

## REQUEST FOR MAYORAL DECISION – MD1306

### Title: Coordination of the Hydrogen for Innovative Vehicles (HyFIVE) Project

#### Executive Summary:

The project is a European project seeking to deploy approximately 100 hydrogen fuel cell electric vehicles (FCEVs) and create clusters of hydrogen refuelling station networks in three areas of Europe: London, Copenhagen – Southern Sweden, Southern Germany – Austria – Northern Italy. Approximately 50 of the vehicles (Honda, Hyundai and possibly Toyota) and three new refuelling stations will be deployed in London. The GLA will act as project coordinator and communication lead for the project and will enter into a grant funding agreement (if application successful) with Fuel Cells and Hydrogen Joint Undertaking (FCH JU) up to a maximum of up to £486,000 in order that the GLA may deliver the following activities: project coordination, including financial coordination on behalf of the consortium; and project dissemination and education. The GLA shall also enter in to a consortium agreement with project partners. The Investment and Performance Board endorsed the above recommendations on the 15 November 2013.

#### Decision:

The Mayor of London approves:

1. entry in to a grant funding agreement with Fuel Cells and Hydrogen Joint Undertaking (FCH JU) (if funding application is successful);
2. entry into a consortium agreement with the consortium project partners;
3. GLA acting as project coordinator for the project;
4. GLA acting as project communication and dissemination coordinator for the project and coordinator of London focused communications; and
5. expenditure of up to a maximum of £486,000 in order to establish sufficient and appropriate resources, services and supplies, to be grant funded by the FCH JU (if funding application is successful).

#### Mayor of London

I confirm that I do not have any disclosable pecuniary interests in the proposed decision, and take the decision in compliance with the Code of Conduct for elected Members of the Authority.

The above request has my approval.

**Signature:**

**Date: 28 January 2014**

## PART I - NON-CONFIDENTIAL FACTS AND ADVICE TO THE MAYOR

### Decision required – supporting report

#### 1. Introduction and background

- 1.1 The GLA has for many years convened the and acted as the secretary for, the London Hydrogen Partnership, which together have initiated up to £50 million of investment in the last five years. The GLA is directly involved in a number of live projects to ensure that London is at the forefront of fuel cell and hydrogen technologies and transport.
- 1.2 The Fuel Cells and Hydrogen Joint Undertaking (FCH JU) is a unique public private partnership supporting research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe. Its aim is to accelerate the market introduction of these technologies, realising their potential as an instrument in achieving a carbon-lean energy system. The three members of the FCH JU are the European Commission, fuel cell and hydrogen industries represented by the NEW Industry Grouping and the research community represented by Research Grouping N.ERGHY. They have a pre-defined budget of sufficient critical mass - nearly € 1 billion jointly contributed by the members - and a 6-year timetable.
- 1.3 To ensure progress and success is maintained the GLA joined a consortium bid for funding to the FCH JU. The consortium has been invited to negotiation with the FCH JU, which commenced in September 2013, with a project start assumed for April 2014.
- 1.4 The HyFIVE (Hydrogen For Innovative Vehicles) project is an ambitious £31.3m European project seeking to demonstrate the commercial viability of the hydrogen fuel cell automobile market through: A) deployment of 100 fuel cell electric vehicles (FCEVs) from the five global automotive companies leading the commercialisation of FCEVs (BMW, Daimler, Honda, Hyundai and Toyota). B) The creation of refuelling station networks in three European geographical clusters: Greater London, Copenhagen (Copenhagen, Aarhus, Malmo) and 'Southern' (Bolzano, Innsbruck, Munich, Stuttgart). Five new stations are planned, alongside 11 existing stations supplied by project partners (Air Products, Linde, OMV, ITM Power and Copenhagen Hydrogen Network).
- 1.5 Circa 50 of the 100 vehicles (Honda, Hyundai and possibly Toyota) and three new refuelling stations will be deployed in London. It is proposed that the HyFIVE project is coordinated by the Greater London Authority (GLA), supported by Element Energy (A clean energy technology consultancy and consortium member). By taking the coordination role, the GLA has helped to secure the majority of investment in London.
- 1.6 The project has a total budget of £31.3 million with a grant funding request of £14.9 million. The GLA will (dependent on successful negotiation with the FCH JU) receive £486,000 of funding from the FCH JU to deliver the following activities: project coordination, including financial coordination on behalf of the consortium; and project dissemination and education. There is a requirement for all project partners to pay a fixed contribution, calculated as an equivalent of 4% of the total attributed grant, towards the funding of the running costs of the Programme Office of the FCH JU. This amount is payable in full at the time of the first pre-payment received from the FCH JU. This will mean that the GLA will receive net £466,560 – which has been accounted for in the budget requirements for the GLA to coordinate the project.
- 1.7 The GLA will undertake the following activities:
  - 1.7.1 **Project coordination:** manage the progress of the project as a whole and will be supported by supported by three cluster coordinators - Element Energy (London), Hydrogen Link (Copenhagen Cluster) and IIT (Southern Cluster) in each of the HyFIVE regions. This will include overseeing the strategic direction of the project, ensuring good communication

between partners, timely reporting, and establishing and supporting a Steering Board that will recommend remedial actions as necessary. The steering board will include representatives of each partner in the project (Original Equipment Manufacturers (or OEMs) – motor manufacturers, Hydrogen Refuelling Station providers (HRS), technical analysts and the cluster coordinators). It will meet formally bi-annually meetings and will be empowered to take decisions (by consensus) as required on the direction of the project or other issues relating to the successful completion of the project (e.g. non-delivery by a partner) via ad-hoc meetings by teleconference as required.

1.7.2 **Financial coordination:** coordinate the grant financial aspects of the project and set up a system to handle payments from the FCH JU and distribute them to the partners as required by the overall FCH JU contract. The financial coordinator will support the partners' timely submission of their cost statements (which will be at designated points during the project) to the FCH JU, communicate FCH JU grant claim requirements to project partners, and monitor its own budget. The GLA will be the interface to the FCH JU financial officer. Hence, the financial coordinator will be responsible for liaising with the consortium members to resolve queries with their cost statements. The financial coordinator will be responsible for producing the summary of the financial expenditure in the yearly reporting and will produce brief ad-hoc reports, in collaboration with partners, of any financial issues which may arise during the project, detailing how they have been/could be resolved. The GLA are only responsible for the distribution of FCH JU grant payments, and it is the FCH JU that determines the accuracy of cost statements and they who release additional payments, for distribution by the GLA, once their grant claim requirements have been met.

1.7.3 **Communication and Dissemination:** disseminate the project outcomes and industry plans for the sector to the public and a targeted audience of potential early adopters, decision makers and opinion formers. Each cluster dissemination partner, along with the GLA, will ensure high quality national dissemination in each of the countries which are involved in HyFIVE (where the impact of the demonstrations is likely to be highest), and the GLA, with cluster dissemination partners, will perform pan-European dissemination activities to target key European policymakers and Member States not involved in the project.

1.8 The GLA's risk in being project coordinator for the project has been mitigated as far as practicable, and it will be ensured that the consortium agreement (this is currently being drafted by a project partner for consideration by all partners) signed between the project partners and the FCH JU limits the GLA's legal and financial obligations to those that are manageable and proportionate to the level of funding received and the deliverables of the project. For example, if there is overspend by any organisation it is that organisation, alone, which bears the financial impact of that overspend. No organisation, including the FCH JU, is liable for addressing the overspend of an organisation, with the FCH JU only providing grant funding up to the agreed level identified in the grant agreement – any spend that exceeds that is met by the organisation alone.

1.9 Where systematic underperformance may threaten the success of the project, the steering board will act as the ultimate arbiter for solving disputes and proposing/validating corrective actions. The project coordinator, supported by the cluster coordinators, will report systematic under-performance to the steering board in a report reviewing the situation and request the steering board to form a position on possible remedies, including ways of bringing pressure on the organisation partner concerned, or threats of suspending or expelling a partner. There is no contractual liability for the GLA as project coordinator if an organisation does not meet their contractual obligations – with each organisation having their own identified contractual obligations with the FCH JU detailed in the consortium agreement.

1.10 The GLA will be supported by Element Energy – a low carbon engineering consultancy, with over 15 years experience of hydrogen energy and fuel cell sectors. Element Energy is a project partner and long term London Hydrogen Partnership member, who is currently working with the GLA on a number of live hydrogen projects. They will be the London cluster coordinator, managing partners to

deliver the hydrogen refuelling stations, deploy the hydrogen fuel cell electric vehicles (FCEVs), collect data and develop policy recommendations for hydrogen transport commercial roll out in London and Europe. They will also support project coordination tasks, including, meeting management, reporting to the FCH JU, and financial administration. The GLA is also able to reassign certain tasks to other consortium members and/or subcontract tasks and deliverables to a third party if required.

- 1.11 The GLA as project coordinator will be supported by cluster coordinators (Element Energy for London cluster, Hydrogen Link for Scandinavian cluster, IIE for Southern Cluster), who will be responsible for tracking and ensuring the progress and delivery of each of the HyFIVE deliverables against overall project and cluster-specific project plans.
- 1.12 The GLA has the following resource commitment for the project: 42 person months for coordination activities; 17 person months for communication and dissemination; and 2 person months for data collection, analysis and reporting. This translates to two members of staff at grade 10 and grade 6 for the duration of the project. Consortium members are also committed to provide: 47.5 person months for regional coordination; 73.5 person months for data collection, analysis and reporting; and 22 person months for communication and dissemination, in addition to the GLA's resource commitment.
- 1.13 The resources for the GLA, with respect to person months and budget, the support from Element Energy, the resource commitment of consortium members, and the ability of the coordinator to reassign and/or sub-contract tasks and deliverables, provides sufficient resources and flexibility for the GLA to meet its project obligations and deliverables for the project.

## **2. Objectives and expected outcomes**

- 2.1 HyFIVE partners will address the final barriers which could prevent the commercial roll-out of hydrogen vehicles and refuelling infrastructure across Europe by creating Europe's largest *transnational* fuel cell passenger car project. The project will focus on the remaining pre-commercial barriers, moving key regions in Europe from a demonstration to a market initiation phase through the deployment of advanced FCEVs, together with research activities which focus on the early market issues, and dissemination activities focussed on preparing the market for FCEV launch.
- 2.2 The project aims to:
  - Validate the performance of pre-commercial fuel cell electric vehicles before volume production;
  - Investigate and implement maintenance and servicing strategies for the FCEVs by linking to existing after-sales activities as closely as possible;
  - Develop a new luxury FCEV solution;
  - Demonstrate hydrogen refuelling station (HRS) reliability in excess of 98% (level of availability to refuel), expand refuelling coverage and generate learning in operation of a hydrogen refuelling network;
  - Contribute to the industry's efforts to resolve outstanding technical issues with HRS designs.
  - Expand and consolidate the existing hydrogen networks and maximise refuelling coverage to improve utility for early adopters;
  - Identify the very early adopters of FCEVs and their practical requirements for day to day vehicle use;
  - Collect data which will allow validation of the readiness of the technology for full commercial roll-out;
  - Ensure buy-in from the key actors and avoid ungrounded expectations.

### 2.3 Outcomes of the project will be:

- Place London at the forefront of fuel cell and hydrogen technologies worldwide by deploying vehicles and HRS on a scale and with a diversity of leading global OEMs which is comparable to any other deployment project occurring worldwide.
- Encourage increased public and private investment in fuel cells and hydrogen technologies in London by forming a pre-commercial vehicle and HRS deployment cluster as one of the three regions most likely to act as early adopters.
- Help demonstrate the achievability of London's policy objectives for greenhouse gas and air pollution reduction, energy security and competitiveness.
- Support research and technology development in London and the UK associated with the European Seventh Framework Programme by building on the experience of existing FP7 projects in London and UK, including CHIC, HyTEC, and SWARM, all of which share at least one partner with HyFIVE.

## 3 Other considerations

### 3.1 Appendix 1 highlights the main risks and their mitigation strategies as perceived at the bid stage of the project. Key risks to the GLA as accountable body for funding as coordinator and for consortium partners and those additionally identified independently by the FCH JU include:

- Overspend by one of the project partners. If there is overspend by any organisation it is that organisation, alone, which bears the financial impact of that overspend. No organisation, including the FCH JU, is liable for addressing the overspend of an organisation, with the FCH JU only providing grant funding up to the agreed level identified in the consortium agreement – any spend that exceeds that is met by the organisation alone;
- Underperformance by one or more project partners or unobtainable objectives;
- Underperformance by one or more project partners and the reputational impact for the Mayor and GLA;
- Delays in design and construction and/or siting permitting issues of HRS;
- HRS size criteria, as defined by the FCH JU;
- Poor reliability of infrastructure or maintenance issues;
- Demonstration criteria for vehicles, i.e. must be available to the public to drive. This is only an issue for Daimler and BMW.
- Inability to place vehicles with end users;
- Intellectual Property and confidentiality issues with data and information transfer and publication of meaningful results;
- Inaccurate or incomplete data;
- Access to end users and OEM supply chains; and
- Dissemination activities hindered by lack of engagement from decision and policy-makers

### 3.2 In broad terms, the risks above are low with regard to the role of the GLA, but medium – even after mitigation – with regard to the overall objectives of the project. These however will be shared by project partners, which include global car manufacturers experienced in managing major capital projects. There will remain an inherent risk in successfully demonstrating a new technology for the consumer market that has significant supply and demand side barriers to resolve. But that, arguably, is the whole point of the project – to show that the inherent opportunities are strong enough to overcome these barriers.

### 3.3 As stated in paragraph 1.1 and 1.3 this project ensures that progress and success is maintained, with the objectives and deliverables contributing to the delivery of the following Mayoral strategies: Economic Development, Jobs and Growth, London Plan, 2020 Vision, Smart London, Infrastructure Plan, Transport, Climate Change Mitigation and Energy, Air Quality; and the following London priorities: jobs, investment, growth, technology development, secure-affordable-low carbon energy, cleaner air, .

- 3.4 Ethical issues have been considered and project partners confirm that there are no specific ethical Issues associated with the project or with the individual activities within the project or any future implementation. Any issue will be promptly addressed in case of occurrence.
- 3.5 No special gender, religion or sex orientation equality issue is expected to arise within HyFIVE. If any issue will arise, it will be promptly resolved at as a part of the daily project management, with the steering board as arbiter.
- 3.6 The overarching aim of this work package is to disseminate a set of messages and lessons that are consistent with the project outcomes and industry plans for the sector to a targeted audience. The dissemination will aim to spread a positive and accurate message about the commercial roll-out of hydrogen transport, which ensures buy-in from the key actors (early adopters, political decision makers and opinion formers), and informs and excites the public without mismanaging public perception and leading to ungrounded expectations ('hypes').

## **4 Financial comments**

4.1 The total budgeted cost of the HyFIVE project over 3.5 financial years from April 2014 to September 2017 is estimated to be £31.3 million. Subject to successful negotiation and approval with the FCH JU, £14.9 million of the total cost will be grant funded by FCH JU with partner contributions making up the remaining £16.4m.

4.2 Of the total grant funding, the GLA is seeking £486,000 to deliver the following activities: project coordination, project communication and dissemination. The remainder of the grant (i.e. £14,414,000) will be allocated to the partners as contribution to their costs.

4.3 All beneficiaries of the grant are obliged to contribute to the cost of the programme by paying a project contribution of 4% of the allocated grant to FCH JU. For the GLA, this is equivalent to the sum of £19,440 which will be payable in full from the first pre-payment received from FCH JU. All of the GLA's costs, including this contribution, will be met from the grant funding.

4.4 The net budget received by the GLA of £466,560 will fund the creation of two fixed term posts for 3.5 years (April 2014 to September 2017); at Grade 10 and Grade 6 respectively. All costs will be contained within the resources allocated.

4.5 The GLA, in its role as a project coordinator, will receive a total grant income of £14.9 million in instalments over the course of the 3.5 financial years. All appropriate budget adjustments will be made.

4.6 The Economic Business Policy Unit within the Development, Environment & Enterprise Directorate will be responsible for managing this project and ensuring all activities / project expenditure adheres to the Authority's Financial Regulations, Contracts & Funding Code, Expenses & Benefits Framework and Funding Agreement Toolkit.

## **5 Legal comments**

5.1 Sections 1 – 3 of this report indicate that the decisions requested of the Mayor in accordance with the GLA's Contracts and Funding Code fall within the GLA's statutory powers to do such things considered to further or which are facilitative of, conducive or incidental to the the promotion of the improvement of the environment in Greater London; and in formulating the proposals in respect of which a decision is sought officers have complied with the Authority's related statutory duties to:

- pay due regard to the principle that there should be equality of opportunity for all people;

- consider how the proposals will promote the improvement of health of persons, health inequalities between persons and to contribute towards the achievement of sustainable development in the United Kingdom; and
- consult with appropriate bodies.

5.2 In the event that the GLA is successful in its bid to coordinate the project, they review and satisfy themselves (seeking legal and financial advice as required) that they are content with the terms of supporting EU funding and place no reliance on such funding until a legally binding funding agreement in this regard is put in place by the funder and the GLA.

5.3 Any project funding for which the GLA is to become accountable body in its coordinator role ensure is disbursed in a fair and transparent manner in accordance with the GLA's Contracts and Funding Code and any project funding specific requirements and grant funding agreements are put in place between and executed by the GLA and consortium members it is proposed will receive such funding before any commitment to the provision by the GLA of such funding is made.

5.4 Any services which may be required in must be procured by Transport for London Procurement who will determine the detail of the procurement strategy to be adopted in accordance with the GLA's Contracts and Funding Code. Officers must ensure that appropriate contract documentation is put in place and executed by the successful bidder(s) and the GLA before the commencement of the services.

## 6 Investment & Performance Board

6.1 The Investment and Performance Board on the 15 November 2013 endorsed the recommendations, as set out in the report presented to them.

## 7. Planned delivery approach and next steps

7.1 HyFIVE is an ambitious project that will see the operation of 100 FCEVs and 16 HRS across six European countries, grouped into three regional clusters. The management structure for this project will reflect this complexity and ensure a smooth delivery of the project's objectives via a four-tiered governance structure composed of:

- A steering group – responsible for all strategic decisions in the project and able to act as the ultimate arbiter for disputes;
- A project coordination team (GLA) – including one project technical coordinator and a financial coordinator;
- Three cluster coordinators who will be responsible for coordinating the project's deployment activities in each region and ensuring optimal communication among local partners and related stakeholders;
- A project management team – including all work package leaders who will ultimately be responsible for the timely delivery of milestones and deliverables from each work package

Activity	Timeline
MD approval	January 2014
Grant agreement signed between FCH JU and each consortium partner.	January 2014
Consortium agreement signed between FCH JU and each consortium partner	February 2014

Delivery Start Date.	April 2014
Interim evaluation start-finish (external).	December 2015
Final evaluation start and finish (external).	October 2017
Delivery End Date.	September 2017



**Public access to information**

Information in this form (Part 1) is subject to the Freedom of Information Act 2000 (FOI Act) and will be made available on the GLA website within one working day of approval.

If immediate publication risks compromising the implementation of the decision (for example, to complete a procurement process), it can be deferred until a specific date. Deferral periods should be kept to the shortest length strictly necessary. **Note:** This form (Part 1) will either be published within one working day after approval or on the defer date.

**Part 1 Deferral:****Is the publication of Part 1 of this approval to be deferred? YES**

This Part 1 should be reserved from publication because it contains information the disclosure of which could adversely impact on the negotiation with the Fuel Cell and Hydrogen Joint Undertaking (FCH JU). The paper should only be published once a budget has been agreed and legally binding grant and consortium agreements have been signed with the FCH JU.

Until what date: 28 February 2014

**Part 2 Confidentiality:** Only the facts or advice considered to be exempt from disclosure under the FOI Act should be in the separate Part 2 form, together with the legal rationale for non-publication.

**Is there a part 2 form – NO**

**ORIGINATING OFFICER DECLARATION:**

Drafting officer to confirm the following (✓)

**Drafting officer:**

Daniel Barrett has drafted this report in accordance with GLA procedures and confirms the following have been consulted on the final decision.

✓

**Assistant Director/Head of Service:**

Mark Kleinman has reviewed the documentation and is satisfied for it to be referred to the Sponsoring Director for approval.

✓

**Sponsoring Director:**

Fiona Fletcher-Smith has reviewed the request and is satisfied it is correct and consistent with the Mayor's plans and priorities.

✓

**Mayoral Adviser:**

Kit Malthouse has been consulted about the proposal and agrees the recommendations.

✓

**Advice:**

The Finance and Legal teams have commented on this proposal.

✓

**EXECUTIVE DIRECTOR, RESOURCES:**

I confirm that financial and legal implications have been appropriately considered in the preparation of this report.

**Signature**

**Date**

**CHIEF OF STAFF:**

I am satisfied that this is an appropriate request to be submitted to the Mayor

**Signature**

**Date**

## Appendices and supporting papers:

### Appendix 1

#### Key risks, mitigation response, impact assessment

	Risk description	Mitigation / Risk response	Current probability (1-4)	Current impact (1-4)	RAG	GLA risk owner
1	Overspend by one of the project partners.	<p>The project financial coordination will be performed by the GLA, which has finance personnel that are experienced in financial management (budgetary monitoring, processing consortium funds and contract management) involving large consortia. The finance team has systems and procedures in place to effectively monitor projects.</p> <p>The financial coordinator will coordinate all financial aspects of the project and set up a system to handle payments from the FCH JU and distribute them to the partners as required by the overall FCH JU contract.</p> <p>The financial coordinator will also ensure the timely submission of the cost statements to the EC by all partners and using these tools, will ensure that all work packages are performing to budget. They will be the interface to the EC financial officer. Hence, the financial coordinator will be responsible for liaising with the consortium members to resolve queries with their cost statements.</p> <p>The financial coordinator will be responsible for producing the summary of the financial expenditure in the Yearly reporting (described above) and will produce brief ad-hoc reports of any financial issues which</p>	1	1	G	Coordinator & Sponsor

		<p>may arise during the project, detailing how they have been/could be resolved.</p> <p>If there is overspend by any organisation it is that organisation, alone, which bears the financial impact of that overspend. No organisation, including the FCH JU, is liable for addressing the overspend of an organisation, with the FCH JU only providing grant funding up to the agreed level identified in the consortium agreement – any spend that exceeds that is met by the organisation alone.</p>				
2	<p>Underperformance by one or more project partners or unobtainable objectives and the GLA's liabilities</p>	<p>The project and cluster coordinators will track the progress and delivery of each of the HyFIVE deliverables against overall project and cluster-specific project plans. Where delays are incurred, the cluster coordinators will first liaise with the relevant WP and Task Leader to ensure that appropriate corrective measures are taken and suggest contingency plans. The cluster coordinators will also promptly inform the project coordinator and consult on the actions to be taken.</p> <p>Where systematic underperformance may threaten the success of the project, the steering group will act as the ultimate arbiter for solving disputes and proposing/validating corrective actions. The project coordinator will report systematic under-performance to the steering board in a report reviewing the situation and request the steering board to form a position on possible remedies, including ways of bringing pressure on the organisation, or</p>	1	1	G	Coordinator & Sponsor

		<p>threats of suspending or expelling a partner. There is no contractual liability for the GLA as project coordinator if an organisation does not meet their contractual obligations – with each organisation having their own identified contractual obligations with the FCH JU.</p> <p>There may be a risk of some of the vehicles not being developed in time for deployment, especially for those HyFIVE vehicles which are scheduled to be deployed during the middle of the project ( the 6 Honda and 2 next generation Daimler vehicles). The project plan deliberately allows a 6 month period at the end of vehicle demonstration to wrap up project results and which can be used to mitigate such risk. More generally, this 6 month period can act as a worst case buffer in the event of delays in other aspects of the project. All partners have agreed to use this 6 month period to complete the demonstration activities in case of delays and to re-allocate their budget to complete their activities accordingly, without changing the total funding requirement.</p>				
<b>3</b>	<p>Delays in design and construction;</p> <p>HRS siting permitting issues</p>	<p>The five new refuelling stations deployed throughout the project will be highly modular in nature and make use of standardised equipment. Thus, partners do not expect delays in the construction and delivery of the stations.</p> <p>Furthermore, each of the HRS deployment partners (ITM Power, OMV, and CHN) have</p>	1	1	G	Coordinator & Sponsor

		<p>a solid experience in the HRS planning permission process, having previously deployed several HRS in a number of European and national projects in each of the HyFIVE countries.</p> <p>The sites for the refuelling stations in London will be selected from a list of potential sites which is being produced by the FCH JU project HyTEC, in collaboration with the Greater London Authority and other relevant stakeholders and will be ready in time for the start of the project. A budget allowance has been made for rent payment, which will provide a wider choice of sites for the HyFIVE HRS (relative to experience in previous demonstration projects).</p> <p>The HRS site in Aarhus and Innsbruck will be identified at the project start, thus reducing potential planning approval delays.</p> <p>In the event of a serious delay in siting or obtaining permissions, alternative sites will be considered during the project. The worst case is that these delay the siting beyond the useful date for introduction of an HRS. In this case the vehicles will need to rely on the existing network of stations and/or temporary back-up solutions to ensure the smooth operation of the HyFIVE vehicles and a maximum refuelling availability across the local networks</p>				
<b>4</b>	Underperformance by one or more project partners and the	Companies involved are large well respected companies who have all taken the relevant senior level decisions to participate in the project, which should help to mitigate the	1	1	G	Coordinator & Sponsor

	reputational impact for the Mayor and GLA	risk of under-performance.  HyFIVE will be a key aspect of the FCH JU's efforts to commercialise hydrogen technology across the transport and hydrogen production sectors. The project has the full backing of the FCH JU and will ensure that all effort is taken to enable delivery of the project.				
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