

# SESSION 9:

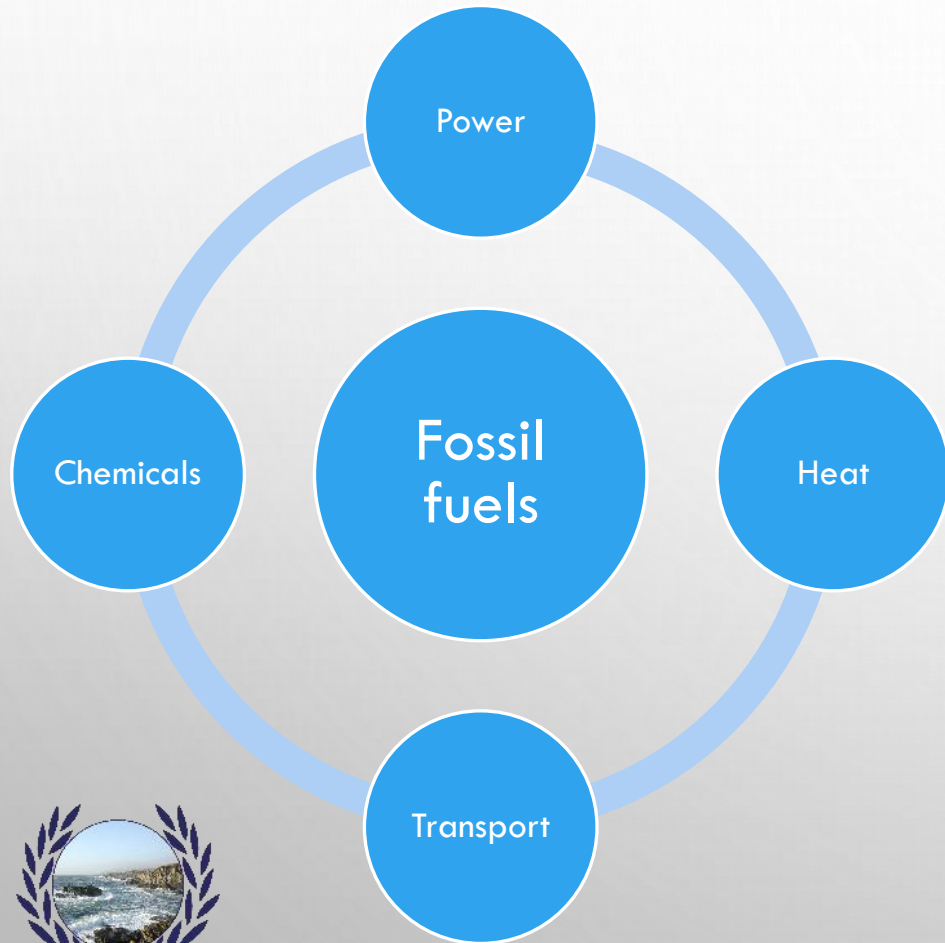
HYDROGEN ECONOMY AND MARKET OPPORTUNITIES



# FUTURE OF OIL & GAS AND ENERGY

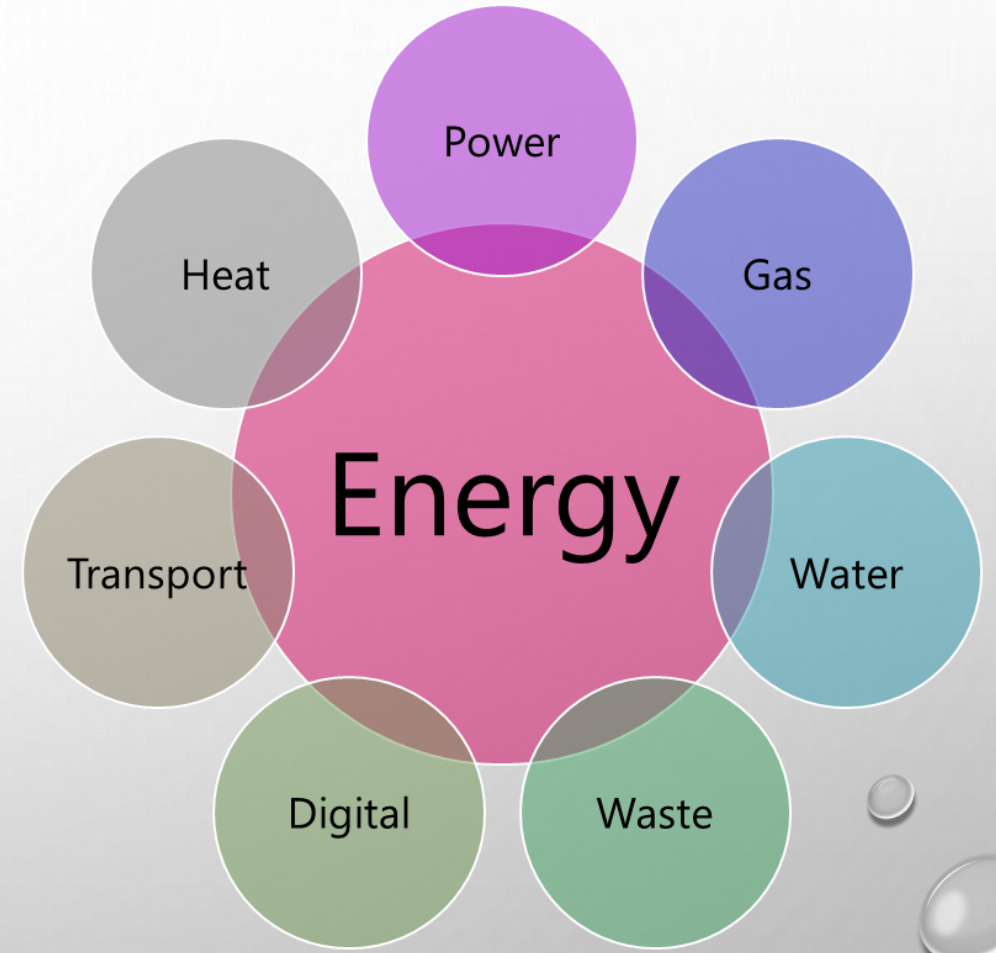


# THE EVOLVING ENERGY SYSTEM – THE RISE OF THE ELECTRON



## IMPACTS

- Integration
- Networks
- Technology
- Emissions
- Circularity
- Infrastructure
- Efficiency
- Socialisation
- Economy
- Finance



Collaboration and collaborative approaches are critical

# SOME THOUGHTS...

- 'GREENING' OF O&G
- MERGERS AND ACQUISITIONS
- NEW COMPANIES EMERGING
- SHIFT TOWARDS RENEWABLES
- WE STILL NEED OIL AND GAS
- PUBLIC CONSCIENCE –  
SOCIAL LICENCE TO OPERATE

New Zealand bans future offshore oil and gas exploration

Article by Amanda Doyle



- DECADES OF HISTORY AND LEARNING
- IMPACT OF COVID
- POPULATION GROWTH / HEALTH
- PLASTICS
- EMPLOYMENT
- POLITICS



“

NO ENERGY COMPANY WILL BE UNAFFECTED BY  
CLEAN ENERGY TRANSITIONS. EVERY PART OF THE  
INDUSTRY NEEDS TO CONSIDER HOW TO RESPOND.  
DOING NOTHING IS SIMPLY NOT AN OPTION.

”

DR FATIH BIROL, IEA EXECUTIVE DIRECTOR



# LONG TERM INVESTMENT, HYDROGEN, AND ENERGY TRANSITION



# IMPACT OF HYDROGEN BECOMING MAINSTREAM

- LEVEL OF UNCERTAINTY IS REDUCING
- KYOTO / NATIONAL POLICIES / PUBLIC PRESSURE
- ROLE OF REGULATED ASSET BASE
- TECHNOLOGY FAILURES – PILOT PROJECTS
- FIRST MOVER ADVANTAGE RISK
- HYDROGEN CONNECTS – IT IS CROSS SECTOR AND CROSS VECTOR

- the scale of investment needed over the next 20-30 years
- the need to stimulate innovation and research, with the aim of reducing costs for hydrogen production, in particular for green and blue hydrogen
- the integrated nature of hydrogen, which can bring together previously distinct energy demands in the economy (electricity, heat, industry and transport), meaning a greater need for integration and coordination
- the potential to repurpose existing assets and the transition process required to move away from fossil fuels to zero carbon energy sources, which will affect everyone.

SOURCE: Deloitte



“

INVESTMENT IN THE ENERGY TRANSITION HAS GROWN UP; NO LONGER OCCUPYING THE SMALL SOCIALLY RESPONSIBLE CORNER OF WALL STREET, IT HAS BECOME A CENTRAL MARKET-BASED DESTINATION FOR CAPITAL ALL ALONG THE RISK SPECTRUM, FROM INFRASTRUCTURE TO PRIVATE EQUITY TO VENTURE, AS NEW AND IMPROVED TECHNOLOGIES AND CONSUMER DEMAND COMBINE WITH GOVERNMENT TAX AND REGULATORY POLICIES AROUND THE WORLD TO DRIVE ROBUST BUSINESS MODELS THAT DELIVER LOWER CARBON FUELS AND POWER AND LOWER CARBON INDUSTRIAL AND COMMERCIAL ENTERPRISES.

”

GONE ARE THE DAYS OF WINDMILLS ON MILK CARTONS. CONSUMER CHOICES ARE ECHOING THROUGH THE GLOBAL ECONOMY AND POLITICAL CHOICES HAVE MOVED THE MARKETS. FINALLY, IN SEVERAL SECTORS, HARD ECONOMICS, BASED IN PART UPON TECHNOLOGICAL BREAKTHROUGHS, HAVE BECOME ALIGNED WITH CARBON REDUCTION OBJECTIVES.

JOEL MOSER, FORBES





# RISK AND REWARD / WEALTH CREATION



# CAN HYDROGEN BE PROFITABLE?

## WE KNOW ABOUT:

- TECHNOLOGY
- PRODUCTION COSTS
- DEMAND / USES
- EXISTING ENERGY SUPPLY
- GLOBAL ENERGY TRANSITION

## EVERYBODY WANTS A CUT:

- SUPPLIERS
- TRADERS
- SERVICE PROVIDERS
- SHAREHOLDERS
- INVESTORS



# HYDROGEN TRADING



# REQUIREMENTS FOR TRADING

- A CURRENT CAPTIVE / MERCHANT MARKET
- A FUTURE CAPTIVE / MERCHANT MARKET
- PRICE STABILITY
- STRATEGIC STORAGE
- HYDROGEN STANDARDS
- LOGISTICS / SUPPLY CHAIN
- GREEN CERTIFICATION
- BLOCKCHAIN AND LINK WITH RENEWABLES
- CHEAP RENEWABLES = CHEAP HYDROGEN
- FUTURE ROLE OF OPEC?
- MONEY LAUNDERING



# FOLLOW THE CALCULATION...

- 2050 DEMAND FOR HYDROGEN 78 EXAJOULES
- HYDROGEN ENERGY 120 MEGAJOULES PER KILO
- SO 2050 DEMAND IS 650 MILLION TONNES
- MARKET PRICE GUESS \$ 2 / KG = MARKET VALUE \$1300 BILLION
- APPLY YOUR OWN PROFIT PERCENTAGE TO THIS ...



# RESOURCES

[THE FUTURE IS NOW: HOW OIL AND GAS COMPANIES CAN DECARBONIZE \(MCKINSEY.COM\)](#)

[THE OIL AND GAS INDUSTRY IN ENERGY TRANSITIONS – ANALYSIS – IEA](#)

[THE EVOLVING ROLE OF OIL AND GAS IN THE ENERGY TRANSITION | PWC CANADA](#)

[OIL AND GAS COMPANY STRATEGIES REGARDING THE ENERGY TRANSITION – IOPSCIENCE](#)

[THE ROLE OF OIL AND GAS COMPANIES IN THE ENERGY TRANSITION - ATLANTIC COUNCIL](#)

[INVESTING IN HYDROGEN | DELOITTE UK](#)

[BUILDING A GLOBAL HYDROGEN MARKET FROM EUROPE | S&P GLOBAL PLATTS](#)



# Q & A

