

# HECTOR Project

‘Hydrogen waste collection vehicles in North West Europe’



Life N Grab Hy Conference  
30th March 2021

# HECTOR Project



HECTOR Project will deploy 7 different types of fuel cell garbage trucks in 7 different cities in 5 countries:

- **Aberdeen (UK)**
- **Groningen (NL)**
- **Arnhem (NL)**
- **Duisburg (DE)**
- **Herten (DE)**
- **Brussels (BE)**
- **Touraine (FR)**



The aim of the project is to demonstrate that fuel cell garbage trucks provide an effective solution to reduce emissions from road transport in the North West Europe

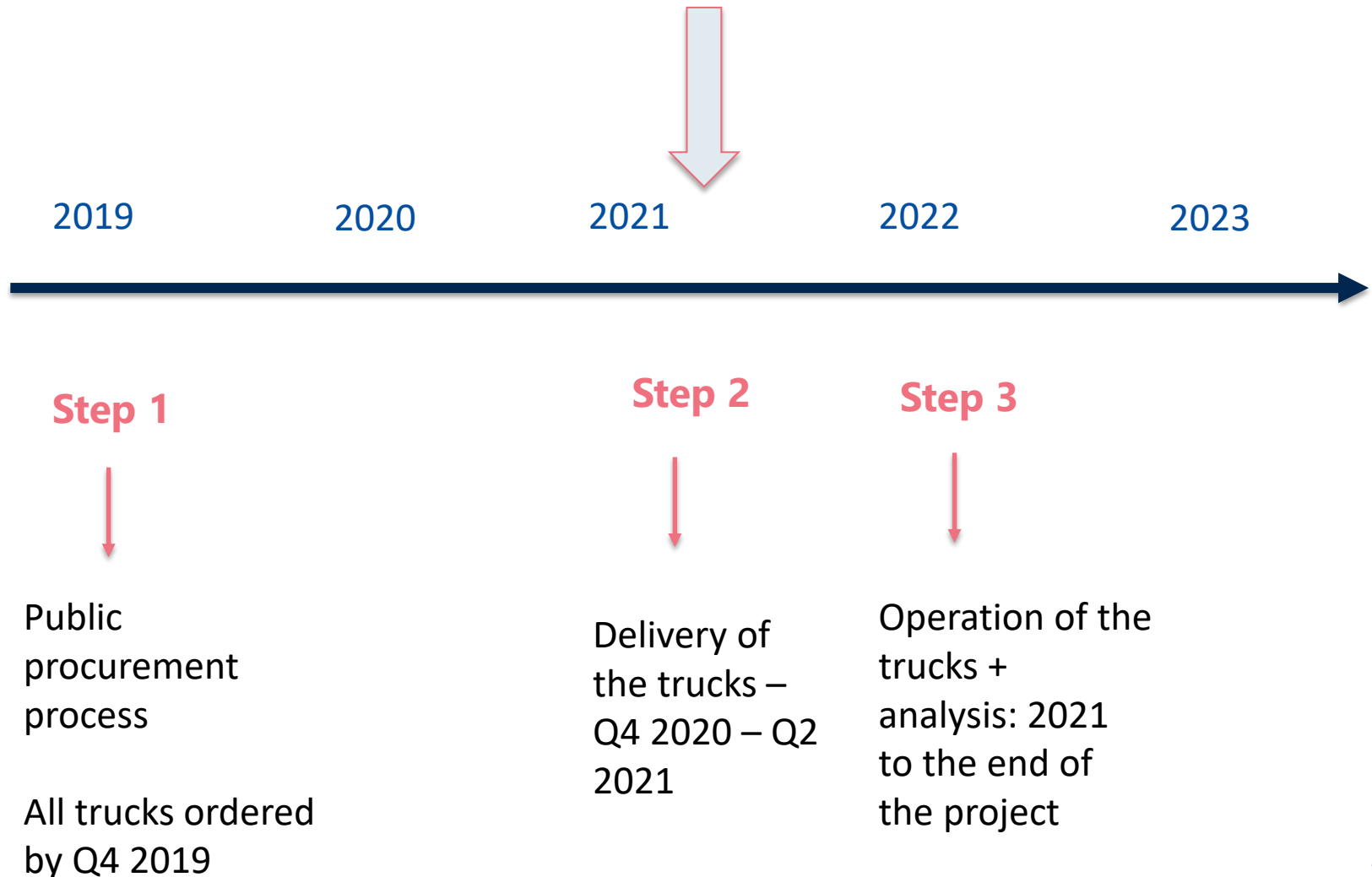


# What will Hector achieve?



- Timeline: first truck will be put into operation in April 2021, all of the trucks will be tested up to 24 months before the end of the project
- Reduce CO<sub>2</sub> emissions: - 400 tonnes by the end of the project
- Demonstrate that fuel cell garbage trucks are an effective solution
- For the pilot sites at the end of the project: readiness to deploy more zero emission garbage trucks
- Long term objective - large scale roll out in the North West Europe area
- Replication in other cities/regions in Europe → set up of a group of follower regions

# Project timeline



# Pilot Sites

The pilot sites will test a range of real-life operational conditions and truck configurations including:

- **City Centre** municipal waste collection routes & paper recycling routes
- **Rural** municipal waste collection routes
- **Industrial waste** collection routes from **private customers**

Truck types include:

- Compressor truck, container truck, front loader, back loader, lifting crane

# Procurement Process

- High level of specialisation didn't allow for joint procurement
- Instead, 4 manufacturers/integrators involved in the project, stimulating the market



# Vehicle Specification

PARTNER	MAIN CONTRACTOR	CHASSIS	MAKE & OUTPUT OF FUELCELL	BATTERY & OUTPUT	PRESSURE / No of Tanks / Kg	ANTICIPATED KMS ON FULL CHARGE
Aberdeen City Council, Aberdeen (UK)	Holthausen	<b>Mercedes</b> Econic low entry cab in electric configuration  Geesinknorba - Collection Body equipment, Chassis and Fuel Cell.	Hydrogenics	45 kWh	350 bar / 20 kg (4 x 5 kg tanks)	120 Kms on H2
Municipality of Groningen, Groningen (NL)	E-trucks	<b>DAF</b> CF truck GVW 27 ton	1 x 40 Kw	136 kWh	350 bar / 15 kg	120 Kms on H2
SUEZ, Arnhem (NL)	E-trucks	<b>DAF</b> diesel base  HIAB – integrates the crane VDK Belgium – compacting body	1 x 40 kW	136 kWh	350 bar / 15 kg	120 Kms on H2
WBD, Duisburg (DE)	FAUN	<b>Daimler</b>	3 x 30 kW	85 kWh	700 bar / 16.4 kg (4 x 4.1 kg tanks)	285 Kms on H2
ARP-GAN, Brussels (BE)	FAUN expotec	<b>Mercedes</b> Econic chassis				
CCTVI, Touraine (FR)	SEMAT (Société d'Equipment, Manutention & Transports)	<b>Mercedes</b>	2 x 30 kW	85 kWh / 112 kWh	700 bar / 20 kg (4 x 5 kg tanks)	400 Kms on H2
AGR, Herten (DE)	E-trucks	<b>DAF</b> Diesel front loader from Autohaus Wietholt GmbH & Co.KG (DAF).	Ballard 1 x 30 kw	1 x 130 kWh	350 bar / 20kg (4 x 5 kg tanks)	260 Kms (13 km / Kg)

# Procurement Recommendations

- Consolidate orders to drive down capital cost.
- Be clear about the specific data monitoring requirements during the procurement process
- Clarify the level of training the manufacturer will provide and on what topics
- Be realistic about delivery timescales.



# Pre-Operation Preparation



WBD launch 2<sup>nd</sup> Dec 20

- Checklist for Depot Upgrades
- Practical Handbook for Deployments of FCEV Waste Trucks
- Driver Behavioral Questionnaire

# Cooperation



# Upscaling: Aberdeen

## Developing a hydrogen economy

**Strategic aim** : to become ‘a world-class energy hub leading a low carbon economy and at the forefront of hydrogen technology in Europe’

### Local drivers

- Expanding fleet of hydrogen vehicles in the city
- Stations already existing

### Policy drivers

- Reduce cross-sector greenhouse gas emissions by 42% by 2020 and 80% by 2050 (Scotland)
- Aberdeen City and Region Hydrogen Strategy 2015-2025

### Aberdeen truck

#### Operator

Aberdeen City Council

#### Type of truck

Backloader, right hand drive

#### Waste collected

Municipal waste



# H2 Aberdeen Vehicles

One of the most varied fleets in Europe



# Roll Out Plan

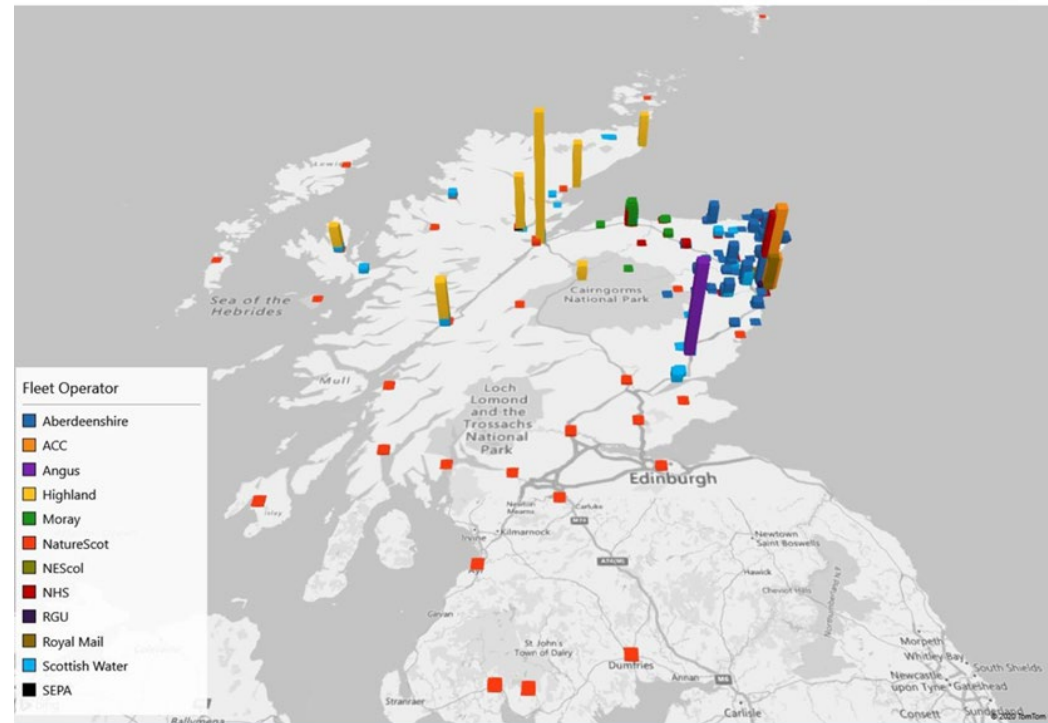
## Independent fleet review:

5 Local Authorities, 5 public &  
2 private sector entities

Comprises ~4,000 vehicles

89% fleet is ZEV compatible  
(57% BEV, 32% FC only)

Annual h2 demand: 745 tonnes,  
92% of which from 7.5t or larger



# Group of follower cities and regions



- The project will create a group of follower cities and regions, including operators (public and private)
- **Aim of the group: enable interested cities or regions to closely follow the progress of the project and to have in depth exchanges with the project partners**
- If you are interested, please contact Amy Perry at Aberdeen City Council – [aperry@aberdeencity.gov.uk](mailto:aperry@aberdeencity.gov.uk)

# HECTOR Project

## Contact details



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