# **Post-Issuance Reporting in China's Green Bond Market** 2022









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### 1. Introduction

Since its first year of green finance in 2015, China's green bond market has shown rapid growth, turning it into the second largest in the world by amount issued. China's green bond activity has increased substantially in the last eighteen or so months, spurred by the country's commitment to reach carbon neutrality by 2060.

Compared to ordinary bonds, green bonds have obvious positive externalities and can generate environmental benefits. Related to this, green bonds are different in terms of requiring information throughout their term. As the information provided at/pre-issuance typically does not reflect the actual or detailed use of proceeds (UoP), nor the environmental benefits of financed projects/assets, post-issuance disclosure is of high importance.

### **Benefits of reporting**

Post-issuance reporting adds transparency and credibility to an instrument (and issuer), confirming that green projects were financed in line with commitments in the prospectus, ensuring accountability, reducing the risk of greenwashing, and enhancing investor confidence, all of which are conducive to healthy market development.

Investors in green bonds can use post-issuance disclosure to understand whether and how their green investments are being implemented and may make investment decisions based on the level of this disclosure. Transparency of the UoP, as well as enhanced external reviews and disclosure practices were identified as key factors to increase the appeal of Chinese green bonds in Climate Bonds' inaugural and soon-to-be launched China Green Bond Investor Survey Report. This parallels the results of our 2019 <u>Green Bond European Investor Survey</u> which found that 55% of respondents would definitely sell a holding if post-issuance reporting was poor, and 30% would be more likely to sell.<sup>1</sup>

At the same time, disclosure allows policymakers to better understand the type and scale of green projects financed, and the environmental benefits generated. This is directly relevant to the realisation of China's 30-60 climate goals.

Globally, post-issuance UoP reporting is a core component of the Green Bond Principles (GBP) and the Green Loan Principles (GLP), and it is also recommended that issuers report on the environmental impacts achieved. Driven by a robust policy and regulatory system, reporting requirements in China are stronger and more specific than in other regions (especially for issuers of financial bonds), and these are explored on pp. 8-9.

## Report background and structure

This report is Climate Bonds' first study of postissuance disclosure practices of green bonds in China. It builds on the series of global studies on this topic that Climate Bonds has conducted over the last few years, of which the latest can be found <u>here</u>.<sup>2</sup> We encourage readers with further interest to refer to it for more information.

By shedding more light on reporting practices, our aim is to understand the availability and attributes of disclosure on the UoP and the environmental impacts of the projects, assets and activities financed by green bonds. This can identify avenues for improvement and spur more informed discussions among various market participants.

This report starts with an overview of China's green bond market and reporting requirements. This is followed by a detailed analysis of the availability of post-issuance UoP and impact reporting in China, supported by an assessment of the quality and attributes of this disclosure, as well as a closer look into impact reporting practices. The conclusion discusses the overall findings of the study, the implications for different market participants, and key recommendations.

### Methodology

The research underpinning this report covers:

- Green bonds issued up to end Q2 2021 (financial bonds) and up to end Q2 2020 (all other bonds)<sup>3</sup> – other sustainable debt instruments may be analysed in the future.
- Deals aligned and non-aligned with international definitions (i.e., respectively included and excluded from Climate Bonds' Green Bond Database) – the latter were excluded from the global study.
- All bond/issuer types even asset-backed securities (ABS) and loans which were excluded from the global study.
- A total universe of 627 bonds from 382 issuers = USD163.2bn (RMB1.1tn).
- The analysis is shown in terms of both amount issued and number of issuers, as the former skews results towards larger issuers. In some cases, disaggregated number of issuer figures (e.g., by year of issuance, onshore/offshore, etc.) add up to more than the real total, as some repeat issuers have issued bonds with different characteristics.

- Overall, the process was very similar to Climate Bonds' global study, with a few differences:
- Bonds not aligned with Climate Bonds' definitions (classified as excluded in our Green Bond Database) were included in this study, as there are many from China and they must equally report in line with local regulatory requirements.
- Green loans and asset-backed securities

   (AB) were included as they are both covered by local reporting regulation. They had been excluded from the global study. They are classified as issuer types under Climate Bonds' legacy categorisation in the future, they will be considered as instrument types, which is a more accurate term.
- The research used the **UoP/project** categories set in the PBoC's Green Bond Endorsed Project Catalogue (2015 Edition), although there is limited analysis dependent on this in the report. The 2015 edition was used as it was relevant during the sampled period of issuance, although some bonds already disclosed allocations according to the 2021 edition in their latest report. Climate Bonds' categories were not used since this study is about the Chinese market and many deals are not aligned with our definition; the exception is in the Market overview section, where the UoP breakdown only includes aligned bonds. Further, in the Impact reporting section, the analysis of metrics is done at an overall market level, not by category (unlike our global study).
- Most relevant documents were accessed through the Wind Terminal. This centralised source makes the information more easily accessible compared to our global study, which typically relies on disclosure on issuer websites.

### What is meant by 'reporting'?

Post-issuance reporting in the green bond market refers to all the publicly available information relevant to a green bond after it has closed. The core information, and the focus of our analysis, is the UOP (or allocations) and impacts (i.e., environmental benefits) of financed projects/assets. Reporting can thus refer to UoP, impact, or both combined, which are differentiated in the analysis.

Our research relied on post-issuance disclosure found in various sources, including bespoke green bond reports, annual reports, CSR/sustainability reports, and external review documents. Most documents can be found on the Wind Terminal, or otherwise on issuer websites.

The results are based on what was available at the time of the research, which happened during Q4 2021. This gave all deals enough time to report in line with regulatory standards and guidelines. Some, however, were still found to be non-reporting, and potential reasons for this are discussed on p. 10.

Some issuers report UoP and/or impact at issuance which may cover the full or partial bond proceeds and generally refers to refinanced assets that are already operational. This was not considered reporting for the purposes of this study, as the focus is on post-issuance disclosure.

### **Data collection caveats**

While we rely heavily on a quantitative analysis, the results are intended to be indicative, helping to inform and guide market development. The analysis is quite comprehensive but refined further every time we undertake studies into post-issuance reporting.

We have also tried to minimise errors and inconsistencies, but there is an inevitable presence of these in a highly manual data collection process that involves a team of analysts and takes several months. Given the frequent lack of clear information in issuer reporting, such cases would generally mean adjusting the results 'upwards' (e.g., higher availability of reporting, greater share reporting at project level, more issuers providing an impact methodology, etc.). In any case, the effects of this adjustment on the results would likely be relatively small.

Finally, the data collection is based on the latest report for a given bond, as this is most representative of current practices. Some issuers change their reporting approach and content over time.

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#### **Key acronyms**

**UoP:** Use of proceeds

ABS: Asset-backed security/ies

SLB: Sustainability-linked bond

GHG(s): Greenhouse gas(es)

KPI(s): Key performance indicator(s)

CSR: Corporate social responsibility

PBoC: People's Bank of China

**NAFMII:** National Association of Financial Market Institutional Investors

**CSRC:** China Securities Regulatory Commission

**CBIRC:** China Banking and Insurance Regulatory Commission (formerly CBRC)

NDRC: National Development and Reform Commission

**GBP:** Green Bond Principles

ICMA: International Capital Market Association

Harmonized Framework: Handbook – Harmonized Framework for Impact Reporting

### Glossary

Green bond: Labelled use-of-proceeds debt instrument financing environmental projects/ assets. Generally, we only consider those included in the Climate Bonds Green Bond Database (as per our Database Methodology); but since this study also looked at excluded bonds (i.e., only aligned with the Chinese definition), both are considered green bonds in this report.

**Post-issuance reporting:** Includes all the publicly available information on a green bond's UoP and/ or impact after the bond has closed (often referred to simply as 'reporting'). It may also include other supporting information (e.g., qualitative aspects, issuer strategy, etc.) but our analysis focuses on quantitative UoP and impact disclosure.

Availability/Quality of reporting: Availability of reporting refers to whether post-issuance reporting is available; quality of reporting refers to how 'good' an issuer's overall reporting is, i.e., depends on the attributes of the reporting.

Use of proceeds (UoP): The projects/assets/ activities financed by the bond proceeds. In useof-proceeds instruments such as green bonds, the proceeds must be allocated to specific uses.

**Impact**: The impacts/benefits achieved directly through the projects/assets/activities financed by green bond proceeds. In this report, only environmental impacts/benefits were considered as 'impact'; green bond projects may also deliver social impacts, but these are generally not reported and are more relevant among other sustainable finance instruments.

Impact metric: KPI used to measure and convey impact (e.g., GHG emissions saved, energy generated, etc.). There is a wide range of 'raw' metrics/KPIs used by issuers which we grouped together to form a 'consolidated' list – the difference between the two is noted where relevant.

**Impact methodology**: Defined as any type of framework or guidance that helps issuers decide which metrics to report and/or how to monitor, measure/calculate and/or report them.

### 2. Report summary

China has made great strides in the development of green finance in recent years, driven by a strong green finance policy agenda. Going forward, market transparency and credibility are key to enable sustainable finance to continue to deliver its intended benefits, and to contribute towards China's 30-60 climate goals in the most effective way.<sup>4</sup>

### Availability and quality of reporting are good, but can improve

Overall, our research finds that post-issuance reporting practices in China are generally good but still have room for improvement, both in terms of the availability and quality of reporting. This may be related to the stringency yet complexity of the regulatory framework (see below), as well as other issues discussed on p. 10.

Despite regulatory requirements, the share of post-issuance reporting is lower than globally, especially in terms of impact. It is much more common for issuers to report UoP than impact, the difference being considerably larger than in the rest of the world. Further, no issuers were found to report impact without UoP. The reporting shares are higher by amount issued than number of issuers and number of deals, reflecting the fact that larger issuers/deals are more likely to report.

Deals aligned with international (i.e., Climate Bonds') green definitions are more likely to report impact, but the difference in UoP disclosure is not substantial. Offshore deals are less likely to report UoP, but report impact more often. Issuers of offshore bonds (which are also more likely to be aligned to international green definitions) may face an added incentive to improve their transparency and green credentials by reporting impact, as this is increasingly expected in foreign markets and by foreign investors – in some cases, it is a part of listing requirements in foreign exchanges.

Financial corporates report UoP more than other groups. They also report impact more often looking at amount issued, but less in terms of issuer count. The results suggest non-financials providing impact disclosure are generally large issuers, likely due in part to their added capabilities and resources to undertake this work.

### Reporting shares\* (UoP vs. UoP + Impact)

|                   |             | UoP | UoP + Impact |
|-------------------|-------------|-----|--------------|
| Amount issued     | Reporting % | 74% | 31%          |
| Number of issuers | Reporting % | 65% | 21%          |
| Number of deals   | Reporting % | 61% | 22%          |

\*Post-issuance and publicly available reporting only. As of time of research.

## Most, but not all, issuers meet regulatory requirements

### Most issuers provide post-issuance UoP disclosure and also meet regulatory requirements around the frequency and content of reporting.

Most issuers report at least as frequently as regulation requires them to do. Financial issuers largely report UoP on a quarterly basis and impact annually, whereas almost all nonfinancials report both UoP and impact annually or semi-annually. Overall, reporting in China is more frequent than in the rest of the world, where annual disclosure dominates heavily across all issuer types.

Looking at repeat issuers, UoP is more likely than impact to be reported at bond level , perhaps due to the greater complexity of assessing/ calculating impacts for individual bonds and reporting accordingly. This applies to both financial and non-financial issuers but especially the former, as financial institutions tend to issue more bonds, finance more projects and categories, and report more impacts.

Financial institutions, which generally finance many projects and multiple categories, are distributed in terms of project-level granularity. The level of project disclosure is more polarised within non-financial issuers, with almost half disclosing all individual projects while 37% do not break down projects nor project categories. To some extent this is due to the nature and size of many non-financial issuers which often finance just one project and one category/sub-category.

Most issuers keep a consistent level of project granularity, e.g., if they disclose individual projects, they also provide UoP and impact at project level. Further, the level of project granularity has improved over time, with deals issued in 2019-2020 disclosing individual projects more often than the 2016—2018 cohort. There was a reversal in 2021, but this may be due to the considerably smaller sample size. Combining multiple types of external review is more common in China than in the rest of the world, and extends to post-issuance reviews. 25% of reporting issuers and almost 40% of the amount issued were covered by assurance and/or Climate Bonds Certification, which are considered the two most stringent forms of review. This points to larger issuers being more likely to opt for these. 38% of the amount issued and 53% of issuers had no post-issuance review which is broadly in line with our global study and suggests smaller issuers tend to fall in this group

## Impact disclosure is generally good

Among issuers that report impact, the quality of disclosure tends to be quite good. The level of project detail, number and granularity of metrics/KPIs reported, and reference to relevant external data sources are among the features that stand out the most. Another positive of impact reporting in China is that most issuers provide cumulative impacts in each green bond report – this is rare in the rest of the world, being more common for UoP data.

In terms of metrics, fewer were seen than in the global study, which is likely linked to the slightly smaller sample size and the narrower range of projects financed, as well as the taxonomy of the Green Bond Endorsed Project Catalogue, which may affect the metrics selected for reporting. It may also simply be due to local context and practices, to be expected when comparing a single country against the whole world.

To some extent, there seems to be a greater reliance on core metrics in China, namely GHG and pollutant emission reductions, fossil fuel saved, area/length (managed/restored/ constructed etc.), and volume (managed/ processed/recycled etc.). Indeed, we find a wider range of raw metrics/KPIs within each of these core consolidated metrics (which tend to be closely related to the categories in the Green Bond Endorsed Project Catalogue).

### Overall, this suggests Chinese issuers are more likely to focus on core metrics, while reporting them with greater granularity.

Reflecting the importance of pollution in the country, GHGs and other pollutants are disaggregated into individual substances much more often than in the rest of the world. Taking this disaggregation into account, the average Chinese issuer reports more metrics than the average global issuer.

While impact disclosure practices in China are already satisfactory (among reporting issuers), one clear improvement would be to largely replace fossil fuel savings with GHG and/or energy savings, in line with standard practice in the rest of the world – this is already happening with the shift towards more carbon-based accounting in China.

Likewise, learnings can be taken from China elsewhere, such as more detailed disclosure of GHGs and pollutants, and providing cumulative impacts in each report.

## Stringent but complex regulatory framework

China's regulatory disclosure framework is more stringent and advanced than in most other regions; this is especially the case for issuers of financial bonds. Despite this, the framework faces some challenges which are closely linked to the complexity of the Chinese bond market and the multiplicity of bodies that regulate the space. The key challenges are:

- Inconsistency of regulatory requirements,
- Incompleteness of regulatory framework, and
- Inconsistency of disclosure channels.

Addressing these issues is important to ensure high reporting standards and comparability of disclosure as the market grows further, which are also key for investors and other data users (including policymakers).

The unification of the Green Bond Endorsed Project Catalogue between different regulatory agencies in 2021 is a positive precedent and may pave the way for further consolidation of regulatory requirements.

### Regulatory consolidation and consistency can unlock more potential

The fact that China's regulatory disclosure framework is broadly more stringent and advanced than in other regions demonstrates a strong willingness to ensure best practices and transparency in the market.

From this solid base, regulatory bodies can now look to address the challenges that the existing framework faces, namely the inconsistency of regulatory requirements between different bond/ issuer types.

As highlighted in our global study, creating a common reporting framework is the best way to increase the availability, quality and (crucially) consistency of disclosure. Efforts to achieve this globally are ongoing, through initiatives like the Harmonized Framework, ICMA Impact Reporting Working Group, and EU Green Bond Standard.

China will gain from pursuing a similar objective, and, if so, its sustainable finance future will look even brighter than it already does. In this context, regulators, issuers, and all other market participants can contribute to better disclosure practices by being aware of best practice guidelines (see pp. 28-29) and promoting and implementing them across their work. Effective guidelines and regulation are one side of the coin; their consistent use by market participants is the other side.



### 3. Market overview

## Green finance policy drives growth

China has made great strides in the development of green finance in recent years. Following the growth of green credit lending fostered by the ground-breaking Green Credit Guidelines issued by the former China Banking Regulatory Commission (CBRC, now CBIRC) in 2012, China's green bond market has seen a great amount of policy and activities since green finance took off in 2015. Supported by various directives, China's green bond market grew from almost zero to one of the world's largest in just a few years.

Green bond in policy has been a key driver of this growth. In December 2015, the Green Bond Endorsed Project Catalogue was issued by the People's Bank of China (PBoC) which specified the eligibility criteria for green projects, management of proceeds, and reporting requirements. Green projects were classified into six themes: energy saving/efficiency; pollution prevention and control; resource conservation and recycling; clean transportation; clean energy; and ecological protection and climate change adaptation.

In contrast to other countries, the process of developing China's green taxonomies has been strongly influenced by the existing structure of the country's financial market, and different types of debt financing instruments are regulated by different regulators. These also tend to set varying rules regarding definitions of green, UoP, verification, and reporting.

On 21 April 2021, the PBoC, National Development & Reform Commission (NDRC), and China Securities Regulatory Commission (CSRC) jointly released the official version of the Green Bond Endorsed Project Catalogue (2021 Edition). The joint release unifies the green bond guidelines under one document which becomes the main rulebook to follow going forward. It also excludes controversial categories such as 'clean utilisation of coal' and 'clean fuel', narrowing the gap between the rules for China's onshore green bonds and the expectations from international investors. Compared with the previous edition, it further incorporates language around the Do No Significant Harm (DNSH) principle and indicates the possibility of rolling out a transition finance standard in the future.

After the announcement of China's pledge to become carbon neutral by 2060, top policymakers and regulators increased incentives for green bond market development. The PBoC has included green bond investment in its green finance performance evaluation of the banking sector, and the results of this assessment will be incorporated into the central bank's rating of financial institutions. It also included green loans and green bonds in the scope of eligible collateral for monetary policy operations.<sup>5</sup>

Moreover, the PBoC unveiled its green monetary policy tool to support the development of lowcarbon sectors (clean energy, energy efficiency and low-carbon technology). More stringent disclosure/reporting requirements and external reviews provided by third-party verifiers are also to be met.<sup>6</sup> The China Banking and Insurance Regulatory Commission (CBIRC) has included green bond investment in the scope of green financing statistics, while the Shanghai Clearing House lowered the fees and rates charged for green bonds.<sup>7</sup>

At a local level, governments have continued to launch supporting policies for green bonds, shifting gears from encouragement to substantial incentives.

In addition to six provinces and nine cities act ively building green finance pilot zones, nearly 20 other regions across the country have issued local green financial development and implementation plans. Among these policies, many incentive measures have been formulated for green bonds and green credit more broadly, such as discounting interest and providing guarantees and subsidies for green bonds.

### Rapid volume expansion and changing market profile

China has become the world's second largest green bond market by volume. Total labelled green bond issuance in the domestic and overseas markets reached USD109.4bn (RMB705.5bn) in 2021 and USD327.0bn (RMB2.1tn) cumulatively up to the end of 2021.<sup>8</sup> Screened against Climate Bonds' Green Bond Database Methodology, USD68.1bn (RMB439.3bn) of 2021 issuance and USD199.2bn (RMB1.3tn) cumulatively was identified as aligned with (i.e., Climate Bonds') green definitions.<sup>9</sup>

Within this, onshore issuance stood at USD55.5bn (RMB358.5bn) in 2021, translating into a 208% increase versus 2020; offshore issuance increased by 79% to USD12.6bn (RMB81.2bn). The growth against 2020 was substantial given that 2020 volumes were heavily impacted by the COVID-19 pandemic, especially in Q1 and to a lesser extent Q2.

## Onshore + USD account for 95% of volume



Within China's issuer type profile, 2021 was marked by a further increase in the proportion of non-financial corporate issuance, which reached a new high of 46% and USD31.2bn in amount issued. Financial institutions were the second-largest group, representing 35% of the total with USD23.9bn issued. This represented growth versus 2020 but is below the much larger share of financial corporates between 2017-19. Meanwhile, the share of government-backed entities (i.e., state-owned entities) and local governments fell substantially in 2021 after a strong 2020. This is not surprising given that public sector issuance around the world was more resilient in 2020 in the face of COVID-19, but the extent of the drop is nevertheless notable.

### China's supervisory authorities on green bonds by issuer type

| Green bond issuer type                            | Supervisory authority  |
|---|--|
| Financial bonds                                   | People's Bank of China (PBoC)  |
| Enterprise bonds                                  | National Development and Reform<br>Comission (NDRC)                          |
| Corporate bonds and corporate ABS                 | China Securities Regulatory Comission (CSRC                                  |
| Debt financing instruments and asset-backed notes | National Association of Financial Market<br>Institutional Investors (NAFMII) |
| Credit ABS  | China Banking and Insurance Regulatory<br>Comission (CBIRC)                  |



### Non-financial corporates growing, top in 2021

NB: Chart includes ABS deals (classified as corporates), which amounted to USD3.3bn in 2021. Green loans are also included but are very rare in China.

Proceeds allocated to Energy have seen a surge in both absolute value and share of issuance. In 2021, USD41.3bn worth of proceeds were allocated to Energy. This is more than quadruple the volume of 2020 and represents a whopping 61% of the overall green bond volume aligned with Climate Bonds definitions, driven by a high share of carbon neutral bonds financing renewable energy. Most of the other categories, including Buildings, Transport, Water and Land use, posted absolute increases but fell in relative terms. Waste dropped under both measures.

## Future looks bright for green finance in China

China's pledge to achieve carbon peaking by 2030 and carbon neutrality by 2060 (30.60 target) has become one of the priorities in driving the nation's green finance policies, and this will direct future actions.

Green bonds financing projects with emission reduction benefits – such as carbon neutral bonds – may receive more policy support and are expected to increase in volume. Transition bonds and sustainability-linked bonds (SLB) have seen great potential in China under the 30-60 target. Compared to carbon neutral bonds, transition bonds and SLBs support a broader scope of projects and issuers and can extend to sectors that may not have green assets per se but have a clear decarbonisation plan to achieve net zero. Performance-linked instruments can be especially inclusive because the proceeds can support transition activities as well as general corporate purposes, provided that the whole entity is on a transition path. The key is to ensure targets are ambitious enough and deliver substantial improvements in sustainability performance over time.

On 4 November 2021, at COP26, the International Platform on Sustainable Finance (IPSF) formally published the instruction report and activities table for the proposed **Common Ground Taxonomy (CGT)** between the EU and China which would further improve the comparability, consistency, and interoperability of sustainable finance standards globally.<sup>10</sup>

In addition, as substantial incentive policies such as interest subsidies, tax incentives and guarantee mechanisms are implemented in more regions, Chinese local governments are expected to further increase their support for green enterprise and green corporate bonds, as well as facilitate the development of local green bond markets and ensure that green bond incentives have a greater influence on decisionmaking.



### Share of Energy projects continues to grow

### Advanced yet inconsistent regulatory disclosure framework

Bonds are one of the most important social financing tools in China. The current issuance of green bonds accounts for less than 1% of all bond categories, leaving huge room for additional growth. Ensuring high standards of disclosure during this development is critical.

Both globally and in China, pre-issuance information disclosure requirements are clearer than for the post-issuance stage, partly due to the greater complexity in the latter (although the gap is narrowing, as issuers have increasingly greater access to guidance and tools for post-issuance reporting).

Post-issuance reporting in China is nevertheless supported by a more stringent and advanced policy framework than exists in other regions, at least for issuers of financial bonds. This is administered through different regulatory bodies, as covered on the next page.

While relatively advanced, China's existing information disclosure system faces the following challenges:

#### Inconsistency of regulatory requirements

The complexity in the structure of the Chinese bond market and the associated multiplicity of regulations naturally result in a non-uniform regulatory regime.

This lack of uniformity can lead to a lower willingness to disclose information post-issuance, as well as incomparable information.

Chinese bonds can broadly be divided into financial (jinrong zhai), non-financial corporate (gongsi zhai), and enterprise bonds (qiye zhai).<sup>11</sup> The main regulators are the PBoC and the CSRC. In addition to regulators, other rule-making parties include the NDRC, exchanges, and the National Association of Financial Market Institutional Investors (NAFMII), the interbank market dealer association. The multiplicity of regulatory frameworks not only increases the cost of disclosure for issuers, but also leads to inconsistency in the format and content of information disclosure. Given an issuer may have bonds listed both on exchanges and the interbank market, it first has to be aware of which standard to follow when writing post-issuance reports. This entails hidden costs, in some cases including the need to prepare multiple reports for different markets. It can then be difficult to compare reports with each other, because different standards with varying requirements may be followed.

#### Incompleteness of regulatory framework

Linked to the previous issue, the disclosure system for green financial bonds is mandatory and more robust/complete, while for other varieties of green bonds there are only guidelines and disclosure rules that are followed voluntarily.

In 2020, less than 25% of green bonds issued were financial bonds, a figure which dropped further in 2021. This means the majority of green bonds are currently under weaker disclosure guidelines, rather than mandatory requirements.

#### Inconsistency of information disclosure channels

As well as much post-issuance disclosure being voluntary in practice, some issuers do not disclose green bond reports publicly or in designated channels (e.g., through exchanges).

This extends to external green bond assessments and/or reviews which many issuers hire to add reliability and transparency to their green instruments.

This leads to inconsistency in information sources and increases the difficulty of information access (although this issue is more palpable in the global market, where reports are generally only uploaded on issuer websites).

### Current post-issuance disclosure requirements

As it stands, Chinese regulators, self-regulatory associations and stock exchanges have set requirements for post-issuance disclosure, including the frequency, content, and targets of disclosure. The main policy documents include the PBoC Green Financial Bond Announcement (Announcement [2015] No. 39),<sup>12</sup> the Guidance of CSRC on Supporting the Development of Green Bonds,<sup>13</sup> and the Shanghai Stock Exchange Corporate Bond Financing Supervision Q&A (I) – Green Corporate Bonds.<sup>14</sup>

In terms of disclosure frequency, green financial bonds have the most stringent requirements, requiring quarterly UoP reporting. This is followed by green debt financing instruments which require semi-annual disclosure<sup>15</sup> (i.e., once every six months), while annual frequency is required for sustainability-linked bonds. There is no specific frequency requirement for green corporate bonds and green assetbacked securities (ABS), but bond trustee affairs managers are required to publish a report on trustee affairs once a year, so effectively annual reporting is expected.

In terms of disclosure content, green bond issuers mainly need to disclose the use of funds raised, progress of green projects, and relevant environmental benefits. Issuers of financial bonds need to analyse typical green project cases, while corporate and ABS issuers can disclose information without corresponding green projects when certain conditions are met.

In addition, issuers of carbon neutral bonds need to disclose the actual or expected carbon emission reduction achieved with the bond. Because of their special characteristics, sustainability-linked bonds require issuers to disclose the performance of KPIs against the sustainability performance targets set, the achievement of sustainability benefits, and the impact of KPI performance on the bond structure (typically an increase in coupon). Finally, bond issuers whose green projects are involved in environmental violations are required to disclose relevant controversies.

### **Green financial bond**

#### Name of regulator and document

People's Bank of China Green Financial Announcement [2015] No. 39; Notice of the People's Bank of China on Strengthening Supervision and Management of Matters Relating to the Duration of Green Financial Bonds [Yinfa (2018) No. 29]

#### Information disclosure requirements

Issuers of green financial bonds are required to disclose information to the market through annual and quarterly reports, which are reported to the PBoC by the NAFMII. The reference standards f or information disclosure include the Guidelines for Information Disclosure for the Duration of Green Financial Bonds and the template for information disclosure reports.

#### **Annual reports**

In the annual report, issuers are required to disclose the UoP in the previous year and in the first quarter of the current year, as well as environmental benefits up to the previous year. The content includes but is not limited to:

- Amount allocated during the reporting period, amount and quantity of projects previously invested that have ended/expired, overall balance and quantity of projects invested at the end of the reporting period, management and use of idle funds, details of green projects invested, expected or actual environmental benefits, and other relevant information.
- Status of green projects.
- Detailed analysis of typical green project cases.
- Information on the occurrence of major pollution incidents or other environmental violations by bond-supported enterprises or projects.

#### **Quarterly reports**

Issuers are required to report the UoP for the second and third quarters by 31 August and 31 October of each year. The content must include:

 Amount allocated and number of new green projects financed during the reporting period, amount and number of projects that have ended/expired, overall balance and number of projects at the end of the reporting period, and management and use of idle funds.

- Brief analysis of the balance and number of projects financed at the end of the period (§ the split between project categories, summary tables and charts), status of idle funds, and description of future plans.
- Information such as major pollution incidents or other environmental violations occurring in bond-supported enterprises or projects.

## Green corporate bonds, green asset-backed securities (ABS)

### Name of regulator and document

Guidelines on the Application of the Rules for Reviewing the Listing of Corporate Bonds Issued by the Shanghai Stock Exchange No. 2 - Corporate Bonds of Specific Species (Revised 2021); Q&A on the Regulation of Corporate Bond Financing of the Shanghai Stock Exchange (I) -Green Corporate Bonds; the Guiding Opinions of China Securities Regulatory Commission on Supporting the Development of Green Bonds; Questions and Answers on Asset Securitisation Business of Shanghai Stock Exchange (II) - Green Asset-Backed Securities

#### Information disclosure requirements

Issuers are required to publish regular reports during the term of the bonds that disclose the UoP, the progress of green projects, and environmental benefits achieved.

There are two types of report: one for general issuers, the other for 'pure play' issuers. Pure play companies are defined as those whose operating revenue in green sectors exceeds 50% of the consolidated financial statements in the latest year (inclusive), or whose operating revenue in green sectors is less than 50%, but the operating revenue and profit in green sectors are the highest among all business segments and account for more than 30% of the total operating revenue and profit of the issuer.

The latter does not require issuers to declare the specific green projects and their share of green financing, but the funds raised from green bonds must be used for business development within the company's green sectors of activity.

In addition, the green bond trustee manager shall also issue an annual trustee management affairs report to disclose the above.

### Green debt financing instruments (including carbon neutral bonds)

#### Name of regulator and document

NAFMII Green Debt Financing Instrument Disclosure Form, Green Debt Financing Instrument Business Guidelines for Non-financial Enterprises, GP Form (Green Assessment Report Disclosure Form), Notice on Clarification of Carbon Neutral Bond Related Mechanisms

#### Information disclosure requirements

The issuer is required to publish a report semi-annually, including disclosing the UoP and progress of green projects in the previous year, by 30 April, and the UoP and progress of green projects in the first half of the current year by 31 August. Carbon neutral bonds are also required to disclose the actual or expected carbon emission reduction benefits of financed projects. Finally, if there is a change in the UoP, the issuer is required to make an announcement of the change at least five working days before the change. The disclosure standards are referred as the Regulation on Information Disclosure for Non-financial Enterprise Debt Financing Instruments in the Interbank Bond Market.

In parallel, the bond trustee shall also disclose the UoP raised from green corporate bonds, the progress of green projects, and environmental benefits in the form of annual reports.

### Sustainability-linked bonds

#### Name of regulator and document

Ten Questions and Answers on the Launch of Sustainability-Linked Bonds – Sustainability-Linked Bonds (SLBs) by NAFMII

#### Information disclosure requirements

According to the Ten Questions and Answers on the Launch of Sustainability-Linked Bonds - Sustainability-Linked Bonds (SLBs) by NAFMII, issuers of SLBs are required to publish a specific SLB report by 30 April each year during the bond's term. The issuer is required to disclose the performance of KPIs against the sustainability performance targets set, the achievement of sustainability benefits, the impact of KPI performance on the bond structure, and any additional information that helps investors understand relevant actions and plans at the issuer level.

## 4. Availability of reporting

This section explores the availability of reporting in the Chinese green bond market and how this varies according to different aspects. Throughout it, 'reporting' is defined as publicly available post-issuance disclosure – which may include UoP only, or both UoP and impact.

## UoP reporting much more common than impact

65% of issuers, representing 74% of the amount issued, provided post-issuance UoP reporting according to our research. The proportion drops considerably for impact reporting, with most of the market failing to disclose impacts at the postissuance stage. No issuers were found to report impacts without UoP, which in the rest of the world is rare but occasionally happens.

The reporting share is higher by amount issued than number of issuers and number of deals, reflecting the fact that larger issuers/deals are more likely to report. This is in line with our global study and a consistent finding throughout this section.

These figures are lower than in our global analysis, where 77% of issuers/88% of the amount issued reported UoP, and respectively 59%/74% reported impact. Given specific reporting requirements in China, this is somewhat surprising and could be related to the inconsistency and incompleteness of the regulatory framework highlighted in the Market overview section which may be hindering some reporting, especially among non-financial issuers. To some extent this seems to be the case (see p. 12 for the issuer type analysis), but there may be several other reasons.

## Lack of reporting may have several causes

Firstly, some issuers may disclose the allocation of proceeds at issuance – especially in cases of asset refinancing – which reduces the need for post-issuance reporting, as the information has already been made available. The same broadly applies to impact disclosure, and indeed some corporates were found to provide an impact assessment at issuance only. However, in the case of impacts it makes more sense to also report post-issuance, for example, to update the expected impacts disclosed at issuance and/ or provide more granular impacts that were not previously available, or at least to confirm

### Reporting shares\* (UoP vs. UoP + Impact)

|                   |             | UoP | UoP + Impact |
|-------------------|-------------|-----|--------------|
| Amount issued     | Reporting % | 74% | 31%          |
| Number of issuers | Reporting % | 65% | 21%          |
| Number of deals** | Reporting % | 61% | 22%          |

\*Post-issuance and publicly available reporting only, as of time of research.\*\*Number of deals figures not shown in the rest of analysis for simplicity (similar results to number of issuers).

that the same impacts still apply. In any case, if issuers do not plan to report at the post-issuance stage (because the disclosure at issuance is sufficient), they should clearly state this at issuance; only a few did so.

Another reason is that some information may have been available, yet we were not able to find it. For instance, some reports may not be publicly available (mostly among private placements). Alternatively, the report may not have been available on the Wind Terminal nor the issuer's website, or the information may have been limited and hidden within much broader annual company reports or CSR/Sustainability reports. The latter sometimes includes short statements confirming the allocation and/or impact disclosed at issuance, and these can be hard to find when not properly labelled.

Finally, green bond reports may not have been available at the time of analysis but will be in the future, i.e., reporting is simply delayed. While this was a common occurrence in our global study, it is likely to be less common in the Chinese market given that reporting requirements in China are time-bound – but there may, nevertheless, be some cases supported by the lower reporting share among more recent deals (see next page).

These and potentially other factors affect the results of our study (not only the headline figures but also the more detailed findings over the next few pages).

## Internationally aligned deals more likely to report impact

Whether or not a deal is aligned with international green definitions (i.e., in line with Climate Bonds' definition and meeting the requirements of our Green Bond Database<sup>16</sup>) does not affect the reporting requirements set out by Chinese regulators. Indeed, there seem to be limited differences in the availability of reporting between internationally aligned and non-aligned deals.<sup>17,18</sup>

The non-reporting share was slightly higher within aligned deals, both by amount issued and number of issuers, but a more visible difference was found in the share of impact reporting. 35% of the aligned amount and 24% of aligned issuers reported impacts, compared to 27% and 17% respectively among non-aligned.



### Impact reporting more common among aligned deals

There may be a rationale for this. While reporting requirements do not vary depending on alignment with international green definitions, deals that are aligned are often issued offshore and issuers face an added incentive to improve their transparency and green credentials to increase the confidence of foreign investors. Another potential reason is that issuers may find it easier to calculate and report impacts for 'darker green' (i.e., aligned) projects, for example, due to more guidelines available and clearer baselines for comparison.

### Offshore deals more likely to be non-reporting, but report impacts more often

Like the dimension of international alignment, both onshore and offshore bonds must satisfy Chinese reporting requirements. Yet the onshore/ offshore results show a substantial difference in reporting shares, with onshore bonds achieving 79% UoP reporting versus only 53% for offshore bonds (by amount issued). Perhaps issuers of offshore bonds feel less time-bound with their reporting, or the extra dimension of foreign reporting requirements may add confusion for some issuers.

By contrast, impact reporting is much more common among offshore bonds. 50% of the offshore volume benefits from post-issuance impact disclosure, compared to only 27% onshore. As mentioned above, this could be due to impact reporting being more expected in foreign markets and by foreign investors. In some cases, it is a part of listing requirements in foreign exchanges – the Hong Kong Stock Exchange, for example, where many offshore Chinese bonds are listed, references the Green Bond Principles and the expectation that issuers report impacts alongside UoP.<sup>19</sup>

Since the Wind Terminal mainly offers data from the domestic market, reporting for onshore bonds is much more likely to be available there, while disclosure for offshore bonds is often in the Investor Relations or Sustainability/CSR sections of issuer websites.

### 2021 with highest non-reporting share...



### ... but less yearly variation by issuer count



## Higher non-reporting share among more recent deals

We also look at issue date to uncover changes over time. A higher non-reporting share was found in the amount issued more recently, with the three years between 2019-2021 displaying the highest non-reporting share and 2021 most of all.

While it is expected that the non-reporting share will decrease over time, more recent deals have had less time to report and by repeating the analysis at a later stage those same deals may be seen to report. This was highlighted in our global study as the main reason for the lack of reporting at the time of research.

In China, however, regulation requires timebound reporting, i.e., quarterly for financial institutions and annually for most non-financials. Since we allowed enough time for the most recent issuers to meet these requirements – almost two quarters for financials and a yearand-a-half for non-financials – this issue should be less common in China. But there are still likely to be some recent issuers (especially first-timers) whose reporting is simply delayed.

The COVID-19 pandemic may have played a role in this, affecting the ability of issuers to undergo the processes and collaboration necessary to track, analyse and publish the required information.

First-time and less experienced issuers are again expected to have been hit worse in this regard.

Further, some repeat issuers that report at programme level do so in cycles, allowing them to aggregate reporting for multiple bonds at a convenient time (usually the start or end of the calendar, or sometimes fiscal, year). Since we conducted the research before the end of 2021, this means that some issuers may have been waiting for year-end to publish their reports, although they would still be failing to meet the requirements/recommendations set by Chinese regulators. This is related to the frequency of reporting which is analysed in on p. 14-16. Another reason could be linked to the much smaller sample size among 2021 deals, which may lead to greater variance in the results. On the other hand, the 2021 cohort is exclusively made up of financial institutions which, as covered on the next page, are more likely to report than non-financials.

### Lower UoP but higher impact reporting in offshore deals



Post-Issuance Reporting in China's Green Bond Market Climate Bonds Initiative

Looking at number of issuers, there is less yearly variation in the availability of reporting. This is in line with our global study and means that, for example, non-reporting issuers in 2021 were relatively large versus other years.<sup>20</sup> We know that smaller issuers are less likely to report, so this suggests a factor affecting issuers of all sizes led to lower reporting rates in 2021, i.e., a reporting lag among more recent issuers of all sizes. If some repeat issuers were waiting for end 2021 to aggregate their reporting for multiple bonds, this would also tend to affect larger issuers.

The decreasing share of issuers reporting impacts is surprising and the reason(s) for this unclear, but could be related to the factors already described.

## Financial corporates report more often than others

With reporting requirements differing by bond/ issuer type, this layer of analysis is particularly interesting in China. Some issuer types – namely development banks (six issuers), local governments (three) and loans (one) – lack a significant size to make meaningful inferences about their reporting levels.

Among the larger groups, the higher reporting share of financial corporates versus nonfinancials is perhaps the most noteworthy finding, both looking at amount issued and number of issuers. This is not surprising, since bonds issued by financial institutions are subject to the stricter regulatory requirements set by the PBoC through the NAFMII. 19% of financial corporate issuers and 17% of their amount issued were nevertheless found to lack reporting which points to some work still to be done to close that gap.

Further, the share of financial corporate issuance with impact reporting was higher than among non-financials looking at amount issued, but lower in terms of issuer count. This suggests that non-financials providing impact disclosure were generally large issuers, likely due in part to their added capabilities and resources to undertake this work. The fact that the impact reporting share is more constant among financial corporates (i.e., between amount issued and number of issuers) may reflect the inherently

### High share of non-financial issuance non-reporting



### Issuer count results reveal larger differences



larger size of financial institutions as well as a greater experience with impact reporting within this issuer type.

The level of reporting within government-backed entities – which account for most enterprise bonds, i.e., those regulated by the NDRC – is between that of financial and non-financial corporates. One might expect them to be closer to non-financial corporates given similar regulatory guidelines, but because they are stateowned, they may face added pressure to report (and some are financial institutions, e.g., stateowned banks). On the other hand, impact reporting from government-backed entities is less common than from corporates. ABS deals, many of which are private, display the highest non-reporting share of all issuer types, especially versus the largest categories. With securitised debt, the proceeds are allocated to the collateral pool in full at issuance, such that post-issuance UoP reporting can be considered less important than for other deals. Reporting impact is advised, nevertheless, and green ABS instruments in China face the same reporting requirements as ('regular') green corporate bonds, so issuers are still expected to report both UoP and impact post-issuance.

## Most amount reports in line with plan at issuance

We also compared the actual level of postissuance reporting with commitments made at issuance. Whilst providing post-issuance reporting is the single most important aspect of disclosure on a green bond's UoP and impact, planning to do so and communicating this effectively at issuance is also important. This is especially relevant given the different possible levels of reporting: none, UoP only, impact only, and both UoP and impact.

Only 38% of issuers, representing 54% of the amount issued, did as promised, i.e., the actual level of reporting was in line with the plan (or commitment/requirement) at issuance; for instance, an issuer planning to report only UoP and delivering that. The considerably higher share by amount indicates larger issuers are more likely to fall into this group.

The remaining issuers either over-promised or over-delivered. Over-promising includes failing to report, as well as committing to report on UoP and impacts but only reporting one of these. Under-promising, or over-delivering, is the opposite: delivering more than the initial commitment.

### High share of issuers fail to report in line with plans



Over-promising is more common than underpromising, which perhaps is not surprising given the factors discussed on p.10. The share of overpromising is substantially lower by amount (30%) versus issuer count (45%), i.e., smaller issuers are more likely to over-promise than larger ones.

The proportion of issuers reporting in line with commitments/regulatory requirements is lower

in China than in the rest of the world, which is in line with the overall reporting figures and again may reflect the reasons on p.10; nevertheless, it is somewhat unexpected, suggesting that regulation does not necessarily increase the chances of reporting. No meaningful difference was observed between financial and nonfinancial issuers.



## 5. Quality and attributes of reporting

As well as looking at the availability of reporting (i.e., reporting vs. non-reporting), we capture data on several other variables as part of our post-issuance research. Most of these refer to each deal's overall reporting characteristics, i.e., are not specific to either UoP or impact.

Ten of these variables were used as criteria to evaluate the quality of reporting for each bond, under an adjusted scoring system versus our global study. The chosen variables are comparable between bonds/issuers and cover key aspects like the level and frequency of reporting, and the clarity, granularity, and reliability of the disclosure – these are explained below, with some more information given on pp. 14-15 of our global report.

A value is then attached to each variable based on what is reported by issuers, and variables are weighted depending on their importance for the quality assessment. Finally, this is computed as a total score which can range from 0 to 20 points. Note: We have tried to be as objective as possible in our quality assessment, and many of the variables feed into the best practice recommendations in the Conclusion. Only deals with post-issuance reporting are included. When there are multiple bonds per issuer, an average is calculated for the issuer to avoid skewing the results. The results are only indicative of quality (discussion of caveats on p. 19).

### Quality scoring system explained: ten criteria

| Variable  | Points system  | Comments   |  |  |
|---|--|--|--|--|
| Level of post-<br>issuance reporting<br>vs. commitment at<br>issuance | 0-7 points matrix<br>depending on reporting<br>level (none, UoP, or UoP<br>+ Impact) and how this                            | Worth the most points, this variable rewards the level of post-issuance reporting (UoP + impact scores highest) as well as whether this corresponds to the plan at issuance. An issuer that plans to report UoP and impact, but then does not report any scores 0, while one that plans to report both and does so scores 7 (other variations score between 0-7).  |  |  |
|   | compares to plan at<br>issuance.   | Some results based on this analysis are provided in the previous section (see p.13). Our global report (also on p.13) has more detail on the points system.  |  |  |
| Publication date of<br>last report(s)                                 | <b>0-1 points</b> depending on whether latest report(s) was in last two quarters   | This variable was introduced for this study to assess if the issuer has reported up to the time of research. Since financial institutions must report UoP quarterly and non-financials annually, issuers scored 1 point if their latest report(s) was within this period plus one-quarter (a 'buffer').  |  |  |
|   | (financial) or last five<br>quarters months (non-<br>financial).   | By amount issued, a higher share of financial issuers achieved 1 point; by number of issuers, a higher share of non-financials achieved 1 point. This suggests financial issuers that reported in the last two quarters are relatively large.  |  |  |
| Reporting<br>frequency - UoP  | <b>0-1 points</b> depending on whether UoP reporting   | Another new variable, this assesses the frequency of UoP reporting and whether this meets Chinese regulatory requirements/guidelines, which differ between financial and non-financial issuers.  |  |  |
|   | is quarterly (financial) or<br>at least annual (non-<br>financial)   | Non-financials reporting more frequently than annually (i.e., semi-annually or quarterly) also scored 1 point, i.e., only those providing one-off reporting scored 0.  |  |  |
|   |  | Some analysis is provided below.   |  |  |
| Reporting<br>frequency - Impact                                       | <b>0-1 points</b> depending on whether impact reporting is at least annual.  | Similarly, this assesses whether UoP reporting was maintained in line with Chinese regulatory requirements/guidelines. In the case of impact, both financial and non-financial issuers should report at least annually.  |  |  |
|   |  | Some analysis is provided below.   |  |  |
| Report format   | <b>0-2 points</b> for clarity of format: 2 if separate   | The ease of accessibility of reports is an important aspect (even more so outside of China where documents are generally accessed through individual issuer websites).   |  |  |
|   | green bond report(s); 1 if<br>labelled and dedicated<br>section within annual/<br>sustainability/CSR report; 0<br>otherwise. | Issuers are encouraged to produce separate documents for green bond reporting, as this makes<br>it easiest to access the information – or at least to provide it through clearly labelled, dedicated<br>sections within broader annual, sustainability or CSR (or equivalent) reports. Those that included<br>green bond disclosure mixed with other information in broader reports scored 0.<br><i>Some analysis is provided below.</i> |  |  |
| Bond-level<br>granularity   | <b>0-1 points</b> for granularity of bond disclosure: 1 if   | In the case of repeat issuers, the ability for a data user (e.g., an investor) to obtain data for each individual bond can be important, both for UoP and impact assessments.  |  |  |
|   | UoP reported at bond<br>level (i.e., for each bond);<br>0 if UoP reported at   | Disaggregating UoP and impact disclosure at bond level is thus preferred if possible, although the report itself can of course cover multiple bonds – if so, best practice is to also provide figures at aggregated programme level (at least for high-level, summary figures).  |  |  |
|   | collectively for multiple bonds).  | Since most issuers only report UoP, and it can be harder to report impact at bond level, we scored issuers based on their UoP reporting only.  |  |  |
|   |  | Some analysis is provided below.   |  |  |

| Variable                                    | Points system   | Comments  |
|---|---|---|
| Project-level<br>granularity                | <b>0-3 points</b> for granularity of project disclosure: 3  | The level of granularity of project disclosure is an important variable. Issuers providing details and/<br>or a description about every project score the highest.  |
|   | if all individual projects<br>are disclosed; 2 if<br>some projects and/or<br>sub-categories (e.g.,  | Many issuers provide project-level information as well as listing the categories and/or sub-<br>categories of projects. Such cases were considered at the level of most granularity, i.e., project level<br>(3 points).   |
|   | solar, wind, rail, water<br>treatment); 1 for categories  | The granularity of project disclosure usually extends to providing UoP and impact data (especially in the former).  |
|   | (e.g., energy, transport); 0 if none of the above.  | Some analysis is provided below.  |
| External review<br>(post-issuance)          | <b>0-2 points</b> depending on level of external review:  | As well as obtaining one or more types of external review at issuance, issuers are recommended to do so at the post-issuance stage to confirm information on the UoP and project impacts.   |
|   | 2 for assurance and<br>Certification (under the<br>Climate Bonds Standard);<br>1 for post-issuance<br>second-party opinion<br>(SPO) and green rating; 0<br>for no review. | Like at issuance, various types of review are available. We consider Certification (under the Climate<br>Bonds Standard) – which requires post-issuance verification at least on the UoP – and assurance as<br>the most stringent, and these carry 2 points. They are followed by post-issuance reviews by second-<br>party opinion (SPO) and green rating providers which are worth 1 point, and no review scores 0.<br>It is not uncommon for issuers to obtain multiple reviews. If so, the most stringent was used for<br>scoring purposes.<br>Some analysis is provided below. |
| Impact<br>methodology used<br>and explained | <b>0-1 points</b> depending<br>on whether issuer uses<br>and explains its impact<br>methodology.  | Explaining the methodology used for conceptualising, calculating and reporting impact is important, especially in the case of more complex impact metrics that depend on baselines (such as CO <sub>2</sub> emission reduction). This applies even when the issuer engages an external consultant to perform an impact assessment.<br>More detail is provided in the Impact Reporting section.  |
| List of green                               | <b>0-1 points</b> for providing   | One of the key aspects of high-quality reporting is providing clear information, including basic  |
| bond(s) issued/<br>included                 | details of green bond(s)<br>issued and included in<br>report(s).  | details. Both globally and in China, issuers are not always clear about which green bond(s) they have issued, and which are included in each report. This can be a problem, especially with repeat issuers.   |
|   |   | 9% of Chinese issuers, representing 4% of the amount issued, failed to do so, and received 0 points in this criterion.  |

### Reporting frequency - UoP: most issuers satisfy requirements

Reflecting regulatory requirements, financial institutions largely report UoP on a quarterly basis. Nonetheless, the share of those that do not is substantial (36%, covering 27% of the amount issued) – these tend to be smaller and usually report annually rather than semi-annually.

By contrast, most non-financial issuers only need to report annually (green debt financing instruments are required to report semi-annually, but Climate Bonds' classification of bond/issuer types does not allow this to be analysed). It is interesting that semi-annual, followed by annual, UoP reporting is the most common among this group, with those reporting quarterly typically being smaller issuers. Overall, reports from Chinese issuers tend to be more frequent than in the rest of the world, where annual reporting dominates heavily across all issuer types, especially nowadays – quarterly reporting was seen more in the earlier stages of the market, and semi-annual is rare.

### UoP reporting more frequent than rest of world

| Reporting frequency:   | UoP         | Amount issued | Number of issuers |
|------------------------|-------------|---------------|-------------------|
|                        | Annual      | 19.6%         | 15.7%             |
|                        | Semi-annual | 6.7%          | 18.5%             |
|                        | Quarterly   | 73.5%         | 63.9%             |
| Financial institutions | One-off     | 0.2%          | 1.9%              |
|                        | Annual      | 36.0%         | 36.2%             |
|                        | Semi-annual | 57.2%         | 51.1%             |
|                        | Quarterly   | 4.3%          | 8.5%              |
| Non-financials         | One-off     | 2.5%          | 4.3%              |

NB: Only reporting issuers are included throughout the analysis in this section.

### Reporting frequency – Impact: financials report annually, nonfinancials often semi-annually

Unlike for UoP where requirements vary between financial and non-financial issuers, impact reporting is only needed annually across all issuer/bond types. This may be related to the relatively lower importance placed on impact versus UoP reporting, as well as the greater ease of tracking UoP regularly (conducting impact assessments requires more time and effort).

Annual impact reporting is by far the most common among financial institutions, followed by quarterly. This likely reflects the preference of some issuers to maintain consistency by reporting both UoP and impact on a quarterly basis. Semi-annual impact reporting is rare, especially looking at amount issued

The picture notably changes with non-financials, with just over one-third of issuers and two-thirds of the amount reporting impact semi-annually. Since for this group the regulation does not differ between UoP and impact, it makes sense that issuers would pick a similar frequency for both (as long as they have the resources to do so), although the shares vary considerably between amount issued and number of issuers.

Somewhat surprisingly, more non-financial issuers seem to report impact quarterly than UoP. This could simply be related to the different sample in both datasets (as many more issuers report UoP).

## Report format: separate reports most common overall

The two main formats issuers use to provide green bond reporting are via separate green bond reports or within broader annual, sustainability or CSR (or equivalent) reports. A variation is within external review documents which applies to some Chinese issuers and which we considered a 'separate' report. Outside of China, some issuers publish the information directly on their website, but this is increasingly rare. Finally, some issuers may report directly and privately to investors, but since this is not public and we cannot access the information, we do not consider it reporting for the purposes of this research.

While the format of reports is not specifically mentioned by Chinese regulators, market best practice is to produce a separate document, as this makes it easier to access the information and may allow issuers to provide more detail; however, doing so often requires more resources which may be limited, especially among smaller issuers. Reporting within broader company reports is therefore also fine, but the disclosure should be clearly labelled and ideally included in a dedicated section.

### Impact reporting less frequent than UoP among financials

| Reporting frequency: Impact |             | Amount issued | Number of issuers |
|-----------------------------|-------------|---------------|-------------------|
|                             | Annual      | 81.7%         | 76.6%             |
|                             | Semi-annual | 0.4%          | 4.3%              |
|                             | Quarterly   | 17.7%         | 17.0%             |
| Financial institutions      | One-off     | 0.2%          | 2.1%              |
|                             | Annual      | 24.6%         | 44.1%             |
|                             | Semi-annual | 67.2%         | 35.3%             |
|                             | Quarterly   | 7.2%          | 14.7%             |
| Non-financials              | One-off     | 0.9%          | 5.9%              |

### In line with best practice, Chinese issuers were found to favour separate reports, especially among financials. Two-thirds

of financial institutions reported in this way, while just under 20% used dedicated sections within broader reports, and 13% did not clearly demarcate the disclosure in broader reports (bad practice).

Only 1% reported both in a separate document as well as within broader reports (with a dedicated section).

Non-financials demonstrated better practice overall, with only 2% reporting through an 'unclear' format (i.e., non-dedicated section in a broader report). The most popular format was within a broader report (dedicated section) by number of issuers, but a separate report by amount issued.

Further, a much larger share reported through both formats by amount issued than number of issuers.Overall, this suggests larger non-financial issuers show a considerably stronger preference for separate reporting.

### Bond-level granularity: UoP more likely than impact to be at bond level

It is common for repeat issuers to include information related to multiple bonds (at least outstanding ones) within a single green bond report. However, UoP and impact data may be reported separately for each bond. When the data refers to an individual bond, reporting is considered bond level; when it is aggregated for multiple bonds, programme level.

Where feasible, best practice is to report at bond level, but ideally to also provide summary figures at programme level to enable an easy view of the issuer's overall green financing activities (i.e., reporting key figures at both levels) – it is relatively rare for issuers to do both (Bank of China is one example).

In terms of UoP disclosure, bond-level reporting is more common, especially among non-financial issuers which tend to be smaller and therefore less likely to be repeat issuers (of course, programme-level reporting is only an option for repeat issuers). Within financial institutions, onequarter of issuers report at programme level, but this translates into a 40% share by amount issued as they tend to be larger.

The share of programme-level reporting is higher with impacts, and again more common among financial institutions. Larger issuers are more likely to report at programme level in both groups.

Overall, UoP is more likely than impact to be reported at bond level. This is likely due to the greater complexity of assessing/calculating impacts for individual bonds and reporting accordingly. It is true for both financial and non-financial issuers, but especially the former, which makes sense as financial institutions tend to issue more bonds, finance more projects and categories, and report more impact.

### Non-financials more likely to follow format best practice

| Report format          |                         | Amount issued | Number of issuers |
|------------------------|-------------------------|---------------|-------------------|
|                        | Broader - not dedicated | 34.2%         | 13.0%             |
|                        | Broader - dedicated     | 5.6%          | 18.5%             |
|                        | Separate                | 60.1%         | 67.6%             |
| Financial institutions | Separate + Broader-D    | 0.1%          | 0.9%              |
|                        | Broader - not dedicated | 3.2%          | 2.2%              |
|                        | Broader - dedicated     | 29.5%         | 48.9%             |
|                        | Separate                | 45.9%         | 42.3%             |
| Non-financials         | Separate + Broader -D   | 21.4%         | 6.6%              |

### Most UoP reporting is at bond level...

| Bond-level granularity: UoP |           | Amount issued | Number of issuers |
|-----------------------------|-----------|---------------|-------------------|
|                             | Bond      | 60.3%         | 75.5%             |
| Financial institutions      | Programme | 39.7%         | 24.5%             |
|                             | Bond      | 90.9%         | 88.1%             |
| Non-financials              | Programme | 9.1%          | 11.9%             |



### ...while most impact reporting is programme level

| Bond-level granularity: Impact |           | Amount issued | Number of issuers |
|--------------------------------|-----------|---------------|-------------------|
|                                | Bond      | 18.3%         | 50.0%             |
| Financial institutions         | Programme | 81.7%         | 50.0%             |
| Non-financials                 | Bond      | 31.1%         | 68.8%             |
|                                | Programme | 68.9%         | 31.3%             |

### Project-level granularity: nonfinancials report at project level more often, but usually finance fewer projects

We use five terms to classify the granularity of project disclosure: Project-all when all projects are detailed/described (most granular); Projectsome when only some are; Sub-category when only project sub-categories are provided (e.g., solar energy, wind energy, rail transport, wastewater management, etc.); Category when only broader categories are given (e.g., Energy, Transport, Water, etc.); and Total otherwise (least granular).

Many issuers disclose at multiple levels, for example giving details about all or some projects as well as listing their respective categories and/ or sub-categories. The table below summarises the results at the most granular level (i.e., Projectall in the previous example)

### Financial institutions, which often finance many projects and multiple categories, are relatively distributed across different levels of granularity. Project-all is the most common by issuer count; Sub-category the most common by amount issued.

This suggests smaller financial issuers are more likely to disclose each project while larger ones tend to provide categories/sub-categories only, which makes sense since smaller issuers tend to finance fewer projects, and this makes projectlevel disclosure easier. Further, some financial institutions may not be allowed to disclose project details due to confidentiality reasons, so these will often resort to providing categories/ sub-categories only.

### Non-financials are more polarised in their

**project disclosure**. Almost half of non-financial issuers and almost two-thirds of their amount disclose all projects. Again, this is likely due to the nature and size of many non-financial issuers which often finance just one project and one category/sub-category. Meanwhile, a relatively high proportion (37% of issuers and 24% of the amount) do not give information on projects nor categories, which is not good practice.

It is also quite rare for both financial and nonfinancial issuers to only report at project level, being more common for Project-all and almost never for Project-some. If disclosing individual projects, most issuers also disclose at category or sub-category level, and generally the latter. Among the few issuers that do not, they generally only finance one or very few projects. Finally, the level of project granularity has improved over time, with deals issued in 2019-2020 disclosing individual projects more often than the 2016-2018 cohort. There was a reversal in 2021, but this may be due to the considerably smaller sample size.

These results refer to general project disclosure. Some issuers provide a different level of granularity for UoP and impact which usually means less granularity in the latter as it can be more complex to report impact individually when there are many projects.

Nonetheless, most issuers keep a consistent level of project granularity, e.g., if they disclose individual projects, they also provide UoP and impact at project level.

| Project-level granula  | rity         | Amount issued | Number of issuers |
|------------------------|--------------|---------------|-------------------|
|                        | Total        | 4.0%          | 11.3%             |
|                        | Category     | 14.9%         | 13.9%             |
|                        | Sub-category | 51.2%         | 24.3%             |
|                        | Project-some | 5.7%          | 10.4%             |
| Financial institutions | Project-all  | 24.2%         | 40.0%             |
|                        | Total        | 23.5%         | 36.9%             |
|                        | Category     | 4.8%          | 7.1%              |
|                        | Sub-category | 7.9%          | 9.9%              |
|                        | Project-some | 0.2%          | 0.7%              |
| Non-financials         | Project-all  | 63.6%         | 45.4%             |

### Financials more distributed by project-level granularity

### **Post-issuance external reviews**

Various types of external review exist, both at and post-issuance. They all aim to provide more reliability and robustness to the green instrument, but vary in several ways, such as type of provider, expertise/focus area, and level of stringency.

- At issuance external reviews include secondparty opinions (SPO), green ratings, assurance, and Certification (under the Climate Bonds Standard).
- Post-issuance external reviews include audits/ assurance, verification as part of Climate Bonds Certification, and reviews by SPO or green rating providers.

Only post-issuance reviews were analysed as part of this research, on a best-efforts basis. Like many aspects of disclosure, the type of review is not always clear. This issue is compounded in China since the nature and scope of reviews (namely SPOs and assurance) seem to differ versus the global market. Climate Bonds is in the process of defining different types of review in China more clearly, but for now global definitions of reviews have been applied. A summary table with more details is provided in Appendix 1.

Combining multiple types of review is relatively common and can take on different combinations. Overall, 25% of reporting issuers and 43% of the amount issued were covered by assurance and/or verification as part of Climate Bonds Certification, which we consider the two most stringent forms of review. This points to larger issuers being more likely to opt for these.

Mirroring practices at issuance, post-issuance reviews by SPO providers are the most common in China. In the rest of the world, SPOs are by far the most commNB:

(black and not bold) issuance but less so post-

External reviews take several forms and combinations



issuance. The relatively high share in China may be due to the variety of providers in the country. Green ratings were not observed.

Finally, 38% of the amount issued and 53% of issuers lacked any post-issuance review. This is broadly in line with our global study – external reviews at issuance are more common than post-issuance – and suggests smaller issuers tend to fall in this group.

### Quantitative scoring analysis: smaller issuers more likely to score lower

Overall, the distribution of quality scores is broadly similar to our global study, with most of the market falling in the mid range (12-16 points in this case). The simple average is 13.6 points. At 68% of the maximum possible score (20), this is relatively lower than in our global study (77%), although this may be due to the methodological difference.

Bonds aligned with international definitions face the same reporting requirements as those that are not aligned, but they might be expected to report better. The results do reflect this to some extent, as the average among aligned deals is 14.0 points versus 13.2 for non-aligned. However, this is largely due to points for the variables dependent on impact reporting, given that aligned deals are more likely to report impact (see pp.10-11).

Smaller issuers are more likely to score lower, seen by the relatively high number of issuers versus amount issued in the lower range (8-12 points). It is also reflected in the weighted average of 14.2 (weighted by bond size), which is higher than the simple average.

Reporting practices can change over time, generally towards higher quality. For example, changes in the frequency of reporting and impact metrics were observed for some bonds. Although rare, the level of disclosure occasionally even varies for different bonds within a given report.

This means that repeat issuers sometimes achieve different scores between deals. The analysis is thus based on the average score per issuer.

No issuers scored the 20-point maximum. Three bonds by CGN Power Company did achieve the perfect score, but three bonds issued by CGN's Wind Power subsidiary only scored 18, as the external review was a green rating instead of an assurance, and an impact methodology was not disclosed. CGN's overall score was therefore 19.<sup>21</sup>

## Financials display higher average

Analysing the average, median, minimum, and maximum scores by issuer type is an interesting exercise, despite development banks, local governments and loans having too few issuers to make any meaningful statements.

Among the more meaningful categories – financial corporates, non-financial corporates, government-backed entities, and ABS – the minimum and maximum scores are relatively constant, but financial corporates display the highest average and median.

This is not particularly surprising, given their more stringent and clearer reporting requirements, and often greater experience and availability of resources to provide better disclosure.

A broader analysis of financial versus nonfinancial issuers was in line with the above, with financials scoring a higher average than nonfinancials (13.9 versus 13.2).

There is some bias in this result, since financial institutions tend to be larger issuers which are more likely to score higher anyway.

### Very few issuers score above 18 points

Amount issued •Number of issuers



### Financials tend to score higher



Issuer type (Number of issuers)

### Scoring methodology caveats

The results of our scoring are merely an indication of the quality of reporting.

Several other relevant variables were not used, often because they relate to softer aspects of reporting (e.g., clarity of explanations) or they are very complex to translate to a simple points system (e.g., quality and granularity of impact disclosure).

Some variables are not included simply because our methodology is not complete and we did not collect that data (e.g., if issuer offers ability to download/export data). Further, the information needed to determine some variables, or add robustness to existing ones, is often not made clear in green bond reports (e.g., if assurance covers UoP and/or impact, if impacts are calculated/measured exante or ex-post, etc.), making points attribution difficult.

Some variables were excluded because they would benefit some issuers even though their reporting is not necessarily better. A good example is whether the issuer explains its management of unallocated proceeds, which can only apply if there are unallocated proceeds. Having said that, several includ ed variables may unfairly reward (e.g., points for bond/ project-level granularity when only one bond is issued/one project is financed) or penalise (e.g., no points for impact reporting frequency or methodology when issuer does not report impact) some issuers. However, these were generally more important variables that could not be reasonably excluded and were dependent on practices that all issuers could (and should) pursue (e.g., reporting at bond/ project level, and reporting impact).

Finally, the data collection is based on the latest report for a given bond, as this is most representative of current practices. Some issuers change their reporting approach over time.

### **Best practice examples**

#### **CGN Power Company**

CGN Power Company issued three green bonds in our sample period, all of which scored the maximum 20 points (unlike CGN's Wind Power subsidiary, which scored 18). Its green bond report is easy to find within the company's sustainability section, which includes various relevant documents.

The report is clearly structured and includes a good amount of detail. Both bonds are included with their relevant details, and the information on allocations, impacts and projects is disclosed at bond level, which is a plus. The name and location of the projects are also given. A simple table gives the impacts according to four metrics, along with a clear explanation of the calculation methodology (referencing the UNFCCC's ACM002 Gridconnected electricity generation from renewable sources).

A limited assurance report from Deloitte is also available, providing assurance on both the UoP and environmental benefits.

#### ABC Financial Leasing

ABC Financial Leasing has reported allocations quarterly and impacts annually. The annual green bond report includes the amounts allocated by category and location, and detailed case studies are included, with an overview of each project and qualitative descriptions of environmental benefits.

ABC Financial Leasing additionally provides detailed project information and quantitative environmental benefits at both project and bond level. The methodology to calculate impacts is based on the *Guidelines for calculation of energy saving and emission reduction for green credit projects* by the former CBRC, and cites the GHG emission parameters of thermal power plants from the *China Electric Power Industry Annual Development Report 2018*, issued by the China Electricity Council.Deloitte provides a limited assurance on the green bond's management, UoP and environmental impacts.

#### **Shandong Water Affairs Development**

Shandong Water Affairs Development reports both allocations and environment impact semi-annually, Its medium-term notes were externally reviewed and rated 'green' by Golden Credit Service according to the *Green Debt Financing Instruments Business Guidelines for Non-financial Enterprises* and *Medium-term Notes Business Guidelines for Non-financial Enterprises in the Interbank Bond Market, iss*ued by NAFMII.

The report is simple but has all the key information, including the allocation and construction status for each project. It also has detailed qualitative and quantitative environmental impacts disclosed, including emission reductions for various pollutants (e.g., CODCr, BOD5, suspended solids, total phosphorus, total nitrogen, and ammoniacal nitrogen).



## 6. Impact reporting practices

## Lack of standardisation in impact reporting

### Impact reporting, both globally and in China,

**is largely unstandardised.** This manifests itself in various ways but is felt most of all in the metrics used. For example, the terminology used varies between issuers, precise definitions of metrics are often not provided, similar projects may report different metrics, the methodology used to select metrics and calculate impacts varies considerably, etc.

This leads to an overarching problem of lack of consistency and comparability between impacts reported for different bonds and issuers, which makes it very hard to conduct market-wide data analysis. This issue is discussed at length in the global report. It also applies in China, albeit to a lesser extent since the sample is smaller (fewer issuers) and there is more consistency in reporting format and use of impact methodologies when looking at just one country.

While there is no universal methodology used by issuers, considerable work has been done globally to improve consistency in the market, and practices are increasingly moving in that direction. The most important effort to this end in the green bond space is the ICMA-led Handbook - Harmonized Framework for Impact Reporting, supported by an Impact Reporting Working Group which Climate Bonds is a part of (among many other organisations).

As explored in detail in our global report, impact reporting will therefore become more standardised, or at least more consistent and clearer, over time. Once achieved in the green bond market, the challenge will then be how to integrate the understanding and reporting of socio-environmental impact in other sustainable finance instruments, and indeed across the financial sector. Although harmonisation challenges will likely persist for some time, the efforts of different institutions and regulators – most notably the newly created International Sustainability Standards Board led by the IFRS Foundation, and the work of the EU – will play an increasingly important role in this regard.

We also note that impact reporting within green bonds is more developed than other segments of the sustainable debt market. Impact reporting practices within social and sustainability bonds, transition bonds, and performance-linked instruments tend to cover a narrower range of impacts. This is likely partly due to the smaller size of these segments and the lower variety of financed projects and associated KPIs (although this may change).

# General impact reporting practices

Some aspects of impact reporting were already discussed in the previous sections. We explore a few more here before delving into metrics/KPIs (the 'meat' of the Impact reporting section).

*The figures reflect the share of issuers/amount* issued *within those that report impact.* 

### Impact disclosure at issuance is common

While disclosing impacts post-issuance is most common, and always recommended, some issuers provide information on impacts at issuance. This may be in the form of ex-ante impact assessments for projects that are known will be financed, as well as assessments (which may be conducted ex-ante or ex-post) for refinanced assets/projects that are already operational and delivering environmental benefits. Impact disclosure at issuance is often less granular than at the post-issuance stage, and can be included in issuer and/or external review documents.

About three-quarters of the market reports some form of impact(s) both at and post-issuance, while one-quarter only does so post-issuance. The share only reporting impact at issuance is very small and mostly refers to non-financial corporates refinancing already operational assets, as post-issuance disclosure adds less value in this case. However, it is always recommended that issuers provide impact disclosure post-issuance, at least to confirm that the information provided at issuance remains valid (i.e., assets continue to operate and deliver the impacts previously reported).

## Many issuers also disclose impact at issuance



NB: The subsequent results only refer to postissuance impact reporting. The exception is the analysis of metrics, which includes both.

### Most Chinese issuers provide cumulative impact

We also checked whether the latest report from each issuer included the total (i.e., cumulative) impact or only the impact for a defined period.

In the rest of the world, impact data is almost always annual. In China, impacts are also usually for a period, which tends to be annual, although semi-annual and quarterly data are common too.

### However, the difference in China is that issuers generally provide cumulative impact data in each of their reports, along with the data for a specified period.

While this may seem trivial, doing so is best practice, as it prevents users of data from having to check multiple reports and manually aggregating data to obtain the total impact. If not providing the total directly, issuers should at least provide all the information needed to perform the calculation in a given report (e.g., annual impact, years of operation, and, ideally, expected lifetime). The same applies to UoP data, although it is generally easier to obtain total allocations and more issuers globally provide the cumulative UoP.

### Total impact much more common than in rest of the world



NB: Issuers reporting total impact usually provide impact for a period too 85% of issuers in our sample, representing 65% of the amount issued, provided cumulative impact data in their latest report. Larger issuers are more likely to do so, demonstrating best practice.

For 4% of issuers and 2% of the amount, the period of the impact was not clarified (bad practice). When this happens in the rest of the world, we generally assume it is annual; but since it is common for Chinese issuers to provide annual, semi-annual, quarterly, and cumulative impacts, this cannot be assumed.

## Importance of impact methodologies

### The expansion of reporting since the market's inception is positive and has given rise to a breadth of metrics and approaches; but it also raises some concerns, particularly around lack of standards and consistency.

Post-issuance reporting is largely fragmented, i.e., practised individually by issuers (although this may change, especially with the development and growing reach of centralised data platforms). UoP reporting is relatively straightforward, but the absence of a common framework to report impact means that issuers must decide which metrics/KPIs to report along with how to monitor, measure/calculate, and report them.

In terms of metrics, the recommendations under the Green Bond Principles are limited to using both qualitative performance indicators and, where feasible, quantitative performance measures with the disclosure of the key underlying methodology and/or assumptions used in the quantitative determination.

Some market participants have quoted impact reporting commitments as key barriers to further green bond issuance. The perception of difficulty and costliness relate to an initially steep learning curve that can be expected to flatten out over time as issuers gain reporting experience; we firmly believe that ongoing and future initiatives will facilitate the process. In addition, assurance and verification of impacts are lacking in many cases, and even when observed it sometimes consists of a short, vague statement. The accuracy and reliability of impact measurement and monitoring therefore also present potential for improvement.

#### What are impact methodologies?

In this context, attempts to provide clarity and consistency to impact reporting have been underway for a few years.

These provide guidance on different aspects of impact reporting, but it is debateable whether they can all be considered impact reporting methodologies/frameworks.

#### For the purposes of our work, 'methodologies' were defined as any type of guidance that helps issuers with the

challenges described above, i.e., which metrics/KPIs to report and/or how to monitor, measure/calculate and/or report

**them.** A methodology was counted if the issuer referenced it in any way, even if it did not specify how exactly it was used.

### The main methodology used in the global green bond market is the **Handbook – Harmonized Framework for Impact Reporting**

('Harmonized Framework').<sup>22</sup> Led by ICMA and developed through an Impact Reporting Working Group consisting of many relevant stakeholders (including Climate Bonds), it is the most relevant and specific to green bonds, as well as the most comprehensive framework, covering various aspects of impact reporting and a range of sectors, and able to be applied globally.

Most methodologies, however, are different in scope. They provide recommended approaches to calculating specific impacts (e.g., GHG reductions, energy savings), often in a specific project category or sub-category (e.g., renewable energy, rail transport), and sometimes including recommended data sources.

## National guidance and UNFCCC most used in China

The importance of explaining an impact methodology varies greatly depending on the type of project, and above all the metrics/KPIs used to convey impact. Some metrics, such as GHG reductions and energy savings, invariably require a calculation methodology; others, such as area restored and extension of railway track built, are simpler and usually do not.

In any case, issuers can, and should, always explain their impact reporting approach, as well as refer to general methodologies like the Harmonized Framework and provide qualitative descriptions that help to understand the impact. Broadly in line with the rest of the world, most of the Chinese market does not seem to provide a methodology. Smaller issuers are more likely than larger ones not to disclose this. The relatively low share of methodology disclosure is somewhat surprising, since several official standards are provided by national bodies that are highly relevant to green bond projects, especially related to energy use/savings and GHG reductions. Like with the regulatory ecosystem, perhaps some consolidation of guidance would be beneficial, helping to facilitate reporting from issuers.

However, the figures may be somewhat misleading, as some external guidelines may have been considered data sources although they are methodologies (see below). The difference is often not made clear by issuers, who may simply refer to external documents without explaining how they were used – such cases were classified as data sources.

It is also likely that some issuers used one or more external methodologies in their calculations but did not mention them specifically (nor how they were applied), i.e., the actual use of methodologies is higher than the results indicate.

Among issuers that referenced external methodologies, we identified the following national standards:

- General principles for calculation of comprehensive energy consumption<sup>23</sup> (issued by AQSIQ<sup>24</sup>)
- General technical rules for measurement and verification of energy saving<sup>25</sup> (AQSIQ)
- Guidelines for calculation of energy saving and emission reduction for green credit projects<sup>26</sup> (CBRC)

Among non-Chinese standards, only the guidelines provided by the UNFCCC were used. These focused on impacts from renewable electricity generation (ACM0002 Grid-connected electricity generation from renewable sources – versions 17.0 and 19.0) and low-carbon transport (ACM0016 Mass rapid transit projects – version 4.0). Prior to the research, we thought some issuers, especially of internationally

### Use and disclosure of methodologies can improve

|                    | Amount issued (USDbn) | Number of issuers |
|--------------------|-----------------------|-------------------|
| Internal           | 2.4                   | 4                 |
| Consultant-N       | 2.3                   | 9                 |
| Consultant-Y       | 5.3                   | 6                 |
| Other methodology  | 11.1                  | 8                 |
| Not disclosed/used | 35.7                  | 58                |
| Grand total        | 50.3                  | 73                |

NB: Internal = issuer's own methodology used and disclosed. Consultant-N = impact assessment by external consultant but methodology not disclosed; Consultant-Y = methodology of external consultant disclosed. Not disclosed/used figures may be inflated, as some external guidelines may have been considered data sources instead of methodologies. aligned bonds, might refer to the Harmonized Framework, but this was not the case. Perhaps this will change once we look at more recent deals.

Financial issuers are more likely to reference external methodologies. Of the 73 issuers reporting impact in our sample, only ICBC and Industrial Bank referenced the three Chinese methodologies above, while China Development Bank mentioned the last one (the only one specific to green finance instruments).

Overall, and despite some caveats, the results suggest there is ample room for improvement in terms of methodology use/disclosure which may have already started to happen since the end of the research cut-off period.

## External data sourcing is relatively common

Closely linked to disclosing an impact methodology, referencing any data sources used also adds clarity and quality in impact reporting. Many data sources exist globally, from data provided through national statistics and international bodies like the UNFCCC, to more niche sources such as industry associations, local governments, specialised providers and consultants, and peer groups. Resources in the latter group are often sector-focused, an example being the *China Electric Power Industry Annual Development Report 2018,* issued by the China Electricity Council.

Like with impact methodologies, data sources are most relevant, and most used globally, when estimating GHG emissions reduced/avoided, as emission factors are needed to do so. Estimating pollutant reductions usually follows a similar process. Given the importance particularly of air pollution in China, there is a breadth of data available from relevant national bodies to enable this.

## Data sourcing is relatively good



35% of issuers, covering 28% of the amount issued, use, and disclose external data sources. This is a significant share, since many of those that do not disclose data sources probably have no need to use one (many metrics do not require this). However, as shown on p. 25, the share of the market reporting GHG reduced/avoided is far greater than 35% which suggests many issuers that should reference a data source, fail to do so. We did not analyse data source disclosure in the global study, so a comparison with the rest of the world cannot be made.

### Metrics (KPIs) analysis approach

Having covered some general aspects of impact reporting, we turn to what is perhaps the most important, complex, unstandardised and interesting area of reporting: the metrics, or KPIs, used to assess impact.

Given its inherent complexity versus other aspects of reporting, a more extensive introduction to the topic is provided in our 2021 global report. While key information is included below, readers with a keener interest are recommended to refer to the global report for a more complete understanding (especially pp.21-24 and pp.38-50).

### Which metrics are included?

The analysis is based on metrics that reflect the environmental impacts achieved by financed projects/assets. Only quantitative indicators were analysed, although, in line with international best practice guidelines, we recognise the value of issuers providing qualitative information, as this can support a more holistic impact assessment – and indeed many issuers include this.

Social impacts were not included in the research but reporting these is rare in the Chinese green bond market, even more so than in the rest of the world.

Projects financed by green bonds are aimed at delivering environmental benefits, and impact metrics therefore reflect these benefits. However, in some cases, especially larger infrastructure projects, there may be other 'indirect' or 'unintended' impacts which may be positive and/or negative as well as social and/ or environmental. For example, the construction of a dam may have negative impacts on local biodiversity, as well as positive and negative economic impacts on nearby communities; the same could be said of a new railway. Some issuers assess such indirect impacts and provide information (mostly qualitative) about them which is required by Chinese regulation when there are environmental concerns. These were not considered impact metrics, but we did some basic analysis which indicates that about 30-35% of issuers/amount issued conduct some level of assessment into indirect impacts, often

with support from external consultants and including both positive and negative social and environmental impacts.

Finally, this section includes impacts reported postissuance as well as at issuance. While most impact reporting (about 85% by amount issued, and 75% by issuer count) happens post-issuance, some occurs at issuance, and this was also included to provide a more comprehensive analysis.

### Raw vs. consolidated metrics

### Hundreds of metrics are reported across

**issuers.** These vary in several ways, such as the level of detail in the metric's description and whether it is general (relevant to different project types) or specific (relevant to a single project type or even a single project).

Ultimately, a metric is a description of measure. As there is not a single methodology used by all issuers, **terminology** is another key factor, as similar concepts may be described in different terms by different issuers (e.g., 'energy reduced' and 'fossil fuel saved'); by contrast, sometimes similar terms can mean different things to different issuers (e.g., 'river rehabilitated' could mean length of river cleaned or treated, area of riverbank restored, volume of river dredged, etc.). In some cases, there are differences simply in the order of the description, e.g., GHG avoided vs. avoided GHG.

### Metrics that are reported by issuers are called 'raw' metrics. To enable analysis, this universe of raw metrics must be reduced to a narrower set, which we call 'consolidated' metrics.

On one hand, the consolidation process groups together similar raw metrics that are simply written in different ways by different issuers (sometimes even the same issuer, i.e., in different reports). On the other hand, it aggregates related, but different, raw metrics to reduce the set to a workable size.

These two 'sub-processes' occur to varying degrees. In some metrics, such as energy generated, it is mainly a case of grouping terms that have a similar meaning (e.g., energy generation, energy production, electricity generated, heat generated, annual power generation, etc.). Others, such as area/ length (managed/restored/constructed etc.), encompass a much broader array of raw metrics (e.g., area restored, area of farmland created, green area built, length of river dredged, extension of railways built, length of sewage pipes, etc.) – these are highly consolidated metrics.

An extensive list of raw metric examples is provided in Appendix 2.

### **Our approach: logic and balance**

Consolidating metrics into a smaller set is nontrivial; and given the breadth of raw metrics and terminology used by issuers, inevitably imperfect.

Data users, especially investors trying to understand the impact of portfolios, are aware of this issue. Currently, it is typically the decision of each data user how to aggregate data from different issuers, and different possibilities are already reflected by the varied investor approaches to assessing portfolio impact (more detail on p.39 of our global report).

The issue is compounded in our study given the many bonds and issuers we cover. Overall, our aim was to obtain a good view of market practices by understanding the prevalence of different metrics. The raw data was collected directly as reported by issuers, with the consolidation occurring later in the analysis phase.

This was done on a best-efforts basis, using key principles of logic and balance to create a final set that takes account of similarities between raw metrics/KPIs while not losing the detail we wanted to uncover and present.

#### 'Substance' and 'action'

To achieve a final set of consolidated metrics, we first aggregated raw metrics by the 'substance' they referred to, e.g., GHG, energy, water, pollutant, etc.

The subsequent element was the 'action' described by the metric, e.g., saved, generated, used, built, renovated, conserved, etc. Similar actions – such as saved/reduced/avoided– were aggregated for simplicity, even though they may describe slightly different concepts or processes.<sup>27</sup> On the other hand, concepts like energy generation and capacity are clearly distinct (also visible from the units) and were kept separate; the exception is for three highly consolidated metrics (area/length managed, volume managed, and units installed etc.), where it was not feasible to separate distinct processes.

When there are multiple actions under a given consolidated metric, the terms either cover all or the most common raw metrics within it.

Finally, if a bond reported multiple raw metrics/ KPIs that fell into one consolidated metric, this was only counted once. The most common examples are different types of area/length, and number of units. This was to avoid distorting the figures, since our aim was to understand how much of the market is covered by each metric. It did not apply to different GHGs and pollutants which were treated as different metrics and counted separately, given how often they are reported in the Chinese market.

### **Units matter**

The units used to report impact (e.g., MWh, kg,  $m^2$ ,  $m^3$ , etc.) were sometimes used in the consolidation process, especially when the terminology used by issuers was not clear enough – this is closely related to the issue of terminology discussed on the previous page. Some examples include:

- 'River(bank) restoration/rehabilitation/ dredging' considered area/length when reported as an extension in km or an area of river(bank), and as volume when expressed as m<sup>3</sup>
- 'Processing of polluted water' classified as area/length when reported as an extension in km and as volume when expressed as m<sup>3</sup>
- 'Organic milk production' classified as volume when expressed as tonnes of milk produced and as units when reported as number of cows produced
- 'Rainwater reused' and 'waste/materials reused' classified as volume when given in m<sup>3</sup> or kg and as recycling/recovery rate when given as %
- 'Dam construction' considered 'construction' when reported simply as the construction of the dam and area/length when expressed as the length in metres

## Some differences in approach versus global study

Overall, the metrics analysis process was largely similar to our 2021 global study, but the outcome was somewhat different. The final set of consolidated metrics is more tailored to the Chinese market, i.e., in line with the metrics reported by Chinese issuers. For example, GHGs and pollutants were disaggregated, while building certifications were not reported at all as they are not considered 'impact'. There may also have been some influence from including bonds not aligned with Climate Bonds' green definitions and excluded from our Green Bond Database; for example, two issuers reported the length of gas pipeline constructed, which was not observed in the global study.

Another key difference is that the analysis was not done by project category. Many issuers finance multiple, in some cases all, categories. In such cases, issuers outside of China are generally clear about which category/ies each metric refers to. In China this is less common, and there are many cases where it is unclear if the metric refers only to one, some, or all categories financed by the bond.

Issuers may believe that investors are not that bothered about this, as they buy into a bond and therefore all the projects and categories it finances. However, issuers are advised to be clear which category/ies apply to a given metric, since data users may want to assess impact on a category basis and there may be methodological differences between project types - and to meet one of the key aspects of good reporting: clarity of information. While we may have been able to assume the categories for some metrics, this is often not possible (e.g., GHG reduced, pollutant reduced, fossil fuel saved). We therefore only analysed at a global market level, although the most common categories for each metric (based on information available) are listed below.

Unless otherwise specified, subsequent references to metrics pertain to the consolidated list, not the raw metrics/KPIs reported directly by issuers (although the terminology issuers use is usually in line with our list).

### Metrics (KPIs) analysis results

The results of our metrics analysis are expressed in terms of the share of amount issued and issuers (within those that report impact) that report each metric. This is shown in the graph, with the metrics ranked by the amount issued that they cover. The percentages do not add up to 100%, as most issuers report multiple metrics. These figures refer to the overall market, but the most common categories for each metric are listed opposite.

Almost all the most used metrics have a higher share by amount issued than number of issuers, which suggests they are especially common among larger issuers. The only exception is Pollutant reduced/avoided which is reported extensively by smaller issuers, perhaps due to the widespread nature and importance of air pollution in the country. Moving down the graph, metrics become more 'niche' and less likely to be used by many large issuers.

### 'GHG reductions' top

In line with the global market, GHG reduced/ avoided is the most common metric, covering 60% of issuers and 84% of the amount with impact reporting. However, while reporting GHGs collectively, or alternatively just CO<sub>2</sub>, is by far the most used approach globally, in China it is much more common for issuers to refer to individual GHGs (presumably those most relevant to their projects), and to report them separately if multiple apply.

The same can be said of pollutant reductions which also appear much more frequently in China than the rest of the world and include a variety of substances. The vast majority refer to air and water pollutants.

For both GHGs and pollutants, issuers only report amounts reduced and/or avoided (sometimes denoted 'prevented', 'removed' or 'stored', but curiously never 'saved'), i.e., relative to a previous state or some form of relevant baseline, e.g., fossil fuel energy or car transport. No issuers in the sample reported the absolute level of GHG/pollutant emissions or intensity, which is disclosed quite often in the rest of the world. Reporting the absolute level alongside the relative metric is recommended, where possible.

NB: Both GHGs and pollutants are disaggregated into respective substances on the next page.

This reflects the greater granularity with which Chinese issuers tend to report GHG- and pollutant-related impacts, as well as the high number of issuers reporting pollutants, versus the rest of the world.

### Area/length and volume follow

More so than in the rest of the world, it is also very common to report an area/length that may have been restored, conserved, constructed, or otherwise managed in some way. Covering a huge range of different projects and activities across several categories, this is the most consolidated metric and the second most reported, accounting for two-thirds of the amount issued and almost 50% of issuers.

Area- and length-related raw metrics are most frequent in ecological protection and climate change adaptation projects (e.g., area conserved, restored, planted, treated, or green area/park built; length of river dredged, treated, flood protection built, etc.), while in clean transportation and pollution prevention and control length appears more often (e.g., length of subway/rail track constructed, waste/water pipes built, etc.). Green building projects are rarer in China versus the rest of the world, but when financed often have the area built reported.

More examples of raw metrics are provided in Appendix 2.

#### Volume managed/processed/recycled is

another heavily consolidated and frequently used metric. The actions it covers differ from those in **volume produced/added** and **volume saved/reduced**, both of which are far less common metrics. Across these, volume is almost always reported in m<sup>3</sup> or tonnes, and rarely in kg.

In the rest of the world, most volume-related metrics refer to waste (often sewage and recyclable material). In China this is also common, but there is a relatively broader range of substances included, such as food waste processed, minerals and waste gases reused, and riverbank volume dredged.

Number of issuers

Amount issued

### Most common metrics tend to be used more by larger issuers



Note: Many issuers do not clearly state which category/ies metrics refer to, so these were not included. Ordered by frequency, i.e., number of deals/issuers. If category is not shown, it means it is relatively uncommon or not relevant at all; to make it, a 'minimum frequency' must be achieved. Not shown for Volume saved and Construction as would be misleading (these metrics are rarely used in China but could apply to several categories, as they do globally).

## Fossil fuel savings only reported in China

#### Fossil fuels saved/avoided/replaced is a

metric unique to China, as already noted in our global study. This tends to refer to the amount of standard coal equivalent saved due to a project.

An indirect version of this metric can be GHG avoided which often reflects fossil fuels saved/ replaced and is used more in the rest of the world. However, GHG avoided is typically compared against the average grid carbon intensity in each country/region which includes at least some share of renewables; while fossil fuel savings have 100% fossil fuels as the baseline which 'inflates' the impact value.<sup>28</sup> Since the most realistic alternative energy source to a clean energy project is grid energy, perhaps Chinese issuers should consider using grid intensity as the baseline, as this would be a more accurate measure of impact given that the alternative is generally grid energy rather than 100% fossil fuels.

Reporting fossil fuel savings is most common in clean energy and energy efficiency projects. Reporting an energy saving is rarer (sometimes expressed as a % efficiency gain) and is used more by relatively small issuers, while no issuers reported energy use/intensity; both are very common outside of China.

From a global perspective, reporting GHG savings and energy savings instead of, or alongside, fossil fuel savings would appear better due to the reasons above and for greater consistency. This is perhaps the clearest improvement to impact reporting practices in China which regulators, issuers and other market participants can all take on board.

Due to a relatively lower share of renewable energy generation projects versus the global market (at least in our sample), **energy generated** is reported less often in China, although still being far from rare. In our global report we included energy supplied within the same metric, but no Chinese issuers reported this, so the term 'supplied' was removed.

Equally, installed power/energy capacity is a frequent metric globally, but rarer in China. **Capacity installed/added** still usually refers to renewable energy projects, but two cases relate to waste treatment and one to wastewater treatment capacity.

## Some new niche metrics vs. global study

One new metric in this report is **construction**, which included the construction of a dam and a bus station (when not expressed as an area/ length). Similar reporting was observed in the global study and classified as **units produced/ installed/transported etc.**, but larger infrastructure projects are not multiple units so the approach was changed.

Two niche metrics are entirely new: **resilience level** and **climate impact**. Resilience level refers to the increased resilience to floods because of a flood control and drainage construction project, which will increase the drainage capacity of the river channel and lead to considerably lower incidence of floods (up to seven times).

Climate impact is another broad term which refers to two raw metrics used to reflect the benefits of Shandong Lipeng's riverside greening and restoration project: temperature decrease, and air humidity increase. The added vegetation absorbs heat through photosynthesis and transpiration which is estimated to reduce the ambient temperature by 1-3°C and increase air humidity by 3-12% in comparable hot climates. The impact assessment was conducted by an external consultant.

### Chinese issuers report fewer metrics, but with more granularity

Chinese issuers report fewer (consolidated) metrics than we found in the global study. This may be linked to the slightly smaller sample size and the narrower range of projects financed, as well as the taxonomy of the Green Bond Endorsed Project Catalogue, which may affect the metrics selected for reporting.

It may also simply be due to local context and practices, to be expected when comparing a single country against the whole world. For example, green building certifications are not reported in China as they are not considered impact (only certified buildings are in line with the Green Bond Endorsed Projects Catalogue). Metrics such as energy or GHG savings are used instead; reporting these is also recommended outside of China, but several issuers in the rest of the world only report building certifications. Another example is absolute GHG/pollutant emissions (as opposed to reductions) which were not observed in China, although they sometimes appear in the rest of the world.

To some extent, practices in China may reflect an added reliance on core metrics, namely GHG and pollutant emission reductions, fossil fuel saved, area/length managed etc., and volume managed etc. Indeed, we find a wider range of raw metrics across these core consolidated ones which also tend to be closely linked to the categories in the Green Bond Endorsed Project Catalogue.

### This suggests Chinese issuers are more likely to focus on a narrower range of core KPIs, while reporting them with greater granularity.

Above all, and reflecting the importance of pollution in the country, GHGs and other pollutants are disaggregated into individual substances much more often than in the rest of the world. Within energy generation, some issuers separate different types, which is rarely observed outside of China. For example, Capital Airports Holding Company splits its energy generation impact into different purposes, i.e., cooling, heating, and electricity.

Capital Airports is also the issuer that reports the most metrics, with 18 (counting different pollutants). It is followed by China Development Bank with 13. Reporting this many metrics is almost never seen in other regions.

### **GHGs and Pollutants in detail**

Given their link to climate change, GHGs were separated from other pollutants, which are largely related to air and water pollution. This distinction may not be perfect and is based on the information available which varies considerably between issuers and reports.

**GHG**-related metrics are reported far more often than pollutant-related ones in the global market, while the difference is much smaller in China.

GHGs include both the seven direct and four indirect GHGs under the Kyoto Protocol.<sup>29</sup>

#### **Direct GHGs**

- (i.e., direct contributors to climate change)
- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH₄)
- Nitrous oxide (N<sub>2</sub>O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF<sub>6</sub>)
- Nitrogen trifluoride (NF<sub>3</sub>)

#### **Indirect GHGs**

- Nitrogen oxides (NOx)
- Carbon monoxide (CO)
- Non-methane volatile organic compounds (NMVOC)
- Sulphur dioxide (SO<sub>2</sub>)

Only 10% of Chinese issuers and 5% of the amount reporting GHG reduced/avoided do not refer to one or more specific GHGs. This contrasts with the global market, where referencing individual GHGs is only common for  $CO_2$ , not the other gases.  $CO_2$  is nevertheless the most reported GHG in China.  $SO_2$  covers a considerably larger share by number of issuers versus amount issued (i.e., more likely to be reported by smaller issuers), while the opposite is true for sulphur on its own.

**Pollutants** can and are often called by other terms, such as particulates and contaminants (both in China and elsewhere). Like in the global study, the term 'pollutants' was chosen as it seemed to be the broadest and most easily understood.

The disaggregation of pollutants partly reflects the breadth of terms used by issuers, i.e., it not only reflects the substances themselves but how issuers describe and report them For example, particulate matter (PM) can include many substances, such as dirt, dust, smoke, and soot – of these, dust and smoke were often singled out by issuers, so they were separated from other PM. Only 11% of issuers and 13% of the amount that reported pollutant reductions referred to general pollution. Among the most common pollutants are biochemical and chemical oxygen demand (BOD and COD) which are specific to water pollution and respectively measure the amount of oxygen needed to decompose organic material and inorganic material. Higher values indicate more oxygen is required, and the water is generally less pure.

Several of these pollutants are reported with more detail by issuers. For example, it is common for BOD to be reported as BOD-5 (five-day testing method), COD as CODCr (dichromate method), and PM is often split into PM10 (inhalable particles) and PM2.5 (fine particles).

### Range of individual GHGs reported...

GHG reductions are reported often across all project categories, whereas pollutant reductions are concentrated in pollution prevention and control projects but less so in other categories (among these, clean energy, energy saving/efficiency, and clean transportation are by far the most relevant). This makes sense given that GHG reductions reflect climate benefits that can apply in every category, while pollutants exclude GHGs (under our definition) and are more focused on air and water pollution specifically.



### ...and similar approach for other pollutants





## 7. Conclusion

Post-issuance reporting in China's green bond market shows many similarities, but also several differences, versus the global market.

Somewhat surprisingly, given the relatively stringent regulatory framework in China, the availability of post-issuance reporting was found to be lower than in the rest of the world, especially in terms of impact disclosure. Increasing the share of reporting must therefore be a key focus area for Chinese regulators as well as other market participants. On the other hand, most issuers comply with regulation which includes not only providing reporting but qualities such as the frequency and content of disclosure. A particularly positive finding is that impact reporting is generally good, in several ways superior to the rest of the world. The quality of reporting in general can nevertheless still be improved.

Ensuring transparency and credibility as the green bond market continues to grow is essential for it to deliver its intended benefits – and to contribute towards China's 30-60 climate goals in the most effective way. Access to comprehensive and comparable high-quality disclosure across issuers enables investors and other data users, such as policymakers, to make well-informed and confident decisions.

### Improving consistency of regulatory disclosure framework

China's regulatory disclosure framework is more stringent and advanced than in other regions (especially for issuers of financial bonds) and demonstrates a strong willingness to ensure best practices and transparency in the market. The designated channels for green bond reporting that exist in China are a further advantage that can also be leveraged to ensure timely, highquality disclosure across green bonds and other segments of the sustainable finance market.

From this solid base, regulatory bodies can now look to address the challenges that the existing framework faces, namely the inconsistency of regulatory requirements between different bond/ issuer types. While financial bonds represented the vast majority of the Chinese market in its earlier stages, their share has dropped to around half, and relatively more attention should perhaps be placed on other bond/issuer types going forward.

As highlighted in our global study, creating a common reporting framework is the best way to increase the availability, quality and (crucially) consistency of disclosure. Efforts to achieve this globally are ongoing, both through initiatives like the Harmonized Framework, ICMA Impact Reporting Working Group, and EU Green Bond Standard in the green finance space, and broader ones such as the Task Force on Climate-Related Financial Disclosures (TCFD) and International Sustainability Standards Board (ISSB).

China will gain from pursuing a similar objective, and, if so, its sustainable finance future will look even brighter than it already does. The unification of the Green Bond Endorsed Project Catalogue between different regulatory agencies in 2021 is a positive precedent and may pave the way for greater consolidation of regulatory requirements. It is also enabling the current work around a pan-regional Common Ground Taxonomy, set to add consistency to 'green' definitions globally.

The same could happen with reporting standards if China's regulators manage to integrate requirements for different bond/issuer types (as much as possible) and align further with global guidelines. While impact disclosure practices in China are already satisfactory (among reporting issuers), one clear improvement would be to largely replace 'fossil fuel savings' with 'GHG savings' or 'energy savings', in line with standard practice in the rest of the world - this is already happening with the shift towards more carbonbased accounting in China. Likewise, learnings can be taken from China to the rest of the world, such as more detailed disclosure of GHGs and pollutants, and providing cumulative impacts in a given report.

### All market participants can contribute to better disclosure

The recommendations for issuers on the following page aim to drive more consistent high-quality reporting and, in an effort to promote consistency, largely reflect those in our global study. Other market participants, such as underwriters, investors, external review providers and consultants, regulators, and policymakers, can all play a role in encouraging high-quality disclosure from issuers.

Local regulators can directly incorporate these and other best practice recommendations (namely from the Harmonized Framework) into their requirements and guidelines, and ensure these are coherent across the financial sector. Consolidating supervisory responsibilities would further support this.

Regulators and stock exchanges can also provide clear training resources and assistance to issuers and other relevant groups, including through examples of best practice that can be used as a guide (examples from outside of China can equally be used, e.g., see pp. 14-17 and p.20 in our global report). Another avenue is promoting greater dialogue and consistency; for instance, via working groups between external review and impact assessment providers, as well as between issuers (especially those in similar sectors), and even investors. This can be a rich learning ground that helps to identify shared pain points and reach common solutions.

Finally, all stakeholders can work to ensure their own activities reflect and promote best practice where relevant, e.g., external reviewers and consultants disclosing their impact assessment methodology, investors adhering to similar guidelines in their own disclosure, regulators ensuring their requirements/documents are helpful, clear and coherent, etc. Effective guidelines and regulation are one side of the coin; their consistent implementation by market participants is the other side.

### Best practice recommendations for issuers

Below is a comprehensive list of recommendations for issuers to improve the quality of reporting. In order to promote consistency, these are largely based on our global study, but could be adapted further to the Chinese market.

Overall, the key is to provide comprehensive, clear and granular information on the use of proceeds and impacts, in an easily accessible and timely manner.

- Communicate commitments and location of reporting clearly at issuance, and provide post-issuance reporting in line with this
- However, issuers should still strive to report as much relevant information as possible regardless of previously made commitments (e.g., if possible, report impacts too even if only UoP reporting was planned at issuance)
- If expanding the scope, update frameworks and maintain this for future bonds
- Even if already disclosed at issuance (e.g., refinanced assets), provide UoP and impact information post-issuance, or at least a statement that the information at issuance remains valid. Otherwise, at issuance state there will be no further post-issuance disclosure

## • Provide clear and easily accessible information

- Create a dedicated, easily accessible page for all the information and documents related to green/sustainable finance
- Publish separate green bond reports

   (either individually for UoP and impacts, or combined), as this makes it much easier to obtain the relevant information. If provided within annual, sustainability or CSR reports, create dedicated, clearly labelled sections
- Less is more: one or two documents are typically enough, more can be confusing
- Provide bond-level information, where possible
- Repeat issuers should report at bondrather than programme-level, so that the information can be traced to a particular deal
- However, also provide summary figures at programme/portfolio level (for data that can be aggregated, such as allocations and impact metrics with a common methodology)

## • Provide project-level information, where possible

- However, ideally also provide summary figures at category and/or total bond level (for data that can be aggregated, such as allocations and suitable metrics, i.e., absolute or with constant methodology)
- Provide cumulative data along with period data, if possible
- Clarify all relevant pieces of information, such as:
- Shares attributable to green bond financing (e.g., due to multiple sources of financing)
- Shares of refinancing
- Balance of unallocated proceeds, ideally with expected allocation if known
- Relevant time periods (e.g., report coverage, project(s) construction/operation and impacts)
- Relevant dates (e.g., report publishing, proceeds allocation, impact data measurement)
- Actual (ex-post) vs. expected (ex-ante) impacts
- Measured vs. estimated impacts
- Which project(s) or project categories each impact metric refers to
- Within impact reporting:
- Include at least one (ideally more) commonly used metrics for each project type, such as those suggested in the ICMA Harmonized Framework and listed in this report
- For relative metrics (e.g., GHG saved), use consistent baselines / benchmarks as much as possible, and make these clear – average grid factors are generally more accurate than fossil fuel baseline
- Report climate impact as GHG saved/ reduced/avoided (CO<sub>2</sub>e) and/or energy saved (e.g., MWh) instead of, or along with, fossil fuel saved
- Where possible, use at least one 'common' unit per metric and/or provide conversion factors, and report in absolute units (e.g., kWh) alongside any relative ones (e.g., %)
- Reporting intensities (per unit of output and/ or currency) is often helpful, but should still be accompanied by total impact
- Conduct ex-post assessments in addition to ex-ante estimates, where possible.

- Report the correct, pro-rated share of impacts where relevant, or at least provide the necessary figures to perform the calculation
- Aim for consistency
- Explain methodology and any external ones used (including from consultants), especially for impact disclosure
- Describe key attributes of any external methodologies used (focusing on relevant sections), along with an explanation of how they were applied
- If longer, can be an 'appendix' within green bond report(s) or as a separate document, as long as clearly referenced and accessible
- Include any external data sources used
- Offer the ability to export/download data, e.g., in Excel format
- Provide qualitative information and context alongside quantitative data, to contextualise projects and provide more robust impacts
- Case studies are useful, especially when many projects/assets are financed
- **Provide timely reporting,** in line with regulatory requirements
- **Report in English** alongside local language (offshore bonds)
- Include details of the bond(s) issued and covered in each report
- Obtain and disclose external reviews, including at the post-issuance stage – ideally covering both UoP and impact verification, as this increases the reliability and robustness of reporting
- Strive to maintain consistent location of information, presentation format and coverage – although improvements are of course welcome
- Provide other supporting information, such as contextualising the bonds within a sustainability strategy, identifying contributions to the SDGs, and reporting alignment with relevant taxonomies
- Provide relevant contact details

## Appendix 1: External review types

### General description of different types of external review (global definition).

| Pre-issuance review   | Scope   | Providers   |
|---|---|---|
| Assurance   | Positive or negative assurance on compliance with the Green Bond<br>Principles (GBP) or the Green Loan Principles (GLP)   | EY, Deloitte, KPMG,<br>PwC, etc.  |
| Second Party Opinion (SPO)                                  | Confirm compliance with GBP/GLP. Provide assessment of issuer's green bond framework, analysing the 'greenness' of eligible assets  | CICERO, Sustainalytics, DNV<br>GL, Vigeo Eiris, ISS Oekom,<br>Lianhe Equator, SynTao Green<br>Finance, etc. |
| Green rating/evaluation                                     | Rating agencies assess the bond's alignment with the GBP and the integrity of its green credentials   | Moody's, S&P, etc.  |
| Pre-issuance verification<br>(Climate Bonds Certification)  | Third party verifications confirms that the UoP adheres to the Climate Bonds Standard and sector-specific criteria  | Approved Verifiers under the<br>Climate Bonds Standard  |
| Post-issuance review  | Scope   | Providers   |
| Assurance   | Limited or reasonable assurance of proceeds allocation and/or impact assessment of eligible green projects  | As above  |
| Second Party Opinion (SPO)                                  | Confirmation that financed projects/assets and reporting (UoP and impact) are aligned with the commitments set out in the bond framework  | As above  |
| Green rating/evaluation                                     | Like pre-issuance (projects/assets are often not known until post-issuance)   | As above  |
| Post-issuance verification<br>(Climate Bonds Certification) | Assurance agains the Climate Bonds Standard, including allocation of proceeds to eligible green projects  | Approved Verifiers under the Climate Bonds Standard   |
| Impact assessment report                                    | Assessment that seeks to quantify the environmental impact of financed projects/assets (often not considered an external 'review' as the assessment is done by the provider and does not cover UoP information) | ESG service providers,<br>scientific experts, and other<br>specialised consultants                          |

## Appendix 2: Raw metrics/KPIs

A selection of raw metrics/KPIs (using issuer terminology) within each broader consolidated metric.

| Consolidated metric                                   | Raw metric   | Consolidated metric                   | Raw metric   |
|---|--|---------------------------------------|--|
| consolidated incerie                                  |  | Volume produced/                      |  |
| Area/length managed/<br>restored/constructed/<br>etc. | Afforestation (area)   |                                       | Biomass furtural produced  |
|   | Anti-flood wall built (length)   |                                       | Cellulosic bio-ethanol produced  |
|   | Aquaculture base built (area)  |                                       | Organic feed output  |
|   | Area planted/re-planted  |                                       | Organic fertiliser production  |
|   | Dam construction/reinforcement (length)  |                                       | Organic food produced  |
|   | Desertification land management (area)   |                                       | Organic milk produced  |
|   | Drainage network built (length)  | Volume managed/<br>processed/recycled | Corncob recycled   |
|   | Ecological restoration (area)  |                                       | Food waste processed   |
|   | Farmland created/converted (area)  |                                       | Hazardous waste treatment volume   |
|   | Flood control road/dam built (length)  |                                       | Hydrogen reused  |
|   | Gas pipeline constructed (length)  |                                       | Materials recycled   |
|   | Green area built/created   |                                       | Metal recycled   |
|   | Land elevated - flood adaptation (length)                                      |                                       | Methane reused   |
|   | Land recultivated (area)   |                                       | Mineral reused   |
|   | Land restored (area)   |                                       | Nitrogen reused  |
|   | Organic forage planting (area)   |                                       | Oxygen reused  |
|   | Rail urban transit construction (length)                                       |                                       | Polluted water processed   |
|   | Railtrack/railway built (length)   |                                       | Reutilisation of solid waste and tailings  |
|   | Rainwater pipe network built (length)  |                                       | River basin dredged (volume)   |
|   | River(bank) protected/restored/treated   |                                       | River water desilted/dredged (volume)  |
|   | (area/length)  |                                       | River(bank) restored (volume)  |
|   | River desilted/dredged (area/length)   |                                       | Sewage disposal/treatment volume   |
|   | River dredged (length)   |                                       | Silicon tetrachloride recycling  |
|   | Sewage pipes built (length)  |                                       | Sludge treatment   |
|   | Soil remediated (area)   |                                       | Solid waste processed/treated/recycled   |
|   | Subway constructed (length)  |                                       | Steel recycled   |
|   | Wastewater pipe/channel built (length)   |                                       | Tailings disposal  |
|   | Water pipeline network built (length)  |                                       | Volume of waste treatment/disposal/  |
|   | Wetland protected/restored/built (area)  |                                       | processing/incineration  |
| Capacity installed/<br>added                          | Electricity generation capacity constructed/                                   |                                       | Waste recycled/processed   |
|   | added/installed  | Units produced/                       | Aquatic biodiversity (number of species)   |
|   | Domestic waste treatment/disposal capacity                                     | installed/ transported                | Charging points constructed/installed  |
|   | Sludge treatment capacity  | etc.                                  | Clean energy/transportation vehicles   |
|   | Wastewater treatment capacity  |                                       | purchased  |
| Recycling/recovery rate                               | Industrial solid waste reused (%)  |                                       | Number of trees planted  |
|   | Proportion of renewable building   |                                       | Nursery stock planted  |
|   | materials used   |                                       | Output of new energy batteries   |
|   | Rainwater reuse rate   |                                       | Output of new energy vehicles  |
|   | Waste gas reused (%)   |                                       | Passengers transported   |
|   | Wasta liquid raused (06)   |                                       | Production of organic milk cows  |
| Volume saved/reduced                                  | Waste liquid leused (%)  |                                       | 0  |
|   | Soot reduced   |                                       | Seedling stock purchases   |
| votame saved/reduced                                  | Soot reduced<br>Water saving   |                                       | Seedling stock purchases Sewage outfalls repaired                                |
| Volume produced/                                      | Waste liquid leused (%) Soot reduced Water saving Aquatic plant produced/added |                                       | Seedling stock purchases<br>Sewage outfalls repaired<br>Water source wells built |

### Endnotes

1. Climate Bonds Initiative, <u>Green Bond</u> <u>European Investor Survey 2019</u>.

2. Climate Bonds Initiative, <u>Post-Issuance</u> Reporting in the Green Bond Market 2021.

3. The difference is due to differing regulatory requirements depending on issuer/bond type, as financial bonds must report UoP quarterly whereas most others do not.

4. Reaching peak GHG emissions by 2030 and carbon neutrality by 2060.

5. PBoC, 10 June 2021, Green Financial Evaluation Programme for Banking Financial Institutions (the Programme).

6. PBOC, 8 November 2021, <u>The People's Bank</u> of China launches carbon reduction support tools.

 CBIRC, July 2020, Green Financing Statistical System; Shanghai Clearing House, January 2020, Notice on the Reduction of Bond Business Charges.

8. Figures as of February 2022. An average 2021 USD-CNY exchange rate of 6.4529 is used for conversions into RMB in this paper. Climate Bonds uses the exchange rate on the day of issuance when compiling USD amounts in its database.

9. About USD6.4bn worth of bonds are in the pending list as of 31 January 2022 due to various reasons, including but not limited to incomplete disclosure. Climate Bonds will decide to include or exclude these bonds into the database in accordance with the Green Bond Database Methodology.

10. European Commission, International

#### Platform on Sustainable Finance.

11. Non-financial corporate bonds refer to corporate bonds in the exchange market regulated by the CSRC, while enterprise bonds are those primarily issued in the interbank market and regulated by the NDRC.

12. PBoC, Green Financial Bond Announcement ([2015] No. 39).

13. CSRC, <u>Guidance of CSRC on Supporting the</u> <u>Development of Green Bonds</u>.

14. Shanghai Stock Exchange, <u>Corporate Bond</u> <u>Financing Supervision Q&A (I) – Green Corporate</u> <u>Bonds</u>.

15. Bonds in the interbank market.

16. Climate Bonds Initiative, <u>Green Bond</u> <u>Database Methodology.</u>

17. Six deals in the database pending list were treated as non-aligned for analysis purposes but could become aligned once we obtain more information on the UoP.

18. Disaggregated figures for number of issuers may add up to more than the total (328), as some repeat issuers may have issued aligned and non-aligned deals. Same applies to other groupings.

19. Charlton's Law, <u>A Guide to Issuing and</u> Listing Green Bonds on The Stock Exchange of Hong Kong Limited.

20. Since the non-reporting share (between years) is relatively constant by issuer count but increases by amount issued.

21. Issuers are considered at the parent level, when applicable (relatively rare).

22. ICMA Group, <u>Handbook – Harmonized</u> Framework for Impact Reporting (December <u>2020)</u>.

23. Code of China, GB/T 2589-2008 General principles for calculation of the comprehensive energy consumption (English Version).

24. General Administration of Quality Supervision, Inspection and Quarantine, a ministerial body in charge of national quality standards and inspection that sits directly under the State Council of the PRC.

25. Chinese Standard, <u>GB/T 2589-2008 (GBT 2589-2008)</u>.

26. Not publicly available.

27. Though sometimes used interchangeably, the terms 'saved', 'avoided' and 'reduced' refer to related but different concepts. 'Reduced' results from an absolute reduction in operative use, whereas 'avoided' indicates comparison to a reference scenario or baseline. 'Saved' is a broader term that can refer to the amount reduced or avoided, or the sum of these. To what extent issuers apply these terms in the correct way (both globally and in China) is unclear, but we believe most do, especially 'avoided' and 'reduced' whose meaning is clearer.

28. In some cases this may not be true, as an issuer may account only for the share of fossil fuels in the grid. However, common practice seems to be to treat 100% of the shift to clean energy from fossil fuels.

29. National Atmospheric Emissions Inventory (BEIS UK), <u>Overview of greenhouse gases</u>, April 2020.

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