Fourth Energy Supply Banking Ratios: Little Progress

Comparing low-carbon and fossil-fuel financing activity, 2021-2024

September 18, 2025

BloombergNEF

Contents

A family of Energy Supply Ratios

BNEF has developed a suite of “energy supply ratios” to track investment and financing activities for both low-carbon energy and traditional fossil fuels. These ratios are designed to provide a more holistic view of the transition and shift attention toward the growth required in the low-carbon side of the equation to displace fossil fuels and limit warming. They also may help financial institutions identify emerging opportunities in the energy space. ESBR focuses on the banking industry. This series also includes:

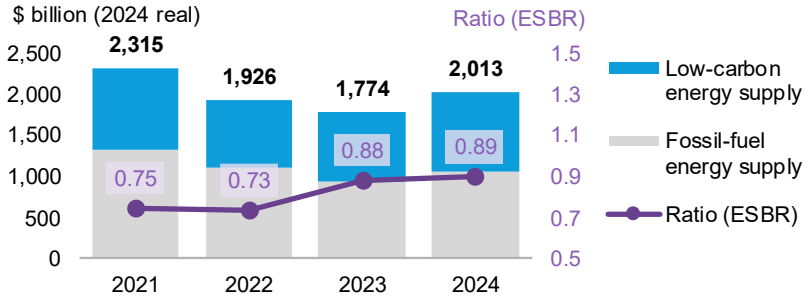
- The **Energy Supply Investment Ratio (ESIR)** (web | terminal), which estimates that the ratio of low carbon to fossil fuel supply investment needs to grow from 1.06 in 2024 to a range between 4.8 and 14.4 by 2030 to be on course for net zero by 2050.
- The **Energy Supply Fund-Enabled Capex Ratio (ESFR)** (web | terminal), which measures the climate alignment of investment portfolios, focusing on specific products and institutions. It estimates that for every $1 of fossil fuel energy supply capex, investment funds enabled just $0.48 of low-carbon energy supply capex.

Executive summary

The world's leading banks financed low-carbon energy companies and projects in 2024 at about the same rate as the year before, when compared with their activities supporting fossil fuels. BloombergNEF's fourth annual assessment of the Energy Supply Banking Ratio highlights inertia in industry and institutional financing strategies. This report covers investments made by energy companies and bank-facilitated finance for energy supply from 2021 to 2024. For every dollar of bank financing that went to oil, natural gas or coal last year, 89 cents went toward low-carbon energy companies and projects, including wind, solar and grids.

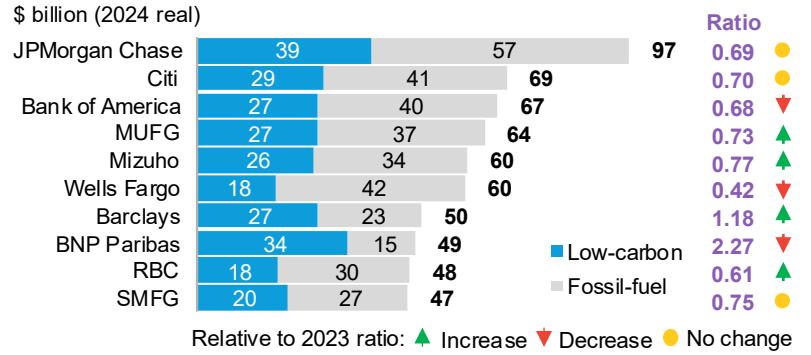
- There was a rebound in both capital investment by energy companies and bank-facilitated financing for the industry. Investment into energy supply projects rose 4% to $2.4 trillion, while bank financing jumped 13% to $2 trillion. Growth in debt and equity fund raisings for fossil-fuel activities kept pace with an increase in project and recourse financing for low-carbon activities in 2024.
- Bank financing for low-carbon energy remained below that of fossil fuels. The Energy Supply Banking Ratio (ESBR) registered 0.89:1 in 2024, a fractional rise from 0.88:1 in 2023. That is despite investment into low-carbon projects surpassing what went into fossil fuels. Individual company spending and finance decisions impact the alignment between the two ratios, as does the time lag from the point of financing to capital deployment.
- Debt issuance rose for both low-carbon and fossil-fuel issuers by about 18%, almost returning to levels prevailing in 2021 when interest rate were much lower. This increase happened across the United States, China and much of Europe. Equity issuance diverged by energy type. While fossil fuel companies raised 62% more through equity in 2024, clean energy suffered a 15% drop. With project finance, that relationship was reversed, with renewables reaping 11% more than a year ago and fossil fuels 19% less.
- The global ESBR remained consistently below 1:1 in the past four years, and ratios for most individual institutions have also seen little improvements. Fluctuations in ESBRs for almost all of the top 10 banks by volume have been limited to 0.5 points or less since 2021.
- Several banks including JPMorgan Chase, Royal Bank of Canada and Citi adopted an energy supply ratio metric over the past year, following campaigns by investors for disclosure. Absent an industry standard, each bank has made different design choices. The overarching framework remains fairly consistent across banks. We expect to see further consensus as more institutions develop these metrics.
- The ratio is not rising at the pace needed to meet global climate goals. The financial sector's climate alliances have been in turmoil since the end of 2024 – following political pressure in North America to scrap ESG practices and growing skepticism within banks about the industry's ability and willingness of governments to reach the 1.5-degree goal. Yet many banks still seek to pursue opportunities in the energy transition where the economics of low-carbon solutions are strong.

Global energy supply bank-facilitated financing, 2021-24



Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: All 2021-23 numbers adjusted for inflation and reported in 2024 US dollars. ESBR refers to Energy Supply Banking Ratio.

Top 10 banks by 2024 volume of energy supply finance



Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: Changes relative to 2023 results are based on restated figures produced in August 2025.

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Methodology overview

Bank-facilitated financing and the Energy Supply Banking Ratio

Our analysis spans the energy value chain

Focus of this report

Energy Supply

Production and supply

Company revenue driven by the development, extraction, transportation or generation of energy.

Manufacturing

Company revenue driven by the manufacture of clean technologies.

Energy Demand

Consumption

Company revenue driven by the manufacture and financing of transportation technologies.

Not included: Adjacent sectors

Low-carbon

Production and supply

Company revenue driven by low-carbon sources of energy production. This includes renewables, storage, biofuels and nuclear.

Grid technology upgrades often tend to accompany cleaner capacity and also allow the smoother integration of renewables, so transmission and distribution is considered green.

- Solar
- Wind
- Geothermal
- Hydropower
- Storage
- Marine power
- Biofuels and biomass
- Nuclear
- Electricity grid
- Hydrogen and CO2 transport/storage

Manufacturing

Company revenue driven by the development of plants/facilities manufacturing low-carbon energy equipment. This includes equipment and services, such as modules, turbines and components.

We include smart grid equipment due to the direct enablement of clean power on the grid.

- Plant development
  - Solar, biomass, wind
- Smart grid equipment
- Clean energy equipment
  - Solar cells/modules, inverters
- Wind turbines
- Geothermal equipment
- Hydro equipment
- Fuel cells
- Nuclear equipment

Consumption

Company revenue driven by the manufacturing of clean transportation technologies, primarily electric vehicles (passenger vehicles and trucks) and energy efficiency/buildings. Also includes financing and leasing for transportation.

- Electric passenger vehicles
- Electric trucks
- Leasing electric vehicles
- Electric-vehicle financing
- Heat pumps and boilers
- Clean steel (EAF)

Not included: Adjacent sectors

Metals and mining relevant to batteries/EVs, but tracked too broadly in Bloomberg Industry Classification System (BICS) system.

Materials avoided – focus on energy.

- *Recycling and waste management*
- *Sustainable materials*
- *Pollution control equipment*
- *Metals and mining*

Fossil Fuels

Production and supply

Company revenue driven by fossil-fuel-based sources of energy production. This includes coal, oil and gas, and utilities' fossil-fuel power generation for electricity and heating/cooling. This also includes transportation and refining businesses.

- Utilities
  - Fossil-fuel power generation
  - Heating and cooling
- Coal
  - Mining
  - Rail/freight
- Oil and gas
  - Exploration and production
  - Transport
  - Refining
  - Marketing/trading
  - Filling stations

Manufacturing

Company revenue driven by the equipment used to support power generation from fossil-fuel-based sources. This includes equipment, parts and services, such as generators and boilers.

- Equipment and infrastructure
  - Generators
  - Power generation equipment, parts and services
  - Power boilers and heat exchangers
  - Oilfield chemicals

Consumption

Company revenue driven by the manufacturing of traditional internal combustion engine transportation technologies (passenger vehicles and trucks) and other fossil-fuel-based forms of transportation, such as ships and aircraft. Also includes financing, leasing and rental services.

- Passenger/commercial vehicles
  - Manufacturing and leasing
  - Engines and parts
- Trucks
- Shipbuilding
- Aircraft engines and parts
- Vehicle financing (passenger, commercial, railcar)
- Vehicle rental
- Heavy industry (ex. steel BF-BOF)

Not included: Adjacent sectors

Use of fossil-fuel vehicles excluded to avoid double counting; focus is on manufacturing instead.

Chemicals/materials avoided – focus on energy.

- *Rail (agriculture, chemicals, industrial products, etc.)*
- *Trucking freight*
- *Bus transit*
- *Taxi services*
- *Hydrogen and ammonia*

Our methodology is built on transactions underwritten by banks for the energy sector and relevant issuers

1 Select company universe

Issuers
~110,000 companies with energy sector revenue

Sectors	Low-carbon energy supply	Fossil-fuel energy supply
Sources	BNEF Clean-Energy Exposure Ratings (CEERs)	BNEF Fossil-Fuel Exposure Ratings (FFERs), Urgewald GCEL/GOGEL (*historical 2021-22 only*)

2 Pull financing activity

Gather transaction data
issued by relevant companies

Asset Classes	Loans	Bonds	Project finance and tax equity
	Equity		
Sources	Bloomberg LP		BNEF, IJGlobal

3 Adjust transactions

Adjust transaction data
for general corporate financing, by multiplying by percentage exposure to fossil fuels or clean energy

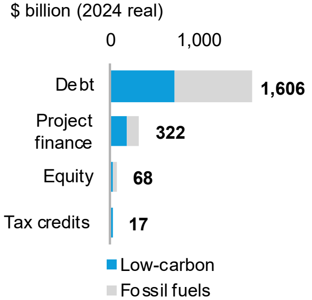
	2023-24 data	2021-22 historical
Sources: Fossil fuels	BNEF Fossil-Fuel Exposure Ratings (FFERs)	Urgewald GCEL/GOGEL, Bloomberg Industry Classifications (BICS)
Sources: Low-carbon	BNEF Clean Energy Exposure Ratings (CEERs)	BNEF CEERs, BICS
Sources: Green debt	ESG use of proceeds	

Add full value of transactions
for project finance and renewables tax equity/credit transfers

Our analysis includes four main bank financing activities and focuses on energy supply

Type of financing	Recourse debt issuances			Equity issuances		Non-recourse project finance		Tax equity and tax credit transfers	*Incomplete inclusion*	*Not included*
Asset class or type	Bonds	Loans	Green debt	IPOs	Additional share offerings	Fossil fuels	Clean energy	Tax credit investment	Asset-backed securities	*Direct and bilateral lending*
Source	Bloomberg LP			Bloomberg LP		IJGlobal	BNEF	BNEF	*Bloomberg*	*Limited disclosure*
Role	Underwriting			Underwriting		Underwriting		Direct investment	Underwriting	Balance sheet
Energy supply results *Focus of this report*	~**$1.6 trillion** total **$722 billion** low-carbon, **$884 billion** fossil fuels Energy Supply Banking Ratio = **0.82**			~**$0.07 trillion** total **$26 billion** low-carbon, **$42 billion** fossil fuels Energy Supply Banking Ratio = **0.63**		~**$0.32 trillion** total **$185 billion** low-carbon, **$137 billion** fossil fuels Energy Supply Banking Ratio = **1.34**		~**$0.02 trillion** total **$17 billion** low-carbon		
Energy demand results	~**$0.3 trillion** total **$153 billion** low-carbon, **$99 billion** fossil fuels Energy Demand Ratio: Banking = **1.55**			~**$0.004 trillion** total **$1 billion** low-carbon, **$3 billion** fossil fuels Energy Demand Ratio: Banking = **0.44**		N/A		N/A		

Financing by asset class, 2024



Source: Bloomberg LP, BloombergNEF. Note: Banks serve their clients in the energy sector in numerous other roles that are not the focus of this report. These include but are not limited to serving as an agent on a debt issuance, direct lending as opposed to underwriting, asset management, and retail banking (in other words, loans for electric vehicles or residential solar). Most of these omissions are due to data limitations.

Impact of methodological decisions on results

Interpreting year-on-year changes in these results requires distinguishing between *changes in the market* (macroeconomic trends and decisions banks make) and *changes in measurement* (methodology). Here, we approximate the influence of the methodological changes on results. Arrows indicate the direction of the effect on results.

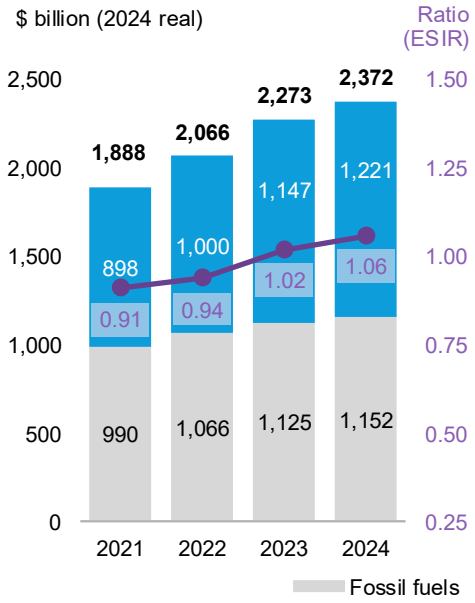
Change	Previous approach	Description of change *All changes were applied to both historical (2021-2023) and new (2024) results.*	Direction of Impact Volume	 ESBR
Inclusion of mandated arrangers	**Mandated arrangers were excluded** from the analysis, because there is frequently double-counting of LEAG credit with other roles (i.e., bookrunners) on the same deal.	Where **mandated arrangers** were the only LEAG-credited role on a given loan, we added them in to the ESBR accounting. In 2024, for example, this results in an additional **$40 billion of low-carbon** and **$28 billion of fossil-fuel activity** captured.	↑	↑
Project finance re-allocated	In previous iterations of this report, all **debt deals sourced from the terminal were labeled as "Recourse Debt."** This overlooked the fact that terminal data – not just our dedicated asset finance sources – does also track a significant volume of project finance.	Where a debt deal is marked explicitly for project finance in the use of proceeds data tracked on Bloomberg terminal, we have **allocated these term loans and project bonds to the "Project Finance" asset class label** throughout this report. When accounting for duplication between our project finance-specific sources (i.e. IJGlobal and the BNEF asset finance database) and the terminal, we use this additional information to ensure these deals are treated as asset finance in discrete low-carbon or fossil-fuel categories, rather than imposing an approximation based on issuer's revenue as is done for general corporate purpose financing. In 2024, for example, this change resulted in **$2 billion of low-carbon** and **$4 billion of fossil-fuel activity** captured.	↑	↓
Equity rights offerings incorporated	Rights offerings were by default excluded from the analysis, because the terminal data field we used to credit banks on equity issuances (ADVISERS_LIST), only captured underwriter activity for IPOs and additional share offerings.	In order to **capture rights offerings**, we made use of an additional terminal data field, ISSUE_UNDERWRITER. This brought in an additional **$9 billion of low-carbon** and **$0.2 billion of fossil-fuel activity** in 2024 – a particularly big year for low-carbon rights offerings, due to a $9 billion National Grid deal.	↑	↑
Oil and gas capex methodology	For 41 oil and gas majors, we have always supplemented our revenue-based Transition Exposure Ratings with BNEF's estimates of **low-carbon energy capital expenditures**.	Since last year's publication, that analysis introduced upgraded estimates for renewable energy investment figures and included more comprehensive deal entries and backfills. For more, see *Oil and Gas Energy Transition 2024: Clean Capex Jumps* (web | terminal). Testing 2023 data, the new methodology resulted in **$0.7 less low-carbon** and an **additional $0.3 billion of fossil-fuel financing activity** captured relative to the old methodology, as results are highly sensitive to which companies issued financing within a given year as well as project investments made in-year.	↓	↓
Excluded withdrawn and exchanged deals	No special treatment was afforded to **withdrawn loans** or **exchanged bonds.**	Loans that are tagged with a "withdrawn" status and bonds that are tagged as having been "exchanged" as an identical issuance to another, such as under Rule 144A for private placements, were excluded using terminal data. This is to avoid considering financing that either did not materialize or would be double-counted, respectively. This resulted in an exclusion of **$1 billion of low-carbon** and **$6 billion of fossil-fuel activity** in 2024.	↓	↑
Regional inflation adjustment	Global average inflators were applied to all deals regardless of region of risk, which disregarded nuances in inflation by country.	Regional differences in inflation were newly incorporated, using **country-specific Consumer Price Indices (CPIs)** from the International Monetary Fund. Due to the resulting regional fluctuation, this change **marginally inflated the historical restated volumes for 2021-2023 by around 2% but had negligible impact on the ratios**. As everything is reported in 2024 dollars, there is no change to 2024 results.	↑ No effect on 2024	-

Energy supply financing trends

Capital investment, financing by asset class and sector

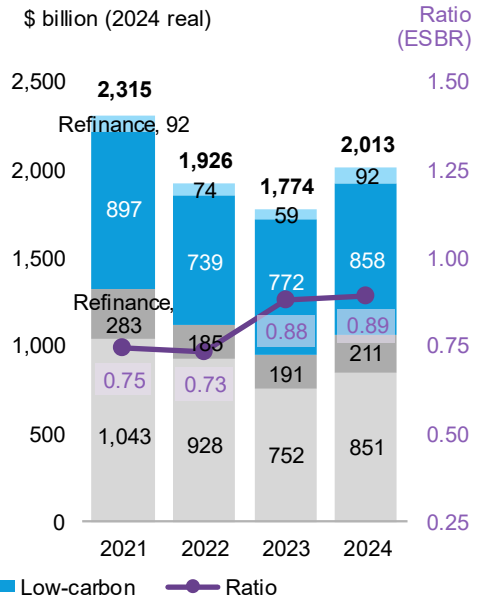
Bank financing and capital investment in energy supply both climbed in 2024

Capital investment in energy supply



Sources: BloombergNEF (low-carbon), IEA (fossil fuels). Note: 'ESIR' refers to the Energy Supply Investment Ratio. Previous iterations of this report have used IEA data for low-carbon, numbers were restated using BNEF data here.

Bank financing for energy supply



Sources: Bloomberg LP, BloombergNEF, Urgewald, IJGlobal. Note: 'Refinance' refers to deals earmarked solely for refinancing.

- The low-carbon to fossil-fuel **Energy Supply Investment Ratio (ESIR)** edged up from **1:02 in 2023 to 1.06:1 in 2024**. This measure reflects capital spending by companies on energy infrastructure.
- **The Energy Supply Banking Ratio (ESBR) detailed in this report remained steady at 0.88:1 in 2023 and 0.89:1 in 2024**. It reflects the bank finance going toward low-carbon energy supply vs what went to fossil fuels and is BNEF's estimate for how global banks have tilted their facilitation for the energy sector. It includes underwriting of debt and equity instruments issued by companies that are active in energy supply, as well as energy project finance and tax equity.
- The ESBR broadly mirrors global capital investment, but it is not precisely aligned. Capital investment has consistently increased since the start of this decade, both in volume and in ratio.
- Financing activity is more cyclical. The spending and finance decisions made by major energy companies impact the alignment between the two measures, as do any changes in operating and market conditions. Interest rates, energy prices and company performance have a major influence. There often is a time lag between the moment when funds are pinned down and capital is deployed.
- Balance sheet management, like refinancing, is reflected in the ESBR but not investment. In all years from 2021 through 2024, deals earmarked explicitly for refinancing only comprised about 20% of fossil-fuel bank financing and around 10% of low-carbon bank financing.
- Sectors like residential solar contribute to growth in capital investment through consumer spending but do not tend to receive large corporate financing. For more on this, see pp. 10-11 in *Third Annual Energy Supply Investment and Banking Ratios* (web | terminal).

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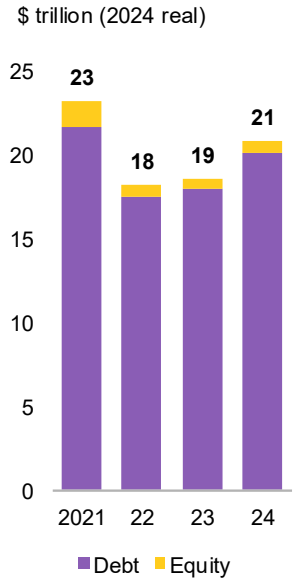
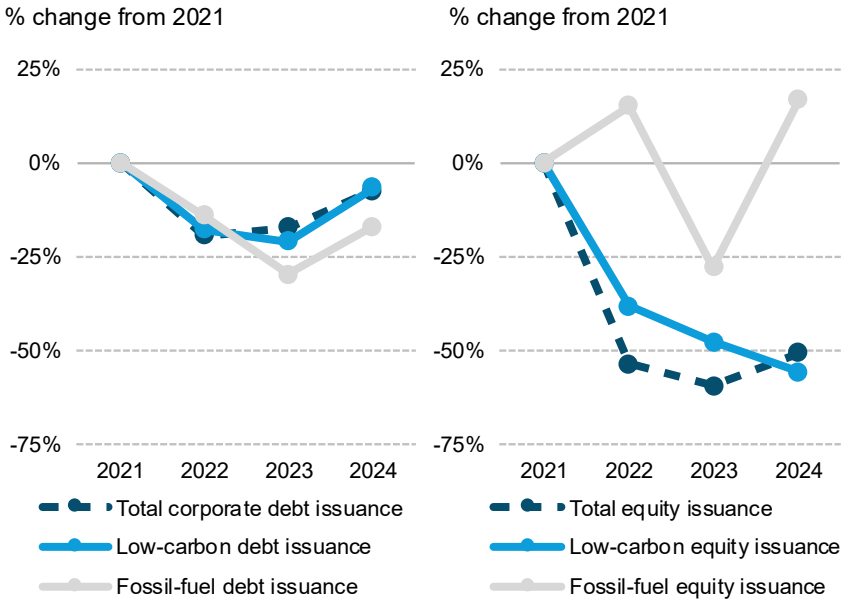
Energy sector issuance grew with broader capital markets in 2024

Global corporate debt and equity issuance, 2021-24



Energy supply financing versus global capital markets, 2021-2024

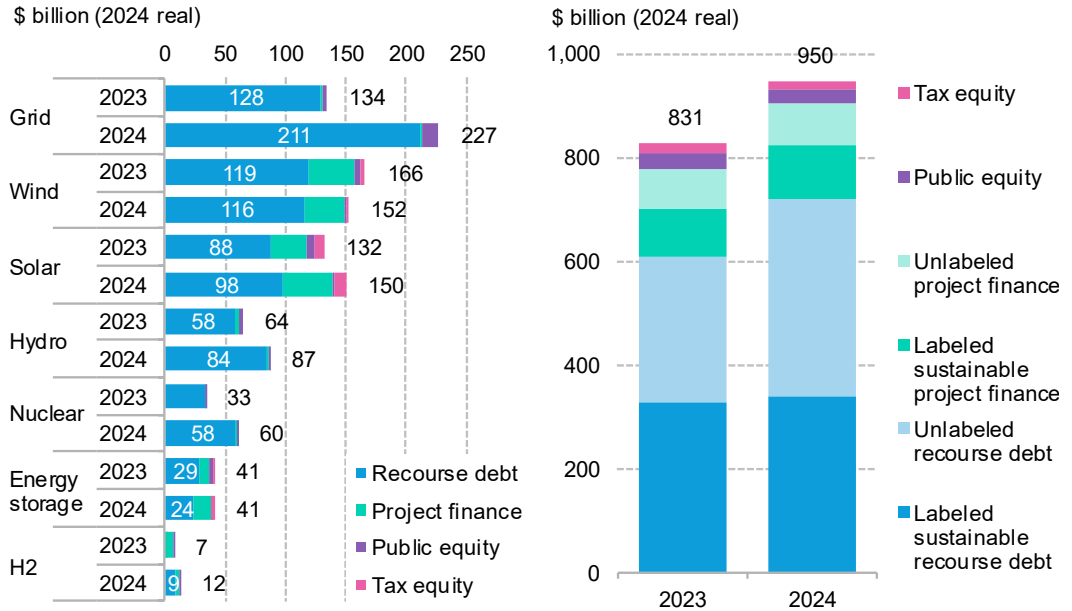


- Across all sectors and markets, corporate bond and loan issuance totaled about $21 trillion in 2024. This marks a 12% increase since 2023.
- Global debt issuance continued to recover after the sharp drop seen in 2022, which followed the surge in borrowing costs that year. Market-wide equity issuance grew to $748 billion, a 22% increase over 2023. Volume remained considerably lower than the $1.5 trillion in 2021.
- For energy supply specifically, debt issuance grew by 18% for both low-carbon and fossil-fuel sources in 2024. Neither returned to the levels seen in 2021. Debt issuance across energy sources followed the rebound in the broader capital markets, reflecting lower interest rates in in major economies.
- Equity issuance for energy supply diverged based on segment. Fossil-fuel issuance grew 62% above 2023 levels, much faster than the overall market. Low-carbon equity fell by 15%. Over the past few years, low-carbon issuance more closely followed the dip in market-wide issuance, as clean energy stock prices took a hit when interest rates rose and supply chain disruptions emerged.

Source: Bloomberg LP, BloombergNEF, Urgewald.

Grids secured the most low-carbon financing of any technology in 2024

Low-carbon energy supply financing by major sector and mechanism



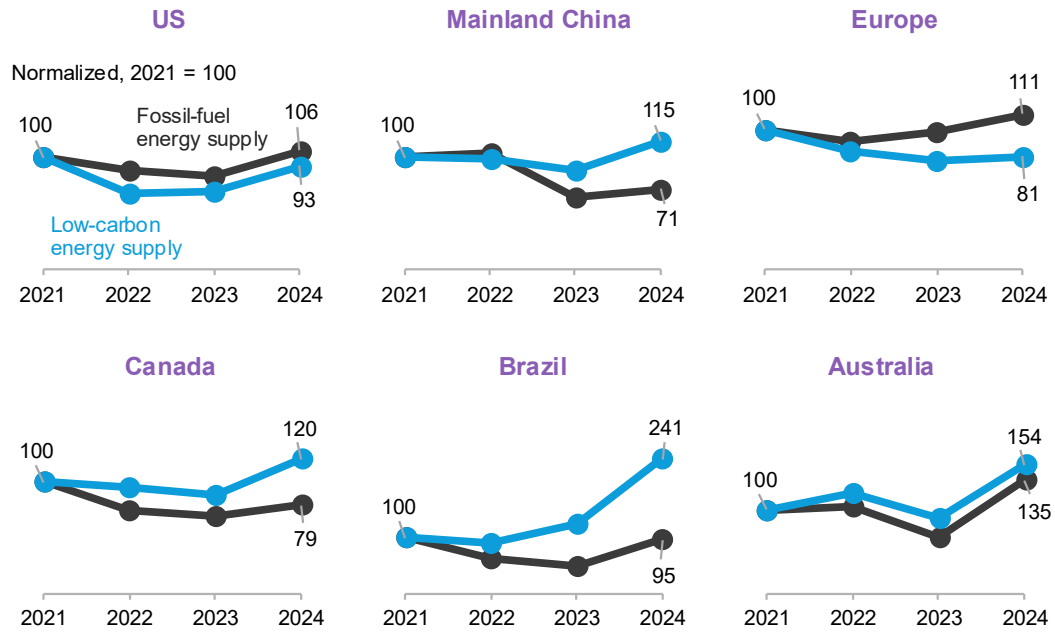
Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: 2023 numbers restated based on data available in August 2025, adjusted for inflation and reported in 2024 US dollars. H2 is hydrogen. We consider all grid financing as low-carbon, because financing and investment in transmission and distribution is closely linked to enabling the expansion of low-carbon capacity.

- Power grids raised the largest amount of financing at $277 billion in 2024 in the low-carbon segment. Grids surpassed the wind sector, which led in 2023 with $166 billion. State Grid Corp. of China, National Grid in the UK and the National Rural Utilities Cooperative Finance Corp. in the US all ramped up borrowing, largely through recourse debt.
- Hydrogen, hydro power and nuclear companies also took in higher levels of financing. For hydrogen, most of the financing in 2023 came from the $6 billion NEOM Green Hydrogen project in Saudi Arabia. In 2024, our data shows that a number of companies issued green recourse debt mentioning hydrogen among the use of procedes. These include the UK's Cadent Gas and US-based Chesapeake Utilities along with multilateral banks such as the European Investment Bank and even the Italian and Australia governments.
- Across all sectors, labeled sustainable debt continued to play an important role. These instruments accounted for 47% of overall low-carbon energy supply financing in 2024, slightly lower than the 51% in 2023, largely due to a drop in the China labeled market. These labels require issuers to ringfence proceeds for stated purposes, and to report allocation and impact after issuance.

Methodology: Labeled deals are adjusted by the number of low-carbon energy supply use of proceeds categories. General corporate purpose debt is adjusted for the portion of the issuer's revenue derived from relevant sectors. When labeled instruments don't have ringfenced use of proceeds, such as sustainability-linked bonds, the latter methodology is used.

Recourse debt issuance for energy rose in most markets

Low-carbon versus fossil fuel financing change, 2021-24 for top markets by recourse debt volume

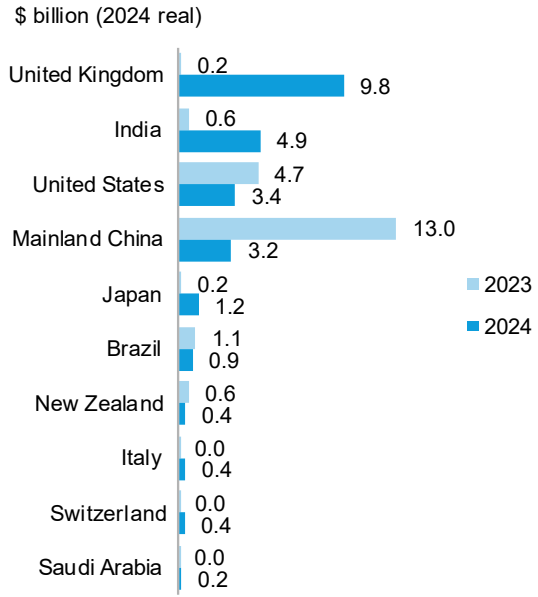


Source: BloombergNEF, IJGlobal, RAN, Urgewald.

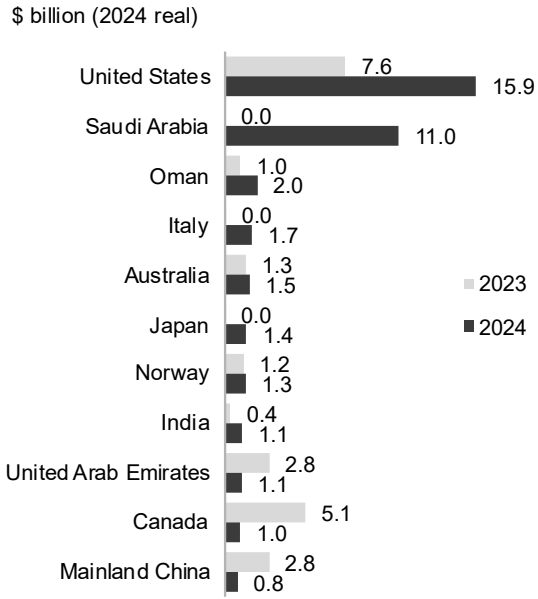
- Recourse debt, or loans and bonds raised by companies rather than projects, is the biggest asset class in energy supply finance. Both low-carbon and fossil-fuel debt levels increased for the first time since 2021, growing 18% each in 2024.
- Most major markets followed this trend. Last year's low-carbon debt financing volumes were the highest since 2021 for mainland China, Canada, Brazil and Australia. Brazil almost doubled its debt flows to $21 billion in 2024. Eletrobras contributed strongly with six bonds totaling over $2.5 billion.
- On the fossil fuel side, the US, Europe and Australia all had higher volumes of fossil-fuel recourse debt flows in 2024 than any of the past four years.
- The US and China and Europe are by far the largest markets for energy supply recourse debt, each issuing over $300 billion in debt in 2024.
- The US ended last year with a lower level of low-carbon debt issuance in real terms compared to 2021, but a higher level of fossil-fuel debt issuance.
- In Europe, low-carbon debt financing has been trending down or staying flat in the period, with last year's volume only 3% up from 2023. Fossil-fuel debt flows have been on the rise, increasing by 13% last year over 2023.
- China had a higher level of low-carbon debt while fossil-fuel issuance remained far below 2021-22 levels, contributing to a rise in the market's ESBR. However, a substantial share of energy finance in China comes from bilateral lending, which may not be fully tracked in our data sources.

Equity issuance tipped sharply toward fossil fuels

Low-carbon energy supply public equity issuance in top markets



Fossil-fuel energy supply public equity issuance in top markets

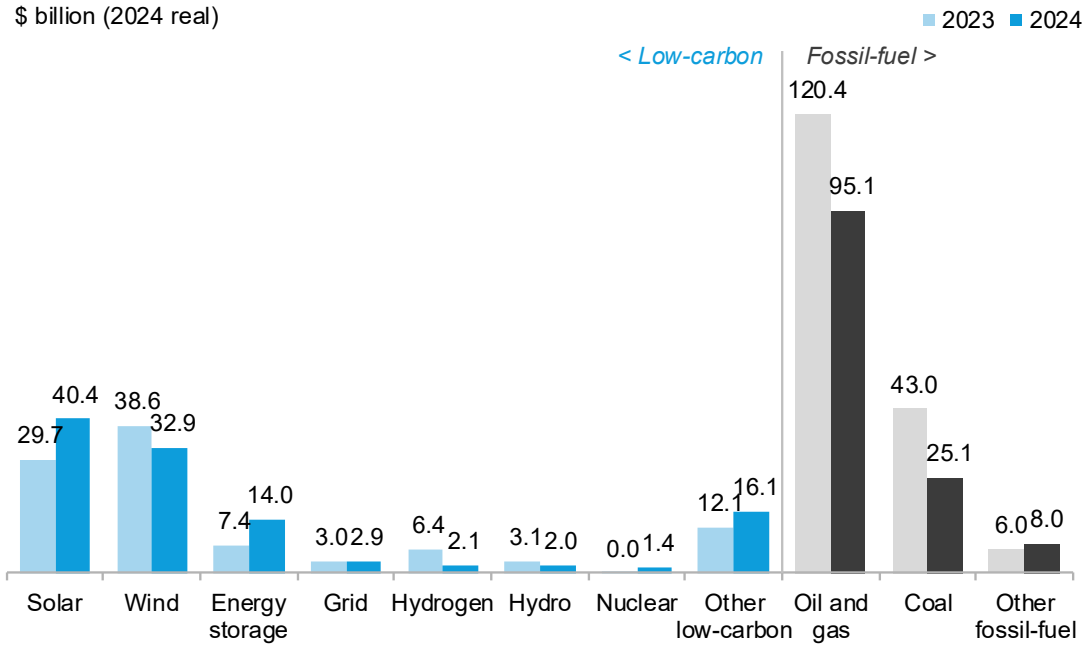


Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: 2023 numbers adjusted for inflation and reported in 2024 US dollars.

- Public equity fundraising levels swung proportionally more in 2024 than recourse debt or project finance – though it is a minor portion of overall energy financing. Fossil-fuel public equity issuance surged by 62%, while the level for low-carbon energy supply contracted by 15%.
- Low-carbon public equity volume jumped in **Europe and Asia Pacific** (excluding mainland China) but declined in all other regions. Deal flows in **Europe** almost doubled, led by National Grid's £10 billion additional offerings to finance a new five-year plan to upgrade network infrastructure and support the energy transition. **India and Japan** contributed to the higher APAC volumes, with Adani Energy Solutions, NTPC Green Energy and Kansai Electric Power serving as the leading issuers.
- In **mainland China**, public equity flows for both low-carbon and fossil fuels plunged by more than 70%. Tightened regulations drove down the market for Initial Public Offerings (IPOs) by 45%, according to Bloomberg data. Energy supply companies were even more affected. China's Securities Regulatory Commission in March introduced stricter rules to improve listing quality, followed by the State Council's guidelines to strengthen supervision and reduce risks in the capital markets.
- In the **US,** public equity volume for fossil fuels more than doubled last year to $15.9 billion. The largest deals include additional offerings from Diamondback Energy ($2.3 billion) and Occidental Petroleum ($1.7 billion).
- Aramco's SAR 46.3 billion ($12 billion) additional offering drove a record year for **Saudi Arabia**'s fossil fuel equity fundraising. We attribute a small amount of this to low-carbon energy based on BNEF's analysis of the firm's capex (see methodology on slide 7 and more detail on slide 15).

Solar and storage drove growth in low-carbon project finance

Low-carbon and fossil-fuel project finance flow, by sector



Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: 2023 numbers adjusted for inflation and reported in 2024 US dollars.

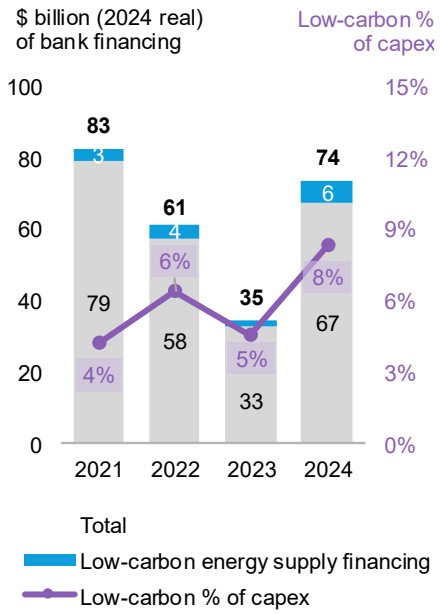
- Low-carbon energy supply project finance increased by 11% in 2024, while that for fossil fuels dropped by 19%. This asset class is the deciding factor in tilting the overall ESBR slightly more toward low-carbon in 2024.
- Among low-carbon project finance deals, solar projects received 36% more financing in 2024. AES Corp. and Sonnedix raised the biggest amounts. Energy storage almost doubled its project finance flow to $14 billion, with NorthVolt, SK Battery and AES standing out as the largest fundraisers. The biggest growth driver of the year was falling equipment costs in these two sectors.
- On the fossil-fuel side, BNEF recorded a drop in asset finance both for coal and oil and gas.

Methodology: These figures only track known deals with identified facilitating banks. BNEF's other publications – such as the *Renewable Energy Investment Tracker* (web | terminal) and *Energy Transition Investment Trends* (web | terminal) – include additional BNEF estimates and therefore are not directly comparable.

We've also made methodology improvements to this year's project finance numbers. Beyond leveraging BNEF's asset finance database (web), we now recognize the 'project finance' tag in Bloomberg Terminal use of proceeds data for loans and project bonds, and now classify these deals as such here. We perform a duplication removal exercise across these sources of data. Read more on this methodology change on slide 7.

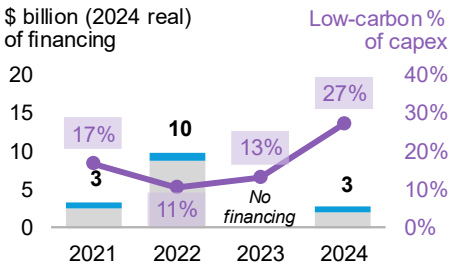
Low-carbon capex rose among oil and gas majors raising funds

Aggregate financing and low-carbon capex for oil majors

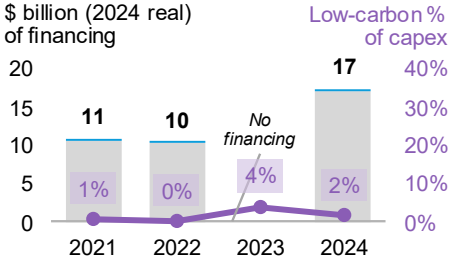


Financing for sample of individual oil majors

TotalEnergies



Saudi Aramco



Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: Total universe is 41 oil and gas majors.

Methodology: For most general corporate purpose financing, we allocate a low-carbon versus fossil-fuel split according to the issuing company or borrower's *revenue* driven by energy supply. The exception is for 41 oil majors, where BNEF has long tracked their investments in low-carbon projects. Moving forward, we intend to apply a similar *capex* approach to other sectors, like power companies. How a company chooses to spend its capital paints a more forward-looking picture of where a company's business is moving, compared to revenue, which indicates where a company is already cashing in on prior investments.

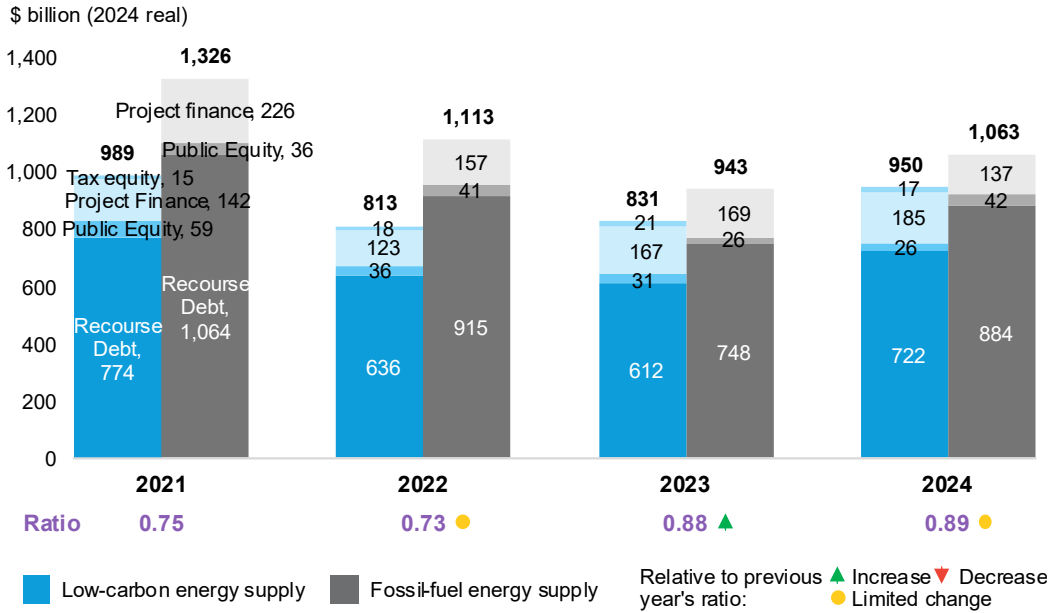
- Capital expenditures can be a bit "chunkier" than revenue, because companies may invest heavily upfront in a particular project one year and not the next. As a result, capex adjustments can be volatile. Among the oil majors that issued financing in a given year, the aggregated percent of capex directed to low-carbon solutions ranged from 4% (2021, 2023) to 10% (2024).
- TotalEnergies, for example, saw its low-carbon percent of total capital expenditures fluctuate between a low of 11% (2022) and a high of 27% (2024). The 2024 peak was driven by its purchase with RWE of a 50% stake in OranjeWind offshore wind farm, which is currently under construction. This change in capex flows through the ESBR of the banks that provided the company with financing. Since TotalEnergies invests more of its capital in low-carbon solutions, its banking partners see higher ESBRs (all else held equal).
- Looking at capex can further differentiate companies even within the same subsector, as they make different bets on the energy transition. Saudi Aramco, for example, invests very little in low-carbon solutions – it puts more than 95% of its capex back into its core oil and gas business each year. This indicates climate focused banks may need to work with high-emitting clients on where they are investing in their own transition.

Bank-facilitated financing

Regional, asset class, and institutional ESBRs

Low-carbon and fossil-fuel finance grew at a near-equal pace

Global energy supply banking activity by asset class, 2021-24

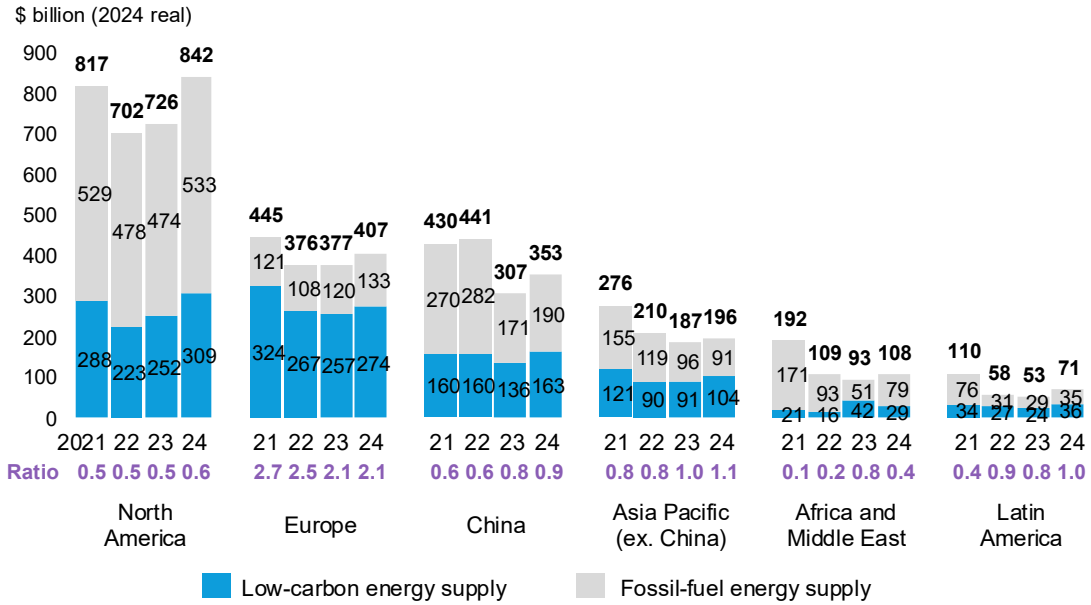


Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: All 2021-23 numbers adjusted for inflation and reported in 2024 US dollars. 'Tax equity' here also includes syndication for tax credit transfers in 2023 and 2024.

- The low-carbon to fossil-fuel **Energy Supply Banking Ratio** was 0.89:1 in 2024 in our dataset of 1,372 banks engaged in some form of energy supply underwriting.
- Historical figures were revised and are restated, reflecting both methodology changes and the most up-to-date deal information from underlying sources (see slide 7). This resulted in the following overall revisions:
  - 2021 ESBR restated from 0.78:1 to 0.75:1
  - 2022 ESBR restated from 0.74:1 to 0.73:1
  - 2023 ESBR restated from 0.89:1 to 0.88:1
- In aggregate, these banks underwrote **$2 trillion** of energy supply transaction activity last year, 13% higher than the year before. This marks an overall rebound in energy supply issuance volume after two subsequent years of decline in 2022 and 2023. In 2024, this broke down by **$953 billion** issued for low-carbon energy and **$1,063** billion for fossil fuels.
- Low-carbon financing grew 14% from 2023, slightly outpacing the 13% growth in fossil-fuel financing. Recourse debt, by far the largest asset class among bank activities, rose 18% each for both low-carbon and fossil fuels. Project finance volume expanded 11% for low-carbon, but shrank 19% for fossil fuels. This offset the impact of public equity volume, which jumped by 62% for fossil fuels. Low-carbon equity contracted by 15%.
- The global ESBR remains consistently below 1:1, with fossil-fuel finance still outpacing low-carbon solutions. While 2024 set a record for the ratio, this is still far from the **4:1** investment ratio consistent with 1.5 degree scenarios over the course of this decade.

Ratios declined in the Middle East

Energy supply financing by issuance region of risk, 2021-24

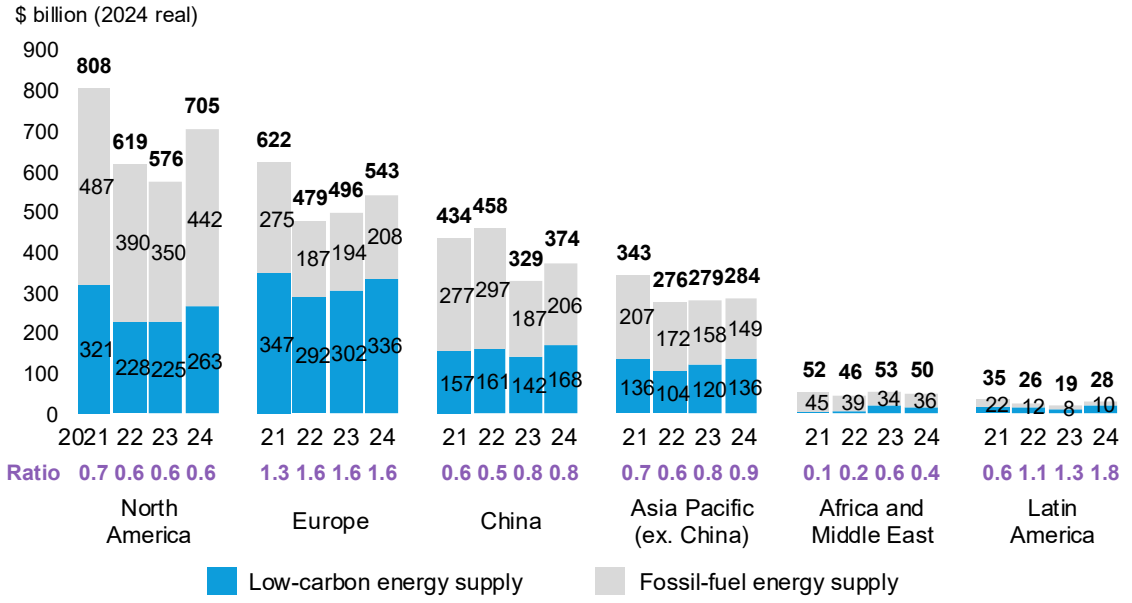


Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: All 2021-23 numbers adjusted for inflation and reported in 2024 US dollars.

- Each region tracked in this report enjoyed higher finance volumes in 2024 than the year before. This is counted by region of risk, or the geography where finance flowed for a given deal. Meanwhile, the regional ESBRs have remained mostly consistent, except for Africa and the Middle East where ratios declined.
- **North America**'s energy supply financing rose to a record $842 billion last year, including a record $533 billion for fossil fuels. The region accounted for 42% of the global total. The figures reflects the major role the US, Canada and Mexico play in oil and gas supply and deep, transparent capital markets. The ESBR edged slightly up to 0.58:1, from 0.53:1 in 2023.
- **Europe** remained the leader in ESBR, despite a minor slip to 2.06:1 last year from 2.14:1 in 2023. This reflects a relative paucity of oil and gas projects and a favorable environment for clean-energy. Low-carbon financing volume rose 7% last year, compared to an 11% rise in fossil-fuel financing.
- **Africa and the Middle East** saw its ESBR retreat to 0.4:1 last year, after it shot up to 0.8:1 in 2023. This is in large part driven by Aramco, which raised over $18 billion via additional equity and bond offerings. Its refining and petrochemicals venture with TotalEnergies, SATORP, also arranged loans worth $7 billion. We attribute a small portion of Aramco's fundraising to low-carbon based on its capex allocations.
- Tracked financing volume bounced back in **China** last year but remained below 2021 and 2022 levels. A growing substitution from bonds to less transparent loan issuance since 2023 mean our results likely underestimate total volume.

Latin America banks took the lead in ratio

Energy supply financing by bank headquarters, 2021-24

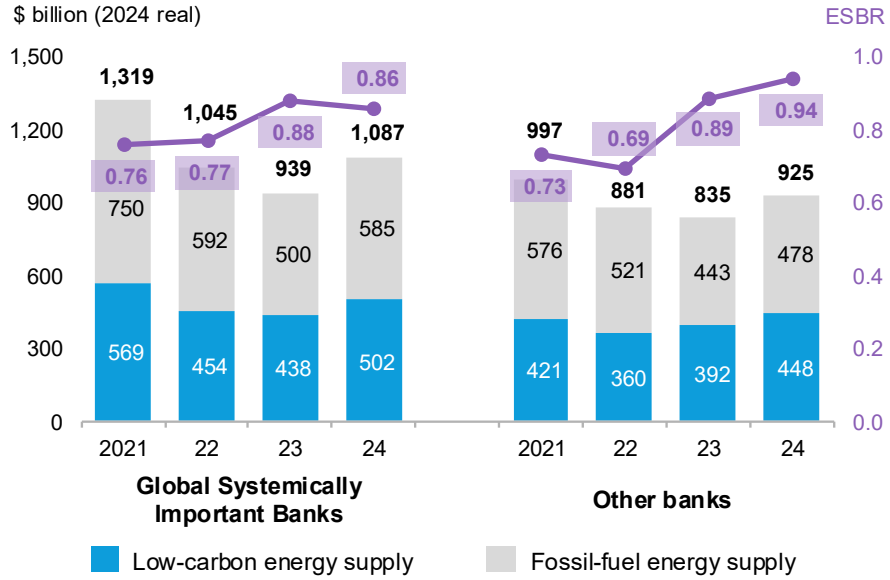


Source: BloombergNEF, IJGlobal, RAN, Urgewald. Note: All 2021-23 numbers adjusted for inflation and reported in 2024 US dollars.

- **North American** banks still facilitated the largest volume of energy supply financing in 2024. Many of them are the largest banks globally. Fossil-fuel financing volume grew by 26% for them last year, compared to a 17% increase in the low-carbon side. These banks' average ESBRs dropped to 0.60:1 from 0.64:1 in 2023.
- Taking advantage of a 65% upswell in low-carbon deal volumes, banks in **Latin America** collectively had the highest ESBR in 2024, at 1.8:1. Banco Itau is the most active bank in energy supply financing in the region in 2024 and financed the energy sector in a ratio of 1.73:1.
- **European** banks have lost their lead, even as their average ESBR edged up to 1.62:1 in 2024, from 1.56:1 the year prior. European banks still facilitated the second largest volume of deals. The ratio by bank headquarter sits below that by region of risk (2:1:1), reflecting the role European banks play in financing fossil-fuel supply internationally.
- **Chinese** banks' deal volume rebounded after a drop in both low-carbon and fossil-fuel in 2023. Low-carbon financing set a four-year high at $168 billion. The ratio for banks there rose slightly to 0.81:1, compared to 0.76:1 in 2023.
- In **other APAC** markets, banks in India and Indonesia reduced fossil-fuel financing. This led to lower total fossil-fuel deal volume in the region and a higher ratio.
- Banks in **Africa and the Middle East** recorded the only drop in total energy supply financing volume in 2024. This reflected that some mega-deals there, especially outside Saudi Arabia, were facilitated internationally.

Largest banks fell behind others in collective ratio

Global Systemically Important Banks' energy supply financing versus other banks, 2021-24



Source: Bloomberg LP, BloombergNEF, RAN, Urgewald, IJGlobal. Note: GSIB constituents are as of August 2025. All 2021-23 numbers adjusted for inflation and reported in 2024 US dollars.

- The 29 **Global Systemically Important Banks** facilitate over half of the energy supply financing volume worldwide in our data. They are determined by the Financial Stability Board to be of such "size, interconnectedness, complexity or lack of substitutability" that they are too big to fail, and their importance is the same in the energy sector.
- Last year was the first time when GSIB's collective ESBR slipped noticeably below that of other banks to 0.86:1, from 0.88:1 in 2023. Other banks improved their collective ratio from a similar level in 2023 to 0.94:1 last year. Ratios within GSIB vary widely, from 2.3:1 recorded by BNP Paribas to 0.3:1 from Canada's TD Bank. Both leaders and laggards would need to improve their ratios to align global financing with the pace of a net-zero transition.
- The financial sector's climate alliances have been in turmoil since the end of 2024. Major North American, Japanese and even some European banks exited the **Net-Zero Banking Alliance** in quick succession through mid-2025. This culminated with the NZBA pausing its activities at the end of August 2025. It has proposed a significant restructuring, including dropping its format as a membership-based alliance.
- Several factors may have contributed to banks' decision to depart the NZBA. These include political pressure to scrap ESG measures waged first by Republican state lawmakers and now President Donald Trump's administration. There also is sentiment within banks that a 1.5-degree world is out of reach and a growing consensus that these institutions have limited ability or desire to reshape the real economy. However, many banks have at least publicly remain committed to addressing climate change or facilitating the energy transition.
- As a metric that captures both low-carbon and fossil-fuel activities, the ESBR can guide banks to focus on expanding their low-carbon businesses and capturing opportunities generated by the energy transition.

Energy supply: Top deals

Top low-carbon energy supply deals in 2024

Asset class	Issuer	Total deal amount ($ billion)	Low-carbon supply ($ billion)	Fossil-fuel supply ($ billion)
Rights offering	National Grid	8.9	8.8	0.1
Sustainability-linked loan	Electricite de France	6.3	5.8	0.6
Green bond	European Union	13.1	4.9	0.0
Green bond	Italian Treasury	9.7	4.9	0.0
Loan	Constellation Energy Generation	4.5	4.0	0.5
Sustainability-linked loan	Axpo Holding	4.5	4.0	0.5
Green loan	Stonepeak Dunedin Holdings	3.8	3.8	0.0
Loan	NextEra Energy Capital Holdings	5.5	3.7	1.7
Green bond	French Treasury	8.7	3.5	0.0
Sustainability-linked loan	RWE AG	5.4	3.3	2.2

Top fossil-fuel energy supply deals in 2024

Asset class	Issuer	Total deal amount ($ billion)	Low-carbon supply ($ billion)	Fossil-fuel supply ($ billion)
Loan	Trans Mountain Corp	14.0	0.0	14.0
Additional offering	Saudi Aramco	11.2	0.2	11.0
Loan	Vitol	8.6	0.0	8.6
Loan	Phillips 66 Co	5.0	0.0	5.0
Loan	Petrobras Global Trading	5.0	0.0	5.0
Loan	Crescent Energy Finance	4.0	0.0	4.0
Loan	Enbridge US	3.8	0.0	3.8
Loan	Gulf Energy Development	4.2	0.2	3.8
Sustainability-linked loan	NRG Energy Inc	4.4	0.8	3.6
Loan	EQT Corp	3.5	0.0	3.5

Source: Bloomberg LP, BloombergNEF, RAN.

How this relates to other research and reporting

Selected comparisons

Bank disclosure of Energy Supply Ratios

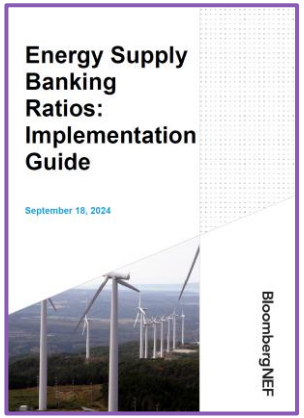
Calculating a bank's own ESBR

- Investors have been pushing for bank-level disclosure of energy supply financing ratios, beginning with resolutions filed by the New York City Comptroller in 2024 and more recently through proposals filed by the Canadian Shareholder Association for Research and Education (SHARE) in 2025.
- As a result, several banks, including Citigroup Inc., JPMorgan Chase & Co. Royal Bank of Canada, and Scotiabank, have committed to disclose their own ratios of low-carbon to fossil-fuel financing activities.
- Bank ratio disclosure can provide greater visibility to investors around how the institution's business is tracking the broader energy transition, capitalizing on low-carbon opportunities, and continuing to support conventional fossil fuels. Calculating a ratio can equally be an important internal benchmarking exercise and strategic tool, as the framework aligns with banks' incentive to take advantage of growth sectors.

BNEF resources for ratio calculation

Implementation guide

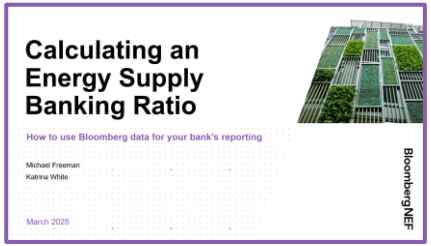
web | terminal



Outlines how ESBR's methodology was built and a range of possible design choices for a particular institution to consider.

How-to guide

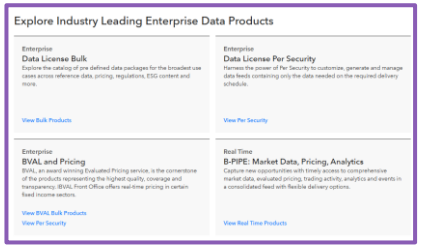
web | terminal



Step-by-step guide to recreating the ESBR for a specific bank, using data acquired from Bloomberg combined with your own internal information.

Enterprise Data

DATA<GO>



Bloomberg's data catalogue containing the files necessary to calculate ESBR, including financial transaction data.

Tracking ongoing bank ratio disclosure

Institution		BNEF	JPMorgan Chase	Royal Bank of Canada	Citi
Metric name		Energy Supply Banking Ratio (ESBR)	Energy Supply Financing Ratio (ESFR)	Energy Supply Ratio (ESR)	Energy Supply Financing Ratio (ESFR)
Link to methodology document		Web | terminal	link	link	link
First publication		February 2022	November 2024	April 2025	August 2025
Ratio (2023)		0.88 (2023 global average)	1.29 (2023)	Not disclosed	0.41 (2023)
Key areas of distinction in methodology					
Category	Aspect	BNEF approach and take	Bank approach		
Context	Forward looking benchmark climate scenario(s)	The metric is scenario neutral. BNEF's default reference points are 1.5 degree-consistent scenarios which imply the real economy needs to reach a 4:1 low-carbon to fossil-fuel ratio this decade to limit warming. Scenarios are important narrative devices which reveal the scale and pace of change required in the real economy, which will be directionally reflected in financing activity.	No scenario benchmark.	No scenario benchmark.	No scenario benchmark.
Asset class coverage and treatment	Inclusion of bilateral lending	Does not include most private/bilateral lending, due to data opacity. However, for bank ratio disclosure, we would consider inclusion to be best practice and most comprehensive.	Includes private/bilateral lending.	Includes private/bilateral lending.	Includes government loan guarantees only.
	Revolving credit facilities	Includes the full commitment amount made for league credit-eligible deals. This constitutes capital made available to energy companies and is important to enabling their continued operations and investments.	Includes the full commitment amount made for all lending.	Includes the full commitment amount made for all lending.	Reports two ratios, one with the commitment amount, and one entirely excluding revolvers.
	Stock or flow for lending	Takes a 'flow' approach, tracking new deals or refinancing, rather than outstanding balances ('stock' approach). We are interested in the flow of capital, rather than exposure.	Takes 'flow' approach.	Uses lending balances at a point in time ('stock' approach).	Takes 'flow' approach

Bank ratio disclosure, continued

Institution		BNEF methodology	JPMorgan Chase	Royal Bank of Canada	Citi
Key areas of distinction in methodology					
Category	Aspect	BNEF approach and take	Bank approach		
Sector coverage	Manufacturing	Includes equipment and manufacturing for energy supply, such as wind turbines, solar cells and gas turbines. This is as an essential component of energy supply transition investment.	Excludes manufacturing of energy equipment, citing data availability.	Excludes manufacturing of energy equipment, citing alignment with other bank strategy metrics.	Includes manufacturing.
	Transition financing	Does not include a separate 'transition' category, like increasing the efficiency of an existing gas plant or transitioning from coal to gas. Labeled transition bonds or sustainability-linked instruments are treated like general corporate purpose financing.	Does not include an explicit transition category.	Includes decarbonization activities (e.g., carbon capture, methane emissions reduction) in the numerator, subject to a transition plan assessment.	Does not include an explicit transition category.
Transaction-level adjustments	Issuer adjustment factors	Uses the portion of issuers/borrowers' *revenue* derived from low-carbon and fossil-fuel energy supply to approximate a split in general corporate purpose financing. Exception for 41 oil and gas majors is made, where we estimate the portion of *capex* spent on low-carbon solutions for the numerator and supplement with revenue for fossil fuels. We believe *capex* is more forward-looking and better aligned with investment. However, data is sparse – BNEF is actively developing capex estimates for use in future iterations of the ESBR.	Estimates the portion of issuer/borrower's *capital expenditures* spent on low-carbon solutions versus fossil fuels to allocate financing.	Uses the portion of issuer/borrower's reported *revenue* derived from low-carbon, decarbonization and high-carbon activities to allocate financing. Supplements with sector codes and other metrics as needed.	Allocates financing 100% to either low-carbon or fossil-fuel on a binary basis, based on company sector classification. Exception made for utilities, where the *generation mix* is used.
	Labeled sustainable products	Approximates the portion of an instrument's *use of proceeds,* from the corresponding green/sustainable debt framework, intended for energy supply categories (e.g. wind, solar, batteries). Labeled debt can be used for non-energy supply purposes (e.g. water security, waste management, clean transportation).	Portions by energy supply-related use of proceeds.	Applies company-specific adjustment just as if transaction were general corporate purpose.	Allocates 100% of labeled use-of-proceeds transactions to low-carbon, rather than apportioned by specific project types.
	Investment-focused portion of financing	Does not add a further layer of adjustment. While isolating the portion of financing which is investment-focused aligns more closely with real-economy infrastructure spending, it adds complexity and likely understates financing for traditional energy companies, which rely on balance sheet management to continue building.	Estimates the portion of financing that is allocated toward capex, rather than balance sheet management, as a further adjustment.	Does not add a further layer of adjustment.	Does not add a further layer of adjustment.

How this relates to other research and reporting

Existing research provides a range of estimates due to methodological differences

Research organization	Report	Note	Scope		Coal		Oil and gas		Fossil fuels total value	Low-carbon total value
			Years	# of banks	Value	Sectors	Value	Sectors		
BNEF	*Energy Supply Banking Ratios (this report)*		2021-24	1,370 (2024)	$141 billion (2024)	Mining, power	$817 billion (2024)	Up-, mid-, downstream	$1.06 trillion (2024)	$0.95 trillion (2024)
Rainforest Action Network	*Banking on Climate Chaos (BoCC)*	BNEF's report uses adjustment factors to parse transactions – an approach borrowed from RAN's work in *BoCC*.	2016-2024, by year	65 banks	Not split (2024)	Mining, power	Not split (2024)	Entire fossil fuel value chain	**$0.87 trillion** (2024)	
Urgewald	*Still Banking on Coal*	For historical data (2021-22), we use Urgewald's research on companies' fossil-fuel share of revenue.	2022-2024, by year	650 banks	$131 billion (2024)	Mining, power	Not measured		**$131 billion** (2024)	
InfluenceMap	*Finance and Climate Change*		2020-21 aggregate	27 banks	$42 billion	Mining	$697 billion	Up-, mid-, downstream	**$739 billion**	**Not measured**
Reclaim Finance	*Throwing Fuel on the Fire*		~1 year, 2021-2022	56 banks	$54 billion	Mining, power, *expansion only*	$215 billion	Up- and midstream, *expansion only*	**$269 billion**	
Nature (UCL research)	*The challenge of phasing out fossil fuel finance in the banking sector*		2010-2021	709 banks	Not split out				**$592 billion** (2021)	
Profundo	*Just 7% of Global Banks' Energy Financing Goes to Renewables*		2016-2022, by year	60 banks	Not split out				**$299 billion** (2021)	**$35 billion** (2021)
Federal Reserve	*What are Large Global Banks Doing About Climate Change?*		2016-2021, by year	60 banks (fossil fuels), all (sustainable debt)	Not split out				**$750 billion** (2021)	**$700 billion** (2021, green debt only)

Source: BloombergNEF, RAN, Urgewald, InfluenceMap, Reclaim Finance, Profundo, Federal Reserve. Note: Years, ranges and activities are not directly comparable.

How does the ESBR compare to other frameworks for assessing banks on climate progress?

	Energy Supply Banking Ratio	Green Asset Ratio (EU Taxonomy)	Financed emissions accounting and net-zero targets	Green financing targets and progress
Description	Ratio of *low-carbon to fossil-fuel* energy supply banking activity	Mandatory reporting of ratio of *green assets to total assets* on bank balance sheets	Emissions associated with on-balance sheet financing activities	$ volume of finance and facilitation toward "green" companies and projects
Framework developer	BloombergNEF	European Banking Authority European Commission	Partnership for Carbon Accounting Financials (PCAF) Science-Based Targets initiative (SBTi)	Organic – individual banks have defined their own
What is included?	• Facilitated financing (in other words, underwriting) • Corporate bonds and syndicated loans • Equity issuances • Project finance and tax equity	• Corporate and project loans • Equity holdings • Household auto and mortgages	• On-balance sheet corporate and project loans • Equity and bond holdings • Household auto and mortgages • Sovereign debt	• Corporate and project loans • Underwriting activity • Equity and bond holdings • Tax equity • Household electric vehicle loans
What is not included?	• Corporate bilateral or otherwise private loans • Retail (in other words, household) lending	• Facilitated financing (in other words, underwriting) • Exposure to governments, central banks • Assets under management • Loans to small companies and non-EU corporates not subject to Non-Financial Reporting Directive (NFRD) (*but included in denominator*)	• Facilitated financing (in other words, underwriting) – *standard in development*	
Limitations	• Relies on commercial databases and estimates, rather than company reporting • Focused on two of the GFANZ four financing strategies: "climate solutions" and "managed phase out," partial coverage of aligned or aligning in other words, "transition" finance	• Not tied to any benchmark rooted in science • Not growth-oriented; based on "stock" or balance sheet, rather than tracking new financial flows • Broad "green" bucket not focused on specific goals (in other words, climate)	• Focused exclusively on emissions rather than solutions/new investment in low-emission assets • Incentivizes divestment – can lead to emissions being shifted off balance sheet • Anchored in sectoral emissions pathways	• Not tied to a benchmark rooted in science • Broad "green" bucket not focused on one goal (in other words, climate) • Can be interpreted as a vanity metric
What has it added to the conversation?	• Focused on new investment and finance facilitations required for the energy transition • Rooted in 1.5C climate scenarios	• Focused on balance sheet exposure of institutions to particular asset types • First mandatory reporting metric that focuses on the "green" side of the energy transition • Reporting increases transparency and data availability	• Addresses the unique impact financials have, contrasted with real economy companies • Enabled financials to set net-zero targets • Backbone of many global sustainability reporting mandates, such as the CSRD (EU) and Securities and Exchange Commission proposals (US) for banks	• Growth and opportunity oriented • Acknowledges the important role that facilitated finance plays

Ensuring data accuracy

How to help BNEF track your institution's transactions

How to help BNEF track each institution's transactions

This analysis uses existing Bloomberg and IJGlobal databases, not primary data collection. If transactions are missing from underlying databases or require corrections, BNEF is unable to add or edit these directly. In those circumstances, the following channels can be contacted to address the issue. Each team has rolling deadlines throughout the year – please contact them to ensure your institution's data is up to date.

Financing mechanism	Source	How to get in touch about discrepancies
Debt	Bloomberg LP, SRCH <GO> function	**Bonds** Submit or reach out to newissues@bloomberg.net for North American bonds and emeacapmkts@bloomberg.net for EMEA bonds. Appropriate addresses for other regions can be identified using NIM99 <GO> on the Bloomberg Terminal. Please note that bond submissions require termsheet disclosure to Bloomberg – but these do not need to be published on the terminal. **Loans** Submit or reach out to loansleag@bloomberg.net for US loans, europeanloan@bloomberg.net for EMEA loans, and aploans@bloomberg.net for APAC loans. Location is based on market of syndication or country of risk for the borrower. Use NIM99 <GO> for other appropriate addresses. Mandatory fields for disclosure to Bloomberg include: borrower, structure type, signing date, involved parties, submitter's role, use of proceeds, deal/tranche size, and maturity.
Equity	Bloomberg LP, IPO <GO> function	Submit missing deals or discrepancies to the IPO desk at calendar@bloomberg.net
Project Finance, Low-Carbon	BNEF Clean Energy League Tables team	Contact BNEF Clean Energy League Tables at cleanenergy@bloomberg.net to receive submission templates.
Project Finance, Fossil Fuels	IJGlobal	Contact leaguetables@ijglobal.com for submission forms to be submitted to the same address; or visit https://www.ijglobal.com/league-tables to download submission forms.

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Our expert coverage assesses pathways for the power, transport, industry, buildings and agriculture sectors to adapt to the energy transition.

We help commodity trading, corporate strategy, finance and policy professionals navigate change and generate opportunities.

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