

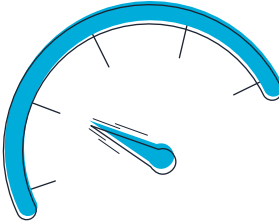
THE EUROPEAN CPPA BAROMETER

Real Power Matters

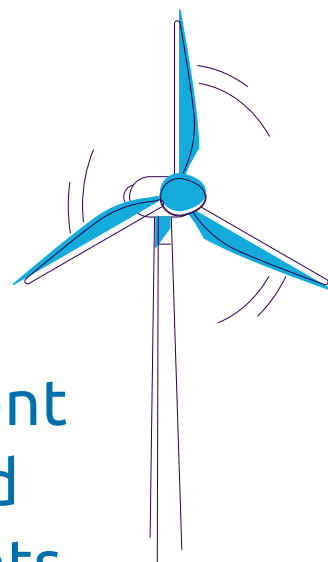
Q4 2022



CONTENTS



INTRODUCTION



Recognizing the urgent need for valuable and trusted energy insights beyond France, we have created a broader European Barometer to deliver more energy truth to wider audiences.”

- Arthur Arrighi de Casanova,

Head of Sustainable Futures, Capgemini Invent France

With the world facing unprecedented volatility in energy prices and an increasing number of corporations committing to ambitious Sustainability targets, many companies now pay closer attention to **Corporate Power Purchase Agreements (CPPAs)**. These deals between a producer and a consumer secure a supply of high-quality green energy for the long-term at a firm price.

As a result, there are new announcements every day right across Europe, with the number of agreements multiplying at a rapid pace. But it can be hard to wade through all this market data.

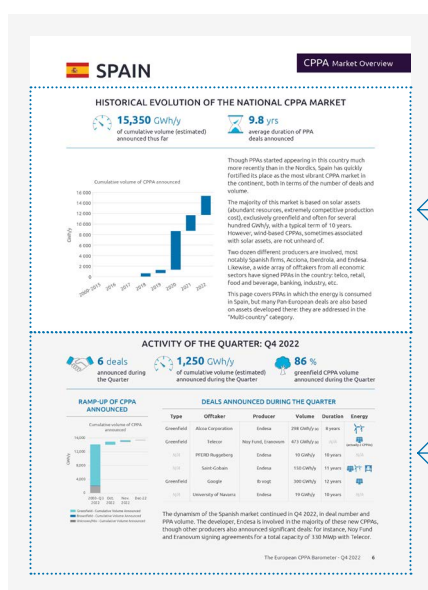
With this in mind, Capgemini Invent has created the **European CPPA Barometer**, a **comprehensive, quarterly report on the latest deals and market trends**.

METHODOLOGY

The Barometer covers the national CPPA market of 12 European countries, presented in decreasing order of cumulative annual CPPA volume announced.

France is covered separately, in the *Baromètre des Achats d'Énergie Verte*, a quarterly report published by Capgemini Invent: <https://www.capgemini.com/fr-fr/perspectives/publications/barometre-achats-energie-verte-france/>

Each national CPPA market is presented following the same format, highlighting both the evolution of the market and its activity during the quarter:



Evolution of the national CPPA market, from inception till end of calendar year 2022

Spotlight on the CPPA market activity during Q4 2022

The main indicator used in the report is **cumulative annual volume of CPPAs announced** in the country. It corresponds to the sum of contracted electricity volumes (GWh/y) for all CPPAs that have been announced in the country during a particular year. Notably, it does not correspond to the actual volume supplied under CPPAs during that year. Furthermore, volumes of CPPAs that have expired are not removed.

CPPAs referred to as “Greenfield” are based on new renewable energy production plants under development at the time of the signature, while “Brownfield” CPPAs are based on already existing assets, typically leaving the public feed-in tariff mechanism. In some cases, a CPPA covers both types of assets (or transitions from Brownfield to Greenfield during the contract), while in others the type of asset has not been officially disclosed.

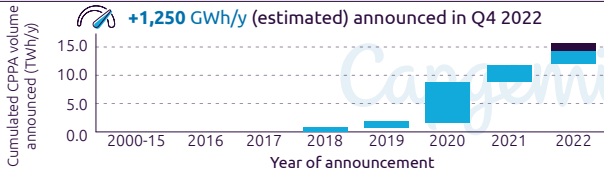
Only CPPAs that have been publicly announced are taken into account. All figures are public data, shared by the corporations in official press releases. In some cases, the annual volume of a CPPA has been estimated using the official capacity figure and an estimate of the capacity factor of the technology used in the country: such estimated volumes are indicated with an “(e)”. Characteristics that remain unknown and without the possibility to make an estimate are indicated with “N/A”.

Onsite PPAs (for self-consumption) and Utility PPAs (for the reselling and trading of renewable power) are not covered by this Report.

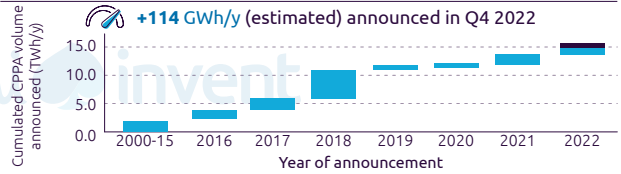
Cross-border CPPAs volumes are accounted for in the Offtaker’s country (e.g., a CPPA signed for a Sweden-based asset to cover energy consumption in Norway is taken into account for Norway). Several cross-border CPPAs have been signed to cover energy consumption in multiple countries: these deals are studied in the “multi-country” category.

HISTORICAL EVOLUTION OF NATIONAL CPPA MARKETS

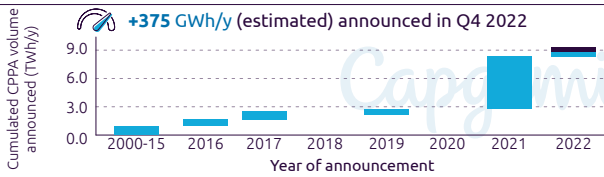
SPAIN



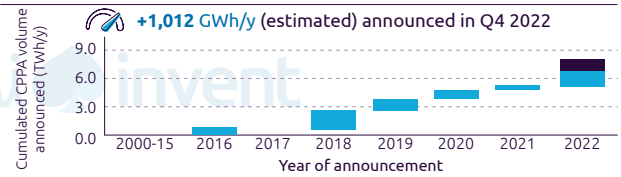
NORWAY



NETHERLANDS



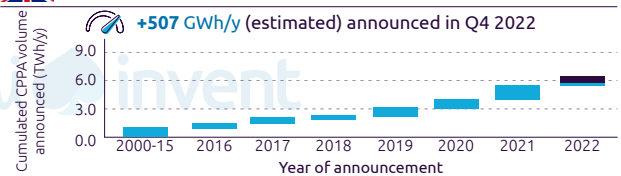
SWEDEN



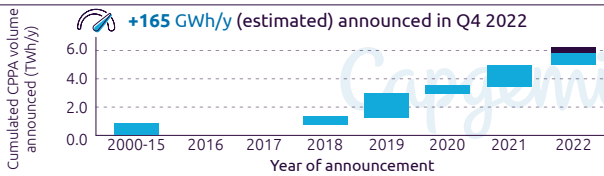
GERMANY



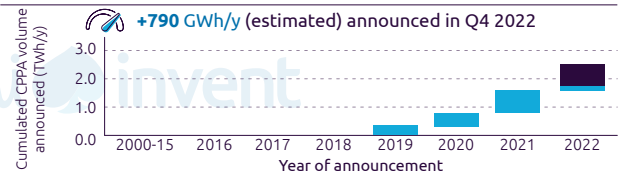
UNITED KINGDOM



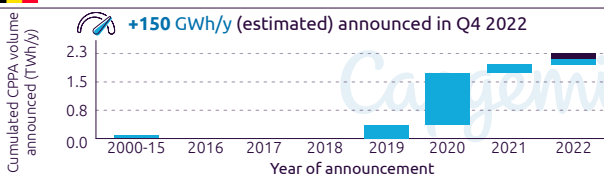
FINLAND



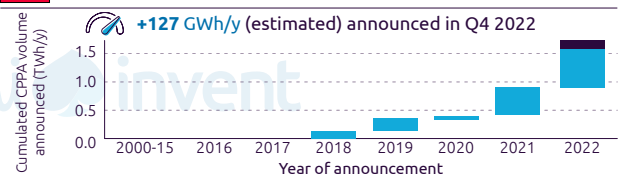
FRANCE



BELGIUM



POLAND



ITALY



PORTUGAL



SWITZERLAND



MULTI-COUNTRY




~65% of cumulated volumes based on assets in Spain | ~35% of cumulated volumes based on assets in Sweden

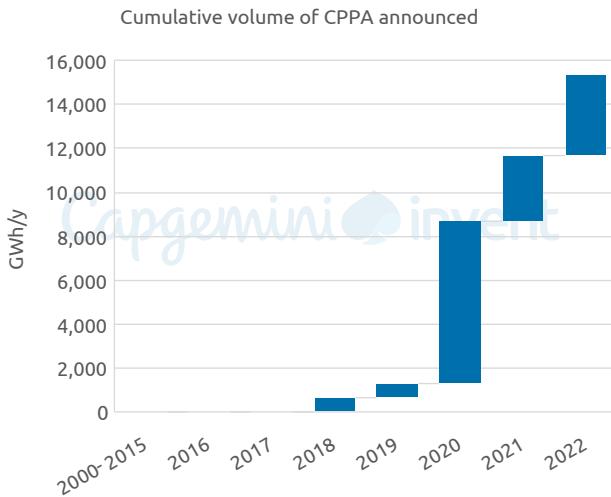
Cumulated volume of CPPAs announced during Q4 2022 | Cumulated volume of CPPAs announced annually, before Q4 2022

SPAIN

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **15,350 GWh/y**
of cumulative volume (estimated)
announced thus far

 **9.8 yrs**
average duration of PPA
deals announced



Though PPAs started appearing in this country much more recently than in the Nordics, Spain has quickly fortified its place as the most vibrant CPPA market in the continent, both in terms of the number of deals and volume.

The majority of this market is based on solar assets (abundant resources, extremely competitive production cost), exclusively greenfield and often for several hundred GWh/y, with a typical term of 10 years. However, wind-based CPPAs, sometimes associated with solar assets, are not unheard of.

Two dozen different producers are involved, most notably Spanish firms Acciona, Iberdrola, and Endesa. Likewise, a wide array of offtakers from all economic sectors have signed PPAs in the country: telco, retail, food and beverage, banking, industry, etc.

This page covers PPAs in which the energy is consumed in Spain, but many Pan-European deals are also based on assets developed there: they are addressed in the "Multi-country" category.

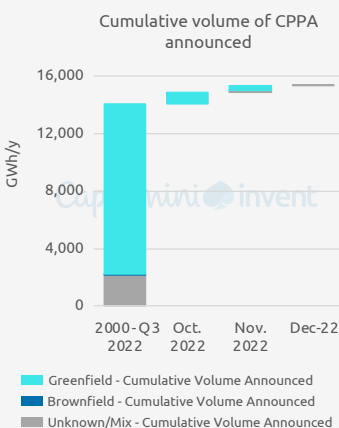
ACTIVITY OF THE QUARTER: Q4 2022

 **6 deals**
announced during
the Quarter






 **1,250 GWh/y**
of cumulative volume (estimated)
announced during the Quarter

 **86 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	Alcoa Corporation	Endesa	298 GWh/y (e)	8 years	
Greenfield	Telecor	Noy Fund, Eranovum	473 GWh/y (e)	N/A	 (actually 2 CPPAs)
N/A	PFERD Rugeberg	Endesa	10 GWh/y	10 years	N/A
N/A	Saint-Gobain	Endesa	150 GWh/y	11 years	 
Greenfield	Google	lb vogt	300 GWh/y	12 years	
N/A	University of Navarra	Endesa	19 GWh/y	10 years	N/A

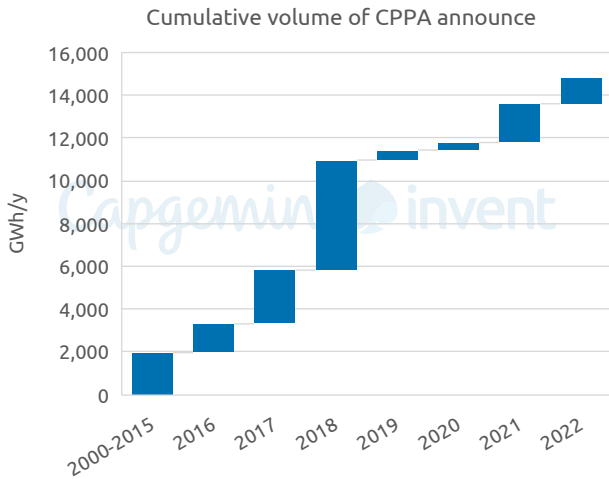
The dynamism of the Spanish market continued in Q4 2022, in deal number and PPA volume. Developer Endesa is involved in the majority of these new CPPAs, though other producers also announced significant deals: for instance, Noy Fund and Eranovum signed agreements for a total capacity of 330 MW with Telecor.

NORWAY

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **14,850 GWh/y**
of cumulative volume announced thus far

 **11.8 yrs**
average duration of PPA deals announced





Before the rise of the sector in Spain, the Nordic countries were historically the main CPPA market in Europe, and they remain very robust today, especially Norway.

The majority of CPPAs in the country are based on greenfield onshore wind, but a significant share (over 20%) of the volume also comes from brownfield hydropower plants. The market includes multiple cross-border deals, relying on wind farms in neighboring Sweden, facilitated by the integrated Nord Pool spot market.

About 20 developers are active in CPPAs, with Statkraft as the top producer (about a third of the volume announced thus far), followed by Vattenfall and Luxcara. The panel of offtakers is more limited (about a dozen companies). Norsk Hydro is the main buyer, followed by Alcoa and Boliden, which are also metals companies.

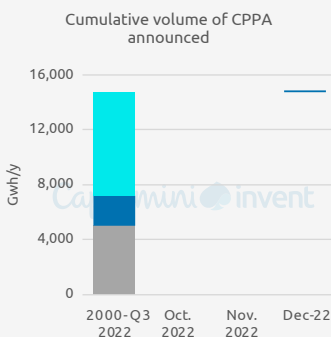
ACTIVITY OF THE QUARTER: Q4 2022

 **2 deals**
announced during the Quarter

 **114 GWh/y**
of cumulative volume (estimated) announced during the Quarter

 **0 %**
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



■ Greenfield - Cumulative Volume Announced
■ Brownfield - Cumulative Volume Announced
■ Unknown/Mix - Cumulative Volume Announced

DEALS ANNOUNCED DURING THE QUARTER


Type	Offtaker	Producer	Volume	Duration	Energy
Brownfield	GE Healthcare	Statkraft	114 GWh/y	7 years	
Brownfield	Visitin Pharma	Statkraft	N/A	10 years	N/A

The Norwegian CPPA market saw two brownfield deals in Q4 2022.

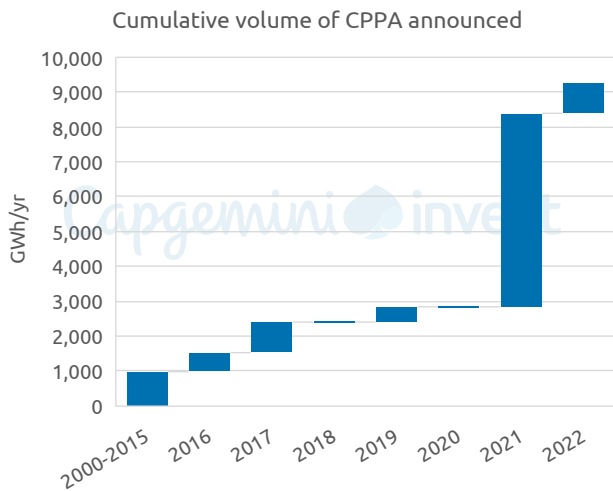
Both were signed by state-owned producer Statkraft with pharmaceuticals companies: one with GE Healthcare to power its Lindesnes factory, and another with Visitin Pharma.

NETHERLANDS

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **9,260 GWh/y**
of cumulative volume (estimated)
announced thus far

 **11.7 yrs**
average duration of PPA
deals announced





CPPAs have been around in the Netherlands for more than a decade, with deals signed as early as 2010. The market is almost exclusively composed of greenfield wind-based deals (~75% offshore, ~25% onshore).

The market is addressed by a limited number of renewable energy producers, most notably Vattenfall and Eneco. Offtakers typically belong to the technology sector (Google, Microsoft, Philips, etc.) or the chemical industry (BASF and Akzo Nobel).

The impressive surge in 2021 was driven by two record-level CPPAs: first, an agreement between Amazon, Shell, and Eneco for a total of 380 MW of new offshore wind capacity; and then a CPPA between BASF and Vattenfall for 49.5% of the output of the 1.5 GW Hollandse Kust Zuid park (the largest unsubsidized offshore wind plant in the world at the time).

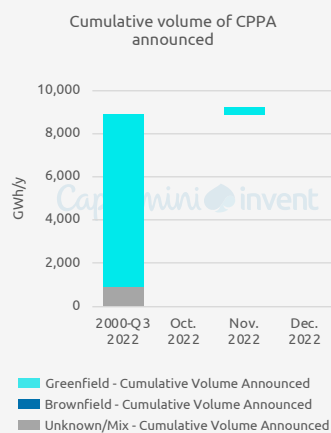
ACTIVITY OF THE QUARTER: Q4 2022

 **2 deals**
announced during
the Quarter

 **375 GWh/y**
of cumulative volume announced
during the Quarter

 **100 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	KPN	Eneco	200 GWh/y	15 years	
Greenfield	Koehler Paper	RWE	175 GWh/y	10 years	

Two large-scale CPPAs were announced in Q4 2022 in the Netherlands, both based on new wind farms.

Telecommunications company KPN will purchase the energy produced by new offshore plant, Hollandse Kust (west) VI (200 GWh/y for 15 years, starting in 2027), which is being developed by Eneco, to cover over half of its electricity needs.

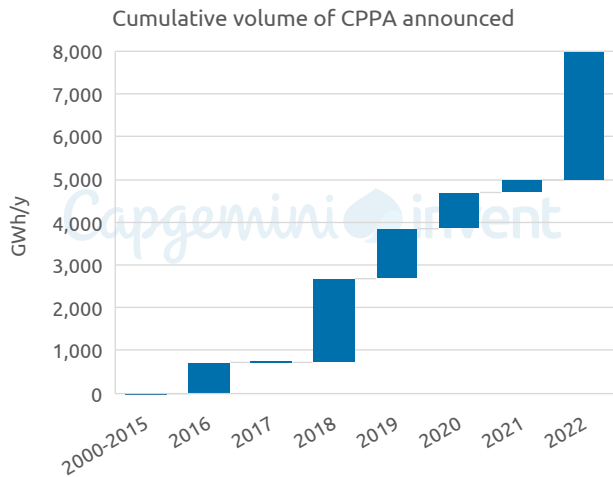
Meanwhile, RWE will start supplying Koehler Paper with up to 175 GWh/y of green energy for 10 years, starting in 2023, with guarantees of origin generated from the recently commissioned Waddenwind onshore wind farm.

SWEDEN

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **8,000 GWh/y**
of cumulative volume announced thus far

 **12.8 yrs**
average duration of PPA deals announced





With abundant wind resources and an extensive amount of open land available, the massive CPPA volume in Sweden is predominantly based on greenfield onshore wind projects, though other technologies are also observed (offshore wind, solar and hydro).

Most of the surge in 2022 can actually be explained by a single brownfield hydro deal, between Statkraft and H2 Green Steel (2 TWh/y for seven years).

Beyond its home market (the topic of this page), the Swedish PPA sector is also noteworthy for its innovative, cross-border deals. The country harbors multiple assets used to cover consumption in neighboring Norway or Finland or even multiple countries at the same time (addressed in the “Multi-country” page). These virtual PPAs (no physical delivery but a financial agreement on price and a transfer of Guarantees of Origin) are facilitated by the Nord Pool spot market active across the Nordics.

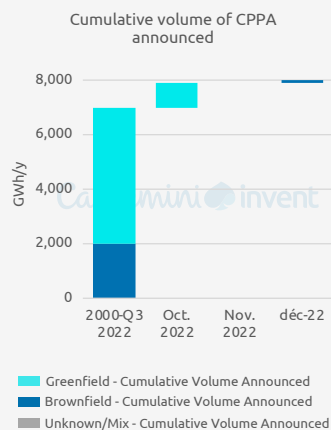
ACTIVITY OF THE QUARTER: Q4 2022

 **3 deals**
announced during the Quarter




 **1,012 GWh/y**
of cumulative volume (estimated) announced during the Quarter

 **91 %**
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED




DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	“Global leading company”	Enlight Renewable Energy	787 GWh/y (e)	10 years	
Greenfield	Borealis	Axpo	130 GWh/y	10 years	
Greenfield	H&M	Neoen & Alight	95 GWh/y (e)	NA	

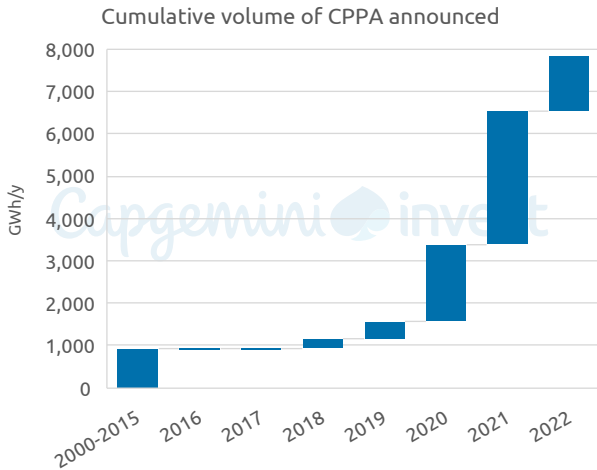
The Swedish market experienced significant activity in the last quarter of 2022, most notably with producer Enlight announcing that a PPA has been signed with an undisclosed firm for the offtake of 70% (for the first five years, then 50%) of the production of its new 372 MW Björnberget farm.

GERMANY

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **7,860 GWh/y**
of cumulated volume (estimated)
announced thus far

 **10.4 yrs**
average duration of PPA
deals announced




Though they have been present in the country for over a decade, CPPAs have rapidly accelerated in Germany since 2020.

A high proportion of brownfield deals (onshore and offshore wind) is observed compared to other countries of the sample, though over 40% of the market is actually composed of greenfield offshore wind CPPAs. The average duration is 10 years, like the rest of the panel, but longer terms are more frequently observed, with examples of 20-, 25- or even 30-y deals.

About 20 developers are involved in the market, most notably Orsted, EnBW, RWE, and Statkraft. Deutsche Bahn remains the top buyer (with over a dozen deals before 2022, representing a third of the entire market) followed by the GAFA (Amazon, Google). Beyond these players, an important share of the offtake comes from the chemical and the industry sectors (especially automotive, steel, and cement).

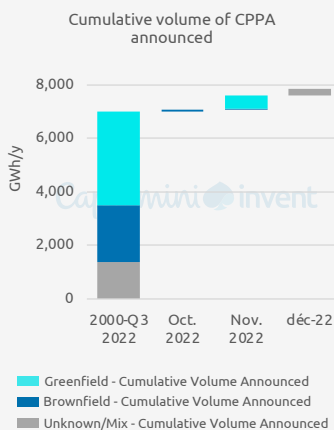
ACTIVITY OF THE QUARTER: Q4 2022

 **6 deals**
announced during
the Quarter



 **861 GWh/y**
of cumulative volume (estimated)
announced during the Quarter

 **59 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Brownfield	Schott	Engie	67 GWh/y	3 years	 (actually 2 CPPAs)
Brownfield	Härtha	EnBW	11 GWh/y (e)	15 years	
Greenfield	Evonik	EnBW	339 GWh/y (e)	15 years	
Brownfield	Allego	N/A	25 GWh/y	10 years	
Greenfield	Salzgitter AG	EnBW	170 GWh/y (e)	15 years	
Brownfield & Greenfield	Salzgitter AG	Engie	250 GWh/y	2 years	

Along with Spain, Germany is the country of the sample with the highest number of new deals signed in Q4 2022, by EnBW and Engie. In particular, offtaker Salzgitter AG signed large-scale PPAs with both producers in order to power its transformation towards green steel production.



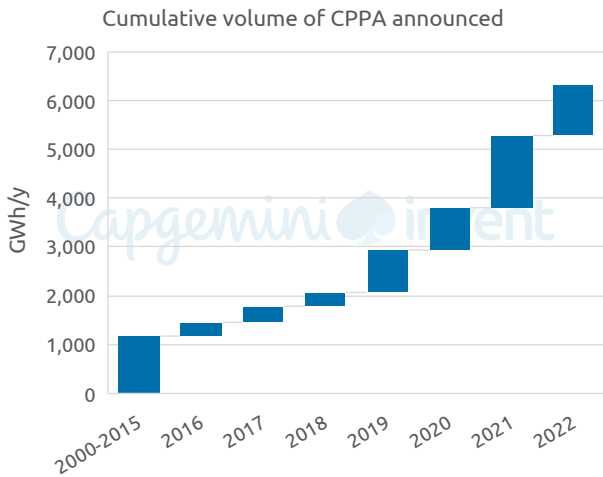
HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET



6,320 GWh/y
of cumulated volume (estimated)
announced thus far



13.5 yrs
average duration of PPA
deals announced



The oldest CPPA market in Europe, the UK has seen a constant flow of new deals, with a visible acceleration in 2019 and multiple examples of innovative deal structures, such as multi-offtakers and Virtual PPAs.

Half of the volume comes from onshore wind facilities (for instance, in Scotland for greenfield projects), followed by offshore wind and some solar assets. Longer durations than in other countries are observed, covered in this report, with deals regularly signed for 15 years or more.

The panel of developers is diversified, with over 40 companies active; BP, EDF, and Engie remain the top three producers.

Tech, retail, and banking are particularly well represented on the offtakers' side, with GAFAs (Amazon, Google), Tesco, BT, and Barclays as the top buyers.

ACTIVITY OF THE QUARTER: Q4 2022



2 deals
announced during
the Quarter

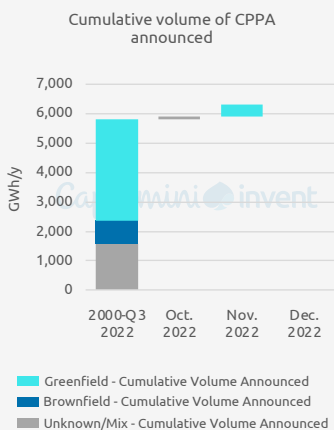


507 GWh/y
of cumulative volume(estimated)
announced during the Quarter



100 %
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	BT	BayWa.r.e.	90 GWh/y	10 years	
Greenfield	Google	Engie	417 GWh/y	12 years	


Two greenfield CPPAs were announced in the UK, both based on new wind assets in Scotland.

After a first CPPA together in the UK in 2014, BayWa.r.e. and BT Group announced the signing of a second deal: a Virtual PPA for 80% of the Dalquhandy wind farm's production.

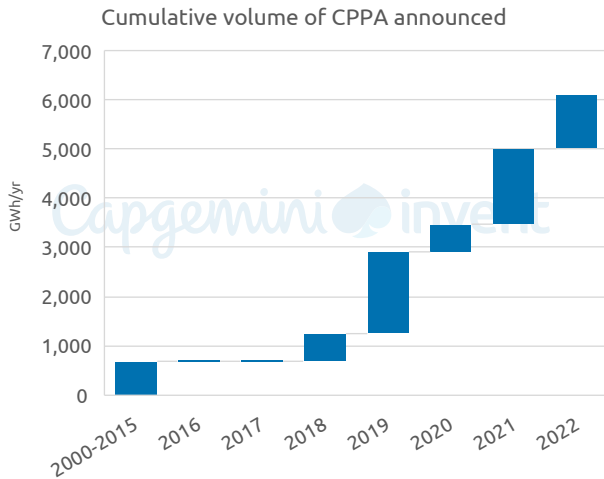
Meanwhile, Engie will provide Google with over 5 TWh of green electricity over the course of 12 years, through a CPPA covering its Moray Swest offshore wind farm under development.

FINLAND

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **6,090 GWh/y**
of cumulative volume (estimated)
announced thus far

 **10.2 yrs**
average duration of PPA
deals announced



As in the other Nordic countries, the Finnish CPPA market is among the oldest in Europe and is almost exclusively composed of greenfield onshore wind projects with some brownfield hydro.


A dozen producers are active, notably Neoen and Prokon, who regularly codevelop projects proposed for CPPAs.

The massive volume is also split among a limited number of offtakers, starting with Google (a dozen deals in less than a decade, accounting for almost half of the total volume announced), followed by Neste. However, multi-offtakers deals have been signed: in 2020, for instance, Heineken, Philips, Signify, and Nouryon gathered in a consortium to contract a 126 MW PPA with Neoen and Prokon.

Like Norway, the Finnish CPPA market includes cross-border deals relying on production assets in Sweden.

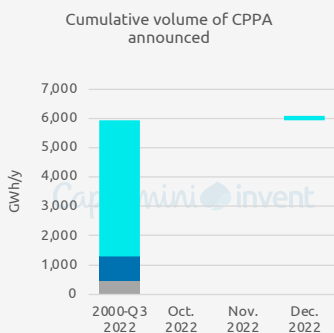
ACTIVITY OF THE QUARTER: Q4 2022




 **1 deal**
announced during
the Quarter

 **165 GWh/y**
of cumulative volume announced
during the Quarter


 **100 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



 Greenfield - Cumulative Volume Announced
 Brownfield - Cumulative Volume Announced
 Unknown/Mix - Cumulative Volume Announced


DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	Equinix	Neoen, Prokon	165 GWh/y (e)	10 years	

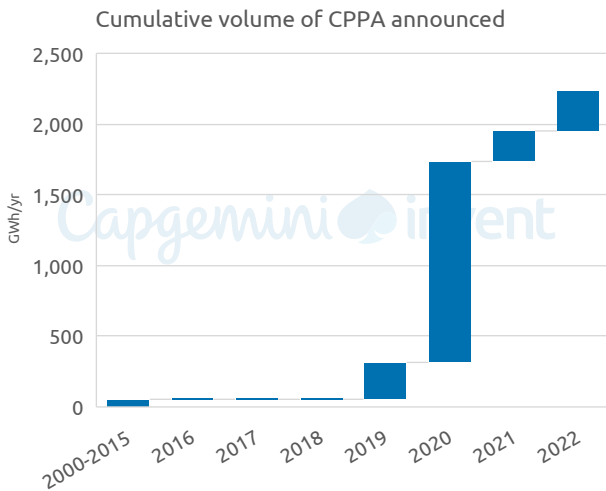
Though Utility PPAs were announced, we have identified a single Corporate PPA in the Finnish market in Q4 2022: Neoen, Prokon, and Equinix signed their third PPA together in the same year, for 60% of the output of the 95-MW Stobötet plant under development. Running for 10 years, part of the PPA will be indexed to market prices.

BELGIUM

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **2,240 GWh/y**
of cumulative volume (estimated)
announced thus far

 **11.1 yrs**
average duration of PPA
deals announced



Belgium experiences a steady but limited flow of CPPAs compared to other countries in the sample, despite a high cumulated volume.


The market is noteworthy for its mix of brownfield and greenfield deals based on large wind assets, especially offshore. These agreements are usually signed for 10 years, though longer terms, such as 20 years, have been observed.


On the supply side, Engie and Eneco signed most of these CPPAs, along with other producers, such as EDF, RWE, and TotalEnergies.

Most offtakers belong to the chemical industry (Borealis, Ineos, Covestro, etc.) and were particularly active in 2020, which explains the visible peak in cumulated PPA volume.

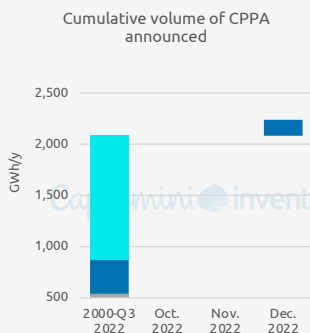
ACTIVITY OF THE QUARTER: Q4 2022

 **1 deal**
announced during
the Quarter

 **150 GWh/y**
of cumulative volume announced
during the Quarter

 **0 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



■ Greenfield - Cumulative Volume Announced
■ Brownfield - Cumulative Volume Announced
■ Unknown/Mix - Cumulative Volume Announced

DEALS ANNOUNCED DURING THE QUARTER


Type	Offtaker	Producer	Volume	Duration	Energy
Brownfield	Borealis	Eneco	150 GWh/y	10 years	

The majority of the new CPPA volume announced in 2022 in Belgium comes from the deal signed in December between chemical company Borealis and producer Eneco, who had already agreed on a previous PPA in 2020.

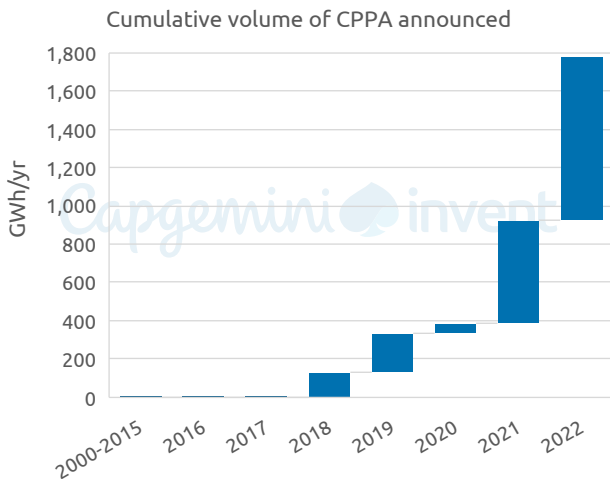
This new deal covers 1.5 TWh over 10 years, coming from the existing Seastar plant, part of the 487-MW SeaMade offshore complex (the largest wind farm in the Belgian North Sea).

POLAND

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

 **1,780 GWh/y**
of cumulative volume (estimated)
announced thus far

 **11.2 yrs**
average duration of PPA
deals announced



Poland’s CPPA market is five years old, slightly older than the French market, though with a smaller volume. Each new year sees an increase in the number of deals and in the average volume per PPA.


A diversity of developers (over a dozen different producers involved) and of offtakers (notably from Telco, representing over a third of the total volume) is already observed.

The proportion of brownfield deals is higher than in other European countries, and they are typically based on onshore wind assets through Virtual PPAs.

However, greenfield deals are developing (based on wind or solar), as developers started to look for alternatives to State-organized auctions to finance their new projects.

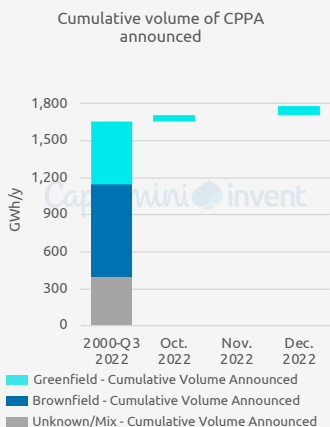
ACTIVITY OF THE QUARTER: Q4 2022

 **2 deals**
announced during
the Quarter


 **128 GWh/y**
of cumulative volume (estimated)
announced during the Quarter

 **100 %**
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	Polkomtel	ZE PAK	50 GWh/y (e)	15 years	
Greenfield	Jerónimo Martins	GoldenPeaks	78 GWh/y	15 years	

While a significant part of the Polish CPPA market has been based on 10-y brownfield deals thus far, two greenfield CPPAs were signed in Q4 2022 with 15-y duration.

ZE PAK announced a new CPPA with telecom company, Polkomtel, following a previous deal in 2021, to secure the entire offtake of its new Kazimierz Biskupi wind plant.

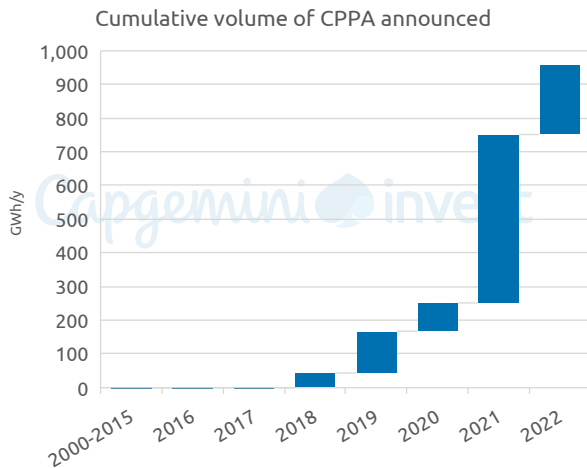
Meanwhile, GoldenPeaks Capital and retail player, Jerónimo Martins announced a 72 MW CPPA to cover part of its subsidiary, Biedronka’s energy needs in Poland.

ITALY

HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET

960 GWh/y
of cumulated volume (estimated)
announced thus far

8.8 yrs
average duration of PPA
deals announced



Slightly older than the French market, the Italian CPPA sector is comparatively smaller but more diverse, with greenfield deals for both solar and wind projects, in addition to recent examples of Virtual PPAs.

Like in other countries of the sample, deals rarely exceed 10 years.

A wide range of European energy producers are already active on this recent market (ENI, Falck, Enel, Shell, RWE, etc.) and multiple economic sectors are represented on the offtakers' side: industry, retail, banking, telco, etc.

The visible peak in announcements in 2021 is notably due to the deal between ERG and TIM for 3.4 TWh over 10 years.

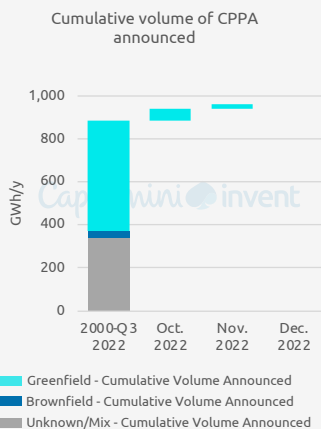
ACTIVITY OF THE QUARTER: Q4 2022

2 deals
announced during
the Quarter

77 GWh/y
of cumulated volume (estimated)
announced during the Quarter

100 %
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	Asahi Europe & International	Matrix Renewables	58 GWh/y	10 years	
Greenfield	Fastweb	Statkraft	19 GWh/y	12 years	

Two greenfield solar PV CPPAs were signed in Q4 2022.

In October, brewery company Asahi Europe & International, part of the Asahi Group, signed a Virtual PPA with Matrix Renewables for a total capacity of 44 MWp from new solar plants.

The following month, telecom firm Fastweb announced a CPPA with Statkraft, based on a future PV farm in Lazio, to cover 13% of Fastweb's energy needs starting in 2023.



PORTUGAL

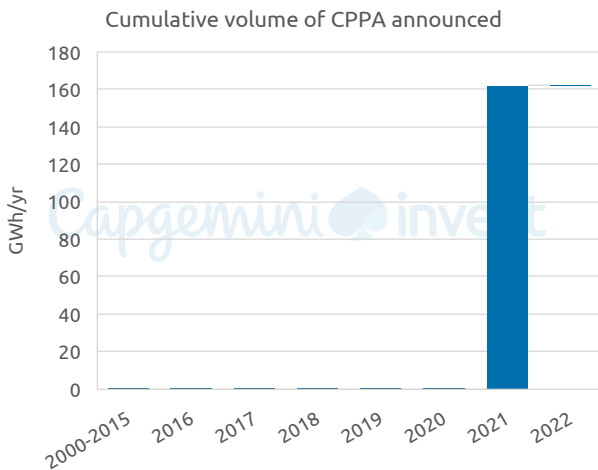
HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET



162 GWh/y
of cumulated volume (estimated)
announced thus far



14 yrs
average duration of PPA
deals announced



Multiple Utility PPAs have been signed in the past in Portugal: most were signed by Axpo, though Spanish company Audax Renovables has also contracted deals for Portuguese solar plants.

However, few Corporate PPAs are identified in Portugal, with volume and capacity not systematically disclosed. In fact, they include cross-border Virtual PPAs with assets based in neighboring Spain.

AAPICO, SONAE MC, and NOS SGPS rank among the offtakers, while national utility company EDP is at the origin of most of these deals.

No Corporate PPA has been announced in Q4 2023.



SWITZERLAND

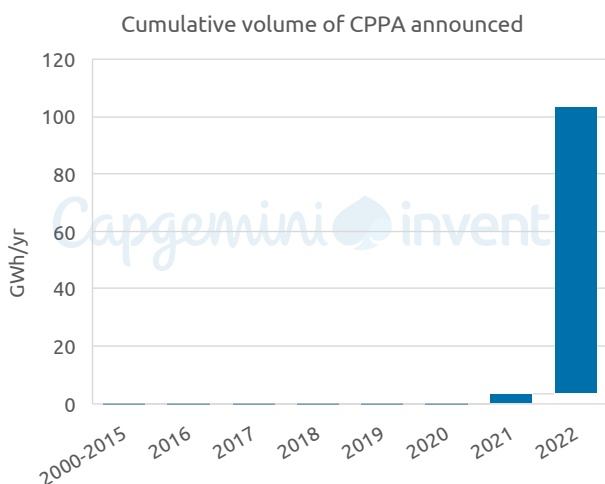
HISTORICAL EVOLUTION OF THE NATIONAL CPPA MARKET



105 GWh/y
of cumulative volume (estimated)
announced thus far



12.5 yrs
average duration of PPA
deals announced



A landlocked country marked by numerous mountains, Switzerland is the sample country with the smallest and most recent CPPA market.

Two CPPAs have been signed thus far, both by national company Axpo.

To adapt to the geography, the country's very first PPA (signed in early 2021 with Denner) covered a greenfield PV installation on a dam 2,500 m above sea level, the first unsubsidized solar plant in Switzerland.

The country's second CPPA was signed in February 2022 with Nestlé, ensuring the continuation of an existing hydropower plant.

No Corporate PPA has been announced in Q4 2023.

MULTICOUNTRY

HISTORICAL EVOLUTION OF THE MULTICOUNTRY CPPA MARKET



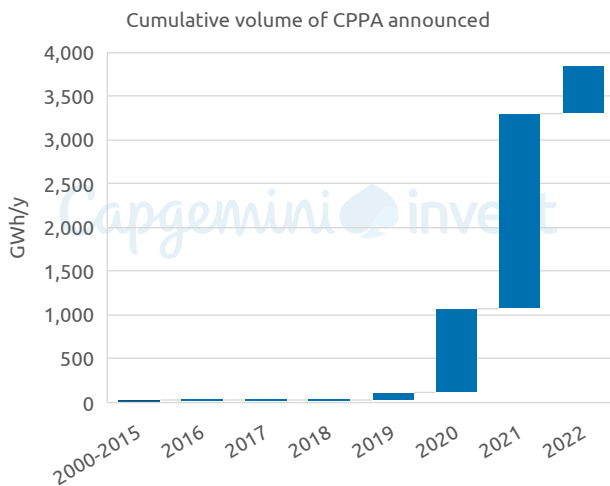
3,850 GWh/y
of cumulated volume announced thus far



~65%
of cumulative volumes based on assets in Spain



~35%
of cumulated volumes based on assets in Sweden



An innovative structure where the energy is purchased to cover consumption in multiple countries, these CPPAs are often presented as landmark partnerships, given their size.

Pan-European PPAs are useful for corporations that pledged to reach 100% renewable electricity quickly, as they can sign, in a single deal, the equivalent of the consumption of their entire network of facilities across the continent. However, like all cross-border PPAs in Europe, they are Virtual deals: they consist of financial agreements, with no physical delivery.

The majority is based on pools of several greenfield PV assets in Spain, to leverage the favorable solar resources and prices, and very often last for 10 years (again, the norm for greenfield PPAs in Spain).

Significant volumes started appearing in 2020, with a peak in 2021 due to several massive announcements (Amazon and Luxcara for a significant share of a 374 MW park ; BASF with Engie for 20.7 TWh over 25 years).

ACTIVITY OF THE QUARTER: Q4 2022



2 deals
announced during the Quarter

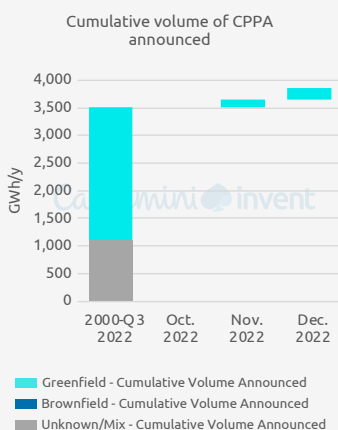


332 GWh/y
of cumulative volume (estimated) announced during the Quarter



100 %
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED



DEALS ANNOUNCED DURING THE QUARTER

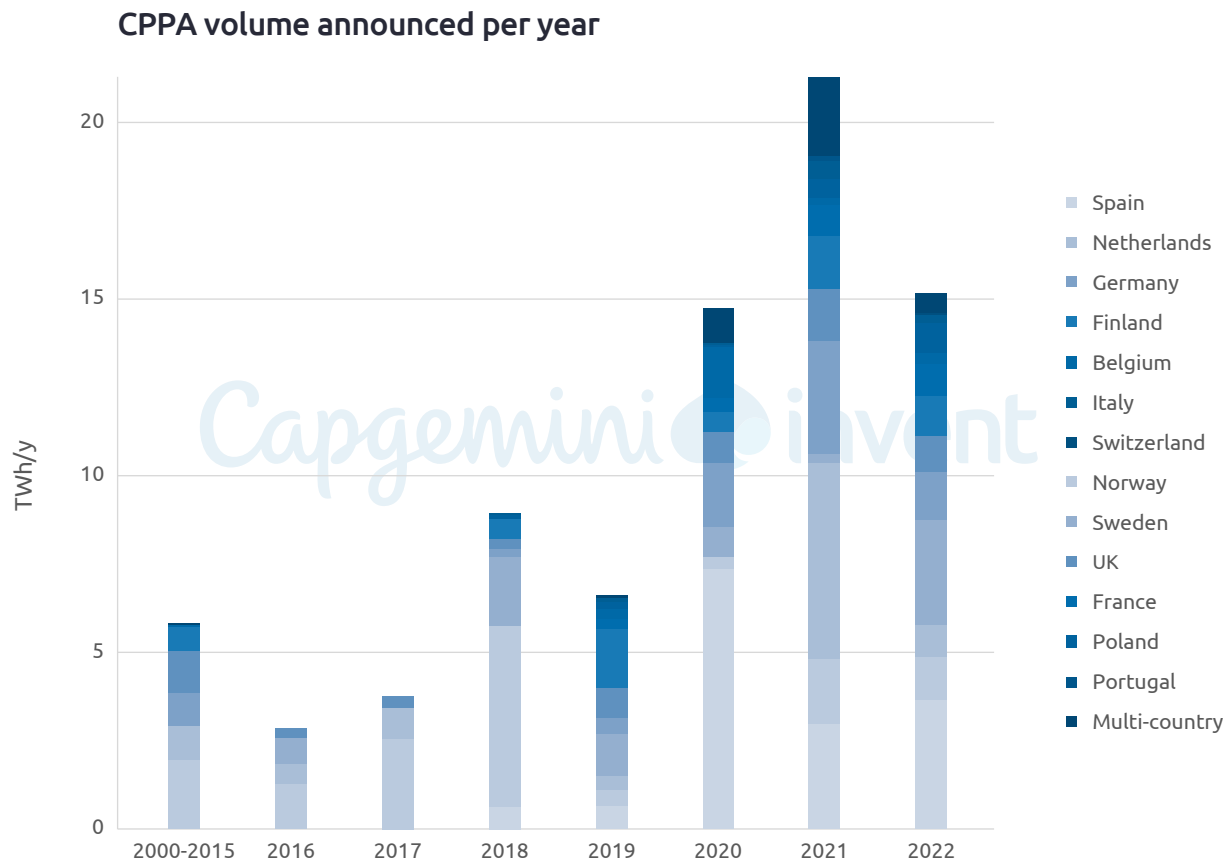
Type	Offtaker	Producer	Volume	Duration	Energy
Greenfield	Velux	BayWa.r.e.	134 GWh/y	N/A	
Greenfield	Henkel	Ignis	198 GWh/y	10 years	

Like the majority of contracts in this category, Pan-European CPPAs announced in Q4 2022 are large-scale deals based on greenfield solar PV projects in Spain.

In November, Velux and BayWa r.e. announced a PPA based on new solar parks in Seville and Granada (including an innovative Agri-PV installation) to address the offtaker's entire energy needs from its operations in Europe.

In December, Ignis signed a VPPA based on new solar farms in Castilla y León and Andalucía to cover the equivalent of the energy needs of over 40 production sites of offtaker Henkel across Europe.

CONCLUDING REMARKS



All of these studies depict a fairly young but dynamic market across Europe.

It is true that, with the exception of some early movers (UK, Nordics), CPPAs are a relatively recent trend in Europe. They still represent a limited volume compared to the total electricity consumption in these countries, and they mostly involve large international companies (with important energy needs and the ability to secure heavy financial guarantees to cover the risk of default over the long term).

Yet CPPAs remain virtuous instruments. Across all countries covered in this report, they are predominantly used to finance new renewable capacity (instead of extending the life of aged existing plants), becoming a credible alternative to State-supported tenders. They allow corporate consumers of all economic sectors to both reach their green sourcing commitments and benefit from stable prices in the long term, compensating volatile energy market prices.

And the size of this market is constantly increasing; though 2021 was marked by numerous massive deals across all countries, 2022 and its last quarter still saw strong activity. Nowadays, the acronym “CPPA” finds its way more and more regularly into national and European regulation projects, to further promote this mechanism.

In this first issue of the Barometer, we focused on presenting the “Point 0” of these less than transparent markets, made of over-the-counter contracts. This led us to study around 400 deals signed across two decades. The next issues of this publication will include new sections, such as focus articles and interviews with market players, always with the same goal in mind: contribute to more transparency in the booming CPPA markets across Europe.

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