

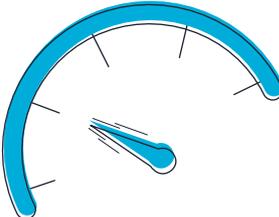
THE EUROPEAN CPPA BAROMETER

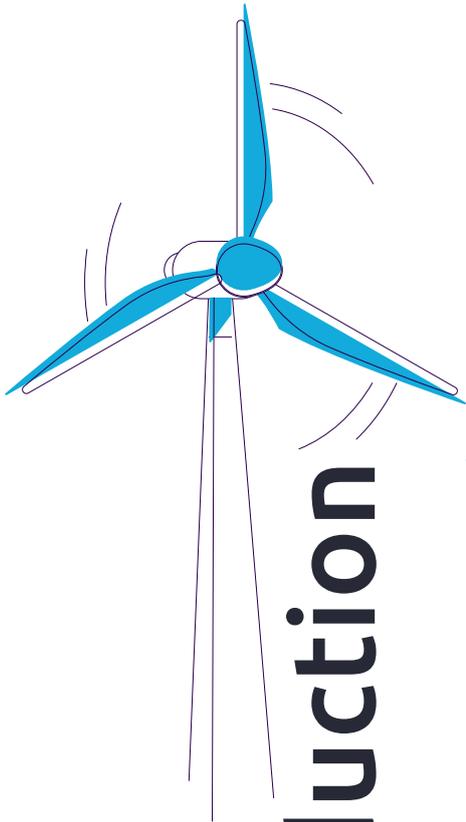
Real Power Matters

Q1 2023



CONTENTS





Introduction

To meet their Sustainability targets and protect themselves against the price volatility in energy markets, an increasing number of companies across Europe pay close attention to **Corporate Power Purchase Agreements (CPPAs)**, direct contracts between a producer and a consumer to secure a supply of high-quality green energy for the long-term and at a firm price.

Every quarter, Capgemini Invent publishes its **European CPPA Barometer**, a **comprehensive report on the latest deals and trends**, to bring more transparency to this dynamic market composed of over-the-counter contracts.

This second edition of the Barometer covers Q1 2023.

During the first months of the year, European energy markets were marked by a general decrease in prices following 2022's records levels: winter temperatures were more clement than anticipated, reducing heating needs, and gas inventories remained at high levels. In parallel, EU Member States introduced a temporary profit cap for energy generation, sometimes with high discrepancies between countries.

Though these factors could have hindered deal negotiations (the need to hedge against market price increases could appear less urgent; investors could be momentarily concerned by the mosaic of various profit caps), the CPPA market itself has never been so active.

This report will present in detail how market activity has accelerated in each country, with record-level volumes being announced and the same energy-intensive offtakers finalizing multiple agreements across various geographies.

In addition to the Q1 2023 analysis, the activation (and phasing out) of all CPPAs announced thus far has been modeled for each country. This way, the report measures the cumulated magnitude of the deals and their lasting impact on the country's energy transition, presented here in visualizations of forecasts for future CPPA volumes.

METHODOLOGY



The main section of the Barometer (p.5 to 19) covers the CPPA activity of 13 European countries during the first quarter of 2023.

France is also covered in greater detail in the *Baromètre des Achats d'Énergie Verte*, a quarterly green sourcing report published in parallel: <https://www.capgemini.com/fr-fr/perspectives/publications/barometre-achats-energie-verte-france/>

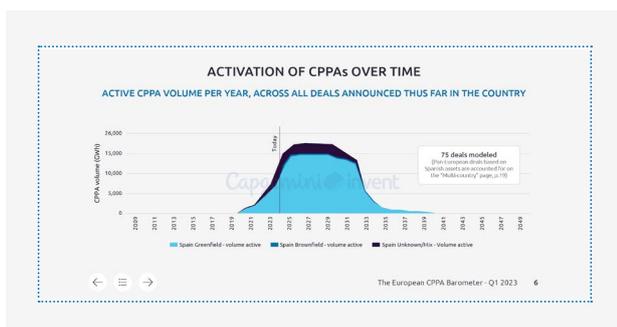
Only CPPAs that have been publicly announced are listed in the Barometer. All figures are public data, shared by corporations in official press releases. In some cases, the annual volume of a CPPA has been estimated using the official capacity figure and an estimate of the capacity factor of the technology used in the country: such estimated volumes are indicated with an "(e)." Characteristics that remain unknown and thus impossible to derive an estimate from are indicated with "N/A."

CPPAs referred to as "Greenfield" are based on new renewable energy production plants, under development at the time of the signature. "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.

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

Cross-border CPPA 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 considered for Norway). Some cross-border CPPAs are signed to cover energy consumption in multiple countries: these deals are studied in the "multi-country" category (p.19).



The modeling of CPPA activation across time examines and includes all CPPAs publicly announced thus far in the country. The ramp-up calendar shared in the public press release is used for each country: starting year(s) and duration. Whenever one of these two elements has not been reported, a hypothesis is made based on all CPPAs of the same type (greenfield/brownfield) in the country (average delay before the date of announcement and PPA activation and average duration).

HISTORICAL EVOLUTION OF NATIONAL CPPA MARKETS

SPAIN



NORWAY



NETHERLANDS



SWEDEN



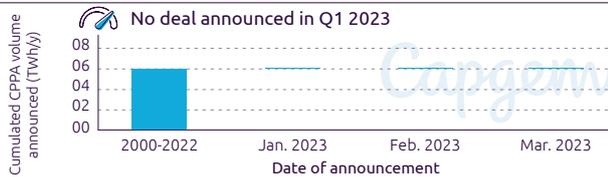
GERMANY



UNITED KINGDOM



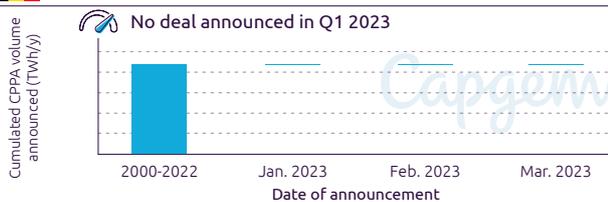
FINLAND



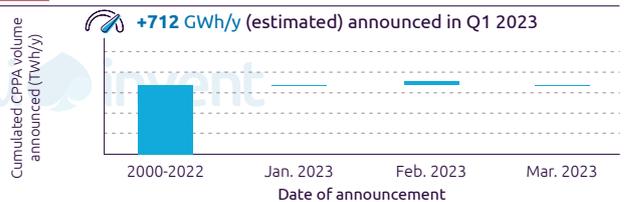
FRANCE



BELGIUM



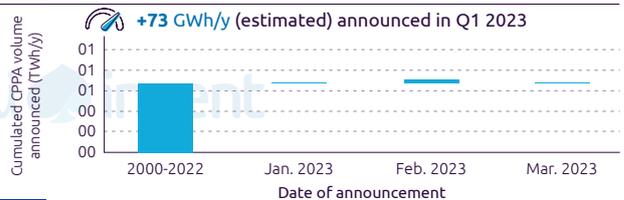
POLAND



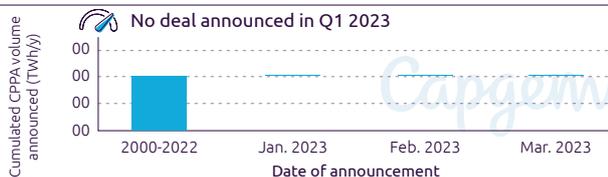
ITALY



PORTUGAL



SWITZERLAND



MULTI-COUNTRY



■ Cumulated volume of CPPAs announced during Q1 2023

■ Cumulated volume of CPPAs announced annually, before Q1 2023

SPAIN

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



16 deals
announced during
the Quarter



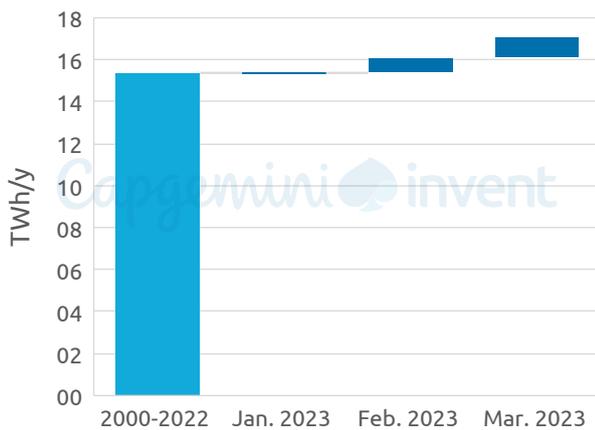
1,757 GWh/y
of cumulative volume (estimated)
announced during the Quarter



79%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



KEY DEALS ANNOUNCED DURING THE QUARTER

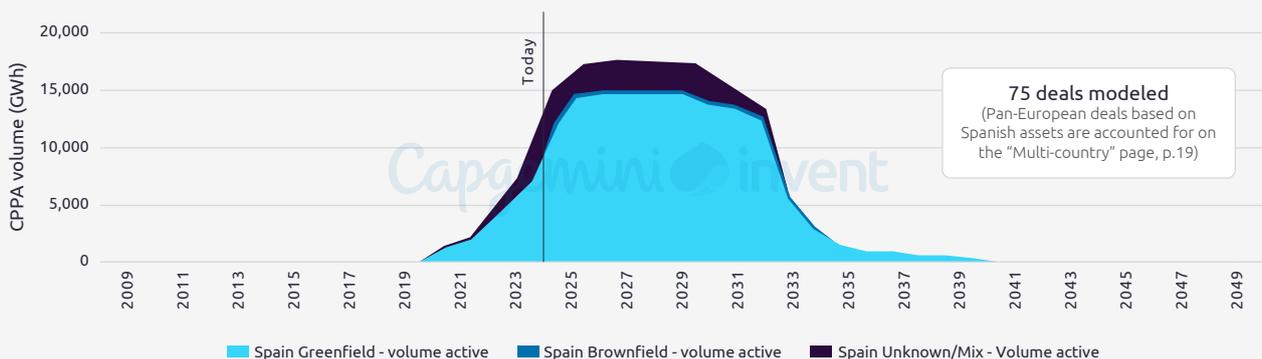
	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Brownfield	Strategic Minerals Europe	N/A	N/A	5 years	Unspecified renewable energy
	Brownfield	Sofidel	Acciona	90 GWh/y	10 years	Unspecified renewable energy
Feb	Brownfield	FORTIA	Acciona	254 GWh/y	10 years	
	Greenfield	Zimmer Biomet	Acciona	61 GWh/y(e)	12 years	
	Greenfield (actually 5 PPAs)	Equinix	Ignis	328 GWh/y(e)	N/A	
Mar	Greenfield (actually 5 PPAs)	Lyondell-Basell	Grenergy	329 GWh/y	15 years	
	Greenfield	Amazon	Grenergy	665 GWh/y	10 years	
	Brownfield	Teknia	Endesa	30 GWh/y	N/A	Unspecified renewable energy

As the most mature market within the Barometer’s panel, thanks to very favorable production conditions and competitive pricing, Spain experienced a particularly high number of new CPPAs in Q1 2023. This trend was mainly driven by solar PV projects scheduled to become operational in the coming years. The increase in volume may be smaller than in Germany and Norway but numerous large-scale Utility PPAs (not the focus of this report) were also signed (provided by Qualitas Energy and Sonnedix for instance): Spain remains the most active marketplace in Europe for overall PPA activity.

The new CPPAs mainly involve developers already well experienced in the sector in Spain (Endesa, Ignis and especially Acciona with multiple references during the quarter); although, Grenergy has entered the sector with two massive agreements, with Amazon and LyondellBasell. CPPAs continue to attract offtakers from a wide variety of economic sectors, both experienced consumers (such as Amazon and Equinix) and newcomers (such as Zimmer Biomet and LyondellBasell), aiming to reduce their greenhouse gas emissions and their exposure to market price volatility.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



NORWAY

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



4 deals
announced during
the Quarter



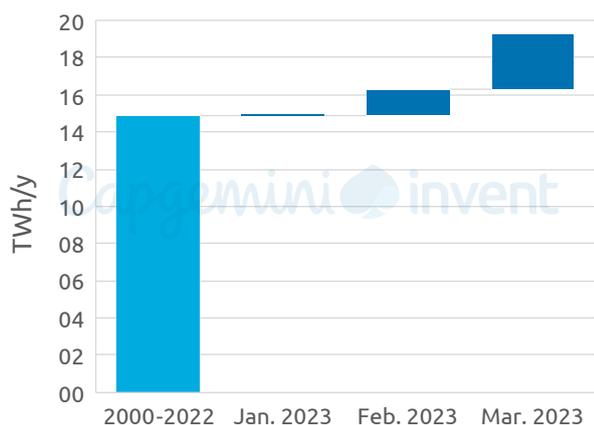
4,439 GWh/y
of cumulative volume (estimated)
announced during the Quarter



0%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

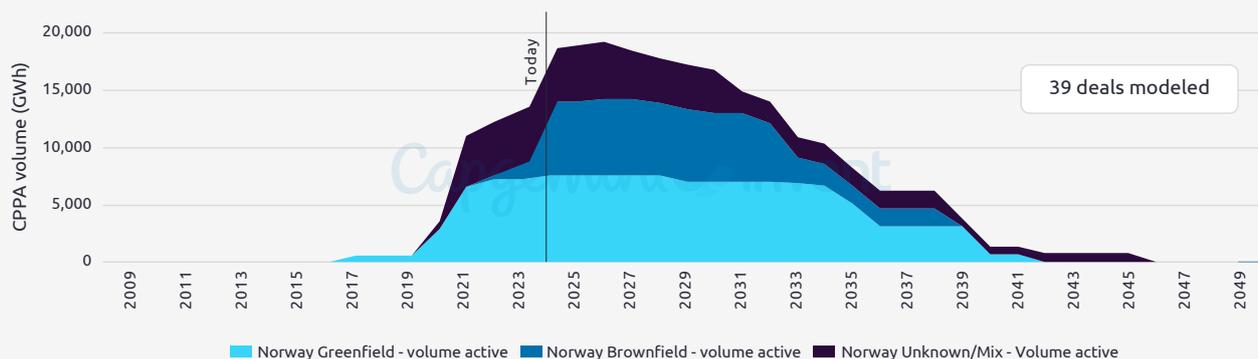
	Type	Offtaker	Producer	Volume	Duration	Energy
Feb	Brownfield	INEOS	Statkraft	876 GWh/y	N/A	
	Brownfield	INEOS	Statkraft	263 GWh/y	N/A	
	Brownfield	Elkem	Statkraft	300 GWh/y	10	
Mar	Brownfield	Fortescue Future Industries	Statkraft	3000 GWh/y(e)	N/A	

Experiencing one of the largest CPPA volume increases among the countries of the panel during the quarter, Sweden registered four massive agreements with large industrial offtakers, all provided by Statkraft and presumably based on existing hydropower assets.

INEOS and Elkem (both already accustomed to PPAs in the country) praised the competitiveness of PPAs, which enable them to continue their industrial investments in Norway for chemical/materials production. Meanwhile, Fortescue Future Industries explained its first PPA will be specifically dedicated to covering the important power needs of its future green hydrogen and green ammonia facility at Holmaneset.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



NETHERLANDS

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



1 deal
announced during the Quarter



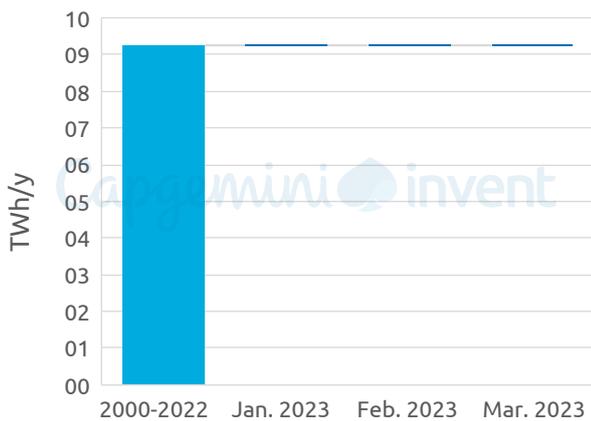
11 GWh/y
of cumulative volume (estimated) announced during the Quarter



100%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Greenfield	Pala Group, Van der Valk	Scholt Energy, through Klimaatfonds Nederland	11 GWh/y(e)	N/A	

One CPPA was announced during Q1 2023 in Netherlands, based on an innovative configuration.

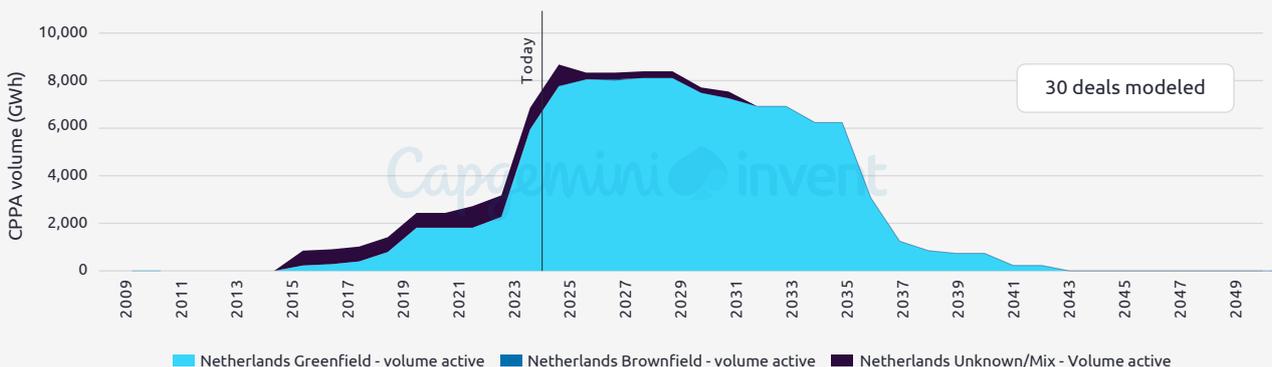
Scholt Energy will purchase the energy of Klimaatfonds Nederland’s future Loon op Zand park (a very rare case of solar PPA in the country) and will in turn supply it to corporations Pala and Van der Valk. Guarantees for the contracts were provided by Rabobank, which has launched a new product dedicated to reducing credit risk for PPAs, allowing new offtaker profiles to finally access this market.

Besides this deal and despite the level of activity in 2022, no other CPPA was identified in the quarter. The slow down of negotiations and investments may have been caused by the €130/MWh price cap applicable in the Netherlands until July 2023 (versus the EU-wide €180 proposal).

Still, new CPPAs have been announced again starting in April, with Google signing with Eneco and Iron Mountain with Sunrock.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



SWEDEN

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



4 deals
announced during
the Quarter



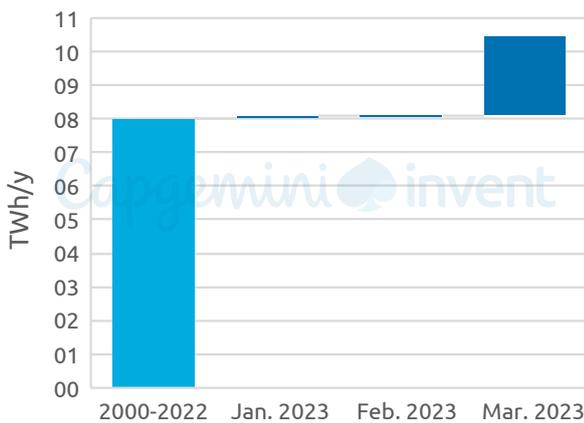
2,468 GWh/y
of cumulative volume (estimated)
announced during the Quarter



4%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

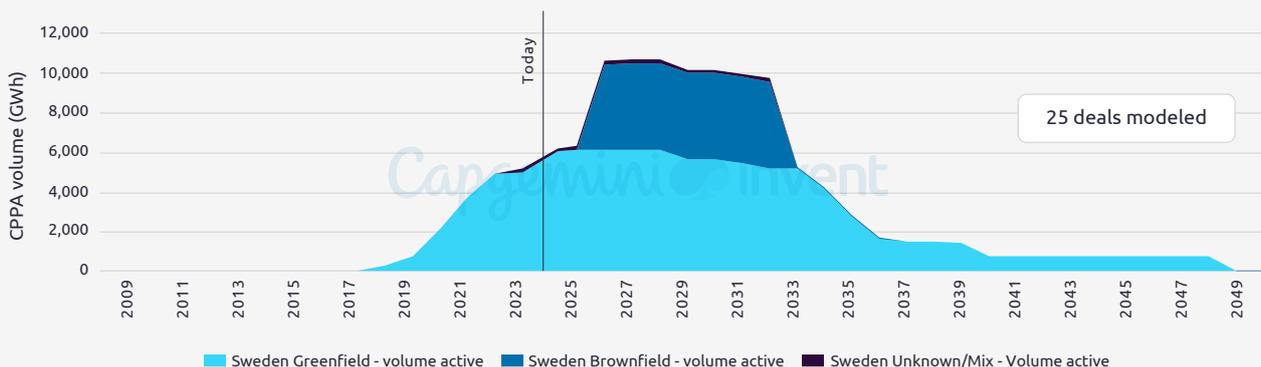
	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Greenfield	Coveris	Neoen	104 GWh/y(e)	10 years	Wind
	Brownfield	United Caps	Renantis	64 GWh/y	10 years	Wind
Mar	Brownfield	H2 Green Steel	Fortum	1,300 GWh/y	5 years	Unspecified renewable energy
	Brownfield	H2 Green Steel	Fortum	1,000 GWh/y	9 years	Unspecified renewable energy

In addition to wind-based PPAs signed by experienced players, Neoen and Renantis, the large volume announced in Q1 2023 in Sweden comes from a partnership between Fortum and H2 Green Steel.

In order to power the 700-800 MW electrolyzer of its future hydrogen production facility in Boden (to be used for the steel industry), Fortum has contracted two complementary PPAs, among the largest ever signed in the country: a five-year index-based deal and a nine-year fixed-price deal. Last year, H2 Green Steel announced another large-scale PPA (2 TWh/y) with Statkraft to power its future green hydrogen operations.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



GERMANY

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



19 deals
announced during
the Quarter



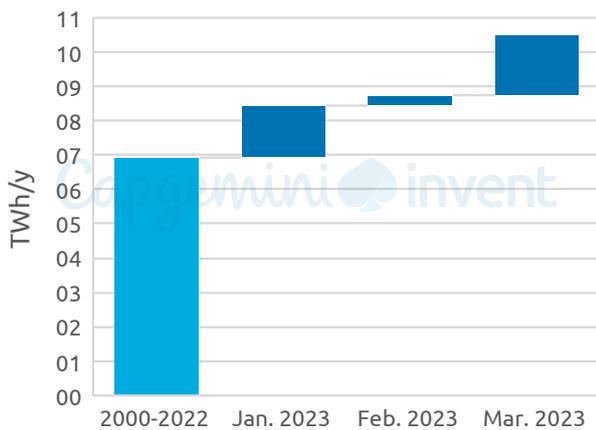
3,602 GWh/y
of cumulative volume (estimated)
announced during the Quarter



57%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Brownfield	Continental	Getec	23GWh/y	N/A	
	Brownfield (actually 12 PPAs)	11 Industrial customers + 1 municipality	RWE	1500 GWh/y	10 years	
Feb	Brownfield	SCHOTT	Statkraft	15 GWh/y	2 years	
	Greenfield	Digital Reality	Engie	120 GWh/y	10 years	
Mar	Greenfield	Evonik	EnBW	170 GWh/y(e)	12 years	
	Greenfield	Bosch	EnBW	200 GWh/y	15 years	
	Greenfield	Mercedes-Benz	Iberdrola	475 GWh/y	N/A	
	Greenfield	Amazon	Iberdrola	1100 GWh/y	N/A	

In Q1 2023, the German market was marked by numerous deals and a high cumulated volume driven by offshore wind. It is composed of brownfield deals based on existing wind farms (whose subsidy or current PPA will soon expire) and of large-scale greenfield offshore wind projects (whose massive production will be split between multiple offtakers).

Various suppliers are active in the sector, all of which are large Utility players already familiar with PPAs in Germany. On the offtake side, very experienced buyers (such as Amazon, Mercedes-Benz, and Bosch) are strengthening existing partnerships, though newcomers are also observed (such as Continental, and Digital Realty). Overall, they belong to automotive/industry, TMT, or Chemical sectors, as in previous years.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY





CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



5 deals
announced during the Quarter



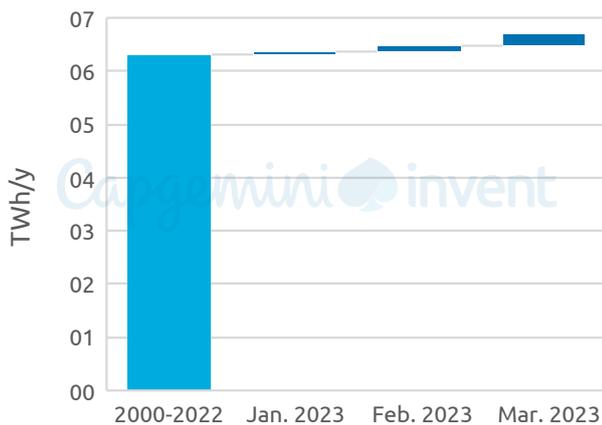
379 GWh/y
of cumulative volume (estimated) announced during the Quarter



62%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

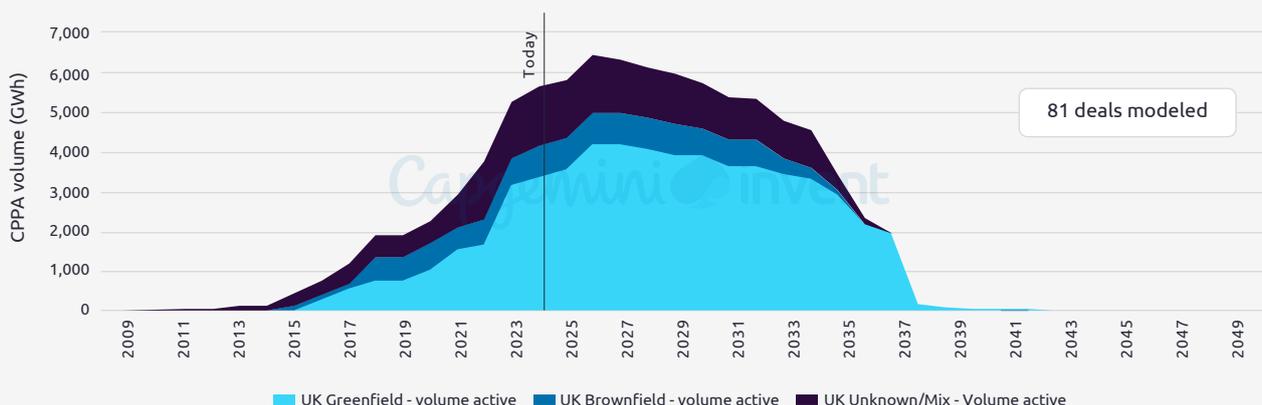
	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Greenfield	NatWest	EDF Renewables	46 GWh/y(e)	N/A	
Feb	Greenfield	Vodafone	Mytilineos	108 GWh/y	10 years	
Mar	Brownfield	BT Group	TRIG	144 GWh/y(e)	10 years	
	Brownfield	Icelandic Foods	Octopus Energy	N/A	10 years	
	Greenfield	Asahi	European Energy	17 GWh/y(e)	N/A	

CPPA announcements have been accelerating in the UK since the beginning of the year. The majority of these new contracts are greenfield deals based on future solar PV assets in England or Wales, in contrast with the greenfield onshore wind assets typically observed in Scotland in past years. Volumes are noticeably higher than previous solar PPAs in the country, as developers propose larger unsubsidized parks or bundles of multiple assets.

With the exception of Vodafone, which signed its second CPPA with Mytilineos, Q1 2023 offtakers are new to the UK PPA market, belonging to the Telecom, Food and Beverage, or Banking sectors. Their testimonies all highlight the much-needed clarity on future energy costs that CPPAs can provide them over the next decade.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



FINLAND

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



0 deals
announced during the Quarter



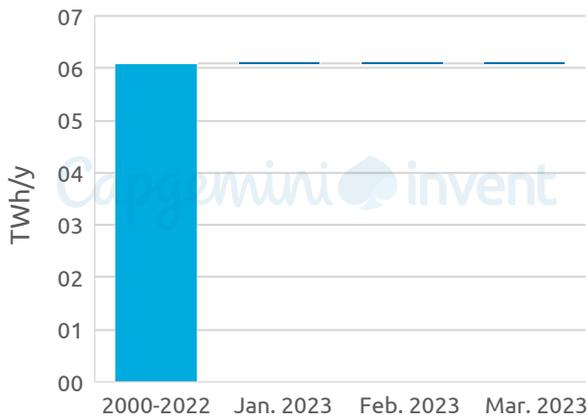
0 GWh/y
of cumulative volume (estimated) announced during the Quarter



0%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



KEY DEALS ANNOUNCED DURING THE QUARTER

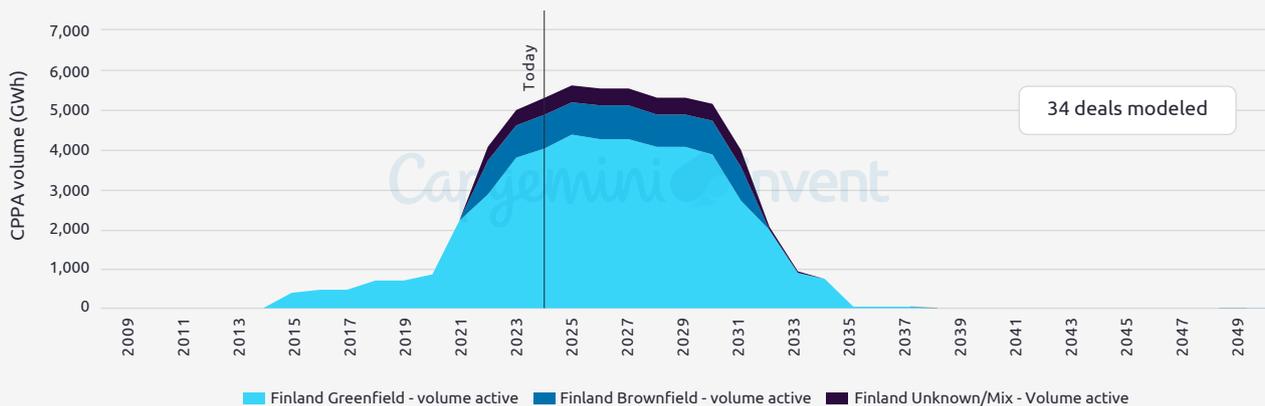
Type	Offtaker	Producer	Volume	Duration	Energy

Despite a history of new announcements each quarter, Finland does not appear to have witnessed CPPA activity thus far in 2023. However, it is possible LyondellBasel’s 230 MW Virtual PPA in the Nordics involves assets in the country (due to the lack of further public information, this deal is accounted for in the “multi-country” category, p.19).

Q2 2023 could see the country return to form, though. New deals have been reported again, with Borealis signing with Axpo and Amazon with Renantis.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



FRANCE

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



4 deals
announced during
the Quarter



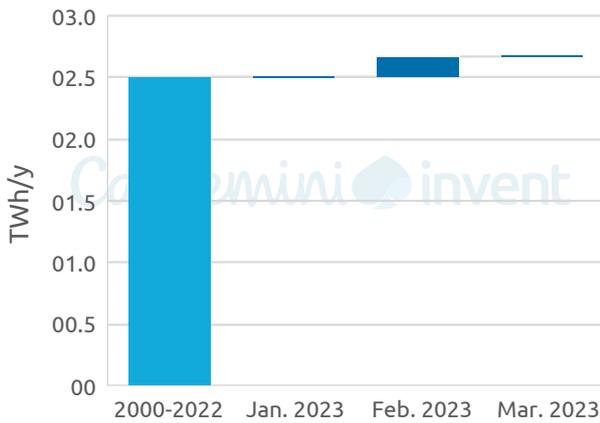
165 GWh/y
of cumulative volume (estimated)
announced during the Quarter



100%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



KEY DEALS ANNOUNCED DURING THE QUARTER

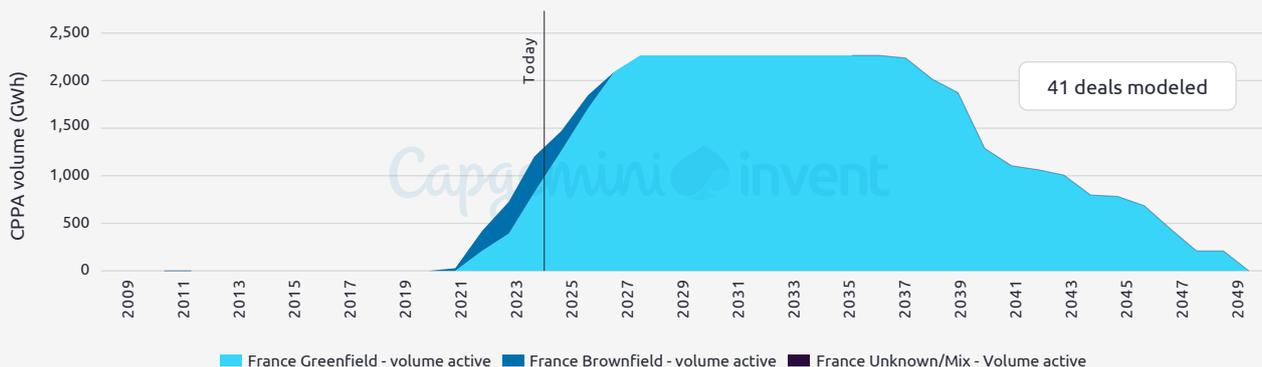
	Type	Offtaker	Producer	Volume	Duration	Energy
Feb	Greenfield	Leroy Merlin	Voltaia	60 GWh/y	23years	
	Greenfield	Leroy Merlin	Photosol	45 GWh/y	N/A	
	Greenfield	L'Oréal	EDF Renouvelables	40 GWh/y(e)	15 years	
	Greenfield	Iliad Group	Engie Green	20 GWh/y	15 years	

In contrast with the massive but sporadic announcements of the second half of 2022, the French CPPA market started the year with a larger number of deals with smaller volumes (~40 GWh/y on average). Contract durations are noticeably longer than in all the other countries of the panel.

These deals mainly involve consumers already well familiar with CPPAs in France (Leroy Merlin, L'Oréal), which now seek additional volumes and longer durations. Additionally, the first wind-based greenfield CPPA in the country was signed in February between Leroy Merlin and Voltaia: an encouraging sign as this technology, now competitive for PPAs and with a production profile more adapted to baseload consumption, can help corporations cover a larger share of their energy needs.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



BELGIUM

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



0 deals
announced during the Quarter



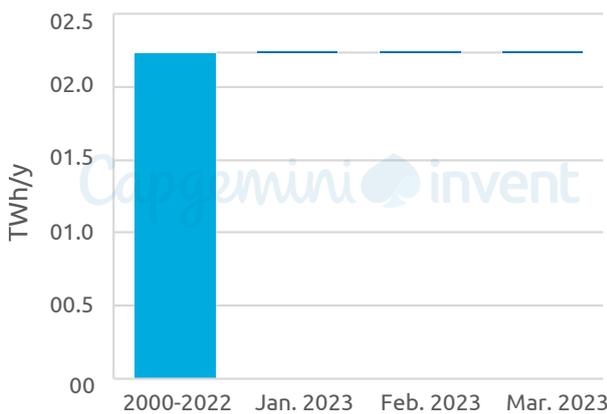
0 GWh/y
of cumulative volume (estimated) announced during the Quarter



0%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy

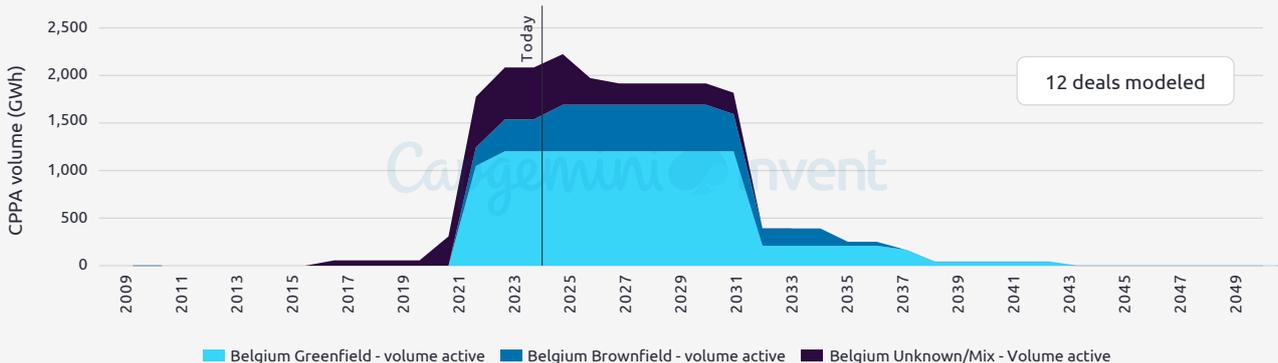
Traditionally a smaller market than other countries of the panel (around 3 deals announced annually for the past three years), the Belgian CPPA sector showed little activity during the quarter.

In January, Lanxess announced several PPAs with Engie, covering both Belgium and Germany. However, as the precise split between the two geographies is not reported, the deal is covered in the “Multi-country” section (p.19) rather than this dedicated country profile.

This situation changes in Q2 2023 because in April, Google unveiled a PPA with Luminus to power its datacenters and offices in the country.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



POLAND

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



6 deals
announced during
the Quarter



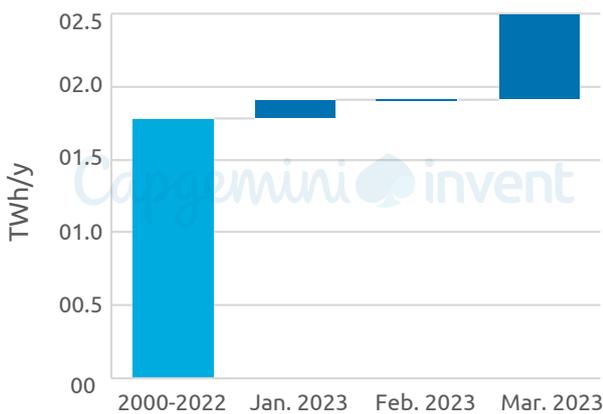
712 GWh/y
of cumulative volume announced
during the Quarter



18%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Greenfield	Mondelēz International	Golden Peaks	126 GWh/y	12 years	
Feb	Greenfield	Toms Group	Better Energy	1 GWh/y	N/A	
	Brownfield	N/A	RWE	18 GWh/y	10 years	
Mar	Brownfield & Greenfield	N/A	Qair Polska	167 GWh/y	12 years	
	Brownfield (actually 2 PPAs)	CMC	Statkraft	400 GWh/y	10 years	Unspecified renewable energy

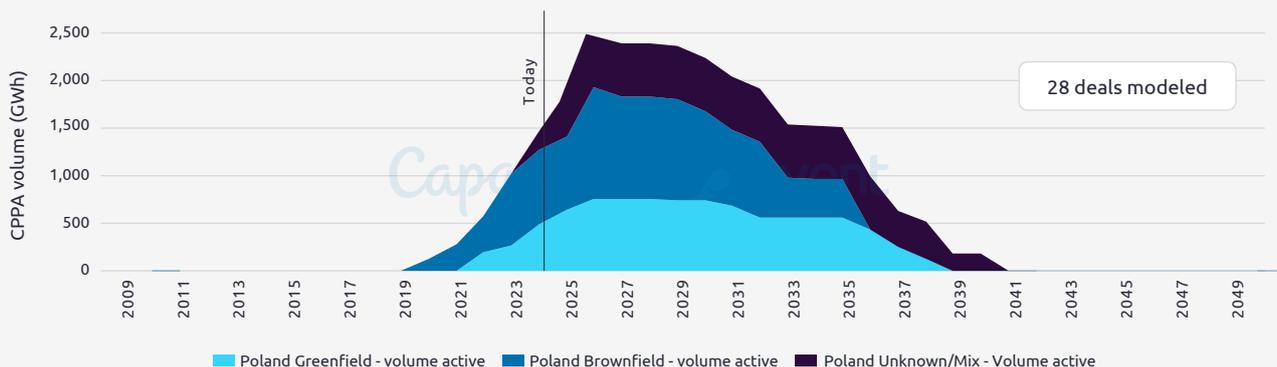
Despite being among the youngest CPPA markets in the panel along with France, Poland has experienced considerable activity during the quarter. As fossil fuels represent a larger share of the country’s electricity production than in other European countries, offtakers and suppliers point out the particularly positive impact of PPAs in terms of cost certainty and emission reduction.

Q1 2023 PPAs are mainly dedicated to wind farms commissioned in recent years (explaining the long durations of these brownfield contracts), though two are based on future solar PV plants. Virtual PPAs (Mondelēz with Golden Peaks) are mentioned along with physical agreements (such as Qair’s PPA).

Several of these deals are expansions of existing partnerships between the offtaker and the supplier (CMC with Statkraft, Toms Group with Better Energy), following a previous agreement together in Poland or another European country.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



ITALY

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



2 deals
announced during the Quarter



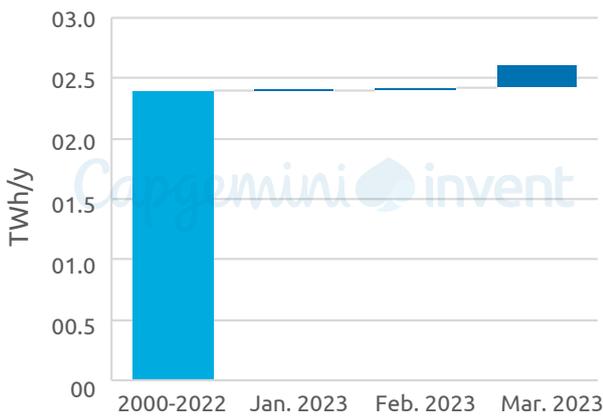
83 GWh/y
of cumulative volume (estimated) announced during the Quarter



100%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

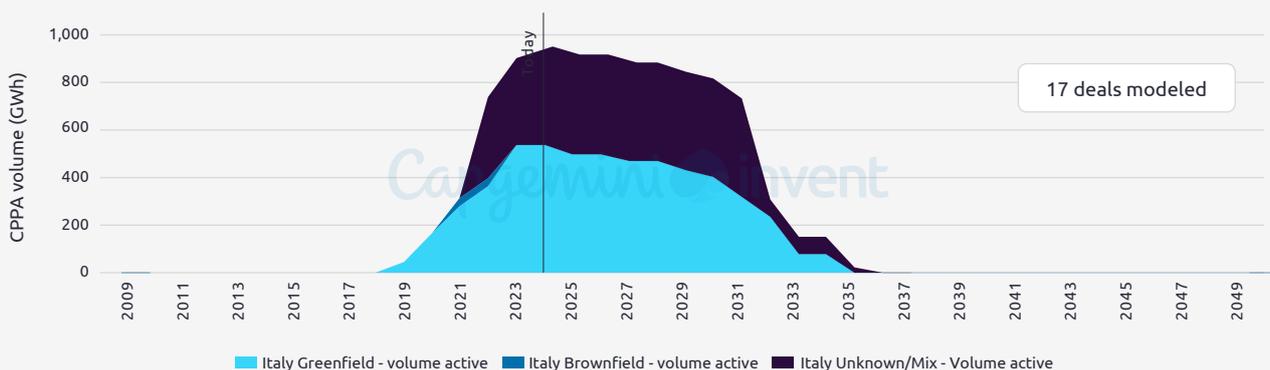
	Type	Offtaker	Producer	Volume	Duration	Energy
Feb	Greenfield	Saint-Gobain	Mytilineos	>7.5 GWh/y	10 years	☀️
Mar	Mix (repowering)	Essilor Luxxotica	ERG	75 GWh/y	12 years	⚡️

During Q1 2023, the Italian CPPA market registered two new contracts representing a total of ~80 GWh/y. The contracts are fully dedicated to new assets under development or repowering, a level of activity consistent with the two previous quarters:

- Compagnie de Saint-Gobain signed a greenfield PPA with Mytilineos for the output of a future 4.9 MWp solar PV asset, to cover the consumption of its Vidalengo facility.
- Essilor Luxxotica announced a CPPA for a total of 900 GWh over 12 years with ERG, which will facilitate the repowering of the Partinico-Monreale wind farm (transitioning from 16 to 42 MW).

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



PORTUGAL

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



2 deals
announced during
the Quarter



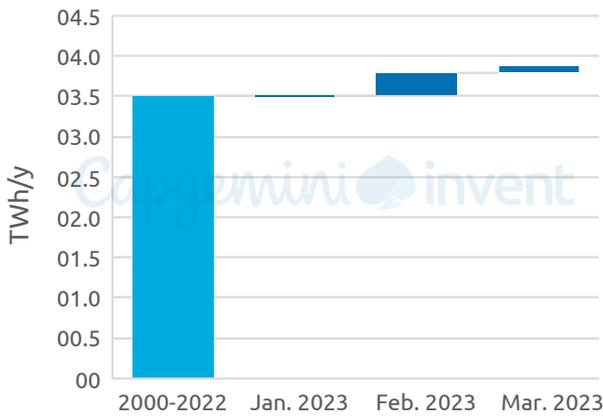
73 GWh/y
of cumulative volume (estimated)
announced during the Quarter



24%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

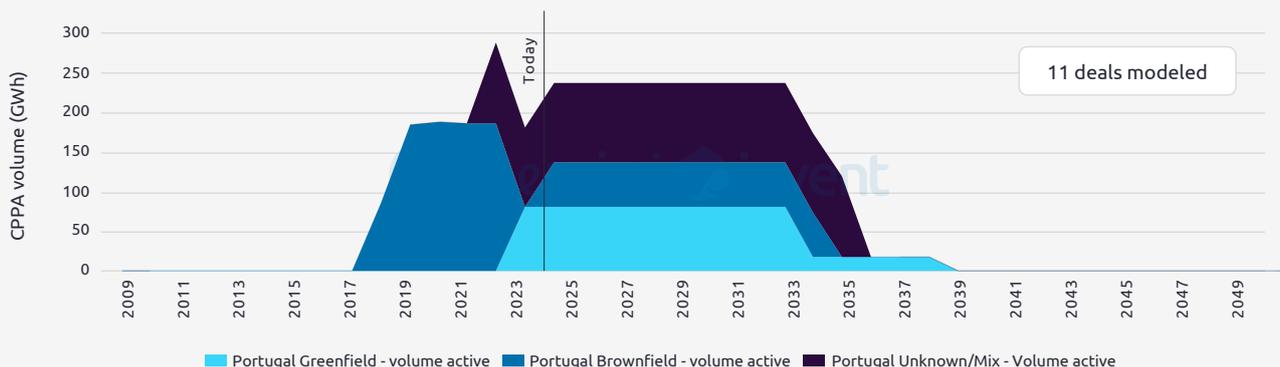
	Type	Offtaker	Producer	Volume	Duration	Energy
Feb	Brownfield	Violas Group	ACCIONA Energia	55 GWh/y	10 years	Unspecified renewable energy
Mar	Greenfield	BA Glass	Voltaia	18 GWh/y	15 years	

Two new CPPAs were announced in the beginning of 2023 in Portugal:

- Acciona signed a contract with Grupo Violas for 10 years, a longer duration than some of the Utility's previous PPAs, typically renewed every 1-2 years
- Voltaia signed with BA Glass for 15 years, a deal for the production of two new solar farms representing over 12 MW.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



SWITZERLAND

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



0 deals
announced during the Quarter



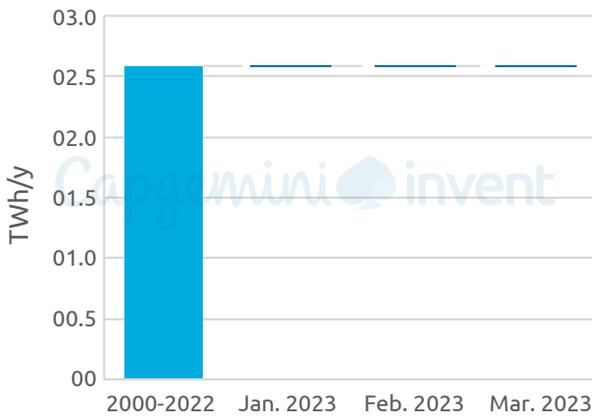
0 GWh/y
of cumulative volume (estimated) announced during the Quarter



0%
greenfield CPPA volume announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



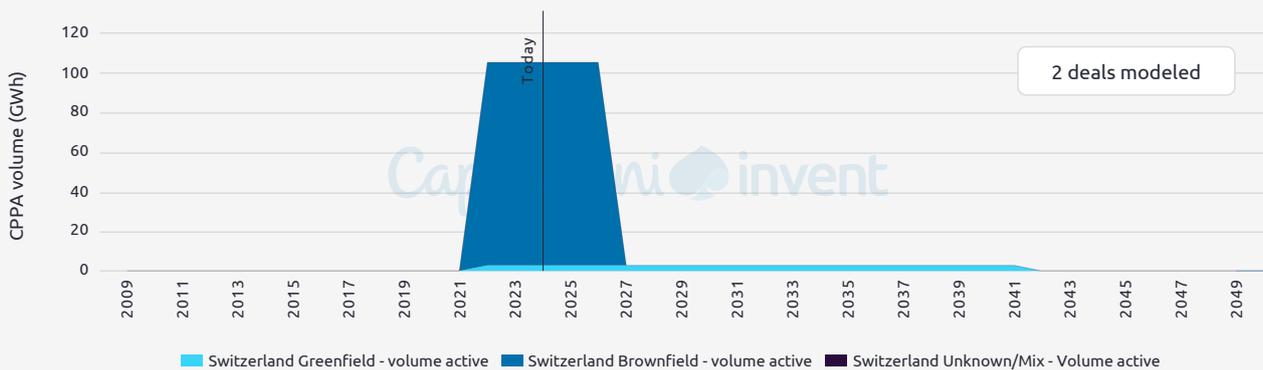
DEALS ANNOUNCED DURING THE QUARTER

Type	Offtaker	Producer	Volume	Duration	Energy

Switzerland remains the country of the sample with the smallest and most recently established CPPA market. Following an announcement in January 2022, the sector has remained silent for the rest of the year. Consequently, no deals were announced in the first quarter of 2023.

ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



MULTICOUNTRY

CORPORATE PPA ACTIVITY IN THE QUARTER: Q1 2023



2 deals
announced during
the Quarter



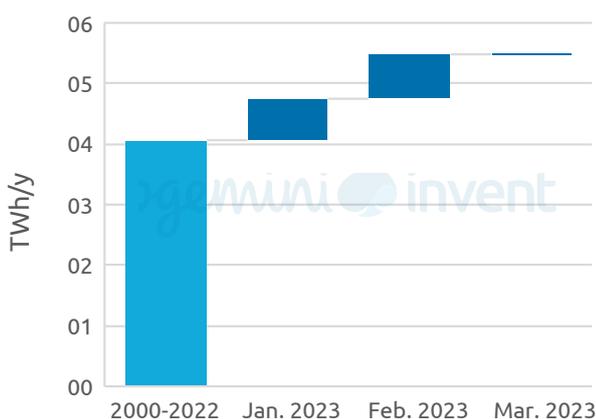
1,425 GWh/y
of cumulative volume (estimated)
announced during the Quarter



51%
greenfield CPPA volume
announced during the Quarter

RAMP-UP OF CPPA ANNOUNCED

Cumulated Volume of CPPA announced



DEALS ANNOUNCED DURING THE QUARTER

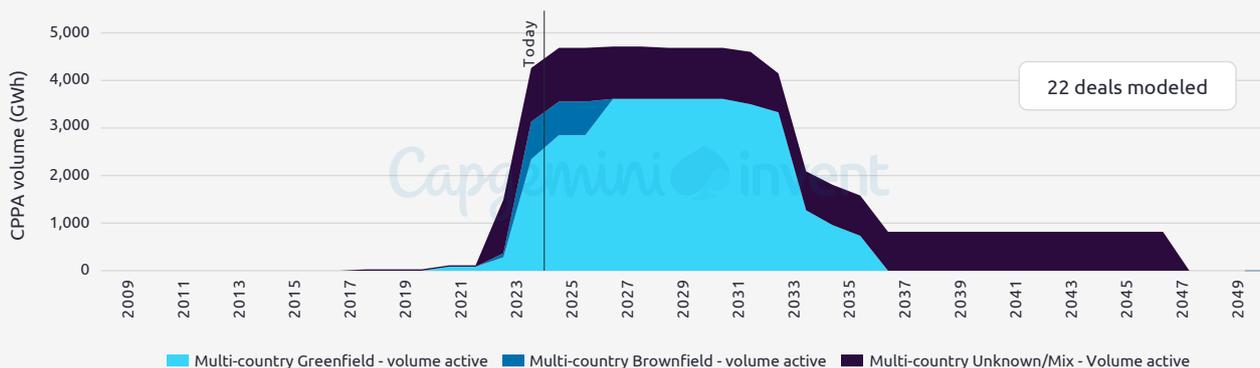
	Type	Offtaker	Producer	Volume	Duration	Energy
Jan	Brownfield	Lanxess	Engie	700 GWh/y	3 years	
Feb	Greenfield	Lyondell-Basell	N/A	735 GWh/y(e)	N/A	Unspecified (presumably onshore wind given the geography)

This page is dedicated to cross-border deals where the offtakers explicitly state that the PPA will cover consumption in multiple countries, or when a group of separate country-specific PPAs has been announced without enough data to analyze each one in the country’s dedicated page. This is the case for the following two CPPAs this quarter:

- Lanxess and Engie announced a partnership in January, with both companies signing supply agreements to cover energy needs for Lanxess sites in Belgium and Germany. Several three-year PPAs were contracted, ensuring half of the 1,400 GWh comes from wind and solar assets.
- In February, LyondellBasell disclosed a Virtual PPA based on several projects in Nordic countries, all scheduled to begin operations in 2026 and representing a cumulated capacity of 230 MW.
- It is possible that other large-scale CPPAs described in previous pages (offshore wind contracts sold in successive tranches or bundles of Spanish assets) constitute cross-border deals with the intention to split the energy between several geographies, without it being stated in the official announcement.

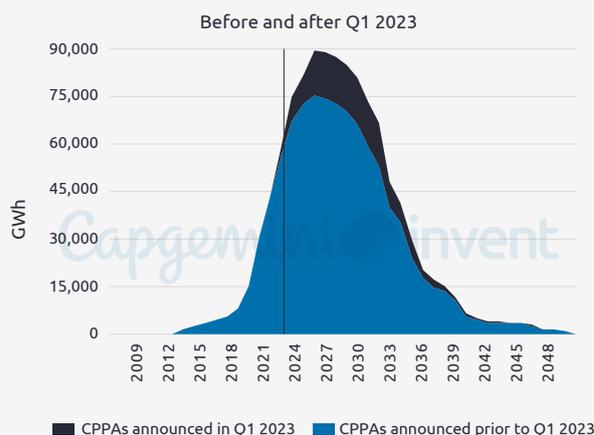
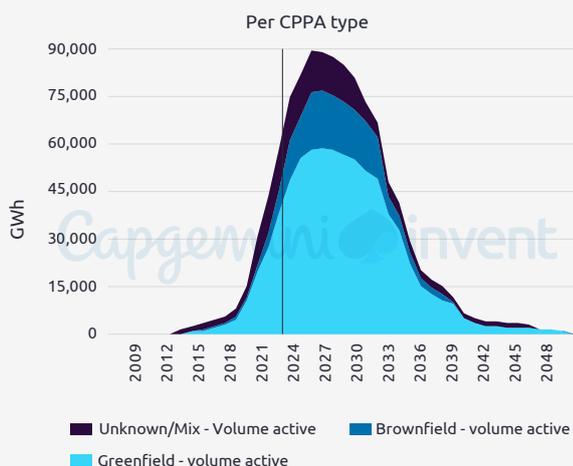
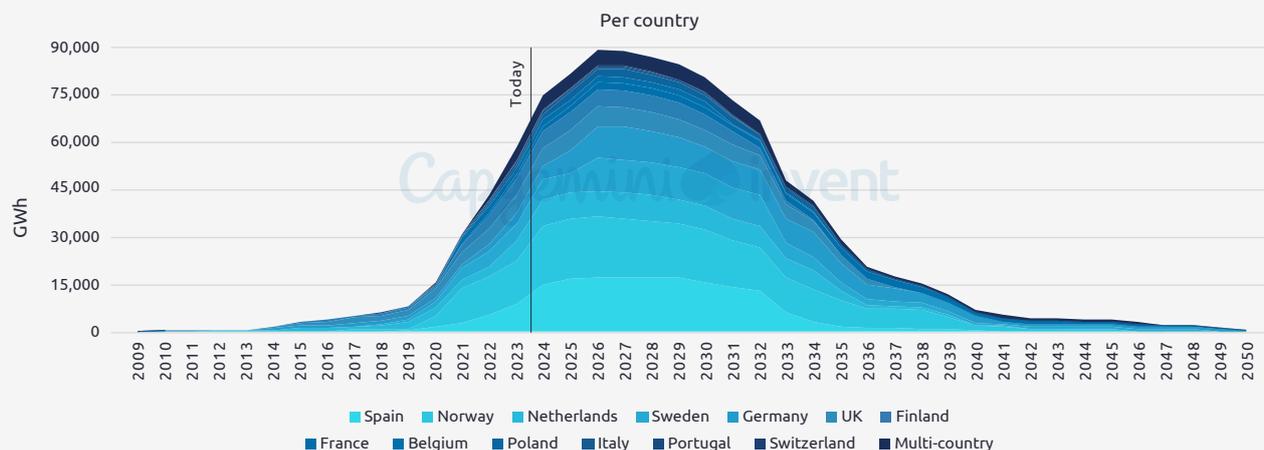
ACTIVATION OF CPPAs OVER TIME

ACTIVE CPPA VOLUME PER YEAR, ACROSS ALL DEALS ANNOUNCED THUS FAR IN THE COUNTRY



CONCLUDING REMARKS

Active CPPA volume per year, across all deals announced thus far in the countries covered in the Barometer:



The CPPA deal flow across Europe has not only stayed robust but has significantly accelerated in the first months of 2023. Over a single quarter, across the countries of the panel, 65 deals were closed (compared to approximately one hundred for the whole of 2022) and volume has increased by 19% compared to the total volume cumulated by end of 2022.

Offtakers increasingly highlight the key role of CPPAs in controlling their electricity supply cost over the long term (Q1 deals last almost exclusively for 10 years or more), beyond providing more traceability of green energy than other mechanisms.

These contracts continue to involve mainly large international corporations (energy-intensive and financially robust enough to provide guarantees over the long term): in many cases, they have recently tested a first PPA and are now looking to deploy at scale this mechanism across multiple geographies.

However, several new trends start to develop and contribute to more diversity on this market. The panel of PPA-competitive technologies broadens in some countries, new mechanisms appear to support offtakers in securing financial guarantees, and more and more PPAs dedicated to hydrogen production at scale are signed. These are all interesting developments to monitor in the next issues of Capgemini Invent's Barometer.

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