

The [Task Force on Climate-related Financial Disclosures \(TCFD\)](#) recommendations are structured around four thematic areas—governance, strategy, risk management, and metrics and targets—to help investors and others understand how reporting organizations think about and assess climate-related risks and opportunities.

2022 TCFD INDEX

GOVERNANCE

a. Describe the board's oversight of climate-related risks and opportunities.

Crown Castle's board, including through its committees, oversees climate-related risks as part of its broader annual enterprise risk assessment. The risk assessment process takes place throughout the year at regularly scheduled meetings of the board and its committees. The Nominating, Environmental, Social and Governance Committee (NESG Committee) assists the board in overseeing our environmental, social and governance (ESG) strategies, goals and initiatives and receives quarterly updates from senior management regarding our ESG risks, opportunities, priorities, initiatives and progress toward our ESG goals. The NESG Committee engages in a question-and-answer session regarding the information relayed during the quarterly ESG update and provides feedback to our executive management team (EMT), as they deem necessary or appropriate. Our ESG materials, including our ESG report, the content on our ESG webpage and our ESG materiality assessment, are presented at least annually to the NESG Committee.

Our EMT, which reports on sustainability matters to the board, leads the management and execution of our sustainability priorities within the company. Our Executive Vice President & Chief Financial Officer (EVP & CFO, or "CFO") and the EVP & General Counsel monitor and are responsible for overseeing environmental matters, and our CFO oversees Crown Castle's credit facility and its sustainability-linked key performance indicators. These officers are appointed by the board and report to our President & Chief Executive Officer (CEO) and the board. Other senior-level officers within Crown Castle are also charged with managing specific sustainability matters.

b. Describe management's role in assessing and managing climate-related risks and opportunities.

Senior management proactively assesses and manages climate-related risks and opportunities. Crown Castle's Vice President—Investor Relations and Capital Markets works with an internal ESG Advisor to coordinate company-wide sustainability priorities and to keep senior management apprised of potential climate-related initiatives and opportunities which are identified through dialogue with internal business teams, engagement with shareholders and the investment community, as well as through benchmarking analysis.

Additionally, senior management identifies and evaluates risks (including climate-related risks) based on their potential materiality, the probability and magnitude of the risk and the risk mitigation measures adopted by Crown Castle. Senior management assesses renewable energy investment and energy efficiency opportunities that (1) align with Crown Castle's overall business strategy and business model and (2) support Crown Castle's climate-related priorities and goals. At least annually, Crown Castle's senior management provides feedback to the Vice President—Audit and Security regarding key risks (including climate-related risks, where relevant) faced by their business unit and Crown Castle as a whole.

STRATEGY

- a. Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.**
b. Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy and financial planning.

For the purposes of this analysis, we have defined short-term (“S”) as 0–3 years, medium-term (“M”) as 4–10 years, and long-term (“L”) as 11–30 years.

In the following table, we have summarized the most relevant climate-related risks and opportunities that could impact our business, strategy and financial planning. Our assessment demonstrates that transitional and physical risks are generally immaterial to our business, strategy and financial planning, in large part due to our passive, geographically diversified assets.

Climate-Related Risks

RISK TYPE	DESCRIPTION	POTENTIAL KEY IMPACT(S)	TIME HORIZON	MANAGEMENT APPROACH
Physical Risks				
Extreme weather	Our infrastructure assets could sustain damage from the increased severity and frequency of certain types of extreme weather events or natural disasters.	<ul style="list-style-type: none"> – Increased operating costs – Interrupted or delayed service for our customers – Legal claims or penalties – Damaged or delayed deployment of our communications infrastructure – Disruption in operations – Reputational damage 	M, L	<ul style="list-style-type: none"> – We design our infrastructure to withstand extreme weather events, participate in governmental disaster management programs and conduct weather and disaster simulation tests every six months. – Our network resiliency initiatives are led by our Network Operations Center (NOC) teams, which operate 24/7/365 and monitor and project the impact of extreme weather events. Once assets in harm’s way are identified, the NOC teams drive awareness and coordinate communication among the relevant internal groups, while our field operations teams assess vulnerabilities and devise a plan of action to protect our assets. We strategically mobilize essential supplies and technical teams in advance to equip us for an organized and swift response to the disaster. During and after the event, the NOC manages field operations, ensuring that our Field Operations employees are safe and have access to food, fuel, safety gear and lodging. The NOC dispatches technical teams to address damaged infrastructure and communicates with customers and utilities to share information and coordinate repair activities. – We benefit from the geographically dispersed nature of our assets, which are spread out across the US. – Compared to the value of our asset base, the cost of mitigating damage from extreme weather events is minimal. For the three-year period ended December 31, 2022, Crown Castle spent an amount equal to approximately 0.01% annually of its \$28 billion¹ in property and equipment on repairs and maintenance stemming from extreme weather events.
Wildfires	Effects of climate change have increased risks and extent of wildfires stemming from “hot work” (including cutting, welding and grinding) conducted on certain of Crown Castle’s sites.	<ul style="list-style-type: none"> – Increased operating costs – Damaged or delayed deployment of our communications infrastructure – Legal claims or penalties – Disruption in operations 	S, M, L	<ul style="list-style-type: none"> – We take proactive steps to address and raise awareness of wildfire risks, including additional rigorous risk management protocols for “hot work” at sites in areas prone to wildfires and mandatory training sessions for our teammates and certain general contractors. – Our dedicated teams monitor daily weather conditions and determine which sites require elevated safety protocols throughout the project. Additionally, we created a no-weld structural modification solution which helps mitigate risk from on-site hot work. – 100% of contractors performing hot work on sites with an elevated wildfire risk completed a pre-construction check-in where fire prevention procedures were reviewed and observed live.

1. Gross property and equipment as of December 31, 2022, excluding construction in process.

Climate-Related Risks, cont'd

RISK TYPE	DESCRIPTION	POTENTIAL KEY IMPACT(S)	TIME HORIZON	MANAGEMENT APPROACH
Transition Risks				
Electricity and fuel costs	The transition to a lower-carbon economy could increase electricity and fuel prices and costs of investment in energy-efficient technology and renewable energy.	<ul style="list-style-type: none"> - Increased operating costs 	L	<ul style="list-style-type: none"> - Our electricity and fuel costs are limited relative to the size of the business. This is inherent to our business model of providing access to our shared communications infrastructure. For the year ended December 31, 2022, Crown Castle's electricity and fuel costs accounted for approximately 1.5% of our total cost of operations. - We contracted to source renewable energy across 13 states beginning in 2022, which represents approximately 68% of our 2022 electricity consumption and allows us to receive contracted renewable energy rates for the contract period, reducing our exposure to energy price volatility.
Current and emerging regulations	Existing and future laws and regulations, including those governing climate and environmental matters, could adversely affect our business.	<ul style="list-style-type: none"> - Increased operating costs - Delays in deployment of our communications infrastructure 	S, M, L	<ul style="list-style-type: none"> - We monitor applicable policy and regulatory developments related to climate change and the environment at the local, state and federal levels and create a course of action specific to the area(s) affected, as appropriate. - Recognizing the impact that climate change could have on current and emerging regulations and the market, we are working to reduce our environmental footprint. For example, we have set a goal to be carbon neutral in our Scope 1 and Scope 2 emissions by 2025.

Climate-Related Opportunities

OPPORTUNITY TYPE	DESCRIPTION	POTENTIAL KEY IMPACT(S)	TIME HORIZON	MANAGEMENT APPROACH
Resource efficiency	Upgrade traditional tower lighting systems with LED lighting systems	<ul style="list-style-type: none"> – Energy and carbon savings – Reduced number of site visits and associated fuel consumed by our vehicle fleet 	S, M	<ul style="list-style-type: none"> – Across our portfolio of lit towers where lighting beacons are mandated by law, we have transitioned more than 7,200, or ~60%, to efficient LED lighting to reduce energy consumption. – LED lighting is 90%¹ more efficient as compared to traditional lighting and has a five-times-longer life expectancy, resulting in fewer truck rolls for repairs and replacements.
	Increase in number of fuel-efficient and hybrid vehicles within our fleet	<ul style="list-style-type: none"> – Increased fuel efficiency – Carbon savings 	S, M, L	<ul style="list-style-type: none"> – In the ordinary course of business, we continue to improve the fuel efficiency of our fleet. This may include replacing older vehicles, switching to more fuel-efficient engines, and utilizing telematics and other technologies to reduce idling and improve routing for more efficient operations. – Crown Castle is also exploring opportunities and technologies to decrease fuel consumption or otherwise improve the fuel efficiency of its fleet, including hybrid and electric vehicles.
	Invest in building efficiency upgrades at our owned office locations and new leased locations	<ul style="list-style-type: none"> – Energy and carbon savings 	S, M, L	<ul style="list-style-type: none"> – We seek energy efficiency in our owned and leased offices, with 19 ENERGY STAR-certified, 14 LEED-certified and 3 WELL-certified offices. For new office spaces, we make efficiency improvements a standard practice by installing LED lighting and water-efficient faucets and commodes. – In early 2023, we achieved LEED certification on our owned corporate headquarters building in Houston, TX. – Our water consumption and waste generation primarily result from our office-related operations. We are taking steps to conserve water and reduce the amount of waste that ends up in landfills. Our current waste reduction initiatives across offices include using recyclable materials, digitizing operations and donating old materials to reduce life-cycle impacts. Our current water efficiency initiatives include selecting drought-tolerant native species for landscaping, using zoned and timed sensors to reduce water use, using reclaimed water for landscape irrigation, and installing energy-efficient appliances and fixtures in connection with our new office buildouts and renovations.
Energy source	Increase use of renewable energy	<ul style="list-style-type: none"> – Energy and carbon savings 	S, M	<ul style="list-style-type: none"> – We currently source renewable energy across 13 states, representing ~68% of our 2022 electricity utilization. In early 2023, we increased our percentage of renewable energy to a projected 85% by supporting the development of a 50 MW solar farm, which is set to be operational later in the year, and procuring renewable energy contracts from a newly built 300 MW wind farm. This percentage was calculated using approximately 144,000 MWh of renewable energy contracted for 2023 compared with projected 2023 annual consumption of approximately 168,000 MWh. – By 2025, we are aiming to achieve 100% renewable energy in support of reaching our goal to be carbon neutral in Scope 1 and 2 emissions.

1. According to internal estimates.

RISK MANAGEMENT

a. Describe the organization's processes for identifying and assessing climate-related risks.

We identify and assess climate-related risks in connection with our broader enterprise risk assessment. When evaluating the materiality of climate-related risks in relation to other risks, the board and senior management consider (in no order of priority): (1) with respect to both transition and physical risks, (a) the financial impact (considering insurance coverage and availability of capital, as applicable) and (b) input from key stakeholders, and (2) with respect to physical risks, the extent of (a) potential damage and necessary repair activities resulting therefrom and (b) any disruption to operations and the ability to support our customers.

In the case of extreme weather events, Crown Castle's NOC teams, which monitor extreme weather events, keep senior management apprised of the projected impact of impending extreme weather events, and the actual impact once Crown Castle's technical teams have had an opportunity to assess the resulting damage. Additionally, other business teams keep senior management informed of the short- and long-term financial implications of such events, and the financial implications of any regulatory compliance or significant shift in sentiment from key stakeholders stemming from transition risks.

b. Describe the organization's processes for managing climate-related risks.

Management of Physical Risks

Crown Castle's resiliency efforts play a key role in managing physical risks. Through disaster preparedness protocols and training; periodic assessments of Crown Castle's infrastructure; design and deployment considerations and network resiliency initiatives, we are able to reduce the extent of our exposure to such risks.

Company-wide engineering practices contribute significantly to the resilience of Crown Castle's assets to extreme weather events, regardless of the geographic location of such assets. For example, while design standards vary based on location, Crown Castle's tower portfolio is generally designed to withstand a 700-year wind event with customer equipment additions. Extreme weather events typically have relatively limited financial impact across Crown Castle's total asset base. In addition, the geographically dispersed nature of Crown Castle's assets helps mitigate the impact from any single extreme weather event or extreme weather events concentrated in one geographic region, even if such events were to increase in frequency or severity.

Where the measures discussed above are not adequate to protect Crown Castle's assets, we obtain insurance coverage to offset a portion of the cost of any resulting damage and subsequent repair costs. Where existing resiliency efforts, the geographically dispersed nature of our assets, and insurance coverage are insufficient to address existing or projected physical risks, Crown Castle evaluates additional measures or the expansion of existing measures and adjusts its operations and protocols accordingly.

Management of Transition Risks

While electricity and fuel costs have had limited financial impact on our cost structure, Crown Castle has implemented or explored various measures to manage transition risks. This includes investing in energy-efficient technology used in operations, exploring opportunities to improve the fuel efficiency of our fleet, pursuing renewable energy procurement opportunities and evaluating other investments in renewable energy.

Additionally, Crown Castle's US-based portfolio benefits from the availability and general reliability of the US electric grids and contributes to transition risk mitigation. Generators are primarily used to provide backup power and only account for approximately 2% of our estimated Scope 1 and location-based Scope 2 emissions. Availability of renewable energy solutions in the US provides an opportunity for Crown Castle to achieve its carbon neutral goal in Scope 1 and 2 emissions by 2025.

Risk Management, cont'd

c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.

The identification, assessment and management of climate-related risks are fully integrated into our established enterprise risk management framework. Specifically, we have incorporated four climate-related questions within our annual risk assessment survey that are designed to prompt respondents, which include senior- and executive-level leaders, to ensure that they are contemplating climate-related risks to our assets, operations and financial performance.

METRICS AND TARGETS

a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.

Crown Castle measures, reports and tracks its energy and fuel consumption, together with associated emissions (namely, Scope 1 and Scope 2 emissions), to aid in the assessment of climate-related risks and opportunities. See the details of our consumption and GHG emissions disclosed in our [2022 ESG Report](#).

We are currently finalizing a comprehensive Scope 3 inventory to enable Crown Castle to publicly report Scope 3 emissions. This foundational work will confirm the most significant drivers of our value chain emissions and identify areas where we may be able to impact future reductions.

c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Crown Castle has a goal to achieve carbon neutrality in its Scope 1 and Scope 2 emissions by 2025. We are approximately 57%¹ of the way to reaching our carbon neutral goal by investing in projects that benefit both our business and the environment, such as converting our tower lighting to LED and sourcing renewable energy, and we believe we are on track to achieve it by 2025. In addition, Crown Castle is exploring other opportunities to reduce energy and fuel consumption across its business and increase sourcing of renewable energy.

We are working with our customers, suppliers and employees to formulate strategies in an effort to report and reduce Scope 3 emissions across our entire value chain.

1. Percentage calculated based on the difference between 2022 Scope 1 and market-based Scope 2 emissions of 31,937 MTCO₂e and 2022 Scope 1 and location-based Scope 2 emissions of 73,657 MTCO₂e.