Module: Introduction

Page: Introduction

0.1

Introduction
Please give a general description and introduction to your organization

BARLOWORLD distributes leading international brands providing integrated rental, fleet management, product support & logistics solutions. Core group divisions comprise Equipment (earthmoving & power systems), Automotive and Logistics (car rental, motor retail, fleet services, used vehicles and disposal solutions, logistics management and supply chain optimisation), Handling (forklift truck distribution, agriculture equipment and SEM. The group offers flexible, value adding, integrated business solutions to its customers, backed by leading global brands, some of which include Caterpillar, Hyster, Avis, Audi, BMW, Ford, General Motors, Mercedes-Benz, Toyota, Volkswagen & others.
BARLOWORLD has a proven track record of effectively managing long-term relationships with global principals & customers. BARLOWORLD has the ability to develop & grow businesses in multiple geographies including challenging territories with high growth prospects. One of its core competencies is the ability to leverage systems & best practices across its chosen business segments.
BARLOWORLD was founded in 1902, is listed on Johannesburg, London & Namibian Stock Exchanges & has operations in 26 countries around the world, with 61% of its more than 19000 employees in South Africa.
BARLOWORLD is driven by the maxim of creating long term sustainable value for all its stakeholders & is committed to play a leading role in sustainable development, which embraces economic, social & environmental aspects of the group's activities. Long term value creation for all of its stakeholders requires BARLOWORLD to operate, manage & report its activities in a harmonious manner, without prejudicing the future of any of its stakeholders. BARLOWORLD is committed to operational integrity & effectiveness of managing & reporting energy consumption, emissions, water usage (source & recycling), materials consumed, use of recycled input materials, waste & destination or disposal methods & full compliance with regulations. Non-financial reporting, which includes GRI reporting, is aligned with financial reporting. 2009 was established as group's base year for reporting its GHG emissions inventory under the rules of the GHG Protocol. Independent third party assurance is obtained on key indicators, including energy usage & carbon emissions. The reporting process is evolving within the business in line to meet changing requirements. BARLOWORLD also understands the importance of integrating sustainability & climate change into the business strategy & business functions, As such; BARLOWORLD has developed a system & tools which aid in the reporting of environmental indicators such as carbon emissions in line with financial reporting. The annual report integrates both sustainability & financial performance. The financial & sustainability parameters are verified by the same entity to ensure full integration.
BARLOWORLD's commitment to creating long term value for all its stakeholders includes, inter alia:
o Providing customers with integrated & environmentally sound solutions they require to meet their sustainable development objectives (including managing their impact on climate change)
o Acting in the best interests of principals & representing them in a manner that reflects their sustainable development objectives

o Ensuring inspiring climate for employees to work in & within which all have equal opportunity to fulfil their aspirations & be proud ambassadors of the group
o Delivering sustainable returns to its shareholders that are not achieved at the expense of future generations; and
o Being regarded as a responsible corporate citizen by all its stakeholders, including communities in which it operates.
This is underscored by integrated management approach which requires accountability & responsibility for economic, social & environmental aspects of business activity, entrenched risk management approach, stakeholder engagement & strategic planning framework that structures activity & management focus on group's 6 strategic focus areas of, Integrated customer solutions, People, Empowerment & transformation, Sustainable development, Financial returns & Profitable growth.
Sustainable development strategic focus area positions climate change response as central to success of group's long term value creation objectives. Although BARLOWORLD's GHG emissions are fairly limited, Scope 1 & Scope 2 emissions were 199053 tons in 2009, 201733 tons in 2010 & 189043 in 2011. The largest source of emissions is the Automotive and Logistics division. BARLOWORLD has placed significant focus on this division in terms of reducing emissions. In addition, the South African operations are responsible for over 75% of the total emissions in line with its contribution to overall revenue for the group.
BARLOWORLD understands the climate change impacts of its products & customer offerings & strives to conduct its activities in a responsible manner.
The group has set internal aspirational targets of a 12% efficiency improvement for both its non-renewable energy consumption & emissions (scopes 1 & 2) by 2014 off a 2009 baseline, & has models to predict & assess its performance which is monitored on an ongoing basis.

0.2

Reporting Year
Please state the start and end date of the year for which you are reporting data.
The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.
We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.
Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Fri 01 Oct 2010 - Fri 30 Sep 2011

0.3

Country list configuration

Please select the countries for which you will be supplying data. This selection will be carried forward to assist you in completing your response

Select country
Angola
Australia
Belgium
Botswana
Cape Verde
China
Congo, Democratic Republic of the
Germany
Ghana
Hong Kong
Lesotho
Malawi
Mauritius
Mozambique
Namibia
Netherlands
Portugal
Russia
Sao Tome and Principe
South Africa
Spain
Swaziland
United Arab Emirates
United Kingdom
United States of America
Zambia

0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

ZAR (R)

0.5

Please select if you wish to complete a shorter information request

0.6

Modules
As part of the Investor CDP information request, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sectors and companies in the oil and gas industry should complete supplementary questions in addition to the main questionnaire.
If you are in these sectors (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will be marked as default options to your information request. If you want to query your classification, please email respond@cdproject.net.
If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see https://www.cdproject.net/en-US/Programmes/Pages/More-questionnaires.aspx.

Further Information

Organisational boundaries for collection of data reflect those used for financial purposes to ensure alignment between financial, social and environmental management and reporting.
Data from operations in Ivory Coast, Democratic Republic of Congo, and Zimbabwe is not consolidated into financial and non-financial reporting since these are not companies over which BARLOWORLD exercises financial control. This is in line with the GHG Protocol Reporting Standard (financial control).

Module: Management [Investor]

Page: 1. Governance

1.1

Where is the highest level of direct responsibility for climate change within your company?

Individual/Sub-set of the Board or other committee appointed by the Board

1.1a

Please identify the position of the individual or name of the committee with this responsibility

The group risk and sustainability committee, which is one of seven sub-board committees established to assist the board in ensuring sound corporate governance, improving internal controls and company performance, acts according to a written terms of reference approved by the board, which sets out its purpose, membership requirements, duties and reporting procedures. It assists the board in recognising all risks and sustainability issues to which the group is exposed and ensuring that the requisite risk management culture, practices, policies and systems are progressively implemented and function effectively. These include, among other aspects, business continuity management, occupational health and safety, sustainable development, environmental management and climate change-related issues, as well as compliance and ethical commercial behaviour.

1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

1.2a

Please complete the table

Who is entitled to benefit from these incentives?	The type of incentives	Incentivised performance indicator
Board chairman	Recognition (non-monetary)	Achievement of defined group sustainability objectives, energy and emissions efficiency targets.
Director on board	Monetary reward	Achievement of defined group sustainability objectives, energy and emissions efficiency targets.
Chief Executive Officer (CEO)	Monetary reward	Achievement of group strategy which incorporates sustainable development objectives including energy and emissions efficiency objectives and targets. BARLOWORLD provides incentives for management of issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivised performance indicator
		related to climate change, which is incorporated into sustainable development objectives. Management of this process is facilitated through an integrated performance scorecard system. Specifically included are the group's aspirational targets for improvements in energy consumption and emission intensities. Functional responsibilities are managed through a group-wide, integrated performance scorecard system. Relevant management information is reviewed at meetings at various organisational levels from operations, divisional boards and group board level (risk and sustainability committee). This information applies to all other categories of employee mentioned in this section.
Environment/sustainability managers	Monetary reward	Achievement of defined sustainability initiatives/objectives, including energy and emissions efficiency targets
Risk managers	Monetary reward	Achievement of defined sustainability initiatives/objectives, including energy and emission efficiency initiatives
Facility managers	Monetary reward	Achievement of defined sustainability initiatives and objectives which include energy and emissions efficiency. Independent third party auditors verify their reported energy consumption, water use and emissions data.
Process operation managers	Monetary reward	Achievement of defined sustainability objectives, including energy and emissions efficiency and targets. Daily responsibility of managing business divisions' environmental performance, in the context of the group's and divisional environmental and climate change policies, GHG and other relevant group standards, policies and protocols.
All employees	Recognition (non-monetary)	Energy efficiency initiatives and savings. Ultimately, in the context of the group's values and ethics, which include specific aspects relating to responsible custodianship of the environment, every employee is responsible for the sustainability of the organisation through the dedicated fulfilment of their respective roles.
Other: Divisional CEO's	Monetary reward	Energy and emission efficiency Intensity improvement and savings. Achievement of divisional strategy which incorporates sustainable development objectives including energy and emissions efficiency objectives and targets.

Page: 2. Strategy

2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

2.1a

Please provide further details (see guidance)

The group has integrated financial, social and environmental management practices and reporting to link financial profits with responsible use of natural resources and impacts on environment.
i. The scope of the process: Climate change risks are integrated into the company-wide risk management process. Climate change risks included in this risk management process include regulatory, physical and other risks such as market-related and reputational risks.
ii. Assessment of risks and opportunities at a company level: Risks and opportunities, including those resulting from or impacted on by climate change, are identified and/or re-evaluated through a robust systematic strategic planning, risk and opportunity assessment procedures that engage all levels of the organisation, and involve continual review and reporting at management, executive and board levels. Identification and assessment of the risk starts at asset level with divisional management. These risks are reported to the group risk and sustainability committee; a sub-committee of the board which is chaired by an independent non-executive director and takes place four times a year. This committee assists the board in recognising all material risks, including ones related to sustainability to which BARLOWORLD is exposed and in ensuring that the requisite risk management culture, practices, policies and systems are progressively implemented and functioning effectively. These include, among other aspects, business continuity management, occupational health and safety, environmental management and ethical commercial behaviour. Functions of the committee include: Considering annually consolidated risk assessment results and determining trends, common areas of concern, emerging risks, and most significant risks for reporting to the board; Receiving reports covering matters relating to substantive environmental and health and safety risks and determining and recommending BARLOWORLD's risk appetite for board approval.
Arising from these processes, including the strategic planning process, are initiatives to address identified risks, development and implementation of business continuity and disaster recovery plans for unscheduled events or occurrences. These plans include information technology and communications solutions, as appropriate. While planning is regularly reviewed at executive and board levels, internal audit also plays a significant role in reviewing processes, procedures and controls.
Opportunities are also identified which are assessed and pursued if appropriate and commercially feasible. Aspects of these include providing environmentally sound customer solutions which assist customers in achieving their own environmental goals and objectives. The group is determined that these aspects will underscore its long-term value creation capability for all its stakeholders. This approach has also been embraced by its principals who continue to focus on developing products and services which have reduced negative environmental impacts as well as conducting their operations in an environmentally responsible manner.
iii. Assessment of risks and opportunities at an asset level: Through dedicated divisional risk assessment interventions, which include internal audit and group risk services, risks are identified. These risks are recorded in divisional and group risk registers, comprehensively assessed and given residual risk scores. This results in a prioritisation of risks to allow for allocation of limited resources and allows for measurement of progress made. Risks are then responded to through acceptance, transfer, avoidance or reduction strategies, taking risk appetites and tolerance levels into consideration. Divisional management is responsible for ongoing monitoring and management of their operating companies' risks, and this includes adequate evaluation. The divisional risk register is submitted into the group risk and sustainability committee which is a sub-committee of the board.
iv. Frequency of monitoring: The risks are monitored on a quarterly basis by divisional management. Formal reporting on risk related issues to the group risk and sustainability committee, takes place bi-annually.
v. Criteria for determining materiality: The materiality of the risk is evaluated in terms of their probability, severity and potential impacts, as well as the quality of the existing control environment. All risks are given an inherent & residual risk scores.vi. Reporting of results: The divisional management identifies the risks and report the risks to the group risk and sustainability committee which is a sub-committee of the board. This committee reports to the board. In terms of external reporting, the major risks are identified and a description of the risks and mitigation actions are included in the integrated annual report.The comprehensive list of risks and opportunities provided in sections 5 & 6 reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent to which these aspects are considered by the group. Where risks and opportunities have more than one impact on the group, they are repeated in order to record the differing consequences. Where possible, the impacts of climate change risks and opportunities are quantified although given their characteristics and nature, realistic assessment of the financial implications is not always possible. Financial implications of these risks and opportunities are not ring-fenced but incorporated into ongoing activities, revenue and cost bases of BARLOWORLD companies. The primary focus is on recording identified risks and opportunities to ensure awareness

and appropriate proactive strategic responses. In terms of management of the risks and opportunities, BARLOWORLD has an integrated management approach that requires accountability and responsibility for economic, social and environmental aspects of business activity, an entrenched risk management approach, stakeholder engagement and a planning framework that focuses on BARLOWORLD's 6 strategic focus areas. Sustainable development strategic focus area positions climate change and related aspects as central to the success of the group's long term value creation objectives. Identification and management of risks are embedded in ongoing management of the group. The consequences of the wide range of risks are characterised by a fairly narrow range of implications for the group, as are the wide range of opportunities. Accordingly, BARLOWORLD has identified a set of strategic responses from which the appropriate method will be taken to address

2.2

Is climate change integrated into your business strategy?

Yes

2.2a

Please describe the process and outcomes (see guidance)

One of BARLOWORLD's 10 Pillars of Sustainability is Social and Environmental legitimacy: taking active steps to measure, set efficiency targets, reduce and minimise BARLOWORLD's carbon footprint, which will be off-set when and where appropriate.
BARLOWORLD's Code of Ethics includes: 'Protect the environment'. BARLOWORLD understands these responsibilities as well as the commercial wisdom underlying sustainable development.
i. Impact on the business strategy: Sustainable development is one of the six strategic areas for BARLOWORLD. BARLOWORLD's strategic framework outlines 6 strategic focus areas to which executive teams give priority to ensure sustainable value creation for all stakeholders:
o Integrated customer solutions
o People
o Empowerment and transformation
o Sustainable development
o Financial returns
o Profitable growth
Stakeholder engagement and consultation informs and guides group activities. This approach is institutionalised through structured strategic planning and risk management initiatives. The internal communication or reporting processes for group consolidated sustainability data is under the portfolio of an executive with responsibility for strategy and sustainability. BARLOWORLD's strategic planning framework is cascaded throughout the organisation and appropriately adapted for each operation. BARLOWORLD's six strategic focus areas are supported by critical success factors, appropriate action plans and measurable performance indicators. Strategic intent of BARLOWORLD's focus on sustainable development is:
o Achieve profitable growth by offering products and services which capitalise on emerging business opportunities, including climate change;
o Realise cost savings through energy efficiencies and other sustainable business practices;
o Enhance BARLOWORLD's reputation by taking a leading role in these;

o Engage stakeholders to guide appropriately BARLOWORLD's value propositions;
o Approach management and reporting in an integrated manner that entrenches accountability for economic, environmental and social activities;
o 12% Improvement in non-renewable energy and GHG emissions (scope 1 and 2) efficiencies 2010 to 2014 off a 2009 baseline year;
o MARSO (measure, avoid, reduce, switch, offset) to minimise carbon and wider environmental footprints;
o Provide solutions that create value for BARLOWORLD's customers by assisting them to achieve their own sustainable development objectives, which include addressing climate change.
ii. Climate change influence on the business strategy: As BARLOWORLD conducts its activities in an environmentally sensitive manner, it also strives to provide the market and its customers with products, services and integrated solutions which enable them to achieve their own sustainable development goals and objectives. BARLOWORLD recognises that responsible product stewardship includes initiatives to manage and mitigate environmental impacts of its products, services and customer solutions, which ultimately would include product disposal, and acts in conjunction with its principals to address these issues. Existing business models, as well as recycling, rebuild and remanufacture initiatives proactively mitigate the disposal implications of group products. Rebuild and remanufacture operations also address energy and non-renewable resource conservation aspects.
iii. Impact on short term strategy: short term strategy is 3 to 5 years and long term strategy is longer than 5 years. Climate change has influenced the short term strategy by the introduction of MARSO and the increased focus on emission reduction activities. In addition, in the short term strategy, BARLOWRLD has started to diversify their products and get into new markets. This is evidenced by BARLOWORLD Power and the expansion of Handling into agriculture.
iv. Impact on long term strategy: long term strategy has also been influenced and BARLOWORLD has placed strategic focus on offering products and solutions that reduce a client's carbon footprint and internal energy efficiency initiatives to which also ensure operational resilience.
v. Strategic advantage over competitors: Caterpillar Inc.'s 2020 internal and customer goals include: 20% reduction in customer greenhouse gases (GHG's), 20% increase in customer energy efficiency and 20% increase in customer materials efficiency by 2020. Automotive brands such as BMW which was the Dow Jones Sustainability Index leader for the 7th consecutive year in 2011. Other leading automotive manufacturers have developed hybrid and electric vehicles, more efficient diesel and petrol engines and technology. In some instances 'zero emission' vehicles are a reality. BARLOWORLD Handling's principal, NMHG, whose brands include Hyster, is committed to sustainable development and all its American and European manufacturing facilities have achieved ISO 14001 certification. NMHG is the largest volume producer of zero emissions electric trucks in North America and offers lift trucks which operate on cleaner burning alternative fuels such as LPG, CNG and clean diesel. BARLOWORLD Logistics has developed a 'green trailer' (Truck and trailer) and CAST-CO2 products which respectively increase fuel and emission efficiency, optimise supply chains and minimise carbon emissions.
vi. Substantial business decisions: BARLOWORLD has invested R240m to increase its component remanufacture and rebuild facilities in South Africa and USD11m in Russia. BARLOWORLD's car rental fleets comprise vehicles with latest fuel and emission efficiency technology (all vehicles less than 12 months old) and customers are advised of emissions generated by their rentals. Shortly customers will be able to select to offset these.

2.2b

Please explain why not

2.3

Do you engage with policy makers to encourage further action on mitigation and/or adaptation?

Yes

2.3a

Please explain (i) the engagement process and (ii) actions you are advocating

Business Unity SA
1. Method of engagement (MOE): Organised business
2. Topics of engagement (TOE): Country/region long term mitigation strategies, climate change negotiations, COP 17, formal & voluntary country emissions reduction commitments made at ICC Kyoto & Copenhagen, policy & regulatory approaches to climate change: National Energy Efficiency Strategy, National Climate Change Response Green Paper, Integrated Resource Plan, Industrial Policy Action Plan. These include issues such as energy security & energy pricing, incentives for energy efficiencies; mandatory reporting on emissions & emissions taxes.
3. Nature of engagement (NOE): dialogue & written submissions
4. Actions advocated (AA): Keeping abreast of legislative changes putting forth Barloworld's position.
Business Leadership SA
1. MOE: Organised business
2. TOC: BARLOWORLD has representation on this high level think tank committed to contributing to climate change negotiations.
3. NOE: dialogue - representation on high level think tank. Barloworld CEO was member of BLSA's COP 17 CEO Forum
4. AA: Keeping abreast of legislative changes and putting forth Barloworld's position and input into BLSA responses
National Business Initiative (NBI)
1. MOE: Non-mandated voluntary-membership business organisations. BARLOWORLD engages with the World Business Council on Sustainable Development through the NBI.
2. TOE: In collaboration with other companies to provide leadership & peer support in achieving energy efficiencies & reducing emissions, provide inputs to power conservation plans through medium term risk mitigation plan for electricity in South Africa, to standards, measurement & verification, investments in energy efficiencies, renewable & non-renewable energy sources & related developments, shared learning through best practices, including those emerging from CDP & CDP Water responses
3. NOE: dialogue & written submissions
4. AA: Completion of Investor & Water CDP, allows BARLWORLD to benchmark its initiatives & progress against other leading corporates as well as itself. Promotes learning regarding best practice in reporting.
WWF SA
1. MOE: Non-mandated voluntary-membership business organisations
2. TOE: BARLOWORLD participates in climate change roundtables to discuss adaptation & mitigation scenarios & strategies, renewable energy, water conservation.
3. NOE: dialogue
4. AA: general support for advocated position.
In addition:
• BARLOWORLD's business units engage through their respective industry associations, as appropriate, concerning various climate change-related regulations, adaptation scenarios & strategies, levies, surcharges & taxes.
• BARLOWORLD also engages directly with government structures in SA on climate change issues these are chiefly: SARS / National Treasury, Depart. of Energy,

Depart. of Environment Affairs & Water, Depart. of Trade & Industry, National Energy Regulator.
• BARLOWORLD also engages with analytical & performance review initiatives & organisations, completing the JSE SRI, CDP & CDP Water & UN Global Compact, in addition to engaging with other international organisations, agencies & thought leaders including the Global Responsible Leadership Initiative (GRLI).
• Where feasible or necessary, BARLOWORLD comments on proposed policy or changes to regulatory environment that may affect its operations, its stakeholders or jurisdictions in which it operates.
Generally, BARLOWORLD advocates responsible, sustainable approaches to address energy security & climate change, including both mitigation & adaptation strategies, considering also business competitiveness & socio-economic development objectives, including being an attractive business/investment destination & job creation, in South Africa. Over the last 24 months, SA government has begun to implement a policy & regulatory response to energy & GHG/climate change challenges. Planning & Strategy has included:
o The National Climate Change Response Green Paper – Although committed to action to address climate change, BARLOWORLD's concerns include potential negative consequences for competitiveness of the economy & companies, the goal of delivering a better life for all which may be prejudiced, that CDM has not been considered & that mandatory reporting has been proposed for 2013;
The Carbon Tax Discussion Paper – BARLOWORLD is committed to a process that ensures that right price signals are sent through supply- & demand-side measures, has voiced its concern about SA government's apparent preference for a carbon tax over other carbon pricing mechanisms, that no thresholds for eligibility for this tax are contained in the document, & the impact price of carbon will have on viability of its suppliers, customers & operations & on FDI into SA.

Page: 3. Targets and Initiatives

3.1

Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?

Intensity target

3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions (metric tonnes CO2e)	Target year	Comment

3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions	Target year	Comment
001	Scope 1+2	100%	12%	metric tonnes CO2e per unit revenue	2009	4.4	2014	It is an aspirational target & based on a "business as usual" scenario which tracks turnover as a proxy for business activity. It is not anticipated that the target will be achieved in a linear manner on an annual basis, but will be reached by the end of 2014. The intention is to focus attention & drive commitment to improving non-renewable energy & greenhouse gas emission efficiency with concomitant benefits of positively contributing to climate change & realising cost savings.

3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comments
001	Increase	30.7	No change	0	It is anticipated that absolute emissions will increase by some 30% over the target period, 2009 to 2014 but at a lesser rate than a 'business as usual' scenario due to BAW's aspirational efficiency targets. Scope 3 emissions are not currently included in our target. However, it is anticipated that generally scope 3 emissions will increase with increased business activity. Emissions relating to business travel will continue to receive focus and should also increase at a lesser rate than 'business as usual.'

3.1d

Please provide details on your progress against this target made in the reporting year

ID	% complete (time)	% complete (emissions)	Comment
001	40	113	Aligned with our energy efficiency improvements, the 2011 emissions intensity has improved 13.6% of the 2009 baseline year indicating that we exceeded our aspirational target (12%) to improve emissions efficiency, as measured by intensity, in the 2011 financial year. However, since our target is based on an intensity level and our business is continuing to grow, we will continue our initiatives to reduce emissions in the forthcoming financial years in order to ensure that we achieve our target at the end of the 2014 financial year. As the business grows, our emissions will increase and we need to ensure, through appropriate initiatives, that they grow at a slower rate than our business growth, in order for us to achieve our intensity target at end 2014.

3.1e

Please explain (i) why not; and (ii) forecast how your emissions will change over the next five years

3.2

Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

3.2a

Please provide details (see guidance)

BARLOWORLD and its principals are committed to providing customer solutions that assist customers meet their particular sustainable development objectives, including expectations and requirements in respect of climate change. Illustrations of customer solutions offered in this regard are reflected below.
i. How are emissions avoided: BARLOWORLD Equipment distributes Caterpillar earthmoving equipment. Caterpillar Inc. 2020 goals include a 20% increase in customer energy efficiency. Caterpillar is also leading in cogeneration, examples include greenhouse applications where the exhaust gases (CO_2), heat and power from engine are utilised. The power generates electricity and, the heat and CO_2 enhance the growing process. Caterpillar's acquisition of MWM Holding GmbH (MWM), a leading global supplier of sustainable, natural gas and alternative –fuel engines significantly expands customer options for sustainable power generation

solutions. The ability to supply natural gas power engines and turbines to complement the traditional diesel engines results in one of the broadest engine offerings in the industry. Over the years Caterpillar has invested heavily in technology that allows customers to optimise the efficiency of their machines thus, lowering costs and preventing machine downtime. Some of the available technological advancements are that every Tier 4 interim/ stage IIIB engine is equipped with ACERT technology with ideal combination of electronic, fuel, air and after treatment components based on engine size, the type of application and the geographic location in which it will work. Other applications like Cat® MineStar, AccuGrade Grade Control and Cat® Product Link are all technologies that allow for improved accuracy and efficiencies thus reducing rework and consequently time and consumption. ii. Estimate of emissions avoided: Dependent on the use of the equipment.
iii. Methodology used: Not applicable
iv. Consideration of CERs or ERUs: The equipment is used by our clients so enables our clients to access CERs or ERUs.
i. How are emissions avoided: BARLOWORLD OEM NMHG, manufacturers of Hyster, is the largest volume producer of zero emission electric trucks in the US and offer lift trucks which operate on cleaner burning fuels such as LP, CNG and clean diesel. The XN electric truck series launched in 2009 use less energy than their predecessor in the Hyster range and offers up to 31% lower power consumption than equivalent competitor trucks.
ii. Estimate of emissions avoided: Dependent on fuel used so is calculated on a case-by-case basis.
iii. Methodology used: Not applicable
iv. Consideration of CERs or ERUs: Use of such equipment enables customers to reduce their carbon footprints and provides the potential to access CERs or ERUs by engaging in the carbon market and monetizing their emission reductions.
i. How are emissions avoided: In BARLOWORLD Automotive division, motor retail operations represent leading global vehicle manufacturers which continue to develop and introduce energy efficient, low emission, hybrid and electric vehicles. Also, offered in car rental fleets are hybrid vehicles such as Toyota's Prius which emits on average 94g CO2 per km versus a corolla 1.3 which emits 138g CO2 per km. All fleets include latest vehicle models and technology, which results in general improvement in energy efficiency and emission reductions.
ii. Estimate of emissions avoided: 44g CO2 per km for the use of the Toyota Prius.
iii. Methodology used: Emission standards for cars. Compared against a baseline of the Corolla 1.3.
iv. Consideration of CERs or ERUs: Use of such equipment enables customers to reduce their carbon footprints and provides the potential to access CERs or ERUs by engaging in the carbon market and monetizing their emission reductions.
i. How are emissions avoided: BARLOWORLD Logistics division provides, through the CAST-CO2 module of its leading supply chain design system, the ability to calculate and optimise carbon emissions from any supply chain model. The programme provides various optimisation scenarios of supply chains with transport modes, loads, inventories and routes which minimise carbon emissions. The CAST suite of solutions uses advanced mathematical modelling techniques to optimise supply chain networks. Logistics division also has an innovative 'green trailer' (Truck and trailer) design. Plans are in place to increase the green trailer fleet.
ii. Estimate of emissions avoided: The 'green trailer' reduces emissions by 10.6% on the Johannesburg-Durban route. The emission reductions indicate a 136 ton CO2 emissions savings.
iii. Methodology used: The savings in fuel are translated into an emission reduction saving using appropriate emission factors
iv. Consideration of CERs or ERUs: Currently, we have not considered monetizing the emission reductions resulting from the CAST-CO2 module.

3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings (only for rows marked *)
Under investigation		
To be implemented*		
Implementation commenced*		
Implemented*		
Not to be implemented		

3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
Product design	Scope 1- Voluntary Within Barloworld Logistics South Africa, five (four are active) 'green trailers' (Truck and trailer) were designed with improved aerodynamics. Before the conversion, a typical truck trailer configuration uses on average 45 l/100Km, after the conversion the same configuration uses on average 38l/100km. translating to an estimated saving of around 7l/100km. Expected lifetime cannot be estimated for this 'green trailer' (Truck and trailer).	136	343325	588000	1-3 years
Energy efficiency: building fabric	Scopes 1 & 2 - Voluntary Within Barloworld Motor Retail, three new 'green' buildings were designed and built. The buildings include energy efficient technology which will result in anticipated energy savings of 30% for the financial year. Expected lifetime is the life of the building.				

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
Transportation: fleet	Scopes 1- Voluntary Within UK Handling operations, a fleet of 450 vehicles were fitted with GPS technology and changes in the fleet mix to more efficient vehicles resulted in a reduction of fuel consumption by 18%. Expected lifetime is the life of the operations.				
Transportation: use	Scope 1 & 2- Voluntary Within Caterpillar equipment, remanufacturing of products and rebuilding components, preserves up to 85% of the energy expended during the original manufacturing process. The expected lifetime is the life of the operations.				
Energy efficiency: building services	Scope 2 – Voluntary The following energy efficiency initiatives were implemented in the Automotive and Logistics divisions: 1. Energy savings globes fitted; 2. Motion sensors fitted to lights 3. Timers fitted to geysers and air conditioners. These initiatives were implemented in some of the buildings in which the division operations. Expected lifetime is approximately five to ten years	477	339182	1400953	>3 years
Energy efficiency: building services	Scope 2 – Voluntary The following energy efficiency initiatives were implemented in Barloworld Motor Retail Initiatives are in 2 categories: 1. Green Building Initiatives for new dealership facilities: • Energy efficient light fittings installed. • Motion sensors installed to control lights and air-conditioning. • Translucent sheeting.in wash bay and roof parking • Timers installed on external security lights • New inverter technology air-conditioning units installed. • Solar power installed for electric fence. Solar power geysers installed. Hot water only supplied to ablutions. • Electronic light management systems installed. • Power factor correction installed. 2. Retrofit Initiatives in existing dealerships: • Motion sensors and timers for lights • Timers for geysers • Energy efficient lighting to replace old lights. Expected lifetime is approximately five to ten years				
Energy efficiency: building services	PowerWatch technology has been installed in a number of major South African facilities to allow for monitoring of electricity consumption. The use of PowerWatch assists with identifying areas for electricity reduction. An example of this is that BARLOWORLD noticed that electricity consumption in a particular building was high during the weekend and in non-working hours. This led BARLOWORLD to put in timers on lighting and air-conditioning to reduce electricity consumption. Expected lifetime is longer than 10 years.				
Transportation: fleet	Within our car rental business, a change in fleet mix and inclusion of 42 Toyota Prius and 56 Honda Jazz combined with increasingly efficient vehicles has reduced emissions by 8.25%. Expected lifetime is over five years.	8			
Behavioral change	Scope 1 & 2 - Voluntary The initiatives reflected above are not all inclusive but	12690			

Activity type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
	indicative of the initiatives that have been or are in the process of being implemented. It is further indicative of the innovative thinking that is pervasive across the group of ways to implement energy efficient methods to reduce or carbon footprint. In addition to these, there are operations within the group that have off-set their carbon emissions by purchase carbon credits. Overall, group-wide initiatives have resulted in a 12 690 CO2 tons emission reduction from 2010. Indicative 2011 energy savings against business as usual amounted to some 5.54ML of petrol and diesel and some 9080 MWh of electricity. Expected lifetime is one year. New credits and savings will need to be achieved next year.				
Energy efficiency: building services	Scope 2 – Voluntary Within Barloworld Corporate office, the following initiatives were implemented during the financial year: 1. Geyser blankets fitted; 2. Energy saving globes fitted; and 3. Motion sensors fitted to all lights. Expected lifetime is approximately five to ten years.	1	1014829	616000	1-3 years
Process emissions reductions	Scope 1- Voluntary In addition to the 5 'green trailers' listed above, 2 Toyota trucks have been modified to be 'greener' as well. ‘green’ trailers were designed with improved aerodynamics. The fuel savings is 2.7l/100kms. These 2 were only active from the last 4 months of the 2011 financial year. An additional 2 vehicles were modified in 2012 FY. The statistics provided relate only to the 2 vehicle active in 2011FY.	12	41640	73500	1-3 years
Energy efficiency: building services	Scope 2- Voluntary In Handling Belgium, heating installations and thermo valvles were fitted to increase enerfy efficiency. A sum of £20 000 was invested for these energy efficiency initiatives. The CO2 emissions savings and the payback period have not been calculated.			193400	

3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment

Method	Comment
Compliance with regulatory requirements/standards	Ensure full compliance with regulatory requirements / standards, and have established targets / commitments in support of these.
Dedicated budget for energy efficiency	Costs of energy efficiency initiatives are not at this stage generally ring-fenced but incorporated into standard budgets and on-going cost base of BARLOWORLD divisions.
Dedicated budget for low carbon product R&D	Logistics division's development of CINO (Combined Inventory and Network Optimisation) tool, CAST CO2 software, Green Trailer, an aerodynamically designed/modified truck and trailer unit , and new Power business unit's customer offerings which provide energy efficiency, energy demand management and emissions management services. Power Watch has been installed and allows for real-time monitoring of water consumption to allow for optimisation.
Dedicated budget for other emission reduction activities	Currently employing MARSO approach: measure, avoid, reduce, switch and, finally, offset. Dedicated budgets for offsetting, if and when appropriate, are likely to be a consideration. Most divisions are within the MAR processes and are investigating the Switch and Offset options.
Employee engagement	Internal and external communication strategies developed. Employee engagement used as a means to drive behaviour change that will result in greater awareness and energy savings. Appointment of specific employees, or sustainability champions, to communicate and liaise at division level, monitor and measure usage/emissions. Their functional responsibilities are managed through a group-wide, integrated performance scorecard system, with short- and long-term incentive schemes. Management practices include detailed measurement of material aspects of activity and consistent, transparent and comparable reporting. Communication on initiatives and progress, as well as pertinent relevant information takes through management meetings, performance ownership meetings, 'green' community of practice meetings, publications, intranet sites, screen savers, posters, exhibitions and newsletters. Communications initiatives share information on energy consumption/ emissions/ costs by branch or division and disseminate information on best practice. This engagement will drive the correct behaviour both at the work place as well as outside. Avis Rent a Car South Africa has appointed a number voluntary 'Earth Champions' that oversee and guide environmental stewardship and responsible behaviour.
Financial optimization calculations	Incorporated into feasibility studies and capital vote applications. All new property developments to incorporate sustainable "green building" principles which are based on optimal financial calculations. Operations have switched to more environmentally friendly methods which have reaped financial returns eg. water less car wash, retrofitted lighting, etc. As a Logistics division business offering, operational optimisation is effected through network optimisation, which includes financial optimisation.
Internal price of carbon	Savings targets linked to energy efficiencies have been established as one of the group's key priorities, tracked and reported into risk and sustainability and executive committees twice a year. These methods are used to create awareness of the total cost of energy, current and future. Possible increase in cost has been calculated as per the proposed carbon tax in South Africa and reported to the Risk and Sustainability and Executive committees.
Internal incentives/recognition programs	Group, division, team and individual aligned strategies, objectives, KPI's, scorecards, incentives and recognition awards.
Other	Functional responsibilities are managed through a group-wide, integrated performance scorecard system which includes sustainable development aspects, and defined climate change objectives. An aspirational target of a 12% improvement in non-renewable fossil fuel and GHG emission efficiencies has been set off a 2009 baseline year. BARLOWORLD has developed models to predict and assess its performance in this respect, which is monitored on an on-going basis.

Method	Comment
Partnering with governments on technology development	SA government has introduced a tax allowance for energy efficiency savings governed under section 12L of the Income Tax Act, No.58 of 1962 which is expected to be operational towards the end of 2011. Accelerated depreciation for investments in renewable energy has also been allowed. SA Department of Trade and Industry is including energy efficiency requirements in new tax incentives. For example, section 12I of the Act sets out an incentive for industrial policy projects that manage to meet energy efficiency requirements. Although not yet accessed, BARLOWORLD operations are considering these aspects in their respective business models, strategic plans and in developing customer offerings.
Marginal abatement cost curve	Whilst not yet being pursued or implemented, emissions trading could reduce the group's or group companies' overall cost of compliance with emission constraints by taking advantage of differences in marginal abatement costs across different emission sources.

3.3d

If you do not have any emissions reduction initiatives, please explain why not

Page: 4. Communication

4.1

Have you published information about your company's response to climate change and GHG emissions performance for this reporting year in other places than in your CDP response? If so, please attach the publication(s)

Publication	Page/Section Reference	Identify the attachment
In annual reports (complete)	Various/Operational reviews; 3,12, 17-18, 20, 25- 27, 36, 39, 45, 46, 51, 53,54, 55, 59, Responsible Value Chain 74; Limiting our Environmental footprint 75-83	Barloworld integrated annual report 2011
In voluntary communications	Not in public domain	JSE SRI 2011 response

Publication	Page/Section Reference	Identify the attachment
(complete)		
In voluntary communications (complete)	Avis web address: Our sustainability journey	http://www.aboutavis.co.za/main.aspx?ID=1332
In voluntary communications (complete)	Full responses to GRI (G3.1) framework. Environmental Performance indicators, specifically: Management Approach; EN1 – EN30. http://www.barloworld-reports.co.za/annual_reports/ar_2011/index_report_gri.php	GRI submission: http://www.barloworld-reports.co.za/annual_reports/ar_2011/index_report_gri.php
In voluntary communications (complete)	Building Barloworld: June 2011	Briefing Barloworld Issue 2 (Sustainability)

Attachments

https://www.cdproject.net/Sites/2012/29/1529/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/4.Communication/2011 Integrated annual report.pdf
https://www.cdproject.net/Sites/2012/29/1529/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/4.Communication/Briefing Barloworld Issue 2 (sustainability).pdf

Module: Risks and Opportunities [Investor]

Page: 2012-Investor-Risks&Opps-ClimateChangeRisks

5.1

Have you identified any climate change risks (current or future) that have potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation
Risks driven by changes in physical climate parameters
Risks driven by changes in other climate-related developments

5.1a

Please describe your risks driven by changes in regulation

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Reg05	Carbon taxes	The South African National Treasury has for some time been considering placing a price on carbon in addition to other environmental taxes that are currently in place. A discussion paper for public comment, Reducing Greenhouse Gas Emissions: The Carbon Tax Option, was released during December 2010. An argument was made in favour of a carbon tax. Despite the number of responses to the discussion paper received from industry, National Treasury has again come out in support of a carbon tax in the 2012 Budget Review. The document mentions that a carbon tax will be introduced in 2013/14 at an initial rate of R120 per ton CO2e. The carbon tax price will increase by 10% per annum to R213 per ton CO2e by 2019/20. Initially, organisations will only be liable for a tax on 40% of their emissions as a basic tax-free threshold of 60% is applied to all industry sectors. There is no clarity on what emissions sources will be taxable. However, it is likely that scope 1 and scope 2 emissions will be taxable. If both scopes of emissions for the South African operations are taxed, then Barloworld could look at paying R6.8 million in a carbon tax in 2013/14 using a tax-free threshold of 60%). This could increase to R12 million by 2019/20.Carbon tax at this level will have significant negative implications for economic activity, for BAW, its customers & suppliers. BAW's emissions from operations in Australia represent 3% of 6 311 tons CO2e of its carbon footprint (8% of revenue). Australia is introducing a price on carbon, which will start on 1 July 2012. The carbon pricing mechanism will start at a fixed price of $23 a tonne in 2012-13, and then	Increased operational cost	1-5 years	Direct	Very likely	High

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		transition to a flexible market price under a 'cap and trade' scheme in 2015-16. In both the fixed and the flexible price period, liable entities will have to pay a price for every tonne of carbon pollution or the equivalent amount of certain other greenhouse gas that is emitted (theoretically, an additional tax to BAW Australia at current level of emissions = R1.2m p.a.).This will increase the cost of doing business.					
Reg16	International agreements	At the UN Climate Change Summit in Copenhagen at the end of 2009, SA committed to emission reduction targets of 34% by 2020 & 42% by 2025, dependent on, among other things, receipt of technical & financial assistance. While BAW is mindful of the impact its commercial activities have on the environment, the seriousness of climate change & the need for this to be addressed, 141 247 tons or 75% of BAW's CO2e emissions (59% of revenue) are in South Africa, a country which relies heavily on coal-generated energy. It is believed that the greater part of responsibility for achieving country targets imposed will be passed on to the private sector, in one way or another, affecting BAW financially as well as its principals & customers. It is also possible that South Africa will take on mandatory emission reduction targets in the new global agreement which is anticipated to come into effect in 2020. These mandatory targets will be pushed down onto businesses and will impact on BARLOWORLD's operations and cost of doing business.	Increased operational cost	1-5 years	Direct	Likely	High
Reg26	Voluntary agreements	Reputation risk, increased cost of doing business due to possibly not attaining targets, or requiring significant capital expenditure in new technologies to achieve them. In the event that targets are not met, possible 'green washing' allegations would negatively affect the group's reputation. Reduced demand for goods/ services.	Reduced demand for goods/services	Current	Direct	Unlikely	High
Reg01	Air pollution limits	BAW considers air pollution standards globally as both	Reduced	Current	Direct	Exceptionally	Medium-

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		a risk & an opportunity. Caterpillar's innovative ACERT® technology was developed to meet American & European regulations restricting harmful emissions from diesel engines, utilised in both "on highway" & "off-road" applications, as well as Caterpillar's new earthmoving machine, D7E tractor, which features an all-electric drive train. Hyster is the largest volume producer of zero emissions electric trucks in North America & offers lift trucks which operate on cleaner burning alternative fuels such as LP, CNG & clean diesel. However, customer offerings may become uncompetitive unless pollution limit specifications are anticipated & met by the group's products across multiple geographies.	demand for goods/services			unlikely	high
Reg10	General environmental regulations, including planning	Although the group's Scope 1 and Scope 2 emissions are fairly limited (201 733 CO_2e tons in 2010 and 189 043 CO_2e tons in 2011) as it is primarily engaged in equipment and motor retail, after-market and logistics' activities, its customer industry segments are, using the group's products, significant sources of Scope 3 emissions. Reputation risk, increased cost of doing business due to possibly not attaining targets, or requiring significant capital expenditure in new technologies to achieve them. In the event that targets are not met, possible 'green washing' allegations.	Reduced demand for goods/services	1-5 years	Indirect (Supply chain)	Very unlikely	Medium-high
Reg25	Uncertainty surrounding new regulation	Energy and/or clean energy costs may rise sharply in response to regulatory pressure. South Africa has already seen significant increases in electricity prices over the past three years. The price will continue to increase. There is also uncertainty regarding the nature of the new global agreement which must be drafted by 2015 and will come into effect in 2020. There is the possibility that BRICS countries will be required to take on emission reduction targets. This would impact on BARLOWORLD's operations in these countries.	Increased operational cost	1-5 years	Direct	More likely than not	Medium-high
Reg22	Product labeling	The requirement to include carbon footprint data on	Reduced	1-5 years	Direct	More likely	Medium

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
	regulations and standards	product labels would be a short term risk as suppliers conform.	demand for goods/services			than not	
Reg23	Uncertainty surrounding new regulation	Costs associated with responsibility to dispose of products may become significant.	Increased operational cost	1-5 years	Indirect (Supply chain)	More likely than not	Medium
Reg24	Uncertainty surrounding new regulation	Possible or impending changes to regulatory framework: Create uncertainty in business environment; Impose additional administrative burden; Impose additional operating cost; Impact business decisions on issues such as competitive products, services & customer offerings, sectors in which to operate, business models & optimal locations; Operating across a number of industries & under many jurisdictions presents challenges in adapting group standards & strategies.	Increased operational cost	1-5 years	Direct	More likely than not	Medium
Reg12	General environmental regulations, including planning	Customers' continued use of products & services that BAW offers as a brand manager will depend on the extent & pace at which the group's principals & group companies can introduce new technology in products, adapt existing products, services & solutions so that offerings do not become uncompetitive in a carbon-constrained market-place.	Reduced demand for goods/services	Current	Direct	Exceptionally unlikely	Medium
Reg14	General environmental regulations, including planning	Due to complexity & the changing nature of regulations which govern many of BAW's activities, including those regulations related to climate change, across industries & geographical spectrum of group's activities, there are risks of not staying abreast of all developments & maintaining full compliance.	Inability to do business	Current	Direct	Exceptionally unlikely	Medium
Reg15	International agreements	At COP17 in Durban, South Africa in December 2011, Governments decided on the need to draft a new global agreement. The agreement will be drafted by 2015 and will come into force in 2020. It is anticipated that BRICS countries will take on targets under this new global agreement. This will set the framework for mandatory emission reduction targets in countries in which BARLOWORLD operates.. These country-based	Reduced demand for goods/services	Current	Direct	Exceptionally unlikely	Medium

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		commitments to emission reductions present physical, financial, technological & reputational challenges for BAW as well as its principals & customers & their continued viability.					
Reg04	Carbon taxes	The levy on electricity generated from non-renewable sources, a pre-existing carbon tax, was increased in April 2012 from 2.5c to 3.5c per KWh. In February 2010 in SA annual increases in Eskom's electricity tariff of 24.8%, 25.8% & 25.9% for 2011 to 2013 respectively were approved by National Energy Regulator. Increased electricity costs will bring to bear inflationary pressures & negatively impact economic activity.	Increased operational cost	Current	Direct	Virtually certain	Low-medium
Reg09	General environmental regulations, including planning	New regulations, including regulations that involve transfer or sharing of risk, may complicate procedures and/or lengthen waiting periods for obtaining licences, applying for tenders or finance, presenting future business constraints.	Increased operational cost	1-5 years	Direct	Likely	Low-medium
Reg03	Carbon taxes	CO2 Emissions Tax implemented in 2010 on new passenger vehicles has been passed on to customers as an up-front, one-off cost, resulting in price inflation rather than a shift in consumer behaviour to achieve energy & emissions efficiency.	Reduced demand for goods/services	Current	Direct	Virtually certain	Low
Reg07	Emission reporting obligations	Mandatory reporting of greenhouse gas emissions adds to the administrative burden on enterprises, particularly when same information may need to be supplied using different definitions through several channels. Reporting obligations should be aligned. SA National Climate Change Response Green Paper mentions development of a GHG reporting framework for SA by 2013 which will require significant emitting companies to submit GHG emission data to National Atmospheric Emission Inventory. Emission thresholds for submission of this data have not yet been communicated.	Increased operational cost	1-5 years	Direct	Very likely	Low
Reg02	Cap and trade schemes	Corruption & lack of capacity to manage cap & trade schemes, particularly in emerging markets, may present	Increased operational cost	1-5 years	Direct	Unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		challenges. Carbon markets may be susceptible to undue influence by vested interests, e.g. over-allocation in EU of carbon permits may have contributed to record profits reported by Europe's largest power producers. Cost of verification is reported as a major constraint to CDM, particularly in developing countries such as SA.					
Reg18	International agreements	BAW's emissions from operations in Australia represent 3% of 6 311 tons CO2e of its carbon footprint (8% of revenue). Australia committed to a 5 to 15%, or 25%, reduction in GHG emissions by 2020 from 2000 levels in ICC negotiations. Carbon Pollution Reduction Scheme & Carbon Tax - Aimed at reducing Australia's carbon emissions, government's CPRS is a cap-and-trade emissions trading scheme meant to become operational in 2010. However, it has been rejected in Parliament twice & introduction has been put on hold until after the end of 2012 when there is greater clarity on climate change legislation in the international arena going forward. BAW's Australian facilities are at their current levels below the 25 000 tons p.a. threshold for compliance. However, group could be impacted through its supply chain.	Increased operational cost	Current	Direct	Very unlikely	Low
Reg19	Lack of regulation	Africa's carbon emissions represent 4% of total global emissions & South Africa is responsible for about half of those. Most African countries do not have climate change legislation - in 2009, World Energy Council surveyed 15 countries in Africa which are responsible for 75% of total African carbon inventory, of which only 6 had energy efficiency programs & quantitative targets. However, Africa is growing rapidly & there is acknowledgement of need to develop along a low carbon trajectory. There is also need for financing to flow from developed countries to Africa & progression of climate change & energy efficiency programmes might be a condition for this finance. BAW has operations (which generate 6% or 12 599 tons CO2e of its	Increased operational cost	6-10 years	Indirect (Client)	Very unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		emissions, & 9.7% of its revenue) & a wide customer base operating in African countries other than SA which might be impacted by climate change & energy efficiency regulations.					
Reg20	Lack of regulation	BAW's operations in US generate 1% of its emissions or 2 951 tons CO2e & 3.5% of its revenue. In Copenhagen Accord, US committed to an emission reduction of 17% from 2005 levels by 2020. However, US currently has no national climate change legislation, although there have been a number of bills drafted & rejected or held up, e.g. American Clean Energy & Security Bill (Waxman Markey Bill) & American Power Act. A number of states have introduced climate change regulations & programmes. Environmental Protection Agency (EPA) has included greenhouse gases in the Clean Air Act which regulates pollutants that have global warming potentials & introduced standards for vehicle emissions in 2010. The unknown future direction of US's action, regulatory or otherwise, on climate change presents potential financial, technological & reputational challenges for BAW. The material component of these operations (Barloworld Handling) was disposed of effective April 2012, reducing this threat significantly.	Increased operational cost	6-10 years	Indirect (Supply chain)	Very unlikely	Low
Reg17	International agreements	UK committed to a 20% to 30% reduction in GHG greenhouse gas emissions by 2020 from 1990 levels under the Copenhagen Accord. Domestically, the target is 34% reduction by 2020 & 80% by 2050 from 1990 levels. 10% or 20 719 tons of BAW's CO2e emissions are from its operations in UK & EU, & 17.2% of its revenue. In April 2010, UK government launched the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, a mandatory climate change & energy saving scheme which places a price on carbon emissions to ensure energy efficiency & encourage mitigation of carbon emissions. Organisations that	Increased operational cost	Current	Direct	Very unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		consumed more than 6,000 MWh p.a. of half hourly metered electricity during 2008 are eligible. Organisations with consumption below the threshold make mandatory disclosures to the scheme. All group Handling facilities in UK have registered for scheme but currently fall inside the 6,000 MWh threshold. There are financial penalties for not conforming to the various requirements of the scheme, one of which is failure to keep adequate records on emissions.					
Reg11	General environmental regulations, including planning	Customer offerings may become uncompetitive due to a shift in customer preferences in response to government introduced disincentives (or incentives) intended, for example, to move road freight to rail and/or effect a passenger modal shift to public transport.	Reduced demand for goods/services	1-5 years	Direct	Exceptionally unlikely	Low
Reg8a	Fuel/energy taxes and regulations	Increased road transportation costs would shift demand to rail transportation, negatively affecting the group's trucking and road based logistics operation	Reduced demand for goods/services	1-5 years	Direct	Very likely	Medium-high
Reg24	Uncertainty surrounding new regulation	Possible or impending changes to regulatory framework: Create uncertainty in business environment; Impose additional administrative burden; Impose additional operating cost; Impact business decisions on issues such as competitive products, services & customer offerings, sectors in which to operate, business models & optimal locations; Operating across a number of industries & under many jurisdictions presents challenges in adapting group standards & strategies.	Inability to do business	1-5 years	Direct	More likely than not	Medium

5.1b

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

The comprehensive list of identified regulatory risks reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent to which these are considered by the group. Where risks have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of risks are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified risks. Reg01-26 (i)Financial implications relate to loss of revenue as a consequence of reputational damage due to non-compliance and/or inability to provide competitive customer solutions, and increased costs structures as a result of increased taxes, levies and surcharges and investment to meet required standards and related obligations. Where meaningful estimation is possible, attempts to quantify financial implications are made, otherwise BARLOWORLD records risks and benefits for proactive identification and awareness. Financial implications of climate change risks are not ring-fenced but incorporated into ongoing activities, revenue and cost bases of BARLOWORLD companies. (ii)Management of risk is embedded in BARLOWORLD's commitment to long term value creation, an integrated management approach, an entrenched risk management approach, stakeholder engagement and a planning framework that focuses on BARLOWORLD's 6 strategic focus areas. Sustainable development strategic focus positions climate change and related aspects as central to success of the group's long term value creation objectives. Identification and management of risks are embedded in ongoing management of the group which includes decentralised local attention and group consolidation and review. Close relationships with world class principals ensures competitive advantage and ability to provide integrated customer offerings incorporating latest energy emissions efficiency technology which mitigate customers' climate change risk. (iii) Costs directly relating to climate change issues are incorporated into ongoing activities and cost base of BARLOWORLD companies, as actions which address climate change are regular management activities. In some instances these are identifiable; however these actions invariably deliver a range of benefits which are broader than narrowly defined climate change. Where costs are incurred in offering products and services that address climate change, environmental footprint, energy and emission efficiencies, they are regarded as part of operational cost base. Generally these costs would include increased cost of energy, additional taxes and levies and investment in energy efficiency initiatives.

Air pollution limits Reg01 (i) Loss of revenue, increased cost base; (ii) Continual review and improvement of customer solutions. Implementation of internal energy and emission efficiencies and controls. (iii) Incorporated into operational cost base of company and its principals. Cap and Trade schemes Reg02 (i) Loss of revenue. Increased cost base; (ii) Continual review and improvement of customer solutions. Implementation of internal energy and emission efficiencies and controls. (iii) Incorporated into operational cost base of company and its principals. Carbon taxes Reg03, Reg04, Reg05, Reg06 (i) Internally, proposed downstream taxes in South Africa at R120 per ton would have added an additional cost of R6.8m to group in 2013/14. Loss of revenue may also result as customers are negatively affected. (ii) In 2005 BARLOWORLD signed the Energy Efficiency Accord in South Africa (also signed the NBI's Energy Efficiency Pledge in 2011) and in 2009 group implemented an aspirational target of a 12% improvement in non-renewable fossil fuel and GHG emission efficiencies off a 2009 baseline year. Concurrently, group implemented a strategic approach to managing its carbon footprint under acronym MARSO: Measure; Avoid, Reduce, Switch, Offset. Also included is a continual review and improvement of customer solutions. (iii) Incorporated into operational cost base of company and its principals. Costs relating to group's current carbon offset programme were R752 675 in 2011. Emissions reporting obligations Reg07 (i) Increased cost base; (ii) Standardised reporting structures based on GHG Protocol; (iii) Incorporated into operational and reporting cost base of company. Fuel/Energy taxes and regulations Reg08, 08a (i) Internally, proposed downstream taxes in SA at R120 per ton = additional R6.8m cost to group in 2013/14. Loss of revenue may also result as customers are negatively affected. (ii) In 2005 BARLOWORLD signed Energy Efficiency Accord in South Africa (also signed the NBI's Energy Efficiency Pledge in 2011) and in 2009 group implemented an aspirational target of a 12% improvement in non-renewable fossil fuel and GHG emissions (Scope 1 and 2) efficiencies off a 2009 baseline year. Concurrently, BW implemented approach to managing carbon footprint MARSO: Measure, Avoid, Reduce, Switch, Offset. Continual review and improvement of customer solutions; (iii) Incorporated into operational cost base of company and its principals.

General environmental regulations including planning Reg09, 10, 11, 14 (i) Loss of revenue, increased cost base; (ii) Diversification (customer offerings, geography, industries and principals); (iii) Incorporated into operational cost base of company and its principals. International agreements Reg15, 16, 17, 18 (i) Loss of revenue, increased cost base; (ii) Diversification (customer offerings, geography, industries and principals); (iii) Incorporated into operational cost base of company and its principals. Lack of regulations Reg19 & 20 (i) Loss of revenue, increased cost base; (ii) Implemented internal energy and emission efficiency targets. Diversification (customer offerings, geography, industries and principals);(iii) Incorporated into operational cost base of company and its principals.

Other regulatory drivers Reg2 (i) Loss of revenue, increased cost base;(ii) Engage in process;
(iii) Incorporated into operational cost base of company and its principals.

Product labelling regulations and standards Reg22(i) Refer Reg12;(ii) Continual review of regulations and standards with OEM's
(iii) Refer Reg12.

Uncertainty surrounding new regulations Reg23, Reg24, Reg25
(i) Refer Reg21;(ii) Engage in process. Continual review and improvement of customer solutions. Implementation of internal energy and emission efficiencies and controls. Diversification. Incorporated review and improvement of customer solutions; (iii) Refer Reg12.
Voluntary agreements Reg26 (i) Refer Reg21;(ii)Remain engaged in process Implementation of internal energy and emission efficiencies and controls;(iii)Incorporated into cost base of company and its principals

5.1c

Please describe your risks that are driven by change in physical climate parameters

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph01	Change in mean (average) precipitation	Shortages (& consequential prices increases) of water are a risk for the group as an important aspect of its business model in all operations is the washing & cleaning of equipment, plant & motor vehicles. Customers may also be negatively affected, particularly opencast mining operations in the event of increased precipitation levels. Increased rain may also lead to an increase in car rental vehicle accidents which affects fleet utilisation, reduce resale of repaired vehicles & may result in additional injuries to customers. Increased insurance premiums would result.	Increased operational cost	1-5 years	Direct	Likely	Low-medium
Ph17	Uncertainty of physical risks	Could result in a cautious approach by the group, its customers & supply-chain, delayed decision making by such parties & lost opportunities. Could also increase insurance premiums & delay investment decisions.	Reduced stock price (market valuation)	Current	Direct	Likely	Low-medium
Ph07	Change in precipitation pattern	These patterns could mean a combination of decreased or increased precipitation, change in timing & extreme patterns. Any of these would negatively affect operations, the extent of which would be in concert to the severity of the change. Customers would be similarly affected resulting in both internal pressures & change in customer demand patterns. Similarly, these would also impact group's supply chain negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	Reduced demand for goods/services	Current	Direct	Likely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph09	Change in temperature extremes	This could affect working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Severe heat or cold could result in unsafe working environments & ultimately stop operations. Temperatures beyond safe operating ranges for plant, equipment & vehicles would also halt operations. Customers would be similarly affected which may require a reallocation of expenditure & resources which could reduce demand. Similarly, these would also impact the group's supply chain negatively, affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	Increased operational cost	6-10 years	Direct	Likely	Low
Ph13	Sea level rise	This could damage harbour infrastructure & disrupt low-lying areas & industries, with negative consequences on BAW's supply chains as significant amount of plant & equipment is transported by sea. Optimal & efficient routes may be affected.	Increased operational cost	>10 years	Indirect (Supply chain)	Likely	Low
Ph15	Snow and ice	This could affect the working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Severe snow & ice could result in unsafe working environments & ultimately stop operations. Temperatures below safe operating ranges for plant, equipment & vehicles would also halt operations. Customers would be similarly affected. These would also impact BAW's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.	Increased operational cost	Current	Direct	Likely	Low
Ph16	Tropical cyclones (hurricanes and typhoons)	These would cause physical damage to facilities, result in unsafe working environments & ultimately stop operations. Customers would be similarly affected. These would also impact BAW's supply chains, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	Increased operational cost	Current	Direct	Likely	Low
Ph03	Change in	This could affect working environment requiring	Increased operational	6-10 years	Direct	Unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
	mean (average) temperature	additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Customers would be similarly affected, which may require a reallocation of resources & reduce demand. If extreme, operation of plant, equipment & vehicles would be negatively affected. It may also require a new technology in required customer solutions which competitors may provide more competitively. These would also impact the group's supply chain, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	cost				
Ph05	Change in precipitation extremes and droughts	Flooding could damage company infrastructure, stock & negatively affect operations including field servicing, operation of plant, equipment & vehicles. Drought would also negatively affect operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties. If severe, they may ultimately require changes to existing business model or relocation. Flooding would damage customer infrastructure, vehicles & equipment & negatively affect their operations through inability to operate plant, equipment & vehicles, resulting in reduced revenues for them. Drought would also negatively affect customer operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties, which may reduce demand. Increased insurance premiums would increase cost base of company & its customers. Similarly, these would also impact the group's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.	Increased operational cost	Current	Direct	Unlikely	Low
Ph17	Uncertainty of physical risks	Could result in a cautious approach by group, its customers & supply-chain, delayed decision making by	Reduced demand for goods/services	Current	Direct	Likely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		such parties & lost opportunities. Could also increase insurance premiums & delay investment decisions. The ongoing risk assessment process will assist in identifying any physical risks. In addition, the physical risks are managed through ensuring that adequate insurance is in place to cover identified physical risks.					
Ph10	Change in temperature extremes	Changes in temperature extremes may result in relocation of communities & industrial areas, which may negatively affect demand for BAW's customer offerings. This may also result in reallocation or redirection of expenditure & resources to infrastructural development. In the extreme, these relocations could be to areas not covered in the group's agreements with it principals.	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unlikely	Low
Ph11	Induced changes in natural resources	As provision of solutions into agricultural industry is considered to be one of the group's growth strategies, any negative influence or change in agricultural growth patterns & regions could affect group, particularly if agricultural centres shifted away from areas covered by group's geographic footprint.	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unlikely	Low
Ph14	Sea level rise	A rise in sea levels could result in relocation of communities & industrial areas, which may negatively affect demand for BAW's customer offerings.	Reduced demand for goods/services	>10 years	Indirect (Client)	Unlikely	Low
Ph02	Change in mean (average) precipitation	Changes in water patterns may result in relocation of communities & industrial areas which may negatively affect demand for the group's customer offerings. Competition for water may also result in political upheaval which may also negatively affect demand for the group's customer offerings.	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unlikely	Low
Ph04	Change in mean (average) temperature	Changes in average temperature may result in relocation of communities & industrial areas which may negatively affect demand for the group's customer offerings. They may also result in reallocation or redirection of expenditure & resources to urgent relief activities.	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unknown	Low
Ph06	Change in precipitation	Changes in precipitation extremes and droughts may result in relocation of communities & industrial areas	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unknown	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
	extremes and droughts	which may negatively affect demand for the group's customer offerings. They may also result in reallocation or redirection of expenditure & resources to urgent relief activities.					
Ph08	Change in precipitation pattern	Changes in precipitation patterns may result in relocation of communities & industrial areas which may negatively affect demand for the group's customer offerings. This may also result in reallocation or redirection of expenditure & resources to infrastructural aspects required as a result of changed patterns.	Reduced demand for goods/services	6-10 years	Indirect (Client)	Unknown	Low
Ph17	Uncertainty of physical risks	Could result in a cautious approach by group, its customers & supply-chain, delayed decision making by such parties & lost opportunities. Could also increase insurance premiums & delay investment decisions.	Increased operational cost	Current	Direct	Likely	Low-medium
Ph07	Change in precipitation pattern	These patterns could mean a combination of decreased or increased precipitation, change in timing & extreme patterns. Any of these would negatively affect operations extent of which would be in concert to severity of change. Customers would be similarly affected resulting in both internal pressures & change in customer demand patterns. Similarly, these would also impact group's supply chain negatively affecting supply with its concomitant restraints on group's ability to provide its integrated customer solutions.	Inability to do business	Current	Direct	Likely	Low
Ph09	Change in temperature extremes	This could affect working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Severe heat or cold could result in unsafe working environments & ultimately stop operations. Temperatures beyond safe operating ranges for plant, equipment & vehicles would also halt operations. Customers would be similarly affected which may require a reallocation of expenditure & resources which could reduce demand. Similarly, these would also impact the group's supply chain negatively, affecting supply with concomitant restraints on group's ability to provide its integrated customer solutions.	Reduction/disruption in production capacity	6-10 years	Direct	Likely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph13	Sea level rise	This could damage harbour infrastructure & disrupt low-lying areas & industries, with negative consequences on BAW's supply chains as significant amount of plant & equipment is transported by sea. Optimal & efficient routes may be affected.	Inability to do business	>10 years	Indirect (Supply chain)	Likely	Low
Ph15	Snow and ice	This could affect the working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Severe snow & ice could result in unsafe working environments & ultimately stop operations. Temperatures below safe operating ranges for plant, equipment & vehicles would also halt operations. Customers would be similarly affected. These would also impact BAW's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.	Reduction/disruption in production capacity	Current	Direct	Likely	Low
Ph15	Snow and ice	This could affect the working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Severe snow & ice could result in unsafe working environments & ultimately stop operations. Temperatures below safe operating ranges for plant, equipment & vehicles would also halt operations. Customers would be similarly affected. These would also impact BAW's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.	Inability to do business	Current	Direct	Likely	Low
Ph16	Tropical cyclones (hurricanes and typhoons)	These would cause physical damage to facilities, result in unsafe working environments & ultimately stop operations. Customers would be similarly affected. These would also impact BAW's supply chains, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions	Reduction/disruption in production capacity	Current	Direct	Likely	Low
Ph16	Tropical cyclones (hurricanes and	These would cause physical damage to facilities, result in unsafe working environments & ultimately stop operations. Customers would be similarly affected.	Inability to do business	Current	Direct	Likely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
	typhoons)	These would also impact BAW's supply chains, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions					
Ph03	Change in mean (average) temperature	This could affect working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Customers would be similarly affected, which may require a reallocation of resources & reduce demand. If extreme, operation of plant, equipment & vehicles would be negatively affected. It may also require a new technology in required customer solutions which competitors may provide more competitively. These would also impact group's supply chain, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	Reduction/disruption in production capacity	6-10 years	Direct	Unlikely	Low
Ph03	Change in mean (average) temperature	This could affect working environment requiring additional expenditure on heating, ventilation & air-conditioning (HVAC) infrastructure at all group operations. Customers would be similarly affected, which may require a reallocation of resources & reduce demand. If extreme, operation of plant, equipment & vehicles would be negatively affected. It may also require a new technology in required customer solutions which competitors may provide more competitively. These would also impact the group's supply chain, negatively affecting supply with concomitant restraints on the group's ability to provide its integrated customer solutions.	Reduced demand for goods/services	6-10 years	Direct	Unlikely	Low
Ph05	Change in precipitation extremes and droughts	Flooding could damage company infrastructure, stock & negatively affect operations including field servicing, operation of plant, equipment & vehicles. Drought would also negatively affect operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related	Reduction/disruption in production capacity	Current	Direct	Unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		difficulties. If severe, they may ultimately require changes to existing business model or relocation. Flooding would damage customer infrastructure, vehicles & equipment & negatively affect their operations through inability to operate plant, equipment & vehicles, resulting in reduced revenues for them. Drought would also negatively affect customer operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties, which may reduce demand. Increased insurance premiums would increase cost base of company & its customers. Similarly, these would also impact the group's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.					
Ph05	Change in precipitation extremes and droughts	Flooding could damage company infrastructure, stock & negatively affect operations including field servicing, operation of plant, equipment & vehicles. Drought would also negatively affect operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties. If severe, they may ultimately require changes to existing business model or relocation. Flooding would damage customer infrastructure, vehicles & equipment & negatively affect their operations through inability to operate plant, equipment & vehicles, resulting in reduced revenues for them. Drought would also negatively affect customer operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties, which may reduce demand. Increased insurance premiums would increase cost base of company & its customers. Similarly, these would also impact the group's supply chains negatively affecting	Reduced demand for goods/services	Current	Direct	Unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.					
Ph05	Change in precipitation extremes and droughts	Flooding could damage company infrastructure, stock & negatively affect operations including field servicing, operation of plant, equipment & vehicles. Drought would also negatively affect operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties. If severe, they may ultimately require changes to existing business model or relocation. Flooding would damage customer infrastructure, vehicles & equipment & negatively affect their operations through inability to operate plant, equipment & vehicles, resulting in reduced revenues for them. Drought would also negatively affect customer operations through water shortages, water price increases & operational inconvenience. Both flooding & droughts may require expenditure on infrastructure to overcome related difficulties, which may reduce demand. Increased insurance premiums would increase cost base of company & its customers. Similarly, these would also impact the group's supply chains negatively affecting supply with concomitant restraints on BAW's ability to provide its integrated customer solutions.	Inability to do business	Current	Direct	Unlikely	Low
Ph10	Change in temperature extremes	Changes in temperature extremes may result in relocation of communities & industrial areas, which may negatively affect demand for BAW's customer offerings. This may also result in reallocation or redirection of expenditure & resources to urgent relief activities. In the extreme, these relocations could be to areas not covered in the group's agreements with it principals.	Inability to do business	6-10 years	Indirect (Client)	Unlikely	Low
Ph14	Sea level rise	A rise in sea levels could result in relocation of communities & industrial areas, which may negatively affect demand for BAW's customer offerings.	Wider social disadvantages	6-10 years	Indirect (Client)	Unlikely	Low

5.1d

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

The comprehensive list of identified physical risks reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent to which these are considered by the group. Where risks have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of risks are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified risks.

Ph01-17
(i) Financial implications relate to loss of revenue as consequence of inability to conduct business due to damaged infrastructure, vehicles, plant and equipment, and an increased cost base resulting from physical damage and resulting operational inefficiencies. In the case of some of the physical risks, it is difficult to quantify the potential financial implications of the risks as this is dependent on the nature and extent of the incident which is difficult to determine. Where meaningful estimation is possible, attempts to quantify financial implications are made, otherwise BARLOWORLD records risk for proactive identification and awareness. Financial implications of climate change risks are not ring-fenced but incorporated into on-going activities, revenue and cost bases of BARLOWORLD companies.
(ii)Risks are managed through acceptance, transfer, avoidance or reduction strategies, taking risk appetites and tolerance levels into consideration.
In assessing impact and likelihood of risks for this response, control factors have been taken into account. All BARLOWORLD facilities maintain business plans that incorporate emergency response actions (disaster recovery plans) and business continuity (business continuity plans). Sensible location of facilities with appropriate emergency infrastructure, and geographic, industrial and principal diversification mitigate risks due to physical damage. BARLOWORLD maintains a flexible business model which can be adapted as circumstances require. Close relationships with leading world class principals and customers ensures open dialogue and a constructive approach would be adopted by affected parties in order to address challenges that arise due to climate change.
(iii) It is usually difficult to quantify costs directly relating to addressing climate change issues as they are not ring-fenced but incorporated into on-going activities and cost base of BARLOWORLD companies, as actions which address climate change are integrated into day-to-day management activities of organisation. In some instances these are identifiable; however these actions invariably deliver a ranges of benefits which are broader than narrowly defined climate change, e.g. where costs are incurred in offering products and services that assist in addressing risks due to physical damage, they are regarded as part of operational cost base.
Significant insurance cover (up to R2bn) is provided at group level which extends to physical damage and consequential damages.
Change in mean (average) precipitation Ph01, Ph02
(i) Loss of revenue and increased cost base
(ii) Water harvesting and recycling initiatives are in place. BARLOWORLD recycles some 10.6% of its water consumption. Increased precipitation levels are addressed through appropriate facilities, building plans and infrastructure.
(iii) Incorporated into operational cost base of company and its principals
Change in mean (average) temperature Ph03, Ph04
(i) Loss of revenue and increased cost base
(ii) Appropriate HVAC is provided in all facilities. Employee health and safety is addressed through relevant standards and benchmarks.
(iii) Incorporated into operational cost base of company and its principals
Change in precipitation extremes and droughts Ph05, Ph06
(i) Loss of revenue and increased cost base
(ii) Implemented disaster recovery and business continuity plans. Water harvesting and recycling initiatives are in place. BARLOWORLD recycles some 10.6% of its

water consumption. Increase precipitation levels are addressed through appropriate facilities, building plans and infrastructure
(iii) Incorporated into operational cost base of company and its principals
Change in precipitation pattern Ph07, Ph08
(i) Loss of revenue and increased cost base
(ii) Geographic, industrial and principal diversification. Well established customer and supply chain relationships.
(iii) Incorporated into operational cost base of company and its principals
Change in temperature extremes Ph09, Ph10
(i) Loss of revenue and increased cost base
(ii) Appropriate HVAC is provided in all facilities. Employee health and safety is addressed through relevant standards and benchmarks.
(iii) Incorporated into operational cost base of company and its principals
Induced changes in natural resources Ph11
(i) Loss of revenue and increased cost base
(ii) Geographic, industrial and principal diversification. Well established customer and supply chain relationships
(iii) Incorporated into operational cost base of company
Sea level rise Ph13, Ph14
(i) Loss of revenue and increased cost base
(ii) Well located facilities. Optimal planning of alternative supply routes. Well established customer and supply-chain relationships.
(iii) Incorporated into operational cost base of company
Snow and ice Ph15
(i) Loss of revenue and increased cost base
(ii) Appropriate HVAC is provided in all facilities. Employee health and safety is addressed through relevant standards and benchmarks. Optimal planning of alternative supply routes. Well established customer and supply-chain relationships.
(iii) Incorporated into operational cost base of company
Tropical cyclones Ph16
(i) Loss of revenue and increased cost base
(ii) Existing disaster recovery and business continuity plans. Geographic, industrial and principal/ supplier diversification. Well established customer and supply chain relationships
(iii) Incorporated into operational cost base of company
Uncertainty of physical risks Ph17
(i) Loss of revenue and increased cost base
(ii) Comprehensive strategic planning and insurance placement processes underpinned by risk management structures
(iii) Incorporated into operational cost base of company

5.1e

Please describe your risks that are driven by changes in other climate-related developments

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Oth01	Changing consumer behaviour	Shifts in consumer preference to locally sourced products with a reduced carbon footprint (or regulation which has a similar effect) may affect group's logistics business, as well as other products supplied by group.	Reduced demand for goods/services	1-5 years	Direct	Unlikely	High
Oth02	Changing consumer behaviour	There are competitive risks from suppliers who may enter market with technologies, products & services with greater energy & emission efficiencies or lower impacts on environment.	Reduced demand for goods/services	1-5 years	Direct	Very unlikely	High
Oth03	Fluctuating socio-economic conditions	A loss of business confidence may result due to climate change events as financial & social consequences add to inflationary pressures & detrimentally affect morale, standards of living, & affect production & business costs.	Reduced demand for goods/services	1-5 years	Indirect (Client)	Very unlikely	High
Oth03	Uncertainty in social drivers	A loss of business confidence may result due to climate change events as financial & social consequences add to inflationary pressures & detrimentally affect morale, standards of living, & affect production & business costs.	Reduced demand for goods/services	1-5 years	Indirect (Client)	Very unlikely	High
Oth11	Reputation	BAW is committed to ensuring its environmental legitimacy & managing its impacts on climate change. Group has integrated management practices & reporting. Sustainable development is included in one of group's Strategic Focus Areas, & Social & Environmental legitimacy is one of group's 10 Pillars of Sustainability. However, there may be risks associated with shareholder or public activism arising from climate change issues, & litigation, financial & reputational risks for companies that might inadvertently fall foul of regulations or public opinion. Reputational damage could negatively affect commercial standing & activity of group as well as its ability to attract & retain key skills.	Reduced demand for goods/services	Current	Direct	Very unlikely	High
Oth10	Other drivers	Lack of appropriate skills. Having identified importance of growing number of climate change related issues over past decade, BAW needs to recruit / retain intellectual capacity & strategic employee skills required to address these challenges across a range of disciplines in order to identify & understand trends & risks that affect group, & to implement necessary mitigation & adaptive strategies. Efforts to create awareness & provide leadership have led	Inability to do business	Current	Direct	Exceptionally unlikely	High

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		to a better grasp & acceptance of issues surrounding climate change & firm commitment within group to action.					
Oth05	Increasing humanitarian demands	Additional taxes to fund humanitarian needs & CSI/socio-economic development spend expectations and/or regulations, may be revised upwards. Companies being increasingly viewed as co-responsible with elected governments for remedying socio-economic problems.	Increased operational cost	1-5 years	Direct	More likely than not	Medium
Oth07	Induced changes in human and cultural environment	Longer term risks such as marked changes in prevailing temperature – excessively cold winters, heat waves – & rainfall patterns, interrupted energy supplies & water shortages, loss of food security, flash fires, rising sea levels, severe weather & damaged infrastructure affecting supply & delivery of essential services, raw materials & goods would all have profound effects on broader society, including group's employees, suppliers & customers.	Wider social disadvantages	6-10 years	Indirect (Client)	More likely than not	Medium
Oth09	Other drivers	Value chains may be affected as suppliers and/or customers attempt to pass on certain risks or costs associated with climate change.	Increased capital cost	1-5 years	Direct	More likely than not	Medium
Oth08	Other drivers	BAW has commenced addressing energy & emissions efficiencies & may be prejudiced as interventions already in place & group's 2009 baseline year could make it relatively more difficult to effect significant further reductions in energy consumption/intensities (fossil fuel based) & consequent emission reductions/intensities, or not be able to access any financial incentives that may be available for this purpose.	Increased operational cost	1-5 years	Direct	About as likely as not	Medium
Oth06	Induced changes in human and cultural environment	Possible new health impacts on employees would need to be managed through safety and health structures and functions, e.g. impacts on employee wellness and assistance programmes will need to be considered and addressed	Increased operational cost	1-5 years	Direct	More likely than not	Low
Oth04	Fluctuating socio-economic conditions	Changes in human settlement patterns, as well as in financial & insurance markets, could take place & this would impact on long term strategic decisions such as business models & locations, & how capital & human resources are allocated, accessed & managed.	Reduced demand for goods/services	>10 years	Direct	Unlikely	Low

5.1f

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; (iii) the costs associated with these actions

The comprehensive list of identified other risks reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent to which these are considered by the group. Where risks have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of risks are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified risks. Oth01-11 (i) Financial implications - loss of revenue due to shifts in consumption patterns and loss of competitive advantage in event that competitors have better technology and solutions, general loss of business confidence, and costs resulting from increased taxes, expectations on business to provide humanitarian aid, possible increased expenditure on employee wellness programmes, employment costs to attract and retain appropriate scarce skills and increased insurance commitments as responsibility for climate change is passed on to suppliers. BARLOWORLD attempts to quantify financial implications of identified risks which in some instances is challenging given the nature of the risk, otherwise it records risk and benefits for proactive identification and awareness purposes. Financial implications relating to climate change risks are incorporated into ongoing activities, revenue and cost bases of BARLOWORLD companies.
(ii) Methods to manage risk are embedded in BARLOWORLD's commitment and approach to long term value creation that includes entrenched risk management and a strategic planning framework that structures activity and management focus on the group's 6 strategic focus areas. This positions climate change and related aspects as central to BARLOWORLD's long term value creation. Identification and management of risks driven by climate change are embedded in ongoing management and review. (iii) It is usually difficult to quantify costs directly relating to addressing climate change issues as they are not ring-fenced but incorporated into ongoing activities and cost base of BARLOWORLD companies, as actions which address climate change are integrated into day-to-day management activities. In some instances these are identifiable; however these actions invariably deliver a range of benefits broader than narrowly defined climate change, e.g. costs incurred in offering products and services that address climate change, environmental footprint, energy and emission efficiencies are regarded as part of operational cost base.
Changing consumer behaviour Oth01 Oth02
(i) Loss of revenue, increased cost base
(ii) World class principals with leading technologies. Strong customer relationships built on providing competitive solutions that address environmental footprint. Internal legitimacy assured through aspirational energy and emission efficiency improvements. Geographic, industrial and principal /supplier diversification, a range of integrated solutions and flexible business model. Proactive stakeholder engagement to identify value requirements and address accordingly. Entrenched strategic planning processes ensure identification of relevant trends and evolving customer solutions.
(iii) In cost base of company
Uncertainty in market signals Oth04 (i) Loss of revenue
(ii) World class principals with leading technologies. Strong customer relationships built on providing competitive solutions that address environmental footprint. Internal legitimacy assured through aspirational energy and emission efficiency improvements. Geographic, industrial and principal /supplier diversification, and flexible business model. Proactive stakeholder engagement to identify value requirements and address accordingly. Address internal efficiencies and leverage financial returns in company
(iii) Incorporated into cost base of company
Fluctuating socio-economic conditions Oth03, Oth04 and Uncertainty in social drivers Oth03
(i) Increased cost base

(ii) Secure revenue through appropriate business model through entrenched strategic planning initiatives, supported by world-class principals with leading technologies. Strong customer relationships built on providing competitive solutions that address environmental footprint. Internal legitimacy assured through aspirational energy and emission efficiency improvements. Geographic, industrial and principal / supplier diversification, and flexible business model. Proactive stakeholder engagement to identify value requirements and address accordingly. Ensure efficient operations and leverage financial returns
(iii) In cost base of company.
Increasing humanitarian demands Oth05
(i) Increased cost base
(ii) Secure revenue through appropriate business model with entrenched strategic planning initiatives, supported by world-class principals which have leading technologies. Strong customer relationships built on providing competitive solutions that address environmental footprint. Internal legitimacy assured through aspirational energy and emission efficiency improvements. Geographic, industrial and principal / supplier diversification, and flexible business model. Proactive stakeholder engagement to identify value requirements and address accordingly. Ensure efficient operations and leverage financial returns
(iii) In cost base of company
Induced changes in human and cultural environment Oth06, Oth07
(i) Increased costs
(ii) Continued application of employee value creation model throughout the group to ensure optimal value created by and for employees
(iii) In cost base of the company
Other (reporting) Oth08
(i) Increased cost base
(ii) Continue with initiatives to achieve aspirational energy and emission efficiency targets. Ensure recognition of baseline year and implemented initiatives
(iii) Incorporated into cost base of company
Other (passing on of risks) Oth09
(i) Loss of revenue and increased cost base
(ii) Constructive and transparent customer relations enabling identification and equitable distribution of risk. Provision of leading solutions which minimise environmental footprint and assist customers to achieve their sustainable development objectives.
(iii) In cost base of company
Other (skills) Oth10
(i) Loss of revenue and increased cost base
(ii) Attract and retain skills though leading reputation underpinned by internal initiatives and leading customer solutions. Skills attraction and retention central to group employee value creation strategy. Implemented internal initiatives include energy and emission efficiency improvement targets, carbon offset programme, structured non-financial reporting, integrated management and sustainable development entrenched in group's strategic framework, code of ethics and 10

5.1g

Please explain why you do not consider your company to be exposed to risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

5.1h

Please explain why you do not consider your company to be exposed to risks driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

5.1i

Please explain why you do not consider your company to be exposed to risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

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6.1

Have you identified any climate change opportunities (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation
Opportunities driven by changes in physical climate parameters
Opportunities driven by changes in other climate-related developments

6.1a

Please describe your opportunities that are driven by changes in regulation

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
Reg53	Carbon taxes	BAW Power business unit has been established to offer customer offerings which provide energy security, energy efficiency, energy demand management & emissions management services.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium-high

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		The opportunities associated with the likely shift to rail-based transport can be realised through the group's emerging ability to supply into the rail industry. The introduction of a carbon tax offers the potential to reduce the carbon footprint and energy consumption and to reduce the impact of the carbon tax.					
Reg53	Fuel/energy taxes and regulations	BAW Power business unit has been established to offer customer offerings which provide energy security, energy efficiency, energy demand management & emissions management services. The opportunities associated with the likely shift to rail-based transport can be realised through the group's emerging ability to supply into the rail industry. The transportation industry and rail industry is a big focus area of Government in terms of climate change and reduction in emissions as per the White Paper on the National Climate Change Response Strategy for South Africa.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium-high
Reg55	General environmental regulations, including planning	Anticipated regulatory requirements around GHG emissions & mandatory energy efficiency targets will increase market for products, services & customer solutions that are energy & emission efficient, environmentally sound & innovative. In addition, opportunities are presented for customer offerings which provide energy security, energy efficiency, energy demand management & emissions management services. BAW divisions continue to consider these aspects in provision of their customer solutions, which include plant & equipment, motor vehicles, car rental, power solutions & logistics supply chain management & optimisation. Range & scope of these products & services is continually being reviewed & expanded.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium-high
Reg56	General environmental	Potential exists for establishment of new business units offering supplementary or	Increased demand for existing	Current	Direct	Virtually certain	Medium-high

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
	regulations, including planning	complementary products, services & solutions. Recently established BAW Power division offers standby generation & energy efficiency management solutions which it is driving within group as well as externally to customers.	products/services				
Reg57	General environmental regulations, including planning	Group regularly reviews policy compliance & international regulations & targets, including those which are climate change & energy related. It participates in formulation of government policy, is guided by standards embedded in, among other sources, King III, GHG protocols & GRI framework, & participates in JSE SRI & CDP reviews of its governance, planning & performance. These activities ensure that group is aware of topical issues, & potential & emerging risks & opportunities are dealt with timeously in formal strategy & risk management processes. All of these aspects reduce BAW's overall risk profile. Opportunity to differentiate from competitors by implementing internal initiatives which positively affect emissions, & developing competitive solutions which assist customers to address their emission & pollution limits or constraints. Being an early signatory to Energy Efficiency Accord & generally an early adaptor of standards & legislation, group has a head-start on monitoring, measuring & reporting its emissions. Standards & conditions imposed by international agreements on climate change will drive compliance behaviour & demand for appropriate products & solutions.		Current	Direct	Virtually certain	Medium-high
Reg51	Air pollution limits	Opportunity to differentiate from competitors by implementing internal initiatives which positively affect emissions, & developing competitive solutions which assist customers to address their emission & pollution limits or constraints.	Reduced operational costs	Current	Direct	Virtually certain	Medium
Reg54	Emission reporting	Being an early signatory to Energy Efficiency Accord & generally an early adaptor of standards	Reduced operational costs	Current	Direct	Virtually certain	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
	obligations	& legislation, group has a head-start on monitoring, measuring & reporting its emissions. Mandatory reporting of emissions for South Africa is expected to be introduced in 2013 with the introduction of a carbon tax. BARLOWORLD has developed an integrated reporting system which captures the carbon emissions data and calculates the carbon footprint. Currently, scopes 1 and 2 emissions are verified by external auditors. This means that BARLOWORLD will be prepared for mandatory reporting.					
Reg58	International agreements	Standards & conditions imposed by international agreements on climate change will drive compliance behaviour & demand for appropriate products & solutions.	Increased demand for existing products/services	1-5 years	Direct	Virtually certain	Medium
Reg59	Other regulatory drivers	Group could benefit from governments' intentions to create enabling environments for shift to low carbon economies. In SA, measures to create an enabling environment include ensuring that 1.5% of GDP is allocated to research & development by 2015, sending right 'price signals' & implementing subsidy reforms & rebates. SA government has introduced a tax allowance for energy efficiency savings governed under section 12L of Income Tax Act, No.58 of 1962 which is expected to be operational towards end of 2012 Accelerated depreciation for investments in renewable energy has also been allowed. SA Department of Trade & Industry is including energy efficiency requirements in new tax incentives. For example, section 12I of Act sets out an incentive for industrial policy projects that manage to meet energy efficiency requirements. BAW operations continue to consider these aspects in their respective business models, strategic plans & in developing customer offerings. New incentives are currently being designed by SA Government to promote the shift	Increased demand for existing products/services	1-5 years	Direct	Virtually certain	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		to a low carbon economy and to grow the green economy. BARLOWORLD will consider these new incentives in decision-making processes for mitigation and adaptation projects as soon as they are made available to companies.					
Reg62	Other regulatory drivers	Opportunities exist for generation of renewable energy (South African on-grid target 30% by 2025), & services aimed at achieving an optimal & reliable energy mix, including independent power supply for own consumption & potential for selling energy into regional energy grids. The National Energy Regulator of South Africa (NERSA) released incentives for renewable energy and cogeneration Independent Power Producers in 2008. These incentives are called Renewable Energy and Cogeneration Feed In Tariffs (REFIT and COFIT). The incentives offer a fixed price for electricity produced from renewable energy or cogeneration sources and fed onto the national grid. The incentives are designed to offer not only a higher price, but also price certainty over 20 years. However, after much discussion, it was decided that NERSA could not fix prices for renewable energy and the REFIT was replaced with a new bid process. The new bid process is governed by the South African Department of Energy and is called the Independent Power Producers (IPP) Procurement Programme. This Programme was introduced in July 2011 and consists of five bid rounds for renewable energy. Project developers are invited to submit bids before the set deadline. The selection process involves an element of price competition and economic development. The first two bid rounds have closed with the third bid round in August 2012 The UK committed to sourcing 15% of energy from renewable sources by 2020. The White Paper UK Renewable	Increased demand for existing products/services	1-5 years	Direct	Virtually certain	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		Energy Strategy 2009 outlines how this will be achieved. The UK government will offer feed in tariffs (FITs) for small-scale low-carbon electricity produced from renewable energy technologies from 2010. The FIT was reviewed in February 2011. BAW operations are addressing these aspects in their respective business models, strategic plans & in developing customer offerings.					
Reg63	Other regulatory drivers	New regulations which require disclosure of information on environmental stewardship, including climate change, may provide opportunities for BAW companies to differentiate from their competitors & gain competitive advantage in, for example, applying for licences, tenders or finance.	Other: Competitive advantage	Current	Direct	Virtually certain	Medium
Reg64	Product efficiency regulations and standards	Customers request products & solutions which assist them in achieving internal energy & emission targets, & it is anticipated that this trend will grow. This includes customers with operations spanning multi-geographies who may require, in terms of their own internal environmental commitments, high environmental standards & technology in products, services & solutions ahead or regardless of prevailing local/regional regulations & legislation. Supported by its principals, BAW is committed to providing leading products & solutions that enable customers to meet their sustainable development objectives, including environmental stewardship by improving lifecycle environmental footprint of products through energy & emission efficiencies, as well as product disposal.	Increased demand for existing products/services	1-5 years	Direct	Virtually certain	Medium
Reg67	Voluntary agreements	Efforts to meet group's commitments in terms of Energy Efficiency Accord which was signed in 2005 have given BAW companies a head start in embedding energy & emissions efficiency in policy, strategies & operations. Company is	Reduced operational costs	Current	Direct	Virtually certain	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		better informed on climate change issues & well positioned to engage on & deal with emerging & existing climate-change related regulations & taxes.					
Reg65	Product efficiency regulations and standards	Some of BAW's businesses are dependent on a small number of principals and/or suppliers & group's success is linked to availability, competitiveness & quality of their products & services. As anticipated regulatory requirements around GHG emissions & mandatory energy efficiency targets grow markets for products & services incorporating clean, green technologies, so arguably will number of principals, contributing to BAW group's customer offerings & increasing customers & channels to market.	New products/business services	1-5 years	Direct	More likely than not	Medium
Reg60	Other regulatory drivers	International technical assistance programmes & increasing scale of concessionary finance being made available through development finance institutions & banks to encourage private sector solutions to climate change, & present opportunities for new ventures. BAW operations consider these in their respective business models, development of customer offerings & strategic plans.	Investment opportunities	1-5 years	Direct	About as likely as not	Medium
Reg66	Product labeling regulations and standards	Requirement to include carbon footprint data on product labels would present an opportunity, since labelling would be beneficial to environmentally friendly products that group offers to customers. Product labelling regulations would assist in addressing threats presented by 'grey goods'.	Increased demand for existing products/services	Current	Direct	Virtually certain	Low
Reg52	Cap and trade schemes	Opportunity to develop CDM projects locally for own offsets to reduce group's carbon footprint, & for market, which may also assist in meeting group's local CSI & country's socio-economic development objectives. There are also opportunities in the voluntary market. Avis has purchased voluntary emission reductions from	Investment opportunities	Current	Direct	About as likely as not	Low

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		two projects to offset their carbon footprint. The development of new market mechanisms is also anticipated and this could present opportunities for BARLOWORLD.					
Reg51	Air pollution limits	Opportunity to differentiate from competitors by implementing internal initiatives which positively affect emissions, & developing competitive solutions which assist customers to address their emission & pollution limits or constraints.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium

6.1b

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions

The comprehensive list of identified opportunities reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent of consideration by the group. Where opportunities may have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of opportunities are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified opportunity. Reg51-67 (i) Financial implications-Increased revenues due to providing competitive integrated customer solutions which enable customers to comply with relevant regulations and meet their own targets for energy and emission improvements, and reduced costs structures resulting from efficiency initiatives. BARLOWORLD attempts to quantify financial implications of identified opportunities, otherwise it records opportunities and benefits of proactively pursuing them. It is usually difficult to quantify financial implications relating to climate change opportunities as they are incorporated into on-going activities and revenue and cost bases of group companies. (ii)In assessing impact and likelihood of opportunities for this response, controls have been taken into account. Methods for managing opportunity are embedded in BARLOWORLD's long term value creation, integrated management, entrenched risk management, stakeholder engagement and a strategic planning framework that structures activity and management focus on group's 6 strategic focus areas positions climate change and related aspects as central to BARLOWORLD's long term value creation objectives. Identification and realising of opportunities driven by regulatory changes are embedded in on-going management which includes decentralised local attention, as well as group consolidation, review and attention. (iii)Costs relating to climate change issues are incorporated into on-going activities and cost base of BARLOWORLD companies. In some instances these are identifiable; however these actions invariably deliver a range of benefits which are broader than narrowly defined climate change. Air pollution limits Reg51(i) Increased revenue and reduced cost base (ii)Group aspirational energy and emission reduction targets set; referenced in code of conduct. World-class principals providing leading technology regarding energy consumption and emission control. Caterpillar's ACERT® technology developed to meet American and European regulations restricting harmful emissions from diesel engines; Caterpillar's D7E tractor which features first all-electric drive train: Hyster XN truck which offers up to 31% lower power consumption than equivalent trucks; represented automobile manufacturers that are leaders in energy efficient and low emission vehicles; hybrid vehicles and electric vehicles. Internal solution offerings include BARLOWORLD Logistics' 'Green

Trailer' initiative that is some 10% more fuel efficient and their CAST-CO2 module of its leading supply chain design system which form basis of designing low-carbon supply-chains. BARLOWORLD Power division provides customers with leading energy reduction and efficiency solutions. PowerWatch technology, which enables live monitoring and of electricity consumption, is currently implemented in 17 major SA sites of group. Ongoing communication and education of employees. Appointment of sustainability champions in all divisions and executive responsibility at group level. (iii)In cost base of company Cap and Trade schemes Reg52 (i)Increased revenues and reduced cost base; (ii)Opportunity to develop a CDM utilising the group's competencies in energy efficiencies and potentially renewable energy technology. This could be in association with group corporate social investment and enterprise development strategies; (iii)In cost base of company. Carbon taxes and Fuel and energy taxes and regulations Reg53 (i)Increased revenue and reduced cost base; (ii)Group aspirational energy and emission reduction targets set; referenced in code of conduct. World-class principals providing leading technology regarding energy consumption and emission control. Caterpillar's ACERT® technology developed to meet American and European regulations restricting harmful emissions from diesel engines; Caterpillar's D7E tractor which features first all-electric drive train: Hyster XN truck which offers up to 31% lower power consumption than equivalent competitor trucks; represented automobile manufacturers that are leaders in energy efficient and low emission vehicles; hybrid vehicles and electric vehicles. Internal solution offerings include BARLOWORLD Logistics' 'Green Trailer' initiative that is some 10% more fuel efficient and their CAST-CO2 module of its leading supply chain design system which form basis of designing low-carbon efficient supply-chains. BARLOWORLD Power division provides customers with leading energy reduction and efficiency solutions. PowerWatch technology, which enables live monitoring and of electricity consumption, is currently implemented in 17 major sites of group. Ongoing communication and education of employees. Appointment of sustainability champions in all divisions and executive responsibility at group level; (iii)In cost base of company Emissions reporting obligations Reg54 (i)Reduced cost base; (ii)Early adaption of Energy Efficiency Accord in South African and implementation of a group aspirational target of a 12% non-renewable energy and a GHG (scope 1 & 2 CO2e) emissions efficiency improvement by end 2014 of a 2009 baseline year ensures structured data collection, reporting and management attention. Customer reporting obligations will focus attention on emissions and demand for energy and emission efficient solutions and offerings. BARLOWORLD is well positioned to meet these requirements; (iii)In cost base of company. General environmental regulations including planning Reg55, Reg56, Reg57 (i)Increased revenues; (ii)Providing integrated customer offerings backed by leading principals incorporating latest energy and emission efficiencies; (iii)In cost base of company. International agreements Reg58 (i)Increased revenues; (ii) Providing integrated customer offerings backed by leading principals incorporating latest energy and emission efficiencies;(iii)Incorporated into operational cost base of company. Other regulatory drivers Reg59, 60, 62, 63 (i)Increased revenues; (ii)Providing integrated customer offerings backed by leading principals incorporating latest energy and emission efficiencies; (iii)Incorporated into operational cost base of company. Product efficiency regulations and standards Reg64, 65 (i)Increased revenues; (ii)Providing integrated customer; (iii)Incorporated into cost base of company

6.1c

Please describe the opportunities that are driven by changes in physical climate parameters

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph58	Other physical climate opportunities	Physical evidence of climate change has arguably had greatest impact on opinion & behaviour change, leading to shifts in consumer sentiment & demand to more environmentally friendly products & services, & greater awareness of environmental footprint of inputs, to group's benefit.	Increased demand for existing products/services	Current	Direct	Virtually certain	Medium-high

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph59	Other physical climate opportunities	Continuing shift towards assessing profits in context of resource depletion & monetising natural capital e.g. establishing more accurate values for delivered water & energy (& managing waste) presents opportunities in that management of these will require more efficient civil infrastructure which will utilise BAW's products & services.	Increased demand for existing products/services	Current	Direct	More likely than not	Medium
Ph51	Change in mean (average) precipitation	Decreases & water shortages will motivate group to speed up implementation of feasible water recycling & efficiency measures. Increases an abundance in water will enable water harvesting & possible cost reduction	Reduced operational costs	Current	Direct	Virtually certain	Low-medium
Ph51	Change in precipitation pattern	Decreases & water shortages will motivate group to speed up implementation of feasible water recycling & efficiency measures. Increases an abundance in water will enable water harvesting & possible cost reduction	Reduced operational costs	Current	Direct	Virtually certain	Low
Ph61	Snow and ice	Severe weather conditions will require specialised plant equipment, plant & vehicles which group is well positioned to provide.	Increased demand for existing products/services	Current	Direct	More likely than not	Low
Ph62	Other physical climate opportunities	Tropical cyclones. Damaged infrastructure will need to be repaired. Damaged plant, equipment & vehicles will need to be replaced. Logistics solutions will be required to facilitate these aspects. This will create a demand for group's customer offerings.	Increased demand for existing products/services	Current	Direct	More likely than not	Low
Ph63	Other physical climate opportunities	Uncertainty of physical risks may create a demand for precautionary expenditure on infrastructure, standby plant & equipment for power generation. This creates a demand for group solutions.	Increased demand for existing products/services	Current	Direct	More likely than not	Low
Ph52	Change in mean (average) precipitation	Changes in water patterns may result in relocation of communities & industries which will require demand for group's offering.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph52	Change in precipitation pattern	Changes in water patterns may result in relocation of communities & industries which will require demand for group's offering.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph53	Change in mean (average) temperature	Shifts in weather & temperature patterns & effects of these on local ecologies might open up new tourism destinations, which may positively affect group's car hire operations.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Ph54	Change in mean (average) temperature	Changes in weather patterns may result in relocation of communities & industries which will require demand for groups offering.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph55	Change in precipitation extremes and droughts	Flooding could damage infrastructure & droughts could negatively affect communities requiring relocation or development of infrastructure to mitigate effects. These would create a demand for groups equipment & other offerings including its Logistics offering	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph56	Change in temperature extremes	Changes in temperature extremes may result in relocation of communities & industries which will require related infrastructure & increase demand for group's offerings.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph57	Induced changes in natural resources	Cultivation of food will become increasingly important & shifts in production areas will require additional equipment & infrastructure development which may positively impact demand for group offerings.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low
Ph60	Other physical climate opportunities	Sea level rise. Will result in relocation & construction of related infrastructure. This may also positively affect demand for logistics solutions. BAW is well positioned to provide such solutions.	Increased demand for existing products/services	6-10 years	Direct	Unknown	Low

6.1d

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions

The comprehensive list of identified opportunities reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent of consideration by the group. Where opportunities may have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of opportunities are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified opportunity. Ph 51-60 (i)Financial implications principally relate to increased revenue and reduced cost structures. Increase of revenue principally as a consequence of repair to damaged infrastructure, provision of power generation, replacement of damaged plant equipment and vehicles and logistics. Longer term opportunities arise from relocations of communities and industries consequent to permanent physical climate change. It is usually difficult to quantify financial implications relating to changes in physical climate parameters as they are not ring-fenced but incorporated into ongoing activities and revenue and cost bases of BARLOWORLD companies, as actions which address climate change are

integrated into day-to-day management activities of organisation. (ii)In assessing impact and likelihood of opportunities for this response, control factors have been taken into account. Methods to manage opportunity are embedded in group's commitment and approach to long term value creation for all its stakeholders which is underscored by an integrated management approach, an entrenched risk management approach, stakeholder engagement and a strategic planning framework that structures activity and management focus on group's 6 strategic focus areas, one of which is sustainable development which positions climate change and related aspects as central to success group's long term value creation objectives. Accordingly, identification and realisation of opportunities driven by changes in physical climate parameters are embedded in ongoing management of group which includes decentralised local attention, as well as group consolidation and review. Details are included in specific responses to addressed opportunities. (iii) It is usually difficult to quantify costs directly relating to addressing climate change issues as they are not ring-fenced but incorporated into ongoing activities and cost base of BARLOWORLD companies, as actions which address climate change are integrated into day-to-day management activities of organisation. In some instances these are identifiable; however these actions invariably deliver a range of benefits which are broader than narrowly defined climate change. Generally these include: costs associated with the identification, assessment and operationalising of new opportunities; additional investment in vehicles, plant and equipment, investment in appropriate water recycling initiatives, and in sourcing and/or up-skilling human resources. These together with costs incurred in developing and offering products and services that address climate change, environmental footprint, energy and emission efficiencies are regarded as part of operational cost base. Ph51, Ph52 (i)Increased revenues;(ii)Group has implemented water conservation measures which include recycling and rain harvesting. Group is also well positioned to provide necessary plant and equipment required for development of required infrastructure; (iii) In cost base of company, additional investment in appropriate water initiatives as well as stock. Change in mean (average) temperature Ph53, Ph54 and Change in temperature extremes Ph54 (i)Increased revenues (ii)Relocation of communities and industries will stimulate demand to infrastructural development. Increased tourism opportunities will benefit car rental operations and stimulate infrastructure development. BARLOWORLD is well positioned to provide necessary plant and equipment required for development of required infrastructure. (iii)In cost base of company, additional investment in skills and stock. Change in precipitation extremes and droughts Ph55, Ph56 (i)Increased revenues; (ii)BARLOWORLD is well positioned to provide necessary plant and equipment required for development of required infrastructure. (iii)In cost base of company, additional investment in appropriate water initiatives as well as stock. Induced changes in natural resources Ph57 (i)Increased revenues; (ii)BARLOWORLD is well positioned to provide necessary plant and equipment required for development of agriculture and related infrastructure; (iii)In cost base of company, additional investment in skills and stock. Other Physical Climate Drivers Ph58 Ph59 (i) Increased revenues; (ii) Well positioned through its leading principals to supply products and solutions (vehicles, plant, equipment, efficient power generation and energy efficiency) that incorporate latest technology and assist customers in achieving their climate change objectives. BARLOWORLD Logistics, car rental and fleet solutions are also environmentally sensitive and include the latest technology in vehicles and supply chain optimisation. BARLOWORLD's internal activities include its energy and emission efficiency improvement targets, evidence of its commitment to sustainable development; (iii)In cost base of company, may require additional investment in skills and stock. Sea level rise Ph60 (i)Increased revenues; (ii)BARLOWORLD is well positioned to provide necessary plant and equipment required for reconstruction and repair of damaged facilities as well as for construction of new infrastructure; (iii)In cost base of company, may require additional investment in stock. Snow and ice Ph61 (i) Increased revenues; (ii)BARLOWORLD is well positioned to provide necessary plant and equipment required to alleviate situation, including standby power generation for heating, ice and snow removal, as well as plant and equipment that can operate in prevailing conditions for commercial purposes (e.g. mining); (iii)In cost base of company, may require additional investment in stock. Tropical cyclones Ph62 (i)Increased revenues; (ii)BARLOWORLD is well positioned to provide necessary plant and equipment required for reconstruction and repair of damaged facilities as well as for construction of new infrastructure. Group is also positioned to supply standby power generation and logistics support; (iii)In cost base of company, may require additional investment in stock. Uncertainty of physical risks Ph63 (i)Increased revenues; (ii)BARLOWORLD is well positioned to provide plant and equipment required for precautionary standby purposes ((including power generation & emergency vehicles);(iii)In cost base of company, may require additional investment in stock.

6.1e

Please describe the opportunities that are driven by changes in other climate-related developments

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
Oth58	Other drivers	BAW has skills base & continues to recruit, train & develop employees it needs to support innovative, energy efficient new technologies & customer solutions	Increased production capacity	Current	Direct	Virtually certain	High
Oth53	Induced changes in human and cultural environment	There are opportunities to create stakeholder value through corporate social investment by working with NGO development partners to develop strong, responsible leadership & deepen capacity to address social & socio-economic issues highlighted & aggravated by climate change, as BAW group has done for past 3 decades.	Wider social benefits	Current	Direct	Virtually certain	Medium
Oth53	Fluctuating socio-economic conditions	There are opportunities to create stakeholder value through corporate social investment by working with NGO development partners to develop strong, responsible leadership & deepen capacity to address social & socio-economic issues highlighted & aggravated by climate change, as BAW group has done for past 3 decades.	Wider social benefits	Current	Direct	Virtually certain	Medium
Oth53	Increasing humanitarian demands	There are opportunities to create stakeholder value through corporate social investment by working with NGO development partners to develop strong, responsible leadership & deepen capacity to address social & socio-economic issues highlighted & aggravated by climate change, as BAW group has done for past 3 decades.	Wider social benefits	Current	Direct	Virtually certain	Medium
Oth59	Other drivers	Disseminating best practice & collaboration. There are opportunities to expedite information sharing & activities regarding climate change with other companies, non-governmental organisations & government agencies through relevant & appropriate forums.	Wider social benefits	Current	Direct	Very likely	Medium
Oth60	Other drivers	Competitiveness. An opportunity for group to differentiate itself arises from its willingness to behave in an ethical & responsible manner to ensure that risks are fairly & equitably managed, in an era when general trend may be for parties to attempt to avoid or pass-on risk associated with climate change.	Increased demand for existing products/services	Current	Direct	Very likely	Medium
Oth51	Changing consumer	Climate change legislation may be lagging in developing economies but public opinion & voluntary compliance	Increased demand for existing	Current	Direct	More likely than not	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
	behaviour	drive urgency to implement adaptation strategies to address climate change & to include these in BAW's customer offerings.	products/services				
Oth52	Changing consumer behaviour	An opportunity exists for BAW to create competitive advantage in times of growing public activism on sustainability matters through sound values, exemplary conduct & performance.	Increased demand for existing products/services	Current	Direct	More likely than not	Medium
Oth54	Reputation	The group has skills base & products/services to satisfy significant customers in all regions that require same high standards in their products, levels of service & environmental commitments, no matter where they operate.	Increased demand for existing products/services	Current	Direct	More likely than not	Medium
Oth55	Other drivers	Emissions risk. Due to its proactive position on energy & emission efficiency, company may be relatively less exposed to penalties for non-compliance with emission reduction targets & carbon taxes.	Reduced operational costs	Current	Direct	More likely than not	Medium
Oth56	Other drivers	Commercial opportunity. An opportunity exists to facilitate development of local emissions offset projects (Clean Development Mechanism – CDM – which provides carbon credits to registered projects that can be traded & provide an additional income stream). There are also other carbon market opportunities in the voluntary market that exist and can be considered. Avis has purchased voluntary emission reductions to offset their carbon emissions.	Investment opportunities	1-5 years	Direct	About as likely as not	Low-medium

6.1f

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions

The comprehensive list of identified opportunities reflects the diversified nature of BARLOWORLD's operations, regions and activities and the extent to which these are considered by the group. Where opportunities may have more than one impact on the group, they are repeated in order to record the differing consequences. The consequences of the wide range of opportunities are characterised by a fairly narrow range of implications for the group and BARLOWORLD has identified a set of strategic responses from which the appropriate method is sourced to manage the identified opportunity.

Oth51-60
(i) Increased revenue is mainly a consequence of customer initiatives undertaken due to public opinion, voluntary compliance and leveraging available skills within group. Principally these relate to proactively implementing energy and emission efficiency measures in anticipation of legislation and on expectation of competitive advantage. Financial implications of opportunities driven by changes in other climate-related developments are not ring-fenced but incorporated into ongoing activities and revenue and cost bases of BARLOWORLD companies.
(ii) In assessing impact and likelihood of opportunities for this response, control factors have been taken into account. Methods to manage opportunities are embedded in groups commitment and approach to long term value creation for all its stakeholders which is underscored by an integrated management approach that requires accountability and responsibility for economic, social and environmental aspects of business activity, an entrenched risk management approach, stakeholder engagement and a strategic planning framework that structures activity and management focus on group's 6 strategic focus areas, one of which is sustainable development which positions climate change and related aspects as central to success group's long term value creation objectives. Accordingly, Identification and realisation of opportunities driven by changes in other climate related developments are embedded in ongoing management of group which includes decentralised local attention, as well as group consolidation and review. Principally, these relate to leveraging group's ability to provide energy and efficient solutions incorporating latest technologies from leading principals in motor vehicles, plant and equipment as well as power generation. Also included are car rental and fleet management as well as Logistics, including supply chain management and optimisation. Other aspects which provide group a platform to realise such opportunities are its implemented energy and emission efficiency targets, entrenched reporting approach and other sustainable development initiatives. Details are included in specific responses to addressed opportunities.
(iii) It is usually difficult to quantify costs directly relating to addressing climate change issues as they are not ring-fenced but incorporated into ongoing activities and cost base of BARLOWORLD companies, as actions which address climate change are integrated into day-to-day management activities of organisation. In some instances these are identifiable; however these actions invariably deliver a range of benefits which are broader than narrowly defined climate change. Generally these costs include those associated with the identification, assessment and operationalizing new projects; sourcing and/or up-skilling human resources, increased stock levels, possible increased insurance premiums due to rearranged risk assumption and internal energy and emission efficiency initiatives. These and costs incurred in developing and offering products and services that address climate change, environmental footprint, energy and emission efficiencies are regarded as part of operational cost base.
Changing customer behaviour
Oth51, Oth52
(i) Increase revenue
(ii) Given its relationship with individual customers across a number of geographies, group is able to leverage best practise in respect of environmentally sound solutions for such customers across their operations in an efficient and effective manner. This includes providing solutions that embrace leading technology in energy and emissions efficiency of plant, equipment, motor vehicles and logistics.
BARLOWORLD strives to achieve competitive advantage through leadership in sustainable development, sound values, exemplary conduct and performance.
(iii) In cost base of company, may require additional investment in skills and stock.
Fluctuating socio-economic conditions; and Induced changes in cultural and human conditions; and Increasing humanitarian demands Oth53
(i) Financial implications: Increased revenues
(ii) By coordinating its corporate social investment and enterprise development programmes with its energy and efficiency solutions and competencies and technology, the group may be able to develop partnerships and initiatives which alleviate social need and suffering and positively contribute to climate change activities in disadvantaged communities.
(iii) In cost base of company may require additional skills.
Reputation Oth54
(i) Increased revenues
(ii) BARLOWORLD strives to achieve competitive advantage through leadership in sustainable development, sound values, exemplary conduct and performance. This is reflected in integration of sustainable development into its strategy and day-to-day operations. Aspirational energy and emission efficiency targets have been implemented, structured stakeholder engagement identifies areas of concern and value and comprehensive stakeholder reporting on progress is in place.

BARLOWORLD integrated customer solutions incorporate options to minimise environmental degradation.
(iii) In cost base of company, no additional costs anticipated.
Other (emissions risk) Oth55
(i) Reduced cost base
(ii) Due to early implementation of energy and emission efficiency improvement targets and ensuring focus and management of these issues, the group may be relatively well positioned to accommodate any externally imposed targets, avoid penalties and minimise taxes. This would provide a competitive advantage and is considered an opportunity for group.
(iii) In cost base of company, no additional costs anticipated.
Other (Commercial opportunity) Oth56
(i) Increased revenue
(ii) Investigation into the viability of a supplementary or complementary business model in line with a complete integrated customer solution.
(iii) Dependent on the business model. No costs have been budgeted for.

6.1g

Please explain why you do not consider your company to be exposed to opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

6.1h

Please explain why you do not consider your company to be exposed to opportunities driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

6.1i

Please explain why you do not consider your company to be exposed to opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading [Investor]

Page: 7. Emissions Methodology

7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Base year	Scope 1 Base year emissions (metric tonnes CO2e)	Scope 2 Base year emissions (metric tonnes CO2e)
Wed 01 Oct 2008 - Wed 30 Sep 2009	107905	91148

7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

7.2a

If you have selected "Other", please provide details below

7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)

7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data

Fuel/Material/Energy	Emission Factor	Unit	Reference
Diesel/Gas oil	0.04	metric tonnes CO2e per GJ	Southern Africa (Eskom (2010 AR), Rest of Africa (DEFRA/DECC/GHG 2010), United Kingdom (DEFRA/DECC/GHG 2010), Europe (DEFRA/DECC/GHG 2010), Australia (Australia Dept of Climate), North America (eia.doe.gov/cneat/electricity/epa), Middle East & Africa (DEFRA/DECC/GHG 2010)
Motor gasoline	0.03	metric tonnes CO2e per GJ	Southern Africa (Eskom (2010 AR), Rest of Africa (DEFRA/DECC/GHG 2010), United Kingdom (DEFRA/DECC/GHG 2010), Europe (DEFRA/DECC/GHG 2010), Australia (Australia Dept of Climate), North America (eia.doe.gov/cneat/electricity/epa), Middle East & Africa (DEFRA/DECC/GHG 2010)
Residual fuel oil	0.03	metric tonnes CO2e per GJ	Southern Africa (Eskom (2010 AR), Rest of Africa (DEFRA/DECC/GHG 2010), United Kingdom (DEFRA/DECC/GHG 2010), Europe (DEFRA/DECC/GHG 2010), Australia (Australia Dept of Climate), North America (eia.doe.gov/cneat/electricity/epa), Middle East & Africa (DEFRA/DECC/GHG 2010)
Liquefied petroleum gas (LPG)	49.38	metric tonnes CO2e per GJ	Southern Africa (Eskom (2010 AR), Rest of Africa (DEFRA/DECC/GHG 2010), United Kingdom (DEFRA/DECC/GHG 2010), Europe (DEFRA/DECC/GHG 2010), Australia (Australia Dept of Climate), North America (eia.doe.gov/cneat/electricity/epa), Middle East & Africa (DEFRA/DECC/GHG 2010)
Natural gas	41	metric tonnes CO2e per GJ	Southern Africa (Eskom (2010 AR), Rest of Africa (DEFRA/DECC/GHG 2010), United Kingdom (DEFRA/DECC/GHG 2010), Europe (DEFRA/DECC/GHG 2010), Australia (Australia Dept of Climate), North America (eia.doe.gov/cneat/electricity/epa), Middle East & Africa (DEFRA/DECC/GHG 2010)
Electricity	1.03	metric tonnes CO2e per MWh	Southern Africa (Eskom (2010 AR))

Fuel/Material/Energy	Emission Factor	Unit	Reference
Electricity	0.73	metric tonnes CO2e per MWh	Rest of Africa (DEFRA/DECC/GHG 2010)
Electricity	0.54	metric tonnes CO2e per MWh	United Kingdom (DEFRA/DECC/GHG 2010)
Electricity	0.48	metric tonnes CO2e per MWh	Europe (DEFRA/DECC/GHG 2010)
Electricity	0.92	metric tonnes CO2e per MWh	Australia (Australia Dept of Climate)
Electricity	0.57	metric tonnes CO2e per MWh	North America (eia.doe.gov/cneat/electricity/epa)
Electricity	0.91	metric tonnes CO2e per MWh	Middle East & Africa (DEFRA/DECC/GHG 2010)
Diesel/Gas oil	0.03	metric tonnes CO2e per GJ	Rest of Africa (DEFRA/DECC/GHG 2010)
Motor gasoline	0.03	metric tonnes CO2e per GJ	Rest of Africa (DEFRA/DECC/GHG 2010)
Residual fuel oil	0.03	metric tonnes CO2e per GJ	Rest of Africa (DEFRA/DECC/GHG 2010)
Liquefied petroleum gas	45.97	metric	Rest of Africa (DEFRA/DECC/GHG 2010)

Fuel/Material/Energy	Emission Factor	Unit	Reference
(LPG)		tonnes CO2e per GJ	
Liquefied Natural Gas (LNG)	35	metric tonnes CO2e per GJ	Rest of Africa (DEFRA/DECC/GHG 2010)
Diesel/Gas oil	0.03	metric tonnes CO2e per GJ	United Kingdom (DEFRA/DECC/GHG 2010)
Motor gasoline	0.03	metric tonnes CO2e per GJ	United Kingdom (DEFRA/DECC/GHG 2010)
Residual fuel oil	0.03	metric tonnes CO2e per GJ	United Kingdom (DEFRA/DECC/GHG 2010)
Liquefied petroleum gas (LPG)	45.97	metric tonnes CO2e per GJ	United Kingdom (DEFRA/DECC/GHG 2010)
Liquefied Natural Gas (LNG)	35	metric tonnes CO2e per GJ	United Kingdom (DEFRA/DECC/GHG 2010)
Diesel/Gas oil	0.03	metric tonnes CO2e per GJ	Europe (DEFRA/DECC/GHG 2010)
Motor gasoline	0.03	metric tonnes CO2e per GJ	Europe (DEFRA/DECC/GHG 2010)
Residual fuel oil	0.03	metric tonnes	Europe (DEFRA/DECC/GHG 2010)

Fuel/Material/Energy	Emission Factor	Unit	Reference
		CO2e per GJ	
Liquefied petroleum gas (LPG)	45.97	metric tonnes CO2e per GJ	Europe (DEFRA/DECC/GHG 2010)
Liquefied Natural Gas (LNG)	35	metric tonnes CO2e per GJ	Europe (DEFRA/DECC/GHG 2010)
Diesel/Gas oil	0.03	metric tonnes CO2e per GJ	Australia (Australia Dept of Climate)
Motor gasoline	0.03	metric tonnes CO2e per GJ	Australia (Australia Dept of Climate)
Residual fuel oil	0.03	metric tonnes CO2e per GJ	Australia (Australia Dept of Climate)
Liquefied petroleum gas (LPG)	42.9	metric tonnes CO2e per GJ	Australia (Australia Dept of Climate)
Liquefied Natural Gas (LNG)	39.3	metric tonnes CO2e per GJ	Australia (Australia Dept of Climate)
Diesel/Gas oil	0.02	metric tonnes CO2e per GJ	North America (eia.doe.gov/cneat/electricity/epa)
Motor gasoline	0.02	metric tonnes CO2e per	North America (eia.doe.gov/cneat/electricity/epa)

Fuel/Material/Energy	Emission Factor	Unit	Reference
		GJ	
Residual fuel oil	0.03	metric tonnes CO2e per GJ	North America (eia.doe.gov/cneat/electricity/epa)
Liquefied petroleum gas (LPG)	46.60	metric tonnes CO2e per GJ	North America (eia.doe.gov/cneat/electricity/epa)
Liquefied Natural Gas (LNG)	36.6	metric tonnes CO2e per GJ	North America (eia.doe.gov/cneat/electricity/epa)
Diesel/Gas oil	0.03	metric tonnes CO2e per GJ	Middle East & Africa (DEFRA/DECC/GHG 2010)
Motor gasoline	0.03	metric tonnes CO2e per GJ	Middle East & Africa (DEFRA/DECC/GHG 2010)
Residual fuel oil	0.03	metric tonnes CO2e per GJ	Middle East & Africa (DEFRA/DECC/GHG 2010)
Liquefied petroleum gas (LPG)	45.97	metric tonnes CO2e per GJ	Middle East & Africa (DEFRA/DECC/GHG 2010)
Liquefied Natural Gas (LNG)	35	metric tonnes CO2e per GJ	Middle East & Africa (DEFRA/DECC/GHG 2010)

Further Information

Please refer to attachment for full factors. The factors above are round to 2 decimal places as per formatting requirements.

Attachments

https://www.cdproject.net/Sites/2012/29/1529/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/7.EmissionsMethodology/Conversion Table.xlsx

Page: 8. Emissions Data - (1 Oct 2010 - 30 Sep 2011)

8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

8.2a

Please provide your gross global Scope 1 emissions figure in metric tonnes CO2e

109305

8.2b

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 1 breakdown

Boundary	Gross global Scope 1 emissions (metric tonnes CO2e)	Comment

8.2c

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 1 Total

Gross global Scope 1 emissions (metric tonnes CO2e) – Part 1 Total	Comment

8.2d

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 2

Boundary	Gross global Scope 1 emissions (metric tonnes CO2e)	Comment

8.3a

Please provide your gross global Scope 2 emissions figure in metric tonnes CO2e

79738

8.3b

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 breakdown

Boundary	Gross global Scope 2 emissions (metric tonnes CO2e)	Comment

8.3c

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 Total

Gross global Scope 2 emissions (metric tonnes CO2e) - Total Part 1	Comment

8.3d

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 2

Boundary	Gross global Scope 2 emissions (metric tonnes CO2e) - Other operationally controlled entities, activities or facilities	Comment

8.4

Are there are any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

8.4a

Please complete the table

Reporting Entity	Source	Scope	Explain why the source is excluded

8.4

Are there are any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

No

8.4a

Please complete the table

Source	Scope	Explain why the source is excluded

8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and Scope 2 figures that you have supplied and specify the sources of uncertainty in your data gathering, handling, and calculations

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
Less than or equal to 2%	Other: Human error	Although scope 1 and 2 emissions are independently assured and reporting of emission and underlying energy consumption is monitored, reported at group level and trends are benchmarked quarterly, internal audits across divisions have identified the risk of capturers at business unit level misinterpreting units of measure and magnitude of billed energy consumption. Reporting systems have been automated around consolidation of data and eliminates any consolidation errors. Ongoing	Less than or equal to 2%	Other: Human error	Although scope 1 and 2 emissions are independently assured and reporting of emission and underlying energy consumption is monitored, reported at group level and trends are benchmarked quarterly, internal audits across divisions have identified the risk of capturers at business unit level misinterpreting units of measure and magnitude of billed energy consumption. Reporting systems have been automated around consolidation of data and eliminates any consolidation errors. Ongoing

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
		monthly meetings with divisional sustainability champions also provide a platform to highlight any analytical anomalies that may be identified.			monthly meetings with divisional sustainability champions also provide a platform to highlight any analytical anomalies that may be identified.

8.6

Please indicate the verification/assurance status that applies to your Scope 1 emissions

Verification or assurance complete

8.6a

Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.6b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Level of verification or assurance	Relevant verification standard	Relevant statement attached
Limited assurance	ISAE 3000	Auditors Statement- Refer page 102 of the 2011 Annual Integrated Report. Deloitte

Level of verification or assurance	Relevant verification standard	Relevant statement attached
		assurance statement for 2011.pdf

8.7

Please indicate the verification/assurance status that applies to your Scope 2 emissions

Verification or assurance complete

8.7a

Please indicate the proportion of your Scope 2 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.7b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Level of verification or assurance	Relevant verification standard	Relevant statement attached
Limited assurance	ISAE 3000	Auditors Statement- Refer page 102 of the 2011 Annual Integrated Report. Deloitte assurance statement for 2011.pdf

8.8

Are carbon dioxide emissions from the combustion of biologically sequestered carbon (i.e. carbon dioxide emissions from burning biomass/biofuels) relevant to your company?

No

8.8a

Please provide the emissions in metric tonnes CO2e

Further Information

Auditors Statement- Refer page 102 of the 2011 Annual Integrated Report.

Attachments

https://www.cdproject.net/Sites/2012/29/1529/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/8.EmissionsData(1Oct2010-30Sep2011)/2011 Integrated annual report.pdf
https://www.cdproject.net/Sites/2012/29/1529/Investor CDP 2012/Shared Documents/Attachments/InvestorCDP2012/8.EmissionsData(1Oct2010-30Sep2011)/Deloitte assurance statement for 2011.pdf

Page: 9. Scope 1 Emissions Breakdown - (1 Oct 2010 - 30 Sep 2011)

9.1

Do you have Scope 1 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

9.1a

Please complete the table below

Country	Scope 1 metric tonnes CO2e
Australia	2798.66
Other: Europe	13315.00
Other: Middle East and Asia	1024.92
Other: Rest of Africa	7459.90
South Africa	79122.67
United States of America	5583.64

9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division

9.2a

Please break down your total gross global Scope 1 emissions by business division

Business Division	Scope 1 metric tonnes CO2e
Equipment	24722
Automotive and Logistics	70339
Handling	14218
Corporate	26

9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 metric tonnes CO2e

9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 metric tonnes CO2e

9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 metric tonnes CO2e

Page: 10. Scope 2 Emissions Breakdown - (1 Oct 2010 - 30 Sep 2011)

10.1

Do you have Scope 2 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

Yes

10.1a

Please complete the table below

Country	Scope 2 metric tonnes CO2e
Australia	3512.00
Other: Europe	6102.00
Other: Middle East and Asia	1901.00
Other: Rest of Africa	3420.00
South Africa	62124.00
United States of America	2678.00

10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division

10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2 metric tonnes CO2e
Equipment	21380
Automotive and logistics	52757
Handling	5223
Corporate	378

10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2 metric tonnes CO2e

10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2 metric tonnes CO2e

Page: 11. Emissions Scope 2 Contractual

11.1

Do you consider that the grid average factors used to report Scope 2 emissions in Question 8.3 reflect the contractual arrangements you have with electricity suppliers?

Yes

11.1a

You may report a total contractual Scope 2 figure in response to this question. Please provide your total global contractual Scope 2 GHG emissions figure in metric tonnes CO2e

11.1b

Explain the basis of the alternative figure (see guidance)

11.2

Has your organization retired any certificates, e.g. Renewable Energy Certificates, associated with zero or low carbon electricity within the reporting year or has this been done on your behalf?

No

11.2a

Please provide details including the number and type of certificates

Type of certificate	Number of certificates	Comments

Page: 12. Energy

12.1

What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

12.2

Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has consumed during the reporting year

Energy type	MWh
Fuel	414717
Electricity	87296
Heat	0
Steam	0

Energy type	MWh
Cooling	0

12.3

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Diesel/Gas oil	285231
Motor gasoline	120538
Liquefied petroleum gas (LPG)	690
Natural gas	8258

Page: 13. Emissions Performance

13.1

How do your absolute emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

13.1a

Please complete the table

Reason	Emissions value (percentage)	Direction of change	Comment
Emissions reduction	6.3	Decrease	The reduced emissions are a result of the improved efficiencies achieved through increased awareness and implementation of efficiency initiatives across the group. Measurement and Analysis

Reason	Emissions value (percentage)	Direction of change	Comment
activities			has allowed for more focused efficiency initiatives.

13.2

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for Change
3.8	metric tonnes CO2e	unit total revenue	22.4	Decrease	The reduction in intensity is a function a reduction in emissions through the emission reduction activities that Barloworld has implemented and an increase in revenues. The implementation of emission reduction projects is the primary reason behind the change in the emissions intensity. The projects include initiatives such as energy efficiency initiatives in the Corporate Head Office and other buildings, installation of PowerWatch technology so as to ensure effective energy management and changing behaviour through awareness creation to promote energy efficiency. The impact of these projects in terms of savings is included in section 3 (targets and initiatives). Behaviour change has been one of the biggest contributors to the reduction in emissions.

13.3

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per full time equivalent (FTE) employee

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for Change

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for Change
10.1	metric tonnes CO2e	FTE Employee	9	Decrease	The reduction in intensity is a function of a reduction in emissions through the emission reduction activities that Barloworld has implemented and an increase in the number of employees. The implementation of emission reduction projects is the primary reason behind the change in the emissions intensity. The projects include initiatives such as energy efficiency initiatives in the Corporate Head Office and other buildings, installation of PowerWatch technology so as to ensure effective energy management and changing behaviour through awareness creation to promote energy efficiency. The impact of these projects in terms of savings is included in section 3 (targets and initiatives). Behaviour change has been one of the biggest contributors to the reduction in emissions.

13.4

Please provide an additional intensity (normalized) metric that is appropriate to your business operations

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for Change
	metric tonnes CO2e				

Page: 14. Emissions Trading

14.1

Do you participate in any emission trading schemes?

No, but we anticipate doing so in the next two years

14.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership

14.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

BARLOWORLD has adopted a MARSO approach to managing its consumption of energy and emissions from fossil fuels: measure, avoid, reduce, switch energy sources if feasible and, finally, when and if appropriate, offset. Group companies that choose to become carbon neutral or which exceed local emission limits consider buying emissions credits from entities or projects which are able to stay below their own designated limits. Emissions trading will be considered to enable BARLOWORLD companies to meet their GHG targets cost-effectively, once all other MARSO approaches have been implemented. Emissions trading would be considered to reduce the overall cost of compliance with any emission constraints by taking advantage of differences in marginal abatement costs across different emission sources. Opportunities for cost savings would arguably be greatest when mitigation costs range widely among different sources covered by trading schemes.

14.2

Has your company originated any project-based carbon credits or purchased any within the reporting period?

Yes

14.2a

Please complete the following table

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits retired	Purpose e.g. compliance

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits retired	Purpose e.g. compliance
Credit Purchase	Coal mine/bed CH4	Tieling Coal Mine Methane Capture project in China	VCS	5866.66	5866.66	Yes	Voluntary Offsetting
Credit Purchase	Energy efficiency: households	Hufu waste heat recovery project	VCS	2933.33	2933.33	Yes	Voluntary Offsetting
Credit Purchase	Forests	Unchindle-Mapanda reforestation project, Tanzania	VCS	1100	1100	Yes	Voluntary Offsetting
Credit Purchase	Wind	Govinerpuram wind power project, India	VCS	366.66	366.66	Yes	Voluntary Offsetting
Credit Purchase	Wind	Maharashtra Wind Power, India	VCS	733.33	733.33	Yes	Voluntary Offsetting

Page: 2012-Investor-Scope 3 Emissions

15.1

Please provide data on sources of Scope 3 emissions that are relevant to your organization

Sources of Scope 3 emissions	metric tonnes CO2e	Methodology	If you cannot provide a figure for emissions, please describe them
Use of sold products	86661	These emissions are from the combustion of fossil fuels in the use phase of the BARLOWORLD product. The emissions would be estimated by multiplying an activity data (e.g. either consumption of fuel or km travelled) by an appropriate emission factor.	These emissions are associated with the use of the products of BARLOWORLD. It is in accordance with the concept of product stewardship to report on the emissions of the product use phase. The emissions currently being reported are for the vehicle rentals sold by Avis Rent a Car South Africa.
Business travel	4767	The methodology followed to estimate the emissions involve multiplying activity data for mode of transport (e.g. km travelled) by an applicable emission factor for that mode of transport (e.g. ton CO2/km). The modes of transport include	The emissions associated with business travel include those from the combustion of the fuels consumed in road and air travel. Currently only air travel is reported.

Sources of Scope 3 emissions	metric tonnes CO2e	Methodology	If you cannot provide a figure for emissions, please describe them
		aircraft and automobiles. The GHG Protocol Initiative for Scope 3 Accounting and Reporting Standard was used.	
Employee commuting		These emissions would be estimated by multiplying activity data (e.g. km travelled) by an emission factor (e.g. ton CO2/km). Reasonable assumptions and extrapolation would need to be used to do the estimation as BARLOWORLD is a large organisation. The GHG Protocol Initiative for Scope 3 accounting and Reporting Standard would be used to estimate the emissions from employee commuting.	Employee commuting emissions include those associated with the travel of employees between their homes and work from employee-owned vehicles and public transport. These have not been estimated to date.
Purchased goods & services		The methodology used to estimate these emissions would involve allocating the suppliers' emissions to the purchased product based on an appropriate unit. (e.g. if the supplier emits 2,000 tons CO2 to produce 20 units of a product and BARLOWORLD only purchase 5 units, BARLOWORLD's Scope 3 emissions would be 2,000 tons CO2 x 5/20 = 500 tons CO2. The GHG Protocol Initiative for Scope 3 accounting and Reporting Standard would be used for this.	These emissions principally include those resulting from the combustion of fossil fuels (consumption of energy) by suppliers in the manufacturing process of products purchased by BARLOWORLD. The group has not yet quantified emissions from its supply chain, but it appreciates that these could be significant and is starting to consider carbon reporting and management in the supply chain. BARLOWORLD would work closely with principals to appropriately evolve this over time. These are not currently being included in reporting.
Downstream transportation and distribution		The methodology used for the estimation of these emissions would be either fuel-based or distance-based, depending on the format of the available data. Fuel-based methodology involves multiplying the fuel consumed by an appropriate emission factor for the fuel type. The distance-based methodology involves multiplying the distance travelled by an appropriate emission factor. The GHG Protocol Initiative for Scope 3 accounting and Reporting Standard would be used.	This includes emissions from the transportation of goods purchased/acquired and sold by BARLOWORLD, e.g. the transportation of equipment and vehicles from the factory or to customers' sites. These emissions are not being quantified currently, but it is anticipated that they may be significant. BARLOWORLD is starting to consider carbon reporting and management in upstream and downstream activities.
Upstream leased assets		These emissions would be estimated by multiplying relevant activity data by an emission factor.	This refers to emissions associated with customer usage of leased plant, vehicles and equipment. These have not been estimated to date.
Capital goods		The methodology used to estimate these emissions includes multiplying an industry average life cycle emission factor per unit of equipment with the number of units used by BARLOWORLD. The GHG Protocol Initiative for Scope 3 accounting and Reporting Standard would be used.	This refers to emissions associated with the manufacturing of the capital equipment (e.g. vehicles) of which BARLOWORLD divisions uses to provide logistical service. This equipment has an extended life so that it is properly regarded as fixed assets. Emissions from this source have not yet been quantified, but could be significant. BARLOWORLD is starting to consider carbon reporting and management in upstream and downstream activities.

Sources of Scope 3 emissions	metric tonnes CO2e	Methodology	If you cannot provide a figure for emissions, please describe them
End-of-life treatment of sold products		This would involve quantifying the products and their end-of-life treatment method. From this information, it is possible to determine if they would generate greenhouse gas emissions from the treatment at the end of life.	Not undertaken at present. Component Rebuilds extend life of plant and equipment and mitigate emissions associated with building of new equipment and machinery.
Fuel- and energy-related activities (not included in Scopes 1 or 2)		These emissions would be estimated by multiplying relevant activity data by an emission factor.	This refers to emissions associated with plant, equipment and vehicle rental activities. These have not been estimated to date.
Purchased goods & services		The methodology used to estimate these emissions would be multiplying the applicable distance travelled by the applicable emissions conversion factor.	This refers to emissions associated with transportation of products sold. These have not been estimated to date.
Investments		This would involve collecting the fuel and electricity consumption from franchises and joint ventures and then converting the consumption values into emission values using appropriate emission factors. This has not been done as it is not under BARLOWORLD's financial control.	Data from joint venture operations in Ivory Coast, Democratic Republic of Congo and Zimbabwe as well as Avis Van Rental Franchisesis not consolidated into financial and non-financial reporting since these are not companies over which BARLOWORLD exercises financial control. These operations are not significant in comparison to BARLOWORLD's operations in South Africa.
Waste generated in operations		It is anticipated that the methodology used to estimate these emissions would include multiplying the appropriate weight of waste by the applicable emission factor.	This relates to the emissions generated in the group's waste disposal activities. The group disposed of some 1 464 927 kgs of solid waste during the period.

15.2

Please indicate the verification/assurance status that applies to your Scope 3 emissions

Not verified or assured

15.2a

Please indicate the proportion of your Scope 3 emissions that are verified/assured

15.2b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Level of verification or assurance	Relevant verification standard	Relevant statement attached

15.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

15.3a

Please complete the table

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Use of sold	Emissions	8	Decrease	The decrease in emissions has resulted against a 2.4% increase in rental days. This

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
products	reduction activities			improvement indicates that the fleet mix with more efficient and technologically advanced vehicles together with the mileage travelled per rental day contributed towards the positive result.
Business travel	Other: Improved reporting	52	Increase	The annual increase in scope 3 emissions from air travel to 4 767 tons indicates improved reporting rather than increased travel, as data for 2010 (3 120 tons) were incomplete. We are continuing to refine this aspect of our reporting.

Module: Sign Off

Page: Sign Off

Please enter the name of the individual that has signed off (approved) the response and their job title

Christopher Whitaker
Executive: Strategy and Sustainability |Barloworld Limited - Corporate Division