

Welcome to your CDP Climate Change Questionnaire 2022

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Murray & Roberts is a multinational specialist engineering and construction services company that applies its project life cycle capabilities to optimise client's fixed capital investment. The Group achieves this by focusing its expertise and capacity on delivering sustainable project engineering, procurement, construction, commissioning, operations and maintenance solutions. We have created employment, developed skills, installed infrastructure, delivered services, applied technology and built capacity for 119 years, making a significant contribution to sustainable socio-economic development globally.

The Group delivers its capabilities into the resources, industrial, energy, water and specialised infrastructure market sectors, through three global sector platforms:

- The Mining platform operates globally, and its service offering spans underground and open pit mining services and material logistics in global metals and minerals markets
- The Energy, Resources & Infrastructure platform is headquartered in Perth and operates under the Clough brand. It delivers projects across the full project life cycle, including detailed engineering, construction, procurement, commissioning, operations and maintenance, on new build and operating facilities.
- The Power, Industrial & Water platform operates predominantly in South Africa and sub-Saharan Africa. Its service offering includes detailed engineering, procurement, construction, commissioning and maintenance work.

We are headquartered in Johannesburg, South Africa, and listed on the Johannesburg Stock Exchange (JSE).

We transferred our listing on the JSE from Heavy Construction to Diversified Industrials on 20 March 2017 and a year later, the FTSE Russell transferred Murray & Roberts' listing to the Engineering and Contracting Services subsector, confirming the Group's expertise and strategic repositioning.

Our offices are located in:

1. Africa: South Africa, Zambia and Ghana

2. Australasia: Australia, Mongolia and Papua New Guinea
3. Europe: Scotland; and
4. North America: USA and Canada

Murray & Roberts enables and optimises fixed capital formation that corporations, governments and institutions commit to the advancement of sustainable human development.

The Group’s purpose-led business model connects our capabilities to the investment our clients make in infrastructure that advances sustainable human development. Through the critical infrastructure we design, construct, maintain and operate, we empower global communities.

The Group’s Purpose makes sustainable human development central to our governance approach, our competitiveness as a contractor and employer of choice, and our commitments as an ethical corporate citizen. As the Group moves to realise greater opportunities for growth, profitability and value creation, our strategic choices will continue to be framed by our Purpose, inspired by our Vision and guided by our Values.

Our competitiveness as a contractor and an employer, and our ability to secure optimal value from our projects within manageable risk, rely on the consistent application of Engineered Excellence.

Engineered Excellence defines our management approach at every level of the organisation. Vested in careful and conscious planning, its application demands leadership commitment, shared learning and continuous improvement. In our responses to challenging operating contexts, in making unavoidable trade-offs and sequencing our priorities, it aims to remove chance from our pursuit of the outcomes our stakeholders expect; it therefore fortifies our aspiration to be a contractor and an employer of choice.

This operating philosophy, which together with our Values define the Group’s culture, brings discipline and rigour to every decision and action. It is embedded within our businesses through policies and management systems, including the Group Sustainability Framework, our HSE framework, the Group Statement of Business Principles and the Group ethics framework. These frameworks set clear expectations for our employees, platforms and business partners, and their application is tightly governed throughout the Group.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	July 1, 2020	June 30, 2021	No

C0.3

(C0.3) Select the countries/areas in which you operate.

- Australia
- Canada

South Africa
 United States of America
 Zambia

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

ZAR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Financial control

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, a Ticker symbol	MUR
Yes, an ISIN code	ZAE000073441

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	The Group Chief Executive (CEO) and Murray & Roberts Holdings Limited (MRHL) Board members have ultimate responsibility for climate-related issues and have the highest decision-making authority within the company. To guide the CEO and MRHL Board, a standing Health, Safety and Environment (HSE) committee is in

	<p>place to review and consider the quarterly HSE reports and any other important matters relating to climate change. Below the Murray & Roberts Holdings Limited (MRHL) Board level, the Group Director for Health, Safety, Environment (HSE) and Risk has the highest level of responsibility for climate-related issues. This is a C-suite position who reports directly to the CEO and the MRHL Board. The CEO is therefore the individual with the overarching responsibility for environmental issues, including climate change. Environmental KPIs are embedded in the CEO's performance contract. One of the most important decisions made during FY2021 by the CEO and Board was to review the Group's Sustainability Framework to align it with changing stakeholder expectations, and to engage an independent organisation to assess and rate its environmental (including extensive climate reporting, governance, risk and target aspects), social and governance performance in terms of the scope and disclosure to stakeholders. CEN-ESG, a United Kingdom Based Company, conducted this review and the Group is pleased with the favourable outcome which provides a reference point from which to further improve our ESG performance.</p> <p>More recently, in FY2022, the board developed and published a Group Sustainability Statement which defines Murray & Roberts' principles and approach to sustainability given our purpose is to enable clients' fixed capital investments that support the advancement of sustainable human development.</p> <p>Furthermore, the Group, Health, Safety & Environment Policy and the Group Climate Change Position Statement were updated. The latter was expanded to include our position on participating in fossil-fuel projects, as well as an explanation of how our purpose, strategy and operating sectors are aligned with our position on climate change.</p>
--	---

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets	A quarterly HSE report is compiled by the Group Director: Health, Safety, Environment (HSE) and Risk which includes quarterly water, climate and waste results, and any other important matters relating to water and climate change as they arise. The Group HSE and Risk Director presents this quarterly report to the Murray & Roberts Limited Board and the HSE Committee, a committee of the Murray & Roberts Holdings Limited (MRHL) Board, which has the

	<p>Reviewing and guiding business plans</p> <p>Setting performance objectives</p> <p>Monitoring implementation and performance of objectives</p> <p>Overseeing major capital expenditures, acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>highest level of direct responsibility (oversight) at Murray & Roberts for climate change. Aside from the regular reporting of climate change, water and waste statistics, each quarterly report differs slightly as they present feedback on various governance mechanisms related to climate change.</p> <p>The Board's oversight on climate-related issues ensures that the relevant executives within the business are regularly and accurately informed of the most important risks and opportunities. The responsibility for environmental management is delegated down into the organisation. Climate change also forms part of the agenda of the executive committee's quarterly risks reviews and annual business planning cycle.</p> <p>In the reporting year (FY2021), the board made the decision to review the Group's Sustainability Framework to align it with changing stakeholder expectations which have lately been magnified by the COVID-19 pandemic. Following this review, the Group engaged an independent organisation to assess and rate its environmental, social and governance performance in terms of the scope and disclosure to stakeholders. CEN-ESG, a United Kingdom Based Company, conducted this review and the Group is pleased with the favourable outcome which provides a reference point from which to further improve its ESG performance.</p> <p>More recently, in FY2022, the board developed and published a Group Sustainability Statement which defines Murray & Roberts' principles and approach to sustainability given our purpose is to enable clients' fixed capital investments that support the advancement of sustainable human development.</p> <p>Furthermore, the Group, Health, Safety & Environment Policy and the Group Climate Change Position Statement were updated. The latter was expanded to include our position on participating in fossil-fuel projects, as well as an explanation of how our purpose, strategy and operating sectors are aligned with our position on climate change.</p>
--	--	--

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

Board member(s) have competence on climate-related issues	
Row 1	Yes

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify Director of Group Health, Safety, Environment and Risk	Both assessing and managing climate-related risks and opportunities	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Murray & Roberts has a Group Health, Safety Environment (HSE) and Risk Director who is responsible for the coordination of the Group environmental programme (including matters relating to climate change). The Group HSE and Risk Director reports directly to the Murray & Roberts CEO on climate change and other HSE issues.

A quarterly HSE report which includes any other important matters relating to climate change as they come up is compiled by the HSE Director and team. This report is presented to the Health, Safety and Environment (HSE) Committee, a committee of the Board, which has the highest level of direct responsibility at Murray & Roberts for climate change and climate-related issues. The committee was established in order to ensure the integration of sound HSE management, which includes climate change, into all aspects of the Group's business activities.

The committee's responsibilities include:

- Approving the framework, strategy, policies and standards for HSE management, including climate change and monitoring implementation thereof;
- Satisfying itself that management has developed and implemented a Group-based HSE management system consistent with best practices;

- Satisfying itself that effective programmes have been put in place to monitor the implementation of health, safety and environment policies and standards across the Group and the performance of the Group against best practices;
- Monitoring key trailing and leading indicators of HSE performance;
- Taking into consideration substantive national and international regulatory and technical developments (for example the carbon tax in South Africa and Canada) and responding appropriately; and
- Reviewing compliance with policy, guidelines and appropriate local and international standards and relevant local laws in health, safety & environmental matters.

Overall, the Group HSE and Risk Director and HSE Committee assists the Board to fulfil its supervisory role relating to the integration and management of sound climate change, ESG and HSE-related practices into all aspects of the Group’s business activities.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	None.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Other (please specify) Continue to deliver improvements on ESG reporting, including Climate Change	Environmental KPI’s (such as ensuring environmental management in accordance with standards) are included in the CEO’s performance contract
Other C-Suite Officer	Monetary reward	Other (please specify) Continue to deliver improvements on ESG reporting, including Climate Change	HSE Platform executives have structured KPIs for HSE which include the reduction of environmental incidents, the efficient use of resources, implementation of environmental improvement initiatives, environmental awareness and attainment of targets which are linked to performance bonuses.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	The time horizon is specific to climate change risks and opportunities and not aligned to other business practice time horizons.
Medium-term	3	6	The time horizon is specific to climate change risks and opportunities and not aligned to other business practice time horizons.
Long-term	6	10	The time horizon is specific to climate change risks and opportunities and not aligned to other business practice time horizons.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

The substantive financial impact of climate-related risks is determined using Murray & Roberts' group risk management methodology. A substantive impact would be regarded as a major or critical financial consequence, which prevents the achievement of the long-term sustainability and value creation objectives of our business, and/or prevents the generation of profits within the business platforms. The threshold indicator used to indicate a substantive impact is a financial loss in profits of ZAR +147.9 million/USD + 10 million. These risks can be due to impacts on our direct operations or from impacts in the supply chain. An example of a substantive impact would be losses caused from increased intensity and frequency of weather-related events on our projects, such as floods or cyclones.

As a case in point, at the start of this reporting year the 2020 Atlantic hurricane season impacted Clough's Project Traveller in the Gulf of Mexico, Texas. Several severe hurricanes and flooding events prevented access to the site over several days, contributing to project timeline delays. More recently, at the start of 2022, eastern Australia experienced the nation's worst flooding disasters on record. The unprecedented rainfall and flooding in Brisbane

impacted both Clough offices in the city, causing the Fortitude Valley office to be closed for a week and the Milton office to be closed for two weeks. Localised flooding and road closures caused stoppages at Clough's EnergyConnect and Tallawarra projects as work could not be undertaken in a safe manner. Both projects experienced delays as a result and unplanned dewatering had to be undertaken to maintain safe working areas. The same event caused various supply chain disruptions for RUC, including the delay in steel and critical components delivery to the Tanami project, as well as a five day delay in the delivery of machinery to the Penny project during mobilisation.

Although these incidents did not lead to substantive business impacts, Murray & Roberts recognises that more severe storms and hurricanes have the potential to damage project infrastructure or equipment, lead to severe health and safety breaches or even the loss of lives.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Management has implemented a structured approach using our Group Integrated Assurance Framework to identify, assess, monitor and report the Group's complex risks and opportunities. This includes governance structures, organisational leadership, planning and effective management to ensure that the capacities, as well as controls, systems and processes are in place. The Framework includes auditing adherence to our policies, systems, standards, controls and activities to ensure that we achieve a level of operational efficiency and compliance. Risk Management, Regulatory Compliance and Independent Assurance (internal and external audits) are the three pillars of the Group

Integrated Assurance Framework.

Murray & Roberts has an integrated risk identification, assessment, and management process that is company-wide and encompasses energy, climate change, water and waste both at a project/operational level and a group/platform level. Physical, regulatory and reputational risks are identified, assessed and monitored on a quarterly basis and are considered 3-10 years into the future. In addition, a comprehensive risk workshop is undertaken by the executive committee on an annual basis. Climate change risks and opportunities fall under the 'environment' audit pillar. New risks experienced on projects are elevated to divisional levels monthly and to the Risk Committee on a quarterly basis. The Executive Committee monitors all risks/opportunities and extreme or substantial risks/opportunities are further escalated to the Holdings Board.

At a project level, risk is evaluated as a hurdle to delivering contracted scopes against cost, time and technical performance targets, while maintaining HSE performance at acceptable and expected levels. Risk management activities include risk tolerance filters, lessons learnt registers, contracting principles, project reviews and performance monitoring. At the project level, risk assessments for bid preparation and project implementation are used to determine risk areas and opportunities where effective risk management can be turned into an advantage. Through this process, climate change-related risks have been identified. For example, on the transition risk / opportunity side we have identified that proactive mining clients are transitioning towards demanding low carbon products and services (e.g., designing operations to be energy and water efficient, making use of lower carbon energy sources, and designing operations to be resilient to the acute and chronic physical impacts of climate change, etc.). We have identified these service offerings as opportunities aligned to our New Strategic Future business strategy and as a risk if we do not offer these new technologies to clients.

To compliment this risk management process, we also commission targeted research to understand important climate change risks, opportunities and drivers. In FY2019 a desktop assessment was performed to assess the medium-term risks and opportunities within one of our main customer bases, the mining sector. The results indicated that with the carbon intensive nature of mining operations, coupled with external stakeholder pressure, Murray & Roberts' Mining platform may face potential risks if it is not able to provide innovative services offering low carbon solutions. The results of the studies and research were presented to the Board and Exco and a subsequent position statement on climate change released during the reporting year.

In line with our position on climate change, we will limit our participation to metallurgical coal projects outside South Africa, until such time that sustainable alternatives for large scale steel production are available. In addition we will only consider participation in thermal coal projects which are earmarked to supply coal to power stations in South Africa, for as long as the country's economy and its electricity generating capacity depend on thermal coal. Whilst we have committed to continue to grow our service offerings in the cleaner energy sector, the reality is that South Africa still relies mainly on coal-fired power for electricity supply, as cleaner forms of energy remain insufficient to

meet base-load demand.

Following on and to mature the abovementioned research, we commenced with climate change scenario analysis (focusing on the mining sector) in the reporting year. The scenario analysis has enabled us to identify key climate change drivers, risks and opportunities associated with mining which may impact our business going forward in the context of our reputation, the market, policy and legislation, and technology. For example, in the electricity generation space, coal mining activities are expected to be surpassed by mining for commodities such as copper and nickel for renewable electrification and battery energy storage systems respectively. Based on this analysis, the Mining platform has begun quantifying the key revenue and financial impacts associated with each of the scenarios given their implications for the future commodity market, our order book and our clients' climate commitments and climate scenario outlooks. Further work will include broadening the scenario analysis process, testing business strategy against the scenarios, and developing signpost metrics as well as expanding the analysis to other business platforms.

On the physical risk side, we have been impacted by significant weather events at several projects in the last two years (e.g., cyclones, floods and fires have caused time and supply chain impacts to our projects). These risks are thus identified and managed through the project risk process. The climate change research and scenario analysis work has also highlighted the importance of managing physical impacts from climate change in the mining sector.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current and future regulatory risks are considered in the risk management process. For example, in South Africa the mandatory National GHG Reporting Regulations represented a potential risk to Murray & Roberts. Thresholds per emission source are determined by the Department of Forestry, Fisheries and the Environment (DFFE) above which companies are required to report (this excludes mobile fuel consumed). A key aspect of the regulations requires companies to report their design capacity of their stationary equipment to the DFFE. We continuously monitor if our stationary equipment across the various operations exceed the threshold. Even though our emissions do not trigger the reporting requirement we continue to monitor existing regulations in the event of amendments which assists in lowering our risk of non-compliance.

Emerging regulation	Relevant, always included	<p>Current and future regulatory risks are considered in our risk management process. For example, in South Africa the first phase of the carbon tax was passed into law during 2019. The tax currently applies to those companies with stationary combustion that exceeds the 10MW threshold. As Murray & Roberts does not exceed this threshold, we are not liable to pay a carbon tax during the first phase. However, we will continue to monitor the tax as there could be future financial implications for us in terms of electricity and fuel usage during the second phase of the carbon tax which is anticipated to take effect from 2026.</p> <p>In Australia there is no carbon tax or carbon regulation in place yet, while the carbon pricing regulations in Canada, the UK and California do not apply to our businesses as we do not own any industrial facilities. Nevertheless, emerging climate and carbon regulations in our operational regions are monitored on a quarterly basis to ensure any potential associated risks are identified in a timely manner.</p>
Technology	Relevant, always included	<p>Murray & Roberts considers technology both as an opportunity and a risk. There are many new innovative technologies particularly in the mining sector that are assisting clients to reduce their operations' carbon and water intensities. For example, we have identified that proactive mining clients are transitioning towards demanding low carbon products and services (e.g., designing operations to be energy and water efficient, making use of lower carbon energy sources, and designing operations to be resilient to the acute and chronic physical impacts of climate change, etc.). As a case in point, Cementation has collaborated with two clients to test battery powered equipment on-site as part of efforts to identify and drive emission reductions.</p> <p>We have identified these service offerings as opportunities aligned to our New Strategic Future business strategy and also as a risk if we do not offer these new technologies to clients who may start to demand them.</p> <p>Additionally, the impacts of climate change have exacerbated water scarcity in semi-arid regions such as South Africa. Given these environmental concerns and the need to reuse wastewater, the Murray & Roberts Water business has focused on expanding its business portfolio to include more wastewater treatment and seawater desalination capabilities. Since 2019, technological collaborations and local government partnerships have already been initiated, while a number of water-saving projects have been implemented.</p>

Legal	Not relevant, explanation provided	<p>Legal risks, defined by Murray & Roberts as the risk of litigation around climate change, are not relevant currently. With the sale of carbon intensive business units a few years ago, our GHG and water footprint has reduced substantially which has also significantly reduced our exposure to climate change legal risks. As a result, our exposure to legal risks is not currently considered significant enough to address in our risk management processes.</p>
Market	Relevant, always included	<p>As existing technologies get substituted or adapted in the transition to a lower carbon economy, Murray & Roberts expects market changes to occur. Materials previously sought, such as coal, may no longer attract any development investment, whilst materials used in the “green economy” become more sought after. This is an important market risk and opportunity to consider for both our Mining platform and our Power, Industrial and Water platform.</p> <p>Alternatively, the Energy, Resources and Infrastructure platform can access additional opportunities due to the climate-related shift in the energy markets. In the reporting year, Clough was awarded an EPC contract for Australia’s first net zero emissions hydrogen- and gas-capable power plant: Tallawarra Stage B. The project addresses the need for fast-start flexible power capacity (30 minutes), to complement the increasing share of renewables coming onto the energy grid. More recently, CH-IV launched its DeCO2DE (Decarbonising and Diversifying Energy) service offering to support its client with converting from coal and oil-based solutions to natural gas, bioenergy and hydrogen alternatives in the U.S. and internationally.</p> <p>Further, the market may demand changes to the operational or design element of projects as clients start considering climate change in their sites and operations. This may increase client expectations to deliver projects using new, low carbon machinery or power sources, and other climate-related considerations.</p> <p>As such, market-related risks may have an impact in the business in medium- to long-term.</p>
Reputation	Relevant, always included	<p>Our reputation, and the trust it instils, is built on our Values and is critical to our long-term resilience, hence reputational impacts are considered in the risk assessment process. Our reputation as a credible global operator and respected multinational rests on the value we create for our employees, clients and owners, and for local companies, host communities and countries in which we work. Failure to manage climate-related risks could result in major incidents that may destroy this value and accordingly harm our reputation and prospects.</p>

		<p>One of the aspects considered with reputational risk includes ensuring our reputation as a profitable, well-governed, ethical and responsible multinational organisation is maintained. For this reason, harmonising ESG and climate imperatives with commercial opportunities is seen an ethical obligation for the Group. In addition, it enhances our ability to attract the best talent and access to capital.</p> <p>The group recognises the reputational impacts associated with weak management of climate risks, including the funding and insuring of fossil fuels projects, and exposure to reputational risks of 'dirty' commodities. Accordingly, we published a Group-wide climate change position statement to clearly communicate our commitment to addressing the climate change challenge. In addition, it provides transparency on our position to undertaking coal projects. In line with our position on climate change, we will limit our participation to metallurgical coal projects outside South Africa, until such time that sustainable alternatives for large scale steel production are available. In addition we will only consider participation in thermal coal projects which are earmarked to supply coal to power stations in South Africa, for as long as the country's economy and its electricity generating capacity depend on thermal coal.</p>
Acute physical	Relevant, always included	<p>Our main climate change risks include project disruptions due to extreme and unpredictable weather conditions, including fires, floods and storm surges. These risks are considered in the project planning phase for projects being carried out in regions that are susceptible to weather extremes. For example, during the reporting year, a Clough project in the Gulf of Mexico was delayed by floods and hurricanes, which also caused damage to property. More recently in FY2022, the rain and flooding disaster in eastern Australia resulted in the closure of two Clough offices, while two Clough projects and RUC's supply chain experienced disruptions due to road closures, delays in deliveries and project stoppages. To manage the risk, weather event downtime budgets are devised for Clough's projects to manage any chance of a financial impact associated with extreme weather. In addition, we exclude in our contracting terms all unacceptable risks or those that we believe cannot be mitigated to within our risk tolerance levels.</p>
Chronic physical	Relevant, always included	<p>Climate change-induced changes such as changing rainfall patterns and increasing temperatures (resulting in heat stress) are considered for projects in regions that experience these events. This risk is considered to have impacts on Murray & Roberts' facilities and projects, and the impact is expected to be exacerbated into the future. Impacts will vary regionally but significant effects are anticipated where reduced precipitation coincides with increased temperatures. This may result in reduced water availability and water stress in</p>

		regions in which Murray & Roberts operates that are currently water-constrained such as South Africa and Australia.
--	--	---

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Risk type & Primary climate-related risk driver

Current regulation
Carbon pricing mechanisms

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

In South Africa, the Carbon Tax Act was signed into law in May 2019 with the first stages of the tax effective from June 2019. The headline carbon tax is R120 per tonne of CO₂e for emissions above the tax-free threshold. There are several transitional tax-free allowances available, implying an initial effective carbon tax rate range as low as R6 to R48 per ton CO₂e in 2019. In the first phase, the carbon tax impacts industrial applications and industry with the stationary combustion of fossil fuels in generators with an installed thermal capacity of 10MW.

The carbon tax is not applicable for primary electricity production or consumption in the first phase but will be considered for later phases. Furthermore, carbon tax on liquid fuels (petrol and diesel) is to be imposed at source, as an addition to the current fuel taxes. Murray & Roberts recognises the potential effects on its operations through a direct tax and possible increases in electricity and fuel prices due to passthrough costs. Currently, our facilities do not exceed the phase 1 facility level thresholds of 10MW, so the short-term exposure is not significant. However, it is anticipated that the carbon tax thresholds and requirements will become more stringent in the future as phase two is implemented (i.e., after 2026).

National Treasury will be reviewing the interaction between the carbon tax and the electricity generation levy at the beginning of the second phase of the carbon tax to determine whether any carbon tax will be applied to fossil-fuel based grid electricity consumption. Hence, uncertainty around the potential company impacts from 2026 remains high.

Other operations where carbon pricing is of relevance are Alberta, Ontario and British Columbia in Canada; California in the USA and Scotland in the United Kingdom. However, Murray & Roberts does not own any industrial facilities and provides engineering and construction services to clients which typically own the operation and procure all fuels, as per the current strategy and business model. To date, this has precluded Murray & Roberts from carbon pricing liabilities. The Group does not foresee this changing in the future as we do not foresee the acquisition of any industrial facilities or a fundamental change in our business model. Nevertheless, the various platforms and the Group head office continually tracks and monitors any developments on carbon pricing at our operating locations.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

88,033

Potential financial impact figure – maximum (currency)

704,266

Explanation of financial impact figure

South Africa: Given that the tax is only imposed on stationary combustion above a thermal capacity of 10MW and that we do not trigger this threshold, the direct financial implications are zero for the first phase. We are aware that there are indirect costs through fuel increases (due to the carbon tax). As the tax moves from phase 1 to phase 2 in 2026 we foresee a more substantial financial impact if there are electricity and direct fuel implications. We have provided an indicative estimate of the possible costs on our South African operations, assuming a pass-through cost on electricity of R58 220 – R465 760 and a carbon tax of R29 810 – R238 505. The range provided is a best and worst case scenario, assuming a minimum and maximum effective rate of R6 and R48,

increasing at CPI + 2% annually with an assumed CPI of 4.5%. The combined electricity pass through cost and direct carbon tax cost is estimated to be R88 033 – R704 266.

Cost of response to risk

21,030,000

Description of response and explanation of cost calculation

Murray & Roberts is prepared for the carbon tax through improved data collection and reporting systems and ongoing initiatives to reduce the emissions generated at our South African facilities.

Projects to improve energy efficiency and reduce electricity consumption at our facilities have cost the Group approximately R30 000 in the reporting year. In addition a solar PV farm has been installed at Murray & Roberts Cementation's Bentley Park facility in Carletonville. The system is anticipated to supply 54% of Bentley Park's energy needs and will accordingly avoid 820 tCO₂e of annual scope 2 electricity emissions. The cost of this system is R21 000 000. Accordingly, the total cost of response is the sum of the energy efficiency and solar initiatives i.e. R21 030 000.

Comment

None.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Risk type & Primary climate-related risk driver

Acute physical

Other, please specify

Wildfires, flooding, heavy precipitation and hurricanes

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

The physical impacts of climate change represent a risk to the projects that we help design and manage. This has been emphasised by various project impacts reported in the past few years. At the start of the reporting year, Project Traveller of Clough faced project delays from flooding and other impacts related to three major hurricane and flooding events in the Gulf of Mexico.

More recently, in February 2022, eastern Australia experienced the nation's worst flooding disasters on record. The unprecedented rainfall and flooding in Brisbane impacted both Clough offices in the city, causing the Fortitude Valley office to be closed

for a week and the Milton office to be closed for two weeks. Localised flooding and road closures caused stoppages at Clough's EnergyConnect and Tallawarra projects as work could not be undertaken in a safe manner. Both projects experienced delays as a result and unplanned dewatering had to be undertaken to maintain safe working areas.

The same event caused various supply chain disruptions for RUC, including the delay in steel and critical components delivery to the Tanami project, as well as a five day delay in the delivery of machinery to the Penny project during mobilisation. RUC also experience supply chain disruptions as a result of a one in 200 year rainfall event in South Australia which caused the road and rail links between Eastern and Western Australia to be cut off for 25 days in January 2022.

The most severe impacts occurred in FY2020, where the Snowy Project as well as a Coal Seam Gas Project in Australia were impacted firstly by fires and then by floods. Record-breaking temperatures and months of severe drought fuelled a series of massive bushfires across Australia. The Snowy Hydro Project lost two vehicles as well as accommodation for staff from the bush fire and there was some minor container damage. Shortly thereafter, severe floods then hit parts of Australia. The Snowy Project was delayed by approximately 20 days due to both the fire and the floods and the Coal Seam project delayed by 30 days due to the flood.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

39,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial implications of the loss in production time at the Coal Gas Seam project in Australia amounted to approximately R38 million due to the 30-day delay on the critical path. An additional R1 million in damages from the fire at the Snowy project were incurred due to vehicle and container loss/damage and hence the total financial impact from physical impacts to projects was R39 million.

Cost of response to risk

130,000

Description of response and explanation of cost calculation

Weather event downtime budgets are devised for Clough's projects to manage any chance of a financial impact associated with typhoons/ cyclones. These budgets are based on projection data from the Australian Bureau of Meteorology. Therefore, there is no additional cost associated with this; it is part of general project management undertaken for each project. Additionally, the client bears the financial impact of the loss in man hours should there be adverse weather effects.

Nevertheless, in order to obtain a better understanding of physical climate risks, Murray & Roberts participated in a Business Adaptation Project in FY2020. The project involved collaborative workshops with 10 other companies to understand and map out physical climate risks. The cost of participating in this project was R30 000. Furthermore, extensive executive-level engagement activities have been undertaken to consider the implications of this risk for our platforms, major projects, our strategy, contracting models and our long-term service offering. Although this was not a direct cost to the company, we consider the value of this engagement to be around R100 000. Accordingly, we currently consider the cost to date of responding to this risk to be approximately R130 000.

Comment

None.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Risk type & Primary climate-related risk driver

Reputation
Shifts in consumer preferences

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

There is increasing pressure on companies to address both the regulatory and physical risks from climate change. Climate change is expected to result in a significant shift in weather patterns leading to rising temperature, increased storm and flood events and droughts. Infrastructural damage from increased severity of storm events may become more common in the future. Regulatory risks are going to lead to an increased cost in the use of fossil-fuel based inputs. Carbon intensive industries will be impacted the most

from the carbon pricing mechanisms (such as the carbon tax).

Murray & Roberts has considered the impact of these risks on the mining industry as a substantial portion of our revenue stems from our Mining platform. Global mining trends show that certain proactive mining clients are transitioning towards demanding low carbon products and services (e.g., designing operations to be energy and water efficient, making use of lower carbon energy sources, and designing operations to be resilient to the acute and chronic physical impacts of climate change, etc.). Murray & Roberts has therefore identified a risk of not transitioning with our clientele in offering low carbon products and that this may result in lost revenue in the future.

In addition, Murray & Roberts has identified a risk of being associated with projects that have a large carbon footprint, in particular, coal mining and coal power projects. These specific risks and opportunities have been discussed at the Board and Exco levels of the company and a subsequent position statement on climate change released in FY2020 and updated in FY2022.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

218,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The reputational impact of being associated with fossil fuel projects and potential clients not choosing Murray & Roberts as a result is difficult to quantify as this has not taken place. However, if we assume a 1% reduction in revenue due to this risk materialising, this translates into a potential financial impact of R218 million, using our FY2021 revenue figures.

Cost of response to risk

965,000

Description of response and explanation of cost calculation

Murray & Roberts is in the early process of developing a strategy to address this risk. Murray & Roberts undertook a benchmarking study that assessed the climate change risks and opportunities identified by its competitors. To build on this we furthered our initial research by performing a deep dive into identifying the medium-term risks and opportunities within one of our main customer bases, the mining sector. The results indicated that with the carbon intensive nature of mining operations, coupled with external stakeholder pressure, Murray & Roberts' Mining platform may face potential risks if it is not able to provide innovative services offering low carbon solutions. The results of the studies and research were presented to the Board and Exco and a subsequent position statement on climate change released in FY2020. **One of the important outcomes from this process was that going forward in line with our position on climate change, we will limit our participation to metallurgical coal projects outside South Africa, until such time that sustainable alternatives for large scale steel production are available.** In addition we will only consider participation in thermal coal projects which are earmarked to supply coal to power stations in South Africa, for as long as the country's economy and its electricity generating capacity depend on thermal coal. More recently, the Group initiated climate-related scenario analysis to understand the risks and opportunities under future climate scenarios.

We consider the cost of undertaking the benchmarking study, mining sector risk and opportunity analysis, scenario analysis, the ESG assessment and **the executive-level engagement activities undertaken** on our climate-related strategy considerations to be the cost to realise the opportunity. **These activities have cost Murray & Roberts R965 000 to date.**

Comment

None.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

As global funding of thermal energy, particularly coal-fired power, abates in the move to a lower carbon economy, more funding will be diverted to renewable energy, natural gas and hydropower supply. In Africa, increasing populations and economic growth in the long term is anticipated to lead to increased demand for energy, expected to be 300% by 2040 with at least 16% from renewables. More specifically, in South Africa, the fifth bid window of the Renewable Independent Power Producer Programme (REIPPP) is underway, and the government has recently announced an increase in the cap for self-generation of power from 1MW to 100MW. In consideration of the above, the Group anticipates growth in the South African renewables sector, bolstered by shifting public sentiment and market aversion to fossil fuels. Accordingly, the Power, Industrial and Water (PIW) platform is positioning itself to take advantage of the opportunities these shifts present.

In FY2020, the Group acquired OptiPower projects, a provider of transmission and distribution services (including power line and substation construction). This extends the PIW platform's power sector service offering to include Electrical Balance of Plant (EBOP) services and positions us directly in the renewables energy market. OptiPower completed the EBOP, overhead lines and substations for two wind farm projects (32.5 MW and 120 MW respectively) and more recently a 75 MW solar project since its acquisition. **The business was also awarded a PV solar project in Malawi in the reporting year which has subsequently been completed.**

The upcoming REIPPP is seeking to procure 7800 MW of solar and wind capacity through various bid windows, as well as 513 MW of storage, in the short to medium term. The PIW platform is positioned as both an Engineering Procurement and Construction (EPC) and/or EBOP or standalone contractor through multiple strategies with multiple IPPs (Integrated Power Producers) and international EPCs/Original Equipment Manufacturers (OEM). PIW is currently engaged in expressions of interests and requests for proposals for private commercial PPA's with industrial and mining clients for renewable IPP developments.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,000,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The embedded, self-generation regulatory reform in South Africa is expected to unlock significant investment in new generation capacity in the short and medium term, enabling companies to build their own renewable generation facilities to supply their energy (grid) needs. Plants developed to power mining facilities, industrial facilities and farming operations would be allowed to wheel electricity through municipal and Eskom networks and sell surplus electricity to nonrelated buyers (back to the grid). This is likely to subsequently unlock investment in mining development and expansion projects. In the medium term, the Group expect the renewables market to grow 10-fold with 15GW of projects that might be developed, representing over R150 billion of investments. If the PIW is able to access 10% of this market value, it would represent a financial impact of R15 billion.

Cost to realize opportunity

38,000,000

Strategy to realize opportunity and explanation of cost calculation

The acquisition of OptiPower projects in FY2020 has enabled the PIW platform to extend its transmission, distribution and electrical balance of power expertise and directly position the platform in the current renewable energy market.

Furthermore, the PIW platform has recently established Wade Walker Solar to pursue industrial solar PV opportunities up to 10MW in scale. This business provides project development, EPC as well as equipment supply services and aims to address solar generation in the short term. The business forms part of our strategy to realise this opportunity. It carries stock and expertise to roll-out solar projects to increase commercial PPAs for small scale self-generation, roof-top PV across sub-Saharan Africa. It will focus on commercial PV solar roof installations, which are gaining momentum due to a relaxation of legislation to allow self-generation.

In addition, the Eskom Battery Energy Storage projects will be going ahead in 2021. As the solar energy start-up company matures, battery storage may be added to its portfolio, but at this stage we will not compete against battery / stored energy suppliers.

OptiPower was acquired for a consideration of R38 million which is considered the current major cost to realise the opportunities identified in the renewable energy sector.

Comment

None.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Climate change is expected to result in a significant shift in climate and weather patterns leading to an increased severity and frequency of extreme events such as droughts, storms, hurricanes, wildfires etc. This will increase the vulnerability of our clients (and the end users of our commissioned projects) to infrastructure damage and rising insurance costs.

There is an opportunity for Clough to increase our water infrastructure-related service offering to our clients, and secure more projects related to water infrastructure including renewable hydropower solutions and building resilience to water-related physical climate change impacts (e.g. droughts and floods). The potential of this opportunity is being bolstered by extensive investment programs being undertaken in Australia and North America as part of post COVID-19 recovery investments in public and private infrastructure, including water projects.

As a case in point, Clough refurbished and upgraded the outlet weir of the Wellington Hydropower Plant in Australia to meet future climatic requirements, namely lower water levels. The output from this project decreased the minimum operating level by 6.6m; improved power efficiency by reducing dead storage capacity to 6.2GL from 16.7GL; and reduced dam surface area to reduce annual evaporation by 1.5GL/year.

In the reporting year, Clough in a joint venture with WeBuild also secured a major project to add an additional 2 GW hydro-electrical power station to the existing New South Wales Snowy Hydro scheme. The project will provide on-demand renewable energy and large-scale storage for Australia's National Electricity Market.

In order to realise this opportunity, the Energy, Resources and Infrastructure platform's strategy remains to position the platform's core strengths and deepen its capabilities in the energy, resources and specialised infrastructure markets in Asia Pacific and North America. As in the case of the Snowy Project, the platform is exploring more collaborative forms of contracting and partnerships (through industry forums) to meet public infrastructure delivery agency requirements.

This opportunity has the potential to expand our project pipeline and business profile for the Energy, Resources and Infrastructure platform and accordingly increase revenues.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

174,000,000

Potential financial impact figure – maximum (currency)

18,000,000,000

Explanation of financial impact figure

In order to estimate the potential financial impact of water infrastructure related opportunities, we have considered the value of two recent projects which are considered to be indicative of the financial value that can be realised for water infrastructure projects in the Australian market.

The Mundaring Weir project was valued at R174 million, while Clough's share of the Snowy Hydro 2.0 project is valued at R18 billion. Thus, Murray & Roberts estimates the revenue potential for similar future infrastructure projects to be between R174 million and R18 billion. This opportunity is primarily focused on the Australian market and of relevance to the Energy, Resources and Infrastructure platform.

Cost to realize opportunity

365,000

Strategy to realize opportunity and explanation of cost calculation

Murray & Roberts is actively pursuing these kinds of opportunities. In FY2017, with the assistance from external parties, Murray & Roberts undertook a benchmarking study

that assessed the climate change risks and opportunities identified by its competitors. The study also sought to understand the competitors' vision of sustainability and how they are embedding this into their business processes. To build on this we furthered our initial research in FY2018 and FY2019 by performing a deep dive into identifying the medium-term risks and opportunities within one of our main customer bases, the mining sector. The results indicated that with the carbon intensive nature of mining operations, coupled with external stakeholder pressure, Murray & Roberts' Mining platform may be well placed to implement innovative services offering low carbon solutions.

A high-level, qualitative climate scenario analysis is also ongoing to understand the risks and opportunities for the Group under different future scenarios (with a focus on the mining sector), including the market-related opportunities. The process is providing further insight into the strategic opportunities to offer climate resilient products and services to clients.

We consider the cost of undertaking the benchmarking study, mining sector risk and opportunity analysis, scenario analysis, and the ESG assessment to be the cost to realise the opportunity. These activities have cost Murray & Roberts R865 000 to date.

Comment

None.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

There is increasing pressure on companies to address both the regulatory and physical risks from climate change. Climate change is expected to result in a significant shift in weather patterns leading to rising temperature, increased storm and flood events and droughts. Infrastructural damage from increased severity of storm events may become more common in the future. Regulatory risks are going to lead to an increased cost in the use of fossil-fuel based inputs.

There is an opportunity for Murray & Roberts to innovate and deliver services to our clients who prefer services and products that will further build resilience to physical and

transitional climate change impacts. This includes opportunities such as designing operations to be energy and water efficient, making use of lower carbon energy sources, and designing operations to be resilient to the acute and chronic physical impacts of climate change. Two specific examples relate to low emission / reduced water consumption technologies Murray & Roberts is developing in the mining sector. Cementation Canada is working on a new technology called Injection Hoisting. Injection Hoisting is an innovative alternative approach to conventional hoisting or trucking ore/waste rock from underground mines. The benefits of the technology include the reduction of carbon emissions through reduction/elimination of underground mine trucks as well as lower electricity consumption as there is a lower ventilation demand. Compared with trucking, the system has the potential for emissions reductions of approximately 4,500 tonnes of CO₂e.

Furthermore, the recently acquired Terra Nova Technologies offers Dry Stack Tailings (DST) management solutions for mines operating in water constrained areas. The technology and service benefits include reduced water requirements, principally achieved by recycling process water and near elimination of water losses through seepage and/or evaporation and groundwater contamination through seepage is virtually eliminated.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

774,000,000

Potential financial impact figure – maximum (currency)

946,000,000

Explanation of financial impact figure

In order to estimate the potential financial impact of this opportunity, we have considered the project value of to a previous dry stack tailings project implemented by Terra Nova Technologies for a client in Saudi Arabia. The project included the design and supply of mechanical and structural electrical and instrumentation of a 35 000 tonne tailings/day overland conveying and dry stacking system. The value of the project was approximately \$60million (ZAR860 million). In the reporting year, Terra Nova secured a three year engineering ongoing and on-site technical support contract for this mine site,

which has generated additional revenue from the Terra Nova dry stack tailings innovation. The financial value of this service level agreement cannot be disclosed, hence we have estimated the potential finance impact of similar future projects to fall within a 10% range of the value of the original installation project (i.e. R860 000 x 110% = R946 000 000 maximum and R860 000 x 90% = R774 000 000 minimum). Terra Nova is a business within our Mining Platform and is based in America.

Cost to realize opportunity

552,000,000

Strategy to realize opportunity and explanation of cost calculation

One of the strategies to deliver low carbon / low-water consumption technologies is acquisition of new businesses that can provide these services / technologies, and which complements the engineering and construction services already provided. Murray & Roberts acquired a new business, Terra Nova Technologies, in FY2020 and one of the technologies Terra Nova Technologies is offering is Dry Stack Tailings (DST), which significantly reduces water consumption for our mining clients. The cost of the acquisition was \$38million (R552 million).

Comment

None.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

No, our strategy has been influenced by climate-related risks and opportunities, but we do not plan to develop a transition plan within two years

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future

As our climate change position statement indicates, we support the Paris Agreement and its long-term goal to limit the global average temperature increase. In addition, it articulates our commitment to continue monitoring and reducing our carbon footprint, evaluating our participation in new projects against the environmental imperative to mitigate climate change impacts, collaborating with clients and supply chains to find innovative solutions to reduce carbon emissions in the market sectors in which we operate, and growing our service offering to the renewable energy sector to assist in the transitioning to a low carbon future.

In lieu of these commitments and the risks and opportunities that climate change poses

to our Group, we have and continue to undertake numerous activities to align and position our business for the low carbon future. These activities include monitoring, reporting and assurance of our carbon footprint, assessing and reporting our value chain, scope 3 emissions, climate-related scenario analysis, the integration of climate-related risks and opportunities into our business strategy, energy efficiency initiatives and most recently, an emission reduction pathway project.

Nevertheless, Murray & Roberts is not in a position to commit to net-zero emissions within the next two years. Although there is potential to integrate emission reduction activities into our projects during initial client engagement and the project design stage, we must remain responsive to the clients project demands and often have limited control over the energy and fuel sources, equipment and materials provided by clients on project sites.

In addition, the geographic, pipeline, technology and operational diversity between the platforms and businesses renders group-wide target setting to be complex. Accordingly, the emission targets may differ between platforms and/or groups to ensure that the targets are materially-appropriate, ambitious yet realistic.

In recognition of this complexity, we have undertaken group-wide engagement to understand and assess sources of emissions and energy consumption patterns within our platforms and each business, with the objective of establishing emissions targets at the site, project, business and/or group level (as appropriate). This Emission Pathway will be used to set our Group on a process of reducing its carbon footprint.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Use of climate-related scenario analysis to inform strategy	
Row 1	Yes, qualitative, but we plan to add quantitative in the next two years

C3.2a

(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios Customized publicly available physical scenario	Business division	1.6°C – 2°C	Three qualitative scenarios were used to understand and analyse the implications of climate change on the Mining platform. This scenario represents the physical component of our ‘Organised Transition’ scenario, which is a combination of RCP1.9 and RCP2.6 reference

			<p>physical scenarios and SSP1 reference transition scenario. This scenario is based on an average global temperature rise of <2 °C. The timescale of the analysis is up to 2050.</p> <p>Under this scenario, the following assumption are made with respect to the drivers considered:</p> <ul style="list-style-type: none"> - Social impacts: Climate conscious society means that non-climate conscious companies struggle to operate - Technology: Significant investments in green technology, rapid development and implementation from 2025 onward - Market: Managed transition to sustainable materials and operations - Policy & legal: Transition driven by clear and fair policy - Global economic impacts: Significant finance for and investment in sustainable economic activities leads to stable and continued GDP growth
Physical climate scenarios Customized publicly available physical scenario	Business division	2.1°C - 3°C	<p>Three qualitative scenarios were used to understand and analyse the implications of climate change on the Mining platform.</p> <p>This scenario represents the physical component of our 'Disorganised Response' scenario, which is a combination of RCP4.5 reference physical scenario and SSP2 and SSP4 reference transition scenarios. This scenario is based on an average global temperature rise of 2.5 – 3 °C. The timescale of the analysis is up to 2050.</p> <p>Under this scenario, the following assumption are made with respect to the drivers considered:</p> <ul style="list-style-type: none"> - Social impacts: Social upheaval as workers in traditional sectors are displaced - Technology: Delayed development and implementation from 2035 onward - Market: Disrupted transition in mining sector - Policy & legal: Transition forced by litigation and government enforcement - Global economic impacts: GDP grows following recovery from COVID, until disrupted transition leads to fits & starts.

<p>Transition scenarios Customized publicly available transition scenario</p>	<p>Business division</p>	<p>2.1°C - 3°C</p>	<p>Three qualitative scenarios were used to understand and analyse the implications of climate change on the Mining platform.</p> <p>This scenario represents the transition component of our 'Disorganised Response' scenario, which is a combination of RCP4.5 reference physical scenario and SSP2 and SSP4 reference transition scenarios. This scenario is based on an average global temperature rise of 2.5 – 3 °C. The timescale of the analysis is up to 2050.</p> <p>Under this scenario, the following assumption are made with respect to the drivers considered:</p> <ul style="list-style-type: none"> - Social impacts: Social upheaval as workers in traditional sectors are displaced - Technology: Delayed development and implementation from 2035 onward - Market: Disrupted transition in mining sector - Policy & legal: Transition forced by litigation and government enforcement - Global economic impacts: GDP grows following recovery from COVID, until disrupted transition leads to fits & starts.
<p>Physical climate scenarios Customized publicly available physical scenario</p>	<p>Business division</p>	<p>3.1°C - 4°C</p>	<p>Three qualitative scenarios were used to understand and analyse the implications of climate change on the Mining platform.</p> <p>This scenario represents the physical component of our 'Hot House World' scenario, which is a combination of RCP6.0 and RCP8.5 reference physical scenarios and SSP3 reference transition scenario. This scenario is based on an average global temperature rise of 3.0 – 4.3 °C. The timescale of the analysis is up to 2050.</p> <p>Under this scenario, the following assumption are made with respect to the drivers considered:</p> <ul style="list-style-type: none"> - Social impacts: Workforces severely disrupted by impacts of physical climate change - Technology: Limited development until after 2050 - Market: Market remains stable for an extended period, after which significant disruption begins to occur

			<ul style="list-style-type: none"> - Policy & legal: Limited implementation of policy, but number of civil litigation events increase - Global economic impacts: GDP growth slows over time as physical climate change impacts take hold, resulting in extended GDP contraction
Transition scenarios Customized publicly available transition scenario	Business division	3.1°C - 4°C	<p>Three qualitative scenarios were used to understand and analyse the implications of climate change on the Mining platform.</p> <p>This scenario represents the transition component of our 'Hot House World' scenario, which is a combination of RCP6.0 and RCP8.5 reference physical scenarios and SSP3 reference transition scenario. This scenario is based on an average global temperature rise of 3.0 – 4.3 °C. The timescale of the analysis is up to 2050.</p> <p>Under this scenario, the following assumption are made with respect to the drivers considered:</p> <ul style="list-style-type: none"> - Social impacts: Workforces severely disrupted by impacts of physical climate change - Technology: Limited development until after 2050 - Market: Market remains stable for an extended period, after which significant disruption begins to occur - Policy & legal: Limited implementation of policy, but number of civil litigation events increase - Global economic impacts: GDP growth slows over time as physical climate change impacts take hold, resulting in extended GDP contraction

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

The critical questions or potential decisions that we are seeking to address through the mining platform scenario analysis process includes:

- How would the Group deal with the global transition to a low carbon economy?
- Where does the Group place itself in a low carbon future?
- How would we manage the transitional risks associated with climate change, i.e. how does the Group safeguard itself from becoming irrelevant or being disrupted out of

business?

- What are the potential impacts of physical climate change on business operations?
- How will the low carbon transition impact our orderbook and revenue given our operating geographies, changes in the demands for commodities and the clients' differing strategic objectives (i.e. some clients may have a greater climate focus than others)?

Results of the climate-related scenario analysis with respect to the focal questions

The results of the scenario analysis has enabled us to identify key climate change drivers, risks and opportunities associated with the mining industry which may impact our business going forward in the context of our reputation, the market, policy and legislation, and technology.

It is evident that the physical impacts of climate change are site specific and will impact certain mining operations and projects more significantly than others. In addition, these impacts will demand new types of services to the mining sector in future, e.g. on-site water management, design for disaster conditions not seen before, on-site renewable energy generation etc. It has been noted that our Energy, Resources and Infrastructure platforms, and the Power, Industrial and Water platforms have the experience and capabilities to provide these ancillary, on-site/operational products and services. For example, OptiPower, Wade Walker Solar, JJ White and Clough have the capabilities to provide EPC services related to renewable power plant installations and transmission connections of mine sites. Murray & Roberts Water has the capabilities to provide on-site wastewater treatment services to enhance on-site water efficiency and resilience to drought conditions. Finally, CH-IV supports clients to convert their production processes from converting from coal and oil-based solutions to natural gas, bioenergy and hydrogen alternatives.

Proactive mining clients are likely to survive and thrive in the transition while those not paying attention to climate change run the risk of facing stranded assets or being severely impacted by physical events. Accordingly, the Group will continue to report and engage with clients and stakeholders **on our commitments and contribution towards** the low carbon transition. This will ensure our reputation is maintained as credible global operator that can assist proactive clients in achieving their climate-related operational and strategic objectives.

The scenario analysis also showed that in the electricity generation space, coal mining activities are expected to be surpassed by mining for commodities such as copper and nickel for renewable electrification and battery energy storage systems respectively. Based on this analysis, the Mining platform has begun quantifying the key revenue and financial impacts associated with each of the scenarios given their implications for the future commodity market, our order book and our clients' climate commitments and climate scenario outlooks.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Projects in the mining sector comprise a noteworthy portion of the Group's business activities. The reputational risks of climate change, specifically around the use of coal-based power, have influenced Murray & Roberts' position. These specific risks and opportunities have been discussed at the Board and Exco levels of the company and a subsequent position statement on climate change was released during the reporting year, as a result.</p> <p>The most substantial climate-related strategic decision that has been made is that the Executive Committee of Murray & Roberts will now review, approve or reject all coal projects irrespective of value. Furthermore, Murray & Roberts also recently acquired OptiPower Projects business. In recognition of the transitional shift from fossil-fuel power to renewables, this acquisition strategically positions the Power, Industry and Water platform to participate in the growing South African renewable energy sector.</p> <p>The time-horizon of the influence of risks and opportunities tied to climate-related products and services is current and ongoing.</p>
Supply chain and/or value chain	Yes	<p>Environmental concerns and the impacts from a changing climate have made it imperative for society to reduce water consumption and reuse wastewater. Given the fact that climate change impacts from rising temperatures are going to continue to manifest long into the future, we consider this issue to be a long-term opportunity to assist our clients who are facing these issues at their mining operations. A substantial strategic decision relates to acquisition of capabilities in the mining sector that can provide services / technologies to help clients reduce water consumption and manage environmental risks and which complements the engineering and construction services already provided. Murray & Roberts acquired Terra Nova Technologies in 2019 and one of their new technology offerings is Dry Stack</p>

		<p>Tailings (DST), which significantly reduces water consumption for our mining clients. We are actively marketing this capability to our mining clients as a means to significantly improve the water efficiency of their mining operations and drastically reduce the water requirements of tailings management.</p>
Investment in R&D	Yes	<p>Environmental concerns and the impacts from a changing climate have made it imperative for society to reduce GHG emissions and save energy. Given the fact that climate change risks are only going to increase in severity and frequency long into the future, we consider this issue to be a long-term opportunity to assist our clients who are facing these issues at their mining operations. A substantial strategic decision relates to the investment in R&D of new technology by Cementation Canada called Injection Hoisting. Injection Hoisting is an innovative alternative approach to conventional hoisting or trucking ore/waste rock from underground mines. The benefits of the technology include the reduction of carbon emissions through reduction/elimination of underground mine trucks as well as lower electricity consumption as there is a lower ventilation demand. Compared with trucking, the system has the potential for emissions reductions of approximately 4,500 tonnes of CO2e annually. A working prototype system will be the next step with plans to roll out the technology in the next 3 years.</p> <p>In addition, Clough's electrical discipline investigated the merits of using a Battery Energy Storage System (BESS) in lieu of additional generation during tender and pre-FEED studies for a gas processing facility. The developed solution is technically effective and carries commercial and environmental benefits such as reducing CO2 emissions by up to 9460 tonnes per year and reducing operational, maintenance and fuel gas costs. The outcomes of the study were published in the Australian Petroleum Production & Exploration Association academic journal. The commercial and environmental benefits of BESS units are key drivers in Clough's decision to embrace their use on future projects.</p>
Operations	Yes	<p>Murray & Roberts operates in some typhoon/cyclone and flood-prone areas, for example off the west coast of Australia and the Gulf of Mexico. Climate-induced increases in the frequency or intensity of cyclones / typhoons poses a risk to the timely and complete delivery of Clough, RUC and Cementation's projects. Given these changes, increased</p>

		<p>attention is placed on potential controls to mitigate the risk of project delays and other project impacts from weather-related events. These decisions are made at a project level and are done on an ongoing basis. The time-horizon of the response to this operational risk is immediate and ongoing as each platform considers the applicable weather-related risk on a project-by-project basis during the project design stage. The anticipated duration of the project (for example, 6 months or 6 years) is also considered when assessing the time-horizon of the applicable weather-related risk for a project.</p> <p>Climate-related opportunities have significantly influenced our operational strategy for the Power, Industrial & Water (PIW) platform as we anticipate growth in the renewable energy sector in South Africa. The presidency recently announced an increase in the cap for the self-generation of power from 1 MW to 100MW. Accordingly, the PIW platform is shifting its operational strategy to focus on the renewable energy market. Our role will be that of engineering, procurement & construction (EPC) or operations & maintenance (O&M), acting on behalf of independent power producers (IPPs) or providing long-term operation and maintenance. The recent acquisition of OptiPower Projects forms part of the PIW platform's operational strategy to gain capacity in the transmission, distribution, and substation sectors of the power market, including the renewable power market. The PIW platform also recently formed a solar start-up company Wade Walker Solar (using the expertise of a current PIW business) to further position the platform within the Southern African small-scale solar market.</p>
--	--	--

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Acquisitions and divestments	Acquisition forms a key part of our growth strategy and enable the further diversification of our earning potential and risk exposures. Murray & Roberts' market focus covers those market sectors where infrastructure is established, aimed at growing economies and to address severe

		<p>socioeconomic imbalances. We recognise that investment in these sectors follows conscious capital investment decisions, hence intentional strategic improvements of ESG outcomes are therefore important to attract the necessary capital from financial institutions and potential investors. Murray & Roberts has made acquisitions in a number of businesses over the last 4 years, all of which were related to the increasing pressure on water resources and the low carbon transition. These acquisitions enhance the environmental impacts (ESG) and market opportunities of the group.</p> <p>Climate change is a significant contributor to the increasing demand for products and services in the water sector driven by the increased frequency and severity of water scarcity and rising temperatures events. Given this market outlook, Murray & Roberts Water (a division of the Power, Industrial and Water platform) acquired a water treatment business, Aquamarine, in 2014. In addition, we entered into a licencing agreement with Organica Water to secure the rights to their leading wastewater treatment technologies in the Southern African region. This strategically positions the Power, Industrial and Water platform to offer technologies and services to improve clients' water efficiency and improve their resilience against drought and low water-supply conditions. Unfortunately, the water sector in Southern Africa is remains inactive, subdued and underfunded and the financial decision was taken to wind down the Aquamarine business in this reporting year. Murray & Roberts Water continues to review macroeconomic conditions and market opportunities.</p> <p>More recently, Murray & Roberts has undertaken a number of strategic investment decisions to secure our position in the growing renewable energy sector. In the previous financial year we acquired Optipower (part of the Power, Industrial and Water platform) which provides balance of plant, substations, interconnections, and battery energy storage systems installations for the solar and wind energy markets. In the current reporting year, the Wade Walker Solar (part of the Power, Industrial and Water platform) joint venture was established to pursue industrial solar PV opportunities up to 10MW in scale. The business provides project development, engineering procurement and construction (EPC), and equipment supply services to the solar market. In addition, Clough (a business in the Energy, Resources and Infrastructure platform) recently acquired JJ White which also has electrical expertise in industrial solar installations.</p> <p>Murray & Roberts will continue to investigate opportunities (in the short and medium term) that will position the Group to capitalise on the low-</p>
--	--	---

		carbon transition and the increased vulnerability of operations to chronic and acute climatic conditions.
--	--	---

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

No target

C4.1c

(C4.1c) Explain why you did not have an emissions target, and forecast how your emissions will change over the next five years.

	Primary reason	Five-year forecast	Please explain
Row 1	We are planning to introduce a target in the next two years	<p>Although our revenue and orderbook has shown incremental gains over the past three years, our revenue-based emission intensity has incrementally declined i.e. Murray & Roberts' emission intensity is inversely related to its revenue. More specifically, the group revenue and orderbook has increased by 9% and 30% respectively since FY2019 while our total scope 1 and 2 emissions have declined by 15% over the same period.</p> <p>Our emission profile has been relatively consistent since FY2020 given the impact of COVID-19 related operational restrictions and lockdowns. However, in FY2022 we anticipate our emissions to increase slightly as our operating jurisdictions becoming more resilient to COVID-19 through vaccinations and improved infection management, as well as an anticipated slight uptick in new projects in pipeline.</p> <p>In the medium to long term (post FY2022) the group will continue seeking opportunities for organic and acquisition</p>	<p>Group-wide emissions have decreased by 83% since FY2017 due to the disposal of two emissions-intensive platforms, Infrastructure & Buildings and Murray & Roberts Limited Middle East operations. These facilities formed the bulk of our Group-wide emissions, hence targets to improve energy efficiency and reduce emissions were focused on these businesses. As a result of the divestment, these targets fell away and the materiality of emissions (as well as the fuel and electricity costs) of the remaining business against our baseline remained low. However, in FY2022 we initiated an Emissions and Water Pathway development project to identify where material and effective opportunities for implementing targets are in our Group.</p> <p>The objective of the emission and water pathway project is to establish targets at the site, project, business and/or group level (as appropriate), and to establish a new baseline to account for this substantial change in</p>

	<p>growth. In the reporting year we achieved a record-high quality order book which reflects both the Group's strategic progress over many years, and the pressing global development needs driving major opportunities in our international markets. We expect this trend to continue in the medium term as we begin to emerge from the worst effects of the COVID-19 crisis.</p> <p>More specifically, the Energy, Resources and Infrastructure (ERI) platform is entering the major construction phase of large projects from FY2022 and has a robust pipeline of opportunities, hence strong growth is expected over at least the next three years. The Mining platform will undergo consolidation and a rebuilding of its order book in FY2022, however accelerated growth is expected from FY2023. Finally, we are cautiously optimistic about the Power, Industrial and Water platform's prospects in the medium term (FY2024) as there are encouraging signs of near-term investment with prospects for construction opportunities coming to market in the next 12 months.</p> <p>Given the record order book in FY2021, the positive market outlooks of our ERI and Mining platforms, and the implementation of our Emission Pathway project in FY2023, we estimate that our emissions will increase by approximately 14% over the next five years (relative to FY2021), i.e. approximately + 1 532 tCO₂e.</p>	<p>the business structure.</p> <p>To date we have undertaken group-wide engagement to improve the understanding of emissions and energy consumption patterns within our platforms and each business, while concurrently updating our reporting system to enable more accurate reporting of activity data and calculation of emissions data. The latter is particularly important for sites that have recently started generating on-site renewable energy or which consume low carbon grid electricity. The Project will be completed in FY2023, hence emission targets will be set within the next 2 years.</p> <p>We recognise that the geographic, pipeline, technology and operational diversity between the businesses renders group-wide target setting to be complex.</p> <p>In recognition of this complexity, the plans to implement the emission targets will consider the business activities associated with the emissions that are in the targets scope. In instances where the emissions are a result of electricity consumption, alternative renewable or low carbon electricity alternatives will be considered for both grid and on-site-generated electricity consumption. Finally, technology alternatives will also be researched for material emission areas in the group. This is part of the Emission and Water Pathway Project scope.</p>
--	--	---

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2019

Target coverage

Site/facility

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency
MWh

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

1,834

Target year

2022

Figure or percentage in target year

1,687

Figure or percentage in reporting year

1,589

% of target achieved relative to base year [auto-calculated]

166.6666666667

Target status in reporting year

Achieved

Is this target part of an emissions target?

No.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

This target pertains to Murray & Roberts Cementation's Bentley Park Main Facility in Carletonville. The operation has set its target to achieve an 8% reduction in energy use by 2022 against a 2018 baseline.

Plan for achieving target, and progress made to the end of the reporting year

List the actions which contributed most to achieving this target

This energy reduction is attributed to a combination of behavioural and technology-driven initiatives. The technology-driven initiatives includes the replacement of more than 250 fluorescent light bulbs with energy efficient LED tubes, as well as more than five 200 W LED flood lights at the facility.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	
To be implemented*	0	0
Implementation commenced*	1	820
Implemented*	2	9,502
Not to be implemented	0	

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes
Machine/equipment replacement

Estimated annual CO2e savings (metric tonnes CO2e)

9,460

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

9,999,000

Investment required (unit currency – as specified in C0.4)

39,998,860

Payback period

4-10 years

Estimated lifetime of the initiative

Ongoing

Comment

Clough has been engaging in and promoting cost effective sustainable solutions when it comes to power generation. The electrical discipline kicked off with a project where they investigated the merits of using a Battery Energy Storage System (BESS) in lieu of additional generation during tender and pre-FEED studies for a gas processing facility. The developed solution was not only technically effective but also carried commercial and environmental benefits which convinced the Client to adapt the solution and is now being progressed as part of the EPC project. The commercial and environmental benefits of BESS units are key drivers in Clough's decision to embrace their use on future projects.

Clough has also recently engaged the market for the use of transportable stand-alone hybrid power solutions that are scalable for our temporary power needs during construction. The idea here is to use these stand-alone units to power our temporary construction offices and accommodation blocks that will prove commercial and environmental benefits. The use of hybrid power for Clough construction sites is a work in progress that is expected to materialise this calendar year for use on the next Clough project.

Initiative category & Initiative type

Energy efficiency in buildings
Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

42.6

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

120,000

Investment required (unit currency – as specified in C0.4)

29,652

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

This is an ongoing initiative at our Bentley Park facility in Carletonville where old or broken lights are being replaced with efficient alternatives. In the reporting year we replaced 40 LED fluorescent tubes, four 400W LED flood lights and eight 105Watt LED workshop lights.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	None.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

Low-Carbon Investment (LCI) Registry Taxonomy

Type of product(s) or service(s)

Power

Onshore wind

Description of product(s) or service(s)

OptiPower Projects provides services in the transmission, distribution, substation and battery storage subsectors of the solar and wind power market, in South Africa.

In addition, we established Wade Walker Solar in the reporting year to further pursue industrial solar PV opportunities up to 10 MW in scale. The business is able to service mining and larger industrial clients, providing project development, EPC and equipment supply services.

In the reporting year, OptiPower executed the electrical balance of plant, 132 kilovolt overhead lines and substation scopes, for two wind farm facilities in South Africa. Golden Valley is in the Bedford area of the Eastern Cape and Excelsior is located near Swellendam in the Western Cape. The 32.5 megawatt Excelsior facility is currently being commissioned and the 120 megawatt Golden Valley facility is scheduled for completion towards the end of 2020.

Renewable energy forms a growing portion of the national power market with the introduction of the Renewable Independent Power Producer Programme (REIPPP) in 2011. The next tranche of projects under the REIPPP Programme is underway with bid window five. In addition, the government recently increased the licensing threshold for embedded generation projects from 1 MW to 100 MW. This is anticipated to stimulate the private, embedded renewable power market. The Group is well positioned to take advantage of the opportunities the increased renewable power demand presents.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

No

Methodology used to calculate avoided emissions

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Functional unit used

Reference product/service or baseline scenario used

Life cycle stage(s) covered for the reference product/service or baseline scenario

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

Explain your calculation of avoided emissions, including any assumptions

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0.7

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

Change(s) in methodology, boundary, and/or reporting year definition?	
Row 1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

July 1, 2014

Base year end

June 30, 2015

Base year emissions (metric tons CO2e)

54,249

Comment

None.

Scope 2 (location-based)

Base year start

July 1, 2014

Base year end

June 30, 2015

Base year emissions (metric tons CO2e)

19,691

Comment

None.

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

None.

Scope 3 category 1: Purchased goods and services

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

35,300

Comment

None.

Scope 3 category 2: Capital goods

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

1,100

Comment

None.

Scope 3 category 4: Upstream transportation and distribution

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None

Scope 3 category 5: Waste generated in operations

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

2,400

Comment

None.

Scope 3 category 6: Business travel

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

2,300

Comment

None.

Scope 3 category 7: Employee commuting

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

4,300

Comment

None.

Scope 3 category 8: Upstream leased assets

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

0

Comment

None

Scope 3 category 9: Downstream transportation and distribution

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None

Scope 3 category 10: Processing of sold products

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None.

Scope 3 category 11: Use of sold products

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None.

Scope 3 category 12: End of life treatment of sold products

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None

Scope 3 category 13: Downstream leased assets

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

0

Comment

None

Scope 3 category 14: Franchises

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

0

Comment

None

Scope 3 category 15: Investments

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

0

Comment

None.

Scope 3: Other (upstream)

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO2e)

0

Comment

None

Scope 3: Other (downstream)

Base year start

July 1, 2020

Base year end

June 30, 2021

Base year emissions (metric tons CO₂e)

0

Comment

None

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Defra Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, 2019

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

3,986

Comment

None.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

None.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO₂e?

Reporting year

Comment

None.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

35,300

Emissions calculation methodology

Average data method

Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Water data is collected from invoices from water suppliers. This activity data is multiplied by the appropriate emission factor. Emission factors of 0,344 kgCO₂e/m³ of water supplied and 0.708 kgCO₂e/m³ of water treated, respectively, were used based on DEFRA 2020. GWPs used are based on the IPCC Fourth Assessment Report (AR4) (GWP for CH₄ = 25, GWP for N₂O = 298).

Emissions factors of purchased cement and steel were 0.89 tCO₂e per metric tonne and 3.89 tCO₂ per metric tonne, respectively. Where metric tonnes of purchased goods were not available, the relevant scope 3 emissions were calculated based on unit costs using the emission factor for purchased construction goods from the Quantis Scope 3 Calculator Tool (0.000693 tCO₂e/USD).

Capital goods

Evaluation status

Relevant, not yet calculated

Please explain

This category includes all upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by the reporting company in the reporting year. These emissions can be attributed to the purchase of new equipment and new vehicles associated with new project development. Murray & Roberts is currently not able to collect the required data to estimate these emissions.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

1,100

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

This category includes emissions related to the production of fuels and energy purchased and consumed by Murray & Roberts in the reporting year and that are not included in Scope 1 or Scope 2. This includes the emissions from diesel, petrol, acetylene, heavy fuel oil, LPG and natural gas, as well as transmission and distribution (T&D) losses from purchased electricity. The activity data was obtained from supply chain records of the quantity of each type of fuel purchased. Emission factors: DEFRA 2020 well-to-tank (WTT) emission factors were used to account for the upstream Scope 3 emissions (Diesel (100% mineral diesel): 0.62611 KgCO₂e/Litre; Petrol (100% mineral petrol): 0.59732 KgCO₂e/Litre; LPG: 359.33746 kgCO₂e/Ton; Heavy Fuel Oil: 0.60346

kgCO₂e/Litre; Natural Gas: 0.26299 kgCO₂e/m³). A WTT emission factor of 319.3 kgCO₂e/Ton was used for Acetylene. WTT emission factors were multiplied by the respective fuel consumption. GWPs used by DEFRA are based on the IPCC Fourth Assessment Report (AR4) (GWP for CH₄ = 25, GWP for N₂O = 298). All activity data was obtained from the fuel and energy supplier invoices.

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

According to resources developed by the World Business Council for Sustainable Development and the European Network of Construction Companies for Research and Development for the construction sector, emissions from the upstream transportation and distribution of raw materials and construction elements are immaterial relative to the emissions from the production of the raw materials required, as well as the other major emission sources in the construction value chain (e.g. downstream infrastructure use). Furthermore, Murray & Roberts considers the risk associated with this category to be low. For these reasons, the Group considers this emission source to be irrelevant.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

2,400

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Non-hazardous waste data is reported by all operating companies on a monthly basis. Non-hazardous waste excluding building rubble (reported in tonnes) that goes to landfill was multiplied by the DEFRA (2020) emission factor for commercial and industrial waste (0.458 tCO₂e/tonne of waste). Tonnes of waste recycled (glass, oil, paper, plastic, steel and wood) were multiplied by the respective DEFRA (2020) emissions factor, which was 0.021 tCO₂e/tonne of waste recycled for each type of recycled waste. All activity data was obtained from the disposal quantities indicated on the waste disposal supplier invoices.

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

2,300

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The methodology followed to estimate the emissions involved multiplying activity data for mode of transport (e.g., distance travelled) by an applicable emission factor for that mode of transport (e.g., t CO₂/km). Flights were categorised as being either long- (> 1600km) or short-(<1600 km) haul flights. DEFRA (2020) emission factors were used for flight emissions (0.156 kg CO₂e/km for short haul, and 0.191 kg CO₂e/km for long haul). DEFRA emission factors for average cars were used for vehicle hire (diesel: 0.168 kg CO₂e/km; petrol: 0.174 kg CO₂e/km). For bus hire, the DEFRA emission factor of an average local bus was used (0.103 kg CO₂e/km/passenger). For the calculations, it was assumed that the average distance of a short-haul flight was 800 km, and that of a long-haul flight was 1600 km. A hired bus was assumed to have an average of 20 passengers. All activity data for this calculation was obtained directly from our travel agents (i.e. suppliers).

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

4,300

Emissions calculation methodology

Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Data on employee commuting data was not available for this reporting year. However, a high-level approximation was made by applying suitable assumptions to the employee breakdown of the Murray & Roberts group. It was assumed that upper management typically travels via private cars and live relatively close to work, whilst unskilled workers travel via public transport and live relatively far from work. Public transport is represented by minibus taxi in South African operations and by bus in North American and Australian operations. Emission factors for private car, bus and minibus taxi are

taken from DEFRA (2020) and are 0.1743, 0.10312, and 0.10312 kgCO₂e/km, respectively.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts does not have any upstream assets that are leased; thus, this category's emissions are 0 tCO₂e.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts typically produces fixed assets. Thus, this category is deemed irrelevant as the amount of downstream transport and distribution is very small and will not be a material contributor to total Scope 3 emissions, (i.e., this is a very low risk contributor). In addition, the influence that the company will have on this transport is negligible, while the time and cost to obtain such data is not proportional to the outcome.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts typically produces fixed assets and does not produce intermediate products. Thus, this category is deemed irrelevant as the quantity of emissions that may be produced from any processing after the commissioning of a project is negligible and will not be a material contributor (i.e., this is a very low risk contributor). In addition, the influence that the company will have on this category is limited while the time and cost to obtain such data is not proportional to the value of determining this figure.

Use of sold products

Evaluation status

Relevant, not yet calculated

Please explain

Although emissions from the use of 'products' (e.g., infrastructure) produced as a result of the Group's engineering and construction services can be measured, the company has a limited responsibility for the initial conception of infrastructure specifications or maintenance and has limited influence over the ultimate performance of buildings or their use by owners/occupiers. For this reason, Murray & Roberts has limited ability to influence this value chain emission source and to collect the required data to evaluate emissions from downstream use of commissioned projects. Although efforts have been

made to source proxy emission factors for this category in the Group's sector to enable the estimation of this emission category, the available resources remain limited for the company's sector and have extremely high variances.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts typically constructs large infrastructure for the mining, oil, gas, power and water industries. These assets typically have a very long lifetime and are not consumed goods that are disposed of in landfill. In addition, if these assets are eventually decommissioned and disposed of, the GHG emissions associated with the product (concrete, steel etc.) is typically inert and will not contribute to methane emissions in landfill. Subsequently, this category is not relevant based on risk exposure, size of carbon footprint and influence the company can have.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Any assets that Murray & Roberts currently owns are accounted for in the Group's Scope 1 and 2 emissions. There are no assets that are owned and leased to third parties; hence this category is not relevant and the emissions from this category are 0 tCO₂e.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts currently does not own, lease or operate any franchises and thus the emissions from this category are 0 tCO₂e.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts is not a private or public financial institution and hence this category is deemed not relevant and thus the emissions from this category are 0 tCO₂e.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

No additional relevant upstream emission sources have been identified.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

Murray & Roberts typically constructs large infrastructure for the resources energy, infrastructure and power & water industries (e.g., water treatment plants). These assets typically have a very long lifetime and are not consumed goods that are disposed of in landfill. In addition, if these assets are eventually decommissioned and disposed of, the greenhouse gas emissions associated with the product (concrete, steel etc.) is typically inert and will not contribute to methane emissions in landfill. Subsequently, this category is not relevant based on risk exposure, size of carbon footprint and influence the company can have.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO₂e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0000005

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

10,938

Metric denominator

unit total revenue

Metric denominator: Unit total

21,900,000,000

Scope 2 figure used

Location-based

% change from previous year

6

Direction of change

Decreased

Reason for change

Total revenue was R21.9 billion during the reporting period. The revenue increased slightly from R20.8 billion in the previous reporting period (5% change). Absolute scope 1 and 2 emissions decreased by 1%. This slight decrease is only slight due to no material change in the Group's portfolio. The effect of an increase in revenue coupled with a decrease in emissions resulted in a decreased intensity figure from 0.000000530 to 0.000000500 metric tonnes CO₂e/Revenue (ZAR).

Intensity figure

1.16

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO₂e)

10,938

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

9,393

Scope 2 figure used

Location-based

% change from previous year

5

Direction of change

Decreased

Reason for change

The number of employees increased from 9 049 to 9 393 over the reporting period (4%). Absolute scope 1 and 2 emissions decreased by 1%. This slight decrease is only slight due to no material change in the Group's portfolio. The effect of an increase in employees coupled with a decrease in emissions resulted in the intensity metric decreasing from 1.22 to 1.16 t CO₂e per employee.

Intensity figure

0.0000009

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

10,938

Metric denominator

Other, please specify

Value created

Metric denominator: Unit total

11,995,900,000

Scope 2 figure used

Location-based

% change from previous year

4

Direction of change

Increased

Reason for change

Year on year the total value created decreased from R12.5 billion to R12.0 billion (-4%). Absolute scope 1 and 2 emissions decreased by 1% This slight decrease is only slight due to no material change in the Group's portfolio. The effect of a slight decrease in emissions value created, coupled with a slightly greater decrease in value created, resulted in a slightly increased intensity figure from 0.00000088 to 0.00000091.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
South Africa	3,062
Australia	223
Canada	346
United States of America	293
Zambia	62

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

By facility

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO ₂ e)
Energy, Resources & Infrastructure	0
Power, Industrial & Water	1,083
Mining	2,891
Corporate Office	12

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO ₂ e)	Latitude	Longitude
Corporate Office Campus (Bedfordview)	12	-26.176	28.135
M&R Cementation Maintenance Facility (Carletonville)	0	-26.3692	27.498
Cementation Canada (Head Office)	346	46.323	-79.446
RUC (Head Office)	223	-31.953	115.925
Client owned facilities where projects are conducted at	443	0	0
Cementation (Head Office)	1,967	-26.176	28.135
Cementation USA (Head Office)	293	40.579	-111.904
Zambia Kitwe Office	62	-12.961	28.62
Clough (Head Office)	0	-31.955	115.853
OptiPower	615	-26.1699	28.23482
Aquamarine	25	-26.1483	28.18218

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
South Africa	6,121	
Australia	387	
Canada	444	
United States of America	0	0
Zambia	0	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

By facility

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Energy, Resources & Infrastructure	0	
Power, Industrials & Water	159	
Mining	2,373	
Corporate Office	4,420	

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Corporate Office Campus (Bedfordview)	4,420	
M&R Cementation Maintenance Facility (Carletonville)	1,542	
Cementation Canada (Head Office)	444	
RUC (Head Office)	387	
Client owned facilities where projects are conducted at	132	

Cementation (Head Office)	0	
Cementation USA (Head Office)	0	
Zambia Kitwe Office	0	
Clough (Head Office)	0	
OptiPower	0.01	
Aquamarine	27	

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO ₂ e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	No change in renewable energy consumption occurred in the reporting year.
Other emissions reduction activities	42.6	Decreased	0.38	Emissions reduction activities in the reporting year at our Bentley Park facility at Carletonville resulted in a 42.6 tCO ₂ e reduction in emissions through decreased electricity consumption, relative to the previous reporting year. Total scope 1 and 2 emissions in the previous year were 11 039 tCO ₂ , therefore we arrived at -0.38% through $(-42.6/11\ 039)*100 = -0.38\%$ (i.e., a 0.38% decrease in emissions).
Divestment	0	No change	0	No divestments were undertaken in the reporting year.
Acquisitions	0	No change	0	No acquisitions were undertaken in the reporting year.

Mergers	0	No change	0	No mergers were undertaken in the reporting year.
Change in output	381	Decreased	3.45	OptiPower's projects and facilities were fully integrated into the reporting system in the reporting year (OptiPower was acquired in the previous reporting year FY2020) which lead to a net increase of 524 tCO ₂ e in emissions reported for the business, relative to the previous year. Other changes in the Power, Industrials and Water platform project pipeline lead to a net reduction in emissions, including the completion of the Kusile closure and CTF East projects, the closure of the Zambia office and the commencement of the Meerkat, Golomoti, Aarden Solar and the Medupi Actom JV projects lead to a net reduction of 381 tCO ₂ e of emissions in the reporting period. Total scope 1 and 2 emissions in the previous year were 11 039 tCO ₂ e, therefore we arrived at -3.45% through $(-381/11\ 039)*100 = -3.45\%$ (i.e., a 3.45% decrease in emissions).
Change in methodology	0	No change	0	The methodology remained consistent with the previous reporting year.
Change in boundary	0	No change	0	The boundary remained consistent with the previous reporting year.
Change in physical operating conditions	0	No change	0	There were no changes to the physical operating conditions or weather conditions that significantly influenced the way the Murray & Roberts' businesses operated. Thus, no changes in the reported emissions were attributed to this category.
Unidentified	322.6	Increased	2.9	Our total Scope 1 and 2 emissions decreased by 101 tCO ₂ e from FY2020 to FY2021. In the rows above, total reductions of 423.6 tCO ₂ e is accounted for. Therefore, 322.6 tCO ₂ e were emitted in order to result in a total year-on-year emissions decrease of 101 tCO ₂ e.

				Total scope 1 and 2 emissions in the previous reporting year were 11 039 tCO ₂ e, hence the emissions value is calculated as 322.6 tCO ₂ e/11 039 tCO ₂ e = 2.9% (increased emissions).
Other	0	No change	0	No additional drivers for the year-on-year changes in Murray & Roberts' emission profile were identified.

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

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

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	15,964	15,964
Consumption of purchased or acquired electricity		0	7,167	7,167
Consumption of self-generated non-fuel renewable energy				
Total energy consumption		0	23,131	23,131

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is

				consumed by the organization (MWh)
Electricity	589.17	589.17	0	0
Heat	15,374.43	15,374.43	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

South Africa

Consumption of electricity (MWh)

6,310

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

6,310

Country/area

Australia

Consumption of electricity (MWh)

399

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

399

Country/area

Canada

Consumption of electricity (MWh)

457

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

457

Country/area

United States of America

Consumption of electricity (MWh)

0

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

0

Country/area

Zambia

Consumption of electricity (MWh)

0

Consumption of heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

0

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Murray_Roberts_Group_Sustainability_report_2021.pdf

Page/ section reference

Page 80 and 81

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Murray_Roberts_Group_Sustainability_report_2021.pdf

Page/ section reference

Page 80 and 81

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year change in emissions (Scope 1)	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in

			understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).
C7. Emissions breakdown	Year on year change in emissions (Scope 1)	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).
C6. Emissions data	Year on year change in emissions (Scope 2)	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).
C7. Emissions breakdown	Year on year change in emissions (Scope 2)	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).
C6. Emissions data	Year on year change in emissions	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance

	(Scope 1 and 2)		statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	ISAE3000 (Revised)	This indicator (i.e., year on year movements) is calculated as part of the audit procedures by the external assurance providers. Even though these are not listed as separate KPIs on the assurance statement, it a part of the audit methodology during the phase of analysing and reviewing the relevant data and calculations on a sample selective basis. The year-on-year analytic assists the auditors in understanding if there were any major movements at a group level before diving deeper into the individual KPIs (for example, changes in project phases, acquisitions and divestments, etc).

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, and we do not anticipate being regulated in the next three years

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, and we do not currently anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers/clients

Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

85

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

Given the impacts from changing climate, environmental concerns and the need to reuse wastewater, the Power, Industrials & Water platform, specifically Murray & Roberts Water (MRW) has expanded its business portfolio to include more wastewater treatment and seawater desalination capabilities.

In 2018, we invested in the class-leading Organica Water wastewater treatment technology and in collaboration with the eThekweni Water and Sanitation Department in South Africa, we piloted this innovative technology at the Verulam wastewater treatment facility in KwaZulu-Natal in 2019. The technology uses active biofilms on natural plants and engineered root structures to treat wastewater, producing 50% less sludge than the conventional plant and using 45% less energy than originally anticipated. MRW operated the facility for two years in order to demonstrate the technology with the aim of providing this solution to SADC countries in response to their need for a sustainable water supply. We hosted visits from various municipalities, water boards, consultants, developers, funding institutions and prospective public and private sector clients. Accordingly engagement took place through site visits or business development meetings.

The plant has since been relocated to the V&A Waterfront in Cape Town where we have a 10-year supply contract. The purpose of this arrangement is to further showcase the

technology to a broader and more diverse audience. We will continue using it as a means to demonstrate the potential and performance of the technologies to potential clients using guided tours, site visits and business development meetings.

The “percentage of customers by number” is calculated from the customer base at the MRW division which is 85% of MRW’s total customer base.

Engagements with clients and affected stakeholders early in the project phase has proven to be an effective and proactive step in aligning expectations and plans

Impact of engagement, including measures of success

Organica’s research has shown that the complex ecology that develops in the system delivers high water quality aligned to international specifications and breaks down a large range of pollutants with higher efficiency.

We consider our engagement to be effective when it secures an opportunity to bid for a wastewater treatment opportunity. We consider the engagements on the Verulam Organic demonstration wastewater facility to have been a success given that it enabled us to secure a 10-year service contract with the V&A Waterfront. This is considered to be a significant breakthrough, as it will be the first commercialised application of the Organica Water technology in South Africa.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Murray & Roberts’ overall rationale for climate-related engagement is two-fold:

1) to identify, develop, win and deliver projects for our climate-related service offerings (clients, innovation partners and project delivery partners); and 2) to continuously improve climate-related performance, reporting and the identification of opportunities to reduce climate-related impacts on site and in the supply chain (employees, suppliers, clients, project delivery partners, communities and academia).

All engagement is guided by our public stakeholder engagement policy and takes place using a myriad of dialogue mechanisms at the corporate, business, operation and community levels across the Group. We interact with these stakeholders through technology (virtual meetings, webcasts, website, intranet, social media and email), face-to-face engagement (meetings, training, presentations, workshops and conferences) and print (newsletters/brochures, internal magazines and external reports, including the integrated and sustainability report). More details on the rational, methodology and success measurement specific cases of engagement are provided below. Engagements with clients and affected stakeholders early in the project phase has proven to be an effective and proactive step in aligning expectations and plans.

The Power, Industry and Water platform undertakes continuous engagements with potential clients as part of its Business Development initiatives to secure renewable energy and

wastewater opportunities. The platform also undertakes continuous engagements with potential clients on reducing emissions and energy consumption as part of these Business Development initiatives and in response to potential or tendered projects. Initiatives that have been explored include reducing site dependencies on diesel and fossil fuels and running our sites partly off solar. However, these initiatives are subject to tenders being awarded and a site presence being established

Cementation Americas and Terra Nova Technologies (TNT) (both divisions of the Mining platform) are currently engaging with academia and the mining industry at large through the publishing of papers, attendance of academic and industry conferences, and the hosting of webinars on two new technology offerings. Dry stack tailings (offered by TNT) provides mine owners as alternative, water-efficient means of managing their tailings waste and virtually eliminating ground water contamination risk from tailings seepage. Cementation Americas is developing injection hoisting technologies as an alternative to conventional hoisting or trucking ore/waste rock from underground mines. The benefits include the reduction of carbon emissions through reduction/elimination of underground mine trucks as well as lower electricity consumption from ventilation demand. One study estimated the emission reduction potential at 4,500 tonnes of CO₂e. The intention with this engagement is to identify research and development partnerships to access grant funding and further test the properties and potential of the technologies.

In addition, Clough's recent investigation on the merits of using a Battery Energy Storage System (BESS) in lieu of additional generation during tender and pre-FEED studies for a gas processing facility was published as an academic article in the Australian Petroleum Production & Exploration Association academic journal. The study was undertaken due to a request from a client to incorporate cost-effective sustainable solutions into the gas project design. The developed solution is technically effective and carries commercial and environmental benefits such as reducing CO₂ emissions by up to 9460 tonnes per year and reducing operational, maintenance and fuel gas costs. This convinced the client to adapt the solution and is now being progressed as part of the EPC project.

Booth Welsh (a division of the Energy, Resources and Infrastructure platform) has partnered with social enterprise Fuel Change which draws teams together across the workplace to collaborate on low carbon innovation challenges revealing hidden talent. In the reporting year, Booth Welsh had two teams of apprentices, supported by the Booth Welsh operations manager, participating in the Fuel Change Grangemouth Net Zero Challenge, an initiative that aims to challenge bright young minds from across Scotland to develop new ideas to tackle climate change. A range of challenges were set by the INEOS Group in consultation with the government Energy Industries Division, focusing on specific low carbon solutions for the INEOS Grangemouth refinery and its transition to lower emissions while at the same time understanding the economic and social implications of the change.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

No, and we do not plan to introduce climate-related requirements within the next two years

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage indirectly through trade associations

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

In 2018 and 2019 Murray & Roberts undertook a risk and opportunity identification assessment aligned to the TCFD. The assessment included identifying national policies, in the countries in which we operate that may impact our direct and indirect operations and the subsequent impact of these. Assessments such as these indicate that our internal strategic intentions are aligned to external engagement with stakeholders on policy developments related to climate change.

The Group also recently released our climate change position statement which articulates our understanding of climate change; its links to our business strategy and operating context; and our commitment to addressing the climate change challenge. The intention of this statement is to clarify our position to stakeholders and provide direction and confidence to management and employees across business divisions and geographies to act in a way that aligns with our overall climate change strategy.

Furthermore, adherence to the Group's HSE policy and associated sustainability carbon and energy standards (which explicitly provides the Group's position, intentions, targets and responsibilities on various climate change-related issues) are mandatory for all employees. Awareness and understanding of these policies and standards are continually embedded through capacity building, awareness raising and employee training. The HSE committee monitors performance with regard to implementation of the HSE Framework making recommendations as required.

Furthermore, our Group HSE Director coordinates and manages our climate change strategy, and everything of relevance is reported to the Board for further consideration against the strategy.

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

Australian Constructors Association (ACA)

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The ACA has committed to supporting and developing a sustainable construction industry. Accordingly, it requires all ACA members to commit to the ACA Charter which recognises that climate change is a growing concern for our workforce and the society in which the industry operates and commits members to reducing carbon emissions from its activities. ACA has released a report to support the industry in accelerating a net zero future through the design and construction of the infrastructure pipeline.

In terms of regulatory engagement, ACA has submitted a response to the proposed Australian Emission Reduction Scheme. ACA considers that the Government's preferred approach as outlined in the Green Paper does not contemplate the unique emissions profile of the construction industry and the difficulties that the industry will have in engaging with the scheme as proposed. Under the Emissions Reduction Scheme proposed by the Australian Government, principal contractors will be responsible for reporting energy and emissions from a large number of subcontractors working on sites at various times. The ACA submits that the process of collection, consolidation and verification of emissions data collected from subcontractors is administratively burdensome for principal contractors and requires review.

Additionally, principal contractors are limited in their influence on the design, materials selection and overall construction approach taken on a project as these specifications are dictated by clients or designers pre-contract. The ACA considers it important to note that the bulk of emissions for the construction industry occur either upstream during the manufacture of materials (e.g., steel, cement) or downstream in asset operation, maintenance and management. Schemes such as EEO and the currently proposed framework based on NGER data fail to recognise these externalities to construction

activity. In this manner, it is highly likely that actual emissions reductions will be the result of emissions being shifted into manufacturing or asset performance (e.g., building prefabrication).

The ACA considers this a fault with the proposed scheme which needs to be carefully addressed. The ACA submits that these difficulties warrant special attention and further consideration than they have currently received under the proposed Emissions Reduction Fund scheme.

ACA's position on climate change is consistent with ours and we are not attempting to influence their position.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

 Murray_Roberts_Group_Sustainability_report_2021.pdf

Page/Section reference

p. 4 to 31

Content elements

Governance
Strategy
Emissions figures

Other metrics

Comment

None

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	<p>Murray & Roberts' Environmental Risks & Incidents Reporting Standard includes considerations related to biodiversity and nature. The Group's internal environmental incident, fine and litigation reporting system allows for the collection of biodiversity-related impacts, namely unauthorised animal injury or death, and unauthorised flora removal. The environmental incident reporting system also allows for the collection of broader incidents which may have a potential impact on nature, including:</p> <ul style="list-style-type: none"> - Spillage of hydrocarbon or other contaminating substance - Unauthorised water discharge - Erosion and sedimentation - Excessive noise outside of legal boundary <p>Incidents reported as Level 1 (low) or Level 2 (minor) are handled at entity level. Level 3 (serious) environmental incidents are reported to the Operating Company MD and Platform HSE Executive, and the incident is presented at the entity's Executive Committee or at a Board meeting. Level 4 (major) and Level 5 (critical) environmental incidents are reported to the Corporate Office and are presented in a Board meeting. Level 5 environmental incidents are also presented at a meeting of the HSE Committee of the Board, and a meeting of the Holdings Board.</p> <p>In the next reporting year, Murray & Roberts will undertake a high-level biodiversity and land assessment to understand the current landscape on biodiversity reporting and standards, and our role and responsibility towards biodiversity.</p>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity
Row 1	No, but we plan to do so within the next 2 years

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	No, and we do not plan to assess biodiversity-related impacts within the next two years

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?
Row 1	No, we are not taking any actions to progress our biodiversity-related commitments, but we plan to within the next two years

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No, we do not use indicators, but plan to within the next two years	

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
No publications		

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Other C-Suite Officer: Group HSE and Risk Director	Director on board

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms