

Commodity Forward Curves Primer

An introduction to forward curves – what are they, how are they produced and why do they matter.

Forward Curves: What are they?

A forward curve is a locus of points relating the forward price to the associated delivery date displayed in chronological order.

Each forward price represents a value that was transacted at, or could be transacted at, in the present with a delivery taking place at a future date.

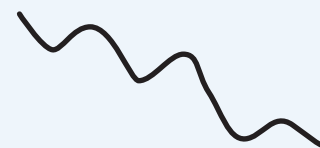
Forward curves can take many shapes depicting changes in value at different periods of time along the curve.

Types of forward curve shapes

Upward sloping
(Contango)



Downward sloping
(Backwardation)

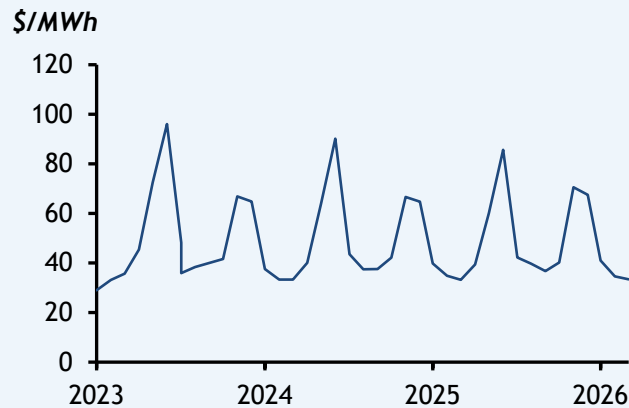


Humped
Portrayals



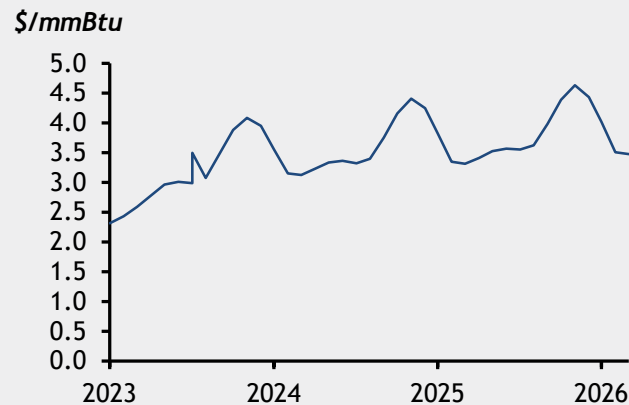
Each energy commodity has its own characteristics that impact the shape of its forward curve.

Electricity Curve



The electricity curve shows seasonality with peaks and troughs through each yearly strip with prices staying relatively flat year over year. The peaks and troughs represent anticipated surges in demand and constraints in supply within each 12-month strip.

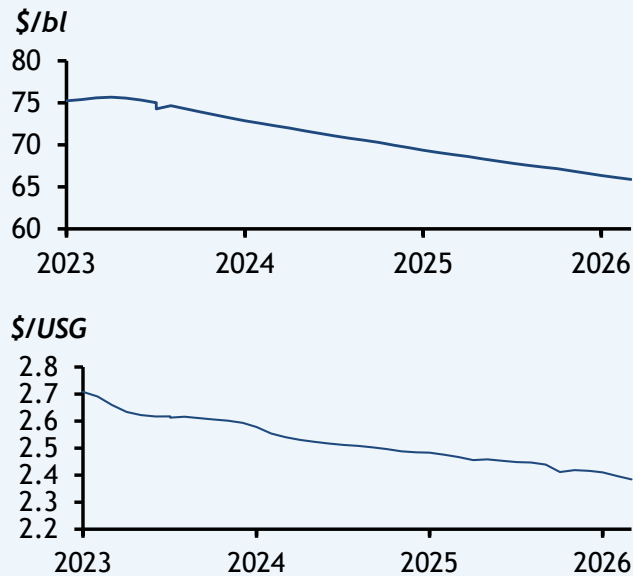
Natural Gas Curve



The natural gas curve shows the same seasonality as electricity, except that the natural gas curve is in contango as prices are increasing year over year. This suggests that the market expects natural gas demand to outpace its supply in the coming years. This incentivizes the market to buy natural gas now and store it to be sold in the future.

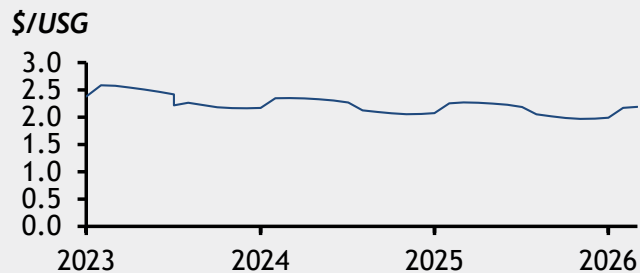
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Crude Oil & Diesel Curve



The crude oil and diesel curves show backwardation as prices are declining year over year, indicating the market supply is currently tight and expected to ease in the coming years. The lack of peaks and troughs suggests that both the crude oil and diesel markets don't have any seasonality or fluctuations in demand and supply annually that are anticipated.

Gasoline Curve



The gasoline curve shows seasonality as well as an overall backwardation as prices decline year over year. The seasonality indicates the summer months are anticipated high demand consumption periods each year.

Where do forward prices come from?

Forward contracts are the mechanism in which price discovery is performed for each forward price in a forward curve.

Forward contract



- Most basic derivative
- Financial contracts whose value is derived from an underlying assets (a commodity)
- Most forward contracts are standardised



the volume, delivery term, product quality, location, and settlement process have been specified in the contract, paving the way for liquid markets where participants need only agree on price to execute a transaction.

The contracts trade multiple times throughout a trading day, allowing the underlying commodity value to be determined by market forces. This is the process of price discovery. The closer the delivery date is to present time, the more liquid the forward contract. The further the delivery date is from present time, the less liquid the contract.

The forward curve itself is structured from each individual commodity's characteristics, whether it be seasonality influenced by weather or supply disruptions caused by global conflict. The structure of the forward curve is supported by intertemporal spreads, and these spreads play a significant role in holding the shape of a forward curve.

Given the cost associated with placing forward trades, market participants enter into transactions that lock in current forward market structure by using multiple temporal contracts, like simultaneously buying and selling two different contracts along a forward curve. For example, the structure and shape of the WTI futures crude oil forward curve is dictated by the June and December contracts after six months forward from prompt. The majority of open interest falls within these two contracts until it eventually lies with the December contract of each calendar thereafter.

There are two types of forward curves that get marked:

Exchange-based benchmarks

- Settled by taking the volume weighted average of the trades that happen during a window of time, usually two minutes, prior to market close
- These markets are liquid enough for this type of settlement to work and are often used as the main contract that other markets that are less liquid trade against in the form of spreads or differentials

Price Reporting Agency (PRA) markets

- Settled by taking the arithmetic average of the assessed index price for a specified number of consecutive days related to the contract month.

Argus Forward Curves

Argus forward curves are part of our data science portfolio, which uniquely pairs our one-of-a-kind deals and prices database with our ability to apply decades of market knowledge and constant market interaction which customise the algorithms

For more information visit;
argusmedia.com/forward-curves