



Australia's Greenhouse Challenge Program

Denis Cooke & Associates Pty Limited

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Greenhouse Challenge Program

- Voluntary and Self-regulatory Agreements between Government and Industry to reduce Greenhouse Gases

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Greenhouse Challenge Program focuses on

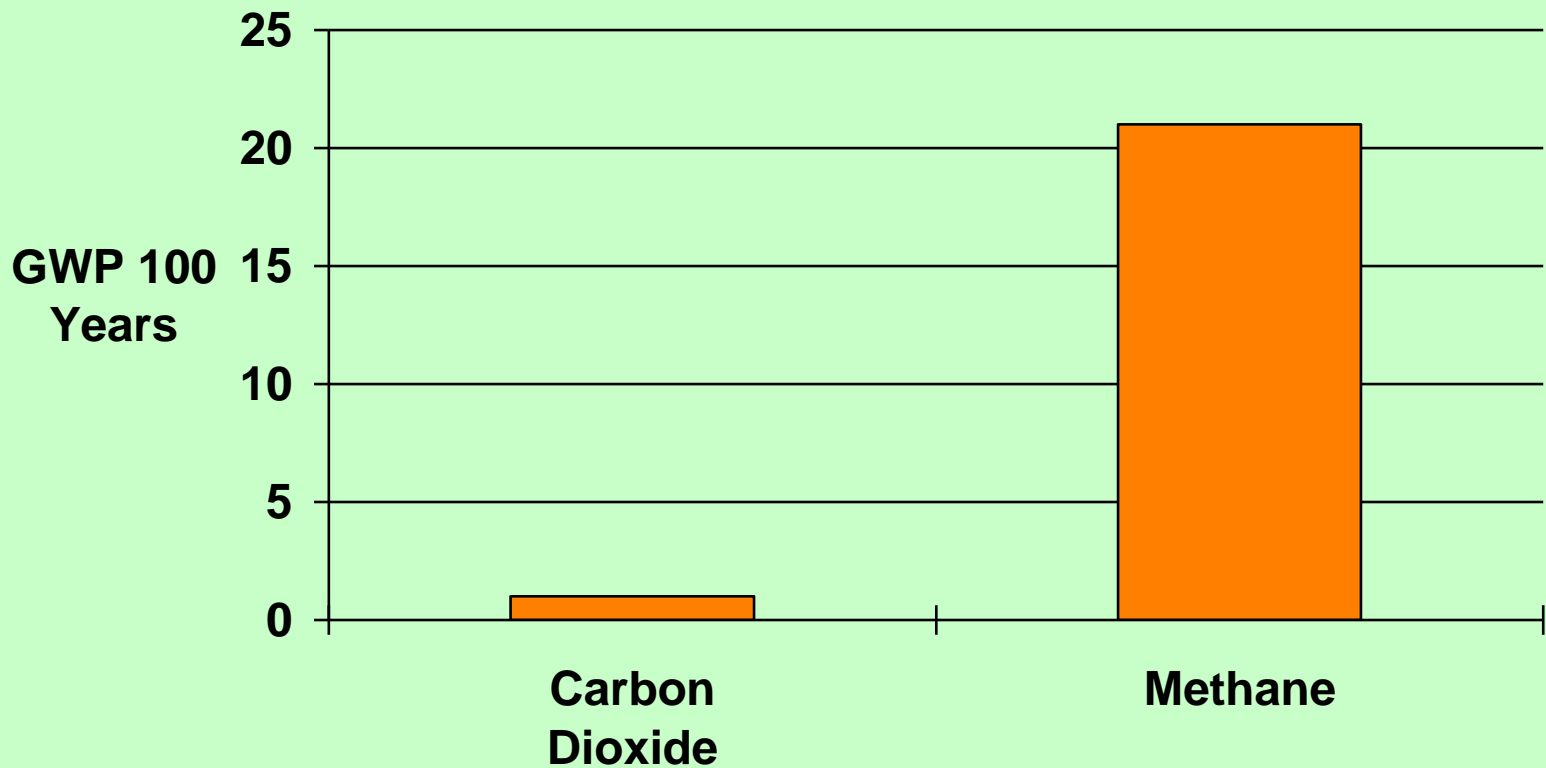
- Continuous Improvement
- Energy Efficiency,
- Greenhouse Sink Enhancement
- The Efficient Use of Resources.

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Greenhouse Gases Global Warming Potential



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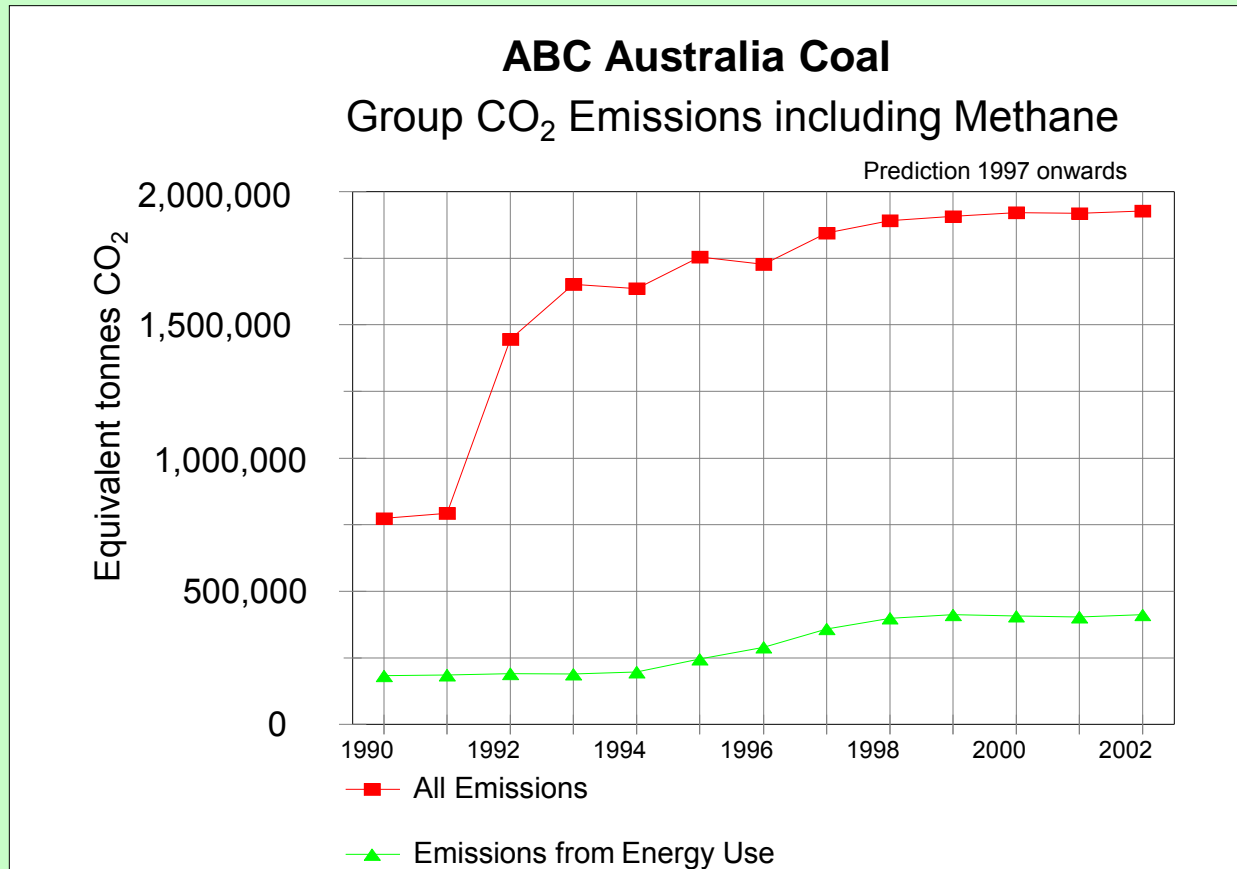
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Components of Program - 1

- Letter of Intent
- Emissions Reference Year
- Expected Emissions from Site
 - Site Data, Present and Historical
 - Calculate Emissions and Sinks
- Establish Inventory

Mine Group Total Emissions



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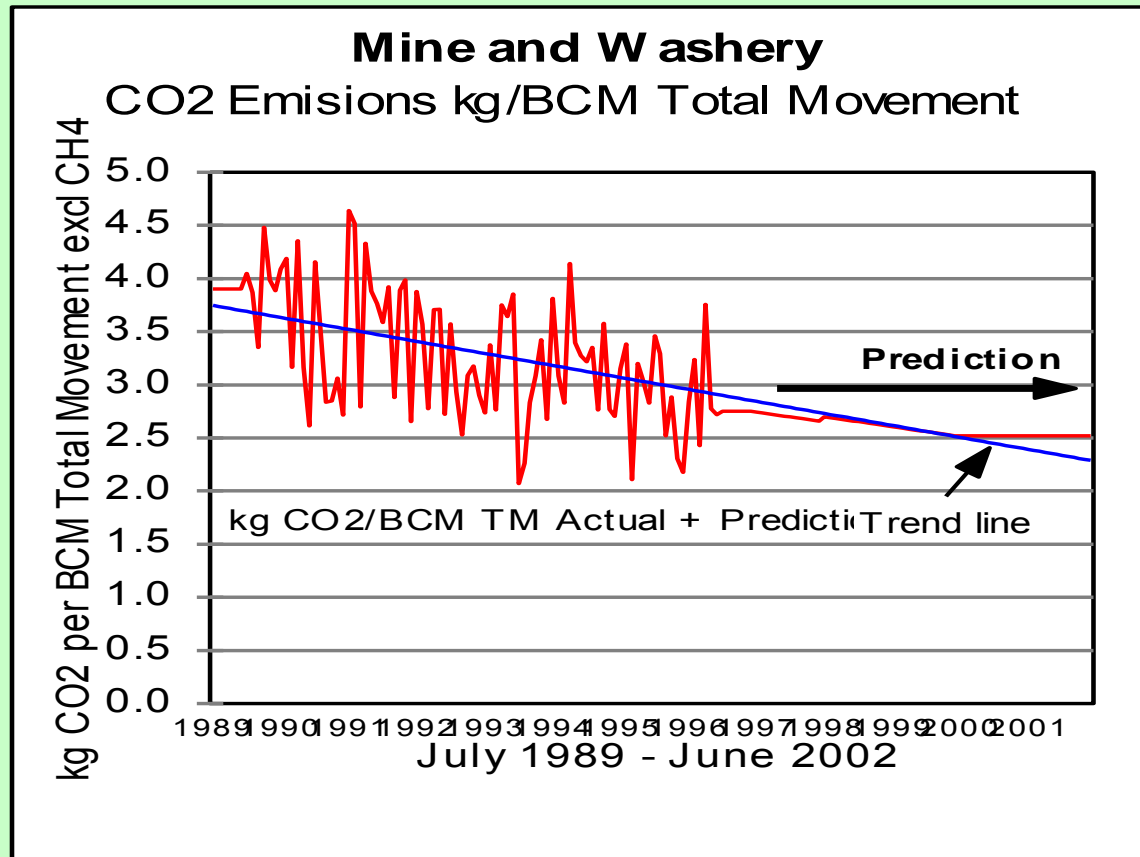
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Components of Program - 2

- Determine suitable Performance Indicator
 - e.g. kg CO₂/tonne product
- Predict Future Emissions
- Develop Greenhouse Strategies

Emissions Performance 1

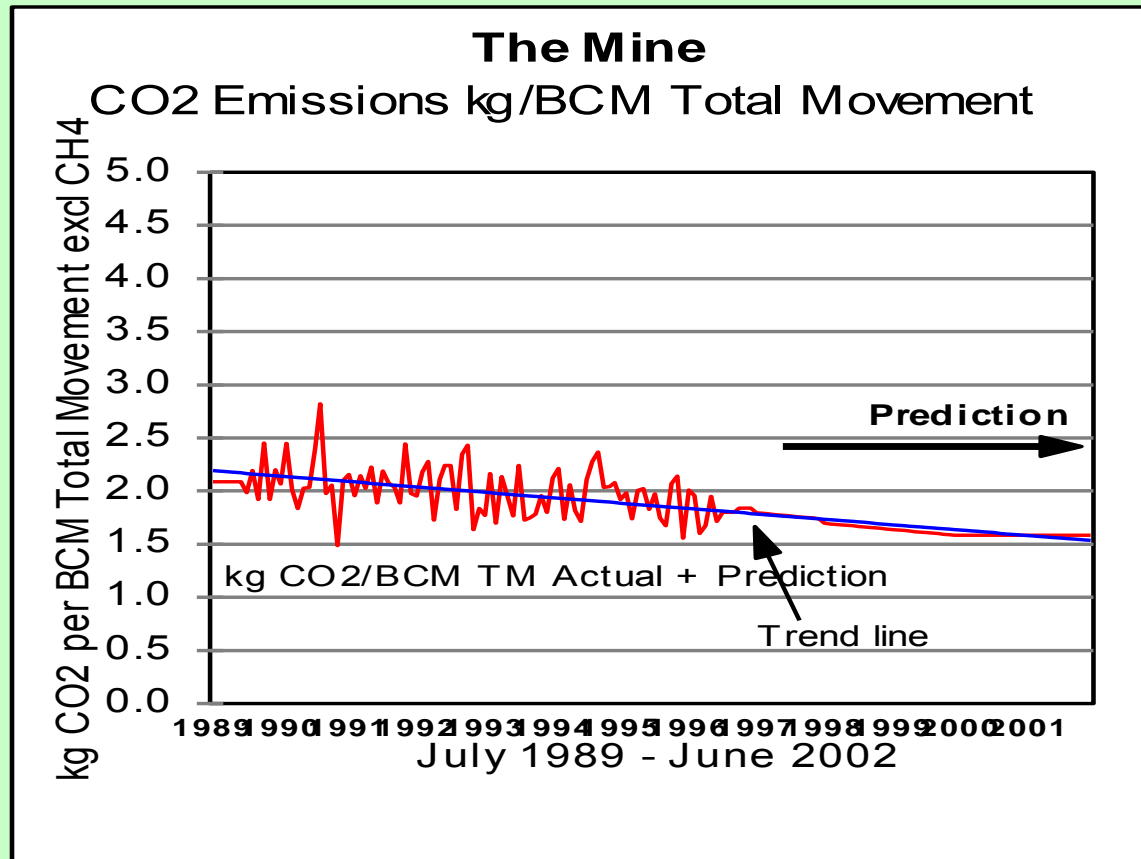


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Emissions Performance 2



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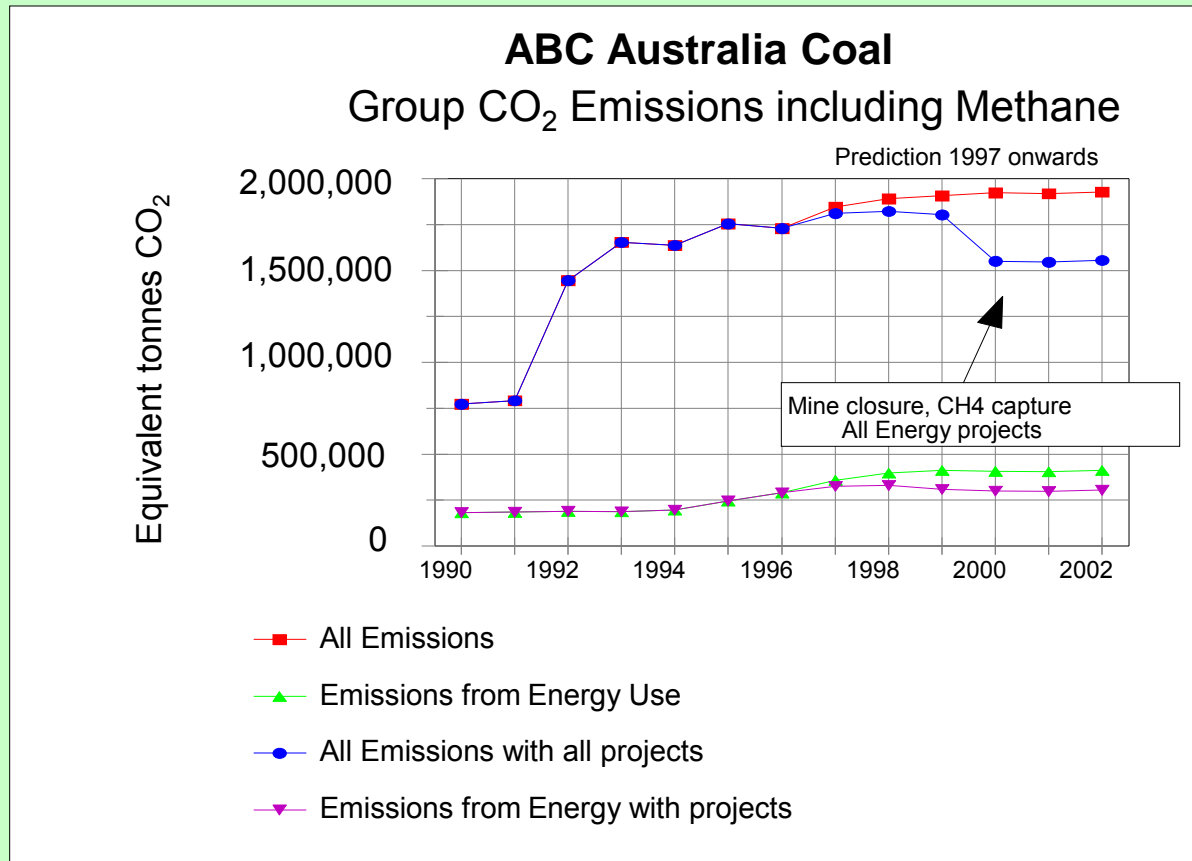
Components of Program - 3

- Greenhouse Strategies
 - Improved Energy Efficiency
 - Reduce Direct and Indirect emissions
 - Change Energy Form
 - Renewable Energy
 - Reduce Wastes
 - Enhance Sinks
 - Specific Projects

Components of Program - 4

- Develop Action Plan and Targets
 - Company Policy
 - Objectives
 - Projects
 - Expected Outcomes
 - Monitoring and Reporting
 - Responsibilities

Group Performance



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Components of Program - 5

- Establish Cooperative Agreement
- Public Statement
- Monitoring and Reporting
 - Annual Review and Report
 - Repeat Inventory

Benefits of Program

- Non Regulatory Response to Environmental Care
- Industry Driven, Peer Group Pressure
- Better Use of Resources
- Good Business Practice
- Saves Money through Energy Efficiency (20% - 50% of energy costs)
- An excellent method of tracking results

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Particular Benefits in Australian Context

- Deregulated Energy Market
 - lower electricity prices by up to 50%
 - lower gas prices to come
- Maintains an Interest in Energy Efficiency at this time

Greenhouse Strategy

Direct Feed to CHPP

- Feed to/from Stockpiles
- Wasting about 1,400,000 kWh per year
- Energy Savings \$ 80,000 - \$100,000
- GWP Savings 1,300 tonnes CO₂
- Project Cost ~ \$5,000
- ROI less than 1 months

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Greenhouse Strategy CHPP Modules

- Two latest modules use 18% more energy
- Energy consumption independent of throughput
- Modules not needed
- Using ~ 1,000,000 kWh/year
- Energy Savings \$ 80,000
- GWP Savings 1,000 tonnes CO₂
- Project Cost ~ \$5,000
- ROI less than 1 month

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Greenhouse Strategy Ventilation Controls

- Methane levels change
- Reduced speed possible
- Variable speed drive/monitor gases
- Using about 4,100,000 kWh/year
- Energy Savings \$ 45,000
- Project Costs \$100,000
- GWP Savings 800 tonnes CO₂
- ROI about 2 years

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Greenhouse Strategy

Air Compressors

- Excessive Leaks
- Continuous Operation
- Using about 2,100,000 kWh/year
- Energy Savings \$ 26,000 (20%)
- Project Costs \$10,000
- GWP Savings 420 tonnes CO₂
- ROI about 6 months

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Greenhouse Strategy Conveyor Belt Controls

- Conveyor Not Shut Down
- Wasting about 600,000 kWh/year
- Energy Savings \$ 36,000
- GWP Savings 600 tonnes CO₂
- Project Cost ~ \$5,000
- ROI 2 months

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Greenhouse Strategy Bathhouse Upgrade

- Composite system
- Dehumidified Air, Heat Pumps
- Water Flow Control Valves
- Retrofit Costs \$125,000
- Labour Savings \$ 45,000
- Energy Savings \$ 25,000
- GWP Savings 430 tonnes CO₂
- ROI less than 2 years

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O/C Mine - Economic Benefits

- Initial Energy Audit Costs \$75,000
- Energy Monitoring Systems - \$300,000
- Cost Savings \$450,000 per year
- CO₂ Savings 4,800-5,500 tonnes/year (Energy Savings)
- Methane/CO₂ - Control of Spon.Comb.
- Land rehabilitated > required restoration

Australia's Greenhouse Challenge Program

- *GOOD BUSINESS SENSE*
- *IMPROVES EFFICIENCY and SAVES MONEY*



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