Energy Supply Financing Ratio White Paper

August 2025

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Citi is a global financial institution that provides financial services across a variety of sectors to enable growth and economic progress. We support clients, including in the energy and power sectors, that help meet the global need for energy. In these sectors, our work includes facilitating business opportunities and supporting clients' transition to a low-carbon economy, wherever they are in their transition journey.

Citi has calculated an Energy Supply Financing Ratio (ESFR) for the first time to identify the proportion of low-carbon to fossil fuel financing and provide additional transparency on our engagement in the energy transition. However, to fully understand our institution's role in the energy transition, the ESFR must be considered alongside other metrics and disclosures, to provide context to the challenges faced by emerging markets and the unique needs of clients in different sectors. The ESFR will be one of many metrics provided in our climate-related disclosures going forward.

Citi's approach to designing the ESFR focused on the landscape of energy supply to ensure that ongoing and emerging efforts to support the global transition to a low-carbon economy were captured. There was no established existing methodology for the financial sector, nor are there mature data sets available to leverage for this calculation. Because of this, Citi developed a methodology and calculation of the ratio. The methodology will develop further as data becomes more widely available, and we expect to update both the methodology and the data utilized over time. In developing our methodology, we reviewed the Bloomberg New Energy Finance (BNEF) Clean Energy Supply Banking Ratio's Implementation Guide as well as the Institute of International Finance's White Paper on Energy Supply Ratio design principles.

In January 2025, BNEF published its third annual report describing a "Clean Energy Supply Banking Ratio" methodology that calculates a ratio of banks' green to fossil fuel financing. According to publicly available information:

- The Clean Energy Supply Banking Ratio includes syndicated loans, bonds, equity, project finance and tax equity invested or facilitated for the energy and power sectors.

- BNEF puts clean energy financing in the numerator, pure fossil fuel financing in the denominator, and then applies an adjustment factor to the remaining transactions to estimate the amount of low-carbon to fossil fuel activities for companies engaged in both.

While Citi has developed its own ESFR methodology tailored to our business profile and readily available resources, we acknowledge that other financial institutions may adopt different approaches. Given the variations in methodologies, the lack of standardized industry practices, and the nascency of data sets utilized for the adjustment factor, we will also continue to include the BNEF Energy Supply Banking Ratio in our disclosures for transparency and comparison purposes.

Methodology

Sector Scope and Classification

Citi's ESFR compares financing for the supply of low-carbon energy (e.g., renewables) to high-carbon energy (e.g., fossil fuels). This includes activities directly related to supply, such as oil and gas production and power generation, as well as activities related to the broader energy system, such as transmission and distribution and the manufacturing of energy and energy technologies. The ratio itself is focused on energy supply activities, and thus excludes end-use demand sectors, such as transportation, from the calculation boundary. However, it is important to note that energy demand is as important as supply in driving energy modernization, which facilitates the unlocking of greater investment in low-carbon sources of energy.

Across the Energy and Power sectors, categorizing supply-side activity into low-carbon and fossil fuels is primarily based on sectoral definitions from LSEG (London Stock Exchange Group) and IJ Global.

Sector Scope and Classification

Energy	Power
Low-Carbon	
Renewable Energy Equipment & Services • Bio, Geothermal, Hydro, Solar, Thermal, Waste, Wave and Wind Energy Systems & Equipment • Energy Charging & Storage • Fuel Cells • Renewable Energy Services • Smart Meters **Renewable Fuels** • Bio • Ethanol • Geothermal • Hydrogen • Synthetics	**Biomass Waste to Energy** **Carbon Capture & Storage** **Hydroelectric & Tidal** **Nuclear Utilities & Independent Power Producers (IPPs)** **Renewables Electric Utilities & IPPs** • Alternative • Geothermal • Solar • Wind **Transmission & Distribution**
Fossil Fuels	
Coal **Oil & Gas** • Exploration and Production • Integrated • Refining & Marketing **Oil & Gas Related Equipment and Services** • Drilling • Pipeline Transport & Storage • Misc. Equipment and Services	**Coal** **Co-generation** **Fossil Fuel Electric Utilities & IPPs** **Multiline Utilities** **Natural Gas Utilities**

Note: For Citi's methodology, we reclassified IJ Global Carbon Capture and Storage, Transmission & Distribution and Hydro sector codes as low-carbon.

Product Inclusion and Data Sources

Within the supply-side of the Energy and Power sectors, the financial products and activities we include take into consideration Citi's primary business activities and data availability. The ESFR includes Debt Capital Markets, Equity Capital Markets, Syndicated Lending, Project Finance, Export Agency Finance and asset-based finance that leverages governmental support such as loan guarantees or tax credits. In order to account for Citi's role in the energy transition, Citi identified various data sources, both internal and external, to calculate the ESFR. The current ESFR utilizes data from LSEG, IJGlobal, Dealogic and TXF as well as internal data.

Product Inclusion and Data Sources

Data Source	Product Inclusion	
	Financing	**Facilitating**
LSEG	• Syndicated loans	• Bond underwriting • Equity underwriting
IJGlobal	• Project finance loans	• Project finance bonds
TXF	• Export agency loans	
Dealogic/ Internal		• Asset-backed securities
Internal	• Government loan guarantees • Tax equity investment	• Government loan guarantees • Tax credit transfers

Bank Allocation of Deal Proceeds

Citi's ESFR is based upon a league table credit allocation of deal proceeds, using the data sources listed above. This league table approach generally allocates equal credit to each lead manager with slight variations across the data providers' methodologies.

Adjustment Factor

In order to allocate the appropriate amount to the numerator (low-carbon) and to the denominator (fossil fuel) for each transaction, Citi developed decision trees to guide the adjustments based on use of proceeds.

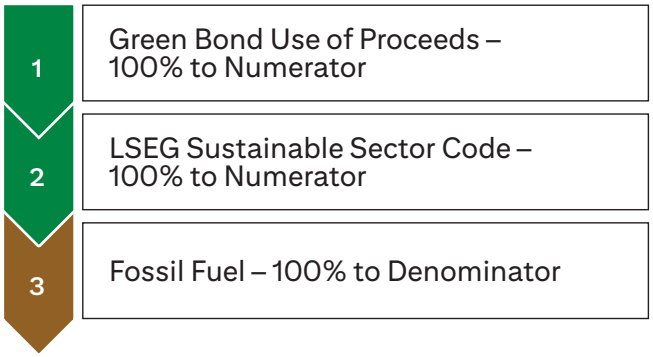
For companies that are neither strictly low-carbon nor fossil fuel in profile, a key challenge is what "adjustment factor" to use in order to apportion general corporate purpose financing, between either low-carbon or fossil fuel, for purposes of calculating the ratio. For example, most Power companies have diversified sources of power generation that might include fossil fuel combustion, renewable energy generation and nuclear power. Similarly, some Energy clients are making capital expenditures in low-carbon technologies. This consideration is central to calculating a meaningful ratio, but there is a shortage of high-quality data available.

If there is a known use of proceeds transaction (as distinct from general corporate purpose financing) that is low-carbon according to our classification, the full amount is allocated to low-carbon (i.e., the

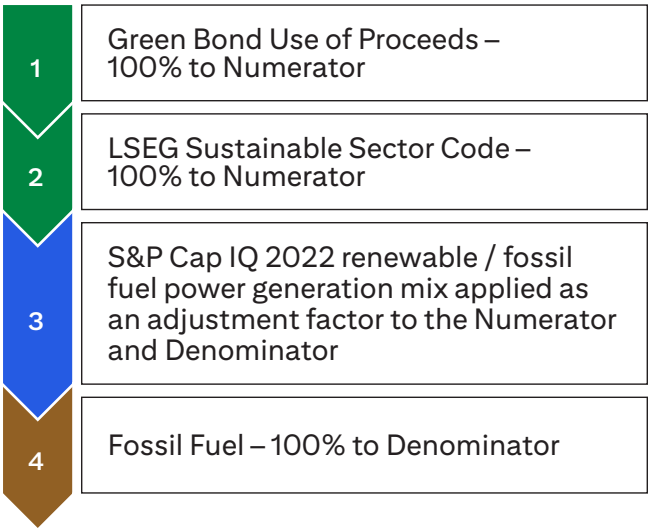
numerator) for both the Energy and Power Sectors. For other transactions in the Power sector, the amount going to the numerator versus the denominator is adjusted based on S&P/ Capital IQ (CAP IQ) power generation data, which provides client-level low-carbon/fossil fuel power generation mix on a GWh basis. For other transactions in the Energy sector, we have taken a conservative approach for this first disclosure and have allocated the entire amount to fossil fuels (i.e., the denominator), unless the transaction has a known use of proceeds that meets the low-carbon criteria. However, we recognize that low-carbon investments are being made by certain energy companies and expect to be able to incorporate that data in the future. We will continue to evaluate emerging data sets that might more accurately capture the low-carbon activities within the Energy sector.

Energy and Power Decision Trees

Energy



Power



Citi ESFR

Citi has calculated two ESFR metrics, one including revolving credit facilities and one without. Based on the methodology described above and YE2023 data, Citi's ESFR including revolving credit facilities is 0.41.

Citi ESFR's ratio excluding revolving credit facilities provides, in our view, a more accurate reflection of our financing activities related to long-term energy supply investments. As a flexible financing solution, revolvers can be drawn and repaid multiple times throughout the tenor of the facility. This draw and repay feature, in tandem with revolvers being used for liquidity or working capital (rather than capital investment), risks distorting the picture of actual capital investment in energy supply. Moreover, revolving credit facilities may not be drawn down at all during certain periods, meaning they are not actively contributing to energy supply development. In instances, when a revolver is used to provide interim funding for a specific asset or energy investment (e.g., to cover working capital needs before arranging more permanent financing), including it in the financing calculation can lead to double counting. This occurs because the same asset or investment may later be financed again under a long-term capital structure. By excluding revolvers, the ratio more accurately reflects the financial commitments that are directly tied to energy capital investment and supply, particularly in terms of long-term, substantive commitments to low-carbon or fossil fuel-based energy infrastructure.

Based on the above described methodology and YE2023 data, Citi's ESFR excluding revolving credit facilities is 0.56.

Ratio Results	Low-Carbon (Numerator)	Fossil Fuel (Denominator)
Citi ESFR = 0.41	$13.8B	$33.9B
Citi ESFR Excluding Revolvers = 0.56	$9.9B	$17.7B
BNEF[1, 2] = 0.75	$23B	$31B

1 Since BNEF's calculation relies on proprietary data sources and an adjustment factor that is not yet publicly available, we cannot precisely reconcile the Citi ESFR with BNEF's Clean Energy Supply Banking Ratio. Consequently, while we include BNEF's ratio for transparency, we cannot provide a full breakdown of how each component aligns with our own ESFR.

2 Third Annual Energy Supply Investment and Banking Ratios | BloombergNEF.

ESFR Limitations

The ESFR as a metric is at a nascent stage. While it can provide insights about climate strategy and financing, there are challenges and limitations to its usage or comparability.

- One of the primary challenges is the lack of a standardized methodology for calculating ESFR, as each institution develops its approach based on its business model, available data and associated methodological decisions. This leads to variations in the calculation process, and therefore, caution should be applied in any comparison of ESFR figures across the industry.
- Furthermore, the data required for a comprehensive ESFR calculation is often limited and requires subjective application in the absence of high-quality data, particularly when considering the adjustment factors that guide how financings are classified. These data gaps can hinder the ability to fully capture the scope of financing activities that contribute to the energy transition. As a result, ESFR should be interpreted in the context of a broader set of climate-related metrics to provide a more holistic view of an institution's contributions to the energy transition.
- In the case of general corporate purpose financings, a more appropriate adjustment factor for the components of the ratio would entail splits of capital expenditure ("capex") between low-carbon and high carbon investment. As a more forward-looking indicator, capex should be a better indicator of energy transition. Unfortunately, today there is no sufficiently comprehensive cross-industry data set for capex available.
- ESFR results do not account for the fact that banks with a significant emerging markets presence transact in geographies where the pathways to decarbonization may be more gradual than in highly developed countries. Banks with a large presence in emerging markets are exposed to clients who may decarbonize more gradually than those in highly developed countries, partly due to longer investment time horizons and distinct credit risk profiles. Financing low-carbon initiatives at scale in these regions can therefore be more challenging. While the ultimate impacts of these dynamics are difficult to predict, varying market conditions will inevitably produce different decarbonization trajectories. It is important to recognize these regional dynamics, particularly as we support clients in both developed and emerging markets, where energy security and the prioritization of economic development are key concerns.
- As referenced above, the ESFR does not include financing for the energy demand side, and yet financing for low-carbon energy uses (e.g., electric vehicles) is critically important to scale the supply for low-carbon energy.
- The ratio is a snapshot in time and does not provide information on the evolving global context and other important considerations, such as whether a transition is just, minimizing negative social impacts and equitable from a community and worker perspective. In order to support a sustainable transition, a phased and strategic approach is necessary to ensure stability and maintain economic and social opportunities.

As investment in the energy transition accelerates, we anticipate opportunities to support low-carbon financing to grow. As industry-wide ESFR methodologies are formalized and data quality improves, we will continue refining our ESFR to ensure it more appropriately reflects the complexity and breadth of the energy transition. We recognize that improved data transparency, better tracking of financing flows and a more standardized approach will allow for more robust comparisons and additional insights.

Appendix

Citi's ESFR Methodology Graphic

Product Inclusion	Financed or Facilitated	Data Source Inclusion	Bank Allocation of Deal Proceeds	Adjustment Factor
Energy & Power				
Bond underwriting	Facilitated	LSEG	Full credit awarded to the bookrunner, equal if joint books	Energy and Power Decision Tree
Equity underwriting	Facilitated	LSEG	Full credit awarded to the bookrunner, equal if joint books	
Syndicated loans	Financed	LSEG	Full credit awarded to a single mandated arranger, or pro rata (equal) credit to each mandated arranger if there is more than one	
Project Finance Bonds and Loans	Financed and Facilitated	IJGlobal	Credit allocated to bond arrangers or loan mandated lead arrangers based on underwritten commitments, if not fully disclosed bond/loan tranches amounts are divided equally and allocated	Energy and Power Decision Tree
Export Agency Loans	Financed	TXF	Total volume split equally among all the multilateral agencies involved in the deal, excluding direct lending tranches	Energy and Power Decision Tree
Internal				
Renewable energy tax credit transfer	Facilitated	Internal	Volume allocated equally among Lead Placement Agents	100% to Low-Carbon
Department of Energy loan guarantees	Financed and Facilitated	Internal	Volume is allocated equally among leads	
Solar asset-backed securities	Facilitated	Dealogic/ Internal	Volume allocated equally among Bookrunners on a tranche-by-tranche basis.	
Solar warehouse	Facilitated	Internal	Volume allocated equally among Lead Lenders	

Illustrative Examples of Citi's ESFR Methodology

Illustrative Energy Decision Tree Examples

Note that the below sample deals are fictional examples only and were not used in the ESFR calculations.

Issuer/ Borrower Name	Issuer/ Borrower Ultimate Parent Name	Issuer/ Parent	Product Type	Deal Value (USD M)	# Leads	League Table Credit	Primary UoP	Issuer/ Borrower Activity*	Ultimate Parent Industry*	Decision Tree 1. Green Bond = 1 2. LSEG Sustainable Sector Code = 1 3. Fossil Fuel = 0	Adjustment Factor	League Table Credit Basis Numerator	League Table Credit Basis Denominator
A	AAA	Issuer	DCM	835.66	7	119.38	Green Bond Purposes	Renewable Energy Equipment & Services	Govt & Govt Finance	1. Green Bond 2. LSEG Sustainable Sector Code	1.00	119.38	0.00
B	BBB	Issuer	ECM	1,499.99	4	375.00	Acquisition Finance	Renewable Energy Services	Renewable Energy Services	2. LSEG Sustainable Sector Code	1.00	375.00	0.00
C	CCC	Parent	Loan	3,200.00	12	266.67	Acquisition Finance	Oil & Gas Exploration and Production	Oil & Gas Exploration and Production	3. Fossil Fuel	0.00	0.00	266.67
D	DDD	Issuer	Loan	205.00	6	34.17	General Corporate Purpose	Oil Exploration and Production - Onshore	Oil & Gas Exploration and Production	3. Fossil Fuel	0.00	0.00	34.17

* Based on LSEG's The Reference data Business Classification (TRBC).

Illustrative Power Decision Tree Examples

Note that the below sample deals are fictional examples only and were not used in the ESFR calculations.

Issuer/ Borrower Name	Issuer/ Borrower Ultimate Parent Name	Issuer/ Parent	Product Type	Deal Value (USD M)	# Leads	League Table Credit	Primary UoP	Issuer/ Borrower Activity*	Ultimate Parent Industry*	S&P Low-Carbon Gen-eration %	Decision Tree 1. Green Bond = 1 2. LSEG Sustainable Sector Code = 1 3. S&P Renew Gen % 4. Fossil Fuels = 0	Adjustment Factor	League Table Credit Basis Numerator	League Table Credit Basis Denominator
E	EEE	Issuer	DCM	690.25	12	57.52	Green Bond Purposes	Electric Utilities	Electric Utilities		1. Green Bond	1.00	57.52	0.00
F	FFF	Issuer	DCM	397.07	4	99.27	Green Bond Purposes	Solar Electric Utilities	Commodity Chemicals		1. Green Bond 2. LSEG Sustainable Sector Code	1.00	99.27	0.00
G	GGG	Issuer	DCM	1,050.00	10	105.00	Green Bond Purposes	Electric Utilities	Electric Utilities	74%	1. Green Bond 3. S&P %	1.00	105.00	0.00
H	HHH	Parent	Loan	400.00	4	100.00	General Corporate Purpose	Electric Utilities	Electric Utilities	53%	3. S&P %	0.53	52.64	47.36
I	III	Issuer	Loan	1,200.00	6	200.00	General Corporate Purpose	Electric Utilities	Electric Utilities		4. Fossil Fuel	0.00	0.00	200.00
J	JJJ	Issuer	Loan	750.00	4	187.50	General Corporate Purpose	Alternative Electric Utilities	Investment Management & Fund Operators		2. LSEG Sustainable Sector Code	1.00	187.50	0.00

* Based on LSEG's The Reference data Business Classification (TRBC).