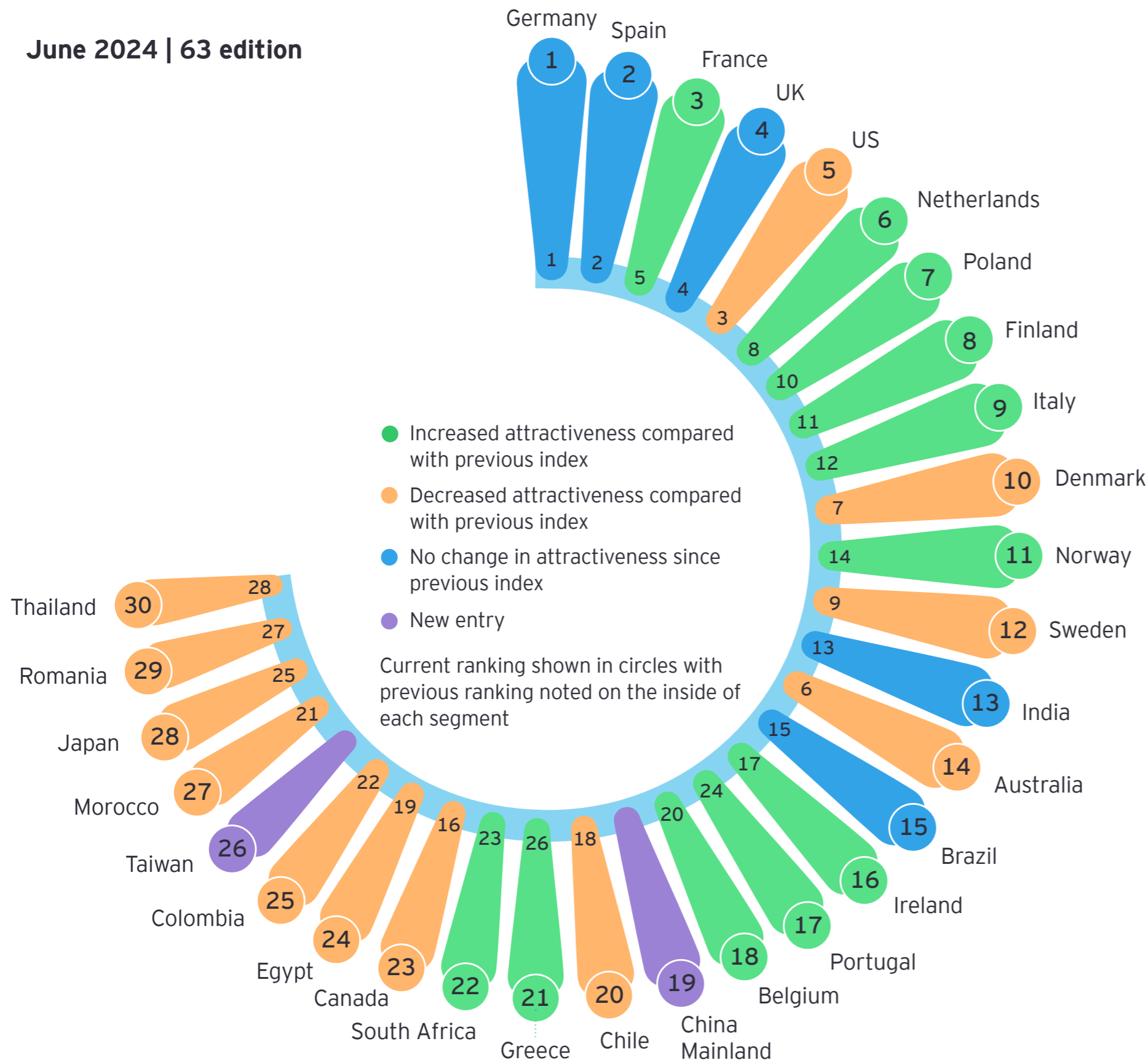


PPA Index

June 2024 | 63 edition



France

A late starter in the corporate PPA race, France is now playing catchup, with a large number of deals over the past six months pushing the country up two spots to third position. Market positivity is high due to a new scheme that will see the government support PPAs through bank guarantees issued by Bpifrance. The scheme is designed to encourage extractive and manufacturing sectors to sign PPAs of 10 years or more and for 10GWh or greater from assets not yet commissioned. Most PPAs in France involve relatively small assets (less than 40MW), and about two-thirds are solar, with the remaining onshore wind.

Poland

The largest PPA market in Eastern Europe continues to grow, rising another three places in our Index to seventh. More large deals are being signed, as offtakers with a heavy manufacturing focus drive PPAs with an average capacity of around 60MW. Solar dominates onshore wind, making up about three-quarters of deals. We see a trend toward mixed wind and solar deals, as baseload PPAs are increasingly difficult to obtain from a single technology due to a reduced bank appetite for profile risk.

Greece

The deal count in Greece is still quite small, but this nascent corporate PPA market is showing signs of growth, rising five places to 21st. This is a market dominated by solar projects that make the most of the sunny Mediterranean climate, with only a few onshore wind deals. As in many other markets, large industrial and IT conglomerates dominate the offtaker list but, interestingly, there has also been a public sector PPA by Thessaloniki Water Supply and Sewerage Company (EYATH). This echoes a trend seen in other markets, including the UK, where a few government organizations have signed public sector PPAs.

China Mainland and Taiwan

These corporate PPA markets are appearing in our top 30 PPA Index for the first time, as they begin opening to private offtakers. In Taiwan, the Taiwan Semiconductor Manufacturing Company (TSMC) has agreed a couple of very large offshore wind deals (600MW-920MW) which, while not due to commence operations until 2026, are already having an impact, setting a precedent for government support. A recent government announcement that it would offer credit guarantees for green PPAs is aimed at widening the pool of potential customers. China Mainland also has seen the beginning of a couple of new private PPAs. In early 2024, Linde signed a 320GWh solar PPA (for power from the Guangdong and Jiangsu provinces) while, in 2022, BASF signed a solar and wind PPA for its Zhanjiang site, making use of the new renewable energy trading rules in the Guangdong province. With increased liberalization of power markets in China Mainland and Taiwan over the coming years, we expect to see more corporate PPAs.

See page 3 for PPA methodology.

PPA Index scores

Ranking	Market	Previous ranking	Movement vs. previous	Normalized score (0-100)	PPA Index score	PPA market maturity	PPA future market score	PPA policy score	RECAI score
1	Germany	1	●	100.0	30,040,622	89.0	88.0	54.4	70.5
2	Spain	2	●	84.9	25,498,812	91.4	85.7	51.2	63.6
3	France	5	▲	76.7	23,038,698	76.9	81.3	53.6	68.7
4	UK	4	●	72.0	21,615,991	93.7	66.5	50.7	68.4
5	US	3	▼	69.5	20,864,269	95.1	52.7	56.6	73.6
6	Netherlands	8	▲	62.1	18,644,576	75.5	76.5	50.7	63.6
7	Poland	10	▲	60.1	18,051,671	69.8	77.2	55.6	60.3
8	Finland	11	▲	57.9	17,386,021	67.9	82.2	52.9	58.9
9	Italy	12	▲	55.3	16,615,232	63.4	82.8	50.4	62.8
10	Denmark	7	▼	54.9	16,483,532	61.9	81.1	51.0	64.3
11	Norway	14	▲	49.9	15,004,443	67.4	76.6	49.5	58.7
12	Sweden	9	▼	49.2	14,768,531	66.3	76.5	48.8	59.7
13	India	13	●	48.7	14,617,819	77.9	41.6	67.9	66.5
14	Australia	6	▼	46.5	13,962,498	87.2	40.3	58.0	68.5
15	Brazil	15	●	36.9	11,091,808	82.5	53.1	42.5	59.6
16	Ireland	17	▲	34.7	10,432,306	58.3	49.7	57.3	62.8
17	Portugal	24	▲	34.0	10,213,841	44.2	78.5	51.2	57.4
18	Belgium	20	▲	29.6	8,879,865	63.7	46.5	49.7	60.4
19	China Mainland	-		29.5	8,853,858	39.5	46.8	66.5	72.0
20	Chile	18	▼	28.4	8,546,531	52.3	50.8	52.5	61.3
21	Greece	26	▲	23.2	6,971,142	47.7	48.2	50.0	60.6
22	South Africa	23	▲	21.1	6,343,583	65.6	35.1	53.1	51.9
23	Canada	16	▼	19.3	5,786,146	47.7	37.2	50.8	64.1
24	Egypt	19	▼	19.1	5,749,686	51.8	38.2	54.2	53.6
25	Colombia	22	▼	18.5	5,545,520	58.0	38.2	49.9	50.1
26	Taiwan	-		18.4	5,532,552	63.2	25.4	59.4	58.0
27	Morocco	21	▼	17.6	5,285,972	43.1	37.2	58.8	56.0
28	Japan	25	▼	17.0	5,096,013	43.9	34.5	52.6	64.0
29	Romania	27	▼	12.7	3,805,271	37.6	36.3	53.1	52.5
30	Thailand	28	▼	11.6	3,477,696	48.5	23.0	61.5	50.8

PPA Index methodology

By analyzing the same 100 markets as in the full RECAI database, the goal is to create a new ranking that focuses on the attractiveness of renewable power procurement — via offsite corporate PPAs — rather than the attractiveness of renewable project investment.

The final score for the top 30 markets is calculated from a weighted combination of 12 key parameters, which act as a proxy for corporate PPA potential. The PPA Index focuses on four pillars (three PPA-specific pillars together with a RECAI score pillar):

- ▶ **PPA market maturity** – this focuses on activities carried out within each market in the past decade. It concentrates on market maturity, looking at past PPA deal frequency and volume, as well as a quantitative analysis of more recent PPA deal growth.
- ▶ **PPA future market** – this forward-looking score assesses the forecast activity of each market. Forecast power capacity is a key driver of the magnitude of a market, so this has a significant weighting on the score as well as the wholesale power price relative to the levelized cost of energy (LCOE) or PPA price in each market. Forecast capacity installations and a weighted project pipeline score from RECAI are used. The index has focused on wind and solar PPAs (together weighted at 93%) as these represent the vast majority of offsite corporate PPAs.
- ▶ **PPA policy score** – this focuses on the ease of operation in a given market. If a market is to have potential for corporate PPA growth, supporting government policy must be in place for efficient and large-scale expansion. This is considered in the core RECAI, but is also examined here, with a more nuanced focus on PPA supportive policy.
- ▶ **RECAI score** – the overall score yielded by RECAI is also factored in as one of the fundamental pillars, because it provides a strong overview of the existing and potential strength of a market's renewable energy landscape.

The PPA Index uses a multiplicative formula to prioritize well-rounded markets with strengths in all aspects of corporate PPA development and integration. For example, this will mean that markets with zero PPA deals to date will score zero overall and will not yet be included.

However, with strong weighting on forward-looking parameters, even markets with just a few deals to date could score highly if significant growth is expected in the corporate PPA market within the next five years – the horizon of RECAI.

The RECAI PPA Index score (which can be very large) has been normalized into a score from 0 to 100, to create a more manageable reference value. The leading market will score 100 – but this does not mean that the market is perfect for corporate PPAs. It means that, relatively speaking, it is the most attractive market for corporate PPAs across the coming five years.

Data sets are based on publicly available or purchased data, EY analysis or adjustments to third-party data. We are unable to publicly disclose the exact data sets or weightings used to produce the indices.

For more information on the services that EY teams provide to corporates around renewable energy strategies and PPAs, please refer to our website: www.ey.com/uk/ppa.

PPA market maturity

(Sources: Pexapark, DLA Piper and EY analysis)

1. Number of PPAs signed in the past five years
2. Total PPA volume in the past five years
3. Number of PPAs signed in the past year
4. Total PPA volume in the past year

PPA future market

(Sources: Wood Mackenzie, GlobalData, IRENA, IEA, Pexapark and EY analysis)

1. Pipeline of projects:
 - a. Forecast power capacity
 - b. Forecast installation growth
 - c. Project pipeline
2. Wholesale power pricing:
 - a. Wholesale power price relative to the historic LCOE
 - b. Wholesale power price relative to the PPA price

PPA policy score

(Sources: World Bank, GlobalData, IEA and EY analysis)

1. Ease of doing business index (World Bank)
2. Renewable energy imperative:
 - ▶ Renewable energy percentage of total generation
 - ▶ Percentage of population with access to electricity
 - ▶ Forecast energy consumption growth
 - ▶ CO₂ emissions

RECAI score

(Source: EY analysis)

1. Macro fundamentals
2. Energy imperative
3. Policy
4. Project delivery
5. Technology

Special thanks to Pexapark for providing access to their data.

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