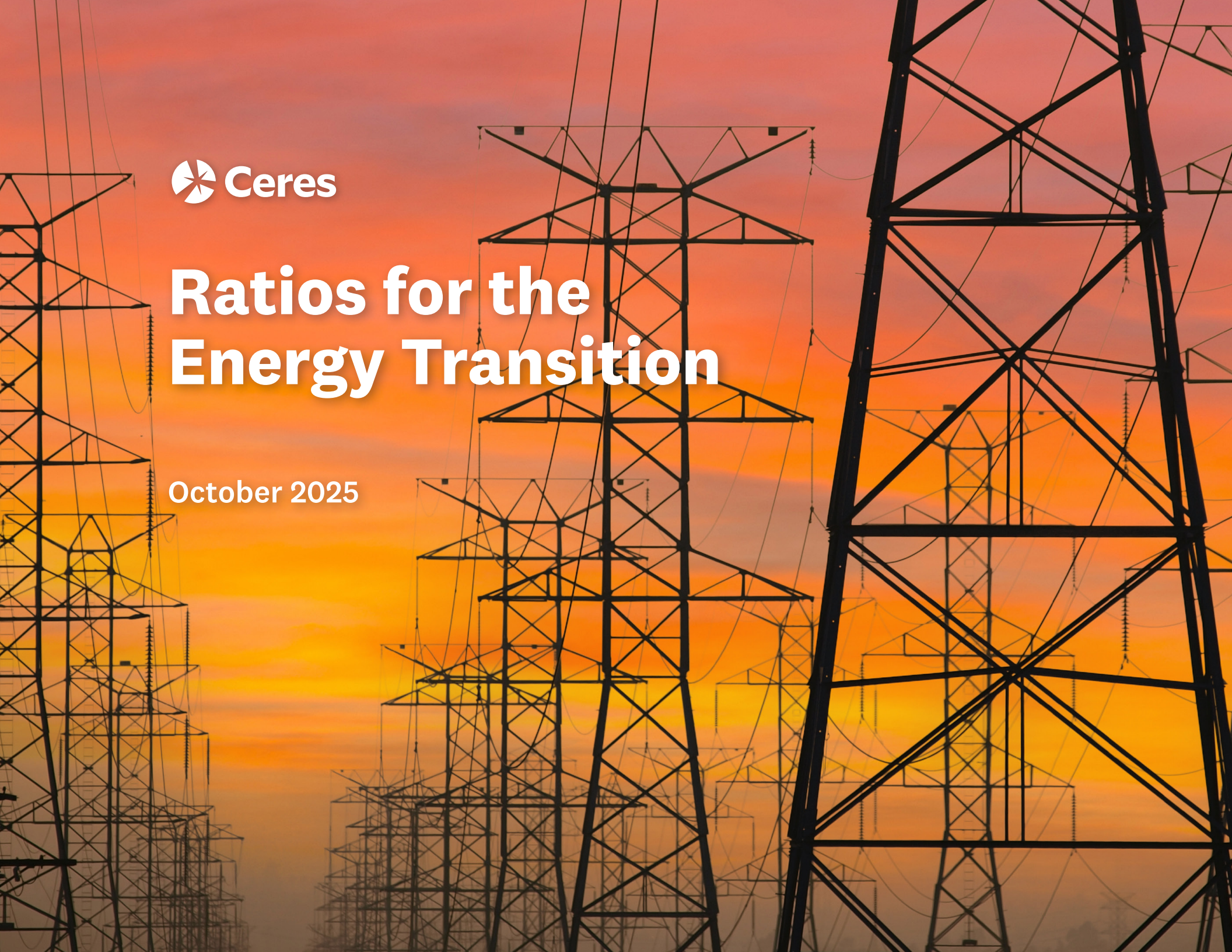


Ceres

Ratios for the Energy Transition

October 2025

Introduction

Rising energy demand, driven significantly by the rapid expansion of data centers, underscores a critical need for capital financing that accelerates the deployment of low-carbon energy at scale. Banks are key to facilitating this critical financing.

In this brief, we analyze the approaches that four banks—JPMorganChase, Citi, RBC, BNP Paribas—are taking to assess the emissions intensity of current and future energy financing via the Energy Supply Ratio (ESR).

> The ESR is the total debt, equity, and project finance a bank has facilitated toward low-carbon energy supply relative to fossil fuels each year. The ratio helps banks and their investors compare a bank's financing of clean energy supply to its financing of fossil fuel energy supply. This disclosure indicates to what extent banks are making significant changes to their energy financing strategies, which investment tools banks are deploying, and where gaps remain in taking advantage of clean energy opportunities, as well as risk mitigation from climate risks.

Based on our review, we provide recommendations for how banks can address four design decisions key to Energy Supply Ratios. To advance the aims of increasing transparency, reproducibility, and actionable information, we recommend that, as part of developing their Energy Supply Ratios, banks: 1) clearly define "energy supply" with thresholds and sub-sector distinctions, 2) include a broad range of products and services to ensure full coverage, 3) disclose how finance is counted and clarify capex data sources, and 4) use transparent, consistent methods for classifying general purpose financing. (See details on page 7.)

Banks' ESR Methodological Approaches

The Energy Supply Ratio gained prominence after BloombergNEF (BNEF) developed the ratio in 2023 to compare the annual bank financing for institutions to low-carbon energy supply versus fossil fuel energy. BNEF calculates the ratio for individual banks based on publicly available data, including bond issuances, syndicated loans, select project finance transactions, and some tax equity deals.

However, this dataset may be incomplete as it excludes bilateral lending, which may constitute a significant portion of financing activities for some banks. That is why it is crucial for banks to disclose their own versions of the ratio to complete the scope of data covered.

Banks have adopted different approaches for key ESR design decisions, which we lay out in the following descriptions for each of the banks' methodologies (see table on page 6 for a summary of the methodologies used by North American banks).

Concerns about these varying approaches were underscored in a paper by the Institute of International Finance (IIF) published in 2024, which explored methodological choices available to banks for calculating the ESR. The IIF identified four key "design decisions."

1. The set of real economy activities included in "energy supply"
2. The scope of bank products and services included
3. The measurement approach
4. The treatment of general purpose financing

Among these areas, the second—scope of products and services—remains a substantive area of debate among the banks. The other three have largely been addressed by BNEF methodology and in the methodologies disclosed by the banks.

Building on Ceres' 2024 Ahead or Behind: The State of Climate Finance in the Banking Sector analysis, which called for consistent, comparable disclosure of climate finance and highlighted the clean energy supply financing ratio as a key metric, we review the four banks—JPMorgan, Citi, RBC, and BNP Paribas—that have disclosed or have taken concrete steps towards developing internal ESRs.

JPMorgan

In November 2024, JPMorgan became the first bank in the U.S. to disclose its ESR.

Notable Elements: JPMorgan uses capital expenditure data to assess the climate impact of its financing, providing a more forward-looking and investment-focused perspective on energy transition efforts. This helps indicate where capital is going, regardless of how capital has been historically used to finance existing energy supply (renewable or otherwise). JPMorgan's use of transaction level allocation with investment intent estimation via capex is intended to distinguish between support for low-carbon and high-carbon activities. The bank's classification of low-carbon and fossil fuel activities follows BNEF's framework, aligning with the International Energy Agency.

Market Reception: The ratio was well received by many stakeholders, especially investors. However, given the bespoke nature of the methodology, based on internal data for aspects like capex, there is some concern that the methodology cannot be replicated by other institutions, particularly those with comparatively fewer resources.

JPMorgan's Methodology Workflow

Source: Flow informed by JPMorgan methodology

Define Energy Supply Activities

Low-Carbon Energy Supply

Zero- and low-carbon power generation

Electricity networks: (transmission/ distribution, public EV chargers)

Energy storage (utility-scale, buildings)

Low-carbon fuels (biogases, liquid biofuels, hydrogen production)

Carbon capture, utilization, and storage

High-Carbon Energy Supply

Oil & Gas (upstream, midstream, refining)

Fossil-based power generation (coal, gas, oil-fired)

Coal mining and transportation

Identify In-Scope Financing Activities

Lending Products

Syndicated lending

Bilateral lending

Project finance

Green loans

Facilitation Activity

Debt underwriting

Green bonds

Equity underwriting

Private capital underwriting

Investment Types

Tax-oriented investments

Categorize Facilities by Use of Proceeds and Purpose

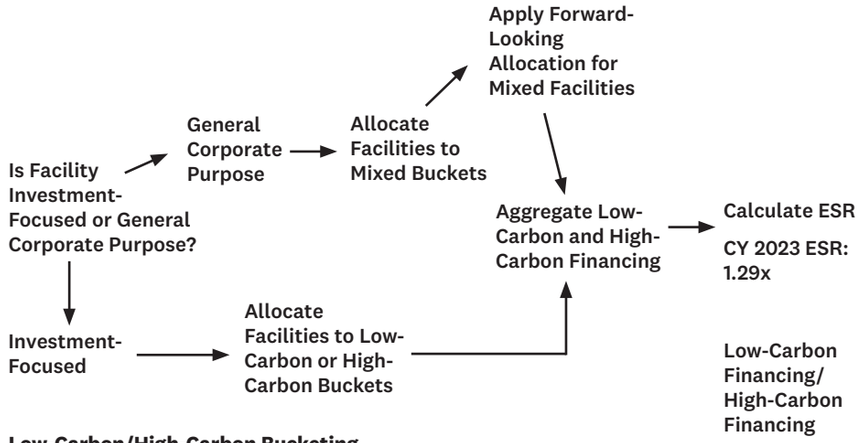
Investment-Focused Financing

Green bonds/ loans, tax-oriented investments, and project finance are treated as 100% low carbon or high carbon based on the underlying asset or project.

General Corporate Purpose Financing

Only the pro-rata share of the company's capital spending allocated to capex and cash-based M&A is included.

Investment-related portion is estimated using internal and external data (company reports, FactSet, S&P Capital IQ).



Low-Carbon/High-Carbon Bucketing
Use NAICS codes and internal issuer/use of purpose data to classify facilities 100% low carbon or high carbon.

Subsidiaries focused on a single activity are fully allocated to the relevant bucket.

Mixed Bucketing
Facilities without clear investment-focused use of purpose and all facilitation activity (except green bonds) are classified as mixed.

Split between low carbon or high carbon is determined using the issuer's capex and assets under development.

External data (e.g., FactSet, S&P Capital IQ, CDP) is leveraged for allocation.

Royal Bank of Canada (RBC)

RBC published its ESR methodology in April 2025. However, it did not disclose the ratio itself, citing Canada's Greenwashing Act as a legal impediment to publishing the specific figure.

Notable Elements: RBC calculates the ESR using authorized loan amounts rather than drawn amounts. This approach reflects the full credit exposure the bank has committed to, which shows it is in line more or corresponds more closely with the bank's financial risk profile and potential capital support for energy activities.

RBC explicitly calls out decarbonizing/transition financing activities in the numerator of the equation (whereas other banks may more implicitly include decarbonizing financing through the allocation methodology). This broadens the scope of what counts as "transition support" and provides a more complete picture of the bank's financing activities that help drive the clean energy transition.

Market Reception: Though investors appreciated that RBC has communicated that it is using the ratio to guide internal decision-making—and the Canadian legal considerations complicating public disclosures—investors were disappointed in RBC's decision not to disclose the ratio.

RBC's Methodology Workflow

Source: Flow informed by RBC methodology

Define Energy Supply Activities

Low-Carbon Energy Supply

Low-carbon power generation (solar, wind, tidal, geothermal, hydroelectricity)

Electricity networks (transmission/distribution)

Energy storage and efficiency (smart grids)

Low-carbon fuels (biogas, liquid biofuels)

High-Carbon Energy Supply

Oil, gas, and high-carbon power generation (upstream, midstream, refining)

Identify In-Scope Financing Activities

Authorized loan balances

Syndicated lending

Bilateral lending

Project finance

Facilitation

Equity capital markets

Debt capital markets

Renewable Energy Tax Credits (RETCs)

Investment in and capital raising for renewable energy tax credits

Categorize Facilities by Use of Proceeds and Purpose

All financing is treated as general corporate purpose, including labelled issuances (e.g. green bonds) and known use of proceeds transactions

Uses internal data for lending/RETCs, external verified sources for facilitation

General Corporate Purpose → **Allocate Facilities to Low Carbon, Decarbonization and High Carbon** → **Aggregate Low-Carbon and High-Carbon Financing**

Process

Company-level adjustment factors are determined based on the business mix (e.g., split of operations across subsectors like wind, solar, natural gas power generation)

Sub-sectors are mapped to low carbon, decarbonization, and high carbon categories

Calculation

The financing amount is apportioned to low carbon, decarbonization, and/or high carbon using these adjustment factors

Inclusion Criteria

Only financing related to the scope of energy supply sub-sectors is included

Calculate ESR

ESR: Did not disclose the number

Low-Carbon Energy Financing and Decarbonization Financing/High-Carbon Energy Financing

Citi

Citi disclosed its ESR methodology in August 2025.

Notable Elements: Citi distinguishes itself by reporting two separate ESRs: one including revolving credit facilities and one without, both based on 2023 data. By publishing both metrics, Citi acknowledges the material impact that revolving credit facilities (which are often large and general purpose) can have on its overall energy financing profile. Revolving credit facilities reflect short-term liquidity, not long-term capital investment.

Market Reception: Given its recent disclosure, there has not yet been notable public perspective on Citi's ESR by stakeholders, though some stakeholders have told Ceres that Citi's approach could be a good first step template for other banks looking to develop an ESR.

CIti's Methodology Workflow

Source: Flow informed by Citi methodology

Define Energy Supply Activities

Low-Carbon Energy Supply

Energy
Renewable energy equipment and services
Renewable Fuels

Power
Biomass waste to energy
Carbon capture and storage
Hydroelectric and tidal
Nuclear utilities and independent power producers (IPPs)
Renewable electric utilities and IPPs
Transmission and distribution

High-Carbon Energy Supply

Energy
Coal
Oil and gas
Oil and gas related equipment and services

Power
Coal
Co-generation fossil fuel
Electric utilities and IPPs
Multiline utilities
Natural gas utilities

Identify In-Scope Financing Activities

Financing
Syndicated loans
Project finance loans
Export agency loans
Government loan guarantees
Tax equity investment

Facilitation
Bond underwriting
Equity underwriting
Project finance bonds
Asset-back securities
Government loan guarantees
Tax credit transfers

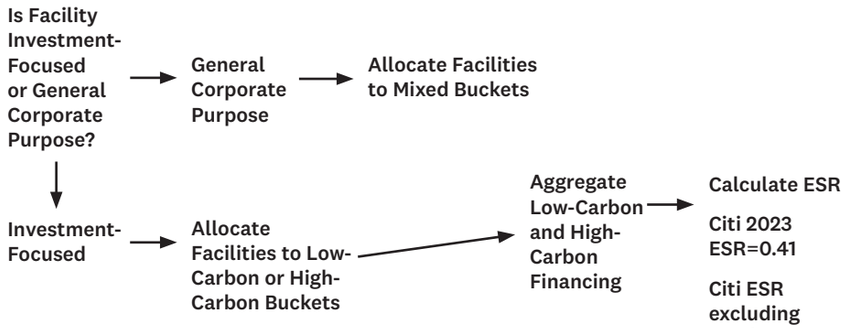
Categorize Facilities by Use of Proceeds and Purpose

Investment-Focused Financing

This applies to facilities with a clear use of proceeds, such as Green Bonds, tax-oriented investments, and project finance. These are treated as 100% low carbon or high carbon based on the underlying asset or project.

General Corporate Purpose Financing

This is financing where the use of proceeds is not specific to a single project. Only the pro-rata share of the company's capital spending (capex) and cash-based M&A are included.



Low Carbon/High Carbon
For investment-focused facilities, internal and external data (like NAICS codes and issuer data) are used to classify them as 100% low carbon or high carbon. Subsidaries are fully allocated to the relevant bucket based on their single-activity focus.

Mixed Bucketing
All General Corporate Purpose facilities and other facilities without clear, investment-focused use of proceeds (except green bonds) are classified as "mixed". The approach for transactions without a specific low-carbon use of proceeds differs for the energy and power sectors.

Power sector: For transactions in the power sector that do not have a known low-carbon use of proceeds, the amount is adjusted based on S&P/Capital IQ (CAP IQ) power generation data. This data provides the client-level mix of low-carbon and fossil fuel power generation and is used to apportion the financing.

Energy sector: For the energy sector, a more conservative approach has been taken for the first disclosure. Unless a transaction has a known low-carbon use of proceeds, the entire amount is allocated to the fossil fuel denominator.

Table: Summary of the methodologies used by North American Banks

Criteria	Citi	JPMorgan Chase	Royal Bank of Canada
Activities Included	Defines "Energy Supply" as activities related: • the supply of low-carbon energy (e.g., renewables) • high-carbon energy (e.g., fossil fuels) Includes oil & gas, power generation, transmission, distribution, and energy technology manufacturing	Defines "Energy Supply" by separating: • low carbon (zero- and low carbon power, fuels, CCUS, energy storage) • high carbon (oil & gas upstream, midstream, refining, coal; unabated fossil power) activities	Defines "Energy Supply" as financing: • low carbon • decarbonization activities • high-carbon energy financing Focus is on oil & gas and power generation sectors
Activities Excluded	Excludes end-use sectors such as transportation, agriculture, and construction.	Excludes energy-related manufacturing and end-use sectors, citing limited data availability.	Does not explicitly list excluded sectors; primarily focuses on oil & gas and power generation sectors.
Scope of Financial Products (as noted by the banks)	Includes: • Syndicated loans • Bond underwriting • Equity underwriting • Project finance loans • Project finance bonds • Asset-backed securities • Government loan guarantees • Tax equity investment	Includes: • Syndicated lending • Bilateral lending • Project finance • Green loans • Debt underwriting • Green bonds • Equity underwriting • Private capital underwriting • Tax-oriented investments	Includes: • Syndicated lending • Bilateral lending • Project finance • Equity capital markets • Debt capital markets • Renewable Energy Tax Credits (RETCs) - Investment in and capital raising for renewable energy tax credits and RETC transfers
Measurement Approach	Uses league table credit allocation assigning equal credit to each lead manager. Employs internal decision trees to categorize financing and applies sector-specific adjustment factors for general purpose financing.	Combines internal and external data to categorize facilities. For mixed-use facilities, allocation is based on the issuer's capital expenditure (capex) and assets under development to isolate investment-focused financing.	Measures authorized lending balances at a specific point in time rather than only new originations. Uses league table credit allocation. Allocates financing based on share of total client revenue for clients with mixed activities.
Treatment of General Purpose Financing	Applies an adjustment factor to apportion general corporate purpose financing. For energy sector companies, full amount allocated to fossil fuels unless low carbon use is specified.	Includes a pro-rata share of overall capital spending (capex and M&A) related to low carbon activities, designed to exclude financing for other corporate uses.	Allocates financing based on reported revenue share between low- and high carbon activities, regardless of projected use of proceeds.
Data Sources	Uses a mix of internal and external data, including LSEG, IJGlobal, Dealogic, and TXF.	Uses internal data for detailed insight plus external credible, standardized data sources.	Uses internal data for lending and external data for ECM/DCM aligned with enterprise industry codes, supplemented by reported revenue information.

Source: Table informed by Citi, JPMorgan and RBC methodologies and terminologies.

European Banks - BNP Paribas

Many European banks disclose their Green Asset Ratio (GAR) under European Union requirements for Europe's largest banks. GAR is different from an ESR as it excludes key financing activities such as capital markets and lacks a clean-to-fossil energy comparison. The key difference between ESR and the GAR is that the GAR measures the share of a subset of assets that are fully aligned with the EU Taxonomy, while the ESR captures all taxonomy-eligible assets, including those that are not yet aligned. Here we review BNP Paribas as an example of steps banks have taken towards GAR that parallels ESR disclosures in North America.

BNP Paribas discloses a GAR in line with EU requirements but has not published a formal ESR. However, the bank provides a closely related metric that reflects its climate-aligned financing mix. The bank's most recent full-year ESR results for 2024 were released in February 2025.

Notable Element: BNP Paribas has established a strategic 2030 ratio target to accelerate its energy transition, aiming for 90% low-carbon energy financing (around €40 billion/$46 billion) and only 10% fossil fuel financing. This shift is demonstrated by the decline in fossil fuel financing from 90% in 2012 to around 46% in 2022 (stated CAGR of –6.5%), which is projected to decline further (CAGR –17.4%) to the 10% target by 2030. Simultaneously, low-carbon financing steadily grew from 10% in 2012 to 76% by 2024 and is projected to reach 90% by 2030.

Market Reception: Since this does not fall strictly under ESR, stakeholders have not provided ESR-specific feedback.

Recommendations on four key design decisions

Based on our review of existing ESR methodologies, we provide recommendations for each of the following four design decisions:

1. The set of real economy activities included in "energy supply"

The ESR's usefulness hinges on how it defines "energy supply" activities both in terms of breadth and carbon intensity. Some banks rely on simplified categorizations ("clean" vs. "fossil") without clear thresholds or transparency on included sub-sectors.

To assist investors, the more granular the "energy supply" definition is, the more decision-useful the ratios would be. The classification should distinguish between:

- Pure-play low carbon
- Transitional
- High carbon

2. The scope of bank products and services included

Some banks have narrowly defined the ESR to only include syndicated loans or capital market activities (BNEF methodology), while omitting channels such as bilateral lending. Including the following financial products and services in the ratio—provided they are a significant portion of a bank's financing (or indicating why any of these products and services are not included)—would provide more comprehensive coverage and consistency:

- Bilateral lending
- Syndicated lending
- Bond issuance
- Project finance
- Primary equity issuance
- Tax equity

3. The measurement approach

Banks differ in how financing amounts are counted and attributed. Some banks report only drawn amounts, while others use authorized or committed amounts. All attribution methods should be disclosed clearly for transparency. While stakeholders have appreciated aspects of the capex approach because it is forward-looking toward future energy sector financing, it also must be further evaluated. This is because there is limited reliable data available on capex related to energy transition investments, so estimates often rely on assumptions rather than solid data, while sectoral differences in capital intensity further complicate comparisons.

To provide greater transparency, banks should:

- Whether using drawn or authorized/committed attribution, the approach should be disclosed clearly and include an explanation for why it was selected.
- If using capex to help indicate forward-looking direction, the banks should provide as much transparency as possible about how transition-related capex data are derived.

4. The treatment of general purpose financing

Given that general purpose loans are not earmarked for specific activities, attribution becomes the key mechanism for allocating their exposure to high- or low-carbon activities within the borrower's overall portfolio. Treatment of general purpose financing is therefore managed in most methodologies through attribution. However, assuming that a loan is low- or high-carbon solely based on the borrower's sector or historical activities can lead to misclassification, particularly for diversified energy companies or those actively transitioning from carbon intensive to lower carbon energy sources.

This issue becomes even more important and nuanced when it comes to capital expenditure lending, where financing may directly support long-lived energy infrastructure. The capex approach sets out a useful precedent for how to include these data in its calculations. It would be decision-useful for investors if banks applied

transparent and internally consistent attribution methods when classifying general purpose financing, considering factors such as:

- The borrower's primary business activity
- The proportion of revenue derived from fossil fuel versus low-carbon segments
- The proportion of capex allocated to high-carbon versus low-carbon segments

The Context of the Ratio

The ESR is a useful supplemental metric to banks' disclosure of their financed emissions (which can fluctuate without changes in real economy emissions) and their sustainable financing targets (which do not capture the relative ratio between low-carbon and fossil fuel activities financed by banks). The ESR can help investors and other stakeholders assess a bank's role and relative progress in supporting the energy transition that provides profit to investors from increased clean energy opportunities, as well as risk mitigation from climate risks.

To encourage the greater transparency needed to inform their own investment decisions, asset owners are playing a significant role in advancing bank self-disclosure of ESRs that incorporate the banks' own, more detailed data. Investors began engaging with banks on the ratios in fall 2023, with some investors filing shareholder resolutions over the past two years. The New York City Comptroller filed resolutions with several large North American banks in 2024 and 2025, and Shareholder Association for Research and Education (SHARE) filed similar proposals at several large Canadian banks in 2025.

As with any disclosure, there is tension between comparability for investors and other stakeholders and flexibility for financial decision-making. Comparability across financial institutions is crucial because 1) existing metrics, such as those used to assess financed emissions, are not designed for interbank comparisons due to the differences in the composition of their sector and asset portfolios, methodological differences (banks that are Partnership for Carbon Accounting Financials (PCAF) signatories adhere to its approach), and poor data quality scores and 2) sustainable finance methodologies currently in use cannot be aggregated, given the use of different methodological processes and themes.

Tying Disclosures to Financing Shifts in Energy and Beyond

The scale and dominant role (73% of overall energy investments) of energy-related commercial financing cannot be overstated. An additional $1.5 trillion in private sector spending is required annually by 2030 to achieve IEA's Net Zero Emissions scenario's trajectory — and demand for new energy supply is growing rapidly. Despite this need, across the 12 oil and gas companies analyzed by Reclaim Finance, there have been significant rollbacks in capital expenditure plans for lower carbon energy. This unmet investment underscores the need for ESR disclosures—and for them to become tools that help guide decision-making.

The ESR has the potential to follow the trajectory of voluntary disclosures by the financial services sector, which have become the basis for converging best practices. But this will only happen if future ESR disclosures incorporate design best practices, such as the recommendations of this brief. With the 2023 establishment of International Sustainability Standards Board (ISSB) guidance for financial reporting, sustainable finance disclosures have been consolidated both in scope and format. This growing alignment has been a result of the combined efforts of investor engagement, civil society, government taxonomy bodies, and corporate initiatives. As banks develop and refine ESRs, they should ensure they provide decision-useful information for their shareholders and other key stakeholders and their own financing to accelerate the deployment of renewable and low-carbon energy sources.

About Ceres

Ceres is a nonprofit advocacy organization working to accelerate the transition to a cleaner, more just, and sustainable world. United under a shared vision, our powerful networks of investors and companies are proving sustainability is the bottom line—changing markets and sectors from the inside out. For more information, visit ceres.org.

About Ceres Accelerator for Sustainable Capital Markets

The Ceres Accelerator for Sustainable Capital Markets is a center within Ceres that aims to improve the practices and policies that govern capital markets by engaging federal and state regulators, financial institutions, investors, and corporate boards to act on climate change as a systemic financial risk. For more information, visit ceres.org/accelerator.

About StepChange

StepChange offers an integrated state-of-the-science platform for financial institutions that unifies carbon management, ESG intelligence, and climate & nature risk across lending and investment workflows, supporting informed decision-making for operational sustainability, sustainable finance and climate risk management.

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Lead Authors

Aneil Tripathy, Director, Financial Services, Company Network, Ceres
Richa Agarwal, Senior Manager, Climate Strategy and Sustainable Finance, StepChange
Dan Saccardi, Program Director, Company Network, Ceres

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