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IPA Board

25 July 2023

The Role of the Oil & Gas Sector in the Energy Transition

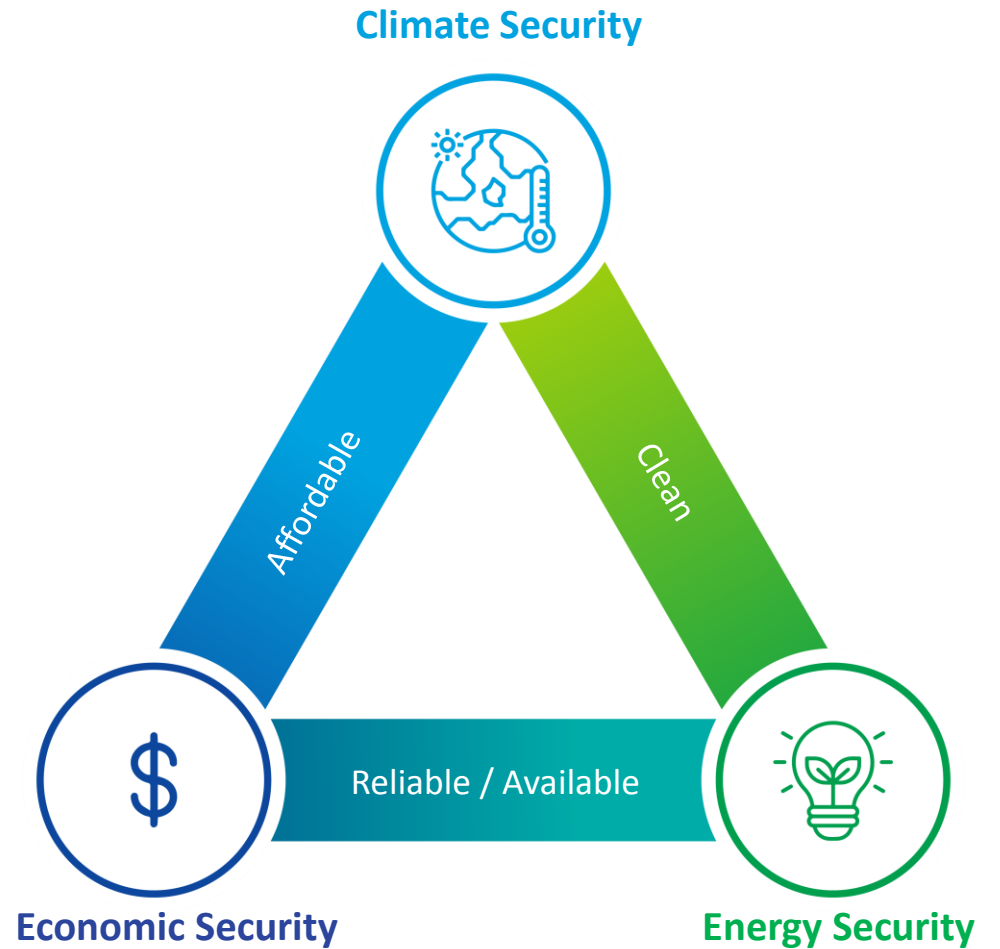
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ENERGY TRANSITION – FIVE KEY FACTS

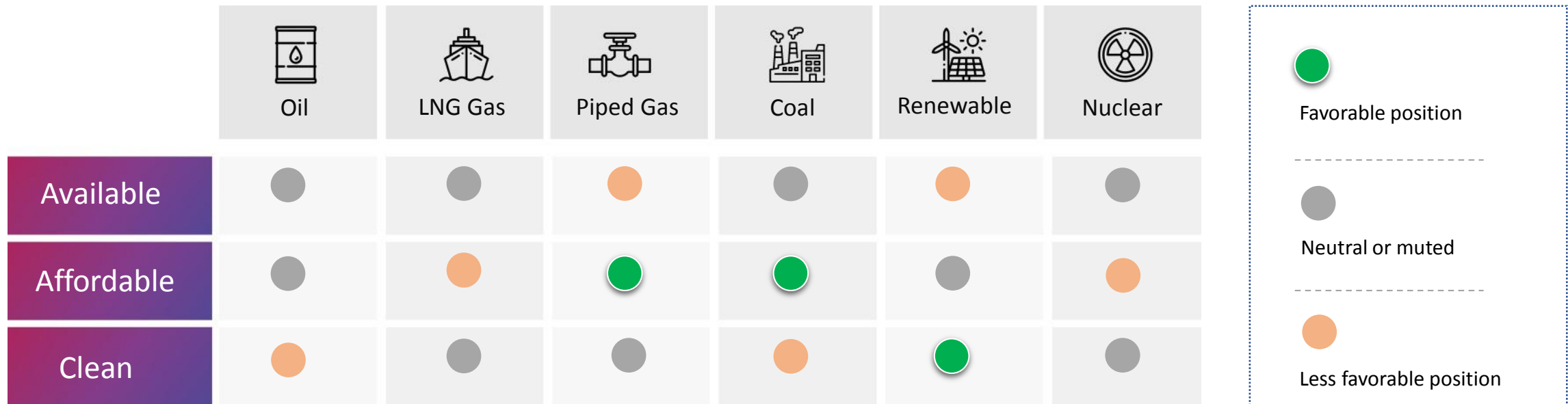
- 1 Society needs energy to thrive
- 2 The energy needs to be reliable & affordable
- 3 Energy demand continues to grow worldwide
- 4 Emissions have to come down; there is urgency in tackling climate change
- 5 This is a global challenge; no country can do it alone



ENERGY TRANSITION – A KNOWN DESTINATION, AN UNCERTAIN JOURNEY

No energy source today provides a perfect solution

Carbon Capture (CCS, CCUS) may provide a solution for hard-to-carbonize industries

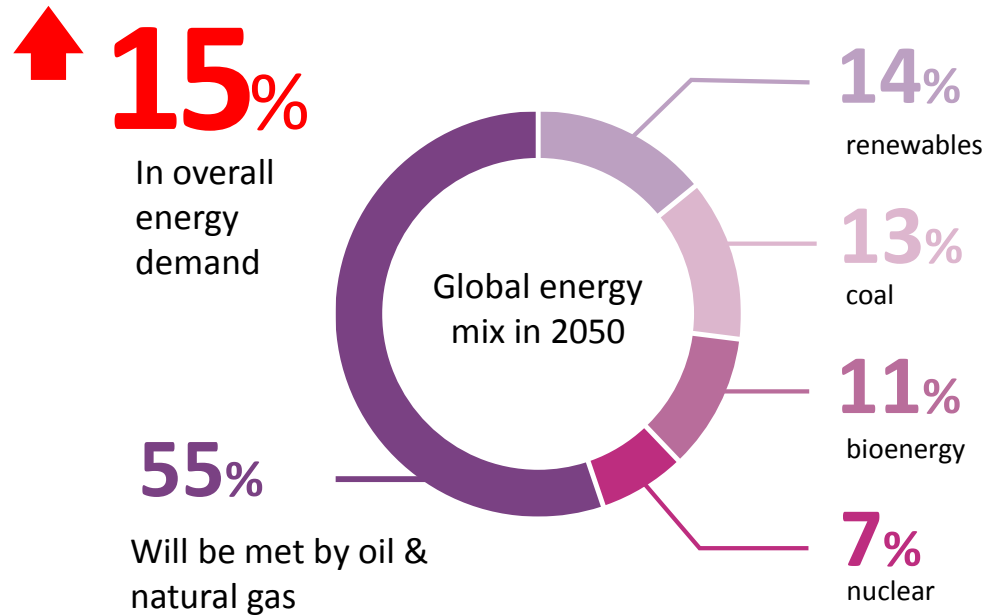


According to RystadEnergy, Asian Energy Study, ANGEA Study, Feb 2023

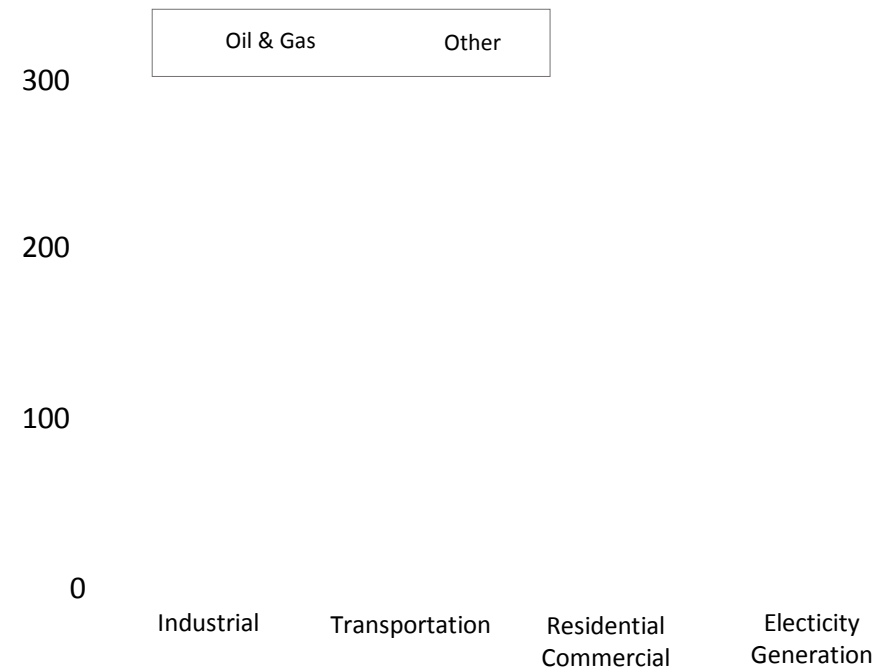
OIL & GAS SECTOR NEEDED TO MEET FUTURE ENERGY NEEDS

Forecasts converge on the important role of oil & gas in the energy mix until at least 2050
Oil & gas remain critical in 2050 for industrial, transportation & residential uses as well as electricity

Global supply by source in 2050



Energy usage by sector (Quadrillion BTU)



OIL & GAS SECTOR PART OF THE SOLUTION FOR THE TRANSITION

The Oil & Gas sector has the skills, the expertise, the global experience to develop innovative energy transition solutions

Our unique combination of skills:

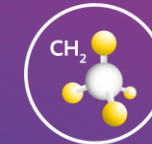
Engineering	Project Design & Execution
Geoscience	Operations & Maintenance
Commercial	Innovation

Ideally suited for:

- Development of new energies – H₂, Ammonia
- Carbon capture solutions – CCS, CCUS
- Upgrading facilities to reduce emissions

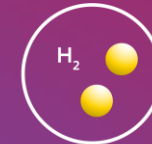
NATURAL GAS

Natural gas is comprised largely of methane (CH₄) and can be turned into hydrogen through a reforming process



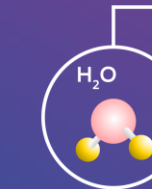
HYDROGEN

Once isolated it can be used for heating, transportation and industrial uses



STREAM-METHANE REFORMING

Natural gas and steam undergo a series of reactions and separation to make H₂ and CO₂



WATER

is an input to the reforming process



CARBON CAPTURE AND STORAGE

ONE OF WORLD'S LARGEST CARBON CAPTURE AND STORAGE PROJECTS

CO₂ is transported to suitable locations nearby where it is injected into deep underground rock formations thousands of feet below the surface for safe and permanent storage



EXXONMOBIL PLAYING ITS PART IN INDONESIA

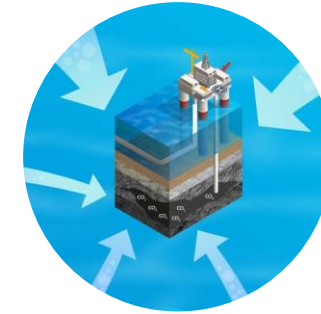
Banyu Urip
Drilling Program



Oil & Gas Exploration
in Indonesia



Evaluation of a CCS Hub
in Indonesia



The 'AND' equation:

ExxonMobil is committed to supporting Indonesia's energy needs and supporting Indonesia's net zero ambitions

IN SUMMARY

- **Society needs energy to thrive**

- The energy needs to be **reliable & affordable**

- **Energy demand is growing but emissions need to come down**

- Net zero ambitions are clear; **the path to achieving the ambitions is uncertain**

- Forecasts converge on the **important role of oil & gas in the energy mix** until at least 2050

- The oil & gas sector is also **ideally positioned to be part of the solution** for energy transition

- **Collaboration** is key to success




Fueling the economy while preserving a bright future for the environment and the communities

THANK YOU

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