

14 GREENHOUSE GASES AND CLIMATE CHANGE

14.1 INTRODUCTION

This chapter provides further description on greenhouse gases and climate change for the Supplementary Environmental Impact Statement (EIS), in response to various submissions on the EIS, and to government policy changes since the EIS was published. The information presented builds on the EIS, Volume 1, Chapter 14 Climate Change and should be read in conjunction with the EIS chapter.

14.2 GREENHOUSE GAS POLICY BACKGROUND

14.2.2 AUSTRALIA'S CLIMATE CHANGE POLICY AND LEGISLATION

Since the preparation of the EIS, legislative and policy changes regarding greenhouse gases and climate change have occurred, with the following section providing an update to that given in the EIS Volume 1, Chapter 14 Greenhouse Gases and Climate Change.

Carbon Pollution Reduction Scheme (CPRS)

In December 2008, the Commonwealth Government released its White Paper on the design of the Carbon Pollution Reduction Scheme (CPRS). The CPRS will comprise a cap on Australia's greenhouse gas emissions as well as implementing a carbon emissions trading scheme so that affected industries can purchase credits to permit their GHG emissions. On 4 May 2009, the Australian Government announced that it would delay the start date of the CPRS to 2011 to manage the impacts of the global recession.

At a minimum, the Government has committed to an unconditional 5% reduction below 2000 levels of GHG emissions by 2020. More recently the Government has indicated that if the world agrees to a global deal to stabilise levels of greenhouse gases in the atmosphere at 450 parts per million carbon dioxide equivalents (CO₂-e) or lower by mid century, Australia will commit to reducing Australia's emissions by 25% below 2000 levels by 2020. The CPRS will cover stationary energy, transport, fugitive emissions, industrial processes, waste and forestry sectors, and the six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) included under the Kyoto Protocol from the time the scheme begins.

Under the CPRS, entities responsible for emission sources that emit more than a specified threshold amount of greenhouse gases (GHGs) will be required to surrender permits at the end of each compliance period to match their GHG emissions. If a covered entity fails to surrender sufficient permits, it will be subject to penalties. Xstrata Coal, as the partner of the WJV taking responsibility for GHG emissions of the Project on behalf of the joint venture, will be required to obtain and surrender permits with respect to the covered GHG emissions from the Wandoan Coal Project.

Six Commonwealth Bills have been released by the Government in relation to the CPRS including:

- Carbon Pollution Reduction Scheme Bill 2009
- Australian Climate Change Regulatory Authority Bill 2009
- Carbon Pollution Reduction Scheme (Consequential Amendments) Bill 2009
- Carbon Pollution Reduction Scheme (Charges — General) Bill
- Carbon Pollution Reduction Scheme (Charges — Excise) Bill
- Carbon Pollution Reduction Scheme (Charges — Customs) Bill.

The Government proposes to commence the scheme on 1 July 2011.

14.3 INVENTORY METHODOLOGY

14.3.2 INVENTORY OPERATIONAL BOUNDARIES

As stated in EIS Volume 1, Chapter 14 Greenhouse Gases and Climate Change, section 14.3.2, the scope of the greenhouse gas inventory for the Wandoan Coal Project also includes indirect greenhouse gas emissions resulting from the Project's activities, but occurring from sources not owned or controlled by the WJV. These indirect emissions are categorised as Scope 3 emissions.

14.4 SCOPE 1 AND SCOPE 2 EMISSIONS

14.4.1 FUGITIVE EMISSIONS

In response to submissions on the EIS, it is noted that as stated in EIS Volume 1, Chapter 14 Greenhouse Gases and Climate Change, section 14.4.1, fugitive emissions of coal seam gas have been estimated and quantified as part of the greenhouse gas emissions inventory.

14.5 INVENTORY UNCERTAINTY ANALYSIS

14.6 SCOPE 3 EMISSIONS

14.6.1 CALCULATION APPROACH

As stated in the EIS Volume 1, Chapter 14 Greenhouse Cases and Climate Change, section 14.6.1, in calculating Scope 3 emissions attributable to the Project, greenhouse gas emissions associated with the transport of coal product to the ports, the shipping of coal from Gladstone to Asia and South America, and the consumption of coal for electricity generation have been explicitly accounted for.

14.7 LIFE OF MINE FULL FUEL CYCLE EMISSIONS

14.8 COMPARISON WITH AUSTRALIAN AND WORLD EMISSIONS

14.8.1 AUSTRALIAN EMISSIONS

Based on the Australian Government Department of Climate Change National Inventory Report 2007, the estimated national greenhouse gas emissions for 2007 were 541.2 million tonnes (Mt), CO₂-equivalent (CO₂-e) excluding the land use, land use change and forestry (LULUCF) sector. From year to year the LULUCF sector may change from a net source to a net sink. In 2007, the LULUCF sector was a net source of 284.7 Mt. The trends in the LULUCF sector are primarily driven by inter-annual climate variability and natural disturbance, which tends to mask other, underlying patterns in the sector directly associated with human activities. To be consistent with the EIS, for the purposes of comparison of Project emissions against the National inventory, LULUCF has been included in the National total.

The energy sector was the largest source of greenhouse gas emissions in 2007 comprising 408.2 MT CO₂-e or 75.4% of the total net emissions (excluding LULUCF).

Table 14-1 shows total annual Scope 1 and 2 emissions at different stages of the life of the mine as a percentage of Australian total and energy sector emissions taken from the National Inventory Report 2007. This assumes worst case GHG performance from the Project, which occurs when 100 percent of its electricity is purchased from the grid.

Table 14-1: Comparison of Australian (including LULUCF) and Project GHG emissions, assuming 100% grid-purchased electricity

Year of operation	Proportion of Australian energy sector total (%)	Proportion of Australian total (%)
1 (minimum GHG emissions)	0.06	0.03
24 (peak GHG emissions)	0.16	0.08
7 (approximate average GHG emissions)	0.14	0.07

14.8.2 QUEENSLAND EMISSIONS

Table 14-2 shows total annual Scope 1 and 2 emissions at different stages of the life of the mine as a percentage of Queensland total (including LULUCF) and Queensland energy sector emissions taken from the National Greenhouse Gas Inventory 2007. This also assumes worst case GHG performance from the Project, which occurs when 100 percent of power consumption is electricity purchased from the grid.

Queensland total emissions were 181.6 Mt CO₂-e (including LULUCF) according to the National Greenhouse Inventory 2007.

Table 14-2: Comparison of Queensland (including LULUCF) and Project GHG emissions

Year of operation	Percent of Queensland energy sector	Percent of Queensland total
1 (minimum GHG emissions)	0.26	0.14
24 (peak GHG emissions)	0.67	0.36
7 (approximate average GHG emissions)	0.59	0.32

When viewed in context of Queensland, Scope 1 and 2 emissions from the Project are not considered materially relevant given the Project emissions are 0.67% of the Queensland energy sector at peak annual emissions (Year 24).

14.8.3 COMPARISON WITH WORLD EMISSIONS

According to the United Nations Framework Convention on Climate Change (UNFCCC), aggregate emissions from Annex I countries in 2006, including the contribution from land use, land use change and forestry (LULUCF) was 18,019.6 Mt CO₂-e, using UNFCC National Greenhouse Data for the period 1990-2006, United Nations, November 2008. Emissions from non-Annex I countries including LULUCF was 11,931 Mt CO₂-e in 1994, the most recent year for which data from non-Annex I countries is available (UNFCCC, Sixth compilation and synthesis of initial national communications from Parties not included in Annex I to the Convention, United Nations, 2005).

Using these two figures, annual global GHG emissions from reporting countries can be estimated as 29,950 Mt CO₂-e. The Project's maximum annual full fuel cycle emissions (including Scope 1, 2 and 3) are approximately 49.9 Mt CO₂-e and they occur in Year 6 of operation based a 30 Mt/a schedule. On a full-fuel cycle basis, that is the sum of Scopes 1, 2 and 3, this represents 0.17% of annual global emissions compared with data from reporting countries only.

14.9 GREENHOUSE GAS REDUCTION MEASURES

Following submissions on the EIS, as a point of clarification, a number of greenhouse gas reduction measures applicable to this Project are stated in the EIS Volume 1, Chapter 14 Greenhouse Cases and Climate Change, section 14.9. Where relevant to the technologies and practices of the Project, greenhouse gas reduction measures as described in the EIS chapter, will be implemented from the commencement of the Project or commencement of a particular activity, which is comes first, so as to minimise net greenhouse gas emissions.



14.9.6 INDUSTRY AND WANDOAN JOINT VENTURE (XSTRATA COAL) POLICY

As stated in the EIS Volume 1, Chapter 14 Greenhouse Gases and Climate Change, section 14.9, a number of research, development and demonstration programs for low emission technology and other initiatives are supported by Xstrata Coal. These programs consider both direct and indirect impacts of greenhouse gas emissions from the Project and the coal mining industry in general.

14.10 CLIMATE CHANGE IMPACT ASSESSMENT

14.11 CONCLUSIONS

14.12 REFERENCES

IPCC Special Report Emissions Scenarios, 2000.