F19 - Carbon Pollution Reduction Scheme – What You Need to Measure and How to Report It

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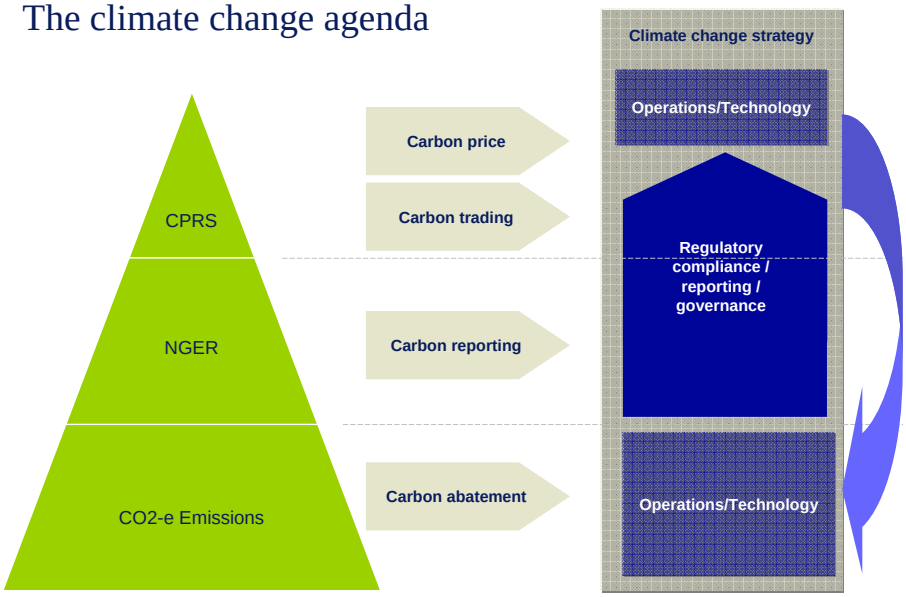
The climate change agenda



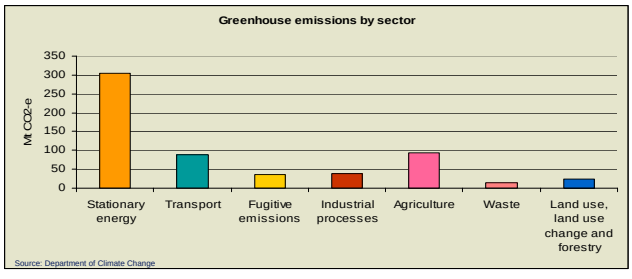
1. Current state of play in the carbon economy

- National Greenhouse and Energy Reporting Act 2007 (**NGER**) – emissions **reporting**
  - Applied from 1 July 2008 to companies with individual facilities that emit > 25,000 tonnes of CO2-e per annum or across the organisation emit >125,000 tonnes of CO2-e or consume > 500 Tj
  - Required to report emissions by 31 October 2009
- Carbon Pollution Reduction Scheme (**CPRS**) – emissions **trading**
  - Expected to apply from 1 July 2010
  - Will include stationary energy, transport, industrial emissions, waste (~70% of emissions)
  - Govt expects 1,000 organisations will be under the CPRS scheme initially
  - Design features of CPRS to be finalised with draft legislation due in early 2009

= Significant uncertainty

- Unconditional reduction target of 5% below 2000 levels by 2010 (possibly rising to 15% reduction if international cooperation achieved)
- Permit price unknown – estimated at $25/tonne (White Paper cap of $40)
- Lack of activity in forward electricity market past 2009
- Will the Government delay or scrap the CPRS?

2. What are Australia's emissions?



Emission sector	Emissions from:
Stationary energy (51%)	• Fuel consumed for electricity generation (69%), manufacturing & construction
Transport (15%)	• Fuel consumed by road (87%), rail, domestic air transport and domestic shipping
Fugitive (6%)	• Production, processing, transport, storage & distribution of fossil fuels (coal, oil and gas). Emissions from mining/handling black coal are approx 69% of Fugitive emissions.
Industrial processes (6%)	• Non-energy emissions from mineral processing (cement clinker and lime production), chemical industry and metal production (aluminium smelting, iron/still production)
Agriculture (16%)	• Methane from livestock, manure management, burning
Waste (3%)	• Emissions from solid landfill waste and waste water
Land use, change, forestry (3%)	• Emissions from land clearing, decay of vegetation, soil disruption

2. What are Australia's emissions? (cont)

- **Snapshot of Australian companies**

	CO2-e emissions (tonnes)		CO2-e emissions (tonnes)
agl energy limited	41,470,000	peabody pacific	1,550,000
delta electricity	19,950,000	newcrest mining limited	1,500,000
rio tinto	18,100,000	telstra corporation limited	1,390,306
bhp billiton	16,500,000	zinifex ltd	1,260,000
rio tinto ltd	16,400,000	energex	1,250,156
bluescope steel limited	12,530,000	ergon energy	1,094,127
alcoa world alumina australia - smelters	11,222,257	transalta energy (australia) pty ltd	834,036
tarong energy corporation ltd	9,840,999	integral energy	691,578
woodside energy ltd	8,686,100	amcor australasia paper division	520,000
nrg gladstone operating services pty ltd	6,847,378	federation of automotive products manufacturers	500,000
xstrata coal pty ltd	6,395,669	newmont australia limited (formerly normandy)	404,125
alcoa world alumina australia - refineries	4,840,000	australia post	377,589
nrg flinders operating services	4,121,000	citipower	320,100
centennial coal company ltd	4,112,500	unimin australia limited	270,000
anglo coal australia pty ltd	3,500,000	actewagl	213,678
shell australia limited	2,490,000	mcdonald's australia limited	171,746
conocophillips australia pty ltd	2,440,439	lion nathan australia pty ltd	164,422
caltex australia ltd	2,218,000	ibm australia pty ltd	141,902
transgrid	1,890,828	coca-cola amatil (aust) pty ltd	106,779

Source: Greenhouse Challenge Plus 2006/07

2. What are Australia's emissions? (cont)

Importance of technological change

- Ultimately, climate change can only be addressed effectively by changing the technologies we employ
- The stationary energy sector accounts for approx half of Australia's emissions
- Currently, technological change is more feasible in the power generation sector than in other sectors like transport and agriculture
- Therefore, initially at least, stationary energy is going to do much of the 'heavy lifting' in reducing Australia's emissions

But what is the cost of this?

2. What are Australia's emissions? (cont)

Costs of various technologies

- The truth is that nobody knows how much new technologies will cost in future decades
  - this causes major problems for investors
- CCS costs are still very high
  - even after carbon has been captured, much uncertainty remains over the transmission and injection costs
- Recently, increases in capital and other costs have seen cost estimates for some technologies soar
  - the cost of geothermal is now estimated to be twice as high as a few years ago
  - while the capital cost of nuclear plants in the US have more than doubled in three years
- Australia will soon need major new (and perhaps replacement) investment in base load generation
- Lower GHG technologies include gas, coal with carbon capture and storage (CCS), geothermal and nuclear
- Having ruled out nuclear power, Australia will rely on gas, clean coal with CCS and renewables (wind, hydro)

2. What are Australia's emissions? (cont)

Long Run Marginal Cost of Electricity Generation Technologies - Australia

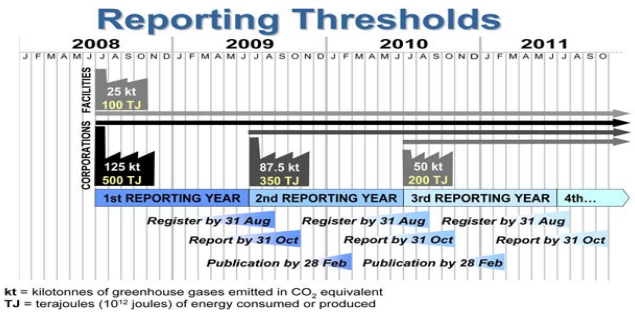
Technology	2008 (A$/MWh)	2020 (A$/MWh) (with $20/tonne CO2e price)	2050 (A$/MWh) (with $50/tonne CO2e price)
Black Coal USC	54	68	96
Coal IGCC	57	69	99
Gas CCGT	58	60	76
Nuclear	76	76	76
Hydro	72	72	72
Solar Thermal	224	152	146
Photovoltaics	384	241	158
Wind	93	84	65
Biomass	70	71	72
Geothermal	87	83	73
Coal USC & CCS	86	82	74
CCGT & CCS	113	97	94

Source: Acil Tasman, *Projected Energy Prices in Selected World Regions*, May 2008

3. Emissions reporting legislation – NGER

Regulatory/Legal Requirements of the NGER Scheme

- Corporations or facilities must register and report once exceed the thresholds for emissions or energy consumption.
- Thresholds at which corporations are caught will fall to gradually catch more companies over time
- Data is required to submitted to the Dept of Climate Change
- Online reporting system – Online System for Comprehensive Activity Report (OSCAR)



kt = kilotonnes of greenhouse gases emitted in CO_2 equivalent
TJ = terajoules (10^{12} joules) of energy consumed or produced

Source: Department of Climate Change

3. Emissions reporting legislation – NGER (cont)

How do you calculate your emissions for NGER purposes?

- Scope of emissions – scope 1, scope 2, scope 3

Scope	NGER Description	Example
Scope 1	Direct emissions from within the boundary of a facility as a result of that facility's activities	Emissions from burning fossil fuels
Scope 2	Indirect emissions from the consumption of purchased electricity, heat or steam	Emissions from purchased electrcity consumption in office building
Scope 3 (not in NGER)	Other indirect emissions from outside the boundary of a facility as result of the facilities activities	Emissions from corporate air travel

Calculating emissions/energy consumption

- Identify the different types of energy consumed by fuel type
- Identify the amount of fuel consumed by type
- Apply the 'NGER emission factor' (as per NGER legislation)

- NGER emissions factors
  - Emissions intensity of electricity generation differs by state
  - Eg emission factor for Vic is 1.22 kg$C0_2$-e/kWh, NSW is 0.89 kg$C0_2$-e/kWh
- How much does it take to meet the thresholds?
  - 500 MWH of electricity per annum in NSW = 448,000 tCO_2-e and 1800 TJ (consumption)
  - 45 daily return truck journeys between Sydney and Melb over a year = 50,000 tCO_2-e

4. Emissions trading - CPRS

What does the CPRS scheme look like?

- The Government has confirmed a start date of **1 July 2010**
- What's the timetable for legislation?
  - Draft legislation released 10 March 2009
  - Mid 09: Legislation – scheme structure known
  - Late 09 Bill Passed – CPRS ready to begin
  - 1 July 2010 – CPRS commences
- Interim emissions target in the range of **5-15**% **reduction from 2000 levels by 2020**
  - Unconditional 5% reduction below 2000 levels
  - Up to 15% reduction if international cooperation achieved
- Required to participate if have facilities which have direct emissions > 25,000 tonnes of CO_2-e in **covered** sectors
  - The main covered sectors are: Stationary energy (electricity generation), Transport, Fugitive (mining), Industrial processes and Waste
  - Agriculture – excluded initially, possible inclusion from 2015 to be decided in 2013

4. Emissions trading - CPRS

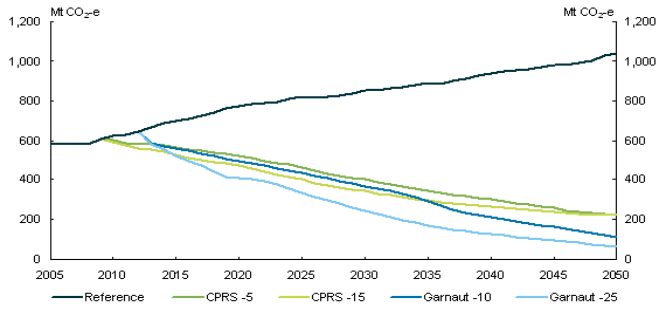
What is a cap and trade scheme?

- The CPRS is a 'cap and trade scheme':
  - Government determines the limit on emissions by each covered sector (the cap)
  - Government is aiming for 70% of national emissions to be covered by the CPRS
  - Each permit represents a right to emit a specific quantity of CO_2-e
  - Permits allocated via a monthly auction process
  - Each year an organisation surrenders to the Government enough permits to cover its actual emissions
  - Those organisations that do not surrender sufficient permits are liable to pay a penalty
  - Organisations holding an excess of permits can sell them into the market
  - Permits can be bought and sold on market with prices determined by supply and demand
  - These prices create a '**cost of carbon**'
  - Treasury modelling has estimated this to be $25/tonne CO2-e

4. Emissions trading - CPRS (cont)

How does Australia's emissions reduction target impact the CPRS?

- Government's emissions reduction target is 60% reduction in year 2000 levels by 2050
- 20% renewable energy target for electricity production 2020
- CPRS emissions reduction target as announced in the White Paper
  - Unconditional 5% reduction below 2000 levels
  - Up to 15% reduction if international cooperation achieved
  - Set on rolling 5 year basis
  - Initial caps will be phased - cap for initial 3 years phase from 2010 to 2013 and cap for remaining 2 years determined prior to scheme staring in 2010



Source: Treasury Modelling

4. Emissions trading - CPRS

Compensation under the CPRS

- Assistance mechanisms to certain industries:

1. ***Strongly affected industries*** – Electricity Sector Adjustment Scheme (ESAS).

- The Government will allocate $3.9 billion of permits over years 1-5 (on $25/tonne) to coal fired electricity generators

- Assistance allocated according to a methodology that weights assistance by:
  - the historical energy output of the generator, measured as the electricity generated by the asset between 1 July 2004 and 30 June 2007
  - the extent by which the Scheme regulator's estimate of the emissions intensity of the generator (over the period 1 July 2004 to 30 June 2007) exceeds the Government's threshold level of emissions intensity (0.86 tonnes of CO2-e per megawatt-hour of electricity generated).

- Potential recipients of assistance under ESAS:
  - Must apply to Scheme regulator **within 90 days of the commencement of Scheme legislation** to prove eligibility and provide other information relevant to determining the amount of assistance they should receive

4. Emissions trading - CPRS

Compensation under the CPRS (cont)

2. Emission-intensive trade-exposed ('EITE') assistance

– Free permits issued to EITE industries where emission intensity thresholds are met:

Emissions intensity	Compensation
2kt CO2-e or more / $ million revenue or 6kt CO2-e or more / $ million value-added	Recieve free permits to cover 90% of average emissions per unit of output in the industry
Between 1kt and 2kt CO2-e / $ million revenue or between 3kt and 6kt CO2-e / million value-added	Recieve free permits to cover 60% of average emissions per unit of output in the industry

Industries that are likely to be affected include:

- Alumina refining
- Lime production
- Aluminium smelting
- Liquefied natural gas production
- Ammonia production
- Magnesia production
- Carbon black production
- Methanol production
- Cardboard manufacturing
- Newsprint manufacturing
- Cartonboard manufacturing
- Nitric acid/ammonium nitrate production
- Caustic soda and chlorine gas production
- Petroleum refining
- Clinker production
- Pig iron production
- Coke production
- Ethylene/polyethylene production
- Copper refining/smelting
- Printing paper manufacturing
- Ethanol production
- Silicon production
- Float glass production
- Soda ash production
- Fused alumina production
- Synthetic rutile production
- Fused zirconia production
- Tissue paper manufacturing
- Glass container production
- Titanium dioxide production
- Iron and steel manufacturing
- Urea production
- Lead and zinc refining/smelting

5. NGER and CPRS compared

	NGER		CPRS
Thresholds	**Facility (09)** 25kt CO_2-e 100 TJ	**Corporation** 125kt CO_2-e 500 TJ	**Facility** 25kt CO_2-e 100 TJ
Scope	Scope 1 (direct) Scope 2 (indirect)		Scope 1 (direct)
Covered Sectors	Covered sectors are the same under NGER and CPRS Stationary energy, Transport, Fugitive, Industrial processes, Waste		

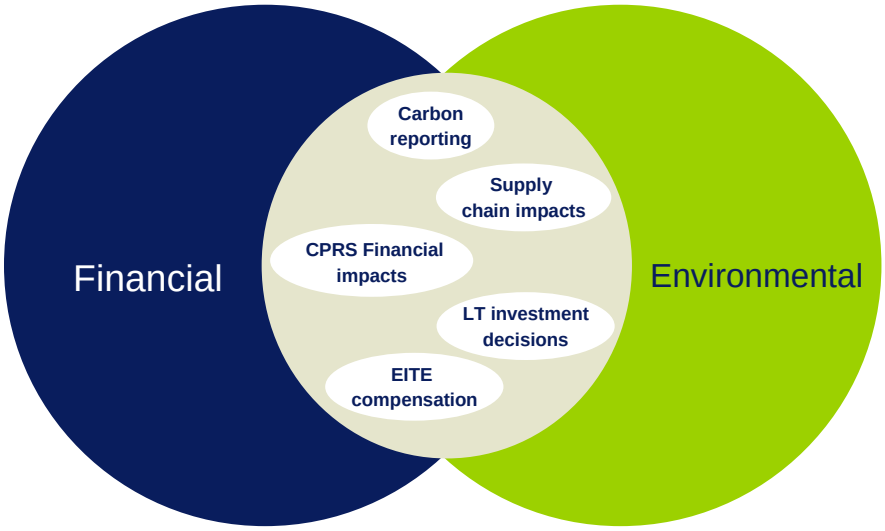
5. NGER and CPRS compared

	NGER	CPRS
Fuel	Report under Scope 2 (indirect)	• Transport emission obligations applied to upstream fuel suppliers • **Fuel combustion** – obligation applies to all fuel and customs duty remitters for all liquid fuels currently subject to excise • **LPG** – obligation applies to producers, marketers, distributors and importers • **Synthetic greenhouse gases** - applies to bulk importers of synthetic greenhouse gases • **Natural gas** – gas retailers have obligation for gas supplied to small emitters (unlike electricity)

5. NGER and CPRS compared

	NGER	CPRS
Fuel (OTN)	N/A	Large users of fuel or gas can elect to manage the obligations themselves rather than have the upstream supplier incur it and pass cost through
Audit reqts	•OSCAR •Publicly available information •Audit at direction of Dept of Climate Change	•NGER reporting would be starting framework but detailed reporting requirements not yet set •Financial accounting impacts (financial instruments – Corps Act) •Audit required for large emitters >125 kt

6. Impacts on business



6. Impacts on business

1. Financial and commercial impacts of CPRS	Action
• Whether you have a direct obligation under the CPRS or not, the CPRS will impact every business in Australia • Cost of permits – If required to purchase permits, can the cost of permits be passed through to customers? – If not required to purchase permits the cost of inputs into your goods and services are likely to increase (such as electricity) – How can you manage the impact on your gross margin? • Impact on working capital – If required to purchase permits upfront what are the cash-flow implications • Impairment of assets – Have impairment models been updated for changes in gross margins/costs	• Determine whether you have a direct obligation under the CPRS • Consider profitability models • Review impairment models to take into account carbon costs

6. Impacts on business

1. Financial and commercial impacts of CPRS (cont'd)	Action
• Accounting for emission rights is currently on the IASB and AASB agendas but there is no clear accounting guidance at present – There are a number of alternative treatments – Market value, government grant accounting – Cost model & permit register • When trading emission rights need to consider whether instruments are derivatives – own use or trading? • Carbon clauses in electricity contracts need to be considered for impact on: – Derivative valuations – Hedge accounting effectiveness • Consider the tax implication of the CPRS – Government's objective is to make the CPRS tax neutral – Expenditure incurred in purchase of a permit is expected to be deductible – Proceeds from the sale of a permit would be assessable – Penalties for failure to surrender sufficient permits will be non-deductible	• Consider accounting policy relating to CPRS • Review impact of carbon clauses in derivative contracts • Review current CPRS tax proposals

6. Impacts on business

2. EITE compensation	Action
• The CPRS includes various assistance measures designed to reduce the impact on certain industries. • EITE industries may be eligible for free permits provided that the meet certain criteria relating to production processes and the level of emissions intensity. • EITE assistance applications require detailed information for FY06/07 and FY07/08 on: • Emissions data • Revenue • Value-added activities • EITE applications must be audited and submitted by 1 May 2009	• Determine if your entity conducts processes that are eligible for EITE assistance • Prepare EITE application and engage auditor to provide assurance and submit by 1 May 2009

6. Impacts on business

3. Long-term investment decision making	Action
• The cost of carbon needs to be considered in investment decision making • M&A - Is the cost of carbon factored into acquisition models? • Is the existence of a carbon constrained asset a 'deal breaker'? • Will renewable energy investments become more attractive • Will there be tax rebates or other incentives for investments in new low-emission technologies • Will abatement activities be deductible? (e.g. carbon-capture & storage or tree planting as carbon sinks?)	• Ensure that costs of carbon are included in acquisition models

6. Impacts on business

4. Carbon reporting	Action
• Measure CO_2-e emissions and report to comply with NGER and CPRS (if applicable) – establish corporate boundaries – who controls the facility / emissions – use of contractors / outsourcers – Joint ventures - emissions are not divided according to ownership. What matters is operational control. – penalties exist for under-reporting of NGER emissions • Reliability of data – How reliable is the information produced by current systems? – Audit requirements – Large emitters under the CPRS (> 125,000 tonnes) are required to have their emissions audited – What assurance framework is to be used? • What is an organisation's carbon footprint / What is the stated Carbon Strategy? • Consider greater stakeholder involvement (customers, supplier, investors, community etc)	• Determine if your entity meets the NGER or CPRS thresholds • Review emissions data collection processes • Engage assistance as required • Review Sustainability strategy and reporting for best practice

6. Impacts on business

5. Supply chain impacts	Action

• The cost of carbon will impact every facet of a company's supply chain and operations
  • Can the cost of carbon be passed on to your customers?
• Suppliers may want to renegotiate contracts to pass on the cost of carbon on to you
• If you are an outsourced provider you may need to provide emissions information to others to enable them to comply with NGER reporting
• Trading in CPRS certificates will be a new activity for many companies
  • Detailed risk management processes and controls will be required
  • Counterparty risk will need to be managed particularly in volatile times
  • Skills gap - understanding of financial instruments and the carbon implications is essential
• CPRS coverage issues mean that the obligations may rest upstream from the company which can impact costs
	• Review operations to determine carbon impact

8. Questions

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