



UNSW 2008

# ALLOCATION CHALLENGES AND THE GREEN PAPER

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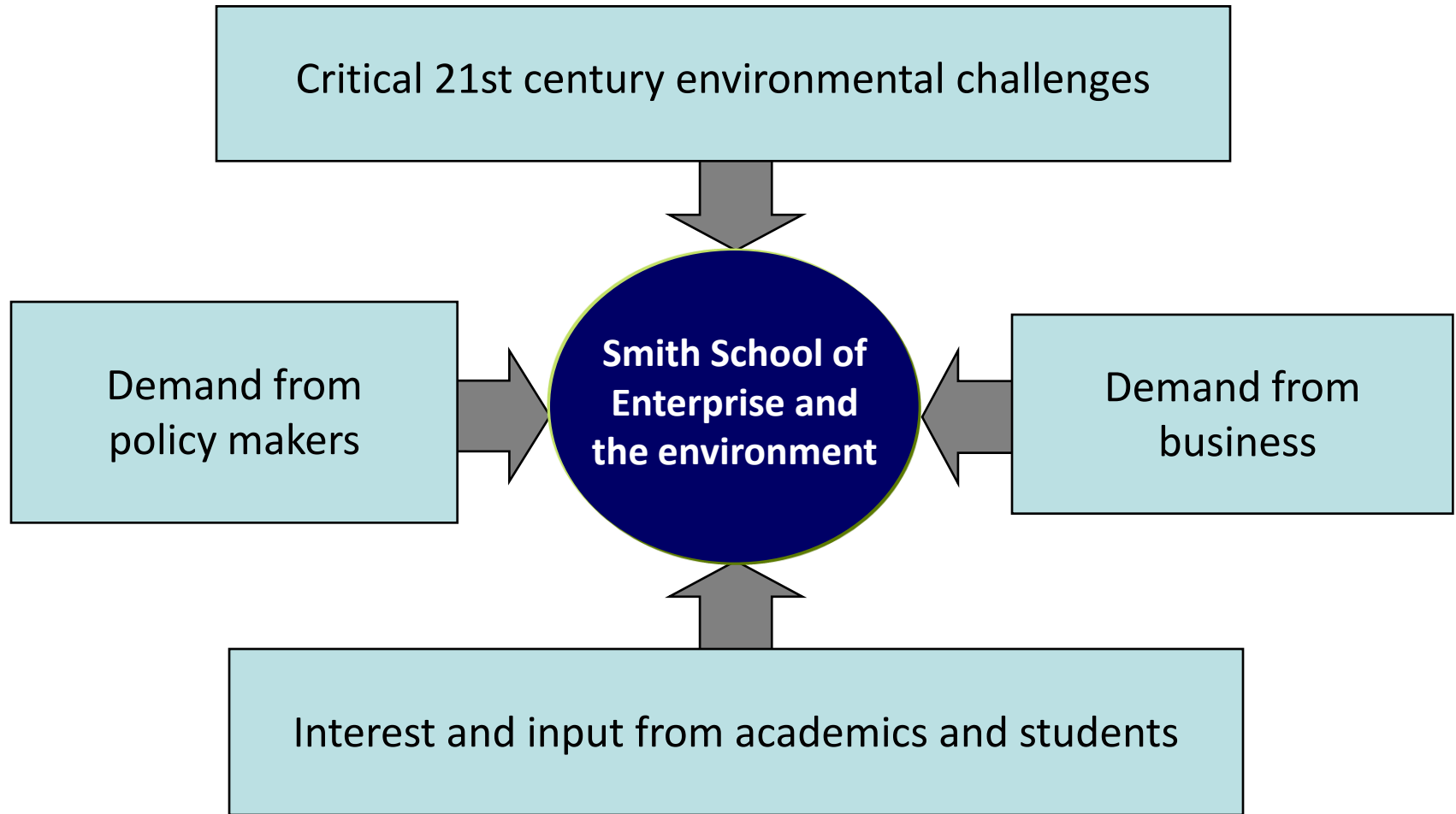
1 September 2008



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# MY OTHER INTERESTS



## Climate Bridge Sample VER Projects


19 August 2008

Please note: This is only a selection of Climate Bridge portfolio. We are happy to prepare bundles of alternative projects of different sizes, standards, and technologies to optimally meet your needs.


Wind power	
Type of project	Pre-registration
Standard	VCS 2007 (possibly GS VER)
Estimated issuance	November 2008*
Est. Annual ERs	100,927**
Est. Available VERs	50,000
Vintage(s)	2008
<p>Note: This high profile project is supplying renewable power to the Beijing Olympics Games and is the first wind power plant in Beijing. Please inquire for more information.</p>	



Coal Mine Methane Electricity	
Type of project	Pre-registration
Standard	VER+
Estimated issuance	Issued!
Est. Annual ERs	41,348**
Est. Available VERs	81,200
Vintage(s)	



Medium hydropower (<20 MW)	
Type of project	Pre-registration
Standard	VCS 2007
Estimated issuance	Nov 2008*
Est. Annual ERs	68,535**
Est. Available VERs	90,000
Vintage(s)	2007, 2008



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## Defra

### Peer Review: Reform of the Clean Development Mechanism



1 September, 2008

# AGENDA

1. Introduction
2. What target?
3. What proportion free allocation?
4. Who gets the free permits?
  - EITE definition and application
  - Coal-fired power: the “strongly affected” sector
5. Other important issues
6. Summary

# INTRODUCTION TO ALLOCATION

## 1. What is the target?

- This sets the total number of permits available to allocate
- Targets sets the carbon price (marginal impact)

## 2. What proportion should be auctioned vs freely allocated?

- Highly political as this governs wealth impacts

## 3. By what mechanism?

- Who gets the freely allocated permits?
- On what calculation basis (e.g. benchmarking, grandfathering)?
- Auction mechanism: interesting in practice if not theory...

## 4. What should be done with the revenues?

- Reduce other distortionary taxes?
- Support the losers?
- Internalise other externalities (e.g. Market failures in R&D)

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# 1. WHAT TARGET?

## 2050 Target

- Green Paper: 60% of 2000 levels
- EU: 60–80% of 1990 levels
- Norway: 100% - carbon neutral
- California: 80% of 1990 levels

## 2020 Target

- Green Paper: **yet to be announced**
- EU: 20% (unilaterally) 30% (global deal) on 1990 levels
- UK: 26–32% of 1990 levels
- Stern: 25–40% of 1990 levels

# WHAT ABOUT THE PRICE CAP?

- Green Paper provides for an **unspecified** cap on permit prices
- This would be achieved by the government standing willing to issue new permits to anyone at a price of \$P
- The issuance of new permits would undermine the target
- But it does allow the costs of the scheme to be capped

## Why not also a floor?

- Cap provides cost containment
- Floor provides greater certainty for clean investment
- “Soft floor” achieved through a reserve price on the auctions

## Linking challenges

- The cap is only transitional, otherwise it would be difficult for the Australian scheme to link up with other trading schemes globally



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## 2. WHAT PROPORTION FOR FREE?

- Proportion freely allocated will not have much impact on carbon prices, which are set by opportunity costs
- Economists have long favoured a simple 100% auction route
- But this flexibility in adjusting the wealth effects is one reason emissions trading beats carbon taxes as the climate policy of choice

# WHY AUCTION?

1. Auctions generate an “efficient allocation”
  - End up with bidders who value them most
2. Avoids perverse dynamic effects
  - Incentive to pollute more now, in order to get more permits later
3. Avoid time and money spent on special pleading and rent-seeking
4. Avoid windfall profits
  - Shareholders are on average wealthier than average citizen
  - Xenophobia: Shareholders are foreigners!
5. Philosophical viewpoints
  - Atmosphere is a public asset
  - Polluter pays principle
6. Increased management attention

# WHY FREE ALLOCATION?

1. Limit “carbon leakage”
  - Output based free allocation mitigates marginal cost and provides incentives for firms to stay
    - May (i) leave; (ii) reduce output; (iii) lose new investment
2. Limit “profit leakage”
  - Would not want to lose industries that are long-term viable in Australia due to short-term differentials in carbon price
3. Politics
  - Buy industry support (as in the EU)

No-one should be surprised if industry pushes these arguments very hard; if not harder than they deserve

# SO, WHAT TO DO?

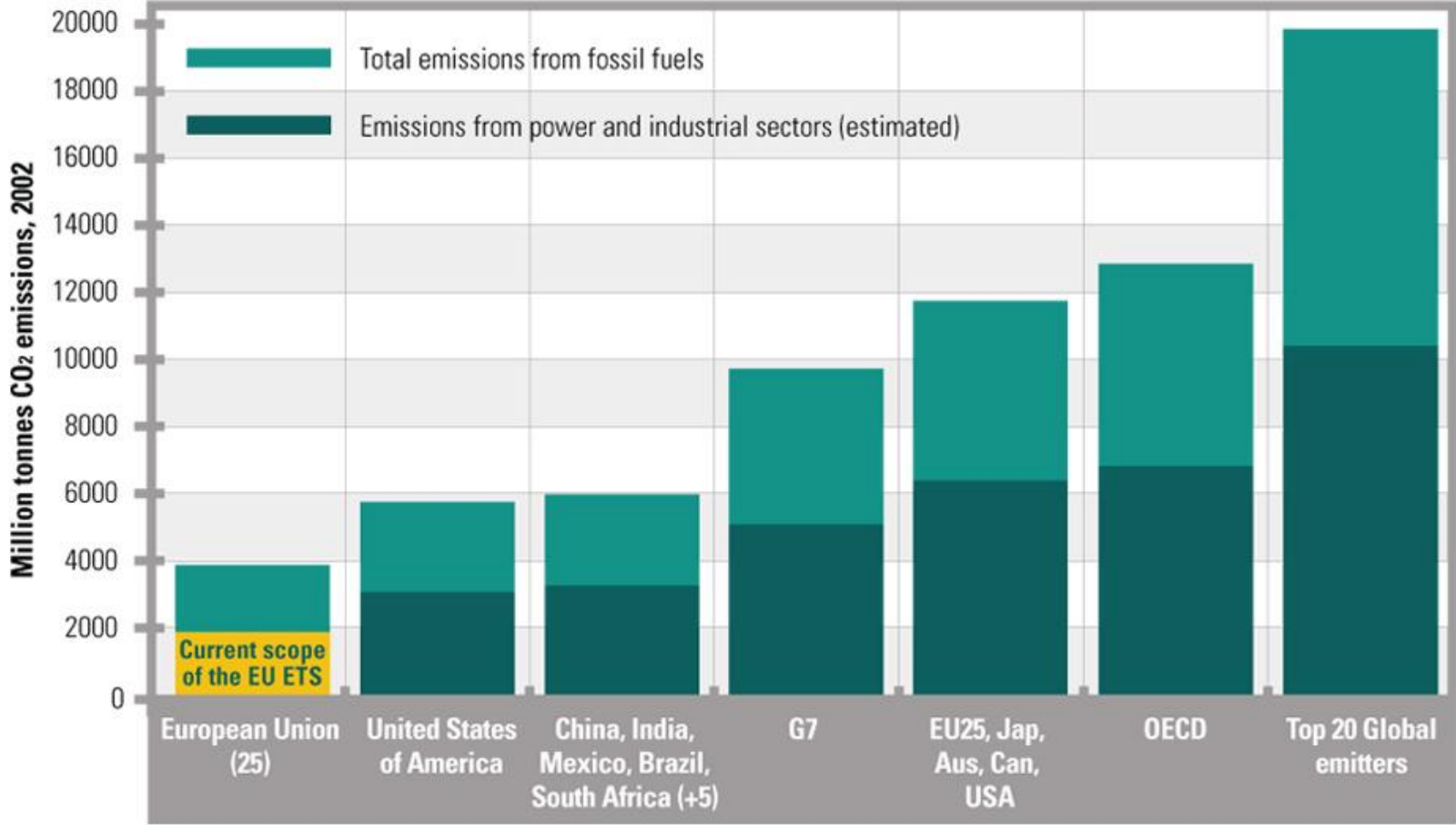
## Best outcome: Close to 100% auctioning

- “Carbon leakage” and “profit leakage” arguments do matter to some sectors
- But they do not matter a great deal on an economy-wide basis

## Green Paper: signals 70-80% auctioning

- Considerably better than EU ETS
  - Max of 5% auctions in Phase 1: 2005-2007
  - Max of 10% auctions in Phase 2: 2008-2012
- Compare RGGI: 100% auctioning
- Allocations would, over the longer term, **progressively move towards 100 per cent auctioning** as the scheme matures, subject to the provision of transitional assistance for emissions-intensive trade-exposed industries and strongly affected industries.

# ALLOCATION CHALLENGES TO INCREASE



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# EITE SUPPORT

- Up to around 30% of total allowances freely allocated to EITE
  - 20% if agriculture excluded.
- Eligible if industry-wide emission intensity is above 1,500 tCO<sub>2</sub>e per million dollars of revenue.
- Cover 90% of emissions for EITE activities with intensities above 2,000 tCO<sub>2</sub>e per \$million
- Cover 60% of emissions for EITE with intensities from 1,500 to 2,000 tCO<sub>2</sub>e per \$million
- May reconsider **but** the total quantum of EITE assistance must be limited to around 30% (with ag).

1 September, 2008



Australian Government

## CHAPTER 9

# Assistance to emissions- intensive trade-exposed industries

CARBON POLLUTION REDUCTION SCHEME GREEN PAPER JULY 2008

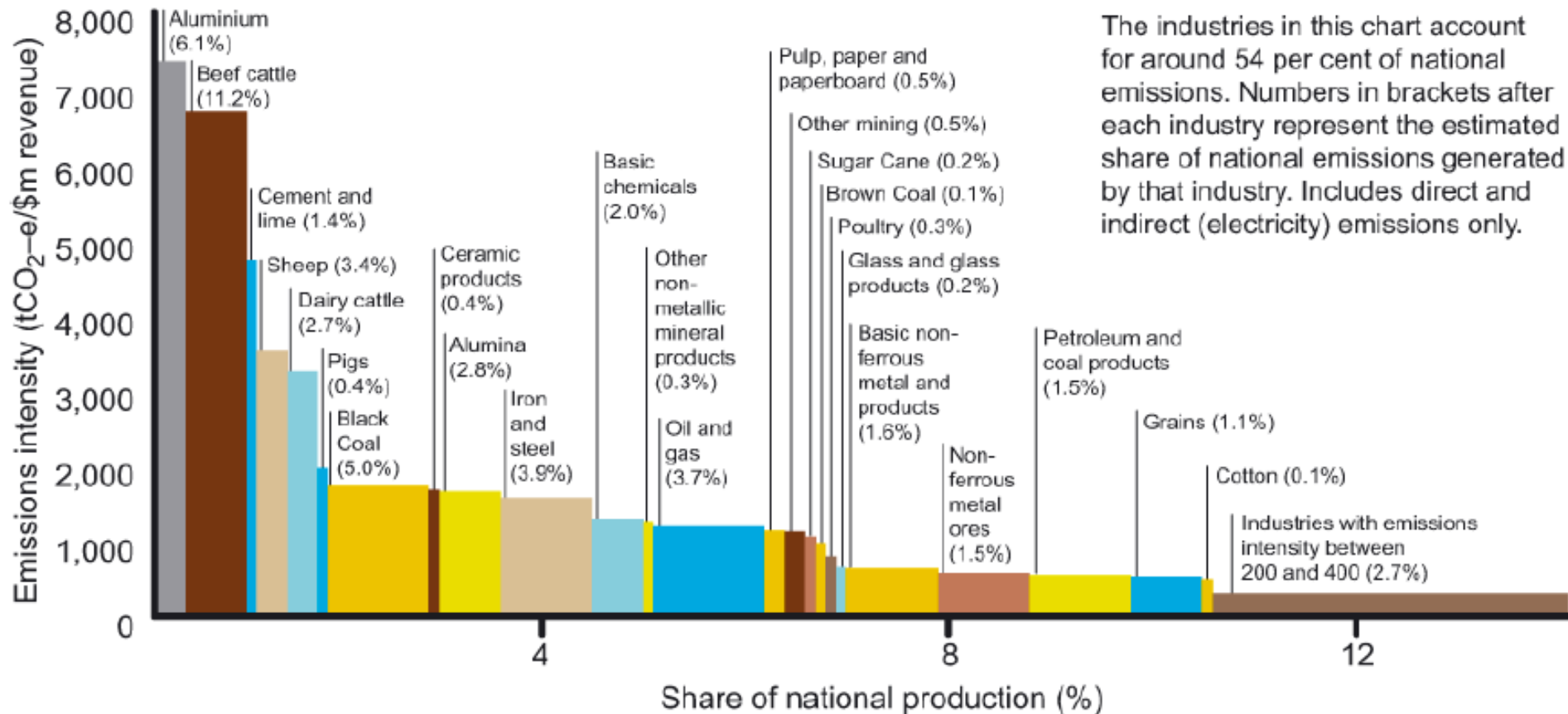
[www.climatechange.gov.au](http://www.climatechange.gov.au)





# WHO ARE EITE?

The industries in this chart account for around 54 per cent of national emissions. Numbers in brackets after each industry represent the estimated share of national emissions generated by that industry. Includes direct and indirect (electricity) emissions only.



Source: Centre for Integrated Sustainability Analysis (CISA), University of Sydney, 2008<sup>9</sup>

# DEFINITION OF “TRADE EXPOSED”

- Every activity except those with a “physical barrier to trade”
  - This is very broad!
- Definition may have resulted from by fear of breaching WTO rules
  - But EU is not worried about WTO and proposing more specific criteria for free allocation (23 Jan 2008) to:
    - Industries at risk of “carbon leakage”
    - Extent to which sector can pass on costs without loss of market share
    - Compare allowance cost with production cost and exposure to international competition
  - Lawyers indicate that border tariffs may be WTO-compliant

**This is difficult, but it should be tightened in the final draft**

# HOW DOES IT WORK?

$$A_{ia} = \underbrace{k_a (EI_{ia}^d \times O_{ia})}_{\text{Allocations with respect to direct emissions}} + \underbrace{k_a (EI_{ia}^e \times EF \times O_{ia})}_{\text{Allocations with respect to indirect electricity emissions}}$$

where:

- $A_{ia}$  = allocation of permits to entity  $i$  for emissions associated with activity  $a$
- $k_a$  = assistance rate for activity  $a$ , representing the degree of assistance provided to entities for this activity both initially and over time
- $EI_{ia}^d$  = direct emissions-intensity baseline for entity  $i$  conducting activity  $a$  (that is, baseline level of direct emissions per unit of output for the activity)
- $EI_{ia}^e$  = electricity-intensity baseline for indirect electricity emissions for entity  $i$  conducting activity  $a$  (that is, baseline level of electricity per unit of output for the activity)
- $EF$  = electricity factor, which reflects the impact of the carbon price on the price of electricity
- $O_{ia}$  = output of activity  $a$  by entity  $i$

# CARBON LEAKAGE

- Carbon leakage happens in three ways:
  1. Existing industry moves offshore (very unlikely)
  2. Output from existing plant is generated offshore (more likely)
  3. New facilities are built offshore (also more likely)
- Assistance for leakage should focus on new facilities

## **Some problems**

- Formula stops leakage but reduces incentives to clean up
- Discontinuities in EITE support potentially creates incentive problems and gaming
  - As based on *recent* past emissions (2006-2008)
- However, discontinuity allows easier categorisation of firms; reduced importance of the precise emissions intensity estimate should reduce arguments



# FREE ALLOCATION DISTORTIONS

Allowance allocation method	Impacts	More expenditure on extending plant life relative to new build		Increase plant operation		Less energy efficiency investment
	Distortions	Discourage plant closure	Distortion biased towards higher emitting plants	Shields output (and consumption) from average carbon cost	Distortion biased towards higher emitting plants	Reduce incentives for energy efficiency investments
<b>Auction</b>						
<b>Bench-marking</b>	capacity only	X				
	capacity by fuel/ plant type*	X	X			
<b>Updating from previous periods'</b>	output only	Y		X		
	output by fuel/ plant type*	X	X	X	X	
	emissions	X	X	X	X	X
Note: X indicates a direct distortion arising from the allocation rule. Y indicates indirect distortions if allocation is not purely proportional to output/emissions. * Differentiating by plant type adds additional distortions compared to purely fuel-based.						

Source: *Neuhoff et al. (2006b).*

# COAL-FIRED POWER

## Strongly affected industries are:

- non-trade-exposed
- emissions-intensive
- include some entities that are emissions-intensive compared to their competitors, such that they cannot pass on carbon costs and could experience significant losses in asset value
- have significant sunk capital costs
- not have significant economically viable abatement opportunities available to them

→ **In other words, coal-fired power**

1 September, 2008



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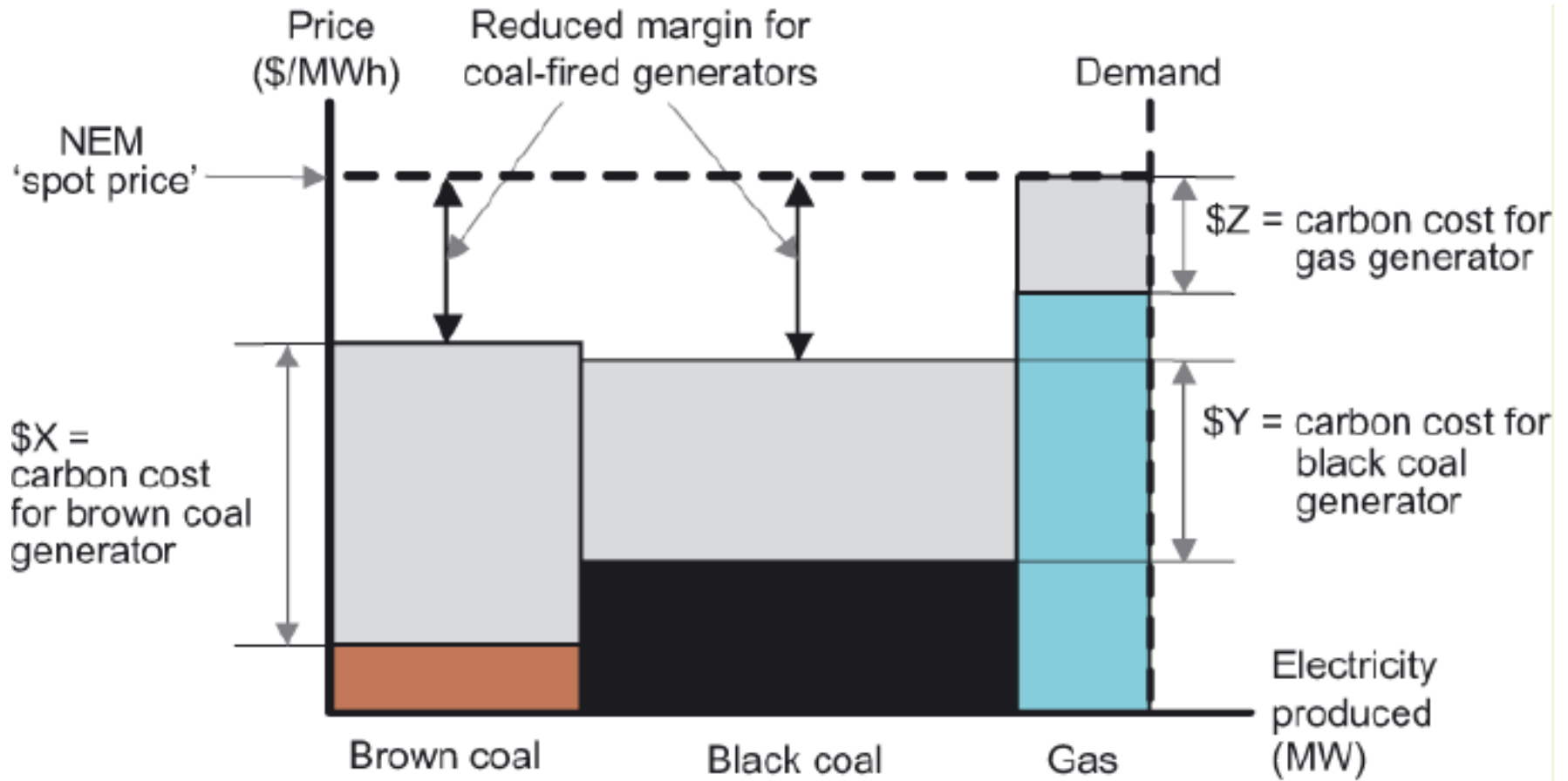
## CHAPTER 10

# Strongly affected industries

CARBON POLLUTION REDUCTION SCHEME GREEN PAPER JULY 2008

[www.climatechange.gov.au](http://www.climatechange.gov.au)

# REGULATORY CAPTURE?



# QUESTIONS FROM A BYSTANDER

- Experience in EU shows massive windfall profits to coal
  - But retail and wholesale price caps may imply a different outcome in Australia
- How fat are coal-fired margins? What are current returns to shareholders?
- Is marginal price always set by gas, or is it sometimes (if not often) true that coal-fired generation is on the margin?
  - If so, the full carbon cost is incorporated
- What are the market structure impacts?
- What if the dispatch order changes after the carbon price is incorporated?
- If coal is genuinely badly hurt to point of closure, as models suggest, what support is justified?



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# OTHER KEY ISSUES

## Offsets

- Avoiding AAUs, limiting to CERs is reasonable
- Limits are yet to be announced...

## Stimulating low-carbon investment and RD&D

- Several technologies look likely to be critical:
  - Energy efficiency
  - Renewables (solar, wind, geothermal)
  - Carbon capture and sequestration
  - Nuclear

## New low-carbon business opportunities

- Discourse focuses on “costs”, rather than productivity improvements, new wealth generating industries for Australia etc

# AGENDA

1. Introduction
2. Some theory
3. The Green Paper
4. Key allocation challenges
  - EITE Definition and application
  - Coal-fired power and special treatment
5. Other important issues
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# SUMMARY

## 1. **Targets should be tight**

- Necessary to prevent carbon price collapsing
- Critical for international credibility
- Important for scheme linking

## 2. **Most permits should be auctioned**

- 100% is the favoured starting point
- 70-80% is considerable nod to industry and leakage concerns

## 3. **Free allocation should minimise distortions**

- Restricting this to EITE makes sense
- Definition of “trade exposed” still lacking (WTO concerns)

## 4. **Revenues spent on reducing taxes or other distortions**

- Other distortions include low-carbon R&D
- Or compensating households that lose from the scheme (as prices **will** rise)

THANK YOU



**Thank you**

**Comments and questions welcome!**

1 September, 2008