

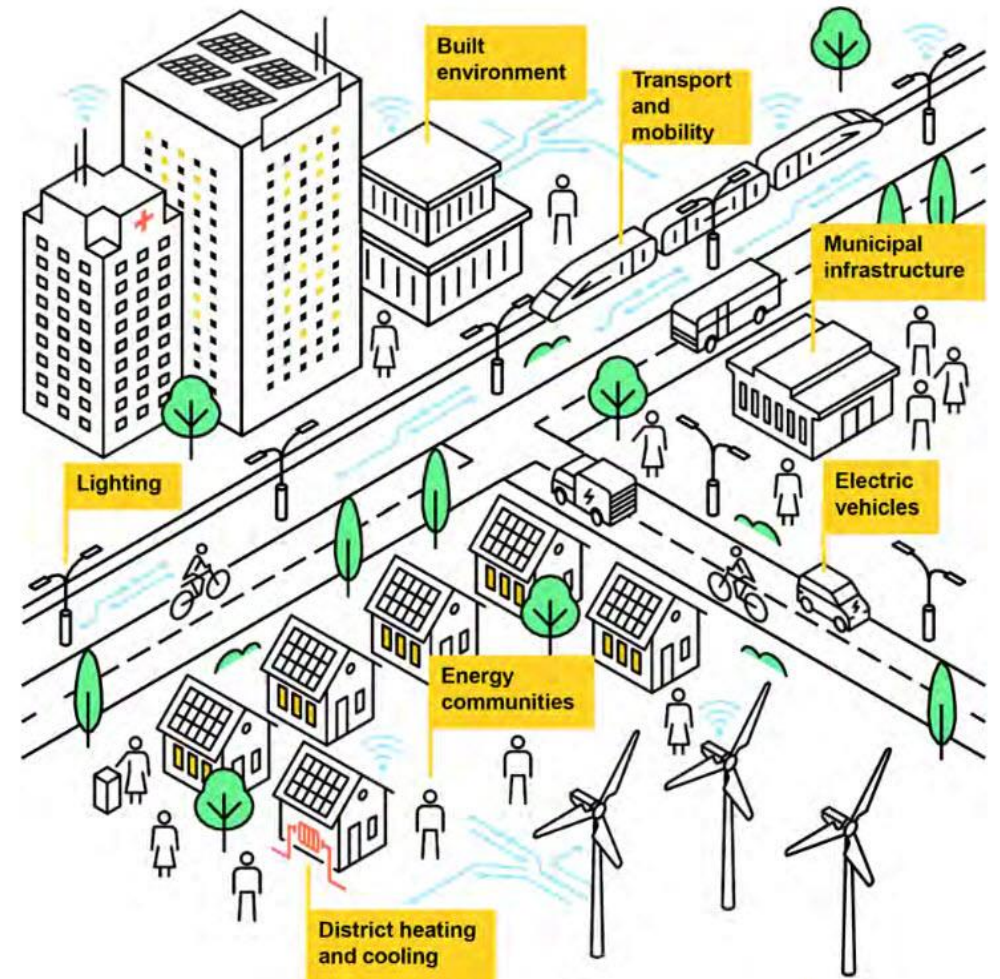
# Aberdeen: A Global Smart City

Councillor Ryan Houghton  
Convenor, City Growth & Resources Committee | Council Business Manager  
Aberdeen City Council

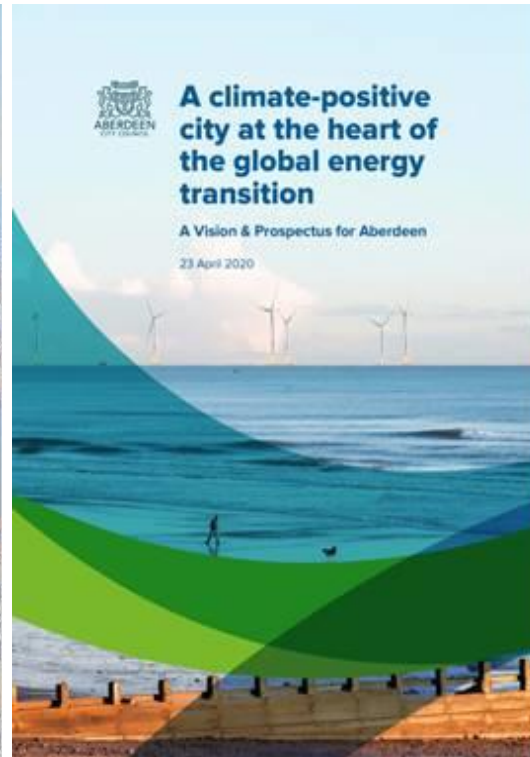
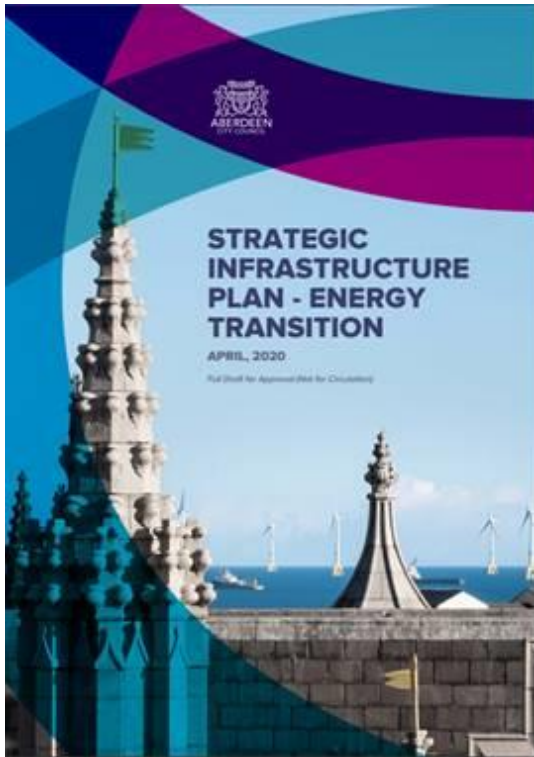
Monday, February 14, 2022

# Aberdeen - Smart City

- Aberdeen considered a 'Smart City'- innovation in technology and connected systems to solve multiple problems
- Increases the city's competitiveness and sustainability
- Want to be leader in 'Net Zero'
- Number of key initiatives underway:
  - Hydrogen
  - Green Fleets
  - District Heating
  - Energy from Waste
  - Digital Infrastructure
  - Internet of Things (IoT)
  - Creation of Energy Transition Zone (ETZ)



# Why Hydrogen in Aberdeen?



Offshore Wind - North East Coast



Highly Skilled North Sea Workforce

Aberdeen at the forefront of UK Energy Transition  
Energy Transition Zone and Aberdeen Harbour



# Hydrogen Experience in Aberdeen

2013 onwards

**Aberdeen Hydrogen Bus & Kittybrewster HRS**  
2015: 10 hydrogen buses and refuelling station

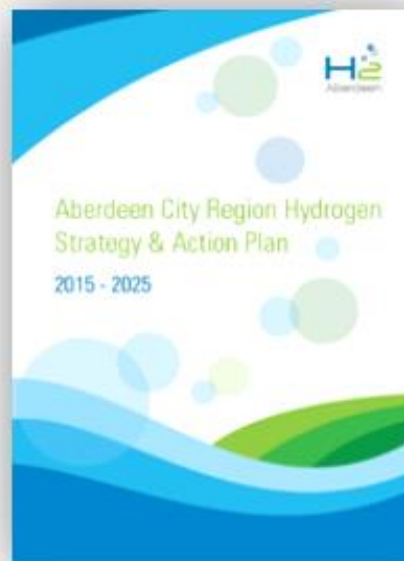
**Hydrogen Vehicle Options**  
Funding from EU, UK and Scottish governments to trial FC cars, dual-fuel for large vehicles and FC range extended electric vans

**Second HRS**  
2017: opening of ACHES - increased the hydrogen supply and offered hydrogen resilience for the City

**Innovative Uses of Hydrogen**  
2019: Onsite Energy Centre at TECA with 3 fuel cells provide heating, cooling and power to the Exhibition Centre and 2 hotels

**Explore Ways to Increase Demand**  
15+10 World's first hydrogen double decker buses  
Discussions with NE organisations  
Explore alternative hydrogen uses such as rail, heat, marine, industry

**Commercial Supply Aberdeen Hydrogen Hub**  
Business case for commercial supply of green hydrogen  
Discussions with market



# Aberdeen Hydrogen Hub



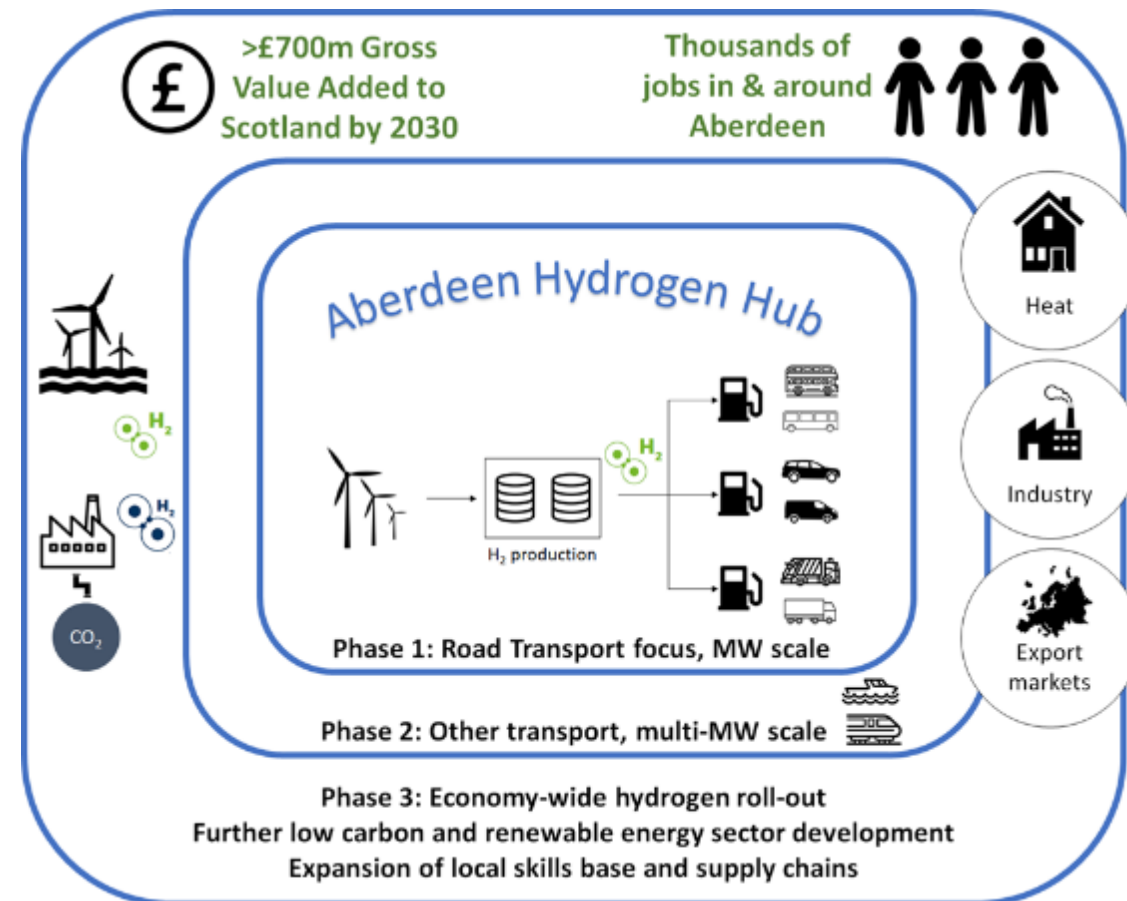
**Phase 1** – provision of a resilient, cost-effective supply of green hydrogen on a commercial basis to the market to support the existing and proposed transport projects.



**Phase 2** – Expansion in the short to medium term to connect to larger volume utilisation of hydrogen – trains, trucks and marine.



**Phase 3** – Whole system approach to supply and demand. Innovation, skills and transition hub to support expansion of the local supply chain. Pursue the ambition for Aberdeen to be the centre of a brand-new Energy production business, exporting H<sub>2</sub> to the world.



# Aberdeen Hydrogen Hub – Strategic Partnership

- On 3<sup>rd</sup> February 2022 announced a new Joint Venture company wholly owned by the Council and bp to deliver the Aberdeen Hydrogen Hub
- bp will build, operate and manage the Hub including:
  - Solar power array
  - Green Hydrogen production facility
  - Refuelling for public transport, trucks, cars and vans
- The Hub will be Scotland's first scalable green hydrogen production facility with first gas expected Q1 2024
- Inclusive growth by supporting hydrogen supply chain developments, skills and training and wider community benefits
- Potential for delivery of future phases could see production scaled up for export through larger volumes of hydrogen using offshore wind developments



bp



**Hydrogen**  
**is here.**



# Opportunities for Supply Chain

- Hydrogen Equipment
  - Compressors, electrolyzers, hydrides, regulators and fittings, sensors, cooling systems, dispensing equipment, fixed storage for 350 and 700 bar refuelling, mobile storage, valves, payment systems
- Solar Array Equipment
  - 8-15MW solar farm with panels, sensors, monitoring, mounting systems, regulators, power control
- Vehicles
  - Right hand drive Fuel Cell Electric Vehicles, Hydrogen-Diesel hybrids, Hydrogen Combustion vehicles (cars, vans, road sweepers, waste trucks, refuelling vehicles, buses) for public sector and private sector
- Collaboration and learning
  - Academic (two Universities in Aberdeen), training for vehicle maintenance, operations, studies for new fuel applications for marine, rail and large trucks
- Future phases
  - Heat, rail, export, offshore wind connections
- Any public procurement for energy transition projects across Scotland viewable on Public Contracts Scotland. Register: [www.publiccontractsscotland.gov.uk/](http://www.publiccontractsscotland.gov.uk/)



# Energy Transition Zone



- £52M investment by UK Government and Scottish Government to develop an 'Energy Transition Zone'
- Situated adjacent to new £350M Aberdeen South Harbour with 1400m of deep water quay and capable of accommodating 300m long vessels
- As well as the location of the Hydrogen Hub key activities expected to be
  - Offshore Wind manufacturing and assembly
  - Floating Offshore Wind Centre of Excellence
  - Offshore H2 Production Landing Facilities
  - Green H2 Test & Demonstration
  - Low Carbon Marine Field Test & Demonstration Facilities
  - Energy Skills Academy Hub



## Energy Transition Projects Key

- ScotWind leasing areas
- Existing windfarm
- ETZ
- CO<sub>2</sub> Storage Sites
- Existing Pipeline
- Future Pipeline

## North East Scotland current & future Energy Transition projects

### Aberdeen City current & future hydrogen projects

#### Aberdeen Hydrogen Hub (Project) 2024



TECA Electrolyser  
350kg H<sub>2</sub> / day



Kittybrewster HRS  
360kg H<sub>2</sub> / day



ACHES HRS  
360kg H<sub>2</sub> / day



ERM Dolphyn  
Project (2024)  
2000kg H<sub>2</sub> / day initially

Energy Transition Zone  
Hydrogen Campus



Acorn Hydrogen Project

Aberdeen Vision Hydrogen Pipeline

Energy Transition Zone

Kincardine Floating Wind Farm

Inch Cape

St Fergus

Peterhead

Aberdeen

Hywind Scotland

EOWDC

Seagreen Phase 1

ScotWind E2

ScotWind E1

NE3

NE6

NE7

NE4

NE5

NE6

Acorn CO<sub>2</sub>  
Storage Site

East Mey  
Storage Site

Atlantic Pipeline

Goldeneye Pipeline

Miller Gas Pipeline

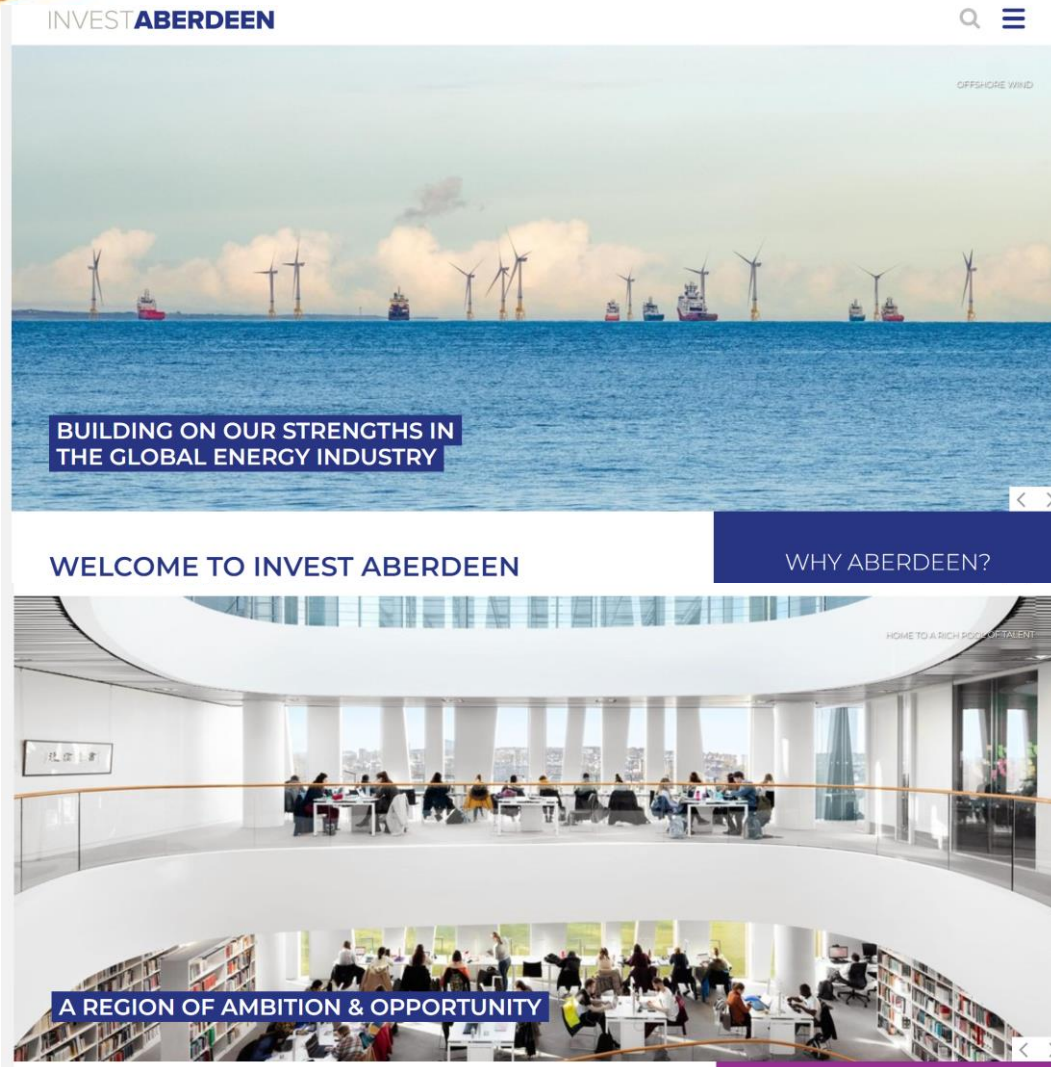
140km

100km

60km

20km

# Collaboration



- Invest Aberdeen [www.investaberdeen.co.uk](http://www.investaberdeen.co.uk)
- World Energy Cities Partnership [www.energycities.org](http://www.energycities.org)
- Scottish Enterprise [www.Scottish-enterprise.com](http://www.Scottish-enterprise.com)
- Department for International Trade [www.gov.uk/government/organisations/departments-for-international-trade](http://www.gov.uk/government/organisations/departments-for-international-trade)
- Energy Transition Zone Ltd [www.etzLtd.com](http://www.etzLtd.com)





# Thank you

## Aberdeen Hydrogen is here



[@H2Aberdeen](https://twitter.com/H2Aberdeen)



[H2 Aberdeen](https://www.linkedin.com/company/h2-aberdeen)



[H2 Aberdeen](https://www.youtube.com/channel/UC...)

