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Position paper

CEER Consultation „Regulatory Challenges for a Sustainable Gas Sector"

BDEW answers to the CEER online questionnaire

Berlin, 17 Mai 2019

Explanation

Please find below the BDEW answers to the CEER's questions from the consultation on „Regulatory Challenges for a Sustainable Gas Sector".

The full CEER consultation document issued on 22 März 2019 is available at https://www.ceer.eu/ceer-consultation-on-regulatory-challenges-for-a-sustainable-gas-sector.

Questions to Chapter 5: Infrastructure Investments and Regulation (pp. 20-22)

[Q1] Which activities do you consider relevant for potential TSO/DSO involvement that should be considered in the assessment?

BDEW answer:

The energy system transition will have a substantial impact on the gas sector. As the role of renewable energy grows, the contribution of the gas sector to facilitate this overall system transition becomes more important. BDEW is currently working on guidelines and recommendations and will give them as input in the further discussion at EU level.

[Q2]: To what extent should a common European threshold for the blending of hydrogen in gas networks be mandatory and which timing should be taken into account? Please explain your reasoning.

BDEW answer:

In general, BDEW regards the increasing infeed of hydrogen into the gas networks as a significant contribution to the integration of renewable and decarbonised gases. The absorption capacity of the gas network is primarily in the remit of each grid operator and will depend on the ability of the gas appliances connected to absorb hydrogen. This will change in the course of time with the development of new appliances. Already today appliances exist that can take up to 100 % hydrogen, and further ones are in the design phase. The physical properties of hydrogen are different in regards to density, the Wobbe index, calorific value and flame speed. This aspect has to be taken into account.

Furthermore, the possible level of hydrogen infeed depends on the characteristics of the natural gas already in the grid, as the Wobbe index and the calorific value between different kinds of H-gases differs.

Moreover, as the development of hydrogen should be driven by the market, the infeed of hydrogen most likely will not develop at the same time to the same extent, but differently across regions and/or sectors. With a view to the corresponding development of hydrogen demand and increase of blends, a close and frequent cooperation between the TSO and DSO regarding gas quality data as well as R&D for sensors should be taken into consideration. This also applies to smart gas grids that would allow the DSO and the TSO to define the gas mixtures in the grid and therefore optimise the injection of all renewable and decarbonised gases. Ultimately, the possibility of methanisation in certain parts of the grid or of sequestration of hydrogen with membranes for sensitive consumers connected to certain parts of the grid (e.g. CNG filling stations, quality sensitive industrial customers or turbines) offer all opportunities.

However, it is important to get a holistic view from the production of renewable and decarbonised gases to the end-user appliances.

In conclusion, when considering a common European threshold, criteria such as costs, regional characteristics and a sensible timeline should be taken into account, e.g. in the framework of a roadmap.

While a mandatory European-wide threshold of high level does not seem recommendable at this point in time, an indicative low threshold which takes into account all relevant technical and legal conditions/restrictions and which is accepted by the stakeholders could be an approach to give some directions for the developing market. One reason for this is that the increasing infeed of hydrogen will require extensive cooperation across Member States to prevent barriers to the cross-border tradability of gas. The issue should be discussed at the next Madrid Forum in June 2019.

Nevertheless, the maximum hydrogen concentration based on the technical development and the hydrogen compatibility of the end consumer should be increased gradually in the national technical rules and standards.

[Q3]: Under which circumstances or conditions should hydrogen networks be regulated, and should this regulation be in the same way as gas networks or are there alternatives? Please explain your reasoning.

BDEW answer:

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. In principal, the establishment of an extensive parallel new infrastructure should be avoided, if cheaper blending options are available to ensure economic efficiency. However, many grids may develop from blends to pure hydrogen in the course of time. Per definition, these grids would always be part of the regulation. The reuse of existing networks will require the replacement of certain network components. This should be taken into consideration by the regulatory authorities.

At the same time, hydrogen pipelines for specific consumers already exist today, e.g. in Germany and other European countries. These are mostly point-to-point industrial hydrogen pipelines dedicated for a specific hydrogen production and delivery to one or few large industrial consumers. Generally, these pipelines are oriented to the industrial needs and are not accessible for other consumers due to technical reasons. When shaping a regulatory framework for future hydrogen networks, the co-existence of these already existing pipelines and public grids for all consumers has to be taken into account. In general, the development of an infrastructure dedicated for 100% hydrogen transport has to be in line with the demand.

With respect to network access, inefficient grid connection for hydrogen should be avoided. A cost-benefit analysis or minimum requirements depending on the existing infrastructure could be a solution in those cases.

[Q4]: Is 'cost efficiency' a legitimate reason for pro-active market intervention which may be contrary to a general "technology neutral" approach? Please explain your reasoning.

BDEW answer:

Market-driven and technology-open solutions should be prioritised in order to make an economically efficient contribution to the energy system. This approach should be supported by measures to ensure non-discriminatory market participation by all competing technologies. The current regulatory conditions, however, do not fully provide this level playing field. Distortive conditions will lead to unnecessary cost inefficiencies in the long term.

Therefore, "cost efficiency" is a principle which should be considered when assessing the optimal and reasonable pathways for reaching the climate targets on a technology neutral basis. However, the "cost efficiency" criterion should not only be applied regarding short-term effects but should also consider the long-term development of new technologies. The reason for this is, in particular, that the high upfront investment costs are often necessary for the benefit of a long-term cost-efficient solution.

Proactive market interventions may be required to enable the advancement of new technologies and to reach long-term cost efficiency.

[Q5] Which role do you see for power-to-gas infrastructures?

BDEW answer:

Power-to-Gas is a key technology for the necessary coupling of electricity and gas networks. It is currently the only technology that can be used to interconnect all sectors (electricity, industry, heating and transport) while ensuring energy supply and seasonal storage.

The technology converts renewable electricity into renewable gases, which can be further processed in the value chain of all sectors to support the achievement of the climate targets. Hence, a Power-to-Gas infrastructure should be planned taking into account the needs of the electricity, gas, heating and transport sectors. By doing so, power-to-gas can play an important role for reducing the curtailment of renewable electricity and help reducing the need for grid expansion.

Power-to-gas and its products have to particularly be seen from the user perspective. Accordingly, its grid and system relevant function is a potential and important use. Its main purpose and potentially the biggest area of application is the decarbonisation by means of enabling the use of renewables and decarbonised gases in the different sectors.

The storage of renewable gas in gas storage facilities can also ensure seasonal storage. For this purpose, it is important to secure the outlook of valuable infrastructure (gas networks and storage facilities) to be able to continue to use them in the future. In this regard, BDEW also sees the need of a joint approach for the planning of electricity and gas infrastructures at the European, national and regional level in order to reap the benefits of creating synergies between both planning regimes. BDEW supports the existing coordination in the scenario building process for the European gas and electricity TYNDPs. In addition, NRAs should assess whether NDP processes at national level can be optimised, also taking into account the grid development at the DSO level. To optimise the use of power-to-gas plants and a coupling of electricity and gas grids, a joint planning of gas and electricity grids at DSO level should be considered.

In order to reach the climate targets, a considerable share of power-to-gas infrastructures for the production of decarbonized gas will be necessary by 2030, with growing shares until 2050.[1] Therefore, timely investments in power-to-gas facilities are important to mature the technology and to reach the required scale by the time it could play an essential role for reaching the climate targets.

[Q6] In your opinion, do the electricity and gas tariff systems create possible distortions to the efficient deployment and use of power-to-gas technologies? If yes, how and in what circumstances?

BDEW answer:

In Germany, sector coupling technologies like power-to-gas are generally classified as “end consumers” in the electricity sector and are therefore charged with all associated taxes and levies. However, power-to-gas facilities provide valuable flexibility to the electricity system for example by reducing the load in the electricity system during periods of extensive renewable energy production and hence allow for the seasonal storage of energy.

[1] See for example: Agentur für Erneuerbare Energien, Metaanalyse: Die Rolle erneuerbarer Gase in der Energiewende, 2018, S. 22. / BCG, prognos, Klimapfade für Deutschland, 2018, S. 243. / dena, Leitstudie Integrierte Energiewende, 2018, Ergebnisbericht, S. 25 ff. / Netzentwicklungsplan Strom 2030, Version 2019, 1. Entwurf, Zahlen – Daten – Fakten, 2019, S. 5. / Agora Energiewende, European Energy Transition: The Big Picture, S. 78.

Partial exemptions, some of which are in place today, are often complicated, of temporary nature, or specific for certain technologies. Storage and conversion of one form of energy into another should be treated as a separate process, exempted in particular from end consumer taxes and levies. Moreover, the goal should be a technology-open level-playing field with a CO_2 pricing in all sectors.

With a view to energy efficiency and cost efficiency for investments in renewables the injection of excess renewable electricity into power-to-gas facilities should be endeavoured instead of curtailment.

[Q7] Do you see other possible issues regarding power-to-gas technologies that require consideration from a regulatory point of view?

BDEW answer:

It should be noted that the regulatory framework currently in place was set up in a time when the possibilities of sector coupling via power-to-gas were not yet envisaged. Hence, any new regulatory overhaul should clarify the roles of stakeholders in the development of power-to-gas facilities and shall recognise the system value of conversion realised by those facilities in a coupled energy system.

A constant demand for renewable and/or decarbonised gases is essential to create sustainable business cases for power-to-gas plants as well as other incentives and reliable business models. Therefore, the contribution of renewable and decarbonised gases to achieve the 2030 and 2050 GHG objectives in all sectors needs to be considered in the regulatory framework (e.g. renewable quotas, public tenders). Furthermore, the national regulatory authorities should clarify the handling with feed-in requests for sector coupling technologies and the connected technical grid adaption to ensure a safe, cost efficient and sustainable grid operation.

Nevertheless, non-discrimination of technologies need to be respected. Consistent energy and climate policy in terms of European coordination as well as energy levies replacement by CO_2 pricing could be an option. New energy products with a consumer premium for lower CO_2 emissions already work and should gain a bigger role in the gas market.

In order to create demand for renewable and decarbonised gases, adequate incentives have to be put in place across different sectors. For the mobility sector, it should be possible for vehicle manufacturers to meet the CO_2 emission standards for cars and light duty as well as heavy duty vehicles by using renewable and decarbonised gases.

Aside from this, the uptake of renewable and decarbonised gases in the heating sectors has to be supported by the energy efficiency legislation. As long as those gases delivered via the grid are not acknowledged in the energy efficiency calculation of buildings, the interest of customers will be very low. Renewable and decarbonised gases can play a crucial role in the faster decarbonisation of the heating sector.

[Q8] What is required to facilitate efficient cross-border trading of renewable gas GOs?

BDEW answer:

To enable EU-wide trade with renewable and decarbonised gas a transparent and consistent mechanism is needed. When establishing a European Mechanism the focus should be set on a standardisation of the renewable and decarbonised gas characteristics to allow comparability of sustainability certificates. Efficient cross border trading needs flexible mechanisms to adjust the system depending on the potentials of generation and import of renewable and decarbonised energy. Therefore, the focus should not be solely on European mechanism for cross border trading but also beyond.

A European mechanism should not increase the administrative effort for all trading partners to ensure acceptance.

A mechanism should be based on existing operating experiences such as EUAs or gas certificate mechanisms.

Germany has several gas certificates mechanisms that enable the verification of the sustainability character of the renewable gas.

Main mechanism:

“dena Biogasregister”

- The Biogasregister is a commercial mass balancing system that is organised by the state-owned energy agency dena
- It was established to enable the verification and trade of biomethane in order to be eligible to receive compensation under the Renewable Energy Sources Act (EEG) or to verify the renewable gas quality
- The purpose of the demonstration is to ensure transparent traceability with regard to the origin, quantity and characteristics of the biomethane
- Inclusion of other gases (e.g. hydrogen) is possible, focusses on gas transport via pipelines
- Follows “input-output-principle”: by injecting biomethane into the gas pipelines, it blends with fossil natural gas, therefore it is not possible to transport pure biomethane physically. Instead, this is done via the so-called gas exchange: when gas from the gas network is consumed, it is assumed that it is biomethane if an equivalent amount of biomethane was fed into it at another location in Germany
- Mechanism records the exact quantity produced and the production location and period. In the course of further delivery, the trading partners register along the retail chain in the mass balance system. When supplying, for example, a CHP plant, a traceability via the mass balance system is then possible

“Nabisy”

- federal web application “Sustainable Biomass Systems” (“Nabisy”) of the German Federal Agency for Agriculture and Food (BLE) is another mass balancing system and provides evidence of the sustainability of liquid and gaseous biomass according to EU Directive 2009/28 / EC

- Distributors of liquefied or gaseous biomass in Germany can only allow their quota obligation to be credited to them or receive tax relief if they can prove that the liquid or gaseous biomass meets the sustainability criteria resulting from the EU Directive 2009/28 / EC
- the sustainability criteria for liquid biomass for power generation must be met if economic operators want to receive compensation under the EEG

Besides those two mechanisms, other certificates do exist, e.g. it is possible to engage an external assessor and to verify the renewable and decarbonised gas quality/characteristic directly to the buyer.

However, none of the above-mentioned certificate systems currently allows a tradability separated from the commodity as it is the case with the GOs for electricity. In addition, the large number of certification systems hinders the establishment of a liquid market.

Besides these German gas certificate mechanisms there are also good examples for European-wide certificate systems such as ERGaR for renewable gas and certifHy for hydrogen.

Plant-specific GOs are not a prerequisite to enable trade since it should not matter whether a certificate originates from Denmark or Hungary if both can be trusted to carry the same renewable and decarbonised gas quality. The certificate (as a guarantee of origin) should therefore be tradable independently from the commodity gas (Book&Claim). The guarantee of origin must also be transferable into products and differ between natural gas on one side and renewable and decarbonised gas on the other. Another important aspect is that the GO should recognise/show the decarbonisation attribute of the product. Therefore, it will be transparent for all market participants which contribution of decarbonisation the product implies.

[Q9] Which lessons from the EU-wide system for renewable electricity, if any, should be considered when setting up an EU-wide GO system for renewable gas?

BDEW answer:

In order to establish liquid markets, it is essential that the commodity can be traded regardless of its origin. Therefore, as mentioned above, a certificate system for gas, similar to that for electricity, should be structured in such a way that a certificate can be traded independently of the commodity. This ensures, for example, that the commodity can be produced in Germany, transported and consumed in France, but that the GO is sold and cancelled in Belgium. This would also allow to trade certificates from different countries at the same trading hub. Synthetic gases produced with renewable energies as well as gas from biogenic origin should be part of that system.

Questions to Chapter 5: Infrastructure Investments and Regulation (pp. 20-22)

[Q10] In your view what should be ACERs and NRAs' responsibility in the development and approval of the TYNDPs, their underlying scenarios and the CBA methodologies?

BDEW answer:

ACER and the NRAs should be responsible for managing a continuous development of European integrated TYNDPs, which are focused on sector coupling.

The existing framework and the TYNDP processes based on Regulation 715/2009 have proven to be very transparent and well accepted by stakeholders. Regulators as well as the European Commission have played an important and active role in this process so far. Taking into account that the TYNDP remains a non-binding network planning tool, additional administrative burden does not appear reasonable from BDEW's perspective. On the contrary, additional requirements and approval processes might make the TYNDP process even more lengthy and complex.

The level of the involvement of the NRAs and ACER is already described in detail in European Regulations (347/2013 and 715/2009) and has proven to work very well. It is more important to join national grid development plans for gas and electricity during their development process and to ensure appropriate DSO and stakeholder involvement in the scenario building process. At European level, gas and electricity TSOs already develop joint scenarios and an interlinked model. Sector coupling and sector integration and the cost efficient use of existing infrastructure should be the key principles. Realistic assumptions building on recent experiences should be taken into account, e.g. the current scenarios for the next TYNDP 2020 in electricity and gas built on a future reference grid of 2025.

[Q11] How should the whole process be designed to maximize the efficiency of decision taking about new infrastructures? In particular, would you support the addition of cross-references between the infrastructure regulation 347/2013 and the CAM NC (2017/459)?

BDEW answer:

Incremental Capacity is a process to prove, whether an investment is market-base, whereas PCI projects may be market-driven, but are important mainly for other reasons like security of supply or diversification of supply sources.

BDEW does not see a contradiction of both frameworks. In fact, the current framework with the Incremental Capacity and the PCI process is complementary. A market-based investment, supported by a positive economic test, can get the PCI-status in case the conditions are met.

BDEW sees the need to clarify that the incremental procedure, provided by the CAM NC should be used as a standard market testing procedure to be included in the CBAs carried out by project promoters.

[Q12] Do you see a risk for stranded assets in your country? If it becomes of relevance, what could be the appropriate regulatory tools to reduce this risk?

BDEW answer:

BDEW continues to see high demand for the gas network in the future energy system. Furthermore, against the background of the German political decision to phase out coal-fired power plants there will be an increasing importance of gas-fired power plants and thus of the gas infrastructure in Germany in the upcoming years as well as in the long run as the gas infrastructure will play an essential role for the decarbonisation of the energy sector.

This applies also to the cross-border gas infrastructure in order to provide flexibility of supply sources and to ensure security of supply and the mutual support of neighbouring countries at all times.

The increase of the hydrogen absorption capacity might necessitate the replacement of net components before their calculated economic lifetime has ended. This should be taken into consideration in the regulatory framework.

[Q13] In your opinion, should decisions on decommissioning be assessed with methodologies similar to those used for investing in new cross-border infrastructures? Do you see the need of an EU framework for decommissioning infrastructure with a cross-border impact?

BDEW answer:

If the development of gas flows shows that certain parts of the existing gas infrastructure will no longer be needed for the transport of natural gas or methane from other sources, primarily a repurposing instead of decommissioning must be analysed (e.g. for the transport of hydrogen to help building a hydrogen infrastructure or for the transport of CO_2 to support CCS). In any case, when considering the decommissioning of infrastructure, potential effects on security of supply, also in other Member States, and on market functioning have to be taken into account. Security of supply has to remain the top priority and must not be compromised.

With regard to decommissioning, BDEW does not see the need for the establishment of an EU framework.

Questions to Chapter 6: Adapting the Gas Market Design (pp. 23-26)

[Q14] What are the critical points that should be addressed regarding the gas market design?

BDEW answer:

BDEW agrees that the gas market integration has improved over the last years. Especially in the NW-Region the liquidity is high, hubs are highly functioning and the prices continued to converge. It is, therefore, important to allow the full implementation of the current regulation (in particular the Gas Network Codes) to be achieved before considering alternative or additional measures.

The development of renewable and decarbonised gases addressed in the consultation paper must be discussed in a more specific manner. From our point of view the current market design is sufficient to integrate an increasing percentage of biomethane.

For a higher percentage of hydrogen the discussion has to start right now. The existing policy framework has been designed around natural gas. There are regulatory barriers and gaps for the integration of higher shares of renewable or decarbonised gases into the EU energy systems. Among others, a Guarantee of Origin framework and their accounting to the European Climate targets is critical. Parts of the hydrogen value chain, such as production, storage, distribution and other uses (such as for heating and power generation) continue to face (mostly unintended) regulatory and administrative barriers.

There is no specific legal provision that allows for, or regulates, hydrogen injection into the gas grid at either a Distribution level or Transmission level across the EU. The regulatory framework does not carry over well or appropriately covers network access for hydrogen injection.

This has caused barriers in the following areas:

- First, the process chain for power-to-gas is complex and there is no clear and unequivocal legal position for power-to-gas. Gas grid network safety and operational procedures are managed at the national level leading to differing approaches to recognition of power-to-gas plants and hydrogen injection at legally acceptable levels. 'Acceptable' procedures for hydrogen injection/blending diverge considerably across MS and networks. Clear procedures should ensure standard conditions for grid access.
- Second, legally mandated national limits apply for hydrogen concentration in the gas grid. These vary from a 'minimal' level (reflecting the typical background concentration of hydrogen in natural gas) of 0.1%vol to 0.5%vol; a 'low' level of 1%vol to 4%vol; and a mid to high concentration of 6%vol to 10%vol. Where maximum hydrogen concentrations are not legally mandated, the hydrogen concentration limits are based on accepted (national) safety norms for natural gas and which would limit hydrogen to (considerably) less than 10%vol. Nevertheless, the maximum hydrogen concentration

based on the technical development and the hydrogen compatibility of the end consumer should be increased gradually in the national technical rules and standards. See also answer to question no. 2 above.

Besides, the following aspects should be considered in a review of the gas market design:

- As already today, each TSO and DSO should remain responsible to control the gas quality of the gas distributed to the users connected to their grids within the EU and national gas quality standards. To do this the DSO needs timely information from the TSO, thus a sound information process between TSOs and DSOs has to be implemented. The NC on Interoperability has foreseen this, but at the time of its elaboration there was not yet the need for detailed processes in each country. Since the grid structures differ between countries, the detailed information processes should be designed at national level.
- With the NC on Gas Balancing the daily balancing system has been implemented. When starting with hydrogen injections from Power-to-Gas (e.g. based on renewable electricity), the long time experiences with biomethane injections in Germany should be used.
- The use of linepack is very important to be able to take up renewable and decarbonised gas in summer. In the past regulators have not seen the importance of this flexibility and did not acknowledge the (re)investment at DSO level. This has to be changed.
- Several amendments in the Renewable Energies Directive resulting from the revision in 2018 ("RED II") lead to unclear rules or are even harmful for the use of hydrogen produced on the basis of renewable or decarbonised sources (e.g. integration of hydrogen besides for use in transport also in other sectors like heating). Therefore, the review of the gas market design should also include checking and, if necessary, adapting the Renewable Energies Directive.

[Q15] Considering the possible development of renewable gases, in your opinion, do you see a need to update the gas market design?

BDEW answer:

See previous answer.

[Q16] In your opinion, do you see an issue with the current transmission tariff regime for the efficient integration of the EU gas markets, in particular considering a scenario where long-term contracts expire and gas consumption may decrease?

BDEW answer:

The full implementation of Regulation (EU) 2017/460 (TAR NC) will be realized in the forthcoming years. The current rules concerning transparency, consultation obligations and the determination of tariffs ensure cost-reflectiveness and will foster market integration. ACER and ENTSOG will monitor the effects of these rules. Before new rules may be developed, a sound analysis of the possible impact on the gas sector would be needed. Changes that may result in a less liquid and more fragmented European market should be avoided and it needs to be assessed if and where specific actions are appropriate and needed. It should be self-evident that infrastructure is paid by all its users. Otherwise, there would be an imminent risk of cross-subsidisation.

[Q17] If yes, how could the current tariff system, with particular regards to cost allocation methodologies, be amended?

BDEW answer:

A possible necessity for amending the NC TAR can only be identified after monitoring the effects of this NC which has only only been adopted in 2017. The NC foresees a monitoring process conducted by ACER and ENTSOG. Only after an appropriate monitoring has taken place, an amendment should be considered.

In the long run, gas consumption patterns will evolve, new appliances as well as new locations with gas sources will play a more important role. This will probably lead to other transportation and distribution needs than today, affecting also the allocation of grid costs. The possible effects on different grid user groups have to be analysed properly Possible recommendations on adjustments of the cost allocation methodologies can only be derived, once such an analysis has taken place.

[Q18] Are there other regulatory challenges for a sustainable gas sector not addressed in this document?

BDEW answer:

There is a general growing awareness that, for reaching the European climate targets, imports of renewable as well as of decarbonised gases might be needed. Thus, considering a technology neutral approach, BDEW proposes to expand the focus of this CEER document

also to decarbonised gases and to analyse potential regulatory measures regarding the facilitation of imports of renewable and decarbonised gases.

More research and development is needed in the field of variable gas conditions, their potential effects on gas appliances and possible measures to cope with them. The same applies for the blending of hydrogen in gas networks.