



# THE IMPACT OF THE ENERGY TRANSITION ON GAS DEVELOPMENT: MITIGATING UNCERTAINTIES CONFRONTING UPSTREAM OIL AND GAS INVESTMENT

**PRESENTATION  
AT GHANA GAS FORUM**



NOV. 29, 2021



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# WHY ENERGY TRANSITION?

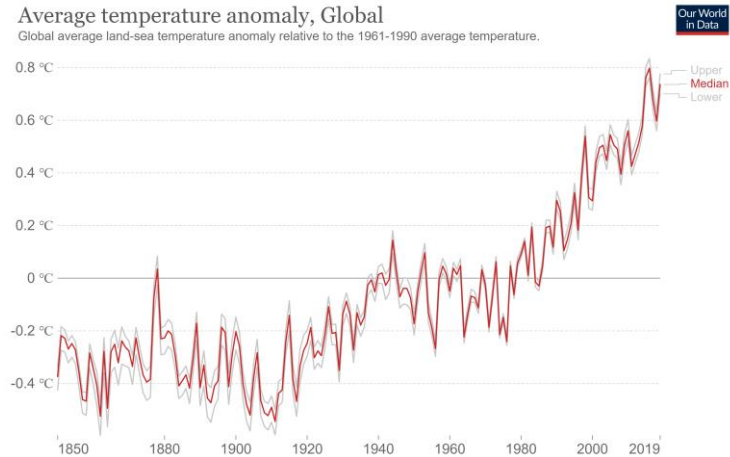
## Rising Global Temperatures

GNPC Human induced GHG emissions cause increase in global temperatures

GNPC Global average temperature relative to the average of the period between 1961 and 1990 (baseline).

GNPC Prior to the baseline from 1850, average temps. were 0.4°C colder than they were in our baseline.

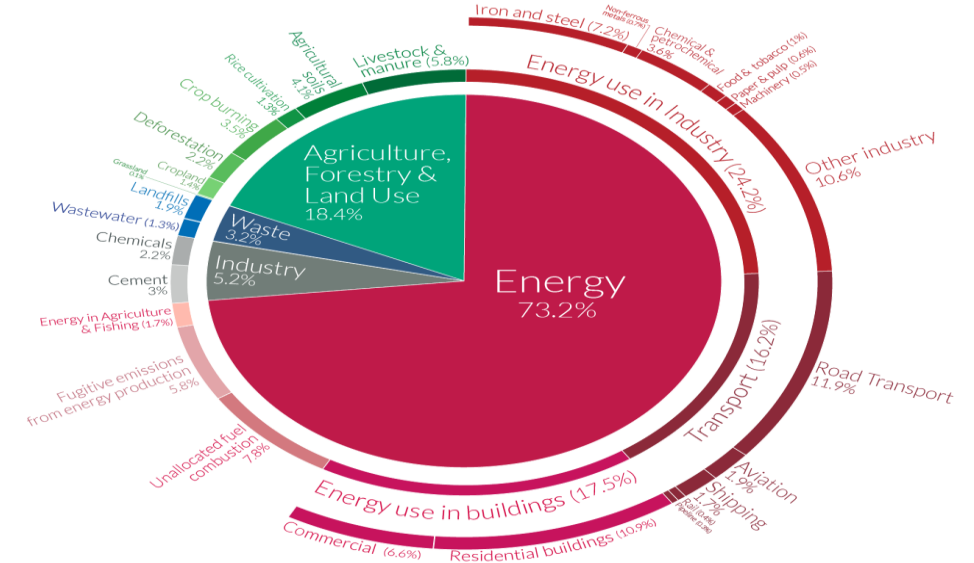
GNPC **Thus, overall, average temp. rise of 1.1°C.**



Source: Hadley Centre (HadCRUT4) OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY  
Note: The red line represents the median average temperature change, and grey lines represent the upper and lower 95% confidence intervals.

## Global greenhouse gas emissions by sector


This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO<sub>2</sub>eq.



OurWorldInData.org – Research and data to make progress against the world's largest problems.  
Source: Climate Watch, the World Resources Institute (2020). Licensed under CC-BY by the author Hannah Ritchie (2020).

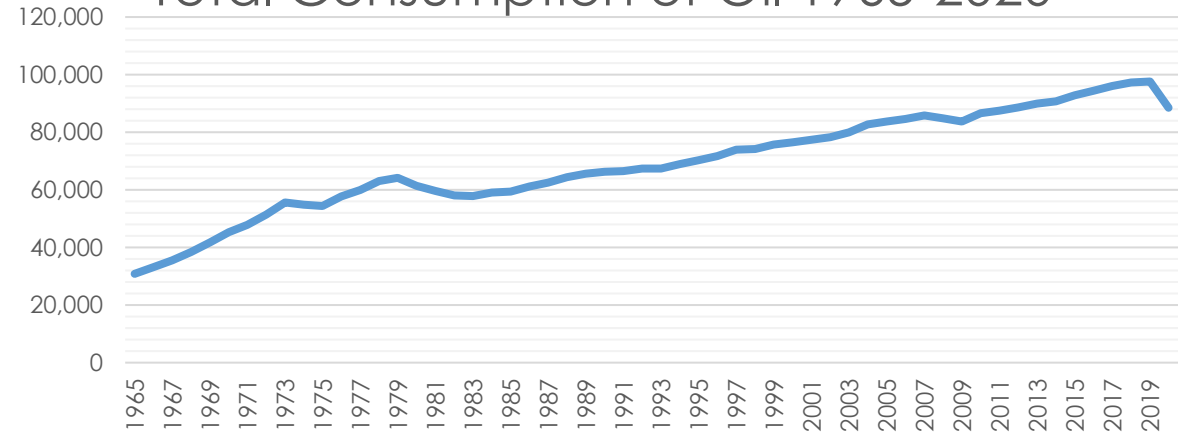
# WHY ENERGY TRANSITION?

## Rising global energy consumption

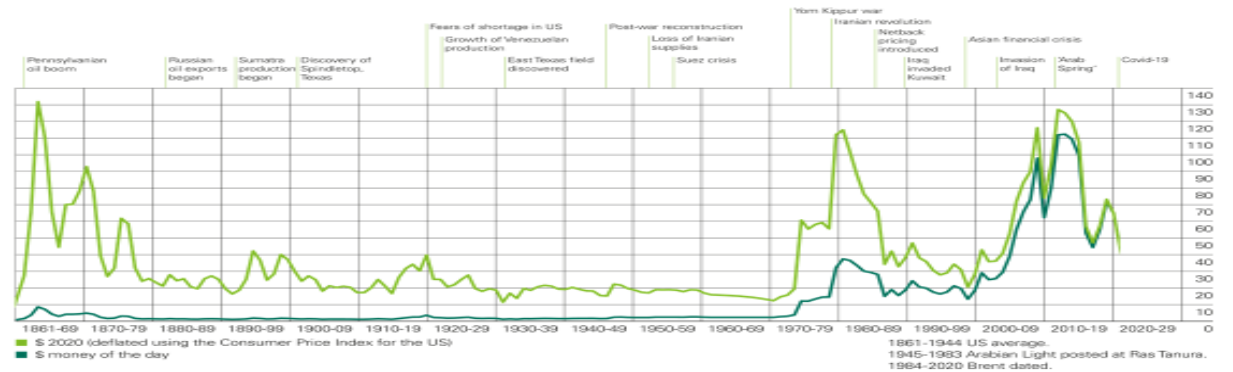
 Since the commercialization of oil at the turn of the 20<sup>th</sup> Century global consumption of oil has maintained a steady increase

 Even as oil prices have seen significant fluctuations

### Total Consumption of Oil 1965-2020



### Crude oil prices 1861-2020 US dollars per barrel, world events



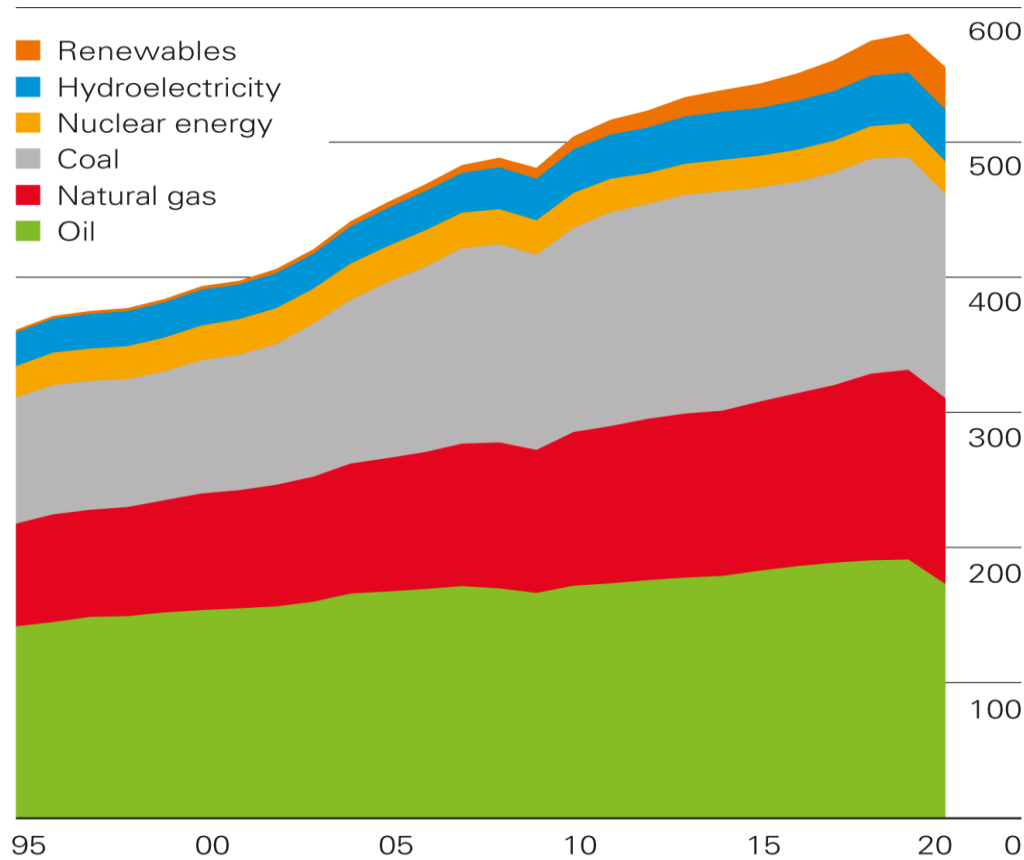
Statistical Review of World Energy 2021  
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# PRIMARY ENERGY

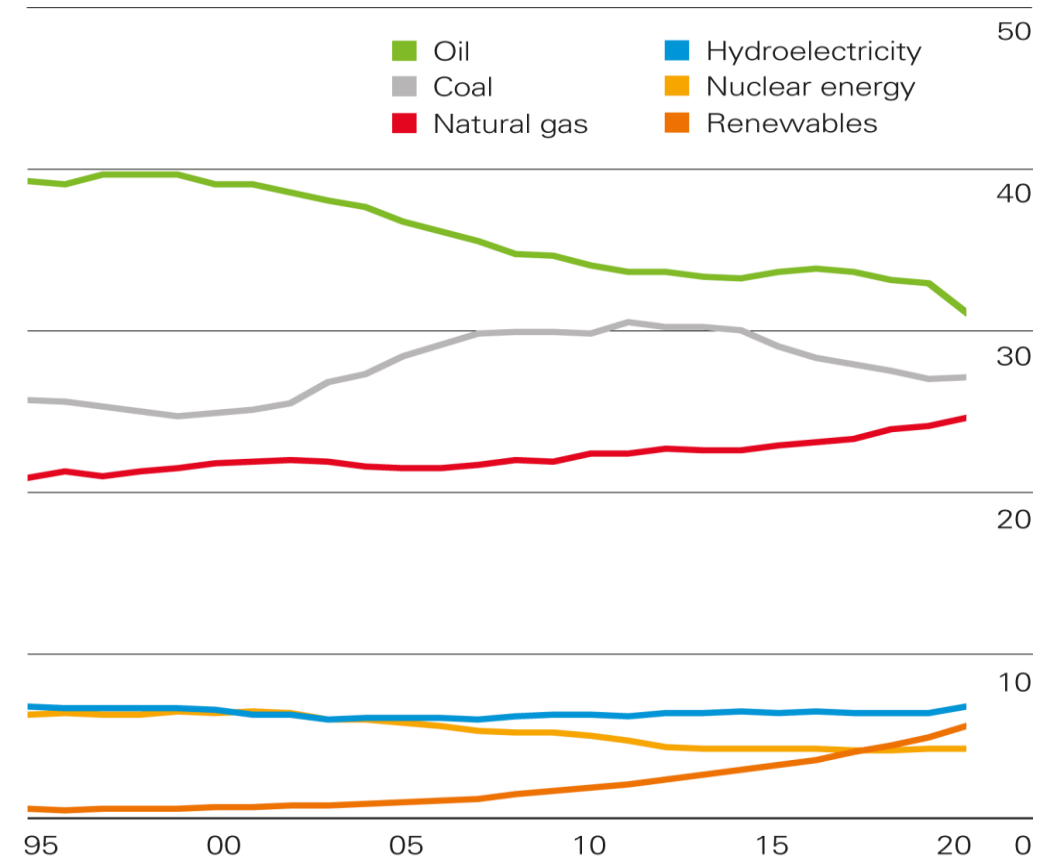
## World consumption

(Exajoules)



## Shares of global primary energy

(Percentage)

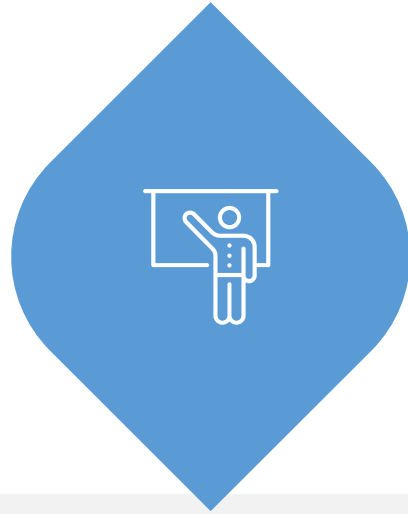


"Today, no nation can find lasting security without addressing the climate crisis. We face all kinds of threats in our line of work, but few of them truly deserve to be called existential. The climate crisis does," US Defence Sec. - Lloyd J. Austin, April 2021

# DECARBONISATION AGENDA

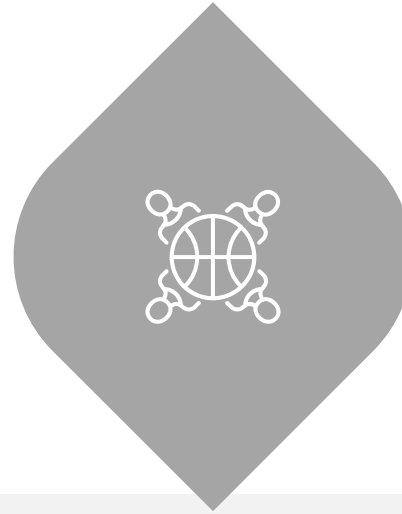
## Global Net Zero by mid-century

Climate Change is "an existential threat" to humanity," UN Sec. Gen. – Antonio Guterres, May 2018



### 1988–94

- UN IPCC established in 1988
- UN Framework Convention on Climate Change



### 2011 – 2015

- Durban 2011
- Paris (COP 21) - 2015



### 2021

### 1970

- Earth Day Celebrations
- First one in the US



### 1997 – 2009

- Kyoto and
- Copenhagen

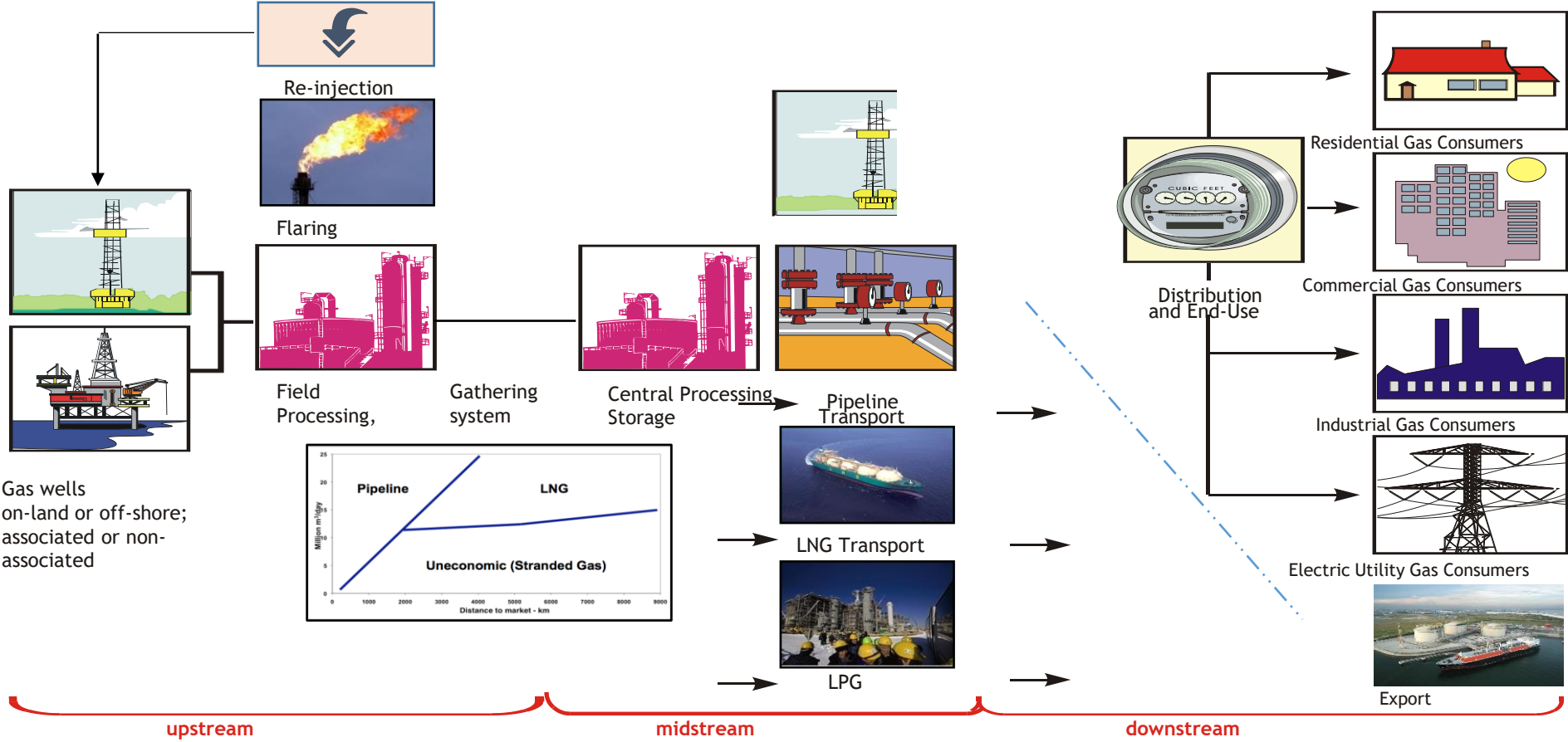


### Glasgow COP 26

- "Phase down" coal
- US\$1 tn fund by 2025 (?)
- Financiers with US\$130tn agreed to back "clean" technology, such as renewable energy, and direct finance away from fossil fuel-burning industries.
- Cut methane emissions by 30% by 2030

# THE GAS INDUSTRY IN GHANA

# THE GAS VALUE CHAIN

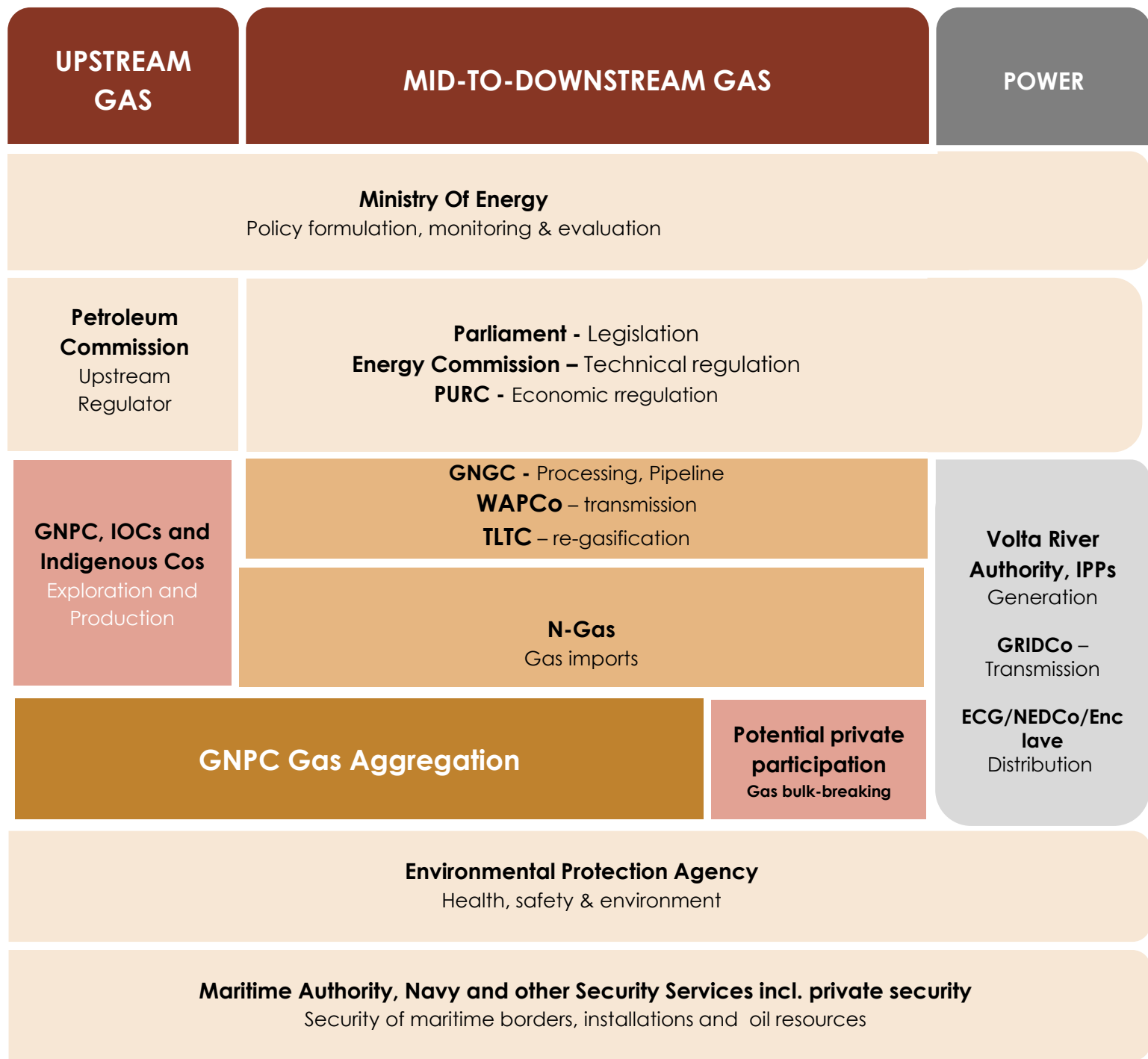


Source: Adapted from WB Group Presentation





# GAS INDUSTRY STRUCTURE

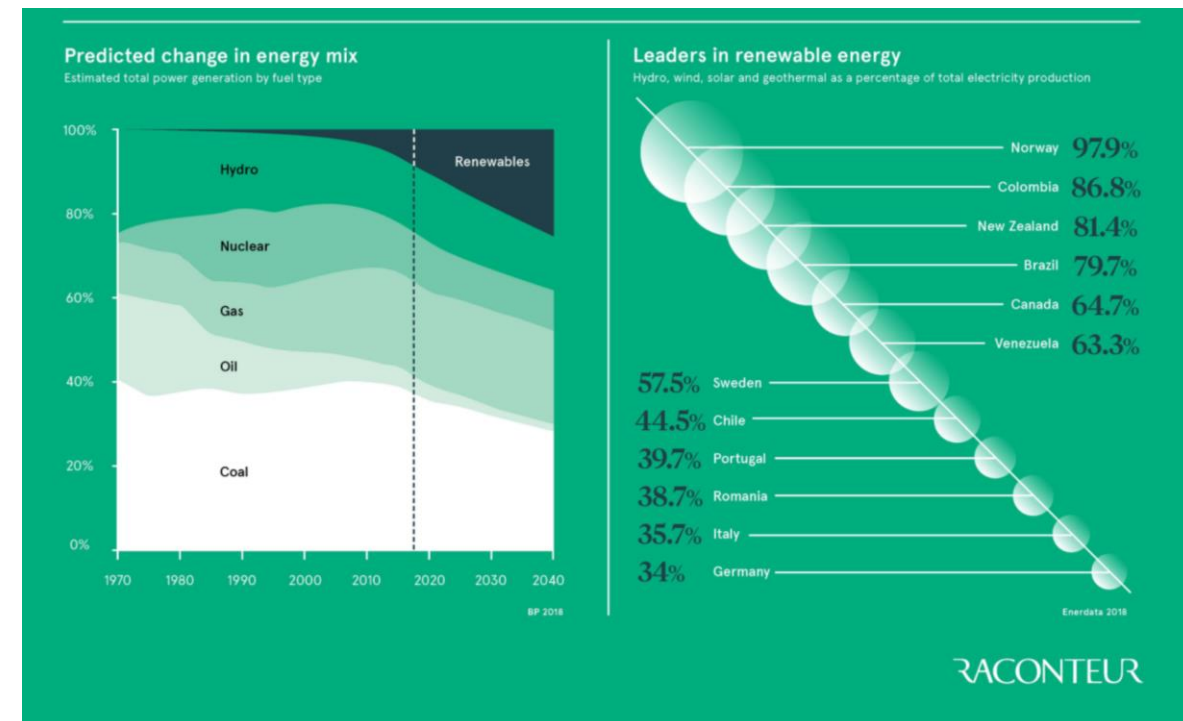
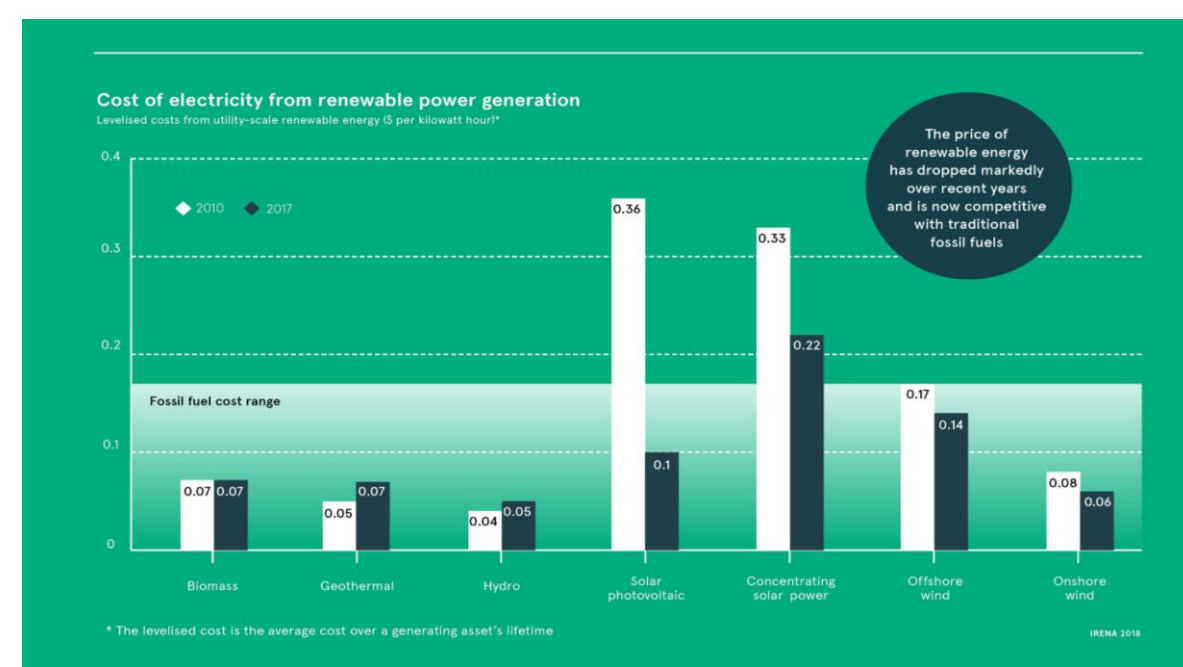
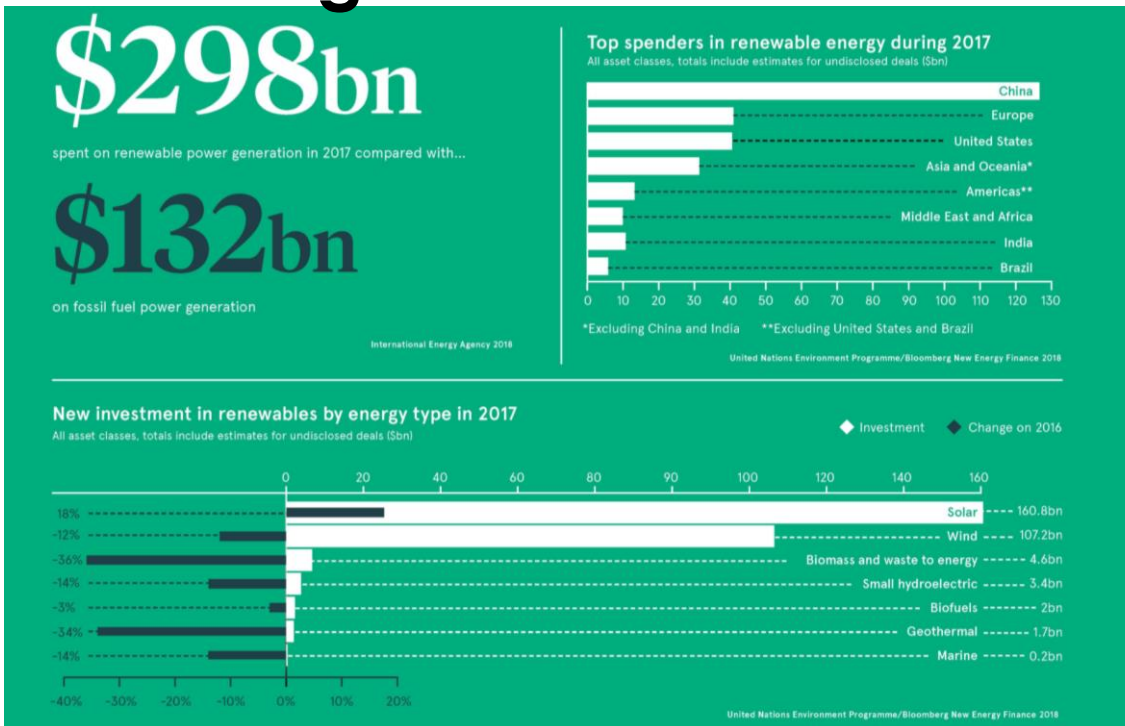


# **IMPACT OF ENERGY TRANSITION ON GAS (& OIL) DEVELOPMENT**

# IMPACT ON GAS & (OIL)

“No oil and gas company will be unaffected by clean energy transitions. If not today, it is tomorrow. And I have all the confidence that the oil and gas industry, looking at the past recourse, will respond rightly and positively” - Dr. Fatih Birol, Executive Director, International Energy Agency (IEA)

## Financing constraints



Source: Visual Capitalist

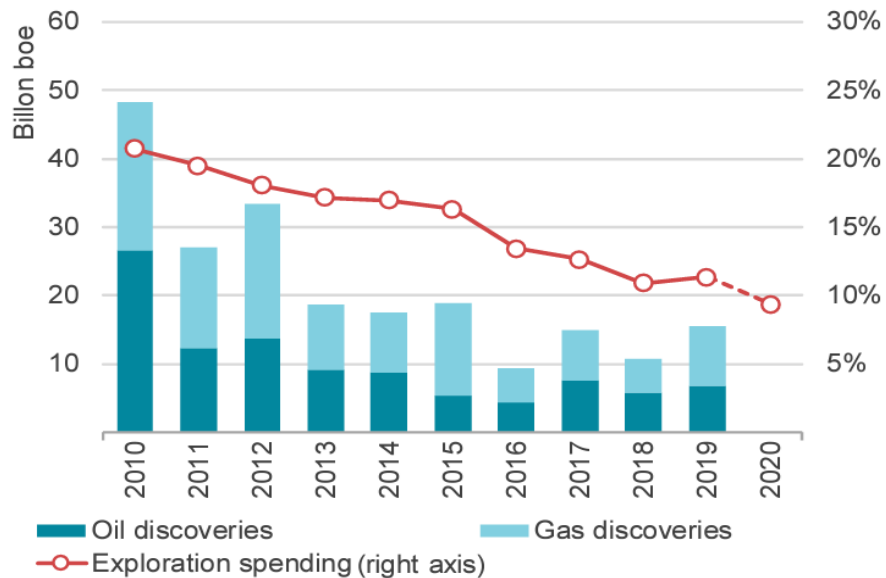
# IMPACT ON GAS (& OIL)

## Decreasing appetite for fossil fuels

IEA forecasted in its May 2021 report 'Net Zero by 2050 that after 2030 investment in upstream oil and gas will decline to roughly 50% of levels projected over the next decade.

“Investors in fossil fuels announce plans to divest \$39.2 trillion. Up from only \$52 billion across 181 institutions in 2014”. – Business Standard of India, Oct. 2021,

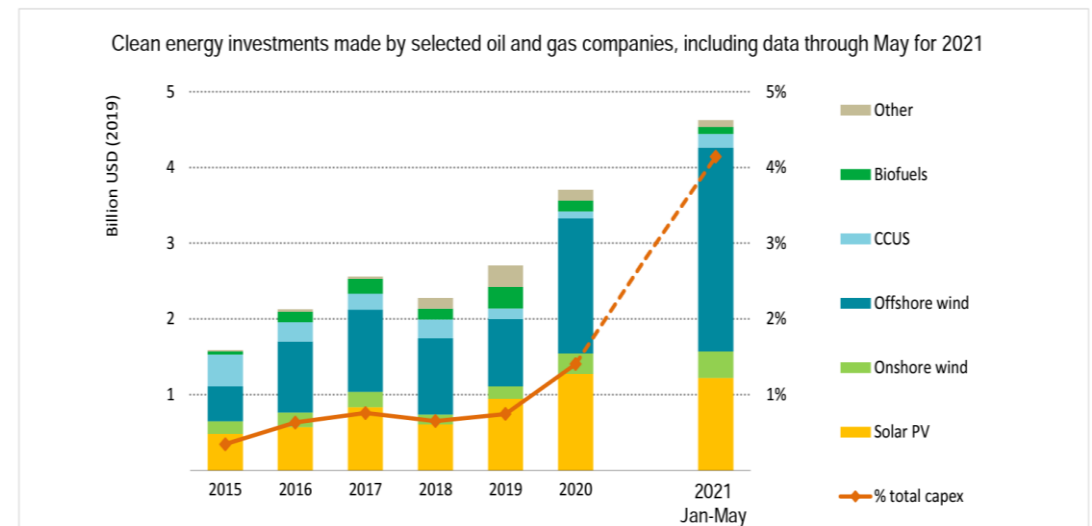
Global exploration spending as % of total upstream investment; discoveries



IEA 2020. All rights reserved.

Source: IEA analysis based on Rystad (2020).

Clean energy spend by oil and gas companies is starting to pick up 

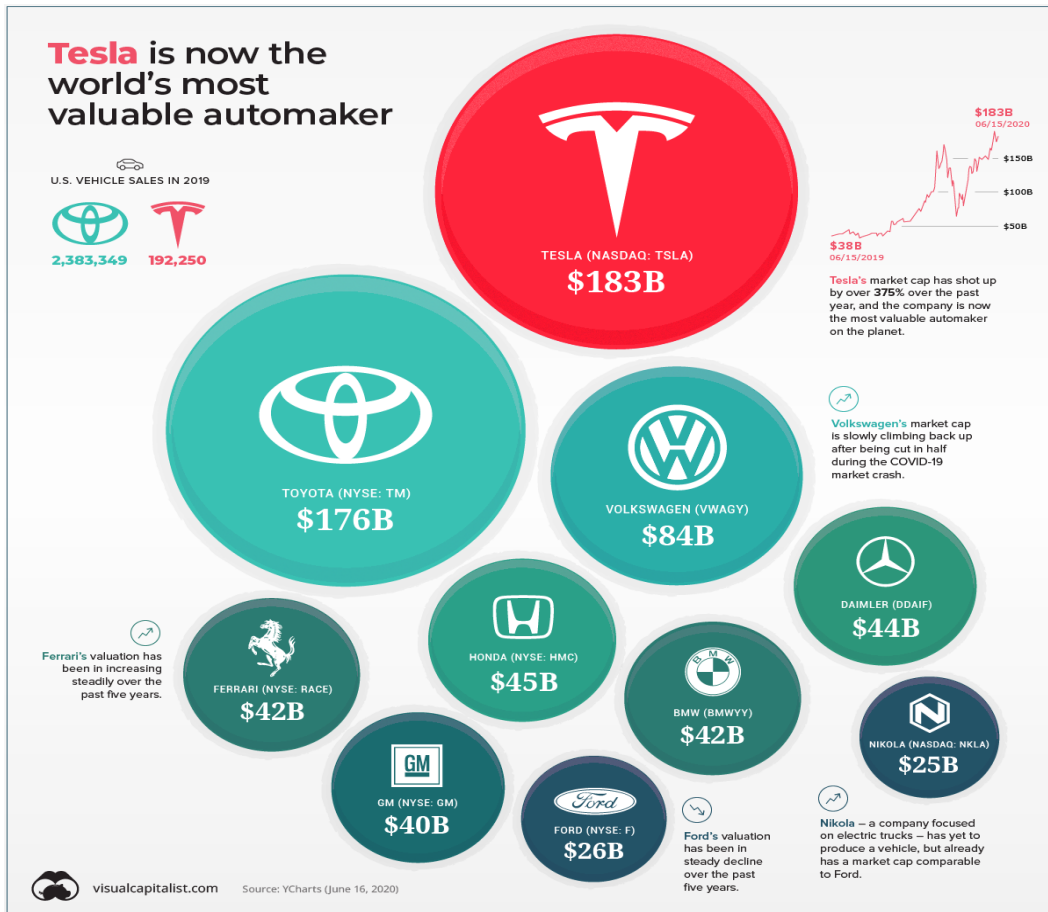


Emerging oil and gas company transition strategies include a wide range of approaches; project commitments for 2021 point to a share of capital investment in clean energy rising to more than 4%, if maintained through the year

# IMPACT ON GAS & (OIL)

## Increasing interest in EVs

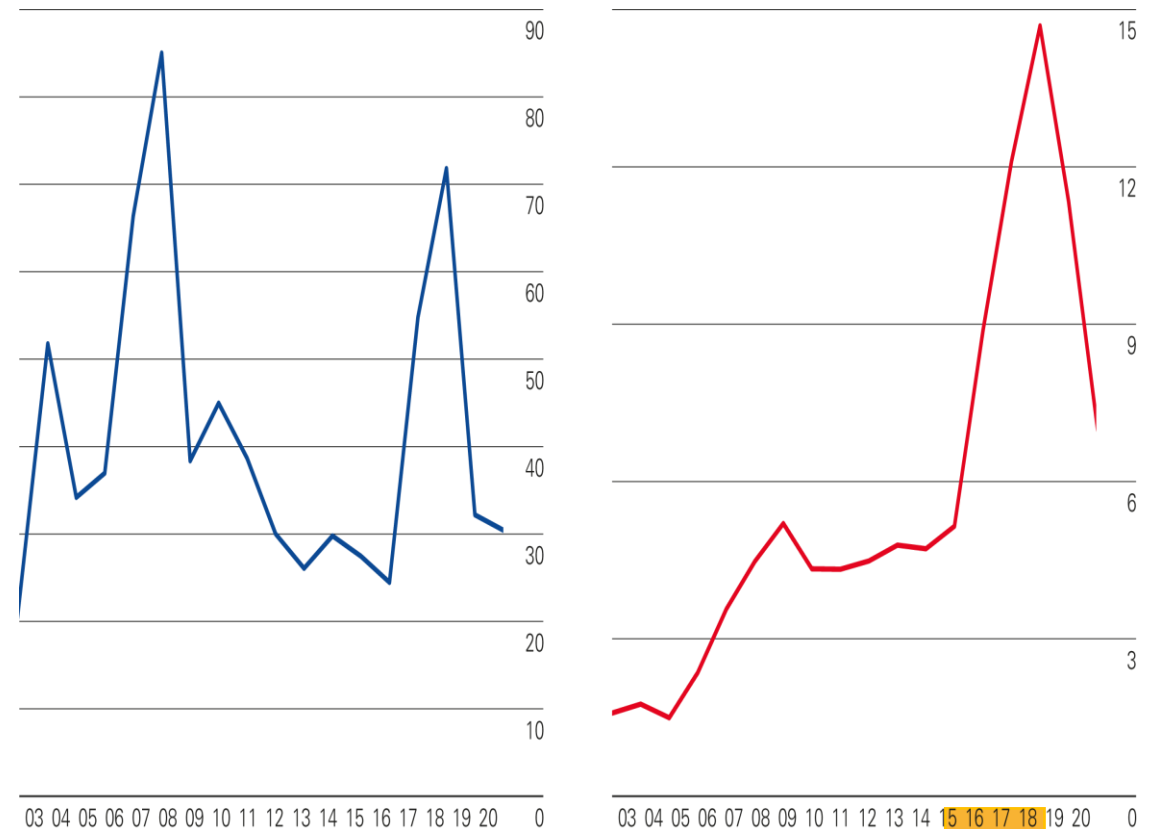
Tesla surpasses \$1 trillion valuation after Hertz order (Oct. 26, 2021), BBC



## Key minerals supporting lower EV prices

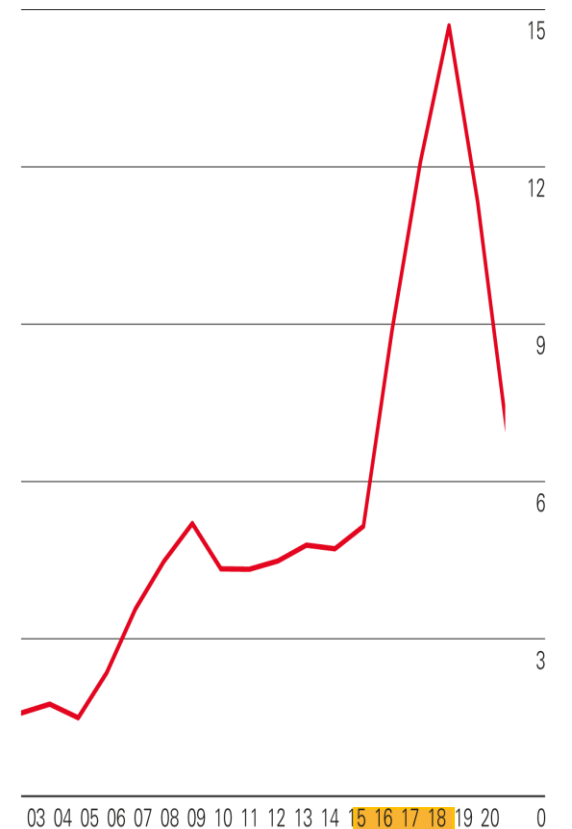
### Cobalt prices

Thousands of US dollars per tonne



### Lithium carbonate prices

Thousands of US dollars per tonne



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# MITIGATING THE IMPACT

# MITIGATION STRATEGIES



## Inevitability

Beyond any one actor



## Adaptation

Be part of the solution



**Tectonic plates  
are shifting for  
the core  
business**



**Integrated Energy  
Company**



**Pursue growth  
opportunities in NG**



**Minimise/  
avoid  
stranded  
assets**

US\$145bn (Q1-Q3, 2020);

WSJ Dec. 27, 2020



**Ensure lower  
break-even  
prices and lower  
emissions  
intensity.**



**Manage the trilemma well**

- scarcity of financing
- increasing national energy requirements; and
- Decarbonisation agenda

# GNPC'S RESPONSE



## GNPC'S RESPONSE

- Making the best out of existing hydrocarbon resources
- Transitioning through gas into an Integrated Energy Company
- Exploring opportunities in adjacent industries – Data storage/management

# Making Use of Existing Resources

## Cumulative production to sept. 2021

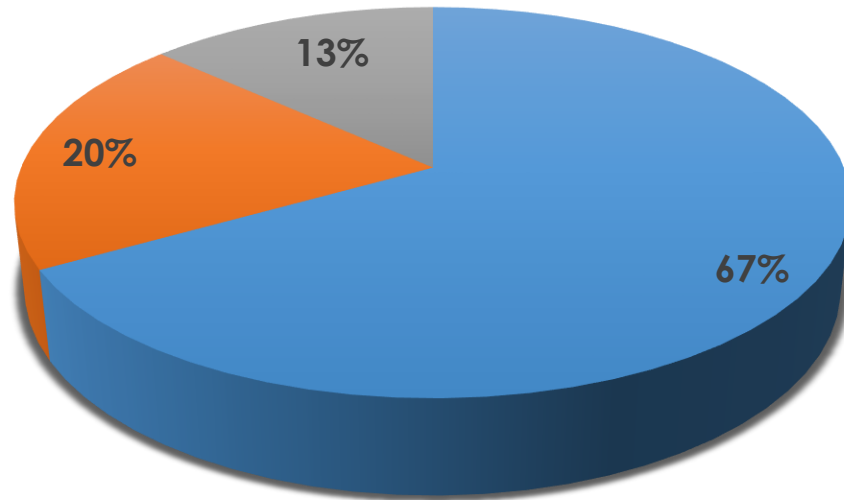
### Oil

Jubilee (2010)	TEN (2016)	SGN (2017)	Total
332MMBO	99MMBO	66MMBO	497MMBO

### Gas

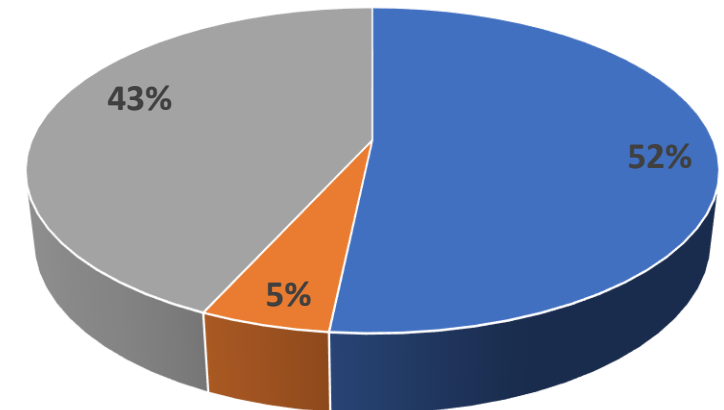
Jubilee (2010)	TEN (2016)	SGN (2017)	Total
172BCF	17BCF	144BCF	333BCF

Cum. Production (MMBO)



■ Jubilee ■ TEN ■ SGN

Cum. Production (bcf)



■ Jubilee ■ TEN ■ SGN

# ONGOING DEVELOPMENT PROJECTS



## DWCTCP

Plan of Development preparatory works ongoing on the Deep Water Tano Cape Three Points (DWCTCP) block



## Jubilee

Pursuing full field development in the Greater Jubilee Full Field Plan of Development



## TEN

Pursuing additional development opportunities in the TEN Field



Operator of SDWT Block

Several key prospects outstanding

3 under appraisal



Operator of WCTP Block 2

Two existing oil and gas discoveries made



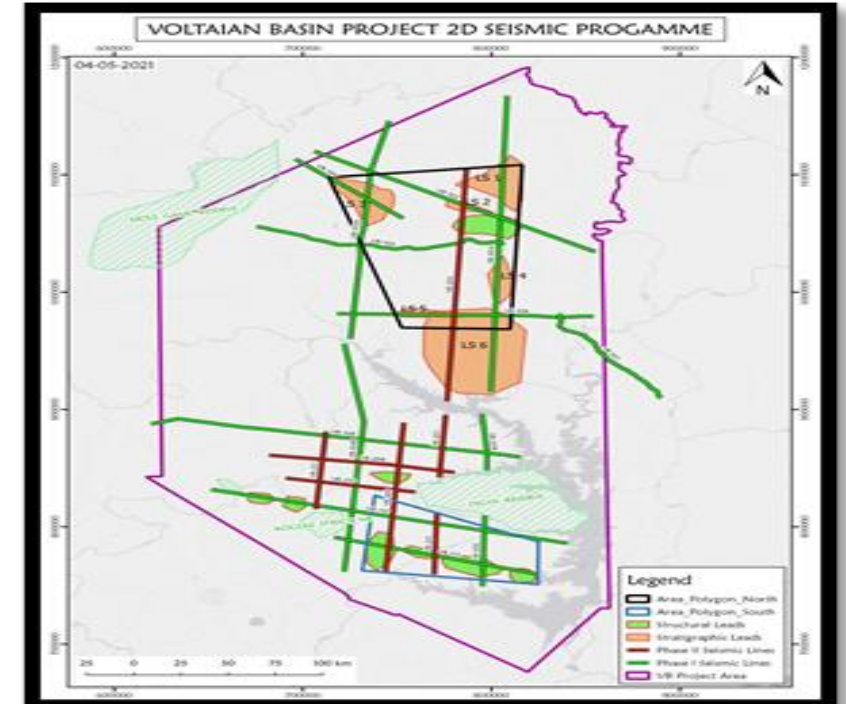
Operator of CTPB4

Two existing oil and gas discoveries made

# OTHER PROJECTS

10 Exploratory Projects in total

- Onshore/Offshore Keta Delta Block
- South Deepwater Tano
- Shallow Water Cape Three Points
- Deepwater Cape Three Point
- Offshore South-West Tano Block
- Cape Three Points Block 4
- Deepwater Cape Three Points West Offshore
- East Cape Three Points
- Expanded Shallow Water Tano Block
- West Cape Three Points Block 2



## RECENT DISCOVERIES

- Eban-1X
  - Potential 500 – 700 Mboe in Cenomanian sands
- Akoma-1X
  - 10m Gas condensate in Cenomanian sands
- Nyankom-1X
  - 55m of oil in Turonian sands
- Afina-1X
  - 50m of oil in Cenomanian sands
  - 4m of oil in Turonian sands



# Transitioning through Natural Gas

## Tema LNG Regasification Project



- GNPC Gas City Gate in Tema
- Tema distribution franchise
- Export to neighboring countries and beyond
- LNG bulk breaking – power and industry

## Other Projects

- GNPC Research & Technology Centre

- A key element of the Mitigation Strategies
- Also, to assure long term energy security and flexibility
- Ghana as energy hub for West Africa

## CONCLUSIONS

- Transition is happening
- Hydrocarbons make huge contribution to global warming
- Oil and gas companies must respond
- GNPC is taking the matter seriously
- ***“The stone age did not come to an end because of lack of stones. The Oil Age will end before the world runs out of oil”***

Sheikh Zaki Yamani, former Saudi Minister for Oil.

**THANK YOU.  
ANY QUESTIONS?**