– Consultation response –

Europex response to the Commission consultation in preparation of an EU Strategy on Energy System Integration

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?

A technology neutral approach to encourage fair competition and innovation: We support a vision of an integrated energy system in which the various energy carriers or forms of energy (electricity, gas, liquids, heat, cold etc.) can be linked with each other as well as with the end-use sectors (buildings, mobility, industry, agriculture, households) in order to optimise the energy system as a whole, i.e. producing, transporting and consuming energy in the most sustainable and cost-efficient way possible. To enable this goal, well-functioning energy and environmental markets are required to stimulate competition and innovation, allowing the most efficient technologies to emerge. When developing regulation to achieve integration between sectors, cost-effective decarbonisation should be the main objective rather than the promotion of any specific technology.

Well-functioning gas and electricity markets as the foundation for further integration: Maintaining efficient, transparent and liquid gas and electricity wholesale markets, as they gradually integrate more renewables from distributed resources, will be vital for providing the foundation for further integration of electricity and gas with other energy carriers and with other end-use sectors.

Efficient gas and electricity markets provide flexibility and resilience in a high-renewables system and contribute to the energy transition. There are already significant links between the gas and electricity markets at trading level (i.e. traders continuously use well-established products to value and hedge multiple combinations of fuel/energy conversions) and in the form of gas-to-power assets (e.g. CCGT). These forms of integration should be maintained and enhanced where possible, as they will support further efforts to integrate with other sectors.

Efficient, transparent and liquid forward markets are needed to hedge risks while driving decarbonisation efforts: Alongside innovation in short-term energy markets to support the increasing penetration of renewable and decentralised resources, market participants across

many real economy sectors need to access efficient, transparent and liquid forward markets to be able to hedge and efficiently manage risks such as price volatility. In addition, the price signals of these forward markets are crucial to stimulate investments and thereby drive decarbonisation efforts. The role these forward markets play will become increasingly important as decarbonisation efforts progress. Both spot and forward markets need to be functioning well in order to provide clear price signals, enable efficient risk management and ensure end consumers have access to secure, sustainable and competitive supplies of power and gas.

Price signals driving sector integration: Reliable, separate price signals coming from the wholesale gas and electricity markets will allow owners and operators of flexibility assets (such as large industrial consumers, storage, distributed assets, electric vehicles, etc.) as well as conversion assets (such as P2G, P2X) to make efficient economic decisions on how to best operate assets and decide where to invest. In the future integrated energy system, clear, undistorted market price signals will be key to provide incentives for market participants to interact and ensure that the flexibility potential from assets is both incentivised and activated. Power and gas exchanges will continue to play a key role by providing clear and trusted market price signals to stakeholders, allowing for informed decisions and optimisation of their activities.

Consistent carbon pricing via the EU ETS across the relevant sectors: Emissions cap and trading by means of a strong EU ETS should be the principle mechanism to drive emissions reductions in Europe and provide overarching incentives for innovation and investments. The cap-and-trade system, supported by auctioning as the default method for allocating allowances, and trading on efficient, transparent and liquid secondary markets will incentivise emissions reductions where they are most efficient. This system also allows for more tailored trading and hedging strategies. Economy-wide carbon pricing that covers other sectors such as road and maritime transport and heating and cooling will be key to encouraging investment in cost-effective abatement technologies and driving further integration between sectors where it is most efficient. The carbon pricing ambition in Europe should be matched by global carbon pricing schemes, driven, for example, by the linking of ETS schemes.

Efficient use of existing infrastructure: An integrated energy system must also ensure efficient use of existing infrastructure. The gas infrastructure network will continue to play an important role in an integrated energy system due to its storage capacity and ability to transport low-carbon energy cost-effectively. The gas grid is crucial for absorbing abundant electricity supply through synthetically produced gas. This will also help to avoid stranded gas infrastructure assets. Trading of renewable and low carbon gases should be maintained in the single European wholesale gas market while their 'climate' value, or contribution to decarbonisation, should be recognised via Guarantees of Origin.

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

Inadequate coverage of relevant sectors by the EU ETS: The EU ETS offers the most efficient and well-established way to reduce emissions as well as drive integration between sectors covered by the scheme. Incomplete coverage of EU ETS in key sectors such as heating and cooling and road and maritime transport leads to a fragmented approach to decarbonisation and less efficient emissions reduction in sectors not covered by the scheme.

Lack of coherence between the EU ETS and other (national) decarbonisation policies: Support schemes, for example for renewable electricity, or other measures to phase out coal (and possibly any support schemes that are introduced for renewable gas) have the effect of reducing demand for emission allowances in the power sector, without these reductions being triggered by the market. Such measures free up EUAs and potentially lower their price and the overall effectiveness of the ETS in incentivising market-based emissions reductions. National climate action which affects the EU ETS must be addressed in future ETS reforms to minimise any potential negative impact on the effectiveness of the scheme as a whole.

A fragmented approach to integrating renewable and low carbon gases into the existing wholesale gas market will undermine the liquidity benefits and welfare gains achieved by efforts to build an integrated European wholesale gas market. The development of local or separate markets for renewable gases such as biomethane or hydrogen may result in fragmented liquidity and the inability to trade renewable gases across borders. In this respect, it is important that green gases are traded on "one" gas wholesale market based on their energy value while their 'renewable' value is certified, traced and traded via certificate schemes such as Guarantees of Origins (GOs), which prioritise standardisation and ensure cross-border compatibility.

Distortion of price signals at both wholesale and retail level: The relatively low share of the energy component of the end consumer bill (the remainder being made up of taxes, levies and grid fees) has the effect of blunting price signals and needs to be addressed in order to ensure that all market actors, including 'prosumers', have the possibility to be exposed to incentives. Other measures which have the effect of distorting price signals in the electricity and gas wholesale market also need to be addressed - for example, poorly designed (non-market-based or largely differing) support schemes. The lack of exposure of renewable electricity to market prices results in the price not fully reflecting the physical reality on the grid and undermining the price signal as an incentive for integrating sectors.

Taxes and levies could distort competition between different energy carriers: Different levels and types of energy taxes, levies and tariffs could result in an 'unlevel' playing field between different energy carriers within Member States but also on EU-level, which should be avoided.

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?

Electricity, increasingly produced from renewable sources, will play an important role in decarbonising other sectors where it is economically efficient. Spot market power prices which fully reflect the physical reality of the system will incentivise different uses of electric power in different sectors, different forms of low-carbon power production and the provision of flexibility. However, given the unfeasible cost of full electrification and the fact that some industrial processes and some sub-sectors cannot be electrified, cost-efficient decarbonisation will require the use of gas and gas infrastructure (see below).

What role should renewable gases play in the integrated energy system?

While precise levels of gas demand remain uncertain in the 2030 and 2050 perspective, gases and gas infrastructure will be required to play a long-term role in any future integrated energy system. The ability of gases to provide necessary (seasonal) flexibility and the ability of the comprehensive and widespread gas infrastructure to transport energy in a cost-effective way will be necessary for a higher degree of sector coupling and increased efficiency .

Renewable gases will be fundamental in ensuring the gas system remains valuable in a decarbonised and integrated system. They will provide valuable flexibility with respect to the electricity system. Electrolysers, for example, will play an important role in providing flexibility via the production of green hydrogen in situations of 'excess' renewable energy and incentivised by low market prices. Renewable gas may also be used to generate electricity in times of limited RES supply, reflected in high electricity prices. Furthermore, renewable gases are the only decarbonisation option for some industrial processes and some sub-sectors.

The challenge is to ensure that renewable gases are smoothly integrated into the market. The stepwise liberalisation and integration of the European gas and electricity markets over the past twenty or so years has brought significant benefits for European consumers. Thanks to increased levels of market integration, competition and regulation, today, the EU gas sector shows high levels of interconnectivity, liquidity and security of supply.

It is therefore vital that market integration should build on these achievements; in addition to the complex technical aspects of integration, renewable gases should be integrated into the market in line with the following principles.

All gases should be traded on "one" wholesale market based on their energy value: Both natural gases and the various types of renewable and low-carbon gases should be traded on

one single wholesale market. This is vital to safeguard the benefits already established by the Internal Gas Market and ensure optimal resource allocation. As this relies on progress in the ability of green gases to use the same infrastructure and requires some degree of homogeneity in the composition of the gases, technical efforts to integrate these gases should be prioritised.

An EU-wide certificate system should be developed to document and trade the climate value of the different gases: The differing 'climate' values of the gases (natural gas, biogas, the various types of hydrogen depending on how they are produced) reflecting their carbon content should be traded in an EU-wide system that is effectively decoupled from the physical trading and transportation of the gas. The certificate system should build on the Guarantee of Origin requirements provided for in RED II and should be based on an EU-wide framework that facilitates recognition and trading of certificates between Member States.

Further principles for the design of Guarantees of Origin (GOs)

- The development of the certificates as well as the technical integration of the gases requires a commonly accepted taxonomy of the different gases, which should reflect their contribution to decarbonisation. Such a taxonomy needs to establish ways to measure the carbon content of the different gases as well as any other relevant 'green' characteristics.

- The information on the certificate should build on existing GO and sustainability certificate requirements as laid out in RED II. Interplay with the ETS in terms of recognition of the certificates with respect to CO2 obligations should also be explored.

- The legal framework should also be extended to recognise (non-renewable) 'decarbonised' and 'low carbon' gases which are not currently included in RED II by default, but which nonetheless make a valuable contribution to decarbonisation objectives.

- Standardisation should be a priority as this is a prerequisite to allow certificates to be easily tradable in an EU-wide market. To enable this, an EU legal framework is required. Standards should be developed in close cooperation with the relevant issuing bodies and stakeholders with the overall objective to make GOs easily tradeable.

- Cancellation of allowances in Member States (other than the issuing Member State) should be possible as is currently the case for electricity GOs. This could be achieved through a model similar to the electricity GO model: Member State

registers remain but they need to coordinate through a common body, like the AIB for electricity. Mutual acceptance/recognition of GOs must also be facilitated.

- Cancellation of allowances in other Member States should be possible as it is currently the case for electricity GOs. This could be achieved through a model similar to the electricity GO model: Member State registers remain but they need to coordinate through a common body, like the AIB for electricity.

- Wider reform of the GO framework should be initiated. This should include explicitly extending the scope of GOs to all production sources for electricity and gas, accompanied by a move to full disclosure. This would fully empower consumers to choose their electricity or gas source based on climate value. It would also help address the problem of residual mix calculations (i.e. the residual that is not disclosed through GOs).

- Guarantees of Origin and electricity disclosure are two sides of the same coin however, these aspects are currently addressed in separate legislation. They should ideally be combined in one piece of legislation to increase clarity.

- The Association of Issuing Bodies (AIB) should be granted a more formal institutionalised role to allow it to enforce standards for GOs across all EU Member States. The same should apply for the equivalent arrangements for gas when they become clear.

What measures should be taken to promote decarbonised gases?

Market-based design of any support mechanisms: Market-based pricing of CO2 emissions within the EU ETS is key to improve the competitiveness of decarbonised gases. While a long-term carbon price in the form of a strong EU ETS should be the principle mechanism to drive investment choices and ultimately enable decarbonisation of the gas sector, we acknowledge that sector-specific targets or technology-specific support schemes may be considered as short-term solutions to accelerate the development of certain technologies. If implemented, such schemes should be market-based in order to avoid undermining wholesale market price signals, i.e. awarded through a competitive (tender) process, be technology neutral and ensure that supported installations remain exposed to wholesale price signals to the extent possible.

Decarbonisation linked to end-use should be the overall objective: Moreover, we would like to emphasise that the demand for energy commodities, except for the portions that are directly used as feedstock in industrial processes, is linked to secondary demand. This means that the end-goal is not to consume methane, hydrogen or biopropane, but rather to use appliances and create energy, heating or cooling, etc. Against this backdrop, Europex believes

that an imprecise market design when setting the stage for the inclusions of new products can lead to unintended negative consequences. For instance, if blending hydrogen becomes a goal in and of itself, without any considerations as to its origin, there is a risk that the market will react by introducing more "blue hydrogen" (created from methane or other fossil fuels) rather than "green hydrogen" (created from water using RES).

Likewise, it is important to consider the end-use of these alternative gas products: The EU wholesale gas market serves primarily importers, utilities, industrials, retailers and consumers. New products could be developed for use in the transport sector, in which case the production chain and marketing channels escape the scope of the existing wholesale gas market prices. This is, for example, the case of LNG for trucking and bunkering fuel which competes with petroleum refined products.

What role should hydrogen play and how its development and deployment could be supported by the EU?

In the long-term, established regulatory principles should apply to hydrogen as for conventional gas: A number of options are being considered in terms of how hydrogen networks should be regulated in the future. While we acknowledge that hydrogen-only networks should not be regulated prematurely or unnecessarily, they should in principle fall under the same rules as conventional gas networks to ensure a level playing field and to promote competition and open grid access. Such would be the case provided that the hydrogen in these grids is used as an energy carrier for public energy supply for households, industry, commercial consumers and/or power plants. The establishment of an extensive parallel new infrastructure, however, should be avoided wherever possible to safeguard economic efficiency.

Full integration of RES in the electricity market: To promote green hydrogen, full integration of RES to the electricity market with full market-price exposure would allow for conversion assets to take full advantage of power price developments and contribute to the economically viable production of green hydrogen.

In such a regulatory model, market-driven development of P2X and other conversion assets (as opposed to TSO or DSO ownership) should be prioritised: This will offer the most efficient way to allocate resources, determine where installations should be best located and when they should be operated. A role for TSOs and DSOs will be required to coordinate certain aspects, but should avoid being directly involved in the market activities of P2X. The principles of unbundling need to be respected and isolated island markets should be avoided.

Regulatory sandboxes should have clear objectives, high transparency and be subject to clear conditions: (e.g. time-limited, phased out when the market is assessed as viable) Considerations for the inclusion of a project in a sandbox should include its contribution to

the objectives of energy policy and the existence of a regulatory barrier. As a general principle, regulatory sandboxes should have oversight at EU level to ensure projects are not replicated, to encourage knowledge sharing between Member States and to establish clear conditions and guidelines.

How can energy markets contribute to a more integrated energy system?

See Question 1 for our view on how well-functioning energy and environmental markets provide a vital foundation for a more integrated energy system.

Europex believes that energy markets play a pivotal role within an integrated energy system, with price signals providing incentives to further connect sectors and ensuring non-discriminatory access to traded markets. Energy exchanges in particular have a long record of accomplishment in coupling gas and power sectors. With the following prerequisites, energy exchanges can play the role of integrators in decarbonised futures:

- Spot market power prices which fully reflect the physical reality of the system and incentivise different uses of electric power in different sectors, different forms of low-carbon power production and the provision of flexibility. In this sense, power prices are a connecting link between markets. Power derivative markets allow market actors to efficiently hedge market price risk and counterparty risk.

- Liquid gas markets integrate renewable gases easily and connect them to power, emission and Guarantee of Origin (GO) markets and as such bring further flexibility into the system.

- Consistent carbon pricing signals from the EU ETS complement power price signals to connect different sectors. This will provide incentives for the development of competitive low-carbon and decarbonized energy carriers.

- European Guarantee of Origin (GO) markets for all energy carriers allow for transferring the “green” characteristics between energy carriers and, as such, are another link between sectors. If designed accordingly they may also provide a meaningful source of revenues for decarbonised and low-carbon energy carriers.

In addition, energy markets can support a more integrated system by facilitating the integration of renewable energy sources (RES) into the wholesale energy market, thus enhancing consumer and socio-economic welfare. Coupled day-ahead and intraday electricity markets will continue to innovate to support the integration of renewables and decentralised resources as well as value flexibility, for example, by offering trading intervals which are shorter and closer to real-time as well as smaller product granularity. Exchanges are pioneering the development of local flexibility markets to allow further trading of flexibility.

With fair and non-discriminatory access to the grid, energy markets encourage the entrance of new companies and solutions, as well as stimulate the development of new technologies and services into the market and allow for new market-based solutions unlocking flexibility. At the same time, all interested consumers as well as all types of decentralised generation, storage and demand-response can benefit from links to fully-integrated and liquid energy wholesale markets.

How can cost-efficient use and development of energy infrastructure and digitalisation enable an integration of the energy system?

Against the backdrop of increasing interaction between the gas and electricity sectors, we fully support a more coordinated approach to the long-term planning of new gas and electricity infrastructure. The creation of joint TYNDP scenarios for gas and electricity is an important starting point.

Efficient use of infrastructure is vital in order to minimise system costs and maximise consumer welfare. We therefore welcome efforts to avoid stranded or inefficient infrastructure investments. At the national level regulators should have the tools to address cost recovery issues associated with developing new infrastructure. If not addressed this could lead to Member States electing to invest in lower cost infrastructure rather than infrastructure needed for more efficient decarbonisation.

Digitalisation is a prerequisite for an integrated energy system, ensuring market participants can access knowledge about relevant factors (energy supply, energy demand) in real time.

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

The integration of renewable energy and the harnessing of decentralised resources are two challenges that must be addressed when moving to an integrated and decarbonised energy system. Europex members are pioneering the development of digital marketplaces, or local flexibility markets, which can help to ensure the efficient allocation of local flexibility resources. These marketplaces gather parties with flexible assets (flexibility service providers) and allow them to offer flexibility towards entities, typically DSO and TSOs that need to efficiently manage congestion in the grid and ensure security of supply.

This approach ensures that flexibility is delivered at the least cost and used where it provides the most value to the whole system. Local flexibility markets can offer important value streams for P2X technologies which may lack other marketing or revenue opportunities. Market-based flexibility solutions are also important when it comes to the integration of demand-side flexibility, known as load flexibility, which is urgently needed to ensure the energy transition is cost-efficient and thus more acceptable to European citizens.

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

- Extend the EU ETS to relevant sectors including road and maritime transport, buildings and heating and cooling.

- Prioritise the establishment of a certificate scheme for renewable, decarbonised and low carbon gases based on the RED II and Guarantee of Origin (GO) framework. Further reforms of the GO system, such as extending the scope of the scheme and moving to full disclosure, should be implemented.

- Ensure full implementation of gas and electricity legislation, including the Third Energy Package, the Clean Energy Package and the network codes and guidelines necessary to address key issues such as non-discriminatory market access, unbundling, unlocking of flexibility and coordination between the gas and electricity sectors.

- Provide guidance with a view to increasing the energy component of the final bill for electricity to ensure consumers can benefit from clear and undistorted price signals.

- Establish a European hydrogen strategy to ensure (green) hydrogen can compete as an energy carrier, i.e. subject to market principles that allow the provision of energy to sectors and actors on a level playing field with other energy carriers.

About

Europex is a not-for-profit association of European energy exchanges with 29 members. It represents the interests of exchange-based wholesale electricity, gas and environmental markets, focuses on developments of the European regulatory framework for wholesale energy trading and provides a discussion platform at European level.

Contact

Europex – Association of European Energy Exchanges
Address: Rue Archimède 44, 1000 Brussels, Belgium
Phone: +32 2 512 34 10
Website: www.europex.org
Email: secretariat@europex.org
Twitter: @Europex_energy