

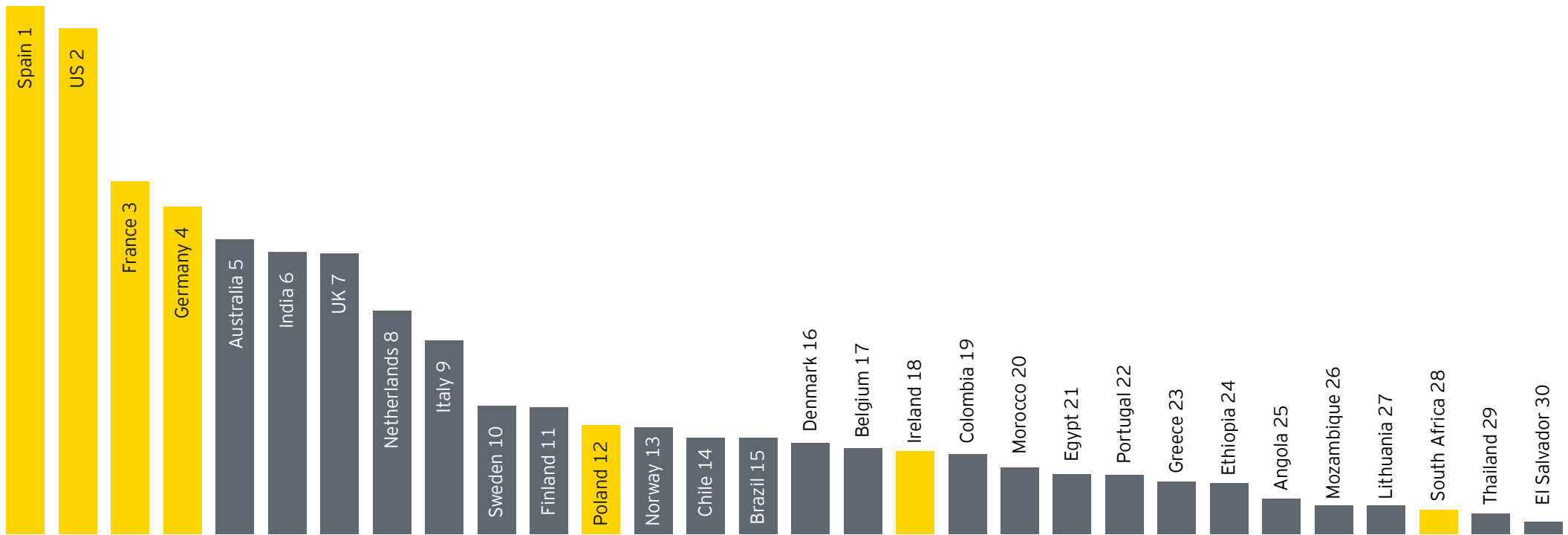
Renewable Energy Country Attractiveness Index
Corporate Power Purchase Agreement (PPA)

PPA Index

October 2021



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Spain and the US – jostling for top rank. The US started the PPA race several years earlier and was still the largest market in 2020, but with signs of growth slowing a little. Meanwhile Spain is currently booming and – as long as regulatory uncertainties remain in check for new-build projects – is expected to be the hottest market for growth as pan-European Virtual PPAs often site there.

France and Germany – slower starters in the corporate PPA market, primarily due to competition from the continuing government auctions at subsidized levels with the relatively low wholesale market prices. However, the PPA Index predicts that these two markets will grow significantly within the next five years as local corporates strive for renewable targets.

Poland – although only mid-table at the moment, our view is that Poland will climb rapidly in future indexes. As the largest renewables market in Eastern Europe and also one of the most expensive and “carbon-dirtiest” grids, many corporates are targeting Poland for PPAs. Regulatory hurdles have slowed growth in the past, but we are seeing these now being overcome.

Ireland – corporate PPAs are relatively new to the Irish market, with only a handful to date. But large multinational companies are now starting to do deals here too, helped by the delayed Renewable Electricity Support Scheme (RESS) auction process and relatively high wholesale prices – allowing PPAs to compete. Also, the Irish Government has set a 15% goal of renewable electricity to be sourced through corporate PPAs by 2030.

South Africa – near the bottom of the table, but as the country transitions from a coal-heavy grid to renewables, South Africa could become a new corporate PPA hot spot. However, currently most attention by large companies is on energy security, looking at on-site or adjacent installations to save on high grid-wheeling costs, limiting appetite for off-site PPAs.

RECAI 58: PPA Index scores

#	Market	Normalized score (0-100)	RECAI PPA Index score	PPA market maturity	PPA future market score	PPA policy score	RECAI score
1	Spain	100.0	17,990,441	95.8	57.9	53.1	61.2
2	US	97.6	17,565,297	69.3	61.7	56.4	72.8
3	France	71.8	12,918,494	50.9	71.1	53.0	67.4
4	Germany	65.7	11,816,698	66.5	52.0	51.1	67.0
5	Australia	55.2	9,935,655	59.6	44.4	56.2	66.9
6	India	54.4	9,790,525	32.2	73.7	58.7	70.2
7	UK	54.2	9,752,964	61.4	43.3	54.5	67.3
8	Netherlands	42.8	7,695,061	39.4	60.3	53.2	61.0
9	Italy	36.7	6,603,814	44.4	49.8	50.1	59.7
10	Sweden	24.6	4,423,925	55.5	25.9	53.3	57.7
11	Finland	24.3	4,367,993	61.1	24.1	53.3	55.7
12	Poland	20.8	3,744,224	43.2	27.7	54.3	57.5
13	Norway	20.5	3,690,883	46.2	29.4	49.7	54.7
14	Chile	18.6	3,344,344	34.6	30.7	51.8	60.8
15	Brazil	18.4	3,318,974	38.4	33.9	41.2	61.9
16	Denmark	17.2	3,097,719	42.8	24.2	50.5	59.3
17	Belgium	16.4	2,954,246	45.2	22.7	51.3	56.2
18	Ireland	15.6	2,804,981	27.2	31.7	54.7	59.6
19	Colombia	15.3	2,751,153	31.2	39.7	47.2	47.1
20	Morocco	12.8	2,306,588	26.9	26.8	55.0	58.1
21	Egypt	11.3	2,038,790	24.1	28.9	50.6	57.8
22	Portugal	11.3	2,035,185	24.3	29.2	50.4	56.9
23	Greece	9.8	1,769,166	24.7	26.7	47.3	56.7
24	Ethiopia	9.5	1,716,167	26.4	32.8	48.5	40.8
25	Angola	6.7	1,201,540	33.8	33.8	48.0	21.9
26	Mozambique	5.5	982,441	22.3	37.5	51.2	22.9
27	Lithuania	5.3	945,215	21.6	24.7	52.9	33.5
28	South Africa	4.5	815,285	9.1	33.1	49.8	54.2
29	Thailand	3.6	639,954	10.0	21.9	58.0	50.3
30	El Salvador	2.2	392,290	19.9	15.1	45.9	28.4

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. The assessment 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. Forecast capacity installations and a weighted project pipeline score from the 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 index, but is also examined here, with a more nuanced focus on PPA supportive policy.
- ▶ **RECAI score** – the overall score yielded by the RECAI is also factored in as one of the fundamental pillars, because this provides a strong overview of the existing and potential strength of a market's renewable energy landscape.

The PPA Index utilizes a multiplicative formula in order 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 the RECAI.

The RECAI PPA Index score (which can be very large) has been normalized into a score that goes from 0 to 100, in order 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 to do corporate PPAs in across the coming five years.

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

For a more extensive discussion of the drivers and the barriers in the corporate PPA market, please [download RECAI issue #53, May 2019](#) and refer to the article ***Taking the Corporate PPA market to the next level.***

For more information on the services that EY teams provides 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, Lazard and EY Analysis)

1. Pipeline of projects
 - ▶ Forecast power capacity
 - ▶ Forecast installation growth
 - ▶ Project pipeline
2. Wholesale power pricing
 - ▶ Forecast levelized cost of energy (LCOE)

PPA policy score

(Sources: World Bank, Global Data 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

RECAI score

(Source: EY analysis)

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

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