



Jacobs' Climate Risk Assessment FY22

Jacobs

Challenging today.
Reinventing tomorrow.



Contents

1.	Introduction	1
1.1	Our climate response.....	4
1.2	Climate Action Plan.....	4
1.3	Our FY22 Climate Risk Assessment.....	5
2.	Progress since our FY21 report	7
2.1	Our FY21 commitments.....	7
2.2	TCFD recommendations updates.....	9
3.	FY22 Climate Risk Assessment for Jacobs’ water market	11
3.1	Overview.....	11
3.2	Scenario analysis.....	13
3.3	Adaptive planning.....	15
3.4	Pilot process.....	16
4.	Results of the FY22 Climate Risk Assessment for Jacobs’ water market	17
4.1	Characteristics of rapid and orderly and delayed and disorderly low carbon transition for water.....	17
4.2	Risks and opportunities.....	17
4.3	Estimated transition revenue impacts.....	23
4.4	Adaptation to our changing water market conditions.....	24
4.5.	Physical adaptation and operational resilience.....	26
5.	Our disclosures	27
5.1.	Governance.....	27
5.2.	Strategy.....	27
5.3.	Risk management.....	28
5.4.	Metrics and targets.....	28
6.	Next steps	30

1. Introduction

1.1 Our climate response

As a purpose-led company, we know we have a pivotal role to play in addressing the climate emergency. We consider this not only good business, but our duty to channel our technology-enabled expertise and capabilities toward benefiting people and the planet.

With this sense of urgency top of mind, along with increased interest and concern from all our stakeholders – employees, Board members, clients and investors – Jacobs has elevated Climate Response as one of three core accelerators within our fiscal year [2022 to 2024 company strategy](#) - aligning positive societal impact with long-term business growth.

1.2 Climate Action Plan

Our [Climate Action Plan](#) lays out our next phase of climate mitigation and adaptation commitments, which build on the progress we have made since the release of our initial plan on the 50th Anniversary of Earth Day in 2020. Since 2019, we have reduced our carbon emissions by 45% and we continue to procure 100% low-carbon electricity for our operations to maintain a carbon neutral status for our own operations.

We are proud to be the first consultancy and one of the world's first companies with a corporate net-zero target approved by the Science Based Targets initiative.

Since 2019, Jacobs has reduced carbon emissions by

45%

Jacobs has elevated Climate Response as one of three core accelerators within our fiscal year 2022 to 2024 company Strategy.



Commitment 1

Our goal is to make every project a climate response opportunity.

Commitment 2

Jacobs commits to reaching net-zero greenhouse gas emissions across the value chain by 2040.

Commitment 3

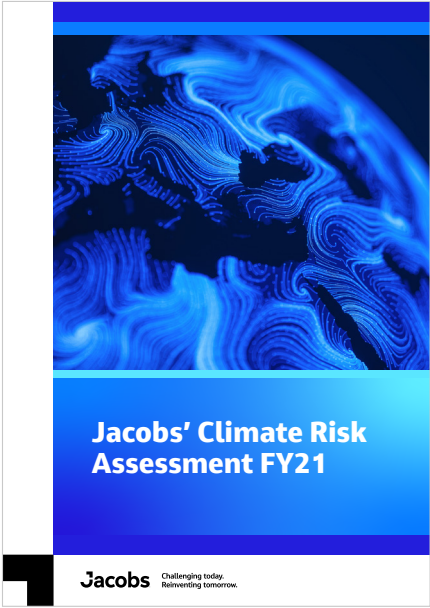
We commit to maintaining carbon neutrality and 100% low-carbon electricity.

1.3 Our FY22 Climate Risk Assessment

Climate risk disclosures and the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) are rapidly becoming part of business mainstream and are being incorporated into national legislation around the world. In the U.K. for example, from April 2022 certain large businesses are now required by law to publish a climate-related financial disclosure, and a recent proposed ruling by the Securities & Exchange Commission suggests the U.S. is likely to follow. Jacobs has published two climate risk disclosures, in 2020 and 2021.

Our 2020 report was a qualitative assessment and allowed us to explore the process and align ourselves with the TCFD reporting framework.

Our [2021 report](#) went a step further and provided a high level, qualitative and quantitative assessment of our main climate-related risks and opportunities across all of our current markets and lines of business.



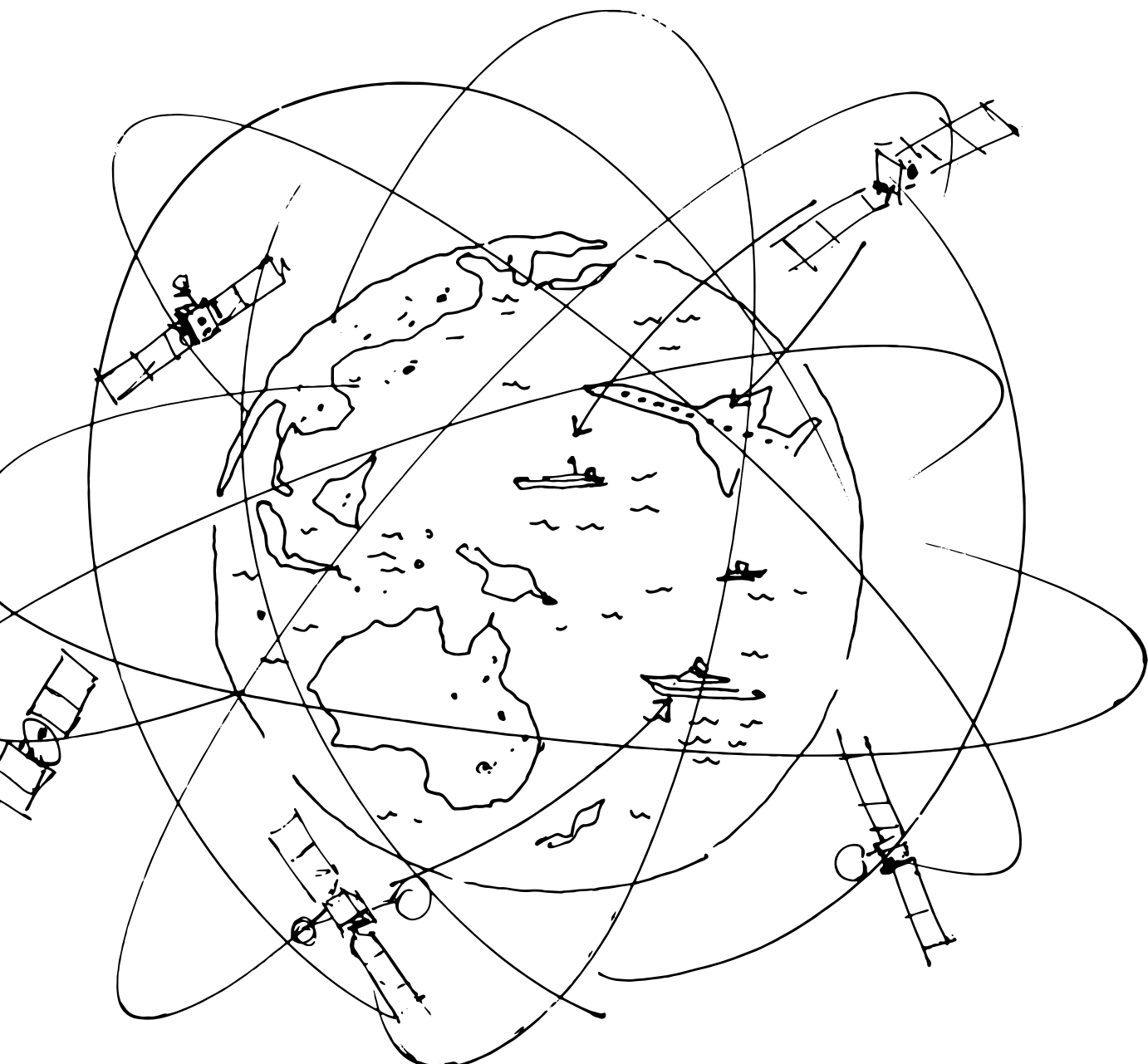
Within each market, we estimated the broad financial value of material climate impacts we could experience by 2050, under contrasting climate scenarios. Our approach is structured around the TCFD recommendations and applies Intergovernmental Panel on Climate Change (IPCC) and Network for Greening the Financial System (NGFS) scenario analysis as a lens through which we can better understand our main physical and transitional climate-related risks and opportunities.

To further manage climate risks, position Jacobs for market opportunities and strengthen the climate resilience of ours and our clients' businesses, our *FY22 Climate Risk Assessment* focuses on planning to adapt to climate change.

For this assessment, we focused on physical and transitional risks and opportunities and adaptation strategies within the water market. We identified the water market as having the greatest net financial opportunity

of all Jacobs' market areas in our *FY21 Climate Risk Assessment*.

Adaptation planning is already embedded within the solutions Jacobs delivers within the water market. Therefore, the water market is well placed to extend this proven approach to our business planning. We propose to replicate our approach across all other Jacobs' markets and will be incorporated in our TCFD response in 2023.



2. Progress since our FY21 report

2.1 Our FY21 commitments

Last year, Jacobs' *FY21 Climate Risk Assessment* outlined the broad financial impact that material physical climate impacts could have on each of our markets by 2050.

We deployed our [Climate Risk Manager](#) tool to assess physical climate-related risks to a range of major projects and our global office portfolio. The approach conforms with the international standard on risk management, *ISO 31000:2018 Risk Management Guidelines* and followed methods used by our climate risk specialists with our clients.

- Our previous commitments included:
1. Integrate climate risk analysis into company strategy and planning.
 2. Deploy climate risk assessment technology on pursuits and projects where climate risk is considered material.
 3. Support clients and suppliers to undertake their own climate risk assessments.
 4. Integrate climate risk and adaptation considerations into each of our market sector strategies.

This report provides an update on commitments 1-3 and begins to show how we are implementing commitment 4, by starting with the global water market.

1. Our FY22-24 company strategy, the introduction of Climate Response as one of three key accelerators for growth, and our updated **Climate Action Plan** show how we are integrating climate risk into company strategy and planning.

2. Our **Climate Risk Manager** tool provides teams with a digital solution to understand the immediate and long-term impacts of physical climate change at asset and portfolio level, anywhere in the world. We have used this technology as outlined in our *FY21 climate risk disclosure* to map the physical risks from climate change to our global asset portfolio.

3. We are taking proactive steps to **support clients** around the world with undertaking their own climate risk disclosures; and building business resilience against the threat of climate change.



Welsh Water:

In January 2022, we began working with Welsh Water, a not-for-profit supplier of water and wastewater services to Wales, to undertake their own climate risk disclosure. We applied the TCFD framework through a series of workshops with representatives from teams across the business, to review the interconnected risks and opportunities driven by climate change. We assessed the resilience of Welsh Water and its strategy to different future scenarios. We framed the material climate-related risks in terms of their potential to lead to service failures and the opportunities around their potential to help offset the costs of some of the risks, as well as allowing Welsh Water to accomplish more and at a faster pace.



Melbourne Water:

We worked with Melbourne Water in 2021 to help improve the rigor and consistency of its governance and management of climate change risk. We benchmarked Melbourne Water’s current suite of responses to climate change and aspirations compared against similar organizations in Australia and internationally. We mapped their use of scenarios and climate change information in planning, risk assessment and decision-making.

Building on this we have commenced a series of climate risk workshops to explore the implications of rapid or delayed transitions to a low/zero carbon society for Melbourne Water’s operating environment, what risks and opportunities these contrasting scenarios might pose and how that may affect the organization’s financial capacity. These discussions of transitional risks and their implications will help complement Melbourne Water’s already deep understanding of physical climate change risks and help to strengthen the organization’s climate governance.

2.2 TCFD recommendations and updates

The recommendations of the TCFD are structured around four thematic pillars that represent core elements of how organizations operate. The following section highlights some of the steps we have taken to ensure alignment with the four TCFD pillars.

Governance

- We integrated climate-related risks and opportunities and Environmental, Social and Governance (ESG) into our Enterprise Risk Management (ERM) processes.
- Our PlanBeyondSM Steering Committee has management oversight responsibilities for our Climate Action Plan. Regular updates are reported to the Board of Directors by our Office of Global Climate Response & ESG.
- We established a dedicated ESG & Risk Board Committee in April 2021.
- We established a new Office of Global Climate Response & ESG, to lead on delivering our climate commitments for our business and our clients, including overseeing our climate-related disclosures.

Strategy

- Climate Response is one of three core accelerators for growth in our FY22-FY24 company strategy, focusing on:
 - Decarbonization
 - Energy transition
 - Adaptation and resilience
 - Natural resource stewardship
- Climate risk is a key section of our company Climate Action Plan, focusing on our business climate mitigation and adaptation plans.

- Our global market leaders and Water & Climate Change experts within our Solutions & Technology group, engaged in an assessment of the strategic climate-related risks and opportunities to inform business adaptation and resilience.

Risk management

- We created and deployed our Climate Risk Manager tool to assess climate-related risk to our offices and major projects.
- We embedded climate risk in our ERM framework. ESG and climate are identified as a top risk area and subject to ongoing management and oversight.

Metrics and targets

- Our ESG Disclosures are produced to the Sustainability Accounting Standards Board (SASB) Framework.
- We achieved our 2020 commitments to become and remain a carbon neutral business and achieve 100% low carbon electricity for our operations.
- We are the world’s first consultancy organization to have a corporate, net-zero target approved by the Science Based Target Initiative:
 - Jacobs commits to reaching net-zero greenhouse gas emissions across the value chain by 2040.

- Near-term and long-term science-based targets in place:
 - Jacobs commits to reduce absolute scope 1 and 2 GHG emissions 50% by 2030 from a 2019 base year and commits to reduce absolute scope 3 GHG emissions from business travel and employee commuting by 50% over the same timeframe.
 - Jacobs commits that 65% of our suppliers by spend covering purchased goods and services will have science-based targets by 2025.
 - Jacobs commits to reduce absolute scopes 1, 2 & 3 GHG emissions 90% by 2040 from a 2019 base year.
- Company strategy target “100% of client projects become a climate response opportunity and/or include an ESG scope element.”
- We adopted an internal price of carbon for all corporate travel from January 1, 2022.

3. FY22 Climate Risk Assessment for Jacobs' water market

3.1 Overview

In our FY21 Climate Risk Assessment we reported on our initial analysis of financial risks to and opportunities for our business resulting from the projected physical impacts of climate change under an aggressive mitigation

scenario (i.e., global temperature rise of 1.5°C by 2100) and under a business-as-usual scenario (global temperature rise of 4°C by 2100). We estimated that, even under the aggressive mitigation scenario,

physical climate change impacts would most likely result in increased demand for the services and solutions Jacobs delivers in our key markets (Figure 3-1).

The IPCC's Sixth Assessment Report (AR6) The Physical Science Basis for Climate Change, highlighted the pressures on the global water cycle from growing population, unsustainable use, pollution and climate change. Impacts from climate change result in water scarcity, food insecurities, and flooding, placing human settlements and millions of people around the world at risk. Reflecting the seriousness of the challenges the water sector faces from climate change, the IPCC's report on Impacts, Adaptation and Vulnerability found that since 2014, 60% of documented adaptation responses responded to water-related hazards such as flooding, drought and rainfall variability.

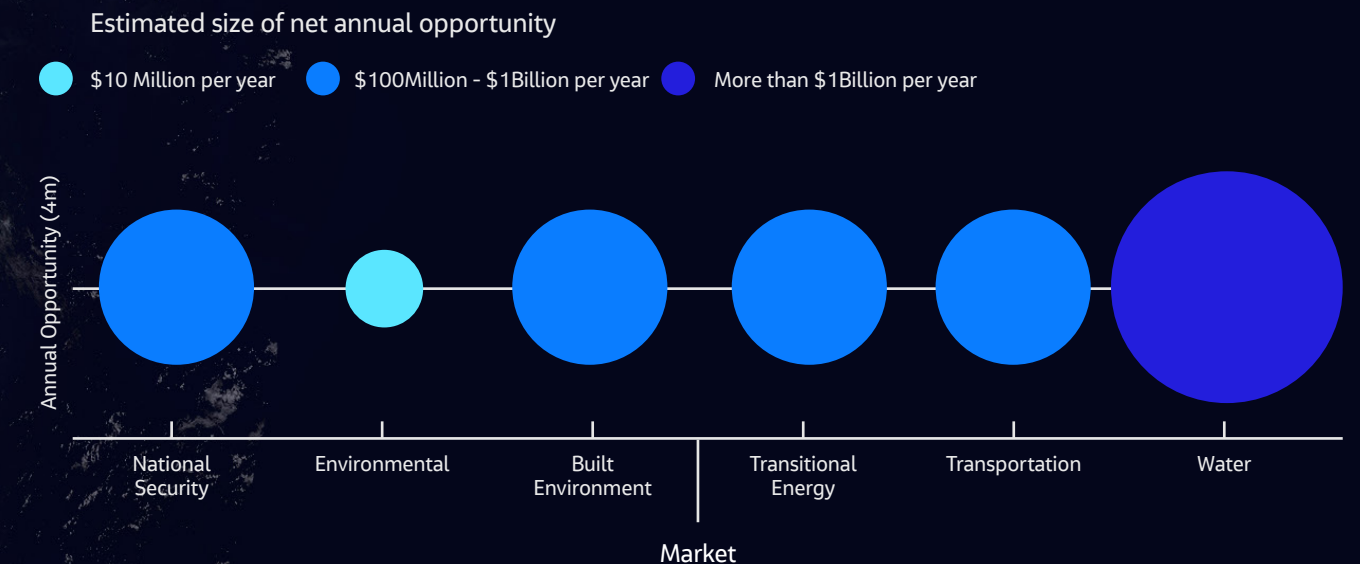


Figure 3-1. Summary of estimated net financial impacts on Jacobs' markets in the 1.5°C scenario. Net financial impacts were assumed to arise from the need for resilience to physical impacts of climate change under this scenario.

As shown in Figure 3-1, the water market was identified as having the greatest net financial opportunity of all our market areas. This finding is consistent with climate change science and is further supported by the water sector's focus on developing adaptive responses to climate change impacts.

Based on the principles of adaptive planning, our FY22 Climate Risk Assessment explored the climate change risks and opportunities to the water sector (i.e. clients and communities) and to our water business. Our clients in the water sector provide the following services (not exhaustive):

- Clean water for human consumption and agricultural and industrial uses;
- Wastewater conveyance, treatment and reuse services;

- Planning for protection from adverse impacts associated with heavy rainfall and stormwater, river and coastal flooding.

Specific goals of this assessment were to:

- Pilot a collaborative approach to applying scientific and strategic insights into climate change and the low carbon transition to understand key risks and opportunities for our clients and their implications for our own business;
- Develop a proof of concept that can be repeated across other markets;
- Integrate Jacobs' OneWater¹ thought leadership with an adaptive planning approach to define the water management challenges that are unique to our

clients, our communities, and our watersheds in regions across the world.

- Develop a refined TCFD assessment that:
 - Would serve as a global example of best practice for understanding and managing climate risks and standardizing climate disclosures in the water sector;
 - Strengthens our ability to support our global water clients with understanding the complexities and importance of climate disclosures; and,
- Guides development of TCFD assessments across all Jacobs markets.

3.2 Scenario analysis

To ensure we are fully considering physical and transitional risks and opportunities from climate change, we have applied two different types of scenario analysis. Our FY21 Climate Risk Assessment was based on scenarios derived from the United Nations Framework Convention on Climate Change (UNFCCC) and IPCC. We considered risks and opportunities associated with:

- Successful implementation of the Paris Agreement on climate change to limit global temperature change during this century to 1.5°C above pre-industrial levels.
- Continued high growth in greenhouse gas emissions leading to average global warming of around 4°C by 2100. This scenario broadly coincides with the IPCC's RCP8.5 scenario (from its Fifth Assessment Report, AR5).

To further explore potential transitional risks from climate change for our FY22 assessment, we adopted the Network for Greening the Financial System (NGFS) climate scenarios framework (Figure 3-2).

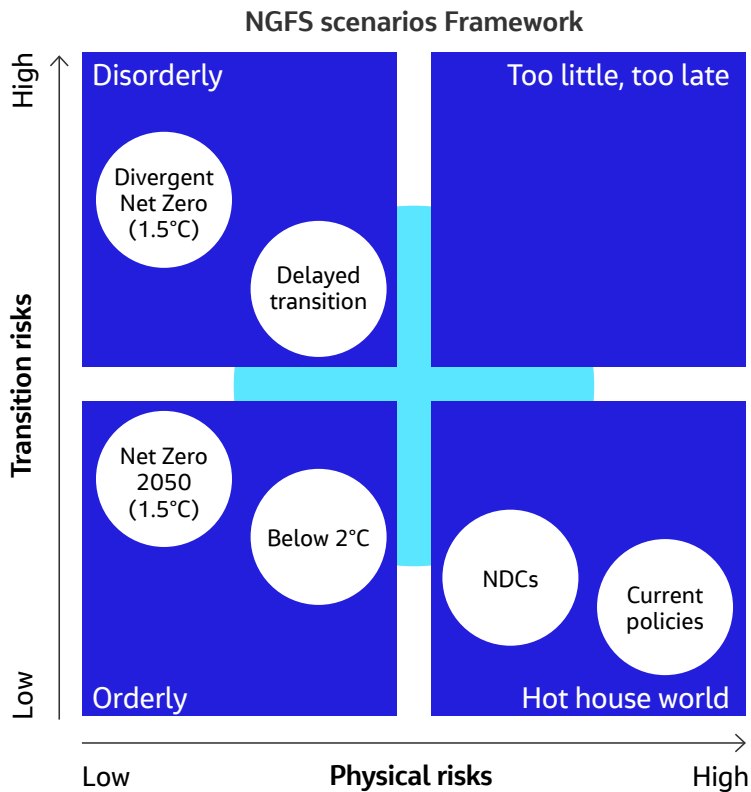
The NGFS framework provides a set of harmonized transition pathways and, unlike other climate models, it includes metrics that are key to understanding the prolonged and chronic impacts of climate change on regions and on GDP.



The water market was identified as having the greatest net financial opportunity of all our market areas.

Figure 3-2. NGFS scenarios framework organized by extent of physical and transitional climate change risk.

Source



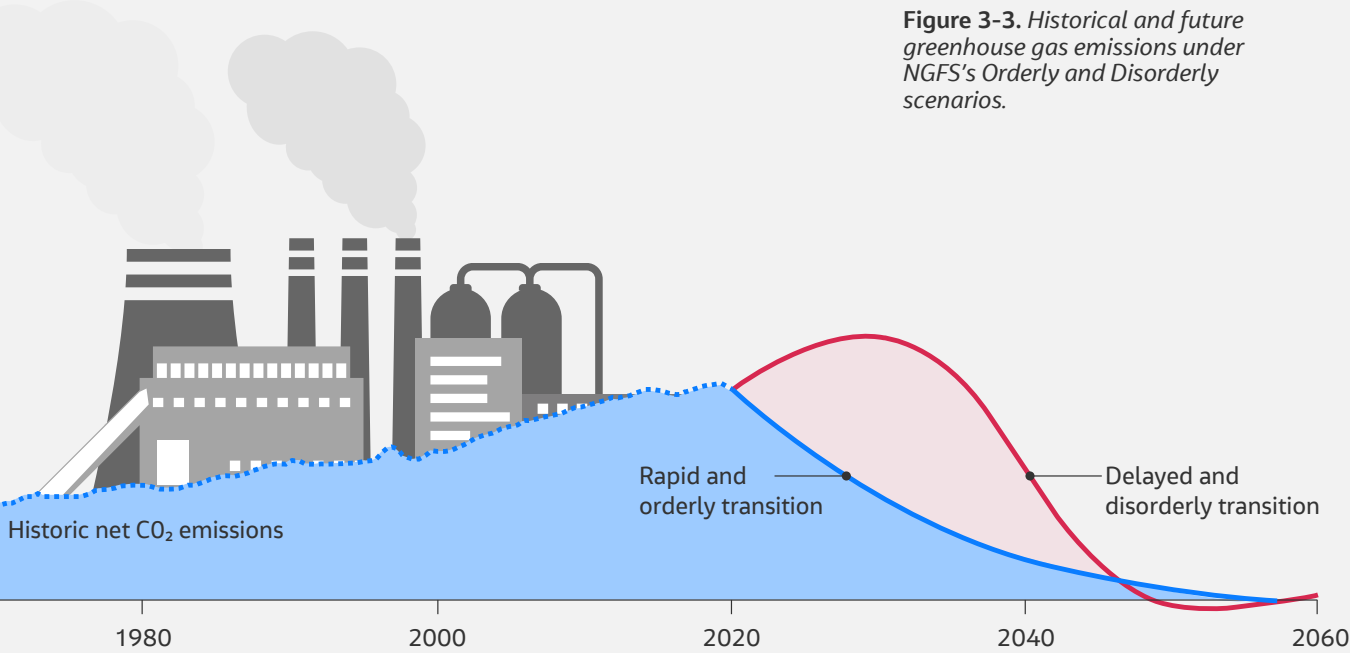
¹ OneWater is a collaborative approach to developing solutions that optimize the complete water cycle and provide social value and co-benefits to communities and watersheds.

The NGFS framework identifies transitional and physical risks associated with four future scenarios (Figure 3-3). For our FY22 climate risk assessment, we considered two of the four scenarios, Orderly and Disorderly.

Orderly scenario:
assumes climate policies are introduced early and become gradually more stringent. Our first scenario anticipated net zero greenhouse gas emissions being achieved by 2050 and global warming being limited to 1.5°C. As highlighted by the IPCC in AR6, this expression of the orderly scenario would require a rapid low/zero carbon transition (i.e. commencing immediately).

Disorderly scenario:
assumes effective climate policies are not introduced globally until after 2030. Since actions are taken relatively late and limited by available technologies (including limited assistance of carbon dioxide recovery), emissions reductions post 2030 need to be sharper than in the orderly scenario to limit warming. The delayed transition almost certainly leads to greater warming (and hence physical risk) than a rapid and orderly scenario, but with lower early transition risk.

Figure 3-3. Historical and future greenhouse gas emissions under NGFS's Orderly and Disorderly scenarios.



Our analysis did not consider the 'too little, too late' and 'hot house' world scenarios. Jacobs considers these scenarios to have untenable impacts and is committed to doing what we can, in conjunction with our clients, to avoid either outcome. Our science-based targets for emissions reduction aim to contribute to a rapid low carbon transition in our operating regions.

3.3 Adaptive planning

Adaptive planning is an approach that Jacobs uses to plan for a future characterized by complexity and uncertainty. This process enables decision-making through consideration of multiple possible futures, while allowing for flexibility in actions and approaches to achieving objectives. Adaptive planning recognizes that there are often multiple ways to respond to uncertainty. It aims to identify and keep open as many options (or interventions) to achieve objectives

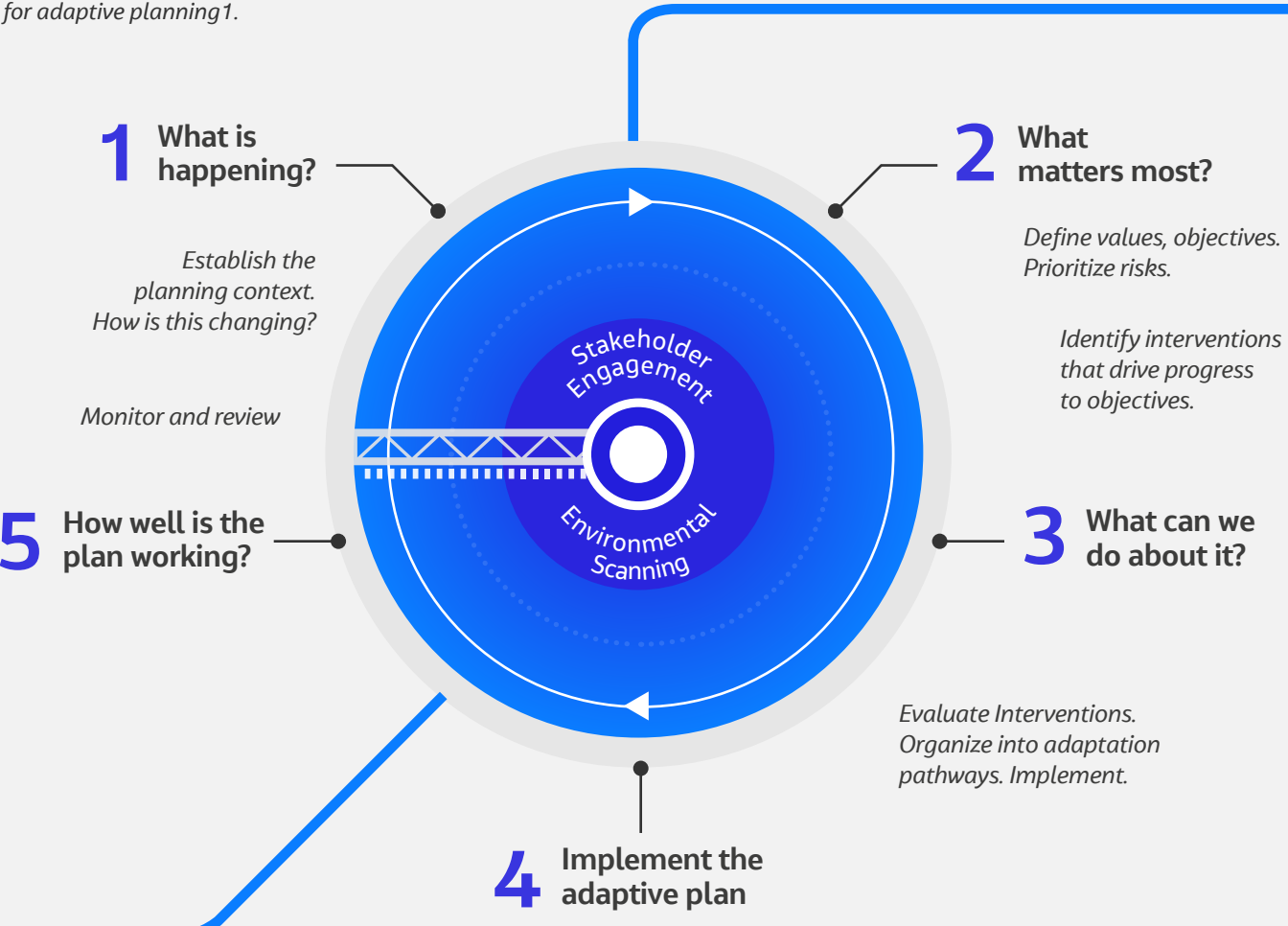
as is practicable and to support timely and well-founded decisions on how to proceed. Adaptive plans are implemented by deploying sequences of interventions over time (called adaptation pathways) that make progress towards objectives and address key risks and opportunities.

The broad approach to adaptive planning that we take with our clients is illustrated in Figure 3-4.

We are currently developing the adaptive plan for our water market in response to climate change.

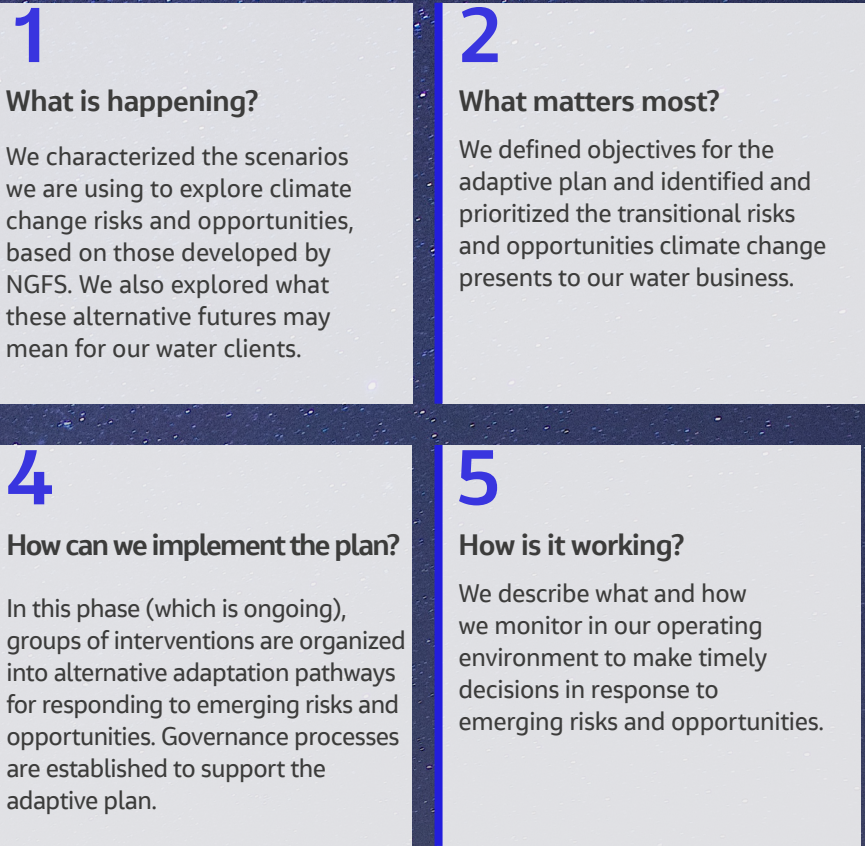
Our considerations through steps 1-3 are discussed in this report. Parallel with internal discussions on the implications of climate change in water, we are also engaging with some of our clients in co-learning exercises to gain their insights into what the scenarios we are using to explore climate change impacts might mean for their business.

Figure 3-4. A conceptual approach for adaptive planning1.



3.4 Pilot process

We have applied the adaptive planning process in our FY22 Climate Risk Assessment as follows:



Our FY22 Climate Risk Assessment was undertaken with a working group representing our global water business. The assessment included elements of the first three steps in our adaptive planning cycle (Figure 3-4).

4. Results of the FY22 Climate Risk Assessment for Jacobs' water market

4.1 Characteristics of rapid and orderly, and delayed and disorderly low carbon transition for water

Our characterization of the two scenarios, rapid and orderly, and delayed and disorderly (Section 3.3) is summarized in Table 4-1. The text summarizes our perspectives on likely key features of the operating environment for our water market that would either be required to realize the scenario (particularly for a rapid and orderly transition) or what we would expect to be consequences of the scenario (particularly in a delayed and disorderly transition).

While some features of the two scenarios differ markedly, there are also significant similarities. Under both scenarios, it was anticipated that the costs to customers of water market services (i.e., water supply, wastewater, flood protection) would increase, albeit over different timeframes for the two scenarios. It was also anticipated that the infrastructure providing water services would experience physical impacts from climate change under both scenarios and negatively impact long-term resilience of water infrastructure.

4.2 Risks and opportunities

Risks and opportunities associated with the water sector's rapid or delayed transition to a low carbon society were identified, based on our characterizations outlined in Table 4-1. The two scenarios converge towards a similar, but not identical, set of risks for Jacobs' water business (Table 4-2) and a single set of opportunities (Table 4-3) and potential responses (Section 4.4). While the responses to opportunities and risks are similar under the two scenarios, their timing may differ.

Table 4-1. Key features of the water market under rapid and orderly, and delayed and disorderly scenarios

Rapid and orderly scenario	Delayed and disorderly scenario
Costs to customers of water, wastewater & flood protection services increases rapidly.	Costs to customers of water, wastewater and flood protection services increases in the near term (next 10 years). Costs to customers further increase to account for rapid decarbonization in the 2030s.
Bipartisan/unified approach to transition, is supported by government intervention, community and policy alignment, and investment in human/social capital.	Fragmented approach to transition leads to geographic disparity of investment in decarbonization solutions and investments in new assets. Costs for technology are initially higher than they might otherwise be.
Rapid increase in investment in decarbonization solutions like renewables, energy efficiency and nature-based solutions drives technology prices down.	Non-uniform investment in decarbonization across regions and businesses leads to disparity of water services and costs to customers, impacting social acceptance.
Low carbon transition generates multiple economic, social and environmental benefits and is supported by new financial/economic models and markets.	Increase in regulatory/government reviews of water businesses regarding their ability to meet low carbon transition obligations and as services and infrastructure are increasingly affected by climate change.
Capital investments in mitigation rather than adaptation leads to reduced resiliency of water infrastructure.	

Risks

Table 4-2. Risks to Jacobs’ water business from rapid and orderly and delayed and disorderly scenarios

Category	Rapid and orderly	Delayed and disorderly
Business model A	<p>Cost of service pressures experienced by clients under a rapid and orderly transition could lead to a perception of Jacobs’ services as unaffordable, leading to loss in market share and revenue for Jacobs.</p> <p>Jacobs may face increased tax regime in some jurisdictions as governments seek increased capacity to accelerate the low carbon transition and recover costs from climate-related hazards. Cost of Jacobs’ services may need to increase and/or profit margins may be eroded.</p>	<p>While there may be minimal change to Jacobs’ business model in the short term, this could change once the transition commences, as described for the rapid and orderly transition.</p> <p>There may be increased scrutiny of water clients’ spend on consultants through a more economically volatile transition, as well as potential scrutiny of the services we provide. This may affect our financial performance and reputation, if we are held back from supporting clients drive the low carbon transition once it commences.</p>
Technology B	<p>Insufficient research on new low emissions technologies could lead to Jacobs investing in, promoting or advising on transition solutions that prove to be ineffective (e.g., due to adverse unintended environmental consequences or creation of new risk exposures), or financially inefficient. If this occurred, Jacobs’ reputation may be affected and our market share may decline.</p> <p>Jacobs’ investment in low emissions technologies and solutions which aren’t successful may lead to unrecouped costs. Adopting a siloed approach to investment in low emissions technologies may diminish Jacobs’ chances of success and also lead to unrecouped costs.</p>	<p>Even through a more delayed transition, Jacobs will still face risk from investing in technology solutions that are ineffective or have unintended effects as per the rapid and orderly scenario. Reduced (initial) market interest in low carbon transition solutions may exacerbate this risk.</p> <p>Jacobs’ recent investments in technology and partnerships (e.g., nature-based solutions, Boimimicry3.8) may not be attractive to some clients under this scenario and hence planned revenue/profit targets may not be reached.</p>
Workforce C	<p>A rapid response to decarbonization in the water sector could result in Jacobs having an insufficient number of trained staff (at least in some geographies) to support clients through the transition. This could lead to a loss of market share and reputation and inability to sustain current business growth.</p> <p>Lack of people with the right skills and local connections to satisfy demand for place-based services may similarly hinder business growth.</p>	<p>Without the urgency of a rapid transition, Jacobs may not place adequate investment into our own decarbonization service offering. When the transition occurs, we might be poorly positioned to service our clients, particularly with local specialists.</p> <p>A disorderly transition could lead to varying skillsets across geographies and creating knowledge disparities within Jacobs. This may lead to uneven service offerings, with potential reputation or liability impacts.</p>

Category	Rapid and orderly	Delayed and disorderly
Way of working D	<p>If Jacobs did not adapt its way of working under the rapid transition, our teams may operate in siloes and not integrate climate resilience and decarbonization into our services and infrastructure solutions. This would diminish the value we offer our clients, leading to negative impacts on reputation and reduced market share.</p>	<p>Delay in low carbon transition may lead to insufficient analysis of market trends on decarbonization. This may leave Jacobs poorly positioned when the transition commences and unable to leverage the business growth opportunities.</p>
Markets & clients E	<p>Competition for capital investment in decarbonization across multiple markets may lead to some clients being unable to secure finance for water-related capital expenditures. This may lead to contraction in some of our markets and reduced revenue. It may also mean that projects in other sectors that do not advance the rapid transition (and climate resilience) do not proceed as planned. Jacobs’ business in these areas may contract.</p> <p>Finite material and human resources required for a rapid transition delays progress or increases cost. This has potential to affect business growth and/or profitability.</p>	<p>Delayed transition may reduce green investment funding for projects that support decarbonization. This may reduce growth opportunity for Jacobs’ water business until the transition begins.</p> <p>Delayed and disorderly transition may lead to community disengagement and apathy regarding climate change. Water utilities may lack support from customers to invest in decarbonization and resilience, leading to fewer business growth opportunities and/or reduced willingness to pay for strategic advisory services.</p>
Liability and reputation F	<p>In addition to the reputational risks discussed elsewhere in this table, under a rapid and orderly transition, clients may focus solely on decarbonization investments at the expense of adaptation measures. If Jacobs did not advise concurrent progress on both mitigation and adaptation, the climate resilience of our clients’ infrastructure may be eroded, with impacts on their operations, social acceptance and Jacobs’ reputation.</p>	<p>While the low carbon transition is delayed, clients may focus on adaptation measures rather than decarbonization and so be poorly prepared when the transition eventually occurs. Jacobs’ reputation and market share may be affected if we did not advocate for a balance of mitigation and adaptation and help our clients prepare for the transition when it ultimately occurs.</p> <p>Jacobs could experience increased litigation by clients for perceived shortcomings of service/ advice regarding the low carbon transition, once it commences.</p>

Opportunities for Jacobs were explored in workshops with our global water market stakeholders under each scenario. Through consolidating the workshop output it became apparent that the opportunities for Jacobs were similar under each scenario, albeit realized at different timeframes. Table 4-3 describes the consolidated opportunities for Jacobs against each risk category defined in Table 4-2.

Opportunities

Table 4-3. Potential opportunities for Jacobs’ water business across both the rapid and orderly and delayed and disorderly scenarios

Category	Opportunities
Business model A	<p>As communities face the pressures of an increase in the cost of water, Jacobs invests locally within communities to support this transition. Including funding local capacity and capability development in our own projects - e.g. engage Non-Governmental Organizations (NGOs) on our teams, hire locally in design-build projects.</p> <p>In response to increased community and client scrutiny on cost of services, Jacobs’ corporate reporting includes metrics on social (and environmental) value we added to communities, including KPIs on new financial and economic models.</p> <p>Jacobs capitalizes on the mindset, funding and policy shift towards decarbonization and develops own private equity / investment arm in water sector to invest in and financially benefit from transition.</p>
Technology B	<p>Jacobs has the interest and financial backing from clients to develop new intellectual property to support decarbonization and climate resilience in the water sector.</p> <p>As clients are required to track and report on their carbon emissions, Jacobs strengthens internal analytic capabilities to trace carbon through the supply chain, growing our digital solution capabilities in the water sector.</p>
Workforce C	<p>As clients create a growing demand for decarbonization support services, Jacobs is able to leverage existing talent (economists, energy transition specialists) to engage and upskill in new market opportunities.</p> <p>As interest in social value and community led projects increases, Jacobs staff are encouraged to engage with communities, leading to increase in personal job satisfaction, and improved staff retention.</p> <p>Jacobs endorses and invests in supporting a rapid and orderly transition. This attracts thought leaders to Jacobs as an early mover on transition and decarbonization. Clients engage with Jacobs’ thought leaders, enhancing Jacobs’ position as well known and trusted in the industry prior to the peak in demand.</p>
Ways of working D	<p>To assist clients in understanding the possible impacts they face under different transition scenarios, Jacobs leads an integrated risk management approach for their business. This approach considers environmental, social and governance impacts on whole-of-system functioning, strengthening Jacobs’ trusted partnership position with clients.</p>

Category	Opportunities
Ways of working (continued)	<p>As clients grapple with complex and multifaceted Environmental Social Governance (ESG) reporting requirements, Jacobs promotes and is engaged to embed integrated frameworks into our water clients’ processes, such as:</p> <ul style="list-style-type: none">• OneWater approach (integrated water management);• Circular economy;• Nature-based solutions / biomimicry;• United Nations Sustainable Development Goals;• Sustainable infrastructure certification.
Markets and clients E	<p>Clients require support in managing the social, political and governance shifts occurring during the transition, leading to potential growth in solution and service areas that intersect the water market:</p> <ul style="list-style-type: none">• Decarbonization / net zero transition (e.g. green finance, Public-Private Partnerships, emissions reduction and carbon capture technology, net zero accreditation);• Adaptation measures for water security and/or flood resilience;• Water efficiency programs;• Asset and program management;• Carbon pricing and trading. <p>All businesses are required to transition, broadening the opportunity for new clients to engage with Jacobs on transition advisory projects.</p> <p>Clients require new ways to justify spending on climate resilience and decarbonization initiatives. Jacobs develops new economic and funding models for water clients to support decision making/investments and business cases. New metrics for capturing social and community value are included in Jacobs IP.</p> <p>Governments require support in establishing the legislation, frameworks and policies that support an orderly transition. Jacobs leverages global inhouse capabilities to support policy development, growing market share in strategic and policy advisory services.</p> <p>Jacobs seen as an industry leader, and early mover by publishing thought leadership pieces and sharing best practices with clients and utility organizations early in the transition. Leading to increase market share in regions in which we are well established and positioned with clients, and broadening our engagement with new clients.</p>
Liability and reputation F	<p>Jacobs strengthens reputation by formalizing an organizational structure dedicated to decarbonization and climate response.</p>

4.3 Estimated transition revenue impacts

We have assessed the potential financial impact of risks and opportunities for Jacobs’ water market revenue under each scenario. This is represented using a qualitative impact heatmap (Table 4-4). This heatmap

illustrates a high level financial impact assessment of how relevant transition risks could influence Jacobs’ revenue at a 2050 time horizon. We have analysed the severity of revenue impact to our Jacobs water market

business, by considering how Jacobs and our water market clients could respond to the rapid and orderly, and delayed and disorderly scenario characteristics.

		Rapid and Orderly Scenario 2050		Delayed and Disorderly Scenario 2050	
		Negative Revenue Impact	Positive Revenue Impact	Negative Revenue Impact	Positive Revenue Impact
A. Business Model					
Jacobs’ Response to Scenario	Jacobs needs to change business models to respond to changing market conditions	Low	Medium	Low	Medium
	Jacobs develops private equity investment arm for water sector to invest in and financially benefit from the transition	None	High	None	Medium
	Jacobs invests locally within communities to support decarbonization	None	Medium	None	Low
Water Market’s Response to Scenario	Increased scrutiny of consultancy spend during an economically volatile transition	None	None	Medium	None
	Strong growth in decarbonization, asset management and water efficiency	None	High	None	Medium
B. Technology					
Jacobs’ Response to Scenario	Jacobs invests in new decarbonization solutions and technologies that do not fully address complex challenges	Low	None	Medium	None
	Jacobs has the interest and financial support to develop new intellectual property to support decarbonization	None	High	None	Medium
C. Workforce					
Jacobs’ Response to Scenario	Jacobs does not have enough trained staff to deliver consultancy services that support the transition	Medium	None	Low	None
	Jacobs attracts thought leaders as a global expert in decarbonization	None	High	None	High
	Jacobs leverages existing talent to upskill staff	None	High	None	High
Water Market’s Response to Scenario	Skillsets and experience vary across different geographical regions, creating knowledge disparities	Low	Medium	Low	Low

		Rapid and Orderly Scenario 2050		Delayed and Disorderly Scenario 2050	
		Negative Revenue Impact	Positive Revenue Impact	Negative Revenue Impact	Positive Revenue Impact
D. Ways of Working					
Jacobs’ Response to Scenario	Jacobs effectively integrates resilience and mitigation into solutions across all business lines and leverages business growth from the transition	None	High	None	Medium
	Jacobs leads the application of risk management approaches and integrated frameworks (One Water, Circular Economy)	None	High	None	High
E. Markets and Clients					
Water Market’s Response to Scenario	Key clients are unable to secure sufficient financing, leading to reduced expenditure on water infrastructure and engagement of Jacobs’ services	Medium	None	Medium	None
	Clients require support in managing the social, political and governance shifts occurring during the transition, leading to potential growth in solution and service areas that intersect the water market	None	High	None	Low
F. Liability and Reputation					
Jacobs’ Response to Scenario	Jacobs formalizes an organizational structure dedicated to decarbonization and climate response	None	High	None	Medium
Water Market’s Response to Scenario	Clients focus on decarbonization rather than adaptation measures	Low	Medium	Low	Low

Table 4-4. Potential revenue impact to Jacobs’ water market by 2050. Results determined by Jacobs’ water market leads for a rapid + orderly scenario and delayed + disorderly scenario for key risks and opportunities

4.4 Adaptation to our changing water market conditions

Our 2022 climate scenario analysis has informed the identification of risks and opportunities under two transition pathways. Table 4-4 identified key characteristics of these pathways that could be observed in the water market. By observing and/or anticipating when these characteristics will occur, we can trigger an appropriate response to mitigate potential risks and maximize potential opportunities, and thus adapt our business to best serve our clients.

Adaptive planning requires us to monitor these changes occurring in our clients' businesses, and to implement appropriate response with sufficient lead time. Figure 4-1 illustrates some responses that are currently being explored and demonstrates:

- Approximate timescales for our actions, although recognizing that these are flexible to changing market conditions. In an adaptive approach, the certainty of timing decreases into the future.
- We are committed to driving a core pathway of actions towards a rapid and orderly transition to carbon net zero.
- However, we recognize that the global water market may instead undergo a delayed and disorderly transition, for which we are prepared through a second pathway of alternative actions.

We believe our pragmatic approach to embedding adaptation into our water market strategy is both robust and flexible. It is robust because we have planned our actions to respond to future risks and opportunities, and it is flexible because we can monitor market conditions and trigger the right action at the right time.

We recognize that our continued water business growth is closely integrated with the growth of our water sector clients. However, analysis of the risks and opportunities in the two scenarios has clearly demonstrated the benefits of a rapid and orderly transition. Therefore, through our adaptive actions, we will continue to champion a rapid and orderly transition to a low carbon economy, aligned with our [science based targets](#), that unlocks ESG opportunities for us and our clients.

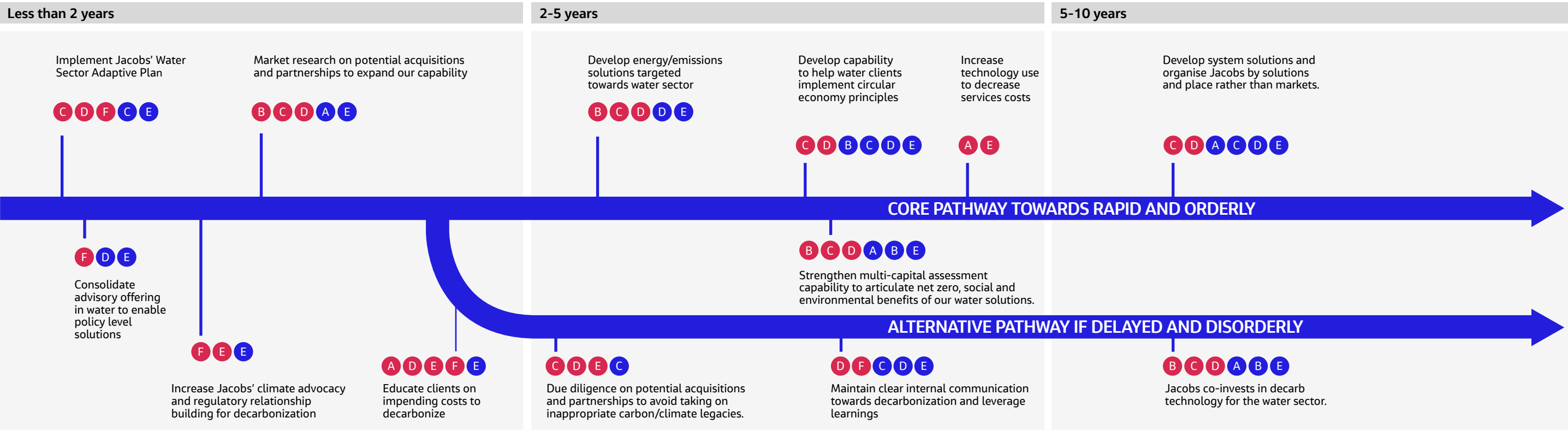
Figure 4-1. Illustrative adaptation pathway of actions for our water sector. Actions aim to drive the sector towards a rapid and orderly transition but maintain flexibility to respond to a delayed and disorderly transition

Risk & opportunities categories

- A Business model
- B Technology
- C Workforce
- D Ways of working
- E Markets and clients
- F Liability and reputation

Key for Figure 4-1

- Risks
- Opportunities



4.5 Physical adaptation and operational resilience

This report focuses more on the transitional risks and opportunities created by climate change, however our FY21 Climate Risk Assessment provided an oversight of our direct physical climate risks. Section 2.3.4 (Project Analysis) and 2.3.5 (Office analysis) [can be read and accessed here](#), and in this reporting year our physical climate risks remain unchanged.

We take steps to ensure we are mitigating and adapting to the physical impacts of climate change such as meteorological impacts or infrastructure failure like power outages, loss of communications and direct damage. Through a collaborative approach, led by Global Security & Resilience (GS&R) we have put in place a Resilience Manual and supporting Operational Resilience Plan to guide decision making on adaptive measures in response to these types of physical impacts. Together with our Climate Risk Manager tool that maps long-term projects' physical impacts from climate change, the responsiveness of our business leads to mitigating and adaptive outcomes.

Our business resilience program is intended to enhance our ability to build our overall capability utilizing a standardized framework to prepare, respond and recover during any disruptive emergency incident or a crisis event that may affect our people, assets, environment and/or reputation. The business resilience program, developed by GS&R, encompasses Emergency Management, Crisis Management and Business Continuity and employs a risk-based, all-hazards approach.

5. Our disclosures

The sections below represent the recommended disclosure framework put forward by the TCFD and provide details of the disclosures we published in each area.

5.1 Governance

Disclosure	Summary	Links
Describe the Board's oversight of climate-related risks and opportunities	Our PlanBeyond Executive Steering Committee has management oversight responsibilities for our Climate Action Plan. Regular updates are reported to the Board of Directors by our Office of Global Climate Response & ESG. We established a dedicated ESG & Risk Board Committee in July 2021.	2021 Integrated Annual Report Climate Action Plan ESG Data Disclosures PlanBeyond 2.0 Code of Conduct
Describe management's role in assessing and managing climate-related risks and opportunities	Climate-related risks and opportunities and ESG are integrated into our Enterprise Risk Management (ERM) processes. We established a new Office of Global Climate Response & ESG, to enable the business to deliver on our climate commitments, including overseeing our climate-related disclosures.	ESG and Risk Committee Charter

5.2 Strategy

Disclosure	Summary	Links
Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term	In our FY21 report, the expected financial impacts to individual markets were quantified and, on balance, indicated a net opportunity for Jacobs up to at least 2050. The biggest opportunity is expected to come in the global water market. The focus off this report has been to provide a deeper exploration of physical and transitional risks and opportunities in our global water market under contrasting future scenarios to support the objectives of our FY22-22 company strategy, and ensure we are maximizing our company climate response opportunities. We have not revisited the financial quantification that we undertook in FY21, but have mapped high level positive and negative revenue impacts. The opportunities are likely to be greater if the global economy transitions early and in an orderly manner to net zero.	Section 4 of this disclosure FY21 Climate Risk Assessment PlanBeyond 2.0 Climate Action Plan FY22-24 Company Strategy ESG Data Disclosures 2021 Integrated Annual Report
Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning		
Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario		

Business Resilience Manual

Internal use only



© Copyright, Jacobs Engineering Group Inc. All rights reserved. Jacobs® and BeyondZero® are trademarks of Jacobs Engineering Group Inc. 2019/02/17

Last updated on: October 2021



Operational Resilience Plan

Internal use only



© Copyright, Jacobs Engineering Group Inc. All rights reserved. Jacobs® and BeyondZero® are trademarks of Jacobs Engineering Group Inc. 2019/02/17

Last updated on: October 2021



Jacobs' Climate Risk Assessment FY22

Jacobs

5.3 Risk management

Disclosure	Summary	Links
Describe the organization's processes for identifying and assessing climate-related risks	Enterprise Risk Management. We undertake market-level analysis through structured consultation with our leaders, and project and office-level analysis using our Climate Risk Manager tool. Findings are included in our Climate Action Plan and ESG data disclosures. Risk management actions will be communicated internally and summarized in our Climate Action Plan.	Section 2 of this disclosure ESG Data Disclosures PlanBeyond 2.0 Climate Action Plan 2021 Integrated Annual Report
Describe how processes for identifying, assessing and managing climate-related risks are integrated not the organization's overall risk management		

5.4 Metrics and targets

Disclosure	Summary	Links
Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management processes	<p>In FY21, we have assessed material risks and opportunities for our business annually up to 2050 in broad categories (\$10M-\$100M, \$100M-\$1B, >\$1B). If we follow a 4°C trajectory, Jacobs could see limited net opportunities in response to the increasing physical risks and the limited transition to a low carbon economy. If we follow a 1.5°C trajectory, then the limited net opportunities from the same physical risks could be supplemented by significant market opportunities connected with the rapid transition to a low carbon economy.</p> <p>In our FY22 report, we have not revisited the financial quantification of climate-related risks and opportunities in this same way, but have identified high level positive and negative revenue impacts of a much broader range of water market specific risks and opportunities.</p>	Section 4 of this disclosure FY21 Climate Risk Assessment

Metrics and targets (continued)

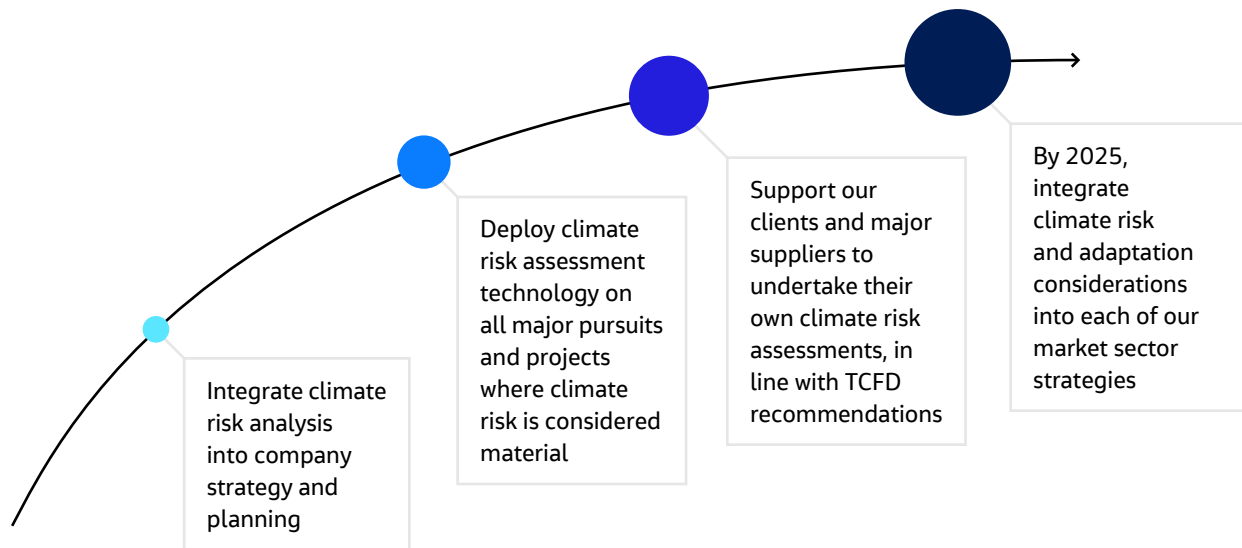
Disclosure	Summary	Links
Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	<p>We have obtained limited third party assurance for our scope 1, scope 2 and scope 3 business travel emissions sources each fiscal year and publish in our annual ESG Disclosures document, together with supporting summary of the key risks and opportunities we face in meeting our near-term and long-term science-based targets.</p> <ul style="list-style-type: none">• Total Scope 1 emissions: 16,749 tCO2e• Total Scope 2 (location based) emissions: 44,730 tCO2e• Total Scope 3 (location based) emissions: 87,939 tCO2e.	ESG Data Disclosures
Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	<p>Follow the TCFD framework for assessing climate risk and opportunities and disclose annually. Continually committed to enhancing the rigor, discipline and controls around our ESG data and reports.</p> <p>We approved near- and long-term science-based emissions reduction targets with the SBTi. This means our emissions reduction targets are consistent with the aim of the Paris Agreement to limit average global warming to 1.5°C by the end of the century, compared to pre-industrial temperatures. They are also consistent with the Net-Zero Standard. Our near-term targets are approved by the SBTi as follows:</p> <p>We commit to reduce absolute scope 1 and 2 GHG emissions 50% by 2030 from a 2019 base year and commit to reduce absolute scope 3 GHG emissions from business travel and employee commuting by 50% over the same timeframe.</p> <p>We commit that 65% of our suppliers by spend covering purchased goods and services will have science-based targets by 2025.</p> <p>Our long-term targets are approved by the SBTi as follows:</p> <p>We commit to reduce absolute scopes 1, 2 & 3 GHG emissions 90% by 2040 from a 2019 base year.</p>	This disclosure FY21 Climate Risk Assessment Climate Action Plan

6. Next steps

Our FY22 Climate Risk Assessment has provided a replicable process that we can use across other market sectors to explore the risks and opportunities to our business under an orderly and a disorderly scenario.

In FY23, we propose to extend this type of analysis to our other market sectors, across both lines of business and continue delivering on the suite of commitments we put in place in FY21.

We also plan to engage in similar discussions with key clients in water and other market sectors to learn, with them, how business operating environments and market conditions may change with climate change.



Jacobs' next steps towards climate resilience and adaptation





Challenging today.
Reinventing tomorrow.

Cautionary Note Regarding Forward Looking Statements

Certain statements contained in this report constitute forward-looking statements as such term is defined in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and such statements are intended to be covered by the safe harbor provided by the same. Statements made in this report that are not based on historical fact are forward-looking statements. When used herein, words such as "expects," "anticipates," "believes," "seeks," "estimates," "plans," "intends," "future," "will," "would," "could," "can," "may," and similar words are intended to identify forward-looking statements. Examples of forward-looking statements include, but are not limited to, statements regarding estimates and expectations with respect to the future impact of climate change on our business, and the markets in which we operate, including risks and opportunities for our water business. We base these forward-looking statements on management's current estimates and expectations as well as currently available competitive, financial and economic data. Forward-looking statements, however, are inherently uncertain. There are a variety of factors that could cause business results to differ materially from our forward-looking statements, including, but not limited to, the pace and severity of climate change and its impact on local, national and global economies, whether

the underlying assumptions used by the Company to estimate the impact of climate change on the Company and on the water services industry prove to be incorrect, future changes in the Company's strategy or business model, economic events, and whether actions taken by governments and non-governmental actors in an effort to mitigate the effects of climate change are successful, among others. For a description of some additional factors that may occur that could cause actual results to differ from our forward-looking statements, see our most recently filed Annual Report on Form 10-K, and in particular the discussions contained under Item 1 – Business; Item 1A – Risk Factors; Item 3 – Legal Proceedings; and Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations, and our most recently filed Quarterly Report on Form 10-Q, and in particular the discussions contained under Part I, Item 2 – Management's Discussion and Analysis of Financial Condition and Results of Operations; Part II, Item 1 – Legal Proceedings; and Part II, Item 1A – Risk Factors, as well as the company's other filings with the Securities and Exchange Commission. The company is not under any duty to update any of the forward-looking statements after the date of this report to conform to actual results, except as required by applicable law.

At Jacobs, we're challenging today to reinvent tomorrow by solving the world's most critical problems for thriving cities, resilient environments, mission-critical outcomes, operational advancement, scientific discovery and cutting-edge manufacturing, turning abstract ideas into realities that transform the world for good. With \$14 billion in revenue and a talent force of approximately 55,000, Jacobs provides a full spectrum of professional services including consulting, technical, scientific and project delivery for the government and private sector.

Visit jacobson.com and connect with Jacobs on Facebook, Instagram, LinkedIn and Twitter.



©Copyright 2022 Jacobs. All rights reserved.
05/21 v1.0



Aligned with the United Nations Sustainable Development Goals (UN SDGs), PlanBeyondSM is our approach to sustainability — planning beyond today for a more sustainable future for everyone. We advance innovations that improve energy efficiency, resilience, conservation, reuse and reclamation of vital air, land and water resources.



As part of Jacobs' sustainability strategy, PlanBeyond, this is a 100% digital document, no copies were printed.