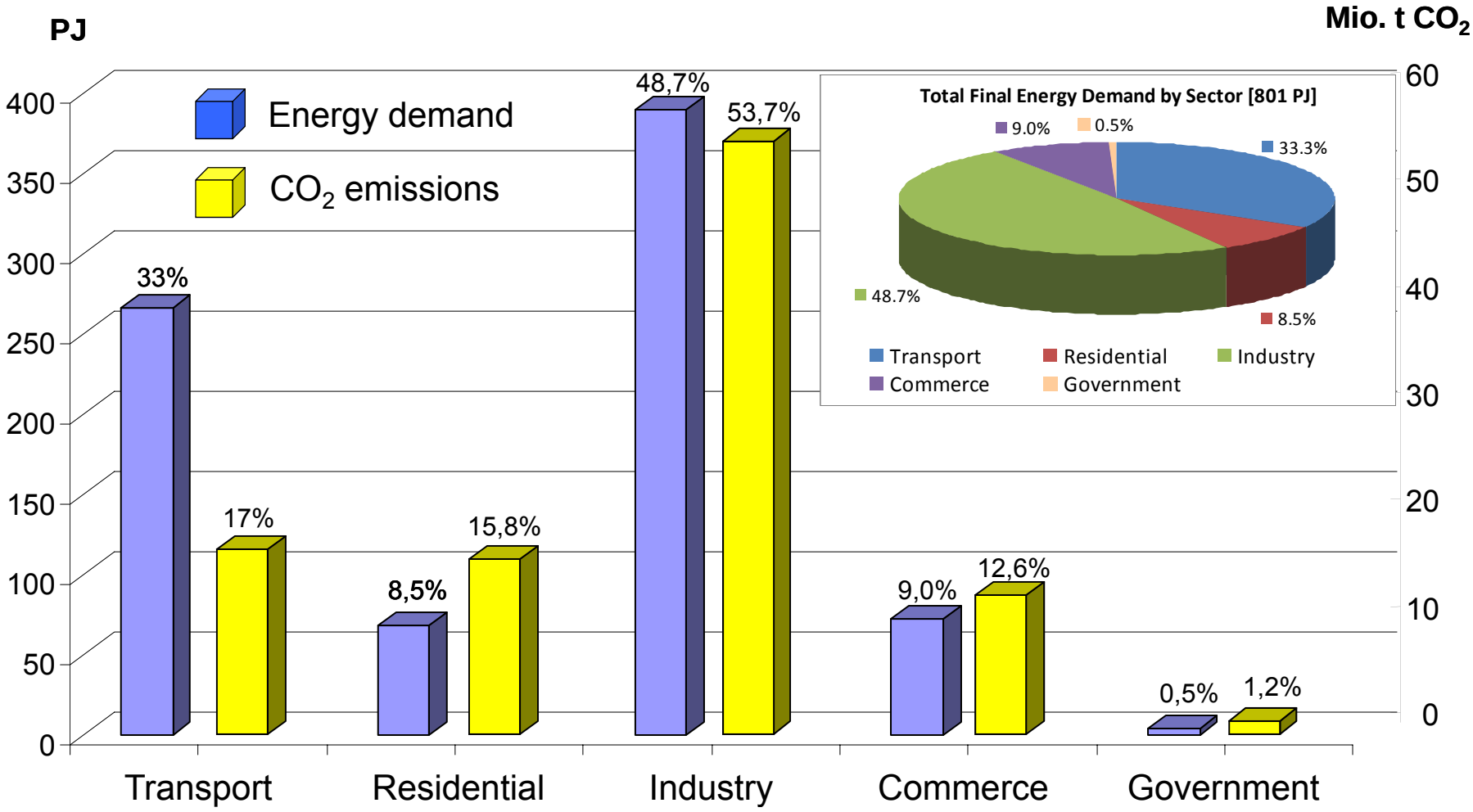
Buildings and settlements

Transport and mobility

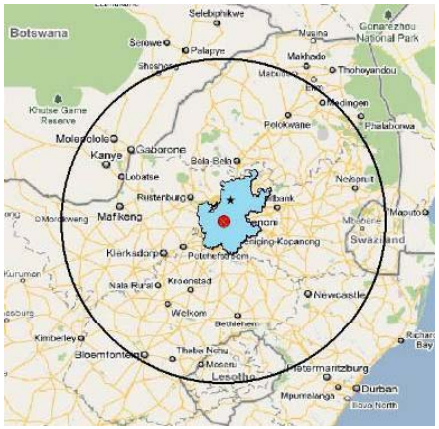
Energy supply technologies

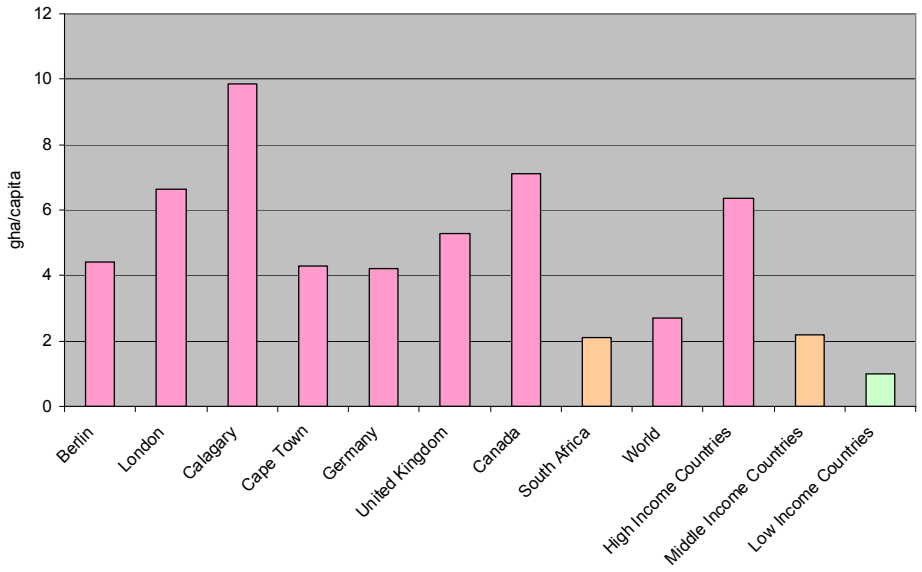


Energy demand and CO_2-emissions by sector



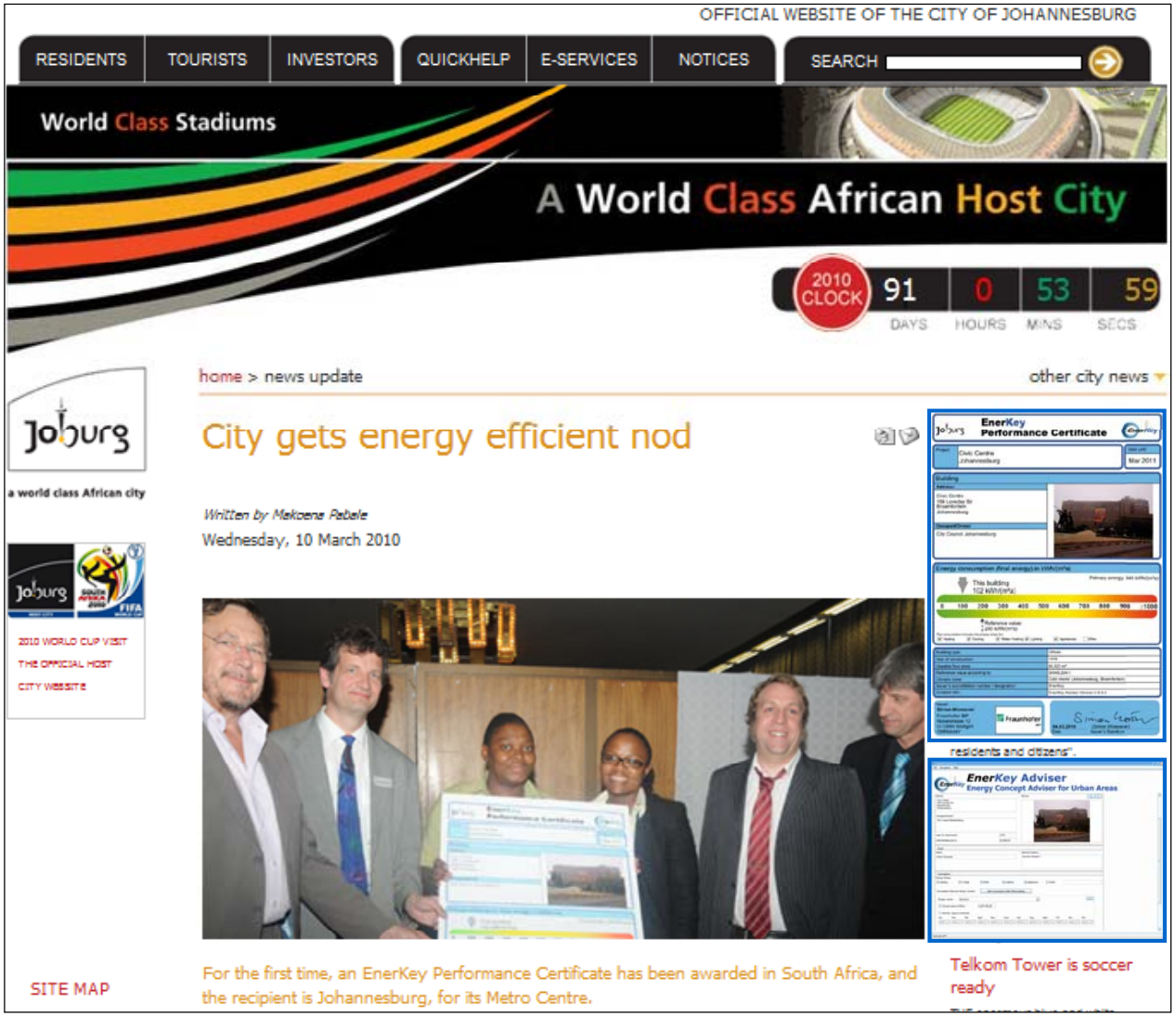
The Ecological Footprint of Gauteng





Land use	Service	t/a	Land area (gha)	Land area (gha/cap)
Built-up land	Residence, Industry, Commerce and Traffic	-	960,987	0.09
	Solid Waste	5,729,520	1,369	0.00
Forest	Timber, Pulp and Paper	-	2,822,000	0.27
Grazing and Cropland	Food	5,592,710	12,400,293	1.19
Carbon Footprint	Energy (GHG-Emissions)	102,066,000	28,073,669	2.69
	Total	-	44,780,882	4.29

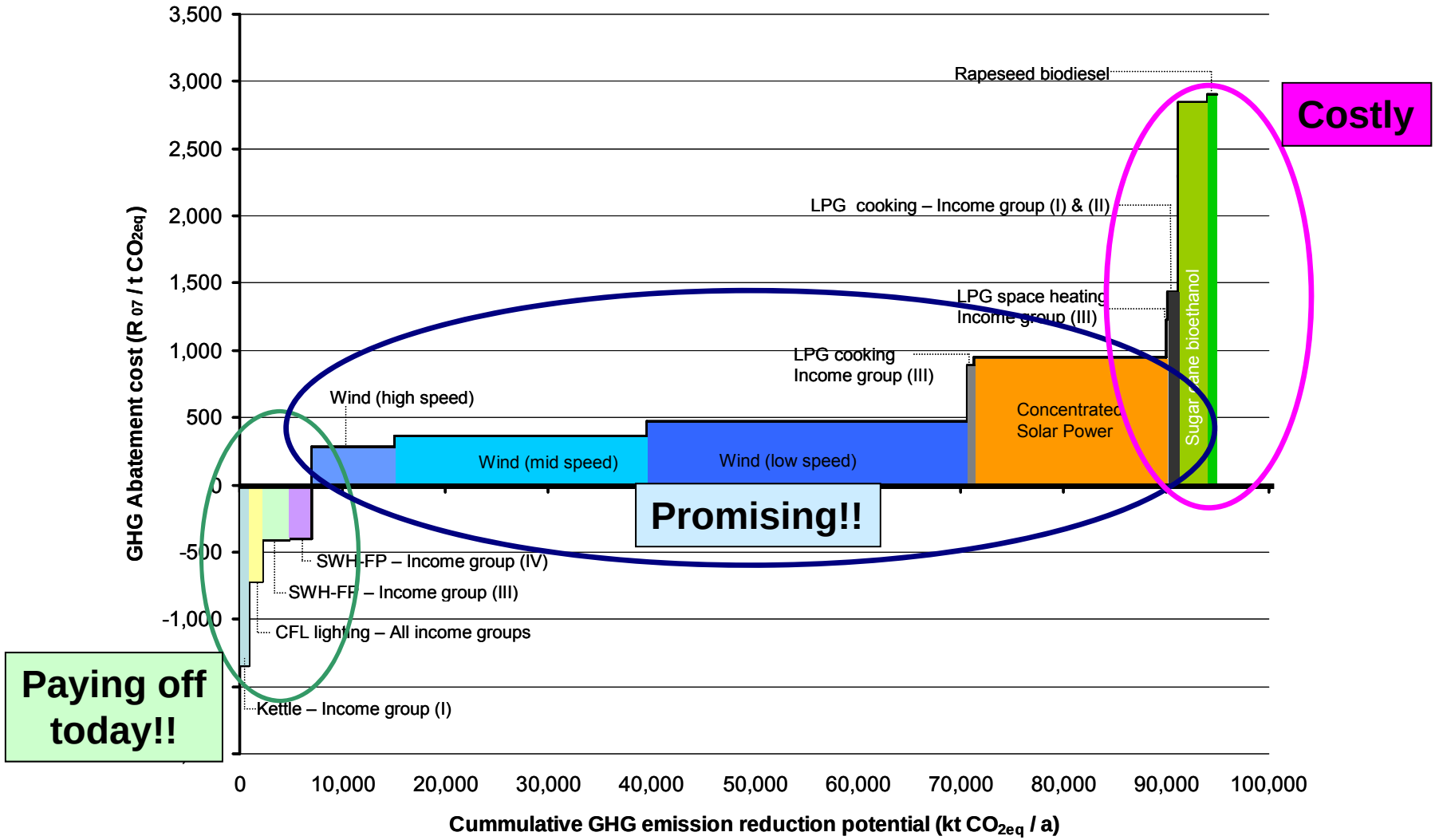
First EnerKey Performance Certificate to City of Joburg



Other implementation activities

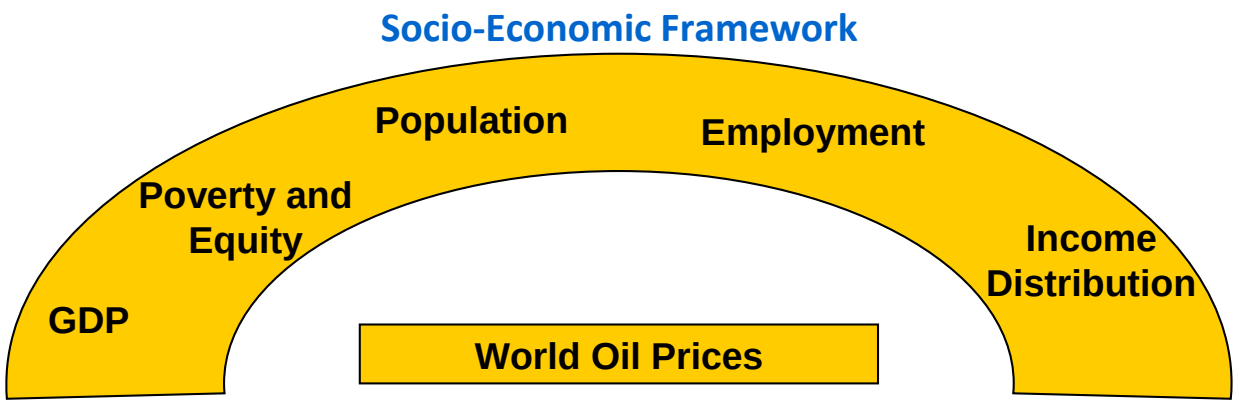
- Energy management
- Energy auditors training
- SeTAR stove test center
- iEEECo settlements
- ASH climate house
- Long term perspective group (ELPG)
- EnerKey schools project
- Training for energy planners
- CDM evaluation tools
- CDM PoA development

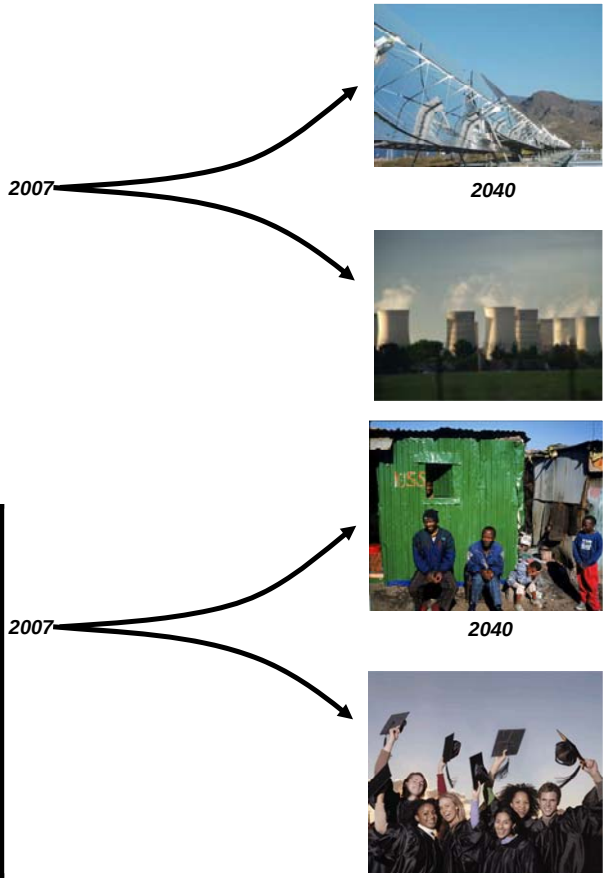
Cost – potential curve for CO_2 emission reduction



What could Gauteng look like in 2040?

Scenarios for Gauteng



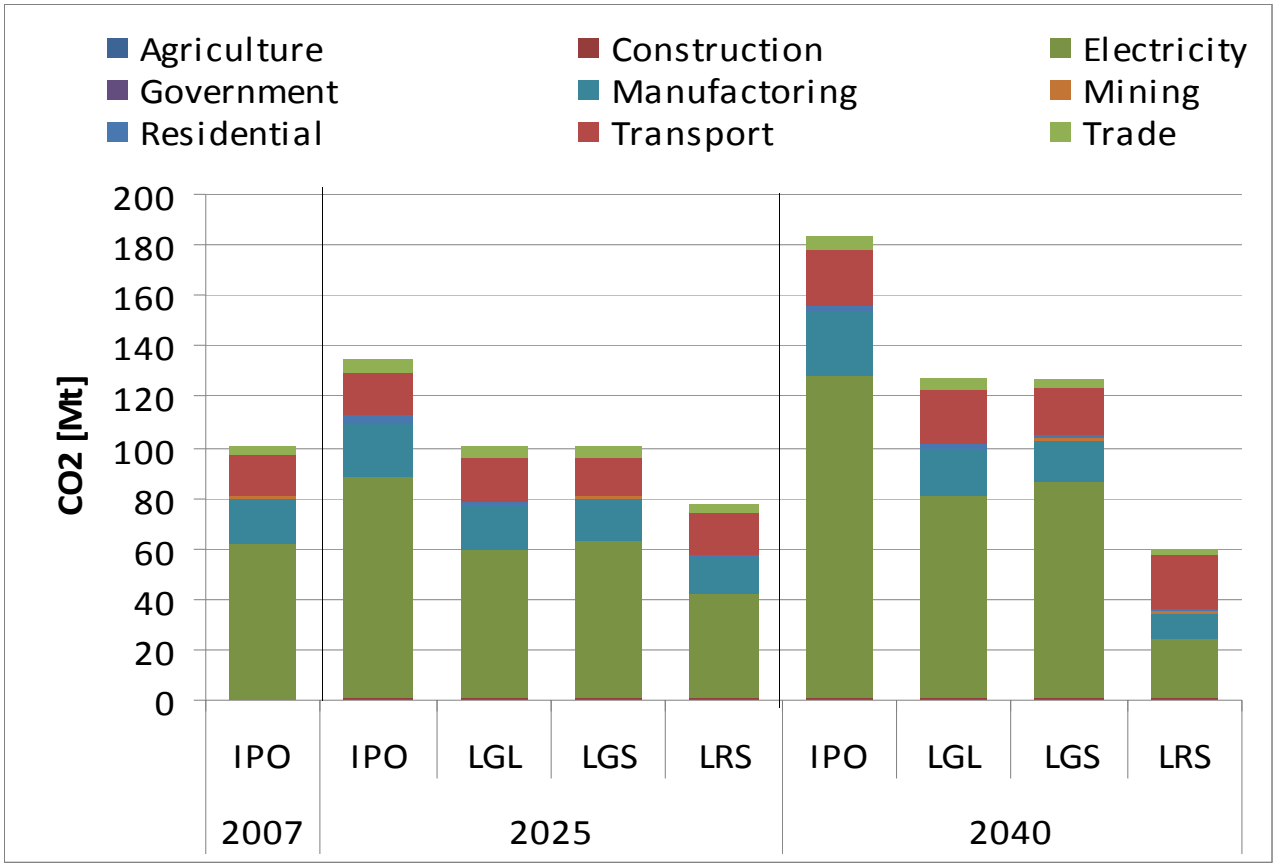


Series of Energy Scenarios

Reference	Energy Strategy	Low Carbon Province	
Imple-mented Policies IPO	GIES Energy Targets GET	GIES CO_2 Targets	CO_2 Emission as required by science (LTMS) LRS
		Least Cost LGL	Solar Province LGS

LGL&LGS: -38 % CO_2-Emissions in 2040
LGS: additional modal shift to public transport and higher share of alternatives
LRS: - 40 % CO_2- Emissions in 2040 (2007 level)

CO_2 emissions by sector for different scenarios



IPO:
Implemented Policies

LGL:
Provincial CO_2 Targets

LGS:
Provincial CO_2 Targets - Solar

LRS:
Required by science to reach global 2° path

- With current policies: emissions double in 2040
- Huge potential: decarbonisation of electricity generation
- Gauteng can reach 2° path

A climate protection concept for a megalopolis…

- …requires an integrative view on technologies, technology-systems and the socioeconomic framework!
- …is a balancing act with regards to environmental, social and economic challenges!
- …calls for incremental projects and technology transfer (practical connectivity) united under a common, accepted umbrella!
- …needs long term perspectives and participatory-visionary planning!

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