

Evaluation of the Directive on the Deployment of Alternative Fuels Infrastructure (2014/94/EU)

1. Objectives of the study

The European Commission is conducting an evaluation of the [Directive on the Deployment of Alternative Fuels Infrastructure 2014/94/EU](#) (henceforth the Directive or AFID).

The Directive was adopted in 2014 and creates a common framework of measures for the deployment of alternative fuels infrastructure (AFI) in the EU.

The Directive requires Member States to set up long-term National Policy Frameworks (NPFs) for the development of the market as concerns alternative fuels and the planning of the deployment of relevant alternative fuels infrastructure. It also stipulates requirements for the rollout of alternative fuels infrastructure along the core network of the Trans-European Transport Network (TEN-T) and its urban nodes - with different milestones for 2020, 2025 and 2030 for different alternative fuels. The Directive sets common technical specifications for recharging and refuelling stations that aim at ensuring interoperability and adequate consumer information. It covers electricity (including shore-side electricity for ships), hydrogen, and natural gas (CNG for light duty road and LNG for heavy duty road, maritime and inland waterway transport).

The Commission has contracted a team led by consultants Ricardo (including Transport and Environmental Policy Research (TEPR) and E3-Modelling (E3M)) to undertake a support study for the European Commission for the evaluation of the Directive.

The objective of the study is to provide a comprehensive evaluation of the Directive and to collect and analyse evidence to help assess whether it has achieved its objectives in an effective and efficient manner. In addition, the study aims to determine whether its objectives and priorities remain relevant with emerging needs and consistent with other EU policies and priorities. It aims to provide an overall assessment of how successful the Directive has been in achieving its objectives and it will examine the progress made across the relevant policy areas.

In the context of the study we are organising surveys with national and local authorities, with direct experience in the development of National Policy Frameworks and the implementation of measures related to the Directive

The objectives of the interviews are to obtain your input and data (where relevant) on the evaluation of the Directive on the deployment of alternative fuels infrastructure.

The roadmap of the evaluation process can be found [here](#).

If you have any questions, please do not hesitate to contact us at AFInfrastructure.Eval@ricardo.com

2. Introduction to the survey

To facilitate the development of the survey in multiple languages, the EU machine translation tool has been used. Therefore, please accept our apologies in advance if you find any errors in translation. Please contact AFInfrastructure.Eval@ricardo.com, if you require further assistance.

This survey is intended to gather feedback from regional/local authorities to support the evaluation of the AFID from national authorities who have experience with the development of National Policy Frameworks since 2014.

It may be the case that not all questions will be relevant for your organisation or you may not be in a position to respond to them. In these instances, you can simply select “Do not know” or “Not applicable”.

We appreciate that there may be more than one authority/department in your region/urban or local area that has been involved or are responsible for the implementation of specific measures related to the promotion of alternative fuels infrastructure. Thus, we would like to ask you to forward the invitation email to the appropriate contact point in the other authorities that are responsible and ask them to complete the survey.

Alternatively, if it is considered more appropriate, you can coordinate with them when responding to the question and submit a single response indicating all the organisations involved. However, we expect that this may be particularly challenging, and it may not be possible to prepare the response within the period that the survey will remain open.

The survey is expected to remain open for eight weeks. The deadline for the submission of your answers is **26th March 2020**.

Note: You can only take the survey once (one response per computer). You can save the progress you have made in filling out your survey and complete it at a later time - once you open the link to the survey on the same computer and the same browser you will be directed to the same page of the questionnaire where you left, with your previous responses saved. You can also print a pdf format of the survey if this is convenient in developing your responses.

3. Use of your input

The study team will make use of your contribution (information/data provided) only for the needs of this study and of the underlying evaluation report prepared by the Commission services. Your responses will be shared with the Commission services. Please indicate how you would like us to present the information provided during our discussion and any other information or data you provide to us:

Select one of the following:

- Your contribution will be referenced to the organisation represented

- Your contribution will be anonymised (i.e. without the name/name of the organisation but with affiliation to industry sector, e.g. “local authority, transport operator representative, environmental NGO”)

4. Contact information

4.1 In order to analyse the input to this survey, we would ask you to provide some personal information (name, email address, telephone number, etc.). Undertaking this survey means you are providing consent to Ricardo to store your data for the purposes of the study. Your personal data will not be shared with any third party outside of this study and your responses will be treated as specified in the box above (see 'Use of your input'). You can read our policy on how we process data [here](#).

Member State

Germany

Name of region/urban or local area

Metropolitan Region FrankfurtRheinMain

Name of responding authority

Regionalverband FrankfurtRheinMain

Specific department (if relevant)

European Office

Contact name

Susanna Caliendo

Position/role in the organisation

Head of Office

Email address

europa@region-frankfurt.de

Telephone number

4.2 Please identify the policy areas that your administration/department is responsible for (please select all that are applicable):

| | |
|----------------------|--------|
| <input type="text"/> | Select |
|----------------------|--------|

| | |
|--|-------------------------------------|
| a. Transport sector policy (general) | <input checked="" type="checkbox"/> |
| b. Road transport | <input type="checkbox"/> |
| c. Maritime transport | <input type="checkbox"/> |
| d. Aviation transport | <input type="checkbox"/> |
| e. Rail transport | <input type="checkbox"/> |
| f. Urban transport | <input type="checkbox"/> |
| g. Climate change adaptation/mitigation | <input checked="" type="checkbox"/> |
| h. Environmental policy (air quality, noise, waste etc.) | <input checked="" type="checkbox"/> |
| i. Energy policy | <input checked="" type="checkbox"/> |
| j. Social/employment policy (including transport sector) | <input type="checkbox"/> |
| k. Industrial/R&D/Innovation policy | <input type="checkbox"/> |
| l. Other area (please indicate below) | <input checked="" type="checkbox"/> |

Other area:

Land-use planning

5. Relevance of the Directive and its provisions

The following set of questions ask you to provide input to help us understand the relevance of the Directive's objectives, targets and provisions reflecting on the ongoing political, economic, technological and social developments. Key aspects are the extent to which the scope (in terms of fuels and modes covered) and the approach (based on Member States National Policy frameworks and indicative targets) are appropriate in view of the development, especially in view of the policy objectives concerning the decarbonisation of transport.

5.1 At the time of the adoption of the Directive, the identified challenges for the uptake of Alternative Fuels in the EU were:

- **Technological and commercial short-comings:** The network for the provision of electricity, hydrogen and natural gas (LNG for trucks and waterborne transport and CNG for road transport vehicles) was considered insufficient compared to a network that would be necessary to enable market uptake of these fuels and was not likely to become available in the near future.
- **Lack of consumer acceptance:** Full scale deployment and commercialisation of alternative fuels was considered hampered by poor acceptance by potential consumers, due to perceived distance needs, knowledge of availability of recharging/refuelling stations, longer refuelling times than they are accustomed to, high cost of Alternatively Fuelled Vehicles compared to conventional internal combustion engine vehicles.
- **Missing adequate infrastructure:** The industry was reluctant to invest in alternative fuel vehicles due to concern of viability and profitability in the absence of sufficient network of refuelling/recharging

points (and vice versa). There was a 'chicken and egg' problem between vehicles and investing in infrastructure.

In your view, to what extent are the challenges described above are still relevant today?

| | Do not know | Not at all | To a limited extent | To some extent | To a significant extent | Fully |
|---|-----------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|-----------------------|
| 1. Technological and commercial short-comings | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Lack of consumer acceptance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Missing adequate infrastructure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answer (e.g. what is the reason that these challenges may not be as relevant today?):

With the public awareness and acceptance for alternatively fuelled vehicles rising, we perceive a new dynamic in the takeup of e-charging points (increase of more than 20 % only within the last year) - but still not everywhere in the same amount and not in a manner to speak of a fully fledged network being able to supply the projected needs in the future. Most e-cars are charged at home. An infrastructure for hydrogen fuelled vehicles is, with the exemption of some pilot projects in public transport, not existing.

5.2 Based on your experience, how (if at all) have the following developments affected (positively or negatively) the level of uptake of Alternative Fuels Infrastructure in your region?

| | Do not know | Not relevant | Positive impact (increase in uptake) | No impact | Negative impact (decrease in uptake) |
|---|-----------------------|-----------------------|--------------------------------------|----------------------------------|--------------------------------------|
| 1. Increase in level of e-commerce/ increase online purchase | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 2. New mobility patterns and new business models (e.g. mobility as a service, ride sharing) | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Increasing connectivity and digitisation of vehicles | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 4. New alternatively fuelled technologies and increasing use of renewables | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Adoption of restrictions for the use of vehicles in urban and suburban areas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 6. Smart electricity grid management technologies | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | | | | | |

| | | | | | |
|---|-----------------------|-----------------------|----------------------------------|-----------------------|-----------------------|
| 7. Improved quality of vehicles (e.g. increased range of electric vehicles) | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Overall reduction in the price of vehicles | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answer:

We perceive technological progress (improved quality and range of electric vehicles) and the falling prices together with state subsidies as main drivers for the uptake of e-cars. In the German case with the decision to phase out nuclear power, the question of energy for e-cars coming from climate-harming coal plants is very present in the debate. The ongoing increase of renewables is therefore absolutely necessary to make climate protection related sense of the electrification of individual motorized transport.

- Some failing pilot projects in clean delivery solutions have led to an uncertainty in that field, making increasing purchase volumes a future challenge.
- In a tendency, the share of alternative fuelled cars is higher in ride sharing services than in privately owned car fleets.
- As the urban access restrictions could be kept to a minimum in our region so far, it is hard to judge on regarding effects due to the few empirical cases.

5.3 Are there any other technological, economic, societal/behavioural and/ or environmental developments that have played a positive or negative impact not identified above and that are not properly reflected in the Alternative Fuels Infrastructure Directive?

Please explain your answers:

As a full electrification of all modes of transport is not a realistic and desirable option today, due to missing network capacities and the already indicated problem of clean energy sources, it is necessary to think about which alternative fuel might have the best benefit in which specific sector and mode. As the different technologies have a different development status and availability on the market, we need to find mechanisms to make sure that the EU legislations are (though on paper technologically open) not exclusively pushing full e-mobility - with cannibalizing effects on the development chances of other technologies (especially in sectors where those might be in the long run the better solution, e.g. truck transport).

5.4 The Directive sets a number of objectives (summarised below). Considering the new issues and challenges identified above, do you think that the objectives are still appropriate?

| | Do not know | Not at all | To a limited extent | To some extent | To a significant extent | Fully |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|----------------------------------|
| 1. Increase/trigger investments in Alternative Fuels Infrastructure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 2. Ensure interoperability of Alternative Fuels Infrastructure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 3. Increase consumer awareness of alternative(ly) fuelled infrastructure (i.e. location, price, availability) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

| | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|
| 4. Increase consumer awareness of alternative(ly) fuelled vehicles | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 5. Ensure integration of electromobility into the electricity system | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

Please explain your answers:

The objectives of the AFI-Directive are all still very relevant, especially given the new Green Deal ambitions throughout Europe. The aspect of interoperability of infrastructures and the integration of electromobility into the electricity system is one of the cores aspects. As already indicated, a clever multi-technology approach with a differentiated focus on sector/mode specialisation and a better sector integration is needed.

5.5 As currently stated within the Directive, the alternative fuels are: electricity, hydrogen, biofuels, synthetic and paraffinic fuels, natural gas (including biomethane, CNG and LNG, and LPG).

Do you consider that there is a need to make changes relating to the following aspects?

| | Do not know | Not at all | To a limited extent | To some extent | To a significant extent | Fully |
|--|-----------------------|----------------------------------|----------------------------------|-----------------------|-------------------------|-----------------------|
| 1. Exclusion of fuels included in the Directive | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Inclusion of other modes of transport or alternative fuels emerging that are not currently covered by the Directive | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

As the technologies in the AFI-Directive are the foundation for the Clean Vehicles Directive's bus quotas, it might be a problem, especially for public transport providers with their long-term investment cycles, to readapt the canon of AFs;
 Maybe the use of fuel cell/hydrogen trains on lines previously served with Diesel-trains could be worth an political accent.

5.6 Do you consider there there is a need to add new/additional objectives relating to the inclusion of other transport modes (e.g. rail and/or aviation)?

- Do not know
- Not at all
- To a limited extent
- To some extent
- To a significant extent
- Fully

Please explain your answers:

Given the potential of fuel cell/hydrogen trains, we still opt for a bottom-up not a top-down approach when it comes to objectives.

5.7 The Directive (in Article 2) sets out a broad definition of ‘alternative fuel’. It states that **an alternative fuel should be able to (at least in part) substitute for fossil oil sources and have the potential to reduce GHG and pollutant emissions from the sector.**

Please indicate the extent that you agree with each of the following statements:

| | Do not know | Strongly disagree | Disagree | Neither disagree or agree | Agree | Strongly agree | Not relevant |
|--|----------------------------------|-----------------------|----------------------------------|----------------------------------|-----------------------|-----------------------|-----------------------|
| 1. The inclusion of fossil fuels (e.g. CNG/LNG) as part of the Directive for <u>road - LDV/cars</u> - is still justified | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. The inclusion of fossil fuels (e.g. CNG/LNG) as part of the Directive for <u>road – HDVs</u> - is still justified | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The inclusion of fossil fuels (e.g. LNG) as part of the Directive for <u>inland waterways</u> is still justified | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. The inclusion of fossil fuels (e.g. LNG) as part of the Directive for <u>maritime transport</u> is still justified | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. There is a need to prioritise the adoption of zero tailpipe emission solutions (i.e. electricity and hydrogen) | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

As important zero tailpipe emissions are for our clean air goals, the climate effects over the whole life-cycle of the vehicle should be rather assessed with regard to the Green Deal. A push for zero tailpipe emission solutions is also already given via the new CO2 standards for cars and HDVs as well as the Clean Vehicles Directive.

6. Effectiveness of the Directive

The following set of questions aim to obtain input on the type of measures in place at your regional/local level to achieve the objectives of the Directive and their impacts. We also ask your view on the role of specific provisions and measures of the Directive (positive or negative) and any other parameters that have played a role in achieving its objectives.

6.1 How would you characterise the current level of publicly accessible deployment of Alternative Fuels Infrastructure in your region/city in each of the following areas:

| | Not relevant | Do not know | Non existent | Very limited | Partly developed | Well developed | Fully developed |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------|-----------------------|
| 1. Electricity for road transport –Light duty vehicles (cars and vans) (electromobility) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Electricity for road transport – Heavy duty vehicles (coaches and trucks) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. On shore supply of electricity for maritime transport | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. On shore supply of electricity for inland waterway transport | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Hydrogen for road transport | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Liquefied Natural Gas (LNG) for road transport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. Compressed Natural Gas (CNG) for road transport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Liquefied Natural Gas (LNG) for maritime transport/inland navigation | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Electricity supply for use by stationary airplanes at airports | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. Other alternative fuel and mode (identify below) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other alternative fuel and mode:

hydrogen/fuel-cell trains

Please explain your answers:

The Rhein-Main Verkehrsverbund (RMV) will introduce 25 fuel-cell trains on four regional lines previously used by Diesel powered trains from 2022 onwards.

6.2 Have there been measures in your region/urban/local area concerning the deployment of Alternative Fuels Infrastructure **since the Directive entered into force (2014)**?

These could include legal, financial and non-financial incentives and other administrative measures.

| | YES, measures adopted by the national authorities | YES, measures adopted at regional /urban/local level | NO | DO NOT KNOW |
|---|---|---|----------------------------------|----------------------------------|
| 1. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of electricity for road transport | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of electricity for maritime/inland waterway navigation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 3. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of electricity in airports | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of natural gas for road transport | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 5. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of natural gas for maritime/inland waterway navigation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 6. Measures to promote the deployment of Alternative Fuels Infrastructure in the area of hydrogen for road transport | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 7. Measures to promote the deployment of Alternative Fuels Infrastructure to promote the deployment of alternative fuels in infrastructure in public transport services | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Measures to promote the deployment of Alternative Fuels Infrastructure to promote the deployment of recharging points not accessible to | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

| | | | | |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| the public (private electromobility infrastructure (Article 4(3))) | | | | |
| 9. With respect to fuel labelling and graphical expressions at pumps, ensure that relevant, consistent and clear information is made available to consumers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please provide information on the specific measures adopted:

- There is a national support framework for the take-up of e-cars and the introduction of electric buses in the public transport services. The Rhein-Main region is also one of the "Modellregionen" for e-mobility, supported by the federal ministry of transport, with a "Projektleitstelle" in Offenbach coordinating all the activities and giving support for public and private actors.

- On regional level there is a flagship project called the "Electric City Rüsselsheim", bringing City, municipal energy supplier, the car manufacturer OPEL and the local university together in developing an e-mobility infrastructure (1300 charging points) in this 66 000 inhabitant city and exploring its integration into the energy grid. With completion in 2020 this will be the most dense local e-mobility infrastructure in Europe: <https://electric-city-ruesselsheim.de/>

- The potential of e-mobility for logistics is investigated with the eHighway-project ELISA (overhead e-supply on the motorway between Langen/Mörfelden und Weiterstadt for hybrid HDVs): <https://ehighway.hessen.de/>

- The Landkreis Offenbach and the Cities of Frankfurt, Wiesbaden and Mainz are currently piloting hydrogen buses (latter three supported by FCH JU).

- The Frankfurt Airport has a clear decarbonising strategy for all non-aviation transport at FRAPORT, also introducing e-mobility for the ground movements: <http://www.e-port-an.de/>

6.3 Have there been specific measures in your region/urban/local area aiming to address the needs of people with disabilities and older people in relation to the following aspects?

| | YES, measures adopted by the national authorities | YES, measures adopted at regional/urban/local level | NO | DO NOT KNOW |
|---|---|---|----------------------------------|-----------------------|
| 1. In relation to accessibility of recharging/refuelling points | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. In relation to ensuring access to information /labelling | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain providing examples:

6.4 Considering the current situation in your region/urban/local area, please indicate your level of agreement with the following statements:

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | |
|--|--|--|--|--|--|--|

| | Do not know | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|-----------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|-----------------------|
| 1. Relevant, consistent and clear information about alternatively fuelled vehicles is available to consumers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Prices charged by the operators of publicly accessible recharging points are reasonable, easily and clearly comparable, transparent and non-discriminatory | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 3. All publicly accessible recharging points provide for the possibility for electric vehicle users to recharge on an ad-hoc basis without entering into a contract with the electricity supplier or operator concerned | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please provide information:

6.5 Has the adoption of measures in the context of the Directive led to the increase in the level of investment in Alternative Fuels Infrastructure in your area?

| | Not relevant | Do not know | Not at all | To a limited extent | To some extent | To a significant extent | Fully |
|---|-----------------------|----------------------------------|-----------------------|----------------------------------|----------------------------------|-------------------------|-----------------------|
| 1. Electricity for road transport (electromobility) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. On shore supply of electricity for inland and maritime transport | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Hydrogen/fuel cells for road transport | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. LNG/CNG for road transport | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. LNG/CNG for maritime transport/inland navigation | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | | | | | | | |

| | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|----------------------------------|-----------------------|
| 6. Aviation ground movement in airports | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 7. Other alternative fuel and mode | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

see named pilots and measures at 6.1. and 6.2.

6.6 To what extent can the change in the level of investment for Alternative Fuels Infrastructure be attributed to the adoption of the Directive and the associated National Policy Framework and the measures adopted?

- 1. Do not know
- 2. Not at all
- 3. To a limited extent
- 4. To some extent
- 5. To a significant extent
- 6. Fully

Please explain your answers:

In combination with the national strategy documents and the regarding support measures the rising investments in the field of AFI can be somehow linked to the Directive. But generally, the "push" for car manufacturers via the CO2-reduction targets and the debate on urban access regulations as well as the EU clean air legislation surely had the strongest impact on the current developments in e-mobility and the observable mind change on consumer side.

6.7 To what extent do you agree with each of the following statements concerning the role of the targets set in the effectiveness of the Directive in terms of attracting higher levels of investment on Alternative Fuels Infrastructure?

| | Do not know | Strongly disagree | Disagree | Neither agree or disagree | Agree | Strongly agree | Not relevant |
|--|-----------------------|-----------------------|----------------------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 1. The absence of specific and binding targets in the Directive on the level of deployment of Alternative Fuels Infrastructure at EU level <u>limits the effectiveness of the Directive</u> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. The absence of and specific and binding targets in the Directive on the level of deployment of Alternative Fuels Infrastructure at national level <u>limits the effectiveness of the Directive</u> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The targets set in the Directive on the level of deployment of Alternative Fuels Infrastructure at national level are not ambitious enough and limit the effectiveness of the Directive | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

The Federal Government in Germany just recently adopted new ambitious targets for e-charging points in its climate package (1 Mio until 2030, s. Masterplan Ladesäuleninfrastruktur 2019) surpassing the EU ambition in this field and thereby making binding targets for e-mobility unnecessary. Also the closer to the ground such masterplans are designed, the more concretely they can spell out which actors are in which context actually responsible for the deployment of such an infrastructure (effective governance = targets agreed at level where implementation responsibilities are defined).

6.8 In your view, how effective have measures taken (in your region) to promote the deployment of recharging points not accessible to the public been?

| | Do not know | Not effective at all | To a limited extent | Somewhat effective | To a significant extent | Extremely effective |
|-----------------------------|----------------------------------|-----------------------|-----------------------|-----------------------|-------------------------|-----------------------|
| 1. Regulatory measures | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Financial incentives | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Non-financial incentives | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Other | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

No measures taken.

6.9 To what extent do you agree with each of the following statements?

| | Do not know | Strongly disagree | Disagree | Neither disagree or agree | Agree | Strongly agree |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|-----------------------|
| 1. The focus on core networks and urban nodes in the Directive has attracted higher level of private sector investment than it would have without such focus | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. The financial instruments adopted by Member States have favoured investment in Alternative Fuels Infrastructure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
| across core networks and urban nodes (in comparison to other parts of the network) | | | | | | |
| 3. The focus on core networks and urban nodes has led to significant gaps created at other parts of the network and less densely populated areas | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answers:

As understandably the decision was to focus on the core network and urban nodes in the current legislation, the question of a regional network of AFI gets more relevant with the new dynamics in e-mobility and successful pilots in hydrogen now. It is necessary to take the whole functional urban area into account, thus also "greening" vehicles in rather rural areas, as public transport is often not an attractive or even available alternative there and people will presumably depend on their car use also in the future. Given the (car dependent) commuter flows and the economic interdependencies/diverse value chains in a polycentric peri-urban region like FrankfurtRheinMain the problems of emissions and pollution in the urban core and the question of sustainable, clean mobility also in all the other parts of the functional area are intertwined.

6.10 Are you aware of any unintended or unexpected (positive or negative) effects as a result of the implementation of the Directive in any of the following domains:

| | Yes | No | Do not know |
|---|-----------------------|----------------------------------|-----------------------|
| 1. Economic (e.g. in the alternative fuels and the Alternative Fuel Vehicle market) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Environmental impacts (e.g. impact outside CO2 and pollutant emissions) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 3. Social (e.g. on employment in specific sectors) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 4. Spatial impacts (e.g. in terms of the use of urban space) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answers:

The deployment of an infrastructure for alternative fuels must be in general embedded in a broader strategy on sustainable transport within the functional area (also addressing e.g. a more compact settlement development and the role of land-use planning; incentives for the shift to public transport, especially through updating the rail infrastructures, or to active mobility modes; solving the last mile problem through innovations in logistic systems; using digitisation and automation for a enhancing multimodality and efficiency,...). Decreasing the direct emissions in motorized individual transport can be very worthy for health and clean air policy, but does not necessarily lead to a more sustainable and efficient transport system without such a broader approach. In FrankfurtRheinMain the regional authority is therefore developing an integrated "Masterplan Mobility" for the whole functional area.

7 Efficiency

The focus of the analysis of the efficiency is on the costs and resources allocated to the implementation of the Directive and the extent to which they are justified by the benefits achieved, or expected to be achieved.

7.1 Have you been involved in the development of the National Policy Framework and the development of the relevant national targets in accordance with the Alternative Fuels Infrastructure Directive?

- Yes
- No
- Do not know

If YES, please provide us with an estimate of the total costs incurred by your organisation/department for the participation in the development of the National Policy Framework and the development of the relevant national targets in accordance with the Alternative Fuels Infrastructure Directive (please consider human /personnel costs and other financial resources):

- Do not know
- No costs incurred
- <10,000 Euro
- 10,000 to 100,000 Euro
- 100,000 to 1 million Euro
- >1 million Euro

7.2 Please provide estimate of the total costs (in EUROS) for all **actions/measures that your organisation adopted** to promote the adoption/deployment of Alternative Fuels Infrastructure in your region. Please refer to actions/measures that can be **directly linked** with the implementation of the Directive. Please consider one-off and/or ongoing costs that may include human/personnel costs and other financial resources allocated.

| | One-off costs to introduce the relevant measure(s) | On-going (annual) costs | Do not know / not applicable / no costs incurred - Please indicate |
|--|--|-------------------------|--|
| 1. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of electricity for road transport | | | |
| 2. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of electricity for maritime/inland waterway navigation | | | |
| 3. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of electricity in airports | | | |
| 4. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of natural gas for road transport | | | |
| 5. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of natural gas for maritime/inland waterway navigation | | | |
| 6. Measures adopted to promote the adoption of Alternative Fuels Infrastructure in the area of hydrogen for road transport | | | |
| Total costs for adoption/deployment of Alternative Fuels Infrastructure | | | |

Please provide additional information on types of costs:

The above mentioned measures (6.2.) were and are financed by the municipalities, the airport or the local /regional public transport providers in FrankfurtRheinMain - not the Regional Authority itself. Only the staff costs for the "Masterplan Mobility", also supporting the uptake of an Alternative Fuels Infrastructure in the area of electricity for road transport, is done "in house". This Masterplan is developed by a standing team of 5 FTE officers.

7.3 Please provide estimate of the costs (in EUROS) for other **actions/measures that your organisation adopted** that can be directly linked with the implementation of the Directive in each of the following areas:

| | One-off costs to introduce the relevant measure(s) | On-going (annual) costs | Do not know / not applicable / no costs incurred - Please indicate |
|--|--|-------------------------|--|
| 1. Measures adopted to promote the deployment of Alternative Fuels <u>Infrastructure in public transport services</u> | | | |
| 2. Measures adopted to promote the <u>deployment of recharging points not accessible to the public</u> | | | |
| 3. Measures adopted to ensure that <u>relevant, consistent and clear information is made available to consumers</u> as regards to those motor vehicles which can be regularly fuelled with individual fuels | | | |
| 4. Measures adopted to address the needs of people with disabilities and older people in relation to access to Alternative Fuels Infrastructure | | | |

Please provide additional information on types of costs:

The above mentioned measures (6.2.) were and are financed by the municipalities, the airport or the local /regional public transport providers in FrankfurtRheinMain - not the Regional Authority itself. Only the staff costs for the "Masterplan Mobility", also supporting the deployment of an Alternative Fuels Infrastructure in public transport services, is done "in house". This Masterplan is developed by a standing team of 5 FTE officers.

7.4 Considering the total costs of the measures/actions that you have been involved in, do you think that they are justified by the benefits resulting from them?

| | Do not know | Not at all | To a limited extent | To some extent | To a significant extent | Fully |
|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
| 1. Benefits to your organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Benefits to society | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answers:

Also for measures that are not directly run and financed by the region, we perceive every project as highly worthy due to its demonstrational character enhancing the visibility of alternative solutions and underlining the great potential for innovations in FrankfurtRheinMain.

7.5 Are there any of the measures/actions that you consider that the costs incurred were not justified by the benefits derived (for your organisation; for society)?

- Yes
- No
- Do not know

If you answered YES, please identify the specific measure/action and explain your answer. If possible, please provide evidence on the relevant costs and benefits.

8. Coherence

The coherence questions ask you to comment on the coherence of the Alternative Fuels Infrastructure Directive provisions and requirements of the Directive internally (with each other) and externally (with other EU legislation and policy and relevant EU strategies).

8.1 Are you aware of any overlaps, inconsistencies or contradictions among the different provisions /requirement of the Directive?

- Yes
- No
-

Do not know

Please explain your answer - How important are they?

8.2 Based on your experience, are there any overlaps, inconsistencies or contradictions between the Directive provisions and the provisions of existing legislation in the following areas:

| | Yes | No | Do not know |
|--|----------------------------------|----------------------------------|----------------------------------|
| 1. CO2 emission performance standards for light and heavy-duty vehicles | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. CO2 emissions reporting, monitoring and verification from ships | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 3. Provisions on emissions of oxides of sulphur (SOx) from ships | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 4. Provisions related to the procurement of clean vehicles under Directive 2009/33 /EC | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Requirements related to the energy performance of buildings (Directive 2010/31 /EU) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Renewable Energy Directive (Directive 2018/2001/EU), 14% renewables target in transport | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 7. Governance Regulation (EU2018/1999), reporting required for National Energy and Climate Plans (NECPs) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answers:

As most e-cars are charged at home, the newly introduced provisions on charging points in the EPoB-Directive are a very sensible overlap;

The new Clean Vehicles Directive builds its definition for clean buses on the Directive under assessment, which should be taken into account in any revision.

8.3 Based on your experience, are there any overlaps, inconsistencies or contradictions between the Directive provisions and requirements and the actions related to the implementation of policy and relevant legislation in the following areas:

| | Yes | No | Do not know |
|---|----------------------------------|----------------------------------|-----------------------|
| 1. TEN-T network implementation | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Implementation of intelligent transport systems | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 3. Actions to promote of sustainable urban mobility | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. The electricity market design initiative | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

| | | | |
|--|-----------------------|----------------------------------|-----------------------|
| 5. The EU batteries action plan and the related EU batteries alliance initiative | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 6. The European Disability Strategy | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 7. The UN Convention on the Rights of Persons with Disabilities | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

Please explain your answers:

The SUMP 2.0 guidelines as the core of the EU sustainable urban mobility-policy now state as first principle "plan for sustainable mobility in the functional urban area". This central role of the functional area could be stronger acknowledged in any revision of the given Directive.

8.4 Based on your experience, are there any overlaps, inconsistencies or contradictions between the Directive provisions and the provisions under the EU financing instruments?

| | Yes | No | Do not know |
|--|----------------------------------|----------------------------------|-----------------------|
| 1. Connecting Europe Facility | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Horizon 2020 | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 3. European Structural and Investment Funds | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. European Fund for Strategic Investments | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| 5. Other funding instrument (identify below) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other funding instrument:

Please explain your answers:

Though sustainable and emission free transport is a huge challenge especially for our bigger cities, we are as a highly developed region not allowed to use any EU Structural Funds for projects that help the setup of an infrastructure for alternative fuels and related measures.

9. EU Added Value

The following set of questions ask you to provide input on the specific added value that has come from the presence of EU action, beyond that which would have been possible on the basis of national or sub-national action.

9.1 In your view, are there any actions/measures related to the promotion/development of alternative fuel infrastructure adopted in your region/local area which could not have been implemented without the presence of the Directive?

| | | | | |
|--|-----|----|-------------|----------------|
| | Yes | No | Do not know | Not applicable |
|--|-----|----|-------------|----------------|

| | | | | |
|--|-----------------------|----------------------------------|-----------------------|-----------------------|
| 1. Actions/measures adopted in relation to the investment/ deployment in Alternative Fuels Infrastructure | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Actions/measures adopted in relation to increasing awareness of alternative fuels | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Actions/measures adopted to promote the deployment of alternative fuels infrastructure in public transport services | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Actions/measures to promote the deployment of recharging points not accessible to the public (private electromobility infrastructure) | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

If YES, please indicate which initiatives:

9.2 If EU level intervention in the form of the Alternative Fuels Infrastructure Directive were to stop, how would that affect the capacity to address the following issues in your area?

| | Do not know | Significant negative impact | Small negative | No impact | Small positive impact | Significant positive impact |
|--|-----------------------|----------------------------------|----------------------------------|-----------------------|-----------------------|-----------------------------|
| 1. Ensuring the facilitation of interoperability at national /regional level | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Ensuring product standards and interoperability of infrastructure | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Ensuring availability of appropriate consumer information and awareness regarding alternative fuels | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please explain your answers:

Especially for common product standards and the interoperability of the infrastructure an EU legislation is absolutely necessary.

10. Final comments

Please use the space below to leave any other comments that are relevant to the evaluation of the Directive on the Deployment of Alternative Fuels Infrastructure.

In addition to all the named factors the question of governance is of central importance. New innovative approaches for coordination measures within the functional are, like our Masterplan Mobility, can be such a solution.

Thank you for completing this survey.

If you have any questions, please contact the study team at: AFInfrastructure.Eval@ricardo.com

Contact

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