

Title: Future of Hydrogen Hub Project  
Lead Officer: Dave Barber & Katie McAuley-White  
Portfolio Holder: Councillor James Kennedy  
Wards of the District directly affected: All

<b>Approvals required</b>	<b>Date</b>	<b>Name</b>
<b>Portfolio Holder</b>	12/10	James Kennedy
<b>Finance</b>	12/10	Andrew Rollins
<b>Legal Services</b>		
<b>Chief Executive</b>	12/10	Chris Elliott
<b>Director of Climate Change</b>	9/10	Dave Barber
<b>Head of Service(s)</b>	9/10	N/A
<b>Section 151 Officer</b>	12/10	Andrew Rollins
<b>Monitoring Officer</b>	12/10	Graham Leach
<b>Leadership Co-ordination Group</b>	16/10	
<b>Final decision by this Committee or rec to another Cttee / Council?</b>	Yes Recommendation to: Cabinet	
<b>Contrary to Policy / Budget framework?</b>	No	
<b>Does this report contain exempt info/Confidential? If so, which paragraph(s)?</b>	No, but has a confidential appendix	
<b>Does this report relate to a key decision (referred to in the Cabinet Forward Plan)?</b>	Yes, if recommendation 4a is accepted, a further report will be brought to Cabinet in Spring 2024.	
<b>Accessibility Checked?</b>	Yes	

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## Summary

The Council has been exploring the potential to develop a hydrogen hub within the District, linked to decarbonising the refuse collection fleet and bringing wider benefits for the green economy. Given the level of risk and uncertainty that still remains, this report seeks Cabinet approval to stop the hydrogen hub project. It is recommended that the decarbonisation options for the Council's refuse collection vehicles are reassessed by 2025/26, including reviewing the possibility of a hydrogen fleet, battery-electric or any alternatives that come forward in the next 2 years. This report recommends that HVO be explored as a short-term, stop-gap solution to reduce carbon emissions from the existing fleet of RCVs.

## Recommendation(s)

- (1) That work on the hydrogen hub feasibility be stopped and that proposal does not progress to formal live project status.**
  - (2) That, subject to recommendation 1 being agreed, the Hydrogen Strategy adopted at Cabinet in September 2022 be reviewed and further report brought to Cabinet to consider changes to the Strategy.**
  - (3) That Cabinet note that there is a risk the £75,000 of UK Shared Prosperity Fund funding allocated for the hydrogen project for financial years 2023-24 and 2024-25 may need to be returned, unless alternative proposals can be identified that deliver similar outcomes.**
  - (4) That work continues to be done to meet the Climate Change Action Programme's ambition to reach net zero for our contracted services by 2030, including:**
    - a. working with the contractor and Stratford District Council to explore Hydrogenated Vegetable Oil (HVO) as an interim means of reducing our RCV fleet's carbon emissions, with a further report to Cabinet in Spring 2024.**
    - b. Reviewing options for decarbonising the Refuse Collection Fleet in 2025/26, to enable a longer-term solution to be place by 2030.**
  - (5) That the remainder (approximately £45,000) of the £90,000 agreed at July 2022 Cabinet to support the continuation of the hydrogen hub feasibility work be returned to the Climate Change Reserve.**
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## 1 Reasons for the Recommendations

- 1.1 The cross-party Climate Change Action Programme Review Working Group discussed the hydrogen hub briefing paper at its meeting on Monday 2<sup>nd</sup> October 2023, and provided a steer as to the future of the hydrogen project, which has in turn informed the recommendations of this Cabinet report. The briefing paper and its appendices that were considered at this CCAP Working Group meeting are included at Appendix 1.
- 1.2 Whilst recognising the potential benefits of producing hydrogen locally, the CCAP Working Group considered that the potential costs and continuing uncertainties and risks around both hydrogen production and the future technology options for refuse collection vehicles are too significant at this time and that resources (both financial and officer time) could be better used on

other projects in line with the emerging Corporate Strategy, such as decarbonising buildings.

- 1.3 There is a careful balance to be struck between giving time to allow low carbon technologies for refuse collection vehicles to mature and allowing enough time to plan for alternatives ahead of a new waste collection contract and ahead of the existing commitment to decarbonise Council contracts by 2030. The decision to stop the hydrogen project and pause any further work on fleet decarbonisation until 2025/26 seeks to strike this balance, although it must be recognised that given the uncertainties, there are risks that revisiting this as late as 2025/26 might impact the Council's current ambitions to reach net zero by 2030 including contracted services. It is for this reason that it is recommended that further thought be given to HVO as an alternative fuel for the next 5-6 years, before a new fleet of vehicles is procured. In the meantime, officers will continue to keep abreast of technology innovations in this area and should opportunities arise earlier than 2025/26 these can be shared with members for consideration.
- 1.4 The Hydrogen Strategy that was adopted at Cabinet in July 2022 sets out a clear timeline to build a hydrogen hub, aiming for the first provision of hydrogen for public service vehicles in 2024/25. If recommendation 1 is agreed, a significant element of the hydrogen strategy will become unachievable, and it will therefore be necessary to review this strategy. It is therefore recommended that this review takes place over the next 3 to 6 months in the context of the new Corporate Strategy, with a view to bringing forward a further report to Cabinet for consideration.
- 1.5 Officers recommend that Cabinet acknowledge the possibility of needing to return the £75,000 of UKSPF funding that had been allocated to the hydrogen project to Central Government (£30,000 CapEx for FY 2023-24 and £45,000 CapEx for FY 2024-25). Officers will explore the potential to apply to funding to alternative project that could meet the same outcomes and could therefore be acceptable to the SPF funders. However, there is a limited amount of time to achieve this, so it would need to be a project that is already being progressed, but is not funded. Potential examples might include EV charging infrastructure or solar panels. However, until further discussions have taken place it is not known whether the funders will be satisfied that alternative projects will comply with the intended interventions: which are:
  - R&D grants supporting innovative product & service development
  - Development of innovation infrastructure at the local level
  - Supporting decarbonisation whilst growing the local economy
  - Support relevant feasibility studies
- 1.6 Following the outcome of this Cabinet meeting, officers will consult with DLUHC to discuss the matter of this UKSPF funding, including any flexibility around the interventions given the change in project scope.
- 1.7 With regards Recommendation (5), at the Cabinet meeting of July 2022 where the hydrogen paper was discussed, there was an additional £40,000 approved for continuation of the technical feasibility work by Kingscote Enterprises and £50,000 approved for specialist commercial partnership advice.
- 1.8 It is important to note that the original contract for Kingscote (at a value of up to £50,000) was awarded through an exemption and was for the technical work on phase 1 of the project, including the feasibility study itself that was brought

to Cabinet in July 2022. This takes the value of the Kingscote contract up to a maximum of £90,000, but there is a unspent balance for the more recent £40,000 extension part to this contract.

- 1.9 Since July 2022, there has been considerable technical work carried out by Kingscote Enterprises,, including an update to the feasibility study to reflect recent market developments, and an in-depth location appraisal report, resulting in the selection of a preferred location for the hydrogen hub, if we were to continue with the project. This is in addition to supporting a number of premarket engagement sessions with hydrogen industry key players. However, there was further technical work envisaged, should the hydrogen project continue, therefore we have some underspend on this £40,000 extension to the original contract, which can be reallocated internally.
- 1.10 Since July 2022, Local Partnerships were appointed as our specialist commercial partnership advisors. Some DLUHC funding has meant that a significant proportion of their work on our hydrogen project has been funded externally, but we have paid for the remainder of their work to date, supporting on procurement routes and potential delivery models, weighing up risk/reward balance of each, as well as their attendance at the aforementioned premarket engagement sessions. We also have underspend for this piece of work, given we had further plans to work with Local Partnerships to establish our route forward in terms of procurement route and delivery model, if the hydrogen project were to continue. This can also be reallocated internally.
- 1.11 It is estimated that the combined underspend across the two contracts will be around £45,000 with the precise figure to be confirmed once outstanding commitments are paid.
- 1.12 Given the current waste contract is a shared contract with Stratford District Council, it is important that we continue to liaise with SDC around our fleet decarbonisation plans in the short-term, such as potentially trialing HVO in some RCVs and smaller vehicles.
- 1.13 In addition to this, given the complexity of the procurement of a waste contract and the need for extensive soft market testing, it is recommended that 2025/26 is an appropriate time for discussions to be had around the future waste contract(s) across South Warwickshire. This is particularly relevant when discussing low carbon RCVs, such as hydrogen fuel-cell or battery-electric, as whichever option is chosen, a significant amount of infrastructure work will need to be planned out and implemented in advance of a new fleet's operation.
- 1.14 The question around the continuation of the shared waste contract is particularly important when comparing the geography of the two districts and the impact this would have on vehicle optimisation. One vehicle technology may be more suited to an urban round, but where a contract spans the more rural areas of Stratford District as well, the solution may not be as straightforward. It is currently understood that a hybrid approach (installing a hydrogen refuelling station and battery electric charging station) can be difficult to implement due to the need for two different types of extensive infrastructure installation.

## **2 Background**

- 2.1 The hydrogen briefing paper that was discussed at the CCAP Working Group on 2<sup>nd</sup> October forms the basis of the background to the hydrogen project and how we came to this point. The decision around the recommendations for this Cabinet report was made at the aforementioned CCAP Working Group meeting, following review of the paper at Appendix 1.

- 2.2 The Cabinet reports from July 2022 and September 2022 give further background on the hydrogen project and ambitions.

### **3 Alternative Options**

- 3.1 There were three alternative options set out in the briefing paper at Appendix 1. The simplest alternative would be to do nothing until 2029/2030 and instead place all onus on the contractor when we go out to procurement for the new contract. This option is still possible, depending on the decision made in 2025/26, but it was not recommended now as this removes all control or influence the Council may have on the decarbonisation of the fleet and means we would make no progress towards our net zero targets in the meantime.
- 3.2 Another alternative was to launch into the hydrogen project immediately, commencing the process of converting the existing RCVs to dual-fuel diesel-hydrogen and aiming to procure a private sector company to help develop the hub itself, aiming for local hydrogen production by 2027. This was seen as the riskiest option, as it is understood to be a significant investment committing to a technology that could be argued to be new and unproven in this sector. There were multiple ways this option could have been delivered, depending on delivery model for the hub. Some options may require direct investment from the Council, while other options would adopt a lease or concession model whereby no direct investment from the Council is required and a hydrogen hub could still be developed on our preferred site, at the cost and risk of the private sector. A downside to the latter would be limited control over pricing of hydrogen and a lack of revenue stream coming in from the sale of hydrogen. This is in addition to the Council needing to commit to purchasing a level of 'anchor demand' hydrogen from the private sector company in order to attract their investment in the site, so the 'lease' option has significant risks of its own, albeit no direct financial investment from the Council required. Bringing forward either of these delivery model options would require a considerable amount of officer time. Regardless of delivery model, this option to launch into the hydrogen project immediately was considered too risky to commit to in 2023.
- 3.3 A third option followed a similar route to that set out in 3.2, but instead sought to use HVO as a means of reducing the current RCVs' carbon emissions (with no dual-fuel conversions). This also lessened the urgency of having the hydrogen hub up and running ahead of 2029/30 (as there would be no fleet requirement for hydrogen), so the timelines were pushed about 2 years back, but otherwise reflected the key project milestones of the option set out in 3.2.
- 3.4 A further option was considered, following a briefing with relevant Portfolio Holders on 12<sup>th</sup> September. Officers recommended that a portion of the remaining funding for the hydrogen project (approx. £45,000 as previously mentioned), be used instead to commission a detailed study into all low carbon alternatives for RCV fleet decarbonisation (namely hydrogen, battery-electric and HVO). This would theoretically remove the doubts and concerns with regards to committing to a new technology. For example, if the new study recommended hydrogen would be most suited to either Warwick District or South Warwickshire's RCV fleet, the Council could be more reassured that the development of a hydrogen hub in the district is worthwhile and less 'risky'. Equally, for a battery-electric fleet, there would need to be a considerable amount of research into electricity grid capacity in the area, as well as potential battery storage (and associated costs) so this study could provide us with this, to compare and reach an informed decision on the way forward. It was recommended that we review all options in 2025/26 and not commission this

study now.

#### **4 Legal Implications**

4.1 No legal implications.

#### **5 Financial Services**

5.1 As set out in paragraphs 1.8 to 1.11, there is likely to be an unspent balance of approximately £45,000 from the £90,000 agreed by Cabinet for the Hydrogen Feasibility work at its meeting in July 2022. As this funding was drawn from the Climate Change reserve, it is appropriate that this underspend should be returned to the reserve.

5.2 The other financial implication is the risk that we will need to return the £75,000 of UKSPF funding that has been allocated to the hydrogen hub project. However efforts will be made to meet the specific conditions set out previously in the report, to reallocate this funding to an alternative project.

5.3 It is also important to note the original £50,000 Kingscote contract for this project, which paid for phase 1 of the technical feasibility work, including the feasibility study brought to Cabinet in July 2022. This was funded from the then Climate Action Fund.

#### **6 Business Strategy**

6.1 The Corporate Strategy will be considered by Cabinet on the same agenda as this report. Anticipating that the emerging Corporate Strategy is agreed by Cabinet and approved by Council in November, the recommendations for the Hydrogen Feasibility study set out in this report, are consistent with the emerging Corporate Strategy and in particular, the potential to reallocate funding and staff resources to emerging priorities will support the delivery of the new corporate strategy.

6.2 **Health, Homes, Communities** – Given the nature of the project as an infrastructure project that should not impact on the waste collection service (as the service should remain the same for residents regardless of fuel type), it is not considered that the recommendations within this report impact homes/communities. However, should there be no action taken to reduce carbon emissions of our RCVs following this report, it could be said to have a negative impact on air quality and therefore the health of our residents.

6.3 **Green, Clean, Safe** – It is possible that the recommendations within this report will impact our ability to meet our ambitions for carbon emission reductions in the district. However recommendation 4 seeks to minimise this impact whilst minimising risk.

6.4 **Infrastructure, Enterprise, Employment** – A key strand of the Hydrogen Strategy, adopted at Cabinet in September 2022, was to develop a hydrogen economy in the district, creating green jobs and attracting green investment to the area. In the event that a cost effective hydrogen hub could have been delivered, the recommendations in this report could be considered to have a negative impact on this aim. However given the risks and uncertainties that remain regarding local hydrogen production, the impact on this aim is unknown. .

6.5 **Effective Staff** – This report provides the potential to reallocate staff time to workstreams that align directly with the emerging corporate strategy.

6.6 **Maintain or Improve Services** – Arguably, the decarbonisation of our RCV fleet could be seen as an improvement to our service, given the experience for

the resident should not change but the carbon emissions would be reduced. Depending on the decision to use HVO in the short-term, it could be argued that the recommendations in this report have a negative impact on the 'improve services', aspect if carbon emissions are not reduced, but should not impact our ability to maintain the existing service.

- 6.7 **Firm Financial Footing over the Longer Term** – The recommendations in this report remove any possibility of Council investment in a hydrogen hub within the next 3 years, which could be seen as a positive influence on this strategic aim. Given the residual risks and uncertainties involved with the hydrogen hub and conversion of the RCVs, the recommendations of this report remove any financial risks to the Council, at least until the review in 2025/26.

## **7 Environmental/Climate Change Implications**

- 7.1 As set out in paragraph 1.3, the recommendations within this report pose a risk to the CCAP's ambition to deliver net zero by 2030 for contracted services as the time required to plan for a low carbon waste collection service will be more limited. As around a third of the Council's carbon emissions arise from the refuse collection vehicles, taking no further action would not be appropriate. Recommendation 4, therefore seeks to provide a way forward to reduce RCV carbon emissions for both the interim and long-term. However there are significant concerns about HVO and in particular the finite supply of truly sustainably-sourced HVO in the context of increasing demand. This will need to be given careful consideration in the work to explore this as an alternative.

## **8 Analysis of the effects on Equality**

- 8.1 No equality impacts identified for this report.

## **9 Data Protection**

- 9.1 No data protection issues within this report.

## **10 Health and Wellbeing**

- 10.1 No health and wellbeing impact identified other than potential detrimental impact on air quality should no further action be taken in terms of RCV decarbonisation for the next 3 years and beyond.

## **11 Risk Assessment**

- 11.1 The risks of all options in the briefing paper at Appendix 1 are set out in Section 4 of the paper. The specific risks identified for the recommendations of this Cabinet report are as follows:
- 11.2 Unknown lead times for key pieces of kit for either hydrogen or battery-electric refuelling facilities if kit ordered following a decision in 2026 or after. Could cause significant delays to readiness of fuelling infrastructure and means we may have zero-carbon vehicles with no zero-carbon fuel.
- 11.3 Technologies are always advancing, therefore by 2026 there may still be no clear 'winner' so some form of informed risk will need to be taken when committing to our decarbonised fleet from 2030.
- 11.4 The hydrogen project currently has a considerable amount of momentum behind it, which has built over the last two years, engaging with national and regional stakeholders as well as the hydrogen industry. This is essential to the business case, especially in terms of offtakers, and would need to be built up over time again if hydrogen was our preferred option in 2026.

- 11.5 If HVO is not deemed to be suitable for short-term use, there would be no reduction in carbon emissions for our RCVs until at least 2026 or beyond.
- 11.6 Other local authorities are already looking into RCV fleet decarbonisation options. It is possible that a number of authorities will announce the implementation of hydrogen, battery-electric, dual-fuel or other low carbon fleets in the coming months and years, which could raise questions from residents on our lack of action.
- 11.7 There are alternative uses being considered for the preferred site and if we do not specifically request land for the hydrogen hub, we will have lost the opportunity for a hydrogen hub at this site, for the duration of the lease.
- 11.8 Access to the local renewable energy source may be lost if the project is not progressed and it is unknown whether there will be alternative green energy sources after 2025/26.

## **12 Consultation**

- 12.1 Briefing with the Leader and relevant portfolio holders on 12<sup>th</sup> September 2023.
- 12.2 Consideration by the cross-party Climate Change Action Programme Working Group meeting on 2<sup>nd</sup> October 2023.

### **Background papers:**

#### **APPENDIX 1 (Private and Confidential)**

080923 Finalised Hydrogen Briefing Paper

- Appendix 1 – Delivery Model Options LP
- Appendix 2 – Local Authorities looking into hydrogen
- Appendix 3 – Executive Summary of May 2022 Feasibility Study
- Appendix 4 – RCV Options

(Please note the 4 appendices are included within the one private and confidential document at Appendix 1).

### **Supporting documents:**

Cabinet reports from both July and September 2022 (Continuation of Hydrogen Hub project and Hydrogen Strategy respectively)