Hydrogen Energy Ministerial Meeting
October 2018 Tokyo, Japan

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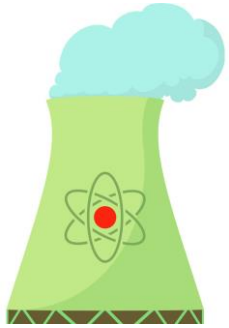
Equinor R&T

Demand for Clean and Flexible Power

Baseload

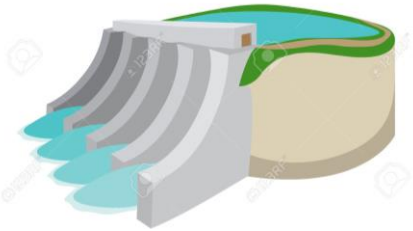
Coal



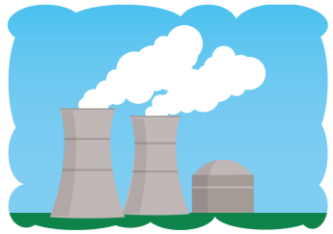
Nuclear

Balance Supply & Demand

Flexible



Hydro



Gas -> Clean (Blue) Hydrogen

Balance Supply & Demand

Intermittent

Wind

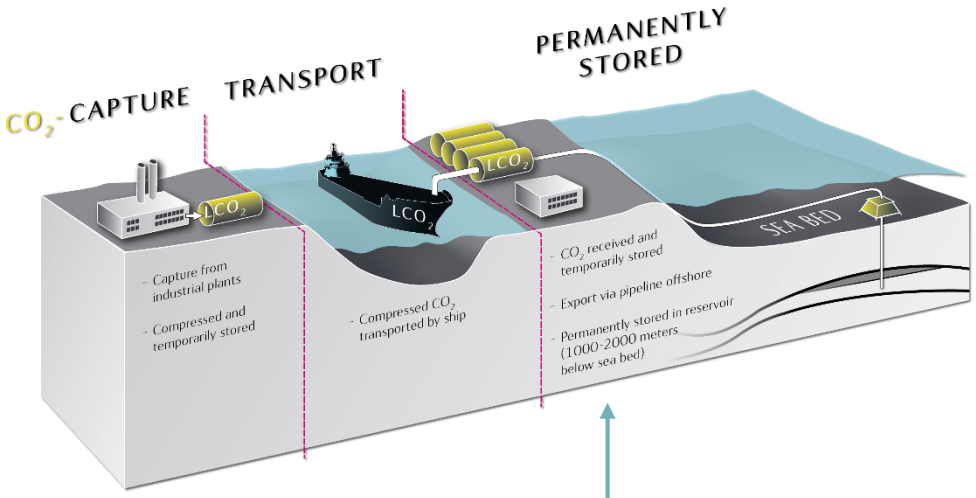
Solar

Equinor Hydrogen Portfolio

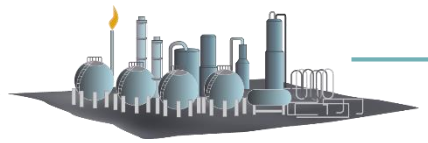
H2M - Magnum	H21 North of England	New Projects
		
HYDROGEN to Power Generation	**HYDROGEN to Heat**	**HYDROGEN In maritime transport, power, industry and/or heat**

Clean (Blue) Hydrogen

CCS as Enabler for Hydrogen Production



Natural Gas



H_2

CO_2

H_2

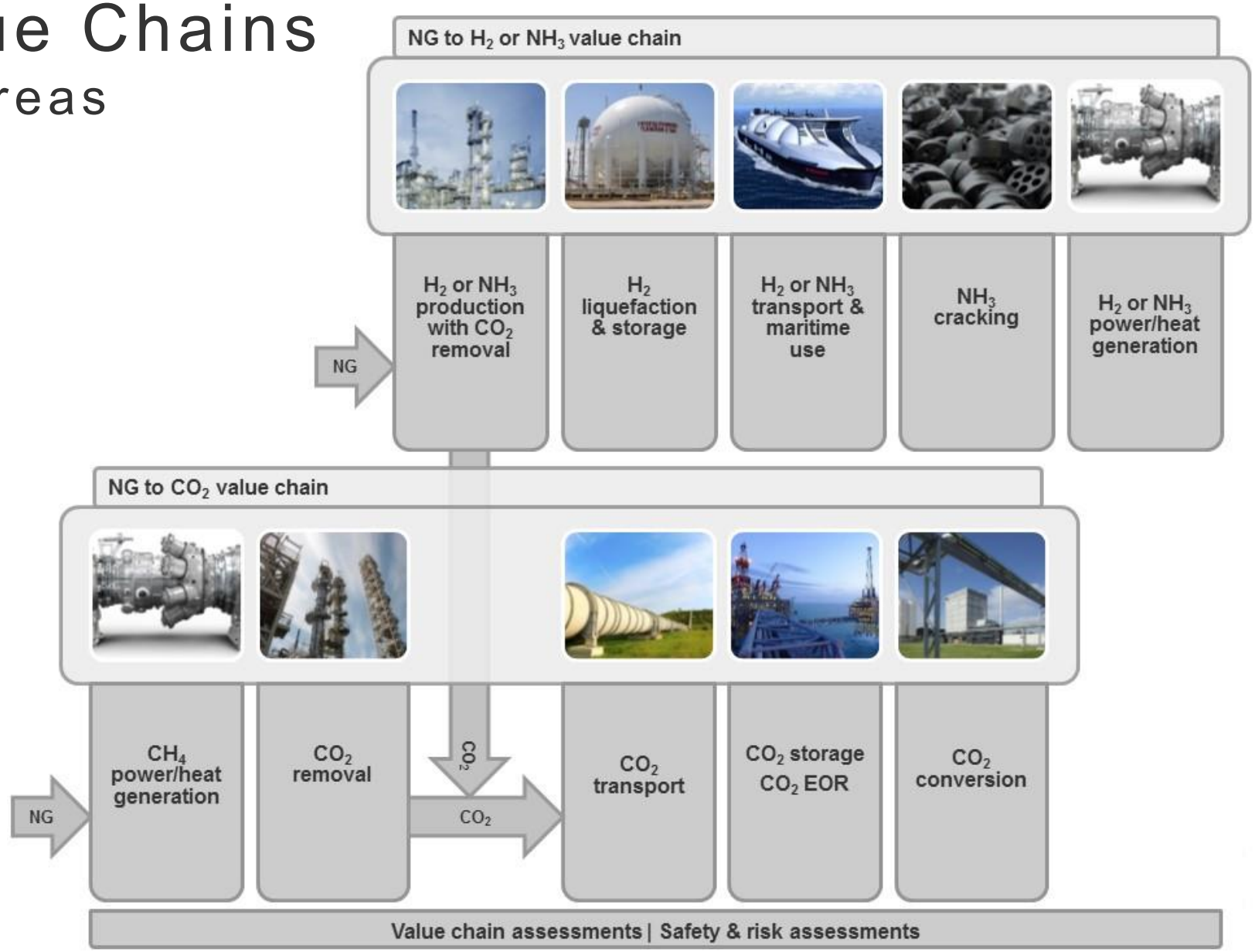
Clean Hydrogen

- for power generation
- for heat
- for maritime transport

H_2 and CO_2 Value Chains
Technology Focus Areas

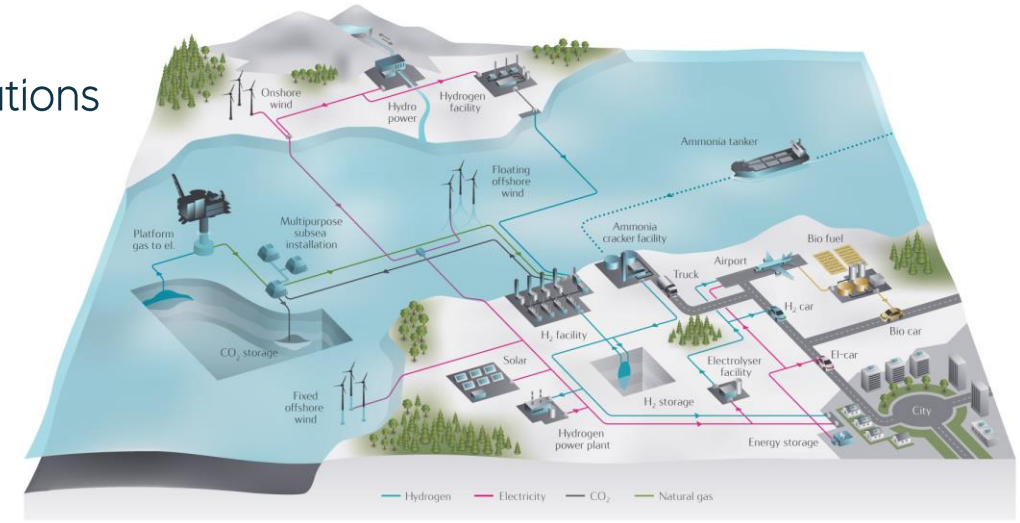
- Clean hydrogen and ammonia value chains are dependent on a sustainable carbon dioxide value chain

- Equinor has extensive experience in the capture and storage of CO_2 - an enabler for clean H_2



Key Messages

- Global decarbonisation towards 2050 a major challenge
- Renewable solutions critical for the energy transition
- Heavy industry, heat- and flexible power require large-scale solutions such as clean H_2 from natural gas
- Clean H_2 from natural gas with CO_2 storage offers
  - Large scale, clean value chain
  - Flexible power
  - Relatively low cost and acceptable technical risk
- Public-private collaboration, firm policies and incentive structure necessary to realise the energy transition



Clean hydrogen complementary to renewables => require incentives to be realised