

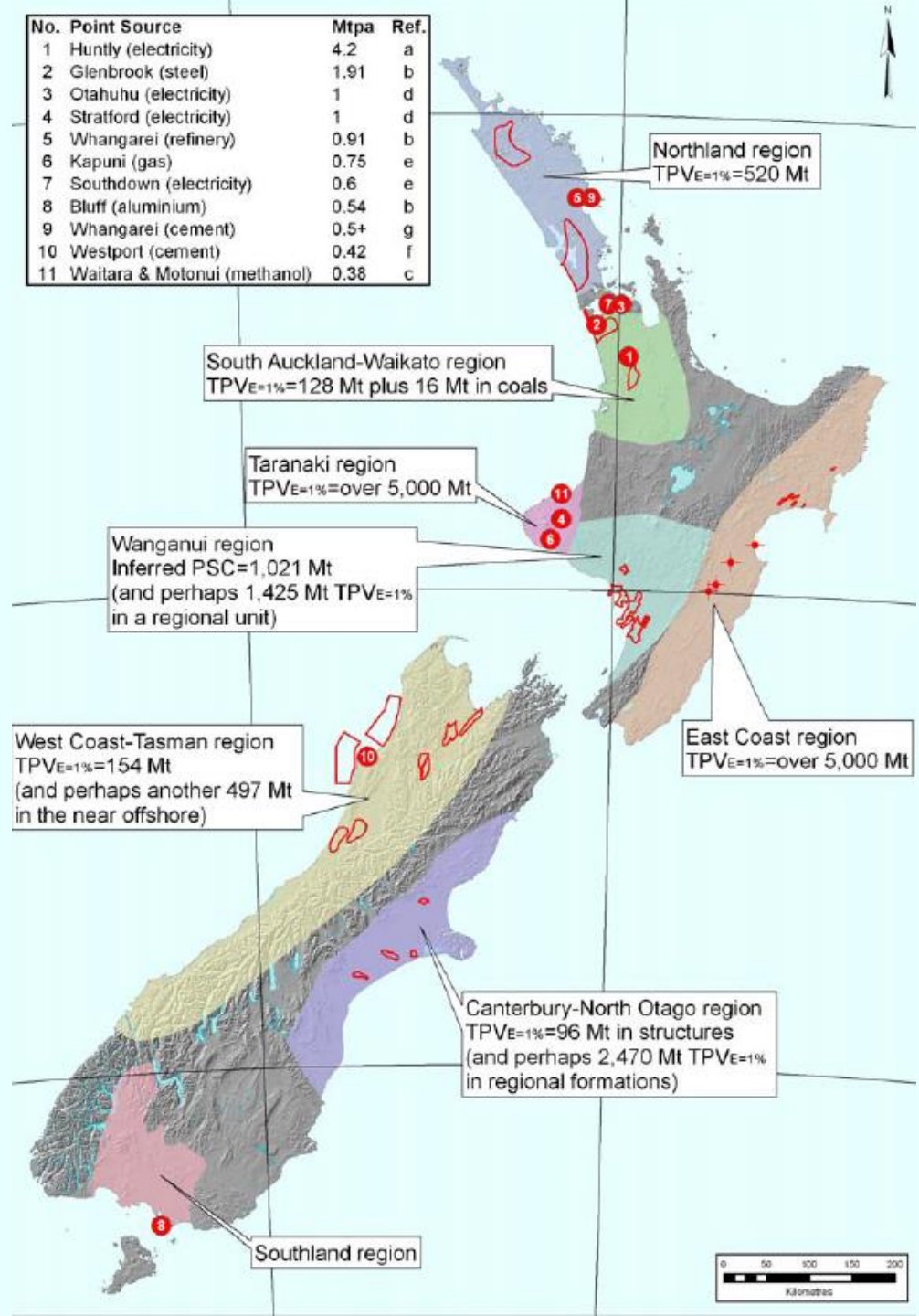
Carbon Capture and Storage: Creating a Legal Regime for New Zealand

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Onshore regions with the potential for the underground storage of CO₂ with estimated storage capacities

B Field et al, *New Zealand Carbon Dioxide Storage Site Assessment Phase 2*, GNS Science, 2009.



Background of the Study

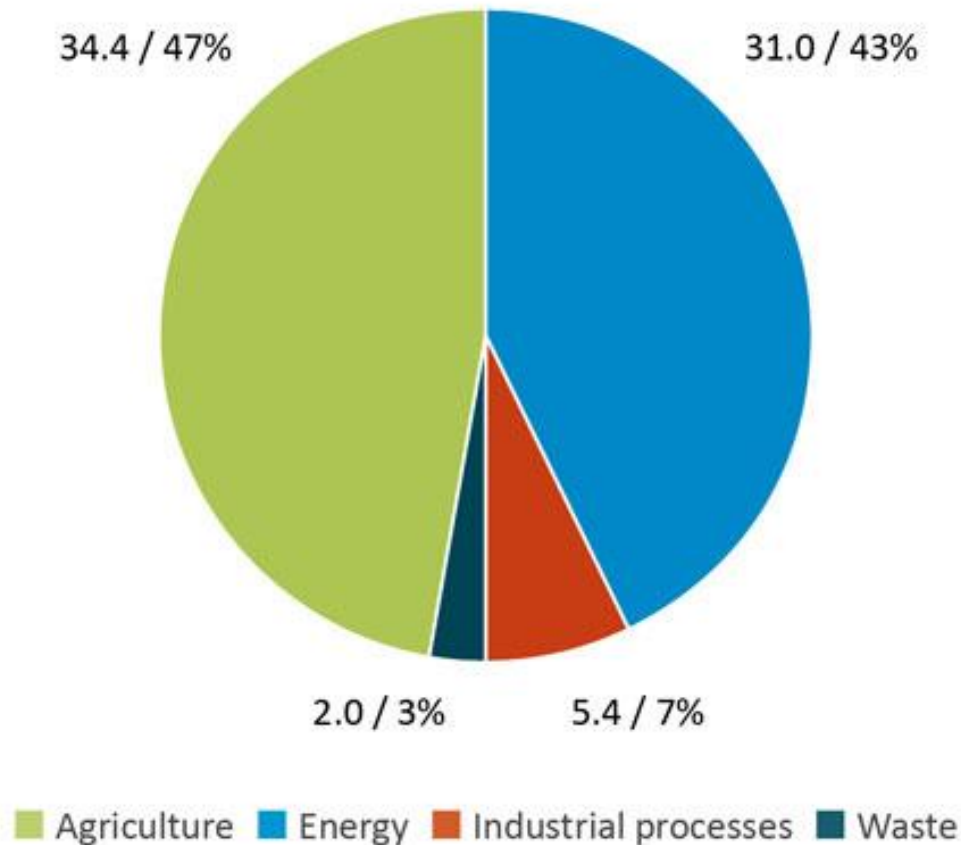
- Research in NZ on CCS sources and CCS sinks.
- NZ CCS Partnership formed in 2006, involving researchers, government and industry.
- NZ participates in the Global CCS Institute.
- NZ participated in the Australian Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC).
- NZ has no CCS demonstration projects, no subsidies.
- Low carbon price under the Emissions Trading Scheme (ETS). Government policy is to follow, rather than to lead, international work on climate change.

New Zealand's main point sources of CO₂

B Field et al, *New Zealand Carbon Dioxide Storage Site Assessment Phase 2*, GNS Science, 2009.

Point source	Type	Region	Mt pa (approx)	Reference
Huntly	Electricity from gas & coal	Waikato	4.2	Genesis Energy
Glenbrook	Steel	S. Auckland	1.91	MED, 2009
Otahuhu-B	Electricity from gas	S. Auckland	1	Contact Energy
Stratford	Electricity from gas	Taranaki	1	Contact Energy
Whangarei/Marsden Pt	Oil refinery	Northland	0.91	MED, 2009
Kapuni/Vector	Natural gas	Taranaki	0.75	Vector
Southdown	Electricity from gas	S. Auckland	0.6	Edbrooke et al., 2009a
Bluff/Comalco	Aluminium	Southland	0.54	MED, 2009
Portland/Golden Bay Cement	Cement	Northland	0.5+	Holcim
Westport/Holcim	Cement	West Coast*	0.4	Holcim

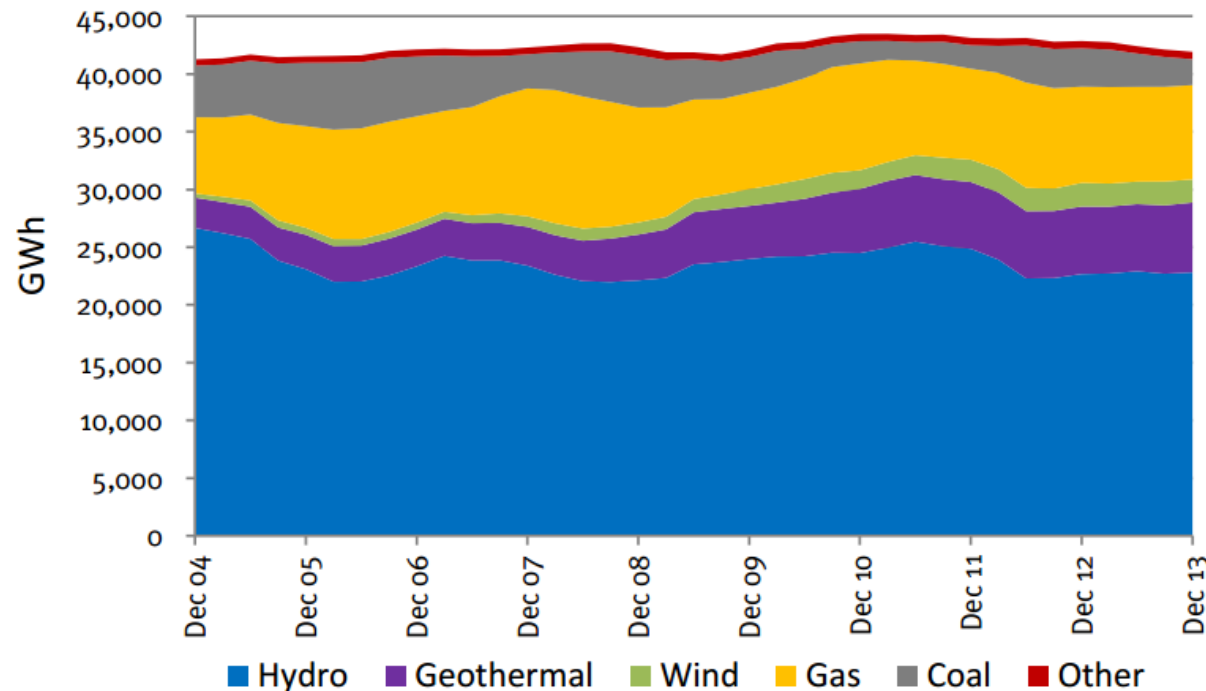
New Zealand's Emissions Profile



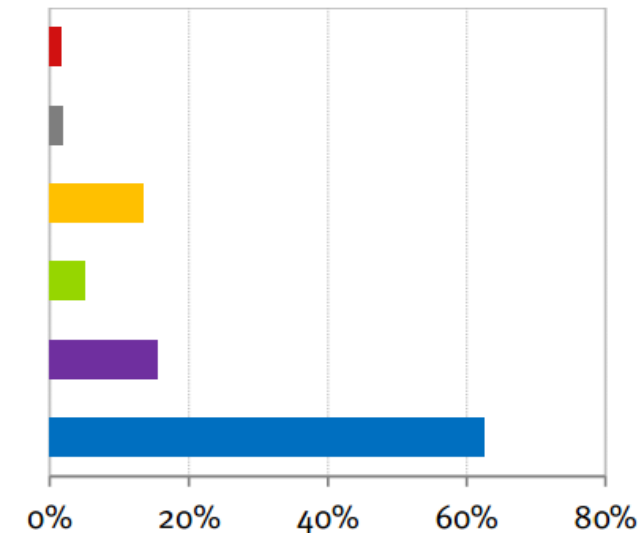
New Zealand's greenhouse gas emissions (by sector, in million tonnes of CO₂ equivalent) in 2011. Ministry for the Environment, 2013.

New Zealand's Emissions Profile

Annual Electricity Generation, year ending 31 December



Share of Electricity Generation, December Quarter 2013



Pg 5 → New Zealand Energy Quarterly → December Quarter 2013

- So CCS is not an immediate answer to NZ's GHG problems.
- But CCS may occupy niches.

Form of the Study

- The research was in response to an initiative of the NZ Ministry of Business, Innovation, and Employment (MBIE) as part of its research funding.
- Advisory Committee: NZCCS Partnership, government, industry, practitioners, public policy experts.
- International comparisons: Canada, Nigel Bankes; Australia, Robert Pritchard; Norway and EU, Hans-Christian Bugge.
- Internal Waikato Faculty contributions: Margaret Wilson, Valmaine Toki, Trevor Daya-Winterbottom.

Focus of the Study

- The study made recommendations to make CCS possible in New Zealand, subject to proper regulatory constraints. To facilitate evaluation and implementation if approved.
- It did not consider policy settings or carbon prices that will bring CCS about or promote it.
- Its focus was the regulation **of** CCS, not regulation **for** CCS.
- We used the IEA *Model Regulatory Framework* and WRI *Guidelines* in particular; and Australian, Canadian, and EU laws.



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Carbon Capture and Storage:

Designing the Legal and Regulatory Framework for New Zealand

September 2013

Barry Barton, Kimberley Jordan and Greg Severinsen

with contributions from Nigel Banks, Hans Christian Bugge,
Trevor Daya-Winterbottom, Robert Pritchard, and Valmaine Toki

A report for the Ministry of Business, Innovation and Employment
and the New Zealand Carbon Capture and Storage Partnership

Available:
www.waikato.ac.nz/cerel

Issues Addressed in the Research

1. Whether CCS injection activities can be managed under existing law.
2. The introductory matters required in the CCS Act.
3. Property rights.
4. A permitting regime.
5. Detailed regulation of CCS activities.
6. The relationship with other subsurface activities.
7. Transportation of CO₂.
8. CCS in the marine environment.
9. Liability issues.
10. GHG accounting under the Emissions Trading Scheme.
11. Matters that require early attention.

Relationship with Environmental Law

Can CCS be handled under the Resource Management Act (RMA)?

“No person may discharge any contaminant from any industrial or trade premises onto or into land”.

- We decided that CCS should come out of the RMA for injection and fluid movement, but not otherwise.
- Difficulties existed in RMA provisions that keep CO₂ management out of ordinary environmental regulation and in the ETS; and with time scales.
- The RMA has high levels of integration of regulation.
- The RMA provides well for public participation.

Objective of a New CCS Law

- We recommended a statutory objective:

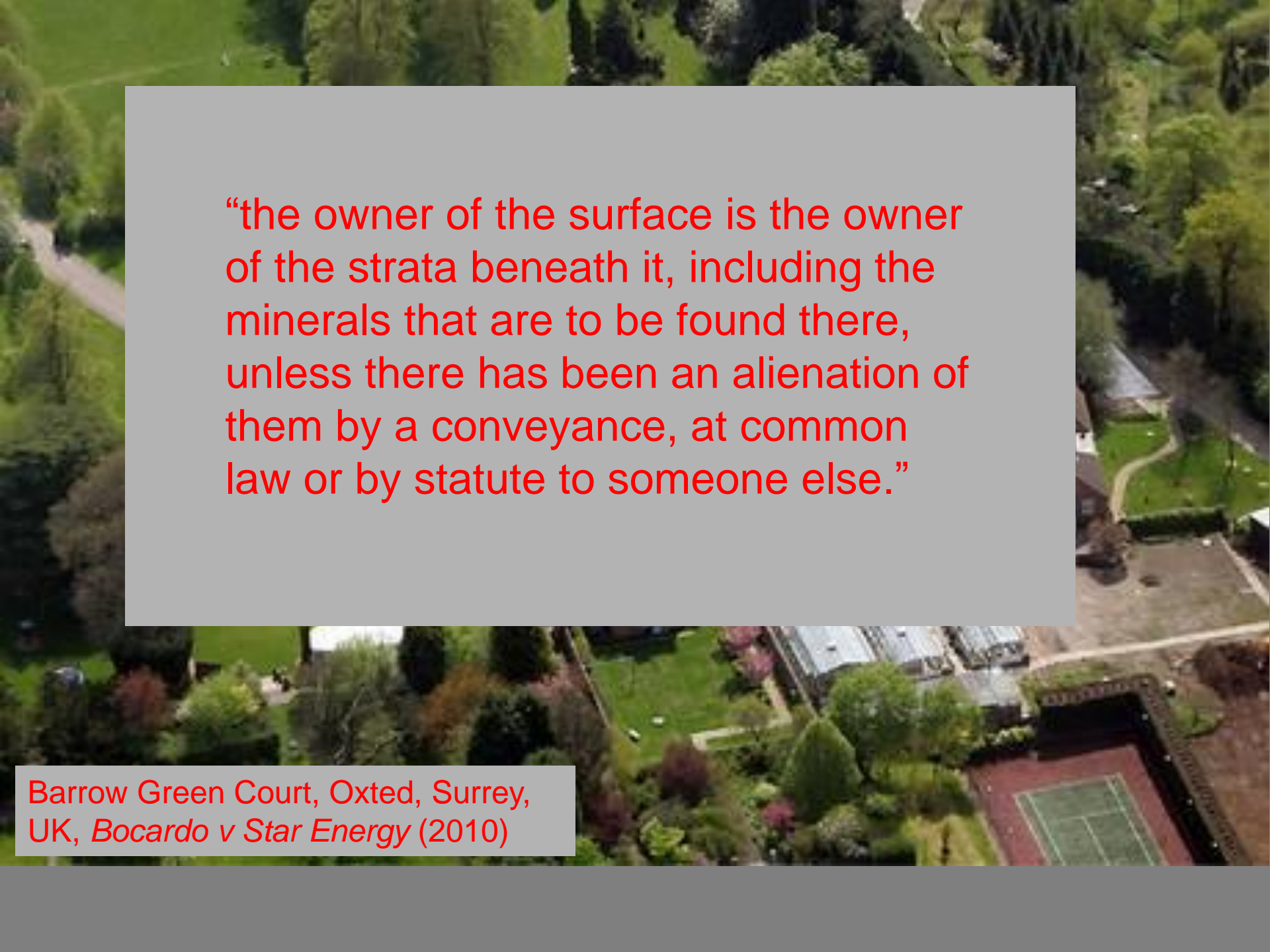
To facilitate and to regulate the permanent geological sequestration of CO₂ as part of efforts to reduce the emission into the air of greenhouse gases, in such a way as to protect the environment and human health and safety.

- We recommended statutory principles as to:

- (i) protection of underground sources of drinking water;
- (ii) management of conflict between CCS and other uses of subsurface resources;
- (iii) protection of market confidence through regulatory clarity and proper GHG accounting;
- (iv) obligation to take into account, the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

Property Rights

- Our analysis led us to take a stronger line than many about the rights of surface owners to the subsoil, independently of mineral owners.
- There is no “English Rule” for pore space.
- The new Act should vest in the State all rights and powers necessary to explore for and develop CCS capacity, to inject CO₂ into the subsurface of land, and to sequester it there permanently; along with all necessarily incidental rights and powers.
- (Cf a vesting of pore space, or of storage capacity.)
- Compensation should be payable for actual loss or diminution of value of the land, but not otherwise.



“the owner of the surface is the owner of the strata beneath it, including the minerals that are to be found there, unless there has been an alienation of them by a conveyance, at common law or by statute to someone else.”

Barrow Green Court, Oxted, Surrey, UK, *Bocardo v Star Energy* (2010)

Relationship with Petroleum Law

- Does CCS come under the Crown Minerals Act?
- Conflict between CCS and other underground uses, eg petroleum or geothermal; how to avoid it, how to deal with it.
- We recommended discretionary ministerial powers, subject to a set of principles. To apply to both Acts.
- How to encourage petroleum industry interest in CCS, eg in exploration and reporting.
- Enhanced Oil Recovery (EOR) needs more work.

Relationship with the Emissions Trading Scheme

- In the NZ ETS, points of obligation are upstream. There is provision for removal activities to receive credits. CCS will be a separate sink function that receives removal credits.
- Little change to the Climate Change Response Act is needed, but new Removal Regulations are needed.
- CCS measurement, monitoring and verification (MMV) should be aligned to ETS requirements. Better provision is needed for surrender of units in case of leakage from a formation.

Future Outlook:

Will the Study Result in Legislation?

- There is no policy program under way for CCS law reform and regulation.
- No CCS projects are under discussion.
- An election is due in September 2014.
- Putting a CCS law in place may be attractive to a government in order to show movement on GHG emissions.
- CCS may have niche applications in a resource-intensive economy.
- There are opportunities for early action.

