



environment
& tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

SOUTH AFRICA'S LONG TERM MITIGATION SCENARIOS AND CLIMATE CHANGE POLICY RESPONSE

Workshop on mitigation potentials,
comparability of effort and sectoral
approaches, Bonn, March 2009

Context

- SA is a developing country with significant development challenges - poverty, unemployment and high vulnerability to climate impacts
- Climate and development
- Adaptation and mitigation balance
 - Majority of national “Climate” investment required for immediate adaptation priorities related to the poor
 - Close price gap on mitigation

South Africa's approach to mitigation

- Recognition that SA must play its part in line with prescripts in Convention
- Take action in way appropriate to national circumstances
- Energy intensive economy – coal based
- LTMS is a study of country's mitigation potential in order to inform policy and action, not a mitigation plan

LTMS process



LTMS PROCESS

- LTMS is multi stakeholder, research based scenario process that has produced an assessment of country's mitigation potential.
- Rigorous, peer reviewed
- Inclusive
- Broad ownership

THE LTMS SCENARIO BUILDING TEAM

Government

- DEAT Environment
- DME Minerals & Energy
- DST Science & Technology
- DoT Transport
- Treasury
- Foreign Affairs
- DTI Trade & Industry
- DPE Public Enterprises
- DWAF Water Affairs & Forestry
- Dept of Agriculture
- Presidency
- SAWS Weather Service
- CEF / SA Nat'l Energy Research Institute
- NERSA Energy Regulator
- W Cape Province (DEADP)
- City of Johannesburg
- ARC

Business

- SASOL
- Eskom
- EIUG Energy Intensive Users Group
- Engen
- Grain SA
- Anglo Coal
- BHP Billiton
- Chamber of Mines
- Aluminium – AFSA
- Kumba Resources
- Chemical – CAIA
- Engen
- Forestry SA
- AgriSA
- Business Unity SA
- Sappi
- Envirotech (Waste)

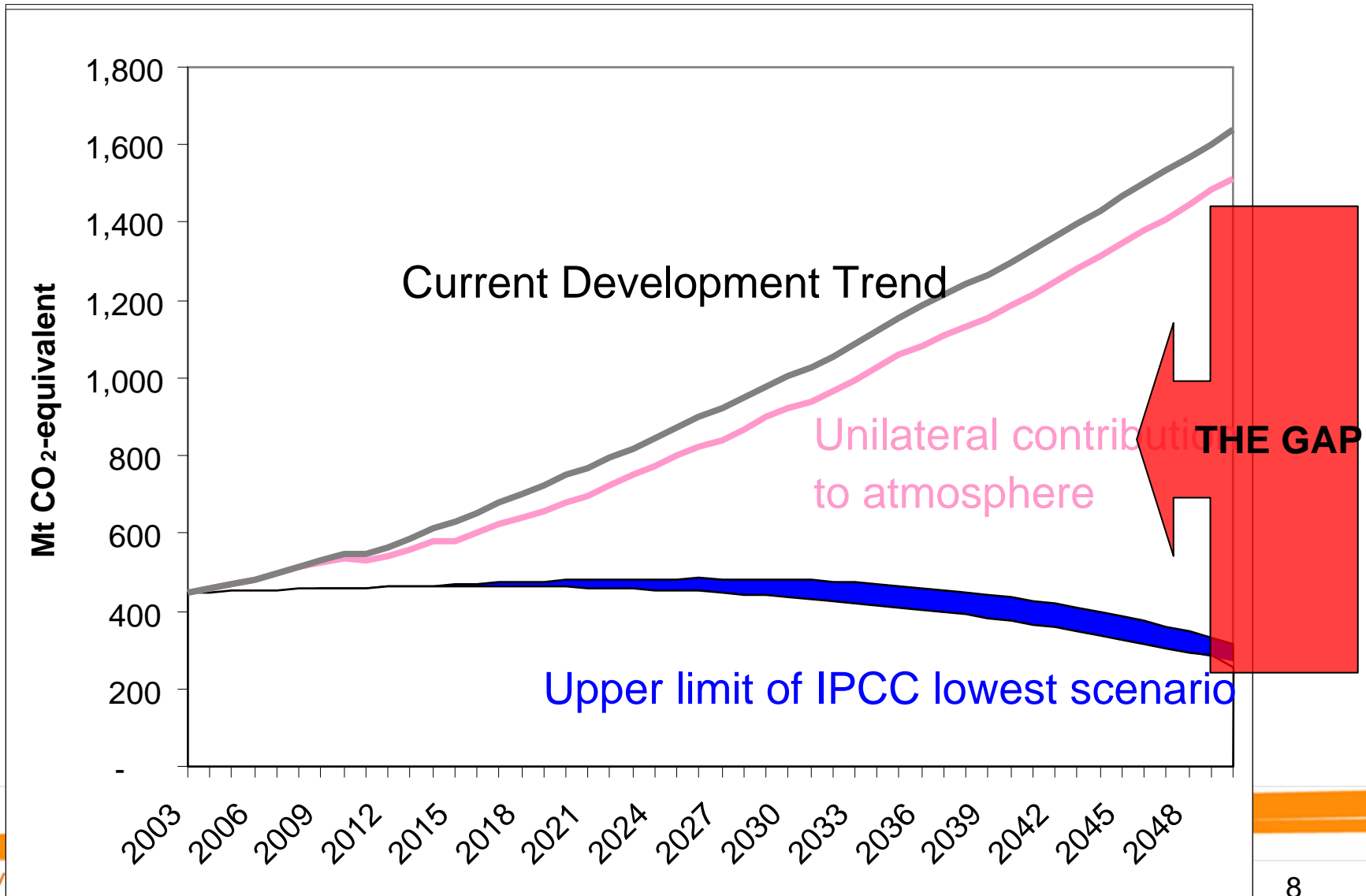
Civil society

- EcoCity/CURES
- SESSA
- Labour (COSATU)
- SEA
- SACAN
- COSATU
- SALGA
- WWF-SA
- Earthlife Africa
- NEDLAC

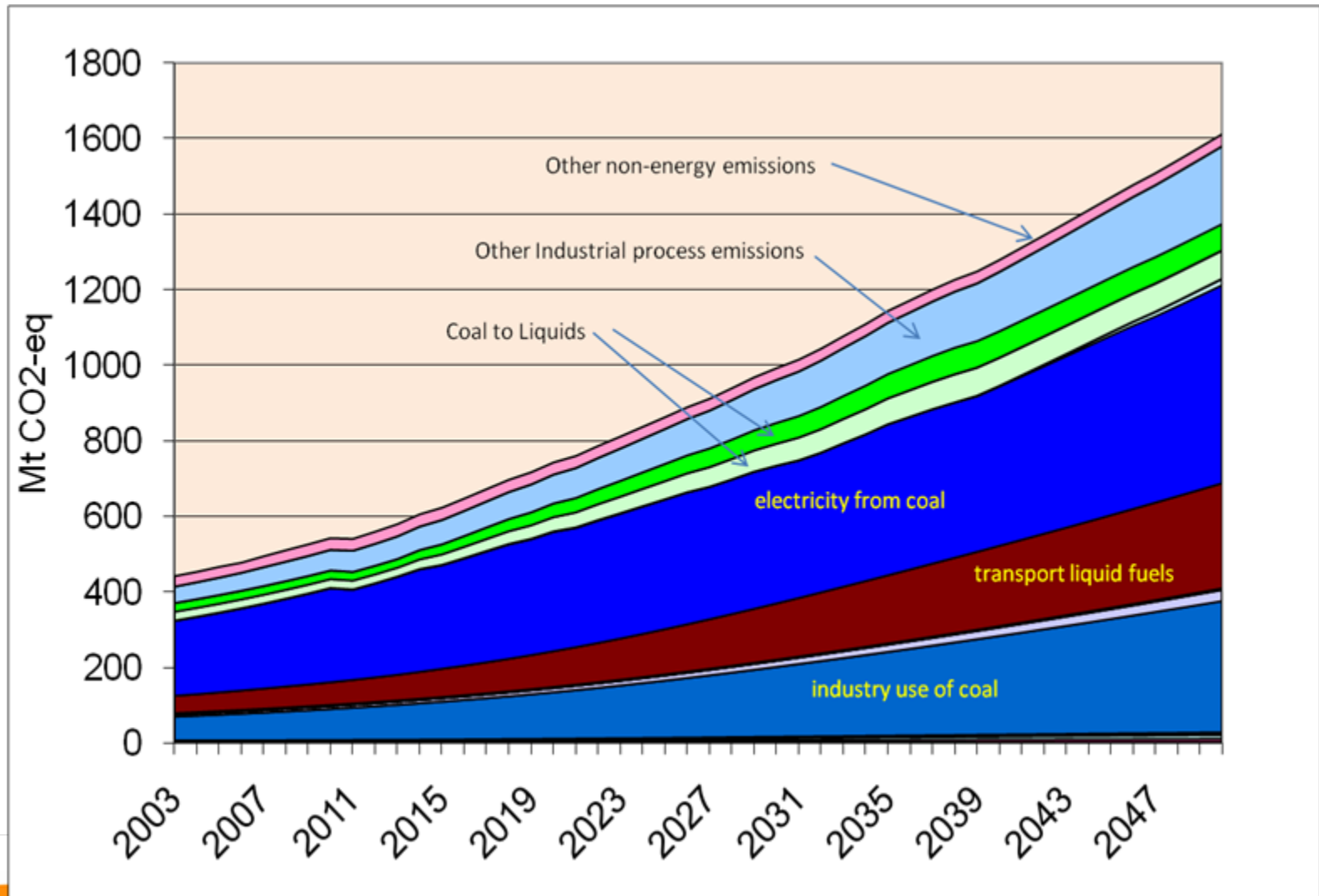
LTMS analysis



Two Scenarios frame South Africa's options



Business as Usual breakdown



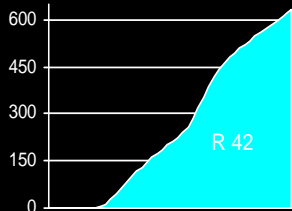
SA Strategic Analysis

- **Energy modelling**
 - Used bottom-up, partial equilibrium optimisation modelling framework – MARKAL, widely used for energy analysis
 - Internationally peer-reviewed
- **Non-energy modelling (agriculture, waste, land use, industrial process emissions)**
 - Spreadsheet-based, based on methods developed for SA Country Study, based on international literature
- **Economy-wide impacts**
 - Computable General Equilibrium model, comparative static and dynamic approaches
- **Adaptation & Impacts**
 - Updating of state-of-the-art knowledge

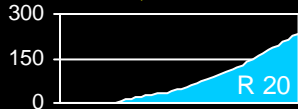
Technical Options

- Used SD PAM's approach to define actions
- Quantification of emission reductions & costs
- Scenarios and underlying research reports available at:
 - <http://www.deat.gov.za>
 - <http://www.erc.uct.ac.za/Research/LTMS/LTMS-intro.htm>

Escalating CO2 tax



Nuclear, extended



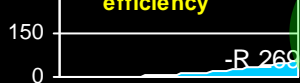
Electric vehicles with nuclear, renewables



Renewables, extended



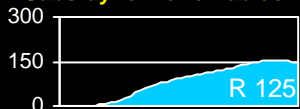
Improved vehicle efficiency



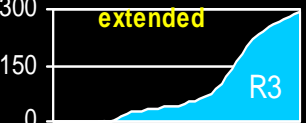
All Medium Wedges



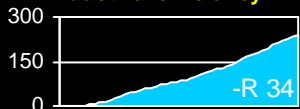
Subsidy for renewables



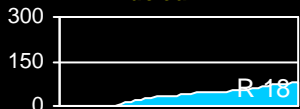
Renewables with learning, extended



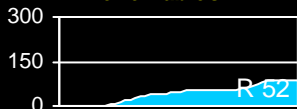
Industrial efficiency



Nuclear



Renewables



SWH subsidy



CCS 20 Mt



Biofuel subsidy



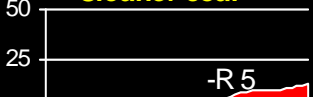
Hybrids



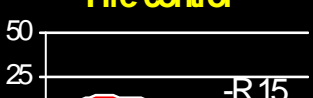
Residential efficiency



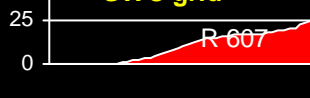
Cleaner coal



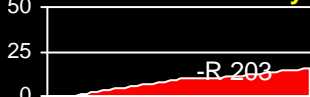
Fire control



Electric vehicles in GWC grid



Commercial efficiency



Biofuels



All Small Wedges



Waste management



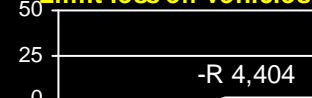
Passenger modal shift



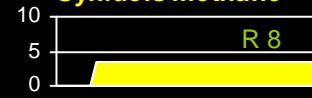
Synfuels CCS 23 Mt



Limit less eff vehicles



Synfuels methane



Manure management



Aluminium



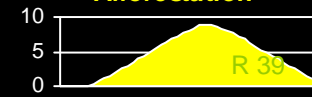
Enteric fermentation



Reduced tillage



Afforestation



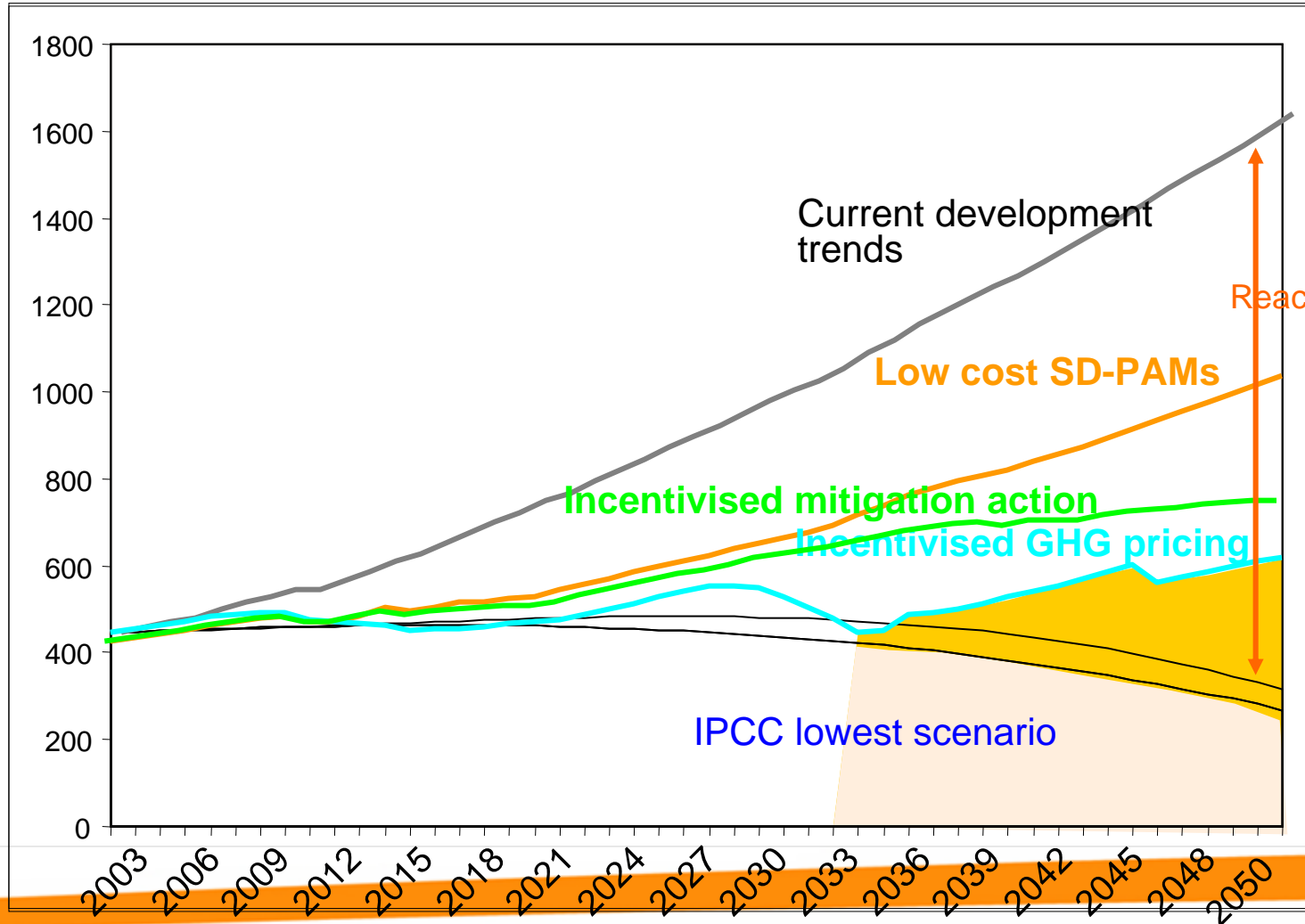
Synfuels CCS 2 Mt



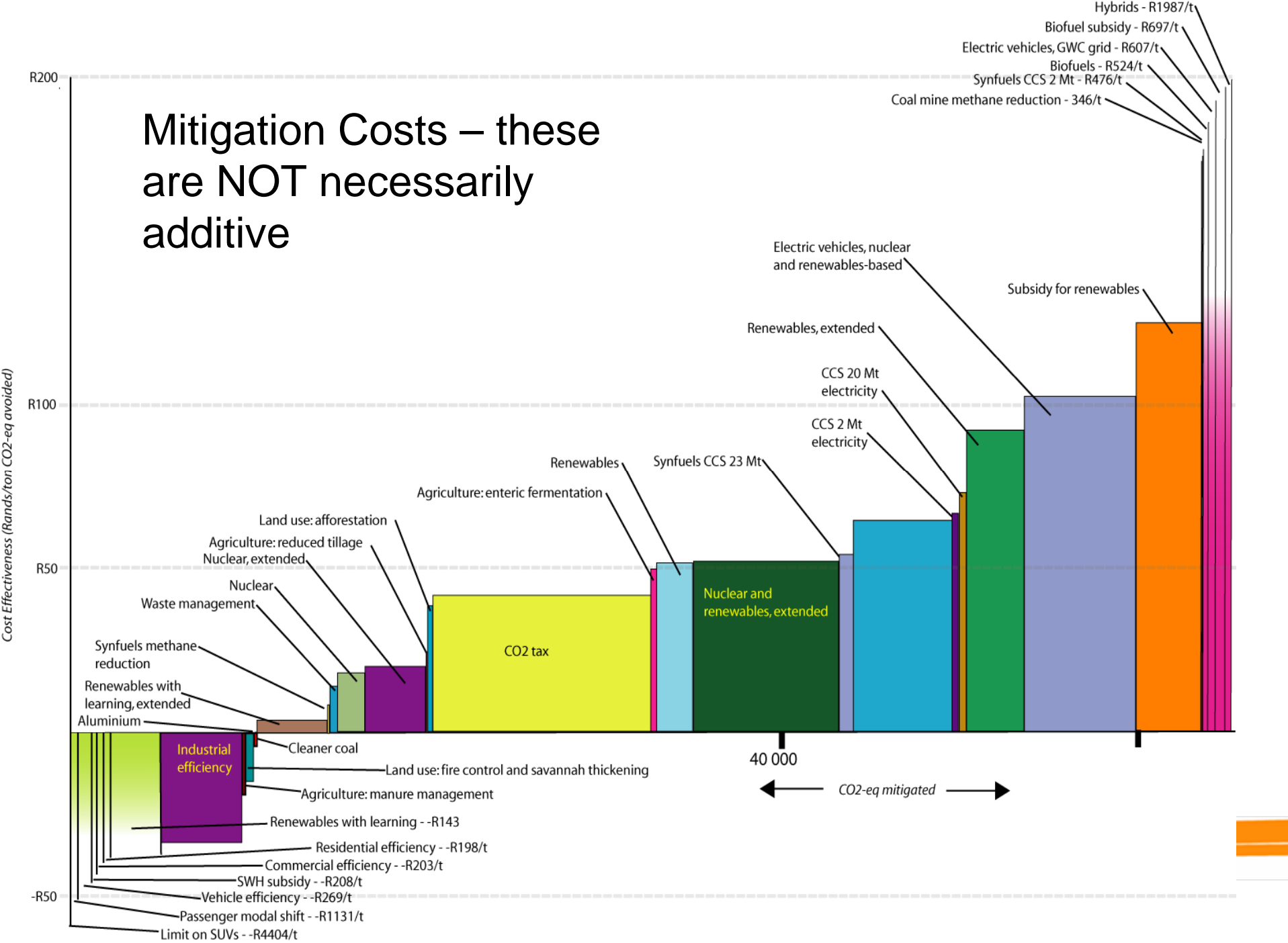
Coal mine methane



Four Strategic Options



Mitigation Costs – these are NOT necessarily additive



LTMS Conclusions and further work



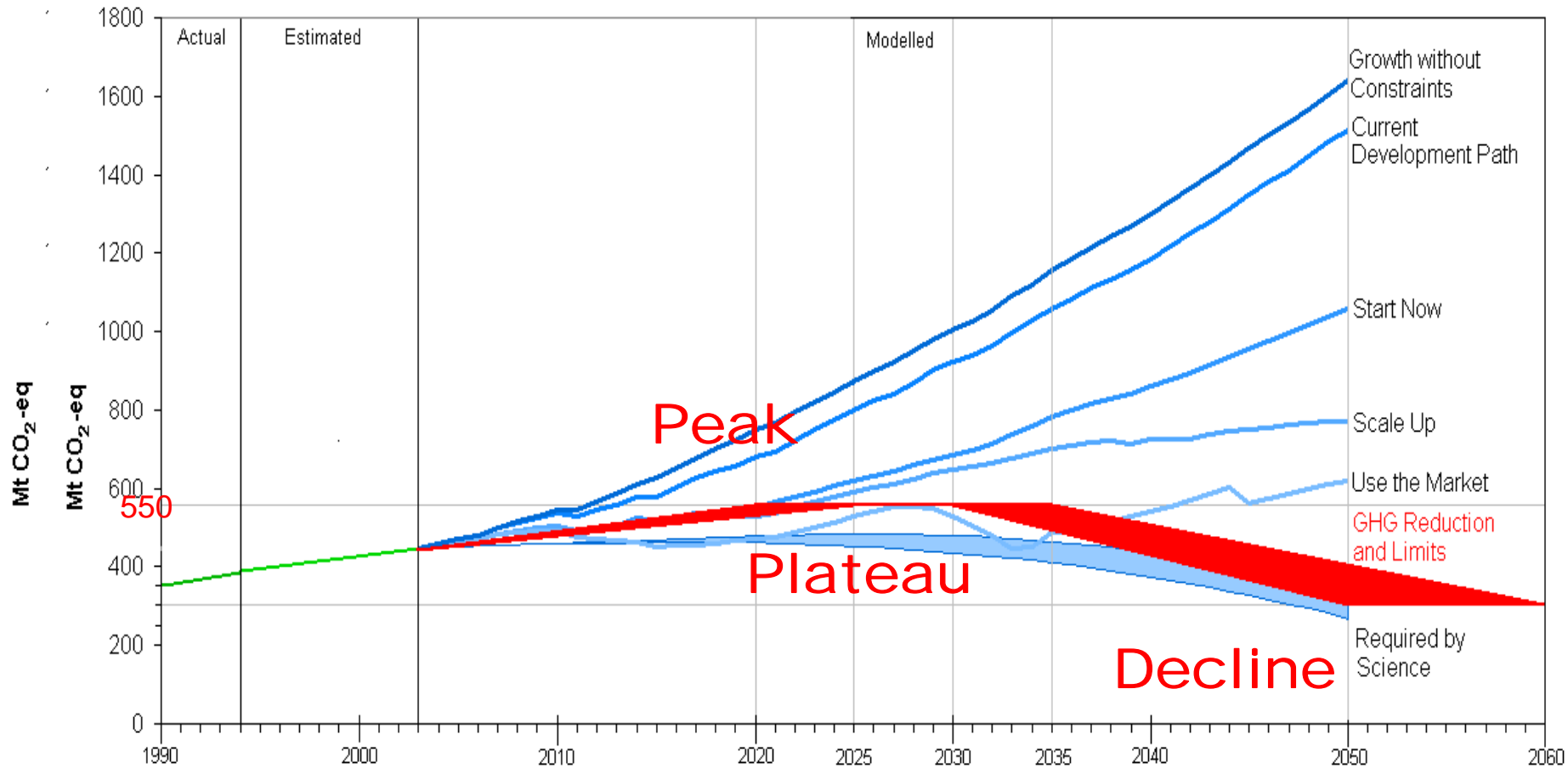
PROPOSED POLICY DIRECTIONS

- **LTMS considered by SA Cabinet and 6 broad areas for further work identified**
 - Greenhouse gas emission reductions and limits
 - Build on, strengthen and/or scale up current initiatives
 - Implementing the “Business Unusual” Call for Action
 - Preparing for the future
 - Prioritising Vulnerability and Adaptation
 - Integrating and Institutionalising Climate Change work

GHG emission reductions and limits

- It is proposed that climate change mitigation interventions should be informed by, and monitored and measured against the following “peak, plateau and decline” emission trajectory
 - Greenhouse gas emissions stop growing (start of plateau) in 2020-25 at 550 Mt CO₂-eq
 - Greenhouse gas emissions begin declining in absolute terms (end of plateau) in 2030-35
 - Long-term greenhouse gas emission level reduces to levels required by science by 2050-60

Theme 1: GHG emission reductions and limits (Cont.)



Build on, strengthen and/or scale up current initiatives

- Current energy efficiency and electricity demand-side management initiatives and interventions must be scaled-up and reinforced, including setting **national targets** in line with LTMS
 - Example: more efficient boilers.
- Study to be undertaken on impact of a carbon tax on the South African economy and also look at a range of economic and fiscal mechanisms.

Implementing the “Business Unusual” Call for Action

- **Renewable energy** sector is key “business unusual” growth sector and set more ambitious national target for renewable energy of 27% by 2030 and 50% of electricity generated by 2050
 - Example: concentrated solar power
- **Transport sector** is a key “business unusual” growth sector and plan developed to reduce its emissions.
- Government to promote the **transition to a low-carbon economy** and society and all policy and other decisions that may have an impact on South Africa’s GHG emissions.

Preparing for the future

- Increased support for **research and development** in the field of carbon-friendly technologies – with the focus on the renewable energy and transport sectors.
- Formal and informal forms of **education and outreach** are used to encourage the behavioural changes required to support the implementation of the climate change response policy.

Vulnerability and Adaptation

- Ongoing identification of **vulnerabilities** to climate change across all sectors and spheres of government.
- Integrate adaptation actions into all government plans as a key performance area
- Develop and implement climate adaptation plans with full stakeholder participation

Integrating and Institutionalising Climate Change Work

- Clarify roles and Responsibilities across society
- Climate change response policies and measures are **mainstreamed** within existing alignment, coordination and cooperation structures inside and outside of Government

Support needed

- Many no regret SD PAM's – need support in removing barriers
 - Significant upfront capital investment requirements International access to technology (IPR, TTB's)
 - Internal capacity and technical assistance

Way forward

- On-going process
- High-level political decision on direction into more formal policy framework by mid 2010
- Policy translated into **legislative, regulatory and fiscal package** (from now **up to 2012**)
- National Climate Change Response Policy Development Summit March 2009 (has just occurred)