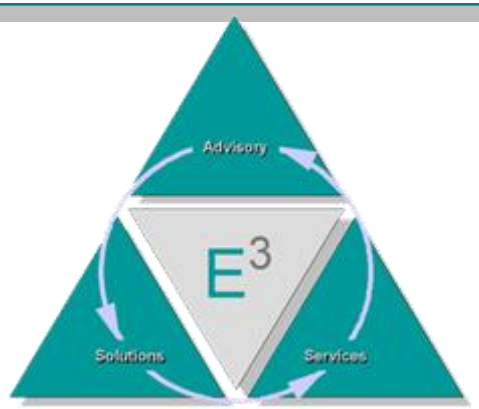
The outlook for Australia's greenhouse gas emissions

Presentation to Carbon Finance

Sydney – 26-27 September 2007

E3 International is a niche consultancy delivering pragmatic solutions to the pressures and opportunities arising from market-orientated environmental regulation



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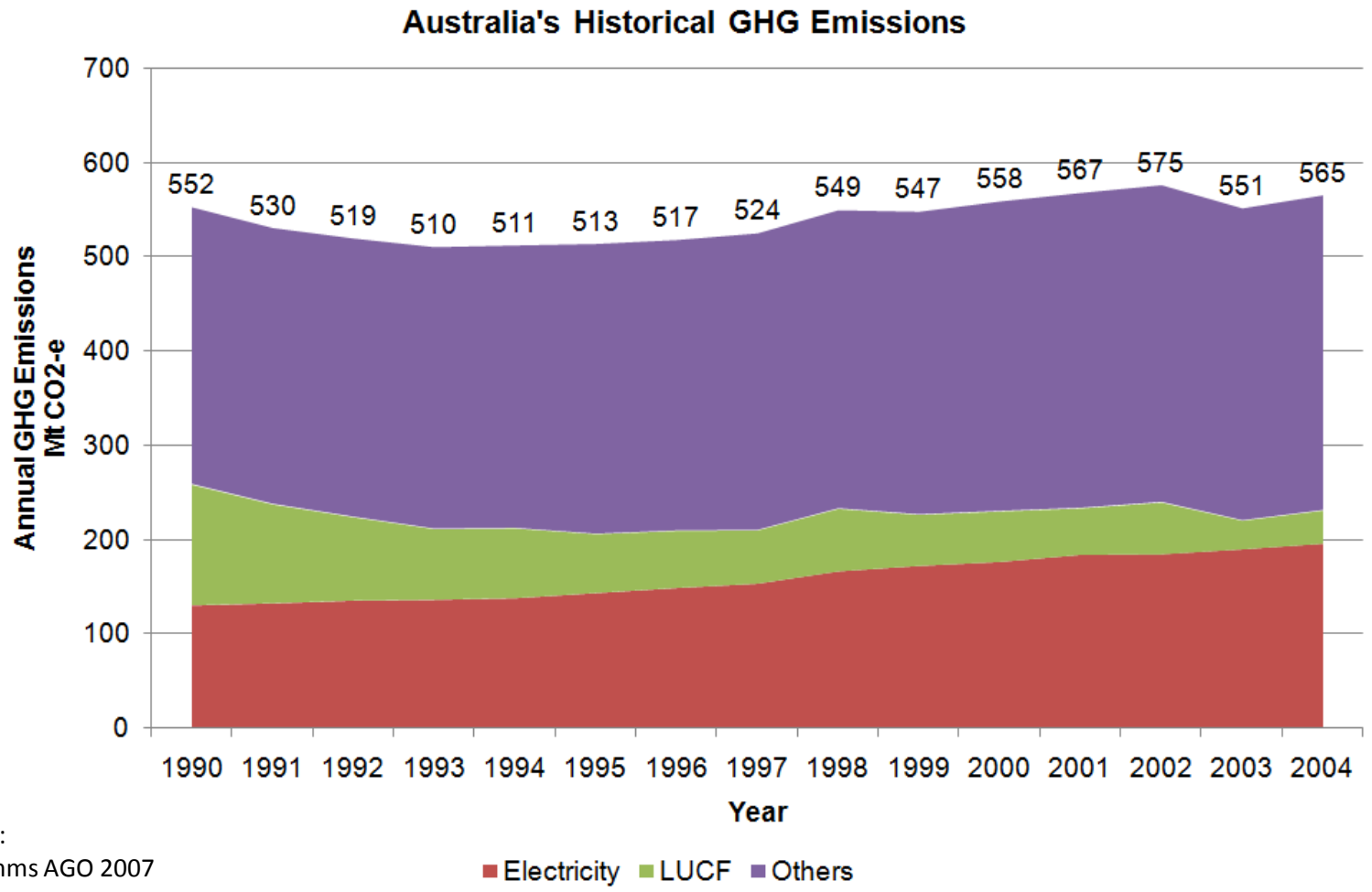
Historical Emissions

- Australia's present day greenhouse gas emissions are in order of 560 Mt per annum.
- This makes Australia responsible for roughly 1.5 - 2 % of global greenhouse gas emissions.



Sources:
Per Comms AGO 2007

Historical Emissions (2)

- Despite being responsible for responsible for roughly 1.5 - 2 % of global greenhouse gas emissions Australia has one of the highest per capita greenhouse intensities.

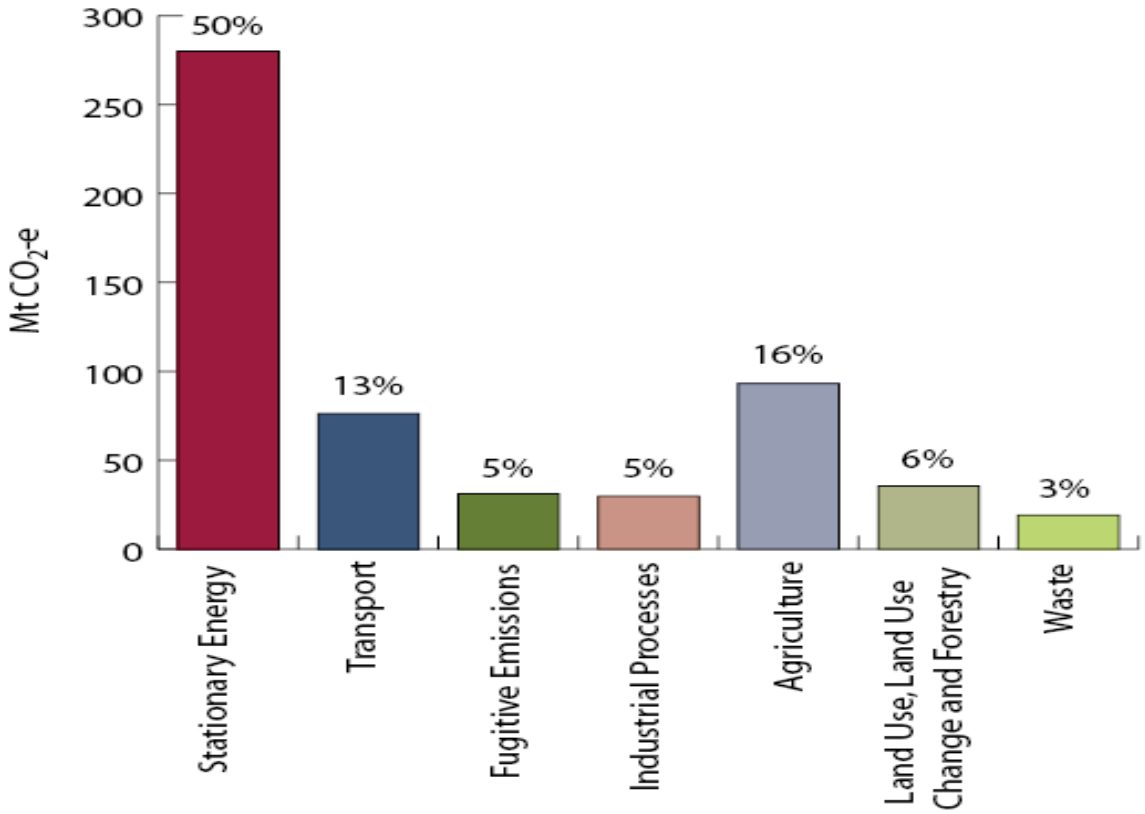
		GHG (t CO2e per person)	CO2 (t CO2e per person)
1	Qatar	67.9	60
2	United Arab Emirates	36.1	25.2
3	Kuwait	31.6	26.8
4	**Australia**	**25.6**	**17.3**
5	Bahrain	24.8	20.6
6	United States	24.5	20.4
7	Canada	22.1	17.1
8	Brunei	21.7	13.7
9	Luxembourg	21	19.2
10	Trinidad & Tobago	19.3	16.7

Sources:
WRI (2005) Navigating the Numbers: Greenhouse Gas Data and International Climate Policy, WRI, Washington

Historical Emissions (3)

- Since 1990 there have been significant changes the mix of Australian GHG emissions.
- In 1990 both electricity and LUCF represented ~23% of total emissions.
- In 2004 50% of emissions came from electricity and only 6% came from LUCF

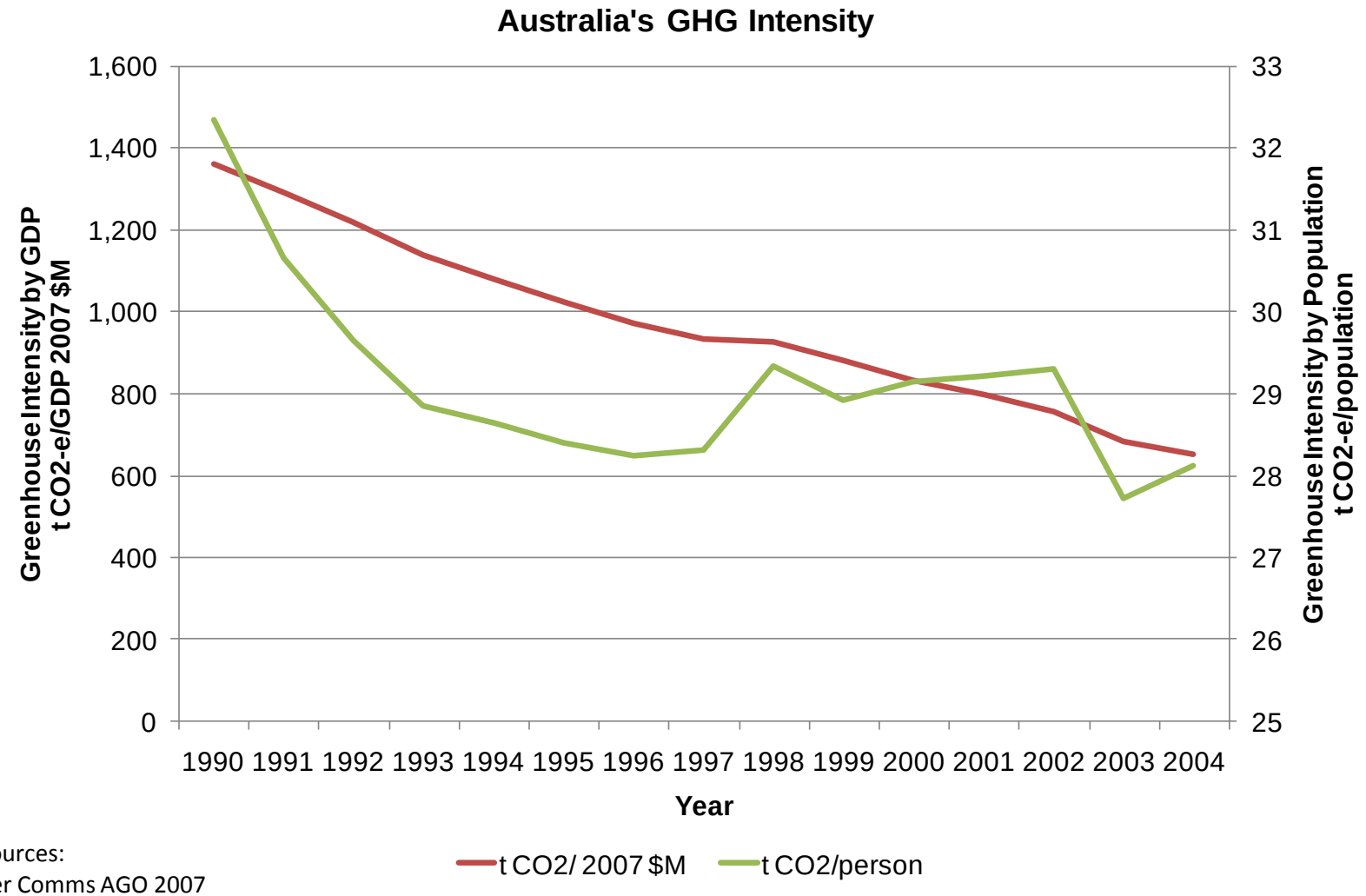
Contribution to Australia's GHG emissions by sector



Sources:
AGO (2006) National Greenhouse Gas Inventory 2004, AGO, Canberra

Historical Emissions (4)

- Australia's GHG emissions a function of both GDP and population have been declining since 1990.



Sources:
Per Comms AGO 2007
ABARE Energy Statistics
ABS Population Data

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Greenhouse Gas Emissions – The Growth Dilemma

GHG Emissions = Population x (GDP per head) x (energy use/GDP) x (CO2 emissions/energy use)

OR

GHG Emissions = Population x Per Capita GDP x Energy Intensity x Carbon Intensity

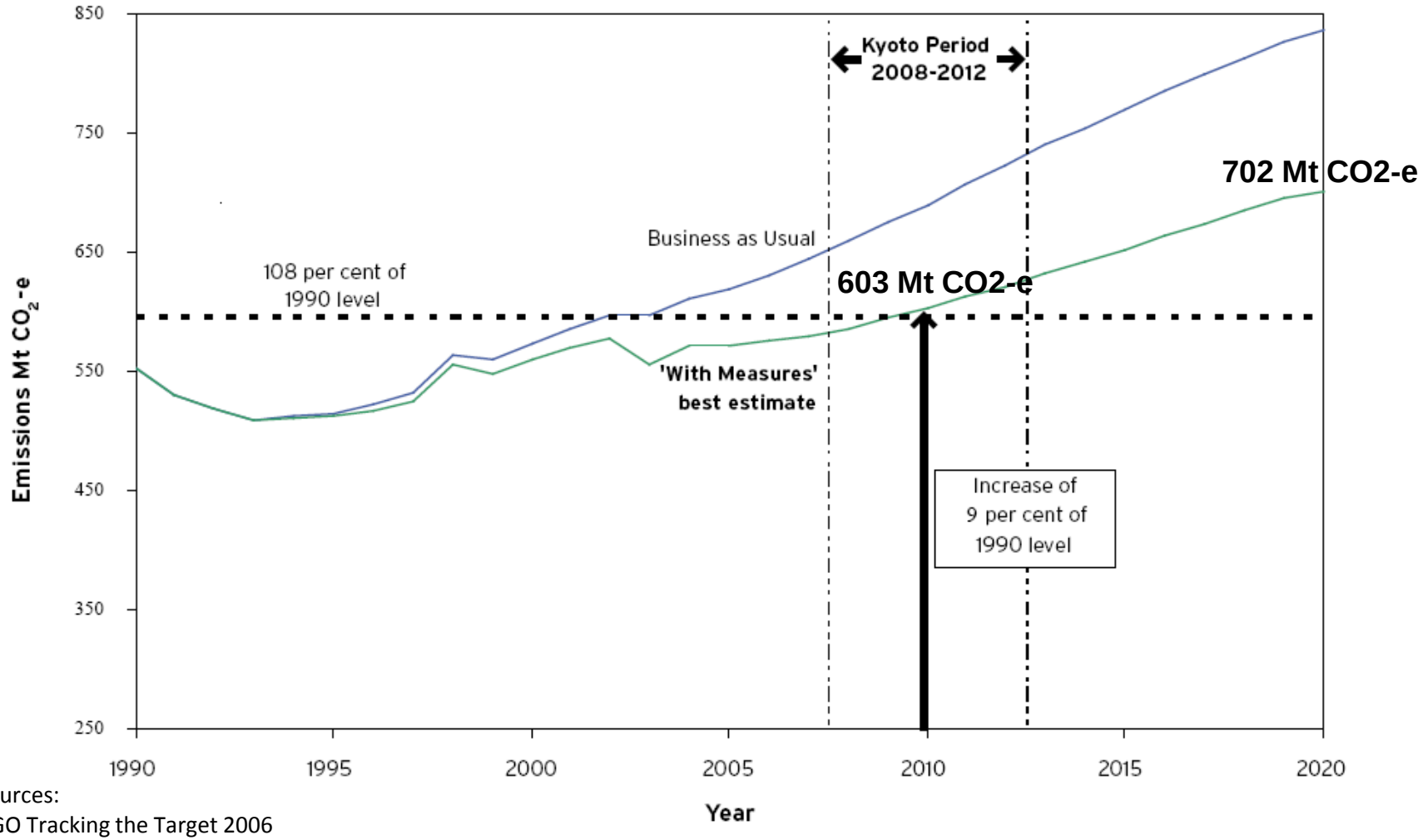
Deployment of existing and new technologies

Historical Performance
Annual Average Change in Key Factors
Average % change per annum
1990 - 2007

	GHG	Population	Per Capita GDP	Energy Intensity	Carbon Intensity
1990-2007	0.4%	1.1%	4.5%	-3.1%	-2.0%

Emission Projections (1)

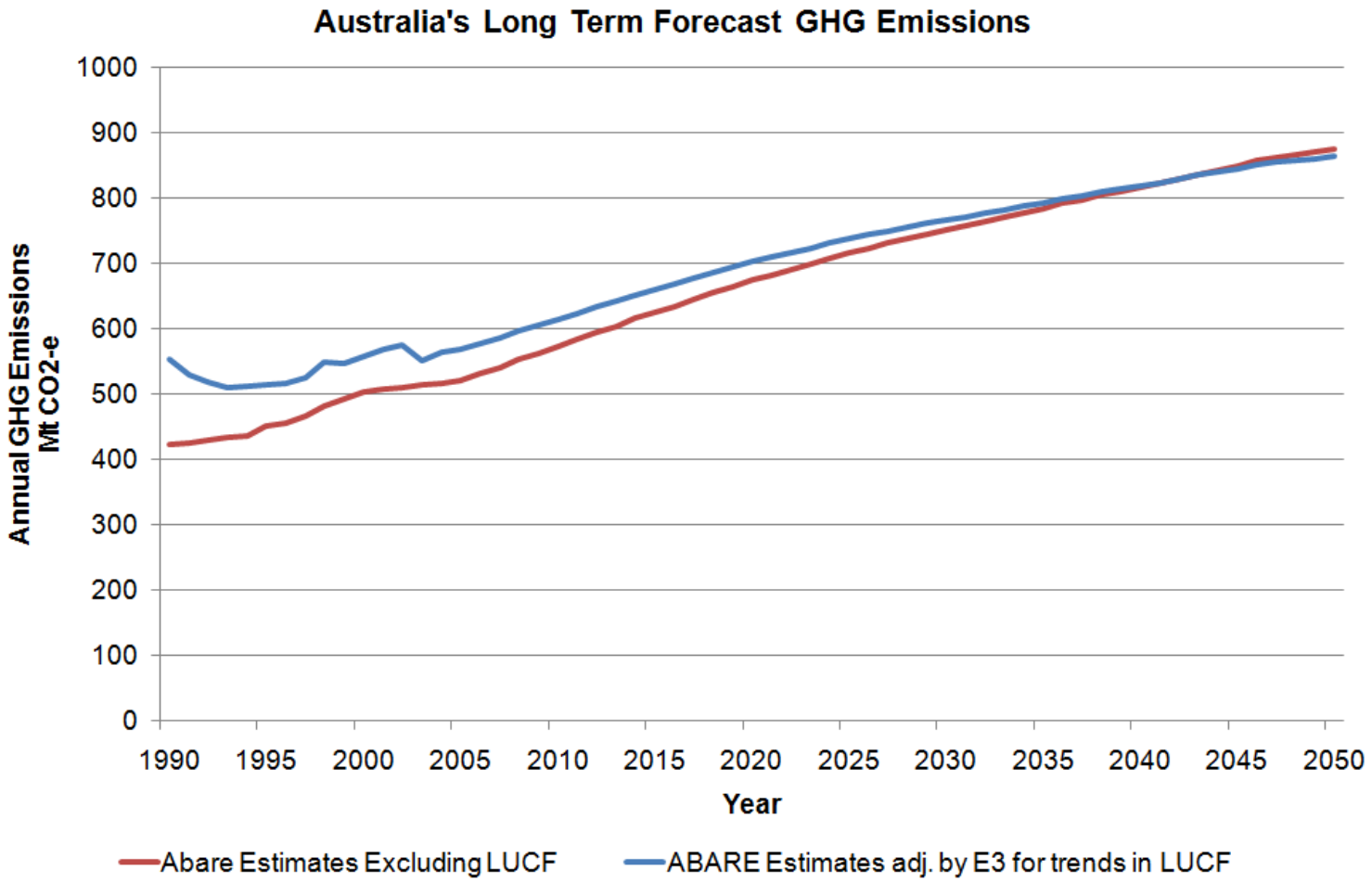
- The AGO “With Measures best estimate” suggests a 9% increase over 1990 by 2010, and 27% increase by 2020.



Sources:
AGO Tracking the Target 2006

Emission Projections (2)

- By 2050 ABARE forecasts that these emissions would be > 850 Mt CO2-e



Sources:
ABARE Modelling for UNPNER
E3 Adjustments made on the basis of long term trends in LUCF predicted by AGO

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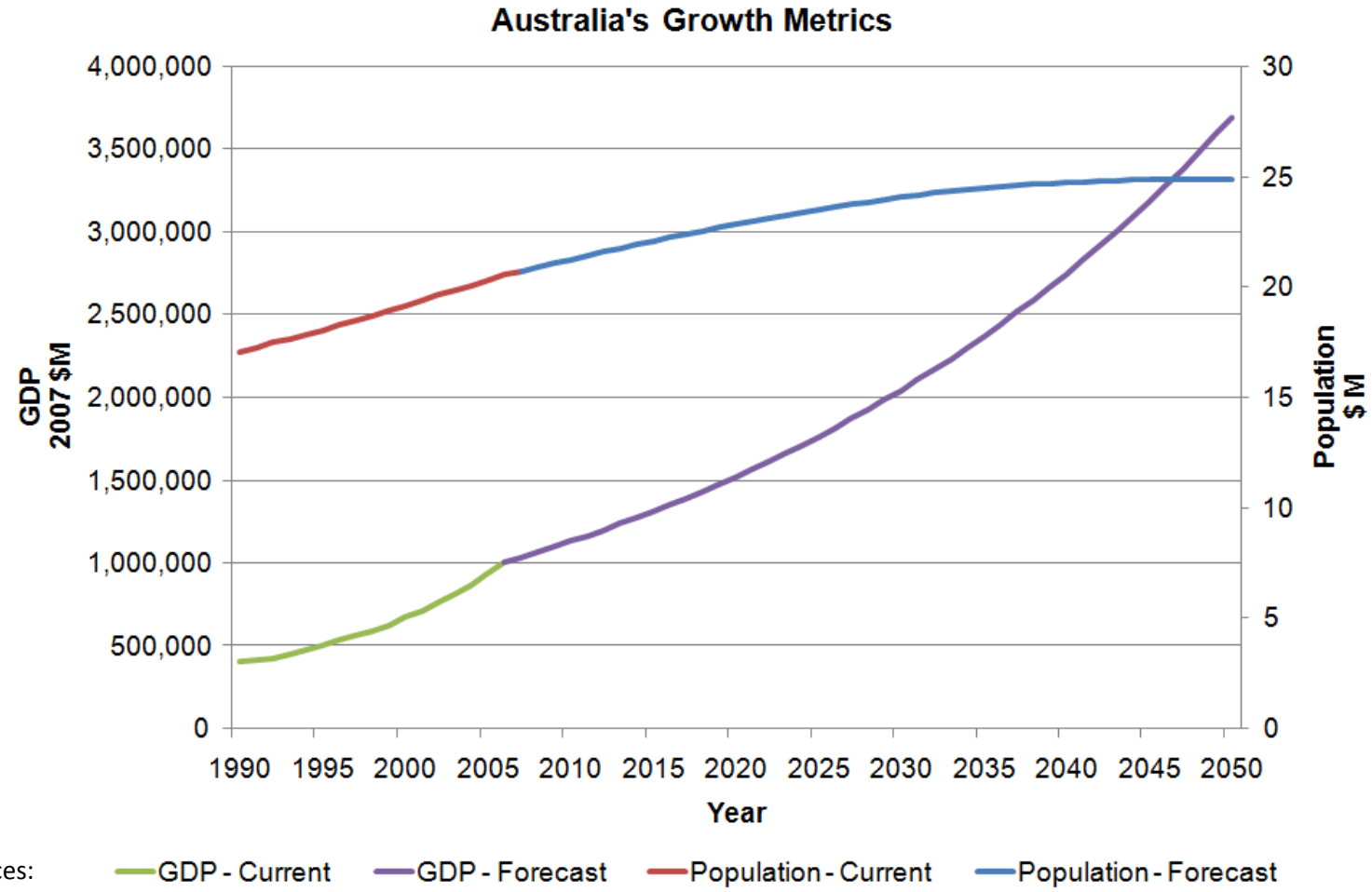
Driving factors for growth

- The ABS projects that Australia's population will grow by ~0.4% pa though to 2050.
- Economic analysts have suggested that 3% pa GDP growth is desirable.



Sources:
ABS
Assumes 3% pa GDP growth

Greenhouse Gas Emissions – The Growth Dilemma (2)

GHG Emissions = Population x Per Capita GDP x Energy Intensity x Carbon Intensity

Deployment of existing and new technologies

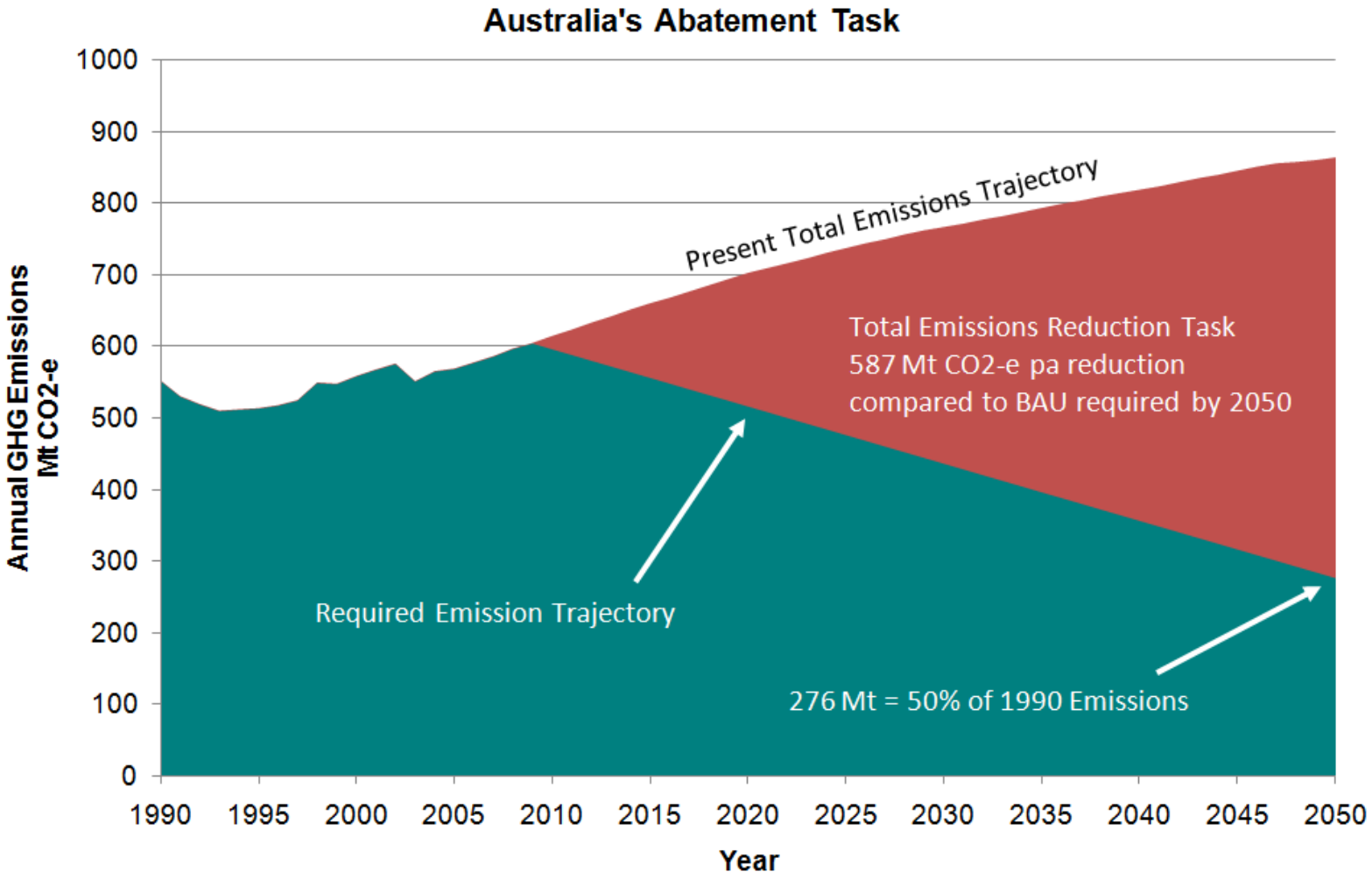
Annual Average Change in Key Factors
Average % change per annum
1990 – 2007 & 2007 - 2050

	GHG	Population	Per Capita GDP	Energy Intensity	Carbon Intensity
1990-2007	0.4%	1.1%	4.5%	-3.1%	-2.0%
2007-2050	0.9%	0.4%	2.6%	-0.9%	-1.2%

Note the forecasts expect a reduction in efforts to improve energy intensity and carbon intensity

Reduction Required

- It has been suggested that a 50% reduction in 1990 GHG emissions will be required to stabilise atmospheric GHG concentrations and avoid catastrophic climate change



Greenhouse Gas Emissions – The Growth Dilemma (3)

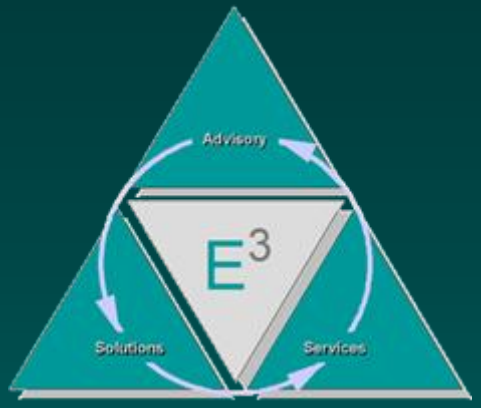
If Australia is to meet a 50% reduction (without impacting population or GDP) radical changes in the way we use energy and create greenhouse gases are required.

Annual Average Change in Key Factors BAU
Average % change per annum
1990 – 2007 & 2007 - 2050

	GHG	Population	Per Capita GDP	Energy Intensity	Carbon Intensity
1990-2007	0.4%	1.1%	4.5%	-3.1%	-2.0%
2007-2050	0.9%	0.4%	2.6%	-0.9%	-1.2%

50% (276 Mt) = -1.7% pa = -3.5% pa or -4.6% pa

Improving Energy Intensity by 3.5% per annum or improving greenhouse intensity by 4.6% per annum will be required to meet the 50% reduction goal (276 Mt) by 2050.



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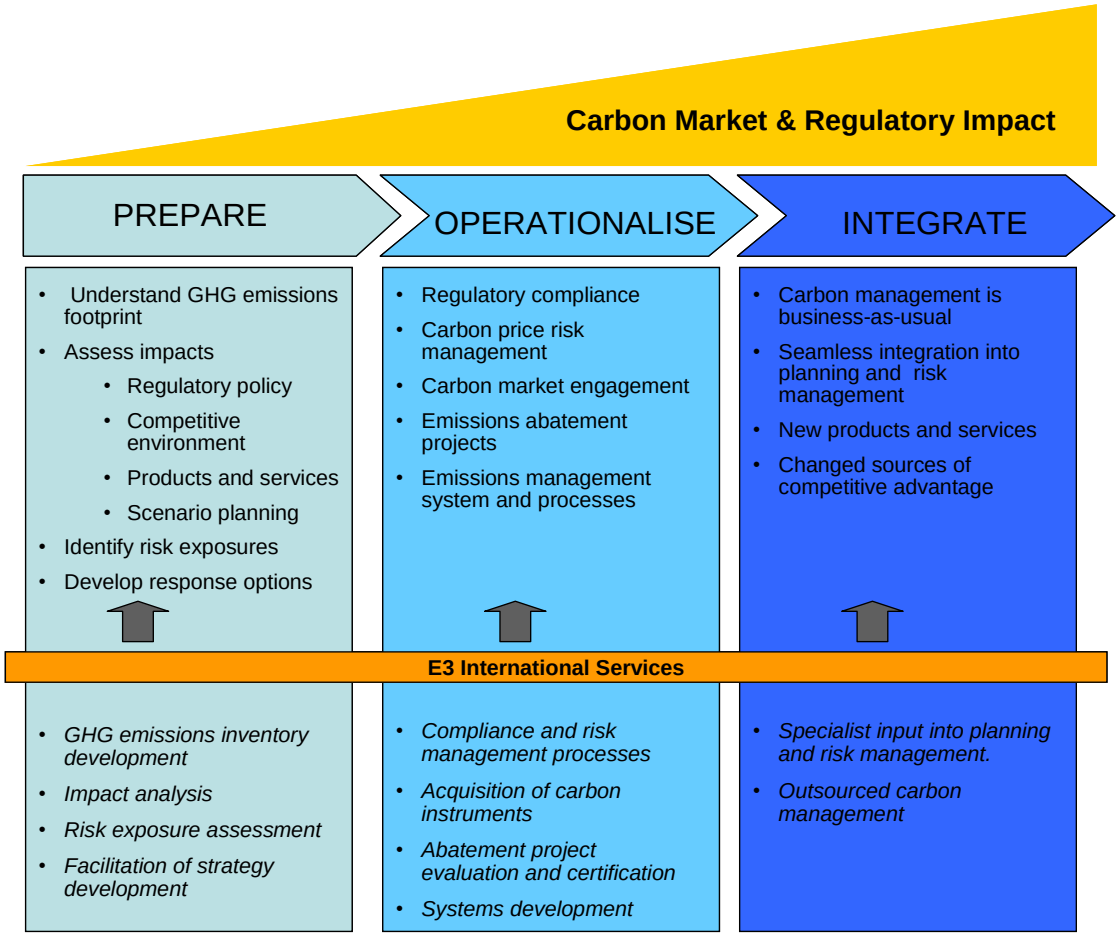

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