



Call for tenders

**“Study on use of fuel cell
hydrogen in railway
environment”**

Open Procedure

Ref: S2R.18.OP.01

Tender Specifications

DIRECT SERVICE CONTRACT

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1 INTRODUCTION

1.1 Acronyms and terminology

S2R JU AWP 2018	The S2R JU Annual Work Plan 2018 is available at: https://shift2rail.org/wp-content/uploads/2018/01/Ares-182422-Annex-1-S2R-1.pdf
FCH 2 JU AWP 2018	The FC 2 JU Annual Work Plan 2018 is available at: http://www.fch.europa.eu/sites/default/files/FCH2JU2018AWPand%20Budget_final_11012018.pdf
DG MOVE	Directorate-General for Mobility and Transport
DG RTD	Directorate-General for Research and Innovation
Horizon 2020 or H2020	EU Research and Innovation programme for the period 2014 to 2020
FP6	6 th Framework Programme for Research and Technological Development for the period 2002 to 2006
FP7	7th Framework Programme for Research, covering the period 2007 to 2013
MAAP	The S2R JU Multi-Annual Action Plan is available at: http://shift2rail.org/about-shift2rail/reference-documents/
MP	The S2R JU Master Plan is available at: http://shift2rail.org/about-shift2rail/reference-documents/
MAWP	The FCH 2 JU Multi-Annual Work Plan is available at: http://www.fch.europa.eu/page/multi-annual-work-plan
PPP	Public Private Partnership
S2R JU	Shift2Rail Joint Undertaking (hereafter referred to as the S2R JU) was established by Council Regulation (EU) n° 642/2014 of 16 June 2014. The S2R JU is a public-private partnership, providing a platform for the key stakeholders of the European rail system to work together with a view to driving innovation in the years to come by implementing a comprehensive and coordinated research and innovation strategy.
FCH 2 JU	Fuel Cells and Hydrogen 2 Joint Undertaking (hereafter referred to as the FCH 2 JU) was established by Council Regulation (EU) No 559/2014 of 6 May 2014. The FCH 2 JU is a public-private partnership, aiming at contributing to the implementation of Horizon 2020 and to contribute to the objectives of the Joint Technology Initiative on Fuel Cells and Hydrogen, through the development of a strong, sustainable and globally competitive fuel cells and hydrogen sector in the Union
Contracting Authorities	S2R JU and FCH 2 JU
TFEU	Treaty on the Functioning of the European Union

2 THE S2R AND FCH 2 JU JOINT UNDERTAKINGS

2.1 Mission and objectives of the S2R Joint Undertaking

The 2011 Transport White Paper (“Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system”¹) sets out a number of key goals to strengthen the role of rail in the transport system, given rail's inherent advantages in terms of environmental performance, land use, energy consumption and safety.

Among these goals, the creation of a Single European Railway Area (SERA) will be crucial to achieving a modal shift, of both passengers and freight, from road towards more sustainable modes of transport such as rail.

The development of new technologies would play an instrumental role in achieving these goals. This is why the EU’s current programme for research and innovation (R&I), Horizon 2020 (H2020) has earmarked EUR 450 million for rail research and innovation activities over the period 2014-2020, thereby tripling the financial envelope dedicated to rail research in comparison to the previous Framework Programme, FP7. In order to ensure that this financial investment will yield the expected results, a multiplier effect was sought by ensuring the industry participation in the work throughout the whole duration of H2020, resulting in more than doubling the EU contribution with own in-kind contribution, within a public-private partnership.

The Shift2Rail Joint Undertaking (S2R JU) was created as a public-private partnership in the rail sector established under Article 187 of the Treaty on the Functioning of the European Union, providing a platform for the rail sector as a whole to work together with a view to driving innovation in the years to come. The S2R JU was officially established on 7 July 2014, following the adoption of Council Regulation (EU) No 642/2014 of 16 June 2014 (the 'S2R Regulation'²). The rules for the organisation and operation of the S2R JU are laid down in the S2R JU Statutes contained in Annex I to the S2R Regulation.

The objective of the S2R JU is to implement an ambitious programme of research and innovation activities in the railway sector in Europe. Those activities should be carried out through collaboration between stakeholders in the entire railway value chain, also outside the traditional rail sector, including SMEs, research and technology centres and universities, and by combining public and private sector funding.

2.2 Mission and objectives of the Fuel Cell and Hydrogen 2 Joint Undertaking

The Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2 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.

Fuel cells, as an efficient conversion technology, and hydrogen, as a clean energy carrier, have a great potential to help fight carbon dioxide emissions, to reduce dependence on hydrocarbons and to contribute to economic growth. The objective of the FCH 2 JU is to bring these benefits to Europeans through a concentrated effort from all sectors.

¹ https://ec.europa.eu/transport/sites/transport/files/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf

² <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0642&from=EN>

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The FCH 2 JU is the result of long-standing cooperation between representatives of industry, scientific community, public authorities, technology users and civil society in the context of the European Hydrogen and Fuel Cell Technology Platform. The Platform was launched under the 6th Framework Programme for Research (FP6) as a grouping of stakeholders, led by companies representing the entire supply chain for fuel cell and hydrogen energy technologies.

The Platform concluded that fuel cell and hydrogen technologies can play a significant role in a new, cleaner energy system for Europe. However, if these were to make a significant market penetration in transport and power generation, there would need to be research, development and deployment strategies in which all the stakeholders are committed to common objectives.

Based on this shared vision, the FCH 2 JU was established by a Council Regulation on 30 May 2008 as a public-private partnership between the European Commission, European industry and research organisations to accelerate the development and deployment of fuel cell and hydrogen technologies.

On 6th May 2014, the Council of the European Union formally agreed to continue the Fuel Cells and Hydrogen Joint Technology Initiative under the EU Horizon 2020 Framework Program with the FCH 2 JU³. This phase (2014-20), has a total budget of EUR 1.33 billion, provided on a matched basis between the EU represented by the European Commission, industry, and research.

The second phase of the FCH 2 JU reinforces this commitment to a real, strong, reliable European platform on fuel cells and hydrogen in which Industry, Research, and Local, National and European officials act together to address, through the technology, major socio-economic and environmental challenges.

The projects under FCH 2 JU improve performance and reduce the cost of products as well as demonstrate on a large scale the readiness of the technology to enter the market in the fields of transport (cars, buses and refuelling infrastructure) and energy (hydrogen production and distribution, energy storage and stationary power generation).

The FCH 2 JU is set up for a period lasting until 31 December 2024. It brings public and private interests together in a new, industry-led implementation structure, ensuring that the jointly defined research programme better matches industry's needs and expectations, while focusing on the objective of accelerating the commercialization of fuel cell and hydrogen technologies.

2.3 The S2R JU and the FCH 2 JU Annual Work Plans 2018: Study on use of fuel cell hydrogen in railway environment

As indicated in the S2R Work Plan 2018⁴ this study aims at analysing the business case of hydrogen and fuel cell usage in the rail environment, both in passenger train and freight. The investigation could for example include analyses on the CO₂ performance (through Life Cycle Analysis techniques) of current rail powertrain solutions and demonstrate the specific emissions saving that can be achieved by replacing conventional technologies.

As indicated in the FCH 2 JU Work Plan 2018⁵ a public procurement is foreseen with the indicative subject (indicative title) "European business cases for FCH trains and technology development

³ http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2014_169_R_0007&from=FR

⁴ <https://shift2rail.org/wp-content/uploads/2018/01/Ares-182422-Annex-1-S2R-1.pdf>

⁵ http://www.fch.europa.eu/sites/default/files/FCH2JU2018AWPand%20Budget_final_11012018.pdf

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roadmap (regional trains, shunting locomotives, freights/last mile) - Follow up of the common workshop FCH 2 JU/Shift2Rail JU”.

Under the supervision of the S2R JU and FCH 2 JU, inter alia, the contractor will perform tasks such as providing at the state of the art and existing initiatives; developing a business case and market potential; identifying case studies; providing with recommendations on future activities with particular focus on short term R&I.

This tender is an inter-institutional procurement procedure of S2R JU and FCH 2 JU. The lead contracting authority is S2R JU which acts on its own behalf and on behalf of the FCH 2 JU, both the contracting authorities.

2.4 Purpose of this call for tender

The purpose of this tender is:

- Deliver initial studies with the objective of providing a business case and market potential analysis for the use of fuel cell and hydrogen technologies as part of the energy hybrid solutions for the railway sector with a multi modal approach and view;
- Provide with case studies by rail application (shunting locomotives, freight/last mile locomotives, regional trains) expressing potential opportunities and carry out a concept design for each case study compared with other alternative solutions, in a multimodal perspective. Case studies should be substantiated on data acquired in dialogue with relevant stakeholders;
- Identify technical and not technical barriers for the implementation of fuel cell and hydrogen technologies in the rail sector and show needs in terms of research and innovation (R&I), regulation and standards.

2.5 Indicative timetable

Those milestones dates are for indicative purposes only and do not constitute any obligation for the contracting authorities. The exact deadline for the submission of tenders are indicated in the contract notice and in the invitation to tender.

Milestone	Date
Dispatch of the contract notice to the Official Journal of the EU	02/03/2018
Deadline for requesting additional information/clarification from the S2R JU	No later than six working days before the closing date for submission of tenders

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Milestone	Date
Last date on which clarifications are issued by S2R JU	As soon as possible and no later than 6 calendar days before the closing date for submission of tenders
Deadline for submission of tenders	12/04/2018 Tenders delivered by hand in S2R JU premises should be Submitted not later than 17:00h Brussels time
Opening Session	19/04/2018 at 10 AM, Brussels time Maximum one legal representative per Tenderer may attend the opening session. Tenderers shall inform the Joint Undertaking of their intention to attend, at least 5 working days prior to the opening session.
Notification of award	02/05/2018
Contract signature	14/05/2018

3 TECHNICAL SPECIFICATIONS AND MINIMUM REQUIREMENTS

3.1 Objective and scope of the contract

The European Union and its Member States have made a clear commitment to lead the way in the protection of the environment. At the same time, there is a need to ensure that European transport is safe and its industry remains competitive on the global market. One of the key pillars of this challenge is the reduction of greenhouse gas emissions, as well as other air contaminants and noise. Measures are already on the way to achieve this goal in various fields, in the energy and industrial sectors but also in transport. Among these measures, the electrification of different transport modes is on its way and the rail system has been a pioneer in this area with 80% of its traffic running on electrified lines (which represents 60% of the mainline network). However, to complete this path is proving difficult.

Various regions in Europe have shown interest in the potential of fuel cell and hydrogen technologies for trains, in particular where other electrification alternatives have proven unfeasible to reach the environmental and a zero-emission objectives set up for rail operations. As it was identified during the “Hydrogen Train Workshop”⁶ organised between FCH 2 JU and S2R JU on 15 May 2017 in Brussels, a first indication seems to consider regional trains and shunting locomotives as the most promising rail application candidates to answering, among others, the need for carbon emission and noise reduction in cities. Freight and mainline could follow if there is a business case.

⁶ <https://shift2rail.org/news/hydrogen-train-workshop-fch-2-ju-shift2rail/>

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Nevertheless rail applications in other market segments should be considered. This interest comes from the techno-economic assessment of all electrification alternatives (e.g. batteries), taking into account the traffic conditions of specific lines and the logistic settings of the network.

The EU market potential of fuel cell and hydrogen technologies in this field needs to be further explored. Among the several technical challenges for the correct integration of these technologies in the rail system we can highlight (but not limited to):

- Design of fuel cell based power trains to meet rail specific duty cycles;
- Redesign of locomotives and trains, including their sub-systems, to accommodate the required amount of hydrogen storage and meet the customer demand in term of costs (capital and maintenance) and reliability, availability and maintainability (RAMS);
- Adequate hybrid strategies between fuel cell and batteries. Design of hydrogen storage systems to reach the energy requirement for rail applications;
- Infrastructure compatible to the rail services provided and operations.

Before tackling the technical challenges that would require significant research and innovation (R&I) investments from the rail sector, **initial studies** are needed with the objective of:

- Providing a **business case** and market potential analysis per rail application and geographical area for the use of fuel cell and hydrogen technologies as part of the energy hybrid solutions for the railway sector with a multi modal approach and view;
- Providing with **case studies** by rail application (e.g. shunting locomotives, freight/last mile locomotives, regional trains, etc.) expressing potential opportunities and carry out a concept design (understood as the design of an integral technical solution of a case study and its exploitability) for each case study compared with other alternative solutions, in a multimodal perspective. Case studies should be substantiated on data acquired in dialogue with relevant stakeholders.
- Identify **technical and not technical barriers** for the implementation of fuel cell and hydrogen technologies in the rail sector and show needs in terms of research and innovation (R&I), regulation and standards.

Consequently, the study to be produced under this procurement should produce recommendations on future activities with particular focus on short term R&I.

3.2 Description of the tasks

To achieve the objective stated under section 3.1, the proposed study has been divided in a set of tasks with corresponding intermediate and final deliverables, as detailed in the sections 3.2.1 and 3.3 below.

3.2.1 Description of required services and tasks

The aim of this study is:

- **Task n° 1. State of the art and existing initiatives**
 - Aim: Identify existing studies or technological trials both in the European Union and in other geographical locations concerning the implementation of fuel cell and hydrogen technologies in the railway sector.

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- Description: Trials and studies have already been undertaken in various parts of the world to use fuel cells and hydrogen in the rail sector. A collection and identification of these works is needed to understand the sectorial context and confirm the applicability in a European context.
 - Services to be performed:
 - a) Building upon previous works, describe the state of the art of the technology, the existing studies and the demonstration activities both in Europe and worldwide on the use of fuel cell and hydrogen technologies in the railway sector;
 - b) Perform a qualitative analyse of the similarities and differences of the studied cases within and outside Europe and its transferability/applicability to Europe.
- **Task n° 2. Business case and market potential**
- Aim: Evaluate the economic potential of fuel cell and hydrogen technologies in the EU rail sector. Assess where/if fuel cell technologies have a positive business case compared to other low/zero emission (CO₂, NO_x, noise, etc.) technologies and assess the market size for these opportunities.
 - Description: Fuel cells are only one alternative to decarbonise the rail sector. An economic analysis is needed to determine where and if these technologies present a viable solution. The analysis should also take into consideration the hydrogen and infrastructure needs depending on the application. Once the positive business cases are identified, the market size for these opportunities needs to be assessed. This analysis will also help to determine if future R&I efforts needed to apply this technology in the rail sector are justified.
 - Services to be performed:
 - a) Creation of an Advisory Board representing all required stakeholders, in agreement with the S2R and FCH2 JUs, to ensure access to the relevant information and validate the outputs of Task n°2, Task n°3 and Task n°4. All necessary confidentiality arrangements should be put into place by the contractor with the members of the Advisory Board;
 - b) Analyse the rail sector to identify where fuel cell and hydrogen technologies could be applied;
 - c) Study, based on the state of the art of the technology and reasonable improvement assumptions, the CAPEX and OPEX of applying these technologies in different rail applications (e.g. shunting locomotives, freight/last mile locomotives, regional trains);
 - d) Per rail application and geographical area, determine if there is a positive business case and what circumstances/assumptions are made for this positive business cases to exist;
 - e) Where the business case is not positive analyse what measures could be implemented to make it positive and if changing circumstances exists that are bound to happen;
 - f) For all cases, determine the market volume/potential in EU by 2030 and export opportunities to other geographical areas.

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- Task n° 3. Case studies

- Aim: identify 3-4 specific case studies for each rail application where appropriate business cases and market potentials have been identified. Carry out a concept design for each of the case studies agreed comparing the fuel cell based solution with existing and other alternative solutions in order to demonstrate its economic and technological feasibility. Determine requirements and constraints. Assess the impact on railway and fuel cell and hydrogen infrastructure. Identify synergies with other modes of transport (e.g. ports, regional buses).
- Description: Identify 3-4 specific case studies for each rail application (e.g. shunting locomotives, freight/last mile locomotives, regional trains), giving consideration to EU 13 countries where appropriate business cases and market potentials have been identified. These case studies will be agreed with S2R JU and FCH 2 JU, before undertaking detailed analysis. Those case studies shall cover the following aspects (not exhaustive list):
 - a) Perform a detailed assessment of the market needs;
 - b) Assess rail system safety/interoperability regulations and standards, including certification/authorisation processes, and highlight the difference with road;
 - c) Assess the use of stationary fuel cell systems to support the power substations in the rail infrastructure;
 - d) Assess the maintainability and services needed for fuel cell operations over the life-frame of rolling stocks (30 years);
 - e) Assess the need for infrastructure changes to adapt to the requirements on refuelling trains, as well as the impact of the refuelling time on the traffic management in Europe;
 - f) Analyse eco-driving applications and smart usage of hybrid solutions considering the surroundings (urban space, smart-grid facilities, etc.).
- Services to be performed:
 - a) Based on the results of the business case and market potential analysis,
 - Identify 3-4 specific case studies for each rail application (in agreement with S2R JU and FCH 2 JU) including the aspects described above.
 - The case studies of each rail application should be located in at least 3 European countries, giving consideration to EU 13 countries.
 - Each case study should represent a potential opportunity and will imply a concept design (understood as the design of an integral technical solution of a case study and its exploitability), including proper comparison with other alternative clean solutions.
 - The case studies should include an analysis of multimodal opportunities.
 - b) The concept design should include the infrastructure needs of each alternative;
 - c) The analysis should include environmental, societal and economic aspects;
 - d) The selection of the cases should take into account European geographical coverage and European corridors;

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- e) The concept design should include an analysis of possible technological and non-technological barriers;
- f) At least one of the case studies should focus on the synergies of the rail application with other modes of transport through the use of fuel cell and hydrogen technologies.

The Advisory Board will be involved in the selection of the case studies and it will contribute to the required data to perform the services described above.

Each case study should contain at least the following information:

Description:

- Rail Application
- Geographical location: country, city, line, etc.

Technical/regulation/operational requirements:

- Geographical profile (if applicable)
- Duty cycle for the power train
- Fuel cell power requirements
- Infrastructure and on board hydrogen storage alternatives
- CAPEX and OPEX (including maintenance and operational needs)
- Regulation requirements and applicable standards

Outcomes (comparison with current situation and other clean solutions):

- Environmental impact
- Economic impact
- Synergies/multimodal approach

Open points:

- Technical gaps/constrains (both fuel cell and hydrogen infrastructure, and rail system)
- Non-technical gaps/constrains

- Task n° 4. Recommendations on future activities with particular focus on short term R&I

- Aim: Identify technological barriers that need to be addressed through R&I projects. Identify barriers in regulation and standards that should be considered before fuel cell technologies can be applied to the rail sector. Identify synergies/opportunities with other modes of transport and other applications based on hydrogen and fuel cell technologies.
- Description: The fuel cell and hydrogen technologies still need to overcome a number of technological and non-technological barriers to be able to be successfully applied to the rail sector.
- Services to be performed:

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- a) Technology gap: detailed analysis of the technological barriers or research needs for the use of fuel cell and hydrogen technologies in each of the case studies selected;
- b) Non technological barriers: detailed analysis of the legislative or other barriers that would need to be faced for the implementation of fuel cell and hydrogen technologies in the railway sector and its logistic chain in the case studies selected;
- c) Considering all the above, provide recommendations that could be used for the drafting of FCH 2 JU call for proposals regarding the following:
 - Possible Innovation Action and Research and Innovation Action topics, both in fuel cells, fuel cell systems, hydrogen storage, hydrogen refuelling, hydrogen refuelling stations, etc. and development of suitable rail applications on rolling stock and rail infrastructure;
 - Suitable hydrogen infrastructure needs for rail and other possible applications (such as using rail dedicated electrical grid for hydrogen production, use of the hydrogen infrastructure in combination with other transport modes, use of fuel cells for the rail power substations, etc.), in various configurations considering modularity;
 - Any need for regulatory/standardisation changes and impact on rail operations/maintenance;
 - Any other relevant recommendations.
- d) Analyse possible synergies with other transport modes through the use of fuel cell and hydrogen technologies.

The Advisory Board will be involved in this analysis and it will contribute to the required data to perform the services described above.

For each of the tasks and services to be performed, a detailed estimated budget breakdown, including person-day per profile, should be provided. This information is not binding and will not be taken into consideration for the financial evaluation of the tender. However, this will be taken into consideration for the assessment of the quality of the tender (Organisation of work and allocation of budget and human resources for the contract management).

The performance of the contract will be divided into two (2) phases. The contractor is authorised to continue the performance of the contract in the second phase only with written consent of the contracting authorities following an analysis of the Report 1 (section 3.3.1 and 3.3.2 of the tender specifications) at the end of the preceding phase. The leading Contracting Authority must notify the contractor in writing about its consent one week before the start of the next phase.

3.3 Planning for submission of deliverables and meetings

3.3.1 List of deliverables

Deliverable	Tasks Related	Short description
Report 1: State of the art & Business case and market potential	Task n° 1. State of the art and existing initiatives Task n° 2. Business case and market potential	Findings of Task n°1 and Task n°2. The analysis made by the contracting authorities Report 1
Report 2: Case studies	Task n° 3. Case studies	Findings of Task n°3, including at least 9 concept designs covering at least the three most promising rail applications.
Report 3: Recommendations	Task n° 4. Recommendations on future activities with particular focus on short term R&I	Short term R&I and regulatory/standardisation recommendations adequate to be used for the drafting of FCH 2 JU Annual Work Programmes and other relevant EU initiatives.
Final Study	All Tasks.	Conclusion of the work and summary of the Reports 1, 2, 3.

3.3.2 List of meetings and delivery dates

Meetings	Time limit (in calendar days)/date	Months (X)
Signature of the specific contract by S2R JU	14 May 2018	X
a) Kick-off meeting and presentation of proposed Advisory Board representatives	Within 1 week after the signature of the contract	X
b) Meeting 1: <ul style="list-style-type: none"> • Presentation of the preliminary results of Task n° 1 and Task n° 2 • Formal approval of Advisory Board representatives 	Within 1 month after a)	X+1

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Meetings	Time limit (in calendar days)/date	Months (X)
<p>c) Meeting 2:</p> <ul style="list-style-type: none"> • Presentation of draft Report 1 • Presentation and preliminary selection of case studies (Task n° 3) <p>The selection of the case studies will be in agreement with the S2R JU and FCH 2 JU.</p>	Within 2 weeks after b)	X+1
<p>d) Meeting 3:</p> <ul style="list-style-type: none"> • Delivery and presentation of Report 1. • Final selection of case studies. • Presentation of first insights of Task n° 4. <p>The approval of Report 1 constitutes the end of phase one. The leading Contracting Authority will notify the contractor in writing about its consent to proceed with phase two within one week.</p>	Within 2 weeks after c)	X+2
<p>e) Meeting 4:</p> <ul style="list-style-type: none"> • Presentation of the preliminary results of Task n° 3 and Task n° 4 	Within 1,5 month after d)	X+4
<p>f) Meeting 5:</p> <ul style="list-style-type: none"> • Presentation of draft Report 2 and draft Report 3 	Within 2 months after e)	X+5
<p>g) Final meeting:</p> <ul style="list-style-type: none"> • Delivery and presentation of Report 2 and Report 3 • Presentation of Final Study. 	Within 1,5 months after f)	X+7

Deliverables will be assessed by the S2R JU and FCH 2 JU in close cooperation with the European Commission (DG MOVE and DG RTD).

The execution of the tasks related to those deliverables will start on the date of signature of the contract or on the date indicate therein.

All costs linked to the contractor's participation in the meetings must be borne by the contractor. This includes travelling costs, subsistence costs and any additional costs.

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3.3.3 Content, structure and graphic requirement of the deliverables

The Contractor must deliver the study and other deliverables as indicated below.

3.3.4 Content

3.3.4.1 Reports

The Reports indicated in section 3.3.1 must include:

- An abstract of no more than 200 words and an executive summary of maximum 6 pages, in English;
- Specific identifiers which must be incorporated on the cover page provided by the leading Contracting Authority;
- The following disclaimer:

“The information and views set out in this study are those of the authors and do not necessarily reflect the official opinion of the S2R JU or the FCH 2 JU. The S2R JU/FCH 2 JU does not guarantee the accuracy of the data included in this study. Neither the S2R JU/FCH 2 JU nor any person acting on the S2R JU/FCH 2 JU behalf may be held responsible for the use which may be made of the information contained therein.”

3.3.4.2 Final Study

The Final Study indicated in section 3.3.1 must include:

- An abstract of no more than 200 words and an executive summary of maximum 6 pages, in English;
- Specific identifiers which must be incorporated on the cover page provided by the leading Contracting Authority;
- The following disclaimer:

“The information and views set out in this study are those of the authors and do not necessarily reflect the official opinion of the S2R JU/FCH 2 JU. The S2R JU/FCH 2 JU does not guarantee the accuracy of the data included in this study. Neither the S2R JU/FCH 2 JU nor any person acting on the S2R JU/FCH 2 JU's behalf may be held responsible for the use which may be made of the information contained therein.”

3.3.5 Graphic requirements

The contractor must deliver the study and all publishable deliverables in full compliance with the corporate visual identity of the S2R JU/FCH 2 JU.

The use of templates for studies is exclusive to the S2R JU/FCH 2 JU contractors. No template will be provided to tenderers while preparing their tenders.

3.3.6 Human resources: roles and responsibilities

Future Contractors will set up a team combining all the know-how and experience necessary to carry out the tasks described in these specifications. All members of the team who are to be in contact with the S2R JU/FCH 2 JU must be able to work in English. See section 6.3.3 for more details of the required technical and professional capacity.

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The future Contractor must inform the S2R JU of any changes (departures, arrivals, promotions, etc.) in the composition of the team during the performance of the contract. He/she must ensure that the composition of the team complies with the present tender specifications throughout the full duration of the contract including providing an appropriate back-up person in case of absences. The future Contractor must provide the training programmes necessary to ensure a constant high quality of services of the team.

The S2R JU reserves the right to request the replacement of any member of the team whose experience and/or competence deems to be inadequate, stating its reasons. Special attention will be paid to the approach proposed by the future Contractor for managing subcontractors. The future Contractor will be required to indicate the kinds of work, which they plan to subcontract and the name of any companies to which they are already intending to subcontract a part of the work.

3.3.7 Contract management

A project manager should be assigned to manage assignments and respond to S2R JU/FCH 2 JU requests. The project manager should participate in progress meetings with the S2R JU/FCH 2 JU and contribute to the reporting duties for the activities.

The project manager shall be the main contact point with the S2R JU and will be in charge of overseeing the overall contract and related project activities, including among others:

- Liaising with other future Contractor/s to manage any possible hand-over;
- Responding to S2R JU/FCH 2 JU requests;
- Participating in progress meetings with the S2R JU/FCH 2 JU;
- Carrying out the reporting duties on all activities.

3.3.8 Team members

Selected team members should have the necessary qualifications to carry out the tasks described in section 3.2 - See section 6.3.3 for more details of the required technical and professional capacity.

4 INFORMATION ABOUT THE CONTRACT TO BE AWARDED

4.1 Nature

The contract that will be signed is a direct service contract. The subject matter, remuneration and duration of performance of the contract are defined at the outset, as well as other necessary legal conditions. Therefore, the contract will be implemented without further formalities. A draft of the contract which will be concluded is provided. It specifies the rights and obligations of the contractor. No changes can be accepted by the Contracting Authorities (S2R JU/FCH 2 JU).

In submitting a tender, the tenderer accepts all terms and conditions specified in the invitation to tender, the present tender specifications and the draft direct service contract.

4.2 Duration

The duration of the contract is 7 months (see Article I.3.3 of the draft contract). The performance of the contract must follow the schedule of deliverables indicated in section 3.3.

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4.3 Value

The maximum amount for the total duration of the contract (7 months), excluding VAT and including all the expenses shall be **EUR 570 000**. Tenders offering a higher price will be rejected.

4.4 Place of performance and delivery

The implementation of the services will be undertaken at the contractor's premises.

The main place of delivery shall be at S2R JU and FCH 2 JU premises in Brussels.

4.5 Communication

Communication between the tenderer and the S2R JU must be possible by phone, electronic mail, fax, normal and registered mail, and a communications solution such as video conference systems or equivalent.

4.6 Language services

The working language of the S2R JU is English. The English language shall be used throughout the project duration for all communication, reports and other documentation.

4.7 Meetings

When face-to-face meetings between the S2R JU/FCH 2 JU and the contractor are needed, these will take place at the S2R JU/FCH 2 JU's premises in Brussels.

Where possible, meetings between the S2R JU/FCH 2 JU and the contractor can be made by utilising modern technologies such as videoconference systems.

4.8 Payments terms

The payment arrangements are laid down in the draft service contract (Article I.5).

Proper delivery and the S2R JU approval of reports shall be a condition for the initiation of corresponding payments by the S2R JU.

5 INFORMATION ON TENDERING

5.1 Participation

Participation in this procurement procedure is open on equal terms to all natural and legal persons coming within the scope of the Treaties, as well as to international organisations.

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It also open to all natural and legal persons established in Overseas Countries and Territories (OCT) as listed in the Annex II of the TFEU⁷ and to all natural and legal persons established in Iceland, Norway and Lichtenstein, as per the EEA Agreement⁸.

As indicated in the Appendix I to the WTO Agreement on Government Procurement (GPA)⁹, any EU institution or body other the Commission, the EEAS and the Council cannot open their procurement procedures to economic operators established in GPA countries. Therefore this procurement procedure is not opened to economic operators established in GPA countries.

Notice for British tenderers

Please be aware that after the UK's withdrawal from the EU, the rules of access to EU procurement procedures of economic operators established in third countries will apply to tenderers from the UK depending on the outcome of the negotiations. In case such access is not provided by legal provisions in force, tenderers from the UK could be rejected from the procurement procedure.

5.2 Variants

Variants, any equivalent alternatives to the model solution of the leading contracting authority, are prohibited.

In addition, tenderers may not submit tenders for only part of the services required.

5.3 Compliance with environmental, social and labour law

The tenderer must respect the applicable obligations under environmental, social and labour law established by Union law, national law, collective agreements or by the international environmental, social and labour law provisions listed in Annex X to Directive 2014/24/EU¹⁰.

5.4 Identification of the tenderer

The tenderer must fill-in all the information requested in the **Tender Submission Form (Annex I)**, signed by an authorised representative, presenting the name of the tenderer (including all entities in case of consortia or joint tender) and identified subcontractors (if applicable), and the name of the single contact point (leader) in relation to this procedure.

The tenderer (and each member of the group in case of consortia or joint tender) must also declare whether it is a Small or Medium Size Enterprise in accordance with Commission Recommendation 2003/361/EC¹¹. This information is used for statistical purposes only.

⁷ Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union. Official Journal C 326 , 26/10/2012 P. 0001 - 0390

⁸ <http://www.efta.int/eea/eea-agreement>

⁹ https://www.wto.org/english/tratop_e/gp_gpa_e.htm

¹⁰ Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (OJ L 94, 28.3.2014, p. 65).

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF>

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All tenderers (including all members of the group in case of consortia or joint tender) must provide a signed **Legal Entity Form** with its supporting evidence. The form is available on: http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal_entities_en.cfm

Tenderers that are already registered in the leading Contracting Authority's accounting system (i.e. they have already been direct contractors) must provide the form but are not obliged to provide the supporting evidence.

The tenderer (or the leader in case of consortia or joint tender) must provide a **Financial Identification Form** with its supporting documents. Only one form per tender should be submitted. No form is needed for subcontractors and other members of the group in case of joint tender. The form is available on: http://ec.europa.eu/budget/contracts_grants/info_contracts/financial_id/financial-id_en.cfm

5.5 Consortia and Joint tenders

A group of two or more economic operators may submit a tender ("consortium" or joint tender). A joint tender will be treated in the same way as any other type of tender, being assessed on its own merits in the light of the criteria set out in these specifications. A joint tender may include subcontractors, in addition to the joint tenderers.

Any change in the composition of the group during the procurement procedure may lead to rejection of the tender, except with the prior written authorisation of the Shift2Rail Joint Undertaking. Any change in the composition of the group after the contract has been signed and without the prior written authorisation of the Shift2Rail Joint Undertaking may result in the contract being terminated.

The group must provide the data requested in the Tender Submission Form (Annex I), stating clearly the identity and the separation of tasks among the members of the group. The group shall appoint (through a power of attorney signed by each member) a legal entity ("leader") with full authority to bind the group and each of its members vis-a-vis the leading Contracting Authority for submission of a tender and the signing of the contract.

Following the award, the contract will be signed between the leading Contracting Authority and the 'leader'.

The duly authorised 'leader' will be also responsible for administration of the contract, invoicing, receiving payments, etc. on behalf of other members of the group.

In the case of a consortia or joint tender, all the members of the group are jointly and severally liable for the performance of the contract.

Exclusion criteria (see section 6.2 below) will be assessed in relation to each member of the group individually. Selection criteria (see section 6.3 below) will be assessed in relation to the group as a whole.

For each consortium or group member, the tenderer must, at the time of tender submission¹²:

- Specify the company or person heading the project (the leader) and submit, a copy of the document authorising this company or person to submit a tender on behalf of the consortium (e.g. power of attorney);

¹² See also section 7.1 and Annex I – Tender Submission Form – for a summary / overview of documents to be submitted as part of the tender.

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- Submit the Declaration on the honour on exclusion and selection criteria using the template in **Annex II**. To this end, each member of the group must duly fill in sections I to VI of above-mentioned declaration; in section VII they shall indicate 'N/A', as this will be filled in only by the leader.
- Submit the required evidence for selection criteria – legal capacity (see section 6.3.1).
- For the selection criteria - economic & financial capacity (see section 6.3.2) and technical and professional capacity (see section 6.3.3) the evidence should be provided by each member of the consortium, but will be checked to ensure that the consortium as a whole fulfils the criteria (e.g. not every consortium member needs to fulfil each of the criteria individually – but rather as a whole).

5.6 Subcontracting

Subcontracting is permitted but the contractor shall retain full liability towards the leading Contracting Authority for performance of the contract as a whole.

Tenderers are required to identify subcontractors whose share of the contract is **above 10% (in value or in tasks to be subcontracted)**. For each identified sub-contractor, the tenderer must, at the time of tender submission¹³:

- Indicate clearly which parts of the work will be sub-contracted (including freelancers, consultants, experts etc.) and to what extent (proportion in %).
- Submit the Declaration on the honour on exclusion and selection criteria. To this end, they must duly fill in sections I to VI of above-mentioned declaration; in section VII they shall indicate 'N/A', as this will be filled in only by the leader.
- Submit a duly signed and dated (by the sub-contractor) “Letter of intent” using the template provided in **Annex III** - confirming its unambiguous undertaking to collaborate with the tenderer if they are awarded the contract and detailing the resources that they will put at the tenderer’s disposal for the performance of the contract.
- Proof of Technical & Professional Capacity: Submit the required evidence for technical and professional capacity (see section 6.3.3). Please note the evidence provided by each sub-contractor, for those applicable criteria, will be checked only to ensure that the tenderer as a whole fulfils the criteria.

All subcontracting must be approved by the leading Contracting Authority, either by accepting the tender, or, if proposed by the Contractor after Contract signature, by prior agreement of the contracting authority. In the latter case, the modification may be accepted only in exceptional circumstances when the contracting authority considers sub-contracting to be necessary to complete the project and when it does not lead to distortion of competition. Where no sub-contracting is indicated in the tender the work will be assumed to be carried out directly by the tender.

¹³ See also section 7.1 and Annex I – Tender Submission Form – for a summary / overview of documents to be submitted as part of the tender.

6 EVALUATION AND AWARD

6.1 Introduction

The evaluation will be based solely on the information provided in the submitted tender by the tenderer and in the light of the criteria set out hereunder.

The evaluation procedure will be carried out in four consecutive stages:

- Stage 1 – Verification of non-exclusion of tenderers on the basis of the exclusion criteria (see section 6.2 below),
- Stage 2 – Selection of tenderers on the basis of selection criteria (see section 6.3 below)
- Stage 3- Verification of compliance with the minimum requirements set out in these tender specifications (see section 6.4 below)
- Stage 4 – Evaluation of tenders on the basis of the award criteria (see section 6.5 below).

The tenders will be evaluated in the order indicated above. Only tenders meeting the requirements of one step will pass to the next step.

6.2 Verification of non-exclusion of tenderers on the basis of the exclusion criteria

Tenderers must provide a declaration on their honour (**Annex II**), dated and signed by a duly authorised legal representative, stating that they are not in one of the situations referred to in Articles 106 and 107 of Regulation (EU, Euratom) 2015/1929 of the European Parliament and of the Council of 28 October 2015 amending Regulation (EU, Euratom) No 966/2012 on the financial rules applicable to the general budget of the Union (hereinafter “the Financial Regulation”)¹⁴.

In case of consortia or joint tender, each member of the group must provide the declaration on honour signed by an authorised representative. To this end, each member of the group must duly fill in sections I to VI of above-mentioned declaration; in section VII they shall indicate 'N/A', as this will be filled in only by the leader.

In case of subcontracting, all subcontractors whose share of the contract is above 10% and all subcontractors whose capacity is necessary to fulfil the selection criteria must provide a declaration on honour signed by an authorised representative. To this end, they must duly fill in sections I to VI of above-mentioned declaration; in section VII they shall indicate 'N/A', as this will be filled in only by the leader.

The leading Contracting Authority reserves the right to verify whether the successful tenderer is in one of the situations of exclusion by requiring the supporting documents listed in the declaration of honour.

The exclusion criteria will be applied to each member of the group and each subcontractor concerned individually.

Supporting document: declaration on honour on exclusion and selection criteria (**Annex II**).

Evidence: In accordance with Article 141 of the rules of application of the Financial Regulation, the successful tenderer will be asked to submit evidence as defined in the declaration, before the signature of the contract and within a deadline given by the contracting authority. This

¹⁴OJ L 286, 30.10.2015, p. 1-29.

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requirement applies to each member of the group in case of consortium or joint tender. It also applies to all subcontractors whose share of the contract is above 10% and to all subcontractors whose capacity is necessary to fulfil the selection criteria. The successful tenderer, referred as “the person” here below and in the declaration, must submit:

For situations described in (a), (c), (d) or (f) of the declaration,

- A recent extract from the judicial record is required or, failing that, a recent equivalent document issued by a judicial or administrative authority in the country where the person is established, showing that these requirements have been met.

For situations described in (a) or (b),

- Recent certificates issued by the competent authorities of the State concerned are required. These documents must provide proof of payment of all taxes and social security contributions for which the person is liable, including for example, VAT, income tax (natural persons only), company tax (legal persons only) and social security contributions.
- Where any document described above is not issued in the country concerned, it may be replaced by a sworn statement made before a judicial authority or a notary or, failing that, by a solemn statement made before an administrative authority or a qualified professional body in its country of establishment.

A tenderer (or a member of the group in case of consortia or joint tender, or a subcontractor) is not required to submit the documentary evidence if it has already been submitted for another procurement procedure and provided the documents were issued not more than one year before the date of their request by the contracting authority and are still valid at that date. In such cases, the tenderer must declare on its honour that the documentary evidence has already been provided in a previous procurement procedure, indicate the reference of the procedure and confirm that there has been no change in its situation.

If the tenderer is unable to provide the documents requested within the period specified by the contracting authority and cannot therefore prove that he is not in one of the situations of exclusion, the tender may be rejected and the contracting authority reserves the right to sign the contract with another tenderer.

A tenderer (or a member of the group in case of joint tender or consortia, or a subcontractor) is not required to submit a specific document if the contracting authority can access the document in question on a national database free of charge.

Please refer to the following web page for additional information regarding the relevant requirements and model documents under national laws of the EU Member States: <https://ec.europa.eu/growth/tools-databases/ecertis/>

6.3 Selection of tenderers on the basis of selection criteria

Tenderers must have the overall capabilities (legal, regulatory, economic, financial, technical and professional) to perform the contract.

All the requirements listed below must be met in order to enter the next phase of the assessment in the light of award criteria.

Please note that in the selection phase, assessment focuses on the experience and capacity of the tenderer, and not on the quality of the (technical) offer submitted. The latter is to be assessed in the

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light of the award criteria. Therefore, the evaluation of the selection criteria will be made on a YES/NO basis.

Supporting document: For the selection criteria, the tenderer (sole tenderer or leader in case of consortia or joint tender) must provide the declaration on honour (by filling in section VII of Annex II) stating that the tenderer, including all members of the group in case of joint tender and including subcontractors if applicable, fulfils the selection criteria, for which a consolidated assessment will be carried out. This declaration is part of the declaration used for exclusion criteria (see section 6.2) so only one declaration covering both aspects should be provided by each concerned entity.

Evidence: Please note that all the supporting documents listed below (sections 6.3.1 to 6.3.3) must be provided with the tender and within the deadline for submission as proof of the declaration on the honour on the selection criteria referred to in the annex II. This requirement applies to each member of the group in case of consortia or joint tender and to subcontractors whose capacity is necessary to fulfil the selection criteria.

6.3.1 Legal and regulatory capacity

Tenderers must prove that they are allowed to pursue the professional activity necessary to carry out the work subject to this call for tenders. The tenderer (including each member of the group in case of consortia or joint tender) must provide the following information in its tender if it has not been provided with the Legal Entity Form:

- For legal persons, a legible copy of the notice of appointment of the persons authorised to represent the tenderer in dealings with third parties and in legal proceedings, or a copy of the publication of such appointment if the legislation applicable to the legal person requires such publication. Any delegation of this authorisation to another representative not indicated in the official appointment must be evidenced.
- For natural persons, if required under applicable law, a proof of registration on a professional or trade register or any other official document showing the registration number.

Evidence:

- Tenderers shall provide a dully filled-in **Legal Entity Form**, including all associated supporting documentation:
http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal_entities_en.cfm#en
- If required under applicable law, evidence of inclusion in a trade or professional register, or a sworn declaration or certificate, membership of a specific organisation, express authorisation or entry in the VAT register.

6.3.2 Economic and financial capacity criteria

The tenderer must demonstrate sufficient economic and financial resources to perform the contract until its end. In order to prove their capacity, the tenderer must comply with the following selection criteria.

- 1) **Criterion. Turnover.** The annual turnover of each of the last two financial years for which accounts have been closed must be above **EUR 500 000**. This criterion applies to the tenderer

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as a whole, i.e. the combined capacity of all members of a group in case of consortia or joint tender and subcontractors.

Evidence:

- Proof of economic and financial capacity shall be furnished by completing **Annex IV.a – Economic & Financial Capacity** and providing the balance sheets or extracts from balance sheets for at least the last two years for which accounts have been closed (where publication of the balance sheet is required under the company law of the country in which the economic operator is established).
- Failing that, appropriate statements from banks.

If, for some exceptional reason which the contracting authority considers justified, the tenderer is unable to provide the required evidence, it may prove its economic and financial capacity by any other document which the contracting authority considers appropriate. In any case, the contracting authority must at least be notified of the exceptional reason and its justification. The contracting authority reserves the right to request any other document enabling it to verify the tenderer's economic and financial capacity.

In the case of consortia or group each member will have to provide the information required above. In the case of subcontractors performing a share of the contract representing more than 10 % of the total value of the Contract, the information requested above must be provided separately for each subcontractor.

6.3.3 Technical and professional capacity criteria

Tenderers must demonstrate that they have sufficient technical and professional capacity to perform the contract by complying with the following criteria:

6.3.3.1 Tenderer's experience in the field of the contract

The tenderer (in case of a consortia or joint tender the combined capacity of all members of the group and identified subcontractors) must comply with the criteria listed below and provide the requested evidence (supporting documents)¹⁵.

- 1) **Criterion 1. Professional experience.** Tenderer's proven experience in the subject of the contract, and in particular in the following aspects:
 - a. In successfully delivering business cases and case studies to relevant stakeholders within the rail and/or fuel cells and hydrogen sectors.
 - b. Proven knowledge of the rail and fuel cells and hydrogen technologies, system design and markets.
 - c. Proven experience in in handling confidential and sensitive data, data collection, statistical analyses, drafting reports and recommendations.

¹⁵ Please note that the S2R JU reserves the right to request further evidence in support of the technical & professional capacity criteria.

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Evidence:

The tenderer should provide references for at least three projects/studies delivered within the rail and/or fuel cells and hydrogen sectors within the last five years.

The tenderer should identify how the chosen projects/studies refer to the points (a), (b) and (c) indicated above.

- The tenderer must complete and sign the **Annex IVb-Technical and professional capacity template-** Tenderer's experience in the field of the contract and provide the supporting documents indicated above.

- 2) **Criterion 2. Language capacity:** the tenderer must prove capacity to work in English and prove experience and capacity to draft and deliver excellent quality reports in English In addition, all members of the team (see section 6.3.3.2) must have at least C1 level in the Common European Framework for Reference for Languages in English¹⁶.

Evidence:

The tenderer must provide evidence of the linguistic competencies of the team delivering the service that ensures at least C1 level in English as indicated above.

6.3.3.2 Capacity of the team proposed by the tenderer/delivering the service

The tenderer must have the following team and must include, as a minimum, the following profiles with the number of persons indicated below:

Profile	Minimum number
<u>Project Manager</u>	1
<u>Senior expert</u>	3
<u>Junior expert</u>	3

1) **Criterion 1. Profile 1 – Project Manager**

(a) Education

At least one Project Manager with a higher education degree or equivalent professional experience.

(b) Professional experience and skills

The Project Manager must demonstrate at least ten (10) years of professional experience in project management including quality control of delivered service, conflict resolution and client orientation in projects of a similar size (i.e.: EUR 570.000) and with experience in management

¹⁶ <http://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>.

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of a team. Professional experience includes the years of practice after obtaining the diploma(s) required.

Evidence:

- The *curriculum vitae* of the Project Manager proving the professional experience described above. In the context of this call for tender, the tenderer is obliged to use the Europass format, which can be downloaded from the following address: <http://europass.cedefop.europa.eu>
- The tenderer must complete and sign the **Annex IVc- Technical and professional capacity template** -Capacity of the team proposed by the tenderer/delivering the service.

2) Criterion 2- Profile 2 –Senior expert

(a) Education

At least three (3) senior experts with a higher education degree in the relevant fields of the contract.

(b) Professional experience

Each senior expert must demonstrate professional experience of as least ten (10) years in the subject covered by the contract. The team of senior experts must have a combined expertise of at least ten (10) years of experience in both sectors (rail and fuel cell/hydrogen), in areas such as railway operations, railway infrastructure management, train and equipment manufacturing, rail system integration, fuel cell, hydrogen infrastructure and other relevant transport sector. Professional experience includes the years of practice after obtaining the diploma(s) required.

Evidence:

- The *curriculum vitae* of the senior experts proving the professional experience described above. In the context of this call for tender, the tenderer is obliged to use the Europass format, which can be downloaded from the following address: <http://europass.cedefop.europa.eu>
- The tenderer must complete and sign the **Annex IVc- Technical and professional capacity template** -Capacity of the team proposed by the tenderer/delivering the service.

3) Criterion 3. Profile 3 Junior expert

(a) Education

At least three (3) junior experts with a higher education degree.

(b) Professional experience

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Each junior expert must demonstrate professional experience of as least three (3) years in the subject of the contract. Professional experience includes the years of practice after obtaining the diploma required.

Evidence:

- The tenderer must complete and sign the **Annex IVc- Technical and professional capacity template** -Capacity of the team proposed by the tenderer/delivering the service.
- No *curriculum vitae* are requested.

In the case of consortia or joint tender, each member will have to provide the information required above according to their role in the consortium. In the case of subcontractors performing a share of the contract representing more than 10 % of the total value of the Contract, the information requested above must be provided separately for each subcontractor according to their role in the consortium.

6.4 Compliance with minimum requirements

Tenders must comply with all the following minimum requirements:

- Agreeing/planning on submitting the Reports, Final Study and Tasks as described in the Technical Specifications.
- Detailing the estimated budget breakdown.
- Respecting the time limits for submission of deliverables.

Tenders deviating from the requirements or not covering all minimum requirements set out in the technical specifications will be rejected based on non-compliance with the tender specifications and will not be further evaluated.

Any compliant tender will be assessed on the basis of the award method detailed below.

6.5 Evaluation on the basis of the award criteria

The contract will be awarded to the economically most advantageous tender, on the basis of:

- The quality of the services offered, assessed in the light of the award criteria set out below, and
- The financial offer.

The weighting between the quality of the proposed services and the price offered is:

60% — quality of services

40% — price offered

The technical offer must cover all aspects and tasks required in the technical specifications and provide all the information needed to apply the award criteria.

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6.5.1 Evaluation of the quality of the offer

A maximum total score of **100 points** will be awarded for the quality of the tender. A minimum of 50% of points must be achieved in each individual criteria.

The overall quality of each tender shall be evaluated on the basis of the following criteria:

Quality criteria	Description	Maximum points	Threshold (minimum number of points to be achieved)
1. Quality and appropriateness of the methodological approach	<p>This criterion will be evaluated on the basis of the feasibility, relevance and effectiveness of the proposed methodology and technical approach for delivering the indicative list of tasks and deliverables described in section 3.2 and 3.3. In particular this criterion will assess:</p> <ul style="list-style-type: none"> - Clarity, relevance and comprehensiveness of the proposed approaches in handling the indicative list of tasks and deliverables described in section 3.2 and 3.3 - The suitability and strength of the proposed methodology for achieving, in an efficient and comprehensive manner, the tasks. - The approach to dealing with unforeseen difficulties arising in the implementation of the tasks. - How well the specificities of the tasks are taken into account. - The appropriate use of the methodology suitable for rail and fuel cells and hydrogen specifications and related work areas and tasks of this tender. - The range of sources of information to be consulted and tools to be used (specific databases, sources of information, other techniques) 	50	25

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Quality criteria	Description	Maximum points	Threshold (minimum number of points to be achieved)
	<p>to carry out the tasks: their track-record, quality and effectiveness.</p> <ul style="list-style-type: none"> - The network of relevant stakeholders and their written agreement to provide and validate data required in the tasks of this tender. 		
<p>2. Organisation of work and allocation of budget and human resources for the contract management</p>	<p>The tender shall provide details on the allocation of time, human and budget resources and the rationale behind the choice of this allocation. Details shall be provided as part of the technical offer. In particular, the tender shall provide a detailed estimated budget breakdown per each tasks described in section 3.2.1, including person-day per profile.</p> <p>This criterion will be evaluated on the basis of:</p> <ul style="list-style-type: none"> - The extent to which the tenderer will provide an effective, swift and smooth organisation of the requested services while maintaining a high quality of service and budget management during contract implementation. - Roles, interfaces and responsibilities of the experts made available (including subcontractors if applicable) for each task. - Availability and involvement of the project manager, interaction and coordination with the experts team. - Appropriateness of proposed tools in facilitating budget allocation and human resources organisation. 	<p>35</p>	<p>17,5</p>

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Quality criteria	Description	Maximum points	Threshold (minimum number of points to be achieved)
	- Contract follow-up and business continuity.		
3. Quality control measures	This criterion will be evaluated on the basis of the risk management strategy and quality control system applied to the services foreseen in these tender specifications and the extent to which the quality control system is relevant for every specific task. The quality control system must cover the soundness of the analysis, the quality of the deliverables, the monitoring and guarantee of deadlines, the language quality check, and the continuity of service in case of absence of members of the team. The quality system should be detailed in the tender and be specific to the tasks at hand; a generic quality system will result in a low score. The quality control measures and risk management strategies proposed in the tender will be applicable during the whole duration of the contract.	15	7,5
TOTAL		100	60

Only the tenders having reached a minimum score of 50% for each criterion and a total number of points equal to 60 out of 100 will be considered for the financial evaluation. Tenders that do not reach the minimum quality thresholds will be rejected.

6.5.2 Prices and financial evaluation

After verification of the conformity of financial tenders submitted, the financial evaluation will be based on the analysis of the price among the admissible tenders who passed the technical evaluation.

To present its financial offer, the tenderer must complete the **Model Financial offer form in Annex V** with the utmost care. In order to do this, the tenderer must fill in and indicate:

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- The price per person-day per each profile
- The number of person-day foreseen for each tasks described in section 3.2.1
- The total price (number of person-day foreseen X price per person-day)
- The other costs (i.e.: cost for acquiring data, travel and subsistence costs)
- The total price for all services (with and without VAT)

For the financial comparison of the tenders, the price for the tender must be made up of the sum of the price for all the tasks indicated in section 3.2.1 expressed in euro (to two decimal places) and multiplied by the number of person-day proposed by the tenderer. The total price that will be taken into account for the financial evaluation and the award of the contract is the **Total price for all services (without VAT)**.

Tenderers from countries outside the Eurozone must also quote their prices in euro. The price quoted may not be revised in line with exchange rate movements. It is for the tenderer to assume the risks or the benefits deriving from any variation.

Prices must be quoted free of all duties, taxes and other charges. In particular, they must be quoted free of VAT as the S2R JU is exempt from such charges, as specified under Articles 3 and 4 of the Protocol on the privileges and immunities of the European Union. The tenderer may indicate the amount of VAT but it must be shown separately.

Where a service is provided free of charge, the tenderer must indicate EUR 0, 00.

The quoted price must be a fixed amount, which includes all tasks included in the technical specifications (including the production of deliverables, cost for acquiring data, etc.) and all charges (including travel and subsistence for participation in the meetings). Travel and subsistence expenses are not refundable separately.

Costs incurred in preparing and submitting tenders are borne by the tenderer and shall not be reimbursed.

The contracting authority may reject abnormally low financial tenders, in particular if it established that the tenderer or a member of the group (in case of consortia or joint tenders) does not comply with applicable obligations in the fields of social and labour national law.

6.5.3 Award formula and ranking of tenders

The contract will be awarded to the most economically advantageous tender, i.e. the tender offering the best price-quality ratio determined in accordance with the formula below. A weight of **60/40%** (in percentage) is given to quality and price.

To determine the order in which the tenders are ranked, the total score awarded to each tender will be calculated as follows:

Score for tender X	=	$\frac{\text{Lowest price}}{\text{Price of tender X}}$	*	100	*	Price weighting (40%)	+	Total quality score (out of 100) for all award criteria of tender X	*	Quality criteria weighting (60%)
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All offers above the minimum quality threshold are ranked.

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The tender which, in the final evaluation, receives the highest score will be considered the most economically advantageous tender.

The tender ranked first after applying the formula will be awarded the contract.

7 CONTENT AND PRESENTATION OF TENDERS

It is strictly required that tenders be presented in the correct format and include all documents necessary to enable the evaluation committee to assess them. Failure to respect these requirements will constitute a formal error and may result in the rejection of the tender. As a result, tenders must comply with the following conditions for submission.

7.1 Presentation of the Tender

Tenders must be submitted in accordance with the **double envelope system**:

Outer Envelope: The outer envelope or parcel should be sealed with adhesive tape, signed across the seal and carry the following information as shown in the diagram in 7.3 below:

- ✓ The ref. number of the call for tenders: **S2R.18.OP.01**
- ✓ The title of the contract: **Study on use of fuel cell hydrogen in railway environment**
- ✓ The name of the tenderer
- ✓ The indication ***“Tender - Not to be opened by the internal mail service”***
- ✓ The address for submission of tenders *(as indicated in the letter of invitation to tender)*
- ✓ The date of posting *(if applicable)* should be legible on the outer envelope

Inner Envelopes: The outer envelope must contain **three inner envelopes**, namely, Envelopes A, B and C. The content of each of these three envelopes must be as follows:

ENVELOPE A – ADMINISTRATIVE DATA: One signed original for documents listed 1 to 6 and one (1)(copy * (identical in full to the original) for documents listed 7 to 9

Administrative Offer providing all information requested in section 5 and sections 6.1 to 6.3

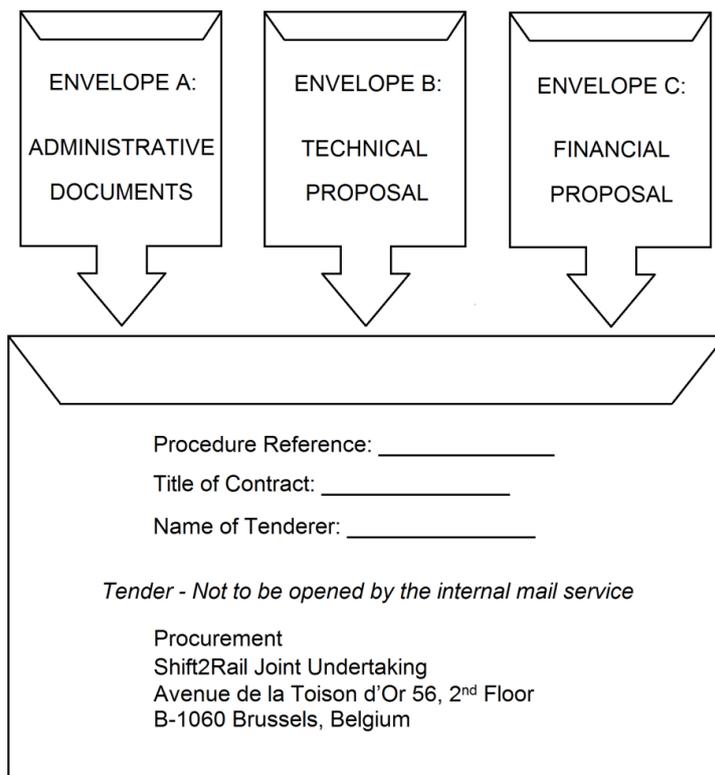
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1. Tender Submission Form – using template in Annex I (front page of administrative documents)
2. Declaration of honour on exclusion and selection criteria – using template provided in Annex II . In case of joint tender or consortia (section 5.5), the declaration of the “Leader” must be a signed original but those of other members may be electronic copies. Same apply in case of subcontractors (section 5.6)
3. <i>In case of joint tender or consortia (section 5.5):</i> powers of attorney (or equivalent document) issued by the consortium members empowering the representative of the consortium leader (tenderer) to submit a tender of their behalf.
4. <i>In case of sub-contracting (section 5.6):</i> Letter of intent for subcontractors – using the template provided in Annex III .
5. Financial Identification Form – using the template available in the link below with its supporting documents: http://ec.europa.eu/budget/contracts_grants/info_contracts/financial_id/financial_id_en.cfm
6. Legal Entity Form (section 6.3.1 Selection Criteria - Legal and regulatory capacity) – using template available in the link below and the supporting documents requested in section 6.3.1: http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal_entities_en.cfm
7. Economic & Financial Capacity Documents (section 6.3.2 Selection Criteria – Economic & Financial Capacity) – using the template provided in Annex IV.a and accompanied by the documents requested.
8. Technical & Professional Capacity Documents (section 6.3.3 -- Tenderer’s experience in the field of the contract) using the template provided in Annex IV.b and accompanied by the documents requested
9. Technical & Professional Capacity Documents (section 6.3.3-Capacity of the team proposed by the tenderer/delivering the service) using the template provided in Annex IV.c
ENVELOPE B – TECHNICAL DOCUMENTS: One signed original and one copy* (identical in full to the original) of the:
✓ Technical Offer providing all information requested in section 6.5.
ENVELOPE C - FINANCIAL DOCUMENTS: One signed original and one copy* (identical in full to the original) of the:
✓ Financial Offer (section 6.5.2) using the template provided in Annex V- Model Financial offer form
<i>*The original tender must be marked “ORIGINAL”, and the copies (of the signed original) marked “COPY”.</i>
THE TENDERER MUST ALSO PROVIDE IN “ENVELOPE A” AN ELECTRONIC COPY (IN A USB KEY) OF THE TENDER: ADMINISTRATIVE DATA, TECHNICAL AND FINANCIAL OFFER.

7.2 Language of the Tender

Tenders should be drafted in one of the official languages of the European Union, **preferably in English.**

7.3 Tender Submission - Envelope Diagram



8 ANNEXES

- Annex I- Tender Submission Form
- Annex II-Declaration of honour on exclusion and selection criteria
- Annex III- Letter of intent for identified subcontractors
- Annex IV.a – Economic and Financial Capacity template
- Annex IVb-Technical and professional capacity - Tenderer's experience in the field of the contract
- Annex IVc- Technical and professional capacity -Capacity of the team proposed by the tenderer/delivering the service
- Annex V-Model Financial offer form