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Stockholm, 23 November 2026

Swedish Gas Association response to the consultation on the renewed EU Hydrogen Strategy

The Swedish Gas Association (Energigas Sverige), the industry association for energy gases in Sweden, welcomes the Commission's initiative for a renewed hydrogen strategy for a more competitive and resilient Europe. The strategy needs to help bring more investments to fruition and increase the production and use of renewable and low-carbon hydrogen. Fossil-free hydrogen can contribute to industrial competitiveness and the transition to climate neutrality, strengthen security of supply and enable a more robust energy system.

We share the Commission's assessment that high production costs and market uncertainty are holding back development. It is therefore essential that the EU reduce political and regulatory uncertainty by maintaining the climate targets and policy instruments already adopted. The EU ETS needs to provide a long-term price signal for phasing out fossil fuels, while the adopted RFNBO requirements for industry and transport must be maintained. This contributes to stable demand and gives producers, users and infrastructure operators better conditions for making long-term investment decisions.

In addition, the EU and Member States need to share risks with businesses and help bridge the gap between production costs and users' ability to pay.

The strategy should prioritise concrete measures that enable businesses to invest in hydrogen production, use and infrastructure. The Commission should develop financing and guarantees, support Member States in implementing existing legislation and facilitate coordination between producers, users and infrastructure owners. At the same time, regulatory barriers requiring amendments should be identified and addressed in the relevant reviews.

Long term targets and predictable policy instruments

The EU's climate targets and policy instruments need to be long-term and predictable, including beyond 2030. In its 2020 Hydrogen Strategy, the Commission set targets of at least 6 GW of electrolyser capacity and production of up to 1 million tonnes of renewable hydrogen by 2024, and at least 40 GW and up to 10 million tonnes by 2030.[1] The 2022 REPowerEU Plan set targets of 10 million tonnes of renewable hydrogen produced within the EU and 10 million tonnes of imported renewable hydrogen by 2030.[2]

The consultation document announces a direction for hydrogen development towards 2040, but contains no new quantified targets for production or use. The renewed strategy should clarify how the earlier policy targets for production and imports relate to market developments and provide a credible direction towards 2040. Clear targets and milestones for production and use beyond 2030 need to be based on an updated assessment of demand, electricity supply and infrastructure, and linked to concrete measures and financing. Businesses investing on the basis of policy targets

[1] European Commission, COM(2020) 301 final, 8 July 2020, Section 2 (2020 Hydrogen Strategy). Source
[2] European Commission, COM(2022) 230 final, 18 May 2022, Section 3, A hydrogen accelerator (REPowerEU). Source

must be able to rely on the conditions remaining stable. When the market develops more slowly than expected, measures are needed to enable the targets to be met while safeguarding business competitiveness.

EU policy instruments and legislation need to work together to increase production and make the use of renewable and low-carbon hydrogen economically viable. This includes the Renewable Energy Directive, the gas market package, emissions trading, FuelEU Maritime and ReFuelEU Aviation. The needs of industry and maritime transport must be clearly addressed. The Renewable Energy Directive's specific targets for RFNBOs, or renewable fuels of non-biological origin, must be maintained and combined with measures that enable Member States and businesses to meet them. The targets for industry are already at least 42% in 2030 and 60% in 2035, calculated in accordance with the Directive's rules. For the transport sector, RFNBOs must account for at least 1% of the energy supplied in 2030, calculated in accordance with the Directive's rules. In the parallel work on the framework beyond 2030, the Commission should ensure clear and progressively more ambitious RFNBO targets for transport beyond 2030 and for industry beyond 2035, with a view to 2040. These targets need to be adopted well in advance to provide businesses with long-term conditions for investing in production, use and infrastructure. A strong and predictable emissions trading system must continue to be complemented by targeted measures where the price signal is not yet sufficient to support investment.

The requirements for hydrogen to qualify as an RFNBO need to remain stable over the long term and be applied consistently across the EU. The Commission should prioritise clear guidance and predictable application of existing rules, so that businesses can invest under stable conditions.

Public risk sharing to enable investment

Long-term targets and rules need to be complemented by financing and risk sharing. Investment aid reduces the cost of building a facility, but does not resolve the problem that hydrogen often costs more to produce and deliver than users can afford to pay. At the same time, producers need long-term offtake agreements to secure financing, while users are reluctant to commit before prices and supplies are sufficiently certain. This delays investment in both production and use. In addition to investment aid, support is therefore needed to bridge the cost gap and make businesses' future revenues more predictable.

Production support already exists at EU level through the European Hydrogen Bank. The strategy should set out how existing support can be developed and complemented to strengthen demand and reduce risks for both producers and users. This could include further development of production support or revenue guarantees covering part of the difference between production costs and the selling price. Guarantees can also facilitate long-term agreements by reducing the risk of either party failing to fulfil its contractual obligations. Support for production and use needs to be designed together and take account of distribution and storage costs.

Coordinated development of infrastructure and markets

The development of hydrogen production and use needs to be coordinated with the expansion of hydrogen pipelines, storage and other infrastructure, including across national borders. The strategy needs to focus on the energy system as a whole, particularly in the sections on production and infrastructure. An assessment is needed of where expanding electricity grids is most appropriate and where hydrogen pipelines are a better solution. It is also important to take account of the substantial investment needed to develop hydrogen networks, storage facilities and terminals. Early users should not have to bear the entire cost of infrastructure designed for a larger future market. Public authorities therefore need to share the risks of expansion, and costs need to

be spread over time. An EU-level guarantee mechanism needs to be established for cross-border hydrogen transmission networks to reduce the risks of early investment. This would enable infrastructure to be developed before the market is fully established.

Development should build on industrial clusters, ports and regional conditions. Both large-scale and smaller, local solutions need to be able to contribute. Access to sufficient electrical power and clear information on the timing and cost of grid connections are crucial for projects. Decentralised solutions involving local compression and storage, as well as hydrogen distribution by trailer, need to be accommodated in both planning and support schemes. They can enable early projects and supplies to smaller industrial users before an interconnected pipeline network is in place.
Support should increasingly target projects with a clear link between production, reliable distribution and actual use. The entire chain needs to work both technically and commercially for the market to develop over the long term.

Efficient hydrogen systems and common technical standards

The strategy needs to consider the entire hydrogen system when assessing costs and energy efficiency. In addition to the electrolyser, compression, purification, drying, cooling and storage need to be taken into account. Energy efficiency should be assessed across the entire production chain, up to the point at which hydrogen reaches the pressure and purity required by the user. This provides a more accurate picture of system performance and costs than the electrolyser's electricity consumption per kilogram of hydrogen produced alone.
The Commission should promote harmonised technical standards across the EU for pressure levels, gas quality, materials, safety and interfaces between equipment, among other areas. Common standards can reduce the need for project-specific design and adaptation, lower project risks and shorten lead times. The strategy should also promote standardised and modular hydrogen systems that can reduce costs, shorten delivery times and facilitate scaling up for European technology suppliers.

Hydrogen's contribution to electricity and heating systems

The strategy needs to treat hydrogen as part of an integrated energy system. The location and operation of hydrogen production should be planned together with electricity generation, electricity grids, storage and use. Access to fossil-free electricity and grid capacity on competitive terms is a fundamental prerequisite. At the same time, business models must enable reliable supplies to users.

The Commission should develop guidance and share effective models for enabling hydrogen production and storage to participate in markets for flexibility and ancillary services. Hydrogen producers need to be able to receive remuneration for reducing their electricity consumption when the power system is under strain and increasing it when electricity is abundant. Storage can make this possible while ensuring reliable hydrogen supplies to users. The Commission also needs to ensure that EU State aid rules allow support for investment in storage, waste heat recovery and electricity generation from hydrogen when the power system needs it. These benefits need to be included when assessing the costs and energy efficiency of different solutions, so that investments which strengthen the entire energy system can proceed.

The strategy should also identify regulatory barriers to be addressed in the relevant reviews. EU State aid rules need to allow support for investment in electricity generation from fossil-free hydrogen, for example in fuel cells and gas turbines. For renewable hydrogen, Article 41 of the EU General Block Exemption Regulation (GBER) currently contains an explicit exclusion, meaning that electricity generation is not eligible for support under that Article. This exclusion needs to be

removed, and support needs to be available for both renewable hydrogen and other fossil-free hydrogen with low life-cycle emissions. Support needs to be able to cover the entire chain from electricity to hydrogen, storage and conversion back to electricity when the power system needs it.

Industry shipping and heavy duty road transport

We welcome the strategy's focus on uses where direct electrification is not technically feasible or cost-effective. Hydrogen has an important role as both a feedstock and a fuel in industry, including steelmaking, the chemical industry, mineral fertiliser production and refineries. We also welcome the Commission's clear recognition of the role of synthetic fuels and other hydrogen-based fuels in the transition of maritime transport and aviation. For maritime transport, production, port infrastructure, bunkering and users' investments need to be coordinated. The strategy should also make clear provision for the direct use of hydrogen and for hydrogen-based fuels in relevant segments of heavy-duty road transport.

The EU needs to maintain the hydrogen refuelling infrastructure requirements in the Alternative Fuels Infrastructure Regulation (AFIR) and ensure their timely implementation. Infrastructure development needs to be coordinated with the availability of fossil-free hydrogen and the introduction of heavy-duty hydrogen vehicles, so that investment in vehicles and refuelling stations can proceed in parallel.

Direct electrification is an important part of the transition, but needs to be complemented by fossil-free hydrogen and other fossil-free solutions. For transport, policy instruments need to take account of the full cost of vehicles or vessels, fuel and infrastructure. It should be possible to assess different technologies for using fossil-free hydrogen on the basis of their actual environmental and climate performance.

The EU also needs to maintain its long-term level of ambition for emission reductions in the CO_2 emission standards for new heavy-duty vehicles. Predictable requirements should help ensure that heavy-duty hydrogen vehicles are developed and reach the market. At the same time, the regulatory framework needs to evolve so that the climate benefits of sustainable biomethane and other fossil-free fuels can also be realised.

For heavy-duty road transport, the strategy needs to make a particular contribution to creating actual demand. Public procurement and long-term transport contracts are important tools. This also requires public and private purchasers of transport services to be willing to pay the additional cost of fossil-free transport, so that transport operators can invest on competitive terms.

Investment aid for vehicles and refuelling infrastructure needs to be complemented by long-term solutions that bridge the operating cost gap between hydrogen-powered and conventional transport. Otherwise, investment in production and refuelling infrastructure risks proceeding without a sufficient increase in use.

Transport operators' practical experience also shows that production capacity and expanded refuelling infrastructure need to be accompanied by reliable supplies and dependable refuelling stations. A truck that cannot refuel is left standing, putting the completion of transport assignments at risk. The strategy therefore needs to address security of supply all the way to the vehicles, particularly when they are used in essential services.

As a complementary contribution to the review of energy taxation rules, we would also like to highlight a specific regulatory barrier. The Energy Taxation Directive needs to be amended, or other solutions introduced, to allow fossil-free hydrogen used as a motor fuel in internal combustion engines to be exempt from tax. The tax exemption for hydrogen used in fuel cells must be

maintained and extended to fossil-free hydrogen used in internal combustion engines. Under the current rules, hydrogen used as a motor fuel in an internal combustion engine must be taxed as an equivalent motor fuel, while hydrogen used in a fuel cell is not taxed. In Sweden, the Swedish Tax Agency considers natural gas to be the equivalent fuel.[3] The same fuel is therefore treated differently depending on the technology chosen. In Sweden, this also means that hydrogen is subject to carbon dioxide tax even though it contains no carbon and produces no carbon dioxide emissions during use.

This difference also creates practical problems at refuelling stations serving both fuel cell vehicles and vehicles powered by hydrogen internal combustion engines. To apply the correct tax and charge the correct tax-inclusive price, the station operator needs to identify the technology used by each vehicle, even though the same hydrogen can be dispensed from the same pump. This requires specific monitoring and payment solutions and increases administration. Extending the tax exemption to fossil-free hydrogen used in internal combustion engines would remove the need to distinguish between uses of the same fossil-free hydrogen and simplify tax rules for both suppliers and users.

RFNBOs as the goal for 2040 and low carbon hydrogen during the transition

The strategy should set a clear long-term direction, with the goal that hydrogen use in the EU should be based on RFNBOs by 2040. The specific RFNBO targets therefore need to be maintained and progressively strengthened. This gives businesses long-term conditions for investing in renewable hydrogen and hydrogen-based fuels.

During the transition, low-carbon hydrogen is also needed to reduce emissions and build up use and infrastructure. The strategy therefore also needs to set clear objectives and appropriate policy instruments for the production and use of low-carbon hydrogen during this period. Businesses need predictable conditions for these investments, while policy instruments must support a gradual transition to RFNBOs by 2040.

Effective trade and traceability throughout the value chain

The EU needs to create the conditions for a well-functioning hydrogen market with cross-border trade. It must be possible to track and verify the renewable share through mass balancing even when hydrogen from different sources is distributed or stored together. Businesses should be able to claim a verified quantity of renewable hydrogen without physically separating the renewable gas molecules from other hydrogen. This requires an equivalent quantity to have been introduced into the same mass balance system, and quantities and sustainability characteristics to be recorded and checked to prevent double counting. The Commission should ensure that the Renewable Energy Directive's mass balance rules can be applied throughout the value chain, both in gas networks and in distribution and storage outside gas networks. Certification, the Union Database and national systems need to be coordinated so that the information can accompany the gas without unnecessary duplication of work.

The Commission should coordinate guidance and dialogue with national authorities on how taxation, emissions trading and support can be applied alongside the Renewable Energy Directive's mass balance rules and the Union Database. Remaining regulatory barriers need to be identified and addressed in the relevant reviews. The decisive factor should be that sustainability and the renewable share can be demonstrated through reliable traceability, regardless of the

[3] Swedish Tax Agency, Taxation of hydrogen consumed in motor vehicles, vessels or aircraft, position statement of 22 February 2021, reference no. 8-790631 (in Swedish). Source

method of distribution. Guarantees of origin and proofs of sustainability serve different purposes, and the systems must prevent double counting. Businesses should be able to demonstrate compliance without unnecessary duplication of work.

European production and security of supply

The EU needs to build up sufficient production of hydrogen and hydrogen-based products within the Union to strengthen security of supply and preparedness. Imports are an important complement, but cannot replace the need for production within the EU. Clear targets for EU production, together with long-term financing and risk sharing, can facilitate coordinated investment in production, use, hydrogen pipelines, storage and terminals. The strategy therefore needs to set out the measures required to secure supplies to industry and essential services, including during crises and disruptions to international trade. Hydrogen can, for example, be used to produce fuels and mineral fertilisers needed for transport, agriculture and food supply. Increased production within the EU also contributes to industrial competitiveness and creates conditions for employment. The EU needs to ensure comparable sustainability requirements and conditions of competition for EU production and imports. Imports also need to come from a range of countries and suppliers to avoid creating new vulnerabilities.

Clear responsibility for implementation

The strategy should conclude with a concrete implementation plan setting out priority measures, responsible actors and a timetable for follow-up. The plan should prioritise financing, guarantees, guidance and coordination that can be developed within existing regulatory frameworks. It also needs to identify remaining regulatory barriers and specify the parallel reviews in which they should be addressed, such as those of the State aid rules and the Energy Taxation Directive. Follow-up should cover actual investment decisions, facilities brought into operation, long-term supply agreements and developments in the cost gap. Success needs to be assessed on the basis of the investments, emission reductions and societal benefits that materialise.

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