CLIMATE POLICY INITIATIVE

TECHNICAL BRIEF

Carbon Rating Framework Phase 2

November 2025

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INTRODUCTION

The Carbon Rating Framework is being developed by CPI in multiple phases to integrate emissions performance into financial decision-making. **Phase 1** established the broad framework, setting out the conceptual approach and methodology for assessing company-level emissions intensity in a manner comparable to credit ratings. **Phase 2** focused on applying this framework to a representative sample of companies, testing its structure, and engaging with market participants to gather feedback and perspectives on its practical relevance and usability. This phase also helped refine the framework and identify potential pathways for integrating such ratings into financial decision-making processes. This technical brief presents the outcomes of that application, illustrating both the feasibility of the framework and its potential to inform transition finance.

BACKGROUND AND SCOPE

As climate action gains momentum and Paris Alignment becomes a central focus, companies and investors are increasingly seeking tools to assess whether their activities are consistent with international climate goals. Despite this demand, most investment decisions continue to rely on traditional credit ratings, which present two persistent challenges. First, climate change is a systemic externality, where society bears the costs rather than the polluter. Addressing this requires accurate emissions accounting and transparent reporting to ensure that environmental impacts are internalized. Second, credit ratings often classify climate-positive enterprises as high-risk, particularly those relying on early-stage low-carbon technologies or novel business models. This makes it more difficult for such ventures to access capital, especially debt finance.

While ESG / climate risk products have evolved, they remain limited in precision. ESG ratings cover a broad set of issues but often fail to isolate emissions performance. Carbon risk tools typically assess how climate affects a firm financially, rather than the firm's own environmental impact. Similarly, alignment-based approaches, such as those measuring consistency with Paris targets, often assume uniform corporate behavior and overlook company-specific variations in transition readiness.

CARBON RATING FRAMEWORK

To address these gaps, CPI's Carbon Rating Framework moves the conversation beyond simple taxonomies that classify economic activities as either 'green' or 'brown'. Instead, it applies a performance-based approach that evaluates companies on their actual emissions intensity and the pace of their reductions. By integrating the concept of the **'Time Value of Carbon,'** the framework rewards companies with a faster trajectory of emission reductions, thereby encouraging timely and meaningful action.

The framework assesses firms based on the intensity of their Scope 1 and Scope 2 emissions, normalized by revenue. Structured similarly to credit ratings, it provides a consistent signal of environmental efficiency, with lower emissions per unit of revenue translating into a stronger rating. This allows for standardized comparisons across sectors and creates clear incentives for companies to align with climate goals.

The carbon rating framework is designed to:

1. Provide investors with reliable, rating-based assessments of emissions intensity, transition plans, and progress, supporting more informed investment decisions.
2. Incentivize companies to reduce emissions in line with the Paris Agreement.
3. Offer regulators, auditors, and policymakers a robust tool to monitor climate performance and assess whether mitigation efforts are achieving intended results.

FRAMEWORK DESIGN

CPI developed the Carbon Rating (CR) Framework during Phase 1 of this project. The current Phase 2 involves applying the framework to a representative sample of companies.

1. The Carbon Rating Framework is designed as a rating system, analogous in structure to conventional credit ratings. Whereas credit ratings evaluate an entity's capacity to service debt, the carbon rating evaluates an entity's performance on emission intensity. The rating calculates emissions per unit of revenue to ensure standardization across different sectors and industries. The central objective is to benchmark firms on the ratio of emissions to revenue, with lower ratios corresponding to stronger ratings.

2. The framework is currently calibrated at the company level, as companies are the primary decision-making units, and data at the project level remains limited or inconsistent. While the results of a CPI survey indicate stakeholder interest in project-level ratings (supported by 78% of respondents), company-level assessments provide a more feasible starting point. Future iterations may expand coverage to the project level once data availability improves.

3. At present, the framework incorporates Scope 1 and Scope 2 emissions. Scope 3 emissions are excluded due to challenges with the accuracy and consistency of reporting, but may be integrated in later phases.

4. The rating methodology combines quantitative and qualitative parameters, integrating both current and projected emission intensities to assign a final rating.

5. Projections are made for emissions and revenue over a three-year horizon, enabling calculation of projected emission intensity. As with current intensity, lower projected ratios indicate stronger ratings.

6. Projecting future emissions is more complex than projecting revenues. To balance these factors, the framework applies a weighted approach that combines current emission intensity (initially weighted at 70%) and projected emission intensity (weighted at 30%). A discount factor may also be applied to projected emissions to reflect the time value of emissions (NYSERDA, 2020) and incentivize early mitigation.

7. Projected emission intensity is derived from both (i) projected future emissions and (ii) projected future revenue. While revenue projections are generally straightforward, projected emissions require evaluation of multiple factors:

    - Quantitative factors: existing and planned investments in emission reduction, adequacy of investments relative to efficiency goals, technology audits or certifications validating projected reductions.

    - Qualitative factors: compliance with regulatory norms, stakeholder emphasis on emission reduction, management commitment, access to low-carbon technologies, and financial capacity to implement measures.

8. Calibration of the rating scale is critical. Following the approach outlined in the *BIS Quarterly Review* (September 2020)[1], calibration is based on the carbon intensity distribution of the top 1,000 listed companies[2] disclosing emissions under BRSR norms (for FY24: latest data point available). These data are divided into deciles, defining thresholds for a 10-point ordinal scale (CR1–CR10).

1 BIS Quarterly Review September 2020 – exploring the case for a rating system at the firm level
2 Ideally, the larger and wider the data set, the richer will be the outcome. While it is acknowledged that availability of emissions data is presently a challenge, we expect the same to get better with time.

9. A company's weighted average emission intensity is compared against these thresholds to determine its rating. For example, if the weighted-average intensity equals X tCO_2e per unit of revenue and *X* falls within the CR4 bucket, the company receives a CR4 rating.

10. The framework may also be implemented as a scoring system rather than a rating. Under a scoring approach, qualitative assessments (e.g., projected emission intensity) are translated into predetermined scores rather than integrated directly into rating categories.

11. The rating scale is common across sectors, not sector-specific. This creates challenges for hard-to-abate industries. For instance, a steel producer may perform better within its peer group yet still receive a weaker rating than a services company, due to higher inherent intensity. To address this, users may supplement company-level ratings with sectoral benchmarks (e.g., sectoral median CR, distribution ranges) to assess relative standing within sectors.[3]

METHODOLOGY FOR SAMPLE TESTING

The testing exercise aimed to evaluate the operational performance of the CR Framework on a representative sample, validate the reasonableness of outputs, and identify areas for refinement.

1. **Calibration of the Rating Scale**

   The CR rating scale was calibrated using the three-year average emission intensity (FY22–24) for the top 1,000 listed companies. The dataset was filtered to exclude financial sector entities (banks, NBFCs, insurers), companies with incomplete data, and those with inconsistent or erroneous reporting. The resulting dataset comprised 750 companies.

   Companies were ranked by emission intensity and divided into deciles to define the CR1–CR10 thresholds, where CR1 indicates the lowest emissions and CR10 the highest. Threshold boundaries are presented below:

Rating Label	Lower Limit (TCO2e/Cr. INR)	Upper Limit (TCO2e/Cr. INR)
CR1	0.01	1.40
CR2	1.41	3.27
CR3	3.28	5.95
CR4	5.96	9.50
CR5	9.51	16.03
CR6	16.04	26.22
CR7	26.23	41.96
CR8	41.97	81.63
CR9	81.64	214.98

3 Provided a number of such companies have been rated in the sector

Rating Label	Lower Limit (TCO2e/Cr. INR)	Upper Limit (TCO2e/Cr. INR)
CR10	214.99	5249.33
CR1–CR10: Carbon Ratings, where CR1 indicates the best (lowest emissions) and CR10 the worst (highest emissions) **Lower Limit/Upper Limit:** These represent the boundary conditions for each carbon rating range		

2. **Sample Selection**

   Fifty companies were selected for testing, ensuring sectoral diversity. Diversified entities, whose emissions profiles are difficult to attribute to a single sector, and financial firms were excluded.

3. **Current Emission Intensity Calculation**

   Current emission intensity was estimated as the three-year average for FY22–24, drawing on ICCAD (Indian Corporate Climate Action Data)[4] and covering Scope 1 and Scope 2 emissions, normalized by turnover.

   To strengthen comparability and reliability, two qualitative adjustment parameters were incorporated: (i) verification of reported emissions data, and (ii) alignment with recognized reporting standards such as the GHG Protocol or CDP. These parameters were assessed on a binary basis and translated into adjustment categories: both absent (+5 percent adjustment), one present (+2.5 percent adjustment), or both present (no adjustment).

   For illustration, a company with an average intensity of 9.3, where one factor is satisfied and the other is not, would be assigned an adjusted intensity of 9.54. This adjustment mechanism enhances the credibility of the ratings while encouraging greater consistency in emissions disclosure. Thresholds remain provisional and may be recalibrated as disclosure practices evolve and more data becomes available.

4. **Projected Emission Intensity**

   Projected emission intensity was estimated using publicly observable qualitative indicators, without direct engagement with companies. Nineteen factors were assessed, covering areas such as emission-reduction policies, regulatory compliance, climate-focused shareholder engagement, and governance, strategy, and disclosure practices.

   Scores for each factor were assigned on a 0–4 scale and averaged to determine an expected percentage reduction in emission intensity over the next three financial years:

   - 0.0–0.5 -> 0% reduction
   - 0.5–1.0 -> 5% reduction
   - 1.0–1.5 -> 10% reduction
   - 1.5–2.5 -> 15% reduction

   For illustration, a company with an average intensity of 70 and an average qualitative score of 0.72 would have a projected intensity of 66.5.

4 ICCAD (Indian Corporate Climate Action Data) compiles and publishes Scope 1, Scope 2, and Scope 3 emissions for the top 1,000 listed companies, along with their respective annual turnovers.

These percentage reductions are provisional and reflect internal judgment for this pilot exercise. They serve to demonstrate how qualitative assessments can be translated into quantitative projections and may be refined as additional data becomes available or industry practices evolve.

5. **Weighted Average Intensity**

   The final emission intensity was calculated as a weighted average of the current intensity (70%) and the projected intensity (30%).

   For example, a steel company with a current adjusted intensity of 175 and a projected intensity of 157 would have a weighted-average intensity of 170.

6. **Carbon Rating Assignment**

   The weighted-average intensity was compared with the CR thresholds to determine the final Carbon Rating. For instance, 170 TCO_2e/Cr. INR falls within the CR10 range (214.99–5249.33), resulting in a final rating of CR10.

SAMPLE TEST LIMITATIONS

Dataset Limitations

The calibration of the framework was based on a dataset of 750 entities, which constrains robustness. Expanding the dataset will be possible only as mandatory disclosure requirements increase, enabling more comprehensive coverage.

Rating Scale and Recalibration

Unlike credit ratings, carbon ratings are ordinal, representing relative emissions performance rather than exact differences. As a result, sector-wide shifts in emissions can cause a company's rating to change even if its own emissions remain constant. The current system of 10 grades may also produce overlaps, where companies at the bottom of one grade are closer in performance to firms in the next grade than to those in their own grade. With additional data, statistical clustering methods could refine grade boundaries, and intra-sector recalibrations, informed by mechanisms such as the Carbon Credit Trading Scheme (CCTS), could improve the accuracy and comparability of ratings within each sector.

Projected Emissions Data

Projected emissions, while essential for robust ratings, are generally unavailable. Consequently, projected intensity estimates are derived from qualitative assessments, which limits accuracy, as forward-looking trajectories can vary significantly even within the same sector depending on company-specific corrective actions. Although companies often disclose projected financial data, projected GHG emissions are rarely shared, presenting a key challenge.[5]

Qualitative-to-Quantitative Assumptions

The current framework assumes that the highest qualitative score corresponds to a 15% reduction in emission intensity over three years. Applying this uniform assumption across sectors may not fully capture sector-specific reduction potential. Emerging sectoral emission reduction pathways, such as

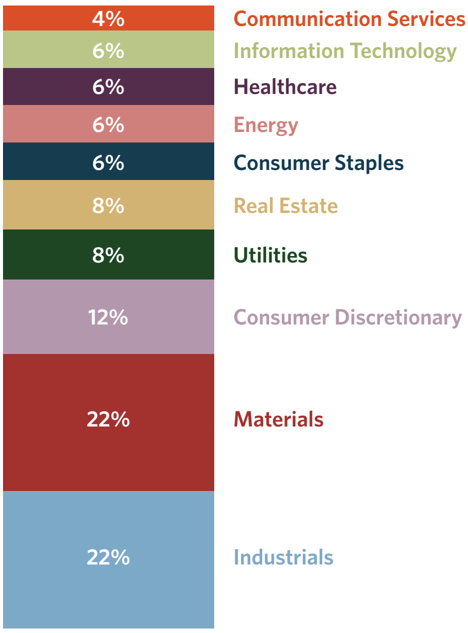
5 Unlike the sample text exercise, it is expected that rating agencies while assigning carbon ratings, will have access to qualitative and quantitative information from the client.

those developed by the Bureau of Energy Efficiency (BEE)[6], it could provide more scientifically grounded benchmarks for future projections.

KEY FINDINGS

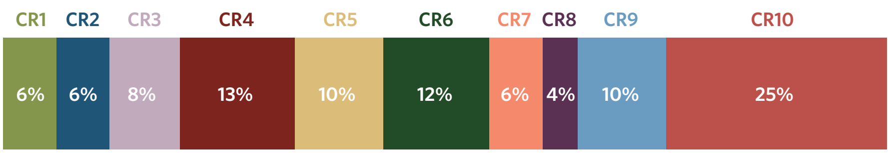
1. **Sectoral Diversification**

The sample achieved broad sectoral representation, ensuring findings are not skewed toward specific industries. The Industrial and Materials sectors are the largest contributors (22% each), making them particularly relevant to the carbon rating exercise due to their significant emissions. Consumer Discretionary accounts for 12%, while Utilities, Real Estate, and IT each stand at 8%. Energy, Consumer Staples, and Healthcare each contribute 6%, and Communication Services accounts for 4%. This mix of high- and lower-emission sectors supports robust testing of the carbon rating methodology across diverse industry contexts.



2. **Balanced Distribution Across Carbon Ratings**

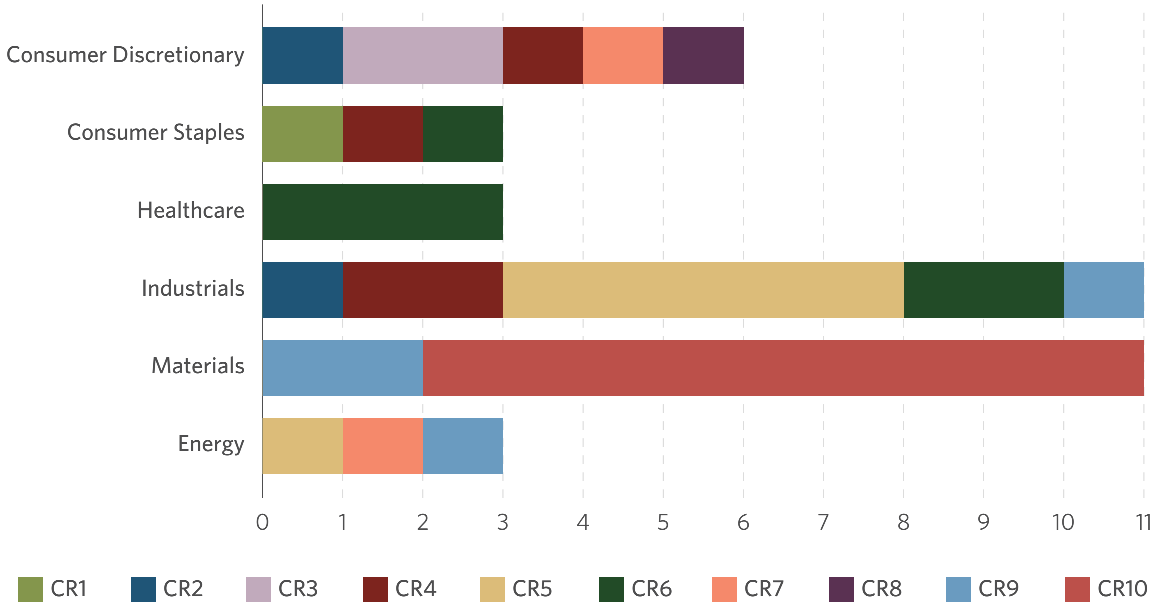
The distribution of ratings spans the full CR1–CR10 scale, with CR10 accounting for 25% of the sample and the other ratings distributed relatively evenly. Even the least represented rating, CR8 at 4%, is present, indicating the framework captures a wide range of emission intensities. This distribution demonstrates the framework's ability to provide a nuanced view of companies' emissions profiles.



6 Target setting notification under CCTS uploaded on e-gazzate for public comments pre-published by MoEFCC

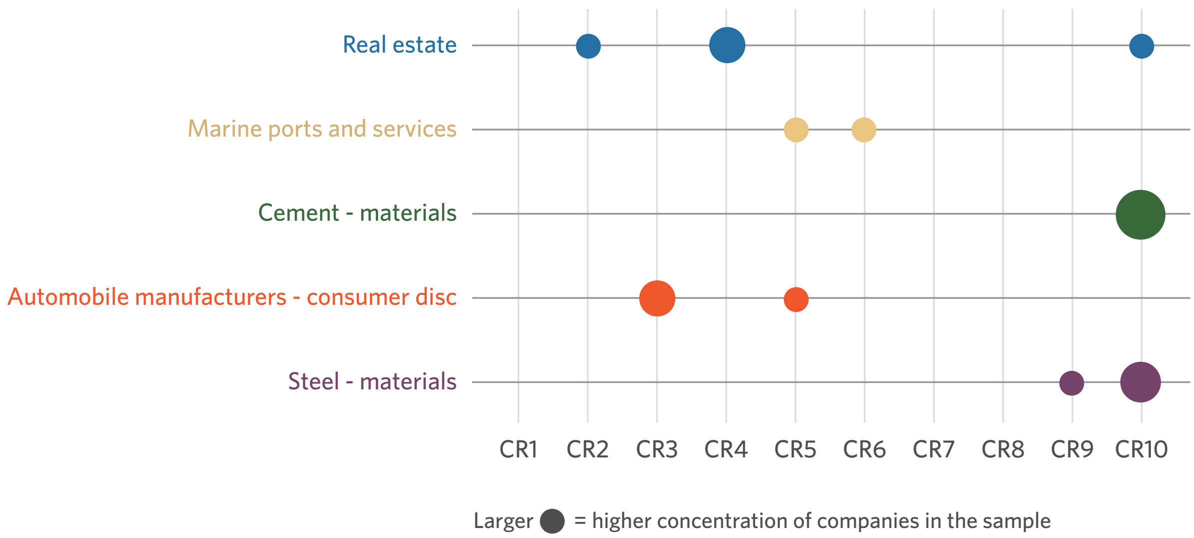
3. **Sector-wise Carbon Rating Insights**

Consumer Discretionary spans CR2–CR8, with CR3 most concentrated, and shows wide intra-sectoral variation. Consumer Staples fall within CR1, CR4, and CR6, reflecting generally lower emissions. Energy spans CR5–CR9, highlighting carbon-intensive operations. Healthcare is uniformly at CR6, suggesting limited granularity or sample variation. Industrials span CR2–CR9, clustering at CR5, indicating moderate emissions with broad performance differences. Materials are predominantly CR10, with 9 out of 11 entities falling in this category, underscoring high sectoral emissions. Overall, the framework effectively differentiates emissions across and within sectors, though some sectors may require further refinement for intra-sectoral granularity.



4. **Sub-Sector Sensitivity**

Sub-sector analysis confirms the framework's ability to capture granular differences in emissions performance. Real Estate Development spans CR2, CR4, and CR10; Automobile Manufacturers fall within CR3–CR5; Marine Ports and Services at CR5–CR6; Steel at CR9–CR10; and Cement uniformly at CR10. These variations demonstrate robustness in detecting real differences, even within narrowly defined sub-sectors, while highlighting areas where differentiation may be limited due to inherently high-emission profiles.



CONCLUSION AND FUTURE DIRECTIONS

The Phase 2 testing exercise demonstrated that the Carbon Rating Framework can be applied in practice, using available data, to generate meaningful and differentiated assessments of company-level emission performance. The pilot highlighted areas for refinement to enhance robustness, comparability, and applicability in the Indian context.

ALIGNMENT WITH INDUSTRY STANDARDS

The framework could be aligned with globally and domestically recognized standards to enhance consistency and credibility. Ensuring coherence with India's Nationally Determined Contributions (NDC) pathway would help maintain relevance within the national decarbonization agenda.

REFINEMENT OF RATING METHODOLOGY

Rather than relying on revenue, which may be volatile and not fully representative of emissions performance, sector-specific intensity metrics (e.g., production volume for steel, employee count for IT) could be applied. Developing sectoral peer groups may further enable consistent benchmarking across companies with similar operational characteristics. Emissions linked to energy consumption rather than revenue could also be explored to reflect decarbonization efforts better, while acknowledging sectoral limitations. Adding a qualitative component could provide a forward-looking perspective aligned with companies' transition trajectories.

INTEGRATION INTO LENDING AND RISK SYSTEMS

The framework could be embedded within financial institutions' credit appraisal and risk management systems, enabling carbon performance to become a standard parameter in lending decisions. Credit policies could be updated to reflect carbon ratings, and the methodology could be harmonized with existing ESG and traditional credit rating approaches to create a unified assessment framework.

APPLICATION TO TRANSITION FINANCE

The framework could support sectors that are not inherently 'green' but are demonstrating credible transition pathways. Ratings could reflect these decarbonization efforts, strengthening the case for transition finance.

GREATER WEIGHT ON FUTURE EMISSIONS INTENSITY

The rating scale could be recalibrated to place greater emphasis on future emissions intensity, aligning more closely with transition pathways. This recalibration could draw on sector-specific benchmarks and national standards such as those under the Carbon Credit Trading Scheme (CCTS).

INTEGRATION OF SCOPE 3 EMISSIONS

Where quantitative data is limited, a qualitative component could indicate the relevance and likely scale of Scope 3 emissions in each sector. This ensures that material emissions sources are not overlooked and that companies' efforts to address Scope 3 emissions are recognized.

NEXT STEPS

Future work could prioritize expanding coverage, deepening engagement with companies, and building consensus with key stakeholders. With these refinements, the Carbon Rating Framework has the potential to become a robust tool for guiding capital flows toward low-carbon and transition-aligned investments.