

Market Code Consultation WS 8

Contract for Differences



NECOM
NATIONAL
ENERGY CRISIS
COMMITTEE

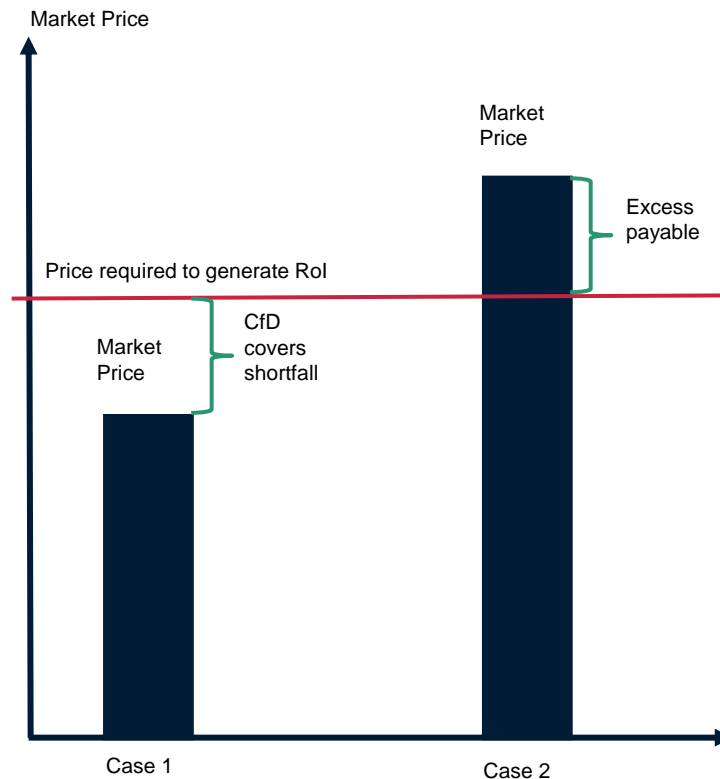
What is a CfD contract?

Contract for Difference (CfD) is a financial contract between two parties that reduce exposure for volatile energy prices for the party who receives the CfD.

This is one of the main tools in hedging through derivatives.

You can use CfDs making it possible to respect earlier regulated/fixed price contracts while getting volume onto the physical short-term market.

An agreed power price (strike price) is the basis for the contract and the CfD will then facilitate payments to even out the earning for the CfD receiver.



Type of CfD contracts as transitional tools

One-side CfD – used as a transitional tool in market reforms

Contract between a central counterpart (SPV) and market participant

This central counterpart could for instance be governmental institution designed only to finance the CfDs (i.e. a SPV)

Can be designed either so that the shortfall between market price and agreed strike price is covered from fund but;

Excess can be kept as profit

Excess needs to be paid back to the fund

Two-sided CfD

Bilateral contract between two parties

Parties agree on terms bilaterally at freely negotiated terms

Closely comparable to derivative financial instruments

Needs a solid reference price



How can CfD be used to replace Power Purchase Agreements?

Generators previously having a power purchase agreement (PPA) can sell volume on the open market (power exchange) without facing the full risk of unstable and unpredictable prices but still keep his financial security from the PPA.

If the market price is lower than the strike price (same as the old PPA price) the CfD will provide the additional variable revenue source for the generator.

Secures revenues and ROI for an investment project while at the same time “push” volumes into the market.

It will also “disentangle” the long-term need for financial security from the short-term physical optimization of a power plant.



Example: Power Purchase Agreements (PPA) with IPPs can be replaced by Contracts for Differences (CfD) with authorities through a SPV

The need to stimulate investment in new capacity has traditionally been met by fixed priced physical PPAs with IPPs supported either directly or indirectly by the government

- Providing a stable cash flow and required return on investments
- Makes a project bankable

These volumes need to be made available to the competitive market

- Without exposing IPPs to market price fluctuations

In order to avoid stranded investments, CfDs could be used

- Protecting IPPs against market price risk
- But also removing potential upside
- And thus SPV still guaranteeing ROI

In the longer run, as the market becomes liquid and transparent, CfDs will not be required

As price signals should be sufficient to generate investment



Case example 1: UK - Contract for Difference

"CFD's require generators to sell energy into the market as usual but to reduce exposure to fluctuating electricity prices and provide a variable top-up from the market price to a pre-agreed 'strike price'" (UK government website)

The UK CfD is a contract between a low carbon electricity generator and the UK government-owned company "Low Carbon Contracts Company (LCCC)" – this is their implementation of an SPV for this purpose

The market reference price is taken from the common day-ahead market price of N2EX and APX.

To be able to participate in the allocation process the generation types Anaerobic Digestion, Hydro, Onshore Wind or Solar PV must have a total capacity greater than 5MW. For offshore wind the total capacity cannot exceed more than 1500 MW

The CfD's length for renewables is generally set to 15 years



Case example 2: Finnish Feed-in tariff (CfD) support to RES

Finland adopted support scheme for wind power production in 2011

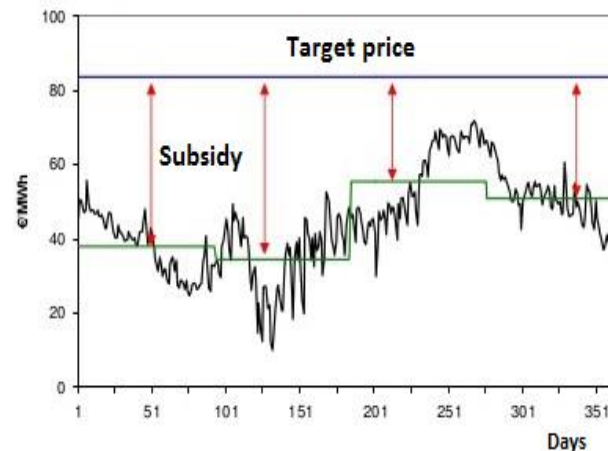
Wind power producers were paid subsidy as the difference between target price (83,5 €/MWh) and the average market price from 3 months periods

Market price is obtained from The organized power market (Nord Pool DAM)

In order to support new investments, new wind power producers are paid raised subsidy based on target price of 105,3 €/MWh for the first 3 years

Each accepted wind power producer may be subsidised from the scheme for 12 years of operation

The FiT scheme is now closed for new entrants and new auction based support system is going to be introduced



CfD traded between two parties (Bilateral CfD) without central clearing - using simple bidding to illustrate the points

Example:

A generator have a CfD with a retail company with agreed price of **25€ for 10MW**

Both will then bid into the short-term market for their quantities

Settlement if market price = **30€**

Seller:

Bid in the market and produce 10 MW

Get paid from the market (10MW*30€)

Pay to the Retail company CfD [10 MW*(25€-30€)]

Total income (as per CfD)

= 300€

= - 50€

= 250€

Buyer:

Bid in the market and consume 10 MW

Pay to the market (10MW*30€)

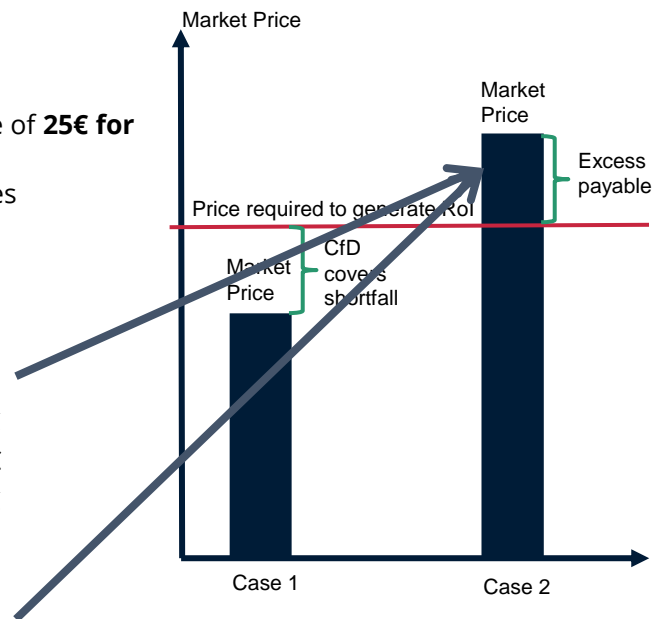
Get paid from Generator CfD [10 MW*(30€-25€)]

Total cost(as per CfD)

= -300€

= + 50€

= - 250€



CfD traded between two parties (Bilateral CfD) without central clearing

Example:

A generator have a CfD with a retail company with agreed price of 25€ for 10MW
 Both will then bid into the short-term market for their quantities:

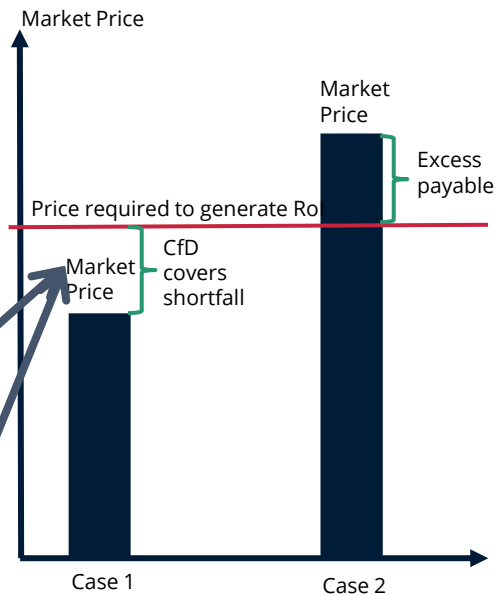
Settlement if market price = **20€**

Seller:

Bid in the market and produce 10 MW
 Get paid from the market (10MW*20€) = 200 €
 Get paid from Retail company CfD [10 MW*(€25-€20)] = +50 €
 Total income (as per CfD) = 250 €

Buyer:

Bid in the market and consume 10 MW
 Pay to the the market (10MW*20€) = -200 €
 Pay to the Generator CfD [10 MW*(€20-€25)] = -50 €
 Total cost (as per CfD) = -250 €



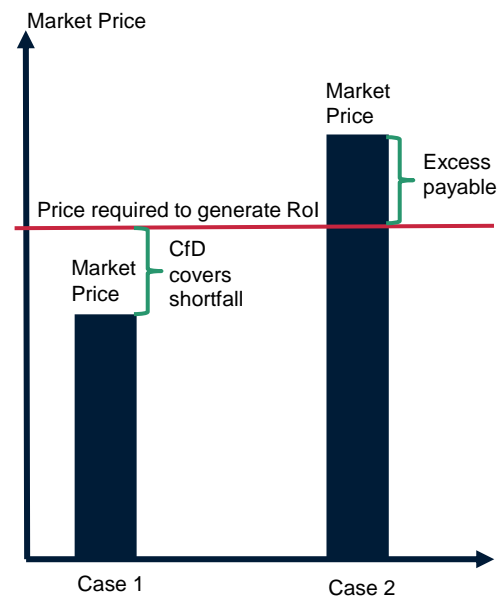
CfD through a market with central clearing – nothing changes (for the market participants)

The mechanics of a CfD are essentially the same for all types – the difference are the roles involved:

In a bilateral CfD – the two market participants are involved

In a CfD traded in an organized marketplace – there are three parties – the buyer, seller and the Central Counterpart (the market)

In a one-sided CfD – there are two parties – the recipient of the CfD contract and the SPV



Question – should the generators bid price independent in a CfD (price taker) as he has guaranteed a price anyhow? (1)

Same example:

A generator have a CfD with a retail company with agreed price of €25 for 10MW

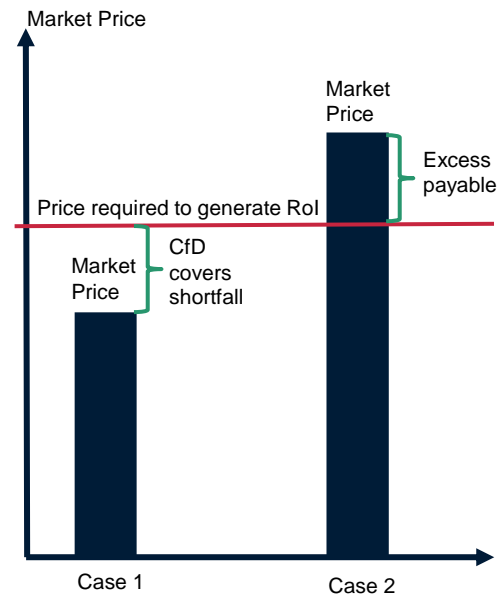
His marginal cost for his generating unit is €20

In isolation – he could bid price-independent (or extremely low) in the market to secure that he produces the 10MW that is expected by his CfD counterpart.

However, this is not optimal use of his resources.

What he should do is to send a price dependent bid in the market – If the price is below €20, he should buy from the market and only starts his generator if the price is above his marginal cost.

This is illustrated in the next slide



Question – should the generators bid price independent in a CfD (price taker) as he has guaranteed a price anyhow? (2)

Case 1:

If market price = €30

He placed a price independent bid:

Produce 10 MW @ €20	- 200 €
Get paid from the market (10MW*€30)	+ 300 €
Paid to the CfD (10 MW*(€25-€30))	- 50 €
Total income (as per CfD)	= 50 €

Price dependent bid:

Produce 10 MW @ €20	- 200 €
Get paid from the market (10MW*€30)	+ 300 €
Paid to the CfD (10 MW*(€25-€30))	- 50 €
Total income (as per CfD)	= 50 €

In this case – no effect on his income.

Case 2:

However, if the market price = €15, the generator will lose the opportunity to earn more money:

Price independent bid:

Produce 10 MW @ €20	- 200 €
Get paid from the market (10MW*€15)	+ 150 €
Paid from the CfD [10 MW*(€25-€15)]	+ 100 €
Total income (as per CfD)	= 50 €

Price dependent bid:

Do not produce (save fuel - marginal cost)	+ 200 €
Pay to the market for 10M (10MW*€15)	- 150 €
Paid from the CfD (10 MW*(€25-€15))	+ 100 €
Total income (as per CfD)	= 150 €

Generators should not disregard bidding his marginal cost even if it has a CfD – income would in this case be lost.



Special Purpose Vehicle – what is this?

Definition (source Wikipedia)

A special-purpose entity (SPE; or, in Europe and India, special-purpose vehicle/SPV, or, in some cases in each EU jurisdiction – FVC, financial vehicle corporation) is a legal entity (usually a limited company of some type or, sometimes, a limited partnership) created to fulfil narrow, specific or temporary objectives. SPEs are typically used by companies to isolate the firm from financial risk. A formal definition is "The Special Purpose Entity is a fenced organization having limited predefined purposes and a legal personality".

Why is a SPV a good idea in market reforms?

The main objectives of an SPV is to allow you to support various “non-market” regimes without disrupting the market and the establishment of a reference price. The SPV can act both as an excellent transitory tool and potentially also a long-term solution: “The power sector is certainly the sector where the use of SPVs has evolved the longest and furthest”*

SPVs has been used in market reforms and subsidy regimes for a long time in the electricity markets and have proven to be a transparent way of supporting a transition into a market-based power sector.

Problem statement

The South African transition to a more competitive market will require a stepwise approach. Another complexity of the South African market reform is the **dependency on Eskom** that creates issues of market power as well financial sustainability of Eskom and the power sector. In this context, the CPA is an SPV targeting to solve this.

* “Project finance in Theory and Practice”, Stefano Gatti, AP 2013



SPV in Market reforms – Based on Contract for Difference regime(s)

What is the target?

- Replacement of existing Power Purchase Agreements (PPAs) and Universal Service Supply (USS) arrangements with Contracts for Difference (CfD's)
- Implementing RES support while supporting the market
- Might be a solution for potential stranded assets
- Generally - a vehicle for all “non-market-based solutions” and also a transitory vehicle
- A well-known tool to manage both transitions as well as longer-lasting support schemes.

Why?

- Protection of end-consumers from overpriced electricity.
- Increased market liquidity.
- Transparency of true underlying price of electricity.
- Reduced exposure to market volatility for the party receiving the CfD than would otherwise be the case.
- No financial detriment caused by switch from PPAs to CfDs.

Which parties can be affected?

- Market participants previously on a bilateral power purchase agreement (PPA)
- Market participants with a Public Service Obligation for Universal Service Supply (USS)
- All market participants who have independently entered into a private PPA

