Jacobs' Climate Risk Assessment FY21

Jacobs

Challenging today.
Reinventing tomorrow.

Contents

1. Introduction

1.1 Overview

Jacobs is committed to ensuring our people are aware of the risks and opportunities related to climate change. This disclosure provides further information to inform business planning and strategy and to adapt how we design our operations, products and solutions to meet the challenges of the future and create a resilient business.

Failure to act on climate change is in the top five global risks in the World Economic Forum's Global Risks Report 2021 for the ninth consecutive year. Climate-related risks including extreme weather and biodiversity loss also rank highly by their likelihood and consequence.

Climate risk and resilience pose an urgent and important risk factor for Jacobs and our clients, and our investors have confirmed their increased focus on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). As a supporter of the recommendations, we have made four commitments in our Climate Action Plan, as shown in **Figure 1**, that we continue to meet through this updated disclosure.

This FY21 disclosure follows an assessment of the climate-related risks and opportunities to Jacobs' global markets. For the first time, we have estimated the potential financial impact of these risks and opportunities. Here, we summarize our approach and findings and set out the next steps we will take so that, along with our clients, we continue to mitigate risks from climate change, facilitate the transition to a low carbon future and adapt our business to be more resilient and to thrive.

Figure 1: Recommendations from our FY20 disclosure, committed to in our 2020 Climate Action Plan, and which we continue fulfilling through this FY21 disclosure

"At Jacobs, we believe that climate change and adaptability must be embedded at the heart of how we operate and the solutions we provide to our clients across all markets. We support the recommendations of the Task Force on Climate-related Financial Disclosures and are taking steps to understand our key climate risks and opportunities to decarbonize and transform our economies. We are committed to help the world move to a low carbon future and to provide equal opportunity for advancement for all. Understanding climate risk is the first step in helping us define those pathways."

Steve Demetriou

Chair and Chief Executive Officer

1.2 Progress since FY20 disclosure

Jacobs' FY20 disclosure outlined how we are bringing climate uncertainty into the mainstream of business planning and project delivery. **Figure 2** highlights how we have progressed in the past year in four main areas of business operation around which the TCFD is structured:

- **Governance:** Our governance around climate-related risks and opportunities
- **Strategy:** The actual and potential impacts of climate-related risks and opportunities on Jacobs' business, strategy and financial planning
- **Risk Management:** The process we use to identify, assess and manage climate-related risks
- **Metrics and Targets:** The metrics and targets we use to assess and manage relevant climate-related risks and opportunities

Governance

- Climate-related risks and opportunities are integrated into our Enterprise Risk Management (ERM) processes, led by our Senior Vice President, ERM. The PlanBeyond Executive Steering Committee has oversight responsibilities for our Climate Action Plan. Regular updates are reported to the Board by Jacobs Chair and CEO. A new Board Committee for ESG (Environmental, Social and Governance) and Risk was formed in April of 2021

Strategy

- Global market leaders engaged in an assessment of the strategic climate-related risks and opportunities to inform business adaptation and resilience
- Developed a global Energy Transition Strategy and appointed a senior-level Global Energy Transition Leader. Investments in this area will accelerate client solutions and market share

Risk Management

- Created and deployed Jacobs' Climate Risk Manager tool to assess climate-related risk to our offices and major projects
- Climate risk embedded in ERM framework. ESG (and climate) identified as a top risk area and subject to ongoing management and oversight

Metrics & Targets

- First annual report to the Sustainability Accounting Standards Board framework (SASB)
- Achieved our Climate Action Plan commitment to 100% renewable energy for our operations and net zero carbon for our operations and business travel in 2020

Figure 2: Progress in each TCFD area since our FY20 assessment

1.3 Approach to FY21 disclosure

The assessment was led by Jacobs' TCFD Steering Group — a group of climate risk experts from across our global operations and Sustainability Centre of Excellence. **Figure 3** summarizes how our approach meets the TCFD recommendations. At the strategic level, we held a series of structured discussions with our Global Market Directors to deliver an initial assessment of the climate-related risks and opportunities. For each market, we estimated the broad financial value of material climate impacts we could experience by 2050, under contrasting climate scenarios. We deployed our Climate Risk Manager tool to assess 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 follows methods used by our climate risk specialists with our clients.

*We are committed to becoming **carbon negative for our operations and business travel by 2030**. Our Science Based Targets for direct, indirect and supply chain emissions are in place to ensure we get there.*

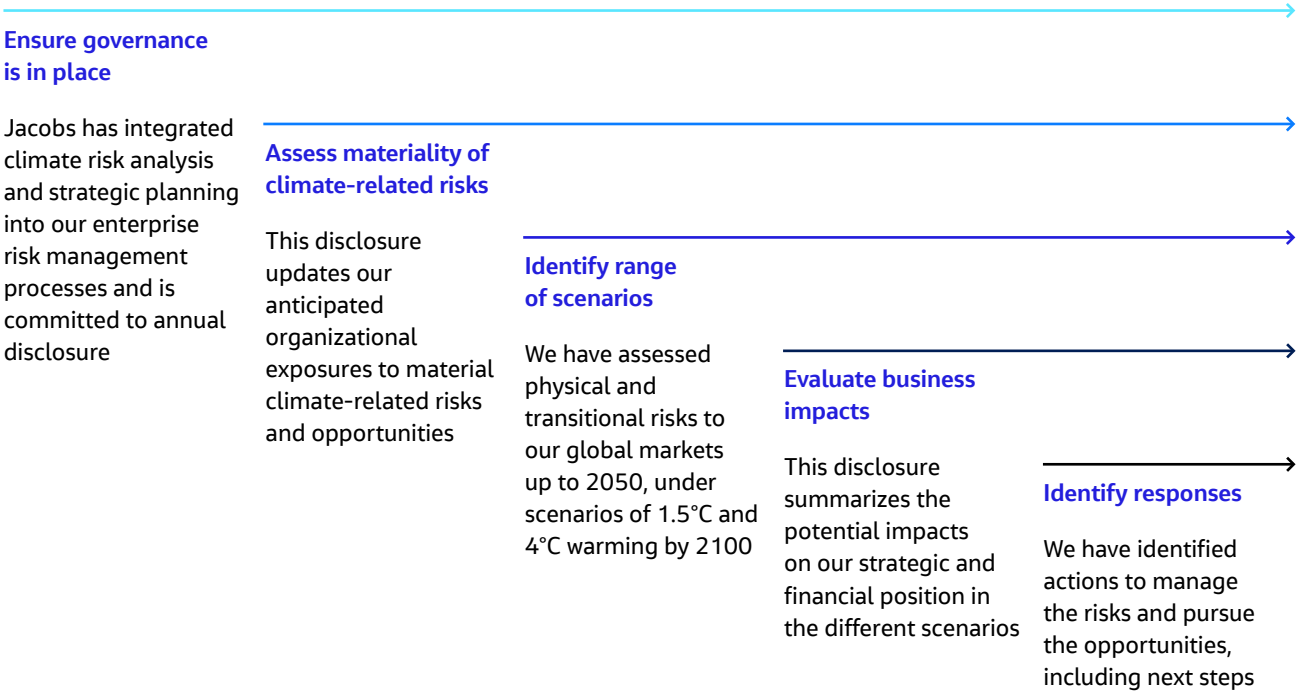


Figure 3: How we implement the TCFD recommendations for climate risk analysis, governance and disclosure

2. Assessing climate change impacts

2.1 Governance of climate-related risks and opportunities

We recognize the need for immediate action to mitigate and adapt to the physical and financial impacts of climate change. We also aspire to be an industry leader in sustainability and Environmental, Social and Governance (ESG) operation and reporting. ESG is overseen by our Board and Executive Leadership Team. Climate-related risks and opportunities are integrated into our Enterprise Risk Management (ERM) processes. We have a governance structure designed and maintained to protect our business for the long-term.

2.2 Materiality of climate-related risks and opportunities

Figure 4 summarizes the characteristics of climate-related risks and opportunities to Jacobs that we used to structure engagement with our Global Market Directors. We focused on the risks and opportunities arising from the projected physical impacts of climate and transitional impacts potentially resulting from market and technology shifts. We considered two scenarios which would result in global temperature rises of 1.5°C or 4°C by 2100, and have focused on the impact of these diverging trajectories for the period to 2050. The physical impacts will be similar under both scenarios to 2050, whereas the market and technology shifts needed to transition towards 1.5°C and net zero emissions by 2050 will be significantly greater than if growth in emissions continues unabated.

Our passion and commitment ***to take action*** *on climate change comes from our leadership and our 55,000 employees who, together, are pushing the limits of what's possible to make the world smarter, more connected and more sustainable.*

Market and Technology Shifts

The degree to which the global economy transitions to a low carbon future in a 1.5°C scenario will drive demand for low carbon energy, industrial processes and infrastructure and the application of "smart" data-driven technologies. Other shifts will occur under both 1.5°C and 4°C scenarios, with demand for resilience services for human and natural environments, urbanization, population growth, quality of life expectations and developments in digital technologies.

Reputation

Our reputation is influenced by delivery performance, client engagement, innovation, price (of our labor and projects), regulatory compliance and risk management. Reputation with external and internal stakeholders will be increasingly influenced (particularly under 1.5°C) by our values and practices regarding low carbon transformation.

Policy and Legal

Policies are expected to diverge sharply between scenarios, with divergence mainly relating to the extent to which low carbon transitions are driven. Some jurisdictions and clients will advocate for the transition regardless. Climate change-related litigation and policy advocacy and regulatory support for climate resilience is expected to be a feature of both scenarios.

Physical Risks

Significant risks under both scenarios will be driven by increased temperature, storm and rainfall intensities, sea level rise and the frequency and intensity of extreme events. The types of change are similar under both scenarios, but will be more severe under the 4°C scenario, particularly beyond 2050.

Figure 4: Materiality of climate-related risks and opportunities to Jacobs' business

2.3 Climate scenarios

We have used scenarios of 1.5°C and 4°C temperature rise by 2100 (**Figure 5**) to explore our climate risks. These are based on the Intergovernmental Panel on Climate Change (IPCC) greenhouse gas emissions scenarios termed RCP2.6 ("Paris Agreement") and RCP8.5 ("Business as Usual"), respectively. The severity of the physical effects is much greater under the 4°C scenario during the latter half of the century (and beyond), but the impacts associated with the 1.5°C scenario should not be underestimated. The 1.5°C scenario would be enabled by global alignment for rapid decarbonization of industry and society which is absent from the 4°C scenario. In our focus period to 2050, the physical impacts of both scenarios will be similar while the primary difference is the market and technological shifts in the 1.5°C scenario arising from the global transition to net zero.

	Paris Agreement 1.5°C	Business as Usual 4°C
	Greenhouse gas emissions are sharply and urgently reduced and global temperature by 2100 increases by no more than 1.5°C above pre-industrial levels.	**Emissions continue to rise on the current trajectory, leading to a global average temperature increase of around 4°C above pre-industrial levels by 2100.**
Climate mitigation policy environment	Strong, stable and globally consistent	Weak, with policies contested and variable between nations and corporations
Climate adaptation environment	Zero carbon transition strongly incentivized across economic sectors and societies. Increased investment in renewable energy, hydrogen, energy storage and zero carbon R&D, leading to widespread adoption and economies of scale that reduce costs of adaptation	Development and uptake of low carbon technologies are uneven, but generally slow and more expensive as economies of scale are not realized
Resilience expectations	Stringent expectations for climate risk disclosure. Enhanced market and regulatory scrutiny of sustainability and resilience performance	Adaptation and resilience incentivized by governments, including through regulation
Global resources	Energy, water, food production linked to circular economies within cities and societies	Access to climate-constrained resources (e.g. water, developable coastal land) highly contested and possibly highly regulated
Social cohesion	Societies with carbon-dependent economies restructure or decline	Geopolitical instability follows resource insecurity and natural disaster events and generates climate refugees. Global society fragmented, with development pushing in different directions and at differing rates
Economic growth	Coordinated action towards implementing a low carbon economy maintains growth despite rising impacts of hazards	Natural hazard impacts divert capital from strategic goals towards restoration and recovery. Economic growth is slowed and perhaps reversed
Environment	Markets for ecosystem services drive restoration and resilience of natural environments	Pollution and failure of natural systems require manufacturing of food and water
Technology	Smart cities/buildings/farming systems (etc), with real-time monitoring, forecasting and adaptive management	
Business impacts	Climate-related disruptions to supply chains and project delivery. High employee expectations of employers' alignment of values, business processes and performance with zero carbon transition	Supply chains and project delivery highly disrupted by climate hazards

Figure 5: Changes in policy, regulation, technology and markets that influence Jacobs 1.5°C and 4°C scenarios

Our Potential World in 2100

Jacobs' TCFD climate scenarios

Inspired by the Intergovernmental Panel on Climate Change

Jacobs is a signatory to the United Nations 'Business Ambition for 1.5°C' — an urgent request for action, calling on businesses to set ambitious science-based emissions reduction targets aligned with limiting global temperature rise to 1.5°C above pre-industrial levels.

2.3.1 Evaluation of business impacts

> *"Business plays a vital role in helping to achieve the transition to the net zero carbon economy. We are proud to be part of the global movement of leading companies taking climate action in our operations and working with our clients and partners to help limit global warming to 1.5°C."*
>
> **Zoe Haseman**
> Jacobs' Vice President Global Sustainability

2.3.2 Risks to our global markets

The following sections use illustrations from across our markets to highlight potentially significant risks to Jacobs and opportunities for our future. Our response to this analysis of possible future scenarios and associated financial quantification is summarized below in Section 2.5.

Disrupted Natural and Business Environment

Our services and solutions span water, energy, the natural and built environment, transportation, national security, cyber and aerospace. Common to each market could be the direct physical risks that climate poses to infrastructure, through chronic changes like rising sea level and temperature and acute events such as hurricanes, droughts and wildfires. Rising seas and coastal storms could impact infrastructure near the coast, floods present growing risks particularly in urban areas and more extreme high temperatures could impact people, the built environment and food production, as well as driving more wildfires. Physical impacts could reduce the lifetime of infrastructure or increase asset failure. The strain on infrastructure and the environment could become apparent through an increase in hazardous spills, poor water quality and loss of biodiversity. Physical disruptions to our clients and their supply chains could affect demand for our services. Domestic and security concerns of climate change could cause governments to divert funding away from some of our major programs.

Increasing Costs and Reactive Responses

Infrastructure owners could face increased costs to maintain assets, with reduced profitability and fewer resources for strategic investment. This may reduce focus on environmental improvements. Increasing temperatures and flooding may exacerbate chronic health conditions like asthma, expand the range of infectious diseases and worsen mental health. The rising frequency of extreme events is already impacting environmental and health systems. Health sector clients are likely to be under pressure to provide a new standard of excellent care despite the challenges from climate and the need to reduce their substantial carbon footprint. Whether or not the global economy transitions to a low carbon future, we anticipate a rise in costs. This could harm adaptation and exacerbate social inequalities.

Electrification is anticipated as a primary driver of the transition to lower carbon and this could render current transportation facilities and systems obsolete, incurring costs to adapt to new technologies and requiring significant numbers of newly skilled resources to be available. The rapid adoption of new technology could be challenging and poses risks of systems not functioning properly. Climate change could lead to more extreme and diverse weather patterns across global regions, and it may become more difficult to develop standard solutions in some markets (e.g. built environment), which will increase overall costs.

Cascading Impacts Lead to Instability

Climate change is not generally a source of new risk in the water market, but an amplifier of existing risks. If water resources become scarce in a region, significant volumes of water may have to be moved and water security could grow as an issue. Extreme weather could further impact water and wastewater systems through higher peak flows requiring treatment and via the cascading impact of disrupted power supplies. Rising seas and pressure on water supplies may lead to geopolitical instability, population movement and increased pressure on national security. Urban areas are particularly vulnerable to failure of interconnected systems and a cascade failure of the built environment. Disruption of transport systems may increase with extreme weather events, which would threaten their safety and reliability. Varying geographical impacts could lead to routing and capacity changes with some infrastructure relocated to less vulnerable locations.

Policy or Regulatory Uncertainty

Clients with a significant operational or market-based reliance on fossil fuels may find the transition to low carbon energy particularly challenging. Nuclear may not be considered by governments as "clean energy" and, therefore, not included in some countries' low carbon energy mix. Ongoing uncertainty in policies such as this could delay or harm broader adaptation. More broadly, any group of stakeholders may fail to collaborate and find cross-market solutions to transition to a low carbon future. Even within a client's organization, there is the risk that climate change projections and the need to transition the business are not accepted, supported or funded. A stable regulatory environment and framework articulating future direction would allow our clients to undertake an orderly transition to manage risk. If this is not the case, our clients would not be able to forecast, anticipate and quantify their future requirements. The longer adaptation is left, the more costly it will become.

Jacobs' Need to Adapt

To maintain our position of technical leadership, we must continue to use the best available climate science and innovative solutions so that our services help our clients become more resilient and adaptive. Inadequate climate resilience in our projects could lead to reputational damage, increased insurance costs or legal liability. In this challenging global environment of anticipated rapid change, we must transition our business and global workforce to have appropriately skilled people available across a wide array of technical disciplines to assist our clients.

2.3.3 Opportunities for our global markets

Challenging Today, Reinventing Tomorrow

For an agile business, risks can present opportunities. We already help our clients become climate resilient and our reputation for leadership could grow further as we increase this focus. Our cross-market expertise combined with services from early strategic planning to delivery and operations can differentiate us from many of our competitors. Opportunities to bring sectors together to co-create solutions will increasingly drive Jacobs to serve as an integrated, interdisciplinary solutions provider.

Risk Assessment Underpinning Innovative Solutions

Opportunities often begin with climate-related risk assessment. For example, investment is increasing to strengthen national security. National security estates may require substantial investment to make them resilient to weather and climatic extremes. The land could offer opportunities for carbon sequestration and siting of low carbon energy hubs. There may be significant carbon emissions to offset even after development of low carbon assets. More contaminants could be mobilized from land at greater risk of flooding and erosion, however there are opportunities to shift remediation technology to natural treatment systems. Assets and the environment require more effective management, uncertain futures require adaptive approaches, and all must be achieved using net zero carbon in parallel to the rapidly evolving technology and policy. This illustrates the complexity of projects we can provide solutions for as we address extremes and interdependencies.

Integrated and Sustainable Solutions

Our built environment business could facilitate a low carbon transition through innovative urban planning, building design and operation and use of space. Because of the breadth of our services, Jacobs provides assessments to steer compliance to complex environment, health and safety requirements, and advise on emergency response. Our integrated planning for adaptation and resilience means we already provide emergency planning and preparedness services across many sectors. Some major health systems aim to become carbon neutral in the next 5-10 years, rethink sources and uses of power, make infrastructure more resilient to extreme weather events and pursue creative partnerships for funding. We can work with health systems to maintain business continuity through risk assessments and simulation modeling of supply chains, manufacturers and infrastructure.

OneWater

For the third consecutive year, *Engineering News Record* has ranked Jacobs No. 1 in its list of top 500 design firms in the world, which includes many of our water sectors. We were also recently confirmed as the leading environmental consultancy in the U.K. and continue to sustain our top-tier status in the broader global environmental market. Supporting water clients to adapt and become more resilient provides us with more opportunity to promote our OneWater approach. This includes digital technology to manage whole water systems, incorporating alternative supplies through reuse and desalination, planning facilities to recover resources from wastewater, using renewable energy in treatment and promoting green infrastructure to manage stormwater and provide multiple benefits.

> *Jacobs' OneWater initiative is based on all water having value, water challenges being interconnected, and providing water solutions that are sustainable, inclusive and equitable.*

Transport to Keep us Connected

Decarbonization will demand significant changes to the world's transportation systems and we can advise throughout project lifecycles from initial planning through construction. For example, we are incorporating climate change into asset management programs for our port clients and adaptability into the design of waterfront facilities. We design resilience into all assets, including transportation infrastructure, extending their useful life and reducing waste and carbon. Some assets may literally be extended (e.g. runway lengths in response to rising temperatures) whereas new infrastructure may be required elsewhere (e.g. rebuilding of coastal transport assets that serve as critical evacuation routes at higher elevations).

Clean Energy Transition

It is forecast that over **$100 trillion** will be spent in the global energy sector between now and 2050 to mitigate emissions and limit temperature rise to within 1.5°C. If nuclear is integrated into a low carbon energy portfolio, then we could see significant investment far into the future. Alternatively, nuclear may be developed as a transitional source between fossil fuels and renewables. Cleaning up nuclear waste could be an important opportunity for Jacobs that could influence the future of the industry. Potentially significant opportunities in the renewable energy market range from offshore wind development to shipping terminals for hydrogen. Our asset level decarbonization initiatives could be scaled up to net zero districts and cities.

Jacobs' global Energy Transition Strategy will support the global transition from fossil-based systems of energy production and consumption to deliver clean and sustainable energy. It extends our ability to deliver a positive and enduring impact for the clients and communities we serve and presents a significant business growth opportunity for Jacobs.

Jacobs

2.3.4 Project analysis

We analyzed nearly 100 major projects and programs (fees typically greater than $10 million) across our markets using our Climate Risk Manager tool. Projects are located in our major geographies including North America, the Middle East, Europe and Australia, and have legacy lifetimes ranging from 10 to 100 years. The projects are exposed to a range of climate hazards including sea level rise, storms, extreme temperatures and drought. The potential impacts of these hazards on our projects were assessed with respect to a range of objectives, including: health and safety (e.g. poor air quality from wildfires and risk to life from flooding), the environment (e.g. increased wastewater spills from floods, low waterbody levels), reputation (e.g. compliance failures from more extreme events) and finance (e.g. litigation for insufficiently resilient solutions). Major projects in complex urban and rural areas are at risk of cascading disruption through the interconnected systems which would exacerbate these consequences. Increased costs faced by our clients could result in reduced future project spend with Jacobs.

Projects and programs were assessed under our 1.5°C and 4°C scenarios, with overall project risk classified on a scale from low to extreme risk (**Figure 6**). Because of our built-in focus on resilience and mitigation of climate risks, relatively few projects face high or extreme climate risks, even in the 4°C scenario. For most projects, the risks were similar or higher in the 4°C scenario. While climate risks in the projects have been strategically reduced, there remain some unacceptable risks to Jacobs, our clients and communities and there are residual risks that require ongoing monitoring. In line with our market level assessments, we have identified opportunities for more resilient solutions and low carbon infrastructure in several projects and will continue to develop adaptation strategies and action plans to realize our climate-related market opportunities.

CLIMATE-RELATED RISK TO MAJOR PROJECTS AND PROGRAMS ANALYZED

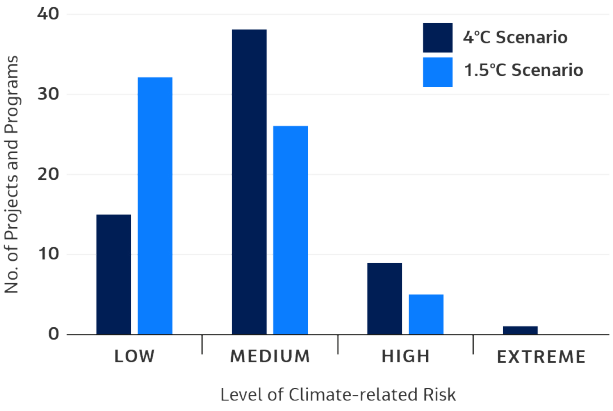


Figure 6: Summary of the climate risk assessment for a selected population of Jacobs major projects and programs

A Global Climate Risk Assessment Tool: What if…

Assets are typically designed to have a useful life of greater than 50 years and climate impacts on the built environment will vary by global region. We have access to global datasets projecting key parameters (e.g. sea level rise, temperature, rainfall) out at intervals beyond the anticipated life of assets. Together with our partner CLIMSystems, we developed specific climate models for the locations of the FIFA World Cup Qatar 2022™ and the Expo 2020 Dubai. These consider temperature, humidity, precipitation, wind, sea level, solar exposure etc. Blended weather files were created from past data and climate projections so that energy and water modeling, as well as all supporting analysis, led to assets that are designed for future weather impacts. This global data is embedded in our Climate Risk Manager tool which is available for clients to assess the exposure of a global portfolio of assets to climate.

Climate Risk Manager℠
by Jacobs

2.3.5 Office analysis

We used our Climate Risk Manager tool to assess the risks to our offices and people (**Figure 7**). Each location was assessed for its exposure to multiple individual climate hazards as well as their combined hazard in the present day, and then in intervals out to 2100. Offices with larger circles are predicted to have the greatest exposure, with the color of the circle identifying the primary hazard(s). Notable clusters of high exposure lie along the eastern seaboard of the U.S. and coastal locations throughout Asia and the Pacific which are exposed to a combination of extreme wind and other hazards including sea level rise. Inland locations through the U.S., Europe, Middle East and Asia-Pacific are primarily exposed to drought and other hazards including extreme wind. We will incorporate this information into our climate risk mitigation strategies and business continuity plans.

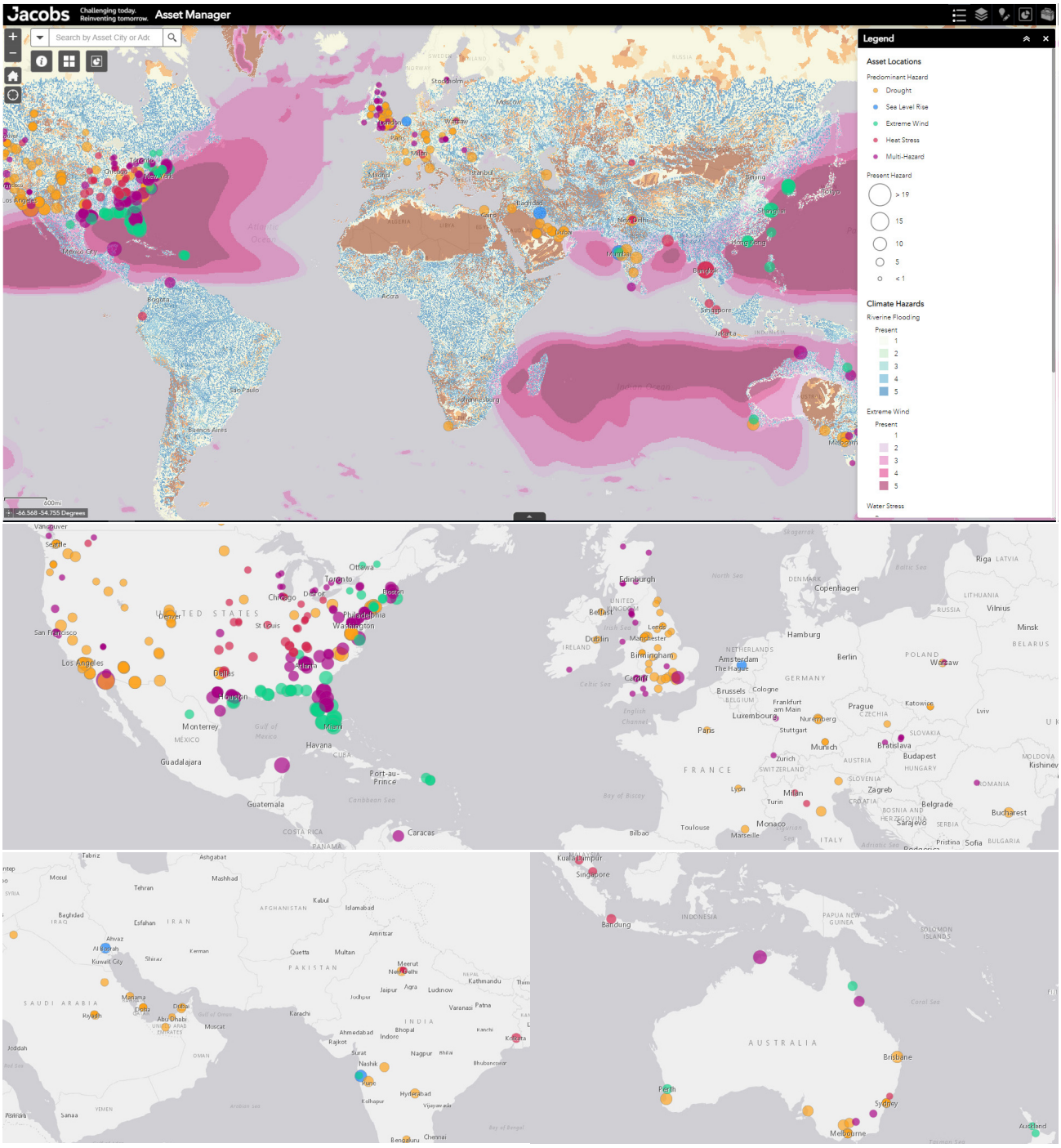


Figure 7: Jacobs offices with estimated exposure to climate hazards

2.3.6 Financial quantification

The quantification of the potential future impact of climate change set forth below is based on currently available information, estimates and assumptions. Such figures should not be interpreted as performance forecasts for our business in future periods. Rather, they represent a range of potential risks and opportunities of various potential climate change scenarios to our business and the markets in which we currently operate. See "Cautionary Note Regarding Forward-Looking Statements" at the end of this report for a discussion of the risks associated with such forward-looking statements.

Climate change presents risks and opportunities across all our markets which show a high degree of interconnectivity. We focused on quantifying impacts up to 2050, conscious that the differences in 1.5°C or 4°C global trajectories will largely mean different transitional impacts for our business by the middle of the century. If we follow a 4°C trajectory, most of our markets could endeavor to continue as usual towards 2050. In this scenario, we 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. **Figure 8** illustrates the balance of risk and opportunity identified to our markets using the example of our environmental end-market in the 1.5°C scenario. The analysis indicates that, on balance, climate-related impacts in the 1.5°C scenario provide net opportunities for Jacobs.

The summary of key markets in **Figure 9** shows that, under a 1.5°C scenario, the size of the net market opportunities to Jacobs by 2050 could be in the billions. The most significant opportunities are anticipated in our water market, as well as in National Security, Built Environment, Transitional Energy and Transportation (detail in **Figure 10**). The forecast business opportunities assume we will adapt to meet the needs of our clients in best managing risk from climate change.

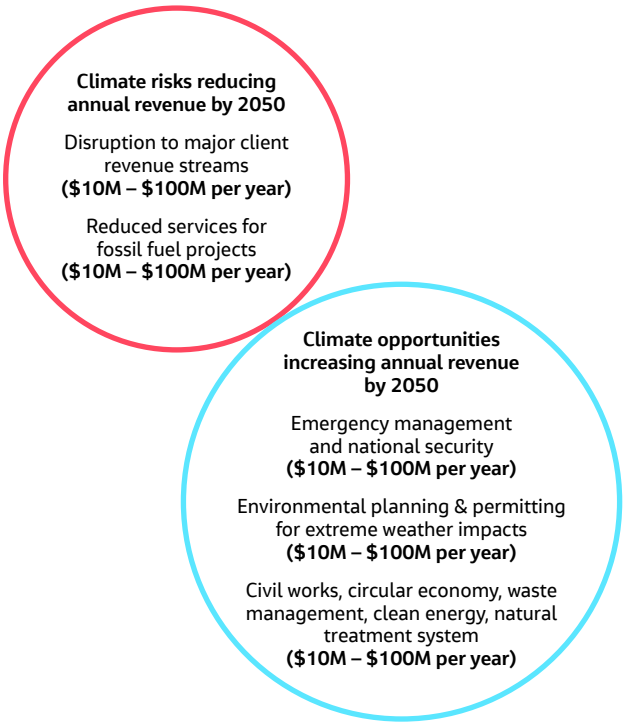


Figure 8: Climate change presents risks and opportunities to our environmental end-market, with opportunities outweighing the risks

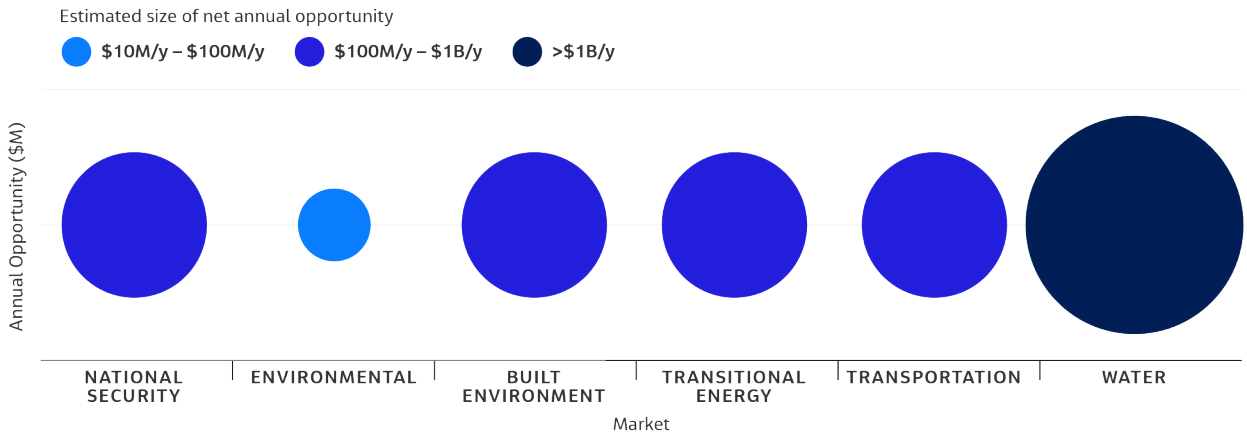


Figure 9: Summary of net impacts on Jacobs' markets in a 1.5°C scenario, where market opportunities arise from the need for resilience to physical impacts and adaptation to align with the global low carbon economy transition

Water

A significant backlog to help clients adapt means opportunities are relatively certain to continue for decades. By 2050, industrial, drinking & wastewater sectors could each present opportunities of up to $100M, with opportunities in water resource and conveyance sectors of up to $1B each.

Built Environment

Substantial anticipated opportunities to incorporate resilience at all scales from individual assets through to interconnected city systems. Our health sector, for example, could see opportunities grow up to $100M annually from a global health market valued at $12T over the next five years.

National Security

Our services for national security clients in the U.K. and U.S. could experience total opportunities of up to $1B as we improve the resilience of estates and infrastructure, and transition assets to zero carbon.

Focus on Transportation

Our transport market comprises Aviation, Bridges, Highways, Ports & Maritime, Transit & Rail and Transport Planning. Total annual revenue currently approaches $3B. Despite an anticipated reduction in airport traffic by 2050, a net annual opportunity in Aviation of up to $100M is foreseen over the next 20 to 30 years, as a result of decarbonization services and civil works to airport infrastructure. For Bridges, climate risks could mean less investment in infrastructure but, on balance, asset replacement and new builds, as well as requirements for carbon efficient solutions, suggests a net annual opportunity of up to $10M. The Ports & Maritime sector is expected to see up to $100M in annual opportunities by 2050 for climate-related risk assessments and planning, flood resilience and offshore wind. Risks to Transport Planning are from disruptions to infrastructure delivery, but this investment is likely to be redirected into resilience planning. Therefore, the sector could see up to $100M in opportunities. Highways and Transit & Rail are two of our largest transport sectors and face risks from storms, rising sea levels, wildfires, lack of investment and uncertainty in policy and targets. However, if these are mitigated, low carbon infrastructure, hydrogen/ battery technology, electrification and wider design changes for climate mitigation and resilience indicate net annual opportunities across both sectors of up to $1B. Our transport market could see an increase in opportunities of up to $1B per year by 2050, assuming the market transitions to a low carbon economy and Jacobs is ready to deliver the required services.

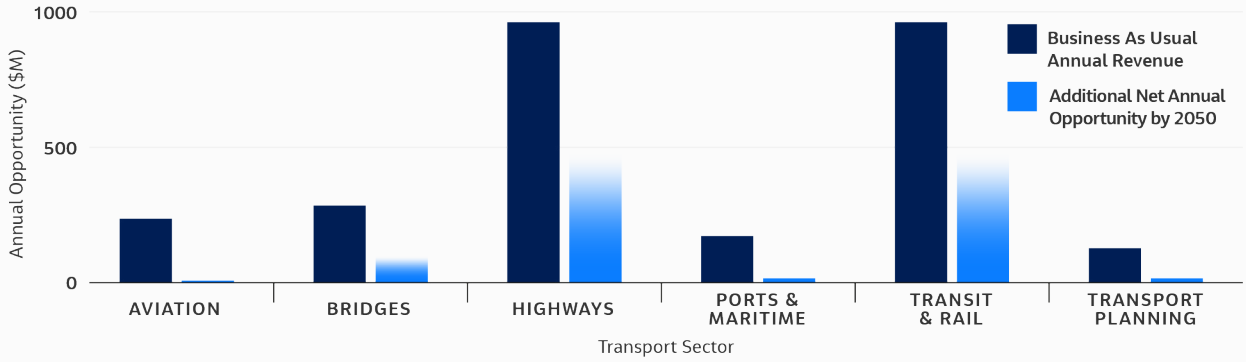


Figure 10: Breakdown of additional anticipated net climate-related opportunities in Jacobs' transport market, if the global economy transitions to net zero and Jacobs is ready to deliver the required services

2.4 Our response to significant risks and opportunities

Analyzing our markets under contrasting climate scenarios has revealed common themes and specific insights that have allowed us to estimate the value of financial impacts to Jacobs, and will help us and our clients to adapt and become resilient to future change. The greatest risks and opportunities to Jacobs are summarized in **Figure 11**. The following four main actions will manage the identified risks and position us to capture the opportunities at the appropriate level, from those requiring strategic review of our business and markets through to improved project-level consideration of climate change:

- **Integrate climate risk analysis into company strategy and planning.** Communicate the risk and opportunity findings and use to steer our agility, leadership and market positioning for the short, medium and long-term. Markets will move at different rates over the next 30-year transition period and we must maintain the foresight and resource availability to provide clients with appropriate support. Regional variations in climate and other drivers of growth may mean we service new clients and clients in new geographies.
- **Deploy climate risk assessment technology on all major pursuits and projects where climate risk is considered material.** Jacobs' Climate Risk Manager tool enables rapid analysis of future physical impacts to any global project site. We will embed this tool and supporting analysis in our major project planning and delivery where the risks and opportunities are likely to be material.
- **Support our clients and major suppliers to undertake their own climate risk assessments, in line with TCFD recommendations.** In some regions, data on physical climate impacts can be difficult to obtain. Our Climate Risk Manager tool provides data for clients to make informed assessments of their exposure. This will assist them in fulfilling their requirements under TCFD. It will also highlight where we can add greater value through further risk assessment and response.
- **By 2025, integrate climate risk and adaptation considerations into each of our market sector strategies.** Although all of our markets are impacted by climate risks, the extent and severity of the risks and opportunities vary. Climate change science is rapidly evolving, as are the technologies associated with climate adaptation and low carbon transition. Our climate risk experts will work with our Global Market Directors to develop strategies and actions plans to ensure these factors are integrated into the market strategies and these will be reviewed annually.

> *"Firms that align their business models with the transition to a net-zero world will reap handsome rewards. Those that fail to adapt will cease to exist. The longer meaningful adjustment is delayed, the greater the disruption will be."*
>
> **Mark Carney**
> The Economics of Climate

Our greatest opportunities arise from

- Leveraging our global cross-market and end-to-end expertise to lead clients from climate risk assessment through to innovative, low carbon, resilient and adaptive solutions for complex challenges
- Leading clients to adapt early and develop integrated and sustainable solutions, including emergency planning
- Delivering OneWater solutions, including digital management, desalination and energy from wastewater
- Decarbonizing transport through extending the sustainability of some assets as well as designing new climate-resilient assets
- Supporting energy clients' transition from fossil fuels to renewables, as well as nuclear technology

Our greatest risks arise from

- Failure to transition the business and workforce to service new and rapidly changing low carbon markets, and grow the business to meet increased demand for emerging skillsets
- Disrupted demand for our services and solutions, either as clients' businesses are disrupted or as national priorities divert funding away from markets
- Rising costs of safely conducting business lead to delays, reactive decisions and fragmented business as regional differences are exacerbated
- Cascading impacts leading to a more uncertain business environment which is at risk of sudden shocks
- Uncertainty in policy and regulatory direction leading to delays in client investment in resilience and adaptation and sudden shifts in markets
- Projects fail because of inadequate climate resilience, leading to increased insurance costs or loss of cover, legal liability and reputational losses

Figure 11: Jacobs' greatest business risks and opportunities

Our Environmental market is planning beyond…

The impacts of climate will diverge the further we follow trajectories of 1.5°C or 4°C global temperature rise. Particularly beyond 2050, the services we provide to our clients will depend on which scenario our global emissions lead to. Under a 1.5°C scenario, our services will be focused on decarbonization and sustainability. Under a 4°C scenario, our clients will require greater support around disaster response, recovery and resilience, dealing with unprecedented physical impacts in more geographies. The reality is likely to lie somewhere in-between.

3. Our Disclosures

The sections below represent the recommended disclosure framework put forward by the TCFD. In each of the sections 3.1 – 3.4 we have presented details of the disclosures Jacobs plans to publish in each area.

3.1 Governance

Disclosure	Summary	Links
Describe the Board's oversight of climate-related risks and opportunities	The PlanBeyond Executive Steering Committee has oversight responsibilities of PlanBeyond, including the Climate Action Plan. Regular updates are reported to the Board by Jacobs Chair and CEO. A new Board Committee for ESG & Risk has been approved to meet from July 2021.	2020 Integrated Annual Report Climate Action Plan ESG Data Disclosures Sustainability Strategy Code of Conduct
Describe management's role in assessing and managing climate-related risks and opportunities.		

3.2 Strategy

Disclosure	Summary	Links
Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	This assessment of our key markets has identified material risks and opportunities arising primarily from physical climate impacts and from market/ technology shifts. The financial impacts to individual markets have been quantified and, on balance, indicate a net opportunity for Jacobs up to at least 2050. The opportunities are likely to be greater if the global economy transitions early and in an orderly manner to net zero.	Chapter 2 of this disclosure Sustainability Strategy Climate Action Plan
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.		

3.3 Risk management

Disclosure	Summary	Links
Describe the organization's processes for identifying and assessing climate-related risks.	Climate-related risks and opportunities are integrated into our Enterprise Risk Management processes, led by our Senior Vice President, Enterprise Risk Management. We undertake market-level analysis through structured consultation with our leaders, and project and office-level analysis using our Climate Risk Health-check 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.	Chapter 2 of this disclosure ESG Data Disclosures Sustainability Strategy Climate Action Plan
Describe the organization's processes for managing climate-related risks.		
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.		

3.4 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 process.	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.	Chapter 2 of this disclosure
Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	• Total direct Scope 1 GHG emissions were an estimated 15,237 tonnes CO_2e. After applying carbon offsets our FY20 net Scope 1 emissions are zero tonnes CO_2e. • Total indirect GHG emissions (Scope 2) were an estimated 53,656 tonnes CO_2e. After applying green power purchases and carbon offsets our FY20 net Scope 2 emissions are zero tonnes CO_2e. • Our three largest sources covering approximately 95% of all Scope 3 emissions are business travel, employee commuting and purchased goods and services. Only business travel was reported in FY20 to an estimated total of 53,802 tonnes CO_2e. Screening level emission estimates were completed in FY19 for employee commuting and purchased goods and services, emissions were 88,400 and 86,182 tonnes CO_2e, respectively.	ESG Data Disclosures
Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	• 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. • 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 50% over the same timeframe.	This disclosure Science-based Targets

Jacobs joined the World Economic Forum Alliance of CEO Climate Leaders and is a founding member of the UN Chief Financial Officer Taskforce for the Sustainable Development Goals.

4. Next steps

We are committed to immediate action to mitigate the negative impacts of climate change, through ongoing reduction of our existing net zero carbon emissions for operations and business travel, and influencing the global transition to a low carbon economy through our client solutions.

This FY21 assessment of our global markets and project portfolio has identified that Jacobs faces risks and opportunities from climate change. However, as we align our business to support our clients' transition to a low carbon future, the market opportunities could significantly exceed the risks. We are passionate about our contribution to limiting global temperature rise to 1.5°C by 2100 since this is where our commitment to global sustainability and to a profitable enduring business align.

Beyond our ongoing commitment to reduce carbon emissions and transparency in climate risk assessment, our next steps arising from the climate-related market analysis are shown in **Figure 12**.

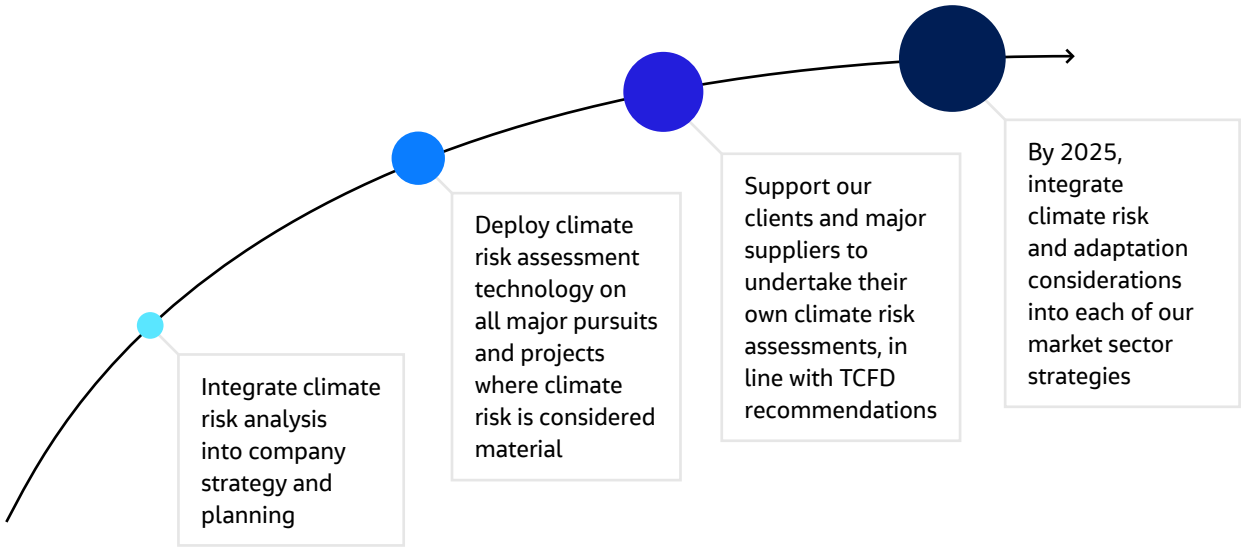
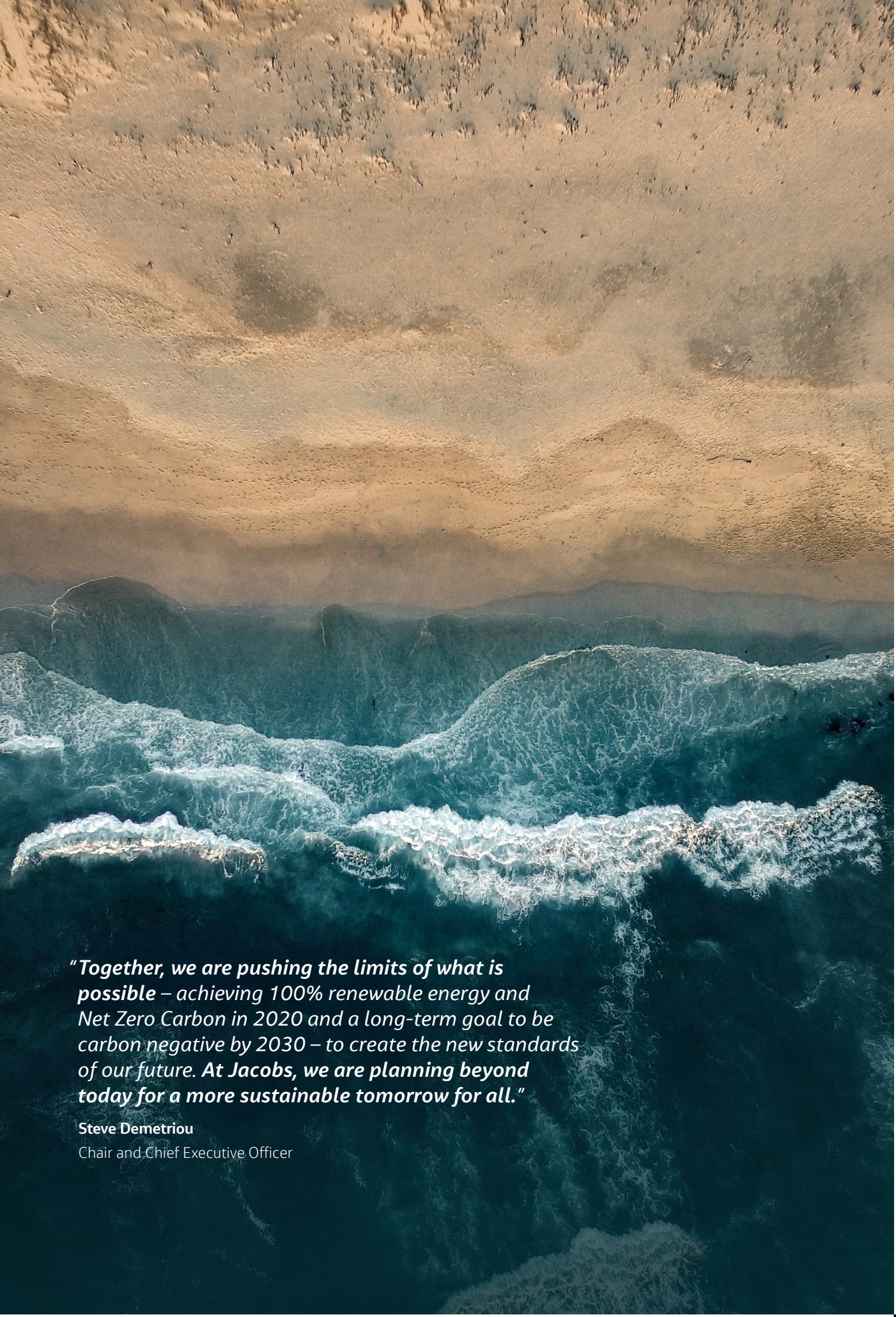


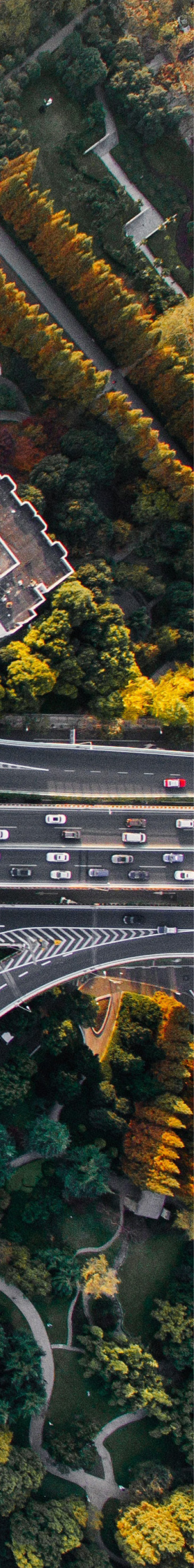
Figure 12: Jacobs' next steps towards climate resilience and adaptation



*"**Together, we are pushing the limits of what is possible** – achieving 100% renewable energy and Net Zero Carbon in 2020 and a long-term goal to be carbon negative by 2030 – to create the new standards of our future. **At Jacobs, we are planning beyond today for a more sustainable tomorrow for all.**"*

Steve Demetriou
Chair and Chief Executive Officer

Jacobs



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 release that are not based on historical fact are forward-looking statements, and 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 and our ability to achieve the goals set forth in our Climate Action Plan. 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 and you should not place undue reliance on such statements as actual results may differ materially. 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, the underlying assumptions used by the Company or third parties to estimate the impact of climate change 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 materially from our forward-looking statements, see our Annual Report on Form 10-K for the year ended October 2, 2020, 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 Quarterly Report on Form 10-Q for the quarter ended April 2, 2021, 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.

Jacobs

Jacobs

Challenging today.
Reinventing tomorrow.

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 **jacobs.com** and connect with Jacobs on Facebook, Instagram, LinkedIn and Twitter.

PlanBeyond℠

Aligned with the United Nations Sustainable Development Goals (UN SDGs), PlanBeyond™ 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.

05/21 v1.0