



ENERGY & EDUCATION CONNECTED

Commercial Power Purchase Agreements (CPPAs)

Commercial and Legal overview

26th April 2023

Agenda

- Welcome and Purpose
- Corporate PPA structures
- Review of UK based CPPA structures
- Overview of the UK CPPA market
- Where are TEC Members positioned within the CPPA market?
- Walk through draft CPPA Heads of Terms (HoTs)
- AOB, final questions & next steps



Please unmute or use the chat function to ask questions throughout



The advancement towards Additionality

One of the key drivers for the UK to reach net-zero is the continued development of renewable energy projects.

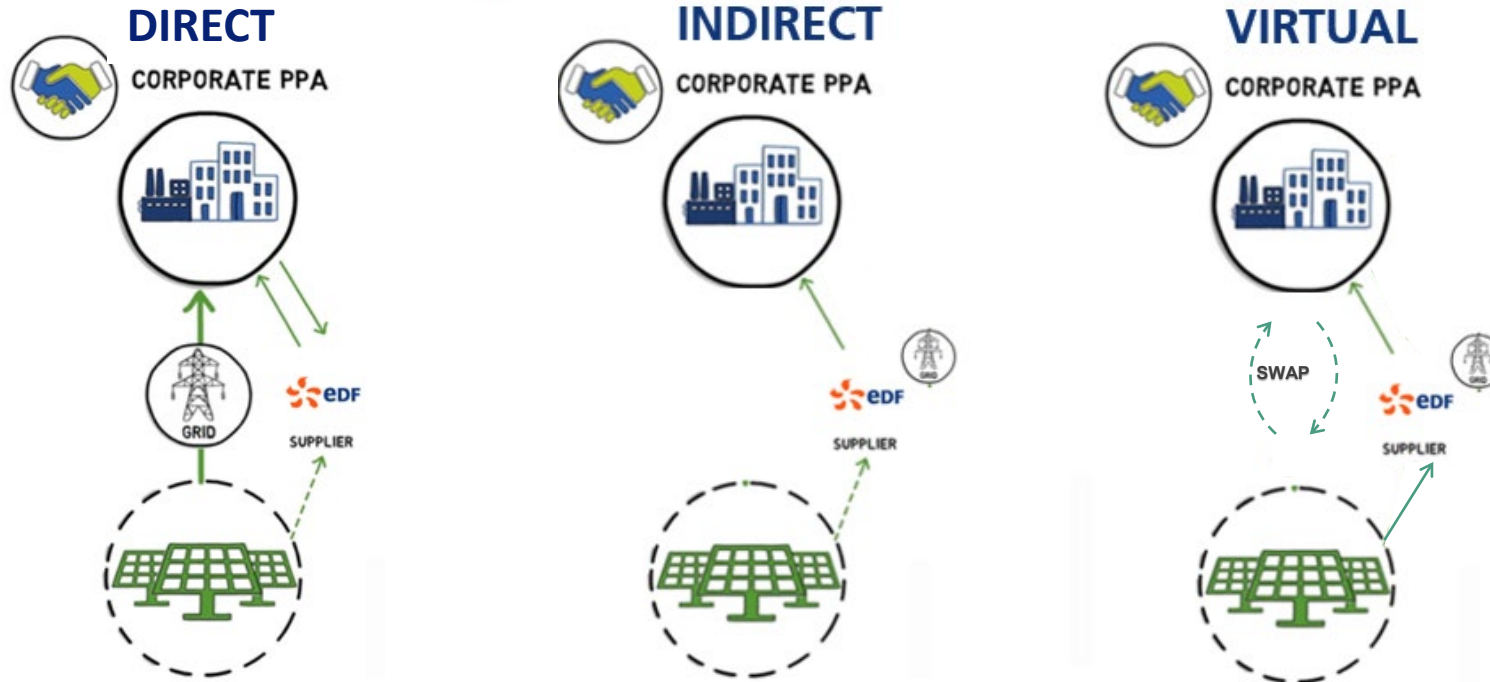
- Historically, the majority of CPPAs announced in the UK have been associated with established assets. Assets already in operation, often under subsidy.
 - Renewable Energy Guarantees of Origin (REGOs) are granted to all accredited renewable projects on a 1:1 basis.
 - Energy suppliers then ‘retire’ REGO certificates as part of their Fuel Mix Disclosure.
 - REGOs and power are separable – this causes numerous issues!
 - It is not clear how simply trading REGOs incentivises the development of new projects.

Additionality has become increasingly important to customers (and students).

- Additionality is the claim made by an end consumer when able to demonstrate that their purchase of energy has secured the build of a new project.
- This guarantee is made and measured through the contract to purchase the power at an agreed price for an agreed length of time.
- Currently the volume of energy purchased is matched against the end customer’s annual consumption - increasingly, questions are being asked about what happens when the sun doesn’t shine or the wind blow. (Carbone Free Energy (CFE) and HH matching will be covered in a TEC seminar later this summer)

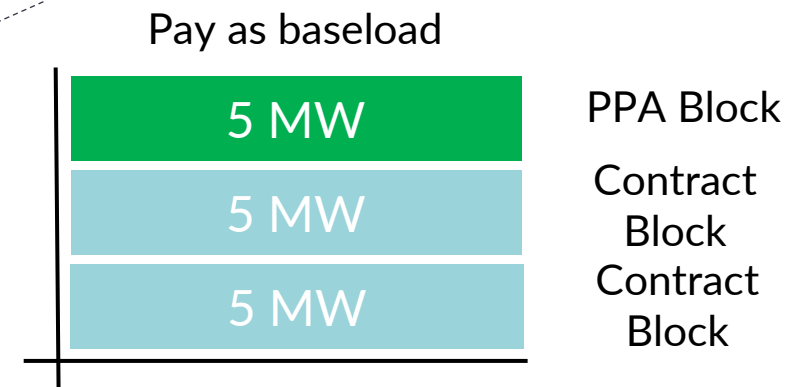
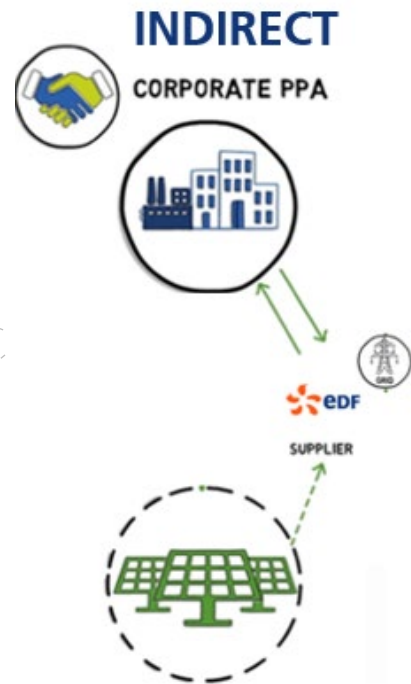
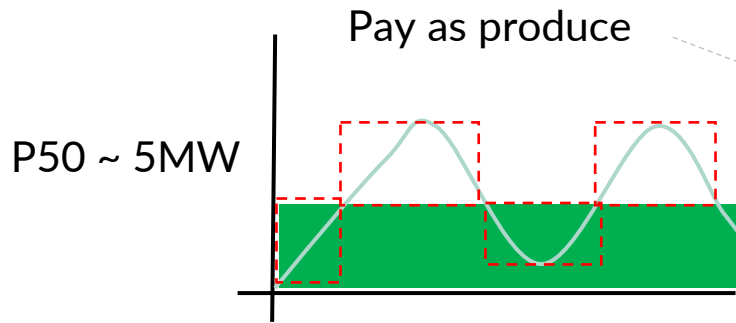
A Marketing departments dream, a Sustainability departments nightmare!

Classic CPPA Structures



PPA between	Customer & Generator	Generator & Supplier	Customer & Generator
Supplier term	3-15 years	10-15 years	1-15 years
Portable?	Yes	Yes	Yes
Firming	Yes	Yes	No

Corporate PPA Firming



- Typically, CPPAs are associated with intermittent generation.
- All PPAs require an offtaker (with a supply licence) to provide a balancing service. These services manage variations from forecast to actual output.
- As a consumer of energy, we have the option to 'firm' up purchases to allow us to 'pay as baseload'. Currently, all forward positions are traded on a baseload basis.
- There are two approaches to Firming - Forward Firming or Day Ahead Firming. Each option presents differing levels of risk and associated costs.

CPPA Indicative Firming Costs

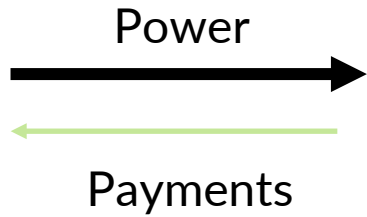


Structure	Period (Apr 25)	Solar (£/MWh)	Wind (£/MWh)
Day Ahead	3 years	£4.64	£4.48
Fully Fixed	3 years	£19.33	N/A
Day Ahead	5 years	£4.77	£4.86
Day Ahead	10 years	£5.15	£5.43

- All above rates are nominal values and will be escalated annually by CPI
- Fully Fixed Shaping only available for up to 5 years
- Currently unable to offer Fully Fixed Shaping for Wind assets
- Rates are inclusive of imbalance costs

Source: EDF CPPA presentation April 2023.

Indirect CPPA Structure



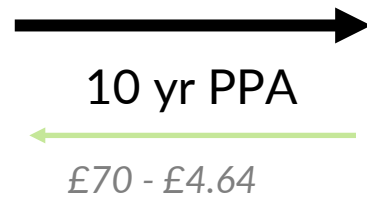
For example:

£70 Generator CPPA Price
 £4.64 EDF Imbalance Fee (fixed or %)
 £14.69 EDF Firming Fee (fixed or %)

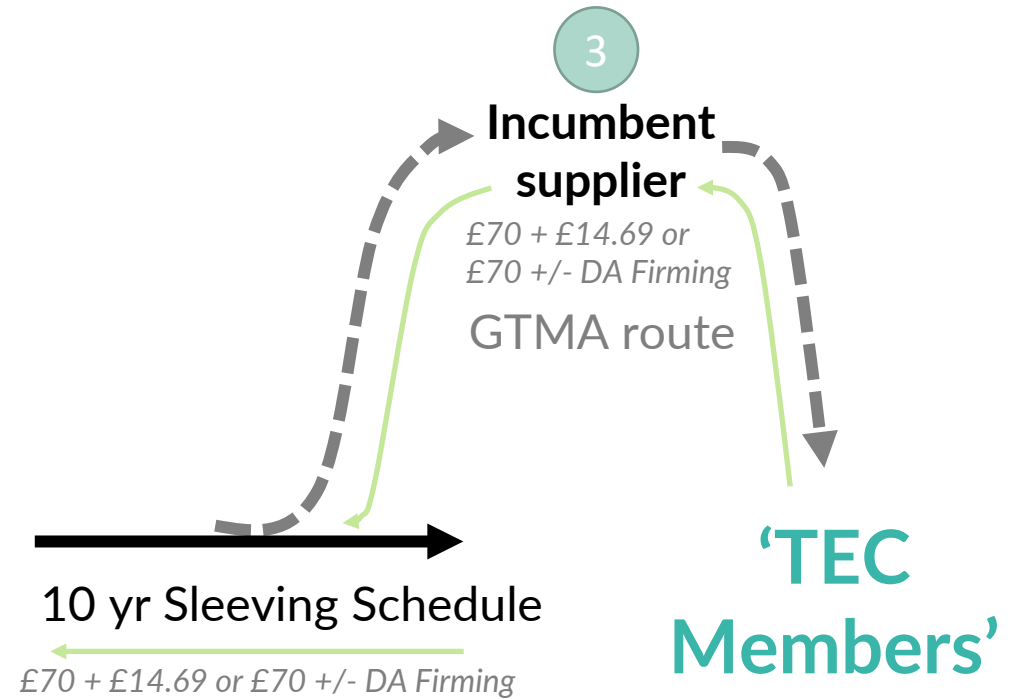
- 1 EDF buys PaP from Generator
- 2 If EDF is the supplier, EDF sells baseload power via Sleeving Schedule
- 3 If EDF is not the supplier, EDF sells baseload power to Incumbent via a GTMA



GENERATOR



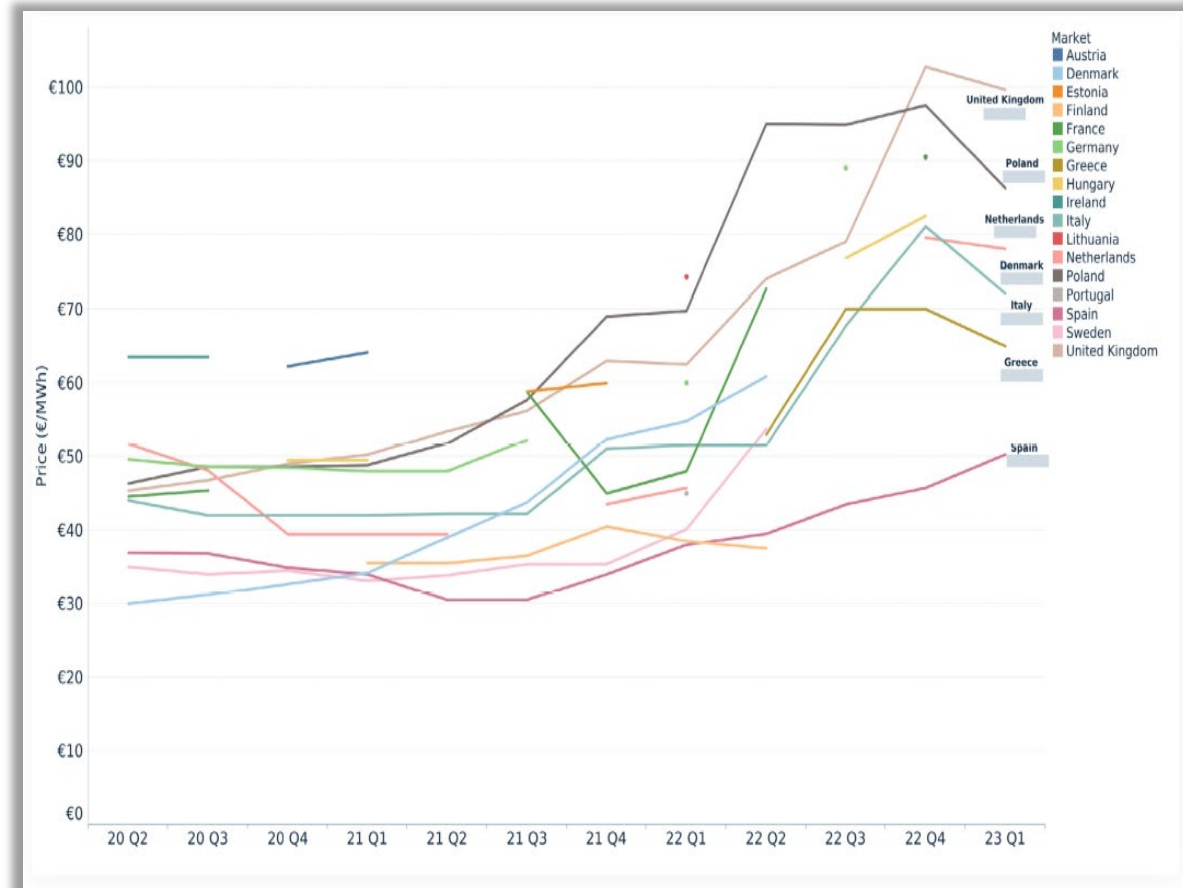
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Overview of the CPPA Market

- The principal technology for UK CPPA development is solar currently.
- The price for CPPAs has increased significantly over the last 16 months.
- In 2023 money, the price of ground mounted solar has increased from ~£54 to ~£70. A similar relative increase has been observed for onshore wind.
- There are two significant factors driving this increase in costs.
 1. Interest rates. The cost of capital for projects has increased significantly.
 2. Engineering, Procurement & Construction (EPC) costs have also increased.
- A useful barometer for assessing CPPA prices are the published Contracts for Difference (CFD) Administrative Strike Prices (ASPs). Prices published = ~£62.50



Source: LevelTen EU-PPA Price Index (Apr 25th 2023)

Underlying costs have increased - markedly

Illustrative cost/benefit table

Element	Scenario	5,000	Jan-23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	totals	
MWH	Contract			0	3750	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000		
Market electricity price	£100 is the new £50!			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
	Forward Curve + extrapolation			132	133	119	106	101	95	91	88	90	89	90	90	87	87	87	87	83	
	Aurora Central			131.2	134.2	112.2	89.8	88.4	91.9	88.4	83.2	86.4	83.0	84.2	88.0	84.5	86.2	86.7	86.7		
PPA Price	CPI Forecast		72.5	72.5	75.7	77.4	79.2	81.0	82.9	84.9	86.8	88.8	90.9	93.0	95.1	97.3	99.5	101.8	104.1		
Balancing cost	High			20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
	Low			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Annual saving/costs	£100 is the new £50!			£0	£72,298	£88,236	£79,128	£69,839	£60,363	£50,698	£40,840	£30,784	£20,527	£10,066	(£605)	(£11,490)	(£22,592)	(£33,916)	(£45,467)	£408,709	
	FC + DA Shaping			£0	£196,545	£185,636	£106,683	£73,651	£36,738	£4,109	(£17,772)	(£20,536)	(£35,141)	(£38,315)	(£48,107)	(£76,553)	(£87,439)	(£101,308)	(£128,035)	£50,155	
	Aurora + DA Shaping			£0	£200,651	£149,140	£28,241	£11,596	£19,621	(£7,375)	(£43,069)	(£37,022)	(£64,609)	(£68,981)	(£60,724)	(£88,843)	(£91,492)	(£100,567)	(£111,967)	(£265,399)	

To be treated with a wheelbarrow of salt!



TEC members position within the CPPA Market

- Over the past 9 months, the TEC team has been engaging with a range of developers and balancing services providers.
- The HE sector remains attractive due to the sectors credit, established UK presence and the services we provide.
- TEC has identified a pipeline of potential CPPA development opportunities.
- Most projects require a minimum tenure of 10-years, with more favorable prices (driven by lenders) for 15-years +.
- Whilst there is some evidence of standardisation, CPPA terms and conditions are project specific. The tenure of these arrangements involve detailed and often protracted negotiations.
- TEC has been working with developers and McDermott Will & Emery (MWE) to develop a standard set of Terms & Conditions against which its Members would be happy to negotiate a CPPA.

The HE sector is incredibly attractive to renewable developers

Overview of Legal Terms and Conditions





Next Steps – Confirmation by 12th May 2023



Share any unanswered questions regarding CPPA commercials.

Review draft terms with legal teams – a Members perspective



Identify and share your governance route with sponsor and senior signatory or delegate identified.

Willingness to enter into exclusive discussions with developers.



TEEC 

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thank you..