November 2025

Financially Settled Contracts (FSCs) in India

Discussion with AIDA

Alejandro Hernandez

Structure

- Scene setting
- Typology – contracts and trades
- Introducing VPPAs and other contracts and trades
- Jurisdiction
- Issues and opportunities
- How a VPPA works (two sided CfD)
- Desirable effects of VPPAs
- Wider applications – thermal
- Routes and gaps
- Regulations meriting attention and next steps

Scene setting

- Financially Settled Contracts (FSCs) are primed to make a positive impact in India, facilitated by
  - Facilitation of non-tradeable FSCs – “VPPAs” – by designated consumers
  - Jurisdictional ruling providing clarity of CERC responsibility here
  - Roll-out of traded FSCs eg NSE and MCX monthly futures (out of scope)
- Regulatory authorities are getting ahead of the curve
  - Scanning for risks to address or gaps in framework
  - This seminar supports this endeavour

FSCs: financially settled contracts, without ownership of physical energy

Typology – contracts and trades

Physical

Financially Settled Contracts
(cash-settled, no physical commitment)

Typology – contracts and trades

Exchange
tradeable: many to many
short-term instruments

Over The Counter
non-tradeable: one to one
longer-term instruments

Typology – contracts and trades

	Exchange tradeable: many to many short-term instruments	**Over The Counter** non-tradeable: one to one longer-term instruments
Physical	1	2
Financially Settled Contracts (cash-settled with link to (1) market prices, no physical commitment)	3	4

Introducing VPPAs & other contracts / trades

	Exchange **tradeable: many to many** **short-term instruments**	**Over The Counter** **non-tradeable: one to one** **longer-term instruments**
Physical	**1** Contracts for actual delivery of commodity, traded in organised physical spot markets eg DAM, RTM (IEX, PXIL, HPX)	**2** Custom bilateral contracts, physical delivery, negotiated privately eg 'classic' long-term physical PPAs, physical Forwards
Financially Settled Contracts **(cash-settled with link to (1) market prices, no physical commitment)**	**3** Standardised contracts traded on exchanges, settled in cash based on price differences, no delivery eg Futures (like NSE & MCX monthly contracts)	**4** Custom bilateral contracts, no delivery, cash-settled against a reference price eg VPPAs (CfDs but could potentially be Call Option or Swap form, and applied broader than renewables)

VPPAs!
CfDs for designated consumers

Terminology: the VPPA / FSC 'buyer' is the DISCOM (or designated consumer); the IPP is the 'seller'

Jurisdiction

	Exchange **tradeable: many to many** **short-term instruments**	**Over The Counter** **non-tradeable: one to one** **longer-term instruments**
Physical	**1** Contracts for actual delivery of commodity, traded in organised physical spot markets eg DAM, RTM (IEX, PXIL, HPX)	**2** Custom bilateral contracts, physical delivery, negotiated privately eg 'classic' long-term physical PPAs, physical Forwards
Financially Settled Contracts **(cash-settled with link to (1) market prices, no physical commitment)**	**3** Standardised contracts traded on exchanges, settled in cash based on price differences, no delivery eg Futures (like NSE & MCX monthly contracts)	**4** Custom bilateral contracts, no delivery, cash-settled against a reference price eg VPPAs (in CfD or Call Option form for example), financial Forwards *

jurisdiction

*SEBI jurisdiction for VPPAs as they apply to large designated consumers is CERC, but debate over jurisdiction as they might apply to DISCOMs

Issues

Long term PPAs (2) can negatively impact spot market (1) liquidity and price discovery and performance incentives...

	Exchange tradeable: many to many short-term instruments	**Over The Counter** non-tradeable: one to one longer-term instruments
Physical	**1** Contracts for actual delivery of commodity, traded in organised physical spot markets eg DAM, RTM (IEX, PXIL, HPX)	**2** Custom bilateral contracts, physical delivery, negotiated privately eg 'classic' long-term physical PPAs, physical Forwards
Financially Settled Contracts (cash-settled with link to (1) market prices, no physical commitment)	**3** Standardised contracts traded on exchanges, settled in cash based on price differences, no delivery eg Futures (like NSE & MCX monthly contracts)	**4** Custom bilateral contracts, no delivery, cash-settled against a reference price eg VPPAs (in CfD or Call Option form for example), financial Forwards

Opportunities

...which encourage trade in Physical Exchange of electricity (1)

thanks to Authorities, opportunities are emerging for FSCs (3&4)...

	Exchange tradeable: many to many short-term instruments	**Over The Counter** non-tradeable: one to one longer-term instruments
Physical	**1** Contracts for actual delivery of commodity, traded in organised physical spot markets eg DAM, RTM (IEX, PXIL, HPX)	**2** Custom bilateral contracts, physical delivery, negotiated privately eg 'classic' long-term physical PPAs, physical Forwards
Financially Settled Contracts (cash-settled with link to (1) market prices, no physical commitment)	**3** Standardised contracts traded on exchanges, settled in cash based on price differences, no delivery eg Futures (like NSE & MCX monthly contracts)	**4** Custom bilateral contracts, no delivery, cash-settled against a reference price eg VPPAs (in CfD or Call Option form for example), financial Forwards

Focus

	Exchange tradeable: many to many short-term instruments	**Over The Counter** non-tradeable: one to one longer-term instruments
Physical	**1** Contracts for actual delivery of commodity, traded in organised physical spot markets eg DAM, RTM (IEX, PXIL, HPX)	**2** Custom bilateral contracts, physical delivery, negotiated privately eg 'classic' long-term physical PPAs, physical Forwards
Financially Settled Contracts (cash-settled with link to (1) market prices, no physical commitment)	**3** Standardised contracts traded on exchanges, settled in cash based on price differences, no delivery eg Futures (like NSE & MCX monthly contracts)	**4** Custom bilateral contracts, no delivery, cash-settled against a reference price eg VPPAs (in CfD or Call Option form for example), financial Forwards

I won't dwell on these

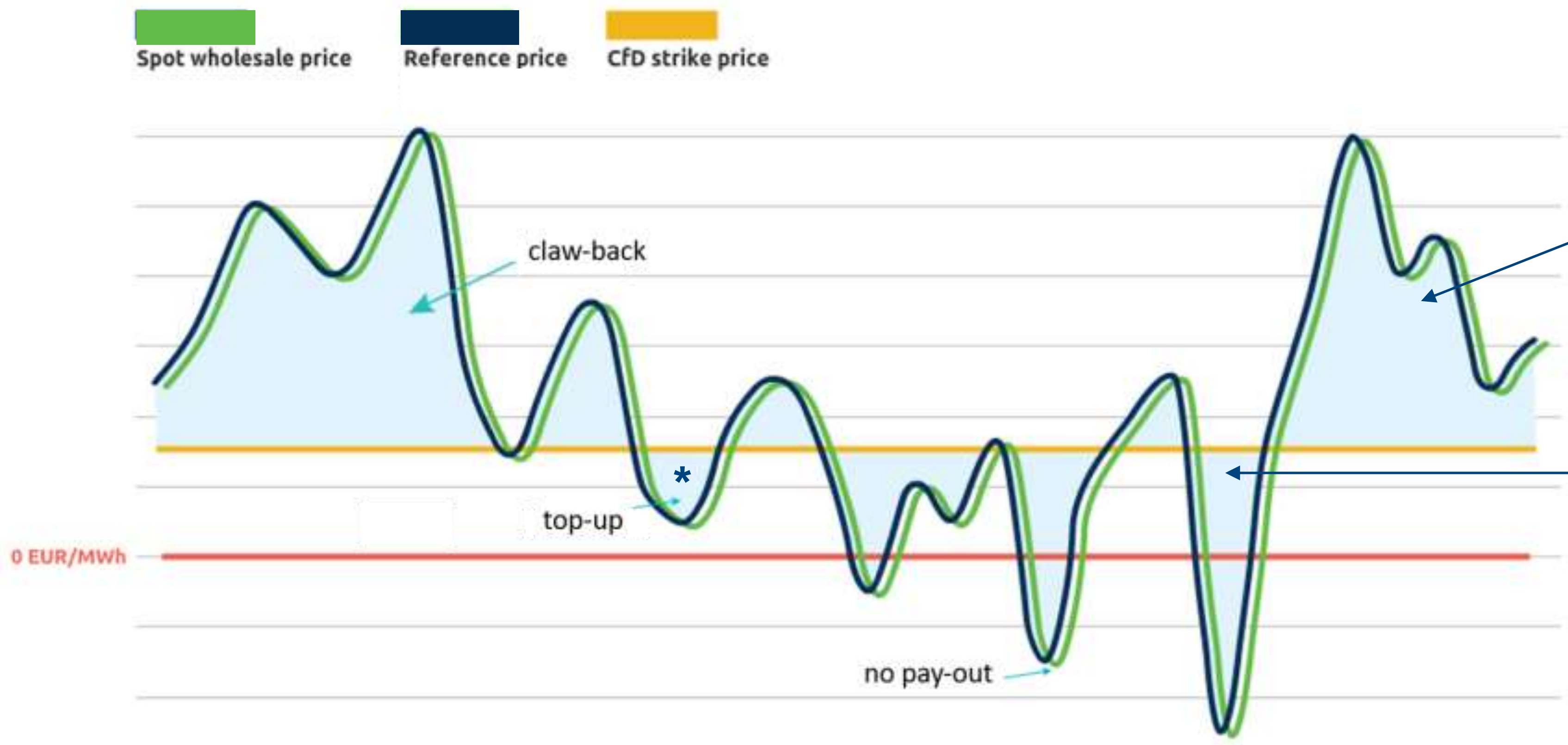
I will say a few words on

a. how VPPAs work (for large consumers)

b. the positive impacts CfDs and other FSCs could have if used more widely eg DISCOMs

How a VPPA (2-sided CfD) would work

Imagining contract between DISCOM and RES



A CfD is a financial contract that settles the difference between a fixed price and market price of electricity.

1. Strike price is determined (in auction)
2. Set reference price equal to spot price
3. Spot > strike price => DISCOM claws-back difference from RES resource
4. Spot < strike price => DISCOM tops-up (*) RES resource
5. RES earns money through CfD top-ups and selling on market (+ helpful to finance claw-back)
6. Typically no pay-out during negative prices (so self-curtail)
7. All other periods, RES pockets strike price on output

Positive effects of VPPA (CfD)

- ✓ encourages market participation and supports liquidity
- ✓ provides clear visibility of market schedules, assisting the System Operator in forming timely plans to accommodate the expected energy mix
- ✓ allows excess surplus renewable capacity of any DISCOM readily to be identified in the market and scheduled by other DISCOMs
- ✓ underpins revenue confidence for resources
- ✓ protects consumers from price risk
- ✓ the greater the renewables penetration, the greater the benefit of change

Wider applications – thermal

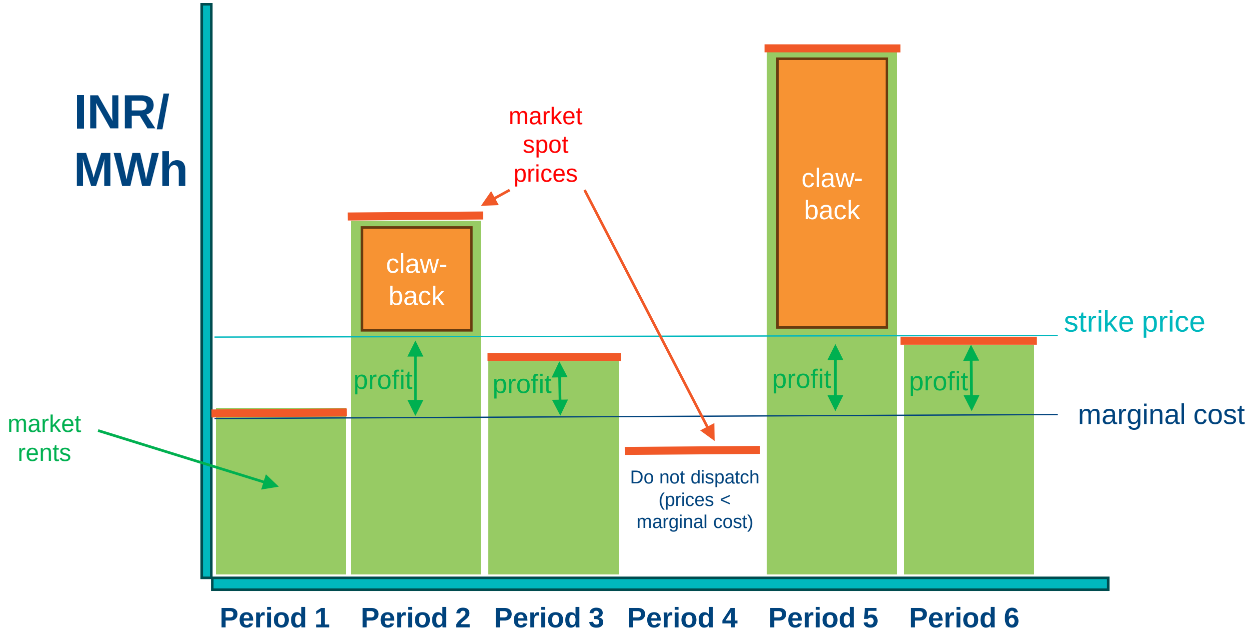
FSCs can be applied to other resources notably thermal –

- ✓ supports **availability** during scarcity
- ✓ **protects consumers** from high prices – no need for price caps
- ✓ motivates market participation – underpins **liquidity** & price discovery to guide investment
- ✓ drives **efficient scheduling** across whole-market ‘merit-order’
- ✓ **assured cost recovery** for well-run resources

Example: call option (annex) gives the holder the right, but not the obligation, to buy electricity at a predetermined price during a specified future period, typically for hedging or trading

Call Option – illustration

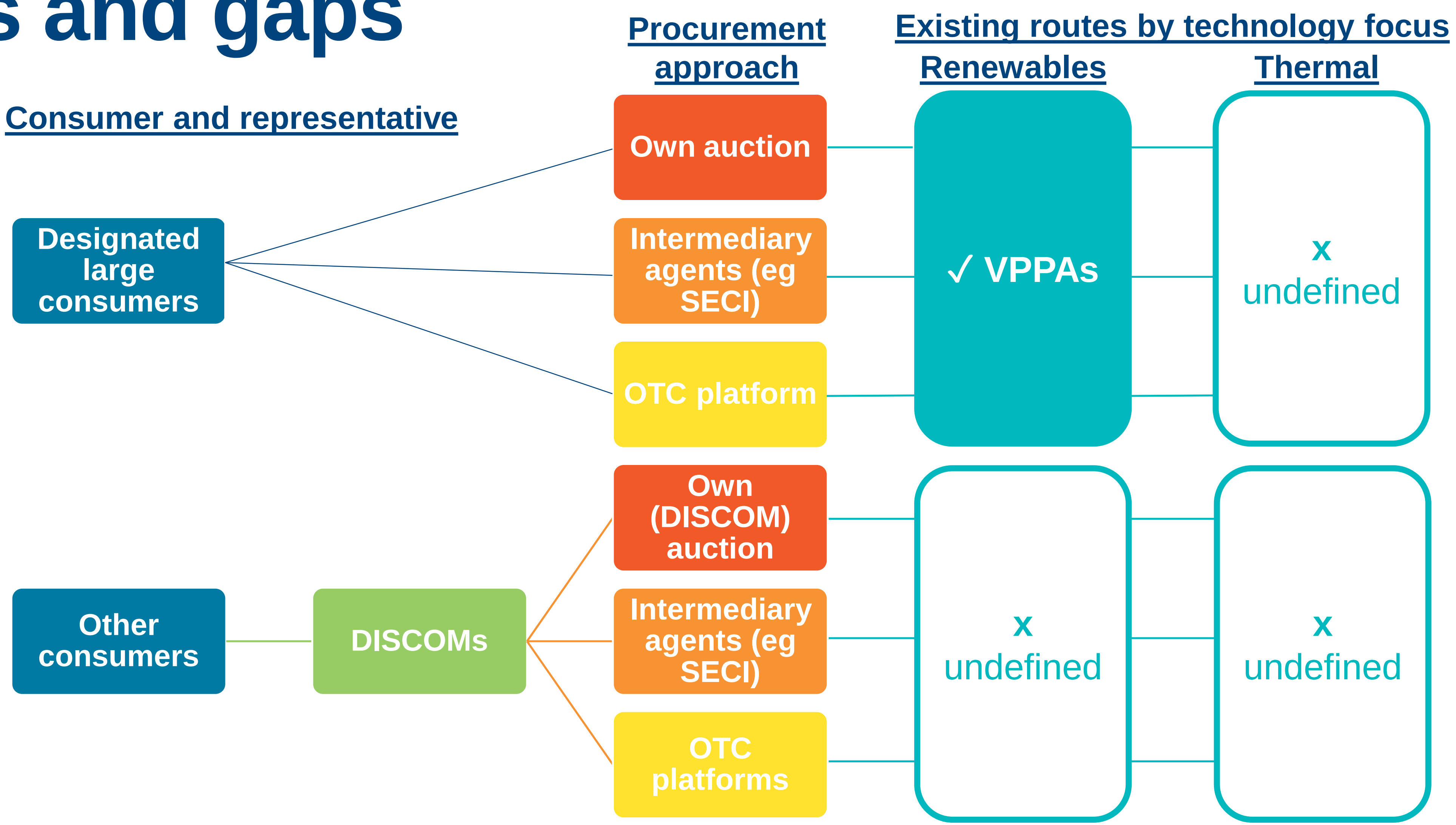
Market prices and rents and clawback mechanism



Set up

- Thermal plant strikes Call Option with DISCOM for say 100MW capacity
- Strike price is defined – varies with fuel price
- Call Option provides fixed monthly premium payments to plant from DISCOM (not shown)
- In return, when spot price > strike price, the plant must generate or pay DISCOM the positive difference in prices * 100MW (the 'clawback' mechanism)

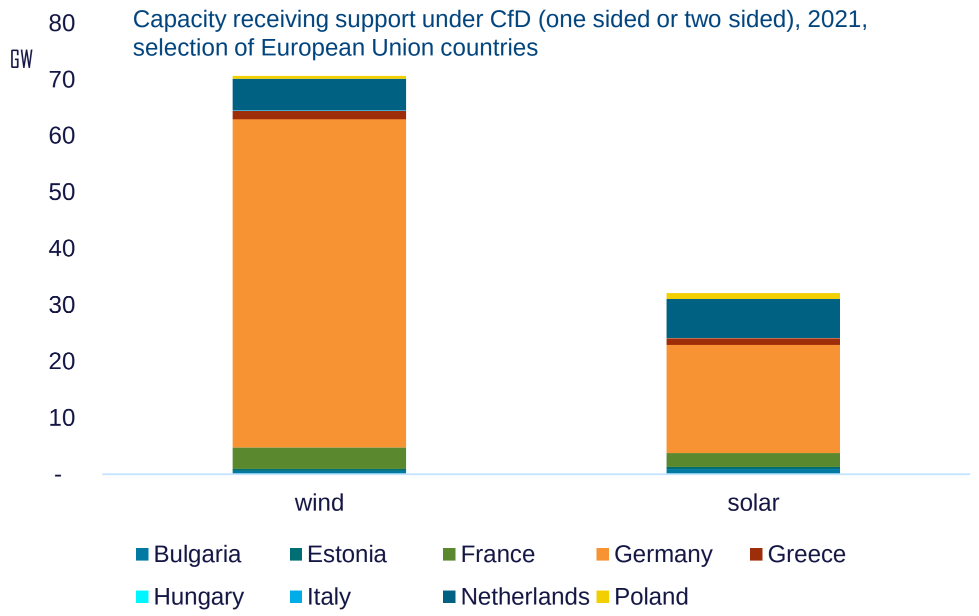
Routes and gaps

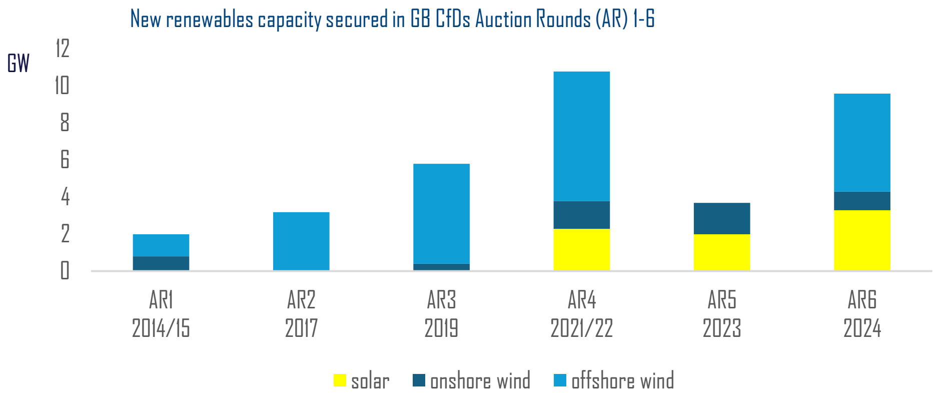


International examples

CfDs for renewables in Europe

- CfDs have stimulated more than 100GW of renewables build in Europe
- European legislation makes two-sided CfDs the default RES support design



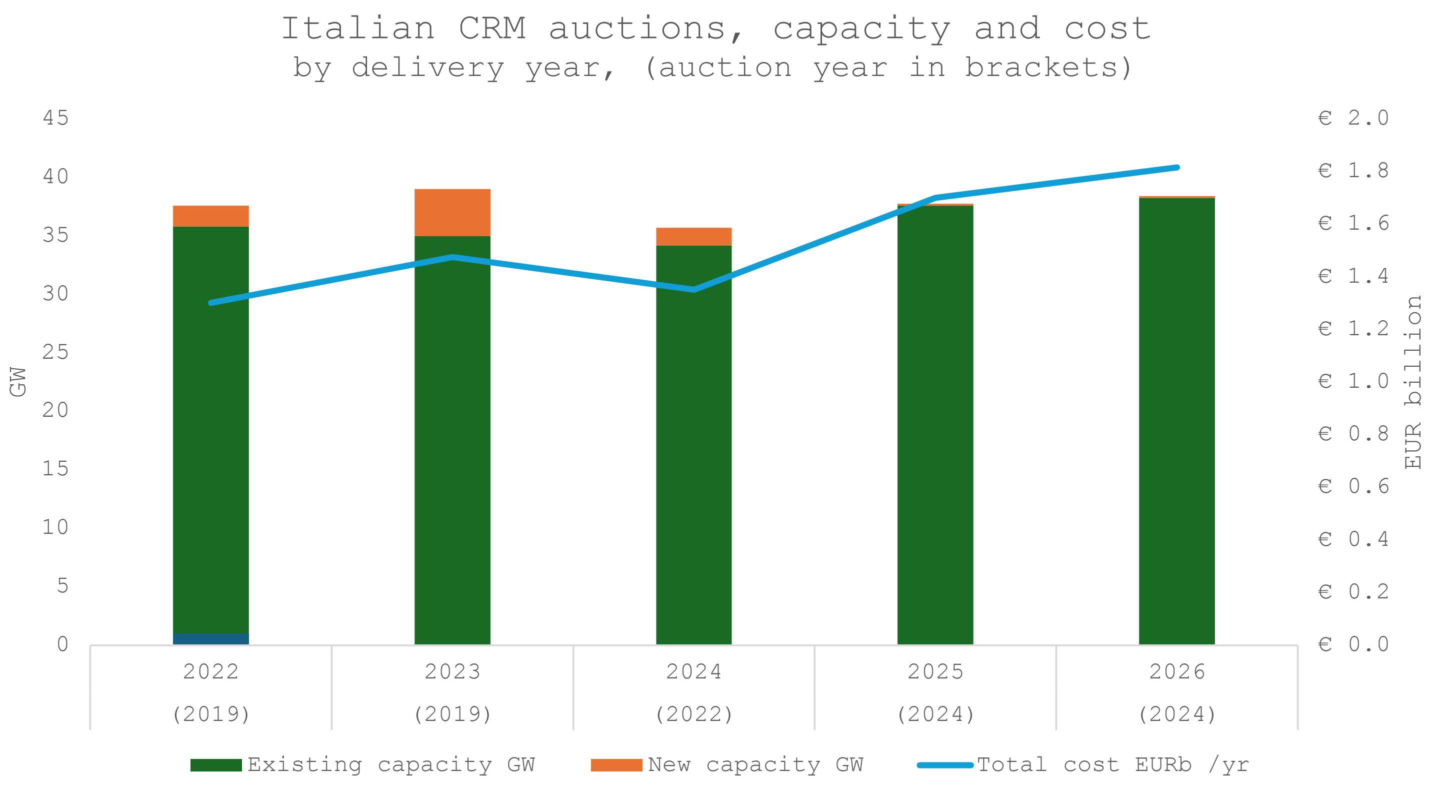


- In the Nordics over the last decade the norm has become 10-15 years financial contracts… in order to secure financing from the bank
- a "paper" CfD, a pure financial agreement with no physical project, is not permitted under the GB statutory CfD regime

International examples

Call Options for thermal

- Italy
  - Italy uses a call option variant
  - In its Capacity Remuneration Market, with a centralised single-buyer capacity auction and physical obligations
  - Procuring 7.5 GW of new capacity since 2022
- Other jurisdictions using similar approaches
  - Ireland
  - Belgium
  - Colombia



How DISCOMs can make use of VPPAs

- DISCOMs may be able to explore possibility of conducting **pilots** in regulatory sandboxes for
  - VPPAs (ie CfDs) for renewables – for new renewables or for extension of existing RES contracts
  - Call Options for thermal – say for capacity seeking contract extension
- DISCOMs can **ask regulatory authorities** for
  - Clarity on CERC / SEBI jurisdiction
  - Standardised FSC Contract Templates
  - Revision to Power Market Regulations 2021 which mandate *physical* delivery for OTC contract settlement

Next steps

- Designated consumers trail-blaze implementation of VPPAs
- Regulators open up wider opportunities for DISCOMs to avail of FSCs, addressing obstacles including –
- Power Market Regulations 2021 mandate *physical* delivery for OTC contract settlement
- Jurisdictional clarity needed between CERC and SEBI
- Need for Standardised FSC Contract Templates
- Recognise FSCs in Resource Adequacy
- Power Market Regulations restrict OTC platforms from negotiating, executing, clearing, or settling contracts, limiting FSC operational readiness