Global Gas Market Outlook

November 17, 2021

KPMG

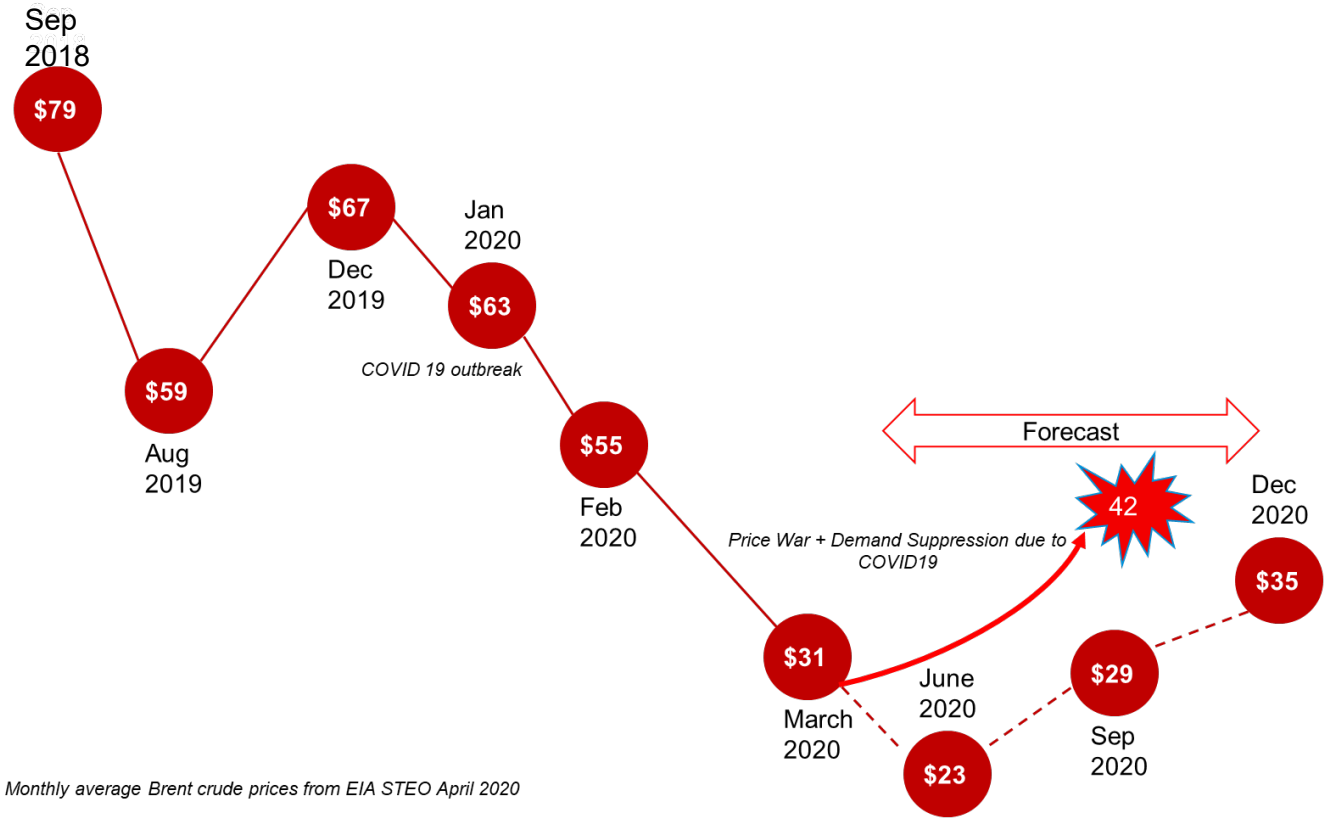
Session Outline

What is happening in energy markets

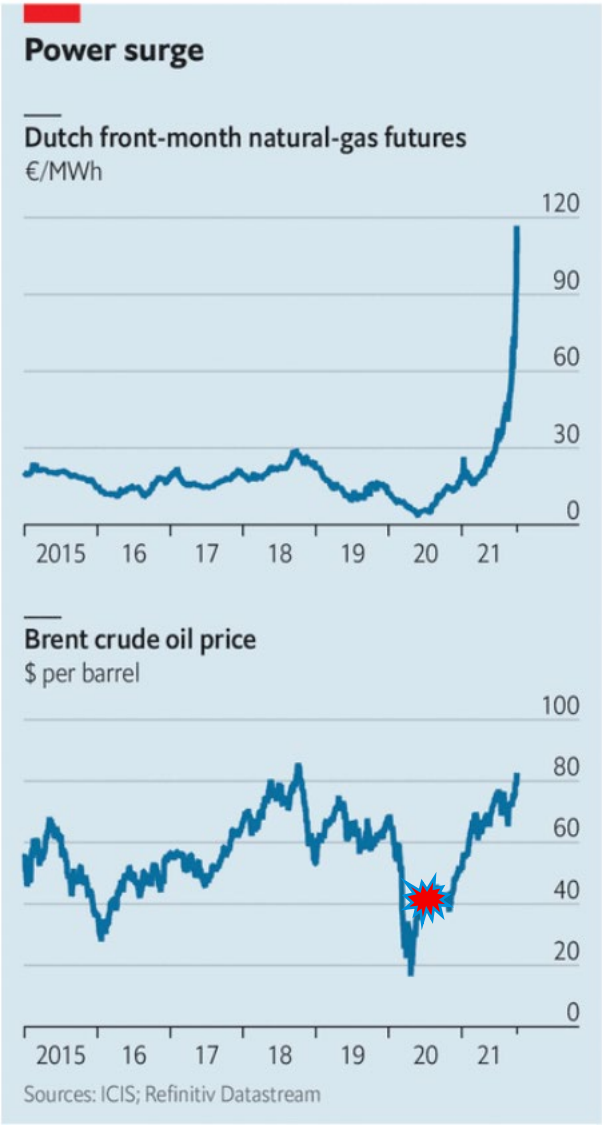
The likely global energy scenarios

Outlook for NG/LNG – Globally and in India

Effects of demand and supply prices are showing



Note : Monthly average Brent crude prices from EIA STEO April 2020



Deep changes are at play in the energy economy in the post COVID period. In particular, aversion to fossil fuel investments is causing hardening of commodity prices

What is happening in energy markets

Energy demand

- Post COVID recovery has pepped up energy demand (though considerable fears on fragility of growth)
- Shutdown of coal plants, low hydro in Brazil, Asian floods, cold winter fears has increased NG demand
- China's intent to secure energy at all costs is pushing up NG/LNG

Supplies and inventories

- Oil inventories down by 55% of past year levels at Cushing*, European gas storage at 10 year lows**
- As a residual/bridging fuel gas is the pressure point
- Unplanned LNG plant outages at very high levels
- Gas markets still poorly connected causing abnormal locational spikes

Investments

- Global upstream investments – Down from $ 800 bn in 2014 to $ 400 bn in 2020
- International Oil Companies scaling down O&G portfolios – Royal Dutch Shell as example
  - Global upstream investments down from $30 bn in 2014 to $8 bn in 2020
  - Divested Permian assets in 2020. In contrast had acquired BG for $ 56 bn in 2014
  - Dropping oil production by 1-2% every year. Under pressure to accelerate the drop
- National Oil Cos /OPEC members not filling the gap adequately
- Globally overall energy underinvestment is a key concern

*https://ycharts.com/indicators/weekly_cushing_ok_ending_stocks_crude_oil

**https://www.reuters.com/business/energy/cusp-europes-winter-season-gas-storage-hits-10-yr-low-2021-09-22/

Effects of recovery and high energy prices on wider economy

- Severely disrupted supply chains causing economic pressures as the world witnesses rapid recovery
- Renewables also affected - combination of China power shortages, port congestion, etc. have caused panel prices to increase and contract defaults
- Europe's policies as a climate leader is spilling across the world. However European realities diverge widely from that of developing economies
- Real risk of stagflation/meltdown caused by disorderly energy transition
- India's energy security is a particular worry with the high growth forecast. Even under rapid decarbonization scenarios the energy growth forecast remains high at 2.5% (as compared to 3% in BAU)

Energy demand in Exajoules (BAU scenario)	**2018**	**2030**	**2040**	**2050**	**2018-2050 CAGR (%)**
United States	**95**	94	93	92	**-0.1%**
Brazil	**12**	15	18	20	**1.6%**
EU (incl UK)	**70**	63	58	53	**-0.8%**
Russia	**30**	31	30	30	**0.0%**
Middle East	**38**	44	50	53	**1.1%**
Africa	**19**	26	34	47	**2.8%**
China	**136**	159	161	155	**0.4%**
India	**34**	54	71	86	**3.0%**
Other Asia	**41**	56	66	76	**2.0%**
World	**576**	**648**	**691**	**725**	**0.7%**
of which: Developed	**240**	234	225	218	**-0.3%**
Emerging	**335**	414	466	507	**1.3%**

Source: BP World Energy Outlook, 2020

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The likely scenarios for Global energy

Climate pressures to continue

- Per UN, we are hurtling towards a 2.7 degree prospect* with current NDCs
- Corporate boards under massive pressures to taper down Oil & Gas because of bad optics and further erosion of shareholder value (at this time Elon Musk's net worth is more than Exxon's)
- Mechanisms like Carbon Border Adjustment Mechanisms (CBAM) will alter trade dynamics

No visible path out of under-investments in traditional fuels

- Coal investments virtually unfinanceable; Nuclear has perception and development challenges; Hydro is mature and difficult to scale up - new projects also exposed to climate risks
- Limited greenfield O&G projects; rig count of public shale majors not increasing (though independents are up 2X); pipelines face escalating challenges
- LNG as a bridge fuel is gaining credence. However fresh FIDs need a watch
- According to Bernstein (research firm) global LNG capacity shortfall could rise to 14% of demand

Alternatives not yet keeping pace

- Global contribution of renewables (including large Hydro) currently ~ 13%
- Even in *a rapid transition* scenario renewables will contribute ~ 30% of global primary energy in 2040 (*BP Energy Outlook*)
- Storage and other adjuncts (CCS/CCUS) slow to develop

* https://www.theguardian.com/environment/2021/oct/26/world-wasted-chance-build-back-better-covid-un

The likely scenarios for India

Climate pressures to continue to pile up on India

- Despite stellar performance on renewables and energy efficiency India under pressure
- Incremental announcements will not be well received; bold announcements may confirm commitment, but practicality is questionable
- Climate equity logic may not go far

Renewables will not suffice despite massive scale-up

- Despite scaling to 100 GW we have only 13% of electricity from renewables
- Despite large additions RE will contribute ~ 30 - 35 percent of electricity supply by 2030
- With coal under huge pressure acceptable alternatives needed

India is severely restricted in its choices

- India will be under unavoidable pressure on climate; but the growth of the economy presents a "Hobson's choice" on energy
  - With 85% of its oil imported if there is the next "oil shock" India would be severely affected
  - Commodity prices could play havoc with the economy and energy security
- While increasing indigenous resource contribution, India needs to secure energy resources

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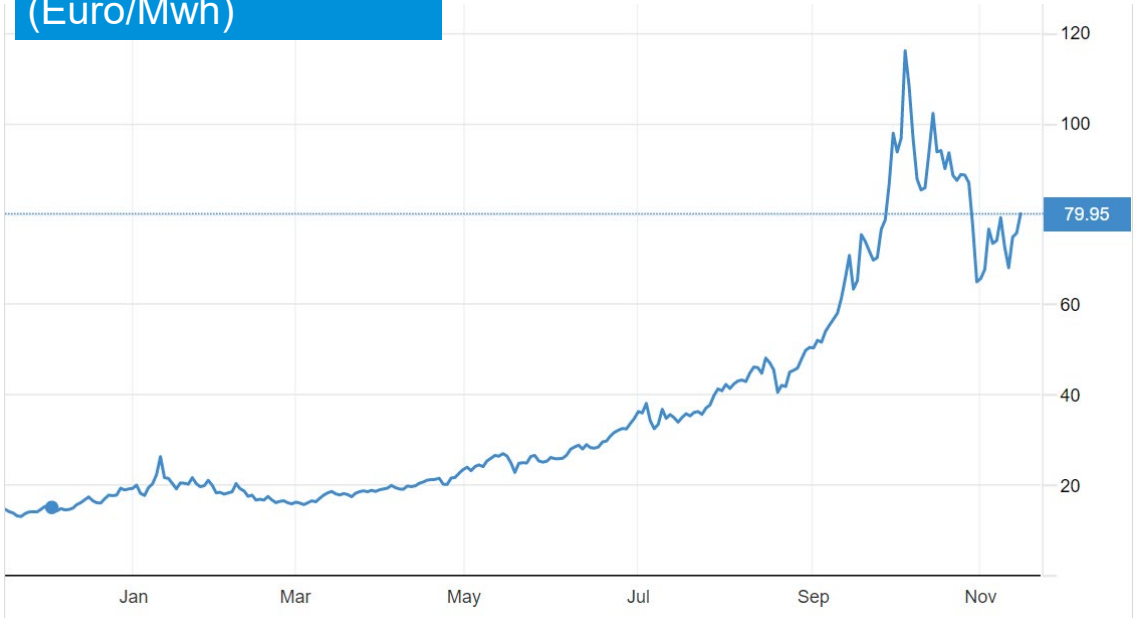
Global Natural Gas - market dynamics

Henry Hub Trends (USD/MMBTU)

Dutch TTF Trends (Euro/Mwh)



Global Natural Gas - market dynamics

- **Incomplete but real decoupling of crude and gas pricing -** substantial but incomplete decoupling with greater volumes of LNG production globally and the reduction in hard destination clauses
- **Swing flows set to increase** –regional differences in gas pricing prominent at this time but as volumes increase so will mitigating wing flows
- **Prices will remain volatile, but levels are exceptionally difficult to predict because the dynamics of natural gas are complex**
  - Natural gas is the residual choice
  - Natural gas is a versatile fuel. Apart from being relatively cleaner, also very amenable to Blue H2. This could create own demand streams and put pressure on prices
  - Prior expectations of cheap natural gas no longer appear valid
- **Investments need close watch -** Gas and oil production are often conjoint. However, the gas resources are mostly outside Europe and significantly with national oil companies (Russia, Iran, Qatar, etc.). There is a possibility of prioritizing gas production over oil

LNG imperatives for India

- Being a growth economy, India's present import dependence of ~85% of oil and ~57% of natural gas unlikely to alter significantly
- Demand for natural gas could exceed 500 MMSCMD by 2040 even at 10% contribution to the energy basket (as a balancing fuel it could be higher)
- Domestic supply will improve, but scale of the ask is much larger
- India has very limited practical pipeline based import options
- Security is a huge concern - has to be addressed in diverse ways. Energy suppliers may need to hold reserves (like banks do), but fundamentally adequate and balanced portfolio needed
- LNG will be the likely bridge and will have to scale up, though there will be price and availability risks
  - A balanced LNG portfolio in terms of linkages, tenure, flexibility, etc. necessary. Spots have to be a part of this, but European experience points to problems with over-dependence on spots
  - Consider strategic upstream position in diligenced gas assets
- Deals are happening. Need to be secured and backed by infrastructure build

Thank you

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