Centre for Energy and Environmental Markets

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Assessing the performance of emissions trading: some early experience on the possible effectiveness, efficiency and equity impacts of NSW's Greenhouse Gas Abatement Scheme

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Australia's climate policy context for ETS

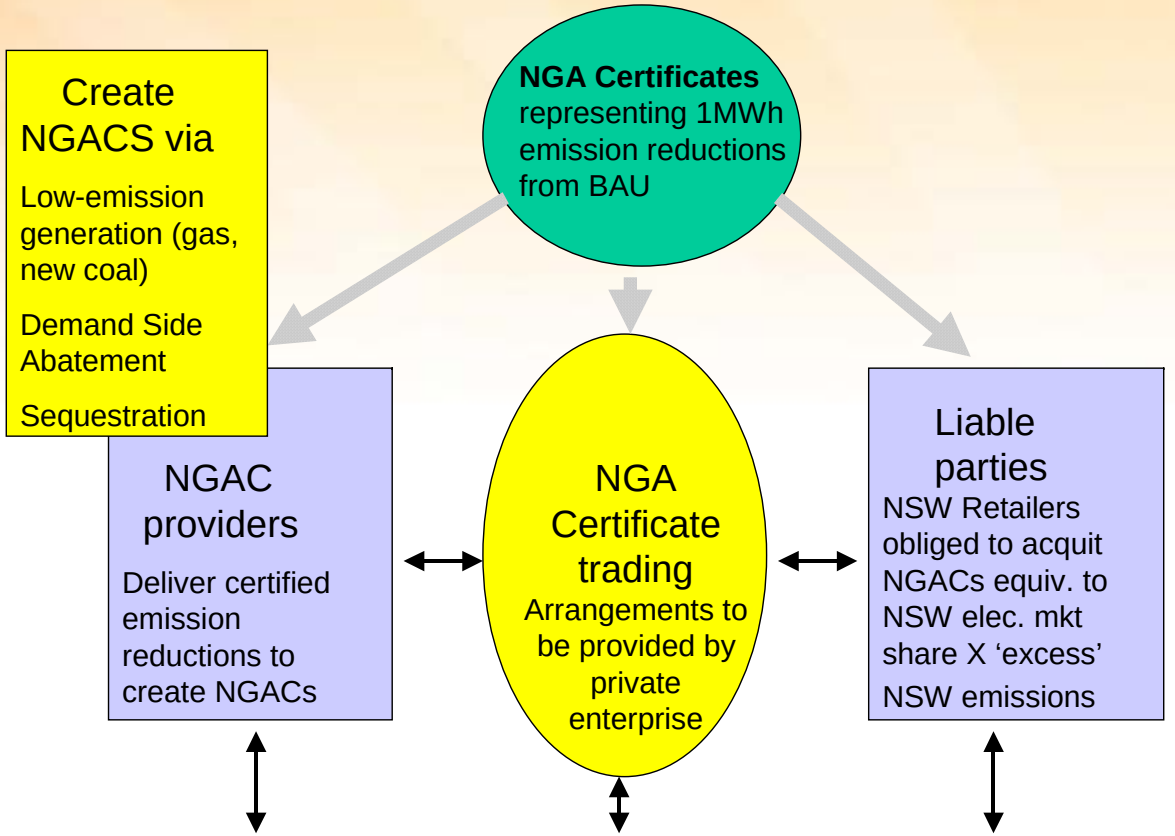
- Australia committed to meeting Kyoto target
  - modest target + generous LUCF rules
    => no major policy effort in energy sector required
    - Govt. projections that within "striking distance" despite stationary energy emissions (½ total) up 40% from 1990–2010
- while 'preparing' for future large-scale emissions reductions,
- and rejecting proposals for a national ETS
  - "Australia will not impose significant new economy-wide costs, such as emissions trading, in its greenhouse response at this stage. Such action is premature, in the absence of effective longer-term global action on climate change, and given Australia is on track to meet its Kyoto 108 per cent target." *White Paper, 2004*
- in favour of limited EE, renewable obligations + R&D&D

The NSW Greenhouse Abatement Scheme

- An ambitious State Scheme implemented in absence of Federal Govt. action
  - "requires NSW electricity retailers and certain other parties to meet mandatory targets for reducing the emission of greenhouse gases from the production of the electricity they supply or use." (IPART, 2004)
- and in a challenging jurisdictional context
  - Other States did not propose equivalent schemes (although Queensland has implemented 13% Gas Scheme)
  - An interconnected electricity market with considerable state competition for investment
  - NSW Govt. ownership of the three major state elec. generators, all networks and the three major retailers
  - Licensing powers over generators and **electricity retailers**

NSW GAS - a 'designer' market

- A 'baseline and credit' scheme
  - commenced 1 January 2003 with mandated life to 2012…. or beyond



Design choices for NSW GAS

Feature	Chosen design
Coverage	Liable parties are electricity retailers or large users (a socialised obligation) Voluntary abatement providers undertaking low-emm. generation, demand side, sequestration, non-CO2 industrial abatement projects (privatised incentives)
Target	Complex imputed State per-capita target for emissions 'arising' from NSW elec. consumption (tCO2-e/per capita)
Allocation	Retailer liability allocated by elec. market share, voluntary abatement project providers, credit for 'earlier' action
Flexibility	Banking and borrowing, large users can 'go alone'
Monitoring / verification	Scheme administrator ensures obligations are met, mix of administrator & third party accreditation
Sanctions	Penalty of A$11/tCO2-e for shortfall, no make-good
Technical aspects	Scheme registry, mainly OTC trading

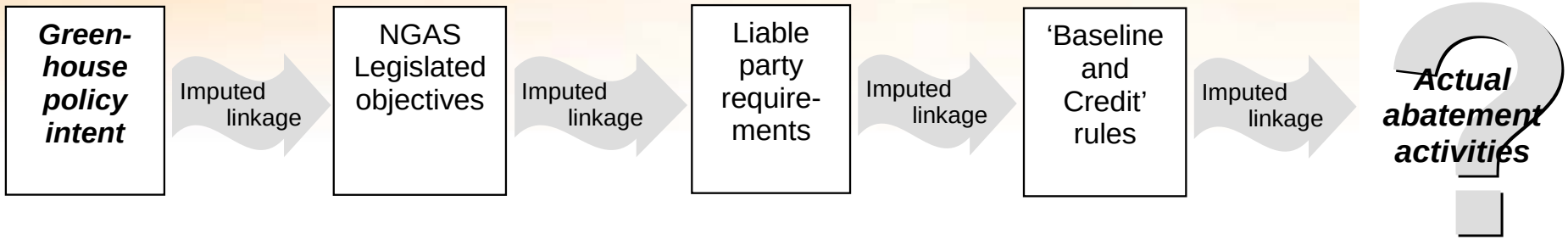
An assessment framework

- Environmental performance – *objective achieved?*
- Economic efficiency – *at least cost?*
- Dynamic incentive – *in way that drives innovation?*
- Technical administration – *and is practical?*
- Equity – *while not being unfair or working entirely against other societal objectives? Includes competitive impacts*

- ***Keeping in mind***
  - Effectiveness is the key
  - The most important efficiency is dynamic – driving innovation
  - ETS not a 'universal' policy measure – can't solve all our problems but must support coherent policy framework
  - ETS is experimental– our understanding and any assessment somewhat speculative, mistakes will almost certainly be made

Environmental performance - abstraction

- B+C schemes can have highly abstracted designs that disconnect *means* from *desired policy ends*
  eg. NSW GAS



Env. performance – 'keeping it real'

- Q – What's the easiest way to save?
- A – By spending!
  - "By some kind of financial alchemy – saving has become something we do while we're spending"
    - Ross Gittins, quoting Hamilton and Denniss, *Affluenza*

Shop Now and Save with Visa
Take advantage of incredible savings when you use your Visa card. Get the latest discounts delivered to your email inbox: sign up and save.

- *And the easiest way to save greenhouse emissions?*

Examples:

- NSW GAS
  - Hazelwood Power Station emits **over 17 Mt/a,** is the **most polluting** major coal-fired station in the OECD and is getting worse – tCO2/MWh up 2.7% over 1998-2004 (WWF, 2005)
  - Hazelwood also accredited abatement certificate provider under NSW GAS + earned 250,000 NGACs in 2003

- Climate policy debate on UK greenhouse reduction targets
  - "They are real relative savings. They are measured against the baseline that was projected… they are genuine reductions on what would otherwise have happened had these policies not been put in place" **DEFRA official questioned by House of Lords Science and Technology Committee, 2005**
  - "If savings are real, they cannot be relative – it is meaningless to talk of savings against what might have happened had certain policies not been in place… We recommend that the Government ground its targets more firmly in reality"
    Committee response (Energy Efficiency Report, 2005).

Environmental performance - additionality

- If scheme doesn't actually change behaviour then no good reasons to implement + many good reasons not to
- **The problem** – additionality is inherently counter-factual + "fiendishly difficult to assess"

- Testing additionality
  - **UK ETS:** NAO estimates third of auctioned reductions from 4 largest over-achievers was non-additional, proposed project-based participation collapsed in part b/c of complexity of additionality testing
  - **CDM:** Rigorous additionality assessment by CDM Executive Board…but considerable controversy and many challenges
  - **NSW GAS:** no formal additionality assessment in abatement rules or performance reporting (removed from early rule drafts)

Assessing additionality in NGAS

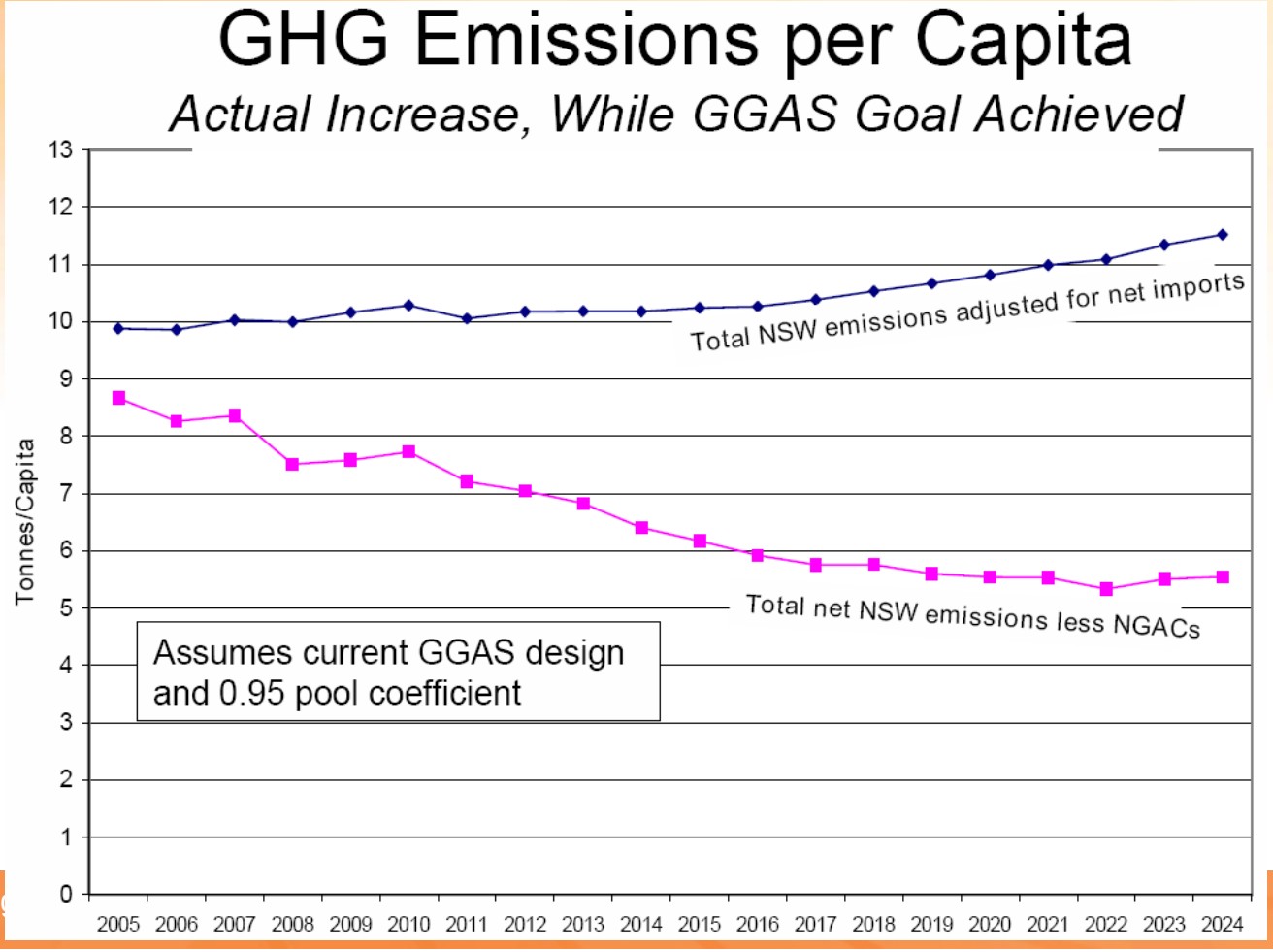
- Limited public reporting but registry available
- An assessment of 2003 registry (Passey et al, 2005)
  - Over 95% of 2003 NGACs from installations built prior to scheme start + that don't have to change operating behaviour to create NGACs
  - **However**, good reasons to ramp up novel policy measures…
- Scenario analysis of possible performance to 2012 (MacGill et al, 2005)

Some potential scenarios of non-additionality for NSW GAS

Scenario mix	½ policy overlap + 60% BAU plant	½ policy overlap + 90% BAU plant	policy overlap + 60% BAU plant	policy overlap + 90% BAU plant
6 million non-additional NGACs from existing projects	62%	65%	75%	78%
6.6 million non-additional NGACs from existing projects	67%	70%	79%	82%
7.5 million non-additional NGACs from existing projects	72%	75%	85%	88%

Environmental effectiveness?

- A scenario of NSW GAS performance to 2025 (NSW DEUS, 2005)



Economic efficiency

Efficiency = (abatement + transaction costs) / tCO2-e abated

- NSW GAS likely to have low efficiency
  - Low additionality
  - High transaction costs – both administration + participant

    Example: Lighting Upgrade Project eligible for estimated $120k NGACs *However*, application + pre-accreditation audit of approx. $10k + requires annual report for 10 years confirming units still installed + operational, layout of stores + use not materially changed, possible spot audits too
  - Price discovery in NGAC market appears poor
- However, never under-estimate mkts ability to find efficiencies
  - **Example:** CDM abatement mainly coming from large non-CO2 projects with questionable sustainable development outcomes
  - "frequent complaint CDM is 'not working' b/c not driving sustainable development…The real problem is that working perfectly in doing what that market-based scheme is designed to do – discover and direct funding to projects that produce max. carbon credits per $ invested."
    (CDM Watch, 2005)

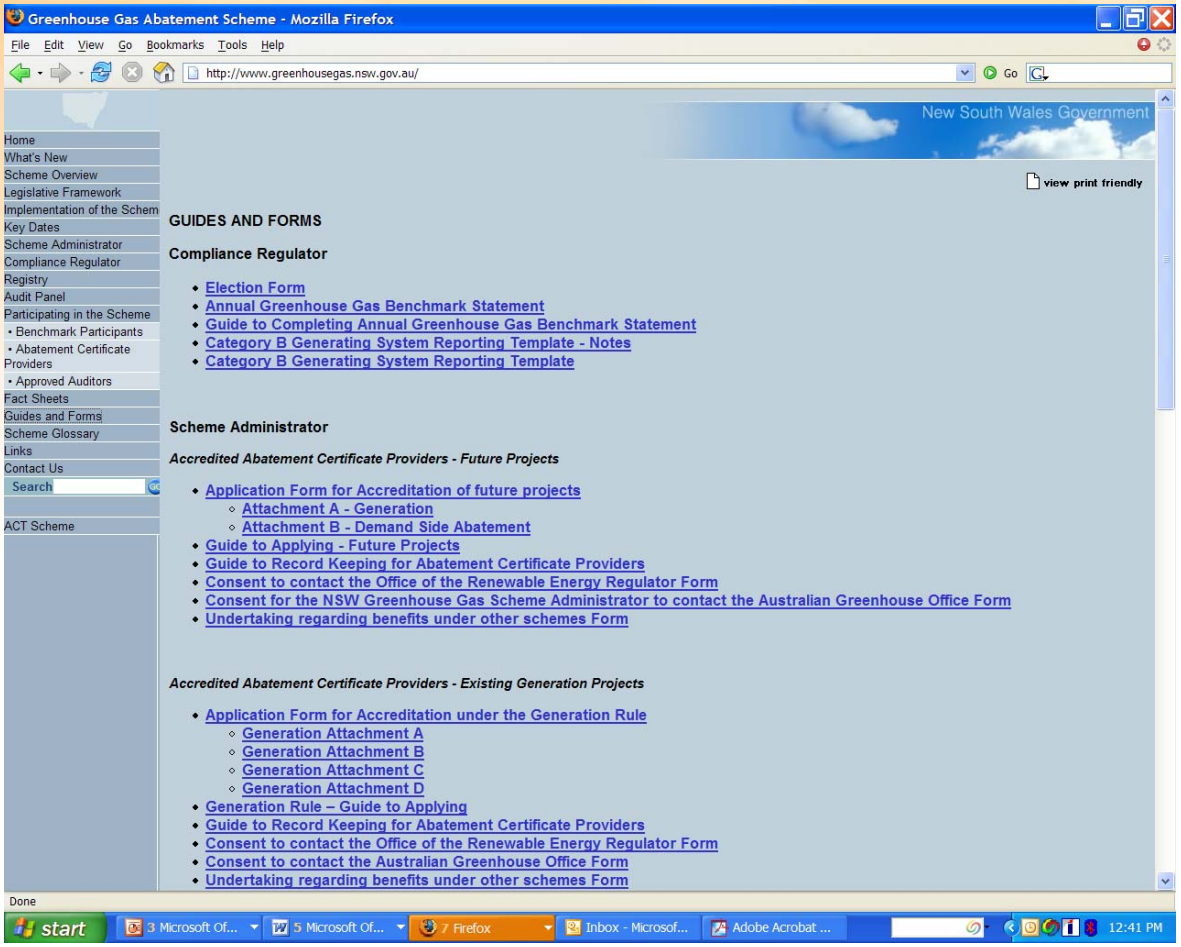
Dynamic incentive

- B+C schemes can focus incentives on most ready, willing + able participants to drive innovation
  - An investment opportunity rather than 'cost of doing business'
  - May help reduce energy price impacts
  - Policies with socialised benefits + private costs can be politically challenging

  However,
  - Transformation of our economies + their dependence on fossil fuels requires we **both** innovate *goods* + restrict *bads*
    - "What counts is not what we do, but what we don't. Success or failure… depends on just one thing: how much fossil fuel we leave in the ground" *(*George Monbiot, 2005)
  - Voluntary 'credits' tend to attract those doing something anyway
  - Effectively socialised liabilities can reduce innovation because don't stop others from continuing *'doing the old bad things'*

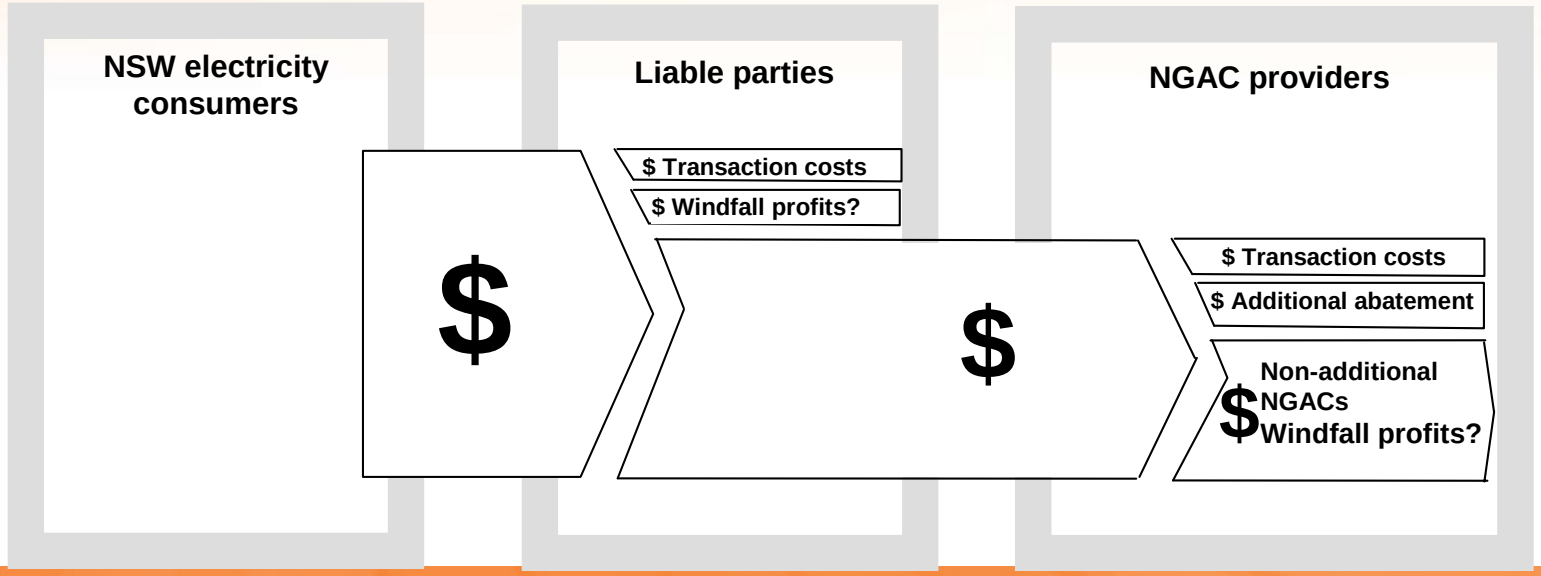
Technical administration

- B+C schemes inevitably complex
- Transparency may be lacking
  – *'commercial in confidence' data*
- Participants will always be testing the rules
  – *a major potential source of competitive advantage*



Equity concerns

- B+C schemes use separate cashflow to primary energy mkt
  - potentially less price impacts
- Flexibility allows finely 'tuned' response to equity concerns
  - Eg. NSW GAS saw single State imposing scheme while other states didn't
- **However,**
  - Schemes often privatise benefits yet socialise costs
  - Low additionality a problem, particularly if poor price discovery



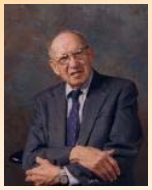
The NGAC market

- Spot + forward NGAC prices currently near penalty (A$11/tCO2)
- Possible explanations
  - CEEM additionality assessment wildly wrong
  - Steep marginal cost curve for actual 'additional' abatement
  - Market initialisation + short-term lack of supply
  - Market power?
    - 4 providers supplied 80% of NGACs in 2003 although more suppliers now entering market
    - 3 major buyers, all State Govt. owned
  - **Tacit collusion?**
    - High 'mkt' prices but low liquidity + little transparency
    - Some retailers also large NGAC providers
    - Retailers able, in at least part, to pass on high 'mkt' prices to customers

What next for NSW GAS?

- NSW Govt. leading efforts for a multi-state ETS
  - A proposed ‘cap and trade’ scheme initially over stationary energy sector, all six GHG gases, mix of grandfathering + auctioning with credit for early action, offsets included, price-ceiling
  - Likely to be a ‘messy’ policy process
  - Transition from NSW GAS doesn’t seem straightforward
- but says it will extend NGAS to 2020 if these efforts fail

A challenging policy process

- Ideally
  - "Start with what is right rather than what is acceptable"
    - Peter F. Drucker  and/or Franz Kafka 
- In practice
  - "Politics is not the art of the possible. It consists in choosing between the disastrous and the unpalatable."
    - John Kenneth Galbraith 
- **The risks** – many for ETS designers, participants, the public and the climate
  (not just an issue for 'baseline and credit' schemes)

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Thankyou… and *questions*

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