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specialized in metrics for
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The EU Green Bond Standard, a game changer in the low-carbon transition?

Marie-Anne Vincent - CEO – Carbon4 Finance
Jean Fontana – Senior Analyst – Carbon4 Finance

Gail Counihan – ESG Lead Analyst – Franklin Templeton Investments

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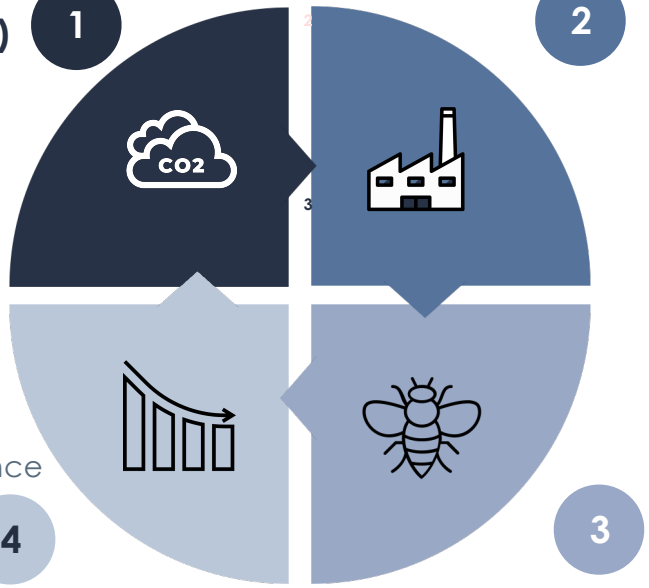
Our services

Assessment of transition risk (CIA) 1

Carbon footprint
Scope 1, 2 & 3
Emission Savings
Climate scenario alignment

Assessment of physical risks (CRIS) 2

7 climate Hazards
3 IPCC Scenarios
2 time-horizons



Web platform & Datafeed 4

Issuer Analysis
Portfolio performance

Assessment of Biodiversity Impact (BIA-GBS) 3

MSA.Km2
Scope 1, 2 & 3
10 Terrestrial and Aquatic pressures

Our approach

An innovative bottom-up technology

An international coverage (c. 120,000 instruments, corporate and sovereign)

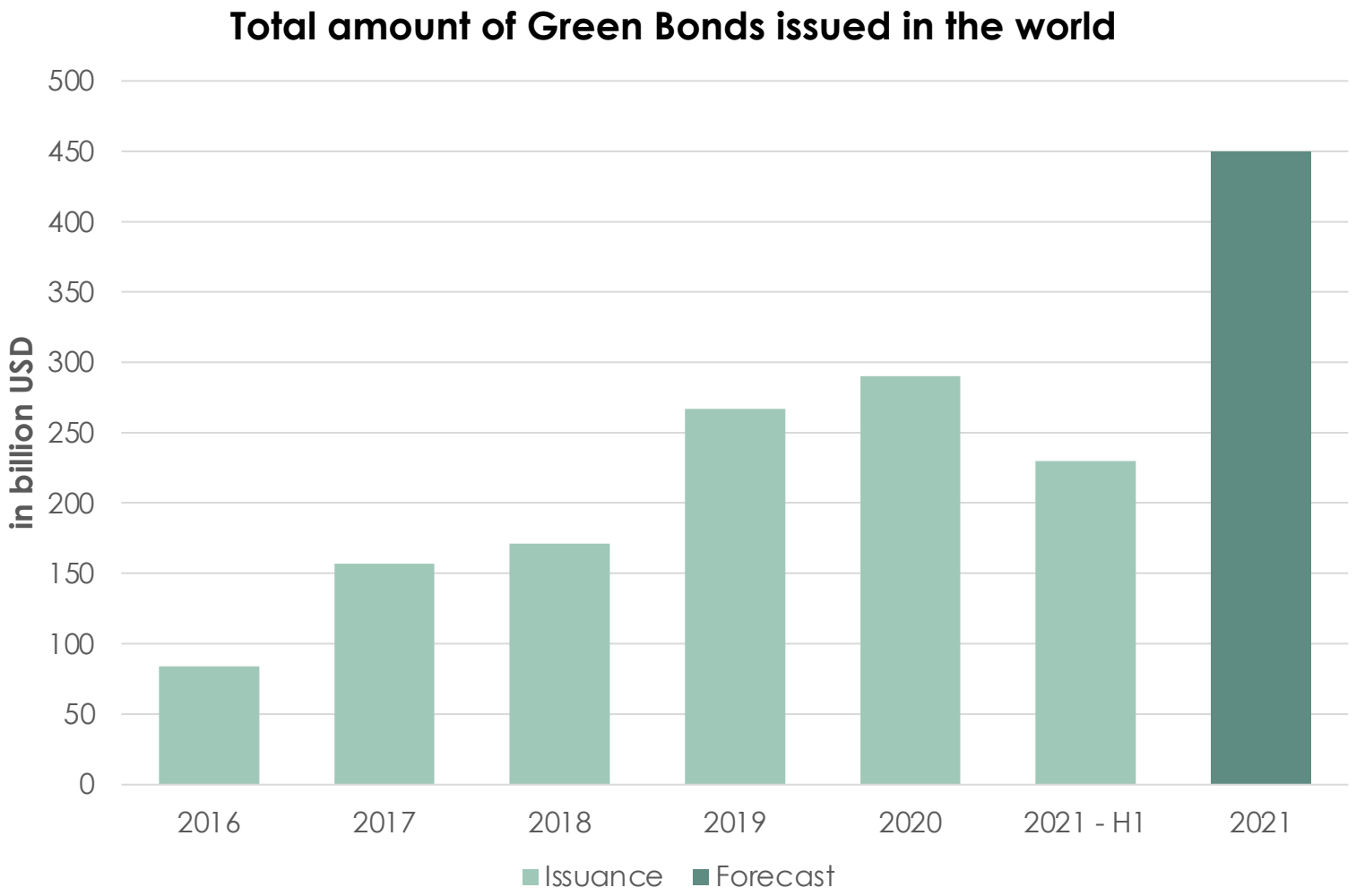
20 analysts, each specialized in specific sector

A multi-sector approach
Listed and unlisted Assets

Agenda

1. EU GBS, the new golden standard?
2. Green bonds methodology
3. Case study by Franklin Templeton Investments

Green bond issuance over the last five years



https://www.climatebonds.net/2021/08/climate-bonds-updates-2021-green-forecast-half-trillion-latest-h1-figures-signal-new-surge

The EU Green Bond Standard supports the low-carbon transition's ambition of the Green Bond market

Objectives

- Mobilizing capital for **the energy and ecological transition**
- Enhance **credibility** and **align with the EU taxonomy**
- **Support transparency** of information for financial market players

Scope

Voluntary standard, listed and unlisted bonds, open to any EU and non- EU issuer

Four key requirements

- EU Taxonomy Alignment
- Detailed disclosure requirements on use of proceeds
- External review of EU green bonds
- Supervision of external reviewers by the ESMA

Disclosure requirements for an EU GBS

Mandatory documentation to be published on issuer's website

EU GB Factsheet	Annual allocation reports	Post-issuance review report	Impact report	Prospectus requirements

Agenda

1. EU GBS, the new golden standard?
2. **Green bonds methodology**
3. Case study by Franklin Templeton Investments

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

1. Project type classification

2. Calculation of key indicators

3. Aggregation of results at the bond-level

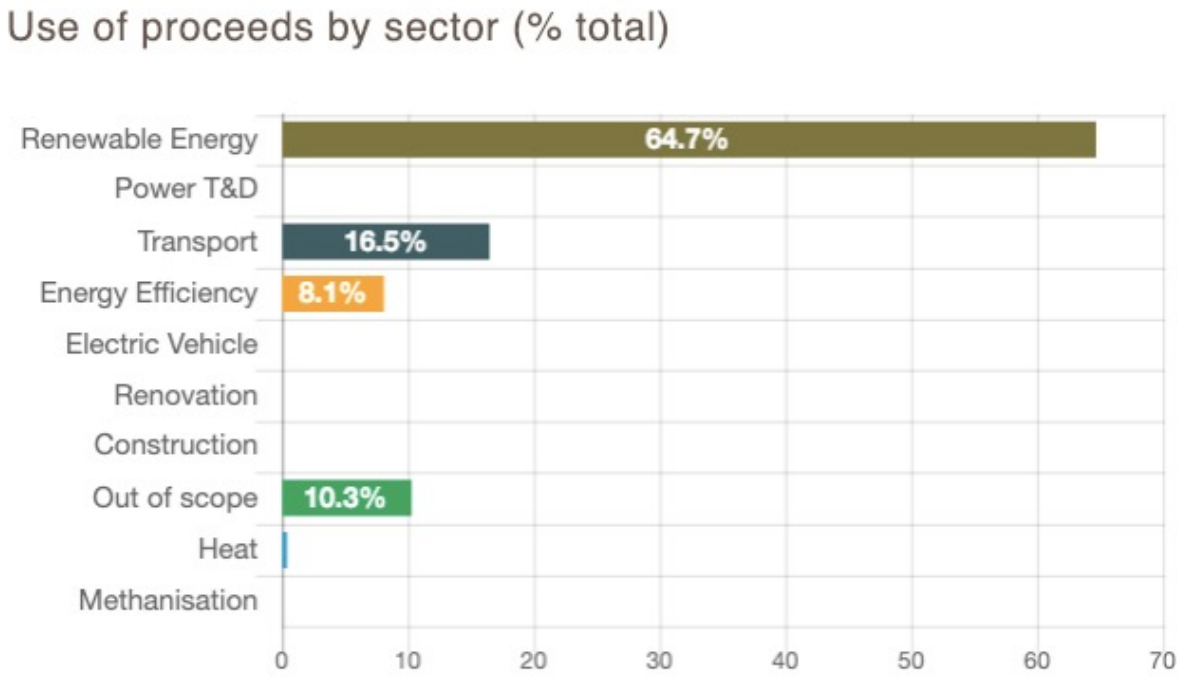
4. Qualitative assessment on transparency

5. Overall rating of the carbon performance

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

1. Project type classification

- **Identify the underlying projects** of the Green Bond
- **Classify** projects **into sectors**
- Perform the analysis following **a bottom-up approach**, **based on physical data** reported by the issuer

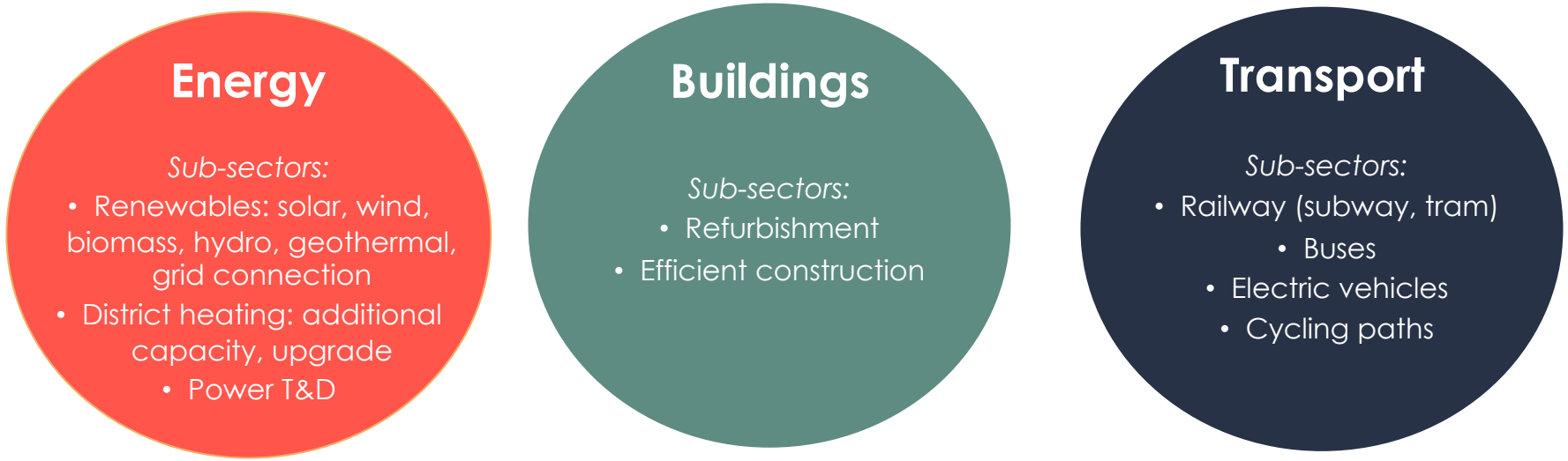


Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Scope of analysis of induced emissions and emissions savings

- Calculation principles are adapted to each sector's specificities:



Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Sector-specific metrics and indicators are analysed:

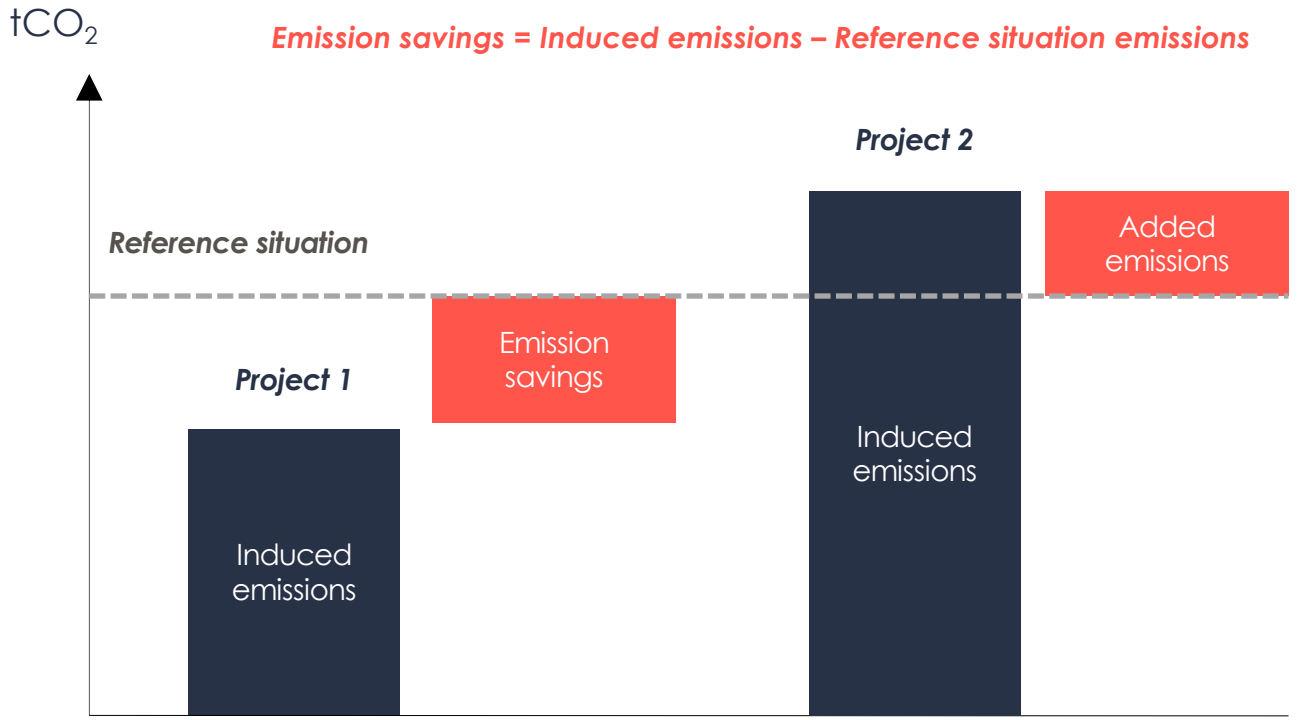
- **absolute induced and avoided emissions** (Scopes 1, 2 and 3)
- the **Carbon Impact Ratio - CIR** (ratio of total avoided emissions over total induced emissions)
- induced and avoided emissions **intensity** (in tCO2e/M€)
- **overall rating by sector**, embedding sector-specific indicators (e.g., carbon intensity for power producers)

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Emissions savings assessment:

- Emissions savings represent the difference between project's emissions and the emissions in a reference situation.



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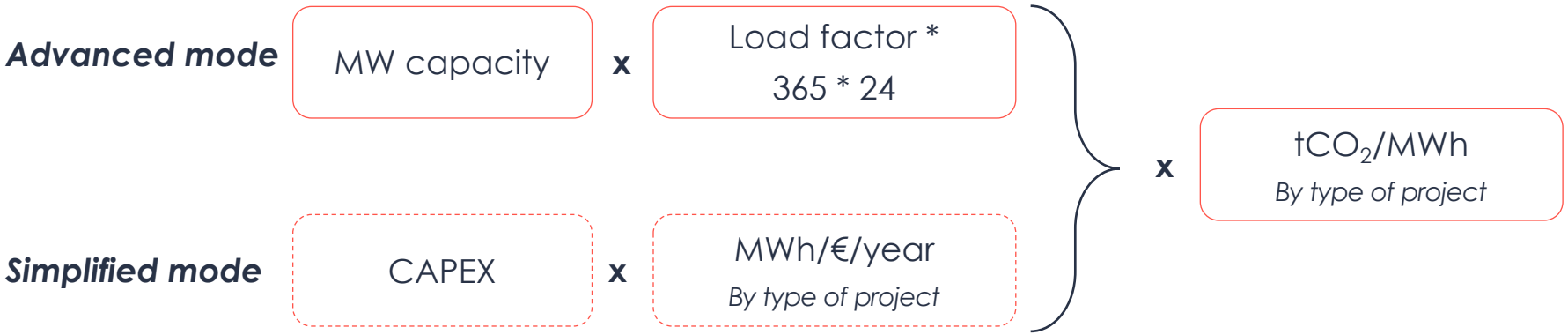
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Example of a renewable electricity project

- **Induced emissions calculation**
  - Induced emissions = *Annual production (MWh/year)* **x** *Emission Factor*



- **Emission savings calculation**
  - Emission savings = *Induced emissions* **–** *Annual production (MWh/year) x Reference Emission Factor depending on the geographic zone*

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A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Example of a Real Estate project

- **Induced emissions calculation**
  - Induced emissions = *m^2 built* **x** *Emission Factor* + *m^2 operated* **x** *Emission Factor*

Advanced mode m^2

Simplified mode CAPEX **x** $m^2/€/yr$ *By type of project*

x tCO_2/m^2 *By type of project*

- **Emission savings calculation**

Construction

The buildings will replace a certain percentage of existing buildings : as they are more efficient than the existing buildings, there are emissions savings

Refurbishment

The refurbishment of an ancient building will enable it to consume less energy than before, so that there will be emissions savings

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Example of a low-carbon transportation project

- **Induced emissions calculation**
  - Induced emissions = *Annual traffic generated (passengers km)* **x** *Emission Factor of transport type (Bus, rail, subway,…)*

Simplified mode CAPEX **x** pkm/€/year *By type of project* **x** tCO_2/pkm *By type of project*

- **Emission savings calculation**

New transport line	*Renovation of transport line*
The new transport will be used by passengers : some will use it instead of a less efficient mode of transport : this generates emissions savings	For a given mode of transport, the renovation will make the transport more efficient : this generates emissions savings

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Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Case study for a transportation project : Société du Grand Paris (FR0013372299)

- **Induced emissions calculation**
  - Induced emissions = *Annual traffic generated (passengers km)* **x** *Emission Factor of transport type (Bus, rail, subway,…)*

Simplified mode CAPEX (1 750 M€) **x** pkm/€/year *By type of project* **x** tCO_2/pkm *By type of project* (Railway project) **=** **202 893 tCO2e/year scope 1&2** **84 184 tCO2e/year scope 3 upstream**

- **Emission savings calculation**

CIR = 0.85

New transport line

The new transport will be used by passengers : some will use it instead of a less efficient mode of transport : this generates emissions savings

+

Renovation of transport line

For a given mode of transport, the renovation will make the transport more efficient : this generates emissions savings

= **245 097 tCO2e/year avoided**

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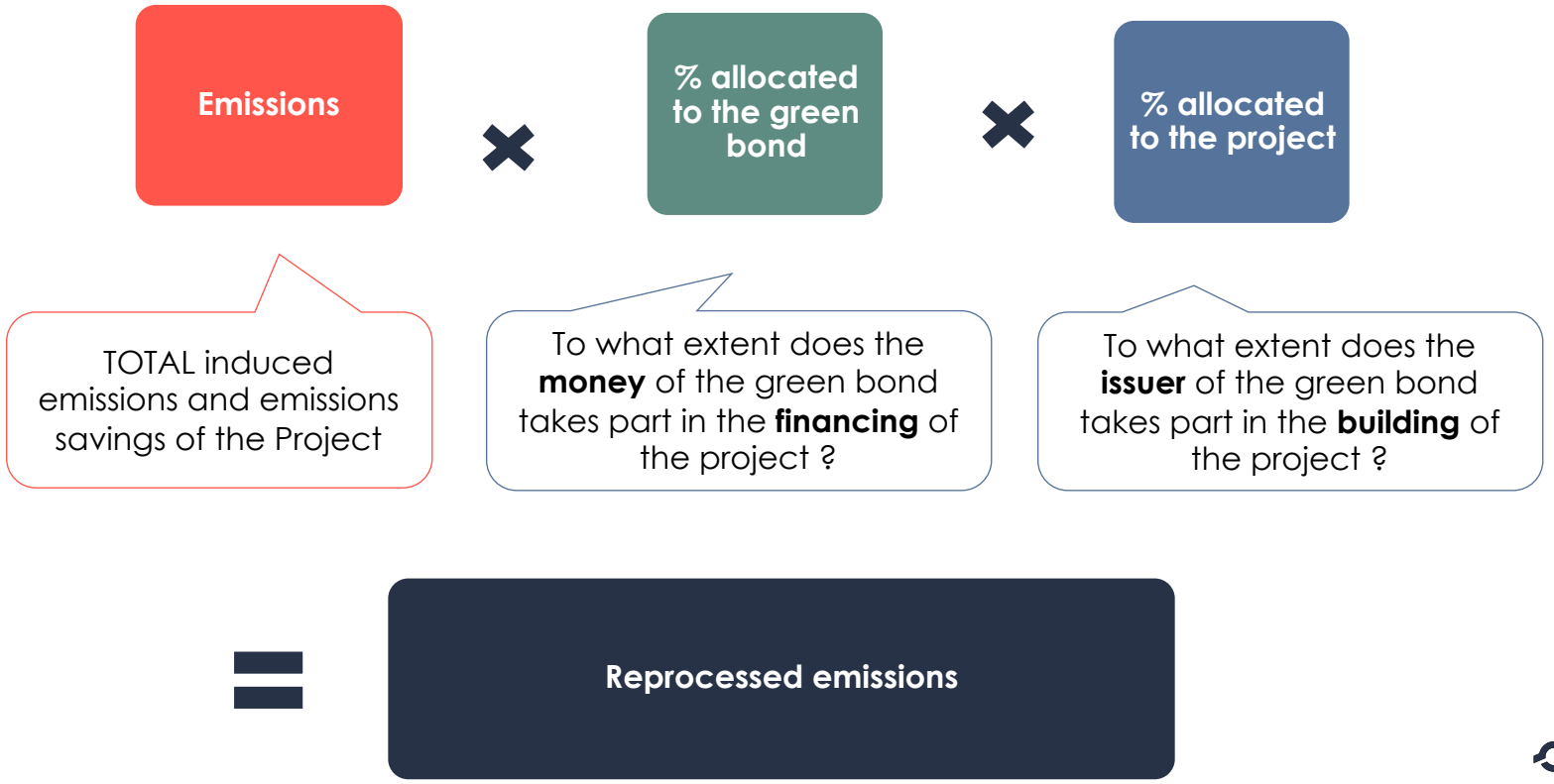
Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

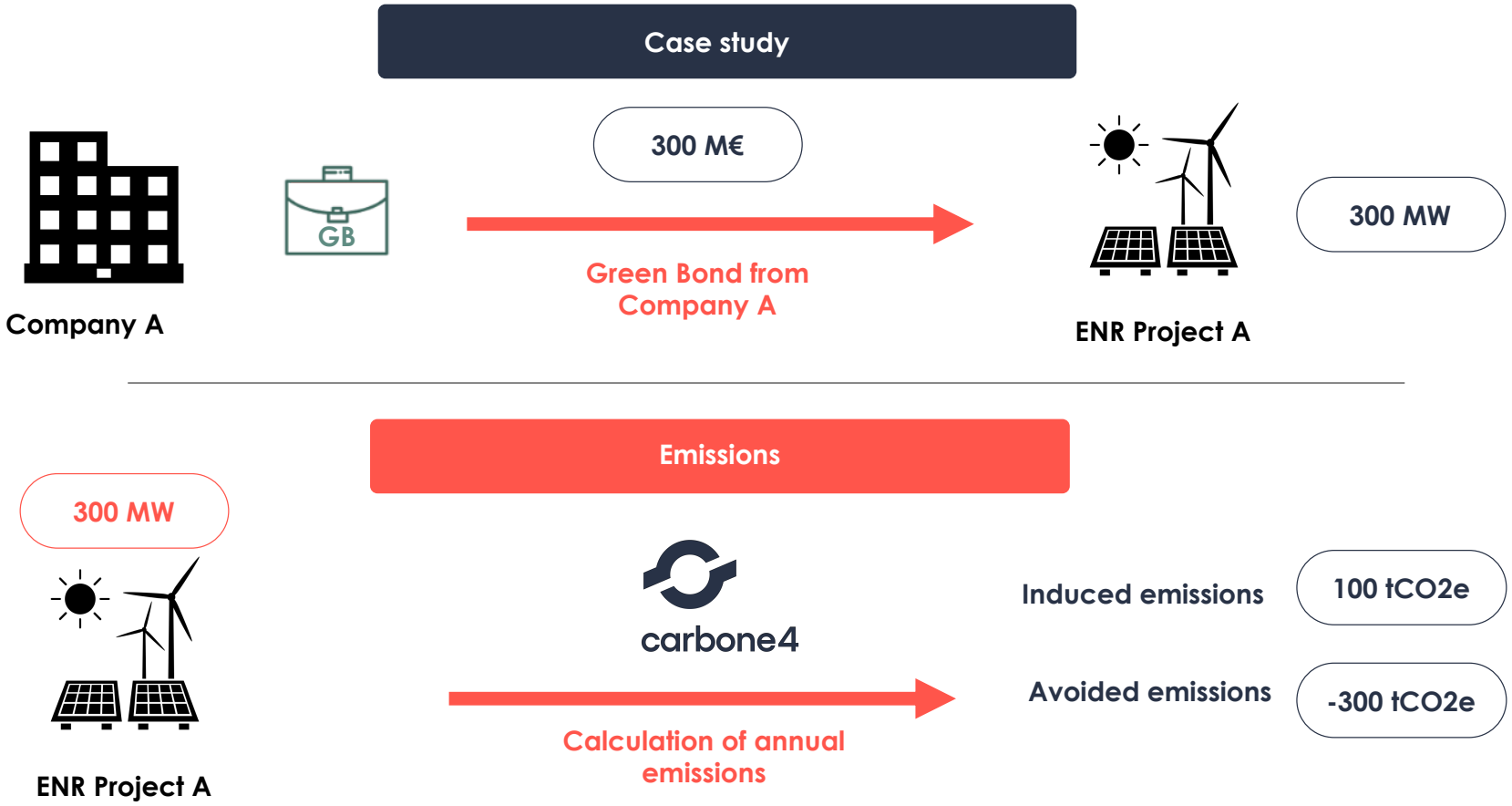
- As Induced emissions and emissions savings are calculated for the entire project, the issuance of the green bond is not entirely responsible for these emissions : two retreatments are necessary.



Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

Allocation of the project's emissions to the portfolio



Green Bond Methodology
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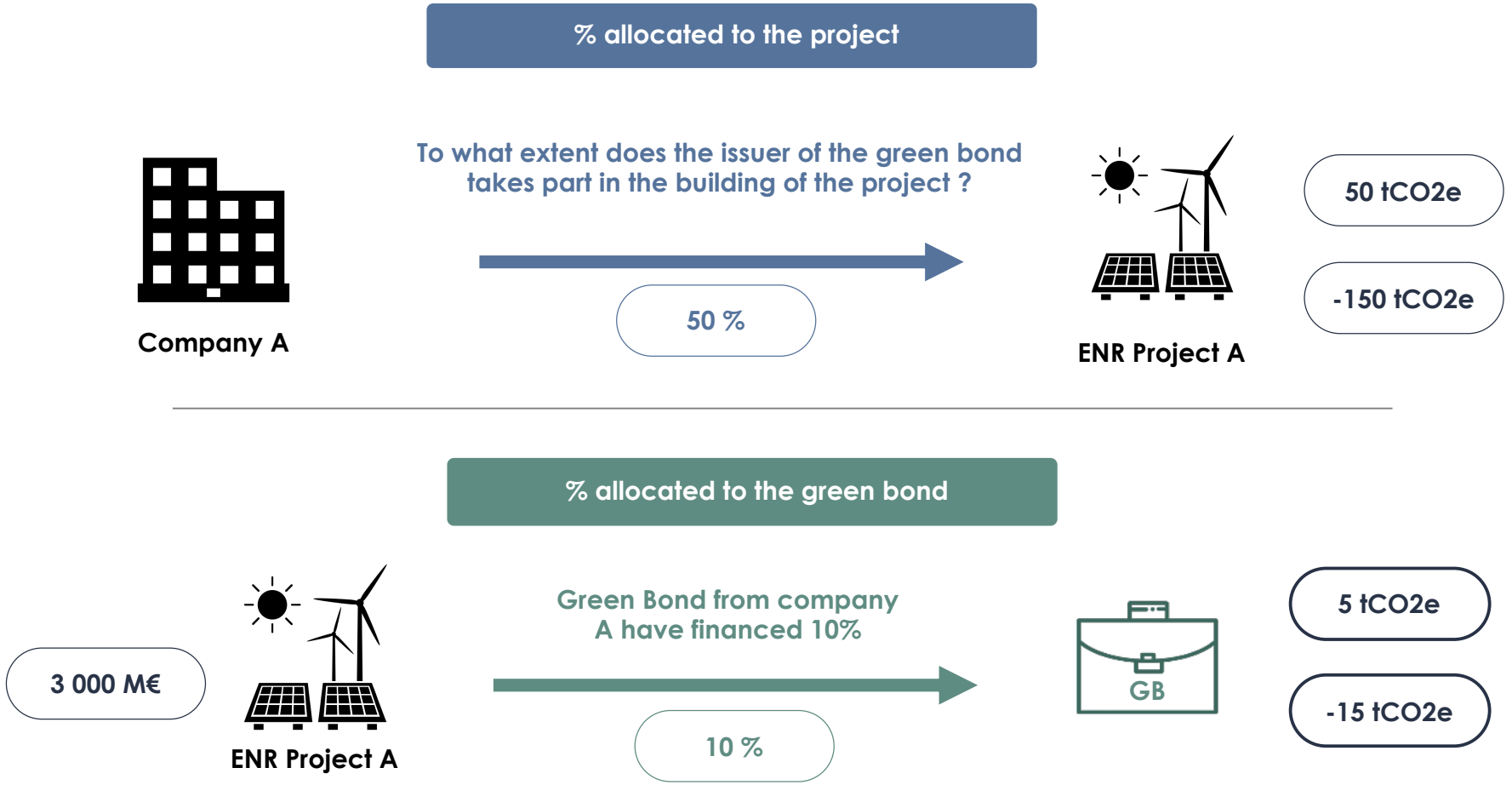
2. Calculation of key indicators

Allocation of the project's emissions to the portfolio



Green Bond Methodology
A five-steps *analyst-driven* climate analysis

2. Calculation of key indicators

- For each sector, an overall rating is calculated based on a specific indicator :

Carbon Impact Ratio

$$\frac{\textit{Emissions savings}}{\textit{Induced emissions}}$$

or

Other sectorial criteria

e.g. Emission factor : gCO2eq/kWh

or

The issuer overall score for out of scope projects

Overall rating to assess the contribution to climate change mitigation

Scale from A to E

- **A:** High contribution
- **B:** Significant contribution
- **C:** Limited contribution
- **D:** Insufficient contribution
- **E:** Incompatible

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

3. Aggregation of results at the bond-level

- Indicators for each project and sector are **aggregated at the bond level.**
- Emissions (induced and avoided) are provided at the bond-level, thanks to the unique sharpness of our bottom-up analyses.

Green Bond Methodology
A five-steps *analyst-driven* climate analysis

4. Qualitative assessment on transparency

➢ ***The qualitative score is based on the level of transparency and the quality of the report.***

1	The issuer has published a clear and detailed report on the various funded projects. Induced and avoided emissions were calculated using an easily proven and robust methodology. There is no controversial green bond funded project.
2	The issuer has published an annual report with project information to calculate induced and avoided emissions. He did not use a methodology to calculate them himself or the methodology used is not sufficiently explicit to validate it.
3	The issuer has not published a report but has disclosed information on certain projects.
4	Issuer has published a report but information on each of the funded projects is incomplete.
5	The issuer has not published any reporting.
NA	The issuer has not yet published a report because the Green Bond is less than one year old.

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Green Bond Methodology
A five-steps *analyst-driven* climate analysis

5. Overall rating of the carbon performance

- Carbon performances are rated through the **Carbon Impact Analytics (CIA)** overall rating.
- **The green bond overall rating is a WEIGHTED AVERAGE :** the overall rating of each sector is weighted by its share in the total of the Green bond in terms of money.
- For Green Bonds, carbon performances are assessed based on the CIR.
- It allows to compare and understand carbon performances and the "real" contribution of a Green Bond to the low-carbon transition.

European Investment Bank

EIB 1.625 10/09/29 MTN
ISIN US298785JA59 |
Allocation amount 893 mEUR

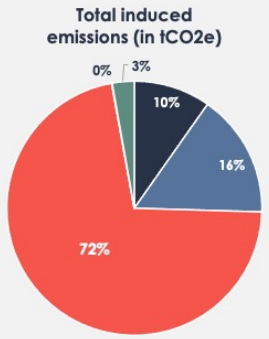
1. Use of Proceeds

Project 1
Project 2
Project 3
...
Project 23
Project 24
Project 25

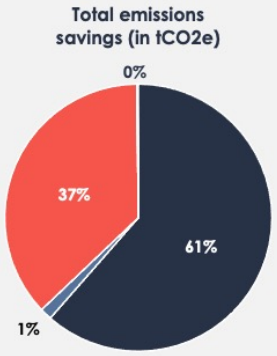
2. Sectoral allocation & analysis

21% Renewable Energy
12% Transmission & Distribution
35% Transport
0.1% Renovation
20% Construction
12% Out of scope

3. Portfolio aggregation



75 964 tCO2e



-55 291 tCO2e

Carbon Impact Ratio
0.72

Induced intensity	Avoided intensity
85.06 tCO2e/M€	-61.91 tCO2e/M€

4. Qualitative assessment

"The issuer has published an annual report with project information to calculate induced and avoided emissions. He did not use a methodology to calculate them himself or the methodology used is not sufficiently explicit to validate it."

+ +
+
-
- -

5. Overall Green Bond Rating

1	A+
2	A
3	A-
▶ 4	B+
5	B
6	B-
7	C+
8	C
9	C-
10	D+
11	D
12	D-
13	E+
14	E
15	E-

Agenda

1. EU GBS, the new golden standard?
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3. **Case study by Franklin Templeton Investments**

Executive Summary

Lessons from our analysis

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The report highlights several key findings:

- **Energy, buildings, and transport** are identified as high stakes sectors
- **Total emissions savings** from these three sectors amount to over 2,600 tCO_2e per €10m invested

We conclude that:

- **Increasing renewables capacity** should come before building out transmission or storage
- **Using and improving existing buildings infrastructure** beats adding new green housing stock
- **Transportation** has high initial induced emissions but **large long-term savings**

The top three contributors

Energy, buildings, transport

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Energy emissions savings contribution*

898 tCO_2e

Buildings emissions savings contribution*

786 tCO_2e

Transport emissions savings contribution*

947 tCO_2e

Total emission savings*: 2,638 tCO_2e

* For every €10m invested.

Energy contribution

- The highest carbon impact ratio (CIR) came from renewables, followed by power efficiency
- For every tonne “spent” on renewables development, more than 10 tonnes are avoided
- The importance of establishing new renewable capacity cannot be overemphasized
- Transmission and distribution are small contributors by comparison

➔ **Increasing renewables capacity is key**

* For every €10m invested.

Buildings contribution

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Buildings emissions savings contribution*

786 tCO_2e

- Construction is a highly energy intensive sector
- Renovating old buildings issues less emissions than building new “green” buildings
- Using existing infrastructure is extremely efficient in keeping emissions down and should be prioritized

➔ **Modernizing and improving is better than adding**

* For every €10m invested.

Transport contribution

Transport emissions savings contribution*

947 tCO_2e

- Transportation is still responsible for nearly a quarter of 24% of direct emissions
- The production of an electric vehicle is a high-emissions activity, therefore, long-lasting electric vehicles must be built, and battery components and minerals recycled
- Rail transport has extremely high induced emissions, but once the infrastructure is set up, the scalability may lead to an increased CIR over time

➔ **Long-termism is required due to high initial cost**

* For every €10m invested.

The investment strategy

Significant emissions savings

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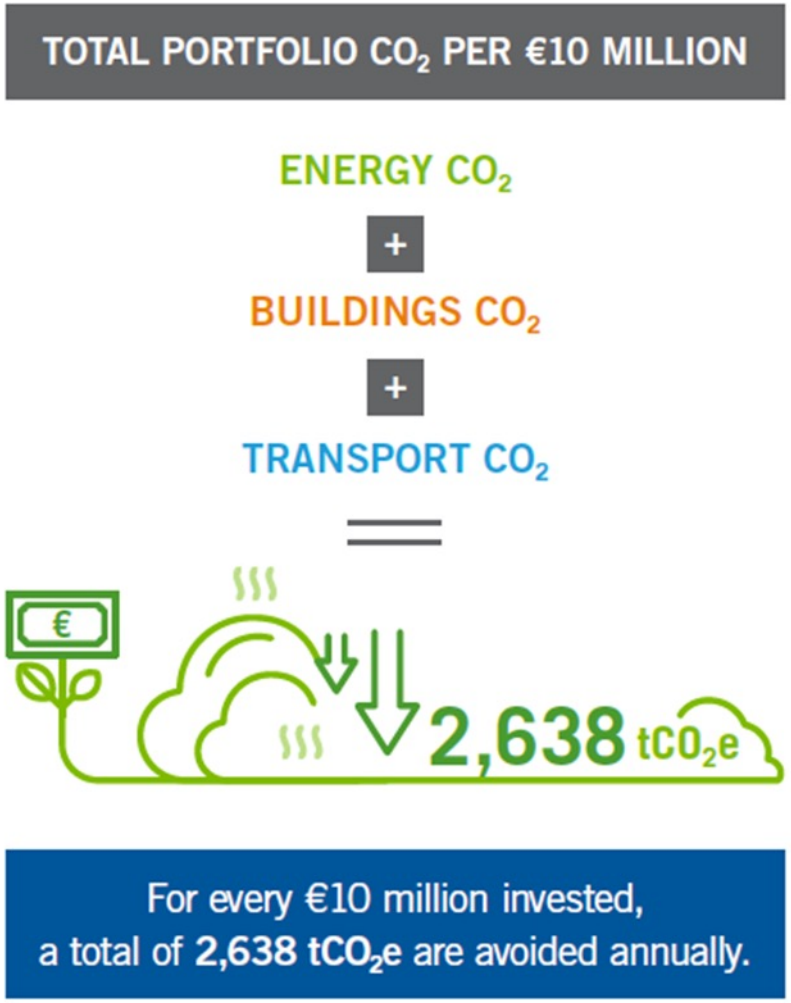
The fund:

- Invests **at least 75% in labelled green bonds**
- For the remainder, we look for bonds that satisfy the following:
  - corporate strategy supportive of a low carbon future
  - good environmental performance to date
  - appropriate governance framework
- Most of the holdings in our Green Bond strategy have disclosed which of the **United Nation's Sustainable Development Goals (SDGs)** their corporate or sustainability strategy aligns to
- There are three central "use of proceeds" or "high stakes sectors" that are most prevalent in the portfolio and are **responsible for generating over 70% of global emissions:** energy, buildings, and transport
- The total emissions savings of the current portfolio projects amount to over **2,600 tons of CO_2 equivalents (tCO_2e)** per €10m invested



Process and standards

Reliability and quality

The objectives of the report revolve around **accountability and transparency,** and an **overall better understanding** of how impact reporting is a useful tool in assessing **the role of fixed income in the fight against climate change.**

Understand, Quantify & Observe

 **Understand** and **quantify** the environmental impact of our investments and the underlying projects

 **Observe** market developments in three key areas:

- Data: quality and consistency
- Methodologies: transparency and comparability
- Best practices: issuers and investors

To achieve this, we have **partnered with experts** to help us deliver an **unbiased and comprehensive review** of our strategy from a sustainability perspective.

Process and standards

Reliability and quality

FRANKLIN TEMPLETON

The objectives of the report revolve around **accountability and transparency,** and an **overall better understanding** of how impact reporting is a useful tool in assessing **the role of fixed income in the fight against climate change.**

Partners

- **Carbon4Finance:** project impact calculation for both the construction and the operational phases of a project
- **CICERO Shades of Green:** real-life impact assessment that the green bond or project has on climate change

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°CICERO Shades of Green

"Investors need to be aware that not all green bonds are equal—induced emissions need to be considered against avoided emissions to ensure that the net gain from the project is material, enduring, and where possible—scalable."

Key takeaways and issues for investors

FRANKLIN TEMPLETON

- We found a **useful allocation across sectors** that align with the overall green bond market, focusing primarily on energy, transportation and buildings
- **The main challenge for reporting at a fund level is the lack of consistent reporting at the bond level** and the quality of the underlying data
- Investors can help by **pushing for a consistent set of metrics** for a given use of proceeds
- Given the reputational benefits of issuing a green bond (the so-called ‘halo effect’), **investors need to be vigilant** about probing and verifying the ‘positive impact’ for themselves
- A healthy green bond market is one where the **green investor demands high standards from issuers** to ensure that sustainability targets are stretching enough
- **We find the EU taxonomy guidance invaluable** by providing technical guidance

Contacts

Marie-Anne Vincent I CEO
Marie-anne.vincent@carbon4finance.com

Melissa PEREZ I Business Development Lead
melissa.perez@carbon4finance.com

carbon4 | finance

54 rue de Clichy 75 009 Paris

+33 (0)1 87 44 84 99

www.carbon4finance.com