



Carbon Rating Framework

Enabling Transition Finance Through Emissions
Intensity Evaluation

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POLICY
INITIATIVE

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ABOUT CLIMATE POLICY INITIATIVE

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has seven offices around the world in Brazil, India, Indonesia, South Africa, the United Kingdom, and the United States.



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INTRODUCTION

This white paper outlines a potential Carbon Rating Framework that the financial sector could use to incorporate climate considerations into investment and lending evaluation.

This paper intends to inform the reader of the lacuna in the current tools to evaluate the impact of environmental issues on a company, its emission intensity, and its potential for emissions intensity reduction, thus introducing the need for a 'carbon rating' concept. The aim of the paper is to share the construct of a Carbon Rating Framework methodology and encourage inputs from stakeholders to improve on the methodology. While this paper approaches the use of carbon rating as an input for debt underwriting, the methodology may also be applied to equity investments.

The paper is structured as follows:

- **Section 1** outlines the context and need for a Carbon Rating Framework, with specific reference to India.
- **Section 2** lays out the model construct, as well as some further considerations for the framework.
- **Section 3** offers a conclusion and outlines directions for future work.

1. CONTEXT

The economy-wide decarbonization that countries must achieve to meet the goals of the Paris Agreement will require the mobilization of finance on a massive scale. India needs an estimated USD 2.5 trillion by 2030 for its Nationally Determined Contribution (NDC) ([MoEFCC, 2015](#)). While actions for the transition will take place in the real economy, these will require domestic and international finance. The financial sector will need to transform and adapt policy and regulation to provide not only increased finance flows for clean energy and clean transport but also for the decarbonization of hard-to-abate industrial sectors.

Current financial flows for climate action in India represent only a quarter of the country's needs, with the majority going to renewable energy and energy-efficiency projects ([CPI, 2022](#)). The investment gap for hard-to-abate sectors, like steel and cement, is expected to be particularly large. Investment in these sectors will require transition finance, i.e., financing for activities that reduce emissions but are not yet 100% green or zero emissions.

Increasing transition finance will require changes in the practices of both the banking sector and capital markets. Despite their increasing relevance to lending and investment, carbon emissions are not adequately accounted for in the current evaluation processes used by banks and capital investors, and they are also not fully covered by ESG-driven frameworks. For example, risk assessments rely heavily on conventional credit rating systems, even for financing going to hard-to-abate sectors that are eligible for transition finance. Credit rating methodologies were created to assess firms' debt repayment capacity and do not measure emissions intensity, meaning that they do not account for a business's impacts on the climate.

As a result, credit ratings do not tilt lending or investment toward emissions efficiency. In fact, they can have the unintended consequence of discouraging investment in climate-positive businesses and projects. This is because such activities are often associated with relatively new technologies and unproven business models, which create greater uncertainty over their financial outcomes compared to well-established, profitable, but carbon-intensive activities. Thus, credit ratings are likely to assess climate-positive businesses as high-risk, making it more challenging for these businesses to attract capital, especially debt.

To enable transition finance, a different paradigm for lending and investment decisions is required to reflect the emissions per unit of either financing, output, or investment, depending on the suitable and comparable base for normalization of finance. This paper, therefore, explores one approach that would allow emission intensity to be included in the investment evaluation paradigm.

1.1 CURRENT OFFERINGS

Increasing calls for climate action and Paris alignment from various stakeholders are driving companies and investors to track the impact of their operations and investments in order to understand whether they are compatible with international climate goals ([Kessler et al., 2019](#)). Such impact measurement and reporting requires organizations to create and apply new information, tools, and strategies to measure not only their exposure to climate risks but also the extent to which their operations or investments are consistent with Paris temperature goals, or

“Paris-aligned” (CPI, 2021). Various initiatives, tools, and ratings have emerged to measure both climate risk and Paris alignment. Nevertheless, credit ratings remain the primary basis for lending and investment decisions.

CPI has analyzed existing carbon-specific rating methods, which fall under two broad categories:

1. **Climate/ESG Risk products** measure risk to a company’s profits posed by climate change. Examples include Fitch Ratings’ [Climate Vulnerability Score](#) and S&P Global’s [Carbon Earnings at Risk](#).
2. **Alignment Products** measure a company’s alignment with international climate goals such as the Paris Agreement. For example, MSCI ratings include an [implied temperature rise](#), and [Sustainalytics provides low-carbon](#) transition ratings.

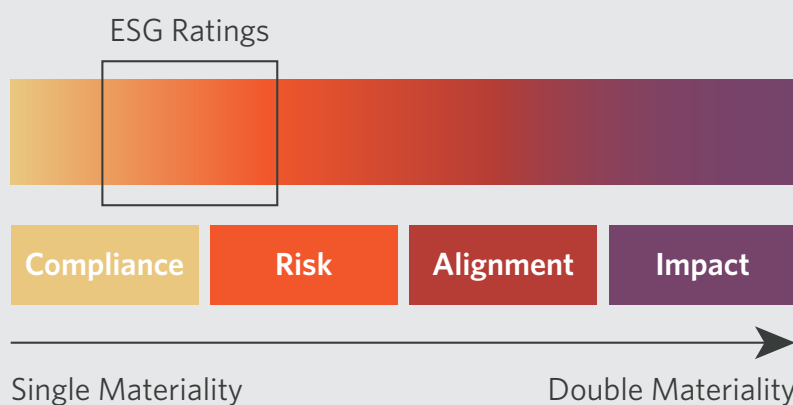
Climate/ESG risk products look at the impacts of these factors on a company rather than the impacts that the company creates. Meanwhile, alignment products usually assume that all companies will act in unison and in a manner proportionate to their share in Paris Agreement goals, which is highly unlikely. As a result, neither category of rating methods accurately captures a company’s environmental impact, failing to quantify the benefits of transitioning to a low-carbon economy.

Box A. Categories of climate-related products

Products measuring non-financial (environmental) parameters of investment activities can be divided into four categories:

- **Compliance:** Products that aim to ensure compliance with country laws and legally binding international treaties. We have not encountered any products that focus solely on compliance; most focus on both compliance and risk (e.g., ESG-related products).
- **Risk:** Products that measure risk to the company’s profit, reputation, supply chain, etc. Most concentrate on transition risk rather than the physical risks posed by climate change.
- **Alignment:** These tools measure the extent of consistency with international targets, for example, Net Zero by 2050. Alignment products usually measure commitments and strategies rather than climate action (e.g., actual investments).
- **Impact:** This refers to measuring a company’s impact on the environment or society. This could mean measuring the company’s total carbon emissions or carbon intensity and the actual investments that companies make to reduce emissions.

Figure 1 shows a spectrum across four categories in which the products measuring non-financial parameters can be categorized. We find that ESG ratings fall between the compliance and the risk category spectrum.

Figure 1. Framework for evaluating current climate-related products in the market

Source: CPI Analysis

Note: Single materiality refers to potential impacts to a company, whereas double materiality includes both impacts to a company AND its potential external impacts.

India needs to implement a low-carbon transition across sectors to achieve its economy-wide net zero goal by 2070. However, this target is not accompanied by any national legal or regulatory frameworks, or subnational or corporate laws to direct the action of economic agents.

It is therefore helpful that the Securities and Exchange Board of India (SEBI) has mandated ESG rating providers to provide a Parivartan¹ or transition score in its Master Circular for ESG Rating Providers (2023). The circular states: “This transition score could track changes in quantitative metrics in trend-lines or change in revenues from environmental/social services and products, or any quantitative assessments, as per the model of the ESG rating providers.” A summary is provided in Box B.

Box B. Suggested Application of Transition Score

A Master Circular for ESG Rating Providers (ERPs) issued by SEBI in July 2023 states that an ERP shall offer at least the following ESG rating products:

1. ESG Rating
2. Transition or Parivartan score
3. Combined Score
4. Core ESG Rating

¹ An ESG Transition or Parivartan score measures the velocity of and investments in the transition to Net Zero Goals/improving ESG risk management. In other terms, this score would reflect the incremental changes that a company has made in its transition in recent years or concrete plans/targets to address the risk and opportunities involved in transitioning to more sustainable operations, rather than scoring it only on its current profile. This transition score could track changes in quantitative metrics in trend lines or change in revenues from environmental/social services and products or any quantitative assessments, as per the model of the ERP. Further details are available at: <https://www.sebi.gov.in/legal/master-circulars/jul-2023/master-circular-for-esg-rating-providers-erps-73856.html>

5. Core Transition or Parivartan Score

6. Core Combined Score

In the interest of clarity for market participants, it is mandated that ESG ratings shall be provided on a scale of 0 -100, where 100 represents the maximum score. For existing ESG ratings, ERPs should disclose new rating symbols and definitions and update their rating lists on their websites. For various ESG rating products (ESG rating, core ESG rating, transition or Parivartan score, other ESG rating products), ERPs shall ensure the use of suitable nomenclature (prefixes or suffixes, etc.) that enables end user(s) to differentiate ESG rating products from each other.

In addition, a [paper published in the Bank of International Settlements Quarterly Review \(2020\)](#) explores the case for a green rating system, focused on carbon emissions at the firm level. It indicates that such a system:

1. Should provide additional incentives for the rated companies to contribute to the attainment of climate goals such as those of the Paris Accord and India's NDC commitments.
2. Should help investors in the decision-making process, and the system should allow investors and other stakeholders (e.g., auditors, regulators, and policymakers) to check a firm's improvements and verify that the desired climate mitigation effects are achieved.

In light of the above, we believe that a carbon rating² could be developed and mandated for financial instruments (bonds and loans) above a certain value. We envisage that one application of this would be as a feeder into the transition score mentioned by SEBI. A standardized score could enable transition financing and assist in funding action to meet India's NDC commitments. This would include helping to channelize capital to sectors that may otherwise be ineligible for financing or can only secure it at expensive rates.

In addition, with work being done on carbon markets in India, including the launch of the carbon credit trading scheme, a transition score/carbon rating could also be a valuable tool for standardizing emission measurement and driving low-carbon behavior and processes in the industrial sector.

In the above context, CPI has developed the concept for a Carbon Rating Framework, as outlined below.

² While transition score and carbon rating are two distinct concepts, they are both rooted in the concept of measuring emission intensity. Given that the applicability of the concept will differ based on whether it is being used by credit rating agencies or by banks, the paper uses the two terms interchangeably.

2. MODEL CONSTRUCT

The proposed Carbon Rating Framework aims to provide a methodology for rating business entities on their carbon emission intensity over the next three to five years.

CPI conducted comprehensive secondary research and primary stakeholder interviews to develop this framework's construct. Based on this research, we made the following decisions on methodology:

1. **Conducting ratings at the company level**,³ given that the company is the decision-making authority on activities that contribute to emissions, and data for the project level is generally more difficult to obtain.
2. **Considering only Scope 1 and Scope 2 emissions.** While all Scopes are important, Scope 3 emissions are not recommended for inclusion at present due to issues of data availability and reliability.
3. **Considering both quantitative and qualitative parameters, as well as current and projected emissions,** to calculate a company's rating.

While carbon ratings have a different central objective than credit ratings (i.e., a credit rating is a measure of the borrower's capacity to service debt, while a carbon rating measures the carbon emission intensity of the firm), the proposed process is similar. We present the construct for credit ratings below:

- Deriving a company's credit rating⁴ requires the use of a detailed set of quantitative metrics (primarily ratio analysis, cash flow analysis, and benchmarking) and qualitative factors (e.g., governance, compliance, management integrity, competitive landscape, and regulatory scenario).
- Projected cash flow and key financial ratios over the tenure of the debt are drawn based on factors including track record and management guidance, as well as macroeconomic and competitive factors.
- Finally, to arrive at the credit rating, the key financial indicators of a company are compared with the credit rating agency's internal benchmarks for rating categories as well as with those of peer companies.

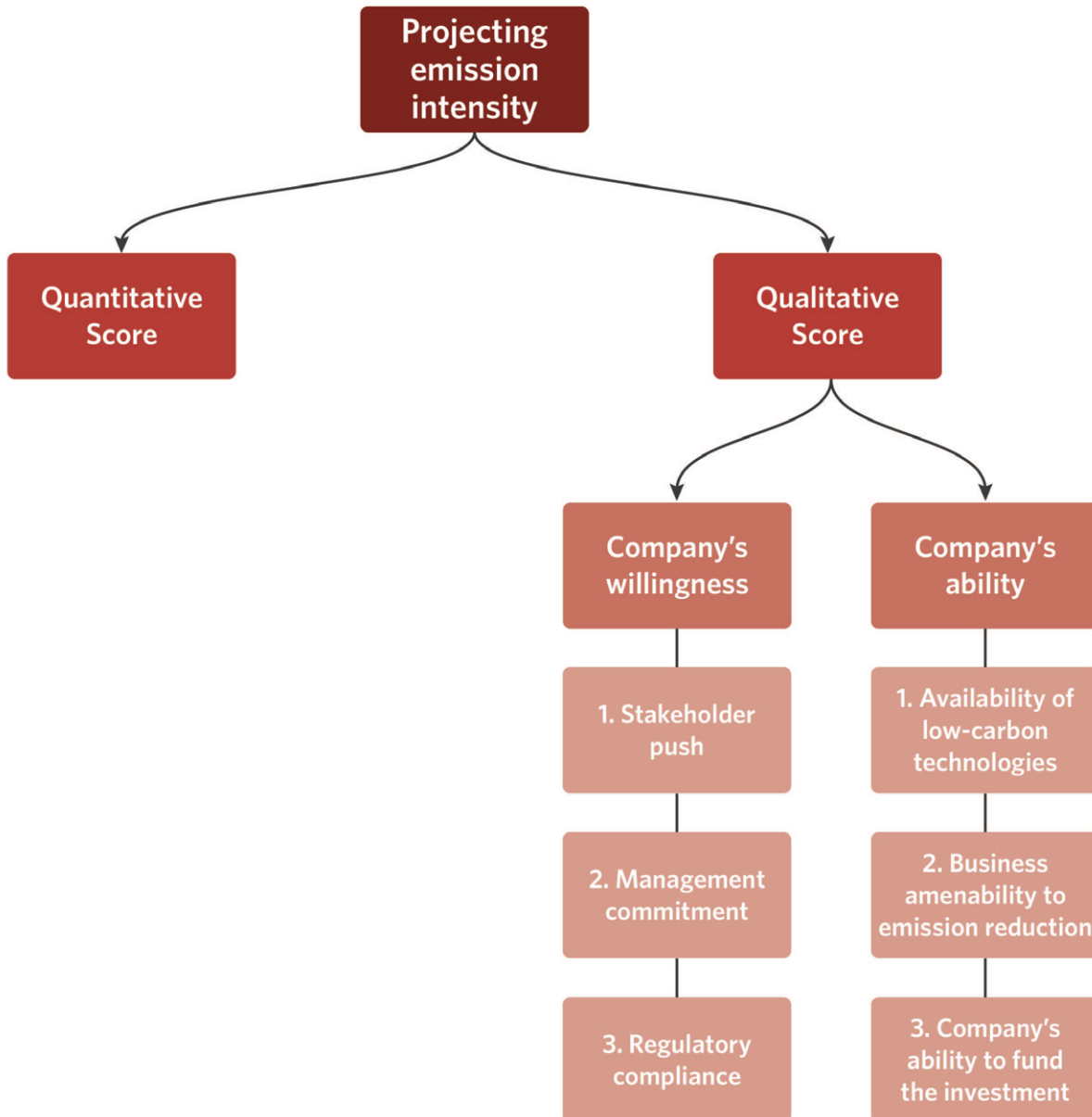
A similar approach is envisaged for carbon ratings, with the goal being to estimate the carbon emission intensity over the next three to five years. The difference is that in the case of financial projections, the central objective is to relate the future free cash with the debt servicing burden. The greater the multiple of cash generation over debt servicing, the better the rating would be. In the case of carbon rating, the central objective is to relate the projected emissions to the

³ We note that there are arguments in favor of the rating being done at the project level as well: 78% of respondents to our stakeholder survey were of the view that the rating should be assigned at the company level as well as the project level. However, this paper explores providing the rating at the company level to begin with for the reasons enlisted above. Once the product stabilizes, and data flow improves, a project-level rating can also be incorporated.

⁴ We note that, technically, a credit rating is instrument-specific. Thus, in theory, different debt instruments issued by a company X may carry different credit ratings. However, in practice, such variation is rare and in common parlance, rating is seen as associated with a company. For ease of explanation, we refer to 'rating of a company' here.

projected revenue. The lower the ratio of emissions per unit of revenue, the better would be the rating. A broad model for the Carbon Rating Framework is depicted in Figure 2.

Figure 2. Carbon Rating Framework



We outline key aspects of the proposed Carbon Rating Framework below.

1. The proposed Carbon Rating Framework considers both an entity's past and projected emission intensity.

Projecting future emissions is likely to be more challenging than projecting future revenue and expenses, at least in the near term. These challenges arise from a lack of standardized historical data, as well as the fact that future trajectories will depend on decarbonization pathways, which are not yet clearly defined for all entities.

Therefore, the carbon rating could, at least initially, consider both past emission intensity (with a relatively high weighting, say 70%) and projected future emission intensity (with a lower weighting, say 30%).

To account for the time value of emissions ([NYSERDA, 2020](#)) and also incentivize emission reduction interventions, a discount factor may be applied to projected emission intensity. Therefore, it is also recommended that the weighting of future emission intensity be split by year to incorporate the time value of carbon. For example, a 30% weighting for future emission intensity could be split into 12%, 10%, and 8% for Year 1, Year 2, and Year 3, respectively.

All suggested weightings are indicative, and a rating provider may wish to vary them. If the predictability of projected emissions improves, there may be a case for increasing the weighting of projected future emissions intensity in the future.

While past emission intensity is a quantitative calculation based on the previous year's data, projected future emission intensity requires careful evaluation of several quantitative and qualitative factors.

2. Projected future emission intensity would be a function of projected future emissions and projected future revenue.

$$\text{Projected future emission intensity} = \frac{\text{Projected future emissions}}{\text{Projected future revenue}}$$

Projected future revenue (the denominator) is easier to estimate, and businesses would be doing so already.

Projected future emissions (the numerator) are driven by a company's emission reduction efforts. This requires careful evaluation of several quantitative and qualitative factors.

Quantitative factors could include the company's investments in emission reduction efforts to date, the adequacy of projected investments vis-à-vis projected energy efficiency, and a technical audit (certification/validation) of projected emission reductions, among others.

In terms of qualitative factors, the rating agency could consider the company's willingness and ability to invest in emission reduction actions. Willingness may be evidenced by factors including applicable regulations (e.g., emission reduction mandates), stakeholder pressure for emission reduction, company management's stated commitment to emission reduction, and action taken by industry peers, among others. Ability may be evidenced by factors including the availability of low-carbon technologies, the potential of the sector for emission reduction, and the ability of the company to fund the needed investment.

3. An important step is to calibrate the overall rating scale.

While there are multiple ways of creating a carbon rating scale, we propose a straightforward approach, which is largely in line with the 2020 Bank for International Settlement (BIS) paper mentioned in Section 1.1.

We start with the distribution of companies' carbon intensity at the end of the previous fiscal year (i.e., the latest data point available). (i.e., the latest data point available). Putting the issue of

data depth aside for a moment, this would essentially encompass the entire spectrum of Indian companies for which data is likely to be available, viz, companies that are required to publish a Business Responsibility & Sustainability Report (BRSR).⁵ We then define rating thresholds as fixed levels of carbon intensity, set depending on the nature of the data distribution.

Our suggestion is to form a 10-point scale, wherein the lower the ratio of emissions per unit of revenue, the better the rating. For instance, the emission intensity falling in the lowest 5th percentile could correspond to the highest rating, and so on.

The calibration of the rating scale would depend on the data distribution, which would form a part of this Carbon Rating Framework project's Phase 2.

4. Finally, the Carbon Rating Framework can be applied and a rating assigned.

After calculating the weighted averages of the value of the future emission intensity and current emission intensity of the given company (as outlined in Steps 1 and 2 above), this would then be compared with the benchmark rating scale derived in Step 3.

For example, if a company's weighted average emission intensity is X tons of CO₂ per unit of revenue (where X is the actual emissions), and as per the scale, this corresponds to bucket 4, then the company's carbon rating would be CR4.

2.1 FURTHER CONSIDERATIONS

The rating scale is intended to be common across all businesses rather than sector-specific. This raises the challenge that certain hard-to-abate sectors may have an inherent disadvantage. For instance, a steel-making company has low emission intensity compared to other companies in its sector. At the same time, a hotel operator has high emission intensity among its peers. Despite the steelmaker being a leader and the hotel operator being a laggard within their sectors, the hotel operator is likely to get a better carbon rating under the Carbon Rating Framework if it is not sector-specific.

A potential solution to address this sector-specific dimension is to use a separate suffix and a composite two-part rating scale. In other words, there can be separate sub-scales (say 'a' to 'e') for which the consideration set is only the particular sector. Here, "a" could mean the best and "e" the worst.

Thus, in the above example, the steel company's carbon rating is CR7, and the hotel operator's is CR4; their final composite ratings could be CR7-a and CR4-e, respectively. However, this is still in consideration stages and will be fine tuned over time.

Finally, we note that while the above proposes a Carbon Rating Framework, an individual rating provider may also choose to adopt a 'scoring' rather than a 'rating' approach. In that case, the primary difference would be to replace the qualitative assessment of future emissions intensity with a pre-determined scoring guide.

⁵ The larger and wider the data set, the richer the outcome. While a lack of availability of emissions data is a challenge, we expect this to improve with time since SEBI under BRSR requires companies to disclose details for majority of the companies in their value chain.

3. CONCLUSION

As the need for transition finance increases, the financial sector will benefit from considering a potential borrower's carbon intensity, in addition to its creditworthiness, underwriting, and loan book management. The current work studied the market for products that evaluate the impact of a company's operations on the environment, identifying a gap in the form of a tool that focuses exclusively on emissions. The Carbon Rating Framework is proposed as a tool to meet this need.

The above is an indicative framework and is subject to improvement as greater accuracy and availability of data is achieved.

3.1 DIRECTIONS FOR FUTURE WORK

The Carbon Rating Framework proposed in this paper is not the only approach that may be taken. During this study, the authors identified the following areas that could be explored further:

1. While this framework is focused on emission intensity, a rating that additionally evaluates other parameters related to green investments, such as pollution, water-related aspects, and other environmental impacts would be desirable.
2. Further research could be conducted to understand how this Carbon Rating Framework may be adopted by credit rating agencies and banks. We note that credit rating agencies may use it as a rating framework, while banks may wish to modify it to become a scoring framework.
3. Accelerating the work on the adoption of transition plans by the real sector would help in addressing the data challenges identified by the authors.
4. The framework should also be expanded to include Scope 3 emissions while adjusting for double counting.

We welcome feedback on this concept note. Please reach out to the authors Neha Khanna (neha.khanna@cpiglobal.org), Kalpesh Gada (kalpesh.gada@cpiglobal.org) and Dhruva Purkayastha (Dhruva.purkayastha@gmail.com).

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