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Position paper

Preparing a future strategy on energy sector integration

Contribution to the public consultation of the European Commission

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BDEW supports the goal of EU climate neutrality by 2050 and is committed to the energy sector playing a key role in achieving the 2050 climate target. BDEW stresses that the targets will only be achieved if the necessary framework conditions are created and social compatibility, competitiveness and security of energy supply are ensured. This applies in particular to the desired increase in climate targets by 2030, bearing in mind that each sector must achieve its own targets. BDEW confirms the important role of gas as an energy source and its infrastructure in interaction with other grid-based energy sources in the decarbonization of all sectors.

Against this background, BDEW welcomes the initiative of the European Commission to launch a sector integration strategy in June 2020 as it is an indispensable means to decarbonize all sectors while ensuring cost-efficiency and security of supply. In BDEW's opinion, all three elements touched upon in the guiding questions, i.e. direct electrification, the increasing use of renewable and decarbonized gases and realizing further efficiency gains, are equally important.

BDEW strongly believes that an integrated energy system shall be at the heart of the EU's economic recovery post-COVID-19. Especially in the post-COVID-19 period, it is crucial to maintain the European path of ambitious decarbonisation targets as set out in the Clean Energy Package and European Green Deal to seek the opportunities for the creation of jobs, technological leadership and value creation while ensuring security of supply and affordable energy.

1. **What would be the main features of a truly integrated energy system to enable a climate neutral future? Where do you see benefits or synergies? Where do you see the biggest energy efficiency and cost-efficiency potential through system integration?**

From BDEW's point of view, a truly integrated energy system would be characterized by the following main features:

- A clear political commitment to a hybrid energy system, which is based on renewable and decarbonized energy carriers, linking the different sectors (heating, transport, industry etc.),
- A technology open framework with priority given to market-based solutions supportive of investments in innovation,
- Competitive energy markets with clear price signals, that ensure an efficient and integrated system operation and development,
- Cross-sectoral EU-wide carbon pricing for a market-driven steering effect for carbon emission reduction in conjunction with adequate taxes and levies,
- Total costs of Greenhouse Gas (GHG) reduction and GHG mitigation, taking into account the whole life-cycle, as key criterion to assess policy measures,

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- Sufficient flexibility to take account of national and regional specificities in accordance with the common principles and requirements. In particular, state aid guidelines should enable Member States to facilitate the deployment of low-carbon technologies,
- System in which energy efficiency is not related to consumption reduction, but to its most efficient use (kWh/ gross value added),
- Intelligent linking of existing infrastructures (electricity, gas and heat networks) and joint infrastructure planning on the corresponding grid levels of each sector, e.g. as already started for the transmission level in the Ten-Year Network Development Plans (TYNDPs), to connect generation, transport, storage and usage more efficiently,
- No barriers for market access and participation, e.g. for enhanced demand-side flexibility of all different energy sectors to facilitate flexible consumers to adjust their demand due to effective price signals,
- Data communication standards that facilitate the integration of sectors (e.g. electric vehicles in the transport sector) and guarantee equal market access and fair competition.

BDEW regards sector integration as a key element to achieve the EU target of climate neutrality by 2050 due to the realization of synergies and benefits in terms of cost- and energy-efficiency. Moreover, it brings additional benefits in terms of resilience and security of supply. This concerns in particular:

- Only by combining electricity, gaseous energy carriers and heat as well as making use of the existing infrastructures climate neutrality can be achieved in an macroeconomically efficient way.
- Volatile electricity generation from renewables in combination with the use of the storage potential of the existing infrastructure, e.g. gas infrastructure or other storage capacities like home storage or storage for industrial use,
- Direct and indirect use of RES across all sectors using Power-to-X (PtX) technologies, including the use of renewable and decarbonized gases and sustainable biomass,
- Cost efficiency through extensive use of the renewable energy potential as well as of the existing infrastructure with a view to achieving a macroeconomic equilibrium between the need for further grid expansion and sector integration,
- Security of Supply via a robust and resilient integrated energy system making full use of existing well-developed infrastructures

2. What are the main barriers to energy system integration that would require to be addressed in your view?

As regards the main barriers, BDEW believes that first and foremost a clear political commitment to system integration with electricity, gas, heat and their respective infrastructures is needed to give more clarity on the way forward, in particular with a view to investors and the further development of technologies.

A fundamental basis for energy system integration is a cross-sectoral EU wide carbon pricing also in the non-ETS sectors. The carbon price should have a clear steering effect at all times and in all sectors.

Overall, energy system integration needs a consistent legal framework at EU and national level which is geared towards this target. Currently, certain legislation opposes this strategy, e.g. a very restrictive taxonomy and its subsequent technical screening criteria. The taxonomy regulation should include and define the transportation of hydrogen and activities that enable the gas system to increase the blend of renewable and decarbonised gases as sustainable activities. The expansion and retrofit of all gas transmission and distribution networks should be defined as transitional activities in the framework of article 10 (2) of the Taxonomy Regulation. Moreover, the transport of hydrogen is not yet provided for in the regulatory framework for the internal gas market, although it will play a substantial role in decarbonising the EU economy.

The electricity and gas grids are well developed across the EU, as well as the heating and cooling networks in many member states. This applies also to the energy market in most member states. However, technical and regulatory barriers remain at EU and national level as the so-called “sector coupling study” commissioned by DG Energy has rightly highlighted.

Some of the barriers can and should be addressed at EU level like, for instance, the coordination of network planning on the corresponding grid levels, development of a common terminology for renewable and decarbonized gases and enabling cross-border trading of these gases. Others as lowering state induced price components such as taxes and levies are a central enabler for sector integration but have to be solved at national level within an EU-wide-framework ensuring climate neutrality by 2050.

3. More specifically:

- **How could electricity drive increased decarbonisation in other sectors? In which other sectors do you see a key role for electricity use? What role should electrification play in the integrated energy system?**

  Electrification or the use of electricity from renewable energies plays a key role in the integrated energy system. On the one hand through the direct use of renewable electricity in the consumption sectors, and on the other hand indirectly through the supply of climate-neutral energy sources as a base for further use, e.g. in the form of hydrogen, synthetic methane or synthetic fuels.

  If electrification is considered across all sectors, it can make the energy system more flexible and generate macroeconomic efficiency. At the same time, an exclusive electrification will reach its limits in terms of technical feasibility, macroeconomic viability and efficiency. Thus, the different sectors can be decarbonised directly or indirectly via PtX-technologies, such as the industry and the transport sector or the building sector.

Furthermore, the integration of electric vehicles into the energy system can help to accommodate the volatile electricity generation of renewable energies contributing to the decarbonisation of transport while linking the transport and energy sector.

Electrification in the integrated energy system should be designed in such a way that it can realise the greatest possible potential of renewable energy production in Europe and at the same time enables the extensive use of renewable energies across all sectors. This can contribute to strengthening security of supply of the EU's future energy system and to a wide application of technological know-how in the field of renewable energy production and use as envisaged in the EU Green Deal. Moreover, this can play a role in industrial policy and help to achieve a macroeconomic optimum with regard to the direct and indirect use of the renewable energy potential in the EU and infrastructural cost aspects.

- **What role should renewable gases play in the integrated energy system? What measures should be taken to promote decarbonised gases? What role should hydrogen play and how its development and deployment could be supported by the EU?**

All renewable and decarbonised gases (biomethane, renewable hydrogen, , the methanization of hydrogen to synthetic natural gas, methane pyrolysis, hydrogen from natural gas and other carbon separation and CO_2 sequestration paths) will play a key role in the integrated energy system. That is because renewable energy can be efficiently stored in form of molecules on a short-term and seasonal basis in very large quantities, can be used in a flexible manner directly in the industry, mobility and heating sector and to generate electricity in case of inadequate weather patterns. Thus, it is important to guarantee a path towards decarbonisation that is open to all forms of renewable and decarbonized gases that all can be used in various sectors.

The prerequisite for the cost-efficient decarbonization of the energy system is therefore a steadily growing percentage of renewable and decarbonised gases in the energy market over time. Such a path contributes to decarbonization in all sectors (heating market, industry, mobility, power generation). Hence, BDEW believes that gaseous energy carriers are an indispensable part of the solution for a decarbonised energy system and, consequently, are not just a transition or bridge technology. Only in the interaction of all sectors in combination with a smart adaptation of existing well-developed infrastructure, the transformation to renewable and decarbonised gases can be represented in a regulatory and efficient way.

In an integrated energy system, renewable and decarbonized gases take the position as flexibility buffer. Specifically, in the case of renewable hydrogen, electrolysers can become an important flexibility provider, particularly in situations of abundant renewable energy and incentivized by low market prices. Then, renewable gas may also be used to generate electricity in times of little renewables supply – gas and electricity markets being connected through market price signals.

BDEW, therefore, calls for all future measures to always include the comprehensive use of renewable and decarbonized gases (biomethane, renewable hydrogen, the methanization of hydrogen to synthetic natural gas, methane pyrolysis, hydrogen from natural gas and other carbon separation and CO_2 sequestration paths) in all sectors (industry, transport, heating, power generation) as well as the use of the necessary and already existing infrastructure. In this way it can be possible to use the existing valuable gas infrastructure (grids and storage) macroeconomically efficiently in terms of climate protection and to avoid "stranded investments". Flexibility is required for the development and application of specific solutions. An example of such a specific solution is the power-to-gas (PtG) technology. Since it is currently the only application to link all sectors (electricity, industry, heating and transport) with one another and, at the same time, to ensure that energy can be stored in different seasons, PtG takes on the role of a key technology for sector integration.

Hydrogen will have a large share in the market ramp-up of renewable and decarbonised gases. In a hydrogen economy, it is both ideally used directly, for instance as a feedstock for industry or fuel-cells and as an intermediate energy carrier for the production of a large number of other products, such as synthetic methane and synthetic liquid fuels.

A key requirement for the future production of renewable hydrogen and the methanization of hydrogen is the further expansion and integration of renewable energies. Obstacles to the further deployment of renewables are automatically also barriers to unlocking the potential of renewable gases which should be addressed at EU level in order to efficiently reduce GHG emissions.

The existing gas infrastructure, consisting of transmission and distribution networks and storage facilities serves, via repurposing of existing pipelines, as a basis for the development of a hydrogen economy. The expansion of a comprehensive parallel infrastructure for hydrogen should for reasons of macroeconomic efficiency be avoided as long as this is not more cost-efficient in specific cases or no additional usage options are available. The prerequisite for this is the technical and regulatory management of increasing shares of renewable and decarbonised hydrogen in all areas of infrastructure (network, storage) up to applications.

Hydrogen networks should fall under the same regulatory rules as gas networks, as defined in the 3rd Energy Package, if hydrogen is used as an energy carrier in the public energy supply for households, industry, commercial consumers, power plants and refuelling stations. Therefore, the existing gas market legislation should be amended to enable the transport of hydrogen under a regulatory regime. Considering that existing natural gas networks can be retrofitted for the transportation of hydrogen, the role of TSOs should be amended allowing them to develop and operate hydrogen networks under the same regulatory provisions as natural gas networks, including the regulatory recognition of the respective costs. Network operators who are upgrading their networks for higher hydrogen content or transforming them for pure hydrogen, should not be placed at a regulatory disadvantage.

A central feature of the scale up of renewable and decarbonised gases is the increasing feed-in of hydrogen into existing methane networks gradually increasing the admixture rate in the network. Currently, in most member states the technical gas quality regime is not yet “hydrogen-ready”, as the technical standards for feed-in tolerance are very low and diverse and could lead to barriers for a European sector integrated energy market. An increasing feed-in of hydrogen will, therefore, require extensive cooperation between member states. These include the legal possibility for the regulated gas infrastructure to transport hydrogen and the establishment of an EU-wide, initially low technical limit up to which the feed-in and transport of hydrogen is permitted.

Depending on the specific local situation of the DSO and TSO grid and the ability of the customer installations higher shares of hydrogen blends can be possible enabling the local production of hydrogen through PtG or pyrolysis, which is an important step towards decarbonisation. Ongoing developments on the appliance sector e.g. in the UK and Germany show, that local hydrogen blends between 20 and 30% could be possible with few adaptions. Pilot projects and research programs are essential to have a better understanding of the set-up of smart gas grids equipped with sensors and membranes to make the best use of all local renewable and decarbonized gases in the vicinity to the gas consumers. In order to address the purity demands of sensitive customers membrane filter technology separating H_2 from CH_4 in an admixture are an important feature to consider in drafting new regulation for the gas networks.

The steps necessary to increase the end user's compatibility with hydrogen beyond this limit should, on the other hand, be laid down in the national framework and leave sufficient room for the companies operating and their customers to make the necessary adjustments.

From the BDEW's point of view, the role of the liquid and competitive EU internal market is essential and must also be maintained when the energy system is restructured. This ensures affordable energy prices, improves the competitiveness of the industry and serves consumers.

An imperative basis for the further development of the gas market towards a market for renewable and decarbonised gases is a systematization or classification of gaseous energy sources as well as the establishment of a European Guarantees of Origin (GoO) system. This is the only way to achieve a comparability of the different gaseous energy sources, which can then be used both in environmental policy assessment and in product development.

BDEW calls for a simple, uniformly European and transparent system for GoOs in gas. This will support the imperative cross-border trade in renewable and decarbonised gases. For the creation of a liquid European market for GoOs, the application of the "book & claim" principle is essential. Without this principle, the commodity can only be traded together with the GoO. This would not only lead to nationally separated gas markets, but these would also be divided into two sub-markets for conventional and renewable or decarbonised gases splitting liquidity between them. In turn, trading in a liquid market GoO for gas would also not be achievable.

- **How could circular economy and the use of waste heat and other waste resources play a greater role in the integrated energy system? What concrete actions would you suggest to achieve this?**

BDEW regards the use of waste heat as integral part of sector integration. At the same time cooling becomes also increasingly important.

District heating is a very important option for advancing the decarbonisation of the building sector in urban areas, especially those with large share of old buildings and apartment blocks. Already today it delivers an important contribution to the climate-friendly heat supply in urban regions, where there is usually no space available for the construction of plants for the generation of heat from renewable energies[1]. This is where the advantage of the heating network infrastructure lies in the collection, transport and distribution function of renewable heat. The integrated approach of Power-to-Heat (PtH),) CHP plants, heat buffers, excess heat integration and utilisation of originally renewable sources substantially contribute to decarbonising the building stock in urban areas and add flexibility and stability for utilising volatile renewable electricity generation.

In the further decarbonisation of district heating, the use of unavoidable waste heat from industrial processes, the services sector (e.g. from data centres), from waste and wastewater plays an important role in addition to PtX-technologies and biomethane. Cooling from waste heat for distribution via heating networks during the summer will also become a more important issue in the future. In order to exploit the great potential of waste heat, it should be allowed to be taken into account in national support programmes without this becoming relevant under European state aid rules. In addition, the share of waste heat from waste incineration, production processes, wastewater or the provision of services should be fully counted towards the share of renewable heat. The definition of the primary energy factor for this waste heat in heating networks must be left to the Member States.

Heat from thermal residual waste treatment should be fully counted as climate-neutral heat. The quantities of residual materials that are not or cannot be put to any reasonable recycling use after sorting should be considered for thermal treatment.

Furthermore, biomethane plants can serve as a climate-neutral source of carbon dioxide, e.g. for the industry sector. The potential of public water supply and wastewater disposal should be taken into account when expanding energy storage capacities. Within the framework of sector integration their energy generation and storage potentials, such as sewage gas, process waste heat from sewage sludge utilisation and PtG / hydrogen, should be tapped and used intensively. This is where synergies and regional locational advantages of the water and wastewater infrastructure come into play to increase the security of energy supply. Existing regulatory obstacles for energy network operators and

[1] On average for all heating networks in Germany, the RES share in district heating in 2019 was 16.6 percent, which is above the average of the entire building sector of around 14 percent. In cities, the share of RES heat in the building sector still amounts usually from 2 to 5 percent, i.e. much lower than the national average.

authorities must be removed. Within the framework of sewage sludge incineration, sewage gas should be used more intensively as a co-product and thus as a renewable energy source.

With regard to concrete actions - apart from the issues mentioned above, in particular state aid rules - the EU level should focus on setting the general framework and direction for heating and cooling, while concrete solutions should be left to national or regional level according to the respective situation and needs (e.g. structure of building stock, existing infrastructure etc.).

- **How can energy markets contribute to a more integrated energy system? How can cost-efficient use and development of energy infrastructure and digitalisation enable an integration of the energy system?**

Energy markets already contributed in the past to foster system integration and will continue to do so in the future, in particular through clear price signals setting the right signals for investment, generation and consumption. Also, in principle, markets should be facilitated, and a market approach should be the general starting point.

From BDEW's point of view, the role of a liquid and competitive EU internal energy market is essential and must also be maintained when the energy system is restructured. This ensures affordable energy prices, improves the competitiveness of the industry and serves consumers. By providing price signals which give economic incentives and link different sectors, energy trading markets play a central role in an integrated energy system. The visibility of relevant infrastructure costs through price signals also ensures a cost-efficient use and development of infrastructures in an integrated energy system.

BDEW believes that hydrogen and biomethane should be integrated in the market and that hydrogen networks should fall under the same regulatory rules as gas networks if the hydrogen is used as an energy carrier in the public energy supply for households, industry, commercial consumers and power plants, as defined in the 3rd Energy Package. The production and wide-spread consumption of hydrogen can be incentivized through market prices, hydrogen could become a tradable commodity just like other energy carriers as part of the liquid gas markets. Guarantees of Origin (GoO) should be traded separately from the commodity to ensure liquid and European markets on the commodity on the one hand and on the certificates on the other.

In order to meet the future need for renewable energies by end customers, it is necessary to ensure liquid markets for renewable energies. These markets should also provide for the possibility to trade GoOs. As mentioned above, this will support the imperative cross-border trade in renewable and decarbonised energy carriers.

With a view to providing clear price signals, Member States should be given the necessary freedom to reduce the burden of charges and levies on electricity. To this end, the Energy Tax Directive should be geared towards CO_2 taxation and allow tax rates of zero.

With regard to digitalisation, it is important to note that it can enable market participants to communicate on load conditions (energy supply, energy demand) in real time and is therefore a prerequisite for the integration of energy systems beyond system boundaries.

This supports the emergence of new business models and markets on a decentralised and more “local” level. The energy transition must be structured bottom-up through optimised energy systems of different sizes. From prosumers through energy communities and commercial optimisations to integrated electricity/gas/heat distribution systems such energy systems enable manageing the increasing complexity and encourage acceptance through direct participation.

These optimised energy systems require a well-functioning coordination. As regulated entities, DSOs are best suited to assume the role of coordinator and enabler of these energy systems. For the purpose of cross-sectoral system optimisation, the interface between DSOs for electricity and gas (and where applicable for heat) must be developed further.

New digital tools can facilitate the deployment of distributed energy sources, e.g. household solar or photovoltaic panels and storage, by creating better incentives and making it easier for producers to store and sell surplus electricity to the grid.

Digitalisation is helpful for smart sector integration: In a first step, at the level of data exchange interoperability, which facilitates the exchange of models for planning, and in a second step it will enable a optimal operation between the sectors. Digitalisation and the development of corresponding infrastructure (e.g. smart grids) is especially in Distribution Grids fundamental for sector integration.

4. Are there any best practices or concrete projects for an integrated energy system you would like to highlight?

In Germany, a broad range of PtX-projects (mainly PtG) has already proven that these technologies can enable and support an integrated energy system during almost a whole decade (https://www.bdew.de/energie/erdgas/interaktive-karte-gas-kann-gruen/). The most current project program is called “Reallabore” which is supposed to fund sandbox projects and one main focus is sector integration. Two further projects - Element 1 and hybridge - are in development by German TSOs. However, almost all of the executed projects so far where not able to transition from project status to business cases due to the current regulatory framework which does not support sector integration technologies, and which does also not provide a market for renewable gases as a product of these technologies. Any energy sector integration policy must therefore aim to remove regulatory barriers and set up market making policies.

Furthermore, there are the Sinteg projects. One of the Sinteg projects with relevance for sector integration is the “enera” project – the first power exchange-based flexibility market that was successfully implemented. The first trade took place in February 2019 between a power-to-gas facility of Audi and EWE Netz. Since the opening of the enera market, trading activity has increased steadily. Nine participants are active on the enera market, including three grid operators and six flexibility providers. A total of 360 MW of flexibility is certified and tradable. This includes wind farms, biomass plants, batteries, PtG plants and industrial loads.

Increasing power generation from renewable energy sources can lead to overload in the electricity grid. PtH-Facilities can use these power loads to generate heat and deliver it to heating customers or store it for later distribution. Depending on the local situation of the grid, a shutdown of renewable power generation due to overload can be avoided. In general, the PtH-facility is integrated into a combined heating power and storage and transmission system. This principle has been applied and demonstrated in the energy village Nechlin, 120km from Berlin, where the wind power peaks from the adjacent windfarm are used to heat water which diverts into the village-grid to heat homes2. However, with regard to efficiency and effectiveness the location of the PtX-facilities is decisive as otherwise surplus renewable energy cannot be physically used or infrastructure needs increase.

Another example for smart sector integration and coupling represents methane pyrolysis by using renewable and decarbonised gases. Methane pyrolysis can integrate renewable electricity and create CO_2-emission free hydrogen and solid carbon (carbon, graphite; graphene). Furthermore, the significant lower overall emissions from this process can even be turned into negative emissions by using biogas, waste gasification or sewage sludge as ‘green’ feedstock. Several companies have been active in further developing this technology and installing pilot plants.

Germany is taking a leading role in the advancement of hydrogen and hydrogen technologies in Europe as means to decarbonise the European economy while preserving the achievements of the internal market for energy. For example, a broad alliance of five energy and business associations has recently agreed on proposals for the development of a competitive hydrogen market in all sectors and the necessary regulatory amendments in Germany[3].

5. What policy actions and legislative measures could the Commission take to foster an integration of the energy system?

In the framework of the European Green Deal, the European Commission has announced a variety of measures which directly or indirectly relate to the integration of the energy system and the three elements of direct electrification, the increasing use of renewable and decarbonized gases and realizing further efficiency gains. The establishment of a technology-open and cross-sectoral level playing field referring to GHG emissions or their reduction are fundamentally important for all these elements.

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[2] https://enertrag.com/windwaerme

[3] https://www.bdew.de/media/documents/Anlage_PI_20200421_Verbaende-Wasserstoff.pdf

EU-wide carbon pricing is key to this level-playing-field. For this reason, BDEW calls for additional carbon pricing in the non-ETS sector[4]. Since different systems of non-ETS carbon pricing exist today in some member states, an increasing convergence of the national solutions including an adequate development of taxes and levies should be aimed at. In the long term, a synchronisation with the European ETS could be envisaged. In addition, Member States should be given the necessary freedom to reduce the burden of charges and levies on electricity. To this end, the Energy Tax Directive should be geared towards CO_2 taxation and allow tax rates of zero. With regard to the direct use of electricity, much has been achieved in the Clean Energy Package which is currently implemented in the Member States. Further changes could be considered when the Commission comes forward with the proposals for revisions of relevant legislative measures to deliver on the increased climate ambition.

When it comes to the role of gas and its infrastructure, and in particular concerning the increasing use of renewable and decarbonized gases, there is a clear need for action at EU level. In addition to a clear political commitment, a modernization of the regulatory framework for the internal gas markets is urgently needed to enable the gas sector to play its part in achieving climate neutrality by 2050. As a basic principle, the comprehensive use of renewable and decarbonized gases (biomethane, renewable hydrogen, the methanization of hydrogen to synthetic natural gas, methane pyrolysis, hydrogen from natural gas and other carbon separation and CO_2 sequestration paths) in all sectors (industry, transport, heat, power generation) and the use of the necessary and already existing infrastructures should be taken into account in all future measures.

More specifically, from BDEW's perspective the development of renewable and decarbonised gases requires policy and legislative measures at EU level with regard to the following points:

- Definition of a uniform European terminology for renewable and decarbonised gases in the EU legal framework reflecting the life cycle emission factor to enable comparability among them and with other energy sources,
- Establishment of a simple and transparent EU-wide scheme for GoO to support cross-border trade of renewable and decarbonised gases,
- Amendment of the existing gas market legislation by including hydrogen and a respective adaption of the relevant Network Codes,
- Creation of a market framework for renewable and decarbonised gases through a level playing field with cross-sectoral CO_2 pricing. This should allow for "sandbox clauses" for the realisation of pilot plants and provide regulatory and market incentives, e.g. for the systemic combination of biomethane production and the storage or use of the resulting CO_2 for the methanization of hydrogen,

[4] CHP plants and heat only boilers with a rated thermal input exceeding 20 MWth are already covered by the ETS must not be double burdened as these installations have already paid for the CO_2-emissions of their entire production (electricity and heat) by buying the necessary allowances.

- Establishing a Europe-wide, initially low technical limit for the injection and transport of hydrogen and applying the same regulatory and unbundling rules for hydrogen networks that are predominantly used for public supply of households, industry etc.,
- An intensification of coordinated infrastructure planning across sectors (electricity, gas and, if applicable, heat) within the corresponding grid levels (TSO-TSO coordination, DSO-DSO coordination), assessment and design of cost recognition in the event of changes in the use of gas networks and to reflect measures to achieve "hydrogen readiness" in the regulation.

With regard to further efficiency gains, BDEW likes to stress that energy efficiency, for example expressed with the indicator kWh / Euro GDP, is not in itself a target value for the total energy consumption. However, increasing energy efficiency is a key requirement for reducing overall energy consumption despite economic growth. The incentives to increase energy efficiency must be set in such a way that the economically optimal level of efficiency can be achieved by all sectors. Efficiency criteria must be defined uniformly regardless of technologies and energy sources. It also has to be taken into account that at times with high renewables production, the integration of the renewable energy is much more important than energy efficiency itself.

Against the background of the climate goals, the goal must be the cost-optimal overall package for reducing CO_2 emissions. At the same time, other goals such as security of supply and affordability of the energy supply must not lag behind efficiency goals but must be rated equally.

Finally, the European Commission should give Member States more flexibility in promoting GHG emission reduction measures as well as with regard to the support instruments themselves. BDEW sees a need to revise the guidelines on state aid for environmental protection and energy in order to enable Member States to facilitate the deployment of low-carbon technologies. More ambitious 2030 targets will require even more investments which in many cases will need support. From BDEW's point of view, there is a particular need to adequately reflect PtX which contributes to the energy transition and the decarbonization of other sectors via sector integration. Energy efficiency targets can only be achieved at optimum cost in a competitive market economy environment. If public funds are used, they must be made available to all market participants on a non-discriminatory basis.

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