Murray & Roberts

CDP Climate 2021 Response

July 2021

Welcome to your CDP Climate Change Questionnaire 2021

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 118 years, making a significant contribution to sustainable socio-economic development globally.

Murray & Roberts delivers its capabilities in three global primary market sectors:

· The Mining platform operates globally, and its service offering spans the project life cycle, including feasibility studies, specialist engineering, vertical and decline shaft construction, mine development, specialist mining services such as raise boring and grouting, and contract mining.

· 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 specialist engineering, construction, procurement, commissioning, and 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 feasibility studies, detailed engineering, procurement, construction, commissioning, and repairs 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 and Mongolia
3. Europe: Scotland; and
4. North America: USA and Canada

'Engineered Excellence is a philosophy that defines our management approach at every level of the organisation. It supports our ability to offer specialist services that are clearly differentiated by excellence to clients in our chosen markets. It drives continuous improvement in project risk management and delivery, and in achieving industry-leading environment, social and governance performance – which is as important to our clients as it is to our employees. It underpins the Group's reputation as a well governed, values-driven and ethical organisation.
Our approach to ethical leadership, corporate citizenship and sustainability are consolidated in this philosophy which drives the group's growth, competitiveness, resilience and reputation. We define sustainability as the purposeful delivery of projects in a responsible manner, while at the same time respecting the needs and expectations of our stakeholders The Social & Ethics committee ensures that the group formulates collaborative responses to sustainability challenges.
Our carbon, water and energy footprints have declined substantially over the past few years due to divestments in our portfolio. Despite the smaller footprint, we continue to identify new methods and adopt new technologies to reduce our energy and water consumption. Group results for FY20 saw a revenue of R20.8 billion, up 3.5% from R20.1 billion in FY19. Year on year, the number of employees decreased from 9 650 in FY19 to 9 049 (6.6%). The employee number includes continuing and discontinued operations.

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, 2019	June 30, 2020	No

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

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

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 has been organised 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 FY2020 by the CEO and Board was the approval of the Group's position statement on climate change.

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 Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	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 HSE Committee, a committee of the Murray & Roberts Holdings Limited (MRHL) Board, which has the 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. Some ad hoc topics are included, such as the results from a climate change, water and sustainability industry benchmarking review (with the assistance from external parties), a summary of the Taskforce on Climate-related Financial Disclosure and what it means in the context of Murray & Roberts operations, national climate change regulatory updates and climate-related market and investor trends. 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. One of the more important decisions made FY2020 (the current reporting year) by the committee was the approval of a position statement on climate change. In 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.

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 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 HSE Committee assists the Board to fulfil its supervisory role relating to the integration of sound HSE management 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) Publishing a Group policy on climate change.	Environmental KPI's (such as ensuring environmental management in accordance with standards) are included in the CEO's balanced scorecard.
Other C-Suite Officer	Monetary reward	Other (please specify) Publishing a Group policy on 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.
Other, please specify All employees of our Booth Welsch business	Non-monetary reward	Behaviour change related indicator	11 charge points for electric vehicles (EV) have been installed at our Booth Welsch (a business within Clough of the Energy, Resources & Infrastructure platform) head office car park (with additional points being planned). This incentivises employees to consider EV or hybrid solutions for both company and personal vehicles. This will form part of Booth Welsch's wider strategy to expand its environmental efforts in sustainably sourced energy solutions such as solar PV, ground source heat pumps and battery storage solutions.

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 +145 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 fire, floods or cyclones. As a case in point, extreme Australian bushfires and subsequent floods of January 2020 caused project delays at the Snowy Hydro project and a Clough coal seam gas project. In addition, at the start of FY2021 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. Although these incidents did not lead to substantive business impacts, Murray & Roberts recognises that more severe physical climate incidents 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. Physical, regulatory and reputational risks are identified and assessed on a quarterly basis and are considered 3-10 years into the future.

Climate change risks, for example the new legislated carbon tax in South Africa and federal carbon tax in Canada, 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 three categories and extreme 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 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 also as a risk if we do not offer these new technologies to clients who may start to demand them.

To compliment this risk management process, we also commissioned specific research to understand some of the important climate change drivers. We furthered our initial research in FY18 and FY19 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 during the reporting year. In line with our position on climate change, coal-related projects will only be undertaken outside of South Africa with executive approval. 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. Within this reality, we will continue to be highly selective in the coal projects we undertake.

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

Following on and to mature the abovementioned research, we have commenced with a climate change scenario analysis study in the mining sector. This study has focussed on scenario development, and specifically included an assessment of recent developments related to each climate change driver, identification of new risks and opportunities, as well as rating and ranking each driver by importance. Further work will include broadening the scenario analysis process, testing business strategy against the scenarios, and developing signpost metrics.

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 Environment, Forestry and Fisheries (DEFF) above which companies are required to report (this excludes mobile fuel consumed). A key aspect of the regulations required companies to report their design capacity of their stationary equipment to the DEFF. 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	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 2023. In Australia and the USA there is no carbon tax or carbon regulation in place yet, while the carbon pricing regulations in Canada do not apply to our Cementation Canada business as it does not own any industrial facilities.
Technology	Relevant, not included	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.). 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. 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.
Legal	Not relevant, explanation provided	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.
Market	Relevant, always included	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 to consider for both our Mining platform and our Power, Industrial and Water platform. Further, the market may demand changes to the operational or design element of projects as clients start considering climate change in their projects. This may increase client expectations to deliver projects using new, low carbon machinery or power sources, and other climate-related considerations. As such, market-related risks may have an impact in the business in medium- to long-term.
Reputation	Relevant, always included	Reputational impacts are considered in the risk assessment process. One of the aspects considered with reputational risk includes not being considered as a sustainable, climate change conscious organisation hence not attracting the best talent and having access to capital. Although the impacts are not currently considered significant now, Murray & Roberts believes this will become more important as the global impacts of climate change become more prevalent. Being an employer of choice is one of the Group's material issues. As such, Murray & Roberts recognises that climate change is a significant concern to younger generations, hence having a strong and consistent position on climate change improves the businesses reputation with the talent pool and reduces the risk of reputational impacts on talent recruitment.

Acute physical	Relevant, always included	Our main climate change risks include project disruptions due to extreme and unpredictable weather conditions, including 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, at Clough Australia, the Snowy 2.0 Hydro project has experienced stoppages due to both fires and floods in Australia over January 2020. 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.
Chronic physical	Relevant, always included	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' operations, 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 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?

Direct operations

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 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 2022).

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 2022 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 2023 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

34,600

Description of response and explanation of cost calculation

Murray & Roberts systematically identifies fuel and electricity reduction opportunities. The first stage involved identifying methods to improve fuel efficiencies at the sites consuming our greatest amount of fuel, and also to look at options to reduce electricity consumption at our Corporate Office. Murray & Roberts is prepared for the carbon tax through improved data collection and reporting systems. The accuracy of the data is verified through external data assurance on our environmental data. Energy efficiency projects undertaken at our facilities have cost the Group approximately R34 600 for the FY2020 reporting year.

Comment

None.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

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 FY2021, 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. In FY2020, 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 during the reporting year was R39 million.

Cost of response to risk

30,000

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.

Comment

None.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Downstream

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 large 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 during the reporting year, as a result.

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)

208,000,000

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 pf R208 million, using our FY2020 revenue figures.

Cost of response to risk

820,000

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, coal-related projects will only be undertaken outside of South Africa with executive approval. More recently, the Group initiated a high-level climate-related

scenario analysis study to understand the risks and opportunities under future climate scenarios. We anticipate that the results from this study will further develop our insight into this risk.

We consider the cost of undertaking the benchmarking study (R70 000), mining sector risk and opportunity analysis (R110 000), scenario analysis (R140 000), and the ESG assessment (R500 000) to be the cost to realise the opportunity. These studies have cost Murray & Roberts R820 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 recently awarded a PV solar project in Malawi.

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 formed a JV to effectively launch a solar energy start-up company, aimed at addressing solar generation in the short term. The JV 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. This 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 Murray & Roberts to innovate and deliver engineering and infrastructure design services to our clients who prefer services and products that will further build resilience to physical 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. Using knowledge of climatic conditions (through downscaled climate modelling) in the future, Murray & Roberts can propose to and work with clients (during the project design phase) to embed climate resilience and adaptation thinking into the project design. Considering the impacts of climate change during the project planning and/ or design phase of new infrastructure will ensure functionality throughout the infrastructure lifetime.

A specific example of this relates to the increasing severity of drought conditions and rising temperatures in Australia, and the consequent need for additional, secure water supplies. Our operations at Clough in Australia refurbished and upgraded the outlet weir of the Wellington Hydropower Plant to meet future climatic requirements, namely lower water levels and higher evaporation rates. 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, equivalent to the volume of 600 Olympic Swimming Pools which has saved 10 million litres of water which can be used elsewhere in the water network in Perth.

Other product and service offerings that assist clients in reducing the reliance to external water supplies and increase their resilience against drought conditions include the Organica wastewater treatment technologies, water and wastewater solutions services of the Murray and Roberts Water division.

Time horizon

Medium-term

Likelihood

Very likely

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)

174,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The potential financial impact is related to the financial value generated through the completion of projects that contribute to the improved climate resilience of our clients. The Mundaring Weir upgrade project in Australia is valued at R174 million, hence we have used this as an indicative potential financial impact figure.

Cost to realize opportunity

220,000

Strategy to realize opportunity and explanation of cost calculation

Murray & Roberts is actively pursuing these kinds of opportunities. In FY17, 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 FY18 and FY19 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 underway 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. We anticipate the final results to provide further insight into the opportunity to offer climate resilient products and services to clients.

We consider the cost of undertaking the benchmarking study (R70 000), mining sector risk and opportunity analysis (R110 000) and the scenario analysis (R140 000) work to be the cost to realise the opportunity. These studies have cost Murray & Roberts R320 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, a single figure estimate

Potential financial impact figure (currency)

1,000,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The potential value of the injection hoisting technology is still being investigated; hence we are not able to provide an indication of the potential impact figure at this stage. Nevertheless, we are able to provide the financial value of a previous dry stack tailings project implemented by Terra Nova Technologies for a client in Saudi Arabia including the design and supply of Mechanical, Structural Electrical and Instrumentation. The value of the project was approximately $60 million (R1 billion).

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) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	No, we do not intend to include it as a scheduled AGM resolution item	

C3.2

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

Yes, qualitative

C3.2a

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

Climate-related scenarios and models applied	Details
RCP 2.6 RCP 4.5 RCP 6 RCP 8.5 Nationally determined contributions (NDCs) Other, please specify Shared Socioeconomic Pathways	In 2021, Murray & Roberts commissioned a study to begin conducting climate change scenario analysis for the mining platform. Work performed to date has included establishing the requirements and formulating the focal question of the scenario analysis process. Specifically, the focal question for Murray & Roberts is what our role will be on the journey to and in a more sustainable future. Further, an assessment of recent developments related to the different climate change drivers was performed. Along with existing knowledge, this information was used to rate and rank the various climate change driving forces. It was determined that the most prominent/uncertain climate change drivers to develop the scenarios around were physical changes, along with the transition of the mining sector (transition – market). Three scenarios have been formulated, namely: • Organised transition, which draws on RCP 1.9, RCP 2.6, and SSP1. • Disorderly response, which draws on RCP 4.5, SSP2 and SSP4. • Hot house world, which draws on RCP 6.0 and RCP 8.5, as well as SSP3 and SSP5. The scenario development process has been completed and the scenarios are currently undergoing quality assessment and finalisation. Following this, next steps in the scenario analysis process will be considered. This will include incorporating personnel from the broader organisation into the process, testing the mining platform's business strategy

	against the scenarios, performing quantitative assessments where necessary, and developing signpost metrics.

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	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. 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. The time-horizon of the influence of risks and opportunities tied to climate-related products and services is current and ongoing.
Supply chain and/or value chain	Yes	Environmental concerns and the impacts from a changing climate have made it imperative to 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 new businesses 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 Tailings (DST), which significantly reduces water consumption for our mining clients. We will be actively marketing this capability to our mining clients in next few years as a means to significantly improve the water efficiency of their mining operations and drastically reduce the water requirements of tailings management.
Investment in R&D	Yes	Environmental concerns and the impacts from a changing climate have made it imperative to 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.
Operations	Yes	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's projects. Given these changes, increased 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 (e.g., 6 months for 6 years) is also considered when assessing the time-horizon of the applicable weather-related risk for a project.

		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 (using the expertise of a current PIW business) to further position the platform within the Southern African small-scale solar market.

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	Murray & Roberts has made acquisitions in a number of businesses over the last 3 years. Climate change is not the primary driver but is a significant contributor to the increasing demand for products and services in the water sector driven by water scarcity and rising temperatures. Examples of this includes Murray & Roberts Water (MRW) acquiring a water treatment business, Aquamarine, and entering into licencing agreements with leading international wastewater treatment companies such as Organica Water. This strategically positions the Power, Industrial and Water platform to offering technologies and services to improve the water efficiency of operations and buildings and improve their resilience against drought and low water-supply conditions. In addition, Murray & Roberts has invested in Terra Nova Technologies, which is offering a novel Dry Stack Tailings (DST) technology, which significantly reduces water consumption and vulnerability to drought conditions for our mining clients. Murray & Roberts also invested in Optipower, which takes the power and water platform into the

		transmission, distribution and substation sectors of the power market. This is particularly relevant in South Africa where the company has substantial experience in providing services to renewable energy projects. Murray & Roberts will continue to investigate opportunities (in the short and medium term) that will position the Group to capitalise on the low-carbon transition and the increased vulnerability of operations to chronic and acute climatic conditions.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

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	Judged to be unimportant, explanation provided	Although revenue remained about the same in FY2020 (relative to FY2019), our emissions decreased by 14%. This was a directly result of the impact of COVID-19 related operational restrictions and lockdowns. We anticipate COVID-19 to continue impacting operational business activities as a result of the emergence of periodic COVID-19 'waves' of infections. In addition, our pipeline indicates that no major new projects are anticipated to break ground in FY2021.Accordingly, we anticipate our FY2021 emissions to remain consistent with FY2020 levels at around 11 000 tCO2e.	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

		From FY2022, we anticipate emissions to return to the 'pre-COVID 19' FY2019 levels at around 12 800 tCO2e. This forecast is based on the assumption that 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. From FY2023 to FY2025 (in the next five years), we anticipate a 10% increase in emissions as a result of our current growth strategy via acquisitions, and a solid medium-term pipeline of opportunities. Our Mining platform has had few COVID-19 related project cancellations and its order book is robust, with a strong pipeline of near orders. The Australian government has communicated their intent to accelerate the delivery of infrastructure programmes as a major part of their economic recovery plans, and thus our Energy, Resources & Infrastructure platform has secured a significant pipeline of opportunities. The Power, Industrial & Water platform is expected to benefit from a pipeline of larger project opportunities in the short-term future. The South African presidency recently announced an increase in the cap for self-generation from 1 MW to 100MW. This energy reform unlocks new opportunities for our Power, Industrial & Water platform to conduct engineering, procurement & construction (EPC) or operations & maintenance (O&M) in the renewable energy sector. Altogether, this anticipated increase in business activities across our business platforms is anticipated to result in an	remained low. However, we are considering adjusting our baseline to account for this substantial change in the business structure to allow for a more effective assessment of where material and effective opportunities for implementing targets are in our Group. We currently also have an energy target in place that was set in 2019. This will have to be updated in the near future and will likely be tied to an emission reduction target from reduced grid electricity consumption going forward.

		estimated 15% increase in emissions, above the pre-COVID 19 emission levels over the next five years, i.e. +/- 14 720 tCO2e.	

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

GJ

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

1,833,747

Target year

2022

Figure or percentage in target year

1,687,047

Figure or percentage in reporting year

1,496,835

% of target achieved [auto-calculated]

229.6605316973

Target status in reporting year

Underway

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 (including target coverage)

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. This is attributed toa a combination of behavioural and technology-driven initiatives, as well as the closure of the facility during the national South African COVID-19 lockdown. The site has already achieved a 18% reduction against the baseline and a 10% reduction year on year.

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		
To be implemented*		
Implementation commenced*		
Implemented*	1	3.93
Not to be implemented		

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 buildings
Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

3.93

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

16,068

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

34,638

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 2 x 200W LED flood lights, and 232 x fluorescent LED tubes.

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	We outsource expertise to enable the identification of energy and carbon reduction opportunities at both head office and operations-level. Energy/ carbon reduction opportunities (which result in target-setting) are identified through on-site energy and carbon assessments.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

The newly acquired OptiPower Projects (part of the Power, Industrial & Water platform) provides services in the transmission, distribution and substation subsectors of the power market, including renewable power market, in South Africa. Renewable energy forms a growing portion of the national power market with the introduction of the Renewable Independent Power Producer Programme (REIPPP) in 2011. 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.

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.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Low-Carbon Investment (LCI) Registry Taxonomy

% revenue from low carbon product(s) in the reporting year

0.5

Comment

None.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

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.

C5.2

(C5.2) 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)

4,365

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

Scope 2, location-based

6,682

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

Metric tonnes CO2e

83,000

Emissions calculation methodology

In the previous reporting year, only emissions associated with the treatment and supply of purchased water was included in this category. This reporting year is the first time emissions from purchased goods have been included in this category. Therefore, the emissions in this category are much higher than in the previous reporting year. In fact, with the inclusion of purchased goods, this category now accounts for the vast majority of the scope 3 emissions of Murray & Roberts.

Water data is collected from invoices from water suppliers. Total purchased water is 25.166 ML. This activity data is multiplied by the appropriate emission factor. Calculation of the carbon footprint complies with the criteria of the ISO-14064 part 1 Standard and GHG Protocol –Corporate Value Chain (scope 3) Accounting and Reporting Standard. No specific assumptions were made. 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 tCO23 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).

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

100

Please explain

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

Metric tonnes CO2e

950

Emissions calculation methodology

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. Transmission and Distribution (T&D) losses have been accounted for under Scope 2 emissions. It would be double counting to also account for these under Scope 3, and thus they have been excluded from this value. 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. Calculation of the carbon footprint complies with the criteria of the ISO-14064 part 1 Standard and GHG Protocol –Corporate Value Chain (scope 3) Accounting and Reporting Standard. No specific assumptions were made. GWPs used by DEFRA are based on the IPCC Fourth Assessment Report (AR4) (GWP for CH4 = 25, GWP for N2O = 298).

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

100

Please explain

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

Metric tonnes CO2e

4,210

Emissions calculation methodology

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.

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

100

Please explain

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4,400

Emissions calculation methodology

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.

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

100

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4,600

Emissions calculation methodology

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.

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

0

Please explain

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 our Group's engineering and construction services can be measured, we have a limited responsibility for the initial conception of infrastructure specifications or maintenance and have little 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 evaluated emissions from downstream use of our commissioned projects. Although efforts have been made to source proxy emission factors for this category in our sector to enable the

estimation of this emission category, the available resources remain limited for our 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 our 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 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)

11,048

Metric denominator

unit total revenue

Metric denominator: Unit total

20,837,700,000

Scope 2 figure used

Location-based

% change from previous year

11.6

Direction of change

Decreased

Reason for change

Total revenue was R20.8 billion during the reporting period. The revenue increased slightly from R20.1 billion in the previous reporting period (3.5% change). Absolute scope 1 and 2 emissions decreased by 14% which is primarily the result of a substantial decrease in mobile diesel consumption by Cementation Canada and Cementation USA. The effect of an increase in revenue coupled with a decrease in emissions resulted in a decreased intensity figure from 0.0000006 to 0.0000005 metric tonnes CO2e/Revenue (ZAR).

Intensity figure

1.22

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

11,048

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

9,049

Scope 2 figure used

Location-based

% change from previous year

8.9

Direction of change

Decreased

Reason for change

The number of employees decreased from 9 650 to 9 049 over the reporting period (-6.2%). Over the same period, Absolute scope 1 and 2 emissions decreased by 14% which is primarily the result of a substantial decrease in mobile diesel consumption by Cementation Canada and Cementation USA. Therefore, the intensity metric decreased from 1.34 to 1.22 t CO2e per employee as the number of emissions decreased more substantially than the number of employees.

Intensity figure

0.0000009

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

11,048

Metric denominator

Other, please specify

Value created

Metric denominator: Unit total

12,575,000,000

Scope 2 figure used

Location-based

% change from previous year

19.4

Direction of change

Decreased

Reason for change

Year on year the total value created increased from R11.8 billion to R12.6 billion (6.6%). Absolute scope 1 and 2 emissions decreased by 14% which is primarily the result of a substantial decrease in mobile diesel consumption by Cementation Canada and Cementation USA. The effect of a slight increase in value created, coupled with a more significant decrease in emissions resulted in a decreased intensity figure from 0.00000109 to 0.0000009.

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	3,183
Australia	212.1
Canada	292.7
United States of America	358
Zambia	319.4

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 CO2e)
Energy, Resources & Infrastructure	0
Power, Industrial & Water	1,124
Mining	3,228
Corporate Office	13.59

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Corporate Office Campus (Bedfordview)	13.59	-26.176	28.135
M&R Cementation Maintenance Facility (Carletonville)	0.117	-26.3692	27.498
Cementation Canada (Head Office)	293	46.323	-79.446
RUC (Head Office)	212	-31.953	115.925
Client owned facilities where projects are conducted at	1,081	0	0
Cementation (Head Office)	2,046	-26.176	28.135
Cementation USA (Head Office)	358	40.579	-111.904
Zambia Kitwe Office	319	-12.961	28.62
Clough M&R Marine (Head Office)	0	-33.921	18.431
Clough	0	-31.955	115.853
OptiPower	31.83	-26.1699	28.23482
Aquamarine	10.52	-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)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
South Africa	5,948		6,132	
Australia	220.1		226.9	
Canada	514.2		530.1	
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	184	
Mining	2,186	
Corporate Office	4,312	

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)	4,312	

M&R Cementation Maintenance Facility (Carletonville)	1,452	
Cementation Canada (Head Office)	514.2	
RUC (Head Office)	220.1	
Client owned facilities where projects are conducted at	91.1	
Cementation (Head Office)	0	
Cementation USA (Head Office)	0	
Zambia Kitwe Office	0	
Clough M&R Marine (Head Office)	0	
Clough	0	
OptiPower	0	
Aquamarine	92.91	

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 CO2e)	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	3.93	Decreased	0.03	Emissions reduction activities in the reporting year at our Bentley Park facility at Carletonville resulted in a 3.93 tCO2e reduction in emissions through decreased electricity consumption, relative to the previous reporting year. Total scope 1 and 2 emissions in the previous year were 12 850 tCO23,

				therefore we arrived at -0.03% through (-3.93/12 850)*100 = -0.03% (i.e., a 0.03% decrease in emissions).
Divestment	0	No change	0	No divestments were undertaken in the reporting year.
Acquisitions	31.8	Increased	0.2	The Power, Industrial and Water platform acquired OptiPower Projects on 1 September 2019. OptiPower's total scope 1 and 2 emissions in the reporting year were 31.8 t CO2e. Total scope 1 and 2 emissions in the previous year were 12 850 tCO23, therefore we arrived at 0.2% through (31.8/12 850)*100 = 0.2% (i.e., a 0.2% increase in emissions)
Mergers	0	No change	0	No mergers were undertaken in the reporting year.
Change in output	1,447	Decreased	11	The COVID-19 pandemic caused project stoppages and temporary facility closures to various restrictions and lockdowns throughout our different operating geographies. This resulted in a reduction in total energy consumption for FY2020 (not including reductions at our Bentley Park facility which are accounted for in row 2 above) translated to a reduction in emissions of 1 447 tCO2e. The reduction in energy consumption is attributed to a substantial decrease in mobile diesel consumption by Cementation Canada and our operations in the USA. Total scope 1 and 2 emissions in the previous year were 12 850 tCO23, therefore we arrived at -11% through (-1 447/12 850)*100 = -11% (i.e., a 11% decrease in emissions).
Change in methodology	0	No change	0	Our methodology remained consistent with the previous reporting year.
Change in boundary	0	No change		Our boundary remained consistent with the previous reporting year, except in the case of acquired operations as described in the row ‘Acquisitions’.

Change in physical operating conditions	0	No change		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	383	Decreased	3	Unidentified reductions in emissions totalled 383 tCO2e. Total scope 1 and 2 emissions in the previous year were 12 850 tCO23, therefore we arrived at -3% through (-383/12 850)*100 = -3% (i.e., a 3% decrease in emissions).
Other	0	No change	0	No additional drivers for the year-on-year changes in our 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	14,917	14,917
Consumption of purchased or acquired electricity		0	6,889	6,889
Consumption of self-generated non-fuel renewable energy				
Total energy consumption		0	21,806	21,806

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	No
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

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)
Acetylene

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
57.4

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

Emission factor
0.00338

Unit
kg CO2 per Mg

Emissions factor source
Molecular weight.

Comment
None.

Fuels (excluding feedstocks)
Diesel

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
10,803

MWh fuel consumed for self-generation of electricity
2,309

MWh fuel consumed for self-generation of heat
0

Emission factor
2.69

Unit
kg CO2e per liter

Emissions factor source
Defra 2020, (100% mineral diesel)

Comment
None.

Fuels (excluding feedstocks)
Liquefied Petroleum Gas (LPG)

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
2.84

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

Emission factor
1.55

Unit
kg CO2e per liter

Emissions factor source
Defra, 2020

Comment
None.

Fuels (excluding feedstocks)
Other, please specify
Heavy Fuel Oil

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization

0.01

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

3.18

Unit

kg CO2e per liter

Emissions factor source

Defra, 2020 (fuel oil)

Comment

None.

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4,054

MWh fuel consumed for self-generation of electricity

7.68

MWh fuel consumed for self-generation of heat

0

Emission factor

2.31

Unit

kg CO2e per liter

Emissions factor source

Defra 2020, (100% mineral petrol)

Comment

None.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Emission factor

2.023

Unit

kg CO2e per m3

Emissions factor source

Defra 2020

Comment

0.002 MWh of natural gas was consumed in the reporting year.

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	2,317	2,317	0	0
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	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

10_Group_Sustainability_Report.pdf

Page/ section reference
Page 57 and 58

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

10_Group_Sustainability_Report.pdf

Page/ section reference
Page 57 and 58

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, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Carbon pricing regulations are increasingly forming a part of our operational environments. These regulatory requirements increase the cost of fossil fuel-based inputs and have the biggest impact on carbon intensive industries. Due to our small scope 1 carbon footprint, the direct impact is usually small, and we often fall outside of pricing regimes in the countries where we operate. Carbon pricing systems are currently in place in two of our major operating locations: South Africa and Canada. However, we are currently not liable to pay a carbon tax in either of these jurisdictions.

In South Africa, the carbon tax is currently in its first phase and is only applicable to companies that exceed an installed 10MW thermal capacity threshold in stationary combustion emissions. Murray & Roberts' operations do not meet this threshold and is therefore not liable to pay a

carbon tax in South Africa. However, Murray & Roberts may potentially be in the second phase of the carbon tax if the legislation evolves to include emissions from grid electricity consumption, or if the installed thermal capacity threshold drops considerably lower. To this end, to ensure continuous compliance, we monitor all developments with regards to this carbon tax and provide input where we feel necessary. Our engagement is by means of industry bodies, such as Business Unity South Africa and Minerals Council South Africa. Additionally, we will continue to reduce our emissions to reduce the impact of an anticipated carbon tax in the second phase beginning in 2023.

In Canada, the National Greenhouse Gas ("GHG") Pollution Pricing Act regulates the national carbon pricing system. Regulatory charges are incurred on fuel applicable to households, residential and industrial facilities. A regulatory trading system, the federal output-based pricing system ("OBPS"), has also been implemented for large industries. Our business activities in this jurisdiction typically comprises contracting and engineering services to clients which own the operating sites and procure and monitor all fuel consumed. Thus, the nature of our business model extends the liability for the carbon pricing to our clients. This is also the case for our operations in California and Scotland which have carbon pricing systems in place. Murray & Roberts does not foresee this changing in the future as we do not foresee the acquisition of any industrial facilities in the foreseeable future. Nevertheless, the various platforms and the Group head office continually tracks and monitors any developments on carbon pricing at our operating locations.

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

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

Collaboration & innovation

Details of engagement

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 eThekwini 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.

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.

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 have had a significant impact with 85% of our customers having been presented with the technology through site visits or business development meetings. Our measure of success will if more than 80% of the identified customers have been effectively engaged through a guided site visit or business development meetings. We consider the engagements on the Verulam Organic demonstration wastewater facility to have been a success as 85% of the targeted customers were effectively engaged.

C12.1d

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

Cementation 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 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 estimated 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.

Booth Welsch (a division of the Energy, Resources and Infrastructure platform) is also currently engaging with a not-for-profit organisation called Fuel Change which has the core aim of developing innovative low carbon solutions to real issues currently being faced by industry and wider society. The means of engagement is through participation in the Fuel Change Challenge, a new Net Zero initiative which aims to challenge the brightest young minds from across Scotland to come up with fresh ways to tackle climate change. The method is to challenge teams of young people to develop real low carbon solutions for challenges set by industry through a series of three phases, known as sprints. The outcomes are solutions which can then be adapted and implemented to help transform their own industries and their own futures.

Two teams of Booth Welsch apprentices, supported by the Booth Welsch Operations Manager, are taking on the Grangemouth Challenge. The Grangemouth Challenge involves a range of challenges set by INEOS in consultation with the Energy Industries Division of the Scottish Government with a focus on specific low carbon solutions. The challenges centre around the INEOS Grangemouth refinery and aims to address some of the biggest issues we face in terms of transitioning our emissions whilst understanding the economic and social implications. This is particularly fitting as BW have operated at the Grangemouth site, carrying out a number of projects including Control System Upgrades and Design & Installation Services.

Booth Welsh are supporting clients with the environmental evolution through their Environment 4.0 offering, which focuses on achieving environmental goals and tangible business results simultaneously through the application of cost-effective digital technology. This strategic development in Booth Welsh's service offering involves collaboration from employees across the entire business and the Fuel Change project is the perfect example of this.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers
Trade associations
Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Carbon tax	Support with minor exceptions	On the subject of carbon tax, Murray & Roberts has been engaging with National Government through interaction with Minerals Council South Africa. This carbon tax applies only to our operations in South Africa. None of our other operations are liable under a carbon tax or other carbon pricing system. However, we continue to monitor any developments in this regard.	Support with minor exceptions - policymakers need to take into account business and country competitiveness. Ensuring that climate change policy is assessed within the context of the country's broader developmental goals particularly those with regard to job creation and economic growth.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Australian Constructors Association (ACA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Australian regulatory proposal is the Emission Reduction Scheme. ACA has submitted the following submission: 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. This presents difficulties where boundary conditions restrict the operational control which principal contractors have over their subcontractor workforce. Principal contractors under this proposed scheme will be required to report emissions data over which the subcontractors effectively hold operational control. 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. Thus, principal contractors have limited influence over the factors responsible for many of the emissions they will incur under this proposed scheme. 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

How have you influenced, or are you attempting to influence their position?

Murray & Roberts' Australian subsidiary, Clough is in full agreement with the current ACA statement

---

Trade association

Minerals Council South Africa

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Minerals Council South Africa (Minerals Council) is an organisation that supports and promotes the South African mining industry. The Minerals Council serves its members and promotes their interests by providing strategic support and advisory input.

The Minerals Council's position on the carbon tax is that policymakers need to take into account business and country competitiveness. While the Minerals Council embraces the notion of long-term carbon pricing and various mechanisms to facilitate a transition to a low carbon economy, their position is that the carbon tax has the potential to erode profitability through increasing costs and hence result in a shrinking sector. The result of this would be further job losses, which would further exacerbate South Africa's structurally high unemployment rate

How have you influenced, or are you attempting to influence their position?

The Minerals Council provides a platform for different stakeholders to engage on current affairs impacting the industry. For example, through Minerals Council tri-partite alliance forums (which brings together industry, labour and government) we are offered the opportunity to voice our opinions on various issues including on the topic of environment which has encompassed the carbon tax. Our opinions are then taken into consideration when the Minerals Council is developing a response to legislation

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

Yes

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy 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 in the reporting year 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.

C12.4

(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

10_Group_Sustainability_Report.pdf

Page/Section reference

p. 43 to 55

Content elements

Governance
Strategy
Emissions figures
Other metrics

Comment

None

C15. 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.

C15.1

(C15.1) 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 am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public