

NET ZERO REGULATION STOCKTAKE REPORT NOVEMBER 2023

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DATA AND RESEARCH ACKNOWLEDGEMENTS

Current insights build on the [Net Zero Regulation Dataset](#) by Lucilla Dias (Oxford Net Zero) and Adriana Elera (Oxford Net Zero). Additionally, the [Codebook](#) describes the logic of data collection and current interpretations.

The 2023 Stocktake presents the outputs of the mapping efforts by Oxford Net Zero of net zero-related regulation developments across the G20 in 2023. This Stocktake is a precursor to expanded, systematic tracking of net zero-related regulations. The tracker will be an initiative by the Net Zero Regulation and Policy Hub at the University of Oxford.

The results discussed in the report may vary as more feedback is gathered and mapping continues. The information provided is based on current findings and should be understood as a description of what has been discovered thus far, rather than a comprehensive review of all possible instruments available. We appreciate your feedback! If you have information to complement the dataset, please get in touch with us at netzero@ouce.ox.ac.uk.

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EXECUTIVE SUMMARY

Regulation around net zero can level the playing field, transform voluntary commitments into rules for the economy (1 p. 33), and help close the emissions gap towards the Paris goals (2 pp. XIX, XXI, XXVI). In this context, understanding what has been done so far and taking action to accelerate the implementation of solutions on a global scale is a priority (3). The Net Zero Regulation Stocktake developed by Oxford Net Zero contributes to this mission by informing the community about the state of regulatory activity around the world.

In their current version, this report and the stocktake exercise cover national-level net zero regulations from G20 members¹, around four regulatory domains: net zero-related **claims and financial product standards**, **disclosure** of climate-related risks, decarbonization-focused **procurement**, and **transition plan** requirements. Net zero regulations are understood as rules that require firms to align with the mitigation goals of the Paris Agreement. It is essential to note that the Stocktake maps the regulatory activity happening in the covered jurisdictions. However, the present version of the Stocktake does not evaluate the quality of the instruments mapped, which are heterogeneous among themselves, their alignment with the Paris Agreement or any other measures of effectiveness. Moreover, by ‘regulation’ we mean rules, in legislation or other formats, that mandate action from others.

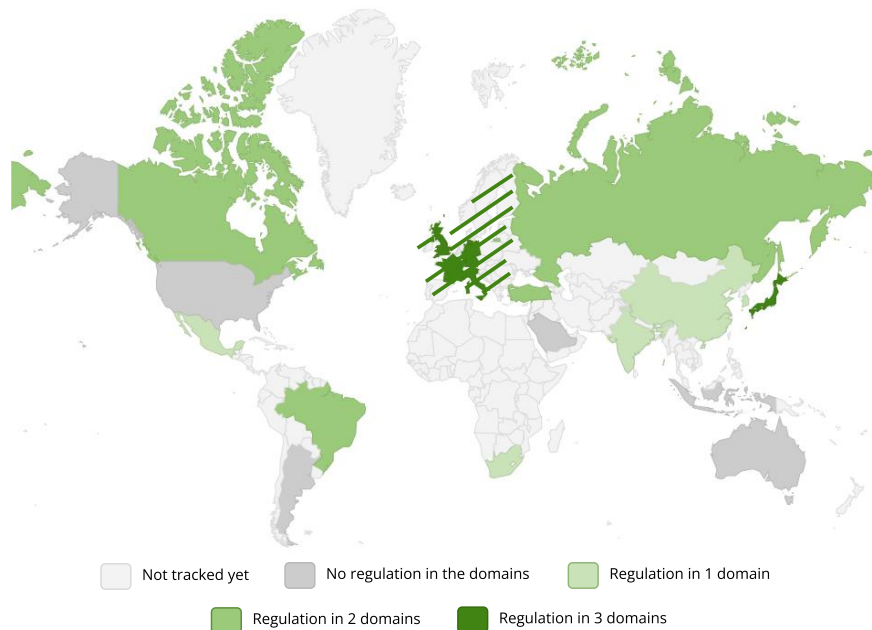
The 2023 Stocktake is a precursor to expanded, systematic tracking of net zero-related regulations. The tracker will be an initiative by the Net Zero Regulation and Policy Hub at the University of Oxford. The upcoming tracker aims to provide evidence for regulators, companies, researchers, and civil society around the degree of alignment to net zero across domains and jurisdictions. It will also evaluate the impact of regulations, as well as contribute to coordination efforts across borders and capacity building to accelerate the transition.

¹ The African Union joined the G20 at a later date than when the mapping took place and thus is not included in this version.

KEY FINDING 1: Regulatory activity is disseminated around the world

The majority (15) of G20 members have implemented at least one of the regulations covered in the Stocktake. They are Brazil, Canada, China, the European Union (EU), France, Germany, India, Italy, Japan, Mexico, Russia, South Africa, South Korea, Turkey, and the United Kingdom (UK)¹. [Figure 1](#) below shows this result. The five remaining countries, for which we did not identify regulations on the covered domains, all have instruments under development. [Table 1](#) summarizes the regulatory status of each G20 member and domain. All in all, governments are developing net zero regulations that could support their decarbonization pathways².

Figure 1 – The majority of G20 members have created regulations in at least one of the covered domains



What is more, this regulatory activity is happening in both developed and developing nations. While the countries with most domains with regulations are developed nations, there are examples of developing nations with dynamic regulatory activity (e.g., Brazil with regulation in two domains), as well as developed nations with slower update of regulations (e.g., the USA has not regulated in any of the domains yet). Both groups of countries have good examples of regulations and are actively engaged in implementing net zero regulations, emphasizing the global nature of this endeavour.

² The Stocktake maps regulatory activity but does not evaluate the quality of the instruments mapped, their alignment with the Paris Agreement or any other measures of effectiveness.



Table 1 – Regulatory status of G20 members

COUNTRY	REGULATORY STATUS			
	Key: [✓] Regulation in place, [—] In progress, [X] No regulation			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
Argentina	—	X	X	X
Australia	—	—	X	—
Brazil	—	✓	X	✓
Canada	X	✓	✓	—
China	✓	—	—	X
European Union	✓	✓	X	✓
France	✓	✓	X	✓
Germany	✓	✓	✓	—
India	✓	—	X	—
Indonesia	X	—	X	—
Italy	✓	✓	✓	—
Japan	X	✓	✓	✓
Mexico	X	✓	X	X
Russia	✓	—	X	✓
Saudi Arabia	—	—	X	X
South Africa	✓	—	X	—
South Korea	—	—	✓	—
Turkey	✓	X	X	✓
United Kingdom	—	✓	✓	✓
United States of America	—	—	—	X



KEY FINDING 2: The regulatory landscape is rapidly evolving, with at least 55% of the global economy already governed by some form of net zero regulation

As of 2024, a minimum of 77 net zero regulations will be in effect worldwide. The mapped regulatory activity in G20 members has evolved quickly, nearly quadrupling in size over just four years. [Table 2](#) provides a visual representation of this evolution starting from 2016. When we aggregate the GDP of the countries covered in the Stocktake that have already implemented net zero or decarbonization regulations, the result is that at least 55% of the global economy is somehow³ governed by these regulations.

Table 2 – Regulatory activity is growing year by year (total number of regulations in each year)

		Year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Regulatory domain	Claims and financial product standards	0	0	0	0	4	9	12	19	22	22
	Disclosure	0	3	5	5	5	5	10	24	27	29
	Procurement	1	2	2	2	3	4	7	8	10	10
	Transition Plans	0	2	2	2	2	2	8	13	15	16
Total		1	7	9	9	14	20	37	64	74	77

The regulatory landscape is expected to continue developing. Firstly because no G20 member has yet fully regulated in all four mapped domains. Secondly due to ongoing instruments identified in the Stocktake. If these instruments are enacted, it could result in up to 85% of the global economy being subject to some form⁴ of net zero regulations. [Figure 2](#) shows the current and in-progress scenario

³ “Somehow” because the aggregated results do not differentiate regulations in terms of the actors/sectors regulated or the quality of the regulations in place. Moreover, no G20 member has already enacted regulations in all covered domains and a suite of regulations, including but beyond the four covered domains, is needed to support a comprehensive national climate strategy.

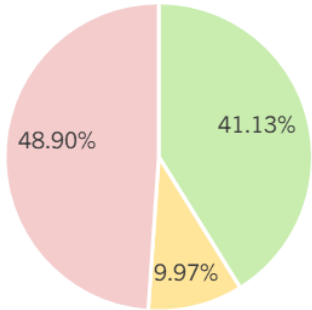
⁴ The 85% represents the combined GDP of covered countries that would be under regulation in at least one of the monitored domains if the in-progress instruments were implemented. To avoid double counting, we excluded the GDP of France, Germany, and Italy since they are already accounted for within the EU. The GDP data is sourced from the World Bank (196).



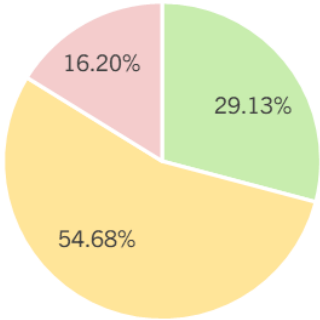
of each covered regulatory domain. This dynamism underscores the importance of ongoing monitoring of regulations. It also shows that countries are working towards reliable climate pledges (claims and financial product standards), mandatory risk identification (disclosure) and planning towards decarbonization (transition plans), as well as directing their finances towards decarbonization (procurement). These regulations, if well designed and implemented, help to align the “ground rules” for the economy with the global net zero goal (4 p. 3).

Figure 2 – Proportion of the world’s GDP at least partially regulated by one of the mapped regulatory domains

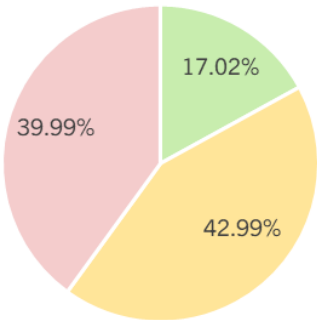
Claims and financial product standards



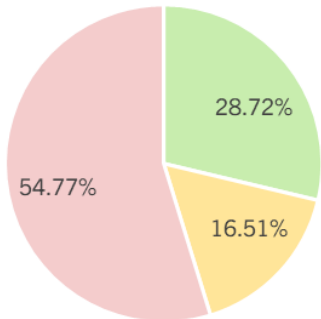
Disclosure



Procurement



Transition Plans



■ Regulated ■ Additional in-progress ■ Not regulated



KEY FINDING 3: Voluntary standards are gaining momentum in national regulations

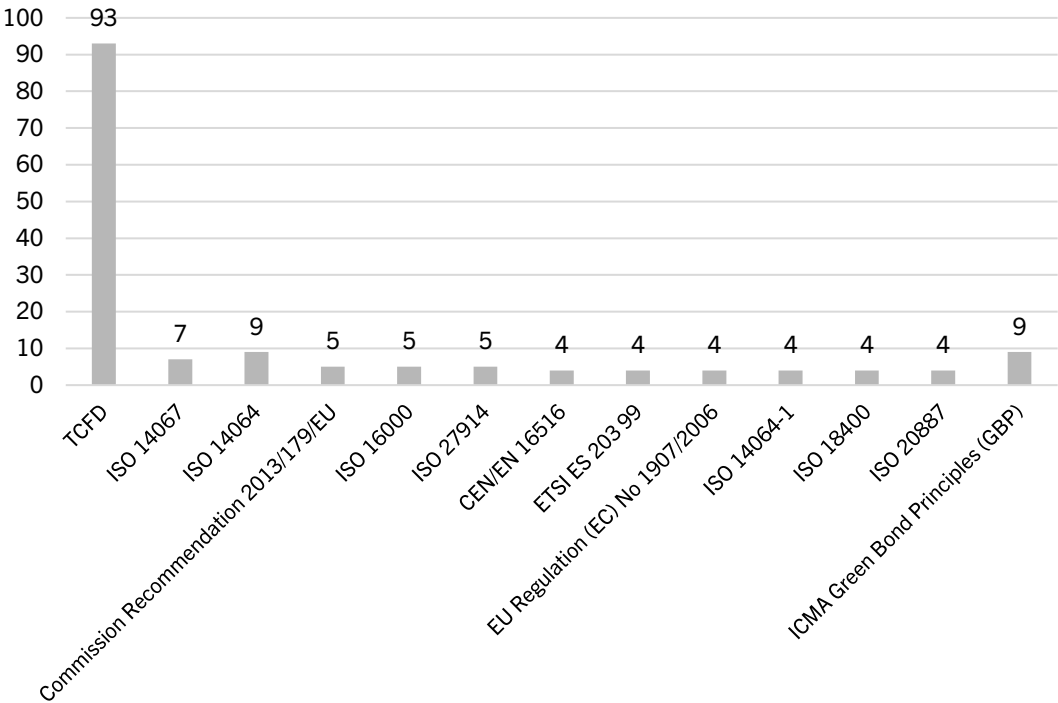
Voluntary standards have been fundamental in creating and promoting best practices for net zero action but have limited reach (4 pp. 13-15). The data indicates that the advocated shift from voluntary standards to their incorporation into mandatory national regulations (4; 5; 1) is underway.

Over 160 mapped instruments make use of standards to support their text. Individual standards have been referenced (cited, used as a basis, encouraged, or required) over 390 times, with the Task Force on Climate-Related Financial Disclosures (TCFD) being the most frequently cited. 84 standards were identified in total, among voluntary and UN (United Nations) or government-led.

[Figure 3](#) illustrates the most used standards.

Notably, 24 out of the 77 mapped regulations either mandate compliance with a standard or align themselves to one. TCFD remains at the forefront, followed by ISO standards (14067, 14064 and 16064-1, 16000, among others), EU standards (Commission Recommendation 2013/179/EU, CEN/EN 16516, ETSI ES 203 99, EU Regulation (EC) No 1907/2006, and EMAS), the International Capital Market Association (ICMA) Green Bond Principles (GBP) and the Climate Bonds Standard.

Figure 3 – Most used standards by the mapped instruments





CONTENTS

Data and research acknowledgements 2

Executive summary 3

 KEY FINDING 1: Regulatory activity is disseminated around the world..... 4

 KEY FINDING 2: The regulatory landscape is rapidly evolving, with at least 55% of the global economy already governed by some form of net zero regulation 6

 KEY FINDING 3: Voluntary standards are gaining momentum in national regulations 8

1. The scope of the Stocktake 11

 1.1. Why map regulatory activity 11

 1.2. Covered regulatory domains and countries 12

2. Tracking process and classifications..... 16

3. Results 19

 3.1. Results per domain: 55% of the world’s economy is governed by at least one net zero regulation..... 19

 3.1.1. Claims and financial product standards 19

 3.1.2. Disclosure 21

 3.1.3. Procurement 22

 3.1.4. Transition Plans 24

 3.2. Aggregated results: Regulatory activity is disseminated around the world 26

 3.2.1. Regulatory status by country 26

 3.2.2. Distribution of regulations 35

 3.2.3. Voluntary standards 36

 3.3. Results per category: Regulations are still limited, but other instruments are also available
 38

4. Conclusion..... 43

Bibliography 44



Appendix 1 – Description of alignment for each regulatory domain..... 70

Appendix 2 – Catalogue of voluntary standards and initiatives used in the mapped instruments.. 73



1. THE SCOPE OF THE STOCKTAKE

1.1. Why map regulatory activity

In 2022, the United Nations secretary General called for regulation around net zero to “level the playing field and transform the groundswell of voluntary commitments into ground rules for the economy overall” (1 p. 33). Having regulations and policies in place is needed to close the excess in emissions (or “emissions gap”) that indicate that the world is off track from the Paris Agreement goals (2 pp. XIX, XXI, XXVI) – the first global stocktake taking place at the UN Climate Change Conference (COP28) later in 2023 is expected to demonstrate by how much (6). In this context, understanding what has been done so far and take action to accelerate the implementation of solutions on a global scale is a priority (3).

There is, however, a gap in knowledge of existing regulatory efforts. A review to identify and assess existing policy instruments that could be reformed to encompass net zero goals is needed. Similarly, a clear evidence base around the alignment to net zero of different instruments and their impacts. To contribute to fill this gap, in 2023 Oxford Net Zero realized this stocktake of net zero regulations to realize an essential first step – identify regulatory activity and complementary instruments related to the global mitigation net zero commitment. Although current efforts are insufficient to achieve net zero, the multiple concrete actions currently implemented can also serve as inspiration for others (7 p. 17). By examining the regulations and related instruments that countries are making use, the Stocktake can also support the global community to build from these examples. In a next phase, the effectiveness and quality of the actions under development could be assessed.

In its first phase, the data collection focused on identifying national-level regulations in G20 members, across four regulatory domains: disclosure, transition plans, claims and financial product standards, and procurement. This first batch of results are presented in this Report (see section [3](#)). The bulk of data collection took place between May and June 2023, with some supplementary data reviews in July and August 2023.

The 2023 Stocktake is a precursor to expanded, systematic tracking of net zero-related regulations. The tracker will be an initiative by the Net Zero Regulation and Policy Hub at the University of Oxford. The upcoming tracker aims to provide evidence for regulators, companies, researchers, and civil society around the degree of alignment to net zero across domains and jurisdictions. It will also



evaluate the impact of regulations, as well as contribute to coordination efforts across borders and capacity building to accelerate the transition.

1.2. Covered regulatory domains and countries

We chose to focus on cross-sector regulations for driving alignment of new net zero definitions and criteria in the real economy. These are disclosure, transition plans, claims and financial product standards, and procurement. Following the policy conveyor belt model⁵, each of these regulatory instruments can also play a key role in formalising best practice on net zero for organisations, as defined by leading voluntary initiatives and standards (4 pp. 9, 14, 15). As platforms for the integration of common, tested net zero standards, these regulatory domains can drive consistency across the private and public sector, levelling the playing field for corporate actors, rewarding climate leaders, and positively impacting the economy. The recent growth and development of these regulatory domains further validated our focus on including them (1 p. 33).

The definition of each regulatory domain is as follows⁶:

Disclosure: Companies and financial institutions report on the risk of both climate impacts and decarbonization in a regulated and routine fashion.

Transition plans: Regulators require firms to outline their pathways to net zero to create additional transparency and to advance national climate objectives.

Claims and financial product standards: Advertising products, services, or corporate performance as “net zero” or similar is subject to specific criteria, including compliance with financial product standards.

Procurement: Governments condition procurement to firms and products that meet well-defined net zero standards.

⁵ [The net-zero governance conveyor belt](#) is a model by Thomas Hale aimed at a “high-integrity governance ecosystem around net zero” (page 3) by supporting the convergence of best practice voluntary standards and regulations towards Paris-aligned actions (4).

⁶ These definitions mirror those in Oxford Net Zero’s earlier stocktake effort published in the 2022 Pivot Point Report, a multi-stakeholder call for new climate mandates (5 p. 28). The “claims and financial product standards” definition merges “claims” and “product standards” to reflect the content of the instruments found in practice during the mapping.



The collective efforts of voluntary initiatives aimed at [disclosing climate risks](#) have garnered significant participation from companies and have prompted the enactment of mandatory regulations worldwide (5 p. 26). The disclosure of climate risks improves transparency and supports the indispensable realignment of financial systems towards a low-carbon economy and more resilient investments (2; 7). While being the most mature of the covered domains (4 p. 9), the development of disclosure regulations is still ongoing as more national governments establish disclosure requirements to support the allocation of private capital towards lower emissions investments (7 p. 15). Therefore, closely monitoring the development of disclosure regulations remains a core aspect of our stocktake efforts.

Mandatory [transition plans](#) play a crucial role in building upon the progress achieved through climate risk disclosure. These plans take the disclosure of climate risks to the next level by requiring further information as to how companies manage transition risks and meet specific climate targets, presenting the economy's pathway to decarbonization (8 p. 4). By requiring companies to develop and implement transition plans, policymakers aim to promote corporate action to decarbonize and thus achieve climate goals, notably the Nationally Determined Contributions (NDCs) under the Paris Agreement, as well as support the market's long-term financial stability (8; 9). Gold standards for disclosure such as the Task Force on Climate-Related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB) include transition plans as part of "strategy" and "metrics and targets" disclosure requirements (10; 11). Nonetheless, specific standards for more credible and robust transition plans are under development, with the framework of the Transition Plan Taskforce (TPT) as a leading example (9 pp. 12 - 14). When developed to standard, transition plans should set organizations to action and promote accountability (9 p. 9), which is exactly what is needed now and moving forward (see section [1.1](#)).

In this scenario of proliferation of net zero strategies and commitments from the corporate sector, there is a growing concern about the credibility of "climate neutrality", "net zero emissions" and similar [claims](#) made by organizations (12 pp. 5 - 6), with evidence suggesting that greenwashing is widespread (13 pp. 1-2). Greenwashing refers to the practice of disseminating false or deceptive information about a product or company's environmental attributes (13 p. 5). In the present version of the Stocktake, we follow two types of regulatory responses to greenwashing in the claims made by companies. The first type is to define the criteria and principles that must be followed when marketing products and services. These overarching requirements of commercial activities are set



by consumer rights and competition laws and can be complemented by guidance or requirements specific for carbon-related claims (12 p. 23). The second type of regulatory response is to define in advance the products that can be labelled as “green”. Regulators of financial products have been using taxonomies and similar frameworks to define the standards for product labelling and validate companies’ claims about their products (14 pp. 17 - 18). Others have created labelling schemes that certify “carbon neutral” claims (12 p. 17; 15). At the core of both regulatory responses is accountability. As we accelerate our efforts towards achieving net zero emissions, it becomes imperative to regulate claims and ensure that they are supported by tangible actions and verifiable data.

Finally, turning our focus from private to public action, we look at public [procurement](#). Worldwide, public procurement accounts for 17% of the global GDP⁷ (16), making it not only an inherent aspect of public finance but also a fundamental component of the global economy. Because the government can decide on what to purchase, procurement decisions hold the potential to significantly impact domestic emissions. As a result, procurement is a direct implementation route for governments to reduce their emissions (7 p. 15). Green procurement is an example of public finance being employed towards reducing domestic emissions. By considering aspects beyond price in bidding processes, such as the emissions profile of purchases and contracts, public resources are employed towards a broader societal goal (17 pp. 10 -11). Procurement therefore allows governments to demonstrate leadership on their own net zero commitments by setting out standards for their business partnerships. What is more, procurement decisions also influence the overall trajectory of the economy towards lower emission. This is because decarbonization aligned procurement catalyses (“crowds in”) private resources towards this goal (18 p. 1), shaping and creating markets (18; 2). Moreover, by conditioning contracts to net zero commitments and plans, public procurement can drive forward emissions reductions and the usage of standards (such as the ones discussed for disclosure and transition plans) in companies (5 p. 51).

As for jurisdictions, the decision to start with national-level instruments from G20 members was guided by the potential impact of the collected data and the outputs achievable with our current

⁷ As of 2021 (16).



resources. In 2022, G20 members⁸ accounted for 85% of the world’s economy⁹. Therefore, they play a pivotal role in driving the transition to a low-carbon economy via the implementation of net zero regulations. Additionally, it was recognized that while G20 members have strong existing examples of regulatory frameworks in place, regulation is not consistent across members. Finally, comprehensive data gathering for the selected instruments had never been developed across the G20, a clear information gap. Our mapping of instruments across these jurisdictions offers a helpful, though incomplete snapshot of the proliferation of climate regulatory instruments globally, laying the coding practice and foundation for a wider dataset and scope in the future.

As climate action moves further into this new territory of regulated ground rules, multiple policies and regulations are going to be needed to realize the systemic changes needed for a Paris-aligned future. These include but go beyond the four regulatory domains of this first phase of the Stocktake – sectoral policies being key examples (7 pp. 3 - 5). Moreover, it is also important for nations to cover different scopes (regulatory domains, actors, and sectors) of the economy to avoid perverse consequences. For instance, companies have declared to greenhush on sustainability actions and goals for fear of being accused of greenwashing as well as of reputational, litigation and financial risks (19). A comprehensive regulatory environment, where every company is expected to transition and that has clear standards reduce uncertainty and incentivize front-runners. In the long run, a tracking system that centralizes such information is a valuable tool to support the development of comprehensive national strategies and learning.

⁸ G20 members considered, in alphabetical order: Argentina, Australia, Brazil, Canada, China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, the United States of America. The African Union joined the G20 at a later date than when the mapping took place and thus is not included in this version.

⁹ 85% = [Sum of the GDP of each G20 member – (France + Germany + Italy, already considered in the EU)]/ World GDP = USD 86,181,247,690,000.00 / 101,002,996,560,000.00. Data retrieved from (196).



2. TRACKING PROCESS AND CLASSIFICATIONS

The Net Zero Regulation Stocktake collects information about key regulatory domains. In its first phase, the Stocktake followed national-level regulations in G20 members, across four regulatory domains (claims and financial product standards, disclosure, procurement, and transition plans). In aggregate, the data allow us to make dispositive claims about the entire population of the jurisdictions followed (e.g. “X major economies have Y”), and “at least” claims about the global population (e.g. “at least Z of all countries in the world have Y”).

The data collection started by identifying whether the country has any instrument related to the domain available (**Step 1**). For this, we have conducted internet research and reviewed secondary sources¹⁰. For each instrument identified, we assess its stage in the regulatory process, such as its approval status or whether it is currently under development (**Step 2**). Next, we evaluate the extent to which the instrument's content aligns with the definition of each domain (**Step 3**). It is important to note that an "aligned" record does not necessarily encompass all elements of a domain definition. Check Appendix 1 – Description of alignment for each regulatory domain for a summary of cases deemed aligned and more information on the process of identification of instruments. Finally, we examine the enforcement type to determine if the instrument mandates actions on others¹¹ (**Step 4**). Following the evaluation process for each case, we assign one of three categories, described below.

“Green” or Tracked net zero regulations: The “green” group represents the regulations we are ultimately seeking to identify. They are records¹² that we identified (**Step 1**) and are approved (**Step 2**), aligned to a regulatory domain (**Step 3**), and mandatory on others (**Step 4**).

“Yellow” or In progress instruments: The “yellow” group highlights the instruments that are under development. They are records that we identified (**Step 1**) and are in a draft or

¹⁰ So far, we have evaluated data from Sustainable Fitch’s [ESG Regulations and Reporting Standards Tracker](#).

¹¹ We understand “regulations” as instruments that mandate actions on others. Instruments include regulations but are not restricted to them. We use “instruments” as a more general term that also includes records that do not mandate action (are voluntary) or do not mandate action on others (e.g.: describe how the regulator plans to proceed).

¹² A record is a row in the dataset.



preparatory phase of development (**Step 2**), regardless of their alignment and enforcement.

“Red” or Other records: The “red” group encompasses all other records. Ultimately this group represents records that for one reason or another do not regulate a certain domain. Check [Figure 4](#) for details on the subclassifications of “red” records.

[Figure 4](#) provides a comprehensive overview of the evaluation process, offering a detailed representation of the categories. It also includes seven subcategories that theoretically capture the records in the tracking process. They are 1) tracked net zero regulations, 2) in progress instruments, 3) non-mandatory climate instruments, 4) broad-based regulations, 5) broad-based, non-mandatory instruments, 6) instruments not identified, and 7) repealed instruments.

While the ultimate objective is to identify tracked net zero regulations (subcategory 1), there are compelling reasons to consider other records. First, instruments that are not regulations can indicate trends, policy efforts and advocacy opportunities. Subcategory 3) non-mandatory climate instruments is an example. Although these instruments do not impose obligations on others, they incentivize alignment with net zero goals. Furthermore, they represent efforts towards aligning definitions and guidance on net zero, offering potential insights into future regulatory developments. Similarly, subcategory 2) in-progress instruments present opportunities for advocates to influence ongoing processes and drive net zero alignment of instruments still in development.

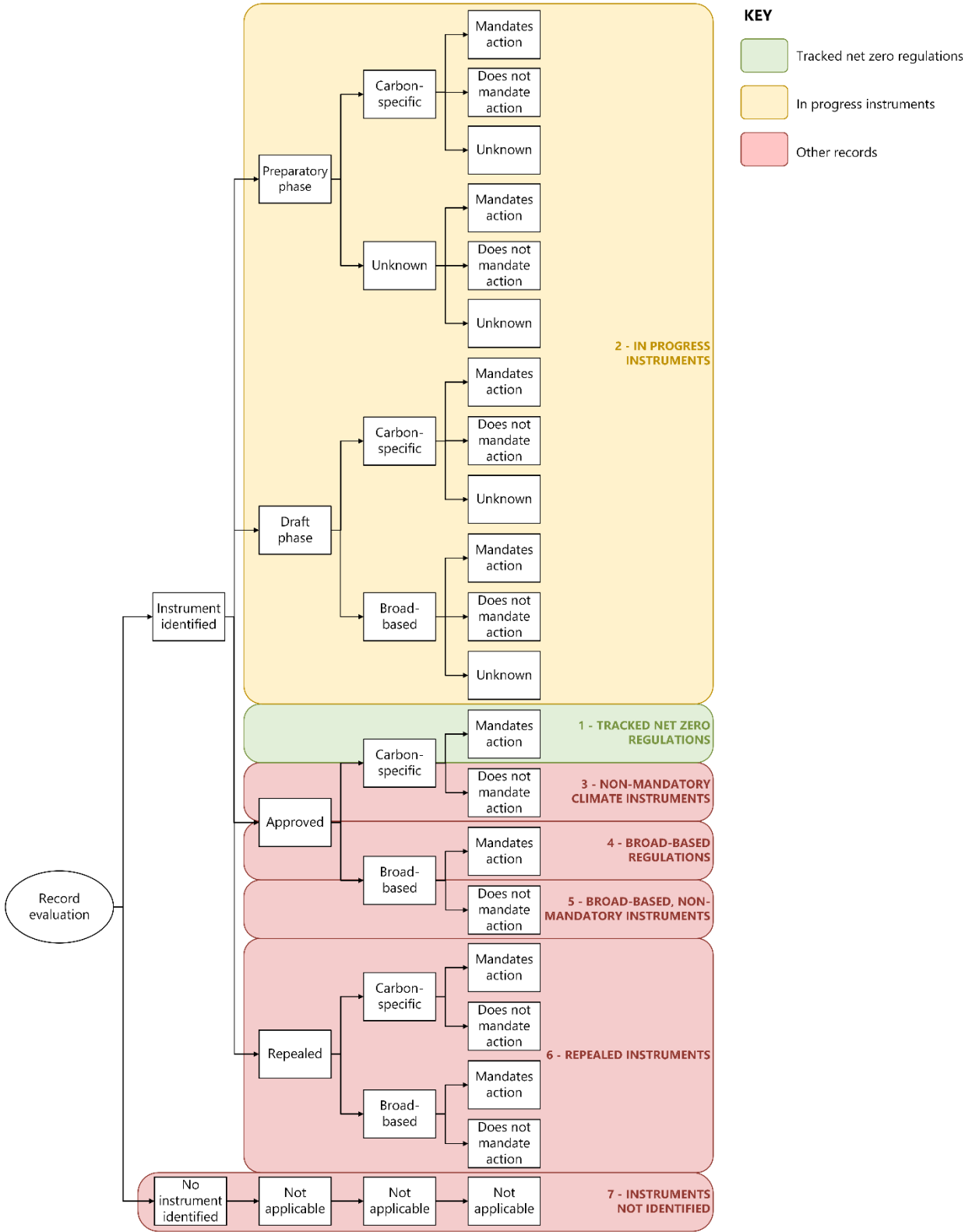
Second, we map broad-based regulations to identify how regulators develop the instruments in question more broadly. Subcategory 4) broad-based regulations and 5) broad-based, non-mandatory instruments are tracked to assess how each country regulates in general, or on other related issue areas, such as around ESG (Environmental, Social and Governance) practices. They help to identify instruments that, if reformed, could be aligned with net zero definitions and goals.

Finally, we also identify jurisdictions where the pathway to regulation may be retrenched or less established, either because a previous instrument has been repealed (subcategory 7) or because of the absence of instruments related to a domain (subcategory 6).

For a more in-depth explanation of the categories and the standards applied in each evaluation step, please refer to the [Stocktake codebook](#).



Figure 4 – Record evaluation and resulting classifications





3. RESULTS

3.1. Results per domain: 55% of the world's economy is governed by at least one net zero regulation

In this section, we delve into the current state of each covered regulatory domain. In addition to the overall state of regulations, we explore the net zero regulations that are already mandating action around the world and in progress instruments. These actions, taken by regulators, materialize the goal of shifting from voluntary actions to formal regulations and accelerate the transition to a low-carbon economy. In aggregate, the countries included that have already implemented at least one of the covered regulations represent 55% of the global economy, which is thus at least partially¹³ governed by these regulations. To illustrate the diversity and the topics of these regulations, we also highlight a selection of noteworthy cases.

3.1.1. Claims and financial product standards

We have identified regulation of net zero or decarbonization claims and financial product standards in 9 G20 members – China, the EU, France, Germany, India, Italy, Russia, South Africa, and Turkey. In GDP terms, this means that around 41%¹⁴ of the world's economy is somehow¹⁵ regulated by net zero claims' instruments. Moreover, 6 more countries (Argentina, Australia, Brazil, Saudi Arabia, South Korea, and the UK) are in the process of developing claim-related instruments that could become net zero regulations. Remaining countries (Canada, Indonesia, Japan, Mexico, and the USA) have not yet started the process of regulation, though we have identified non-mandatory guidelines related to climate claims and financial product standards in all of them except in Canada. [Figure 5](#) summarizes the domain's results.

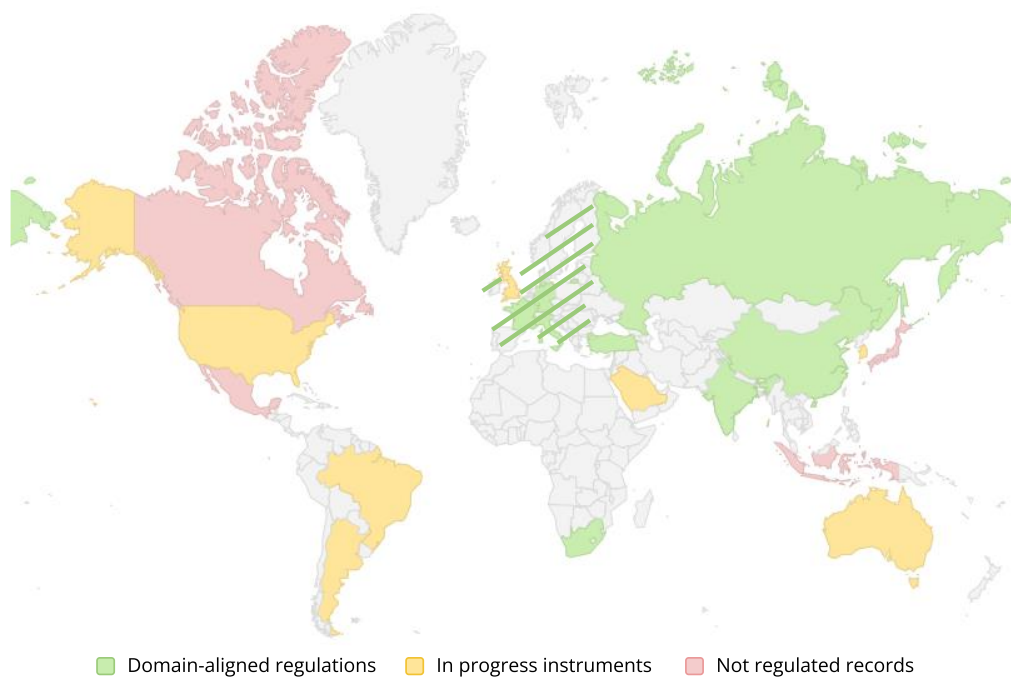
¹³ "Partially" because the aggregated results do not differentiate regulations in terms of the actors/sectors regulated or the quality of the regulations in place. Moreover, no G20 member has already enacted regulations in all covered domains and a suite of regulations, including but beyond the four covered domains, is needed to support a comprehensive national climate strategy. The GDP figures shown here should, therefore, be interpreted with caution as they overestimate the proportion of the economy that is mandated to act towards decarbonization goals.

¹⁴ Sum of the member's GDP minus France's, Germany's, and Italy's GDP (already counted in the EU), based on data from (196).

¹⁵ It is essential to bear in mind that the analysis does not differentiate how much of these countries' economies are regulated by the instruments, nor the quality of the regulations.



Figure 5 – Mapped overview of claims and financial product standards records



Interesting cases:

The French Climate and Resilience Law (Law no. 2021-1104) prohibits companies from claiming that their products or services are "carbon neutral" or similar unless they comply with pre-determined standards, which include the publicization of (i) the company’s report on greenhouse gas emissions including the direct and indirect emissions of the product or service, (ii) the approach by which the greenhouse gas emissions of the product or service are reduced, which must be primarily avoided, then reduced and finally offset, and (iii) the standards for offsetting residual greenhouse gas emissions. Failing to meet the requirements can lead to fines starting in € 20,000 (20).

India regulates greenwashing in the financial sector by pre-defining the instruments that can be labelled as “green”. They are the ones that fund defined categories of projects, with "transition bonds" as one of them. Transition bonds are defined as instruments that support the achievement of India’s climate targets under the Paris Agreement (21). These bonds must explain how they align with India’s NDC, monitor, and disclose the impact of projects funded by them, and refrain from using misleading or untrue labels or claims (22; 23).



South Africa takes a similar approach to India, but instead of defining its categories of sustainable instruments, the Johannesburg Stock Exchange uses the eligible project categories of the Green Bond Principles, set by the International Capital Market Association (ICMA), as a standard to define sustainability instruments (24 pp. 17, 31). Among them, are projects generally related to the control of greenhouse gas emissions and a high-level climate mitigation goal (25).

3.1.2. Disclosure

Regulation of climate-related disclosures were identified across 9 G20 members – Brazil, Canada, the EU, France, Germany, Italy, Japan, Mexico and the UK. In GDP terms, this means that around 29%¹⁶ of the world's economy is somehow¹⁷ regulated by instruments on the disclosure of climate related risks. Moreover, 9 more countries (Australia, China, India, Indonesia, Russia, Saudi Arabia, South Africa, South Korea, and the USA) are in the process of developing disclosure-related instruments that could become net zero regulations. Due to the size of the USA's economy, their regulatory progress is particularly important. Remaining countries (Argentina and Turkey) have not yet started the process of regulation, but Turkey counts with non-mandatory disclosure guidelines. [Figure 6](#) summarizes the domain's results.

Interesting cases:

The UK mandates the disclosure of financially material climate-related risks to a broad range of institutions – large companies and limited liability partnerships (LLPs), companies in the financial sector, asset managers, life insurers, pension providers, and trustees of pension schemes – using different regulatory instruments. Though they are not all aligned in terms of the standard of disclosure used (some require TCFD recommendations to be followed), the goal of all of them is to support the organizations' financial health by embedding climate-risks considerations in their structures (26; 27; 28; 29; 30).

Similarly, different regulators in Brazil mandates financial institutions to disclose climate-related risks, partially enforcing the core recommendations of the TCFD, on a tiered approach, generally

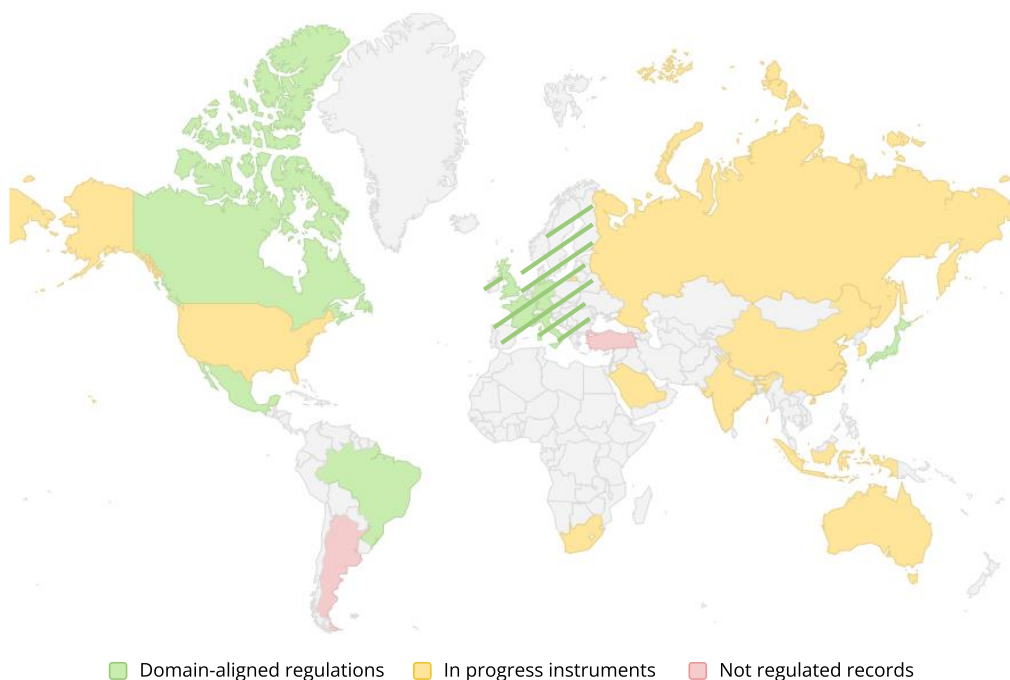
¹⁶ Sum of the member's GDP minus France's, Germany's, and Italy's GDP (already counted in the EU), based on data from (196).

¹⁷ It is essential to bear in mind that the analysis does not differentiate how much of these countries' economies are regulated by the instruments, nor the quality of the regulations.



depending on the institution’s size. Large financial institutions, insurers and private pension providers must disclose information following three out of four TCFD’s recommendations – governance, strategy, and risk management – while the recommendations on metrics and targets are left as optional. Medium-sized financial institutions are mandated to follow the governance recommendations (31); small-sized institutions must monitor and disclose climate risks but are not mandated to use TCFD (32); and insurers and private pension providers must disclose, following a template based on TCFD, material climate risks (33; 34).

Figure 6 – Mapped overview of disclosure records



3.1.3. Procurement

We have identified regulation of mitigation in procurement in 6 G20 countries – Canada, Germany, Italy, Japan, South Korea, and the UK. In GDP terms, this means that around 17%¹⁸ of the world’s economy is somehow¹⁹ regulated by climate procurement. The USA and China are in the process of developing procurement instruments that could become net zero regulations. Due to the size of their

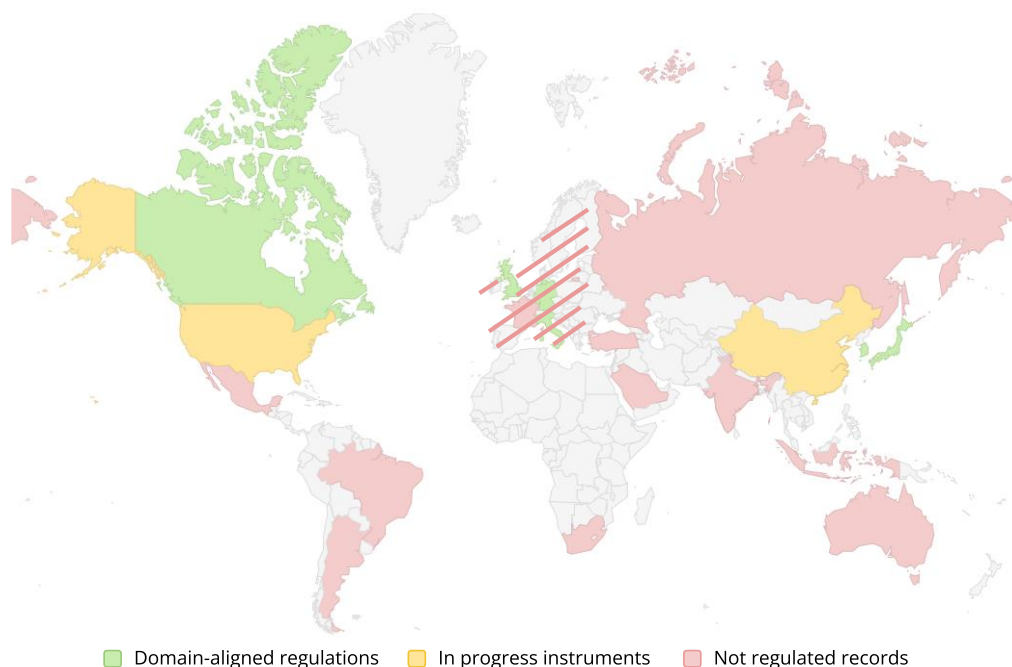
¹⁸ Sum of the country’s GDPs, based on data from (196).

¹⁹ It is essential to bear in mind that the analysis does not differentiate how much of these countries’ economies are regulated by the instruments, nor the quality of the regulations.



economies, regulatory progress by them is particularly important. Remaining members (Argentina, Australia, Brazil, the EU, France, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, and Turkey) have not yet started the process of regulation, though some have non-mandatory guidelines for climate procurement in place (Australia, the EU, France, and the USA). [Figure 7](#) summarizes the domain’s results.

Figure 7 – Mapped overview of procurement records



Interesting cases:

In Canada, procurement contracts surpassing 25 million Canadian Dollars can mandate bidders to measure and disclose their greenhouse gas emissions, adopt a science-based target in line with the Paris Agreement, and join initiatives related to mitigation efforts, such as Canada’s Net-Zero Challenge, the UN Race to Zero and CDP (Carbon Disclosure Project) (35; 36).

South Korea mandates green procurement as a rule, and conventional procurement as an exception. The whole governmental structure is involved in the planning and implementation of the purchase rule. Products that reduce the emission of greenhouse gases are among categories of green procurement (37).



The examples shows that climate-focused procurement regulations are varied. They can mandate actors to disclose climate-related information, such as transition plans, as well as be tools for governments to select the most “climate-aligned” bids, which emit less GHG.

3.1.4. Transition Plans

We have identified regulation of transition plans in 7 G20 members – Brazil, the EU, France, Japan, Russia, Turkey, and the UK. In GDP terms, this means that around 29%²⁰ of the world’s economy is somehow²¹ regulated by instruments that mandate selected organizations to outline their decarbonization pathways. Moreover, 8 more countries (Australia, Canada, Germany, India, Indonesia, Italy, South Africa, and South Korea) are in the process of developing transition plan-related instruments that could become net zero regulations. Remaining countries (Argentina, China, Mexico, Saudi Arabia, and the USA) have not yet started the process of regulation, but all of them have non-mandatory transition plan guidelines in place. [Figure 8](#) summarizes the domain’s results.

Interesting cases:

The European Union’s Corporate Sustainability Reporting Directive (CSRD) requires large companies and all entities (except micro) that trade securities in the market to define and disclose (but not stick to) science-based, time-bound targets for GHG emission reduction, as well as the monitoring of progress towards the targets set. The CSRD is enforced in a phased approach, between 2024 and 2028 (38).

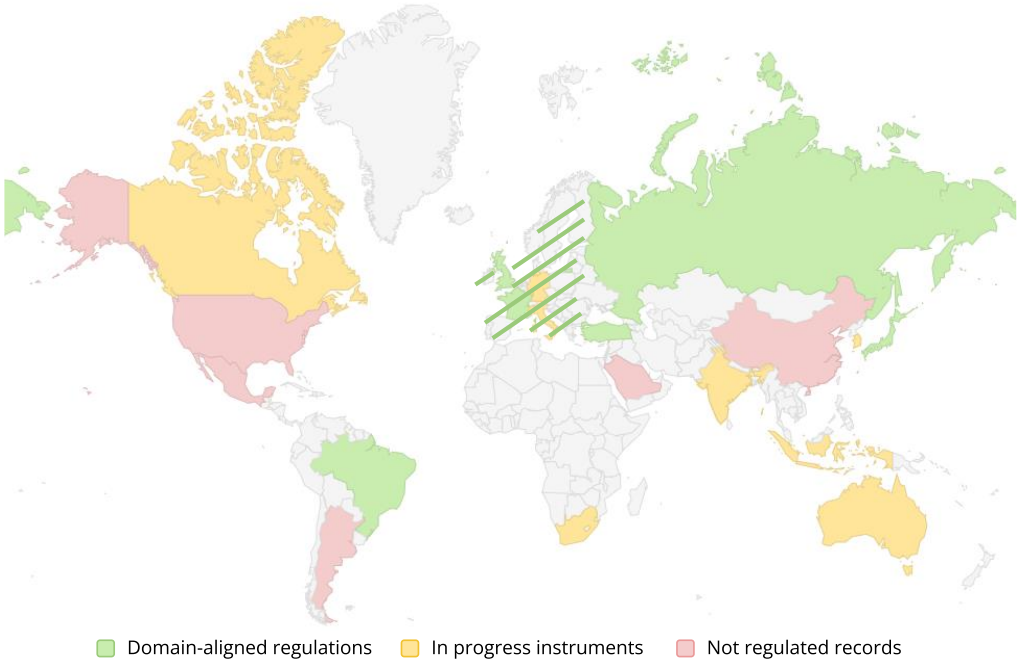
Turkey requires issuers of securities to disclose sustainability metrics on a "comply or explain" basis. The information is disclosed in the companies' annual report and include science-based targets and strategies for a climate transition (39 pp. 1-3).

²⁰ Sum of the member’s GDP minus France’s (already counted in the EU), based on data from (196).

²¹ It is essential to bear in mind that the analysis does not differentiate how much of these countries’ economies are regulated by the instruments, nor the quality of the regulations.



Figure 8 – Mapped overview of transition plans records





3.2. Aggregated results: Regulatory activity is disseminated around the world

3.2.1. Regulatory status by country

To aggregate the over 390 instruments mapped so far, we used the same “green”, “yellow” and “red” classification used for each individual record (see section 2). A regulatory domain was categorized as "green" if the country had at least one tracked climate instrument. Conversely, if the country had not yet regulated the domain, but had instruments in-progress with high potential to regulate²², the domain was classified as in-progress ("yellow"). Finally, if all the records for the domain were not in progress or tracked net zero regulations, the domain was classified as "red". [Table 3](#) provides a summary of the state of regulation in G20 members for each covered domain. It also outlines the regulations that were included to make up the result, and the actors regulated.

The aggregated data indicate that the majority of the G20 (15 out of 20 members) have implemented regulations in at least one of the covered domains. These countries, in alphabetical order, are Brazil, Canada, China, the European Union (EU), France, Germany, India, Italy, Japan, Mexico, Russia, South Africa, South Korea, Turkey, and the United Kingdom (UK). The 5 remaining countries have at least one instrument in progress, which indicates ongoing efforts towards regulation. These countries are Argentina, Australia, Indonesia, Saudi Arabia, and the United States of America (USA).

It is important to note that the aggregated results show regulatory activity. The results, however, do not differentiate regulations in terms of the actors/sectors it regulates, the quality of the regulations in place, their alignment with the Paris Agreement or any other measures of effectiveness. In practice, countries with identical classifications (“green”, “yellow”, or “red”) may have very different regulations in place. For more information on individual regulations, please refer to the [Net Zero Regulation Dataset](#).

²² We consider “in progress” instruments to have high potential to regulate if they already propose a net zero regulation (that is, are carbon specific and mandate action), if both attributes are still being defined (that is, specificity and enforcement are unknown), or if at least one of the defining attributes is favourable (that is, are carbon specific or mandate action) and the other is being defined (that is, specificity or enforcement are unknown). In turn, “in progress” instruments without a high potential to regulate are the ones which would have to be altered to become net zero regulations. These are broad-based non-mandatory proposals, as well as all proposals that have defined a broad-based specificity or non-mandatory enforcement.



Table 3 – Regulatory status by country

COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
Argentina	Products and services advertised as “net zero” or similar are NOT currently subject to specific regulatory standards (40), but a new regulatory framework is under development (41)	Companies and financial institutions are NOT mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (42)	Procurement is NOT conditioned to net zero or decarbonization standards (43)	Companies are NOT mandated to outline their pathways to net zero or decarbonization and no other transition instruments are in place (44)
Australia	Products and services advertised as “net zero” or similar are NOT subject to specific regulatory standards (45), but a new regulatory framework for financial products is under development (46)	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (47; 48; 49), but a new regulatory framework is under development (50)	Procurement is NOT conditioned to net zero or decarbonization standards (51)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (49), but a new regulatory framework is under development (50)
Brazil	Products and services advertised as “net zero” or similar are NOT subject to specific regulatory standards (52; 53), but new regulatory	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine	Procurement is NOT conditioned to net zero or decarbonization standards (59)	Financial institutions are mandated to outline their pathways to decarbonization (60; 31; 33)



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
	frameworks are under development (54; 55; 56)	fashion (57; 31; 32; 58; 33; 34)		
Canada	Products and services advertised as “net zero” or similar are NOT subject to specific regulatory standards (61; 62)	Government, governmental corporations and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (63; 64)	Procurement is conditioned to net zero standards (35)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (65), but a new regulatory framework for financial institutions is under development (64)
China	Financial products advertised as “net zero” or similar are subject to specific regulatory standards (66)	Companies and financial institutions are NOT mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (67; 68; 69), but new regulatory frameworks are under development (70; 71)	Procurement is NOT conditioned to net zero or decarbonization standards (72; 73; 74; 75; 76), but a new regulatory framework is under development (77)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (78; 79)
European Union	Financial products advertised as “net zero” or similar are	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization	Procurement is NOT conditioned to net zero or	Companies and financial institutions are mandated to



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
	subject to specific regulatory standards (80; 81; 82)	in a regulated and routine fashion (38; 83; 84)	decarbonization standards (85; 86)	outline their pathways to decarbonization (38)
France	Products and services advertised as “net zero” or similar are subject to specific regulatory standards (20; 87; 88; 82; 81)	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (89; 90; 91; 92; 93; 83; 84)	Procurement is NOT conditioned to net zero or decarbonization standards (94; 95; 96)	Financial institutions are mandated to outline their pathways to decarbonization (90; 91; 93)
Germany	Financial products advertised as “net zero” or similar are subject to specific standards through EU regulation (80; 81; 82)	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion through EU regulation (83; 84)	Procurement is conditioned to decarbonization standards (97; 98)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (98; 99), but new regulatory frameworks shall be developed to comply with EU regulation (38; 100)
India	Financial products advertised as “net zero” or similar are subject to specific regulatory standards (21; 101; 22)	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (102; 21;	Procurement is NOT conditioned to net zero or decarbonization standards (105)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (102), but a



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
		103), but a new regulatory framework is under development (104)		new regulatory framework is under development (104)
Indonesia	Products and services advertised as “net zero” or similar are NOT subject to specific regulatory standards (106; 107; 108; 109)	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (110; 111), but a new regulatory framework is under development (112)	Procurement is NOT conditioned to net zero or decarbonization standards (113; 114; 115)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (110), but a new regulatory framework is under development (112)
Italy	Financial products advertised as “net zero” or similar are subject to specific standards through EU regulation (80; 81; 82)	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion through EU regulation (83; 84)	Procurement is conditioned to decarbonization standards (116)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (117), but a new regulatory framework shall be developed to comply with EU regulation (38; 100)



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
Japan	Products and services advertised as “net zero” or similar are NOT currently subject to specific regulatory standards (118; 119; 120)	Companies are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (121)	Procurement is conditioned to decarbonization standards (122; 123)	Companies are mandated to outline their pathways to decarbonization (121)
Mexico	Products and services advertised as “net zero” or similar are NOT subject to specific regulatory standards (124; 125)	Financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (126)	Procurement is NOT conditioned to net zero or decarbonization standards (127)	Companies are NOT mandated to outline their pathways to net zero or decarbonization and no other transition instruments are in place (128; 129)
Russia (The Russian Federation)	Financial products advertised as “net zero” or similar are subject to specific regulatory standards (130)	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (131; 132), but a new regulatory framework is under development (133)	Procurement is NOT conditioned to net zero or decarbonization standards (134; 135)	Federal state enterprises are mandated to outline their pathways to decarbonization (136)
Saudi Arabia	Products and services advertised as “net zero” or	Companies and financial institutions are NOT currently	Procurement is NOT conditioned to net zero or	Companies are NOT mandated to outline their



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
	similar are NOT currently subject to specific regulatory standards (137), but a new regulatory framework for financial products is under development (138)	mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (139; 140; 141; 142), but a new regulatory framework is under development (138)	decarbonization standards (143)	pathways to net zero or decarbonization (144)
South Africa	Financial products advertised as “net zero” or similar are subject to specific regulatory standard (24)	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (145; 146; 147; 148; 24; 149; 150), but new regulatory frameworks are under development (151; 152)	Procurement is NOT conditioned to net zero or decarbonization standards (153; 154; 155)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (146; 145; 156; 148; 150), but a new regulatory framework is under development (157)
South Korea (The Republic of Korea)	Products and services advertised as “net zero” or similar are NOT currently subject to specific regulatory standards (158; 159; 160), but a new regulatory	Companies and financial institutions are NOT currently mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (162;	Procurement is conditioned to decarbonization standards (37)	Companies are NOT mandated to outline their pathways to net zero or decarbonization (162; 163; 168; 169), but a new



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
	framework is under development (161)	163; 164; 165), but new regulatory frameworks are under development (166; 167)		regulatory framework is under development (166)
Turkey (Türkiye)	Products and services advertised as “net zero” or similar are subject to specific regulatory standards (170; 171)	Companies and financial institutions are NOT mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (172; 39)	Procurement is NOT conditioned to net zero or decarbonization standards (173)	Companies are mandated to outline their pathways to decarbonization (39)
United Kingdom (The United Kingdom of Great Britain and Northern Ireland)	Products and services advertised as “net zero” or similar are NOT currently subject to specific regulatory standards (174; 175; 176; 177), but new regulatory frameworks for financial products are under development (178; 179)	Companies and financial institutions are mandated to report on the risk of climate impacts and decarbonization in a regulated and routine fashion (26; 27; 28; 29; 30)	Procurement is conditioned to decarbonization standards (180; 181; 182)	Companies and financial institutions are mandated to outline their pathways to decarbonization (26; 27; 28; 29; 30)
United States of America	Products and services advertised as “net zero” or similar are NOT subject to	Companies and financial institutions are NOT mandated to report on the risk	Procurement is NOT conditioned to net zero or decarbonization standards	Companies and financial institutions are NOT mandated to outline their



COUNTRY	REGULATIONS			
	Claims and financial product standards	Disclosure	Procurement	Transition Plans
	specific regulatory standards (183; 184), but a new regulatory framework for financial products is under development (185)	of climate impacts and decarbonization in a regulated and routine fashion (186), but new regulatory frameworks are under development (187; 188; 189)	(190), but new regulatory frameworks are under development (191; 192)	pathways to net zero or decarbonization (193; 194)

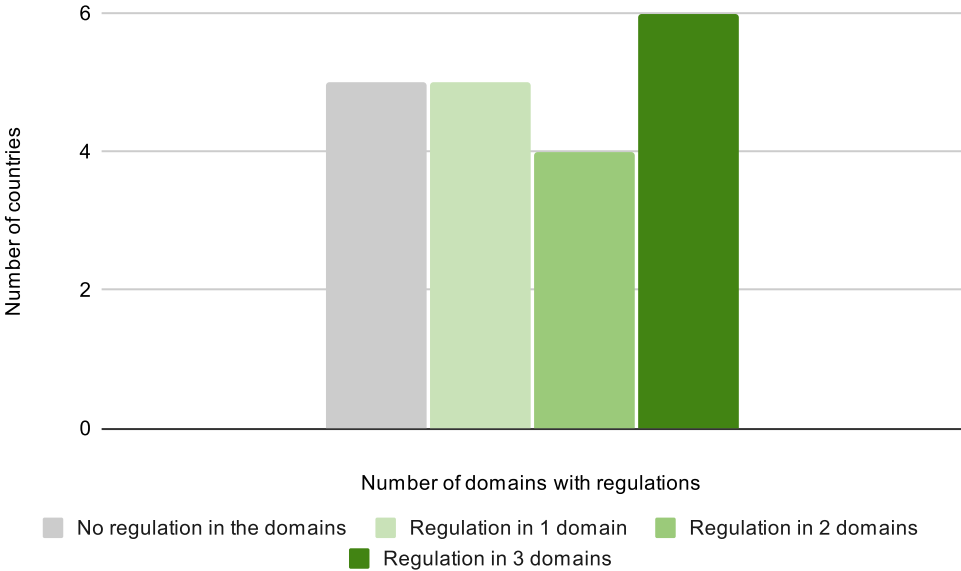


3.2.2. Distribution of regulations

Overall, the aggregated results underscore the ongoing process of regulation that is happening in the G20. While there is evident progress, comprehensive regulation has yet to be adopted, as none of the members have regulated in all four of the covered domains. The map in [Figure 1](#) provides an overview of the distribution of these regulations across G20 members. It is important to note that the map illustrates the presence of net zero regulations, not their quality or scope.

A closer examination, as demonstrated in [Figure 9](#), reveals that while the majority of countries (75%, or 15 out of 20) have implemented regulations in at least one of the specified domains, reflecting positive strides in regulatory action, a significant portion (25%, or 5 out of 20) has yet to enact regulations in any of these domains. Furthermore, the uneven distribution between countries that have regulated, implies some leadership among nations that have addressed a broader spectrum of domains. So far, only developed nations have regulated across 3 regulatory domains. There are, however, examples of high-performing countries that are developing nations (e.g., Brazil with regulation in two domains) and low-performing countries that are developed nations (e.g., the USA has not regulated in any of the domains). A closer evaluation of the regulatory activity of countries and if there are predictors of activity would be interesting once there is more data.

Figure 9 – Distribution of domains with regulations





3.2.3. *Voluntary standards*

The data indicates that voluntary standards are being incorporated into national instruments. Over 160 tracked instruments make use of standards to support their text. Individual standards have been referenced (cited, encouraged, used as a basis, or required) over 390 times, with the Task Force on Climate-Related Financial Disclosures (TCFD) being the most frequently cited²³. 84 standards were identified in total, among voluntary and UN (United Nations) or government led. The most used standards are available in [Figure 3](#), and the full list in on [Appendix 2 – Catalogue of voluntary standards and initiatives used in the mapped instruments](#)²⁴. Though standards vary in quality, some representing the best-practice and others greenwashing (4 p. 13), their incorporation indicate that regulators are making use of them as benchmarks.

Notably, more than 40% of the mapped net zero regulations (32 out of the 77) make use of standards as benchmarks. Out of the 32 regulations that make use of standards, 24 either mandate compliance with a standard or align themselves to one, incorporating, in practice, voluntary standards into regulations. A summary of the current usage of standards by the mapped regulations is available in [Figure 10](#). This take up indicates that the advocated shift from voluntary standards to their incorporation into mandatory national regulations (4; 5; 1) is underway, though with variations between the mapped regulatory domains.

Usage of standards is more frequent in disclosure and transition plan regulations, in which the widespread usage of TCFD is the leading example of the convergence movement from voluntary best practice to cross-jurisdiction regulatory incorporation. Except for the EU's Corporate Sustainability Reporting Directive (CSRD), which encourages regulated organizations to follow the ISO 26000 guidance on social responsibility, all other mapped disclosure regulations that make use of standards either incorporate TCFD into its text (by aligning to TCFD or mandating its usage) (10 regulations) or encourage its usage (3 regulations). The TCFD has also been influential among transition plan

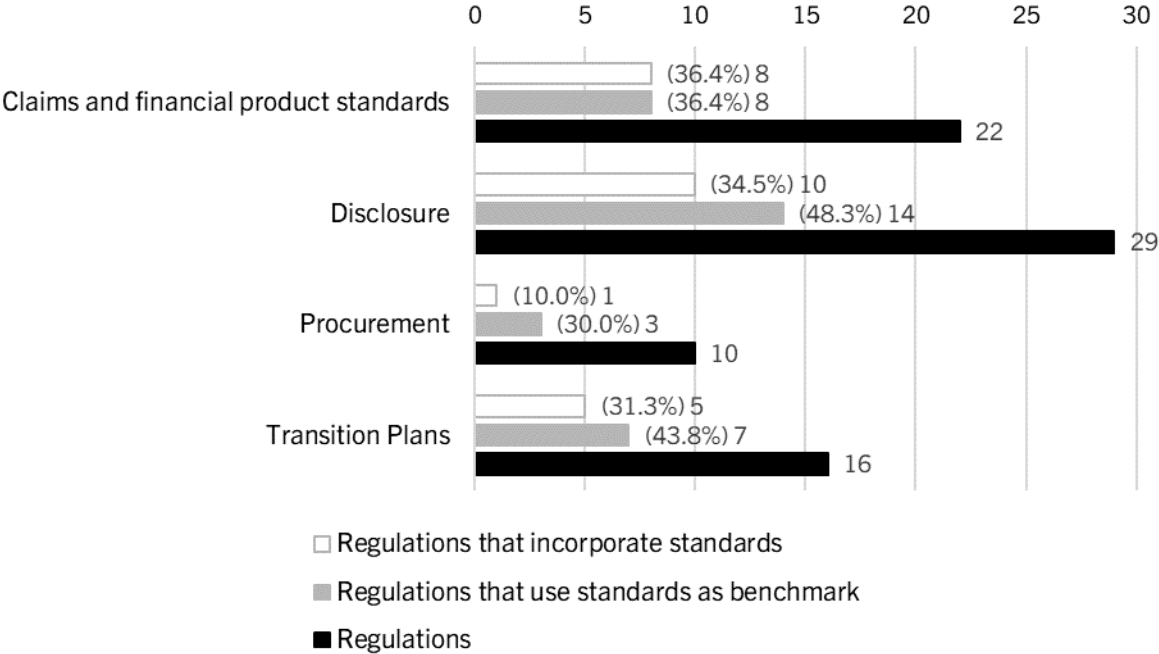
²³ The TCFD has been incorporated into the International Financial Reporting Standards Foundation (IFRS) S2 Climate-related Disclosures. However, companies may still use TCFD or be mandated to use TCFD (197). Therefore, throughout this report, we maintain the usage of TCFD instead of assuming a conversion to IFRS S2.

²⁴ The numbers in the Appendix and this section refer to the number of lines of data (instrument) that use a standard. Instruments are entered more than once if they cover multiple regulatory domains (one entry per domain).



regulations. Once again, apart from CSRD, all other mapped transition plan regulations that make use of standards either incorporate TCFD into its text (by aligning to TCFD or mandating its usage) (5 regulations) or encourage its usage (1 regulation).

Figure 10 – Usage of standards as benchmarks in mapped regulations



Mapped net zero regulations within the claims and financial product standards domain have a less homogeneous usage of standards. The ICMA Green Bond Principles was the most frequently used standard with 3 of the mapped net zero regulations declaring alignment with the Principles. Additionally, the EU and its members require the usage of a collection of cross-sector and sector-specific supporting standards, such as the ISO 14067 on the quantification of carbon footprint of products, ISO 14064-1 on quantification and reporting of GHG emissions and removals by organizations, and ISO 20887 on the sustainability of civil engineering works.

Finally, each procurement mapped net zero regulation that makes use of standards selected a different set of standards. They include ISO 14024 on environmental labels, ISO 500001 on efficient energy management, and the EU Commission Recommendation 2013/179/EU on measurement and communication of life cycles. Interestingly, there was also an instance of encouragement to join climate initiatives like the UN Race to Zero.



The process of incorporation of voluntary standards into regulations, which is clearer for disclosure and transition plan regulations, can support several developments in the climate governance landscape. Firstly, from the perspective of regulators, making best practice binding contributes to more efficient and effective regulatory frameworks. Regulators can build upon best practice, innovating and adding value to the governance landscape, without reinventing the wheel. What is more, high-quality standards elevate the overall quality of the regulatory text and the anticipated outcomes. Secondly, by being incorporated into regulations, voluntary standards burst the bubble of voluntary action and expand their presence in the economy. The uptake of regulation reduces first mover costs and encourages positive corporate action, as more businesses align their practices with these standardized, legally binding regulations. Finally, making use of standards also supports cross-border convergence. This simplifies transparency efforts and the task of cross-border entities in navigating a more consistent set of regulatory rules. Following the development of this process is an interesting topic for future tracking endeavours.

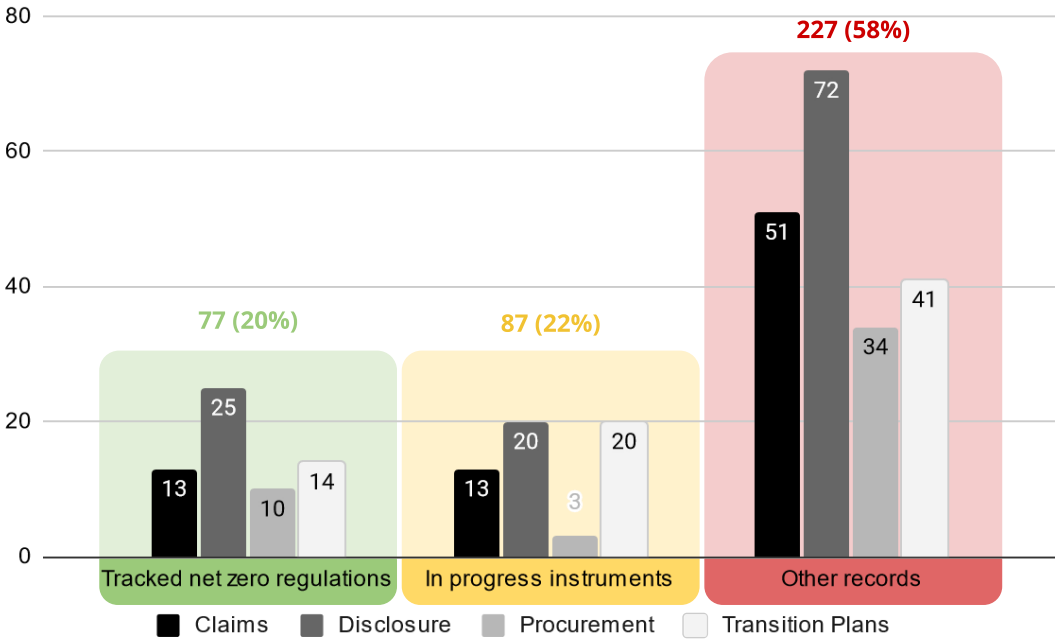
3.3. Results per category: Regulations are still limited, but other instruments are also available

The stocktake exercise resulted in the identification of 391 records so far, distributed across all G20 members²⁵ and the three categories (see section 2). The findings in each category are described in the following paragraphs, supported by [Figure 11](#). The results highlight that whilst net zero regulations are still limited, the process of regulation is ongoing and the plurality of supporting instruments that shape the regulatory domains not only informs the state of regulation but point to how reforms can be carried out to advance towards ground rules for the economy that are aligned with decarbonization goals.

²⁵ The classification system individualizes records per regulatory domain and country. Therefore, instruments that cover more than one regulatory domain were included multiple times, once for every domain. For example, several instruments cover the disclosure and transition plan domains at the same time, such as the EU's Corporate Sustainability Reporting Directive (CSRD). CSRD is counted twice in the dataset, once as a disclosure instrument, and once as a transition plan instrument. 391 is therefore not the number of individual instruments in the dataset.



Figure 11 – Distribution of “green”, “yellow” and “red” records



“Green” or tracked net zero regulations represent 77 or around 20% of the records. This means that there are already at least 77 instruments around the world mandating actors to align with the net zero effort by mandating the disclosure of climate risks (29 regulations) – disclosure “leads the way” (5 p. 26) – and development of transition plans (16 regulations), the decarbonization of public procurement (10 regulations) and the regulation of decarbonization-related claims and financial product standards (22 regulations). It is also worth noticing that some countries have more than one regulation per domain in place, each covering a different aspect or actor of the economy²⁶. This result backs up the expectation that multiple instruments are to be in place to cover net zero goals (see section 1.2). The regulatory landscape has changed quickly in the G20 members. In less than ten years, regulations rose from 7 to 77, and nearly quadrupled since 2020. Table 2 provides a visual representation of this evolution starting in 2016.

Another positive sign towards regulation is the 87 (22%) “yellow” or in progress instruments. The in-progress status covers instruments that have been announced or made available as a draft and that

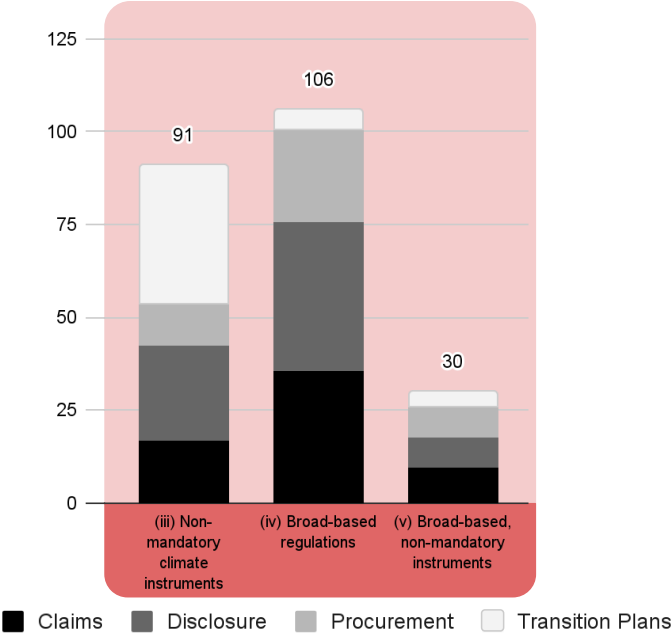
²⁶ France, for instance, has five regulations for claims, seven for disclosure and three for transition plans.



relate to each of the domains covered in the tracking process. Transition plans (30 instruments) and disclosure (28) are the most common records, followed by instruments on claims and financial product standards (24) and procurement (5). They won't all be approved, mandate action and be aligned with the domains, but indicate progress and are advocacy opportunities. To differentiate instruments that have a higher potential to become net zero regulations, the regulatory potential of instruments is also evaluated – see footnote [22](#). 67 out of 87 are classified as “high potential”.

The 227 remaining records are “red” (58%) or other records. Although they represent most of the records so far, they encompass several subcategories of records (see section [2](#)), as illustrated in [Figure 12](#), each with its own characteristics and potentialities. They are non-mandatory climate instruments (subcategory 3), broad-based regulations (subcategory 4), and non-mandatory instruments (subcategory 5). Records of instruments not identified (subcategory 6) and repealed instruments (subcategory 7) were not identified. Each of the subcategories is detailed in the following paragraphs.

Figure 12 – Subcategories of “red” records



The 91 (23% of the total) non-mandatory climate instruments (subcategory 3) (e.g.: guidelines or recommendations) are examples of action taken forward by regulators to promote net zero. These instruments aim to incentivize actors to voluntarily comply with net zero practices before formal



regulations are implemented. Some of these instruments even explicitly indicate the intention to move towards regulation in the future. See for instance the Climate Reporting Guide for Companies, by Borsa Istanbul in Turkey (172 p. 9) and the Climate Disclosure Guidance by the Johannesburg Stock Exchange in South Africa (146 pp. 8-9). In this way, they can be seen as steppingstones towards “tracked net zero regulations”. Their effectiveness as promoters of action is questionable, though. The EU, for instance, has taken steps towards more stringent disclosure regulation due to the ineffectiveness of previously non-mandatory instruments (38). Without losing perspective of this caveat, all members of G20 are somehow governed by climate instruments, if non-mandatory instruments are added on top of net zero regulations (present in 15 out of 20).

We have also identified 106 (27%) broad-based regulations (subcategory 4) that relate to a regulatory domain but are broader than our definition. Common examples of regulations in this category are public procurement laws which do not consider net zero or decarbonization goals, and legislation around consumer protection which often regulate general claims but do not explicitly regulate carbon-washing activities. This group of regulations could be reformed in the future to account for explicit net zero or decarbonization considerations. They also set up the principles according to which non-mandatory instruments (subcategory 3) and related regulations must follow.

Furthermore, we have identified 30 (8%) broad-based, non-mandatory instruments (subcategory 5) that impact the actions of actors within the covered regulatory domains but are not aligned with the domains’ definition. Rather, they recommend, for instance, companies to disclosure ESG risks related to its financial performance, but do not explicitly mention climate-related risks as a specific category among the disclosed risks. These instruments were included in the stocktake nonetheless because slight reforms could result in alignment.

In conclusion, the stocktake has provided valuable insights into the regulatory landscape related to net zero efforts in the G20. The identification of (“green”) tracked net zero regulations, (“yellow”) in progress instruments, and (“red”) other records sheds light on the current state of regulatory action. While there are already over 77 regulations mandating climate action, there is still room for improvement and expansion. In particular, instruments in progress indicate ongoing efforts and advocacy opportunities, and the varied group of other records highlights the potential for reforms to incorporate explicit net zero considerations on usual policy instruments used by regulators around the world. Overall, these findings emphasize the importance of continued monitoring, analysis, and



collaboration to drive effective and comprehensive regulation towards achieving net zero goals globally.



4. CONCLUSION

Net zero regulations are policy tools that can bridge the emissions gap towards achieving the Paris Agreement objectives (2 pp. XIX, XXI, XXVI) and align rules and economic incentives with the transition to a net zero economy (1 p. 33). The Net Zero Regulation Stocktake developed by Oxford Net Zero provides the community involved with climate-related regulations with most-important information, offering insights into the evolving global regulatory landscape and best practices.

Throughout this report, in conjunction with the dataset, we have examined national-level net zero regulations within the G20 member states, delving into four essential regulatory dimensions: net zero-related claims and financial product standards, climate-related risk disclosure, decarbonization-focused procurement, and transition plan requirements. The data shows that:

- The majority of G20 nations, including both developed and developing nations, have already implemented at least one of the covered regulations. This showcases that regulatory activity is underway.
- Looking ahead, in 2024, a minimum of 77 net zero regulations will be in operation worldwide. The mapped regulatory landscape is dynamic and has undergone remarkable growth, nearly quadrupling in just four years, and is expected to further evolve as in-progress instruments are adopted.
- Voluntary standards are being incorporated into mandatory national regulations, signalling a shift towards their mainstream adoption. While the quality of these standards may vary, their integration into climate instruments underscores their relevance as benchmarks for climate action.

These findings reaffirm the need for a dedicated platform to track and disseminate vital information about net zero regulations across the globe, which are planned by the Net Zero Regulation and Policy Hub. Future iterations of the Stocktake could explore the scope and quality of regulations in greater depth, while also highlighting best practices that can inform regulators and decision-makers worldwide, with the ultimate goal of advancing the global transition towards a net-zero future.



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APPENDIX 1 – DESCRIPTION OF ALIGNMENT FOR EACH REGULATORY DOMAIN

DOMAIN	TEXTUAL DEFINITION	ALIGNMENT INTERPRETATION	IN PRACTICE
<p>Claims and financial product standards</p>	<p>Advertising products and services or describing corporate performance as “net zero” or similar is subject to certain criteria</p>	<p>Advertising products and/or services and/or corporate performance as “net zero” or similar is subject to specific criteria, which include compliance with financial product standards.</p>	<p>Frequently examined instruments: (i) advertising and consumer rights-related instruments and (ii) instruments related to financial products.</p> <p>These instruments regulate claims of carbon performance according to (i) principles that allow “net zero” or similar claims to be made as long as they are properly substantiated or (ii) pre-defined rules that specify products that can be claimed as “net zero” or similar. The end-goal of both types is the same – to reduce green/carbonwashing.</p> <p>What we were looking for: General advertising instruments are plentiful. They were considered aligned to the domain if they defined specific standards for “net zero”, “transition to low carbon” or related terms.</p>
<p>Disclosure</p>	<p>Companies and financial institutions report on the risk of both climate impacts and decarbonization in a regulated and routine fashion</p>	<p>Companies (including public) or financial institutions are required to evaluate and disclose on the risk of climate impacts</p>	<p>Frequently examined instruments: (i) corporate rules and (ii) disclosure instruments.</p> <p>Corporate rules such as commercial codes and market trade rules, often request companies to disclose information and documents. Climate-related data was a</p>



DOMAIN	TEXTUAL DEFINITION	ALIGNMENT INTERPRETATION	IN PRACTICE
			<p>part of some of them. Several jurisdictions also issue instruments (such as guidelines) about how to meet disclosure requirements, where climate-related risks could also be identified.</p> <p>What we were looking for: requirements for the disclosure of climate-related risks, which can include decarbonization pathways.</p>
<p>Procurement</p>	<p>Governments condition procurement to firms and products that meet well-defined net zero standards</p>	<p>Governments condition procurement to firms or products that meet well-defined net zero or decarbonization standards</p>	<p>Frequently examined instruments: (i) procurement laws and (ii) green procurement instruments.</p> <p>Most countries define the principles and processes of public procurement in law. Achieving best value for the administration and sustainability are often principles in (i) which can be specifically attached to decarbonization goals. Green procurement instruments (issued as laws, decrees, guidelines, and others) are also common and can define how procurement principles are achieved.</p> <p>What we were looking for: public procurement processes that require bidders to meet a net zero or decarbonization related standard (e.g.: bidders that have a net zero or decarbonization plan) or takes mitigation of emissions into consideration when valuing a bid (e.g.: giving preference</p>



DOMAIN	TEXTUAL DEFINITION	ALIGNMENT INTERPRETATION	IN PRACTICE
			to products with lower GHG emissions), which supports government to reduce its emissions and incentives the market to do the same.
Transition plans	Regulators require firms to outline their pathways to net zero to create additional transparency and to advance national climate objectives	Regulators require firms to outline their pathways to net zero or decarbonization	<p>Frequently examined instruments: (i) corporate rules, (ii) disclosure instruments, and (iii) national climate change instruments.</p> <p>Corporate rules such as commercial codes and market trade rules, often request companies to disclose information and documents, among which net zero or decarbonization targets and/or strategies can be found. Several jurisdictions also issue instruments (such as guidelines) about how to meet disclosure requirements, which can encompass setting targets and/or strategies for net zero or decarbonization. Some national climate change instruments also define how governmental bodies should transition to a net zero or low carbon economy.</p> <p>What we were looking for: requirements related to outlining and/or disclosing net zero or decarbonization targets and/or plans/strategies.</p>



APPENDIX 2 – CATALOGUE OF VOLUNTARY STANDARDS AND INITIATIVES USED IN THE MAPPED INSTRUMENTS

Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
TCFD	Voluntary initiatives and standards	93	11	28	19	35	19	6	9	4	0
ISSB	Voluntary initiatives and standards	26	0	11	2	13	0	0	0	0	0
GRI Standards	Voluntary initiatives and standards	23	0	3	4	16	0	0	0	0	0
SASB Standards	Voluntary initiatives and standards	16	0	0	3	13	0	0	0	0	0
ISO 26000	Voluntary initiatives and standards	13	0	0	11	2	2	0	0	2	0
CDP	Voluntary initiatives and standards	11	1	0	1	9	1	0	0	1	0
GHG Protocol	Voluntary initiatives and standards	10	1	4	5	0	1	0	0	1	0
ISO 14024	Voluntary initiatives and standards	10	2	5	2	1	1	1	0	0	0
SBTi	Voluntary initiatives and standards	10	1	6	1	2	1	0	0	1	0
ICMA Green Bond Principles (GBP)	Voluntary initiatives and standards	9	1	7	0	1	3	0	3	0	0
IFRS	Voluntary initiatives and standards	9	1	4	2	2	0	0	0	0	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
ISO 14064	Voluntary initiatives and standards	9	4	1	4	0	4	4	0	0	0
ISO 14067	Voluntary initiatives and standards	7	5	0	2	0	5	5	0	0	0
CDSB Framework	Voluntary initiatives and standards	5	0	0	0	5	0	0	0	0	0
Commission Recommendation 2013/179/EU	Government or UN-led	5	4	0	1	0	5	4	0	1	0
ISO 14001	Voluntary initiatives and standards	5	0	0	4	1	0	0	0	0	0
ISO 16000	Voluntary initiatives and standards	5	4	0	1	0	4	4	0	0	0
ISO 27914	Voluntary initiatives and standards	5	4	0	1	0	4	4	0	0	0
Principles for Responsible Investment (PRI)	Voluntary initiatives and standards	5	0	0	0	5	0	0	0	0	0
TPT	Voluntary initiatives and standards	5	4	0	1	0	0	0	0	0	0
CEN/EN 16516	Government or UN-led	4	4	0	0	0	4	4	0	0	0
EMAS	Government or UN-led	4	1	0	3	0	1	1	0	0	0
ETSI ES 203 99	Government or UN-led	4	4	0	0	0	4	4	0	0	0
EU Regulation (EC) No 1907/2006	Government or UN-led	4	4	0	0	0	4	4	0	0	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
IFRS S2	Voluntary initiatives and standards	4	0	4	0	0	0	0	0	0	0
ISO 14040	Voluntary initiatives and standards	4	1	1	2	0	0	0	0	0	0
ISO 14064-1	Voluntary initiatives and standards	4	4	0	0	0	4	4	0	0	0
ISO 18400	Voluntary initiatives and standards	4	4	0	0	0	4	4	0	0	0
ISO 20887	Voluntary initiatives and standards	4	4	0	0	0	4	4	0	0	0
TNFD	Voluntary initiatives and standards	4	0	0	0	4	0	0	0	0	0
Climate Bonds Standard	Voluntary initiatives and standards	3	1	1	1	0	1	0	1	0	0
German Sustainability Code (DNK)	Government or UN-led	3	0	0	1	2	0	0	0	0	0
Gold standard	Voluntary initiatives and standards	2	0	0	2	0	0	0	0	0	0
ICMA Climate Transition Finance Handbook	Voluntary initiatives and standards	2	0	2	0	0	0	0	0	0	0
ICMA Sustainability-Linked Bond Principles (SLBP)	Voluntary initiatives and standards	2	0	2	0	0	0	0	0	0	0
IFRS S1	Voluntary initiatives and standards	2	0	2	0	0	0	0	0	0	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
ISO 14020	Voluntary initiatives and standards	2	0	0	0	2	0	0	0	0	0
ISO 14021	Voluntary initiatives and standards	2	0	0	1	1	0	0	0	0	0
ISO 14025	Voluntary initiatives and standards	2	0	0	1	1	0	0	0	0	0
ISO 14090	Voluntary initiatives and standards	2	0	1	1	0	0	0	0	0	0
ISO 17065	Voluntary initiatives and standards	2	0	0	0	2	0	0	0	0	0
ISO 20400	Voluntary initiatives and standards	2	0	0	0	2	0	0	0	0	0
ISO 50001	Voluntary initiatives and standards	2	1	0	0	1	1	1	0	0	0
SSE Model Guidance on Climate Disclosure	Government or UN-led	2	0	2	0	0	0	0	0	0	0
VCS/Verra	Voluntary initiatives and standards	2	0	0	2	0	0	0	0	0	0
ABINC Certification System	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ASEAN Taxonomy	Government or UN-led	1	0	0	0	1	0	0	0	0	0
Canada's Net-Zero Challenge	Government or UN-led	1	0	0	1	0	1	0	0	1	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
ICMA Social Bond Principles (SBP)	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ICMA Sustainability Bond Guidelines (SBG)	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
IOSCO Environmental, Social and Governance (ESG) Ratings and Data Products Providers	Voluntary initiatives and standards	1	0	1	0	0	0	0	0	0	0
ISO 10274	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 11605	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 11900	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 14000	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 14044	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 14046	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 14062	Voluntary initiatives and standards	1	1	0	0	0	0	0	0	0	0
ISO 14065	Voluntary initiatives and standards	1	0	1	0	0	0	0	0	0	0



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
ISO 14091	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 16073	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 21401	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 22301	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 23409	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 27001	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 31000	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 364	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0
ISO 37001	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 37301	Voluntary initiatives and standards	1	0	1	0	0	0	0	0	0	0
ISO 374	Voluntary initiatives and standards	1	0	0	1	0	0	0	0	0	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
ISO 45001	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 62404	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 62406	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 62410	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
ISO 9000	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
LMA Green Loan Principles	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
LMA Social Loan Principles	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
NAG-313	Government or UN-led	1	0	0	0	1	0	0	0	0	0
NAG-314	Government or UN-led	1	0	0	0	1	0	0	0	0	0
Race to Zero	Government or UN-led	1	0	0	1	0	1	0	0	1	0
SEGES Certification System	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
Sustainable SITES Initiative	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0
UN Global Compact	Government or UN-led	1	0	0	0	1	0	0	0	0	0

NET ZERO REGULATION STOCKTAKE REPORT 2023



Standard Name	Type	Occurrences in mapped instruments (regulations and non-regulations)					Occurrences in mapped net zero regulations				
		Total	Standard required	Aligned with standard	Standard encouraged	Standard cited	Total	Standard required	Aligned with standard	Standard encouraged	Standard cited
WEF-IBC Stakeholder Capitalism Metrics and Disclosures	Voluntary initiatives and standards	1	0	0	0	1	0	0	0	0	0