



Fugitive Coal Seam Methane in the NZ ETS

Date:	20 August 2009	MfE Priority:	Not Urgent
Security Level:		Number of Attachments:	Two
		MfE Ref No:	09-B-02448

Action Sought

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Minister for Climate Change Issues Hon Dr Nick Smith	Forward a copy of this briefing to the Minister of Energy and Resources, Associate Minister of Energy and Resources, Minister of Trade and Minister for State-Owned Enterprises for their information Sign the attached letter	31 August 2009

Ministry for the Environment Contacts

Name	Position	Telephone		1st Contact
		(cell)	(work)	
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Executive Summary

The cost to New Zealand attributable to fugitive emissions of methane from the activity of coal mining (FEM) is estimated at roughly \$18 million per annum. The coal industry have requested that FEM be either exempted from the New Zealand Emissions Trading Scheme (NZ ETS) or alternatively given a default emissions factor (DEF) of zero. In either situation, this cost would be borne by the taxpayer.

Two key principles of the NZ ETS are that it is an all-gases, all-sectors scheme, and that the approach to emissions reporting taken in New Zealand's greenhouse gas inventory (the inventory) guides reporting and surrender requirements under the NZ ETS. These principles help to ensure fairness across sectors, maintain the integrity of the NZ ETS, and provide for a clear price signal. Divergence from the approach taken in the inventory carries fiscal and economic risks.

New Zealand's topographical and geological conditions mean there may be considerable variation in FEM between and across coalfields. Consequently, DEFs may overestimate emissions from any given coalfield. It is possible to claim a reduction in the global warming potential and hence financial liability of 85% for any FEM that is captured and burnt or oxidised.

In response to submissions from the coal industry, a unique emissions factor process for underground mining has been developed. Pike River Coal is comfortable with this; Solid Energy remains opposed to any inclusion of FEM in the NZ ETS.

Attached is a draft letter in response to a joint letter to you from four members of the coal sector.

Recommended Action

We recommend that you:

- (a) **Forward** a copy of this briefing to the Minister for Energy and Resources, Associate Minister of Energy and Resources, Minister of Trade and Minister for State-Owned Enterprises for their information **Yes / No**

- (b) **Sign** the attached letter **Yes / No**

Stuart Calman
Director
Climate and Risk Policy Directorate

Date

Hon Dr Nick Smith
Minister for Climate Change Issues

Date

Purpose of Report

1. You have requested further information on the treatment of fugitive coal seam methane in the NZ ETS. This note also provides context for the attached draft letter in response to a joint letter to you from four members of the coal sector.

Background

2. Section 207 of the Climate Change Response Act 2002 (the Act) requires coal miners to surrender units in respect of any coal seam gas associated with mining. In the absence of an amendment to the Act to exclude fugitive emissions of methane (FEM) from the NZ ETS, regulations setting out emissions calculation methodologies for coal mining participants must therefore provide a way to calculate liabilities associated with FEM.
3. Dr Don Elder, CEO Solid Energy, Gordon Ward, CEO Pike River Coal, Brent Francis, Executive Director, NZCC and Trevor Matheson, Secretary, Coal Association of New Zealand have requested further consideration of the treatment of fugitive emissions of methane (FEM) in the regulations governing the activity of coal mining under the New Zealand Emissions Trading Scheme (NZ ETS).

Key Points

4. The cost to New Zealand attributable to FEM is estimated at roughly \$18 million per annum (assuming a carbon price of \$25 per tonne). This figure is based on 2008 coal production figures indicating a cost of around \$1.8 million from surface mining nationally and around \$6.7 million from underground mining by Solid Energy and NZCC. It also includes an additional \$9.5 million based on annual production at Pike River projected to increase from zero in 2008 to 1 million tonnes of coal by 2010/2011.

Source category	Coal production (tonnes p.a.)	Tonnes CO ₂ e from FEM	Estimated cost (NZ\$ p.a.)
Surface mining (2008)	4,064,100	73,154	1,800,000
Underground mining (2008)	845,300	269,846	6,700,000
Projected underground mining from Pike River (2010/11)	1,000,000	385,000	9,500,000
TOTAL			18,000,000

5. The coal industry have requested that FEM be either exempted from the NZ ETS or alternatively given a default emissions factor (DEF) of zero. This estimated cost of \$18 million per annum would be borne by the taxpayer in either situation.
6. The NZ ETS is, as a matter of principle, an all-gases, all-sectors emissions trading scheme. This principle helps to ensure fairness across sectors, maintains the integrity of the NZ ETS and provides for a clear price signal.
7. This approach is consistent with New Zealand's obligations under the Kyoto Protocol which form the basis for calculating New Zealand's national liabilities. The alignment between the NZ ETS and New Zealand's greenhouse gas inventory (the inventory) is intended to achieve approximate fiscal neutrality and to provide appropriate incentives to

8. Divergence from the approach taken in the inventory, either in which emissions sources are included in the NZ ETS or in setting emissions factors, carries a fiscal risk to the Crown. While in any individual case this risk may be relatively small, the systemic fiscal risk is larger, as other sectors may also then seek different treatment on the basis of potentially limited evidence.
9. As noted in the letter from the coal sector, the recommendation against including FEM in the NZ ETS in the departmental report on the Climate Change (Emissions Trading and Renewable Preference) Bill which amended the Act in September 2008 was not adopted.

Proposed treatment of FEM in regulations

10. The regulations provide for coal mining participants to account for FEM by multiplying tonnes of coal mined from the surface or underground by the DEF used in the inventory. This is the same method by which New Zealand's national liability for FEM is calculated.
11. During each round of formal consultation on the draft regulations (Oct–Dec 2008 and June–July 2009), Solid Energy and the Coal Association of New Zealand have argued for FEM to be exempt from the NZ ETS. They assert that the DEFs from the inventory are likely to over-estimate FEM but have provided only limited evidence to support the use of alternative DEFs.
12. They argue that there are no practical ways to reduce emissions from FEM. This is not accurate. While coal miners must expel methane for health and safety purposes, if they capture and burn or oxidise this gas, the global warming potential and hence the associated financial liability can be reduced by 85% under the regulations. Although this practice is not currently in widespread use, it is feasible. Pike River Coal have told officials informally that should they find that more methane is emitted from their mine than currently estimated, they intend to capture and burn this gas.

Unique emissions factor provisions

13. New Zealand's topographical and geological conditions mean that there may be considerable variation in FEM between and across coalfields and consequently the DEFs may overestimate emissions from any given coalfield. However, on the strength of industry advice that measurement difficulties for FEM were too great, no process to apply for a unique emissions factor (UEF) for FEM was included in the draft regulations released for consultation in June 2009.
14. The coal industry has indicated in submissions that it is willing to work with officials to develop New Zealand-specific emissions factors. To date, only Pike River Coal has provided information to support the inclusion of a UEF process in the current regulations.
15. Meanwhile, officials have developed a generic UEF methodology for FEM from underground mining. This will enable all participants to apply for approval to use a mine-specific emissions factor in place of a DEF where the evidence can support this. The proposed process draws on existing measurement equipment and processes and consequently should be at a reasonable cost for participants. It is also consistent with inventory requirements and should result in no cost to the taxpayer.

16. Pike River Coal has indicated informally to officials that they are comfortable with this approach as all underground mines already continuously measure methane, although they would prefer to see FEM exempted entirely from the NZ ETS.
17. Solid Energy continues to consider this proposed UEF methodology insufficient:
 - a. It does not provide for a UEF for surface mining. This is because the cost and complexity of the necessary sampling and testing would outweigh the benefits. Surface mining has a relatively low emissions factor and consequently there is a relatively low cost per tonne of coal mined.
 - b. The revised process does not allow a discount for FEM which they say may have been released into the mine during Crown-controlled mining activities in the past but not yet released to atmosphere. Instead, all emissions released to atmosphere from the date the activity of mining coal enters the NZ ETS must be accounted for.
 - c. Solid Energy also argues that existing measurement equipment should not be used as this is for health and safety purposes; they are silent on whether they would support a requirement to install purpose-built equipment instead.
18. The proposed reply to the four signatories attached has been drafted so as to be consistent with your decision not to remove FEM from the Act and the principle of alignment between the NZ ETS and the inventory which protects the Crown's fiscal position. However, indications are that certain stakeholders will remain opposed to any treatment of FEM other than exemption or zero-rating.

Dr Don Elder, Gordon Ward, Brent Francis and Trevor Matheson
Solid Energy, Pike River Coal, NZCC and the Coal Association of NZ
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Dear Dr Don Elder, Gordon Ward, Brent Francis and Trevor Matheson

Thank you for your letter of 5 August 2009 regarding fugitive emissions of methane (FEM) from coal mining.

My number one priority is getting a settled New Zealand Emissions Trading Scheme (NZ ETS) in place to provide a clear price signal and certainty for businesses. As part of this, I will shortly be recommending the Governor General make regulations setting out emissions calculation methodologies for the stationary energy and industrial processes (SEIP) sectors of the NZ ETS.

As you note, FEM are included in the Climate Change Response Act 2002 (the Act). I understand there are measurement difficulties associated with FEM. For this reason, and as recommended by the 2008 SEIP Technical Advisory Group, the draft regulations use default emissions factors (DEFs) as a pragmatic and administratively simple method for reporting on emissions.

I have directed officials to set the DEFs according to the best quality data available that is consistent with the approach taken in New Zealand's National Greenhouse Gas Inventory (the Inventory). The Inventory is made up of many sources of emissions which are individually small but together create a large total. It is vital that we get a price signal in the electricity market where our emissions have more than doubled since 1990.

I understand that officials have been discussing with you a possible process to allow for a unique emissions factor (UEF) for FEM from underground mining. Based on existing measurement equipment and processes, this process should be relatively simple and enable you to use a mine-specific UEF.

I would also note that it is not accurate to say that the only practical way to reduce FEM is to reduce production. There are provisions in the draft regulations to reduce the financial liability from FEM by 85% for methane that is captured and combusted or oxidised. Although this technology may not yet be widely used in New Zealand, I understand it is feasible for underground mines. A price signal in the NZ ETS may encourage the wider deployment of this technology.

Yours sincerely

Hon Dr Nick Smith
MINISTER FOR CLIMATE CHANGE ISSUES