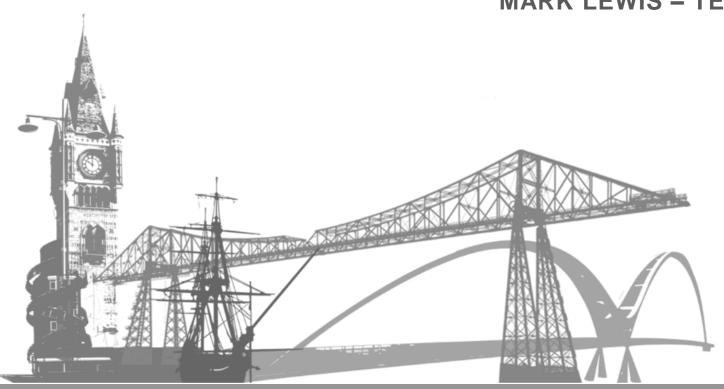
# **NET ZERO TEES VALLEY**

MARK LEWIS - TECHNOLOGY & INNOVATION MANAGER





YOUTH FOR CLIMATE ACTION NOW



# **Our Industrial Strategy Themes**

1	Invest in our infrastructure  Key investments in strategic road and rail infrastructure, and extension of heat and electricity networks
2	Growing energy from waste production  Expand production of heat and power from waste, and develop processes to use waste to produce fuels and industrial inputs
3	Commercial development of CCS  Develop CO <sub>2</sub> transport and attendance, for use by industrial plant and power stations
4	Low cost low carbon hydrogen for heat and transport  Pilot projects for heat and transport, as region becomes 'hydrogen factory' for U', coupled with CCS
5	Utilise carbon as a reeustock for new process industries  Develop and scale up processes using CO <sub>2</sub> as a feedstock
6	Additional decarbonised energy through offshore renewables Use energy from North Sea offshore wind to power new industries
7	And ultimately to build on the strengths of the region  Attract new industries that can use the wastes, feedstocks and energy produced in the region



## **Combined Authority Ambition**

Tees Valley will be a global leader in clean energy, low carbon and hydrogen. The area will achieve a net zero carbon industrial cluster by 2040, providing good jobs with long term prospects that local people can access.

This sits at the heart of our framework for growth.

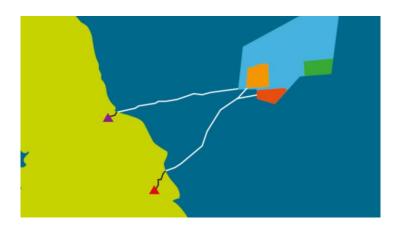
# **Energy Transition**

- AD
- Biomass Power
- Wind
- Nuclear





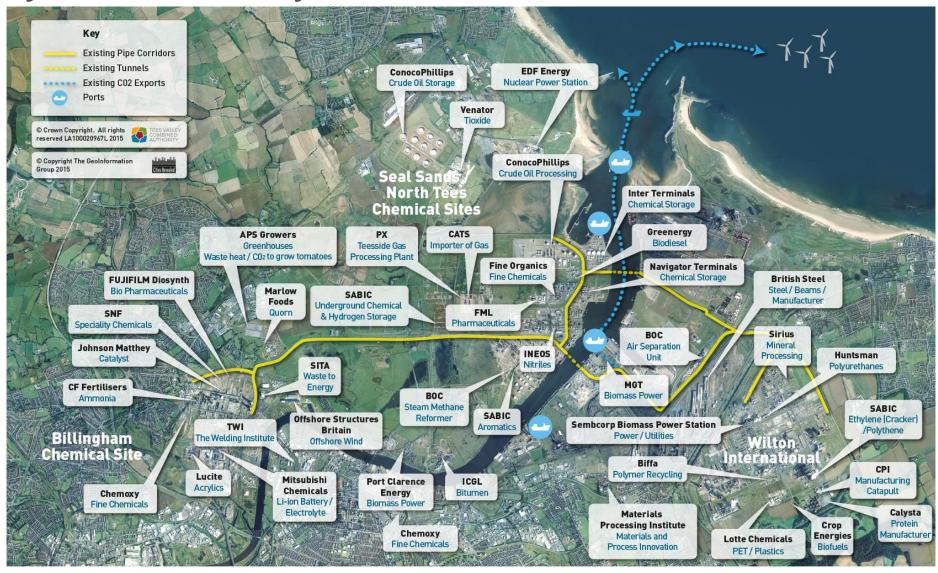




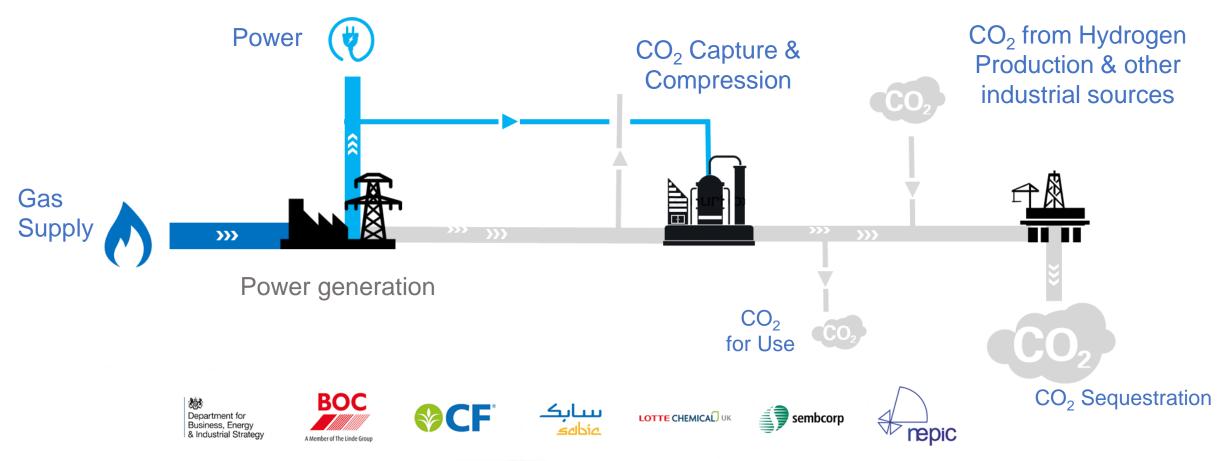
## **Combined Authority Industrial Strategy**

- Establishing Tees Valley as the pioneer region for CCUS and clean growth technologies
  - Pilot a CCUS financing mechanism and business models
  - Support for the OGCI Clean Gas Project to achieve financial close
  - Access Industrial Energy Transformation Fund and Industrial Strategy Challenge Funding streams
  - Develop skills and education provision for CCUS, hydrogen, and other clean technologies

#### **Tees Valley Process Industry**



# Carbon Capture & Storage The Teesside Cluster & the Clean Gas Project









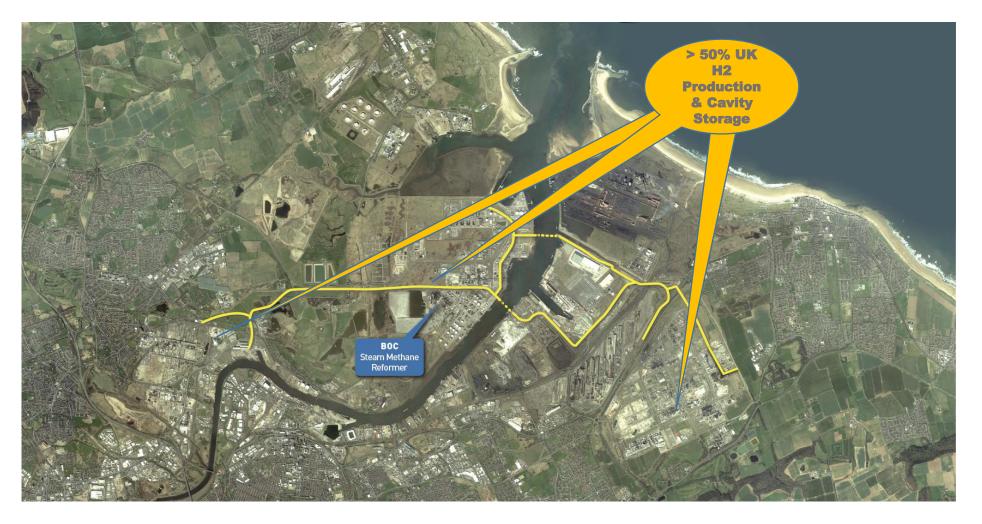








# Why Tees Valley & Hydrogen?





#### Renewable Energy Growth



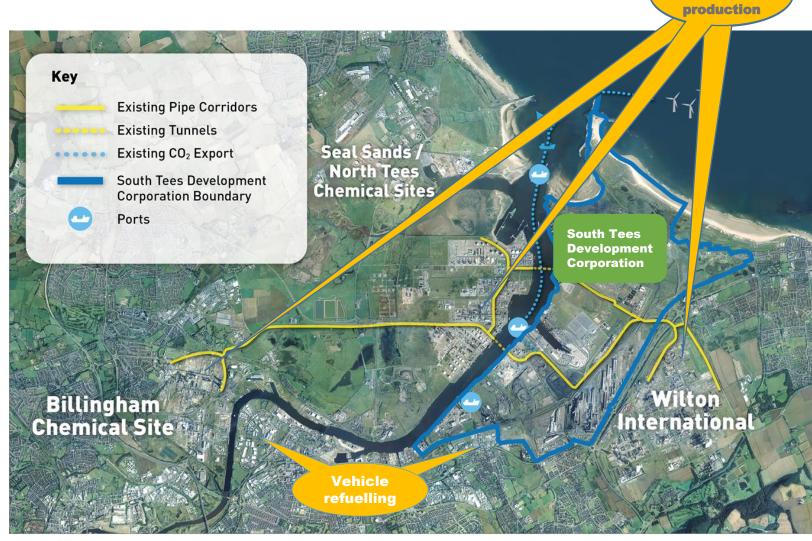
- Each project will have an installed capacity of 1.2 GW
- Together, approximately 5% of the UK's estimated electricity generation
- The first project is expected to be operational in 2023
- The Wind Turbine Generators
   (WTG) are expected to be 10+ MW

# **Practical Action – Road Transport**

- Refuelling Infrastructure
- Vehicle Fleets
  - Opportunities
  - Challenges
  - HGV opportunity
- Transport Corridors



# **Hydrogen Road Transport**





**TEES VALLEY MAYOR** 



> 50% UK H2





# Hydrogen Rail- a regional opportunity

- Tees Valley ideal pioneering location
  - 200 Years since opening Stockton to Darlington Railway
  - Industrial Hydrogen network & experience
  - No electrification

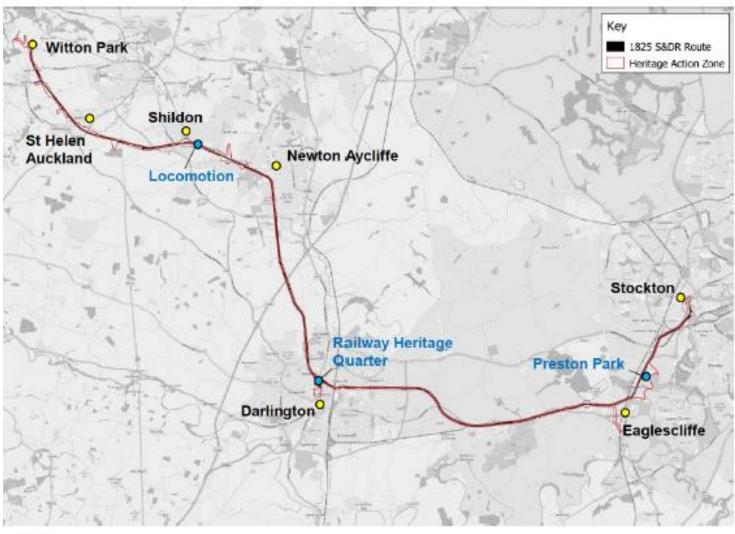


# The Future Regional Railway



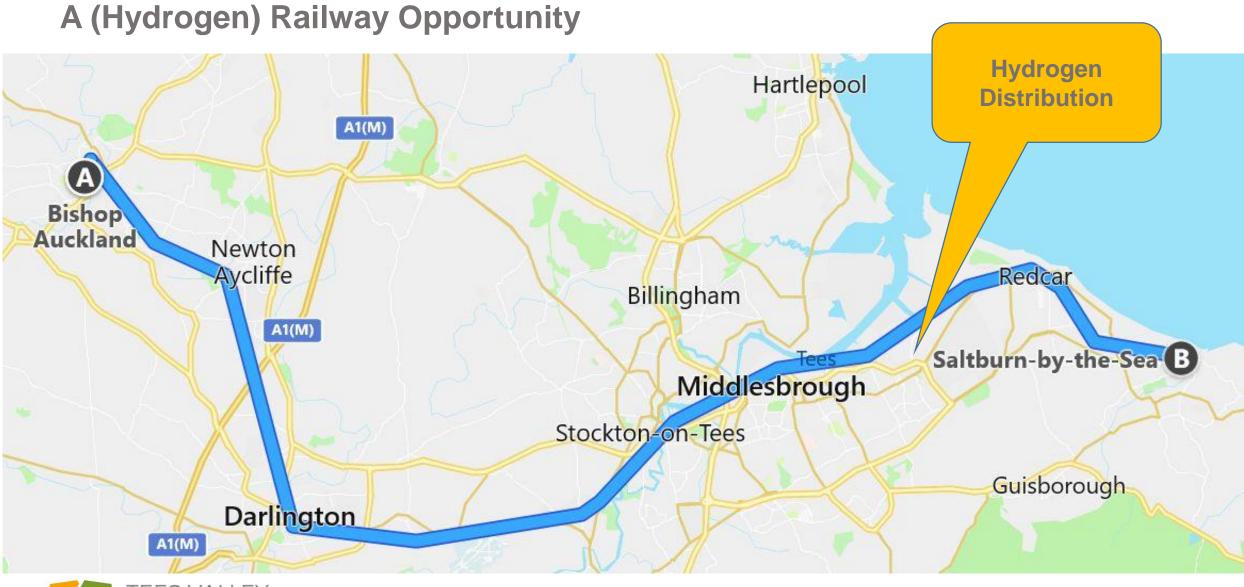


# **The Original Railway Opportunity**





**TEES VALLEY MAYOR** 





**TEES VALLEY MAYOR** 

# **Hydrogen Rail**

- an opportunity for the home of the railway





**TEES VALLEY MAYOR** 

# **Hydrogen & Port Operations**





Two Ports – which one uses hydrogen?



# **Hydrogen & Port Operations**

#### **Materials Handling Applications**

- Reach Stackers
- Tractor Units
- Fork Lifts

## **Hydrogen & Domestic Heat**

- Tees Valley H21 & H21 North ideas
  - Converting domestic gas grid to Hydrogen
- Tees Valley has the decarbonised hydrogen needed at scale
- Community trials
- Natural Gas/Hydrogen CHP
  - Over 2,000 units were installed in Europe last year
  - Challenge of Housing Retrofit
  - District Heat opportunity

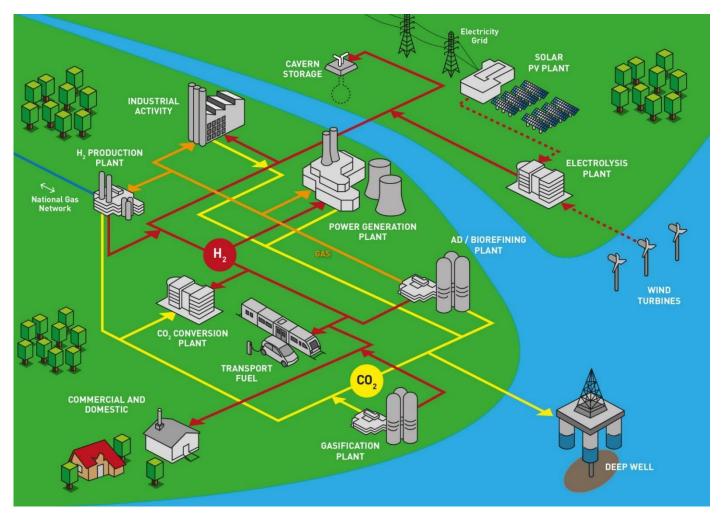


## For the Tees Valley

#### Hydrogen is a real option

- For cars
- For boats
- For rail
- For HGVs
- For industrial heat & processes
- For domestic heat
- For Energy Storage (Power to Gas)

# The Tees as a Hydrogen Valley





#### **Questions?**



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TeesValleyCA