



CD | Climate Data
SC | Steering Committee

PROGRESS REPORT

DECEMBER 2023

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Foreword

Climate change presents widespread risks to businesses, ecosystems, and people around the world, but the needed transition to a net-zero economy also presents exceptional opportunities. Action on climate change means nothing short of global economic transformation—undertaking the biggest restructuring of the energy system since the industrial revolution, while providing clean, reliable, secure, and affordable energy to all.

To achieve a net-zero future, we must translate net-zero commitments into specific actions, metrics, and governance mechanisms through the development and management of transition plans. A key impediment to developing effective transition plans is the lack of accessible, accurate, and verifiable private sector climate transition-related data. Every good plan needs good data, and we need the right data at speed and scale.



Mary Schapiro
Chair, Climate Data Steering Committee

Reflecting on progress to date, I am pleased to see how far we have come. The Task Force on Climate-related Financial Disclosures set the stage with its voluntary disclosure framework in 2017 and has found increasing disclosure of climate-related information every year since. Climate disclosure mandates and standards, including those that draw from the TCFD's framework, are now poised to cover thousands of companies globally. With better information available, more companies are also setting climate-related targets and embracing transition planning.

However, time is not on our side. We urgently need more comparable, high-quality private sector climate data to capitalize on the transition and avoid the worst impacts of climate change.

It is my honor to Chair the Climate Data Steering Committee, which French President Emmanuel Macron and Mike Bloomberg founded to help tackle this challenge. The Committee's November 2022 recommendations for the development of the Net-Zero Data Public Utility were a first step appropriately focused on the technically complex challenge of bringing unprecedented transparency to the carbon emissions data that underpin global efforts on climate.

I am now delighted to welcome the significant milestone of the Net-Zero Data Public Utility proof of concept in line with the Committee's recommendations. The proof of concept delivers an infrastructure to bring critical access and transparency to global climate transition-related data for the first time. I commend the NZDPU for its rapid delivery of this ambitious solution.

The time needed for the NZDPU to achieve its full potential will be proportionate to the inputs it receives. Its next phase depends on engagement, collaboration, and contribution from stakeholders to tackle challenges that affect not only the NZDPU but data users and preparers globally.

While there is much work ahead, from here, we can chart a path forward together.

Mary Schapiro

Mary Schapiro
Chair, Climate Data Steering Committee

Executive Summary

A lack of private sector climate data availability and quality continues to impede global efforts to understand entity-level GHG emissions, set science-based emissions reduction targets, and create and execute on net-zero transition plans.

In November 2022, the Climate Data Steering Committee (the Committee or CDSC) came together to publish recommendations for the development of an open data utility for private sector climate transition-related data: the Net-Zero Data Public Utility (NZDPU or Utility).^{1,2}

The NZDPU aims to provide a centralized repository for all stakeholders to easily access and interpret a core set of private sector climate data that is critical for the net-zero transition. As a global resource, it is designed to integrate with the United Nations Climate Change (UNFCCC) Global Climate Action Portal (GCAP).

Welcoming the Net-Zero Data Public Utility

Just one year after the CDSC recommended the creation of the NZDPU, and six months after securing technical resources needed to build it, a proof of concept version has been developed and released for public consultation.

Consistent with the scale and complexity of this effort, the NZDPU proof of concept is scoped to show an initial set of key features and functionality.

The NZDPU proof of concept represents a significant milestone in a phased and iterative approach toward achieving the Committee's vision for a global, centralized, open repository for climate transition-related data.

The priority in this phase of development is to deliver the foundational architecture to allow for scaling accessibility of companies' direct (Scope 1) and indirect (Scope 2 and Scope 3) greenhouse gas (GHG) emissions, as this data is essential for understanding a company's impacts, exposure to climate-related financial risks, and the mechanisms to identify, measure, and manage them. The inclusion of emissions reduction targets data has also been prioritized in this phase, as transparency over progress in reducing GHG emissions is crucial.

This report describes the Committee's assessment of progress toward meeting its initial recommendations for the NZDPU.

After the first step of the NZDPU proof of concept, public feedback will inform the Committee's work and future releases of the NZDPU as it continues to develop. The Committee invites stakeholders to engage with the NZDPU and provide feedback on the NZDPU proof of concept through a public consultation held through Friday, March 1, 2024. The consultation solicits input on the features, functionality, data model, and use cases for the NZDPU, and areas of further work to improve private sector climate data.

Scaling and Connecting Through Collaboration

The NZDPU cannot achieve its full potential alone at the speed and scale required. The Committee recognizes the efforts of existing initiatives to help drive the availability and quality of private sector climate data and envisions that the NZDPU will centralize data from a variety of different sources, building on the important work done by a range of organizations to increase the transparency of climate data.

Collaborations to connect existing work to transmit data into the NZDPU will be critical in increasing company coverage while limiting the reporting burden for companies by avoiding redundant submission processes.

The Committee anticipates that the NZDPU will include many areas for future review and its development will be an ongoing and iterative process, integrating additional data and feedback from policymakers, industry leaders, and data users over time.

Recognizing the high level of ambition and complexity of this work, the Committee calls on all stakeholders to support the NZDPU in reaching its full potential to become a global solution and a global public good.

1 CDSC, *Recommendations for the Development of the Net-Zero Data Public Utility*, November 2022.

2 In this report, climate transition-related data refers to private sector climate data that can be used to inform or provide transparency on the transition to a net-zero economy, or more broadly, climate change mitigation. It is inclusive of, but not limited to, data on entity-level emissions, net-zero transition strategies, transition-related investment, and climate-related risks and opportunities.

Driving Further Progress

Continued progress across several critical areas will be needed to increase the availability, quality, and comparability of climate data. The Committee calls on its Members and other stakeholders to support further progress in these areas, as follows:

Capacity building: The Committee encourages all stakeholders to contribute to efforts that help companies build capacity to publicly disclose climate data, including those focused on certain regions or jurisdictions, industries, or company sizes.

Driving global momentum on disclosure: The Committee encourages efforts to help companies around the world publicly disclose more comprehensive, high-quality climate data.

Interoperability of disclosure frameworks: The Committee encourages continued collaboration among policymakers, regulators, and other stakeholders to advance interoperability as climate reporting and disclosure practices mature and evolve.





Assurance and verification: The Committee encourages efforts from assurance practitioners to drive consistency in definitions, approaches, and requirements for assurance and verification of climate data.

What is the NZDPU Proof of Concept?

The NZDPU proof of concept delivers a data model and user interface, which show that it is possible to make climate transition-related data freely available in one place with enhanced consistency and transparency.

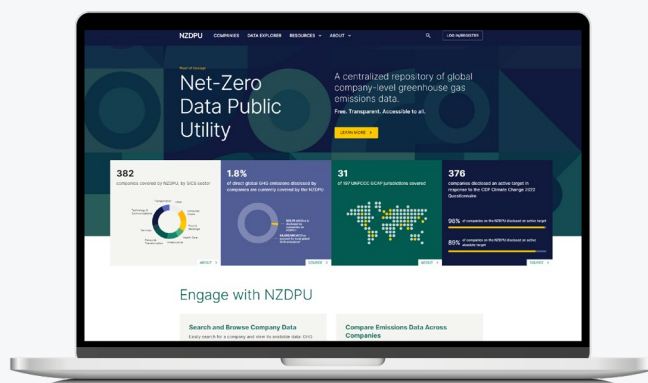
Core Data Model

The first version of the NZDPU Core Data Model creates a structure and granularity for significantly increased transparency of climate transition-related data.

-  Direct (Scope 1 GHG emissions)
-  Indirect (Scope 2 and Scope 3 GHG emissions)
-  GHG emissions reduction targets
-  Relevant metadata

User Interface

NZDPU.com includes features and functionality that enable users with varying levels of expertise to navigate the NZDPU.



Populated with a sample set of nearly 400 companies that disclose publicly through CDP, the proof of concept allows users to experience an initial set of features and functionality.

The Climate Data Steering Committee

The Climate Data Steering Committee was established by French President Emmanuel Macron, following the announcement of the One Planet Data Initiative, and UN Special Envoy on Climate Ambition and Solutions Michael R. Bloomberg in June 2022 in response to a global climate data challenge.

The Committee aims to accelerate and help build a broadly accessible foundation of high-quality private sector climate data that is critical to delivering the net-zero transition. Bringing together global leaders, including regulators, policymakers, and standards setters, informed by data service providers and civil society organizations, the Committee works to address climate data challenges across the global economy.

CDSC Members:	
Mary Schapiro	Chair, Climate Data Steering Committee
Ashley Alder	Chair, Financial Conduct Authority (FCA), United Kingdom
Bruno Le Maire	Minister for the Economy, Finance and the Recovery and Industrial and Digital Sovereignty, France
Daniela Stoffel	State Secretary for International Finance (SIF), Swiss Federal Department of Finance, Switzerland
Emmanuel Faber	Chair, International Sustainability Standards Board (ISSB)
Fatih Birol	Executive Director, International Energy Agency (IEA)
Jean-Paul Servais	Chair, International Organization of Securities Commissions (IOSCO)
Klaas Knot	Chair, Financial Stability Board (FSB)
Kristalina Georgieva	Managing Director, International Monetary Fund (IMF)
Mairead McGuinness	Commissioner for Financial Stability, Financial Services, and the Capital Markets Union, European Commission
Mario Marcel	Minister of Finance, Chile
Mark Carney	Co-Chair, Glasgow Financial Alliance for Net Zero (GFANZ)
Mathias Cormann	Secretary-General, Organisation for Economic Co-operation and Development (OECD)
Matthew Opoku Prempeh	Minister of Energy, Ghana
Nellie Liang	Under Secretary for Domestic Finance, United States Treasury Department
Patrick de Cambourg	Chair of Sustainability Reporting Board, European Financial Reporting Advisory Group (EFRAG)
Ravi Menon	Managing Director of the Monetary Authority of Singapore (MAS) and Chair of the Network for Greening the Financial System (NGFS)
Shigeru Ariizumi	Vice Minister for International Affairs, Japan Financial Services Agency (JFSA)
Simon Stiell	Executive Secretary, United Nations Framework Convention on Climate Change (UNFCCC)
CDSC Observer:	
Catherine McKenna	Chair, United Nations' High-Level Expert Group on Net-Zero Emissions Commitments of Non-State Entities

The Committee oversees the ongoing development of the NZDPU and seeks input, ideas, and expertise from its Members and advisors, outreach to relevant stakeholders, and public consultation. It will also make use of existing work by international bodies and others and consult with those bodies when appropriate.

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1. Introduction

The effects of global anthropogenic climate change are already apparent, with increasing severity and frequency of extreme weather events causing widespread damage to nature and people.³ The Intergovernmental Panel on Climate Change (IPCC) estimates that GHG emissions must drop by approximately 50% by 2030 compared with 2019 levels—and reach net zero by 2050—for there to be a chance to limit warming to 1.5 degrees Celsius to prevent the worst impacts of climate change.^{4,5}

As of 2023, 149 nations, representing 92% of global gross domestic product, have set net-zero targets. Of these countries, more than 70 have enshrined climate targets aligned with net zero into legislation or prescribed them in policy.^{6,7} Achieving net zero will require an unprecedented global effort to transform the global economy—founded in data.

Governments and regulators need climate data to establish emissions baselines, craft evidence-based climate mitigation and adaptation policy solutions, develop long-term implementation strategies, and measure progress toward their Nationally Determined Contributions.^{8,9} Among other purposes, financial regulators and central banks need climate data to better assess and manage the potential financial stability and systemic risks associated with climate change.

The private sector also has a critical role in achieving net-zero targets. Companies are a source of innovation and capacity to develop the products, services, and business models aligned to delivering a net-zero economy. Companies contribute to GHG emissions through the choices they make. How they structure their core operations, the type of energy they consume, the goods and services they purchase, and the GHG emissions produced when their products or services are used, are decisions based on data.

While all types of companies require high-quality information to inform their decision-making, financial institutions in particular need climate transition-related data from their portfolio companies. Financial institutions increasingly look to assess and price exposure to climate-related risks, allocate capital, develop and implement transition plans, and respond to investor needs. Given the right information, they will also be better able to benefit from the opportunities in the net-zero transition and to engage with portfolio companies on opportunities to reduce GHG emissions.

Encouragingly, nearly half of the world's 2,000 largest publicly listed companies have net-zero targets, doubling from 417 to 929 in a little over two years.¹⁰ Such targets require companies to start by calculating their current GHG emissions. Then, they use available data and science-based methodologies to develop and implement net-zero transition plans that translate their commitments into action.

As understanding of the potential implications of climate change grows, companies and investors can more accurately measure and implement strategies to manage the associated impacts, risks, and opportunities. With encouraging trends in private sector disclosure and net-zero target setting, there is more climate data available from companies than ever before.¹¹

A Global Climate Data Challenge

However, the current state of climate data presents challenges to achieving the necessary pace and scale of the net-zero transition.

3 IPCC, *Synthesis Report of the IPCC Sixth Assessment Report*, March 20, 2023.

4 Ibid.

5 Net zero is cutting GHG emissions to as close to zero GHG emissions as possible, with any remaining GHG emissions re-absorbed from the atmosphere by, for instance, oceans and forests. UN, "For a livable climate: Net-zero commitments must be backed by credible action," Accessed November 8, 2023.

6 Countries include all UN-recognized countries and a number of self-governing territories and dependencies that comprise of 203 in total. Hale, Thomas et al., *Assessing the rapidly-emerging landscape of net zero targets*, December 19, 2021.

7 Net Zero Tracker, *Net Zero Stocktake 2023*, June 11, 2023, p. 4.

8 IMF, *G20 DGI Recommendations*, March 2023.

9 UNFCCC, *Good Practices in NDC Updates and Implementation*, June 2021.

10 Net Zero Tracker, *Net Zero Stocktake 2023*, June 11, 2023, p. 4.

11 According to the 2023 TCFD Status Report, based on a sample of company disclosures reviewed, the overall number of TCFD-aligned climate-related disclosures has increased over the previous three years. TCFD, *2023 Status Report*, October 12, 2023.

The G20's Data Gaps Initiative notes that "to develop the right policy measures to tackle [challenges including climate change,] policymakers need robust, comprehensive, and comparable data. However, data gaps exist in several areas that limit the ability to develop the right policy measures."¹² Its third workplan recognizes the need to address gaps in national- and enterprise-level GHG emissions data and other climate-related indicators.

In its November 2022 *Recommendations for the Development of the Net-Zero Data Public Utility*, the Committee found that the lack of high-quality, widely accessible private sector climate data is a barrier to nations, financial institutions, and non-financial companies measuring progress toward net-zero targets, developing and implementing transition plans, and effectively managing climate-related impacts, risks, and opportunities.

Although GHG emissions are arguably today's most widely available and mature climate-related metrics, more than half of companies still do not publicly report their Scope 1 and Scope 2 GHG emissions.¹³ As a necessary input for calculating other climate-related metrics and setting targets, an absence of GHG emissions reporting often leads to further information gaps across a value chain. Even when private sector climate data is publicly disclosed, it may not be easily accessible or comparable. The methodologies used, scope of reporting, and quality of data can vary widely and evolve frequently. Companies often do not have comprehensive access to data within their supply chain or technology solutions for data management. Credibility of progress toward climate targets can be difficult for users to assess, particularly where data is not reported in a consistent manner.

Advancing Solutions Together

The urgent implications of climate change call for the rapid development of a robust global infrastructure for sourcing and reporting private sector climate data. Building this infrastructure will require continued and increased collaboration from a range of stakeholders that are data users and preparers.

There are many stakeholder types with varying roles in advancing the quality, availability, and comparability of climate data. Flows of climate data are complex—and sometimes circular—as information is created, collected, shared, analyzed, and used. Financial and non-financial companies, policymakers, data service providers, statistical offices, disclosure platforms, and others are often interconnected in driving both the supply and demand of information.

In line with the need for strengthened collaboration across stakeholders, the CDSC convenes global leaders to help address challenges for private sector climate data. The Committee comprises regulators, policymakers, international organizations, and standards setters, informed by data service providers, civil society organizations, and other climate data experts.¹⁴ Building on the efforts of its Members, the Committee aims to work collaboratively to accelerate and help build a broadly accessible foundation of core, high-quality, private sector climate data that is critical to delivering the net-zero transition.

The Net-Zero Data Public Utility

In November 2022, the Committee recommended the creation of the NZDPU—a global, centralized, open repository for all stakeholders to easily access and interpret a core set of private sector climate transition-related data. This report describes the Committee's assessment of progress toward meeting its recommendations for the NZDPU, which will be delivered in a phased and iterative approach.

The Committee envisioned that the NZDPU would incorporate climate disclosure requirements, build on the crucial work of existing data platforms, and help to drive consistency in data, analytics, and derived content. As a component of a growing global climate data architecture, the Utility is being designed to be integrated with the UN Climate Change GCAP.

The Committee oversees the NZDPU's ongoing development and will continue to engage stakeholders, as appropriate, on key drivers for achieving its vision for the Utility, encourage the NZDPU's use and accessibility, and consider further recommendations for the most ambitious and operational solution possible.

¹² IMF, *Data Gaps Initiative 3: Workplan*, March 2023, p. 3.

¹³ Sustainalytics, "Carbon Emissions Data for Investors: Closing the Reporting Gap and Future-Proofing Estimations," February 8, 2023. Figure does not include companies that privately disclose GHG emissions or other climate-related information.

¹⁴ See Appendix 1: Advice and Input for more information on the Committee's advisors.

For the NZDPU to achieve its potential, all stakeholders, data users, and data preparers—including the organizations and governments represented by the CDSC—must continue to drive progress on conditions to facilitate companies’ disclosure of high-quality, comparable climate transition-related data.¹⁵

The CDSC progress report describes the progress made over the past year in meeting the Committee’s 2022 recommendations for the creation of the NZDPU, as well as progress made and required more broadly for the Utility to reach its full potential. [Section 2](#) of this report welcomes the NZDPU proof of concept and describes the key features and functionality, data model, and importance of collaborations in connecting efforts to realize the vision for the Utility. [Section 3](#) describes the key areas of importance for the climate data community to make continued progress on to improve climate data availability, comparability, and quality, which in turn will support the NZDPU in achieving its full potential. [Section 4](#) describes the ways stakeholders can get involved and contribute to the further development of the Utility.

“ Access to quality, comparable climate data from non-state actors is essential for driving accountability for their critical role in the net-zero transition. The Net-Zero Data Public Utility proof of concept shows that it is possible to provide the transparency the world needs to ensure these commitments turn into real action. I look forward to the further development of the NZDPU and its integration with the UN’s Global Climate Action Portal to present a clear, comprehensive view of global climate action. ”

Simon Stiell

Executive Secretary, United Nations Framework Convention on Climate Change (UNFCCC)

Initial Vision for the NZDPU

In its 2022 Recommendations for the Development of the Net-Zero Data Public Utility, the Committee described a vision for the NZDPU as follows:

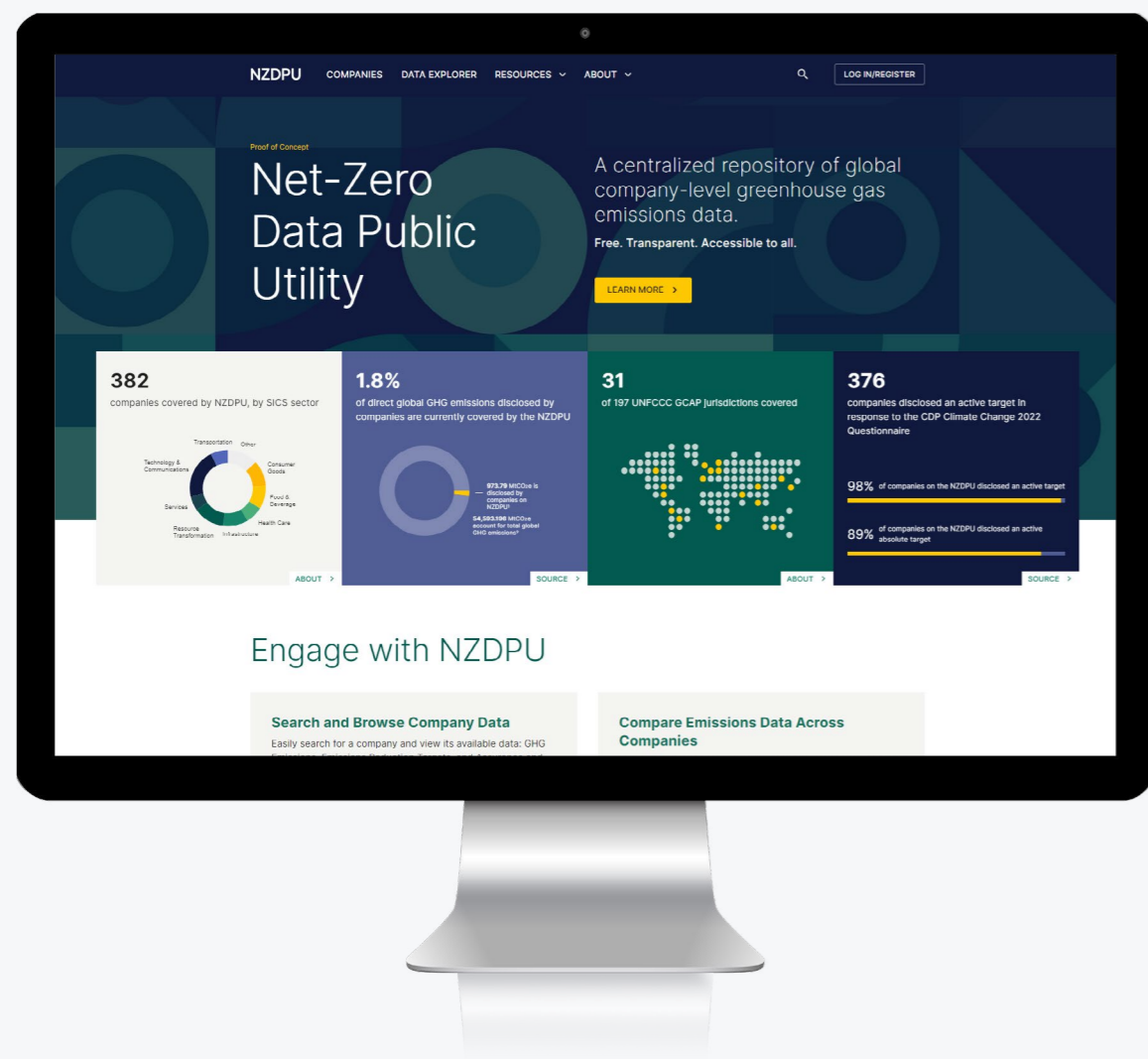
- The NZDPU aims to become a trusted central source of verifiable data. The NZDPU will initially focus on standardized direct (Scope 1) and indirect (Scope 2 and 3) gross and net entity-level GHG emissions data. This initial focus will include target and carbon credit data.
- The NZDPU’s flexible data model will be designed to augment transparency and, through coordination with policy-oriented bodies, will seek to harmonize the data it offers with existing and future global and regional regulatory requirements and standards, where possible.
- Data and statistical classifications will be open and available to the public, for all use cases, at no charge. The NZDPU will be operated for the sole purpose of providing the data and transparency needed to facilitate the transition to net zero.
- The NZDPU will be designed to be part of the UNFCCC’s Global Climate Action Portal.

- *Recommendations for the Development of the Net-Zero Data Public Utility*, November 2022

¹⁵ The Committee recognizes that the NZDPU will be obligated to observe licensing and other legal restrictions in its collection of climate transition-related data.

Welcoming the Net-Zero Data Public Utility

The Committee is pleased to welcome **the NZDPU proof of concept**, launched just six months after securing technical resources to build it.



Consistent with the scale and complexity of developing a global, centralized, open data repository, **the proof of concept is a significant milestone in a phased and iterative approach** toward achieving the vision for the NZDPU set out by the Committee only a year ago. We call on all stakeholders to support the NZDPU in reaching its potential to become a global solution and a global public good.

Statements from Climate Data Steering Committee Members

“ I am very encouraged to see the great progress that has been made in developing the NZDPU proof of concept. I believe that the team is truly bringing to life the vision that was set out in the CDSC’s 2022 whitepaper. We, the FCA, see the Utility as an important element of the future transition data ecosystem – providing data in a comparable, consistent and openly-accessible manner that the market urgently needs. We also see valuable alignment between the Utility and the work of the UK’s Transition Plan Taskforce and see a future where these initiatives work in harmony to drive international progress on the global transition to net zero. The FCA looks forward to contributing to the continued development of the NZDPU. ”

Ashley Alder
Chair, UK Financial Conduct Authority

“ Just as Switzerland plays a unique and crucial role in the global financial system, our financial institutions will have a unique and crucial role to play in accelerating the transition to net zero. The NZDPU has the potential to be a true game changer that will help strengthen the transparency, comparability and accessibility of private sector climate data. We are proud to encourage Swiss financial institutions to actively participate in the testing, development, and wide adoption of this important platform. ”

Daniela Stoffel
State Secretary for International Finance, Swiss Federal Department of Finance

“ The Financial Stability Board strongly supports steps to develop consistent, comparable and decision-useful data for monitoring climate-related financial risks. We welcome the ongoing development of this Utility which will help ensure that this foundational data becomes widely available, and in a standardised form that is consistent with the ISSB’s global standard on climate-related disclosures and interoperable with jurisdictional disclosure frameworks. ”

Klaas Knot
Chair, Financial Stability Board

“ Policy decisions at a time of transition to a low-carbon economy must be based on robust and consistent data. This is why the IMF and our counterparts in central banks and finance ministries rely on initiatives such as the Net-Zero Data Public Utility to integrate essential climate data in macroeconomic and financial analysis. Together with the new G20 Data Gaps Initiative this work is essential to close critical climate-related data gaps. ”

Kristalina Georgieva
Managing Director, International Monetary Fund

“ This unprecedented resource holds the potential to catalyze a paradigm shift in our collective approach to addressing climate issues. National and local governments are working tirelessly to reduce emissions, but our efforts alone are not enough; the private sector is turning commitments into action—but we must be able to track who is keeping pace. We are encouraged that the data utility will provide investors, shareholders, civil society members, and others with the ability to see the leaders and laggards in the private sector’s shift to net zero. ”

Mario Marcel
Minister of Finance, Chile

“ Comprehensive, verified and comparable data must be at the core of efforts to achieve our collective climate goals – for both public and private sector action. Transformation of the financial sector is a very important part of realising the net zero transition. The Climate Data Steering Committee and the Net-Zero Data Public Utility will help with that – through facilitating verified, consistent and coherent means of reporting on net zero commitments in the financial sector. So I very much welcome the Climate Data Steering Committee’s progress in releasing the Net-Zero Data Public Utility proof of concept. These efforts complement our work at the OECD – where developing and using verifiable data sets based on mutually agreed methodologies is at the heart of our efforts to support better policy making. ”

Mathias Cormann
Secretary-General, Organisation for Economic Co-operation and Development

“ Credible and comparable data is foundational for financial institutions and the real economy to effectively decarbonise and transition to net zero. A lack of high-quality climate data has been a longstanding challenge. We expect the NZDPU to help stakeholders such as financial institutions better manage their climate risks, channel capital to transition-aligned activities, and demonstrate their accountability and progress in net-zero commitments. ”

Ravi Menon
Managing Director, Monetary Authority of Singapore and Chair of the Network for Greening the Financial System

2. Progress in the Development of the NZDPU

In 2023, a technical team began development of the NZDPU in line with the Committee’s recommendations. Their efforts have included data model research and design, requirements definition, planning, and selecting and managing contractors for the design and technical build of the NZDPU.

Given the scope and complexity of this effort, a range of stakeholders have engaged in the NZDPU development process. In addition to oversight and guidance from the Committee and its advisors, market participants and other potential users have provided input, including focus groups consisting of financial institutions and assurance, verification, and non-financial companies. As described in [Appendix 1: Advice and Input](#), the Committee’s advisors include a Climate Data Expert Advisory Panel (CDEAP), chaired by the UNFCCC, and a Technical Advisory Board that provides technical expertise on the development of the NZDPU in line with the Committee’s recommendations. The Committee is grateful for the contributions of individuals, organizations, and advisors that provided valuable input and feedback to inform the development of this first phase of the NZDPU: the proof of concept.

The proof of concept, available at [NZDPU.com](#), has been designed to prove the technical feasibility of delivering the Committee’s recommendations for a global, centralized, open repository for climate

transition-related data. In addition, the proof of concept is scoped to show an initial set of key features and functionality and solicit stakeholder insights that will help to inform future releases.

The Utility has been designed for a diverse set of users to allow for ease of navigation across the platform—whether users are experienced with data analysis, seeking to educate themselves on climate transition-related data, or interested in becoming involved as a collaborator or focus group participant. To demonstrate the Utility’s potential, direct (Scope 1) and indirect (Scope 2 and Scope 3) GHG emissions, and GHG emissions reduction targets data from approximately 400 companies that disclose publicly through CDP are included in the proof of concept phase.

Informed by user feedback, enhancements will be made to the Utility’s existing features, such as enhanced query filters, more advanced data explorer features, and updates to align with developments to the NZDPU Core Data Model. Recommendations such as list management to allow users to upload a list of companies that can be used for bulk download of data and integrated into screening functionality will create a more individual user experience as they are developed. The Utility will also continue to develop to align with the languages supported by the UNFCCC GCAP.

What is the NZDPU proof of concept?

The purpose of a proof of concept, in general, is to demonstrate the feasibility of a new product or service.

The NZDPU proof of concept includes a core data model, populated with a sample set of nearly 400 companies, and user interface to allow users to experience an initial set of features and functionality.

Core Data Model

The first version of the NZDPU Core Data Model creates a structure and granularity for significantly increased transparency of climate transition-related data.



Direct (Scope 1 GHG emissions)



Indirect (Scope 2 and Scope 3 GHG emissions)



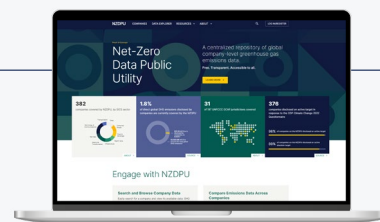
GHG emissions reduction targets



Relevant metadata

User Interface

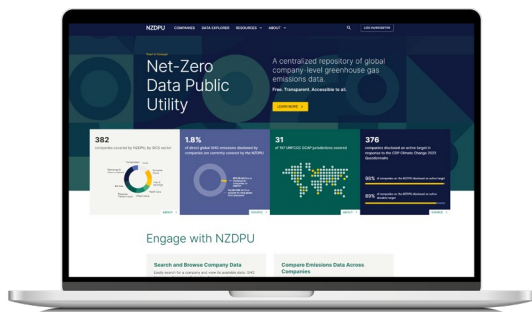
NZDPU.com includes features and functionality that enable users with varying levels of expertise to navigate the NZDPU.



Features and Functionality in the Proof of Concept

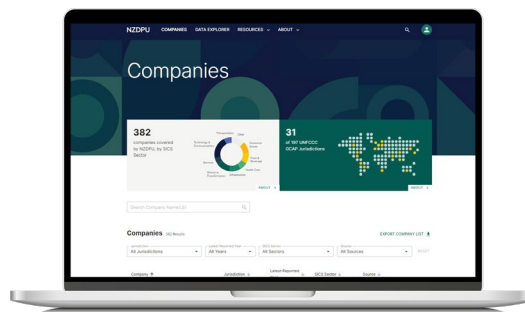
Several key pages in the proof of concept address the Committee’s recommendations for features and functionality in the NZDPU. These pages—a home page, company coverage and search, company profile, and a data explorer—are described below. Progress toward other recommended areas of functionality included in the Utility is described in Table 1.

Home Page



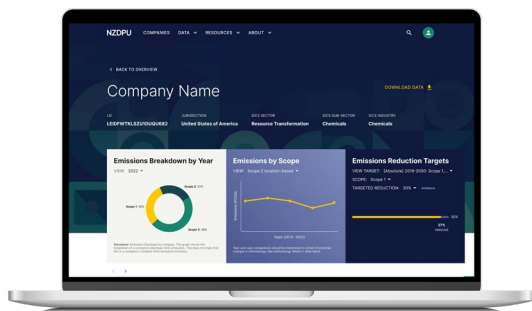
The Committee recommended that the NZDPU should include a “landing page with information on the NZDPU and how to use the platform.” The home page is where users enter the NZDPU. Users can navigate throughout the Utility from the home page and view aggregate company data, information on governance and collaborations, and information on how to get involved. It also includes visualizations to display the NZDPU’s scope of coverage.

Company Coverage and Search



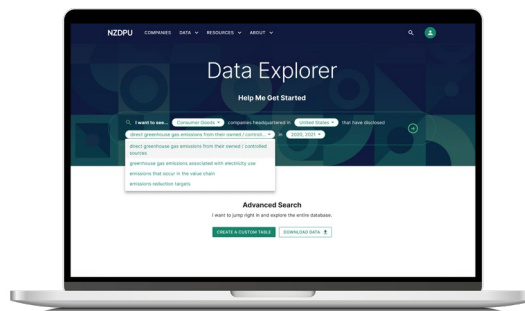
The Committee recommended that the NZDPU should include “coverage lists of entities and links to their profiles, and a search tool with quick access filters to review entities.” Users can view the full list of companies covered by the NZDPU on the company coverage page, browse different companies, and search for individual companies by name or Legal Entity Identifier.

Company Profile



The Committee recommended that the NZDPU should “provide a view into an individual actor’s current and historical data.” Users can visit a page for each company covered by the NZDPU that displays entity-level GHG emissions and emissions reduction targets data with both current and historical views. Various functions allow users to show or hide specific layers of information, which offers flexibility and a more personalized user experience in consuming a large amount of data. A [Data Guide](#) is built into the Company Profile page, supporting users who want to learn more about the data fields.

Data Explorer



The Committee recommended that the NZDPU should include a “tool to search for data across multiple entities to be displayed in tabular form” and that “users should be offered key screening capabilities.” Users can view and filter data across companies covered by the NZDPU and explore data via curated, ready-built queries, or custom-built queries. Users can view the data in a table and download a sample set of data. As the ability to download data from the Utility in bulk is important, the proof of concept allows users to download a sample dataset to preview this feature, with full functionality to be included in further releases.

Table 1

NZDPU Progress Toward Other Recommended Features

Feature	2022 CDSC Recommendation	NZDPU Proof of Concept	Further Iterations
List Management	Ability to upload a list of entities that can be used for bulk download of data and integrated into screening functionality	Not included in proof of concept phase	User experience research will inform future design
User Account and Login	Preparers should be able to access a secure login to input structured data and provide source material to support data verification	Free account registration, login, and management system available for data download	Explore strategies for facilitating disclosure with key stakeholders and collaborators
Data Disclosure Portal	Portal should allow entities to upload relevant data in a standardized entry form	Not included in proof of concept phase	
Data Download	<i>Not specified in the 2022 CDSC recommendations</i>	Bulk data download preview available for sample population of companies	Download of company profile; greater coverage for bulk download; refinement of download format based on user feedback
Resources	All users should be able to access an FAQ for guidance and support, and a contact us/support email for help or feedback	Included in proof of concept, with additional features including built-in data guide and data model and API documentation	Further resources to be developed in response to user needs
General Requirements			
Accessibility	Accessibility features including mobile responsiveness, large text, and audio options in conformance with WCAG 2.1 Level AA that align with UN guidelines ¹⁶	Included in proof of concept	Alignment with changes to UN guidelines as needed
Language	Six official languages of the UN: Arabic, Chinese, English, French, Russian, and Spanish	Proof of concept available in English	Utility available in languages supported by UNFCCC GCAP ¹⁷

16 UN, "Full participation and equality!" Accessed November 8, 2023.

17 United Nations Global Climate Action Portal, "About," Accessed November 8, 2023.

NZDPU Core Data Model

The first version of the NZDPU Core Data Model creates a structure and necessary granularity for significantly increased transparency of private sector climate transition-related data.

The NZDPU Core Data Model is the foundation on which the Utility is built. The first version of the NZDPU Core Data Model is designed to provide a common structure to help users to better compare GHG emissions and emissions reduction targets data reported under different disclosure frameworks, standards, or requirements, and to contribute to ongoing efforts to augment transparency and comparability of climate transition-related data.

In line with the Committee’s recommendation to “align the data it offers with existing and future global and regional regulatory requirements and standards, where possible,” the first version of the NZDPU Core Data Model has been built from two widely applicable disclosure frameworks: the European Sustainability Reporting Standards (ESRS E1), adopted in the European Union in July 2023, based on the expertise of the European Financial Reporting Advisory Group (EFRAG) and from International Financial Reporting Standards S2 Climate-related Disclosures (IFRS S2), developed by the International Sustainability Standards Board (ISSB).^{18,19,20} The NZDPU Core Data Model also incorporates elements from the following GHG emissions standards: GHG Protocol Corporate Standard; GHG Protocol Corporate Value Chain (Scope 3) Standard; ISO 14064-1: 2018; and PCAF Global GHG Accounting and Reporting Standard (Part A – Financed Emissions).^{21,22,23,24}

The NZDPU’s flexible data model will be designed to augment transparency and, through coordination with policy-oriented bodies, will seek to align the data it offers with existing and future global and regional regulatory requirements and standards, where possible.

- *Recommendations for the Development of the Net-Zero Data Public Utility*, November 2022

Mapping of the NZDPU Core Data Model fields to the ESRS E1 and IFRS S2 is currently in process in collaboration with the European Commission and EFRAG and the ISSB, respectively. These requirements and standards are displayed in the [Data Model Blueprint](#) section of the NZDPU proof of concept, where users can preview how data disclosed under these standards will be structured and presented. The format in which the NZDPU displays data reported will be updated as changes are made to the respective digital disclosure taxonomies.

Several individual jurisdictions have also developed guidance, laws, or regulations to solicit climate-related disclosure from companies, as summarized in [Global Momentum on Disclosure](#). The Committee continues to recommend that the NZDPU Core Data Model reflect the current landscape of climate disclosure and be updated in response to new and updated standards and jurisdictional requirements.

Data Fields

The first version of the NZDPU Core Data Model includes a foundational set of fields related to direct (Scope 1) and indirect (Scope 2 and Scope 3) GHG emissions, financed emissions, non-financial company GHG emissions reduction targets, and supporting metadata.²⁵ Such metadata includes data source, reporting boundaries, omissions within reported data, calculation methodologies used, the extent to which an entity relies on carbon credits to achieve climate targets, and assurance or verification conducted on the primary data fields, where available. In addition, to allow for clear comparable entity identification, all companies must have an associated Legal Entity Identifier (LEI) to be captured in the NZDPU. Data fields recommended by the Committee for the first phase of the NZDPU are summarized in [Table 2](#) (p. 17).

18 European Commission, “The Commission adopts the European Sustainability Reporting Standards,” July 31, 2023 and European Commission, *Commission Delegated Regulation (EU) of 31.7.2023*, July 31, 2023.

19 IFRS, “ISSB issues inaugural global sustainability disclosure standards,” June 26, 2023.

20 Further details on these disclosure frameworks can be found in [Global Momentum on Disclosure](#).

21 Greenhouse Gas Protocol, *Corporate Accounting and Reporting Standard*, March 2004.

22 Greenhouse Gas Protocol, *The Corporate Value Chain (Scope 3) Accounting and Reporting Standard*, September 2011.

23 ISO, *ISO 14064-1:2018 Greenhouse gases — Part 1*, December 2018.

24 PCAF, *The Global GHG Accounting and Reporting Standard Part A: Financed Emissions*, December 2022.

25 Metadata is a set of data that describes or gives information about other data. By including relevant metadata for each core data field, the NZDPU Core Data Model delivers a high level of transparency to help users better compare and assess the reliability of the information it provides.

The NZDPU Core Data Model fields are generic to enable inferred mapping and comparison across standards. Core fields, such as GHG emissions, are shown alongside metadata to provide full transparency of differences in reporting approaches and inform a user's decision on how to use the information provided.

Following the release of the proof of concept, stakeholder feedback on the first version of the NZDPU Core Data Model will inform its future releases. This includes incorporating previously recommended data fields not yet incorporated into the NZDPU and enhancing data fields that have been included. As recommended by the Committee, future phases of the NZDPU's development should build toward incorporating companies' financed emissions reduction targets, carbon credits, and associated metadata. As the Utility develops, taking market feedback into account, the Committee will consider whether to recommend the inclusion of additional climate transition-related data in the NZDPU Core Data Model, such as transition plan metrics. However, reporting standards and approaches for certain types of information may need to mature before private sector climate data is considered appropriate for inclusion in the NZDPU.

Three key areas of further work have been identified to deliver the data fields recommended by the Committee:

Sectoral Classification. An example of an area that requires further work is sectoral classification. The Committee recognizes the importance that the NZDPU incorporate a classification system that allows users to select companies that belong to different sectors or industries and that maps to company LEIs to allow users to aggregate data by sector and compare companies across various jurisdictions.²⁶ Therefore, the Committee recommended that the NZDPU develop and deploy a fully open sectoral classification system that contains mappings to key sectoral classification systems (e.g., BICS, GICS, ICB, ISIC, NACE, NAICS, SICS, TRBC).

Today's data users employ many sectoral classification systems for various purposes. The use of multiple sectoral classification systems globally has presented

comparability challenges that are not unique to climate transition-related data.^{27,28} Given the complexity of this data challenge, for the purposes of the proof of concept, the Sustainable Industry Classification System (SICS) has been chosen.²⁹ However, recognizing the importance of driving toward greater data interoperability, the Committee and NZDPU will work to determine a target state solution for sectoral classification in the Utility that meets the needs of various users. The Committee is sensitive to the existing burden of disclosure on preparers; therefore, this solution should allow preparers and users to input and access data in the NZDPU using multiple classification systems, including those which they are using in their respective jurisdictions.

Assurance and Verification. Varying levels of audit, assurance, or verification are currently performed across companies' reporting of climate-related information. The NZDPU proof of concept captures fields that indicate where audit, assurance, or verification have been performed on certain data fields and can capture evidence of assurance or verification, where available. However, the Committee expects these fields to become increasingly granular over time and capture details around the level of assurance in line with regulatory requirements and emerging standards (e.g., limited assurance, reasonable assurance). Progress in this area is further described in [Assurance and Verification](#).

Carbon Credits. The Committee recognizes that efforts underway on carbon credits reporting frameworks and standards need time to advance before more granular information on carbon credits can be incorporated into the NZDPU. Currently, voluntary carbon markets and compliance carbon markets are fragmented—resulting in a range of standards setters and disclosure practices that produce asymmetric information about the types of credits being issued, the data attributes associated with each credit, and how credits are being used by companies to support their strategic decarbonization objectives. Several efforts are underway to address these issues.^{30,31,32}

26 For the proof of concept phase, if a user has mapped company LEIs to other sectoral classifications in a separate database, they can use LEI to associate the data in the NZDPU with those other classification systems.

27 OECD, *OECD Taxonomy of Economic Activities Based on R&D Intensity*, July 16, 2016, p. 11.

28 G20 Sustainable Finance Working Group, *Improving Compatibility of Approaches to Identify, Verify and Align Investments to Sustainability Goals*, September 2021.

29 Sustainability Accounting Standards Board, "Find your industry," Accessed November 8, 2023.

30 UNFCCC, "Article 6.4 Mechanism," Accessed November 8, 2023.

31 The Voluntary Carbon Markets Integrity Initiative (VCMI) enables high-integrity voluntary carbon markets that contribute to the goal of the Paris Agreement, bringing benefits for people and the planet.

32 The Integrity Council for the Voluntary Carbon Market is an independent governance body for the voluntary carbon market.

Table 2

NZDPU Progress Toward Recommended Data Fields

Field	2022 CDSC Recommendation	NZDPU Proof of Concept	Further Iterations
Emissions Reporting			
Scope 1 GHG Emissions	To be included		
Scope 2 GHG Emissions	Both location-based and market-based where available		
Scope 3 GHG Emissions	Reporting on the 15 Scope 3 GHG protocol categories	Included in initial NZDPU Core Data Model	Potential to add structure to the data model based on user needs or further developments
Financed Emissions	Category 15 GHG emissions disclosure at asset class and sector level for entities, reporting on gross absolute financed emissions, description of denominators used, and additional metrics		
Facilitated Emissions	Once facilitated emissions methodologies are finalized, the Committee recommends that the NZDPU add fields to collect this data	Not included in proof of concept phase	Inclusion of facilitated and insurance-associated emissions data
Carbon Credits	Granular data inclusive of fields for quantity, credit type, market type (e.g., compliance or voluntary), third-party verification, and location	Metadata on company's reliance on carbon credits to achieve emissions reduction targets	Explore solutions for how to structure and source granular data on carbon credits
Transition Plan Metrics and Targets			
Emissions Reduction Targets	Granular data on emissions reduction targets, including coverage, units, target year, target goal; will include absolute and intensity-based targets	Corporate emissions reduction targets included in initial NZDPU Core Data Model	Potential to add structure to the data model based on user needs or further developments
Financed Emissions Reduction Targets	Collect the asset class, type, and amount of capital covered by financed emissions included within the target boundary, in local currency and as a percentage of total capital financing	Not included in initial NZDPU Core Data Model	Inclusion of financed emissions reduction targets data
Key Metadata			
Legal Entity Identifier (LEI)	LEI used as the identifier for financial institutions and companies	Included in initial NZDPU Core Data Model	No planned refinements
Sectoral Classification	Develop and deploy a fully open sectoral classification system that contains mappings to all other major classification systems (e.g., BICS, GICS, ICB, ISIC, NACE, NAICS, SIC, SICS, TRBC)	SICS classification derived from LEI included for the proof of concept	Explore solutions for how to accommodate user needs for multiple sectoral classification systems
Organizational Boundaries	The NZDPU should provide data on the organizational boundaries used to determine GHG emissions	Included in initial NZDPU Core Data Model	Potential to enhance based on further developments
Assurance and Verification	Fields that indicate where assurance and/or verification have been performed, including details around the level of assurance, the relevant standard the data has been assured or verified against, and the name of the provider	Fields to capture whether assurance and/or verification were/was performed	Expanded capture of assurance and verification data fields as they become increasingly granular depending on improved data availability
Parent-Subsidiary Mapping	Fields to collect parent-subsidiary mapping and emissions data consolidation approach used	Not included in initial NZDPU Core Data Model	Explore solutions for parent-subsidiary mapping
Emissions Estimates	Fields to capture the usage of third-party or modeled data in estimating Scope 1, Scope 2, or Scope 3 GHG emissions	Initial NZDPU Core Data Model captures information on methodologies used for calculating GHG emissions	Potential to enhance fields capturing usage of third-party or modeled data based on further developments
Entity Descriptive Metrics	The NZDPU should capture descriptive metrics for individual entities, such as location and size	Location information for individual entities included in NZDPU proof of concept	Explore inclusion of additional entity descriptive metrics for individual entities

Scaling and Connecting Through Collaboration

Building connectivity between global stakeholders is an essential element of increasing access to high-quality, comparable climate transition-related data. The Committee envisions that the NZDPU will centralize data from a variety of different sources, building on the important work done by a range of organizations to increase the transparency of climate data. The NZDPU roadmap is evolving and iterative, integrating more data over time through collaborations and as climate reporting and disclosure evolve.

The Committee encourages collaborations to transmit relevant climate transition-related data to the NZDPU to expand company coverage at scale. Collaborations with third-party disclosure platforms and initiatives will support the operationalization of the NZDPU, helping increase company coverage while limiting the reporting burden for companies by avoiding redundant submission processes. The Committee welcomes the data sourcing collaborations with Project Greenprint and CDP announced in 2023 and looks forward to welcoming additional collaborations in 2024 to support the NZDPU in reaching its full potential as a global, centralized, open repository for climate transition-related data.

Collaborations Announced in 2023

CDP



CDP, a non-profit that runs a global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts, provided a foundational layer of data for the NZDPU proof of concept. CDP has supplied an initial set of direct (Scope 1) and indirect (Scope 2 and Scope 3) GHG emissions and GHG emissions reduction targets data from approximately 400 companies that disclose publicly through CDP.³³ The Committee is deeply grateful to CDP for providing the foundational layer of data to support the proof of concept. This data will allow users to experience the initial set of features and functionality of the NZDPU and provide feedback to help inform its future releases.

Project Greenprint



The announcement with the Monetary Authority of Singapore (MAS) and Singapore Exchange (SGX Group) marked the first regional data transmission collaboration for the Utility.³⁴ MAS launched Project Greenprint in December 2020, and the [Gprnt disclosure portal](#) was launched in November 2023. The collaboration will allow participating companies to transmit Scope 1, Scope 2, and Scope 3 GHG, and other emissions data to the NZDPU. This arrangement will supply foundational climate transition-related data to the NZDPU, and establish interoperability between climate-related corporate disclosures from the ASEAN region with the NZDPU's global template for key climate transition-related data.

Swiss Testing Initiative

The Swiss State Secretariat for International Finance and four influential associations representing Swiss financial institutions announced the first national-level initiative to bring together public and private institutions to contribute to the development of the NZDPU.³⁵ As part of this commitment, leading Swiss financial institutions will test the proof of concept. Their feedback from early testing will inform the development of the NZDPU, as well as the future work of the CDSC. This program also promotes near-term capacity building for Swiss financial institutions, improving institutional capabilities to derive insight from climate data.

One Planet Sovereign Wealth Funds

In June 2023, the One Planet Sovereign Wealth Funds Network's working group on data agreed to engage with the NZDPU "to enable the delivery of the One Planet [Climate Disclosure Guidance] in the market by gathering Scope 1, 2 and 3 emissions data," reiterating the importance of greater transparency and disclosure of climate data.³⁶

33 CDP and NZDPU, "CDP and NZDPU Collaborate to Accelerate Access to Core Climate Data," September 20, 2023.

34 MAS, "MAS and SGX Group to collaborate with the Climate Data Steering Committee to strengthen global access to climate transition-related data," June 27, 2023.

35 CDSC, "Swiss Financial Centre Actors Unite To Help Develop Net-Zero Data Public Utility," June 26, 2023.

36 One Planet Sovereign Wealth Funds, "Global Sovereign Wealth Fund Community Convene to Support Paris Agreement and Accelerate the Energy Transition in Developing and Emerging Economies," June 22, 2023.

3. Driving Further Progress

The Committee aims to accelerate and help build a broadly accessible foundation of high-quality climate data that is necessary for delivering the net-zero transition. To support this goal, the Committee has identified a number of areas where continued progress is required to increase the comparability, consistency, coverage, quality, and completeness of private sector climate data, as illustrated in Figure 1. These areas are as follows:

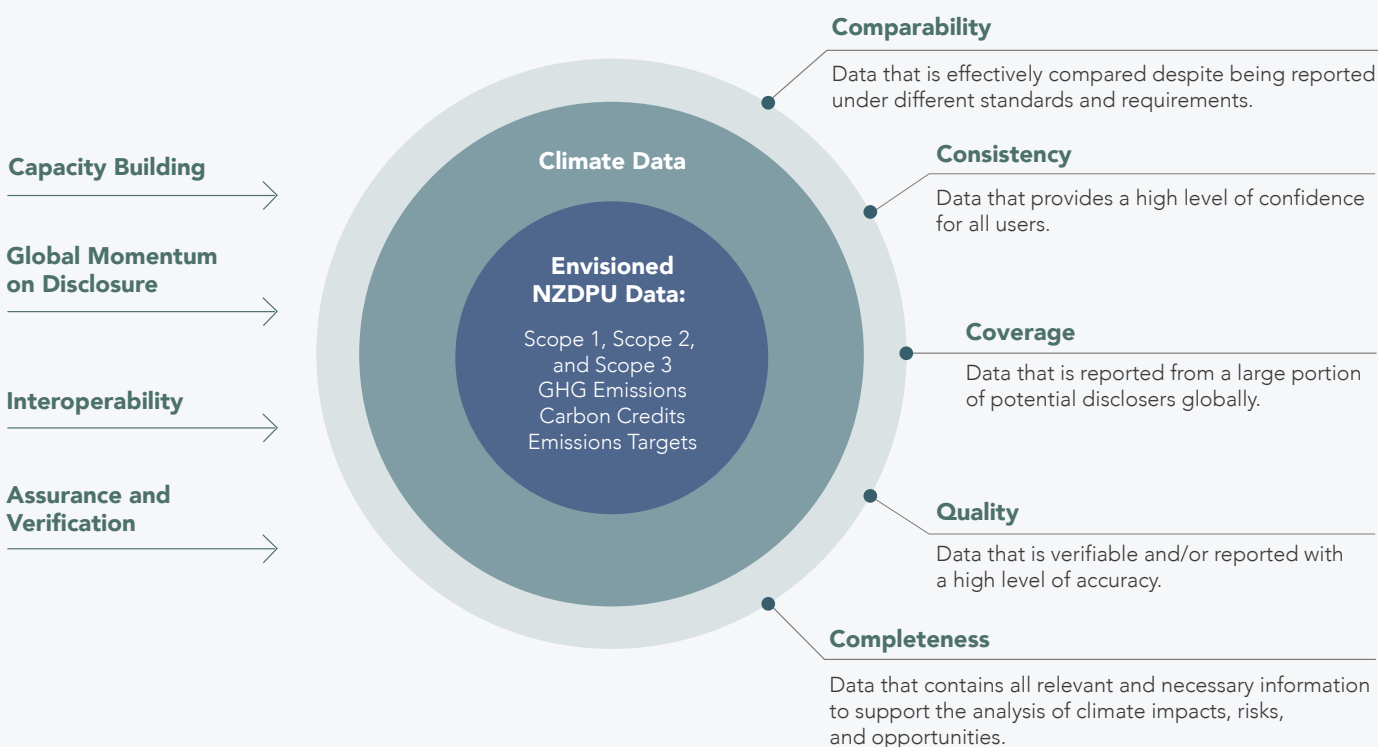
1. Supporting capacity building efforts to assist companies with calculating GHG emissions, setting targets, and reporting and disclosing climate data.
2. Driving global momentum on and encouraging climate-related disclosure through various mechanisms, such as regulatory requirements, widely applicable standards, and investor and consumer demand.

3. Improving interoperability of climate-related disclosure standards and requirements to support comparability and consistency of climate data.
4. Supporting greater consistency in approaches to assurance and verification of climate data, providing clarity on how data should be assured and verified to improve quality and reliability of climate data.

The Committee acknowledges existing initiatives by many organizations in these areas and encourages continued efforts to improve private sector climate data overall. While private sector data is the focus of the Committee’s work, it also acknowledges the importance of closing data gaps at jurisdictional, national, and international levels to manage the net-zero transition.³⁷

Figure 1

Key Areas for Driving Further Progress on Climate Data



37 For example, the IMF’s Climate Change Indicators Dashboard and the World Bank’s Climate Change Knowledge Portal.

Capacity Building

The Committee encourages all stakeholders to contribute to efforts that help companies build capacity to report climate data, including those focused on certain regions or jurisdictions, industries, or company sizes.

In this context, capacity building efforts aim to strengthen the competencies and skills necessary for companies to measure and track their GHG emissions and develop or enhance their climate data reporting and disclosure capabilities. This includes providing improved education, training, technology, tools, and other resources to assist and empower companies, with a goal of reducing barriers to reporting and disclosure.

In particular, the Committee notes the importance of providing appropriate capacity building support to SMEs and companies in emerging markets and developing economies to lower their reporting resource burden. Capacity building can also provide significant benefit to companies in sectors facing greater complexities in data, measurement, or target setting.

For companies, the following three forms of capacity building are critical for lowering their reporting resource burden and reducing the barriers to reporting and disclosure:

- Clear guidance on disclosure frameworks or requirements, particularly those that are sector-specific;
- Accessible, easy-to-understand tools and resources to support GHG emissions measurement and disclosure; and
- Education and training programs, particularly initiatives to support companies that are just starting to report their climate data, such as SMEs or companies in emerging markets and developing economies.

Capacity building is an important mechanism for increasing the volume and quality of climate transition-related data available for inclusion in the Utility. Continued efforts to support companies' public reporting on direct and indirect GHG emissions, carbon credits, and GHG emissions reduction targets, especially for those in emerging markets and for SMEs, will be necessary for driving global coverage in the Utility.³⁸ Efforts to assist financial institutions may focus on building capacity to measure and manage financed emissions, assess climate-related risks and opportunities, and set GHG emissions reduction targets, especially within specific sectors.

Policymakers and regulators can also benefit from greater availability of technical guidance, support, and best practices from standards setters on how to implement disclosure standards within their respective jurisdictions. [Table 3](#) provides some examples of capacity building efforts that support companies in calculating GHG emissions, setting science-based targets, and reporting and disclosing climate data.

³⁸ Efforts that help companies build capacity to report emissions data for the purpose of private disclosure—such as those by national statistics offices or environmental agencies—can also build the capacity needed to meet public disclosure requirements.

Table 3

Examples of Efforts to Build Capacity for Public Disclosure of Climate Data

Focus	Description
GHG Protocol Calculation Tools	To support users of the GHG Protocol Corporate Accounting and Reporting Standard, the GHG Protocol provides cross-sector and sector-specific calculation tools that provide step-by-step guidance and electronic worksheets to help users calculate GHG emissions from specific sources or industries. ³⁹
The Science Based Targets initiative (SBTi) Guidance	SBTi aims to help organizations set science-based emissions reduction targets, defining best practices, providing technical assistance and resources, and also helping companies with independent assessment and validation of their targets. ⁴⁰
EFRAG Implementation Support	In March 2023, EFRAG began work to prioritize the establishment of an ESRS implementation support function. It is intended that this function would provide companies with support resources needed to disclose in accordance with the ESRS. ⁴¹
ISSB Guidance, Education, and Training	Recognizing the importance of supporting preparers, investors, and other capital market stakeholders as they prepare to adopt the ISSB standards, the ISSB announced the Partnership Framework for Capacity Building at COP27, supported by 30 partner organizations. ⁴² At COP28, the ISSB is delivering education materials and trainings with partners, which will be publicly available through a Knowledge Hub designed to help preparers understand and get ready for applying IFRS S1 and IFRS S2.
Interoperability Guidance	With respect to interoperability, EFRAG and the ISSB are working together on interoperability guidance material that could assist entities in navigating between the standards. ⁴³

39 Greenhouse Gas Protocol, "Calculation Tools and Guidance," Accessed November 8, 2023.

40 SBTi, "Sector Guidance," Accessed November 8, 2023.

41 EFRAG, "European Commission Calls on EFRAG to Prioritise Implementation Support for the First Set of ESRS," March 29, 2023.

42 IFRS, "Partnership Framework for capacity building," Accessed November 8, 2023.

43 IFRS, "European Commission, EFRAG and ISSB confirm high degree of climate-disclosure alignment," July 31, 2023.

Global Momentum on Disclosure

The Committee encourages efforts to support public disclosure of comprehensive, high-quality climate data from companies around the world.

Recognizing both the inherent cost and strategic value of producing climate-related information, companies are motivated to disclose climate data when requested by investors and other stakeholders or when required by regulators. The quality and comparability of climate data that companies produce depend on the applicability of disclosure frameworks, standards, or requirements available from standards setters, regulators, and policymakers.

While a growing number of companies disclose climate-related information, particularly those that are larger and publicly listed, gaps remain.⁴⁴ Approximately 70% of companies in the S&P 500 disclose their GHG emissions, indicating that there is still significant progress to be made by large public companies.⁴⁵ SMEs can comprise a significant share of a larger company's supply chain GHG emissions, but may have less ability to disclose given associated costs.

Climate disclosure requirements are the most effective mechanism for increasing the availability of high-quality and comparable climate data.^{46,47} Multiple regulators and supervisors—including those in the European Union, Switzerland, the United Kingdom, and Japan—have implemented such requirements.

Disclosure standards and guidance, such as those issued by the ISSB, also facilitate more comparable and comprehensive climate-related reporting.⁴⁸ Such standards may be used directly as resources for companies or serve to reduce fragmentation in reporting approaches by providing a consistent baseline for the development of jurisdictional disclosure requirements. [Table 4](#) provides examples of climate disclosure standards and requirements.

Where climate disclosure requirements are not in place, there are many ways stakeholders can encourage companies to provide climate-related information. Clearly communicated efforts to gather data can help address gaps from companies that may comprise a material share of GHG emissions within a value chain, investment portfolio, or sector.⁴⁹

Examples include the following:

- Organizations that are buyers in a value chain can include disclosure expectations within their procurement processes.
- Investors and financial institutions can encourage the public disclosure of high-quality climate data and in doing so improve their own financed emissions disclosures.
- Stock exchanges can incorporate the disclosure of climate data necessary for investors to assess climate-related impacts, risks, and opportunities into listing requirements of guidance.
- Civil society organizations can encourage and recognize companies that are leaders in climate disclosure, and ratings agencies can include disclosure considerations in ratings methodologies.
- Standards setters can provide standards for more consistent reporting of climate data.

Within such efforts, it is important to consider the balance of costs and benefits of disclosure. Special consideration should be given to aligning disclosure expectations with the size, location, or sector of a company. Providing SMEs with simplified disclosure expectations can help to alleviate cost and capacity burdens for smaller organizations.

Driving global momentum on disclosure of high-quality climate data is essential for reaching the vision of a Utility that contains data from many companies globally. The Committee supports efforts to improve disclosure across sectors and geographies, with appropriate scale according to preparers' capabilities, to increase the number of disclosures overall and ultimately expand coverage of the climate transition-related data the Utility provides.

44 TCFD, *2023 Status Report*, October 12, 2023.

45 The Conference Board, "Report: Gap in Climate Disclosures Between Large, Small Cos Stark Gap in Climate Disclosures Exists Between Large & Small Public Companies," January 20, 2022.

46 In the form of policies, laws, regulations, or guidance issued by public sector authorities.

47 Disclosure requirements are in part driven by investors seeking more information related to climate risks on companies they own. Securities and Exchange Commission (SEC), "Climate-Related Disclosures/ESG Investing," Accessed November 8, 2023.

48 IFRS, *IFRS S2 Climate-related Disclosures*, June 2023.

49 Carattini, Stefano et al., *Mandatory disclosure is key to address climate risks*, October 2022.

Examples of Climate-Related Disclosure Requirements and Standards

Focus	Description
European Sustainability Reporting Standards: ESRS E1	<p>The European Union’s Corporate Sustainability Reporting Directive (CSRD)—which will require over 50,000 companies to report sustainability-related information—entered into force in January 2023. The first in-scope companies will be required to report under the CSRD beginning in financial year 2024.⁵⁰ Following a consultation period, in July 2023 the European Commission adopted the ESRS, including ESRS E1 which defines climate change disclosure requirements, for use by companies subject to the CSRD.⁵¹ The ESRS take account of discussions with the ISSB and the Global Reporting Initiative to support interoperability between EU and global standards and to prevent unnecessary double reporting by companies.⁵²</p>
International Financial Reporting Standards: IFRS S2	<p>The ISSB published its inaugural sustainability-related disclosure standards, IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-Related Disclosure, in June 2023.⁵³ The G7 has expressed support for the ISSB finalizing the standards for general reporting on sustainability and climate-related disclosures, and for working toward achieving globally interoperable sustainability disclosure frameworks.⁵⁴ The Financial Stability Board (FSB) welcomed, and the International Organization of Securities Commissions (IOSCO) endorsed the ISSB inaugural standards, while authorities in two dozen countries have committed to or are actively considering their adoption at the time of publication.^{55,56} To promote the use of the ISSB’s inaugural sustainability-related disclosure standards, IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2, the FSB plans to work with the ISSB, IOSCO, and other relevant bodies.⁵⁷</p>
Jurisdictional Disclosure Requirements	<p>Several individual jurisdictions have also developed guidance, laws, or regulations to solicit climate-related disclosure from companies. In 2023, the FSB surveyed its members on jurisdictional progress toward the goal of companies providing climate-related disclosures as part of their mainstream disclosures.^{58,59} Of the 24 FSB member jurisdictions, three-quarters indicated that they have requirements, guidance, or expectations on climate-related disclosures in place.⁶⁰ This includes the majority of emerging markets and developing economies (EMDEs)—showing progress as compared to the FSB’s 2021 Report on Promoting Climate-Related Disclosures which found that most EMDEs were at a planning stage at the time.⁶¹</p>

50 European Commission, *Commission Delegated Regulation (EU) of 31.7.2023*, July 31, 2023.

51 Companies subject to the CSRD will be required to report in line with the ESRS. European Commission, “Corporate sustainability reporting,” Accessed November 8, 2023.

52 European Commission, “The Commission adopts the European Sustainability Reporting Standards,” July 31, 2023.

53 IFRS, “ISSB issues inaugural global sustainability disclosure standards,” June 26, 2023.

54 Leaders of the Group of Seven, *G7 Hiroshima Leaders’ Communiqué*, May 20, 2023.

55 FSB, “FSB welcomes publication of ISSB disclosures standards,” June 26, 2023.

56 IOSCO, “IOSCO endorses the ISSB’s Sustainability-related Financial Disclosures Standards,” July 25, 2023.

57 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, p. 1.

58 FSB, “Members of the FSB,” Accessed November 8, 2023.

59 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, pp. 15–16.

60 Ibid.

61 FSB, *Report on Promoting Climate-Related Disclosures*, July 7, 2021, pp. 33–34.

Interoperability

The Committee encourages continued collaboration among policymakers, regulators, and other stakeholders to advance interoperability of climate data as reporting practices mature and evolve.

In the context of climate data, interoperability means the ability to align data disclosed under one standard or requirement with data disclosed under another standard or requirement, regardless of industry or jurisdiction. Interoperability can facilitate users' aggregation and comparison of climate data and can reduce the reporting burden for companies that may disclose information under different sustainability reporting frameworks.⁶²

The Committee notes the progress being made on climate data interoperability, which is also crucial to enabling the NZDPU to become a centralized repository of comparable and reliable climate transition-related data. The inclusion of standards and requirements in the NZDPU will provide transparency into the differences between these standards and requirements and facilitate comparability. It is crucial to continue improving the interoperability of GHG accounting rules, disclosure requirements and standards, and associated digital reporting formats.

GHG Accounting Rules. Interoperability of methodologies for calculating Scope 1, Scope 2, or Scope 3 GHG emissions is essential for facilitating comparison of GHG emissions data and the ability to incorporate it into decision-making processes. Just one of many methodological choices that go into GHG emissions calculations, the application of the atmospheric lifetime of methane can, for example, result in tenfold variations in measurement for identical GHG emissions.⁶³ The GHG Protocol provides a set of principles to inform GHG accounting rules, providing a consistent foundation for how companies can measure and report their GHG emissions.⁶⁴

Climate Disclosure Requirements and Standards. Interoperability, including consistency of definitions,

methodologies, and terminology, across disclosure standards and requirements is essential to facilitate comparability of disclosed climate data. It is also important that there is interoperability between global standards, such as ISSB, with jurisdictional disclosure frameworks.⁶⁵

The ISSB and EFRAG, together with the European Commission, have worked jointly to achieve interoperability of their respective standards.⁶⁶ Additionally, the ISSB-founded Jurisdictional Working Group seeks to enhance comparability across ongoing jurisdictional initiatives on sustainability disclosures.⁶⁷ With several members in common, to maximize efficiency and limit potential duplication of efforts, the Jurisdictional Working Group and CDSC have established dialogue on the topic of climate data interoperability.

Other efforts to gather climate data from companies, such as those from lenders, investors, insurance underwriters, national statistics offices, environmental agencies, or voluntary disclosure platforms, may present interoperability implications in relation to data disclosed under disclosure requirements or standards until such time when greater alignment exists between various climate data initiatives and disclosure requirements or standards.⁶⁸

Digital Reporting. While common reporting requirements and standards are essential for comparability of private sector climate data, companies may disclose data in various locations, including financial filings, annual reports, and sustainability reports.⁶⁹ Digital taxonomy and tagging of climate data across company reporting venues will "improve the global accessibility and comparability of climate-related information."⁷⁰

62 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, p. 8. "Interoperability" aims to reduce reporting burden for companies by promoting compatibility between different sustainability reporting frameworks.

63 IPCC, *The Earth's Energy Budget, Climate Feedbacks and Climate Sensitivity Supplementary Material (IPCC Sixth Assessment Report)*, August 2021, pp. 16–27.

64 Greenhouse Gas Protocol, *A Corporate Accounting and Reporting Standard*, March 2004.

65 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, p. 1.

66 IFRS, "European Commission, EFRAG and ISSB confirm high degree of climate-disclosure alignment," July 31, 2023.

67 More information on the Jurisdictional Working Group, including membership, is available [here](#).

68 CDP, "CDP to incorporate ISSB climate-related disclosure standard into global environmental disclosure platform," November 2022.

69 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, p. 22. The FSB notes possible locations of disclosure to include general purpose financial reports, financial statements, management reports, and integrated reports.

70 IFRS, "ISSB consults on proposed digital taxonomy to improve global accessibility and comparability of sustainability information," July 2023.

Several efforts are underway to enable the use of digital reporting for climate disclosure. Digital reporting using a common format (e.g., XBRL) can help facilitate comparisons of climate disclosures from companies across jurisdictions and under different reporting frameworks.⁷¹ Utilizing a common digital reporting format is most effective when common taxonomies inform the reporting structure.⁷² Digital taxonomy and tagging will allow climate transition-related data to be more easily transmitted to the NZDPU over time.

For example, the ISSB is developing an IFRS Sustainability Disclosure Taxonomy to facilitate structured digital reporting of sustainability-related financial information prepared by applying the ISSB standards, which is scheduled to be finalized in early 2024.⁷³

Companies reporting under the ESRS will be required to report using the European Single Electronic Format (ESEF) and, therefore, EFRAG is developing the digital categorization system: the Sustainability Reporting XBRL Taxonomy.^{74,75} Once developed, the Sustainability Reporting XBRL Taxonomy will enable sustainability information to be easily incorporated in the European Single Access Point (ESAP), envisioned in the Capital Markets Union Action Plan, for which the European Commission adopted a legislative proposal in November 2021.⁷⁶ The ESAP “will offer a single access point for public financial and sustainability-related information about EU companies and EU investment products,” including climate transition-related data.

Assurance and Verification

The Committee encourages efforts from assurance practitioners to drive consistency in definitions, approaches, and requirements for validation of climate data.

Audit, assurance, and verification are approaches for validating data and helping users to better understand its quality and comparability. However, in the context of climate data, these approaches can vary significantly in their rigor and application across different types of reporting. Although investors view assurance and verification as necessary to identify credible data for decision-making purposes, only 64% of firms that disclose their data conduct some sort of third-party verification or assurance on some subset of the information provided.⁷⁷ This may be due, in part, to the relative nascency of climate assurance and verification approaches

and a lack of convergence across jurisdictional requirements.

Approaches to assurance and verification of climate data are evolving. Currently, the terms “audit,” “assurance,” and “verification” are used with different meanings across various standards and reporting requirements.⁷⁸ In some jurisdictions, independent assurance can be carried out by both audit firms and non-audit firm assurance practitioners, with these firms having differing levels of experience and expertise.^{79,80}

71 XBRL, “Digital Sustainability Disclosures with XBRL,” Accessed November 8, 2023.

72 Financial Accounting Standards Board, “XBRL: What is it? Why the FASB? Who Uses it?” April 1, 2021.

73 IFRS, “ISSB consults on proposed digital taxonomy to improve global accessibility and comparability of sustainability information,” July 2023. The ISSB aims to issue the final digital taxonomy early in 2024, subject to feedback received.

74 European Securities and Markets Authority, “Electronic Reporting,” Accessed November 8, 2023.

75 EFRAG, *Draft ESRS XBRL Taxonomy Methodology and Architecture Issue Paper*, April 2023.

76 European Parliament, “European Single Access Point,” December 2021.

77 International Federation of Accountants (IFAC), *The State of Play: Sustainability Disclosure & Assurance*, February 2023.

78 For jurisdictions that do not have reporting requirements, the terminology used to define “assurance” and “verification” may be determined by the preparer or provider of information.

79 IOSCO, *Report on International Work to Develop a Global Assurance Framework for Sustainability-related Corporate Reporting*, March 2023.

80 In 2023, an IFAC survey found that assurance of sustainability-related information is conducted by both audit and non-audit firms. IFAC, *The State of Play: Sustainability Disclosure & Assurance*, February 2023. See p. 13 of the report for details on the different types of assurance providers.

Lack of alignment around assurance and verification practices can impair data comparability and erode confidence in data credibility.⁸¹

Improvements in approaches to assurance and verification of climate data will be important to achieve the CDSC's vision for the NZDPU as a centralized repository of verifiable climate transition-related data. As approaches for assurance and verification mature, the NZDPU will capture more granular details around the level of assurance or verification performed on specific data fields, providing users with greater ability to assess the credibility and quality of climate transition-related data in the Utility.

Several CDSC Member organizations and other stakeholders are working to establish greater clarity on how climate data should be assured and verified. IOSCO published a report in March 2023 on its work on assurance standards over sustainability-related corporate reporting, which is being led by a dedicated workstream under its Sustainable Finance Taskforce.⁸² The FSB also released a report highlighting the importance of work to advance assurance and verification, noting the work on

assurance over sustainability-related reporting being progressed by IOSCO, the International Auditing and Assurance Standards Board (IAASB), and the International Ethics Standards Board for Accountants (IESBA).⁸³ The IAASB launched a public consultation on its proposed standard for assurance of sustainability reporting in August 2023 and the IESBA is developing ethics standards to support assurance of sustainability-related information.^{84,85} Further oversight and accountability applied to all assurance practitioner types may help to improve confidence in reported data.

In the EU, under the Capital Requirements Regulation, credit institutions are required to meet verification and audit requirements over climate-related and environmental disclosure.⁸⁶ Initially, companies reporting under the CSRD are required to obtain "limited" third-party assurance over their CSRD disclosures, and subsequently, by 2028, obtain "reasonable assurance" similar to assurance currently required for financial statements.^{87,88}

Given the vital importance of assurance and verification for increasing confidence in climate data, the Committee will continue to encourage and closely monitor developments in this area.

81 Xiao, Xinning and Shailer, Greg, *Stakeholders' perceptions of factors affecting the credibility of sustainability reports*, January 1, 2022.

82 IOSCO, *Report on International Work to Develop a Global Assurance Framework for Sustainability-related Corporate Reporting*, March 2023.

83 FSB, *Progress Report on Climate-Related Disclosures*, October 2023, pp. 11–14.

84 IAASB, "IAASB Launches Public Consultation on Landmark Proposed Global Sustainability Assurance Standard," August 2, 2023.

85 IESBA, "Sustainability Reporting And Assurance: A Focus On Ethics And Independence," Accessed November 8, 2023.

86 European Central Bank, *Supervisory assessment of institutions' climate related and environmental risks disclosures*, March 2022.

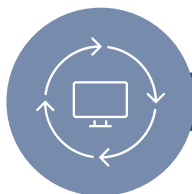
87 Harvard Law Forum on Corporate Governance, "EU Finalizes ESG Reporting Rules with International Impacts," January 2023. "By 2028, [...] the European Commission plans to adopt standards for reasonable assurance analogous to the standard currently required for financial statements, following an assessment to determine if reasonable assurance is feasible for auditors and for companies subject to the CSRD."

88 Official Journal of the European Union, *Directive (EU) 2022/2464 of the European Parliament and of the Council*, December 14, 2022, p. 24.

4. Opportunities for Public Engagement

Following the delivery of the proof of concept, the Committee’s attention shifts to the future. The Committee invites the public to help shape future releases of the NZDPU as well as focus areas going forward.

Public feedback will inform the continued refinement of the NZDPU data model and features and functionality, as well as the CDSC’s broader efforts. Feedback will be solicited on an ongoing basis and taken into consideration as the CDSC continues its work to support greater comparability, consistency, coverage, quality, and completeness of private sector climate data.



Access the NZDPU Proof of Concept

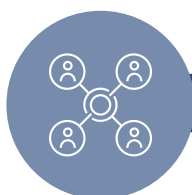
The Committee encourages all stakeholders to engage with the proof of concept via [NZDPU.com](https://nzdpu.com). All members of the public can access the proof of concept, with full account registration, login, and profile management functionalities available but not required for access. In the proof of concept phase, those who register can gain access to a data download preview for a sample dataset of companies. The NZDPU Core Data Model, a data user guide, and other user resources are also available at [NZDPU.com](https://nzdpu.com). Users are encouraged to provide feedback on the proof of concept through the 2023 public consultation.



Participate in Public Consultation

The Committee aims to solicit public feedback on key topics that can inform the further development of the NZDPU and the CDSC’s strategic forward-looking vision in its [2023 public consultation](#). The public consultation will solicit input to support the continued refinement of the Utility—including how the features, functionality, and data model support different use cases—and the further development of the feature set and data fields.

Moreover, the 2023 public consultation will seek perspectives on how best to drive progress on addressing critical climate data challenges outlined in this report, specifically, capacity building, momentum on global disclosure, interoperability, and assurance and verification. The consultation will be open until March 1, 2024 and will be available online. Once the consultation is closed, the Committee will share select aggregated, anonymized results on the CDSC website. The Committee may hold future public consultations as appropriate.



Join a Focus Group

In addition to the public consultation, the NZDPU continues to solicit input from focus group participants, who provide guidance and insights to advance the features of the NZDPU, including its data model and functionality.

As part of focus groups, participants from companies representing various industries discuss challenges and opportunities for improving climate transition-related data. Beginning in January 2023, focus groups have reviewed and advised on the NZDPU data model, design features, and functionality. Focus group members have also participated, where appropriate, in testing the proof of concept.

Focus group membership is available to financial institutions (e.g., banks, asset owners and managers, trust companies, mutual funds), assurance and verification practitioners (e.g., service providers, consulting and auditing firms), or non-financial companies.

Focus group composition and responsibilities may evolve in 2024. Industry expertise and experience working with climate transition-related data in practice is desirable. Participation is open to any organization that meets the criteria of each respective focus group. Interested participants from all geographies are encouraged to apply via [the NZDPU website](#).

Appendices

Appendix 1: Advice and Input

The Committee seeks input from climate data experts and data service providers to inform its work and oversight of the NZDPU development process. Given the dynamic and rapidly evolving landscape of climate data, external input improves collaboration and transparency and minimizes duplication of efforts.

The CDSC's Climate Data Expert Advisory Panel consists of representatives from organizations that play an important role in driving the quality and availability of climate transition-related data globally. Under the leadership of the UNFCCC, the advisory panel provides expertise and perspectives on climate data to support the delivery of the CDSC's vision.

Climate Data Expert Advisory Panel Members	
Capitals Coalition	OS-Climate (OS-C)
Carbon Call	OpenEarth
CDP	Science Based Targets initiative (SBTi)
Climate Arc	UN Climate Change High-Level Champions
Climate Policy Initiative (CPI)	UN Principles for Responsible Investment (PRI)
Data-Driven EnviroLab, UNC-Chapel Hill	We Mean Business Coalition
Energy & Climate Intelligence Unit (ECIU)	WikiRate
Icebreaker One (IB1)	World Benchmarking Alliance (WBA)
Institut Louis Bachelier	World Business Council for Sustainable Development (WBCSD)
Net Zero Tracker	World Resources Institute (WRI)

In addition, the NZDPU's Technical Advisory Board consults on the development of the Utility. Specifically, the advisory board, primarily composed of the data service providers listed below, is responsible for providing regular feedback for the technical implementation of the CDSC's recommendations. Data service provider members have technical or operational expertise that will support the implementation of the recommendations from the Committee's 2022 report and a commitment to advancing the goals of the CDSC.

Data Service Provider Members of the Technical Advisory Board	
Bloomberg L.P.	Morningstar, Inc.
CDP	MSCI Inc.
London Stock Exchange Group	S&P Global
Moody's Corporation	

Appendix 2: Glossary and Abbreviations

Glossary

Absolute emissions	Total aggregate absolute quantity of GHG emissions released to the atmosphere, usually in units of metric tons. ⁱ
Application Programming Interface (API)	A way for software systems to exchange data with one another. ⁱⁱ
Carbon credit	A permit that allows the owner to emit a specified amount of a greenhouse gas (e.g., one ton of CO ₂). Carbon credits can be issued, traded, or earned through removal or avoidance of GHG emissions, depending on the type of carbon market. ⁱⁱⁱ
Climate transition-related data	Private sector data that can be used to inform the transition to a net-zero economy, or more broadly, climate change mitigation; inclusive of, but not limited to, data on entity-level GHG emissions, targets, transition strategies, transition-related investments, and climate-related risks and opportunities. ^{iv}
Digital reporting format	The method or structure utilized to report and tag data. An example is XBRL, an international standard for digital business reporting, which uses a common language for data classification to facilitate use by companies, regulators, and other stakeholders. ^v
Emissions intensity	Emissions per a relative unit of measure, such as carbon dioxide equivalent per unit of revenue. ^{vi}
Estimated/modeled emissions	Emissions that are extrapolated based on industry or sector averages, usually by a third party, as opposed to emissions that are calculated based on activity data (e.g., kWh of electricity consumed) reported by a company. ^{vii}
Facilitated emissions	GHG emissions derived from off-balance sheet activities, such as underwriting, securitization, and advisory services. ^{viii}
Financed emissions	GHG emissions attributed to the loans and investments that help fund and develop projects. ^{viii}
Greenhouse gas (GHG)	Gas that traps heat in the atmosphere; the seven direct greenhouse gases, as per the Kyoto Protocol, are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. ^{ix}
Greenhouse Gas Protocol	An accounting and reporting standard that provides sector guidance, calculation tools, and training for companies and local and national governments. It has created a comprehensive, global, standardized framework for measuring and managing GHG emissions from private and public sector operations, value chains, products, cities, and policies to enable greenhouse gas reductions across the board. ^x
Legal Entity Identifier (LEI)	A 20-character alphanumeric code based on the ISO 17442 standard developed by the International Organization for Standardization (ISO) that connects to key reference information and enables clear and unique identification of legal entities participating in financial transactions. ^{xi}
Metadata	Data that is used to detail the characteristics of a data set for more accurate usage and understanding. ^{xii}
Net zero	Cutting GHG emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere by, for instance, oceans and forests. ^{xiii}
Parent-subsidiary organizational structure	"Parent" is defined as an entity that has one or more subsidiaries; "subsidiaries" are defined as entities (including unincorporated entities) that are "controlled by another entity." The parent company, often through majority ownership, has the ability to direct the financial and operating policies of the subsidiary company with a view toward gaining economic benefits from its activities. This can also include incorporated and unincorporated joint ventures and partnerships over which the parent company has financial control. ^{xiv}

Scope 1 GHG emissions	Direct GHG emissions from company-owned and controlled resources. ^{xv}
Scope 2 GHG emissions	Indirect GHG emissions from the generation of purchased energy. ^{xvi}
Scope 2 GHG emissions location-based method	A method to quantify Scope 2 GHG emissions based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries. ^{xvi}
Scope 2 GHG emissions market-based method	A method to quantify the Scope 2 GHG emissions of a reporting entity based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with contractual instruments, or contractual instruments on their own. ^{xvi}
Scope 3 GHG emissions	All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. ^{xvii}
Scope 3 GHG emissions categories	There are 15 distinct Scope 3 categories, covering upstream and downstream (including financed) emissions for a company's value chain. ^{xvii}

Glossary Endnotes

- i. Greenhouse Gas Protocol, *A Corporate Accounting and Reporting Standard*, March 2004, p. 65.
- ii. IBM, "What is an API?" Accessed November 8, 2023.
- iii. United Nations Development Programme, "What are carbon markets and why are they important?" May 18, 2022.
- iv. CDSC, *Recommendations for the Development of the Net-Zero Data Public Utility*, November 2022.
- v. XBRL International, "An Introduction to XBRL," Accessed November 8, 2023.
- vi. Greenhouse Gas Protocol, *Technical Guidance for Calculating Scope 3 Emissions, Appendix C: Calculating emissions intensity metrics*, May 2013.
- vii. Greenhouse Gas Protocol, *The GHG Protocol Standard, Chapter 3: Setting Organizational Boundaries*, March 2004.
- viii. IFRS, *Staff Paper: Financed and Facilitated Emissions*, September 2022.
- ix. Environmental Protection Agency, "Overview of Greenhouse Gases," Accessed November 8, 2023.
- x. World Resources Institute, "Greenhouse Gas Protocol," Accessed November 8, 2023.
- xi. Global Legal Entity Identifier Foundation, "Introducing the Legal Entity Identifier (LEI)," Accessed November 8, 2023.
- xii. World Meteorological Organization, "Climate Metadata," Accessed November 8, 2023.
- xiii. UN, "For a livable climate: Net-zero commitments must be backed by credible action," Accessed November 8, 2023.
- xiv. IFRS, *IFRS 10 Consolidated Financial Statements*, December 2014.
- xv. Greenhouse Gas Protocol, *Greenhouse Gas Protocol: FAQ*, June 2022.
- xvi. Greenhouse Gas Protocol, *GHG Protocol Scope 2 Guidance: An Amendment to the GHG Protocol Corporate Standard*, September 2015.
- xvii. Greenhouse Gas Protocol, *Technical Guidance for Calculating Scope 3 Emissions: Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard*, May 2013.

Abbreviations

API - Application Programming Interface	IPCC - Intergovernmental Panel on Climate Change
CDEAP - Climate Data Expert Advisory Panel	ISSB - International Sustainability Standards Board
CDSC - Climate Data Steering Committee	JWG - Jurisdictional Working Group
EFrag - European Financial Reporting Advisory Group	LEI - Legal Entity Identifier
EMDE - Emerging market and developing economy	MAS - Monetary Authority of Singapore
ESAP - European Single Access Point	NGFS - Network for Greening the Financial System
ESEF - European Single Electronic Format	NZDPU - Net-Zero Data Public Utility
ESRS - European Sustainability Reporting Standards	SBTi - Science Based Targets initiative
FCA - Financial Conduct Authority	SGX - Singapore Exchange
FSB - Financial Stability Board	SICS - Sustainable Industry Classification System
GCAP - UNFCCC's Global Climate Action Portal	SIF - Swiss State Secretariat for International Finance
GHG - Greenhouse gas	SME - Small and medium-sized enterprises
IAASB - International Auditing and Assurance Standards Board	TCFD - Task Force on Climate-related Financial Disclosures
IESBA - International Ethics Standards Board for Accountants	UN - United Nations
IFRS - International Financial Reporting Standards	UNFCCC - United Nations Framework Convention on Climate Change
IMF - International Monetary Fund	WBCSD - World Business Council for Sustainable Development
IOSCO - International Organization of Securities Commissions	XBRL - eXtensible Business Reporting Language

Appendix 3: References

- Carattini, Stefano et al. *Mandatory disclosure is key to address climate risks*. October 2022. <https://www.science.org/doi/10.1126/science.add0206>.
- CDP. "CDP to incorporate ISSB climate-related disclosure standard into global environmental disclosure platform." November 2022. <https://www.cdp.net/en/articles/companies/cdp-to-incorporate-issb-climate-related-disclosure-standard>.
- CDP and NZDPU. "CDP and NZDPU Collaborate to Accelerate Access to Core Climate Data." September 20, 2023. <https://www.cdp.net/en/articles/media/cdp-and-nzdpu-collaborate-to-accelerate-access-to-core-climate-data>.
- Climate Data Steering Committee (CDSC). *Recommendations for the Development of the Net-Zero Public Utility*. November 2022. <https://assets.bbhub.io/company/sites/71/2022/11/development-of-the-net-zero-data-public-utility-november-2022.pdf>.
- CDSC. "Swiss Financial Centre Actors Unite To Help Develop Net-Zero Data Public Utility." June 26, 2023. <https://www.climatedata.org/swiss-financial-centre-actors-unite-to-help-develop-net-zero-data-public-utility/>.
- Environmental Protection Agency. "Overview of Greenhouse Gases." Accessed November 8, 2023. <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>.
- European Central Bank. *Supervisory assessment of institutions' climate-related and environmental risks disclosures*. March 2022. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.ECB_Report_on_climate_and_environmental_disclosures_202203~4ae33f2a70.en.pdf.
- European Commission (EC). *Commission Delegated Regulation (EU) of 31.7.2023*. July 31, 2023. <https://webgate.ec.europa.eu/regdel/web/delegatedActs/2111/documents/latest?lang=en>.
- EC. "The Commission adopts the European Sustainability Reporting Standards." July 31, 2023. https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en.
- EC. "Corporate sustainability reporting." Accessed November 8, 2023. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en.
- European Financial Reporting Advisory Group (EFRAG). *Draft ESRS XBRL Taxonomy Methodology and Architecture Issues Paper*. April 2023. <https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FMeeting%20Documents%2F2303221128397656%2F03-02%20-%20Draft%20ESRS%20XBRL%20Taxonomy%20Architecture%20and%20Methodology%20-%20Issues%20Paper.pdf>.
- EFRAG. "European Commission Calls on EFRAG to Prioritise Implementation Support for the First Set of ESRS." March 29, 2023. <https://www.efrag.org/News/Public-416/European-Commission-calls-on-EFRAG-to-prioritise-implementation-support-for-the-first-Set-of-ESRS?AspxAutoDetectCookieSupport=1>.
- European Parliament. "European Single Access Point." December 2021. <https://www.europarl.europa.eu/legislative-train/theme-an-economy-that-works-for-people/file-european-single-access-point>.
- European Securities and Markets Authority. "Electronic Reporting." Accessed November 8, 2023. <https://www.esma.europa.eu/issuer-disclosure/electronic-reporting>.
- Financial Accounting Standards Board. "XBRL: What is it? Why the FASB? Who Uses it?" April 1, 2021. [https://www.fasb.org/Page/ShowPdf?path=FASB_in_Focus--XBRL_\(4-21\).pdf&title=FASB%20In%20Focus%E2%80%944%20XBRL:%20What%20Is%20It?%20Why%20the%20FASB?%20Who%20Uses%20It](https://www.fasb.org/Page/ShowPdf?path=FASB_in_Focus--XBRL_(4-21).pdf&title=FASB%20In%20Focus%E2%80%944%20XBRL:%20What%20Is%20It?%20Why%20the%20FASB?%20Who%20Uses%20It).
- Financial Stability Board (FSB). "FSB welcomes publication of ISSB disclosures standards." June 26, 2023. <https://www.fsb.org/wp-content/uploads/R260623.pdf>.

- FSB. "Members of the FSB." Accessed November 8, 2023. <https://www.fsb.org/about/organisation-and-governance/members-of-the-financial-stability-board/>.
- FSB. *Progress Report on Climate-Related Disclosures*. October 2023. <https://www.fsb.org/wp-content/uploads/P121023-1.pdf>.
- FSB. *Report on Promoting Climate-Related Disclosures*. July 7, 2021. <https://www.fsb.org/wp-content/uploads/P070721-4.pdf>.
- Global Legal Entity Identifier Foundation. "Introducing the Legal Entity Identifier (LEI)." Accessed November 8, 2023. [https://www.gleif.org/en/about-lei/introducing-the-legal-entity-identifier-lei#:~:text=The%20Legal%20Entity%20Identifier%20\(LEI\)%20is%20a%20%2Dcharacter,entities%20participating%20in%20financial%20transactions.](https://www.gleif.org/en/about-lei/introducing-the-legal-entity-identifier-lei#:~:text=The%20Legal%20Entity%20Identifier%20(LEI)%20is%20a%20%2Dcharacter,entities%20participating%20in%20financial%20transactions.)
- Gprnt. "Gprnt.ai." Accessed November 22, 2023. <https://www.gprnt.ai/>.
- Greenhouse Gas Protocol. *A Corporate Accounting and Reporting Standard*. March 2004. <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>.
- Greenhouse Gas Protocol. "Calculation Tools and Guidance." Accessed November 8, 2023. <https://ghgprotocol.org/calculation-tools-and-guidance>.
- Greenhouse Gas Protocol. *FAQ. June 2022*. https://ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf.
- Greenhouse Gas Protocol. *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard*. September 2015. https://ghgprotocol.org/sites/default/files/standards/Scope%20%20Guidance_Final_Sept26.pdf.
- Greenhouse Gas Protocol. *Technical Guidance for Calculating Scope 3 Emissions, Appendix C: Calculating emissions intensity metrics*. May 2013. https://ghgprotocol.org/sites/default/files/standards_supporting/AppendixC.pdf.
- Greenhouse Gas Protocol. *Technical Guidance for Calculating Scope 3 Emissions: Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard*. May 2013. https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf.
- Greenhouse Gas Protocol. *The Corporate Value Chain (Scope 3) Accounting and Reporting Standard*. September 2011. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf.
- Greenhouse Gas Protocol. *The GHG Protocol Standard, Chapter 3: Setting Organizational Boundaries*. March 2004. http://pdf.wri.org/ghg_protocol_2004_chp003.pdf.
- G20 Sustainable Finance Working Group. *Improving Compatibility of Approaches to Identify, Verify and Align Investments to Sustainability Goals*. September 2021. <https://g20sfwg.org/wp-content/uploads/2021/09/G20-SFWG-DESA-and-IPSF-input-paper.pdf>.
- Hale, Thomas et al. *Assessing the rapidly-emerging landscape of net zero targets*. December 19, 2021. <https://www.tandfonline.com/doi/epdf/10.1080/14693062.2021.2013155?needAccess=true>.
- Harvard Law Forum on Corporate Governance. "EU Finalizes ESG Reporting Rules with International Impacts." January 2023. <https://corpgov.law.harvard.edu/2023/01/30/eu-finalizes-esg-reporting-rules-with-international-impacts/#:~:text=By%202028%2C%20however%2C%20the%20European,companies%20subject%20to%20the%20CSRD.>

- IBM. "What is an API?" Accessed November 8, 2023. <https://www.ibm.com/topics/api>.
- International Auditing and Assurance Standards Board. "IAASB Launches Public Consultation on Landmark Proposed Global Sustainability Assurance Standard." August 2, 2023. <https://www.iaasb.org/news-events/2023-08/iaasb-launches-public-consultation-landmark-proposed-global-sustainability-assurance-standard>.
- International Ethics Standards Board for Accountants. "Sustainability Reporting And Assurance: A Focus On Ethics And Independence." Accessed November 8, 2023. <https://www.ethicsboard.org/focus-areas/sustainability-reporting-and-assurance>.
- International Federation of Accountants. *The State of Play: Sustainability Disclosure & Assurance*. February 2023. https://ifacweb.blob.core.windows.net/publicfiles/2023-02/IFAC-State-of-Play-Sustainability-Assurance-Disclosures_0.pdf.
- International Financial Reporting Standards Foundation (IFRS). "European Commission, EFRAG and ISSB confirm high degree of climate-disclosure alignment." July 31, 2023. <https://www.ifrs.org/news-and-events/news/2023/07/european-comission-efrag-issb-confirm-high-degree-of-climate-disclosure-alignment/>.
- IFRS. *IFRS S2 Climate-related Disclosures*. June 2023. <https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards-issb/english/2023/issued/part-a/issb-2023-a-ifrs-s2-climate-related-disclosures.pdf>.
- IFRS. *IFRS 10 Consolidated Financial Statements*. December 2014. <https://www.ifrs.org/issued-standards/list-of-standards/ifrs-10-consolidated-financial-statements/#standard>.
- IFRS. "ISSB consults on proposed digital taxonomy to improve global accessibility and comparability of sustainability information." July 2023. <https://www.ifrs.org/news-and-events/news/2023/07/issb-consults-on-proposed-digital-taxonomy/>.
- IFRS. "ISSB issues inaugural global sustainability disclosure standards." June 26, 2023. <https://www.ifrs.org/news-and-events/news/2023/06/issb-issues-ifrs-s1-ifrs-s2/>.
- IFRS. "Jurisdictional Working Group." Accessed November 8, 2023. <https://www.ifrs.org/groups/jurisdictional-working-group/#members>.
- IFRS. "Partnership Framework for capacity building." Accessed November 8, 2023. <https://www.ifrs.org/use-around-the-world/partnership-framework-for-capacity-building/>.
- IFRS. *Staff Paper: Financed and Facilitated Emissions*. September 2022. <https://www.ifrs.org/content/dam/ifrs/meetings/2022/september/issb/ap4d-climate-related-disclosures-financed-and-facilitated-emissions.pdf>.
- Integrity Council for the Voluntary Carbon Market. "The Core Carbon Principles Assessment Framework." Accessed November 8, 2023. <https://icvcm.org/>.
- International Monetary Fund (IMF). "Climate Change Indicators Dashboard." Accessed November 8, 2023. <https://climatedata.imf.org/>.
- IMF. *Data Gaps Initiative 3: Workplan*. March 2023. <https://www.imf.org/-/media/Files/News/Seminars/DGI/Home/g20-dgi-3-workplan-people-planet-economy.ashx>.
- IMF. *G20 DGI Recommendations*. March 2023. <https://www.imf.org/en/News/Seminars/Conferences/DGI/g20-dgi-recommendations#dgi3>.

- International Organization of Securities Commissions (IOSCO). "IOSCO endorses the ISSB's Sustainability-related Financial Disclosures Standards." July 25, 2023. <https://www.iosco.org/news/pdf/IOSCONEWS703.pdf>.
- IOSCO. *Report on International Work to Develop a Global Assurance Framework for Sustainability-related Corporate Reporting*. March 2023. <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD729.pdf>.
- IPCC. *Synthesis Report of the IPCC Sixth Assessment Report*. March 20, 2023. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf.
- IPCC. *The Earth's Energy Budget, Climate Feedbacks and Climate Sensitivity Supplementary Material (IPCC Sixth Assessment Report)*. August 2021. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07_SM.pdf.
- ISO. *ISO 14064-1:2018 Greenhouse gases – Part 1*. December 2018. <https://www.iso.org/standard/66453.html>.
- Leaders of the Group of Seven. *G7 Hiroshima Leaders' Communiqué*. May 20, 2023. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/g7-hiroshima-leaders-communique/>.
- Monetary Authority of Singapore. "MAS and SGX Group to collaborate with the Climate Data Steering Committee to strengthen global access to climate transition-related data." June 27, 2023. <https://www.mas.gov.sg/news/media-releases/2023/mas-and-sgx-group-to-collaborate-with-csdc>.
- NZDPU. "The Net-Zero Data Public Utility." Accessed November 8, 2023. <https://www.nzdpu.com/>.
- Net Zero Tracker. *Net Zero Stocktake 2023*. June 11, 2023. https://ca1-nzt.edcdn.com/Reports/Net_Zero_Stocktake_2023.pdf?v=1696255114.
- OECD. *OECD Taxonomy of Economic Activities Based on R&D Intensity*. July 16, 2016. <https://www.oecd-ilibrary.org/docserver/5jlv73sqqp8r-en.pdf?expires=1697656248&id=id&accname=guest&checksum=E5FE2C3D506EF992BC3E83A44897CB32>.
- Official Journal of the European Union. *Directive (EU) 2022/2464 of the European Parliament and of the Council*. December 14, 2022. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464&qid=1689257890024>.
- One Planet Sovereign Wealth Funds. "Global Sovereign Wealth Fund Community Convene to Support Paris Agreement and Accelerate the Energy Transition in Developing and Emerging Economics." June 22, 2023. https://www.oneplanetlibrary.com/wp%2dcontent/pdfs/web/viewer.html?file=https://www.oneplanetlibrary.com/download/193/6th-annual-opswf-ceo-summit/2876/6th-annual-opswf-ceo-summit-press-release_final.pdf.
- Partnership for Carbon Accounting Financials. *Financed Emissions: The Global GHG Accounting and Reporting Standard Part A: Financed Emissions*. December 2022. <https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>.
- SBTi. "Sector Guidance." Accessed November 8, 2023. <https://sciencebasedtargets.org/sectors>.
- Securities and Exchange Commission. "Climate-Related Disclosures/ESG Investing." Accessed November 8, 2023. <https://www.sec.gov/securities-topics/climate-esg#:~:text=Investors%20representing%20literally%20tens%20of,to%20make%20informed%20investment%20decisions>.
- Sustainability Accounting Standards Board. "Find your industry." Accessed November 8, 2023. <https://sasb.org/find-your-industry/>.

- Sustainalytics. "Carbon Emissions Data for Investors: Closing the Reporting Gap and Future-Proofing Estimations." February 8, 2023. <https://www.sustainalytics.com/esg-research/resource/investors-esg-blog/closing-the-carbon-emissions-reporting-gap-approaches-for-investors>.
- Task Force on Climate-related Financial Disclosures (TCFD). *2023 Status Report*. October 12, 2023. <https://www.fsb.org/wp-content/uploads/P121023-2.pdf>.
- The Conference Board. "Report: Gap in Climate Disclosures Between Large, Small Cos Stark Gap in Climate Disclosures Exists Between Large & Small Public Companies." January 20, 2022. <https://www.conference-board.org/press/climate-disclosures-gap>.
- United Nations (UN). "For a livable climate: Net-zero commitments must be backed by credible action." Accessed November 8, 2023. <https://www.un.org/en/climatechange/net-zero-coalition>.
- UN. "Full participation and equality!" Accessed November 8, 2023. <https://www.un.org/en/webaccessibility/>.
- United Nations Development Programme. "What are carbon markets and why are they important?" May 18, 2022. <https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important>.
- United Nations Framework Convention on Climate Change (UNFCCC). "Article 6.4 Mechanism." Accessed November 8, 2023. <https://unfccc.int/process-and-meetings/the-paris-agreement/article-64-mechanism>.
- UNFCCC. *Good Practices in NDC Updates and Implementation: Challenges and Lessons Learned from Asia, the Middle East, and North Africa*. June 2021. https://unfccc.int/sites/default/files/resource/NDC_Final%20Workshop%20Report%20%281%29.pdf.
- United Nations Global Climate Action Portal. "About." Accessed November 8, 2023. <https://climateaction.unfccc.int/About>.
- Voluntary Carbon Markets Integrity Initiative. "Delivering high-integrity carbon markets." Accessed November 8, 2023. <https://vcmintegrity.org/>.
- World Bank Group. "Climate Change Knowledge Portal." Accessed November 8, 2023. <https://climateknowledgeportal.worldbank.org/>.
- World Meteorological Organization. "Climate Metadata." Accessed November 8, 2023. <https://community.wmo.int/en/climate-metadata#:~:text=Metadata%20is%20the%20descriptive%20data,can%20also%20be%20a%20specification>.
- World Resources Institute. "Greenhouse Gas Protocol." Accessed November 8, 2023. <https://www.wri.org/initiatives/greenhouse-gas-protocol>.
- XBRL. "An Introduction to XBRL." Accessed November 8, 2023. <https://www.xbrl.org/the-standard/what/an-introduction-to-xbrl/>.
- XBRL. "Digital Sustainability Disclosures with XBRL." Accessed November 8, 2023. <https://dsd.xbrl.org/>.
- Xiao, Xinning and Shailer, Greg. *Stakeholders' perceptions of factors affecting the credibility of sustainability reports*. January 1, 2022. <https://www.sciencedirect.com/science/article/pii/S0890838921000287>.

