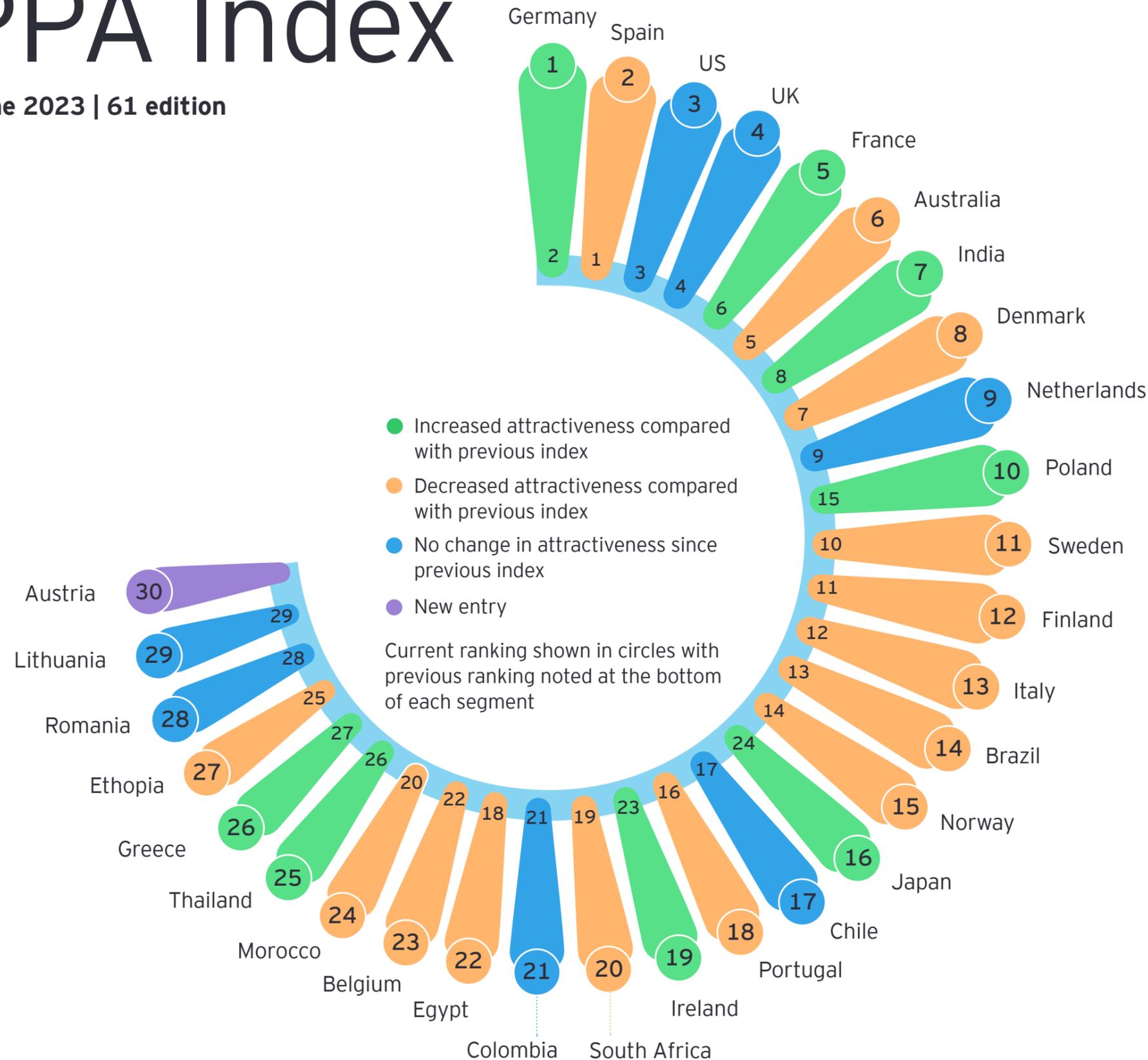


PPA Index

June 2023 | 61 edition



Germany

For the first time since the EY PPA Index began, Spain has been knocked off the top spot by a rising PPA star. Since October 2021, Germany has steadily moved up the PPA Index, from fourth position, and PPAs are now enabling the market's transition to renewables for energy security, as well as helping to reduce costs and decarbonize. Offshore wind deals play a key role in German PPAs, especially for large industrials. For smaller corporates, onshore wind and solar PV are the main technologies. Feed-in tariffs, and then government tenders, used to be the preferred choice of developers, but PPAs are now equally attractive.

US

Static at No. 3 in our global PPA Index, the US was the origin of PPAs and has been their powerhouse for more than a decade now. The recent Inflation Reduction Act, which is spurring the US renewables investment market, is expected to drive growth of PPAs further. It was another record year in 2022, with 16.9GW of PPAs, of which at least half were via large technology companies.²⁰ An interesting development has been the rise of vPPAs for Scope 3 reduction of corporate suppliers' emissions, as opposed to the typical Scope 2 corporate's own operational emissions.

Poland

Jumping five places into the top 10, Poland was the fourth-largest PPA market in Europe in 2022, behind Spain, Germany and the UK. With many companies having significant manufacturing operations in Poland, and with a carbon-heavy grid, there is a strong driver for renewable PPAs. But the future is not plain sailing. In late 2022, the government introduced a hard cap on power producers, including RES pricing to protect consumer costs, but this led to great uncertainty for PPAs, and a number of deals were paused. This cap is expected to be removed at the end of 2023, which should come as welcome news to pending deals.

Ireland

A relative newcomer to PPAs, Ireland is now seeing growing interest, especially among large data center and pharmaceutical companies with significant footprints in the market. Its four-rank rise in this edition of RECAI is based on several recent deals and the forthcoming pipeline. Ireland's Climate Action Plan also aims for 15% of the market's electricity to be delivered through PPAs by 2030. In 2022, there was 647MW of PPAs in Ireland,²¹ competing with its Renewable Energy Support Scheme auction system.

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	2	▲	100.0	24,718,483	71.3	88.3	54.3	72.3
2	Spain	1	▼	98.9	24,435,816	80.9	89.7	51.0	66.0
3	United States	3	●	92.8	22,948,409	100.0	55.5	56.7	72.9
4	United Kingdom	4	●	85.5	21,132,502	68.9	82.1	53.4	69.8
5	France	6	▲	71.3	17,622,052	62.0	81.0	50.4	69.6
6	Australia	5	▼	69.6	17,194,182	79.3	54.2	58.2	68.7
7	India	8	▲	69.2	17,097,777	72.1	51.0	67.4	69.1
8	Denmark	7	▼	64.6	15,961,744	59.8	82.0	51.0	63.8
9	Netherlands	9	●	59.3	14,650,800	59.1	75.9	51.0	64.0
10	Poland	15	▲	57.4	14,195,090	63.0	65.3	55.6	62.0
11	Sweden	10	▼	56.6	13,994,285	63.3	76.1	48.8	59.5
12	Finland	11	▼	56.1	13,867,500	64.4	68.8	53.0	59.0
13	Italy	12	▼	53.4	13,198,559	51.2	82.2	50.4	62.3
14	Brazil	13	▼	44.2	10,929,447	78.5	54.0	42.4	60.7
15	Norway	14	▼	43.0	10,632,699	60.0	63.4	49.5	56.5
16	Japan	24	▲	35.2	8,691,937	54.2	48.0	52.3	63.9
17	Chile	17	●	31.3	7,727,267	60.4	39.1	52.5	62.4
18	Portugal	16	▼	27.5	6,801,790	34.4	65.6	51.5	58.6
19	Ireland	23	▲	26.4	6,529,299	50.6	35.9	57.4	62.7
20	South Africa	19	▼	26.2	6,479,559	60.8	36.5	53.7	54.4
21	Colombia	21	●	23.1	5,720,006	59.4	40.0	49.2	49.0
22	Egypt	18	▼	22.9	5,649,491	46.9	38.8	54.7	56.7
23	Belgium	22	▼	20.7	5,104,547	54.9	31.8	49.9	58.5
24	Morocco	20	▼	20.5	5,070,665	39.3	37.4	58.8	58.6
25	Thailand	26	▲	14.4	3,569,552	47.0	23.3	61.5	52.9
26	Greece	27	▲	14.4	3,554,512	32.6	35.1	49.9	62.2
27	Ethiopia	25	▼	12.7	3,151,254	36.0	35.0	58.9	42.4
28	Romania	28	●	10.3	2,553,006	26.7	34.9	53.2	51.5
29	Lithuania	29	●	8.0	1,982,618	32.2	33.7	50.5	36.1
30	Austria			7.8	1,940,366	19.9	34.3	50.3	56.6

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 country. 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 countries 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 country will score 100 – but this does not mean that the country is perfect for corporate PPAs. It means that, relatively speaking, it is the most attractive country 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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