

ERCST hydrogen paper: the Fit for 55 package and its implications for the EU hydrogen economy



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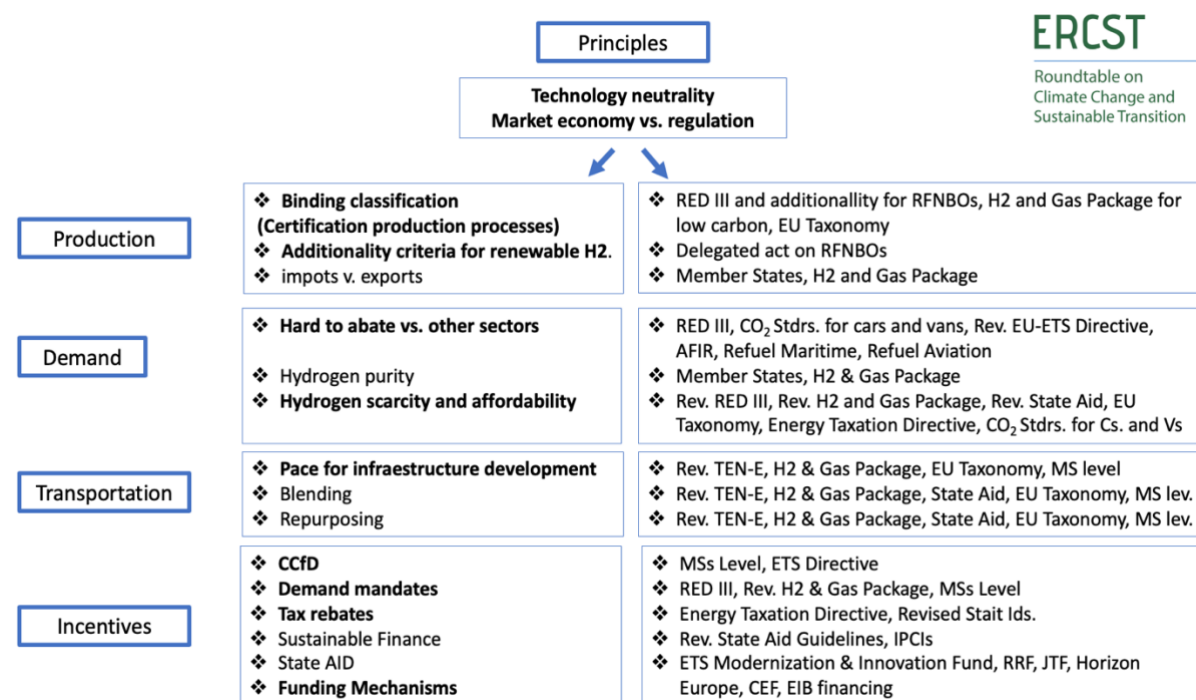
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A special thanks to all ERCST hydrogen roundtables' speakers and attendees, who have contributed to the discussions and provided valuable input to this paper.

1. Rationale for this paper and indications for the reader

ERCST has been working on identifying key relevant principles and issues for the deployment of a hydrogen economy while at the same time assessing how the different pieces of legislation put forward by the European Commission since the publication of the European Commission's hydrogen strategy address and impact them.



This paper does not pretend to cover all elements in the matrix above, and primarily focuses on those key principles and issues partially or fully addressed by the proposals put forward by the European Commission on July 14th, which are highlighted in bold in the second column.

The second part of the Fit for 55 package, including the hydrogen and decarbonized gas market package, coupled with other relevant legislative acts, will shed more light on important regulatory missing pieces of the hydrogen puzzle. These include, among others, the repurposing of current gas networks to transport hydrogen, the blending of hydrogen with natural gas, a clear definition for renewable and low-carbon hydrogen, the planning of networks and retail markets, the protection of consumers and the security of the energy market. **Building on upcoming regulatory proposals and future thematic roundtables, ERCST will continuously update and supplement this paper.**

2. Fit for 55 package and its implications for the EU hydrogen economy

Proposals unveiled by the Commission on July 14th have laid the foundations of a specific regulatory framework, albeit still incomplete, to promote investments in renewable hydrogen. Conversely and pending the publication of important pieces of legislation, it seems that the Commission intends to leverage carbon pricing and the EU Taxonomy to boost demand and supply of other types of hydrogen.

3. Key principles

This section includes key principles identified by ERCST for the deployment of a hydrogen economy and how the proposals put forward by the European Commission on July 14th address them. All subsections are structured in the following way: a) brief explanation of the key principle identified and its relevance; b) brief explanation of how this principle is addressed by the package; c) high-level assessment of each principle.

3.1. Market economy vs. regulation

According to the European Climate Target Plan Impact Assessment, emissions can be reduced by 55 % before 2030 even without significant deployment of hydrogen capacity, by using carbon pricing, electrification, and energy efficiency as the fundamental pillars.

At the same time, the European Commission hydrogen strategy acknowledges the key role of hydrogen in achieving the EU 2050 climate neutrality target. As hydrogen deployment at scale cannot be achieved overnight, the role that markets and regulation should play in incentivizing the uptake of hydrogen is key.

The Fit for 55 package includes a combination of measures of different nature, including carbon pricing, rules, and standards. A sensible assessment of the package cannot fail to evaluate whether the package will achieve the right balance between these instruments, and if all these measures together put the EU on track to fulfill the objectives established in the European Commission's hydrogen strategy.

a) Options

The package presented on July 14th consists of a set of 14 different proposals. ERCST has identified **six** of them as having a substantial impact on the future deployment of a hydrogen economy in the EU, namely:

- The revision proposal of the renewable energy directive,
- The revision proposal of the CO₂ standards for cars and vans regulation,
- The revision proposal of the EU-ETS directive,
- The alternative fuels infrastructure regulation,
- The revision proposal of the energy taxation directive and
- The proposal for a regulation on the use of renewable and low-carbon fuels in maritime transport.

Some of these proposals explicitly address key issues for the EU hydrogen economy such as the revision of the renewable energy directive, that proposes concrete targets for RFNBOs in industry and transport.

Other proposals implicitly address key issues for the EU hydrogen economy, such as the revision of the CO₂ standards for cars and vans, which establishes a de-jure ban on fossil fuels combustion engines that will, to some extent, foster the uptake of fuel cell electric vehicles (FCV).

b) High level assessment

The EU-ETS already provides a price signal aimed – among other things – at the deployment of less emitting technologies without the need to depend so intensely on regulation. At the same time, the EU has decided to go down the road of decarbonization and build a system in which carbon pricing should deliver the biggest chunk of emission reductions. Even though carbon prices are not high enough to trigger the switch to low-carbon alternatives in specific industries, this should not necessarily translate in public coffers shouldering an undefined financial burden for an indetermined period. This risks to translate into an increase of Member States intervention in markets and even more worryingly into a transfer of risk from industry to Member States.

3.2. Technology neutrality principle

A technology neutral approach in climate policymaking should aim at providing a description of the result to be achieved without specifying or regulating the technology to be employed.

Establishing the right boundaries for the application of the technology neutrality principle in the EU has become extremely difficult and its application has often been overwhelmed by political demands and priorities that influence the use of specific technologies.

The EGD Communication points out that it is essential to ensure that the European energy market is fully integrated, interconnected, and digitalized, while respecting technological neutrality.¹ Even so, the European Commission's hydrogen strategy does not take a technology neutral approach in the long term, the focus being clearly set in renewable hydrogen.

The incorporation of the technological neutrality principle in climate policy does not prove easier at a Member States level either. In fact, and after consideration of the hydrogen strategies and roadmaps put forward by among others, Germany, France, the Netherlands, Spain, Italy and most recently the UK, there does not seem to be a unitary approach to this issue.

a) Options

The package has mostly focused on renewable hydrogen in the long run, even if a comprehensive definition of renewable hydrogen has not been provided yet. However, it should be also noticed that some of the legislative proposals put forward on July 14th did assume a more technology neutral stance. While in this paper we do not aim at providing a detailed analysis of each proposed piece of legislation, some high-level examples which illustrate the previously depicted reasoning can be found below.

For instance, the scope of the RED has not been extended to cover decarbonized or low-carbon fuels. Apart from that, the definition of RFNBOs has been extended beyond the

¹ European Commission 2019, Communication from the Commission, The European Green Deal. [\(See more\)](#)

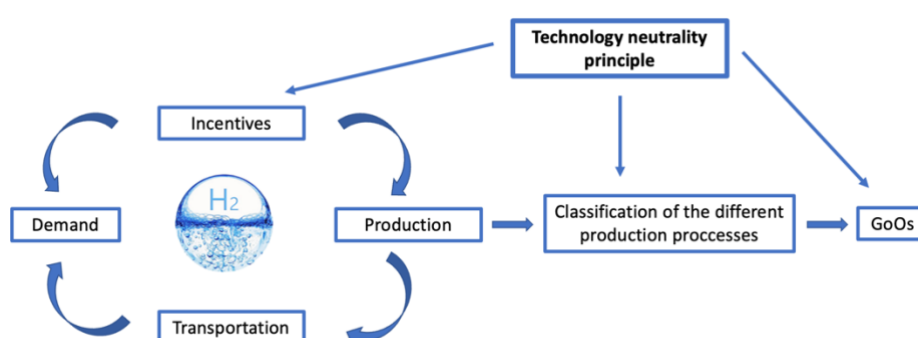
transport sector, specifying that energy from renewable fuels of non-biological origin shall be counted towards Member States' shares of renewable energy and the targets set in the directive.

Other proposals such as the revision of CO₂ standards for cars and vans, which establishes technology neutral standards, the introduction of a new ETS for road transport and buildings or the revision of the energy taxation directive, which proposes to apply the lowest minimum rate to low carbon hydrogen during a transition period, take a more technology neutral approach to the deployment of hydrogen in the EU.

Additionally, the revision proposal of the EU-ETS Directive paves the way for CCfDs (Carbon Contracts for Difference) to serve as a tool to incentivize the uptake of low-carbon technologies under the innovation fund. If designed correctly, CCfDs could be allocated through a technology neutral, competitive tendering process, where different technologies may compete against each other.

b) High-level assessment

ERCST would like to highlight that adopting a technology neutral approach is key for the successful deployment of a hydrogen economy. The application of the technology neutrality principle gains greater importance when applied to incentives, which will have a fundamental influence on which types of hydrogen will be finally deployed. ERCST believes that a technology neutral approach on incentives is likewise relevant to achieve the targets of the European Commission hydrogen strategy.



4. Key issues

4.1. Classification of the different production processes

ERCST has identified the development of a clear definition and classification for the different hydrogen production processes as one of the key aspects in the design of a hydrogen economy. The setting of such a classification will have implications for a range of key elements, including for example, the imports and exports of hydrogen, the creation of a certification scheme or the granting of incentives.

One important issue under discussion is whether the classification will be based on production technologies, on GHG life cycle emissions or in a mix of both, in other words, if the classification for the different production processes will be technology neutral.

a) Options

The RED II revision proposes to modify the definition of RFNBOs expanding its scope beyond the transport sector. According to proposed art. 1 (a) renewable fuels of non-biological origin means liquid and gaseous fuels whose energy content is derived from renewable sources other than biomass. However, this does not mean that a comprehensive definition of renewable hydrogen has been provided. In this sense, further clarification on the requirement of additionality, as explained in section 4.4 of this paper, and regarding the sustainability and greenhouse gas emissions saving criteria, is needed.

When it comes to low-carbon hydrogen and pending the publication of the hydrogen and decarbonized gas market package, the closest to a definition has been provided by the climate delegated act within the framework of the EU Taxonomy. According to the delegated act, producing hydrogen is sustainable as long as the activity complies with the life-cycle GHG emissions savings of 73.4% (resulting in life-cycle GHG emissions lower than 3tCO₂e/tH₂) relative to a fossil fuel comparator of 94g CO₂e/MJ and the production process complies with the DNSH principle. This definition will most likely become complementary after the publication of the package, where a definition of low-carbon hydrogen is expected. In this context, it also appears that a definition of low-carbon hydrogen will encompass hydrogen derived from non-renewable energy sources linked to a currently undefined emissions saving threshold.

The issue of a clear definition or classification of the different production processes is inevitably linked to the issue of certification and guarantees of origin (GoOs). In the impact assessment accompanying the revision of the RED presented in July 2021, the Commission mentioned that all renewable and low-carbon fuels need a robust certification across the life-cycle to help achieve both energy and climate targets.

At the same time, Art. 30 of the proposed Directive mentions that “where renewable fuels and recycled carbon fuels are to be counted towards the targets (...) Member States shall require economic operators to show that the sustainability and greenhouse gas emissions saving criteria (...) have been fulfilled”. To achieve this the European Commission is working on an EU-wide database, which will be presented together with the hydrogen and decarbonized gas market package, and which will most likely include a comprehensive certification for renewable and low-carbon fuels.

a) High-level assessment

As mentioned in previous papers, the demand and supply side of the market have different views and interests on hydrogen. The demand side sees hydrogen as a low-carbon feedstock, with costs, incentives, hydrogen purity, security, and reliability of supply as the key criteria. In other words, the demand side cares much less about the color of hydrogen, but about the decarbonization, reliability and profitability of their production process. In this sense, greater attention should be drawn to the demand side requests when stablishing a classification framework for the different types of hydrogen. Besides that, a technology neutral approach should be integrated as much as possible, assuring compliance and compatibility with the mid- and long-term EU climate targets.

Finally, and when it comes to the development of an EU-wide certification system for hydrogen, ERCST would like to stress four essential qualities of a potential EU-wide

certification system for hydrogen, namely technology neutrality, harmonization, simplicity, and demand oriented, being capable of contributing to the development of a market for low-carbon products in the EU.

4.2. Hydrogen scarcity and affordability

Scarcity:

There is currently a considerable level of uncertainty regarding future hydrogen demand. Demand forecasts for 2050 vary considerably (from 270 TWh² to 2080 TWh³) depending on several factors, such as incentives on both sides of the market, the willingness of the EU to reduce their energy dependence from third countries, the future role of technologies such as natural gas or nuclear energy, the role of CCS, end uses for hydrogen and what is more important the development and availability of renewable electricity. In relation to the latter and according to IRENA, 20.770 TWh of electricity would be needed to produce renewable hydrogen in 2050, which almost equals 2019 global electricity demand, providing evidence of the challenge ahead.⁴

As the future hydrogen demand is difficult to predict, there is a risk of demand/supply mismatches that may lead to increasing scarcity in the market. This becomes even more evident for renewable hydrogen. As an example, just one of the EU market leaders in the chemical sectors, BASF, currently consumes 1 million tons of hydrogen per year which equals 100 % of the EU Commission Hydrogen Strategy 2024 target for renewable hydrogen and 10 % of the EU 2030 target.

Affordability:

ERCST has also identified the issue of affordability as fundamental for a successful deployment of a hydrogen economy. Although prices for renewable hydrogen could breakeven with grey and blue as early as 2030 in some parts of the world, and under certain conditions, currently green hydrogen cannot compete with more carbon intense alternatives.

Carbon pricing can play a key role in boosting the economics of green hydrogen. For example, a carbon price of USD 100/t CO₂ correspond to a cost increase of USD 0,90/kg H₂ for natural gas-based production without CCUS or even USD 2,00/Kg H₂ for coal gasification without CCUS.⁵ However, EUA prices today are not high enough to foster the switch to renewable hydrogen in key technologies in the steel, chemicals or cement sectors, whose break-even prices exceed in some cases 192 USD/t⁶.

b) Options

ERCST has identified the following key parts of the proposed legislation on July 14th as partially addressing the issues of scarcity and affordability:

² Agora Energiewende 2021, No-regret hydrogen, 2021, <https://www.agora-energiewende.de/en/publications/no-regret-hydrogen/>

³ Bruegel 2021 , Navigating through hydrogen 2021, <https://www.bruegel.org/2021/04/navigating-through-hydrogen/>

⁴ IRENA, World Energy Transitions Outlook 1,5C (2021) [\(See more\)](#)

⁵ IEA, 2021, Global Hydrogen Review, [\(See more\)](#)

⁶ Agora Energiewende 2020 a clean industry package for the EU, [\(See more\)](#)

- I. Introduction of quotas in the proposed revision of the Renewable Energy Directive (RED II) (Art 22a and Art 25):

Industry: Member States shall ensure that the contribution of Renewable Fuels of Non-Biological Origin (RFNBOs), essentially renewable hydrogen, used for final energy and non-energy purposes (including Ammonia) shall be 50% of the hydrogen used in industry by 2030. Although this target does not include refineries, which represent one of the key consumption sources of hydrogen in the EU, refineries will be partially covered by the target defined for the transport sector.

Transport: A new target for RFNBOs production in the transport sector has been introduced, namely, that the share of renewable fuels of non-biological origin should be at least 2,6 % in 2030.

- II. Removal of barriers for innovative low-carbon technologies by modifying the EU ETS scope and benchmarks in the proposed revision of the EU-ETS Directive (Art. 2, Art. 10a and Annex I)

Efficient technologies just below the benchmark level receive more free allocation than they emit. An installation that decides to change its production process to a more innovative low-carbon technology, such as renewable hydrogen, can be put in a competitive disadvantage as it will fall out of the scope of the EU-ETS, and therefore would not be eligible for free allowances. Against this backdrop, the Commission proposed to revise the product benchmark for hydrogen, which currently refers to steam reforming, and include hydrogen produced through electrolysis.

- III. Creation of a new ETS for road transport and buildings

A separate ETS – without free allocated allowances and with its own cap, LRF and MSR will be created for road transport and buildings in 2025. Compliance obligations would start in 2026. The cap of the new ETS will be set from 2026, alongside a linear reduction factor in line with a 43% emissions reduction in these sectors by 2030 compared to 2005. The extent to which the creation of a parallel EU-ETS for road transport and buildings may contribute to the uptake of hydrogen in these sectors is very difficult to predict. On the one side, these sectors are characterized by a low-price elasticity of energy demand, which will soften the price signal introduced by the new ETS. On the other side and without entering into specific energy efficiency considerations, the EU-ETS price signal better contribute to the uptake of technologies which are already close to the market, which position electricity-based solution in a stronger position.

- IV. Preferential tax rates for the use of renewable and low-carbon hydrogen in the proposed revision of the Energy Taxation Directive (ETD).

The ETD establishes structural rules and minimum rates for the taxation of energy products used as motor fuel, heating fuel and electricity. Member States have considerable leeway to set their own rates provided that established minimum rates are respected.

In this context, and among other things, the Commission has proposed to revise the ETD to link the minimum tax rates of fuels to their energy content and environmental impact. With respect to renewable and low-carbon hydrogen, the Commission proposes to apply the

lowest minimum rate of 0.15/GJ to RFNBOs and to low-carbon hydrogen for a transitional period of 10 years.

Besides that, the Commission proposes to no longer exempt Kerosene used as a fuel in the aviation industry and heavy oil used in the maritime industry from energy taxation for intra-EU voyages, which may also explicitly incentivize the uptake of hydrogen in maritime and aviation.

Conventional Fossil Fuels (Oil, Gas, Petrol) Non-sustainable biofuels		Natural Gas, LPG, NRFNBOs can lead some support for the de-carbonisation		Sustainable, but not advanced biofuels	
Highest minimum rate		minimum rate (10 years transitional period)		minimum rate	
Motor Fuel	Heating	Motor Fuel	Heating	Motor Fuel	Heating
€10.75/GJ	€0.9/GJ	€7.17/GJ	€0.6/GJ	€5.38/GJ	€0.45/GJ
Electricity, advanced sustainable biofuels and biogas, RFNBOs,			Low-Carbon Hydrogen and related fuels will benefit from the same rate during 10 years		
Lowest minimum rate			Lowest minimum rate		
€0.15/GJ			€0.15/GJ		

- V. Technology neutral incentives in the proposed revision of the Regulation setting CO₂ emission standards for cars and vans (Article 1).

As mentioned before, the strengthened CO₂ emission reduction requirements for cars and vans represent a technology neutral way to incentivize the uptake of zero-emissions vehicles. The Commission proposal, as shown in the table below, puts forward a de-jure ban on the commercialization of internal fossil fuels combustion engines that will to some extent foster the uptake of Fuel cell electric vehicles (FCEV).

According to the European Commission impact assessment, the share of FCEV across the different foreseen scenarios varies between 1,8 % and 9,8 % for cars in 2035 and between 1,3 % and 5,8 % for vans.⁷

	CO ₂ Reduction for cars (%)		CO ₂ Reduction for vans (%)	
	Old target	New target	Old target	New target
2025	15 %	15 %	15 %	15 %
2030	37,5 %	55 %	31 %	50 %
2035		100 %		100 %

c) High-level assessment

ERCST believes that the previously described regulatory developments would contribute to partially address the issues of scarcity and affordability. All these newly proposed measures should be assessed together with other previous and upcoming key pieces of legislation, such

⁷ European Commission 2021, Impact Assessment, CO₂ Standards for Cars and Vans amendment proposal ([See more](#))

as the EU taxonomy and accompanying delegated acts, the revised state aid guidelines for energy and climate, the hydrogen and decarbonized gas package and the question of additionality that will be covered in a subsequent section of this paper.

The targets proposed for the industry and transport sectors are aligned with the ambition expressed in the EC hydrogen strategy setting a clear direction of travel. However, stakeholders participating at the previous ERCST roundtable on this topic, have almost unanimously suggested that although targets have been set, more guidance and financial support is needed for its achievement.

4.3. Hard to abate vs. other sectors

Another fundamental issue that has been placed at the core of the discussions since the publication of the European Commission hydrogen strategy is the applicability of hydrogen as a decarbonization tool. Namely, whether hydrogen can be considered as a silver bullet, perfectly suited for the decarbonization of most of the EU economy, or if it should rather be seen as a targeted solution for a reduced number of sectors. This section intends to describe the stance taken by the European Commission and the way this is embodied in the initiatives presented on July 14th.

a) Options, how the package address this issue.

The set of proposals put forward by the European Commission on July 14th are aligned with the European Commission strategy focusing on ramping up hydrogen demand in the hard to abate sectors. Additionally, the Commission does not give up on the potential use of hydrogen in other sector of the economy, such as light duty transport or heating, letting the market decide if hydrogen is the right solution for the decarbonization of these sectors.

a) High-level assessment

The introduction of a 50% RFNBOs target in industry set a clear direction of travel, placing EU industry and the hard to abate sectors at the core of the hydrogen use. Based on the successful contribution of the EU-ETS to the decarbonization of the EU power sector, ERCST also recognizes the efforts of the European Commission to leverage carbon pricing in road transport and buildings to decrease emissions. However, it should be recalled that putting a price on carbon gives an incentive to develop innovations that are already close to the market deployment, that is, the EU ETS is designed to primarily stimulate the lowest-cost emission reductions, and therefore is not expected to directly promote longer-term promising technologies such as FCEV and hydrogen boilers. Although a clear direction of travel has been set, ERCST has identified a potential mismatch between the European Commission ambition for 2030 and the feasibility of the proposed targets, which will be difficult to achieve without deploying the right support to new low-carbon technologies and industrial processes. CCfDs and the development of a market for low-carbon products are some of the existing alternatives that should be taken into consideration.

4.4. Additionality principle for renewable hydrogen

RED II introduced two main criteria for RFNBOs to be considered 100% renewable, and therefore to be counted towards the renewable transport target. The first one is that the

greenhouse gas emissions savings from the use of RFNBOs must be at least 70% in comparison to a fossil fuel comparator. The second one is that the production of RFNBO should incentivize the deployment of new renewable electricity generation capacity (principle of additionality).

Moreover, RED II also establishes that a temporal and geographical correlation between the electricity production unit and the electrolyser is required. In short, the additionality principle is a measure intended to ensure that renewable electricity is not re-directed from the power grid, to be used for the decarbonization of other sectors and at the same time aimed at avoiding double subsidizing.

b) Options

In the RED II revision proposal, Article 1(16) amends Article 27(3) REDII to delete the additionality framework for electricity in transport. The Delegated Act on RFNBOs, which is bound to be published soon for consultation, and whose final version will be predictably published together with the revision of the hydrogen and gas package, will set the regulatory framework under which hydrogen, whether local or imported, can be labelled as renewable.

c) High-level assessment

ERCST believes that the legal definition and delimitation of the concept of additionality will play a key role on both scarcity and affordability. ERCST considers that further information should be provided as to whether such as intervention in the market is justified, as well as regarding the rationale and impacts of such an approach, possibly through an impact assessment.

4.5. Infrastructure development

The issue of hydrogen infrastructure is a broad one which encompasses different elements in the transportation, production, storage or refuel market segments. The upcoming revision of the hydrogen and decarbonized gas market package will provide further information on fundamental aspects for hydrogen transportation infrastructure, such as the regulation of pure hydrogen networks, the repurposing of current gas networks, or the blending of natural gas with hydrogen.

This section will focus on the relevant pieces of legislation included in the July 2021 proposal, without undertaking any evaluations of other pieces of legislation proposed before and after the package.

a) Options

In the Proposal for a Regulation on alternative fuel infrastructure, the Commission urges Member States to ensure that a minimum number of publicly accessible hydrogen refueling stations are put in place by December 2030.

This is quite challenging looking at the current situation around Europe where H₂ infrastructure is concentrated in a limited number of Member States. Specifically, 60% of

hydrogen refueling stations are in Germany followed by France, just 10 Member States had at least one filling station in operation at the end of 2019.⁸

In more concrete terms, the Regulation proposed that Member States shall ensure that hydrogen refueling stations are deployed every 150 km along the TEN-T network. Liquid hydrogen shall be made available at publicly accessible refueling stations with a maximum distance of 450 km in-between them. Member States shall also ensure that at least one publicly accessible hydrogen refueling station is deployed in each urban node.

b) High-level assessment

When looking at the relationship between regulation and the hydrogen value chain, the Fit for 55 package first round of publications addressed fundamental questions, mainly covering demand and supply of hydrogen while key regulatory issues for hydrogen transportation and transportation infrastructure have not been covered so far. The hydrogen and decarbonized gas package will shed more light on important regulatory missing pieces of the hydrogen puzzle such as the creation of a definition for low-carbon hydrogen, which is essential to the achievement of the targets enshrined in the Commission strategy, the repurposing of current gas networks to transport hydrogen, the blending of hydrogen with natural gas, the planning of networks and retail markets and the protection of consumers and the security of the energy market.

4.6. Incentives

The role that hydrogen will play in the EU decarbonization efforts will increase after 2030, however and as hydrogen deployment at scale cannot be achieved overnight, incentives will play a key role in the implementation of the European Commission hydrogen strategy. A brief description, including ERCST views on the EU-ETS funding mechanisms main novelties included in the Commission proposals are provided below:

I. ETS Funding Mechanisms in the Fit for 55

The European Commission has proposed that member states must use 100% auction revenues for climate-related purposes, including low-income households' sustainable renovation. This would be a significant increase from both the current requirement to spend at least 50% on these purposes, and the 78% average expenditure that countries have recorded since 2013.

EU-ETS innovation Fund: Under the Commission proposal, the size of the Innovation Fund would increase. 50 mln allowances are added to the Fund. Additional 150 mln allowances would come from the separate EU ETS for road transport and buildings. Moreover, the proposal also establishes that free allocation no longer provided to CBAM sectors will be auctioned, with revenue accruing to the Innovation Fund. ERCST welcomes the increased funding and extended scope of the innovation fund but notes this may be proved not enough in the face of the huge decarbonisation challenge ahead. ERCST also supports a technology neutral approach vis a vis the implementation of art. 10 (g) where the focus should be set in

⁸ European Commission 2021, Impact assessment accompanying the Proposal for a Regulation on the deployment of alternative fuels infrastructure. ([See more](#))

emission reduction thresholds. ERCST also welcomes the explicit support of art. 10 (g) to CCU and CCS stressing the key role this technology is called to play in a climate neutral EU.

EU-ETS innovation Fund and Carbon Contracts for Difference (CCfD): Carbon Contracts for difference (CCfDs) have been discussed as one of the most promising options for the decarbonization of certain parts of the EU Industry. However, key questions regarding the suitability and implementation of this instrument remain unanswered. Among these questions, a relevant one is whether CCfDs should be designed as a targeted instrument, to be applied as a tool to foster innovation in specific sectors or industries or if otherwise will be designed as a broader tool, to encourage the transformation of entire sectors or industries.

As part of the Fit for 55 package the European Commission proposed specific amendments to the Innovation Fund. Concretely, in the revision of the EU-ETS Directive presented on July 14th the Commission proposed to extend the scope of the Innovation Fund allowing it to provide support, through competitive tendering mechanisms such as CCfDs, whereby up to 100% of the relevant costs of the projects may be supported.

There is a broad consensus in the EU to speed up decarbonization and reinforce the system through which carbon pricing delivers the biggest chunk of emission reductions. Certain low-carbon technologies require a high carbon price and currently EU ETS prices are not yet high enough to trigger this switch in hard-to-abate sectors. This can be partially explained by the fact that the ETS price signal first gives an incentive to deploy solutions that are already close to the market or undergo certain fuel-switching. The EU ETS is designed to stimulate the lowest-cost emission reductions first, and its price signal therefore is less likely to directly support pre-commercial demonstration of promising technologies.

Even though carbon prices are not high enough, this should not necessarily translate in public coffers shouldering an undefined financial burden for an indetermined period. This risks to translate into an increase of Member States intervention in markets and even more worryingly into a transfer of risk from industry to Member States. Apart from that, the impact that such an instrument may have on the EU-ETS is not clear and enquired enough, which should serve as a caveat against a rushed implementation.

ERCST is also of two minds on this instrument. It recognizes the realities and the direction of travel that is currently in place with respect to decarbonization and the need for support for industry, if we want to decarbonize and not deindustrialize. Many stakeholders see CCfDs as a good way to incentivize industrial decarbonization after the significant amount of resources that the power sector was provided to decarbonize.

On the other hand, it seems that we have put in place a market in the EU ETS whose aim is high prices. Logically we should hope not for high prices but for funding ways to achieve low prices. Markets are supposed to provide the most efficient way to meet a scarcity and aiming for increasing prices does not seem to fit the bill.

This is a contradiction that needs to be highlighted and reflected upon. It will need to be addressed at a minimum in the design of CCfDs, including its scope and its timing.

Within this framework it is relevant to consider that, according to the UK Government Low Carbon Hydrogen Business Model consultation, CCfD are not the preferred option so far, to

incentivize the uptake of low-carbon hydrogen in the UK.⁹ The consultation document stresses several drawbacks inherent in using the UK-ETS carbon price as the reference price, such as the concession of significant pricing freedom to the producer, with the subsidy reflecting their target market rather than actual costs of production or market value of hydrogen.

EU-ETS Modernization Fund: The Commission proposes that an additional 2.5% of the cap is auctioned to fund the transition in MSs with GDP per capita below 65% of the EU average in 2016-18 through the Modernisation Fund. At the same time, however, the Commission intends to prohibit investments in any fossil fuel through Modernisation Fund resources – instead of only solid fossil fuels as it is currently stipulated. In this context, based on the work ERCST and CEEP have undertaken previously on the Modernisation Fund as well as continuously interacting with policymakers and stakeholders, we believe that the large majority of the Modernisation Fund will be used to finance the so-called ‘priority projects’ and that the ‘risk’ of projects which are not aligned with the European Green Deal receiving financing is relatively low being already a subject to additional control mechanisms. As such, ERCST support the increase in financing but does not see the need to revise the investment rules at this stage.

⁹ Low Carbon Hydrogen Business Model Consultation, closing date 25 October 2021. [\(See more\)](#)