

**ANGUS COUNCIL**

**COMMUNITIES COMMITTEE – 16 AUGUST 2022**

**HYDROGEN REFUSE COLLECTION VEHICLE DEMONSTRATION PROJECT**

**REPORT BY ALISON SMITH, DIRECTOR OF VIBRANT COMMUNITIES AND  
SUSTAINABLE GROWTH**

**ABSTRACT**

It is proposed that a funding application is progressed for a hydrogen powered refuse collection vehicle demonstration project in Angus. The project would advance the council's transition to zero emission vehicles, align with the Sustainable Energy and Climate Action Plan (SECAP) for Angus, and support the development of other Tay Cities projects.

**1. RECOMMENDATION(S)**

It is recommended that the Committee agrees to:

- (i) authorise the Director of Vibrant Communities and Sustainable Growth to progress a funding application for a hydrogen powered refuse collection vehicle demonstration project on the basis set out in this report.
- (ii) the Director of Vibrant Communities and Sustainable Growth bringing a report to Communities Committee confirming and updating on the implementation of the project, if a funding application is successful.

**2. ALIGNMENT TO THE COUNCIL PLAN**

Priority 3: Place – We want our communities to be strong, resilient and led by citizens

- We will continue to reduce the council's carbon footprint with the aim of reducing our net carbon emissions to zero by 2045.

**3. BACKGROUND**

- 3.1 The Scottish Government has set several targets to reduce carbon emissions from transport. For the public sector, these targets include phasing out petrol and diesel cars by 2025; phasing out the need for new petrol and diesel vans from 2025; and phasing out the need for petrol and diesel versions of heavy duty vehicles from 2030.
- 3.2 The proposals laid out in section 5 of this report will progress the council's transition to zero emission vehicles and help reduce the council's carbon emissions. This aligns with the Sustainable Energy and Climate Action Plan (SECAP) for Angus ([Report 337/21](#)), which identifies transport as a key sector for action.
- 3.3 A project to review fleet management is included in the council's Change Programme, and there is a regional commitment for the three Tayside local authorities and Tayside Contracts to collaborate on fleet decarbonisation strategies. A hydrogen refuse collection vehicle (RCV) demonstration project in Angus would support these projects.
- 3.4 As part of funding secured through the Tay Cities Deal, the council and private sector partners plan to develop a clean growth business park at an expanded Brechin Business Park site. This will include a Rural Mobility Hub that proposes to include infrastructure for EV (electric vehicle) charging and hydrogen re-fuelling.

- 3.5 The proposals in section 5 relate to the introduction of hydrogen powered refuse collection vehicles (RCVs) that work by using fuel cells to convert chemical energy from hydrogen (stored in tanks on the vehicle) into electricity. This electricity then powers the vehicle's electric motor. Water and heat are the only by-products of the process from the vehicle.

#### 4. CURRENT POSITION

- 4.1 Table 1 provides a breakdown of the current council vehicle fleet based on a review completed by the Energy Savings Trust in March 2021. This highlights that progress has been made towards transitioning our car fleet to zero emission vehicles (ZEVs), but that all our vans and heavy duty vehicles (mostly the refuse collection fleet) remain petrol or diesel.

Table 1: Angus Council Vehicle Fleet

Category	Number	Number that are ZEVs
Cars	64	44
Light commercial vehicles (vans)	99	0
Heavy duty vehicles	88	0

- 4.2 The review undertaken by the Energy Savings Trust identified that our heavy duty vehicles are responsible for 77% of our total carbon emissions, which highlights the importance of progressing the decarbonisation of our refuse collection fleet.
- 4.3 The daily mileage of an RCV varies from approx. 70 miles when servicing a town/urban area up to 170 miles when servicing our most rural locations. It is considered that electric RCVs will provide a solution for servicing our more urban collection rounds, but that hydrogen powered RCVs, which can provide quicker refuelling and longer ranges, will be required to service more rural rounds.
- 4.4 Council officers entered into dialogue with representatives from Transport Scotland and the Hydrogen Accelerator regarding a potential demonstration project following discussion at a forum on hydrogen vehicles organised by Tactran (Tayside and Central Scotland Transport Partnership). This has progressed to the stage where we are now seeking to submit a business case to Transport Scotland that will act as a funding application to progress the project.
- 4.5 The current use of hydrogen only powered RCVs is very limited. Aberdeen City Council earlier this year began use of the first hydrogen only RCV in Scotland, and Glasgow City Council have placed an order for 19 hydrogen RCVs due to arrive early 2024. It is intended that the Angus project will demonstrate the use of hydrogen RCVs in a more rural setting.

#### 5. PROPOSALS

- 5.1 It is proposed that a funding application is submitted to Transport Scotland for up to 5 hydrogen powered RCVs and associated refuelling infrastructure. The actual number supplied will depend on the costs for the RCVs following a procurement exercise. The hydrogen RCVs will displace diesel RCVs that were scheduled for replacement, i.e. the total number of RCVs on the fleet will remain unchanged.
- 5.2 It is intended that the hydrogen RCVs are based at council waste depots in Forfar and Brechin. The project aims to demonstrate how hydrogen powered RCVs will be effective for servicing more rural locations and it is considered these depots provide the best options to demonstrate this.
- 5.3 In addition, by basing hydrogen RCVs from Brechin, there is the potential to use the Rural Mobility Hub at Brechin Business Park once operational, which will assist the development of the Hub as the hydrogen infrastructure will be open for public and our own operational use. A portable hydrogen refuelling station could be provided at Forfar and Brechin as required. This will likely be a container sitting on a trailer that can be transported to and from site as it requires refilling.
- 5.4 Only 'green' hydrogen will be used. This means that the hydrogen supplied will have been produced by splitting water into hydrogen and oxygen using renewable electricity. There are hydrogen fuel related projects being developed in the Tay Cities region, for example at the

Michelin Scotland Innovation Parc (MSIP) in Dundee, and there is the potential for the demonstration project to connect with local ventures.

- 5.5 It is anticipated that standard safety inspections and repairs of the RCVs would still be undertaken at the Tayside Contracts vehicle workshop in Arbroath and that additional training for mechanics will be provided by the supplier of the hydrogen RCVs. Skills development is seen as an essential part of the demonstration project. The vehicles would only be sent to the supplier's workshop when there was the need for more specialised work to be undertaken. This will be considered when writing the tender specification for the vehicles.
- 5.6 The demonstration project will not be done in isolation and will form part of a concerted effort to transition from diesel to zero emission RCVs, and as part of the funding award Transport Scotland will require a commitment from the council to explore different financing models that could support further decarbonisation of the fleet. As detailed in paragraph 4.3, it is considered likely that our RCV fleet in the future will be a combination of hydrogen and electric and the Energy Savings Trust are undertaking a study on behalf of the council into the feasibility and whole life costs of procuring fully electric RCVs

## **6. FINANCIAL IMPLICATIONS**

- 6.1 The supply of the hydrogen RCVs and the associated refuelling facilities would be part funded by Transport Scotland. The Transport Scotland funding will cover the additional cost of procuring hydrogen fuel cell instead of diesel RCVs as well as the associated refuelling facilities.

The capital budget included in the 2022/23 vehicle replacement programme for replacement of 5 RCVs (£1.015 million), as detailed in Report 109/22, will therefore still be required as a contribution towards the purchase of the hydrogen RCVs.

- 6.2 As detailed in paragraph 5.1, the intention is to seek funding for up to 5 hydrogen RCVs, however the actual number will depend on the outcome of the procurement exercise and the actual cost for a hydrogen RCV. We may therefore still need to procure a combination of diesel and hydrogen RCVs this financial year.
- 6.3 The cost for the supply of hydrogen comparative to diesel for running vehicles is now similar and even slightly less expensive due to recent increases in diesel prices. The risk of additional revenue costs for fuel is therefore considered low.
- 6.4 As there is very limited use of hydrogen RCVs elsewhere it is difficult to provide certainty regarding ongoing repair and maintenance costs. The use of hydrogen fuel cells on RCVs is relatively untested, and therefore carries an element of risk, however there is the potential for maintenance costs to be lower given there are no combustion engine components subject to wear and tear. On balance, it is considered that the project is unlikely to have any significant revenue budget implications.

## **8. EQUALITY IMPACT ASSESSMENT**

An Equality Impact Assessment has been carried out.

## **9. CONSULTATION**

The Director of Finance and Director of Legal and Democratic Services were consulted in the preparation of this report.

**NOTE:** The background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (other than any containing confidential or exempt information) which were relied on to any material extent in preparing the above report are:

- [Report 337/21](#)
- Report 109/22 (Exempt)

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## Equality Impact/Fairer Scotland Duty Assessment Form

(To be completed with reference to Guidance Notes)

### Step 1

**Name of Proposal** (includes e. g. budget savings, committee reports, strategies, policies, procedures, service reviews, functions):

Hydrogen powered refuse collection vehicles demonstration project.

### Step 2

Is this only a **screening** Equality Impact Assessment

No

**(A)** If Yes, please choose from the following options **all** reasons why a full EIA/FSD is not required:

(i) It does not impact on people

No

(ii) It is a percentage increase in fees which has no differential impact on protected characteristics

Yes

(iii) It is for information only

Yes

(iv) It is reflective e.g. of budget spend over a financial year

Yes

(v) It is technical

Yes

If you have answered yes to any of points above, please go to **Step 16**, and sign off the Assessment.

**(B)** If you have answered No to the above, please indicate the following:

Is this a full Equality Impact Assessment

Yes

Is this a Fairer Scotland Duty Assessment

No

If you have answered Yes to either or both of the above, continue with Step 3.

If your proposal is a **strategy** please ensure you complete Step 13 which is the Fairer Scotland Duty Assessment.

### Step 3

(i)Lead Directorate/Service:

Vibrant Communities and Sustainable Growth / Environmental Services

(ii)Are there any **relevant** statutory requirements affecting this proposal? If so, please describe.

None.

(iii)What is the aim of the proposal? Please give full details.

To progress the transition of the council's fleet to zero emission vehicles and reduce carbon emissions.

(iv)Is it a new proposal?      **Yes** Please indicate      OR

Is it a review of e.g. an existing budget saving, report, strategy, policy, service review, procedure or function?      No      Please indicate

#### **Step 4: Which people does your proposal involve or have consequences for?**

Please indicate all which apply:

Employees	Yes
Job Applicants	No
Service users	Yes
Members of the public	Yes

#### **Step 5: List the evidence/data/research that has been used in this assessment (links to data sources, information etc which you may find useful are in the Guidance). This could include:**

**Internal data** (e.g. customer satisfaction surveys; equality monitoring data; customer complaints).

Not applicable

**Internal consultation** (e.g. with staff, trade unions and any other services affected).

Consultation has been undertaken with drivers, fleet managers and vehicle maintenance provider (Tayside Contracts). Economic Development officer has also been consulted on how proposals align with related initiatives at regional level.

**External data** (e.g. Census, equality reports, equality evidence finder, performance reports, research, available statistics)

Data from the Energy savings Trust on carbon emissions of our current vehicle fleet has been reviewed.

**External consultation** (e.g. partner organisations, national organisations, community groups, other councils.

Transport Scotland and the Hydrogen Accelerator (Scottish Government sponsored project) have been consulted.

**Other** (general information as appropriate).

### **Step 6: Evidence Gaps.**

Are there any gaps in the equality information you currently hold? No

If yes, please state what they are, and what measures you will take to obtain the evidence you need.

**Step 7: Are there potential differential impacts on protected characteristic groups?** Please complete for each group, including details of the potential impact on those affected. Please remember to take into account any particular impact resulting from **Covid-19**.

**Please state if there is a potentially positive, negative, neutral or unknown impact for each group. Please state the reason(s) why.**

Age

**Impact**  
**Neutral**

Disability

**Impact**  
**Neutral**

Gender reassignment

**Impact**  
**Neutral**

Marriage and Civil Partnership

**Impact**

**Neutral**

Pregnancy/Maternity

**Impact**

**Neutral**

Race - (includes Gypsy Travellers)

**Impact**

**Neutral**

Religion or Belief

**Impact**

**Neutral**

Sex

**Impact**

**Neutral**

Sexual orientation

**Impact**

**Neutral**

There will be no differential impacts on protected characteristic group, however all groups should benefit from lower vehicle exhaust emissions.

**Step 8: Consultation with any of the groups potentially affected**

If you have consulted with any group potentially affected, please give details of how this was done and what the results were.

If you have not consulted with any group potentially affected, how have you ensured that you can make an informed decision about mitigating action of any negative impact (Step 9)?

No negative impacts identified.

**Step 9: What mitigating steps will be taken to remove or reduce potentially negative impacts?**

**Step 10: If a potentially negative impact has been identified, please state below the justification.**

**Step 11: In what way does this proposal contribute to any or all of the public sector equality duty to:** eliminate unlawful discrimination; advance equality of opportunity; and foster good relations between people of different protected characteristics?

**Step 12: Is there any action which could be taken to advance equalities in relation to this proposal?**

### **Step 13: FAIRER SCOTLAND DUTY**

This step is only applicable to **strategies** which are key, high level decisions. If your proposal is **not** a strategy, please leave this Step blank, and go to Step 14.

Links to data sources, information etc which you may find useful are in the Guidance.

**Step 13(A) What evidence do you have about any socio-economic disadvantage/inequalities of outcome in relation to this strategic issue?**

**Step 13(B) Please state if there are any gaps in socio-economic evidence for this strategy and how you will take measures to gather the evidence you need.**

**Step 13(C) Are there any potential impacts this strategy may have specifically on the undernoted groupings?** Please remember to take into account any particular impact resulting from **Covid-19**.

**Please state if there is a potentially positive, negative, neutral or unknown impact for each grouping.**

**Low and/or No Wealth** (e.g. those with enough money to meet basic living costs and pay bills but have no savings to deal with any unexpected spends and no provision for the future.

### **Impact**



**Material Deprivation** (i.e. those unable to access basic goods and services e.g. repair/replace broken electrical goods, warm home, leisure and hobbies).

**Impact**

**Area Deprivation** (i.e. where people live (e.g. rural areas), or where they work (e.g. accessibility of transport).

**Impact**

**Socio-economic Background** i.e. social class including parents' education, people's employment and income.

**Impact**

**Other** – please indicate

**Step 13(D) Please state below if there are measures which could be taken to reduce socio-economic disadvantage/inequalities of outcome.**

**Step 14: What arrangements will be put in place to monitor and review the Equality Impact/Fairer Scotland Duty Assessment?**

**Step 15: Where will this Equality Impact/Fairer Scotland Duty Assessment be published?**

**Step 16: Sign off and Authorisation.** Please state name, post, and date for each:

Prepared by: Graeme Dailly, Service Leader – Environmental Services

Reviewed by: Susanne Austin, Team Leader – Waste Strategy and Compliance

Approved by: Alison Smith, Director Vibrant Communities and Sustainable Growth

NB. There are several worked examples of separate EIA and FSD Assessments in the Guidance which may be of use to you.

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