

Renewable Energy Investment Tracker, 2H 2022

Best-ever first half for renewables investment

Divya Sehgal

ABRIDGED VERSION

August 2, 2022

BloombergNEF



Executive summary

This report summarizes BloombergNEF's tracking of global investment in renewable energy up to and including 1H 2022. Globally, there was \$226 billion of new investment in renewable energy in 1H 2022, an all-time high for a first half. The surge was driven by increased investment in renewable energy projects, venture capital and private equity funding.

- This report covers new investment in renewable energy capacity, and equity raising by specialist companies in renewables and related areas such as energy storage. Overall, \$226 billion was invested in renewable energy in 1H 2022, a year-on-year increase of 11% and an all-time record.
- The majority (\$206 billion) of this was for project deployment (asset finance and small-scale solar). Renewable energy and related companies raised a total of \$10.5 billion on public markets in 1H 2022, down 65% from last year. VC/PE expansion investments totaled \$9.6 billion, up 63% from 1H 2021.
- Investments in new large-scale renewable energy projects were up 12% from the same period in 2021, at \$152 billion in 1H 2022. Investment in new large and small-scale solar projects rose to a record-breaking \$120 billion, up 33% from 1H 2021. Wind financing was up 16% from 1H 2021, at \$84 billion.
- China was the largest market yet again, investing \$98 billion in the first half, up 128% compared to the same period in 2021. The U.S secured \$12 billion while Japan drew \$5 billion.
- This pack also shows trends in 'funds in circulation', which includes the refinancing of projects, mergers, acquisitions and buyouts. These deals totalled \$86.7 billion in 1H 2022, up 7% year-on-year.
- BNEF also publishes an annual report called *Energy Transition Investment Trends* ([web](#)). That report covers more sectors of the energy transition. This report is more narrowly focused on renewable energy and covers both asset finance and corporate finance.

\$226 billion

Global new investment in renewable energy in 1H 2022, including corporate finance

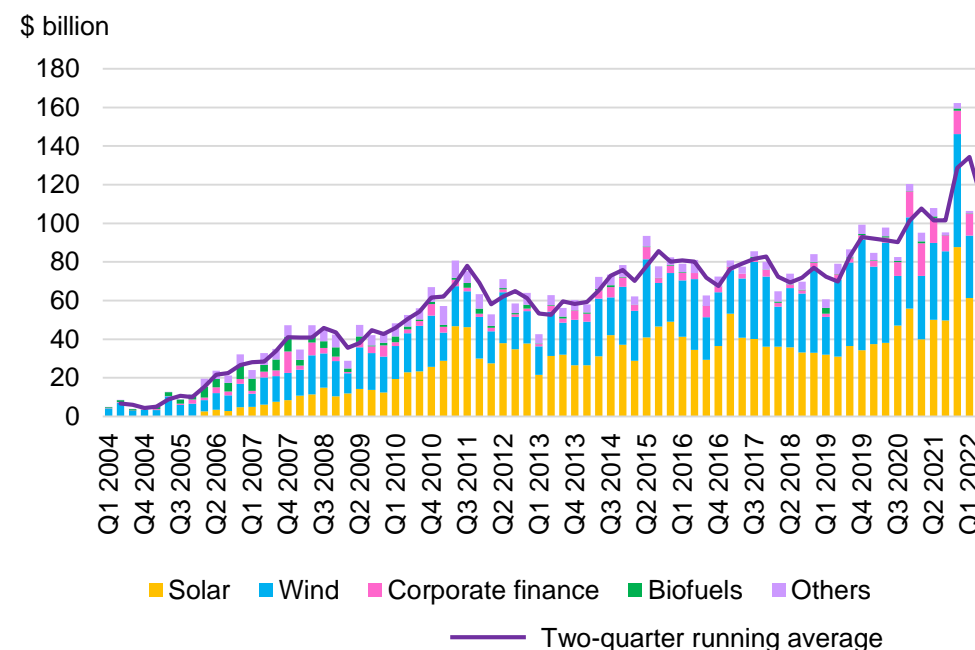
63%

Increase in renewable venture capital and private equity funding compared to 1H 2021

27%

Year-on-year growth in new large-scale solar investment

Global new investment in renewable energy



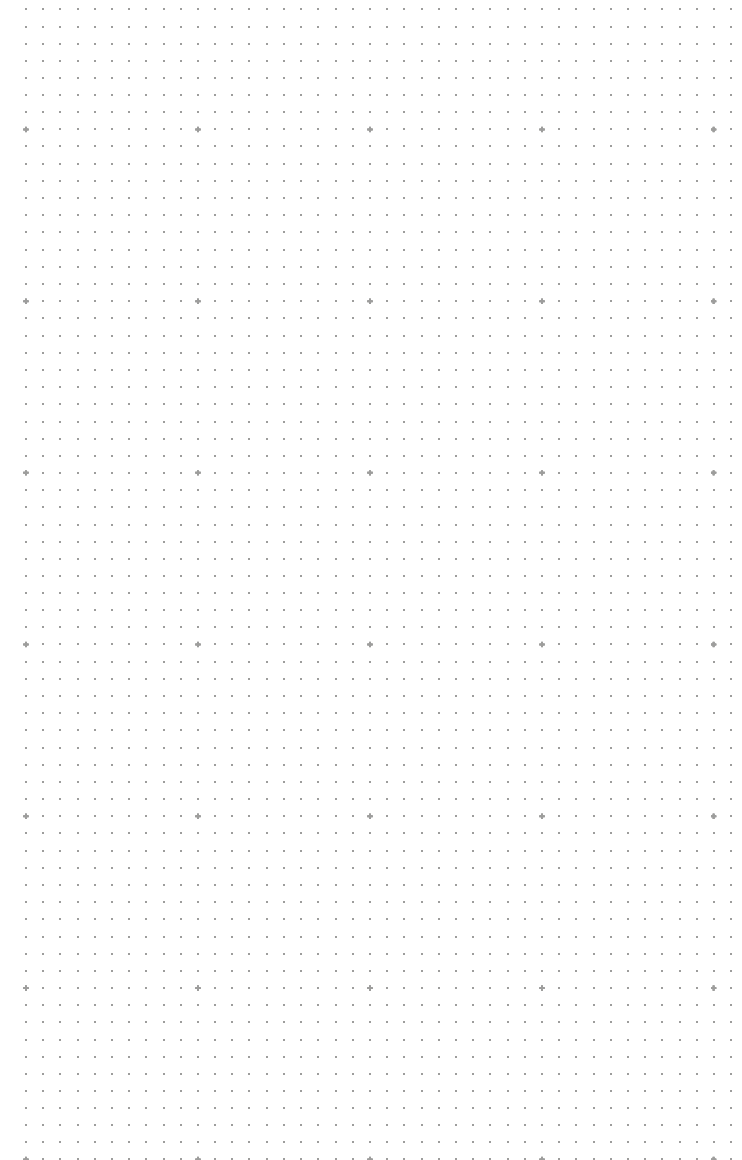
Source: BloombergNEF

Table of contents

Highlights	<u>3</u>
Definitions	<u>10</u>
Quarterly trends, all new investment in renewable energy	<u>16</u>
Quarterly trends, new-build asset finance	<u>31</u>
Quarterly trends, corporate finance	<u>35</u>
Quarterly trends, all funds in circulation	<u>39</u>
Top deals	<u>43</u>
Annual trends, new investment	<u>47</u>

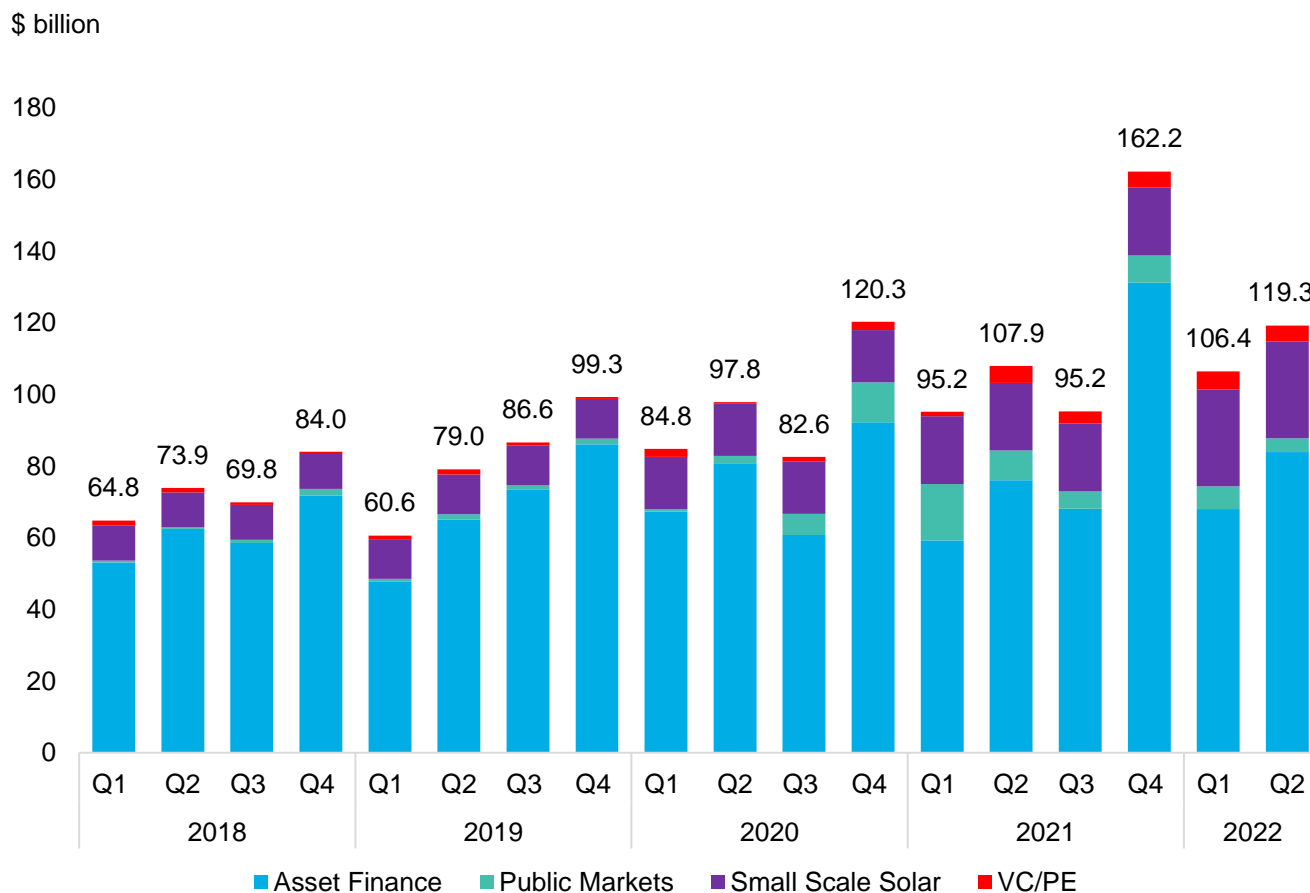
Highlights

Key trends in 1H 2022



New investment in renewable energy surged year-on-year

Quarterly new investment in renewable energy, 2018 – 1H 2022

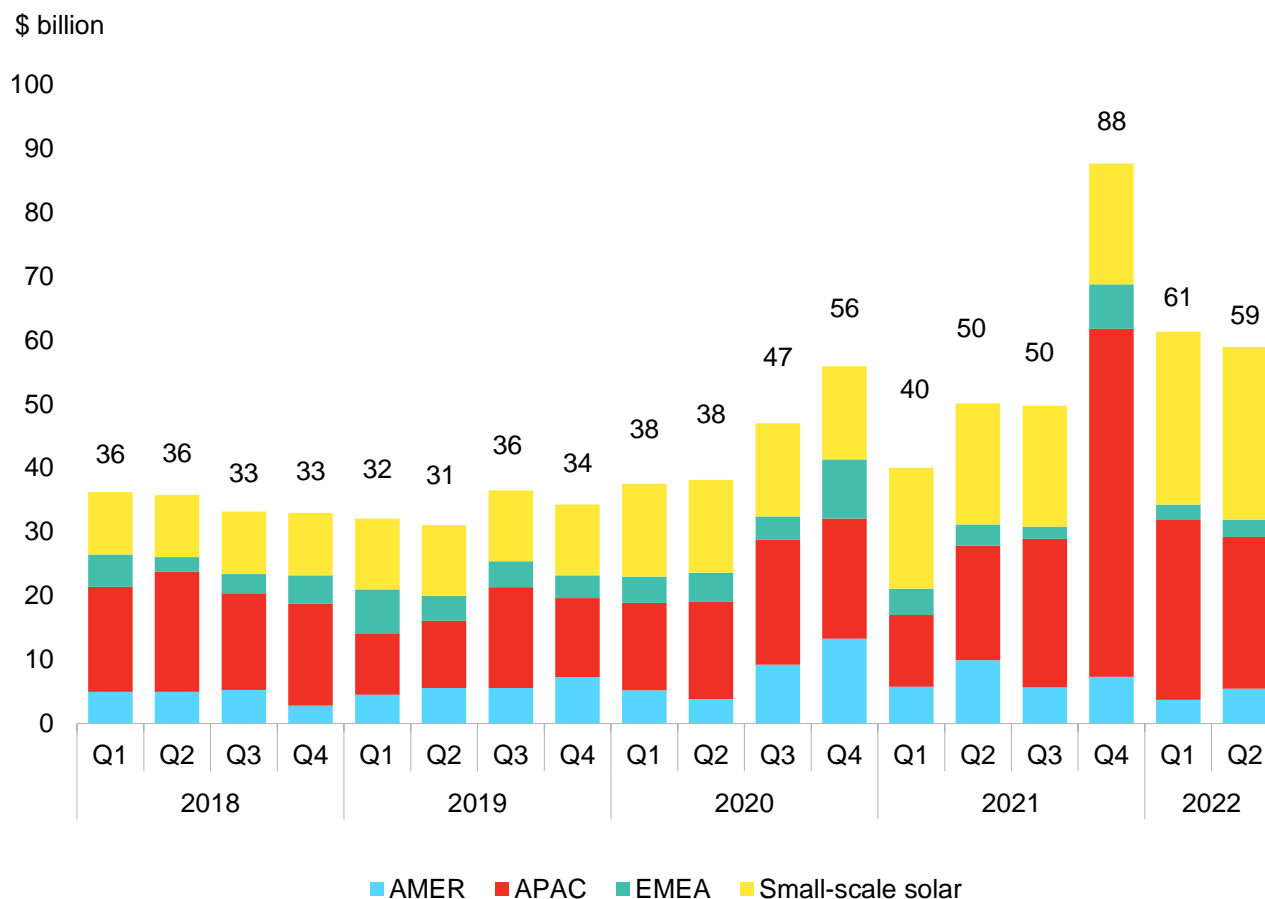


- Global new investment in renewable energy hit \$226 billion in the first half, up 11% from last year. This was the highest ever first half for investment in renewables, supported by record venture capital and private equity funding. Both 1Q and 2Q 2022 were stronger quarters than in 2021. However, investment has dropped 12% relative to a very strong second half of 2021.
- The first-half totals in 2022 and 2021 compare favourably to those of 2020 and 2019, when the total investment was only \$183 billion and \$140 billion, respectively.
- Venture capital and private equity expansion commitments to renewable energy companies totalled \$9.6 billion in 1H 2022, up 63% from last year. New equity raised on the public markets totalled \$10.5 billion, down 65% compared to previous year.
- Investment in large-scale renewable projects was up 12% year-on-year in the first half. Utility-scale solar asset finance increased 27% year-on-year, while wind asset finance was up 16% year-on-year. Investment in other sectors, such as biomass, waste-to-energy and small hydro, fell.

Source: BloombergNEF

China continues to lead the world on solar investments

Investment in new solar projects: large-scale asset finance by region plus small-scale

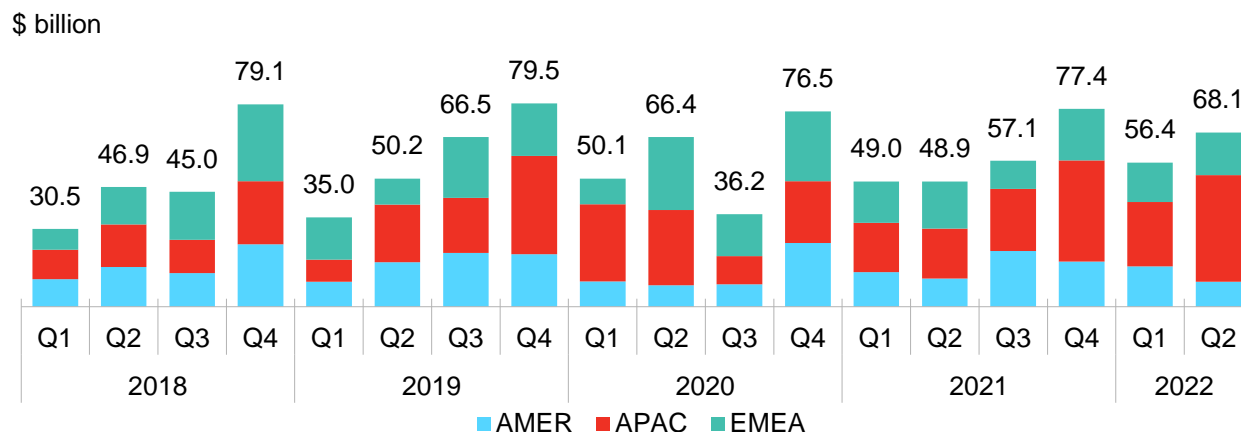


- New large-scale solar investments totalled \$66 billion in 1H 2022, up 27% on the previous year, albeit lower than 2H 2021. Solar project investment often accelerates in the second half of the year to meet year-end deadlines
- Market growth was driven by investment in China which made up \$41 billion in the first half of 2022, up 173% on the previous year's \$15 billion. The U.S emerged as the second-largest solar market investing \$7.5 billion, followed by Japan at \$3.9 billion.
- The top deal in 1H 2022 saw Huanggang Dabieshan Power Generation Co Ltd and Macheng Energy Investment Development Co Ltd finance \$1.1 billion for the build of a 1,300MW PV plant located in Hubei Province, China.
- We have less visibility on small-scale solar investment (much of which is in Europe) due to lagging data availability. Nonetheless, pricing and customs data indicators suggest it is continuing at a healthy rate nearly everywhere.

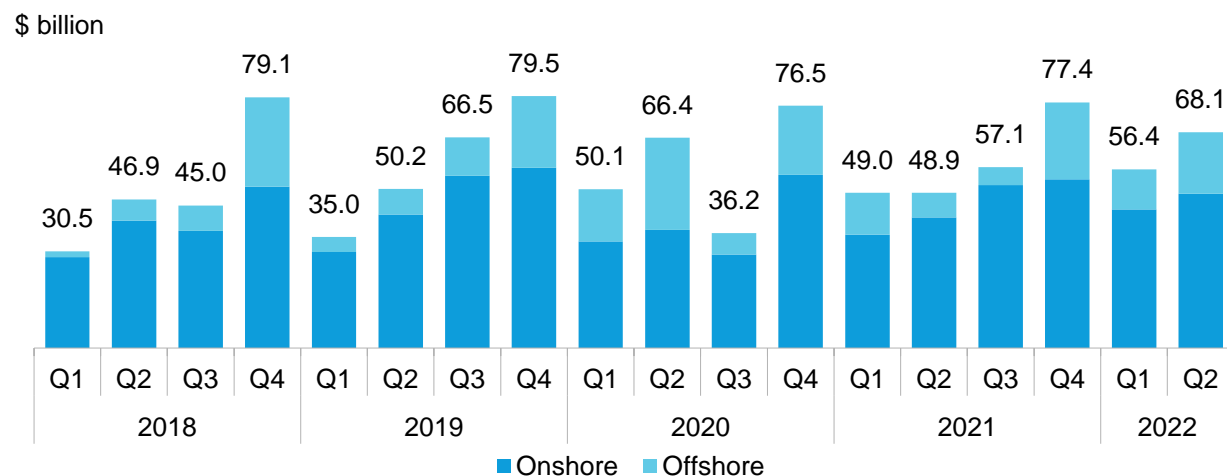
Source: BloombergNEF

APAC drove the global growth for investment in wind projects

Investment in wind projects by region



By subsector

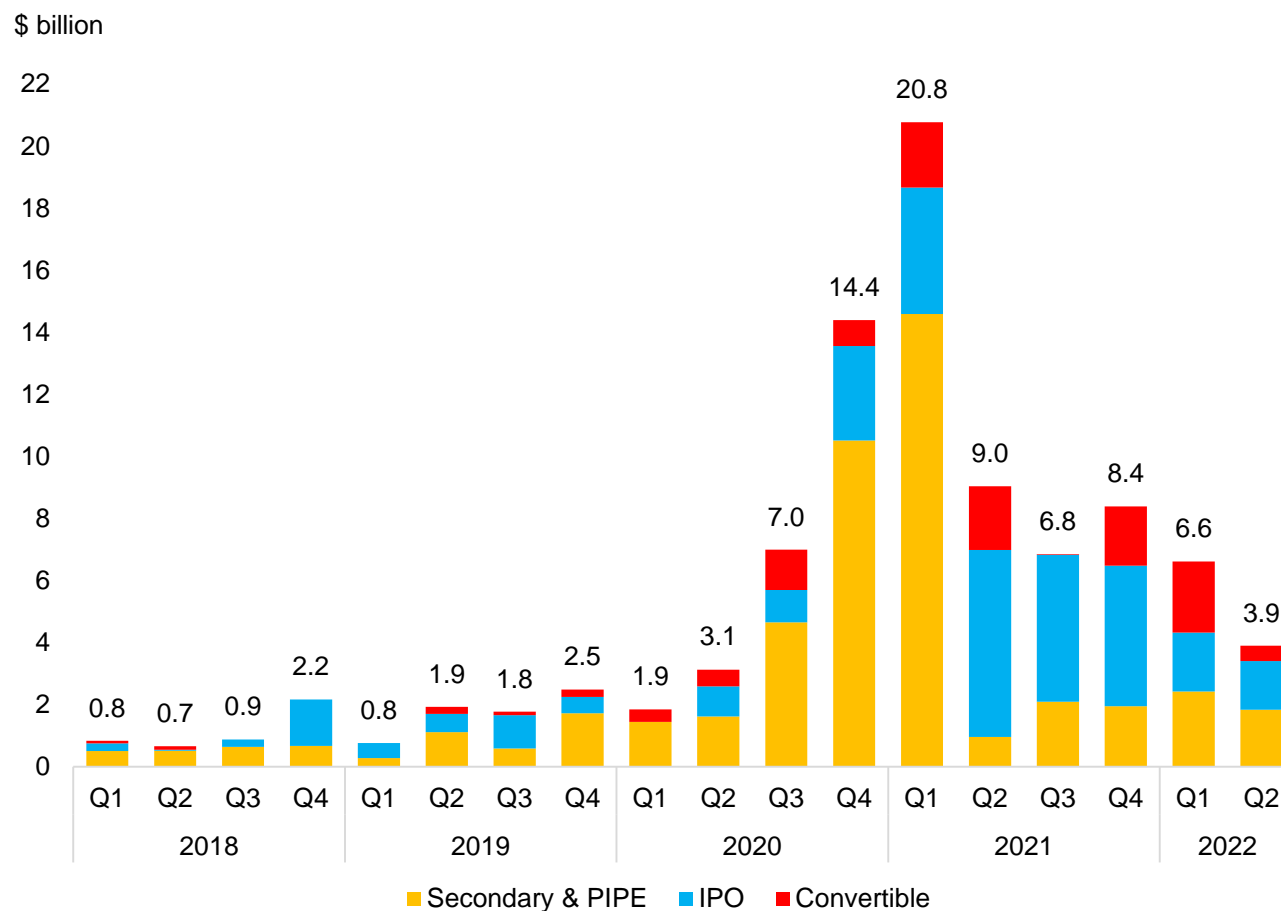


Source: BloombergNEF

- Wind investment in 1H 2022, including new build and refinancing, topped \$124.5 billion, a notable increase from the \$97.9 billion invested in 1H 2021. \$84 billion of this was for new projects.
- Investment in China, the world's largest wind market, hit \$ 57.8 billion in 1H 2022, up 107% from last year, followed by the U.S at \$19.7 billion, up 9% compared to last year.
- APAC recorded its highest-ever total at \$66.8 billion, up 72% from the previous year. EMEA slipped 7% while AMER remained steady at \$25.7 billion.
- Onshore wind investment in 1H 2022 totaled \$92.4 billion, the highest first-half total on record. APAC was a key contributor with China alone making up 44% of the total by investing \$41 billion.
- Offshore wind investment in the first half increased 52% from the same period last year to \$32 billion.
- The financing of the 1,000MW China Three Gorges Yangjiang Yangxi Shapa Qingzhouwu Offshore Wind Farm for \$2.1 billion was the largest deal during this period.

Public market issuances for renewable energy companies fell in 1H 2022

Public market investments in renewable energy and storage

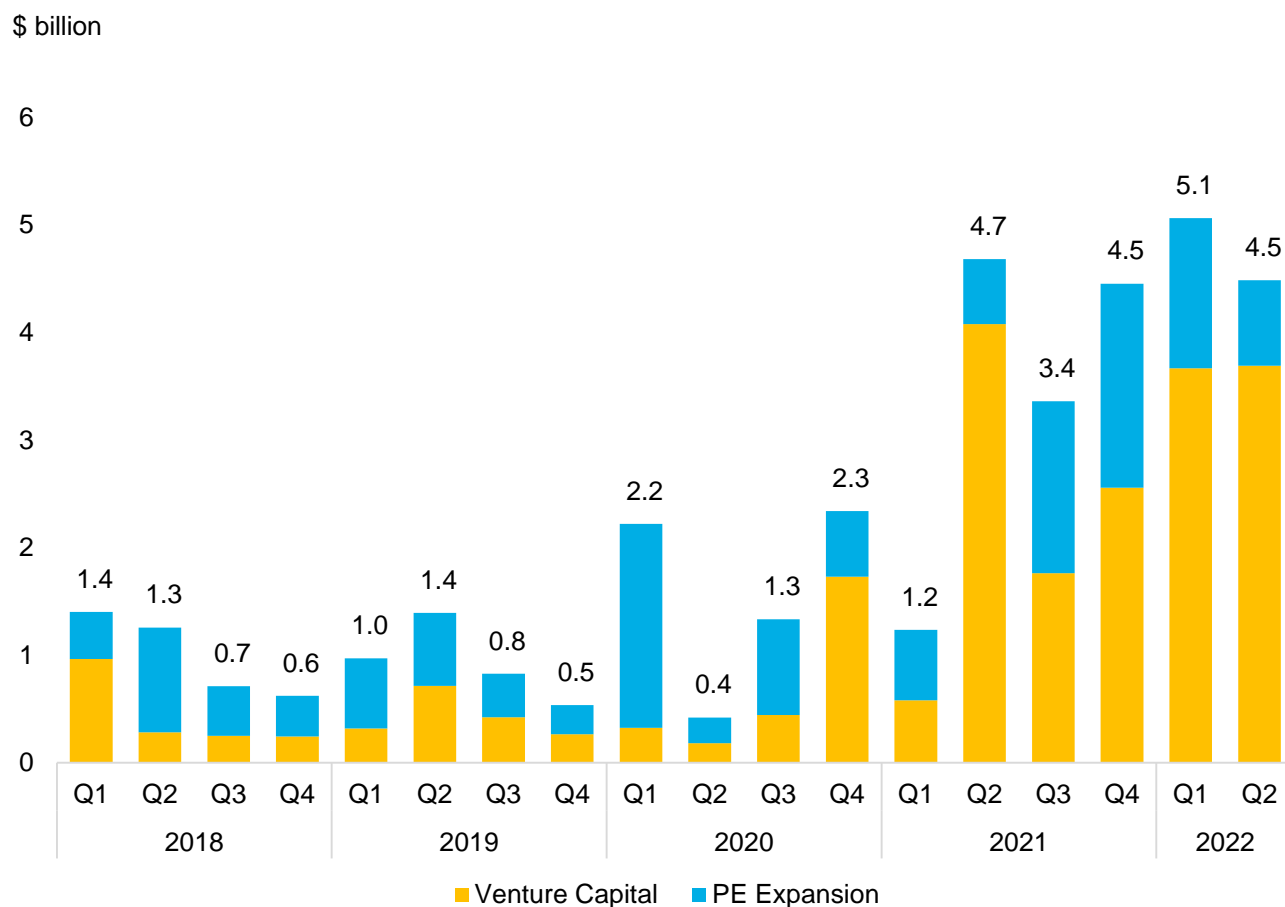


- Public equity markets provide the financing environment for many of the large and established players in renewable energy, including manufacturers, developers and some funds.
- After a very strong first half in 2021, public market issuances dropped 65% in 1H 2022, totaling \$10.5 billion. The 2Q figure, at \$3.9 billion raised, is the lowest quarterly total since 2Q 2020.
- Among the largest share offerings in the first half, China-based renewable energy generator Tongwei Co Ltd raised \$1.9 billion, PV manufacturer Jinko Solar raised \$1.6 billion, and wind equipment manufacturer Sany Heavy Energy Co Ltd pulled in \$837 million.

Source: BloombergNEF

VC/PE investment achieves best-ever first half

VC/PE expansion investments in renewables and storage

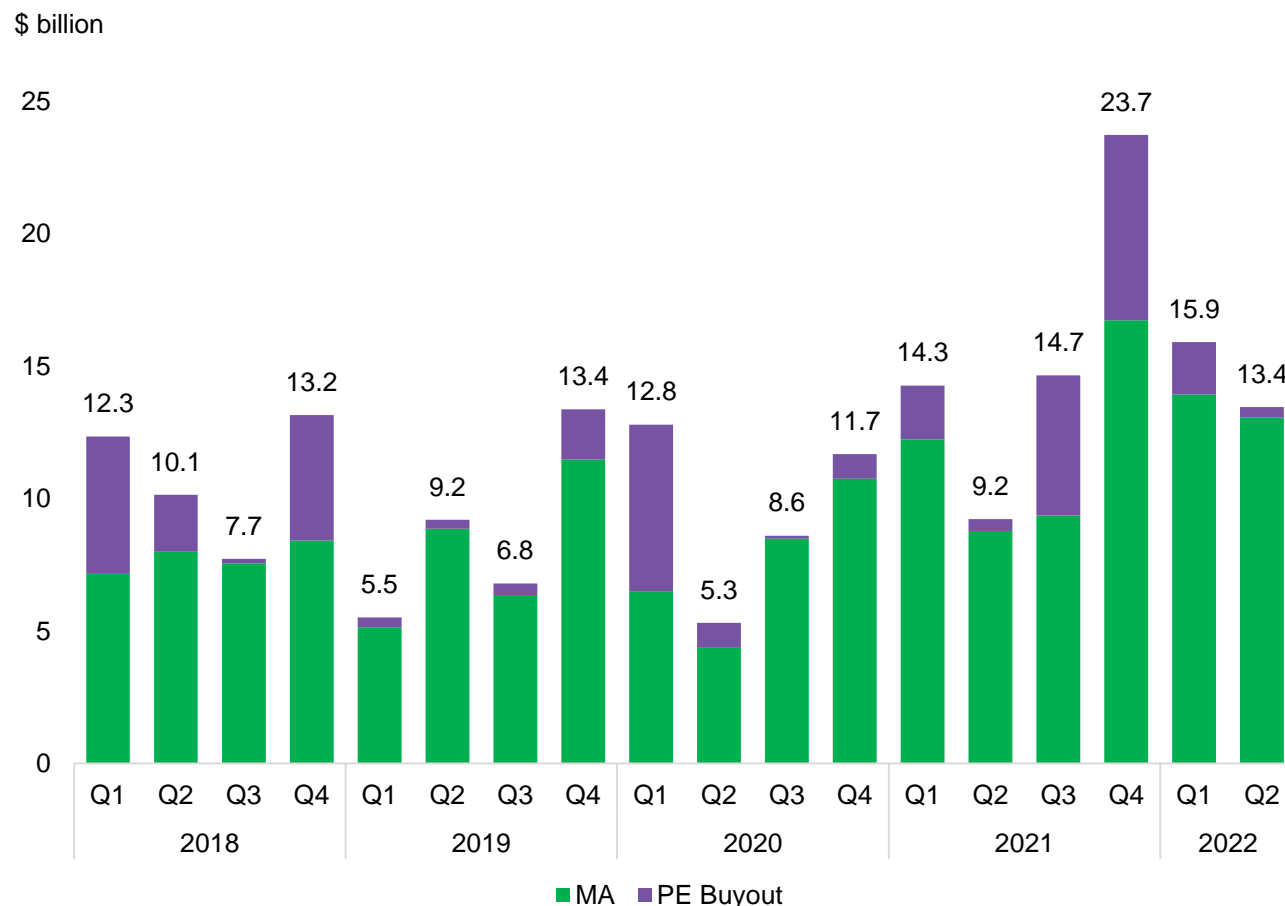


- Venture capital and private equity expansion capital have been key elements in the growth of renewable energy and storage since these technologies emerged. Young companies have tapped specialist early-stage funds for capital, ahead of seeking public market flotations or trade sales.
- In 1H 2022, VC/PE expansion investment in renewable energy and storage companies hit \$9.6 billion, up 63% on the previous year. This was an all-time record in this space
- The U.S emerged as the leading market in the first half, investing \$4.8 billion, followed by Germany at \$1 billion and France pulling in \$663 million.
- The largest deals in the first half included \$755 million for Silicon Ranch Corp, a U.S.-based solar project developer, and \$500 million for BrightNight LLC, a U.S.-based renewable energy project developer.
- Please see our Investment Radar ([web | terminal](#)) for more on climate-tech VC/PE financing. That report has a wider scope than this one, covering areas beyond renewable energy.

Source: BloombergNEF

Global M&A activity rose to a new first-half record

Global M&A/PE buyout investments in renewables and storage

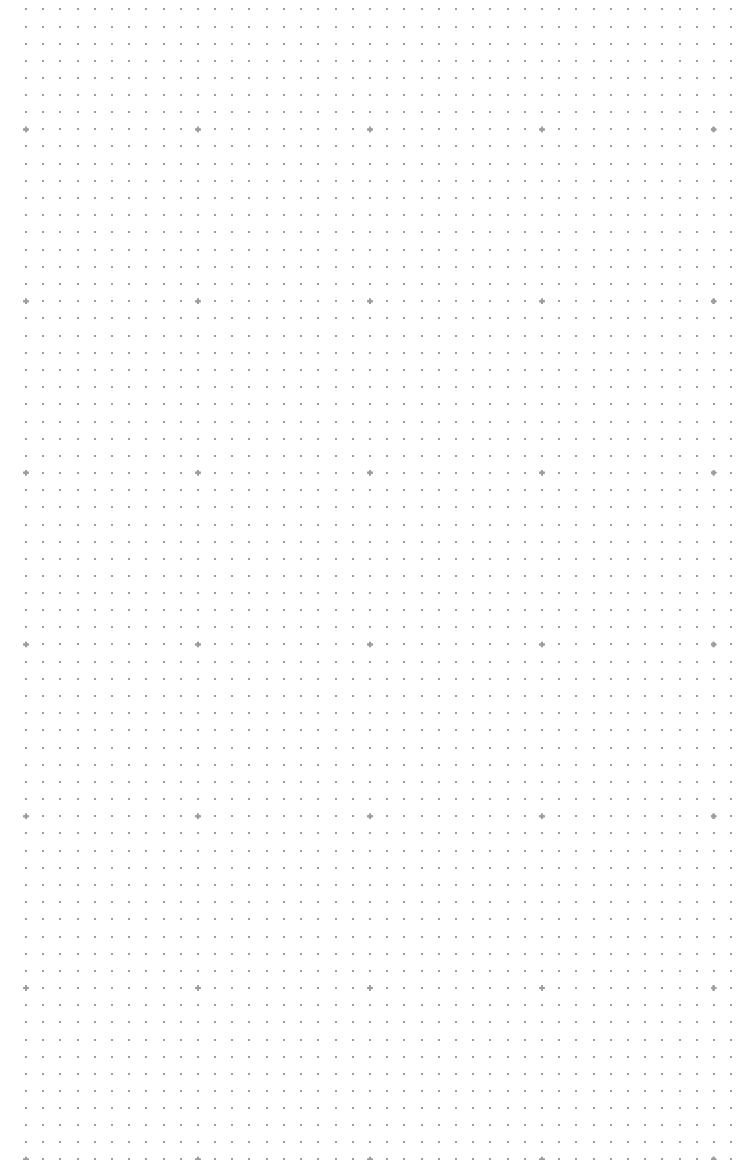


Source: BloombergNEF

- Merger and acquisition activity is an important part of the renewable energy financing picture. These deals do not provide new money for technologies and developers but they enable early investors to make exits and redeploy capital on fresh opportunities.
- In 1H 2022, corporate M&A and private equity buyouts totaled \$29.3 billion, up 25% on the previous year's \$23.5 billion. This is the highest ever first-half total.
- In terms of deal count, the U.S. emerged as the most active market in 1H 2022, followed by China and India.
- Among the biggest deals in this category were Chevron Corp's acquisition of Renewable Energy Group for \$2.8 billion. This was followed by Falck Renewables SpA's acquisition by IIF International Holding for \$2.6 billion. Japan Renewable Energy Co Ltd's buyout by ENEOS Holdings Inc for \$1.7 billion was the third-largest deal.
- It is increasingly common for corporate entities to acquire the shares of developers with sought-after development and land rights for renewable projects rather than the assets themselves. This approach allows investors to secure these pipeline projects while managing risk exposure.

Definitions

What's in this report



Definitions

Types of funding

New investment

This category refers to new investment into renewable energy capacity, and equity raising by specialist companies in renewables and related areas such as energy storage.

Coverage includes:

- **Asset finance – new builds:** The new-build financing of renewable energy generating projects
- **Small-scale solar:** Given the difficulties in tracking small-scale solar projects, BloombergNEF's asset finance database excludes projects below roughly 1MW. Unlike utility-scale asset investment, our small-scale solar investment figures are based on top-down analyst estimates.
- **Venture capital / private equity (VC/PE):** Expansion capital where early-stage companies receive funding
- **Public markets:** Equity raising for larger, more established players. This may be through IPOs or follow-on offerings like secondary offerings, private investment in public equity, or PIPEs, convertibles etc.

Funds in circulation

Unlike 'new investment', our 'funds in circulation' category is not new money for technologies and developers. Instead, these funds include acquisitions and refinancing of existing assets, enabling early investors to make exits and redeploy capital on fresh opportunities. Mergers and acquisition activity is an important part of the renewable energy financing picture.

Coverage:

- **Asset finance:** Acquisitions: financing for the complete/partial acquisition of a project or portfolio.
- **Asset finance:** Refinancings: when a project is refinanced, the owner/developer takes out a new loan for an existing project or reschedules payments and terms on the existing loan
- **Mergers and acquisitions (M&A):** Transactions in which the ownership of companies generating revenue from renewable energy are transferred or consolidated with other entities
- **Public market exits:** Funds raised by publicly-quoted pure-play renewable energy companies on the capital markets
- **Private equity buyouts:** The acquisition of a controlling interest in a private corporation

Definitions

Asset classes

Asset finance

The new-build financing of renewable energy generating projects. These projects include both electricity generation and biofuels production assets. Projects may be financed off the owner's balance sheet, or through financing mechanisms such as project finance, syndicated equity from institutional investors, or project bonds underwritten by banks.

Small-scale solar

Small-scale solar investment is included in our asset finance charts, but the figures are based on top-down analyst estimates. This is because, given the difficulties in tracking small-scale solar projects, BNEF's asset finance database excludes projects below roughly 1MW.

Corporate finance

- **Venture capital and private equity (VC/PE):** Early and late-stage venture capital funding rounds of pure-play renewable energy companies as well as funds raised privately for the purposes of expansion.
- **Public markets (PM):** Funds raised by publicly quoted or OTC pure-play renewable energy companies on the capital markets. This may be through IPOs or follow-on offerings like secondary offerings, private investment in public equity, or PIPEs, convertibles, etc.

Note that our corporate finance deal data includes companies in areas adjacent to renewable energy, such as energy storage, smart grids and fuel cells.

Definitions

Asset finance sectors

Wind

Electricity generation projects using wind turbines, both onshore and offshore.

Solar

All technologies that capture energy directly from the sun. These include production of electricity using semiconductor-based photovoltaic (PV) materials, and use of concentrated sunlight to heat fluids that drive power generation equipment (solar thermal).

Biofuels


Liquid transportation fuels including biodiesel and bioethanol. These can be derived from a range of biomass sources, including sugar cane, rapeseed, soybean oil or non-food cellulosic feedstock.

Other renewables

Includes small hydro - hydro projects with capacities smaller or equal to 50MW; geothermal - extraction of useful power from heat stored in the earth; marine - the extraction of tidal, wave and thermal energy from the ocean, and biomass & waste.

Accessing the underlying data in this report

There are three ways for BNEF clients to access the underlying data in this report.

1. Download the Excel workbook published alongside this report. This contains the data behind each of the charts in this report.
 - a. Bloomberg Terminal users can do this by running 97<GO> while viewing this report on the Terminal.
 - b. Clients can also download it from the BNEF website, by going to the [summary page for this report](#) and clicking on the  icon to the left of the page.
2. To see primary data on the underlying transactions, go to the BNEF website [‘Transactions’ interactive data set](#).
 - This tool shows individual deal data, excluding undisclosed deal values and buffers, whereas the charts in this report include BNEF’s estimates and buffers for undisclosed deals. So the figures in this report will be higher than in the web interactive data set.
 - Note that the Transactions tool is currently not showing public markets data.
3. The [‘Energy transition investment’ interactive data set](#) houses our wider estimation of project investment across the energy transition (excluding corporate finance). This includes not only renewable energy (the focus of this report), but also electrified transport, heat, hydrogen, energy storage and carbon capture. However, only renewable energy data is captured quarterly – all other sectors are shown annually.
 - Filter for supersector ‘Renewable energy’ to see data equivalent to the scope of the *asset finance* section of this report. The tool does not include any corporate finance data, as it is focused on investment in projects and hardware.
 - Change the time period to ‘quarterly’ to see the data in quarterly time periods, similar to the majority of charts in this report.

How does this report fit with BNEF's other investment reports?

BNEF also publishes an annual report called *Energy Transition Investment Trends* ([web](#) | [terminal](#)), as well as a bi-monthly *Investment Radar* ([web](#) | [terminal](#)). This report differs from those in scope: it is focused on renewable energy (leaving out other sectors of the energy transition) and includes both asset/project finance and corporate fundraising.

Key BNEF publications covering investment trends

Publication	Frequency	Sectors covered	Asset classes
Renewable Energy Investment Tracker (this report)	Half-yearly	Renewable energy	Project / asset investment and corporate fundraising
Investment Radar (web terminal)	Every 2 months	All sectors of energy transition + climate-tech	Corporate fundraising only (VC, PE, public markets)
Energy Transition Investment Trends (web terminal)	Annual	All sectors of energy transition	Project / asset investment and corporate fundraising

Note: Other sectors covered in other reports include low-carbon transport, buildings, industry and agriculture, as well as hydrogen, nuclear energy and carbon capture.

Copyright and disclaimer

Copyright

© Bloomberg Finance L.P. 2022. This publication is the copyright of Bloomberg Finance L.P. in connection with BloombergNEF. No portion of this document may be photocopied, reproduced, scanned into an electronic system or transmitted, forwarded or distributed in any way without prior consent of BloombergNEF.

Disclaimer

The BloombergNEF ("BNEF"), service/information is derived from selected public sources. Bloomberg Finance L.P. and its affiliates, in providing the service/information, believe that the information it uses comes from reliable sources, but do not guarantee the accuracy or completeness of this information, which is subject to change without notice, and nothing in this document shall be construed as such a guarantee. The statements in this service/document reflect the current judgment of the authors of the relevant articles or features, and do not necessarily reflect the opinion of Bloomberg Finance L.P., Bloomberg L.P. or any of their affiliates ("Bloomberg"). Bloomberg disclaims any liability arising from use of this document, its contents and/or this service. Nothing herein shall constitute or be construed as an offering of financial instruments or as investment advice or recommendations by Bloomberg of an investment or other strategy (e.g., whether or not to "buy", "sell", or "hold" an investment). The information available through this service is not based on consideration of a subscriber's individual circumstances and should not be considered as information sufficient upon which to base an investment decision. You should determine on your own whether you agree with the content. This service should not be construed as tax or accounting advice or as a service designed to facilitate any subscriber's compliance with its tax, accounting or other legal obligations. Employees involved in this service may hold positions in the companies mentioned in the services/information.

The data included in these materials are for illustrative purposes only. The BLOOMBERG TERMINAL service and Bloomberg data products (the "Services") are owned and distributed by Bloomberg Finance L.P. ("BFLP") except (i) in Argentina, Australia and certain jurisdictions in the Pacific islands, Bermuda, China, India, Japan, Korea and New Zealand, where Bloomberg L.P. and its subsidiaries ("BLP") distribute these products, and (ii) in Singapore and the jurisdictions serviced by Bloomberg's Singapore office, where a subsidiary of BFLP distributes these products. BLP provides BFLP and its subsidiaries with global marketing and operational support and service. Certain features, functions, products and services are available only to sophisticated investors and only where permitted. BFLP, BLP and their affiliates do not guarantee the accuracy of prices or other information in the Services. Nothing in the Services shall constitute or be construed as an offering of financial instruments by BFLP, BLP or their affiliates, or as investment advice or recommendations by BFLP, BLP or their affiliates of an investment strategy or whether or not to "buy", "sell" or "hold" an investment. Information available via the Services should not be considered as information sufficient upon which to base an investment decision. The following are trademarks and service marks of BFLP, a Delaware limited partnership, or its subsidiaries: BLOOMBERG, BLOOMBERG ANYWHERE, BLOOMBERG MARKETS, BLOOMBERG NEWS, BLOOMBERG PROFESSIONAL, BLOOMBERG TERMINAL and BLOOMBERG.COM. Absence of any trademark or service mark from this list does not waive Bloomberg's intellectual property rights in that name, mark or logo. All rights reserved. © 2022 Bloomberg.

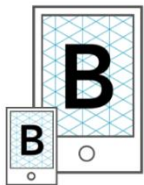
BloombergNEF (BNEF) is a strategic research provider covering global commodity markets and the disruptive technologies driving the transition to a low-carbon economy.

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.

BloombergNEF

Get the app



On IOS + Android
about.bnef.com/mobile

Client enquiries:

Bloomberg Terminal: press <Help> key twice

Email: support.bnef@bloomberg.net

Learn more:

about.bnef.com | [@BloombergNEF](https://twitter.com/BloombergNEF)