Recent Events in Energy Markets
A Market View

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A lot happened in the last decade.

- Benchmark prices spanned a huge range.
- Credit crisis and aftermath — demand destruction and regulation.
- Unconventional production price impact — relative and absolute.
- Growing impact of renewables.
- Polar vortices.
- Regulatory-induced drop in liquidity.

Collectively these effect on project finance investment.
Retrospective

Viewed from the global energy benchmark.

Brent Rolling Cal Strip

$/Barrel

Stimulus
Credit Crisis
Energy Investments
Under Pressure
Macroeconomic
Technology
Liquidity
"Build Up"

- A lot of people rationalized this price increase — BRICS + decoupling.
- Trades occurred implying non-trivial probability of prices above $200/bbl.
Credit Crisis and Initial Stimulus

- High forward yields — tankers leased for storage.
- 2009 saw drops in consumption — even global electricity usage.

![Brent Rolling Cal Strip Graph](image-url)
Retrospective

Stimulus Treadmill.

- Partial rebound in global energy prices.
- No appreciable change in global leverage — just shifted from household to government/corporate.
Price Collapse

- Sudden collapse in prices.
- Substantial stress to producers.
More Recently

How have the benchmarks fared?

- Different phenomena in play — unconventional production.
- Electricity price drop buffered by generation stack.

![Graph showing normalized rolling Cal Strip Prices with markers for Oil Price Collapse, NG Price Collapse, and Fuel Switching in Floor Play.](image-url)
The price collapse has been punishing to the energy sector.

- XLE is a broad energy ETF.
- Stripping out SP500 as a market index yields the following response to Brent.
More Recently

Renewables have been severely impacted.

- SCTY (Solar City) versus rolling calendar NG strip.
- Stripping out SP500 as a market index yields the following response.

![SCTY "net" SPY vs NG (Jan-12 – Sep-15)](image-url)
More Recently

Locational price spreads have been turned upside down.

- TETCO M3 is a Northeast U.S. gas hub.
- From 2010 to 2015:
  - Substantial price drop.
  - Price inversion.
- TETM3 is now discount to Henry Hub, Louisiana (NYMEX) for most months.

![Forward Curves (09/30/2010)](image1)

![Forward Curves (09/30/2015)](image2)
Key benchmark liquidity has ostensibly improved:
- Open interest in WTI and Brent has generally increased over this period.
Functional liquidity has dropped — dealer exodus.
- It is much harder to hedge price risk where you are building an asset.
Financing and Hedging

- The Project:
  - Borrows money to build an asset.
  - Asset will generate random cash flows.
  - Structured hedge “annuitizes” the cash flows for a period of time.

- If you can’t get a hedge “near” your asset, the project and its lenders are exposed to unwanted and undesirable price and asset performance risk.

- Rigorous hedge quality ratings analysis is more important than ever.
A cautionary comment on predictions.

- **Forward curves**: the price you can trade *now* for delivery *then*.
  - Set by market forces.
  - Driven in large part by cost of storage.
  - Forecast performance is underwhelming.