Investor CDP Information Request

CDP 2012

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Report compiled by

PROMETHIUM CARBON

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Introduction

0. Introduction

0.1 Introduction

Group Five is a South African multidisciplinary construction group with an established and growing international client base engaged in resources, energy and infrastructure delivery. It has balanced portfolio of businesses, offering multi-disciplinary construction and engineering skills and expertise to deliver any aspect of an infrastructural project, including concept development and design.
The group believes that the ability to operate in a disciplined and sustainable fashion over the long term is central to maintaining a competitive advantage in both buoyant and challenging market conditions.

Within this strategic context, we implemented a total quality management culture that underpins every aspect of our operations and reinforces the centrality of sustainability. This binds together often disparate business components and embeds the concept of a triple bottom line management culture, guided by disciplined behaviour and measured through clear targets.
With an annual turnover in the 2010 financial year of R9.2-billion, the group employs 11,997 people throughout its operations in Africa, the Indian Ocean Islands, the Middle East and Eastern Europe.

The group has been structured into five clusters:

- Construction materials
    - Head Office
    - Affrimix
    - Benoni Gold
    - Bernoberg Millings
    - Cosmos Building Supplies
    - Quarry Cats
    - Sky Sands
- Construction
    - Head Offices, Other Offices, Stores, Yards, Showrooms, and Workshops
    - Buildings Gauteng
    - Buildings KZN
    - Buildings Western Cape
    - Civil Engineering
    - Group Five Middle East LLC
    - Housing
    - Projects
- Engineering and Construction
    - Design and Project Management
    - Energy
    - Oil and Gas
- Manufacturing
    - Everite and Everite Pipe
    - Group Five Pipe
    - Plant and Equipment, Barnes Reinforcing Industry, Structural Steel, Formwork

Introduction

- Investments and concessions
    - Intertoll Africa
    - Intertoll Europe
    - Infrastructure Development Services
    - Property Development Services

Group Five has taken a holistic approach to the green journey since 2004. This green strategy integrates compliance with innovation on the various project sites and offices.

2004
South Africa's first Social Responsibility Index (SRI) is launched on the JSE.

2007
Group Five becomes a member of the WWF and participates actively in seminars and information sharing sessions.

2008
Group Five is one of fourteen 'best performers' on the SRI index out of a total of 105 companies reviewed.

2009
Group Five becomes a Gold Founding Member of the Green Building Council of South Africa.
Group Five participates in the South African Carbon Disclosure Project for the first time.

2010
Group Five acquires a major share in Kayema, a company specialising in solar water heating systems.

2011
Formed a joint venture with the Spanish renewable energy company IBDROLLA.

0.2 Reporting Year

Enter Periods that will be disclosed
01 July 2010 - 30 June 2011

0.3 Country list configuration

Select country
South Africa
Zimbabwe
Namibia
Mozambique
Malawi
Congo, Democratic Republic of the

Select country
Burkina Faso
Dubai
UK
Mauritius
United Arab Emirates
Jordan
Hungary
Poland

0.4 Currency Selection

Select currency
ZAR (R)

Management

1. Governance

Group and Individual Responsibility

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

If an individual or committee is identified:

1.1a Please identify the position of the individual or name of the committee with this responsibility

Job title: Group Risk Officer – responsible for managing all risks including those related to climate change.

Position in corporate structure: Executive Director of Group Five Construction (Pty) Ltd.

Individual Performance

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

If yes: **1.2a Please complete the table.**

Who is entitled to benefit from those incentives?	The type of incentives	Incentivized performance indicator
Business unit managers	Monetary reward	Developing and construction of green buildings and renewable energy projects.
Environment/sustainability managers	Monetary reward	Successful implementation of green initiatives and carbon emission reduction strategies and projects.
Risk managers	Monetary reward	Communicating climate change issues.
Board/Executive board	Recognition (non-monetary)	Communicating climate change issues.
Executive officer	Recognition (non-monetary)	Communicating climate change issues.
Management group	Recognition (non-monetary)	Communicating climate change issues.

2. Strategy

Risk Management Approach

Management

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.

If "integrated into company-wide risk management process", "a specific climate change risk management process", or "a process that forms part of the company's overall approach to governance/compliance" are selected:

2.1a Please provide further details

The scope of the process (regulatory, customer behaviour changes, reputational and weather related risks and opportunities)

i. The risk management of climate change related issues is integrated into the corporate risk management strategy of Group Five. Risks and opportunities related to climate change are therefore identified as part of risk management. This is done for both the company and done to the nature of an integrated construction business on a project by project basis. The scope includes physical, regulatory, market, custom behaviour changes, perception and other risks and opportunities.

How risks and opportunities are assessed at a company level

ii. To help assess risks and opportunities at a company level, Group Five have implemented a total quality management system (TQMS) that underpins every aspect of our operations and reinforces the centrality of sustainability and climate change to the business. The Green Team consisting of champions of all operating divisions is responsible for the identification of opportunities and risks resulting from climate change, as well as ways to capitalize on the opportunities and mitigate the risks on a company level. The Group Risk Officer, who is also part of the Green Team, ensures that the process of risk management takes place at a corporate level. The Group Risk Officer reports to the Board. Ultimately the Board is responsible for the overall system of risk management.

How risk and opportunities are assessed at an asset level

iii. Risks and opportunities are assessed at an asset level for (a) all projects and sites, and (b) fixed operations and facilities. For projects and sites, risks and opportunities inherent to each potential project are identified by the 'Risk Committee' during the tendering phase of a project. This committee consist of members of our 'Executive Committee' and the Tax, Legal, Commercial and Risk departments at head office. A comprehensive review of commercial, financial, technical, operational, SHEQ and climate issues is performed prior to approving the project. . Risks and opportunities for fixed operations and facilities are assessed by the Green Team. Monthly contract and project review meetings are used to monitor and report progress on potential climate related risks and opportunities for projects and sites. Electricity usage figures are also reported at these meetings for all the contracts, projects, and fixed operations by each business unit.

The frequency of monitoring

iv. Monthly contract and project review meetings are used to monitor and report progress on potential climate related risks and opportunities for projects and sites. Electricity usage figures are also reported at these meetings for all the contracts, projects, and fixed operations by each business unit. The risk reporting framework is reviewed annually by the board.

Criteria for determining materiality/priorities

v. The group's total quality management system is certified and measured to formal standards. Risks are deemed to be material on a project level if it can adversely impact on either the delivery schedule of the project or on the cost of the project. The relevant standards used as criteria to determine materiality/priorities are ISO 31000 (Risk Management), OHSAS 18000 (Safety, health and environment), and ISO 14000 (Environment). The Greenhouse Gas inventory is done in line with ISO 14064-1 and the Greenhouse Gas Protocol guidelines.

To whom are the results reported

vi. The results are reported, on a monthly basis, to the management team of each business unit responsible for the project. Quarterly, these risks and opportunities are reported to the executive directors and board.

Business Strategy

2.2 Is climate change integrated into your business strategy?

Yes

If yes: **2.2a Please describe the process outcomes**

How the business strategy has been influenced, i.e. the internal communication/reporting processes that achieve this

i. The Group Five's business strategy has been influenced by climate change on a number of levels:

- To source new business and projects from opportunities generated by both climate change mitigation (renewable energy, green buildings, etc.) and by climate change adaptation (infrastructure projects, etc);
- To optimise existing projects with respect to climate change (fuel efficiency on site, safeguarding sites against flash floods, etc); and
- To optimise fixed operations with respect to climate change adaptation and mitigation

Climate related issues are integrated into the business strategy, with a specific focus on addressing the issues mentioned above. This also resulted in the formation of the Green

Management

Team responsible for addressing and implementing climate related issues on a company-wide level. The Group Risk Officer, who forms part of the Green Team, ensures that the process of risk management takes place at a corporate level, and reports to the Board. Monthly review meetings are used to monitor and report progress on potential climate related risks and opportunities for projects and sites.

Group Five actively focuses on employing skilled personnel on a project basis capable of developing green buildings and renewable energy projects. Monthly feedback on climate related issues are communicated within the company via the green site on the company intranet and articles in the monthly company magazine. Annual feedback meetings with the heads of business units on the carbon footprint results and progress of the specific business unit also aid in communicating climate change related risks and opportunities.

Group Five received a special mention at the Climate Change Leadership Awards for its commitment to developing green buildings and renewable energy projects and for its contribution to setting standards for the green star rating tools. Communication of successes in this arena added to the momentum of the carbon management effort and helped to influence the way in which Group Five do business.

What climate change aspects have influenced the strategy

ii. The strategy of Group Five is influenced by the direct impact that climate change has on our operations on the three levels mentioned: new business and business opportunities, existing projects and fixed operations. Climate change represents significant opportunities and our marketing strategy has been adopted to capitalise on this. Opportunities like the increased demand for green buildings and renewable energy resulted in Group Five dedicating 2 teams for identification and implementation of these projects:

- A division of IDS (Infrastructure Development Services) responsible for the development of renewable energy projects and bidding into the government program; and
- A division of E&C (Engineering & Construction) involved as EPC contractor in the construction of renewable energy projects.

The decision to establish these teams was underpinned by the large emission reduction targets pledged by South Africa and the barriers associated development of renewable energy projects. These teams have a goal to secure as many projects as possible under the Eskom REIPP programme.

With respect to projects on our books, the strategy has been adapted to take cognisance of physical climate change risks, such as increased energy costs and the proposed carbon tax for South Africa. The long term contracts are carefully worded to reduce weather related costs/penalties.

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Most important components of the short term strategy that have been influenced by climate change

iii. In the short term (2 years), Group Five is aiming to position itself as the leading construction company in green buildings. Employees are actively involved in the development of the Green Building Council of South Africa's (GBCSA) rating tools, and we also have an employee on the board of the GBCSA. Group Five sent 5 representatives to the Green Building Council Conference, and also advertised in the conference programme to create awareness.

Throughout the year there is ongoing communication of climate change related issues via printed media, the company's intranet, as well as emailing. Group Five also does a lot of advertising relating to its green building and renewable energy expertise, and are regular participants at conferences where these issues are discussed.

Most important components of the long term strategy that have been influenced by climate change

iv. In the long term (5-10 years), the Energy division in the E&C cluster, as well as the IDS division, is responsible for identifying and implementing renewable energy projects. Group Five is committed to renewable energy initiatives from development and construction point of view as this is seen as a long term growth area. The demand for green buildings is also on the increase, and internal procedures are continuously evolving to accommodate this. All of these initiatives require a multi-disciplinary approach and innovative solutions, and that's why Group Five has dedicated divisions for these projects. Being early movers in the renewable energy and green buildings fields will ensure in-house expertise and a competitive advantage in the long term.

How this is gaining you strategic advantage over your competitors

v. Group Five is an early mover in the green buildings and renewable energy field. The business is structured through the divisions described above to fully capitalise on the opportunities presented by climate change. With the implementation of the South African carbon tax and the high probability of mandatory reporting, Group Five has good in-house knowledge and experience for reporting their carbon footprint in the very complex construction industry, this giving a competitive advantage over our peers. Carbon footprint reporting has already been done for 4 years in Group Five and we are familiar with the difficulties of boundary setting and emission allocation in the very complex construction industry. Early implementation of reduction projects and identification of reduction possibilities aid in giving Group Five a competitive advantage when the carbon tax is implemented.

What is the most important business decisions made in 2011, influenced by the climate change driven aspects of the strategy

vi. Group Five is actively pursuing opportunities in the renewable energy sector: it is still a shareholder in Kayema, a locally based company that specialises in solar water heating and, in this year, Group Five also formed a joint venture with a Spanish company (IBDROLLA) to access relevant technology and expertise for renewable projects.

Grant Ramsay, a Group Five senior project manager, has been appointed on the board of the GBCSA and Group Five employees have been actively involved in all the green star rating tools developed to date.

In 2011 the buildings division tendered for 5 new projects where green principles will be implemented. Group Five regularly make suggestions for "greener" alternatives in terms of building materials and techniques.

Group Five is continuing the development of the Kathu Solar Project (100MW CSP) and is actively involved in the construction of various other wind and photovoltaic projects.

Engagement with Policy Makers

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

If yes: **2.3a Please explain (i) the engagement process and (ii) actions you are advocating**
Group Five has formally adopted a public sector engagement programme to ensure a pro-active process of engaging with various policy makers on a variety of issues impacting on its business operations. The Group has in the past year held meetings with a number of policy makers, mainly in South Africa, on matters ranging from energy supply, pricing regulations, and carbon friendly projects. Below are examples of some of the public sector organizations engaged in the past year via formal meetings as an individual company, and the topics discussed:

- Department of Finance (Treasury) – Advisory meetings on Renewable Energy roll out;
- Department of Trade and Industry – Collaboration on Government support for developing a nuclear industry in South Africa;
- Department of Energy – Discussion on nuclear construction development and challenges in South Africa. Positioning with NNEECC;
- Department of Science & Technology – Development of Nuclear grade construction skills in South Africa;
- Eskom – Guidelines on Nuclear readiness program for nuclear construction;
- Nuclear Energy Corporation of South Africa (NECSA) – Proposal on Koeberg upgrades; and
- Nuclear Industry Association of South Africa (NIASA) – Nuclear Construction Localisation.

Other general engagement meetings were held with:

- National Energy Regulator of South Africa (NERSA); and
- Department of Public Enterprises.

These general meetings covered, inter alia, issues related to South Africa's response to climate change, focussing on the risks and opportunities presented to the SA economy.

Group Five also participates as an individual company in the WWF's One Planet Future public forum. The topic of engagement is long term sustainability and creating awareness about international activities by sharing case studies of products and technologies with regards to adaptation in the construction industry to climate change. The actions advocated by Group Five in this forum are centred on encouraging mitigation of carbon emissions in the construction industry and adaptation to climate change in building projects.

Group Five is a founding member of the Green Building Council of South Africa (GBCSA), which is an independent, non-profit, membership-based organisation. Grant Ramsay, a Group Five senior project manager, serves on the Board of the GBCSA. GBCSA aims to lead the transformation of the South African construction industry to ensure that all buildings are designed, built and operated in an environmentally sustainable way. The topic of engagement is the development of rating tools and standards for the construction industry. Group Five staff has been actively involved in the development of all green building rating tools to date. The nature of the engagement of Group Five is to provide practical content and technical input to the range of standards and rating tools to support mitigation of carbon emissions and adaptation of the construction industry to climate change. Group Five are endorsing uniform methodologies for evaluation of the green building sector in South Africa in order to encourage mitigation of greenhouse gas emissions.

3. Targets and Initiatives

Targets

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

No.

If you do not have a target:

3.1e Please explain (i) why not; and (ii) forecast how your emissions will change over the next five years

i. Setting a target is a complex undertaking that requires a significant internal reporting process. Group Five is a diversified construction services, materials and infrastructure investment group. Therefore the overall footprint is directly correlated to number and type of construction projects and contracts in a given year.

As the carbon footprint of our operations are directly linked to the design of the projects we build, and the design is dictated by the client, Group Five does not have a direct control over the footprint of the project. We do however engage actively with our clients to advise them

on the climate change impacts of the designs we build, as described in the section on strategy above

Large infrastructure projects are typically done in joint ventures agreements or consortiums which complicated data collection for carbon footprint calculations, and this poses a barrier for the implementation of emission reduction initiatives and incentive schemes. In contrast, the fixed operations (permanent offices, asset management and manufacturing operations) have a fixed baseline, and therefore systems to calculate this part of the carbon footprint are less complex.

Carbon foot printing in the project-based construction industry is significantly more complex than what it is for fixed operations and there is currently no clear guidance on many of the issues. The major challenges are the setting of organisational and operational boundaries for complex projects built by consortiums and joint ventures (a common practice in the mega-projects we are involved in) and the alignment of greenhouse gas accounting systems for projects where the participants have different approaches due to the lack of standards. These challenges are further exacerbated by the split incentive barrier where the client and ultimate owner of the project has the biggest impact on the emissions through the design specifications, but counts the project's emissions in its Scope 3 and therefore have little incentive to reduce it.

For the F2011 carbon footprint, Group Five adopted a new approach for determining the operational boundary, which entails accounting for carbon emissions according to the amount spent in the financial system, thereby assuming that everything that Group Five purchased was used by Group Five. The company is in the process of standardising its carbon footprint boundaries and scope with the experience it has gained over the past three years of carbon footprint reporting. Until there is consistency in the reporting from one year to the next, the setting of targets, and subsequent monitoring of targets, is a futile exercise.

ii. Over the next 5 years reduction from the F2010 baseline will be split between the fixed operations of the business and the projects/contracts. It is envisaged that the projects/contracts could reach a 3% relative emission reduction while the fixed operations could achieve a 3% absolute emission reduction.

Emission Reduction Initiatives (CDP 2010 Q9.7-9.9; Q16)

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

If yes: **3.2a Please provide details (see guidance)**

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Emissions are avoided by customers utilising the green buildings constructed by Group Five. On average green buildings are expected to achieve anything between 30-50% energy savings, and therefore greenhouse gas emission reductions, through their lifetime when compared with conventional buildings. Group Five have completed the following green building within this reporting year:

- Shepstone Wylie Building

Group Five also tendered on the following green buildings for future projects:

- Department of Environment and Tourism Offices (announced as reserved bidder)
- Department of Rural Development and Land Reform (announced as reserved bidder)
- Munitoria Civic Centre/Offices (announced as reserved bidder)
- GCIS Head Office
- Agrivaal Municipal Office

With the life of buildings assumed to be an average of 60 years, the estimated avoided emissions for the entire 60 years are 30,000 ton CO_2e for the Shepstone Wylie Building mentioned above, and 630,000 ton CO_2e for the future projects listed that Group Five tendered on. Ratings for the buildings are awarded by the Green Building Council of South Africa against the "Green Star SA – Office v1" methodology. Standards and methodologies used to estimate savings for these initiatives, and subsequent initiatives discussed in this question, are the same as used for the Group Five carbon footprint: *ISO 14064-1* and *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)*. General emission factors used for calculating the possible savings are also the same as used in this year's carbon footprint calculations. The energy consumption of conventional buildings in South Africa was obtained from the *SANS 204 Draft facilitation project* documentation. An assumption was made that green buildings will on average be 40% more energy intensive than conventional buildings. CDM methodologies are available to register and claim carbon credits from energy efficient green buildings. However, reductions will take place by owners/occupants utilising the building itself, and therefore these credits will belong to the owners of the building unless an agreement is made between the owners and Group Five.

With the stake Group Five has in Kayema (a solar water heating company), clients using solar water heaters will save anything in the range of 1-2 MWh electricity per annum for residential installations. Kayema's high-end system installations for 2011 could realize savings of over 7,300,000 kWh per year, which amounts to savings of roughly 7500 tons CO_2e per year. The solar water heaters have a 20 year life-cycle, which is guaranteed for 10 years. The CDM methodology used for calculating emission reductions and registering under the CDM for carbon credits is "AMS-I.J – Solar Water Heating Systems". To date no carbon credits have been claimed for any solar water heater installations.

Other CDM projects Group Five are involved in:

- Beatrix Mine methane – construction of phase 1 completed in 2011. Construction of Phase 2 will start in 2012;

- Beatrix West mine methane – tendered – construction will start in 2012; and
- Sasol waste heat recovery and gas turbine

Group Five is in the process of investigating passive sustainable housing. A passive house should save at least 75% of the energy usage of a standard Eskom-grid connected house. With the use of photovoltaic LED Lighting, solar geysers, and design criteria, we have managed to reduce the electrical consumption requirement to 17% of Eskom supply, bringing the house below the 25% required to term it a passive house. Energy savings are very specific to a specific house, but can amount to roughly 5 MWh per year over the lifetime of the house (roughly 5.15 ton CO_2 per year over 10 years). Unfortunately, due to budget constraints imposed on Group Five by project developers and the government, none of these energy reduction measures are currently implemented into low-cost housing projects.

Group Five is part of project development teams responsible for development of various renewable energy projects. For every 1 MWh of renewable energy generated, 0.99 ton CO2 will be saved by displacing the current South African grid electricity. The Kathu Solar Project is one example of such a project. This project will be implemented within the next year, and registration of the project under the CDM is in process. The methodology used for calculating the savings is CDM methodology ACM0002 (version 12.3.0): "*Consolidate baseline methodology for grid-connected electricity generation from renewable sources"*. The Kathu Solar Project will be a 100 MW CSP power plant and will save 226,662 tons CO_2e per annum (2.3 million tons CO_2e over a period of 10 years). The budgeted project development cost for this solar project is R 35 million. Group Five has a 30% stake in the project.

The group is in various stages of discussion on developing efficient transport corridors in Eastern and Southern Africa. These corridors would facilitate the transport of materials and goods and contribute to carbon savings in the transport industry.

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

If yes, complete questions 3.3a, 3.3b and 3.3c:
3.3a Please identify the total number of projects at each stage of development, and for use in the implementation stage, estimated CO2e saving (New for CDP 2012, not scored in 2012)

Stage of development	Number of projects	Total estimated annual CO2e savings (only for rows marked *)
Under investigation	2 (Naftech, EE lighting at Intertoll Plazas)	
To be implemented*	1 (Everite fuel-switch)	40500
Implementation commenced*		
Implemented*	2 (Use of recycled Steel from	77000

	BRI, EE in Offices and site buildings)	
Not to be implemented		

Management

3.3b For those initiatives implemented in the reporting year, please provide details in the table below (CDP 2011 Q3.3a , amended)

Activity Type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
Energy efficiency: Building services	Energy efficiency on sites and fixed operations which entailed light-bulb switching, motion detectors for lighting, and installation of solar water heaters was implemented in the reporting year. These actions will reduce Scope 2 carbon emissions of Group Five for the lifetime of the specific equipment (roughly 6-10 years for a solar water heater and 1-3 years for a CFL). Equipment used on construction sites where buildings are not permanent will be reused on future construction sites. This project is voluntary.	1000 ton CO2e	R 400000	No additional investment required	>3 years
Process emission reductions	In line with Group Five's values and sustainable business approach we have decided to ensure that the steel we trade will come from a majority recyclable source. One of Group Five's subsidiaries, BRI, manufacturer and trader of reinforcing steel, has committed to procure a minimum of 90% recycled steel. Adhering to this commitment means that Scope 3 CO_2e emissions are less than our competitors who trade with virgin steel from an identical	76000 ton CO2e	R 4.0 million	No additional investment required	<1 year

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Activity Type	Description of activity	Estimated annual CO2e savings	Annual monetary savings (unit currency)	Investment required (unit currency)	Payback period
	market share perspective. F2010 is the baseline year and the expected lifetime is 20 years. This is a voluntary initiative.				

3.3c What methods do you use to drive investment in emissions reduction activities? (CDP 2011 Q3.3b, no change)

Method	Comment
Dedicated budget for other emission reduction activities	General carbon management and reduction projects
Other	Dedicated business division involved in the development of renewable energy projects with a multi disciplinary approach.

4. Communications

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

Publication	Page/Section reference	Identify the attachment
In annual report (complete)	Pg. 44	Group Five Annual Report 2011
Voluntary communications complete	Pg. 12-15, 42	Absolute Energy Magazine - Issue 1
Voluntary communications complete	Pg. 13	Earthworks Magazine – October-November 2011
Voluntary communications complete	Pg. 5	Technology in Architecture Magazine – March 2012
Voluntary communications complete	Pg. 52	Concrete Trends – February 2012
Voluntary communications complete	Pg. 54	Engineering News – February 17-23, 2012

Risks & Opportunities

5. Climate Change Risk

5.1 Have you identified any climate change risks (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Please identify the relevant categories:

☒ **Risks driven by regulation**
☒ **Risks driven by changes in physical climate parameter**
☒ **Risks driven by changes in other climate-related developments**

Risks & Opportunities

5.1a Please describe your risks driven by changes in regulation

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
1	Carbon Tax	The Budget Speech of the Minister of Finance, Pravin Gordhan, on 22 February 2012 confirmed the Government's dedication to the implementation of a carbon tax in South Africa. A carbon tax at R120 per ton of CO2e above the suggested thresholds is proposed to take effect during 2013/14, with annual increases of 10 per cent until 2019/20. The implementation of this tax will bring the total cost of carbon in the South African economy to just over R100 per ton. This is made up of: • R48/ton (R120 per ton for 40% of emissions) carbon tax • R35/ton (3.5c/kWhr levy for non-renewable electricity) • R20/ton (Renewable energy allowance included in the electricity tariff to fund the purchase of renewable energy in the IPP program). The biggest risks to Group Five with regards to the carbon tax are:	Increased Operational Cost	Current	Direct	Virtually certain	High

Risks & Opportunities

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		• If the price of a large multiyear contract is fixed and carbon tax increases cost of project • The competitive tendering environment may make it difficult to pass on the cost increases due to carbon tax Cost increases may be more than carbon tax (example municipalities that historically increased electricity prices by more than Eskom increases)					
2	Emission reporting obligations	Government announced in the Climate Change Response White Paper of 2011 that it will implement mandatory greenhouse gas reporting by 2013. The regulation to enable this was passed in February 2012 as Regulation 142 to the National Energy Act Group Five's main risks in this respect are: • Emission reporting at the required level of detail will require the implementation of systems that will increase the operating cost of Group Five operations. • There are no clear guidelines with respect to the reporting of emissions in	Increased Operational Cost	1-5	Direct	Very likely	Low

Risks & Opportunities

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		construction projects The extreme variability in the project portfolio may cause Group Five to be liable to report in one year, but not in the next. There is no guidance on how businesses of this nature will be handled					
3	Product efficiency regulations and standards	In South Africa the Standard for Energy Efficient Buildings (SANS 204) are to be made mandatory in the near future by its incorporation into the National Building Regulations. Relevant building codes can also be introduced independently at the local municipality level, as part of ongoing energy security and climate mitigation efforts. Group Five's main risks in this area are: • The introduction of energy efficiency standards can be expected to raise operational cost for construction activities as new materials and techniques are introduced. • Implementation of the standard will require monitoring and enforcement, as well as development of professional and contractor expertise.	Increased Operational Cost	1-5	Direct	Very likely	Medium

Risks & Opportunities

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		• Group Five may have reduced ability to pass on increased cost in the competitive tendering environment.					
4	Uncertainty surrounding new regulation	There's a great deal of uncertainty regarding the scope, content and format of future climate change legislation in Africa. The nature of Group Five's business is that it moves into different regions on a temporary basis to execute projects. The company has methods in place in which it assesses the regulatory environment in a region before commencing work in that region. However, climate change introduces uncertainty in the process as potential climate change regulation may not be visible on the radar screen at the time that the tenders for large infrastructure projects are submitted or the contracts signed, but could impact the project budget at a later stage, prior to completion.	Inability to do business	Current	Direct	About as likely as not	Unknown

Risks & Opportunities

5.1b Please describe (i) the potential financial implications of risk before taking action; (ii) the methods you are using to manage this risk and (iii) the costs associated with these actions

1. The financial implication of this risk for Group Five, based on F2011 figures, is R9.3 million. This risk is being managed within the company by pricing the known cost of electricity and fuel into the cost of the project at tender stage, and during project execution through the contractual relationship with the client, thereby passing the additional costs through to the client. There is therefore no direct cost involved to managing this risk. This does however make contracts more expensive. The combustion of diesel on construction sites (through use by either heavy equipment or generators) is one of the main contributing factors to the overall carbon footprint. For Group Five to stay competitive it has to reduce its direct emissions and non-renewable electricity usage, or reduce the profit margin on projects. For this reason Group Five established the Energy business division (within the Engineering and Construction Cluster). The cost to the company to establish this division was roughly R1 million in F2010. This division will be responsible for identifying and participating in energy projects (renewable and non-renewable) in order for Group Five to start investing in, and possibly generating, clean electricity. Group Five are also currently in the process of testing fuel additives to try and reduce diesel consumption and mitigate the risk of carbon tax.

   The scope 3 emissions of diesel through the transport of building materials such as steel, cement and aggregate to site would also be affected. Building and construction materials in general have a large embedded carbon footprint. Carbon taxes on either the manufacturing or purchasing of cement, steel, and bitumen, will affect both the availability and cost of these items downstream in the value chain.

   Another way of managing risk is to move up and down the value chain. Group Five is increasingly delivering on this multidisciplinary strategy for example on a high rise building in Sandton - Quarry Cats aggregate made and supplied Afrimix concrete, along with Barnes Reinforcing Industries' and Group Five Formwork and Scaffolding. This strategy reduces earnings volatility within the construction sector by capturing multiple margin streams across the infrastructure value chain. However it also increased the sphere of influence on the overall carbon footprint as all the GHG emissions are direct emissions, whereas subcontractor emissions were indirect emissions. On the one side Group Five actively increases the contribution of the manufacturing and construction materials to the product portfolio, and on the other side developing, investing in and operating concessions and property assets. Potential direct regulatory risks can be quantified and controlled through this strategy.

2. In future, the potential financial implications of neglecting this risk will most likely result in penalties or fines; however, currently the financial implication to this risk cannot be quantified as the national reporting obligations are not yet in place. Another aspect of this risk will be reputational as neglecting to report will reflect badly on Group Five and its management. Group Five is already in the process of calculating its footprint on an annual

basis by making use of carbon consultants and in-house resources. The construction industry, especially on large construction projects, forms consortiums and joint ventures. Splitting the greenhouse gasses generated through the development of a project is challenging and might require additional contract clauses in future once more accurate reporting becomes an obligation. Emission reporting at the required level of detail will require the implementation of systems that will increase the operating cost of Group Five operations. The F2011 budget for calculating and reporting of carbon emissions was R1,200,000 (this includes consulting fees, "green" marketing, and "green" events). Group Five is in the process to lobby government on reporting boundaries in the construction industry.

3. In South Africa the Standard for Energy Efficient Buildings (SANS 204) are to become mandatory in the near future by its incorporation into the National Building Regulations. Relevant building codes can also be introduced independently at the local municipality level, as part of ongoing energy security and climate mitigation efforts. The introduction of energy efficiency standards can be expected to raise operational cost for construction activities as new materials and techniques are introduced. Various reports and literature states that on average there is a 3-5% premium on cost for a green building when compared with a similar non-green building. This increase in construction cost will be carried through to the client. Implementation of the standard will require monitoring and enforcement, as well as the development of professional and contractor expertise. Managing of this risk will require ongoing training of Group Five employees to be competitive in this field, as well as "green" marketing to inform the public that Group Five are the leaders in this space. The cost implication of training is roughly R200,000 per employee, and "green" marketing is included in the R1,200,000 budget allocated to carbon emission reporting, "green" events and "green" marketing. Related supply chain risks exist in the currently inadequate ability to secure green building materials and low carbon technologies at sufficient scale in South Africa.

4. There remains a great deal of uncertainty regarding the scope, content and format of future climate change legislation in Africa. The nature of Group Five's business is that it moves into different regions on a temporary basis to execute projects. The company has methods in place in which it assesses the regulatory environment in a region before commencing work in that region. However, climate change introduces uncertainty in the process as potential climate change regulation may not be visible on the radar screen at the time that the tenders for large infrastructure projects are submitted or the contracts signed, but could impact the project budget at a later stage. The financial implication before taking action might be as high as R73.5 million if there is as little as 1% change in the total revenue of all the construction projects due to overrun on certain projects. This risk is being managed by drafting a clause into contracts before starting a project in order to exempt Group Five from any changes in regulation while the project is in progress. For this reason there is no cost associated with taking action on this risk.

Risks & Opportunities

5.1c Please describe your risks driven by change in physical climate parameters

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
1	Changes in precipitation extremes and droughts	Extreme weather events including excessive rain and droughts can impact on our construction projects and project planning. The main risks to Group Five in this respect are: • Increased costs on projects • To have more lost days than what was provided for in the contract • To have to rework certain parts of a project due to storm damage • Logistical risks in the projects with regards to supply of materials, water and energy	Reduced/disruption in production capacity	Current	Direct	Very likely	Medium
2	Changes in precipitation patterns	Wet weather can cause disruption of construction contracts as work plans are designed according to existing precipitation patterns. The main risks for Group Five are: • Prolonged dry periods can jeopardise water supply to a project • Prolonged dry periods can increase costs associated with activities such as dust control and compaction • Prolonged wet periods can increased	Reduced/disruption in production capacity	Current	Direct	Very likely	Medium

Risks & Opportunities

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		lost days on a project • Prolonged wet periods can jeopardise site access and construction material delivery • Prolonged wet periods can increase project cost with regards to issues such as water pumping, shuttering, etc.					
3	Induced changes in natural resources	Exposure of employees to tropical diseases, including malaria. Malaria is a material risk for Group Five seeing that certain clients insist that if an employee has had malaria three times, they are not allowed to return to that site in the malaria risk area, which means the company has to appoint a different employee for that specific job, which can result in delays and loss of expertise.	Reduced/disruption in production capacity	Current	Direct	Very likely	Medium

5.1d Please describe (i) the potential financial implications of risk before taking action; (ii) the methods you are using to manage this risk and (iii) the costs associated with these actions

1. Changes in precipitation extremes and an increase in the amount of rainy days during a contract can restrict working days not planned for at the tendering phase of the project. In a case study of Group Five's Akyem project in Ghana, it was found that the contract made allowance for 2.5 "standing days" per calendar month. However, for each day of standing not planned for, it can cost Group Five roughly R700,000 per day. In the contract with the client it is stated that, if it can be proven by Group Five that there is substantial variance from the planned amount of rainy days, this additional cost of non-working days will have to be covered by the client. For this reason, if monitoring is done correctly throughout the life of the project by Group Five (which is compulsory for each project), this risk should have no financial implication for Group Five. The amount of rainy days are increasingly formalised upfront in contracts. The methods used to manage this risk are done by the 'Risk Committee' which consults the local weather bureau and assesses the specific weather patterns of in the region of the site prior to tendering and approving a project. This process considers the climate change projections based on the latest climate change science. During this assessment the average amount of rainy days are determined and drafted in to the contract with the client. This process is a standard and compulsory step for each contract and therefore there should be no additional costs associated with these actions of managing the risk.

2. In another case study it was found that the change in precipitation patterns has disrupted road construction projects. On road-building projects, it is traditional to plan for no rainfall after April (in Gauteng area), in which case some works can be programmed on an accelerated basis to take advantage of the break in the wet weather. At the same time, certain types of road surfacing cannot be undertaken when night-time temperatures drop below 5 degrees Celsius, which normally happens after April. Late unseasonal rains, and hence the late start of the winter cold period, over the last 2 years have been assessed and the result shows that the assumptions made in programming road surfacing works have been incorrect, resulting in lower production as a result of wet weather, but permitting surfacing works to proceed for a longer period of time. The main impact is reduced productivity (approximately 20% compared with historical norms). On a major road project in Gauteng, a 1% loss in productivity translates into a cost of approximately R200,000, and therefore 20% is as much as R4 million, together with a potential late completion penalty of R120,000 per day. Methods used to mitigate the risks include: consultation with the weather bureau for short and medium term forecasting and planning, utilising of off-peak periods such as weekends and night-time to reduce loss of production (albeit at an increased cost as a result of overtime payments to staff), and increasing resources to improve utilisation of hot-mix asphalt capacity (albeit at an additional cost of equipment standby). Planning and prediction of weather patterns prior to the project results in no additional cost for Group Five, seeing as this is part of the normal planning process prior to construction. However,

this case study showed that utilising off-peak periods costs Group Five R100,000 for additional overtime payments to staff, and R1,2 million for additional equipment standby costs for increased resources.

3. The changing climate has been linked to the spread of malaria and other tropical diseases. Group Five has many projects in Africa, and more specifically in high risk malaria areas. Malaria is a material risk for Group Five seeing that certain clients insist that if an employee has had malaria three times, they are not allowed to return to that site in the malaria risk area, which means the company has to appoint a different employee for that specific job, which can result in delays and loss of expertise. Evacuating a sick employee from a malaria area costs in the order of R4,000 per employee for Group Five. In order to manage this risk Group Five has started a “malaria prevention campaign”. This campaign is multidimensional and entails supplying expatriate employees with free malaria prophylactic medication, mosquito repellent lotions, external “fogging” of resident camp site areas, spraying offices and sleeping quarters, treating malaria breeding areas, and having a dress code that requires employees to wear clothing that covers the whole body. The average cost for the malaria prevention campaign on a project site with a “project peak” compliment of 400 expatriates over a period of one year, would be roughly R1.9 million.

Risks & Opportunities

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
	Reputational risks	Group Five's response to climate change can result in reputational risks and loss of future projects and revenue. The reputational risks Group Five runs are in the following areas: • Investor relations – climate change awareness is becoming more important to a number of institutional investors. Two of Group Five's top 5 shareholders have stated publicly that climate change considerations feature explicitly in their investment decisions • Government relations – Any negative perception by regulatory authorities could impact negatively on the approvals required by Group Five to execute its projects. • Client relations – The rapidly changing public perceptions with regards to climate change means that Group Five's climate change reputation could impact on its ability to secure contracts • Employee relations – Group Five	Reduced demand for goods/services	Current	Direct	About as likely as not	Low

Risks & Opportunities

ID	Risk Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		actively tries to employ the best people in the industry. A negative reputation with regards to climate change may impact on our ability to achieve this goal					

Risks & Opportunities

5.1f Please describe (i) the potential financial implications of risk before taking action; (ii) the methods you are using to manage this risk and (iii) the costs associated with these actions
Although difficult to quantify, Group Five runs a reputational risk for late delivery or overspending on projects due to unforeseen impacts of climate change. This reputational damage may impact on its ability to secure future contracts.

Indirect exposure to regulatory risks through suppliers and clients is a possibility as the nature of Group Five's primary business is involvement in the first stages of construction projects and contracts that would remain operational for years to come. Group Five is known for being one of South Africa's leading contractors in the rapidly evolving green buildings sector. Group Five was the Main Contractor for two of the first project in South Africa to be certified by the Green Building Council of South Africa (GBCSA) in accordance with its Green Star Rating System. Just as it is known that Group Five constructed these new green buildings, other buildings perceived as inefficient that were either designed or constructed by Group Five would carry a reputational risk. Although the long term emissions is the responsibility of the user, the realisation of projected savings will only be visible in accordance with international standards in the next 40-100 years.

If Group Five fails to get a contract due to reputational damage, the lost revenue will impact on the profitability of the company. Group Five had roughly 143 construction projects running in F2011 that contributed 80% to the company revenue. If we where to lose as little as 1% of projects due to reputational risk it would amount to a loss in revenue of roughly R74 million (based on F2011 figures). It is therefore important that the company takes all climate risks into consideration when tendering, planning and executing a project. All the possible risks to a specific project are reviewed by the 'Risk Committee' prior to tendering or commencing with a project. This action does not entail any additional costs as this is part of the normal risk management process. Another means to manage the risk was by appointing a carbon consultancy firm to calculate Group Five's carbon footprint and manage some of its climate related issues. An amount of roughly R1,200,000 was made available for this in F2011, as well as for advertising and promoting Group Five as a construction company that is actively involved in adaptation and mitigation actions with regards to climate change. Group Five also regularly attends green building conferences both locally and internationally.

6. Climate Change Opportunities

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? Please identify the relevant categories:

☒ **Opportunities driven by regulation**
☒ **Opportunities driven by changes in physical climate parameter**
☒ **Opportunities driven by changes in other climate-related developments**

Risks & Opportunities

6.1a Please describe your opportunities driven by changes in regulation

ID	Opportunity Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
1	Other: Growth of Existing Markets	The pledge of South Africa to reduce its carbon emissions by 34% in 2020, the imminent carbon tax, organisational attempts to reduce GHG emissions, and the increased electricity price are all drivers that support the rising green building industry in South Africa, and support a variety of technology and material providers. The South African Renewable Energy Independent Power Producers (REIPP) program is also a huge drive for the implementation of renewable energy and the development of the market. The expansion of low carbon technologies including public transport infrastructure and renewable energy offers additional areas for construction sector growth. Significant potential in construction related opportunities exist in the implementation of large-scale heat pump, solar water heater or insulated ceiling rollout, as part of social development and/or climate change mitigation efforts.	Increased demand for existing products/services	Current	Direct	Very likely	Medium-high

Risks & Opportunities

ID	Opportunity Driver	Description	Potential Impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
2	Cap and trade schemes	South Africa is a non-Annex I country which ratified the Kyoto Protocol. It is therefore possible for companies to register Clean Development Mechanism (CDM) projects in South Africa. These can result in carbon credits for the Group through potential renewable energy projects	Increased demand for existing products/services	Current	Direct	Very likely	Medium-high
3	Voluntary Agreements	Group Five is a shareholder in Kayema, a company specialising in solar water heating systems. This investment positions the company well to capitalise on the DSM funding program for solar water heaters.	Increased demand for existing products/services	Current	Direct	Very likely	Medium-high

Risks & Opportunities

6.1b Please describe (i) the potential financial implications of the opportunity before taking action; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

1. The pledge of South Africa to reduce its carbon emissions by 34% in 2020, the imminent carbon tax, organisational attempts to reduce GHG emissions and the increased electricity price are all drivers that support the rising green building industry in South Africa, and support a variety of technology and material providers. The South African Renewable Energy Independent Power Producers (REIPP) program is also a huge drive for the implementation of renewable energy and the development of the market. Overall, the programme is expected to attract investment of around R100-billion between 2012 and 2016. The expansion of low carbon technologies including public transport infrastructure and renewable energy, offers additional areas for construction sector growth. Significant potential in construction related opportunities exist in the implementation of large-scale heat pump, solar water heater or insulated ceiling rollout as part of social development and/or climate change mitigation efforts. The potential financial implication before taking action is the lack of revenue and possible market share that may arise from the potential projects in the renewable energy sector. If Group Five increase the amount of projects in F2011 by 10% with additional green buildings and infrastructure upgrading projects, it could amount to an estimate of R735 million additional revenue for the company. Group Five already completed 2 green buildings, and has tendered on 5 new buildings for the future. In the past year Group Five was involved in construction projects to the value of R900 million which will generate renewable energy or energy with reduced emissions when compared to the current South African grid electricity. Group Five also has an aim to secure a large part of the estimated potential market share of R25 billion for renewable energy technologies in South Africa over the next three years. South Africa's Integrated Resource Plan for the energy sector envisages 3725 MW of renewable energy being added to the country's power mix over the coming few years. Group Five has 2 teams specifically focussed on renewable energy projects: (1) a division of IDS (Infrastructure Development Services) responsible for the development of renewable energy projects and bidding into the DOE program; (2) a division of E&C (Engineering and Construction) involved as EPC contractor in the construction of renewable energy projects. This E&C cluster was created in F2010 to manage the opportunity by providing procurement and construction support to dedicated renewable energy technologies. More than R1 million was spent by Group Five in F2010 to get the E&C division up and running. The key focus is on concentrated solar thermal power, wind energy and small hydro plants to be built in South Africa. Group Five is actively involved in the construction of various wind and photovoltaic projects. The Kathu Solar project is also continuing development, with a project development budget of R35 million. Group Five is exploring other renewable projects outside of South Africa, e.g. the Lake Turkana wind project in Kenya. In F2011 Group Five formed a joint venture with a Spanish company (IBDROLLA) to access relevant technology and expertise for renewable projects in South Africa. Marketing is another method to utilise this opportunity by informing the public that

Group Five are the leaders in this space and making them aware of what the company can offer. The cost implication of "green" marketing is included in the R1,200,000 budget allocated to carbon emission reporting, "green" events and "green" marketing.

2. Eskom offers a rebate on solar water heaters (SWH) as part of their DSM funding program. With this rebate, return on investments in the SWH industry become very attractive. The potential financial implication before taking action is the lack of revenue and potential market share that may arise from investing in SWH projects or companies. Group Five is actively pursuing opportunities in the renewable energy sector in Southern Africa is a shareholder in Kayema, a locally based company that specialises in solar water heating. Group Five holds 25% of the shares in Kayema. It is estimated that Kayema will show a profit of roughly R11 million in F2011.

3. With Group Five investing in renewable energy projects and having acquired a share in Kayema (SWH company), it is possible to obtain carbon credits for these projects if registered under the Clean Development Mechanism (CDM). In general, for every 1 MWh of renewable energy generated, 0.99 ton CO2 will be saved by displacing South African grid electricity. The potential financial implication is very dependent on a specific project, but for a solar project that Group Five are busy developing, which will be in the range of 100 MW, the opportunity is worth roughly R120 million in carbon credits over 10 years (saving 226,662 tons CO_2e per annum; 2.3 million tons CO_2e over a period of 10 years). This opportunity is being managed by the Engineering and Construction cluster and by the appointment of Promethium Carbon, a dedicated carbon consulting firm. Getting the project registered under the CDM will cost in the order of R1-3 million. Budgeted project development cost for this solar project is R 35 million (Group Five has a 30% stake in this project).

Risks & Opportunities

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
1	Other physical climate opportunities: Changes in frequency of extreme weather events	Rebuilding infrastructure after extreme weather events provides opportunities for Group Five to improve infrastructure, such as upgrades of drainage infrastructure, roads, embankments, and buildings. Group Five has many opportunities for embankment and harbour upgrades in African countries.	Increased demand for existing products/services	Current	Direct	More likely than not	Medium-high

6.1d Please describe (i) the potential financial implications of the opportunity before taking action; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

Africa is vulnerable to climate change, and the Copenhagen Accord provides funds for adaptation (the total available resources available in the Adaptation Fund under the UNFCCC are expected to be between USD 300-500 million by end-2012). It is likely that a portion of these substantial funds would be allocated to infrastructure improvements such as improved water supply, sanitation, irrigation, embankment and sea level protection. Group Five is well positioned with both project experiences in countries throughout Africa and successful project delivery. Countries such as Ghana and Madagascar (countries in which Group Five has been active with construction projects) committed themselves to have mitigation and adaptation action in the transport, energy and industrial & process sectors, as part of their Copenhagen Accord participation. This could provide opportunities in terms of funding for new infrastructure projects. The South African Risk and Vulnerability Atlas show climate change risks for the country which will require significant investment from local government towards infrastructure upgrades for mitigation an adaptation. These infrastructure upgrades include upgrades of storm-water drainage, roads, embankments, and buildings.

An expansion in infrastructure investment was one of the central priorities of the 2012 Budget Speech by the South African Minister of Finance, Pravin Gordhan. The Budget Review lists 43 major infrastructure projects, adding up to R3.2 trillion in expenditure. Over the MTEF period ahead, approved and budgeted infrastructure plans amount to R845 billion, of which just under R300 billion is in the energy sector and R262 billion in transport and logistics projects. This is not only a function of national developmental goal but also driven by the national climate change response policy. These sectors are the central focus of Group Five's business.

Increased regulatory requirements and prescribed standards (like SANS 204) will benefit the business as new business opportunities and larger tenders could arise. These would range from new housing requirements, through commercial buildings to new road infrastructure. It is estimated that buildings consume 40-50% of the world's energy through their construction and ongoing operation. Green buildings can reduce the consumption of energy to less than half of a conventional building. Group Five is at the forefront of not only the construction, but also the design and development of green buildings.

Apart from climate change and the need for adaptation, the Millennium Development Goals (reducing poverty by 2015) is an additional driver for governments in Africa to invest in public infrastructure such as water, electricity, transport, healthcare, education and administration. Group Five as a market leader in multi-disciplinary construction works is well positioned to deliver on these key contracts in a sustainable manner. Infrastructure contracts currently being rolled out include conventional, coal-fired and nuclear electricity power; road networks; railway expansion; commuter

schemes; port and harbour developments; large pipelines; water and waste water treatment plants and water storage facilities.

The potential financial implications before taking action on these abovementioned opportunities are the lack of revenue and possible market share that may arise from green buildings and infrastructure upgrade projects. If Group Five increase the amount of projects in F2011 by 10% with additional green buildings and infrastructure upgrading projects, it could amount to an estimated R735 million in additional revenue for the company.

The method used to manage this opportunity is by the development of the Engineering and Construction (E&C) cluster, which resulted in a cost to company in F2010 of more than R1 million in order to establish this cluster. Marketing is another method utilise this opportunity by informing the public that Group Five are the leaders in this space and making them aware of what the company can offer. Being active in the green building space and having a Group Five employee on the board of the GBCSA also give Group Five a competitive advantage over other construction companies. The cost implication of “green” marketing and events is included in the R1,200,000 budget allocated to carbon emission reporting, “green” events and “green” marketing.

Risks & Opportunities

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
1	Changing consumer behaviour	Group Five is actively involved in the renewable energy sector in Southern Africa, and with changing consumer behaviour there will be an increased demand for renewable energy rather than fossil fuel energy. Climate Change and the media surrounding it have influenced consumers to increasingly demand non-fossil fuel based energy (directly and indirectly).	Increased demand for existing products/services	Current	Direct	More likely than not	Medium-high
2	Changing consumer behaviour	A demand for green buildings for both commercial and residential properties will result in retrofitting and upgrading existing property assets as well as innovative new developments. Climate Change and the media surrounding it, as well as the increasing cost of energy, have influenced consumers to increasingly demand green buildings.	Increased demand for existing products/services	1-5 years	Direct	More likely than not	Medium

Risks & Opportunities

6.1f Please describe (i) the potential financial implications of the opportunity before taking action; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

1. Group Five is actively involved in the renewable energy sector in Southern Africa and with changing consumer behaviour there will be an increased demand for renewable energy rather than fossil fuel energy. The potential financial implication before taking action on these abovementioned opportunities is the lack of revenue and possible market share that may arise from these projects. Group Five has an aim to secure a large part of the estimated potential market share of R25 billion for renewable energy technologies in South Africa over the next three years. South Africa's Integrated Resource Plan for the energy sector envisages 3725 MW of renewable energy being added to the country's power mix over the coming few years. Management of this opportunity is done by Group Five's Engineering and Construction (E&C) cluster that are offering engineering, procurement and construction support to dedicated renewable energy technologies. The key focus is on concentrated solar thermal power, wind energy and small hydro plants to be built in South Africa. The Group Executive Committee (Exco) and Management Committee (Manco) have approved the initiative of creating a new concept that takes our sector focus forward in a new Engineering and Construction (E&C) business. The E&C business is intended to add to the Group's penetration of markets and add new prospects and opportunities to the group. The key E&C sector focus will initially include, but not limited to: renewable and gas fired power generation and green business opportunities. The Infrastructure Development cluster is leading the development of the first large-scale Concentrated Solar Thermal Power (CSP) plant South Africa. Budgeted project development cost for this solar project is R 35 million in which Group Five has a 30% stake. Group Five has a 25% stake in Kayema (as solar water heating company) and in F2011 formed a joint venture with a Spanish company (IBDROLLA) to access relevant technology and expertise for renewable projects in South Africa. Marketing is another method to utilise this opportunity by informing the public that Group Five are the leaders in this space and making them aware of what the company can offer. The cost implication of "green" marketing is included in the R1,200,000 budget allocated to carbon emission reporting, "green" events and "green" marketing.

2. A demand for green buildings for both commercial and residential properties will result in retrofitting and upgrading existing property assets as well as innovative new developments. The potential financial impact to Group five before taking action on this opportunity is the possibility of a loss in new market share that may arise from the green buildings sector. The tender value for the completed green building by Group Five in F2011 was R43 million. With the expansion of the green building industry this market can become much more significant and contribute a large fraction of the overall Group Five annual revenue. The green star rating system, developed by the Green Building Council of South Africa in conjunction with Group Five and other role players, has been adopted by a number of government agencies

for the design of their new offices. Group Five has, through early adoption, a competitive advantage in submitting designs for these concessions. Group Five tendered on the following green buildings for future projects:

- Department of Environment and Tourism Offices
- Department of Rural Development and Land Reform
- Munitoria Civic Centre/Offices
- GCIS Head Office
- Agrivaal Municipal Office

All costs associated with green building design and construction is paid for by the client. However, it cost Group Five around R200,000 in F2011 to train and equip personal for working on green building sites.

7. Emissions Methodology

Base Year

7.1 Please provide your base year and base year emissions (Scope 1 and 2)

Base Year	Scope 1 Base year emissions (metric tonnes CO2e)	Scope 2 Base year emissions (metric tonnes CO2e)
2010	69463.70	84483.82

Methodology

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

ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

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

Gas	Reference
Methane	IPCC Third Assessment Report (TAR – 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	Emissions Factor	Unit	Reference
Diesel/Gas oil	2.67	kg CO2e per litre	Defra (2011)
Motor Gasoline	2.31	kg CO2e per litre	Defra (2011)
Bituminous Coal	2.44	metric tonnes CO2e per metric tonne	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2 (CO2 emission factor 96,100 kg/TJ; Calorific value 25.8 MJ/kg)
Sasol Gas (Natural Gas)	0.0561	metric tonnes CO2e per gigajoule	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2
Other: South African Grid Electricity	0.99	metric tonnes CO2e per MWh	Eskom Annual Report 2011
Other: DRC Grid Electricity	0.002	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf

Other: Mozambique Grid Electricity	0.003	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: Ghana Grid Electricity	0.080	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: Burkina Faso Grid Electricity	0.806	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: Mauritius Grid Electricity	0.952	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: UAE Grid Electricity	0.458	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: Jordan Grid Electricity	0.633	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: Hungary Grid Electricity	0.415	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf
Other: UK Grid Electricity	0.539	metric tonnes CO2e per MWh	Defra (2011)
Other: Poland Grid Electricity	0.897	metric tonnes CO2e per MWh	http://solomononline.com/documents/Whitepapers/Lube_CEI_AM_WWW.pdf

8. Emissions Data

Boundary

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

Scope 1 and 2 Emission Data

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

74480.95

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

91349.45

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

Yes

If yes: **8.4a Please complete the table**

Source	Scope	Explain why the source is excluded

Construction Materials Office	Scope 1 and 2	Incomplete information for the period in question

Data Accuracy

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

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%.	Data Gaps Data Management Assumptions	Data gaps may occur due to some requests that may not have reached every part of the organisation despite every caution being taken to ensure this.
Scope 2	Less than or equal to 2%.	Data Gaps Data Management Assumptions	Data gaps may occur due to some requests that may not have reached every part of the organisation despite every caution being taken to ensure this.

External Verification or Assurance

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

Verification or assurance complete.

If Scope 1 emissions have been verified or assured (complete or underway), answer questions 8.6a and 8.6b:

8.6a Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 80% but less than or equal to 90%

8.6b Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Relevant statement attached
Reasonable assurance	ISO14064-3	

Emissions

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

Verification or assurance complete.

If Scope 2 emissions have been verified or assured (complete or underway), answer questions 8.7a and 8.7b:

8.7a Please indicate the proportion of your Scope 2 emissions that are verified/assured
More than 60% but less than or equal to 80%

8.7b Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Relevant statement attached
Reasonable assurance	ISO14064-3	

Carbon Dioxide Emissions from Biologically Sequestered Carbon

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

9. Scope 1 Emissions Breakdown

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

If yes: **9.1a Please complete the table below**

Country/Region	Scope 1 metric tonnes CO2e
South Africa	52605.82
Zimbabwe	8.37
United Arab Emirates	4368.53
Jordan	656.34
Burkina Faso	129.00
DRC	129.90
Malawi	0.45
Mozambique	60.90
Namibia	2.32
Hungary	15693.46
Poland	825.86

Emissions

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

- ☒ **By business division (9.2a)**
- ☐ **By facility (9.2b)**
- ☐ **By GHG type (9.2c)**
- ☐ **By activity (9.2d)**

9.2a Please break down your total global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Construction Materials	7269.91
Construction	41160.50
Engineering and Construction	0
Manufacturing	22361.46
Investments and Concessions	3689.09

10. Scope 2 Emissions Breakdown

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

If yes: **10.1a Please complete the table below**

Country/Region	Scope 2 metric tonnes CO2e
South Africa	86710.72
Mauritius	7.40
Dubai	36.06
Jordan	123.95
Burkina Faso	102.24
DRC	0.74
Mozambique	0.03
Poland	2583.39
Hungary	1774.67
UK	10.25

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

- ☒ **By business division (10.2a)**
- ☐ **By facility (10.2b)**
- ☐ **By activity (10.2dc)**

10.2a Please break down your total global Scope 2 emissions by business division

Business division	Scope 2 emissions (metric tonnes CO2e)
Construction Materials	22517.33
Construction	4098.12

Engineering and Construction	399.36
Manufacturing	42096.75
Investments and Concessions	22237.88

11. Scope 2 Contractual Emissions

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

11.2 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

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	267013.30
Electricity	0
Heat	0
Steam	0
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	200172.69
Motor Gasoline	3435.64
Bituminous Coal	59268.33
Sasol Gas (Natural Gas)	4136.64

13. Emissions Performance

Emissions History

Emissions

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

Increased

If emissions have increased, decreased or remained the same overall:

13.1a Please complete the table

Reason	Emissions value (percentage)	Direction of change	Comment
Change in Methodology	8	Increase	Although the absolute emissions increased, Group Five has implemented some emission reduction activities during F2011 and therefore there were actually a decrease in emissions when compared to "business as usual". This year there was more complete emission reporting which adds considerably to the increase in absolute emissions. The nature of the construction business is also ever-changing, and therefore the amount of projects differ from one year to the next, making it difficult to try and decrease the company's absolute emissions. It is much more realistic to try and decrease intensities relative to "business as usual".
Emission Reduction Activities	11.3	Decrease	Energy efficient lighting and other reduction measures implemented at the Group Five CBS office resulted in a electricity usage reduction from the from the previous year's electricity usage.

Emissions Intensity

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
16.72	Ton CO_2	Million R turnover	23	Increase	This year there was more complete emission reporting and a change in methodology. There was also a total revenue

					decrease of 19% due to the economic downturn.

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
22.77	Ton CO_2	FTE employees	7	Increase	This year there was more complete emission reporting and a change in methodology. There was also 7% less FTE employees due to the economic downturn.

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
13.82	Ton CO_2	Total Employees	12	Increase	This year there was more complete emission reporting and a change in methodology. There was also 4% decreased in total employees due to the economic downturn.

Emissions

14. Emissions Trading

14.1 Do you participate in any emissions trading schemes?
No, and we do not currently anticipate doing so in the next 2 years.

14.2 Has your company originated any project-based carbon credits or purchased any within the reporting period?
No

15. 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
Business Travel: Road	11320.56	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Travel claims gave the distance travelled by employees, and an average motor gasoline fuel consumption of 10 km/L was assumed and used with Defra 2011 emission factors for motor gasoline.
Business Travel: Air	10246.63	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Travel agents supplied all the business air travel data for the different destinations. Defra 2011 emission factors were used for long-, medium-, and short-haul flights.
Employee Travel	26636.80	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Defra 2011 emission factors were used for car and bus travel. Average travel distance of 40km per day was assumed with 240 travelling days per annum.
Transportation and distribution	2092.25	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Travel distances and tons transported were obtained from the different suppliers and Defra (2011) emission factors were used.
Fuel and energy related activities (diesel and motor gasoline usage by sub-contractors and JV partners)	38779.94	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Diesel and motor gasoline figures were obtained from sub-contractors and JV partners, and emissions calculated with Defra (2011) factors.
Use of sold products: Vehicles using toll roads	4314000.50	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). All the toll roads have records of the amount and specific class of vehicle that used the road. Emission factors from Defra (2011) is used for the specific vehicle classes and multiplied by the length of the toll road.
Purchased goods and services: Petroleum	10048.03	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Defra (2011) emission factors used.

Emissions

Purchased goods and services: Building Raw Materials	76034.13	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Volumes of the building material were recorded from all the sites. Life cycle emission factors (including embodied carbon) were obtained from the "Inventory of Carbon and Energy" study on construction material done by the University of Bath (2011).
Purchased goods and services: Transmission and Distribution losses for grid electricity	6395.20	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Eskom 2011 Annual Report data used.
Use of Sold Products: Completed buildings	3462778.86	Standard: Greenhouse Gas Protocol Corporate Value Chain (Scope 3). Energy consumption of conventional buildings in South Africa was obtained from the *SANS 204 Draft facilitation project* documentation. Grid Emission Factor used from Eskom 2011 Annual Report data. Assumed 60 year lifetime for a building.

15.2 Please indicate the verification/assurance status that applies to your Scope 3 emissions
Not verified or assured.

15.3 Are you able to compare your Scope 3 emission for the reporting year with those for the previous year for any sources? (CDP 2011 Q15.3, amended)
Yes

If yes: **15.3a Please complete the table (CDP 2011 Q15.3a, amended)**

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Business Travel: Road	Other: More complete emission data reporting in F2011 than previous year and change in methodology.	44	Increase	This year there was more complete emission reporting and a methodology change, which adds considerably to the increase in absolute emissions. The nature of the construction business is also ever-changing, and therefore the amount of projects differ from one year to the next, making it difficult to try and decrease the company's absolute emissions. It is much more realistic to try and decrease intensities relative to "business as usual".
Business Travel: Air	Other: More complete emission data reporting in F2011 than previous year	795	Increase	This year there was more complete emission reporting and a methodology change, which adds considerably to the increase in absolute emissions. The nature of the construction business is also ever-changing, and therefore the amount of

	and change in methodology.			projects differ from one year to the next, making it difficult to try and decrease the company's absolute emissions. It is much more realistic to try and decrease intensities relative to "business as usual".
Use of sold products: Vehicles using toll roads	Unidentified	20	Decrease	
Purchased goods and services: Petroleum	Change in methodology	56	Decrease	