आज़ादी का अमृत महोत्सव

ओएनजीसी
ONGC

The New World Paradigm: Geopolitics of Energy Transition

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Presentation Outline

1. Global Perspective
2. Industry Updates
3. Indian Perspective
4. Fuelling the Future
5. Way Forward

Evolving Energy Agenda Across the Globe

Impetus

To improve lives and livelihoods

Aim

Equity, Inclusion, Affordability, Access and Sustainable Economic Development

Exclusion

Skewed Availability & Access to modern energy

Goal

Avoiding the worst of Climate Change

Geopolitics Affecting Energy Scenario

OPEC pumped 28.89 Mbpd in July & 29.58 Mbpd in August, up 6,90,000 bpd from but still short of their average 31.75 Mbpd during 2019

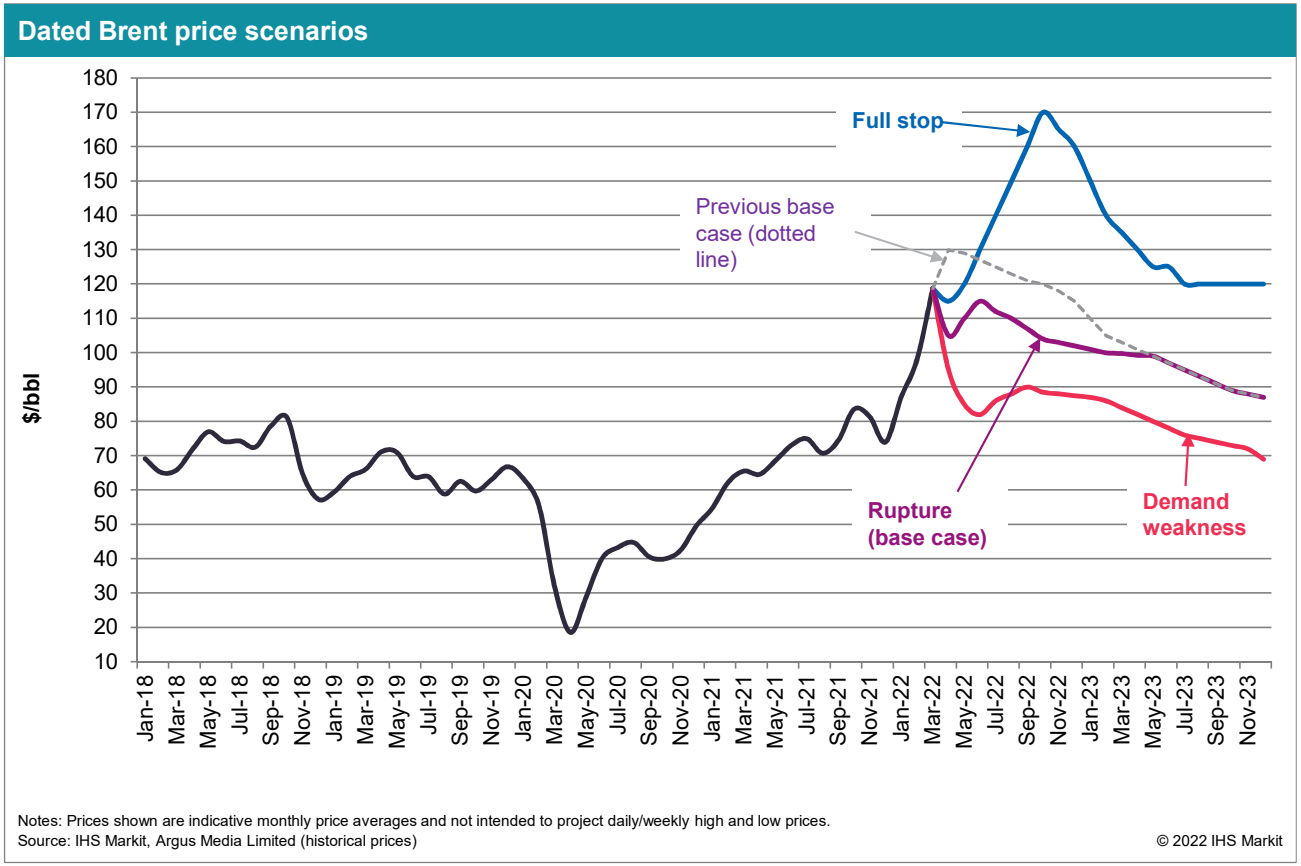
OPEC's Reluctance or Inability (?) in increasing Oil Output in prevailing circumstances is exacerbating the Energy Crunch

Perspectives shaping Global E&P Industry

2022 Big Themes

- Energy security has temporarily taken center-stage over Energy transition
- Company business models are evolving at a rapid pace to address traditional E&P and new energies
- Alignment across all stakeholders essential to deliver energy transition – fractures appearing in global alliances
- CCUS captures global attention – hubs, costs, scale and collaborations all areas seeing uptick in activity
- Technology seen as the essential enabler for both E&P and Energy Transition

Short Term Oil Price Outlook



Assumptions for the cases:

Full stop: 4–6 MMb/d of Russian oil exports stop

- High prices destroy demand
- SA & UAE increase output too little and too late
- Little to no supply growth from Iran
- Strategic & commercial inventories drained low
- Weaker-than-expected prod. gains outside PEC+

Rupture (base case): Volatile range of 1–2 MMb/d cut to Russian oil exports

- World oil demand growth of 2.8 MMb/d in 2022, 3.1 MMb/d in 2023
- OPEC+ agreements; SA & UAE raise output in 2022
- Iranian output rises in 4th qtr 2022, reaches 3.8 MMb/d in 2nd qtr in 2023
- US prod. exceeds 13 MMb/d in 2nd qtr 2023
- OECD coordinates release of strategic reserves

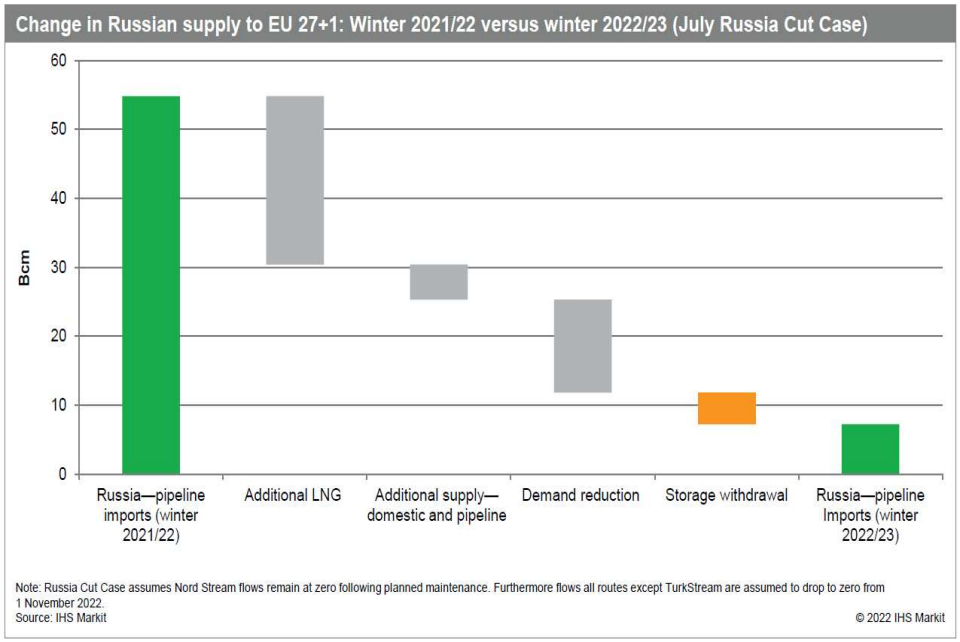
Demand weakness: About 0–1 MMb/d cut to Russian exports and weaker oil demand

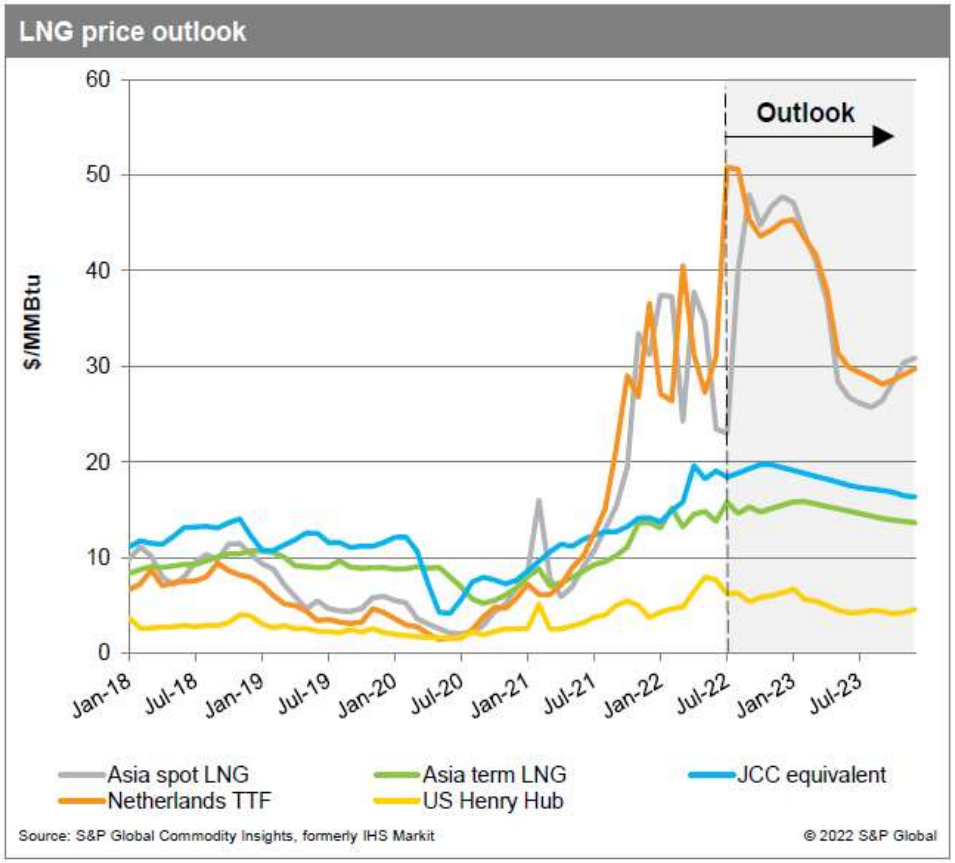
- Weak oil demand growth as COVID-19 leads to widescale lockdowns in mainland China
- Inventories increase by end of 2022

Oil prices are expected to be in the range of $ 91 to $ 135 in 2022 & $ 95 to $ 127 in 2023

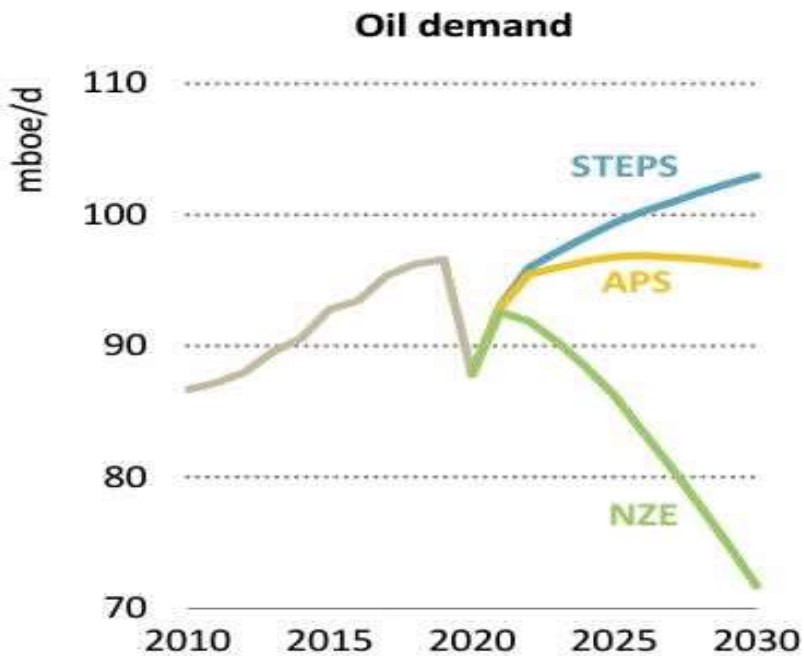
Russian pipeline gas flows will remain a key price determinant, keeping the European (and global) market in balance through winter

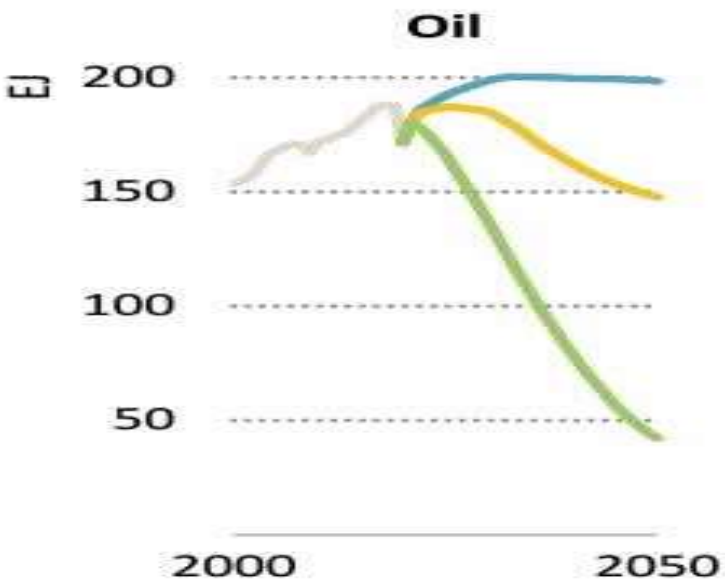
- current planning case is 25 Bcm of gas from Russia during winter 2022/23 compared to 55 Bcm during winter of 2021/22.
- low Russia case, would result in Europe importing just 7 Bcm through the winter of 2022/23. Increasing in probability





IEA: Oil Demand Outlook



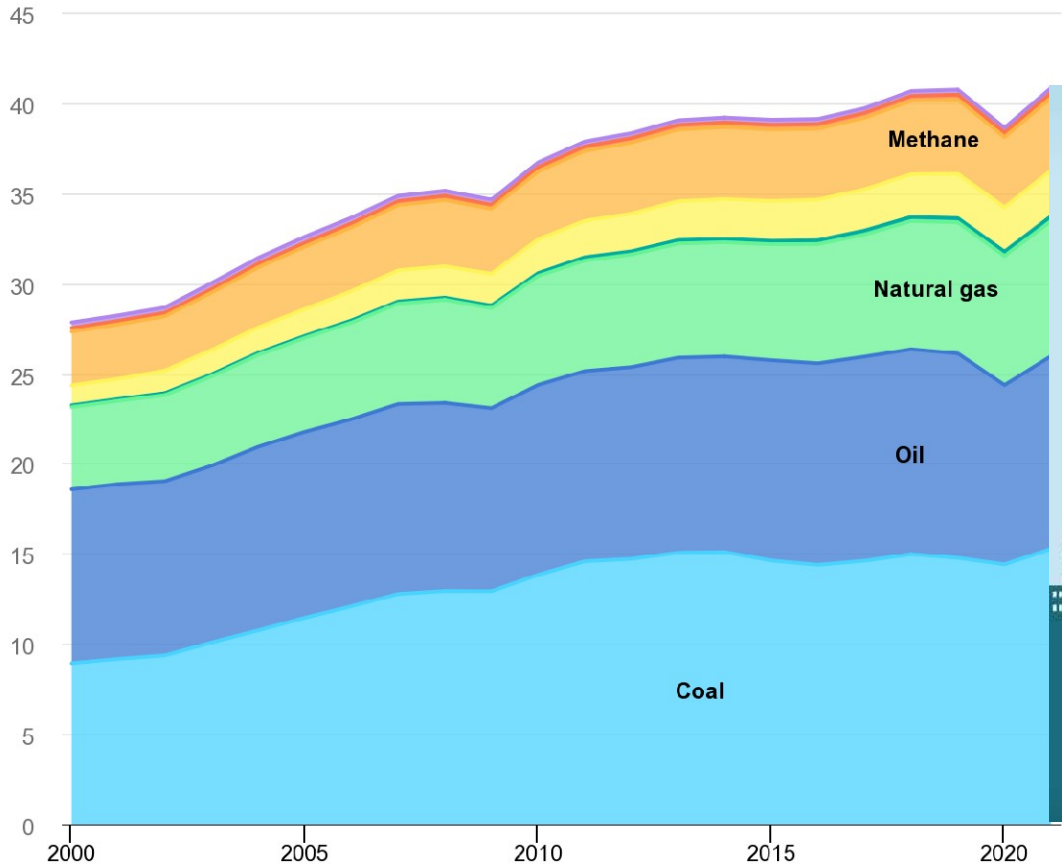


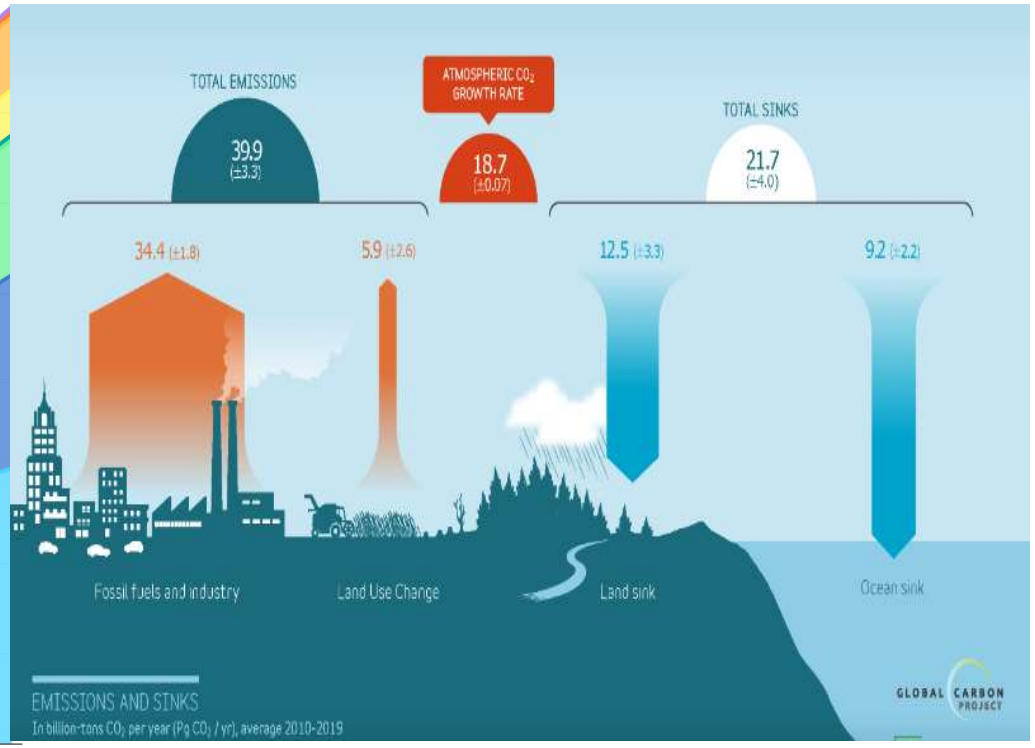
APS:Announced Pledged Scenario
NZE: Net Zero Emissions by 2050 Scenario
STEPS :Stated Policies Scenario (STEPS)

*Last updated October 2021

1 EJ is around 0.5 mb/d of oil, 29 bcm of natural gas or 34 Mtce of coal.

Global Emissions: Contributors and their Intensities





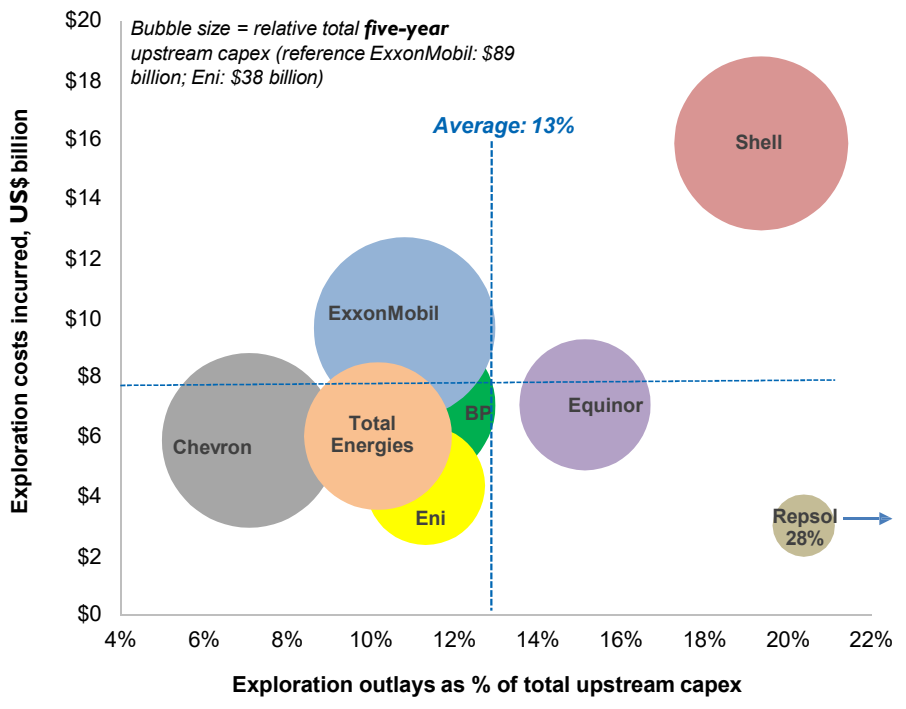
2021
- Coal: **15.27 GtCO2 eq**
- Oil: **10.69 GtCO2 eq**
- Natural gas: **7.49 GtCO2 eq**
- Waste: **0.27 GtCO2 eq**
- Industrial processes: **2.54 GtCO2 eq**
- Methane: **4.03 GtCO2 eq**
- Nitrous oxide: **0.27 GtCO2 eq**
- CO2 from flaring: **0.28 GtCO2 eq**

Source: IEA and World Carbon Project

Exploration Spending of IOC's Falling

- **No new Frontier exploration basin entry: BP**
- **No new greenfield megaprojects: Eni, Chevron**

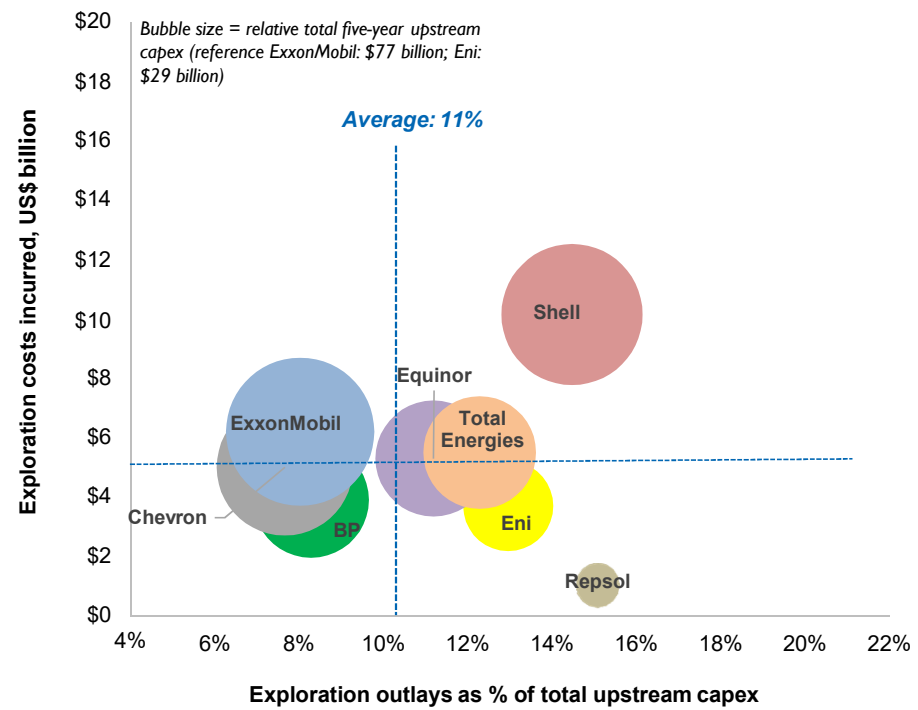
Five-year exploration outlays as % of upstream capex: 2016–20



Note: Capex is on organic basis (excluding proved acquisitions). Shell historical figures include BG's organic capex for all years merger closed February 2016). BP excludes share of Rosneft capex.
Source: IHS Markit

- **Targeting growth in gas: Eni, Repsol, Shell, Total, BP**
- **Fewer operatorships, more JV partnering and spin-offs: BP, Eni**

Five-year exploration outlays as % of upstream capex: 2021–25e



Note: Capex is on organic basis (excluding proved acquisitions). BP excludes share of Rosneft capex. Source: IHS Markit

Rising ESG Concerns Accelerating Net Zero Targets

Repsol
Net zero by 2050

BP
Net zero by 2050; 50% cut in carbon intensity

Eni
80% reduction in net emissions by 2050; net zero by 2030 from upstream; net zero for Eni group by 2040

BP
Announced series of emissions reduction targets for 2030; 40% reduction in oil and gas output by 2030

Equinor
Net zero by 2050

ExxonMobil
Reduce intensity of upstream emissions 15–20% by 2025

PetroChina
"Near" net zero by 2050; new annual spending targets set

Chevron
Early achievement of 2023 target; sets new aim of 35% reduction in carbon intensity by 2028

Dec 19 | Jan 20 | Feb 20 | Mar 20 | Apr 20 | May 20 | Jun 20 | Jul 20 | Aug 20 | Sep 20 | Oct 20 | Nov 20 | Dec 20 | Jan 21 | Feb 21 | Mar 21

Equinor
Reduce carbon intensity 50% by 2050.
Carbon neutral by 2030

TOTAL
Net zero by 2050; net zero in Europe
60% reduction in carbon intensity globally

ConocoPhillips
Reduce operational GHG emissions intensity 35–45% by 2030
Net zero for operations between 2045-2055

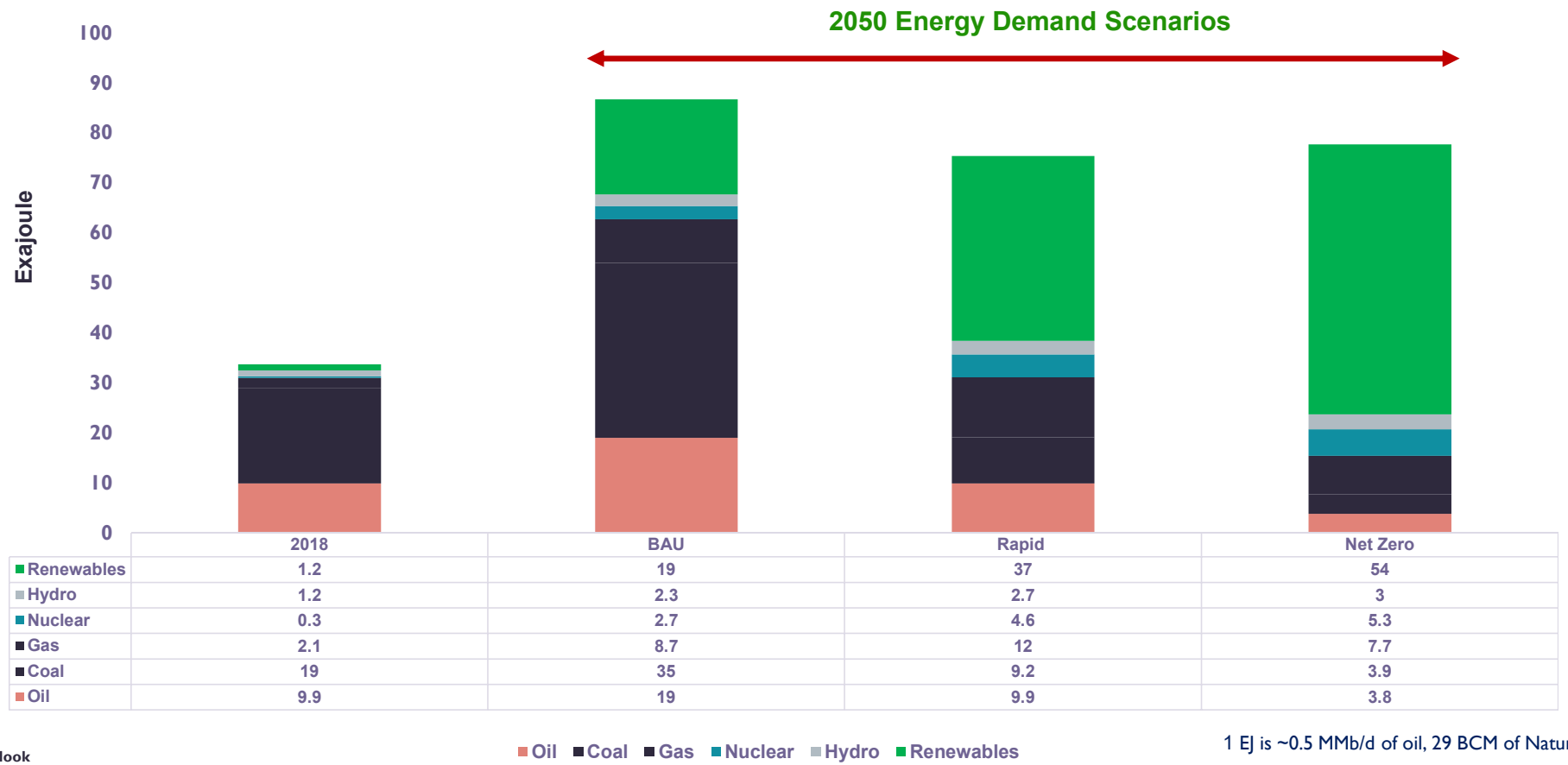
Occidental Petroleum
Operational net zero by 2040; ambition to net zero in all scopes by 2050

Shell
Net zero in all scopes by 2050; Reduce carbon intensity 100% by 2050

Eni
Full net zero in all scopes by 2050 on an absolute basis

Source: IHS Markit

Indian Energy Scenario-2050



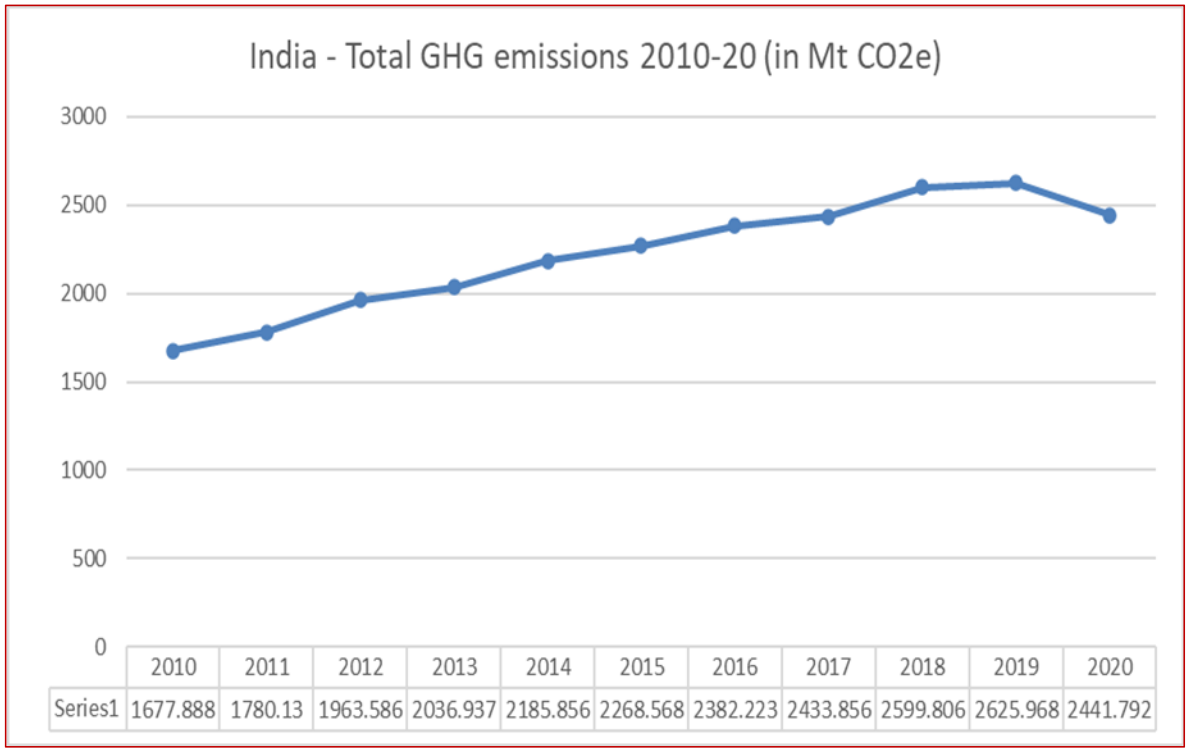
	2018	BAU	Rapid	Net Zero
Renewables	1.2	19	37	54
Hydro	1.2	2.3	2.7	3
Nuclear	0.3	2.7	4.6	5.3
Gas	2.1	8.7	12	7.7
Coal	19	35	9.2	3.9
Oil	9.9	19	9.9	3.8

BP Energy Outlook

1 EJ is ~0.5 MMb/d of oil, 29 BCM of Natural gas

Oil & Gas expected to remain relevant even in Net Zero Scenario

Expanding Economy, Increasing Emissions



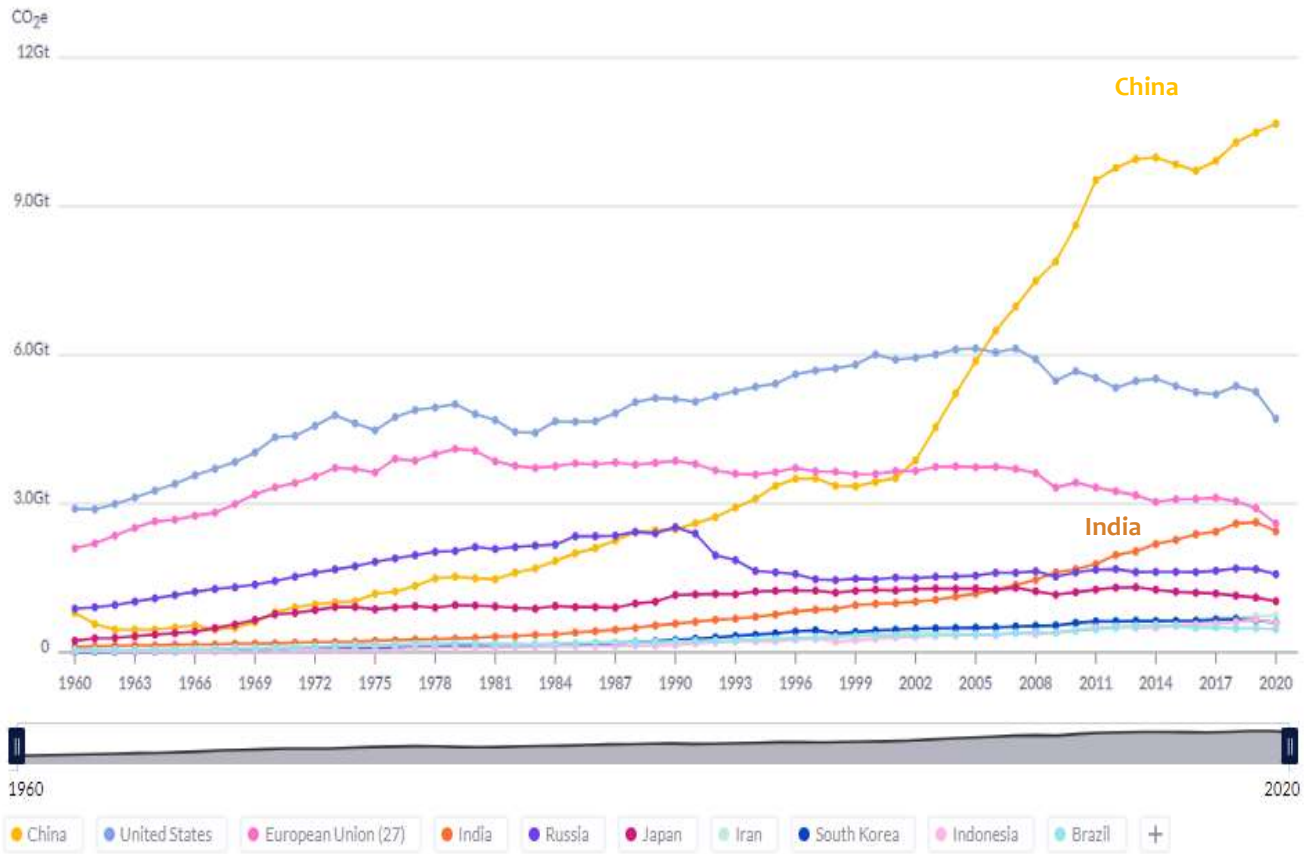
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Series1	1677.888	1780.13	1963.586	2036.937	2185.856	2268.568	2382.223	2433.856	2599.806	2625.968	2441.792

- As per the **Global Carbon Project,** India's total emissions were 2,442 million tons of CO_2 equivalent ($MtCO_2e$).
- **India is third-largest** greenhouse gas (GHG) emitter in the world after China (10,668 $MtCO_2e$) and the United States (4,713 $MtCO_2e$).
- India's total emissions have **increased steadily** over the last decade

For economic planners in China and India, economic growth still takes priority over meeting climate targets

Source: Global Carbon Project 2020

India : Carbon Emissions

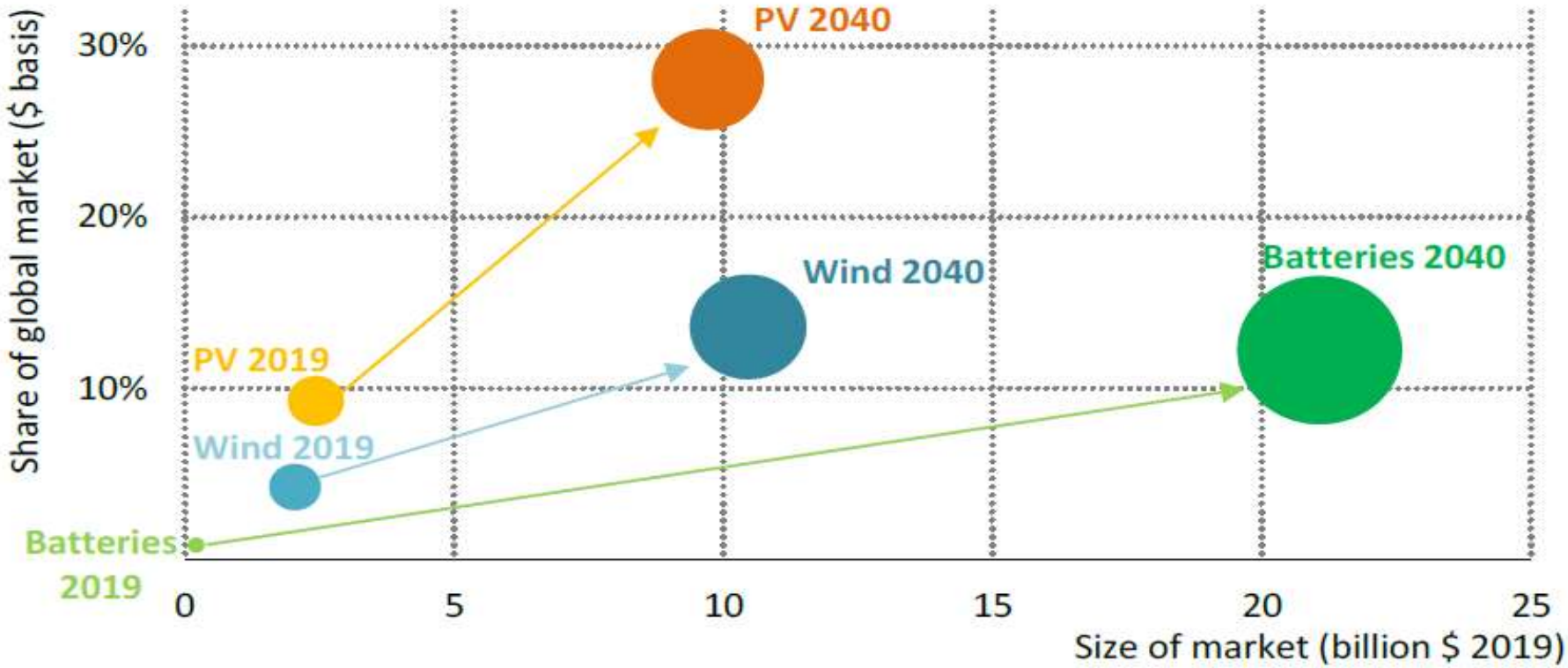


- As per **Global Carbon Project**, **India's** total emissions were **2.44 Gt** of CO_2 equivalent .
- **India is third-largest** greenhouse gas (GHG) emitter in the world after **China** (10.67 Gt) and the **United States** (4.71 Gt)
- CO_2 emissions in India are now broadly on par with emissions in the European Union though **60% below** the global average

India's emissions accounts for only about 3% of historic energy sector and industrial process CO_2 emissions since 1850

Source: Climatewatchdata.org
Data: Global Carbon Project

Projected Share Of Clean Energies

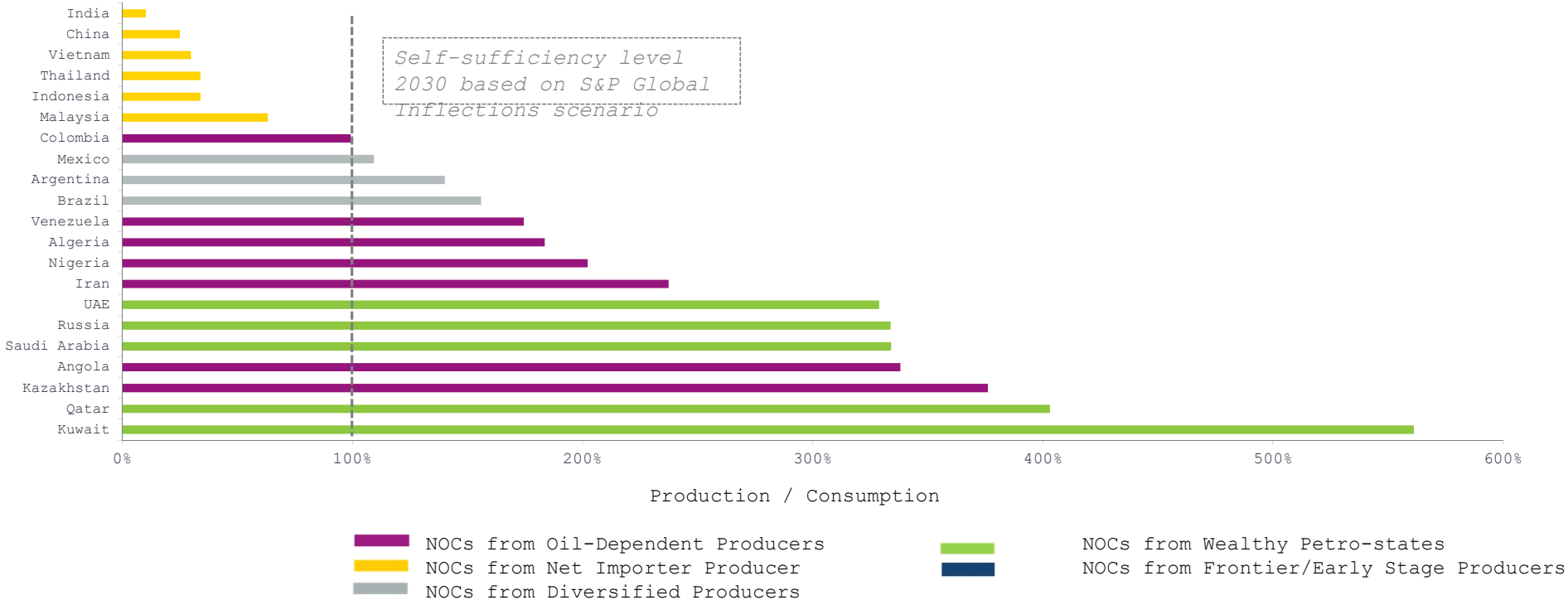


IEA India Energy Outlook 2021

India's market size and global share in clean energy technologies (2019) and in the Stated Policies Scenario (2040)

Importance of energy transition for NOCs is weakened, when energy security or energy revenues is of higher concern

Extent to which domestic production will cover consumption is a critical indicator of security of supply and external market exposure



Source: S&P Global Commodity Insights

Emerging Indian Scenario…

1

Oil continues to be important for next 2-3 decades

- ~20% share or higher across scenarios

2

Gas expected to grow but extent of adoption depends on many factors especially price

- Reaching significant share in Indian energy basket dependent on technology breakthroughs in other areas (e.g. renewables, storage) & infrastructure

3

Renewables expected to gain significantly

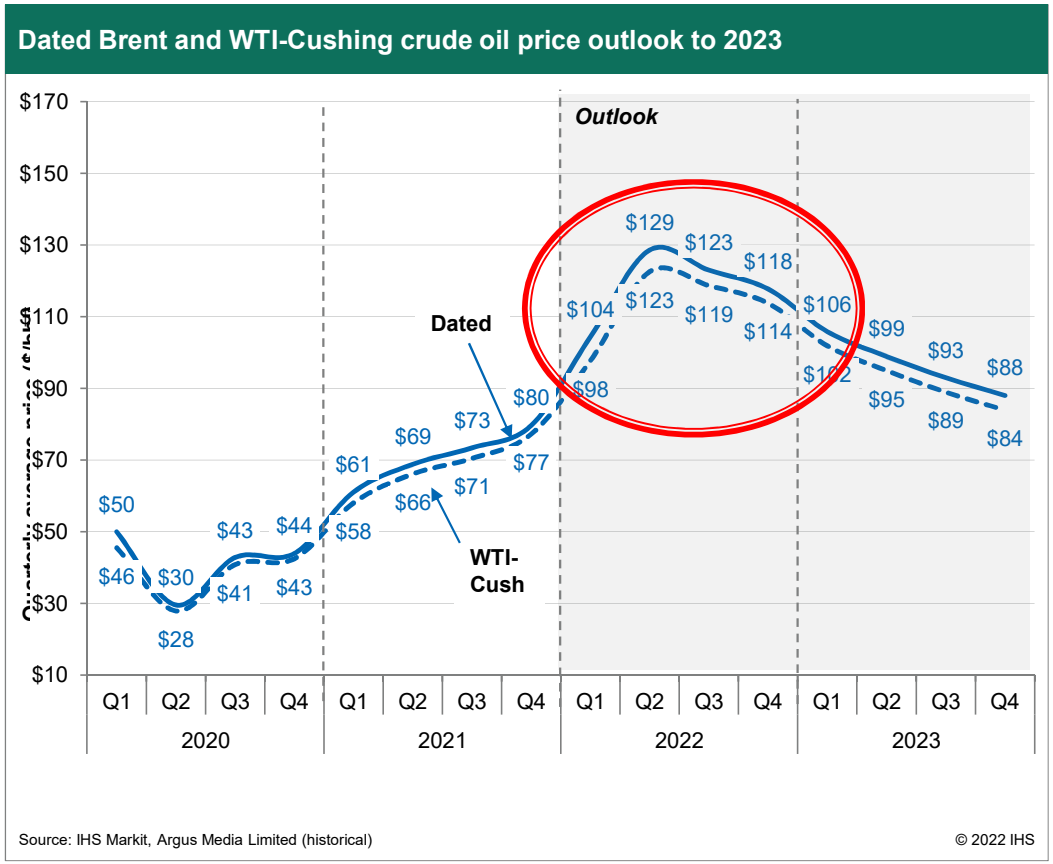
- Share gain of more than 4x by 2040 & beyond

4

Nuclear to remain marginal

- Nuclear: Growing but continues to remain marginal in Indian context

Ramifications of Ukrainian Crisis on India



Rise in crude oil prices put huge pressure and pose inflationary, fiscal, and external sector risks

Beginning of a global commodity shock—high prices for oil, gas, nickel, iron ore, and aluminum, will have a negative impact on the Indian economy

India's budget calculations for the financial year **2022-23** made with an assumption of crude oil price of **$70 to $75** per barrel

India **importing additional oil** at discounted rates from **Russia**

India's import of crude oil from Russia in March this year so far is nearly **four times higher** when compared with the corresponding period of last year

Increased Expectation from ONGC to address Energy Demand of the Nation

Upstream models diverge based on geography, resource type and financing…

Which strategies will be the winners?

New upstream models

Traditional models

Integrateds

New models

Reallocation to low-carbon (LC) spending	Growing focus on LC spending with sustained E&P investment	Continued emphasis on E&P with modest LC spending
bp, REPSOL, Eni	TotalEnergies, equinor, Shell	ExxonMobil, Chevron
Growth in the low-carbon space at core	Both low-carbon and E&P coexist with one fuelling the growth of the other	E&P activity at the core

Independents

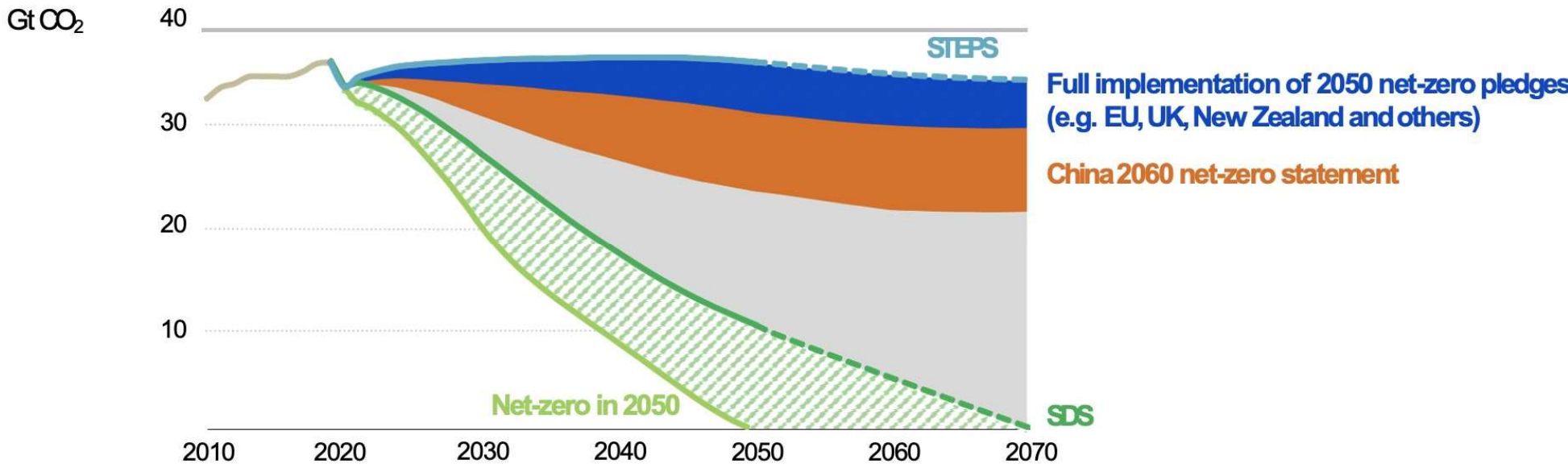
North America Super-Indies	Outside NAm Super-Indies
Focus: unconventional	Focus: mature basin/ province
PIONEER NATURAL RESOURCES, DIAMONDBACK Energy	Harbour Energy, Santos
Active unconventional producers gaining significant scale	Smaller players gaining scale as attractive opportunities multiply

NOCs

Resource-Rich NOCs	Resource-Seeking NOCs
PETROBRAS, ROSNEFT, PEMEX, Saudi Aramco	ONGC, IndianOil, CNOOC, PETRONAS, SINOPEC, PTTEP, PERTAMINA
Active producers of domestic resources (those owning low-cost & low-carbon to survive longer)	Opportunistic & selective in upstream. Also, consider ways to transition to low carbon energies

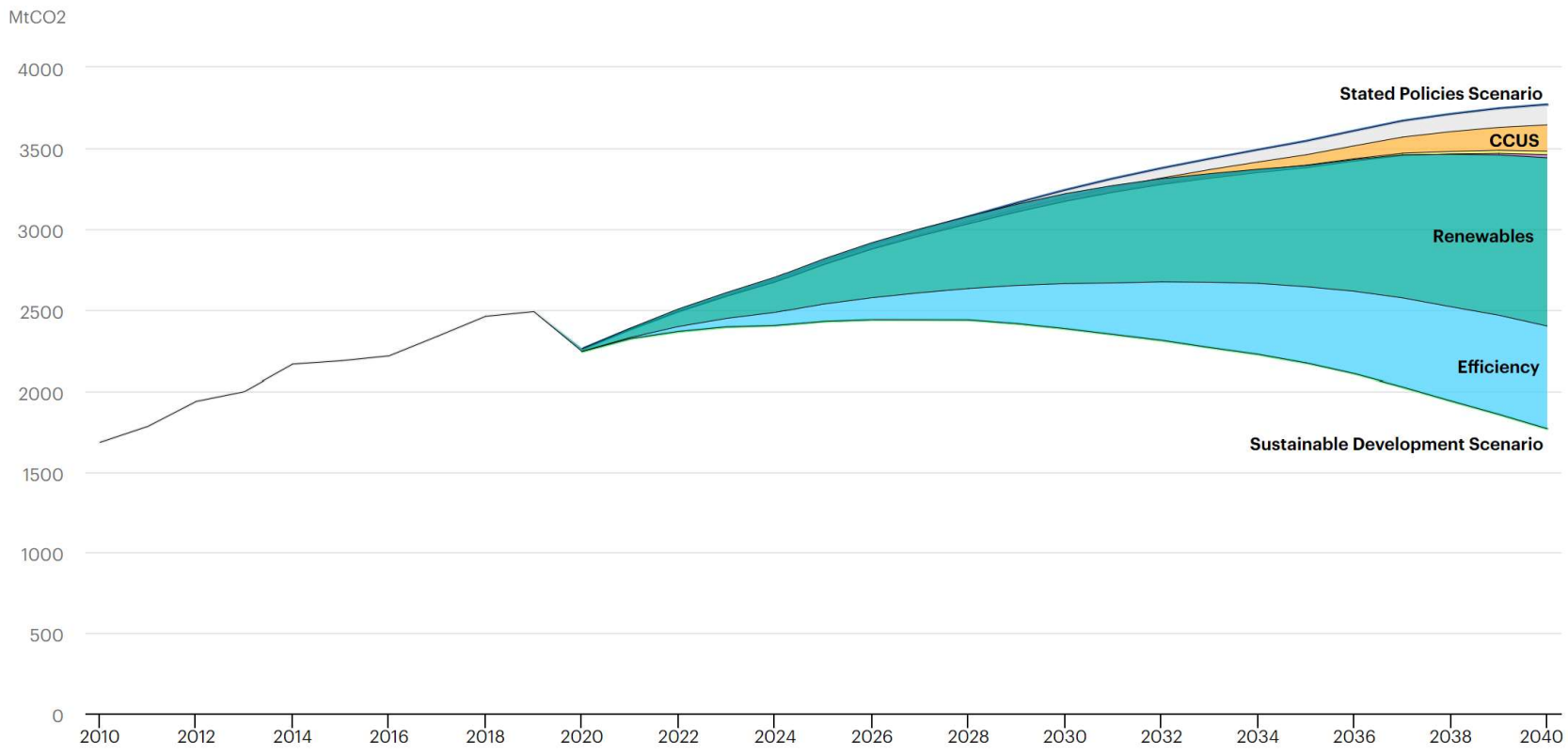
Source: IHS Markit

The world is still far from putting emissions into decisive decline



Global emissions are set to bounce back more slowly than after the financial crisis of 2008-2009, but the world is still a long way from a sustainable recovery

All roads to successful global clean energy transitions go via India…



Energy sector CO2 emissions and reduction levers in India in the Sustainable Development Scenario, 2010-2040

On the path to Energy transition……

- The risks of high energy prices and economic headwinds are expected to flank the energy transition process, and increased volatility could be a recurring phenomenon.
- Developing the necessary support mechanisms to cushion energy supply shocks until the low-carbon energy systems reach the scale and flexibility required will be essential.
- The prospect of robust progress hinges on the ability to manage short-term shocks.
- An energy mix, dominated by low-carbon energy systems, is more likely to have a national or regional footprint, implying that a convergence of energy security and sustainability.
- Maintaining some legacy assets through market mechanisms that support reserve capacity might be required to address supply demand imbalances during the transition.
- Pledges must be turned into concrete policies and actions that make a difference on the ground in the few remaining years to 2030.
- Current paradigms with heightened energy security risks indicate the need to further harness the synergistic potential of energy efficiency.

Key messages

- Energy Transition is about reducing GHG emissions and emissions are not going down
- Transitions take time and are messy - this transition will not be an exception
- Oil & Gas Industry globally will be part of the solutions - not part of the problem
- Investors and financial regulators will drive the change
- Any path to net-zero will have to travel via developing countries
- India has a very important role to play

India: Glasgow-COP 26

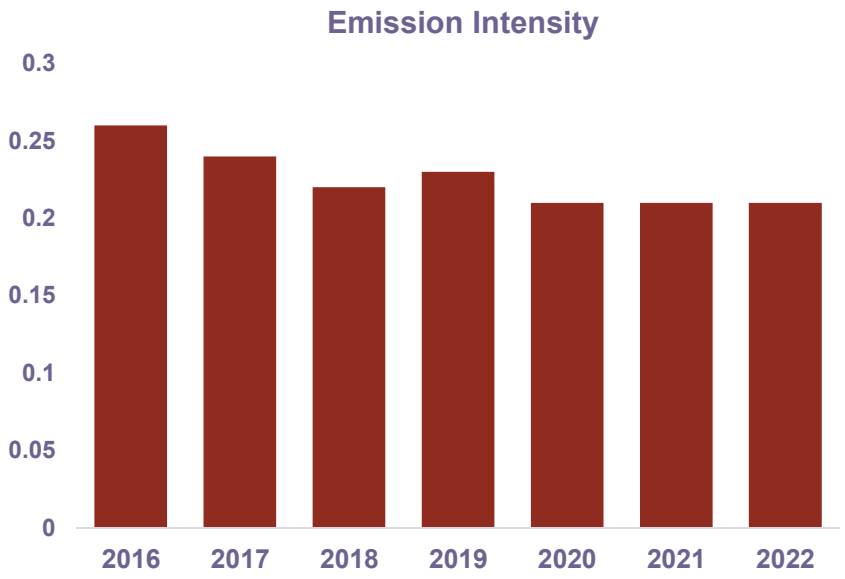
Panchamrit

- ✓ India will reach its non-fossil energy capacity to 500 GW by 2030
- ✓ India will meet 50 percent of its energy requirements from renewable energy by 2030
- ✓ India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030
- ✓ By 2030, India will reduce the carbon intensity of its economy by less than 45 percent
- ✓ By the year 2070, India will achieve the target of Net Zero

Thank You

ONGC: Status & Work Plan

Reducing Carbon Footprints and Planning for Greener Future



19.2 % Cut in Emission Intensity since 2015-16

- Verification of Scope-1 & Scope-2 emissions through Independent Assurer
- Accounting of Scope-3 emissions and strategies for Net Zero emission
- Launching of Integrated Report of ONGC in place of Annual Report from FY'22 onwards
- Business Responsibility & Sustainability Report (BR&SR) from FY'22
- Engaging leading ESG Rating agency
- Formulation of Human Rights Policy in line with UN Principles of Human Rights
- Greening of Vendor Chain
- GRI based ESG report introduced from FY'20

Renewables : Scaling Up to achieve ES-2040 Targets

Installed capacity of **Wind Power - 153 MW**

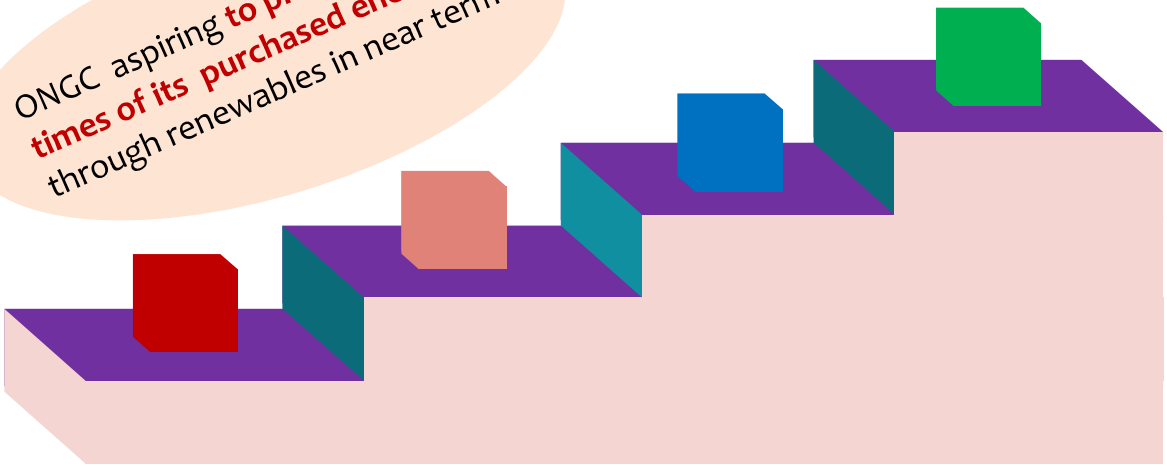
Installed capacity of Solar Power - 31 MW

Total Installed Capacity - 184 MW

Installation of additional **20 MW solar capacity under process**

ONGC **Energy Strategy 2040** envisions **10 GW Renewable** capacity - focus on offshore wind

ONGC aspiring **to produce 1.5 times of its purchased energy** through renewables in near term



218.42 Million unit electricity generated from renewable sources (181.41 from Wind and 37.01 MU from Solar) in 2020-21