Nasdaq

2021

Task Force on Climate-Related Financial Disclosures Report

Table of Contents

Rationale for TCFD

Nasdaq's responses to the Task Force on Climate-related Financial Disclosures (TCFD) recommendations are organized into sections that align with the TCFD framework: (1) Governance, (2) Risk Management, (3) Strategy, and (4) Metrics and Targets. Subject matter experts across Nasdaq were engaged throughout the reporting process, from input, to review and validation. Targeted internal engagement workshops were conducted across several areas of our business to inform our disclosures and support implementation of the TCFD recommendations.

This publication is our second TCFD report, in which we disclose the outcomes of our updated and expanded climate-related scenario analysis, and the initiatives in place to manage climate-related risks and opportunities across the organization.

Nasdaq is committed to the continued integration of climate-related risks and opportunities across relevant business, strategy, and financial planning areas. We aim to continuously enhance our understanding of the possible impacts of climate-related risks and opportunities to which we are exposed, enabling our company to remain resilient to risks, and positioning ourselves to actualize opportunities along the transition to a low-carbon economy.

Letter from the CFO

Foreword

Nasdaq is pleased to publish this second annual report using the recommendations of the Task Force on Climate-Related Financial Disclosures. For more than 50 years, we have been guided by our mission to create better markets through innovative technology. As such, we remain deeply committed to corporate sustainability as we contribute to building a more inclusive and prosperous world.

Our perspective on the fast-evolving ESG landscape is informed by our unique experiences as both a public company on our own ESG journey, and by our vantage point at the intersection of technology and the capital markets. This allows us to engage with all our stakeholders on the latest and best practices concerning corporate sustainability.

During 2021, Nasdaq continued its progress across all ESG categories. We renewed our environmental commitment by achieving carbon neutrality for a fourth consecutive year and our Global Headquarters in New York's Times Square was awarded LEED Platinum status by the U.S. Green Building Council. We also established a low-carbon transition plan to mitigate our business risks associated with climate change. This includes our commitment to setting science-based targets among other environmental goals detailed in this report.

Our efforts to advance our diverse and inclusive workplace were recognized by the Bloomberg Gender-Equality Index and the Human Rights Campaign Foundation's Corporate Equality Index. Additionally, the Nasdaq Foundation commenced its quarterly grant giving program, distributing its inaugural grants last year to six organizations whose missions align with our Purpose Foundation's goals to accelerate progress in diversifying entrepreneurship and empowering a more diverse group of investors.

ESG has become a key consideration in everything that we do, from how we engage with our suppliers to how we create a sustainable environment for our employees and help position our clients for success. We were, therefore, proud to be named to the Dow Jones North America Sustainability Index for the sixth consecutive year in recognition of our efforts to integrate sustainable practices into our business.

Nasdaq's collective ESG efforts are reflected successfully in our work with clients and within our operations. We are encouraged by the progress we have made toward our sustainability goals and remain committed to increasing transparency with all our stakeholders through our ESG reporting.

— Ann Dennison, Chief Financial Officer, Nasdaq

Report highlights

Climate Governance

- Updated company-wide materiality assessment, reaffirming the strategic importance of acting upon our climate strategy
- Nasdaq's sustainability and ESG strategy approach and progress is under the direct oversight of our Nominating & ESG Committee of the Board of Directors
- Signatory commitment to the Principles for Responsible Investment

Scenario Analysis

- Latest physical and transition scenarios applied from the Intergovernmental Panel on Climate Change, 6th Assessment Report (IPCC AR6), and Network for Greening the Financial System (Phase II)
- Expanded physical risk analysis to Nasdaq's entire global real estate portfolio, including all offices and data centers
- Transition risk analysis assessing the possible impacts of carbon pricing expanded to our Scope 1, 2, and 3 GHG emissions

Climate-related Risks and Opportunities

- Continuing to evaluate opportunities for expanding upon climate- and ESG-related products and service offerings, including carbon market solutions, ESG reporting tools, ESG data hub, and ESG client advisory services
- Driving and enabling climate- and ESG-related progress on initiatives across Nasdaq's markets
- Enhancing Nasdaq's corporate supplier ESG engagement and climate-related disclosures

Metrics and Targets

- Ongoing commitment to the calculation and disclosure of our greenhouse gas emissions inventory across Scopes 1, 2, and 3
- Enhanced Scope 3 GHG disclosure by expanding analysis to additional categories
- Signatory commitment to setting greenhouse gas emissions reductions targets in accordance with the Science Based Targets initiative (SBTi)

Our Governance

Nasdaq believes in robust, transparent governance and management structures, designed to facilitate dynamic action on rapidly evolving climate- and ESG-related issues. Our climate strategy is governed by the Nominating & ESG Committee of the Board of Directors (the Board), while our operational climate guidance and day-to-day management of climate- and ESG-related risks and opportunities is driven by the Corporate ESG Steering Committee. Forty percent of our Board members have experience with environmental and social matters, ensuring climate-competency amongst Board members, and strengthening our Board's ability to oversee Nasdaq climate and sustainability initiatives.

Sustainability Governance

Nominating and ESG Board Committee (comprised of independent directors)

↑

Corporate ESG Steering Committee (comprised of senior leaders)

↑

Head of Corporate ESG Strategy and Reporting

↑

Business and expert functions representing the various corporate functions	
Finance	Corporate Governance and Compliance
Marketing and Communications	Group Risk
Diversity, Equity & Culture	Investor Relations
Procurement, Sourcing & Real Estate	Information Security
People Management	Corporate Social Responsibility

Board oversight of risks and opportunities

The Nominating & ESG Committee of the Board—comprised of independent directors—oversees sustainability and ESG issues at Nasdaq, and is responsible for leading our climate strategy. The Nominating & ESG Committee also guides and reviews ESG performance objectives, and reviews and approves our annual Corporate Sustainability Report, TCFD report, and related indexes.

In 2021, the Nominating & ESG Committee met seven times, and also approved: 1) Nasdaq's decision to sign the Science-Based Targets Commitment letter, and 2) a decision to become a signatory to the UN Principles for Responsible Investment (PRI). In April 2022, the Nominating & ESG Committee also approved Nasdaq's proposed targets for submission to the Science Based Targets initiative (SBTi).

Nasdaq's Nominating & ESG Committee periodically reports to Nasdaq's executive management regarding climate- and ESG-related risks and opportunities that may impact Nasdaq's business operations, performance, and/or public reputation.

While Nasdaq's executive management is responsible for day-to-day management of the company's risk exposure and for providing regular reports to the Board, the Audit & Risk Committee has ultimate responsibility for overseeing company-wide risk management. The Audit & Risk Committee met thirteen times in 2021. The Audit & Risk Committee approves the company's risk appetite, which is the boundaries within which our management operates while achieving corporate objectives. The Audit & Risk Committee also approves our Enterprise Risk Management (ERM) Policy, which in turn considers the following five risk categories:

1) Strategic and Business Risk;

2) Financial Risk;

3) Operational Risk;

4) Legal and Regulatory Risk; and

5) ESG Risk.

In 2021, the Nominating & ESG Committee met seven times, and also approved:

Nasdaq's decision to sign the Science Based Targets Commitment letter

A decision to become a signatory to the UN Principles for Responsible Investment (PRI)

In April 2022, the Nominating & ESG Committee approved:

Nasdaq's proposed targets for submission to the Science Based Targets Initiative.

Role of management in assessing and managing risks and opportunities

Nasdaq's operational climate-related management is led by the Corporate ESG Steering Committee, which is co-chaired by the Chief Financial Officer and Chief Marketing Officer. The Corporate ESG Steering Committee is responsible for assessing and managing climate-related issues and our environmental and social strategy, and regularly reports to the Nominating & ESG Board Committee. The Corporate ESG Steering Committee meets on a bi-monthly basis and is comprised of geographically diverse subject matter experts from various business units. Meetings cover all Environmental, Social and Governance (ESG) matters, including:

1) assessing and managing ESG risks and their potential impacts on the company strategy;

2) setting and tracking short-, medium- and long-term ESG targets;

3) evaluating supplier sustainability strategies;

4) monitoring progress against climate-related goals and targets, including those related to emissions reductions;

5) evaluating renewable energy procurement; and

6) reviewing Nasdaq's annual Corporate Sustainability Report, TCFD report, and related framework indexes.

The achievement of specific climate-related goals has direct implications on the annual compensation incentive plan for some of the members of the Corporate ESG Steering Committee, including our Chief Financial Officer.

The Head of Corporate ESG Strategy and Reporting, who is a member of the Corporate ESG Steering Committee and ultimately reports to the CFO, leads the Corporate ESG Strategy and Reporting Team, and is responsible for:

1) executing Nasdaq's sustainability strategy;

2) communicating on performance, metrics and ambitions through Nasdaq's annual Corporate Sustainability Report and other related disclosures; and

3) collaborating with various stakeholders across the company on sustainability-related matters and ensuring a timely and accurate data gathering process.

The Corporate ESG Strategy and Reporting Team engages with business units and individual subject matter experts across Nasdaq to identify and communicate relevant climate risks and opportunities. When identified, relevant climate risks and opportunities may be escalated to the Corporate ESG Strategy and Reporting Team, the Corporate ESG Steering Committee, or to the Board. In addition, climate related-risks and opportunities may also be escalated to relevant committees including: the Procurement Council, the Investment Committee, the Commercial ESG Steering Committee, the Real Estate Committee, and/or the Global Risk Management Committee.

Our Strategy

Overview of risks and opportunities

Nasdaq's climate strategy is informed by our company-wide Global Reporting Initiative (GRI)-aligned materiality[1] assessment, which we refreshed in early 2022 with the assistance of Nasdaq's ESG Advisory team to develop and support our approach to ESG governance and reporting. Our continual engagement with internal and external stakeholders and expanded review of key ESG reporting frameworks has reaffirmed the strategic importance of acting upon our greenhouse gas emissions and climate change strategy. While climate did not feature as one of our most material ESG risks according to the materiality assessment, the exercise reinforced the heightened expectations and demands on Nasdaq's climate management and strategy from our external partners. Furthermore, we understand that ESG issues are front and center to our stakeholders, and we refreshed our purpose statement last year to better reflect this shared mission and vision.

Our global corporate ESG strategy incorporates our assessment of climate-related risks and opportunities that could impact our business operations, products and services, supply chain and investments. Building on our initial TCFD report published in 2021, this year we have expanded our climate scenario analyses to evaluate the exposure of our entire global portfolio of offices and data centers to chronic and acute climate hazards, and the potential impacts of transition risks within our operations and markets. Climate-related risks and opportunities relevant to Nasdaq were identified and characterized according to the TCFD framework categories. Each risk or opportunity was assigned a time horizon (short, medium, or long) based upon when it was deemed likely to materialize should the risk remain unmitigated.

Time horizons considered for climate-related risks and opportunities:

Short-term:	0-1 years (up to 2023)
Medium-term:	1-3 years (up to 2025)
Long-term:	3+ years (up to 2040)

Transition risks refer to risks associated with achieving a lower-carbon economy, encompassing disruption due to changing policy/legal, technology, market, and/or reputational conditions. Physical risks refer to risks from the physical impacts of climate change, including event-driven (acute) and risks resulting from longer-term shifts in climate patterns (chronic).

1. References to materiality and similar terms refer to ESG topics that we have found to be relevant to our business based on our 2021 materiality assessment. Such references to materiality are different and separate from how materiality is used and understood in the context of securities and other laws of the United States or as used in the context of financial statements and financial reporting. ESG topics and issues described as material in this report may not be considered material for other reporting purposes.

Table 1 below summarizes transition risks and time horizons as identified for Nasdaq, and Table 2 identifies acute and chronic physical risks and associated time horizons, as identified for our company.

Table 1: Transition Risks & Time Horizons

Transition Risk Type	Relevant Risk	Time Horizon
Policy & Legal	**Increased pricing of GHG emissions** The introduction of mandatory carbon pricing or increases in costs of mandatory carbon pricing in regions where Nasdaq operates may result in increased operating or compliance costs.	Medium to long term
	Mandatory climate reporting requirements Mandatory climate-related public company reporting requirements, such as those proposed by the United States Securities and Exchange Commission, may result in a decrease in new listings or increase in de-listings, which may adversely affect Nasdaq's business, financial condition and operating results.	Short to medium term
Technology	**Costs to transition to lower emissions technology** Costs borne by emissions-intensive listed companies and business customers, research & development, capital investments, and adoption and deployment of new technologies may result in reduced demand for Nasdaq's products and services.	Long term
Market	**Changing customer behaviors** Shifts in customer behavior may reduce demand for any products or services that are not aligned with global climate goals or regulatory requirements, or alter revenue mix and sources, which may result in decreased revenues.	Short to medium term
	Increased costs of raw materials This may result in the re-pricing of assets for Nasdaq's listed companies operating in certain sectors (e.g., fossil fuel reserves, land valuations, securities valuations), or potentially an increase in bankruptcy of listed companies.	Long term
Reputation	**Shifts in consumer preferences** These factors may result in reduced investor appetite and reduction in capital availability, as well as reduced revenues from products and services, from decreased production capacity (e.g., delayed planning approvals and supply chain interruptions), or from negative impacts on workforce management and planning (e.g., employee attraction and retention).	Short to long term

Table 2: Physical Risks & Time Horizons

Physical Risk Category	Relevant Risk	Time Horizon
Acute	**Increased frequency and severity of extreme weather events** Extreme weather events, such as hurricanes, wildfires, and floods could result in increased direct costs for adaptation measures or repairs, or decreased revenues due to disruptions to Nasdaq's business operations. Nasdaq might also be indirectly affected by acute risks due to event-driven impacts across the value chain, such as disruptions to suppliers, listed companies, or business customers.	Short to long term
Chronic	**Changes in long-term climate conditions** Changes to average temperatures, precipitation patterns and rising sea levels could result in increased direct costs for adaptation or relocation measures, as well as increased procurement costs for utilities. Nasdaq may also be indirectly affected by chronic risks due to longer-term impacts across the value chain, such as disruptions to suppliers, listed companies, or business customers.	Long term

Growth of climate- and ESG-related products

Our materiality assessment and communication with investors, clients, and other stakeholders has revealed that stakeholders placed greater emphasis on Nasdaq's ethical business practices, with an increasing demand for ESG products. We expect the trend towards ESG and sustainable investments to have an escalating impact on our industry in the coming years, creating opportunities for Nasdaq's ESG products to support clients in meeting their ESG objectives. We are tracking climate opportunities by monitoring the growth of ESG products and services through tracking customer demand and as a percentage of our sales revenue growth. Some of our current climate- and ESG-related products and services are highlighted below.

- **Nasdaq OneReport** is an ESG data management, workflow and reporting tool, allowing companies to communicate their climate exposure effectively. OneReport offers a suite of features including Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD) reports. Acquired by Nasdaq in 2020, OneReport was the first tool to receive Global Reporting Initiative (GRI) Certification for the revised Universal Standards released in the fall of 2021. OneReport's continued advancement and evolution is driven by our customers' demands for a tool which is ahead of the market and is able to rapidly integrate new and anticipated ESG regulations and frameworks.

- **Puro.earth** is the leading registry and marketplace for technological carbon removal instruments that are verified and tradable through an open, online platform. We acquired a majority stake in Puro.earth in June 2021. This investment seeks to scale the marketplace to address a growing demand for carbon removal by corporations, as well as enable new carbon removal methodologies, as technology evolves. Carbon removal is expected to play a critical role in keeping global warming below 1.5°C degrees and allowing clients to meet their net zero commitments. The addition of Puro.earth's marketplace capabilities to Nasdaq's ESG-focused technologies and workflow solutions provides corporates further resources to successfully achieve their ESG objectives.

- **ESG Data Hub** was launched as a data solution, which offers investors and other stakeholders easy access to a wide range of unique and comprehensive ESG data sets, accompanied by detailed product descriptions, unique selling points (USPs) and use cases. The access facilitates a seamless user experience by integrating contracts, a single application programming interface (API) for all data sets, accessibility across different formats and cloud storage. The platform enables users to find data sets relevant to specific United Nations Sustainable Development Goals (SDGs) and encourages investors to consider the ESG impacts of their investments.

- **Nasdaq Sustainable Bond Network**, launched in late 2019, is a global platform that aims to increase transparency for environmental, social, and sustainable bonds. The platform offers issuers the ability to disclose their ESG investments in an efficient reporting solution. Through the portal, investors can also access standardized and consolidated data in one centralized location, improving disclosure quality and consistency. The portal also allows investors to generate impact reports, run allocation reports, and evaluate information. At the end of 2021, this bond network had 1,012 issuers of more than 8,928 bonds.

- **Nasdaq Sustainable Debt Market** is a marketplace which provides dedicated segments for listing green, social, and sustainable bonds, structured products, and commercial papers. Our sustainable debt markets support corporates in capital raising for earmarked investment in sustainable projects, highlighting sustainable investment opportunities to investors with ESG investment agendas.

In June 2022, Nasdaq announced its acquisition of Metrio, a privately-held provider of ESG data collection, analytics, and reporting services based in Montreal. We plan to integrate Metrio's SaaS platform into our existing suite of ESG solutions.

- **Nasdaq ESG Footprint**, powered by **Matter.** Matter is a Copenhagen-based ESG data startup and a Nasdaq Ventures portfolio company. The company aggregates and provides high-quality ESG data on public companies from trusted sources. Matter enables asset managers, financial advisors, and other financial institutions to conduct portfolio and single security ESG analysis and personalized impact reporting for clients. The company also offers Sustainable Finance Disclosure Regulation (SFDR) reporting capabilities and proprietary ESG news sentiment insights.

- **ESG Advisory** is a service solution that pairs companies with consultative ESG expertise to help analyze, assess and action best-practice ESG programs with the goals of attracting long-term capital and enhancing value. Services include ESG strategy development, Board engagement strategies, ESG investor engagement advice, and ESG reporting guidance for companies.

- **Board Advisory** is our governance offering of board assessments and CEO and management evaluations. Our third-party administered evaluations encourage candor and facilitate deeper engagement, while also identifying areas of focus, strengths, and opportunities for improvement. We offer standard assessments and evaluations delivered through Nasdaq EnGauge™ as well as premium advisory services to assist companies further with the assessments and provide recommendations (e.g., strategic reports with visualizations, actionable analysis, boardroom presentations). Board advisory projects may be accompanied by complimentary services designed to help companies measure and increase board effectiveness and overall board dynamics.

- **Compliance Solutions** include digitized surveys and questionnaires that collect details on board members, executive officers, and broader employee bases to satisfy regulatory or internal governance requirements. Primary examples of compliance questionnaires include the annual directors' & officers' (D&O) questionnaires, conflict of interest compliance support, code of conduct surveys, and related-party transaction questionnaires. We configure and deliver these questionnaires through Nasdaq EnGauge™ and QDiligence, which we acquired in December 2021.

- **Board Meeting Management Software** is a board management and workflow solution that corporate secretaries, directors and executive leaderships teams use to help prepare for and execute their board meetings and carry out their legal and fiduciary board duties. The tool includes functionalities such as document management and distribution, annotations, meeting management, agendas, meeting minutes, voting, approvals, e-signatures and email. Our flagship board portal products are Nasdaq Boardvantage® (NBV) and Directors Desk.

- **ESG Indexes** have ESG criteria integrated into the index methodology. We achieve this in a variety of ways, with some indexes designed as ESG-only indexes, and other indexes designed to overlay ESG criteria to a broader investment thesis. The index with the largest tracking fund is the ISE Cyber Security UCITS Index. Others include the Nasdaq Clean Edge suite, and the Nasdaq Future Global Sustainability Leaders Index. In addition, in 2021 we created ESG versions of two of our flagship indexes and now offer the Nasdaq 100 ESG Index and the Nasdaq Next Generation 100 ESG Index. Nasdaq Index OMXS30ESG, the first ESG version of an established benchmark of an exchange to be introduced worldwide, was listed in June 2018 and was followed by the listing of ESG index futures contracts in November 2018.

Climate-related opportunities

Sustainable business practices and resource use efficiency are key tenets of Nasdaq's operational protocols. Internal sustainability initiatives and efforts include:

1) ongoing investment in energy efficiency programs;

2) sourcing renewable energy across our operations;

3) offsetting our residual emissions;

4) enhancing our sustainability-related disclosures; and

5) implementing programs to help drive our diverse global workforce toward our ESG ambition (for further details, refer to the "Our Metrics and Targets" section of this report).

In addition to our internal sustainability improvement efforts, Nasdaq is committed to continuing to expand the scope of our external ESG product and service offerings, supporting the shift towards more sustainable and inclusive capital markets. We believe we play a key role in this market shift by continuously engaging and educating our clients on climate risks, sharing our issuers' perspectives with the industry and regulators, and providing a growing portfolio of ESG-focused marketplace solutions that help clients in the corporate and investment communities achieve their own ESG objectives.

As identified by Nasdaq, key climate-related opportunities are represented Table 3 below, along with estimated time horizon to realization.

Table 3: Key Climate-Related Opportunities & Time Horizons

Classification	Key Opportunities	Time Horizon
Products & Services	**Drive for new ESG products, services, and features** Increased demand for ESG-related products and services could result in increased revenue from these growing business opportunities, and increased trust from clients and investors. This is through both new products and services as well as expansion of existing products and services. To date, many of the new features and expansions of our existing products have come from our customers themselves, who look to our products to stay ahead on their ESG-related reporting and analysis. The main driver has been through engagement with our customers and stakeholders, with demand coming from the customers to expand our offerings based on market shifts. Nasdaq's unique position allows us to bridge the gap between corporations and investors. Nasdaq stakeholders are interested in and impacted by climate change, which we expect will continue to be a major driver of future business growth opportunities for Nasdaq's ESG products and services.	Short term
Resource Efficiency	**Reduced operating and procurement costs from resource efficiency gains** By continuing to operate more efficiently, Nasdaq may reduce operating costs across its offices and data centers. We have an extensive building efficiency process in place, with energy efficiency measures deployed across our facilities.	Medium term
	Adapt our resource needs for our workforce As we pursue greater resource efficiency across our real estate portfolio and incorporate the lessons of the COVID-19 pandemic, our climate risk analysis also provides opportunities to continue to right-size our physical footprint—focusing on the optimization of space to meet business needs and facilitate home working solutions. This optimization may reduce fixed asset costs and increase our resilience to climate-related business disruptions. It also allows for a nimbler global workforce that has the flexibility to work from home or from our offices.	Long term
Energy Source	**Use of lower emissions sources of energy** By pursuing the procurement of 100% renewable electricity across our offices and data centers, we can reduce exposure to future fossil fuel price increases that may occur in the future as a result of climate-focused policy and legal developments. Coupled with our greenhouse gas calculations, we aim to quantify our emissions and track our progress.	Medium term
Reputation	**Climate leadership commitments and memberships** Committing to and achieving our climate ambitions, including Science-Based Targets and transparency through reporting and disclosure, may bolster Nasdaq's reputation as a climate-focused organization, particularly with ESG identified as an important subject for our external stakeholders.	Short term
	Supplier engagement process for ESG Our new supplier engagement protocol encourages our suppliers to adopt strategies in line with our Environmental Practices Statement, allowing us to lead the shift towards more sustainable and inclusive capital markets that serve all stakeholders.	Short term
	ESG products and services With our ever-growing offerings of ESG-related products and services, we continue to develop new ways to help companies to achieve their ESG objectives.	Long term
Resilience	**Growth of carbon markets** Our position as a provider of carbon offset opportunities and bonds allows us to be an early adopter in a rapidly growing sector which we expect to continue to expand significantly over the coming years. As an early adopter, we have a deep understanding of the developing sector and can track its growth from the inside, allowing for greater opportunities for strategic planning and growth.	Long term

Impact on business, strategy, and financial planning

Nasdaq regularly evaluates climate risks that may affect our products and services, value chain, operations, and investments. We assess risk factors likely to increase direct costs or cause interruptions to our primary business functions. Our analysis identified Nasdaq's exposure to factors which could result in both physical risks and transition risks. However, across all analyzed time horizons, transition risks were identified as being more significant than physical risks to Nasdaq's business, strategy and financial planning.

Our low-carbon transition plan is a key strategy as part of our efforts to mitigate our business risks associated with climate change. This plan is extensive and includes:

1) calculating our greenhouse gas emissions since 2018;

2) benchmarking our global real estate portfolio to identify opportunities for energy efficiency;

3) implementing identified energy efficiency strategies;

4) pursuing green building certifications;

5) minimizing emissions resulting from business travel;

6) purchasing renewable electricity; and

7) committing to setting Science-Based Targets

We are also developing a supplier engagement strategy to address climate risk, while seeking to build resilience and hedge against future price or market instability.

Nasdaq has also increasingly integrated ESG into service offerings and invested in new ESG-related products and services, including through the acquisition of OneReport in January 2020 and our investment in Puro.earth in 2021, together with the extensive suite of ESG products and services outlined above. We believe that a continued focus on ESG will grant us access to new and expanding markets. Further, as part of our commitment to supporting the shift towards more sustainable and inclusive capital markets, we use our own ESG products internally, engaging in the same best practices that we recommend to our clients.

As we move forward, we intend to leverage the TCFD framework as an ongoing opportunity to further integrate climate risk management and ESG opportunities across our organization. We also continue to draw on the resilience lessons of the COVID-19 pandemic, particularly as it concerns the optimization of office space, and fluid and flexible reallocation of resources.

Supplier engagement strategy

As part of our commitment to mitigate climate risk and improve ESG considerations, our Procurement & Sourcing Team has developed a robust supplier engagement strategy. This strategy will be applied to existing suppliers in a multi-phased approach and applied to new supplier relationships.

The new supplier engagement strategy involves four key components. First, suppliers will be asked to acknowledge the expectations of them outlined in Nasdaq's Supplier Code of Ethics. Second, we will request that our top suppliers disclose their environmental data through the CDP Supply Chain program. Third, Nasdaq will consider supplier MSCI ratings (when available) when onboarding new suppliers. Fourth, we are exploring AI tools in the market to assess suppliers' ESG-related risks and negative news before and during engagement.

This new multi-phased supplier engagement strategy will apply to existing and new suppliers, covering over 1,000 suppliers upon full implementation. After successfully deploying this four-part supplier engagement strategy across all suppliers, Nasdaq intends to further enhance processes to investigate supplier resiliency to climate change risks. Upon successful engagement with our third parties, we will develop strategies around our extended supply chain.

Scenario analysis and strategy resilience

Over the past year, climate and ESG issues have continued to significantly impact our stakeholders, and we expect these issues to continue to increasingly influence our businesses into the future. While Nasdaq's low-carbon transition strategy and ESG product offerings are aligned with a transition to a low-carbon economy, we understand the importance of thoroughly exploring all aspects of climate-related risks that may materialize under various global emissions scenarios.

In accordance with the TCFD recommendations, we examined the resiliency of Nasdaq's current strategy by conducting climate scenario analyses. Using this process, we assessed Nasdaq's exposure to physical and transition climate-related risks and opportunities deemed as having the potential to influence our businesses, strategy, and financial planning. In 2021, we updated and enhanced our climate scenario analyses, investigating the possible impacts of carbon pricing by:

1) applying the most recent transition scenarios from the Network for Greening the Financial System (NGFS), including two net-zero aligned scenarios;

2) extending our analysis to include our Scope 3 GHG emissions;

3) applying the latest physical scenarios as per IPCC AR6; and

4) extending our analysis to cover our entire global portfolio of offices and data centers.

Our 2021 scenario analysis exercise demonstrated that our most significant climate risks and opportunities stem from transition risks. Nasdaq's commitment to set science-based emissions reduction targets is expected to help mitigate some of the key transition risks we face. We aim to further explore the vulnerability of our operations to the climate hazards identified, in order to project possible financial impacts related to business disruption and identify the costs of mitigation.

Transition risks

Transition risks were evaluated under three scenarios published by the NGFS. We selected these scenarios as we deemed them particularly relevant to the financial sector in which we operate, and to explore the possible risks we could be exposed to under ambitious transition scenarios that achieve global net-zero. Table 4 below provides a summary of the NGFS Transition Analysis scenarios applied during our scenario analysis.

Table 4: Transition Analysis scenarios applied to scenario analysis exercise

Transition Analysis Scenarios Applied	**Network for Greening the Financial System (NGFS)**		
	Three scenarios from the NGFS Phase II were applied to assess transition risks and explore the impact of delayed timing and divergent action across sectors. These scenarios were selected based upon their relevance to the sectors across which we operate, and as a means to explore the nuances of different net-zero aligned transition scenarios.		
	1. Net Zero 2050 — 1.5 °C	**2. Divergent Net Zero — 1.5 °C**	**3. Delayed Transition — <2°C**
	Description: • Coordinated, stringent and well-timed action to reduce GHG emissions and achieve net-zero emissions by 2050 • Physical risks are relatively low, but transition risks are high	**Description:** • Differing levels of ambition in action across sectors (more stringent in buildings and transportation) • Physical risks are lowest out of the three scenarios assessed, but transition risks are considerably higher than Net Zero 2050	**Description:** • Delay in action until 2030 • Requires accelerated and disruptive policies to limit warming to below 2° • Physical and transition risks are higher than the Net Zero 2050 scenario
	Outcome: • Ambitious climate policies introduced immediately, resulting in steady increases in carbon prices from 2025 – 2050 • 50% chance of limiting global warming to below 1.5 °C by end of century	**Outcome:** • Divergent policies introduced across sectors and a quicker phase out of fossil fuels result in higher costs • 50% chance of limiting global warming to below 1.5 °C by end of century	**Outcome:** • New climate policies are not introduced until 2030 and the level of action differs across countries and regions based on currently implemented policies • 67% chance of limiting global warming to below 2°C by end of century

In the scenarios applied, government climate-related policies are proxied through carbon prices, which vary significantly depending on the scenario. The risks relating to mandatory carbon pricing were quantitatively assessed by applying the global carbon prices delineated in the transition scenarios, with respect to our Scope 1, 2, and 3 emissions. We investigated the possible impacts of carbon pricing against our emissions, under a future trajectory in line with the ambitions of our Science-Based Target commitment. We assumed that Nasdaq would bear the full cost of emissions, as opposed to, for example, suppliers absorbing some of the costs of carbon pricing.

As shown in results summary in Table 5 below, we found that under all scenarios assessed, the annual cost of emissions remained <1% of 2021 Net Income Attributable to Nasdaq across the short- to long-term horizons. In the long-term to 2050, Nasdaq performs best under a Net Zero 2050 scenario, where costs peak around 2030.

Table 5: Carbon price scenario modelling

		Annual Cost of Nasdaq's Scope 1, 2, and 3 GHG Emissions* *(expressed as a percentage of 2021 Net Income Attributable to Nasdaq)*						
		2020	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Carbon pricing scenario	**Net Zero 2050:**	0%	0.24%	0.28%	0.27%	0.22%	0.18%	0.08%
	Divergent Net Zero:	0%	0.81%	0.75%	0.70%	0.53%	0.49%	0.25%
	Delayed Transition:	0%	0%	0%	0.27%	0.24%	0.22%	0.11%

* Based upon carbon pricing scenario analysis using NGFS Net Zero 2050, Divergent Net Zero, and Delayed Transition global carbon prices, and Nasdaq's projected Scope 1, 2, and 3 emissions under committed near-term Science-Based Targets. A discount rate of 2% applied to calculate present value annual cost of emissions. 2021 net income attributable to Nasdaq as shown on 2021 Form 10-K.

Table 6 below summarizes some of Nasdaq's resilience measures and planned strategies to mitigate identified direct and indirect transition risk factors.

Table 6: Transition Risks resilience measures & approach

Transition Category	Exposure Type		Resilience Measures & Approach
	Direct	Indirect	
Policy & Legal	Long-term annual cost of Scope 1 and 2 emissions <1% of 2021 net income attributable to Nasdaq	Long-term annual cost of Scope 3 value chain emissions <1% of 2021 net income attributable to Nasdaq	Nasdaq's commitment to set near-term Science-Based Targets for reducing GHG emissions is expected to minimize the direct and indirect impacts of policy changes that increase the costs of emissions. Our customer and supplier focused sustainability efforts aim to minimize our indirect exposure to carbon pricing risks in the value chain.
Technology	Operating and capital costs of data centers and offices	Emissions intensive listed companies and business customers	Nasdaq's sustainable leasing strategy reduces office space requirements, seeks to ensure energy-efficient office spaces, and procurement of renewable electricity to minimize our direct exposure to technology risks. We also select data center operators with ISO Certifications, renewable energy offerings, and sound sustainability policies.
Market	Revenue from Nasdaq products and services	Emissions intensive listed companies and business customers	Nasdaq's ESG-focused marketplace solutions, such as Nasdaq Sustainable Debt Markets, ESG Indexes, OneReport, Puro.earth, and Nasdaq Sustainable Bond Network, aim to capture the increased financial sector market demand for ESG related products and services. Similarly, by helping our customers to achieve their ESG objectives, we aim to minimize our indirect exposure to market risks.
Reputation	Revenue from Nasdaq's business customers	All listed companies and business companies that are vulnerable to climate risks.	Nasdaq's commitment to leading the shift towards more sustainable and inclusive capital markets via ESG product and service offerings aims to mitigate possible reputational concerns our stakeholders may have. Additionally, our supplier engagement strategy, which will engage with over 1,000 suppliers, encourages our suppliers to consider ESG-related issues while improving our visibility as an organization who values ESG considerations.

Physical Risks

We evaluated physical risks under two IPCC AR6 scenarios: SSP5-8.5, and SSP2-4.5. The exposure of our entire global real estate portfolio, comprising offices and data centers, was assessed for both acute and chronic hazards.

- The SSP5-8.5 scenario covers a future where the global development continues its current trajectory. There is continued reliance on competitive markets to produce rapid technological progress, and global markets are increasingly integrated. There is a high reliance on fossil fuels, with emissions peaking around 2090 and global mean temperatures rising approximately 4.6°C by 2100. We applied this high emissions scenario to stress-test the exposure of our global real estate portfolio to physical hazards under a worst-case climate scenario.

- The SSP2-4.5 scenario covers a middle path, involving challenges to climate mitigation. In this scenario, environmental systems experience degradation, but overall, the intensity of resource and energy use declines. Global mean temperatures rise approximately 2.7°C by 2100. We applied this moderate emissions scenario to stress-test the exposure of our global portfolio to physical hazards under a less extreme climate scenario.

Table 7 below provides a summary of the IPCC Physical Risk Analysis scenarios applied during our scenario analysis.

Table 7: Physical Risk scenarios applied to scenario analysis exercise

Physical Risk Scenarios Applied	**Intergovernmental Panel on Climate Change (IPCC)** The IPCC's Sixth Assessment Report (AR6) defines a range of Shared Socio-Economic Pathways (SSPs) describing the socioeconomic trends underlying the scenarios, alongside the level of radiative forcing resulting from the scenario in the year 2100.		
	1. SSP1-2.6 ~1.8°C **Sustainability**	**2. SSP2 -4.5 ~2.7°C** **Middle of the Road**	**3. SSP5-8.5 ~4.6°C** **Fossil-fueled development**
	Description: • Gradual, yet stringent global actions toward a more sustainable path and emissions mitigation	**Description:** • Social, economic, and technological trends do not shift significantly from historical patterns, but resource use intensifies	**Description:** • Continued exploitation of fossil fuel resources and the adoption of resource and energy intensive lifestyles around the world
	Outcome: • Stays below 2°C warming with implied net-zero emissions in the second half of the century.	**Outcome:** • Approximately in line with the upper end of combined pledges under the Paris Agreement. The scenario deviates slightly from a 'no-additional climate-policy' reference scenario. The result is a best estimate warming around 2.7°C by the end of the 21st century.	**Outcome:** • A high reference scenario with no additional climate policy. Emissions as high as SSP5-8.5 are only achieved within the fossil-fueled SSP5 socioeconomic development pathway.

Asset-level results are aggregated in Tables 8 through 11 below, showing the percentage of facilities at different levels of exposure, under each applied scenario and time horizon. For example, 100% of our global offices have low exposure to wildfires over the short term (2022 to 2023), whereas 2% of our global offices have high exposure to drought over the long term (2025 to 2040). Totals in columns that exceed 100% are the result of rounding.

Table 8: SSP5-8.5 Global offices

	Short Term 2022-2023					Medium Term 2023-2025					Long Term 2025-2040				
	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought
Low Exposure	100%	100%	100%	88%	98%	100%	100%	100%	83%	100%	100%	100%	83%	83%	98%
Medium Exposure	0%	0%	0%	12%	2%	0%	0%	0%	16%	0%	0%	0%	16%	10%	0%
High Exposure	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%	7%	2%

Table 9: SSP5-8.5 Global data centers

	Short Term 2022-2023					Medium Term 2023-2025					Long Term 2025-2040				
	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought
Low Exposure	100%	100%	100%	100%	96%	100%	100%	100%	83%	100%	100%	100%	87%	83%	96%
Medium Exposure	0%	0%	0%	0%	4%	0%	0%	0%	13%	0%	0%	0%	9%	13%	0%
High Exposure	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	4%	4%	4%

Table 10: SSP2-4.5 Global offices

	Short Term 2022-2023					Medium Term 2023-2025					Long Term 2025-2040				
	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought
Low Exposure	100%	100%	100%	81%	100%	100%	100%	100%	83%	100%	100%	100%	90%	81%	101%
Medium Exposure	0%	0%	0%	17%	0%	0%	0%	0%	14%	0%	0%	0%	10%	14%	2%
High Exposure	0%	0%	0%	2%	0%	0%	0%	0%	3%	0%	0%	0%	0%	5%	2%

Table 11: SSP2-4.5 Global data centers

	Short Term 2022-2023					Medium Term 2023-2025					Long Term 2025-2040				
	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought	Wildfire	Inland Flooding	Heatwave	Sea Level Rise	Drought
Low Exposure	100%	100%	100%	100%	100%	100%	100%	100%	96%	100%	100%	100%	96%	83%	96%
Medium Exposure	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	13%	0%
High Exposure	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	4%	4%

Our analysis shows that over the long-term through 2040, the majority of our assets that we presently control are expected to have low exposure to most physical climate hazards under a worst-case scenario. We use the results of the scenario analysis to inform our risk management focuses, and our global real estate and leasing strategy involves regular review of risks to ensure they are managed to an acceptable level.

Physical risk resilience measures in place at Nasdaq include:

- Remote working capabilities and established backup energy sources for key assets.
- Focus on energy efficiency and minimum performance standards for HVAC in heat-stressed areas.
- Energy-efficient cooling systems and data center design, and efficient water systems to reduce demand and commodity price exposure.
- Existing and planned river and coastal flood defense adaptation measures in major cities where Nasdaq has a physical presence, and flood resilient building design.

Our Risk Management

Process for risk identification and assessment

Under the leadership of the Group Risk Management Team (the Risk Team), Nasdaq uses an industry standard approach for assessing risks and their estimated potential impacts, using defined criteria across multiple risk domains to quantify potential risk factors and their likelihood/probability of materializing. We annually review the criteria for assessing the impact and likelihood of risks, and recalibrate as required. Financial impacts are considered both independently and in aggregate across the reporting year.

The assessment methodology considers both financial and non-financial impacts (including Legal and Regulatory, Client, Operational, and Reputation), providing a consistent approach for Nasdaq to assess risks of all types, including climate-related risks. Our Risk Rating Matrix methodology assigns a Low, Moderate, Elevated, or High risk level for each assessed risk.

This year, we expanded our risk taxonomy and risk appetite to include ESG related risks. This has been an integral part of expanding our lens to more thoroughly examining potential climate risks which impact our company. To bolster these efforts, in the first half of 2022, our Risk Team facilitated Nasdaq's first formal climate risk assessment utilizing guidance from leading reporting frameworks like CDP. Going forward, the Risk Team will continue to enhance and expand the climate risk assessment and re-evaluate the risk framework with a lens on climate-related risk considerations as climate reporting frameworks evolve.

We use a wide range of resources to consider the impact of climate-related issues on a continuous basis across TCFD-aligned risk categories, including current and emerging regulation, in addition to acute and chronic physical risks across technology, legal/policy, market, and reputation risk categories. Large multi-stakeholder meetings and smaller workshop discussions allow climate-related knowledge sharing across internal business units and stakeholder groups. Internally, relevant climate risks and opportunities are identified through engagement of the Corporate ESG Strategy and Reporting Team with various business units and individuals subject matter experts.

Nasdaq's Business Continuity Management & Disaster Recovery Policy is based on the premise that every Nasdaq employee has responsibility for managing risk. This policy establishes a holistic management process that identifies potential disruptions to Nasdaq's processes and provides direction for building resilience for an effective incident response. Facility site managers are periodically surveyed to assess the vulnerability and resiliency of critical Nasdaq operating locations, considering factors including environmental changes and the likelihood and potential effects of an interruption to the location. The results of the Location Risk Assessment inform the Site Location Business Continuity Plans.

Management processes

As outlined in Nasdaq's Business Continuity Management Framework, the heads of business units and individual subject matter experts and their appointed Business Continuity Plan coordinators—as the "first line of risk management"—are responsible for establishing plans and procedures to secure continuity of business through Business Continuity Plans. In developing the Business Continuity Plans, a Business Impact Analysis is completed, which is a systemic process to determine and evaluate the potential effects of an interruption to critical business operations following a disaster (including climate-related disasters), accident, or emergency. The Business Impact Analysis and Business Continuity Plans are reviewed and updated annually to address any changes to systems, processes, or the environment.

All Nasdaq Business Continuity Plans incorporate a series of scenarios including extreme weather events, outlining responses in order to meet the business units' and individual subject matter experts' objectives to maintain continuity of business in the event of a disruption. The Risk Team, as the "second line of risk management", reviews and challenges the Business Continuity Plans to ensure the plans are comprehensive in mitigating the risks. If a Business Continuity Plans is invoked, the event causing the invocation is reported as an incident in Nasdaq's Governance Risk and Compliance tool. The incident's impact is captured, and management actions are tracked from incident reporting through case closure. Lessons learned from the incident are tracked and inform future Business Continuity Plans iterations. The Business Continuity Management Committee provides a forum for management to assess the risks related to business continuity and resiliency including climate-related risks. This Committee supports the Global Risk Management Committee in its risk oversight role.

Core components of the Business Continuity Management Framework including the Business Impact Analysis, Business Continuity Plans, Disaster Recovery Plans, and the testing programs inform our annual insurance renewal process. The Corporate Insurance program is reviewed and approved by the Global Risk Management Committee. Nasdaq's Legal team reviews the Corporate Insurance Program, engaging external counsel when applicable.

Risk management integration

Nasdaq has implemented resiliency measures across the company to mitigate the risk of potential interruptions to business through unforeseen circumstances such as climate-related events. Nasdaq's data center infrastructure includes primary and secondary data centers to provide redundancy for critical systems. In addition, Nasdaq is actively moving infrastructure to the cloud.

Nasdaq has a globally distributed workforce which we believe provides an additional level of resiliency. Our Business Continuity Plans outline the transfer of processes to alternate locations and/or regions. These plans have proven reliable in several previous events including climate-related disruptions in Manila, Philippines; Sydney, Australia; Dallas, Texas; and Bangalore, India. Further, Nasdaq is committed to transitioning to a hybrid work environment, wherein employees will have the ability to work both from home and the office. If there are local power or connectivity disruptions, work-from-home employees are able to work from a nearby office which is equipped with backup power.

Nasdaq's Real Estate Team considers climate risk analysis in our building and location selection process. Business disruption is considered when determining lease length and, consistent with the market, we have begun to shift to shorter lease lengths for adaptability. We are also developing an internationally recognized Environmental Management System, based on ISO14001 structure, that will cover all Nasdaq real estate and data center operations. The Environmental Management System will be in place by 2023 and will ensure we have the policies and procedures in place to maximize and manage our environmental and sustainable objectives. Approximately six to twelve months from the implementation date, we will seek to have the Environmental Management System certified to the ISO14001 standard.

The risk identification and management approach utilized during the COVID-19 pandemic has served useful in informing our approach to managing climate risks. Throughout the pandemic, we successfully shifted to work-from-home and transitioned work to alternate locations or regions with short notice without impact to our operations. As highlighted above, we have increased our focus on business continuity in the event of significant external disruptions, increased our operational resilience by enabling remote work, and adapted to more flexible management models. We expect these lessons to be invaluable as we seek to adapt our climate strategy.

Our Metrics And Targets

Metrics to evaluate risks and opportunities

In 2021, Nasdaq committed to setting Science-Based Targets for ambitious emissions reductions across our emissions inventory. Once our targets are approved by the Science-Based Target initiative's governing body, company-wide progress towards anticipated transition risk factors will be tracked through continuous data collection metrics. We expect to achieve our Science-Based Targets through a variety of approaches including:

1) increasing energy efficiency measures in our offices and data centers;

2) continued sourcing of renewable energy;

3) reducing employee commuting and business travel by enabling remote work; and

4) working with our suppliers and customers to adopt sustainability and environmental practices in line with our targets.

We are also purchasing carbon removal offsets to balance remaining emissions associated with our Scope 1 and reported Scope 3 activities.

GHG inventory and emissions reduction progress

We believe we have already made significant strides in our efforts to reduce greenhouse gas emissions. We are continuing to invest in resource efficiency and expect to reduce our energy consumption and intensity while continuing to source renewable electricity. Our energy and greenhouse gas emissions performance trends are summarized below, and additional metrics are available in our 2021 Sustainability Report.

In 2021, we expanded our Scope 3 analysis to include additional categories, which is the primary driver of the increased in emissions year over year. Scope 3 analysis categories new to 2021 are 1) Scope 3, Category 13: Downstream Leased Assets, and 2) Scope 3, Category 15: Investments.

Tables 12 and 13 summarize global emissions data for Nasdaq's office space, data centers, onsite combustion, business travel, employee commuting, upstream goods and services, waste generation, and recycling/compost diversion for the current reporting period (January 1, 2021 through December 31, 2021), as compared to our baseline data from 2019, and data collected in 2020. Emissions data was collected using the following methodology, listed in order of priority:

1. Full year of actual data of consumption by Nasdaq, considering only Nasdaq's tenancy, when operating within a multi-tenant building.
2. Full year of actual data for the entire building within which the Nasdaq space is located. Nasdaq's proportionate share of the consumption was then calculated by using the building's occupied square footage.
3. Where data was unavailable, estimates were calculated using assumptions based on site location, amenities within the space, rentable or actual square footage, and/or headcount.

Table 12: GHG Summary and Purchase of RECs and Offsets

		2021 Emissions (MT CO2e)	2020 Emissions (MT CO2e)	2019 Emissions (MT CO2e)	Annual MT Difference 2021 vs 2020	Annual % Difference 2021 vs 2020
Scope 1:	On-Site Combustion	0.5	2.7	0[1]	(2.2)	(81.5)%
	Sub-Total	**0.5**	**2.7**	**0**	**(2.2)**	**(81.5)%**
Scope 2:	Office Space Location based	8,020	7,027	8,683	993	14.1%
	Data Centers Location based	17,272	14,638	12,207	2,634	18.0%
	Office Space Market based	0	0	0	0	0.0%
	Data Centers Market based	0	0	0	0	0.0%
	Sub-Total	**25,292**	**21,665**	**20,890**	**3,627**	**16.7%**
Scope 3:	1. Goods & Services	68,340[2]	38,795[3]	7,696[4]	29,545	76.2%
	2. Capital Goods	3,538	10,219	N/A	(6,681)	(65.4)%
	5. Waste	132	222	165	(90)	(40.6)%
	6. Business Travel	1,636	3,493	13,695	(1,857)	(53.2)%
	7. Employee Commute	993	2,841	6,919	(1,848)	(65.0)%
	13. Downstream Leased Assets	169	N/A	N/A	169	N/A
	15. Investments	1,870	N/A	N/A	1,870	N/A
	Sub-Total	**76,678**	**55,570**	**28,475**	**21,108**	**38.0%**
TOTAL		**101,971**	**77,238**	**49,365**	**24,733**	**32.0%**

1 Diesel not calculated in 2019

4 Scope 3, Category 1 only included facility related operational goods and services in 2019

3 Scope 3, Category 1 & Category 2 only included tangible goods and services in 2020

2 Scope 3, Category 1 & Category 2 included tangible and intangible goods and services in 2021

Note: Scope 3: Category 4 - Upstream Transport and Category 8 - Upstream Leased Assets are included in Category 1 - Goods and Services. Categories 3, 4, 8, 9, 10, 11, 12, 14 were not included for 2021.

Note: All the above emission data was calculated in accordance to the GHG Protocol guidelines.

Table 13: Full GHG Inventory from baseline year (2019) to current reporting year (2021)

(In Metric tons CO2e)	2021	2020	2019 (Baseline)	% Change (2019 Baseline to 2021 Current Reporting Year)
		Scopes 1 & 2		
Scope 1	0.5	2.7	0	(100)%
Scope 2 (Location-based)	25,292	21,665	20,890	21%
Scope 2 (Market-based)	0	0	0	0%
Total Scopes 1 & 2 (Location-based)	**25,293**	**21,668**	**20,890**	**21%**
Total Scopes 1 & 2 (Market-based)	**0**	**0**	**0**	**0%**
		Scope 3		
1. Goods & Services	68,340	38,795	7,696	788%
2. Capital Goods	3,538	10,219	-	-
5. Waste	132	222	165	(20)%
6. Business Travel	1,636	3,493	13,695	(88)%
7. Employee Commute	993	2,841	6,919	(86)%
13. Downstream Leased Assets	169	-	-	-
15. Investments	1,870	-	-	-
Total Scope 3	**76,678**	**55,570**	**28,475**	**169%**
		All Scopes (1,2,3)		
Total Scopes 1-3 Emissions	**101,971**	**77,238**	**49,365**	**107%**

Note: this integrates location-based Scope 3 emissions, not market-based Scope 2 emissions.

Sourcing Renewable Energy

Table 14 below summarizes Nasdaq's energy consumption based on categorization of renewable or non-renewable energy, and indicates renewable energy certificates acquired by Nasdaq to balance non-renewable energy consumption.

Table 14: Nasdaq's Energy Mix

Energy	2021	2020	2019
Renewable Energy (MWh)	60,777	49,272	47,543
Non-Renewable Energy (MWh)	10,010	10,628	10,630
Total Consumption (MWh)	70,787	59,900	58,173
Renewable Energy Certificates (MWh)	10,010	10,628	12,073

Intensity Metrics

Table 15 and Charts 1 through 3 below illustrate Nasdaq's energy consumption from an energy intensity perspective.

Table 15: Emissions and energy intensity per full-time employee and per million dollars of revenue

Metric	2021	2020	2019 (Baseline)	% Change (2019 Baseline to 2021 Current Reporting Year)
Number of full-time employees[1]	5,814	4,830	4,361	33%
Million USD net revenue	3,420	2,903	2,535	35%
Absolute Energy Consumption (MWh) (Scopes 1 & 2)	75,142[2]	62,364[2]	59,624	26%
Energy Intensity (MWh / FTE)	12.9	12.9	13.7	(5.84)%
Total Scope 1 and Scope 2 (Market-Based) Emissions per million USD revenue[3]	0	0	0	0%
Scope 3 Business Travel emissions per FTE	0.28	0.72	3.14	(91)%
Total Scopes 1-3 (Location-Based) Emissions per % million revenue[3]	29.72	15.99	11.38	161%

1 Employee headcount as of December 31, 2021, 2020, 2019.

2 Includes fuel, electricity, heating & cooling.

3 Net revenues reported from full-year results.

Chart 1: Intensity Metric for Scope 1 and Scope 2 (Location-Based) Emissions per Employee

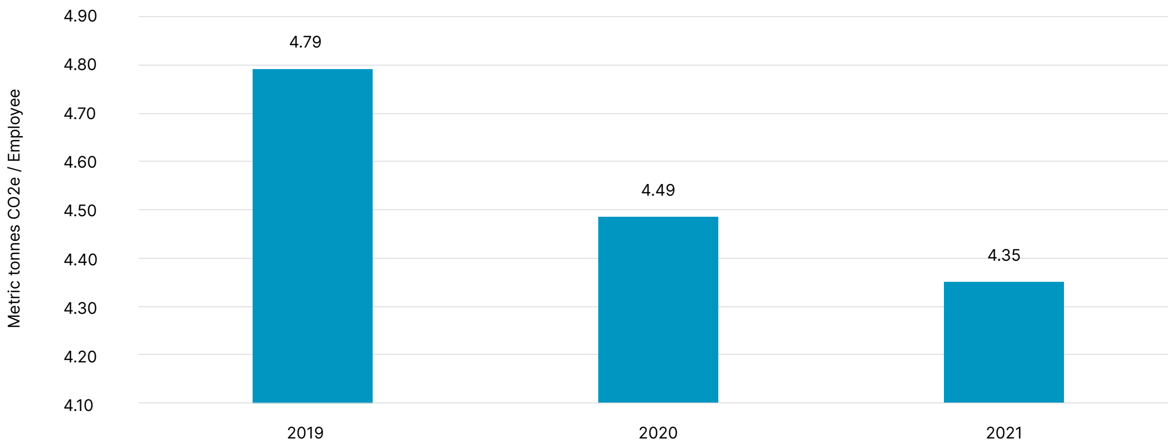


Chart 2: Intensity Metric for Scope 1 and Scope 2 (Location-Based) Emissions per million USD net revenue

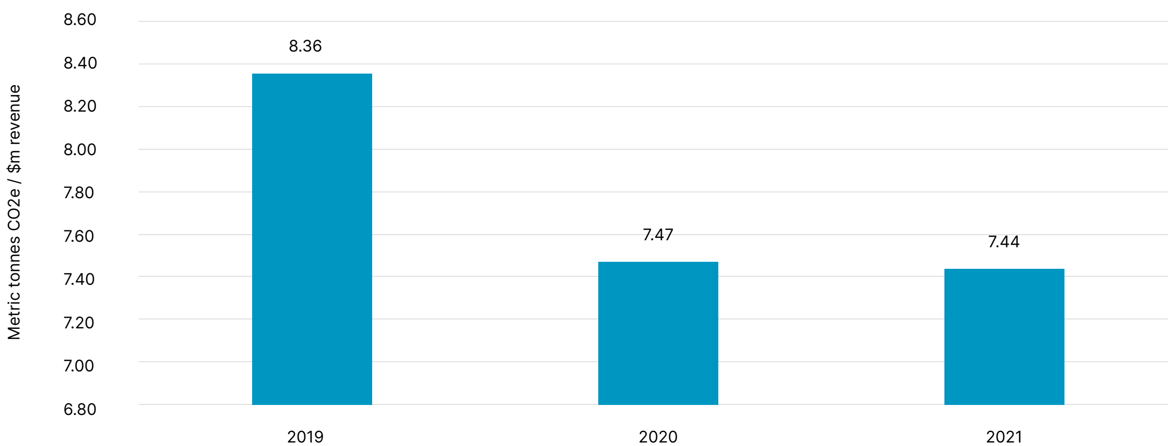
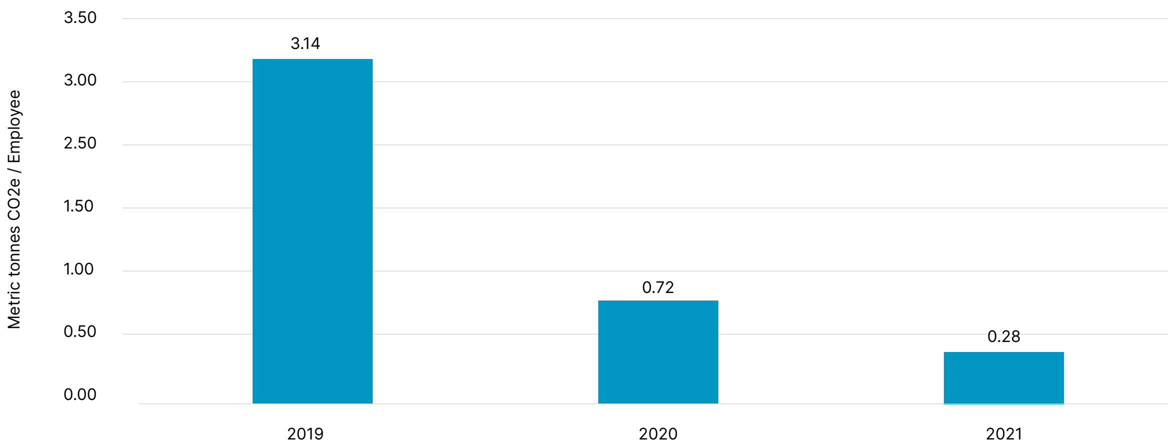


Chart 3: Intensity Metric for Scope 3 Business Travel Emissions per Employee



Climate-related targets

As detailed earlier within this report, our commitment to set Science-Based Targets, undertaken in 2021, reflects our dedication to a low-carbon economy. Our Science-Based Targets efforts are expected to reduce our exposure to transition risks across policy/legal, market, technology, and reputation risk categories.

In 2021, we again achieved carbon neutrality. This was attained through the purchase of carbon offsets, after accounting for the sourcing of renewable electricity. This year represents the fourth consecutive year of Nasdaq's Carbon Neutrality program, applied across our Scope 1, Scope 2, and relevant Scope 3 emissions. We have also committed to sourcing 100% of our electricity directly from renewable sources, and procuring Renewable Energy Certificates where this is not possible.

Since 2018, we have sought to account for additional categories of Scope 3 emissions. We aim to eventually be able to effectively report all of our upstream and downstream emissions, and continue to fully offset these amounts to remain carbon neutral based on reported emissions. We seek to follow current best practices by only sourcing carbon offsets from projects that focus on carbon removal rather than carbon avoidance.

We are committed to ongoing enhancement of disclosures in accordance with the TCFD recommendations, and to engaging with our market participants to support the shift towards more sustainable and inclusive capital markets. Beyond our own internal efforts, we are working to encourage our suppliers to adopt sustainability and environmental practices in line with our Environmental Practices Statement and our Supplier Code of Ethics, and to report on their decarbonization efforts through CDP.

In 2022, we are pursuing Green Building Council Certification for eight more of our offices. We spent approximately $385,000 on LEED certification and building improvements throughout 2021. By 2030, we aim to have achieved Green Building Council Certification for all of our key offices. To further improve the resource efficiency and resilience of our facilities, we are developing an Environmental Management System (as detailed earlier within this report), to cover all of Nasdaq's real estate and data center operations according to ISO14001 standards.

Nasdaq's Plans

Nasdaq aims to continue to build further capacity for enhancing disclosures against the TCFD recommendations in terms of detail, and complexity of analysis. Our future plans towards TCFD fall under three key objectives:

1. Enhance scenario analysis coverage

We expect to further enhance scenario analysis coverage by continuing to explore the vulnerability of our direct operations to physical climate hazards, aiming to project possible financial impacts related to business disruption and the costs of mitigation. Additionally, we aim to expand the scope of analysis to broader aspects of our value chain beyond our direct operations, to achieve a more comprehensive understanding of the possible indirect impacts of physical climate risks.

2. Set ambitious emissions reduction targets

Nasdaq has committed to the Science Based Targets initiative (SBTi). Following the verification of our own science-based emissions targets, we plan to develop supplier engagement targets to encourage our suppliers to also implement science-based targets of their own. We are also exploring additional metrics to track exposure to climate risks and opportunities, including suppliers' climate risks and their potential impacts on our business operations and value chain.

3. Support clients in achieving their ESG Objectives

Nasdaq is fully committed to continuing our ESG efforts and to supporting the shift towards more sustainable and inclusive capital markets. As such, we are dedicated to the continued development and expansion of our ESG-related products and services and to sharing our issuers' perspectives with the industry and regulators, as outlined within this report. We expect opportunities for ESG-related products and services to continue to become more and more prevalent, and in addition to expanding the scope of our current ESG product and service offerings, we anticipate continuing to invest in emerging companies in the ESG products and services space, as this is a rapidly growing market sector ripe with innovation.

Disclaimers

This report focuses on Nasdaq's operations from January 1, 2021, through December 31, 2021, unless otherwise indicated. The report uses qualitative descriptions and quantitative metrics to describe our policies, programs, practices and performance. Note that many of the standards and metrics used in preparing this report continue to evolve and are based on management assumptions believed to be reasonable at the time of preparation, but should not be considered guarantees. In addition, historical, current and forward-looking sustainability-related statements may be based on standards for measuring progress that are still developing, internal controls and processes that continue to evolve, and assumptions that are subject to change in the future. The information and opinions contained in this report are provided as of the date of this report and are subject to change without notice. Nasdaq does not undertake to update or revise any such statements. The information included in, and any issues identified as material for purposes of, this document may not be considered material for SEC reporting purposes. In the context of this disclosure, the term "material" is distinct from, and should not be confused with, such term as defined for SEC reporting purposes.

This report covers our owned and operated businesses and does not address the performance or operations of our suppliers or contractors unless otherwise noted. All financial information is presented in U.S. dollars unless otherwise noted.

This report contains forward-looking statements relating to Nasdaq's operations that are based on management's current expectations, estimates and projections. See the "Cautionary Note Regarding Forward-Looking Statements" below.

Therefore, the actual conduct of our activities, including the development, implementation or continuation of any program, policy or initiative discussed or forecasted in this report, may differ materially in the future. As with any projections or estimates, actual results or numbers may vary.

Cautionary Note Regarding Forward-Looking Statements

Information set forth in this communication contains forward-looking statements that involve a number of risks and uncertainties. This report contains forward-looking statements relating to Nasdaq's operations that are based on management's current expectations, estimates and projections regarding the ESG matters described in this report. Words or phrases such as "expect," "intends," "plans," "targets," "believes," "seeks," "may," "could," "should," "will," "goals," "objectives," "strategies," "opportunities," and similar expressions are intended to identify such forward-looking statements. Nasdaq cautions readers that any forward-looking information is not a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking information. Such forward-looking statements include, but are not limited to (i) statements about our climate, ESG or sustainability policies, programs, products or initiatives, (ii) projections relating to our future financial results, total shareholder returns, growth, trading volumes, products and services, order backlog, taxes and achievement of synergy targets, (iii) statements about the closing or implementation dates and benefits of certain acquisitions or divestitures and other strategic, restructuring, technology, de-leveraging and capital return initiatives, (iv) statements about our integrations of our recent acquisitions, (v) statements relating to any litigation or regulatory or government investigation or action to which we are or could become a party, and (vi) other statements that are not historical facts. Forward-looking statements involve a number of risks, uncertainties or other factors beyond Nasdaq's control. These factors include, but are not limited to, Nasdaq's ability to implement its strategic initiatives, economic, political and market conditions and fluctuations, government and industry regulation, interest rate risk, U.S. and global competition, and other factors detailed in Nasdaq's filings with the U.S. Securities and Exchange Commission, including its most recent Form 10-K and quarterly reports on Form 10-Q, which are available on Nasdaq's investor relations website at http://ir.nasdaq.com and the SEC's website at www.sec.gov. Nasdaq undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.

Website Disclosure

Nasdaq intends to use its website, ir.nasdaq.com, as a means for disclosing material non-public information and for complying with SEC Regulation FD and other disclosure obligations.

0936-Q22