

# HYLIGHTS

Hydrogen for Transport in Europe

[www.HyLights.eu](http://www.HyLights.eu)

## *Summary of Interim Report*

### Deliverables W5.1 & W5.2

**Initial comparison of different legal forms and management structures of hydrogen demonstration projects in Europe**

**Report Status: Version 1**

**Report Date: February 2007**



A Coordination Action to Prepare European and Fuel Cell Demonstration Projects on Transport

Acknowledgement:

HyLights is financed by funds from the European Commission under FP6

Contract: TEN/05/FP6EN/S07.53917/019990.



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#### Disclaimer

This document is the result of a collaborative work between HyLights Industry and Institute partners. The results of the research were subsequently elaborated and presented in a coherent manner, which involved extensive stakeholder consultation in locations around the world as well as feedback from the “HyLights” Industry Partners.

The ideas presented in this document were reviewed by certain "HyLights" project partners to ensure broad general agreement with its principal findings and perspectives. However, while a commendable level of consensus has been achieved, this does not mean that every consulted stakeholder or "HyLights" Industry Partner necessarily endorses or agrees with every finding in the document. The producer of this document is the sole responsible for its content and recommendations.



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### 1. Objective of the Interim Report

In view of the possibility that a Joint Technology Initiative (JTI) be formed by the European Commission in partnership with the European hydrogen and fuel cell (HFC) industry as part of the Seventh Research Framework Programme (FP7) to enable the commercialisation of hydrogen-based technology, this report was undertaken in order to collect information from a global set of large-scale road transport, Hydrogen demonstration projects (Lighthouse Projects – LHPs). LHPs have many benefits in providing real-world experience, an opportunity for real-life testing of the HFC technology and helping increase its public acceptance. Furthermore, the LHPs would foster the coordination between HFC technology stakeholders and would contribute to bridging the gap between the background R&D in the field, and the commercialisation of the hydrogen and fuel cell road transport technologies.

This study has the objective of developing “**Project Governance Indicators**” (PGIs), which would be used in the preparatory/negotiation phase of future demonstration projects between the public and private parties, helping to shape their contractual relationship and the project management structure incorporating best practices from previous LHPs from across the world (Europe, Asia and North America). The study therefore has considered and elaborated mainly on such issues as Legal forms of Cooperation and Management Structures. The analysis has included reference to issues such Regulations, Codes and Standards (RCS), sustainability criteria, Intellectual Property Rights (IPR), safety and risk management, etc., to the extent that these could/do affect the choice and applicability of specific Legal Form and Management Structure.

The European Commission granted HyLights, the Coordinated Action of hydrogen industry and research institutes, with authorisation to undertake the report. The current report is part of deliverables 5.1 & 5.2 of the “HyLights” contract and will be used as a basis for further development with the aim of providing concrete recommendations at the end of the “HyLights” project (December 2008). For the purpose of this report, the findings were linked to the assumption that an HFC JTI would be created. The analysis is focused on hydrogen road transport LHPs.

### 2. Methodology

The following methodology was adopted:

- Interviews with public (national, regional, local), private stakeholders (industry), hydrogen demonstration project coordinators, both at EU and non-EU level.
- Review of existing literature on hydrogen road transport demonstration projects, EU legislation on Public Private Partnerships, especially in the R&D sector, FP6 & FP7 documentation, EU policy documents i.e. EC proposal for a type-approval process for hydrogen vehicles, EIB Risk Financing documents, etc. A complete list of the documentation is presented in the “References” section of the report.

Preliminary desk research and review of the literature was a good foundation for the preparation of a questionnaire used during interviews with various stakeholders and/or project partners/promoters, which were an indispensable part of the research exercise. The empirical analysis of the interview findings complemented the theoretical findings and resulted in a comprehensive list of conclusions on the legal forms, management structures, intellectual property, and safety and risk management issues pertinent to future LHPs.



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The findings have been summarised and are presented in the analysis section of this report. The projects' results are presented in the form of "Project Factsheets" annexed to this report.

I N P U T	<b>LITERATURE REVIEW</b>	<b>PROJECT/REGION FACTSHEET</b>	<b>INTERVIEWS</b>
	HyCOM, LHP study, Legal forms of Research Infrastructures of pan-EU interest, project studies, PPPs literature, etc	A Factsheet is used to collect info	Telephone or on-the-spot interviews

### 3. Summary of Findings

**The proposals/future considerations included in this report, should not be misinterpreted as restricting or binding on future projects nor should even be considered as a blueprint for future demonstration projects but only as current findings based upon the analysis realised so far.** Thus, should the scope of this report had been smaller or larger the following proposal would have most probably been different. **The proposal is still very much open for discussion within the HyLights project and is thus subject to change and therefore the findings should not be understood as a formal proposals/recommendations from HyLights.**

#### 3.1 CONTRACTUAL FORM: PUBLIC-PRIVATE-PARTNERSHIPS (PPPs)

PPPs are an effective and transparent way for stimulating and supporting initiatives of common interest. Governments and public administrations are expected to set up partnerships in order to promote joint projects, common research efforts, funding synergies and consortia aiming at managing large projects. PPPs shall also be the basis for the creation of hydrogen-based industrial districts and the development of infrastructure networks. Regions can support strategic projects acting as direct partners and/or project promoters in LHPs to be funded under FP7.

The success of a PPP depends to a great extent on a comprehensive contractual framework for the partnership, and on the optimum definition of the elements that will govern its implementation. In this context the appropriate assessment and optimum distribution of risks between the public and the private actors, according to their respective ability to assume risks, is crucial.

Recent experience from the first EU PPP, GALILEO (satellite navigation system) shows that the joint undertaking is an adequate structure for a large-scale project as it ensures the coherent management of all funds allocated to the project. PPPs can provide a clear line of authority and responsibility covering all scientific, technical, administrative and commercial aspects of the project.

In this document, a short overview of the theory on PPPs is presented and issues related to the different legal forms that PPPs could take are analysed. PPPs do require bilateral negotiations, which by their nature contain transparency concerns thus underlining the need for a strong contractual framework.



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At this point, it would not be wise to indicate that a certain legal or non-legal form would be the best solution for the future LHPs. This will depend on the project's geographic spread, the project's objectives and the partners' needs. Some advantages of the legal forms are detailed below

**a) It is true that due to the high-risk profile (technological and market risk) of the envisaged LHPs, a solid legal form addressing liability issues would be better in terms of ensuring commitment and reducing investment risk. On the other hand, the establishment of such entities requires a lengthy preparatory administrative phase.**

**b) Another point to be taken into consideration is the willingness of the LHP consortium to seek other types of financing, such as risk financing to cover the needs of the future LHPs. Such a scenario would require the existence of a separate legal entity, which cannot be created with a simple consortium agreement.**

Looking at the range of projects that have been analysed we can group the legal form of concluded or on-going HFC demonstration transport projects into four broad categories based on the relationships laid out in the contracts of the associations.

- **Legal form addressing the relationship between the partners:**
  1. **Horizontal:** when all project partners act on equal terms and decisions are reached following unilateral consultation. No partner has a leading role.
  2. **Vertical:** A project partner/coordinator has a leading role and a top-down decision making process is applied.
- **Legal form addressing the type of agreement:**
  1. **Informal partnership:** Due to early phase of evolution, project needs and objectives, most projects investigated adopted a partnership by signing a simple consortium agreement without needing to create a separate entity with its own legal persona.
  2. **EU-led:** most of the projects realised in Europe were funded by the European Commission; hence, the partnership agreement adopted the form stipulated in the EU funding regulations (FP5 or FP6 funding programmes).

However, it must be noted that the circumstances, the needs, and the objectives of the project partners at the point in time when the above mentioned findings were collected might differ from those that will be identified for future LHPs, especially since future LHPs will serve as a bridge between the existing R&D on HFC and large scale commercialisation of the HFC technologies.

### 3.2 LHP MANAGEMENT STRUCTURES

The proposed management structure contains necessary components with the aim of coordinating the project between vehicle and infrastructure companies and ensures collated and precise data being transferred to the programme level. Meanwhile the proposed structure would also ensure that coordinators in LHPs liaise with the operational team of the project. The management structure would guarantee equal representation of all project partners.

The scale of the LHPs, the complexity of the tasks and number of project partners might require the inclusion of bodies other than the vehicle and infrastructural companies and include bodies



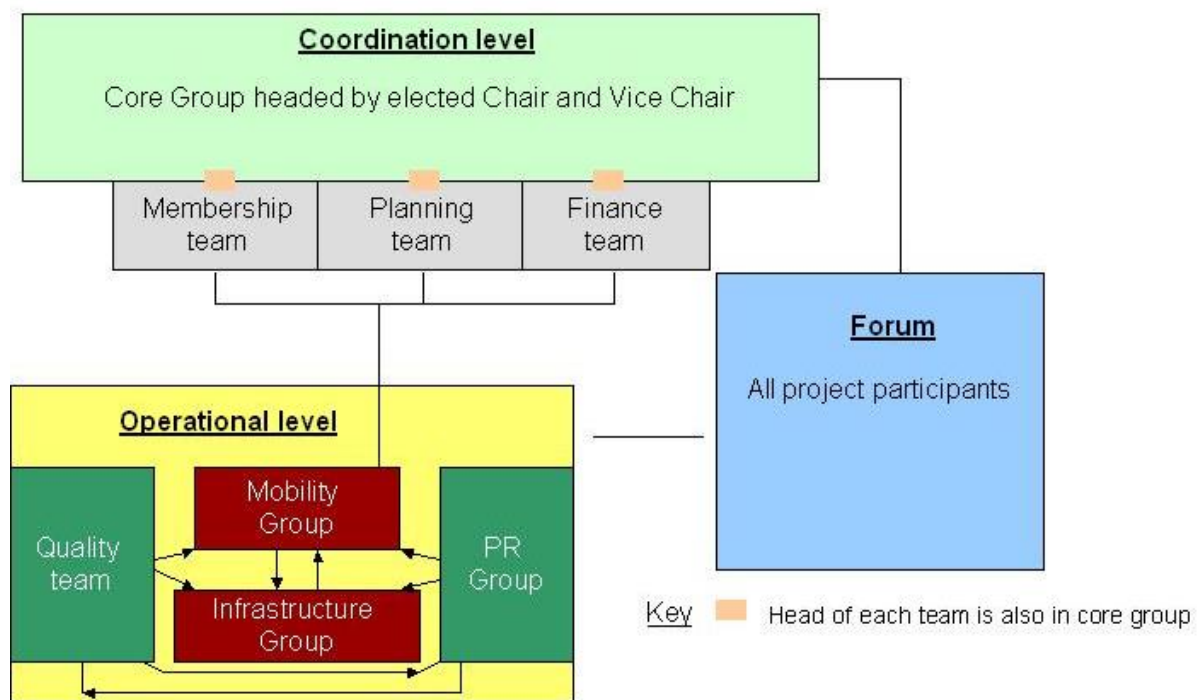
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dealing with administration, finance, safety and PR all to ensure the consistency of the LHPs' actions within the programme's aims.

**Project findings:** Drawing from the projects' findings, analysis and the project partners' feedback on the effectiveness and efficiency of the adopted management structure, taking into consideration their recommendations, an initial generic example of a management structure for future hydrogen demonstration "Light-House Projects" is presented in the below Figure. This structure may undergo changes in the course of HyLights.



*Note: Generic sketch of potential future lighthouse projects (LHP) management structures with key elements*

The idea behind this example is that the structure uses an efficient decision-making process at the core group level through the involvement of Chair and Vice Chair persons, elected by the Forum; three teams would be dealing and assisting the whole project with administrative issues. The heads of each of the three teams will be participating in the Core group. This coordination level would be required to ensure that common tasks, issues and problems between the different industry participants and other project stakeholders are streamlined and the project runs smoothly.

The three teams (Membership, Planning and Finance) would undertake the following roles:



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- Membership team – would evaluate applications from stakeholders wishing to join the LHP through an analysis that would involve gauging the suitability and commitment from potential project participants/promoters within the aims and objectives of the LHP. The Core Group, on the basis of information compiled by the Team, should take the final decision in such cases. Finally, this team would foster and support the participation of SMEs and or Research centres.
- Planning team – would evaluate and map the strategic choices aimed at reducing risks within the LHP and also ensure compliance with pre-identified action plan and more important with desired project outcomes. It would also monitor the overall efficiency of the project and put forward proposals and recommendations to the Core Group for decisions to be taken to improve processes, adopt project goals, enlarge partnership, etc.
- Finance team – would act as the “Treasurer” of the project, i.e. would manage and distribute project funds and ensure that all partners have a fair share of benefits and charges based on their contribution. The team would be providing updates on the financials at regular reporting periods and should seek approval of the project’s financials from the Forum.

At the operational level, Mobility, Infrastructure, PR groups and the Quality Team would work in close cooperation. The mobility and infrastructure groups will liaise directly too, due to their clear interdependencies. The four components would implement the “quality assurance” aim laid down by the core group ensuring that all standards are met, best practices are in place, and there are good, sound relations with the local community that could lead to successful activities in view of raising public awareness. In this, the Quality Team would develop knowledge on ways to increase safety, but also disseminate public assurance information developed with the PR group to increase public acceptance of the project.

Finally, the existence of a Forum would allow for regular discussions between those steering the project and those doing the work on the ground (as the latter would have more hands-on experience on the issues that need to be improved and communicate the lessons learned within the project). Knowledge sharing sessions (KSSs) and annual reviews would also be part of the forum as well as reviews on macro- and micro-challenges.

### 3.3. LHPs & ROLE OF NATIONAL, REGIONAL AND LOCAL GOVERNMENTS

Topics covered: financing the LHPs, state aid barriers for the provision of such funds, their contribution to the evolution of RCS as well as in relation to public awareness initiatives.

It has been demonstrated that the role of public actors could be catalytic at the negotiation and preparatory phase of the demonstration projects as the long term financial and political commitment should be obvious and credible for the private partners to enter into any kind of discussions.

**As a general comment a fixed and solid structure is necessary within the geographical area where the LHP will be realised as well as a harmonised policy and strategy so that continuity is guaranteed even if leadership changes.** In addition, a dedicated structure at regional level aware of the particularities of HFC technologies and the issues related thereto would greatly boost the attractiveness of the respective region. It has been proposed that local chambers of commerce could help identify business opportunities at regional level. Many regions



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have policies on sustainable energy, however only few of them have a concise strategy on HFC technologies or have implemented incentive programmes to foster the introduction of such technologies especially in the road transport sector.

**Project findings - State aid:** related to the financial intervention of National and Regional governments in favour of LHPs, the debate on whether this could constitute illegal State aid or not has been part of several discussions. Article 87(1) EC states: “any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market”.

With regard to State aid it could be said that there is no aid where all investors in a PPP share risks and rewards on exactly the same terms, i.e. as there is no benefit, there is therefore no State aid. By contrast, there is State aid where the public partner subordinates its return, enabling a commercial return to the private investors. The State aid rules are independent of the legal status of an undertaking. They only affect PPPs where the participation of the public partner provides a benefit to the private partner (in that it is unfairly financially assisted vis-à-vis other private companies in the same sector) and/or the PPP as an entity provides a benefit to others.

In addition to the aforementioned, State aid rules and procedures valid for national schemes aimed at fostering R&D activities and environment friendly investments, would also be applied for national funding schemes supporting the introduction of HFC road transport technologies.

### 3.4 INTELLECTUAL PROPERTY MANAGEMENT:

This relates to the choice of legal form and the scope of the project activities as well as the sharing of project knowledge among project partners; the project findings demonstrated the methods followed for the collection, handling and dissemination of sensitive information. Identification of the appropriate IPR stipulations would occupy an important part of the project negotiation phase.

**Project findings - IPR:** For some projects, the information was collected manually, analysed and presented in an aggregated form. When projects evolved, they employed electronic means for sensitive data collection. The data were, generally speaking, centralised in an entity, governmental or not, treated and prepared for wider dissemination. The result of the applied methods was in most cases a comprehensive process that ensured the security of the information gathered, strict restrictions regarding the persons who had access to the raw data, and careful control over the consolidation and analysis of data to ensure that no project partners' individual data could be extrapolated from publicly released data.

### 3.5. REGULATIONS, CODES & STANDARDS:

RCS that are well conceived, based on scientific data, sufficiently reviewed, and equally applied across jurisdictions are crucial to the success of any demonstration programme.



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**Project findings - RCS: If the programme crosses governmental jurisdictional boundaries, it is critical that the same RCS are applied uniformly wherever the vehicles will be operated and the hydrogen refuelling infrastructure installed.**

While a number of agencies are considering specific codes and standards for installation and operation, the process is quite fragmented and is a long way off from providing a comprehensive basis for action by local officials.

Concerning vehicles, Global Technical Regulations (GTR) for type approval of road vehicles are developed in the UN ECE WP29. The status of the discussions around a GTR needs to be transported to the responsible bodies at national, regional and local level.

### **3.6. SAFETY/RISK, LIABILITY & INSURANCE:**

Liability related to HFC technologies will be directly proportional to success of technology, codes and standards. It has been indicated that many large insurance companies will not underwrite hydrogen projects because of the limited actuarial data to price coverage, the absence of codes and standards, and the fact that the current volume of policies is "quite small."

Many large companies have the financial capacity to self insure either the hydrogen vehicles or the infrastructure and those under public property can avail themselves liability indemnification. Transition to consumer use will create challenges similar to those faced by traditional petroleum-based fuel. The potential types of tort liability include:

- Products liability
- Negligence
- Abnormally dangerous activity

**Project Findings: the non-existence of adequate insurance coverage will constitute an important commercialisation barrier. The majority of project findings demonstrated that in the case of vehicles, the OEMs undertook in-house insurance without any particular stipulations relevant to using hydrogen as fuel and this was arranged directly and bilaterally with the fleet operator. With regard to the refuelling infrastructure specific risk analysis and assessment was realized and insurance against third party injuries was also foreseen. The fuel infrastructure providers bore any liability for any potential incidents (damages and injuries).**

