

Climate Change Summit 2007

'An Australian perspective on the Stern Review and the economics of climate change'

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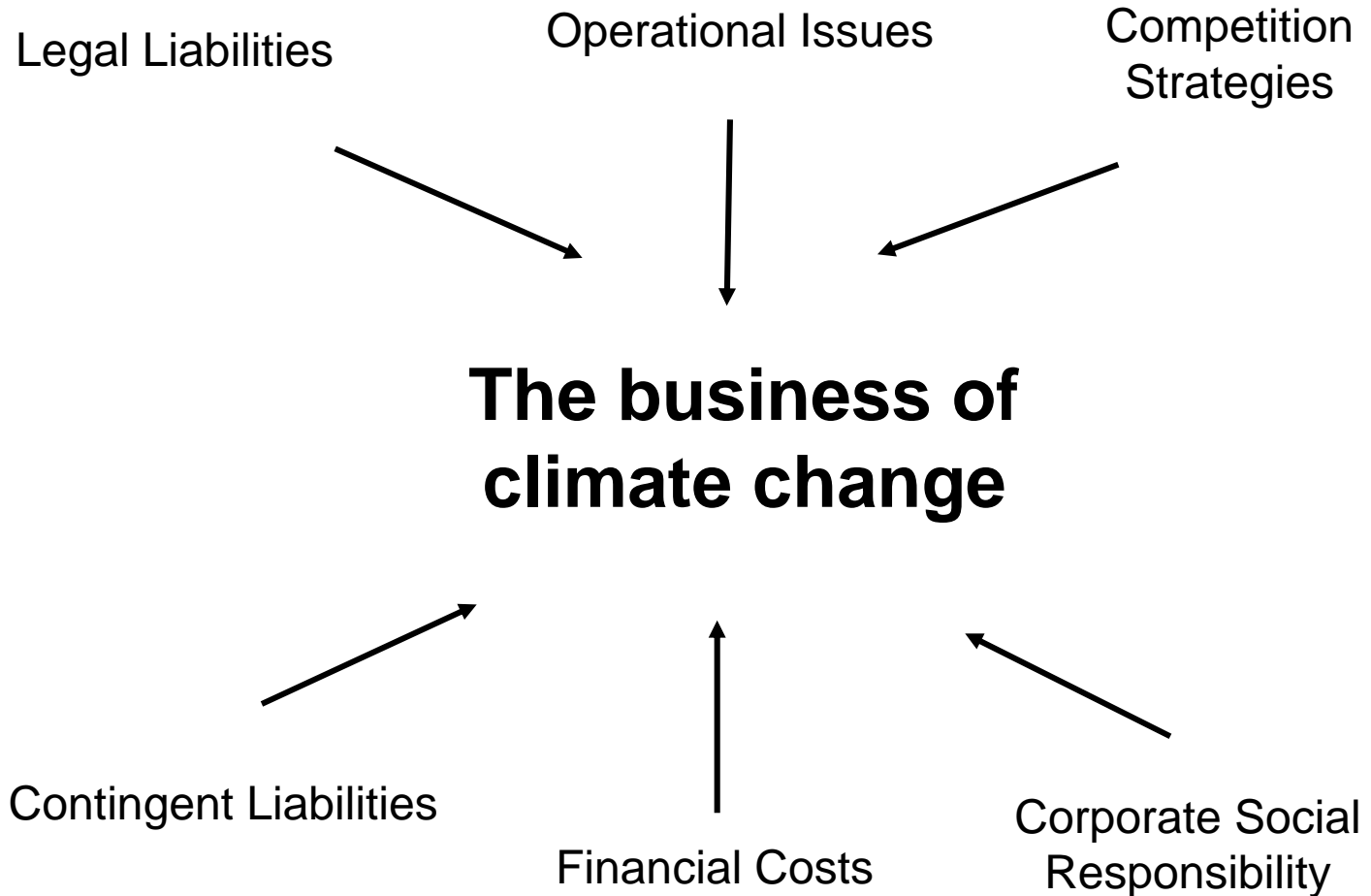
Climate change represents a broad new element of risk

The dimensions of the risk:

- Severe weather and storm events
- Widespread realignment of land use
- Threat to the purity and accessibility of natural resources and agricultural produce
- Physical safety and security
- Systemic threat to economic and financial infrastructure
- Threat to public health and welfare



The business of climate change is about the management of risks





The Stern Review and the economics of climate change

→ The stark consequences:

- The greatest market failure the world has ever seen
- Hundreds of millions of people could suffer
- Water shortages will predominate
- Coastal flooding will result from rising ocean levels

→ The benchmark estimates:

- Overall costs will be equivalent to losing 5% of global GDP each year
- On a wider range of risks and impacts the damage could rise to 20% of global GDP or more
- Costs of action in reducing greenhouse gas emissions to avoid the worst impacts can be limited to 1% of GDP each year

Stern highlights the need for a range of solutions

→ Boosting energy efficiency

→ Reducing energy demand

→ Adoption of 'clean' power

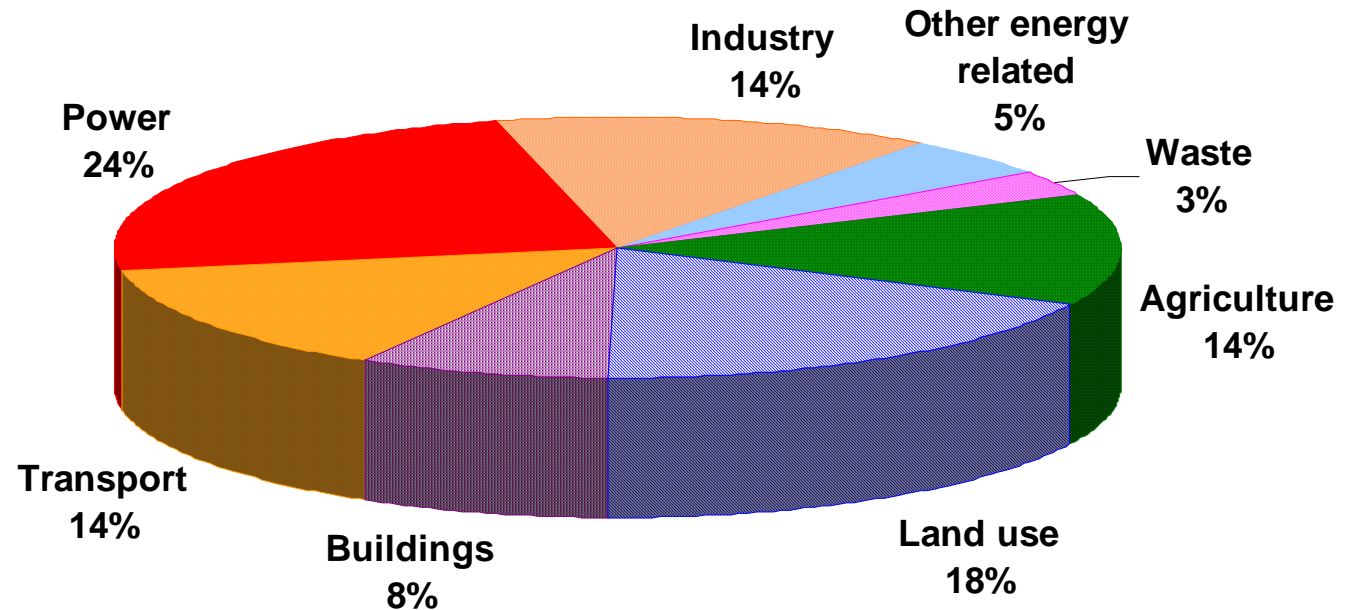
→ New heat and transport technologies

The essential elements of any policy response to climate change

- 1. The pricing of carbon** – through tax, trading or regulation
- 2. Policy to support innovation** and the adoption of low-carbon technologies
- 3. Removal of barriers to energy efficiency** and the education of people about what they can do to respond to climate change
- 4. Development of international frameworks** to support emissions trading, technology cooperation, action to reduce deforestation; and adaptation

Tracing the sources of global greenhouse gas emissions is fundamental

Greenhouse-gas emissions in 2000 by source



Source: Stern Review

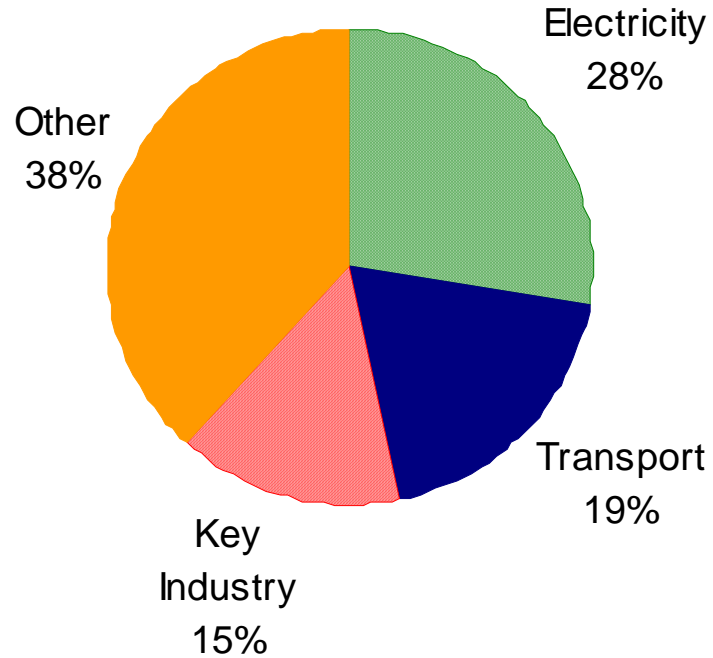
The Stern Review in the Australian context

- Using the method employed by the Stern Review suggests that the cost of ongoing climate change policies could be around 2% of GDP (level) each year
- The high concentration of electricity generation and coal production in the Australian economy will increase the initial cost
- Australia's extensive land mass will provide broad-based opportunities for carbon offset developments
- The highly urbanised and service-based structure of the Australian economy suggests that price-based climate change policies should gain considerable traction

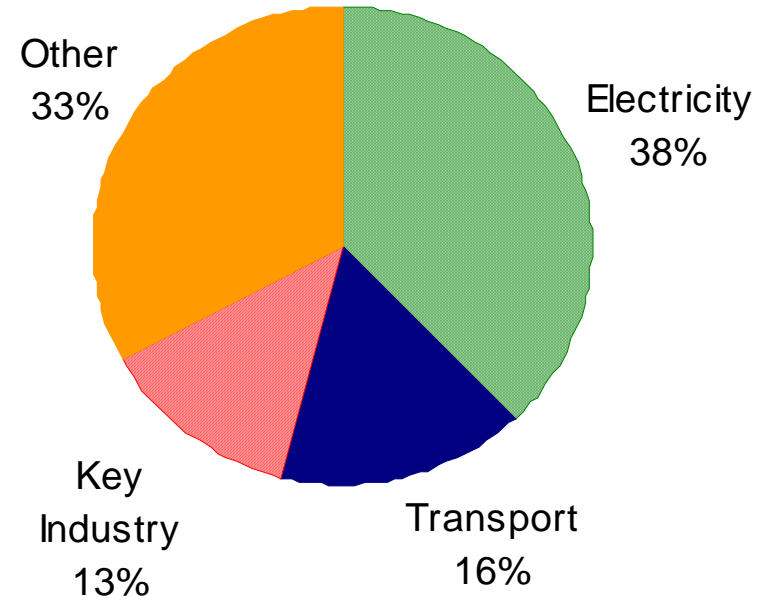


Comparing the contribution of sectors to total greenhouse emissions

World



Australia



Source: ABARE



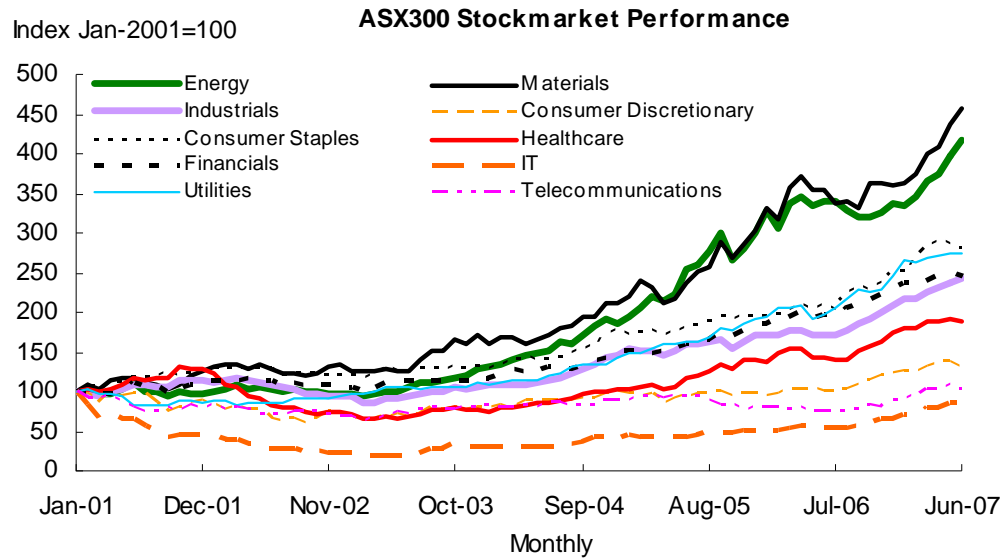
Energy use by sector highlights those that are vulnerable to rising energy costs

	1999-2000, PJ	2004-05, PJ	% Change
Agriculture	71	100	40.8
Mining	273	342	25.3
Manufacturing	1,192	1,247	4.6
Construction	51	28	-45.1
Transport	1,267	1,340	5.8
Commercial (incl service sector)	216	249	15.3
Residential	394	433	9.9
Other (eg bitumen)	79	84	6.3
Total	3,543	3,823	7.9

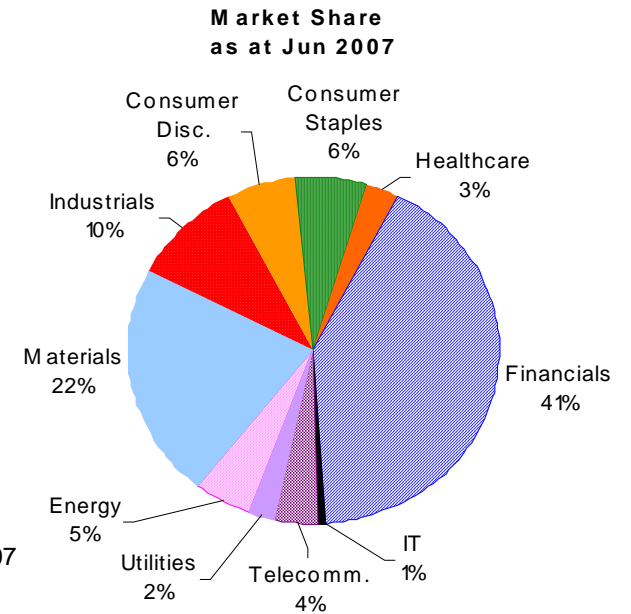
Source: ABS



Climate change policies can significantly impact investor returns across sectors



Source: Datastream





Australia's primary energy resources are still dominated by the carbon-rich

	Net Present Value of Primary Resource, 2004 \$m	Resource Life (based on 5- yr ave. consumption) Years
Black coal	48,889	258
Brown coal	258	744
Crude oil	30,587	9
Condensate	19,815	48
LPG	11,260	33
Natural gas	79,493	45
Uranium	3,165	131
Total	193,467	

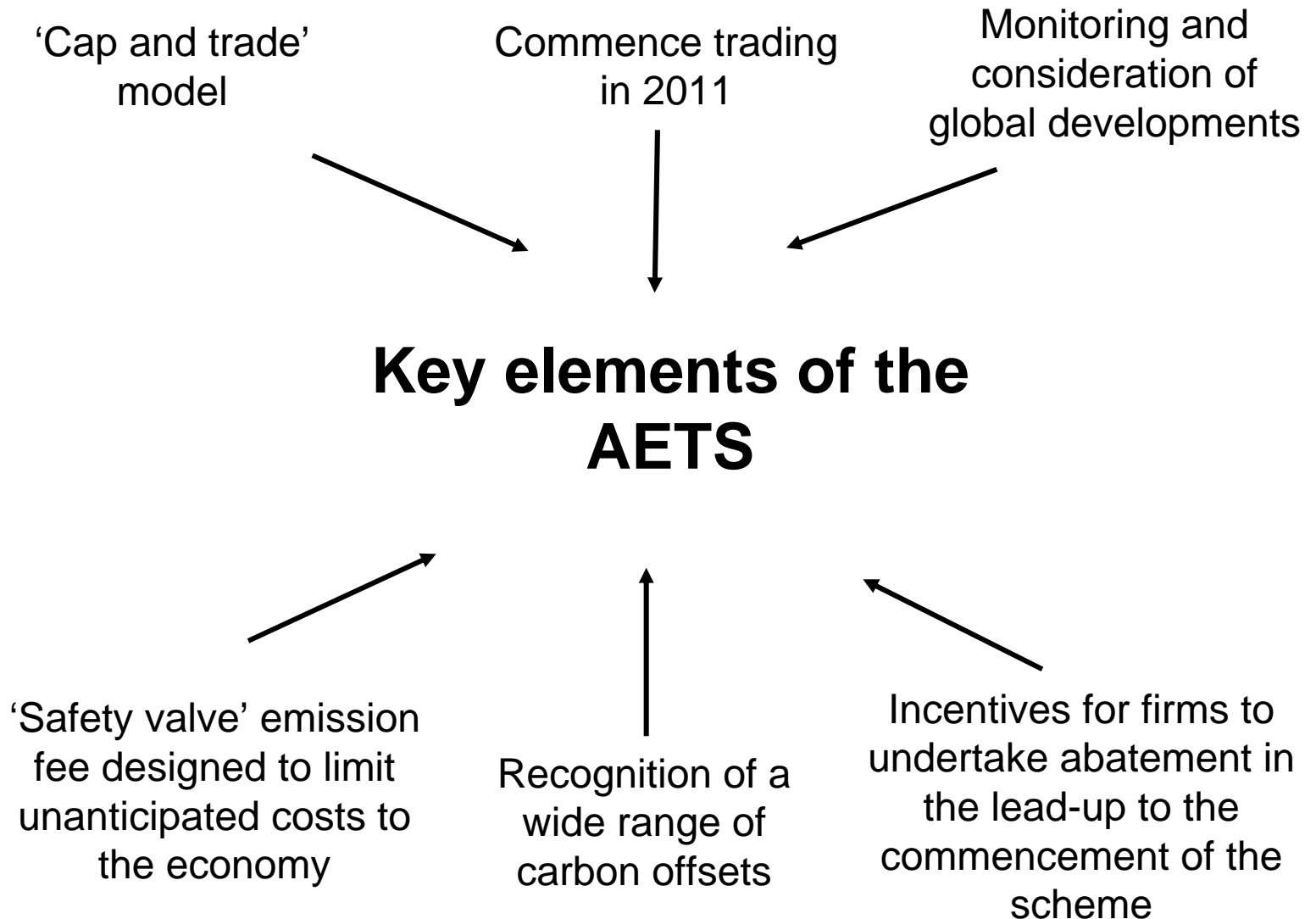
Source: ABS

Some sectors will benefit from climate change policies

The sectors that stand to benefit are those that:

- **Provide low carbon emissions alternatives**, including nuclear, wind, solar power
- **Boost energy efficiency** such as producers of small efficient motor vehicles
- **Facilitate a switch towards low-emission production** such as environmental consultants, financial companies and construction engineers
- **Provide offsets to carbon emissions**, including forestry and geological sequestration plans
- **Plan and develop eco tourism and recreation facilities** such as wilderness warrior projects

The Australian Emissions Trading Scheme (AETS)



Maximum practical coverage of all carbon sources and sinks

→ **Permit liability** placed on direct emissions and on upstream fuel suppliers

→ **Initial exclusion** of emissions from agriculture and land use until practical issues are resolved

→ **Sectors initially excluded** will be subject to other policies designed to deliver abatement

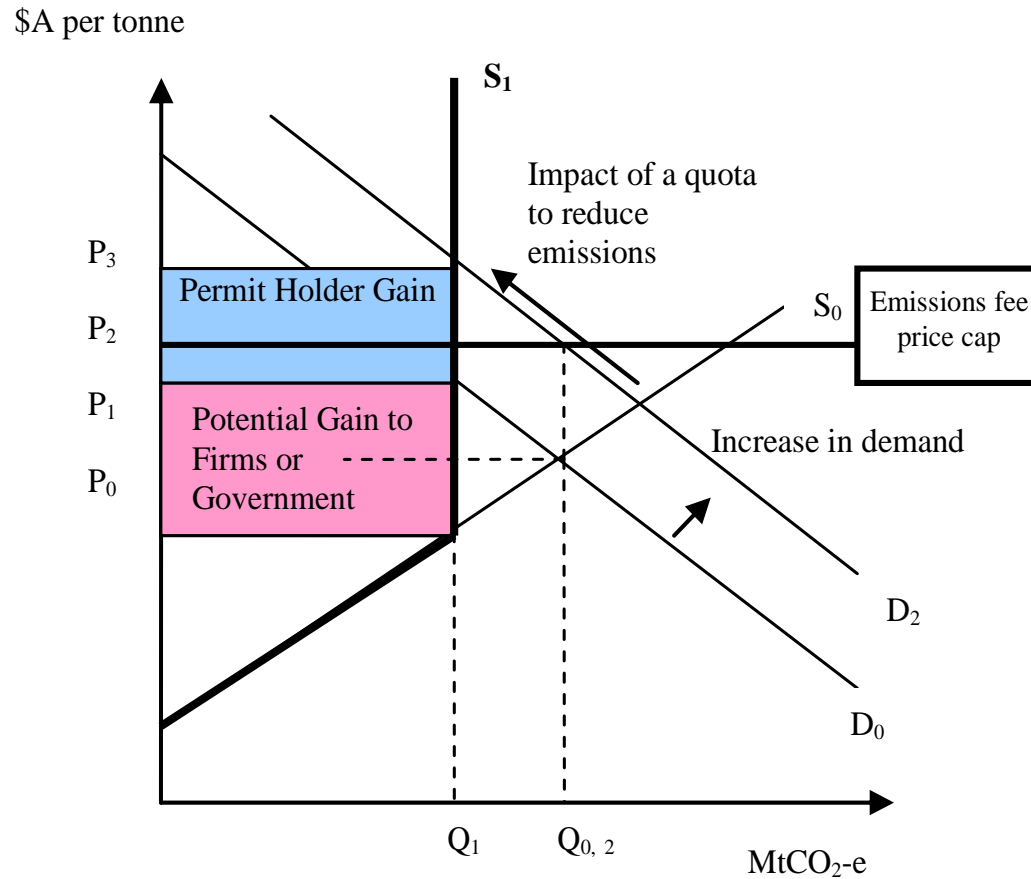
Combining the free allocation and auctioning of single-year permits

→ **Up-front, once-and-for-all, free allocation** of permits to businesses that are disproportionately affected

→ **Amelioration of carbon-related exposures** of existing and new investments in trade-exposed and emissions-intensive industries through free allocation of permits

→ **Allowance for the periodic auctioning** of remaining permits

The demand-supply mechanics of capping carbon emissions



With an increase in demand (under a cap and trade system), the price would rise to P_3 . But with an emissions fee set at P_2 this will cap the price and emissions will be higher.

Source: Macquarie Economics

Features of capping carbon

→ If the demand for energy rises strongly, the price of carbon emissions will also rise strongly, acting as a natural break



→ If demand for carbon falls, then price of carbon can collapse.

→ This price uncertainty may limit development of alternative energy sources, such as solar or wind power.





Enforcing compliance in a cap and trade system

- What are the penalties for exceeding the quota?
 - If the fine is less than the cost of a quota, then firms will rationally continue to pollute
 - This implies that the price of carbon will not exceed the minimum level of the penalty imposed for exceeding the quota
 - Obviously if the penalty includes a gaol term, the implications might be a bit different
- How are emissions monitored?

Managing the dynamics of a cap and trade system

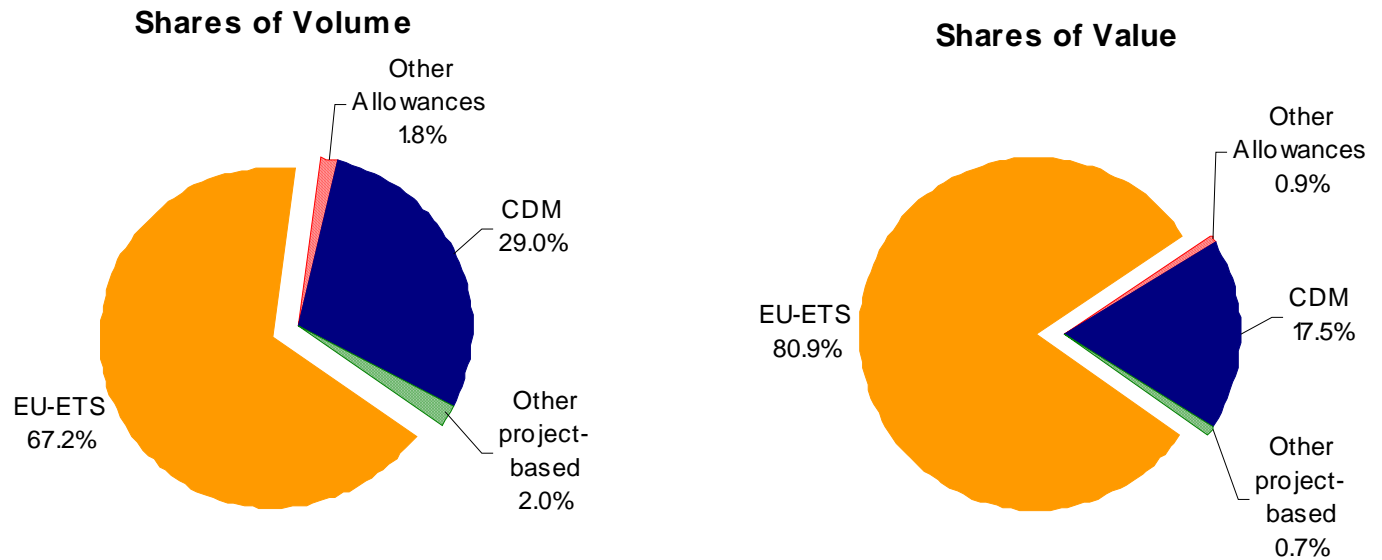
→ Factors affecting demand:

- Pace of growth and structure of economy
- Relative scarcity of quotas
- Improvements in technology – energy efficiency
- Improvements in technology – alternative energy sources
- Weather

→ Factors affecting supply:

- Improvements in technology – energy efficiency
- Ability to create carbon credits – planting Mallee eucalypt trees for 100 years
- Governments

The European Union Emissions Trading Scheme dominates the landscape

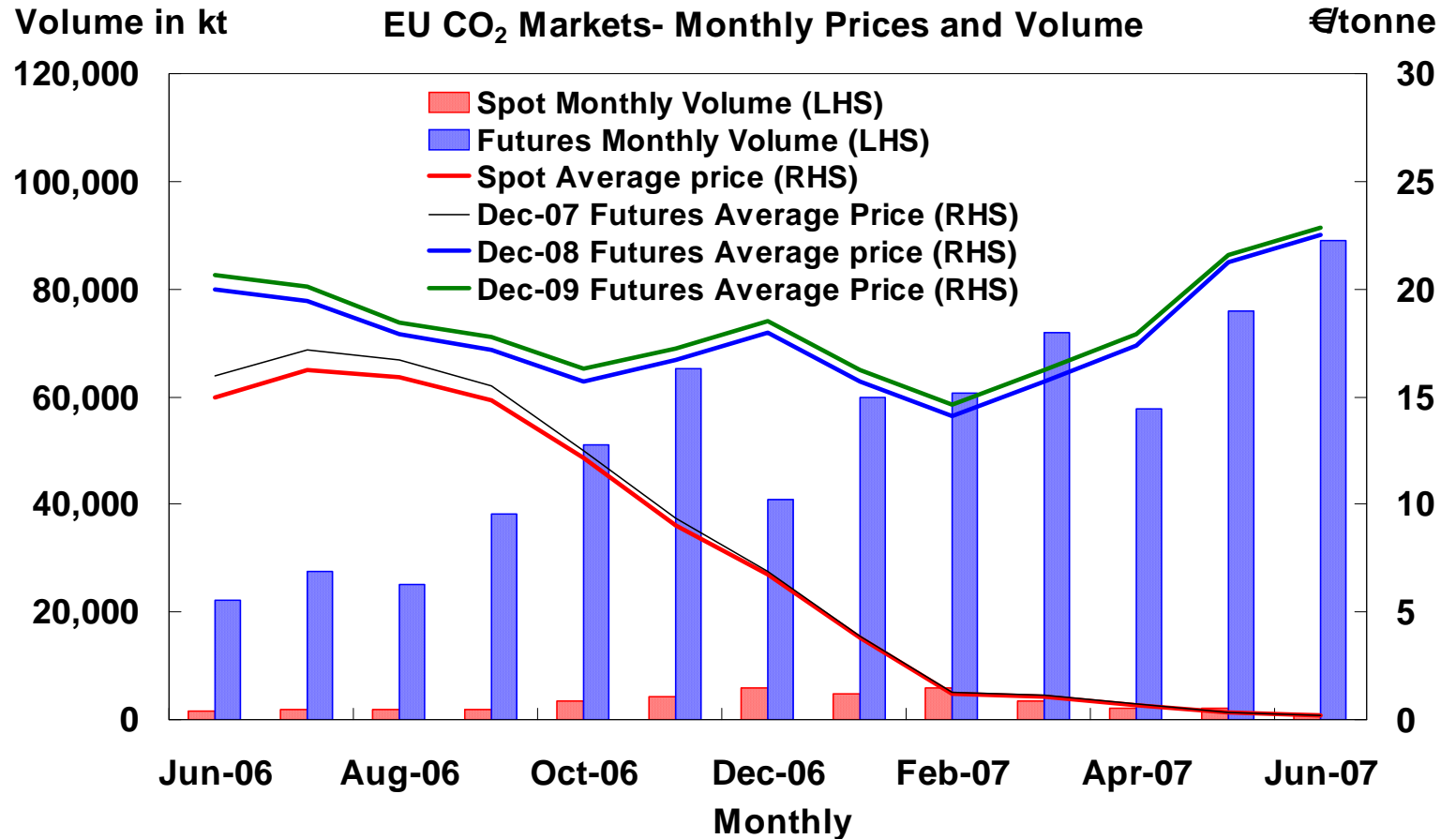


Note: For calendar year 2006

Source: IETA, The World Bank



But achieving efficient market conditions is challenging EU policymakers



Source: Powernext, ECX

Why all the fuss?



Triftgletscher in Switzerland until recently filled the entire basin seen here. Thinning of the tongue during the 1990s accelerated and as of 2001 a lake started to form in front of it. Rapid break-up of the snout is now underway.



Important disclosures:

Recommendation definitions

Macquarie Australia/New Zealand

Outperform – return >5% in excess of benchmark return (>2.5% in excess for listed property trusts)
 Neutral – return within 5% of benchmark return (within 2.5% for listed property trusts)
 Underperform – return >5% below benchmark return (>2.5% below for listed property trusts)

Macquarie Asia

Outperform – expected return >+10%
 Neutral – expected return from -10% to +10%
 Underperform – expected <-10%

Macquarie First South Securities (RSA)

Outperform – return > 5% in excess of benchmark return
 Neutral – return within 5% of benchmark return
 Underperform – return > 5% below benchmark return

Recommendation – 12 months

Note: Quant recommendations may differ from Fundamental Analyst recommendations

Recommendation proportions

	AU/NZ	Asia	RSA
Outperform	46.81%	61.36%	45.30%
Neutral	39.01%	18.67%	35.80%
Underperform	14.18%	19.97%	18.90%

For quarter ending 30 June 2007

Volatility index definition*

This is calculated from the volatility of historic price movements.

Very high–highest risk – Stock should be expected to move up or down 60-100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40-60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30-40% in a year.

Low–medium – stock should be expected to move up or down at least 25-30% in a year.

Low – stock should be expected to move up or down at least 15-25% in a year.

* Applicable to Australian/NZ stocks only

Financial definitions

All "Adjusted" data items have had the following adjustments made:

Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense

Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit /efpowa*

ROA = adjusted ebit / average total assets

ROA Banks/Insurance = adjusted net profit /average total assets

ROE = adjusted net profit / average shareholders funds

Gross cashflow = adjusted net profit + depreciation

*equivalent fully paid ordinary weighted average number of shares

All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

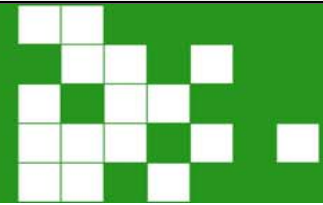


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