



# MIRRORING OF THE ELECTRICITY MARKET DESIGN INTO THE GAS LEGISLATION

Brussels – 11 March 2020

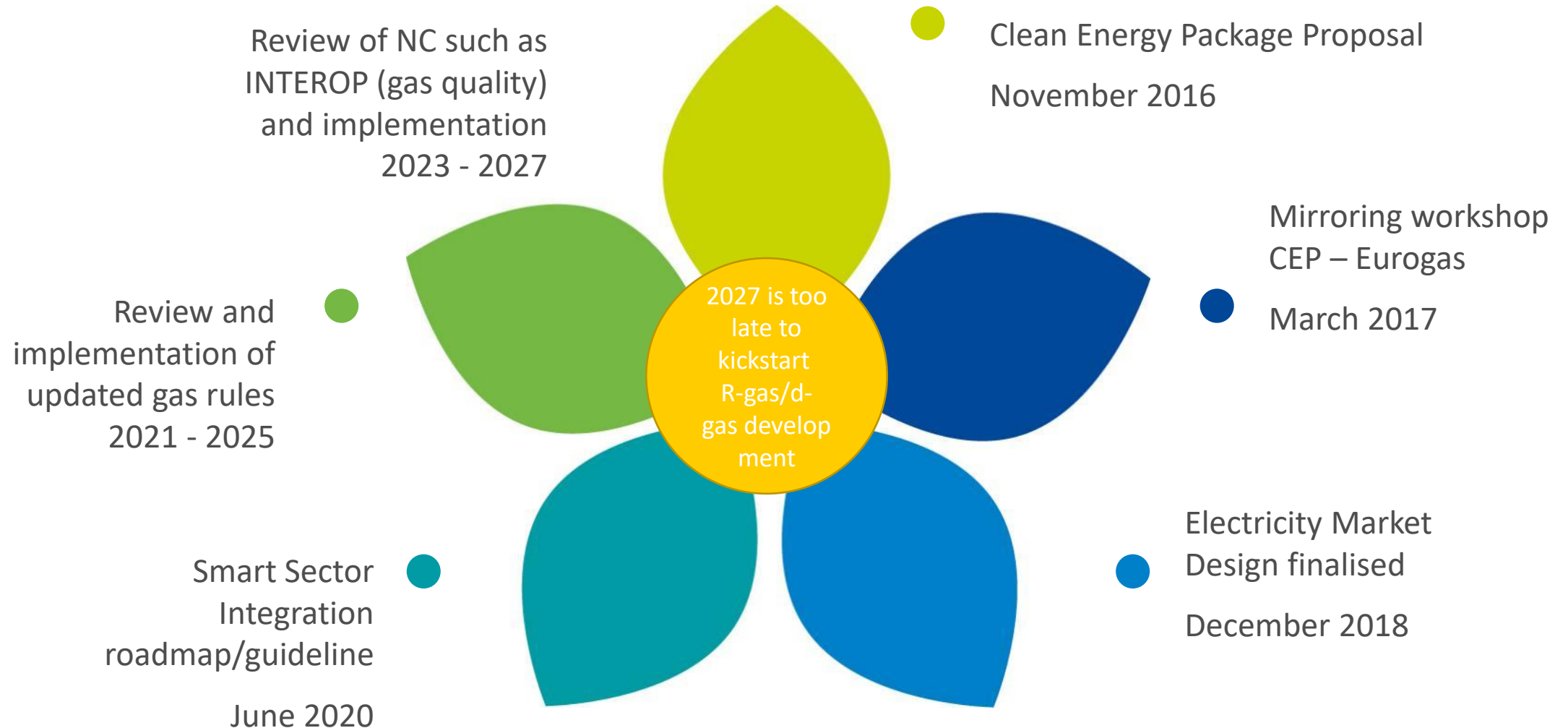
# Context

# Why do we need a change in legislation



1. On 11 December 2019, the European Commission outlined its objective to **accelerate the decarbonisation of the European continent** through its green deal, this would mean higher GHG reduction objectives from 40% to 50-55% as well as a **potential reopening of all texts related to renewable and GHG reduction**. With further **changes in consumption and production patterns** in the energy system, due account should be taken of these shifts.
2. In line with our 2017 study relying on the PRIMES model, gas makes for a cost-effective transition with significant short-term benefits from for example a **coal to gas switch providing a 6% reduction in GHG emission** through a switch in the merit order. In this respect, **third package implementation** remains key across the continent to ensure competitive, efficient and integrated markets for gas,, along with reviews and updates of certain aspects to **further improve market functioning**.
3. With gas being instrumental in the future as exemplified by the Commissions' LTS, the **decarbonisation of the gas sector is key**. To make this happen new kind of gases will be produced, injected, transported, distributed, traded, supplied and used. These **renewable, decarbonised and low-carbon gases will need to be covered by legislation** as their development will impact the whole gas value chain.

# Non-exhaustive timeline and indicative issues



# What are the main differences between gas and electricity that have to be considered in mirroring

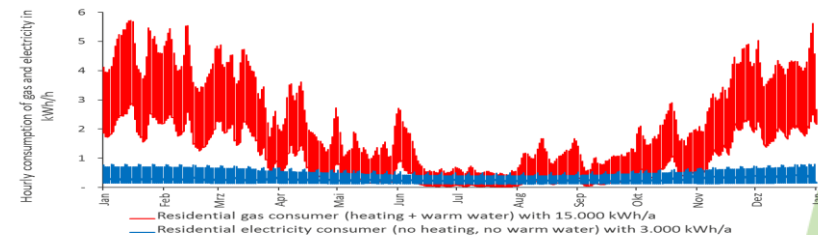


## 1. Customer groups and their use of gas and electricity

	gas	electricity
Residential use	Heating/hot water/cooking	Light/cooking/white goods/hot water/heating/cooling/vehicles/water pumps/ventilation
commercial	Room Heating/special appliances such as dark radiators/ burners/ dryers/ ovens/ washers/restaurants	Light/cooling/fans/motors/
industrial	Power plants/ CHP/ high temperature processes/ feed stock/ specialty industry glass, paper and pulp,	Specialty industry like chemical, iron + steel, glass + ceramics, aluminium, paper, non-iron, mining, plastics, food

The consumption patterns follow different logics. In gas the major driver of residential gas consumption is seasonal and dependent on the temperature. In electricity it is rather stable throughout the year.

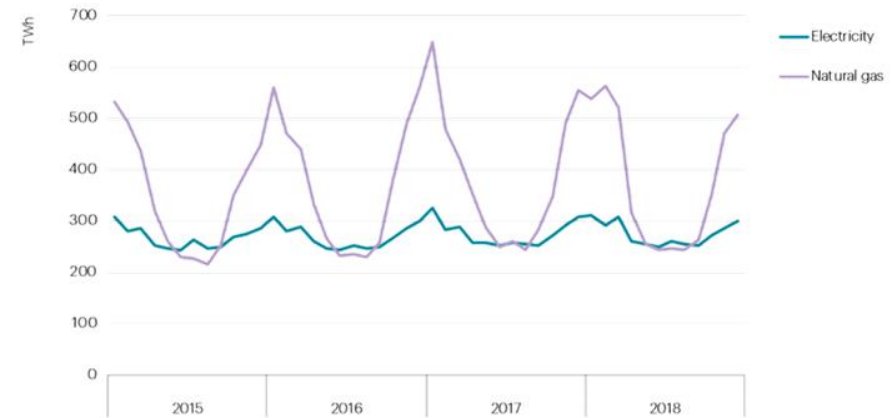
Furthermore new devices as fuel-cells or hybrids will change the load profiles.



# What are the main differences between gas and electricity that have to be considered in mirroring

1. **Storability:** limited storability of electricity whilst gas is largely storable
2. While **electricity markets are still highly fragmented**, gas markets are much more integrated. This should be built upon in the energy transition as it supports competitive and resilient markets.

Comparing the monthly consumption of electricity and gas in the European Union



Name	BritNed	BBL
Construction cost	€ 600 M	€ 500 M
Distance	260 km	230 km
Volume/year	<b>8 TWh</b>	<b>120 TWh</b>



VS



Name	NEMO	IUK
Construction cost	€ 690 M	€ 713 M
Distance	140 km	235 km
Volume/year	<b>8 TWh</b>	<b>240 TWh</b>

3. Energy intensity: Molecules **have a higher energy intensity** and as such transporting energy in such a form through gas infrastructure would provide opportunity for scale and cost-efficient solutions for larger volumes

# Electricity and gas: facts and figures – EU 28



	GAS	ELECTRICITY
<b>Consumption in 2017 (EC statistical pocketbook, 2019)</b>	4633 TWh (gross inland)	2798 TWh (final energy)
<b>Mix 2017 (EC statistical pocketbook, 2019)</b>	<p>1. Natural Gas – 4633 TWh of which Hydrogen – 325 TWh (2016 - FCHJU) 2. Biomethane - 19 TWh (2017)</p>	<p>Gross generation - 3294 TWh</p> <p>1. Renewables – 1005.6 TWh</p> <ul style="list-style-type: none"> <li>• Wind power – 378.8 TWh</li> <li>• Solar power – 127.8 TWh</li> <li>• Hydroelectric – 345 TWh (BP, 2019)</li> </ul> <p>• Other – 199 TWh (of which 65 TWh biogas in 2017)</p> <p>2. Nuclear - 829.7 TWh</p> <p>3. Natural Gas – 696 TWh</p> <p>4. Coal – 677 TWh</p> <p>5. Oil – 60.7 TWh</p>
<b>Occurrence of negative hourly wholesale prices Q3 2019 (EC 2020)</b>	0 hours	64 hours
<b>Residential end-uses</b>	<p>Space/water heating Cooking</p>	<p>Light Cooking Electronic devices with/without batteries EV charging Space/water heating and cooling / ventilation</p>
<b>Industrial end-uses</b>	<p>Space/water heating Power generation / CHP Feedstock High temperature processes (e.g. steel, ceramics, paper)</p>	<p>Light Electronic devices with/without batteries Space/water heating and cooling / ventilation Low/medium temperature processes (e.g. chemicals, plastics, food)</p>
<b>Peak demand</b>	<p>23 TWh/day - 2-week cold spell 26 TWh/day - day cold spell</p>	542 GW peak load
<b>Storage availability (GIE, end 2018)</b>	<p>1500 TWh – overall storage availability 1131 TWh – underground storage</p>	30 TWh

## What is "mirroring"?

taking the wording of electricity legislation and assessing its direct applicability to gas?

Looking at existing gas legislation?

Identifying new/upcoming issues that may arise in the energy system?

Ongoing reflection linked to developments in other sectors and decarbonisation paths

## How is it translated?

New legislation

Amendment of existing legislation where required

Amendments to network codes where required

Mirroring is part of the process - Additional measures will be required!



# Mirroring of the Electricity Directive into the Gas Directive

## Background - framework



The definition of gas in the directive and the regulation should be changed from natural gas to cover all gases

Gas shall include all gases from natural gas, all renewable gases incl. hydrogen, all decarbonised gases and any blend.

# Article 5 – Market-based supply prices



## Background

In 2019 the co-legislators took the decision to make an additional step towards a phase out of price regulation in electricity.

The Directive provides that in principle suppliers are free to determine their prices. Article 5 also states that energy poor and vulnerable customers must be protected by other means than price regulation.

Nevertheless, it sets conditions and procedures under which Member States can apply price regulation to protect vulnerable / energy poor customers. Member States need to notify and justify their choice. They also need to report on the necessity and proportionality of price regulation as well as the progress towards effective competition. The Commission may propose an end date to price regulation through a legislative proposal by the end of 2025.

Price regulation in the Gas Directive is not bound by similar rules. It still exists in many EU countries. In this context, Eurogas regrets that a synchronised phase-out of regulated prices on both the gas and electricity sectors did not materialise within the clean energy package, which would have served the interest of competition and consumers better in our view.

## Recommendation

In order to maintain a level-playing field and avoid any market distortions, Eurogas supports the adoption of stricter requirements for price regulation in gas. It also supports plans to phase out regulated prices as quickly as possible.

# Directive Article 8 – Authorisation procedure for new generating capacity



## Background

As the proposals on generating capacity were updated in the electricity market design overhaul, a look at the corresponding article in the gas directive, namely on authorisation procedure, is here useful.

As the questions of transparency of procedure and level-playing field between actors is present in both, alignment seems most suitable. The key here would be to ensure that art.4 in gas covers all gases and not only projects related to natural gas as is currently the case.

## Issue

Proposed deletion of paragraph 4 “For the development of newly supplied areas and efficient operation generally, and without prejudice to Article 38, Member States may decline to grant a further authorisation to build and operate distribution pipeline systems in any particular area once such pipeline systems have been or are proposed to be built in that area and if existing or proposed capacity is not saturated.”

This could prove an issue in case hydrogen pipelines could be required in certain areas where capacity is not saturated on the methane side for example

# Article 10 – Basic contractual rights



## Background

The Electricity Directive introduces new requirements aiming to ensure a higher level of consumer protection. It is important to guarantee the same level of consumer protection in both electricity and gas, except if technically not feasible.

## Recommendation

Member States may set up a common legislative framework for gas and electricity to implement the new requirements of the Electricity Directive. Most requirements in Article 10 can already be found in Article 3 and Annex 1 of the Gas Directive. It is appropriate to mirror the missing requirements directly where it is more appropriate in the Gas Directive.

Eurogas recommends mirroring the following provisions in particular:

- The requirements should apply also to bundled products;
- Modifications of contractual conditions should be justified maximum two weeks before the decision comes into effect (one month for household customers);
- Prepayment systems: any difference in terms and conditions shall be objective, non-discriminatory and proportionate;
- Households should be provided with adequate information on alternative measures to disconnection sufficiently in advance.

# Article 11 – Entitlement to a dynamic price contract



## Background

The Electricity Directive provides that customers already equipped with smart meters can request a dynamic price contract with at least one supplier and with every supplier > 200.000 customers. There are currently no provisions on dynamic pricing in gas in the EU legislation. It is up to the Member States to allow this kind of pricing and set up a specific regulatory framework, provided that customers are equipped with a smart meter.

## Recommendation

As there is less potential and need to shift gas demand and as the access to a dynamic pricing contract depends on the availability of gas smart meters, there should be no EU obligation for suppliers to offer such a contract. It should be left to the Member States to determine the specific rules applying to dynamic pricing for gas. The Gas Directive can refer to it as a national prerogative.

# Article 12 – Right to switch and rules on switching-related fees



## Background

The Electricity Directive introduces new requirements for suppliers to implement the technical process for 24h switching to a new supplier by 2026. It also prohibits any switching related fees for households and small enterprises with the exception of contract termination fees under clearly defined conditions. It also adds a provision allowing customers to participate in collective switching (Member States shall remove the barriers).

## Recommendation

To ensure the same level of consumer protection, the provision should be mirrored. The deadline for implementation of the technical process for 24h switching needs to be discussed [20XX] as gas suppliers should be granted as much time as electricity suppliers for the implementation. Mirroring of the provisions relating to participants in aggregation depend on the discussion on art. 13 / 17.

# Article 16 – Citizens Energy Communities - DIST



## Background

Considering the recent emphasis on decentralisation of the energy system and prosumers, citizen's energy communities have become a crucial point of discussion during the EMD negotiations.

On the gas side, and with the development of renewable and decarbonised gas which can be produced at the local level, this article should be taken on board even if uptake may initially be limited. No basis currently exists in the gas directive

## Recommendation

Mirroring by changing electricity to gas and emphasising the need for the local energy community to ensure grid system safety in their activities. The potential impact of aggregation is still being assessed.



# Article 18 – Billing



## Background

Supplier level disclosure of the gas mix does not provide additional information in Member States where renewable and decarbonised gases have not yet taken up.

## Recommendation

A two-step approach for the disclosure of the gas mix of suppliers (Annex Point 5) is needed. We suggest a more flexible approach, which would allow Member States to decide when the right time is to set up supplier level disclosure, depending on the level of integration of R&D gases.

A deadline for all Member States which would coincide with the first milestone for R&D gases in the EU should be set: the 2030 target. This would give time to all Member States to set up the right conditions (including any necessary support schemes) to allow R&D to scale up.

# Article 19 – Smart Metering Systems (DIST)



## Background

As rules for smart meters in electricity were aimed to empower final customers, gas shall aim to do the same to ensure a level playing field.

## Recommendation

This article on metering cannot be seen in isolation and must be considered together with articles 20, 21, 22 and the Annex 2

Due account should be taken of existing methodologies to assess future and existing rollouts before rules are reviewed to ensure a cost-efficient solution for end-users. In addition residential gas meters – smart or conventional - deliver volumetric consumption data that have to be converted into kWh. The experiences in those countries with a roll out IT, FR, NL,UK should be analysed before taking further steps.

# Article 20 – Functionalities of smart metering systems (DIST)



## Background

As rules for smart meters in electricity were aimed to empower final customers, gas shall aim to do the same to ensure a level playing field.

## Recommendation

This article on metering cannot be seen in isolation and must be considered together with articles 20, 21, 22 and the Annex 2

Due account should be taken of technical feasibility and costs notably in relation to “near-real time” which is not feasible for the gas system. Whereas in electricity quick changes in the electricity system/grid occur, gasgrids are far more stable and flexible. Relevant time frames are hours than minutes or seconds. It is very unlikely that higher rates injections of different gases at the DSO level reaction changes this.

# Annex II: Smart metering systems (DIST)



## Background

As rules for smart meters in electricity were aimed to empower final customers, gas shall aim to do the same to ensure a level playing field.

## Recommendation

This article on metering cannot be seen in isolation and must be considered together with articles 20, 21, 22 and the Annex 2

Ensure the roll-out of smart meters to consumers, covering all gases, outlining the use of a methodology to cover the cost-benefit analysis for the rollout. The methodology may need to be updated following review of gas market design as the last update of the text was in 2012. It is very important that existing and ongoing roll outs are not endangered by a change of rules as the costs of a roll out are considerable.

# Directive Article 21 - Entitlement to a smart meter



## Background

Eurogas wishes to ensure the empowerment of consumers through the roll out of cost-efficient solutions. This article covers the case of countries where a full roll-out has seen a negative assessment from a CBA, and the conditions for smart meter installation for individuals who so wish it. In these cases no IT system will be in place to connect the smart meters with all needed data security and safety requirements. To build a separate system for an unknown number of consumers could be prohibitory expensive. And it can not be assumed, that existing systems from the electricity side can be used as gas and electricity metering are very different technologies.

## Recommendation

Proposal to mirror rules with two adaptations:

*“is interoperable and able to deliver the desired connectivity of the metering infrastructure with consumer energy management systems ~~in near real-time~~”* → this would ensure feasibility on the gas side as near-real time is not achievable

*“ensure that it is installed within a reasonable time, ~~no later than four months~~ after the customer's request”*  
→ This would ensure flexibility as, in case a full rollout is not planned, the setting up of data management systems, IT requirements and procurement of meters would require some time from DSOs

# Article 22 – Conventional meters (DIST)



## Background

Eurogas wishes to ensure the empowerment of consumers through the roll out of cost-efficient solutions. This article covers conventional meters that will remain relevant in case a country decides against a rollout.

## Recommendation

Proposal to mirror with the only change being to extend from natural gas to all types of gases. Due account should be taken to avoid undue prescriptiveness considering the development of hydrogen meters which could be hampered in case of specific focus on methane or hydrogen.

# Article 23 – Data management



## Background

The Electricity Directive was revised to align with the GDPR. It lays down the rules on access, data security and processing of the data. The charges for providing data services must be “reasonable and duly justified”.

## Recommendation

New provisions need to be introduced to ensure the alignment of the Gas Directive with the GDPR. To ensure consistency across the EU legislation, we suggest creating a new article within the Gas Directive that would mirror Article 23.

# Article 24 – Interoperability requirements and procedures for access to data



## Background

The article sets out the requirement for full interoperability of energy services – this also applies to gas. The article is also the legal basis for implementing acts on interoperability and procedures for access to data. Similar provisions are currently in Annex I of the Gas Directive.

## Recommendation

We suggest creating a new article within the Gas Directive that would mirror Article 24. We also suggest introducing the term “interoperability” in Article 2, mirroring the definition in the electricity directive.



# Article 26 – Right to out-of-court dispute settlement



## Background

Article 26 introduces a right to an out-of-court dispute settlement, in line with the Directive 2013/11/EU on alternative dispute resolution.

## Recommendation

The Gas Directive currently includes provisions on out-of-court dispute settlement but references to the ADR Directive should be mirrored. We suggest creating a new article mirroring Article 26.

# Article 28-29 – Vulnerable customers / energy poverty



## Background

The Electricity Directive lays down criteria to help Member States define vulnerable customers, and sets the legislative basis for Commission guidelines on the meaning of “significant number of households in energy poverty”. This is linked to the monitoring requirements of the Governance Regulation.

## Recommendation

We expect most Member States to implement the articles with a common legislative framework for electricity and gas, and the EU guidelines to address both as well.

Most of the new provisions on the electricity side can be mirrored into the gas legislative framework:

- The missing article 28 provisions should be added to Article 3: references to the Governance Regulation 2018/1999 and suggested criteria for national definitions of ‘vulnerable customers’ (*apart from “critical dependence on electrical equipment for health reasons”*);
- A new article mirroring Art 29 can be added.

# Article 34: Tasks of distribution system operators in data management (DIST)



## Background

Considering evolving dynamics in the energy world and increasing digitalisation on both the electricity and gas side, rules and safeguards are evolving. Considering the parallel decentralisation of the energy system, the DSO will take on increasing responsibilities in this respect which should be clarified.

## Recommendation

A simple mirroring is recommended as the issue is already tackled in existing gas legislation.

Mirroring with addition of the role of neutral market facilitator linked to DSOs and without prejudice to existing smart meter rollouts.

Due account should be taken of national preconditions in case a rollout has/is taking place

# Article 35: Unbundling of distribution system operators - DIST



## Background

Unbundling rules are a key provision of the third energy package and guarantee a competitive market. The revision of the EMD has left this article unchanged considered the measures are considered as flanking and structural, therefore the key here is simply to ensure new forms of gases are covered and can be processed by DSOs.

## Recommendation

No changes foreseen except opening the responsibilities to all gases. We maintain existing unbundling rules in line with the EMD exercise – exemptions, if any, are covered by other articles while core principles haven't changed

# Directive Article 51 – Network development and powers to make investment decisions



## Background

So far the involvement of the DSO in the development of the national plans depends on the willingness of the TSO. Decentralization of gas production will increase the impact DSO have at the TSO system. In the future more cases of counterflow from the DSO to the TSO will occur as well as interventions like reductions at the interconnections points. This impacts the operation of the system but also the long term planning of TSO grid.

## Recommendation

Involve gas DSO in the national grid development plans which are part of the TYNDP. This will further impact on the overall energy system planning and its ability to help provide optimal solutions for the energy transition. Similar to electricity DSO > 100.000 customers should also deliver a grid development plan (Art. 32)

Proposal to focus on cross-border flows within the TYNDP.

As the current scenario of the TYNDP already does the share of renewable and decarbonized gas has to be taken into account – this is also the case for sector coupling at the national level

# Directive Article 54/36: Ownership of energy storage/p2g facilities by SOs



## Background

The effective separation of networks from activities of production and supply is a fundamental pillar for achieving the objective of a well-functioning internal gas market and should be maintained. Emphasis should first and foremost be put on creating the policy framework which supports the commercial development of renewable and decarbonised gases.

## Recommendation

Only if the framework is not delivering or the market is not developing autonomously following an open and transparent tendering procedure, a role could be envisaged for SOs in the development, operation and ownership of these assets for a limited period, until a market test reveals market uptake, with potential new revenue streams linked to this role.

This role should be subject to appropriate regulatory oversight, to avoid any detrimental impact on competition, with clear criteria to determine the degree of contestability in an agreed set of activities.

A regular market test should monitor whether the market situation is evolving and exit conditions should be clearly expressed and defined in advance.

In case SOs develop P2G facilities, these should operate under Third Party Access (TPA) rules and network operators should not own the electrons or the molecules.

# Art 59 (j) - Duties and powers of the regulatory authority



## Background

Art 59j is already widely mirrored in the Gas Directive by Art 41. Parts that are not mirrored are generally genuine to the Electricity or the Gas market respectively.

## Recommendation

We propose to keep the provisions in Art 41 and complement them with appropriate parts of Art 59j, particularly

- compliance with Dir, Reg AND NCs
- monitoring and assessing SO performance
- monitoring investment in production and storage and in 3rd country cooperation
- overseeing vertically integrated undertakings

# Art 69 - Commission monitoring, reviewing and reporting

## Background

Today, Art 52 Gas Directive mirrors Art 69 (1) and provides for a monitoring report as part of the yearly “State of the Union” address.

## Recommendation

We suggest to mirror also Article 69 (2), expanded by an emphasis on the use of renewable and decarbonised gas. We expect that this will create both due diligence with the implementation of the directive and a pre-determined date for potential regulatory adjustment with regards to facilitating increased levels of r- and d-gas.



# Mirroring of the Electricity Regulation into the Gas Regulation

# Article 3 - Principles regarding the operation of electricity markets



## Background

One of the lessons learned in gas network code development is that of the importance of guiding principles to be observed and balanced against each other when creating market rules. Supply security, efficiency, sustainability and affordability, not least through increased cross-border trading, are principles that govern both the electricity and gas market. Today those principles are mentioned either in the recitals preceding the directive and regulation or in specific provisions (for example in Art 21 Reg 715/2009 on gas balancing “facilitate gas trade” and “reflect genuine system needs”).

## Recommendation

We recommend to copy Art 3 EMD R. While mirroring the focus on renewable and decarbonised gas, or a “sustainable gas system”, we would suggest to also include trading and x-border transactions next to x-border flows in the list of principles. The first should facilitate the development of technologies with a yet insufficient market-readiness supporting the gas system transition; but we believe there is still a way to go to fully achieve the IEM and we should not lose sight of this as a fundamental target of a new gas package.

# Article 48 TYNDP



## Background

So far the involvement of the DSO in the development of the national plans depends on the willingness of the TSO. Decentralization of gas production will increase the impact DSO have at the TSO system.

## Recommendation

As in Art. 51 Directive the DSO should be included. TYNDP shall build on national development plans of TSO and DSO. DSO > 100.000 shall also deliver a network development plan (Art. 32)

The TYNDP has to take due account of regional disparities and temperature differences across the EU

The DSO entity in Gas (Art. 54) shall be included in the process of the scenario building.

# Article 52/53/55 DSO entity, creation and tasks



## Background

As concluded at the 2019 Copenhagen Forum the DSO in gas and electricity are an important pillar of the energy transition. To make sure that a close cooperation is developed on a level playing field between both DSO groups to bring forward the most efficient solutions for sector coupling on the local level DSO in gas shall also set up an entity. The cooperation with ENTSOG will become very crucial with the upgrading of the system for the transport and distribution of H2 both in blends and pure grids. TSO depending on the abilities of the customers and grid connected, and DSO depend on the development of the TSO. Reverse flow will become more frequent with higher shares of renewable and decarbonised gases arriving to the DSO level.

## Suggested changes

Simple mirroring of the electricity entity article. In addition in Art. 55 the facilitation of integration of renewable and decarbonised gases. We also suggest to include the promotion of cooperation with ENTSOG and the DSO entity for electricity to facilitate sector coupling and sector integration. This cooperation should also be integrated into the electricity regulation.

# Regulation Article 54 EU DSO entity (art. 52-55 related)



## Background

DSOs in gas cover 2.200.000 km of grid and deliver gas to 100 million customers

*“Eurogas supports a separate entity for gas DSOs to ensure the adequate representation of gas DSOs and their interests and to ensure that the specificities of the gas sector can be addressed, rather than the same work areas being defined for both electricity and gas. In case this option proves unfeasible, Eurogas could accept, as a compromise, having a single entity with two distinct work streams and clear arrangements that ensure the independence of each work stream.*

*Nevertheless, Eurogas also considers it very important that both entities work closely together on all cross-sectoral topics.”*

## Recommendation

- A gas DSO entity should be set up
- A liaising committee/liaising officer should be set up for coordination and joint planning between gas and electricity

# Article 58: Adoption of network codes and guidelines

## DIST



### Background

When the gas regulation was designed in 2007 it was not foreseen that DSO could be largely affected by the Network Codes. Now, 11 years after the gas regulation came into force and several network codes have been implemented it is clear, that the impact is very large for the NC Balancing (load profiles, Variant 1,2) and the NC Interoperability (gas quality, data management) and in the future also with network codes related to cybersecurity.

In the future more cases of reverse flow from the DSO to the TSO will occur as well as interventions like reductions at the interconnections points. It has to be analyzed jointly which future rules might be need on the European level.

### Suggested Changes

DSO should have a responsibility in the design of the DSO relevant parts in Network Codes. Be it for existing codes or for new codes.

# Article 60 - Amendments of network codes



## Background

Art 60 provides a more detailed procedure on how to amend network codes than does the existing provision in Art 7 Gas Regulation.

## Recommendation

We support full mirroring.

# Art 69 - Commission reviews and reports



## Background

Today, Art 29 of the gas regulation provides for annual monitoring reports. In contrast to article 69 it does not, however, require to remedy potential shortcomings with a new legislative proposal, neither does it ask for a review on network code implementation in particular.

## Recommendation

We propose to mirror the provision of article 69 on network code monitoring and revision, adjusted for the more progressed state of network code development in gas and hence at an earlier date. We expect to create both due diligence with the implementation and – through a pre-determined date for amendment – opportunity for timely regulatory adjustment.



# Transmission and Distribution systems balancing activities integration



Decentralised renewable and decarbonised gas production must have adequate access to networks. The BAL NC provides a solid basis for managing temporary insufficient capacity also at DSO level. Does anything change when local gas production grows substantially?

- We encourage expanding the use of standardised balancing products to flex sources within distribution systems and at the interconnection between systems.
- The BAL NC could be integrated in order to relieve insufficient network capacity at DSO level. Nonetheless, as it stands the code provides the model for the design, procurement and activation of 'micro-locational' products which are our main advocated solution. Such products should be procured on a single integrated balancing market to avoid market fragmentation and subsequent loss of liquidity.
- Where capacity does prove to be insufficient on a permanent basis, integrated balancing markets based on the BAL NC will provide early investment signals into TSO-DSO physical reverse flow or network expansion as ultima ratio.