CEER

Council of European Energy Regulators

Fostering energy markets, empowering **consumers**.

Status review TSO/DSO unbundling

Update on implementation of TSO and DSO Unbundling Provisions & "Hydrogen and Decarbonised Gas Markets Package" Outlook

Legal Affairs Committee

Ref: C22-LAC-25-04
20 March 2024

Council of European Energy Regulators asbl
Cours Saint-Michel 30a, Box F – 1040 Brussels, Belgium
Arrondissement judiciaire de Bruxelles – RPM 0861.035.445

INFORMATION PAGE

Abstract

This CEER document (C22-LAC-25-04) presents an updated Status Review on the implementation of Transmission System Operators' (TSO) and Distribution System Operators' (DSO) unbundling provisions of the 3rd Energy Package, as modified under the Clean Energy Package ("CEP"), focusing on new developments since summer 2018. It also briefly discusses the main changes and novelties with regard to unbundling-related provisions emerging under the recently agreed Hydrogen and Decarbonised Gas Market Package.

Under the EU Energy Directives and Regulations, energy networks are subject to unbundling requirements which oblige Member States to ensure the separation of vertically integrated energy companies, resulting in the separation of the various stages of the energy supply chain (generation, transmission, distribution, and retail).

This Status Review assesses the status of DSO and TSO unbundling, highlighting new developments since summer 2018 regarding the implementation of the rules introduced by the CEP and giving a brief outlook of the main novelties in unbundling-related provisions emerging under the recently agreed Hydrogen and Decarbonised Gas Market Package.

Target audience

European Commission, energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, Member States, academics, and other interested parties.

Keywords

Unbundling; Cross-Sectoral; Networks; 3rd Package; Market Monitoring; National Regulatory Authorities (NRAs); Transmission System Operators (TSOs); Distribution System Operators (DSOs); Ownership Unbundling; Independent System Operator (ISO); Independent Transmission Operator (ITO); Interconnectors; Clean Energy for all Europeans Package (Clean Energy Package, CEP); Hydrogen and Decarbonized Gas Markets Package

If you have any queries relating to this paper, please contact:
CEER Secretariat
Tel. +32 (0)2 788 73 30
Email: brussels@ceer.eu

Related documents

CEER Documents

- **CEER Status Review: Implementation of TSO and DSO Unbundling Provisions – Update and Clean Energy Package Outlook CEER Status Review,** 14 June 2019, Ref. C18-LAC-02-08
https://www.ceer.eu/documents/104400/-/-/f69775aa-613c-78a5-4d96-8fd57e6b77d4

- **CEER Status Review on the Implementation of Transmission System Operators' Unbundling Provisions of the 3rd Energy Package,** 1 April 2016, Ref. C15-LTF-43-04
https://www.ceer.eu/documents/104400/-/-/8f18879a-411e-2fd8-c367-1fa66e3739ed

- **CEER Status Review on the Implementation of Distribution System Operators' Unbundling Provisions of the 3rd Energy Package,** 1 April 2016, Ref. C15-LTF-43-03
https://www.ceer.eu/documents/104400/-/-/882514d5-c57f-86f8-50a3-90185e270f15

External Documents

- Proposal for a recast Directive on gas markets and hydrogen (COM(2021) 803 final)

- Proposal for a recast Regulation on gas markets and hydrogen (COM(2021) 804 final)

- **European Commission Staff Working Document "Ownership Unbundling"**, SWD(2013)177final, 8 May 2013. Retrieved from:
https://ec.europa.eu/energy/sites/ener/files/documents/swd_2013_0177_en.pdf

- **European Commission Staff Working Paper "Certification of TSOs of networks for electricity and natural gas in the European Union"**, SEC(2011) 1095 final, 21 September 2011. Retrieved from:
https://ec.europa.eu/energy/sites/ener/files/documents/sec_2011_1095.pdf

- **European Commission Staff Working Paper "The Unbundling Regime"**, 22 January 2010. Retrieved from:
https://ec.europa.eu/energy/sites/ener/files/documents/2010_01_21_the_unbundling_regime.pdf

- **Energy communities: Accelerators of the decentralised energy transition**, Deutsche Energie-Agentur GmbH (dena), April 2022:
https://www.dena.de/fileadmin/dena/Publikationen/PDFs/2022/dena_ANALYSIS_Energy_communities_Accelerators_of_the_decentralised_energy_transition.pdf

Table of contents

EXECUTIVE SUMMARY 6

1 INTRODUCTION 8

2 UNBUNDLING OF GAS AND ELECTRICITY TSOS AND DSOS 10

2.1 Number of certified TSOs and the unbundling models 10

2.2 Reviewed certification cases (since 30.06.2018) 11

2.3 Changes in the unbundling models 13

2.4 Exemption(s) granted to third country interconnectors after the entry into force of the Gas Directive (EU) 2019/692 13

2.5 DSO landscape: gas and electricity DSOs 13

3 DEVELOPMENTS IN UNBUNDLING RELATED ISSUES SINCE THE ENTRY INTO FORCE OF THE CEP 15

3.1 Main changes with regard to DSOs 15

3.1.1 DSO activities other than those provided for in the Electricity Directive and Electricity Regulation 15

3.1.2 Active Closed Distribution Systems (CDS) and their exemptions 16

3.1.3 DSO activities related to Energy storage facilities 17

3.1.4 DSO activities related to electric vehicles recharging points 18

3.1.5 Citizen Energy Communities 19

3.2 Main changes with regard to Electricity TSO unbundling related rules following the Clean Energy Package 21

3.2.1 Tasks the TSOs are allowed to assign to another TSO 21

3.2.2 TSOs performing activities other than those provided for in the Electricity Directive and Regulation 21

3.2.3 Derogations allowing TSOs to own, develop, manage or operate energy storage facilities 22

3.2.4 Exemptions for small connected and isolated systems from TSO unbundling rules 24

4 NEW DEVELOPMENTS IN HYDROGEN AND DECARBONIZED GAS MARKETS - UNBUNDLING RELATED ISSUES 24

4.1 TSOs involvement in projects concerning hydrogen, power to gas, electrolysers and other new technologies 25

4.2 Hydrogen and decarbonized gas markets legislative package: unbundling related issues 31

5 UNBUNDLING AND CERTIFICATION OF STORAGE SYSTEM OPERATORS 32

6 CONCLUSIONS 33

ANNEX 1 – LIST OF ABBREVIATIONS 35

ANNEX 2 – LIST OF TSOS 37

ANNEX X – ABOUT CEER 42

List of figures

Figure 1: Summary of the different degrees of unbundling 9
Figure 2: Number of electricity TSOs and the unbundling model 10
Figure 3: Number of gas TSOs and the unbundling model 11
Figure 4: Number of electricity DSOs 14
Figure 5: Number of gas DSOs 14
Figure 6: Number of CDS active per Member State 16

List of tables

Table 1: CDS Exemptions – Types of requirements and number of cases 17

EXECUTIVE SUMMARY

Background

Under the EU Energy Directives and Regulations, energy networks are and remain subject to unbundling requirements which oblige Member States to ensure the separation of vertically integrated energy companies, resulting in the separation of the various stages of the energy supply chain (generation, transmission, distribution, and retail).

With the adoption of the 3rd Energy Package[1], new extensive unbundling rules were introduced for Transmission System Operators (TSOs) and, to a lesser extent, for Distribution System Operators (DSOs). Under this Package, energy networks are subject to unbundling requirements which oblige Member States to continue ensuring the separation of vertically integrated energy companies as described above.

Under the "Clean Energy Package for All Europeans" (CEP)[2] adopted in summer 2019, the main substantive rules on the unbundling regimes for TSOs[3] as well as the TSO designation and certification process remained unaltered. However, it contains some new and modified provisions related to TSOs (e.g. the possibility to delegate tasks; rules on ownership, development, management and operation of energy storage facilities; derogations' regimes) and includes new rules and roles for DSOs concerning Citizen Energy Communities (CEC), storage facilities, use of flexibility, integration of electro-mobility into the network and data management etc. Some further developments in the gas sector are expected with the implementation of the Hydrogen and Decarbonised Gas Market Package[4], in particular the setting up of unbundling and certification rules for the hydrogen (H2) network operators.

Objectives and contents of the document

This report presents an updated Status Review on the implementation of the above-mentioned unbundling rules and covers new developments since summer 2018. It also focuses on the main relevant changes and novelties emerging under the Hydrogen and Decarbonised Gas Market Package.

The information in the report is based on **a survey** which collected information from 24 (out of 39) CEER member/observer NRAs (**Austria, Belgium, France, Germany, the Netherlands, Norway, Poland, Portugal, Spain, Denmark, Slovenia, Slovakia, Czechia, Finland, Greece, Italy, Hungary, Estonia, Latvia, Lithuania, Luxembourg, Malta, Croatia and North Macedonia**).

[1] Directive 2009/72/EC and Directive 2009/73/EC

[2] https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en#documents

[3] Unbundling models: Ownership unbundling (OU), Independent system operator (ISO), Independent Transmission Operator (ITO)

[4] https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/hydrogen-and-decarbonised-gas-market-package_en

Brief summary of the conclusions

TSOs related outcomes:

- Regarding TSO certification, there were 14 cases in 8 countries dealing either with new certification decisions or the reopening of existing certifications since 2018.
- Additionally, there were only 3 cases of TSOs changing their unbundling models – all of them concern a change from Independent Transmission Operator (ITO) to Ownership Unbundling (OU).
- Only one case was reported when it comes to exemptions from unbundling rules for third country interconnectors under the Gas Directive (EU) 2019/692.
- Out of all respondents, no Member State has transposed into their national legislation the possibility for their TSOs to assign certain tasks or responsibilities to another TSO (as foreseen in Article 40(2) of the Electricity Directive).
- 7 Member States allow TSOs to perform activities other than those provided for by the Electricity Directive and Regulation (as foreseen in Article 40(8) of the Electricity Directive) in their national legislation.
- 15 Member States transposed derogations in their national law allowing TSOs to own, develop, manage, or operate energy storage facilities.

DSO, Closed Distribution System (CDS) and CEC related outcomes:

- It appears that the number of DSOs in Europe has not substantially changed since 2018.
- A large majority of Member States do not foresee rules which allow DSOs to perform other activities than those foreseen in the Electricity Directive and the Electricity Regulation.
- Only 4 Member States reported granting exemptions for CDS from different requirements applicable for DSOs.
- Out of all responding NRAs, 10 reported the transposition of the derogations allowing DSOs to own, develop, manage, or operate energy store facilities, in accordance with Article 36(2) of the Electricity Directive.
- 10 NRAs reported the transposition of derogations allowing DSOs to own, develop, manage, or operate recharging points for EVs.
- As for CECs, 7 out of all responding NRAs have active, registered CECs in their countries: Austria, Belgium, Greece, Italy, Netherlands, Slovenia, and Spain. Greece and the Netherlands have the most registered active CECs with respectively 884 and 705.

Hydrogen and Decarbonized Gas markets - unbundling related issues:

In the context of the energy transition, it became clear that many TSOs tend to diversify their activities, especially in the fields of hydrogen, power to gas or electrolysers, which might raise issues with regard to unbundling rules.

- In particular with regard to **hydrogen**, more than half of the NRAs notified ongoing hydrogen projects in which TSOs are involved within their Member State.
- Additionally, and at supra-national level, some cross-border H2 infrastructure projects are being set up, e.g. a series of TSOs (31) are members of the project “European Hydrogen Backbone initiative (EHB)”.

At EU level, the development of a legislative framework for H2 networks and operators, including unbundling and certification rules has been adopted. At the same time, some Member States have already enacted a legislative framework at national level, including rules on unbundling and certification of H2 network operators (see case boxes in chapter 4).

1 Introduction

This report provides an updated Status Review on the implementation of TSO and DSO unbundling provisions of the 3rd Energy Package, as modified under the 2019 CEP, focusing mainly on new developments since the previous report of 14 June 2019[5].

This Status Review aims, in its first chapters, to assess the status of DSO and TSO unbundling, highlighting new developments since summer 2018, in particular resulting from the new rules introduced by the CEP.

Secondly, the report gives a brief outlook of the main novelties with regard to unbundling-related provisions emerging under the EC proposals for a "Hydrogen and Decarbonised Gas Market Package"[6] as well as the increasing involvement of TSOs in projects concerning hydrogen, power to gas, electrolysers and other new energy technologies.

The information on the current unbundling status was collected via **survey** among the CEER Member and observer countries, based on the information available to them until April 2022. 24 CEER Members/observers (out of 39 CEER Members and Observers) participated in the survey for this status review (**Austria, Belgium, France, Germany, the Netherlands, Norway, Poland, Portugal, Spain, Denmark, Slovenia, Slovakia, Czechia, Finland, Greece, Italy, Hungary, Estonia, Latvia, Lithuania, Luxembourg, Malta, Croatia and North Macedonia**). Input was provided in April 2022 to CEER and represents the status of TSO and DSO unbundling in the respective countries at that time.

Under the EU Energy Directives and Regulations, energy networks are and remain subject to unbundling requirements which oblige Member States to ensure the separation of vertically integrated energy companies, resulting in the separation of the various stages of the energy supply chain (generation, transmission, distribution, and retail). The figure below summarises the different degrees of unbundling.

[5] https://www.ceer.eu/documents/104400/-/-/f69775aa-613c-78a5-4d96-8fd57e6b77d4

[6] The review and revision of the Gas Directive 2009/73/EC and Gas Regulation (EC) No 715/2009, referred to as the "Hydrogen and gas markets decarbonisation package", was published in December 2021. It aims to enable the market to decarbonise gas consumption and puts forward policy measures required for supporting the creation of optimum and dedicated infrastructure, as well as efficient markets. Also, this package aims to remove barriers to decarbonisation and create the conditions for a more cost-effective transition.

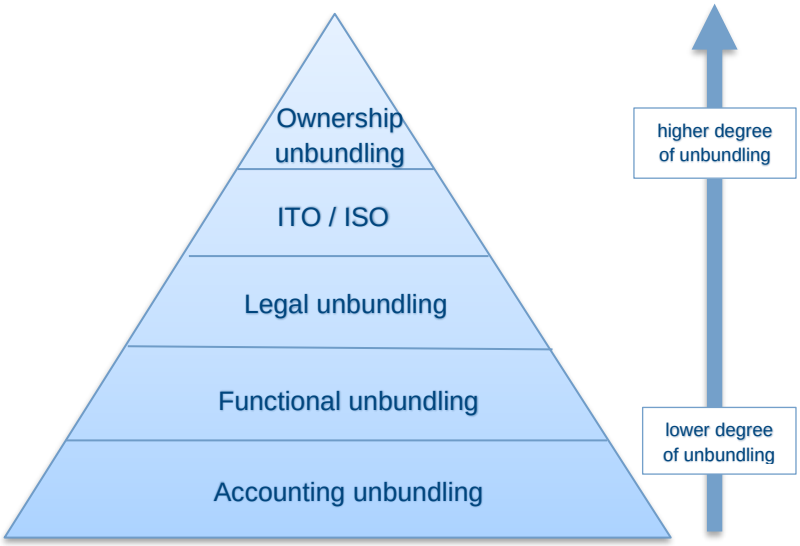

Figure 1: Summary of the different degrees of unbundling

For TSOs (and to a lesser extent DSOs) the unbundling requirements were considerably reinforced through the 3rd Energy Package in comparison to the 2nd Energy Package. Among others aspects, this is illustrated by an assessment of the independence of TSOs via a certification process conducted by national regulatory authorities (NRAs).

In 2019, the EU adopted the CEP in view to help decarbonise its energy system in line with the European Green Deal objectives. The 2019 CEP recast of the Electricity Directive and Regulation did not significantly change the rules of the unbundling regimes (the main substantive rules on TSO unbundling remained unchanged) but did contain some new unbundling related rules and specifications, such as specifications on the possibility for network operators to own, develop, manage or operate storage facilities and electric vehicle (EV) recharging points. As for DSOs, the CEP Recast of the Electricity Directive also included some new rules on DSO tasks/responsibilities regarding the use of flexibility, integration of electromobility into the network, as well as data management.

On the TSO side, this review assesses the new developments in TSO unbundling practices since 2019 and unbundling related rules under the CEP, as well as new fields of TSO activities in hydrogen, power to gas, electrolysers, and other new technologies.

As for DSOs, this report highlights recent developments in DSOs' unbundling at national level since 2019 and implementation of unbundling related rules under the CEP. Topics explored include i.a. DSO activities relating to EV recharging points, energy storage facilities, and CECs.

Furthermore, EU work on the "Hydrogen and decarbonised gas market package" in view of a revision of the EU gas market rules to ensure that these contribute to reaching the EU energy and climate objectives has been finalised. The package comprises proposals for both a recast Directive and recast Regulation on gas markets and hydrogen[7], published in December 2021.

[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0803&qid=1640002501099

Therefore, in this status review we also report briefly on the main changes and novelties with regard to unbundling related provisions envisaged in the Recast proposals for a Hydrogen and decarbonized gas markets Directive and Regulation.

2 Unbundling of gas and electricity TSOs and DSOs

All three unbundling models have been equally assessed in this Status Review and it clearly appears that most of the changes in the unbundling practices that occurred for the TSOs since summer 2018 are related to ITO and OU models (see sections 2.1 below).

2.1 Number of certified TSOs and the unbundling models

As shown in the two figures below, the vast majority of gas and electricity TSOs remain certified under OU. 27 electricity TSOs and 27 gas TSOs were reported to be ownership unbundled versus 8 electricity TSOs and 18 gas TSOs active as ITOs. It should be noted that no ISO certified TSOs were reported in electricity, while for gas, NRAs reported 3 cases of ISO certified TSOs.

Malta and **Luxembourg** still benefit from exemptions to the unbundling and certification requirements. Nevertheless, in Luxembourg, the TSO is required to comply with the rules on accounting unbundling and is subject to DSO legal and functional unbundling rules.

Electricity:

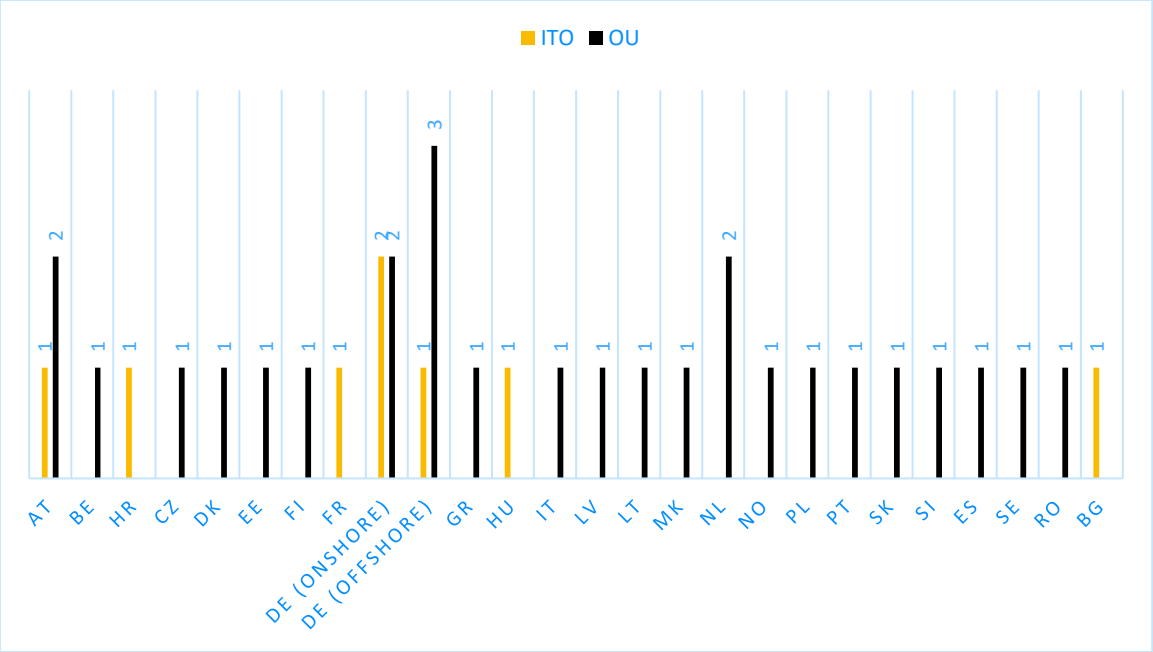

Figure 2: Number of electricity TSOs and the unbundling model[8]

[8] In **Luxemburg**, the TSO (Creos Luxembourg S.A.) is not required to be certified according to derogation of Art. 66(3) Directive 2019/944 but is required to comply with the rules on accounting unbundling. In addition, Creos is subject to the DSO legal and functional unbundling rules.

Gas:

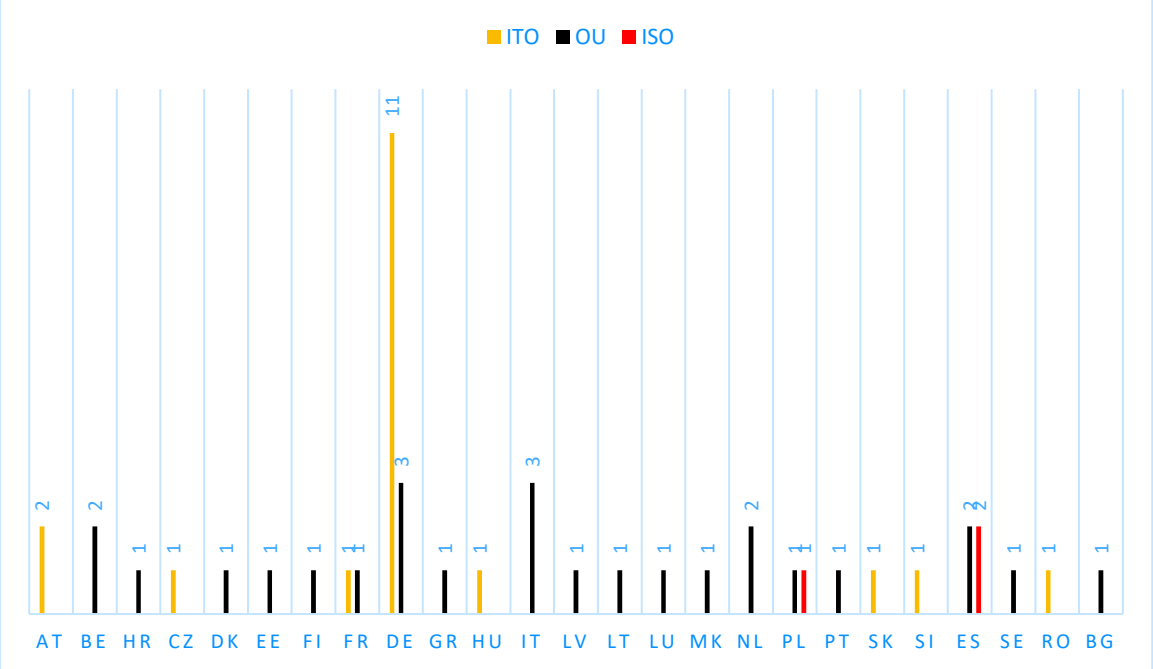

Figure 3: Number of gas TSOs and the unbundling model

2.2 Reviewed certification cases (since 30.06.2018)

Only a small number of new certification cases and reopening of existing certifications since summer 2018 were reported. This was the case in the following 8 countries:

1. In **Austria**, **one** case has been reopened, leading to a modified certification decision of a gas TSO caused by a change of shareholders[9].
2. In **Germany**, the certification decisions were reviewed in **five** cases: two in gas[10] and three in electricity (regarding offshore TSOs)[11].

In **Cyprus**, the TSO (TSOC) is not required to be certified according to derogation of Art. 66(3) Directive 2019/944. TSOC is not the owner of the transmission system but is legally unbundled and functions independently in terms of organisation and decision making from the owner of the transmission system.

In **Denmark**, the TSO (Energinet) is an independent public enterprise owned by the Danish Ministry of Climate, Energy and Utilities, which owns, operates, and develops the transmission systems for electricity and gas in Denmark.

In **Estonia**, Elering maintains and develops both electricity and gas internal transmission networks and external connections. All Elering's shares belong to the Republic of Estonia whose shareholder`s rights are being executed by Ministry of Economic Affairs and Communications.

[9] Due to change of shareholders: shift of 51%-share from OMV Gas Logistics Holding GmbH to VERBUND AG

[10] One new certification decision and one expiry of certification due to merger.

[11] Due to changes in shareholder's structures.

3. In **Spain**, the reopening of certifications concerned **two** gas TSOs cases[12], regarding participation of the shareholders of the TSO or the TSO in generation activities, in some cases concerning renewable gases and hydrogen [13].
4. In **Finland**, there was **one** new certification of newly unbundled gas TSO[14].
5. In **Greece**, **one** new certification decision was made because of change of shareholders[15]. In **another case** the fulfilment of the conditions of an existing certification decision was assessed[16].
6. In **Italy**, there were **two** cases of modification of the certification decisions concerning all gas TSOs[17].
7. In **France**, there were no procedures for reopening of certifications since 2018, however CRE published several decisions to maintain some existing TSOs certifications (which included eight deliberations in total)[18].
8. In **Croatia**, there was **one** new certification decision[19].

For more details on the above-mentioned cases please refer to the EC opinions issued on national certification procedures[20].

---

[12] Enagás Transporte (CERT/DE/001/21; CERT/DE/001/22) and Reganosa (CERT/DE/001/18)

[13] Participation of Sojitz (stakeholder of Reganosa) in generation activities - Decision of 21 March 2019 maintaining the certification under certain conditions; Participation of Enagás, S.A (holding of Enagas Transporte) in generation activities through subsidiaries (https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-10846; https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-19607:

Commission's Opinion on CNMC's draft certification decision for ENAGAS C(2022)3750; 168-2022-ES

https://energy.ec.europa.eu/system/files/2022-07/2022_168_enagas_es_en.pdf

Commission's Opinion on CNMC's draft certification decision for ENAGAS C(2022)6623; 170-2022-ES:

https://energy.ec.europa.eu/system/files/2022-09/2022_170_enagas_es_en.pdf).

[14] Transmission network operations were unbundled from Gasum Oy into a separate company. The newly formed company Gasgrid Finland Oy has been responsible for gas transmission in Finland since January 1st, 2020.

[15] The case concerned ADMIE S.A. which was certified under the ownership unbundling model, under the special regime of the investor from a third country, by virtue of RAE decision 475/2017. In 2019, following questions raised by EC, pertaining to the assessment of (China) State Grid participation in RES projects, RAE assessed the need of the opening of a new certification procedure. Taking into account the small size of the generation activities (0,73 % of the installed capacity in Greece), the priority dispatching of the (renewable) electricity produced and the provision of a regulated tariff (FiT and FiP), RAE considered that the strategic investor of ADMIE has no incentive to influence the TSO decision-making process, with the intention to favour the generation / production activities of the aforementioned generation companies to the detriment of other network users. Thus, RAE concluded that State Grid stake in RES projects has no potential effect on the certification of ADMIE. EC agreed with RAE reasoning.

[16] The case concerned DESFA S.A. which was certified under the ownership unbundling model by virtue of RAE Decision 1220/2018. The terms and conditions of the certification procedure were reviewed by means of RAE Decision 460/2019, following DESFA's appeal. Subsequently, in November 2019, RAE assessed the compliance of DESFA with the ownership unbundling requirements, following the notification of the acquisition by DAMCO S.A. (a company involved in the supply of gas) of a minority shareholding. RAE assessed such acquisition and concluded that DAMCO participation falls under the status of the passive investor and, therefore, it is in line with the ownership unbundling requirements (RAE Decision 1100/2019).

[17] (1) Infrastrutture Trasporto Gas S.p.A (ITG) which was initially certified as ITO, has changed the unbundling model to OU following the purchase by the Snam Group; (2) Certifications of Snam Rete Gas S.p.A. (SRG) and Infrastrutture Trasporto Gas S.p.A (ITG) has recently been reviewed, following the launch of a series of investment initiatives in the biogas, biomethane and hydrogen sectors – in its resolution number 140/2023/R/gas of 4th April 2023, ARERA has confirmed the ownership unbundling model.

[18] E.g. Evolution of CDC's (RTE's second main shareholder, part of the VIU) participations but not affecting VIU's perimeter and RTE's certification in 2020; evolution of GRTgaz's shareholding not affecting TSO's certification in 2021; several CRE's deliberations relating to Predica's (Teréga's non-controlling shareholder), or affiliates, participations in production or furniture companies, but not affecting Teréga's certification.

[19] Plinacro L.T.D. was certified by HERA under ownership unbundling model in 2021.

[20] https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/third-energy-package_en

2.3 Changes in the unbundling models

Since summer 2018, only a small minority of TSOs have changed their unbundling models. Similar to the findings of the previous CEER Report on implementation of TSO and DSO unbundling provisions, this time the change of unbundling model occurred also in **three** cases, whereas all of them are also related to the **change from ITO to OU**. According to the information submitted, changes occurred in the unbundling model applied to TSOs in the following 3 countries:

- In **Greece**, in addition to the electricity TSO which switched from ITO to OU several years ago[21], the gas TSO which was previously certified under the ITO model has also changed to OU in the meantime.
- In **Italy**, as mentioned above, the gas TSO ITG being initially certified as ITO, has changed the unbundling model to OU, following the acquisition by the Snam Group[22].
- In **Latvia,** the electricity TSO was certified under the ITO model in 2013, but at the end of 2019, decided to change to OU.

2.4 Exemption(s) granted to third country interconnectors after the entry into force of the Gas Directive (EU) 2019/692

The survey also looked into new developments since the entry into force of the Gas Directive (EU) 2019/692 which amended Directive 2009/73/EC in May 2019. This Directive introduced common rules for the internal market for natural gas, in particular regarding the application of EU market rules to gas transmission lines to and from third countries.

Since the entry into force, there was only one decision granting an exemption to a gas interconnector to/from a third country – the BNetzA decision of 20.05.2020 concerning Nord Stream AG, which granted a derogation from regulation with respect to the section of the Nord Stream 1 pipeline located in German territory for the period of 20 years, starting from 12 December 2019[23].

2.5 DSO landscape: gas and electricity DSOs

In comparison to the previous report, it appears that the number of DSOs in Europe has not substantially changed since 2018. Germany clearly remains the “champion” with by far the largest number of DSOs, both for electricity (with 873 DSOs), followed by Spain (with 365 DSOs), and for gas (with 703 DSOs) followed by Italy with 194 gas DSOs.

Number of Electricity DSOs:

[21] As reported in the previous CEER Report on Implementation of TSO and DSO Unbundling Provisions 2019.

[22] ARERA Resolution of 20th November 2018, number 589/2018/R/gas.

[23] https://www.bundesnetzagentur.de/DE/Beschlusskammern/1_GZ/BK7-GZ/2019/BK7-19-0108/BK7-19-0108_Beschluss_EN_download.pdf;jsessionid=CD96E209B94285267B941E19B67903DD?__blob=publicationFile&v=4

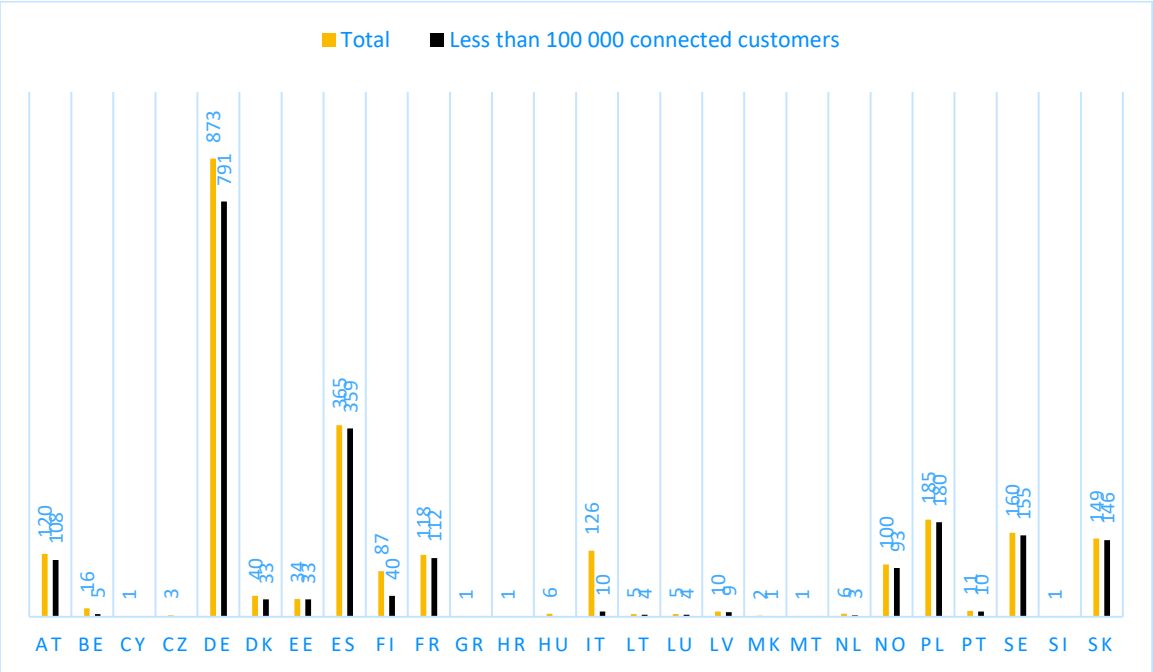

Figure 4: Number of electricity DSOs

Number of Gas DSOs:

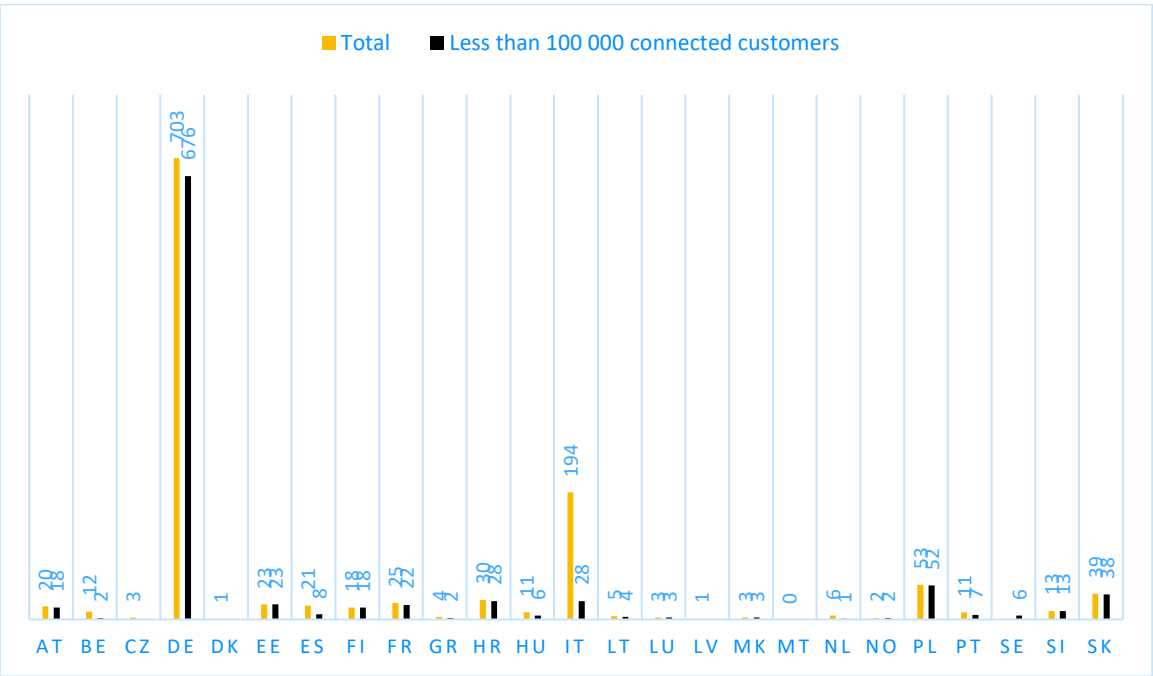

Figure 5: Number of gas DSOs

3 Developments in unbundling related issues since the entry into force of the CEP

This chapter assesses the evolution of unbundling issues in EU Member States following the implementation of the CEP, in particular Directive (EU) 2019/944 (Electricity Directive) which entered into force in July 2019.

3.1 Main changes with regard to DSOs

In accordance with Article 30 of the Electricity Directive, "Member States shall designate or shall require undertakings that own or are responsible for distribution systems to designate one or more distribution system operators for a period of time to be determined by the Member States, having regard to considerations of efficiency and economic balance".

The Directive establishes rules and gives some options to Member States (for example, regarding closed distribution systems, derogations for *i.a.* operation of storage or EV charging points, etc.) that are important to take into consideration.

3.1.1 DSO activities other than those provided for in the Electricity Directive and Electricity Regulation

Article 31(10) of the CEP Electricity Directive establishes that Member States may allow DSOs to perform other activities than the ones established in the same Directive and in Regulation (EU) 2019/943.

In accordance with our survey, the majority of the responding NRAs have reported that they do not allow DSOs to perform other activities than those foreseen in the Electricity Directive and Electricity Regulation[24].

In the **Netherlands**, secondary legislation can allow DSO to perform temporary tasks, without asking the NRA's (ACM) opinion. However, ACM must issue opinions regarding the feasibility and enforceability on all acts and secondary legislation that impacts its work. Until October 2022, no temporary tasks were conferred by the legislator to any DSO.

In **Finland**, starting from 1st June 2023, DSO's have to apply for exemption from the NRA to perform other tasks[25].

[24] i.a. Denmark, Estonia, Spain, France, Hungary, Italy, Latvia, Norway, Poland, and Portugal. It should be noted that a series of other Member States had not transposed the Directive at the time the report was drafted.

[25] As of the date of the publication of this report, no such application has been submitted to the NRA.

3.1.2 Active Closed Distribution Systems (CDS) and their exemptions

In accordance with Article 38 of the Electricity Directive, a DSO allows the distribution of electricity within a geographically confined industrial, commercial, or shared services site and does not supply household costumers, once the following requirements of Article 38(1) are met:

- The operations or the production process of the users of that system are integrated for specific technical or safety reasons; or
- That system distributes electricity primarily to the owner or operator of the system or their related undertakings.

According to Article 38(2), a CDS shall be considered to be a distribution system for the purposes of the Directive. Member States may however provide for NRAs to exempt them from certain obligations applicable to DSOs.

Firstly, in order to have a broader view of CDSs, it is important to understand differences among Member States, including the amount of active CDSs in each one.

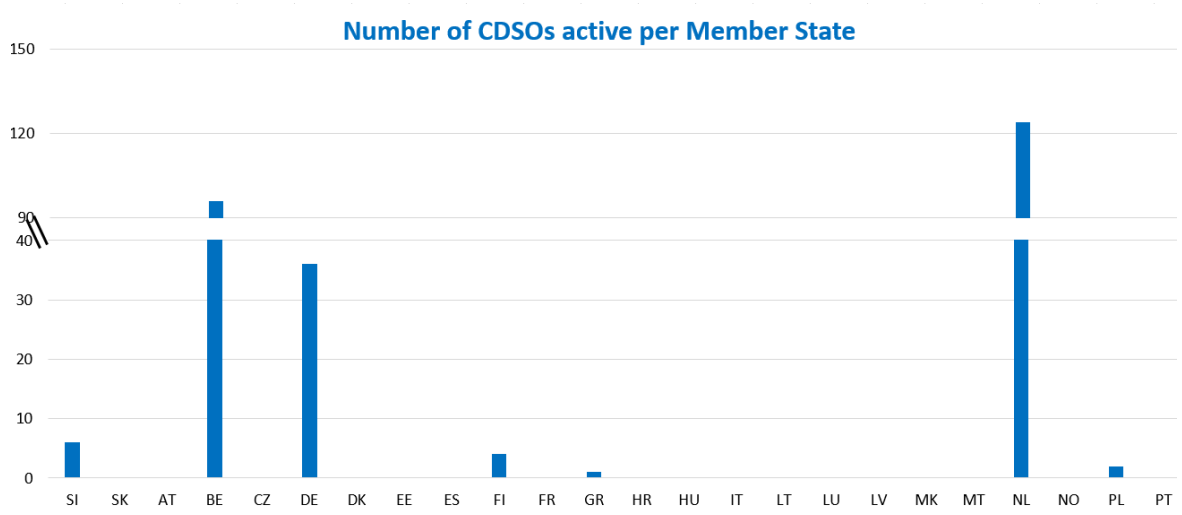

Figure 6: Number of CDS active per Member State

The vast majority of countries have not reported active CDSs[26]. 7 NRAs reported having active CDSs in their country: Slovenia, Belgium, Germany, Finland, Greece, the Netherlands, and Poland.

The Netherlands is, by far, the country that has the most CDSs (77 electricity and 47 gas), followed by Belgium (96) and Germany (36).

No CDS with more than 100,000 customers has been reported.

[26] Including (not exhaustive): Slovakia, Czechia, Denmark, Estonia, Spain, France, Croatia, Hungary, Lithuania, Luxembourg, Latvia, Republic of North Macedonia, Malta.

Only four[27] Member States reported **exemptions** for CDSs: Slovenia, Belgium, Finland, and Poland. The table below displays the exemptions granted to CDSs for different requirements applicable to DSOs.

CDS Exemptions – Types of requirements and number of cases

Country	Requirement to procure the energy it uses to cover energy losses and the non-frequency ancillary services in its system in accordance with transparent, non-discriminatory, and market-based procedures (art. 31(5) and (7))	Requirement that tariffs, or the methodologies underlying their calculation are approved in accordance with art. 59(1) prior to their entry into force (art 6(1))	Requirements to procure flexibility services and to develop the operator's system on the basis of network development plans (art- 32(1) and (3))	Requirement not to own, develop, manage, or operate recharging points for electric vehicles (art. 33(2))	Requirement not to own, develop, manage, or operate energy storage facilities (art. 36(1))
SI	0	6	0	0	0
BE	14	14	14	14	14
FI	4	4	4	0	0
PL	0	2	2	0	0
TOTAL	**18**	**26**	**20**	**14**	**14**

Table 1: CDS Exemptions – Types of requirements and number of cases

Only the requirement of ex-ante approval of tariffs (or the methodologies underlying their calculation) was reported to have been exempted in all four countries at stake which applied CDS-exemptions.

Belgium reported 14 cases, allowing exemptions of all requirements listed in the table above[28].

3.1.3 DSO activities related to Energy storage facilities

Article 36 of the Electricity Directive establishes as rule that DSOs cannot own, develop, manage, or operate storage facilities. However, in certain cases (listed in Article 36(2)), Member States may allow DSOs to perform these activities, where:

- the storage facilities are fully integrated network components, and the NRA has granted its approval, or
- all of the following conditions are fulfilled:
  (a) other parties, following an open, transparent, and non-discriminatory tendering procedure that is subject to review and approval by the NRA, have not been awarded a right to own, develop, manage, or operate such facilities, or could not deliver those services at a reasonable cost and in a timely manner;

[27] In NL, the regime is different as the Dutch law does not provide exemptions for CDS. The Dutch Electricity Law lists the obligations applicable to CDS.

[28] More information is available at: https://www.vreg.be/sites/default/files/document/besl-2021-36.pdf

(b) such facilities are necessary for the DSO to fulfil their obligations under the Directive for the efficient, reliable, and secure operation of the distribution system and the facilities are not used to buy or sell electricity in the electricity markets; and

(c) the NRA has assessed the necessity of such a derogation and has carried out an assessment of the tendering procedure, including the conditions of the tendering procedure, and has granted its approval.

The majority of countries (10)[29] reported the transposition of the derogations allowing DSOs to own, develop, manage, or operate energy store facilities, in accordance with Article 36(2) of the Electricity Directive.

France reported the transposition of the Directive, but some derogations are expected to be covered in another law.

Regarding the way of transposition, taking the Estonian example, the law of this country foresees that it is possible to make a derogation in accordance with the conditions established by the Directive, subject to authorization by the NRA.

Tendering processes are also foreseen in Germany and Croatia.

It is also important to add that some countries specifically stipulate the need to provide system services and ensure the reliability and dependability of the operation of electricity (*e.g.*, Latvia, Portugal, and Spain).

Regarding the countries that transposed the Directive and established derogations, only Slovenia mentioned that two DSOs are employing energy storage facilities within the framework of research and innovation processes.

3.1.4 DSO activities related to electric vehicles recharging points

Article 33(2) of the Electricity Directive establishes that DSOs shall not own, develop, manage, or operate recharging points for electric vehicles (EVs). However, Article 33(3) stipulates that, once some conditions are met, derogations can be conceived.

Taking the legal framework into consideration, 10 NRAs[30] reported the transposition of derogations allowing DSOs to own, develop, manage, or operate recharging points for EVs. In most cases, NRAs must issue a decision establishing that derogation is followed by a tender process for the same purpose without any competitor.

In some countries, DSOs own, develop, manage, or operate recharging points for EVs (e.g. Slovenia (1), Belgium (1) and Luxembourg (5)).

In **Slovenia**, fast charging points were installed in 26 locations on prominent Slovenian motorways within the framework of the project Central European Green Corridors[31]. Despite

[29] Slovenia, Germany, Estonia, Spain, France, Croatia, Hungary, Malta, Poland, and Portugal.

[30] Slovenia, Germany, Estonia, Spain, France, Croatia, Hungary, Malta, Poland, and Portugal.

[31] https://www.cegc-project.eu/images/2015CEGCFactSheet.pdf

being owned by the DSO, those charging points are operated by a charging provider[32] that operates its own charging network.

In the Walloon region of **Belgium**, the only case in which the DSO owns, develops, manages, or operates recharging points for EVs was reported to be under regularization, because it did not comply with the Walloon decree.

In **Luxembourg**, a national law mandated DSOs to develop a basic public recharging infrastructure and different options are currently being considered.

3.1.5 Citizen Energy Communities[33]

Article 16 of the Electricity Directive creates new legal entities, both market players and consumers, called "Citizen Energy communities" and provides for a regulatory framework that Member States must implement.

Such entities are defined by Article 16(11) of the Electricity Directive as follows:
"a legal entity that:
(a) is based on voluntary and open participation and is effectively controlled by members or shareholders that are natural persons, local authorities, including municipalities, or small enterprises;
(b) has for its primary purpose to provide environmental, economic, or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits; and
(c) may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services or charging services for electric vehicles or provide other energy services to its members or shareholders."

Implementation of Article 16 of the Electricity Directive varies across Member States.

- **Number of active citizen energy communities**

Out of all responding NRAs, **7 of them have registered active citizen energy communities in their country**: Austria, Belgium, Greece, Italy, Netherlands, Slovenia, and Spain. In Germany, the energy communities are not obliged to register with the NRA, therefore no official data on their number is available[34].

In some Member States such as in France, the lack of development is explained by an incomplete legal framework that is in the process of being enacted.

[32] Petrol, a charging service provider

[33] This part includes results of the survey that has been answered by NRAs in the context of the CEER Report on Energy Communities. This report has not been published yet.

[34] According to an Analysis on Energy communities, published by the German Energy Agency (dena) in April 2022, there are over 1700 Energy Communities active in Germany.
https://www.dena.de/fileadmin/dena/Publikationen/PDFs/2022/dena_ANALYSIS_Energy_communities_Accelerators_of_the_decentralised_energy_transition.pdf

Greece and the Netherlands have the most citizen energy communities with respectively 884 and 705 active ones[35]. In the Netherlands, an independent foundation called '*Energie Opgewekt'* ('Local Energy') publishes a yearly monitoring on the development of different types of energy communities. The Dutch energy communities have several opportunities to sell their energy, for example through PPA's and reselling. There are several licensed suppliers that support and resell locally produced energy.

Austria, Belgium, Italy, and Spain also record a certain number of citizen energy communities with respectively 200, 66, 39 and 20 active communities on their territory.

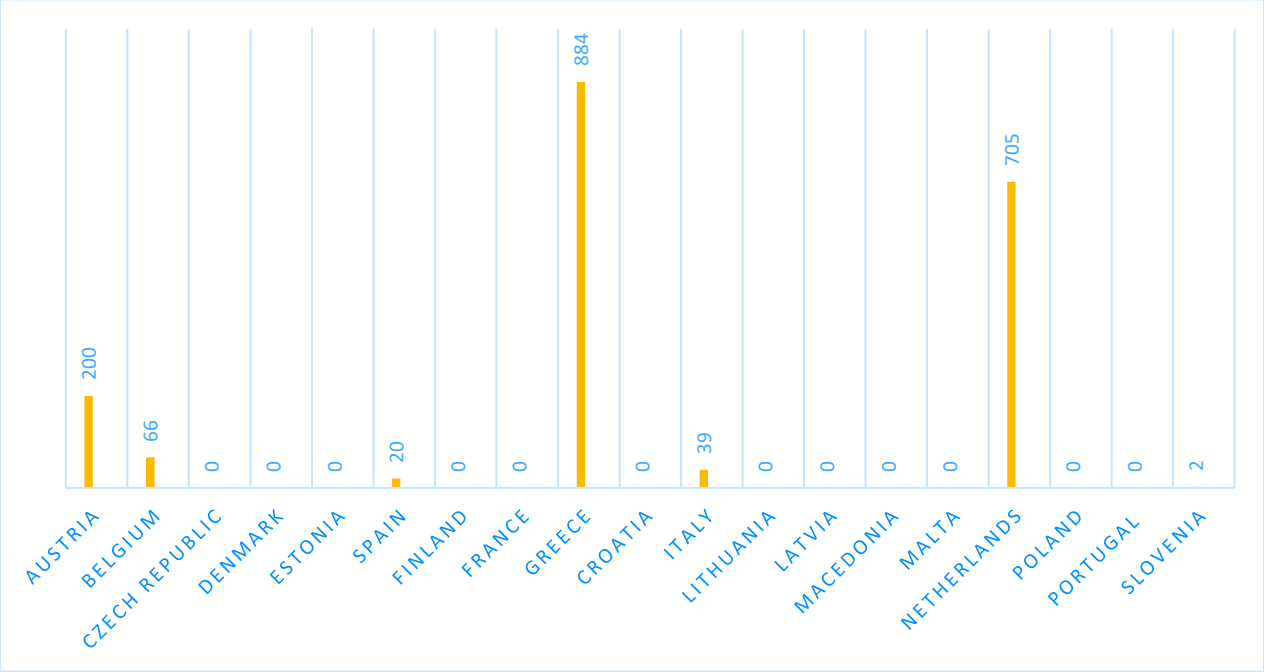

Figure 7: Number of citizen energy communities

In total, **813 citizen energy communities are declared active in 7 out of the 18 Member States that responded** to the survey.

- **Citizen energy communities managing distribution networks in their area of operation**

Article 16(4) of the Electricity Directive opens the option for Member States to grant citizen energy communities *"the right to manage distribution networks in their area of operations"*.

Out of 20 responding Member States, **only a quarter of them transposed this option in their national law**: Estonia, Germany, Greece, Malta, and Portugal. Germany allows implicitly citizen energy communities to manage distribution networks in their area of operation as there is no prohibition in national law regarding any energy communities.

[35] As for 2022

3.2 Main changes with regard to Electricity TSO unbundling related rules following the Clean Energy Package

The Electricity Directive establishes rules and gives some options to Member States that are important to take into consideration, for example, regarding TSO tasks and derogations for energy storage facilities which are discussed hereafter.

3.2.1 Tasks the TSOs are allowed to assign to another TSO

Article 40(2) of the Electricity Directive provides the right for Member States to allow for the possibility for one or several TSOs tasks or responsibilities, listed in Article 40(1) of the Directive (e.g. providing system users with the information they need for efficient access to the system or procuring ancillary services to ensure operational security) to be assigned to a TSO other than the one which owns the transmission system.

Out of 24 respondents, **no Member State has transposed in their national legislation this possibility for their TSOs to assign certain tasks or responsibilities to another TSO**.

3.2.2 TSOs performing activities other than those provided for in the Electricity Directive and Regulation

Article 40(8) of the Electricity Directive provides the rights for Member States to allow for TSOs to perform activities other than those provided for in the Electricity Directive and Regulation (EU) 2019/943 ("Electricity Regulation") where such activities are necessary for the TSOs to fulfil their obligations under these texts.

Out of 21 Member States that responded to the respective question, **7 of them have transposed such possibility**[36].

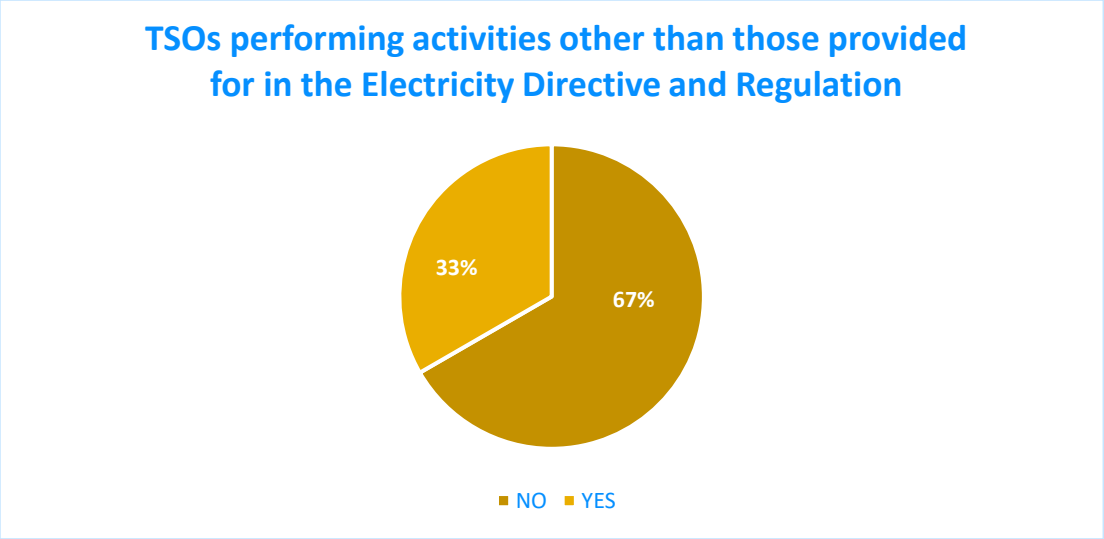

Figure 8: Share of TSOs performing activities beyond those of Electricity Directive and Regulation

[36] Belgium, Finland, Hungary, Malta, the Netherlands, Poland, and Slovenia

For instance, **Belgium** allows the electricity TSO to exercise other activities than the ones which are explicitly entrusted to the TSO by law, directly or indirectly (through participations), under the condition that these activities do not have a negative influence on the independence of the TSO or on the accomplishment of the tasks entrusted to the TSO by law. The TSO has an obligation to notify such activities to the NRA, as well as any changes in this respect.

In **Finland**, TSOs may include other activities (i.e. administrative services for their daughter companies) if these are insignificant. This means that they consist of less than 10% of the turnover and they produce turnover less than 500 000€.

The **Polish** electricity TSO, as part of its activity consisting in the transmission of electricity, may resell surplus electricity purchased in order to cover losses in the transmission network during the transmission of electricity.

3.2.3 Derogations allowing TSOs to own, develop, manage, or operate energy storage facilities

Such as for DSOs, TSOs cannot own, develop, manage, or operate storage facilities according to Article 54(1) of the Electricity Directive. However, Article 54(2) of the Electricity Directive integrates a provision for Member States to provide for a derogation from this rule in their national law. In such cases, only facilities that are fully integrated network components can be owned, developed, managed, or operated by TSOs upon approval of the NRA. If this is not the case, the following conditions must be fulfilled:

- other parties, following an open, transparent, and non-discriminatory tendering procedure that is subject to review and approval by the regulatory authority, have not been awarded such rights, or could not deliver those services at a reasonable cost and in a timely manner;
- such facilities or non-frequency ancillary services are necessary for the transmission system operators to fulfil their obligations under the Electricity directive;
- the regulatory authority has assessed the necessity of such a derogation.

Out of 24 respondents, **16 Member States transposed[37] this derogation in their national law**.

[37] Austria, Germany, Denmark, Estonia, Croatia, Spain, France, Greece, Hungary, Italy, Lithuania, Latvia, Malta, Poland, Portugal, and Slovenia.

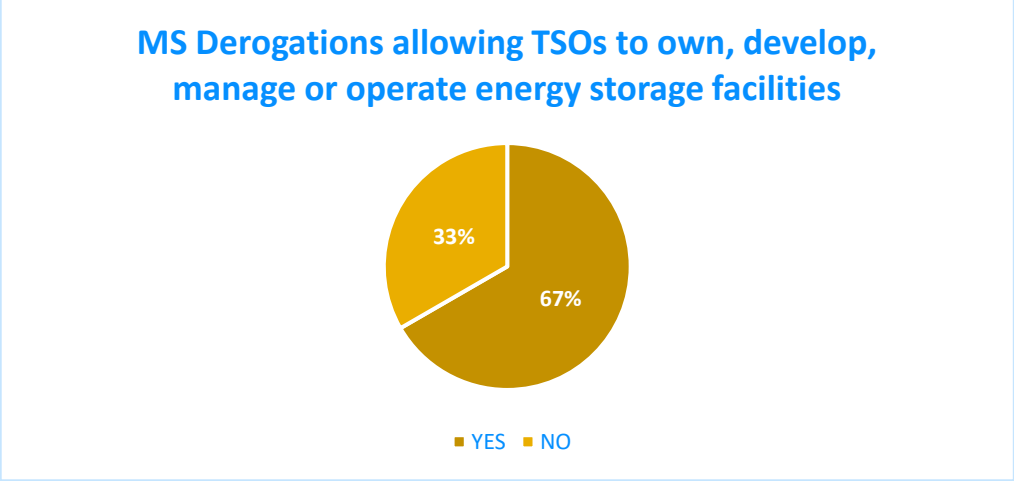

Figure 9: Share of TSOs owning, developing, managing, or operating storage facilities

In **Spain**, a Royal Decree Law establishes that storage assets will be considered as part of the transmission networks as long as they contribute to the secure and stable functioning of these networks.

In **Hungary**, TSOs may not engage in aggregation, and may not acquire titles of ownership of an electricity storage facility and may not establish or operate an electricity storage facility. However, the TSO may install and operate in accordance with the lowest possible cost principle a fully integrated electricity storage facility forming part of the transmission network for the sole purpose of ensuring the secure and reliable operation of the transmission network, subject to approval by the NRA.

The Greek example:

In **Greece**, such derogations have also been transposed into national law for TSOs. The Greek framework recites that TSOs should not own, develop, manage, or operate energy storage facilities. There is however the possibility of exceptions from this prohibition in principle:

- either following a decision by RAE in case of fully integrated network components; or

- in the case that no third parties have been awarded the right to own/develop/manage or operate such facilities following an open, transparent, and non-discriminatory tendering procedure or could not deliver those services at a reasonable cost and in a timely manner.

In the second case, it is subject to RAE's assessment that (a) such facilities or ancillary services are necessary for the DSO to fulfil its obligations for the efficient, reliable, and secure operation of the distribution system and (b) therefore, a derogation is necessary. In addition, RAE assesses the effectiveness of the tender and approves the relevant terms and procedures. Finally, it has to be ensured that such facilities are not used to buy or sell electricity in the electricity markets. RAE is entrusted to launch every two years a public consultation in order to assess the potential availability or interest for investing in storage facilities.

Finally, new storage facilities which are developed following a final investment decision by 31.12.2024 and connect to the system within two years, are considered as fully integrated network components and are used solely for the imminent restoration of the system safety, in

case of emergency. Such restoration measures shall be applied only for the time period that re-dispatching -based on market rules- cannot resolve the emergency. Such facilities are not used to buy or sell electricity in electricity markets, including balancing requirements. In case of the aforementioned new storage facilities, TSOs have no right to a fair compensation corresponding to the residual value of their investment in storage facilities.

However, until today, the Greek TSO (ADMIE) does not perform such activity in practice.

As for some concrete examples: in **Slovenia**, a TSO implemented a pilot project to install a 1 MW storage facility to test a range of different network services. The TSO is currently requesting an exemption for the operator to dispose of, use and maintain this equipment. The application is currently being evaluated by the NRA.

In **France**, no TSO has been granted such derogations. However, RTE, the electricity TSO, has been developing a demonstrator since 2017. This project has been approved by CRE under several conditions (notably a 2-year-limit for the experimentation starting from the moment batteries are commissioned and the sale of the demonstrator to the end of the experiment).

3.2.4 Exemptions for small connected and isolated systems from TSO unbundling rules

According to Article 66 of the Electricity Directive, Member States which can demonstrate that there are substantial problems for the operation of their "small connected systems" and "small isolated systems", may apply to the EC for derogations from the unbundling rules.

"Small connected systems" are defined by Article 2(43) of the Electricity Directive as: *"any system that had consumption of less than 3 000 GWh in the year 1996, where more than 5 % of annual consumption is obtained through interconnection with other systems"*. "Small isolated system" are defined by Article 2(42) of the Electricity Directive as: *"any system that had consumption of less than 3 000 GWh in the year 1996, where less than 5 % of annual consumption is obtained through interconnection with other systems".*

Based on the survey, **only Portugal reported to have transposed and applied derogations** of Article 66 for the autonomous regions of Madeira and Azores.

4 New developments in hydrogen and Decarbonized Gas markets - unbundling related issues

In the framework of the EU Green Deal, the EC has launched a revision of the EU gas market rules[38], needed to ensure that these contribute to reaching the EU energy and climate objectives. At legislative level, this entails a review and revision of the Gas Directive 2009/73/EC and Gas Regulation (EC) No 715/2009, referred to as the "Hydrogen and gas markets decarbonisation Package". The package aims to enable the market to decarbonise gas consumption and to put forward policy measures required for supporting the creation of optimum and dedicated infrastructure, as well as efficient markets.

[38] https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6682. An agreement on the final text between European institutions has been reached in December 2023. The package will be formally adopted during the first half of 2024.

Enabling the penetration of renewable and low-carbon gases into the existing gas grid contributes to the EU's climate objectives, as set out in the European Green Deal[39] and its "Fit for 55"-package.

The European Green Deal establishes a roadmap for cutting greenhouse gas emissions, while also boosting a modern and resource-efficient economy. It includes a set of initiatives to reach this goal, including the energy system integration strategy[40] and the hydrogen strategy[41], which set out how to update energy markets, including the decarbonisation of the production and consumption of hydrogen and methane. In July 2021, the EC adopted the first set of proposals[42] to make the EU's climate, energy, transport, and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030. This so called "Fit for 55" package promotes the demand and production of renewable and low-carbon gases, including hydrogen.

Despite the fact that the Hydrogen and gas markets decarbonisation Package is still in the legislative process and therefore not yet in force, some Member States already adopted legislation that allows for H2 or other alternative gases projects and technologies to be implemented or tested. Legislative frameworks at national level include rules on unbundling and certification of H2 network operators (see case boxes chapter 4.2.).

4.1 TSOs involvement in projects concerning hydrogen, power to gas, electrolysers, and other new technologies

In the context of the energy transition, many TSOs tend to diversify their activities, especially in the field of hydrogen, power to gas or electrolysers. Such activities might conflict with certain unbundling rules, especially if they concern production or supply activities and are not related to research and development ("R&D") projects.

- Regarding **hydrogen**, 13 NRAs notified TSOs' hydrogen projects in their Member States.

Early Adopter example: German regulatory framework for hydrogen network operators

Following its amendment in summer 2021, the German Energy Industry Act (EnWG)[43] sets out the regulatory framework for hydrogen grids in Germany. According to sections 28j of this law, the operators of hydrogen networks (both existing and newly built) can make the choice whether to be regulated (so called opt-in regulation).

[39] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[40] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2020:299:FIN

[41] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301

[42] https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3541

[43] Sections 28j to 28q EnWG

This optional regulatory framework covers any hydrogen grid infrastructure which has been confirmed as demand-oriented by the BNetzA and applies to the grid operator as whole and not to specific pipelines. This means that – in case of opt-in – all hydrogen grids of the respective grid operator would become subject to regulation according to the above-mentioned provisions. These include *i.a.* the main unbundling rules (informational, accounting, and legal unbundling), in order to avoid any discrimination, cross-subsidisation and to ensure the independence network activities from hydrogen supply, production and storage. By March 2023, there was only one application[44] approved by BNetzA[45].

In terms of **H2 (network) infrastructure**, the following **projects** were **reported at a national level**:

Germany reported two projects which aim to transform pipelines from natural gas to hydrogen: (i) TSO Ontras is partner in the project "Energiepark Lauchstaedt (Reallabor)[46]" and (ii) several TSOs (i.a. Nowega, OGE, Gascade) participate in "GetH2[47]" project.

In **Finland**, Fingrid Oyj and Gargrid Oy have studied possible progression of hydrogen production and consumption in Finland and what this requires from TSOs for joint planning and is crucial for the development of a cost-effective energy system. Energy transfer needs will increase significantly when the production and consumption of both electricity and hydrogen are distributed across Finland. Energy required by the hydrogen industry can be transferred either as electricity or in the future, partly also as hydrogen, as described in the scenarios. This requires the development of electricity transmission and hydrogen transmission infrastructure to meet the needs of both TSO's, Gasgrid's and Fingrid's, as well as customers' needs[48].

In **Greece**, hydrogen projects are in early development stages, the largest one is called "White Dragon"[49], in which green hydrogen is produced through electrolysis powered by solar PC energy. The gas TSO is involved with the transportation of the hydrogen as a mix with natural gas locally in a new branch of its network.

In **Hungary**, the TSO is undertaking an R&D project investigating the possibilities of blending up to 2% H2 into the gas system.

[44] Application of ENERVIE Vernetzt GmbH

[45] BNetzA Decision No BK7-21-106 (available in German):
https://www.bundesnetzagentur.de/DE/Beschlusskammern/1_GZ/BK7-GZ/2021/BK7-21-0106/BK7-21-0106_Beschluss.html?nn=360898

[46] https://energiepark-bad-lauchstaedt.de/

[47] https://www.get-h2.de/en

[48] https://www.fingrid.fi/en/news/news/2023/scenario-work-of-fingrids-and-gasgrid-finlands-joint-project-completed--finland-to-become-a-major-producer-of-clean-hydrogen-gas-and-hydrogen-downstream-products/ https://www.fingrid.fi/globalassets/dokumentit/en/news/gasgrid-fingrid-hydrogen-economy-scenarios-5-2023.pdf

[49] https://depa.gr/white-dragon-proposal-submitted-for-ipcei-hydrogen-important-projects-of-common-european-interest/?lang=en

In **Denmark**, a Danish hydrogen infrastructure is being planned with the aim to be operational in 2028. The intention is for the infrastructure to transport green hydrogen from Danish PTX facilities supplied mainly from offshore wind parks. The planned infrastructure in Jutland will be connected across the border to Germany. It is planned that the gas TSO (Energinet) shall own and operate the hydrogen transmission infrastructure. Energinet is fully state owned an unbundled. Regulation of hydrogen infrastructure is implemented in Denmark in the Act on Gas Supply, which implements the EU Gas Directive, and is to a large extent identical to the regulation on methane gas. The Danish government is currently preparing a package on the financial framework for the infrastructure. A political agreement on the package is expected in the beginning of the new year.

In **Sweden**, Nordion hydrogen is involved in two hydrogen projects "Nordic baltic hydrogen corridor"[50] and "Baltic sea hydrogen collector"[51]. Both projects feature in ENTSOG's infrastructure report TYNDP 2022. Nordion hydrogen and Swedegas (the Swedish gas TSO) are both subsidiaries of Nordion energi. The Swedish electricity TSO (Svenska kraftnät) does not have any involvement in hydrogen projects.

In the **Netherlands**, several R&D projects took shape. Recently, ACM announced it does not take enforcement action vis-à-vis DSOs involved in hydrogen pilot projects provided that the system operators adhere to several conditions (see case box below)[52]

Dutch regulatory framework for hydrogen pilot projects[53]

In June 2021, the Dutch Minister of Energy and Climate presented a three-phase rollout plan[54] for the development of the Dutch hydrogen network by 2030. This network will connect large industrial clusters, landing points for offshore wind power generation, underground hydrogen storage facilities and interconnections with neighbouring countries. The network total length will be approximately 1200 km by 2030. Approximately 1,000 km of natural gas pipelines could be repurposed to be utilised by the future Dutch hydrogen consumers.
In a letter to Parliament, the Minister describes which services may be undertaken by independent companies, the TSO and/or its parent company regarding hydrogen production, transmission networks, underground storage, and terminals.
In July 2022, the Dutch regulator ACM published a framework to make pilot projects with hydrogen possible. With this publication, ACM announced that it allows for pilot projects with hydrogen in built-up areas if businesses comply with the consumer protection rules from the Temporary framework for hydrogen pilots (see: Temporary framework for hydrogen pilots[55]).

Some further specifications of ACM's "tolerance policy" in this regard: the generic conditions are as follows:

[50] https://nordichydrogencorridor.com/

[51] https://balticseahydrogencollector.com/

[52] ACM-notitie 'Ontwikkeling en regulering van waterstofinfrastructuur'

[53] https://www.acm.nl/en/publications/acm-draws-framework-make-pilot-projects-hydrogen-possible

[54] **Source (Dutch):** https://www.rijksoverheid.nl/documenten/kamerstukken/2021/06/30/kamerbrief-over-ontwikkeling-transportnet-voor-waterstof

[55] https://www.acm.nl/nl/publicaties/tijdelijk-kader-voor-waterstofpilots

- The pilot concerns the application of hydrogen as a heat supply in the built environment;
- The role of the grid operator is limited to the construction (or reuse of gas grids), operation and maintenance of the hydrogen grid and related resources. Grid operators may perform distribution of hydrogen over the grid, but have no role in hydrogen production, trading, and supply.
- The pilot contributes to a clear pre-established learning objective for the grid operator established with the agreement of all parties involved, with the grid operator transparently sharing the results with the market in the interim and afterwards.
- The scope of the pilot is no larger than necessary to achieve the learning objective.
- The space provided is temporary, until the role of the grid operator is regulated by law, the learning objective of the experiment is achieved, or the objective proves not to be feasible in practice after all.
- The space offered is for a duration of five years maximum (from the time of publication of these conditions). Organisers of pilots may opt for a duration longer than five years. The pilot will then, for the completion of its duration, depend on new laws and regulations allowing for grid operator involvement in hydrogen pilots being finalised within five years.

In November 2022 ACM gave its green light to a concrete pilot project involving distribution of hydrogen to homes[56]. More concretely, **ACM gave green light to a pilot project involving a distribution system operator** in the Dutch town of Lochem. In this pilot project, hydrogen gas will be supplied to residential homes. To this end, a temporary exemption was given by ACM to the Dutch DSO, Liander. (See: Temporary exemption for system operator Liander[57])

New Belgian regulatory framework for transport of hydrogen through pipelines

In July 2023, a new law on the transport of hydrogen through pipelines (hereinafter: “H2 Act”) was adopted at federal level in Belgium, which introduced a regulatory framework for the transport of hydrogen by pipeline(s)[58].

This new Belgian H2 Act lays down the procedure, the certification requirements, and the evaluation criteria for the designation of a hydrogen transmission system operator (“H2 TSO”). The certification of the hydrogen transport network operator is inspired by the full ownership model. The federal Belgian legislator opted for the designation of one hydrogen transmission system operator for the entire territory of Belgium.

With regard to the requirement of ownership of the infrastructure, the candidate must only commit to own the pipelines that will form the hydrogen transport network and for which the candidate wants to be designated as a H2 TSO.

Existing hydrogen networks are excluded from certification. They are allowed, to designate the certified and designated H2 TSO as an independent operator. However, the designation of the independent operator does not fully correspond to the model of Independent System Operator as known from the Gas Directive 2009/73.

[56] https://www.acm.nl/en/publications/acm-gives-green-light-pilot-project-involving-distribution-hydrogen-homes

[57] https://www.acm.nl/nl/publicaties/gedoogbeslissing-liander-voor-distributie-waterstof-bij-pilot-lochem

[58] The Act of 11 July 2023 on the transport of hydrogen through pipelines (hereinafter: “H2 Act) was published in the Belgian Official Gazette on 25 July 2023

Secondly, the H2 Act provides that the entity of the candidate H2 TSO must comply with the requirements of Article 9.1.b. and 9.2 of the Gas Directive 2009/73.

Thirdly, the legal entity, as proposed by the candidate H2 TSO, can also be owned or operated hydrogen storage or hydrogen import infrastructure. The H2 Act provides that the legal form must be separated and may not be involved in the sale of energy, except for its own operational needs. However, the legal separation of the legal form should not be an obstacle for: on one hand the secondment of personnel and the provision of services by the candidate hydrogen transport network operator to the operators regarding hydrogen storage or hydrogen import, and vice versa; and on other hand to set up joint purchasing systems or joint ventures to perform specific tasks.

In addition, the legal entity of the **candidate H2 TSO** can also own or operate infrastructure for the transport, storage or import of natural gas, biogas, biomethane, other forms of synthetic methane or electricity, **provided that the legal form is separate and never involved in the sale of energy** (except for its own operational needs). This legal separation may also not be an obstacle either for the secondment of personnel and the provision of services nor to set up joint purchasing systems or joint ventures to perform specific tasks.

Finally, the candidate H2 TSO needs to demonstrate that it can properly and professionally perform the duties of an H2 TSO. The duties of the hydrogen network operator are listed in the H2 Act.

Simultaneously with the certification procedure, the candidate H2 TSO needs to go through the designation procedure. The H2 Act provides 6 evaluation criteria. CREG has to render an opinion to what extent the candidate H2 TSO meets the evaluation criteria.

Furthermore, CREG has to monitor on a permanent basis the compliance by the H2 TSO with the certification requirements and the performance of its obligations as H2 TSO.
The latter informs CREG of any planned transaction that may require a reassessment of its compliance with the certification requirements.
Also, CREG can reopen a certification procedure at any time on its own initiative with a view to withdrawing the certification when it receives notification of a planned transaction, or when it becomes aware that a planned change of rights or influence has been exercised on or by the H2 TSO can lead to a violation of one of the certification requirements.

At **supra-national level,** some **cross-border H2 infrastructure projects** are also being set up:

In **Estonia**, Elering is participating in the European Gas System Operators project to create a pan-European **hydrogen transport infrastructure**. Gas TSOs of Estonia, Finland, Latvia and Lithuania have carried out a joint cross-border public procurement procedure for the preparation of a Project Plan that will provide a basis for the TSOs to carry out a procurement for a **R&D project regarding hydrogen blending possibilities** in the Estonian, Finnish, Latvian and Lithuanian gas transmission systems and the investigation of necessary investments according to different hydrogen blending volumes.

Several TSOs are members of the project "*European Hydrogen Backbone initiative (EHB)*[59]." This initiative consists of a group of 31 energy infrastructure operators and aims to define the critical role of hydrogen infrastructure – based on existing and new pipelines – in enabling the development of a competitive, liquid, pan-European renewable and low-carbon hydrogen market.

- With regard to **electrolysers**, **Germany** reported that the TSO OGE is involved in the pilot project "KRUH2[60]" which aims to test how to transform wind to hydrogen, heat and electricity (for own use only) by using an electrolyser and fuel cells.

- Concerning **power-to-gas**, 5 NRAs mention TSOs' projects in their Member State: **Slovenia, Czechia, Germany[61], France and Lithuania**.

  CRE, for instance, reported the case of the R&D project "Jupiter 1000" involving several gas and electricity TSOs (see box below).

Examples of power-to-gas projects in France and CRE's doctrine regarding TSO investments

Jupiter 1000 (power to gas project - France):

The Jupiter 1000 project is the first industrial demonstrator of power-to-gas in France. Green hydrogen will be produced using two electrolysers involving different technologies, from 100% renewable energy. The project is coordinated by GRTgaz, one of the French gas TSOs, and also involves the participation of RTE, the French electricity TSO, and Teréga, the other French gas TSO. As the project is a R&D project, CRE considers it as compatible with French GRT's certification.

CRE's doctrine regarding investments in hydrogen and biomethane projects:

In its 2019-2020 Report on the compliance codes and independence of system operators, CRE recalled its doctrine regarding TSO and DSO investments in the hydrogen and biomethane's production sectors. CRE considers that purely financial investments without any associated governance rights in a hydrogen or biomethane supply or production company are **compatible with the independence requirements** of the Electricity and Gas Directives.

[59] https://ehb.eu/

[60] https://www.wasserstoff-niedersachsen.de/en/sektorenkopplung-fuer-den-eigenbedarf

[61] Project "Hybridge" which involves the gas TSO OGE together with the electricity TSO Amprion, where the gas TSO is responsible for H2 infrastructure (https://www.hybridge.net/index-2.html).

CRE has been notified of several projects in these sectors, especially the "Chadasaygas project." This project relates to an investment of gas TSO Teréga in the Chadasaygas group, a group which is specialised in biomethane production and infrastructures. This project has been considered compliant by CRE with the unbundling legal framework as Teréga's investment relates only to the infrastructure branch of the group and a "Chinese wall" has been implemented to strictly separate the infrastructure branch from the production branch[62].

4.2 Hydrogen and decarbonized gas markets legislative package: unbundling related issues[63]

One of the key areas of the EU gas market rules revision concerns the design of a hydrogen network and market framework, including third party access and unbundling rules.

The package entails some **new concepts and definitions** including: hydrogen system, hydrogen storage facility, hydrogen storage operator, hydrogen terminal, hydrogen terminal operator, hydrogen undertaking as well as definitions of "hydrogen network", "hydrogen transmission network", "hydrogen distribution network", "hydrogen network operator", "hydrogen transmission network operator", "hydrogen distribution network operator" (Article 2 recast Gas Directive).

The **unbundling rules for hydrogen network operators** are provided for under Chapter IX of the recast Gas Directive (in a new Section 4 on the unbundling of dedicated hydrogen network operators). Unbundling of hydrogen distribution network operators is instead treated under Chapter VI, together with the rules on distribution system operators for gas (Article 42).

As for **vertical unbundling** (separation of hydrogen production and supply activities from transport activities), all three unbundling models (full ownership unbundling, independent transmission operator and independent system operator) are allowed for hydrogen transmission network operators (Article 62 recast Gas Directive).
OU is the default rule. For hydrogen networks belonging to a vertically integrated undertaking, a Member State may decide not to apply OU and, instead, designate an independent hydrogen transmission network operator unbundled in accordance with the rules on ISO for natural gas (Article 62(3) recast Gas Directive). Member States may also designate an integrated hydrogen network operator unbundled according to the rules on ITO for natural gas (Article 62(4) recast Gas Directive).

[62] To see CRE's doctrine on hydrogen project (in French): https://www.cre.fr/Documents/Publications/Rapports-thematiques/rapport-2019-2020-sur-le-respect-des-codes-de-bonne-conduite-et-l-independance-des-gestionnaires-de-reseaux-d-electricite-et-de-gaz-naturel

[63] At the time of publication of this report, the decarbonized gas markets legislative package was in the phase of a provisional political agreement between the Council and the Parliament, reached on 21 November and 8 December 2023.
https://data.consilium.europa.eu/doc/document/ST-16516-2023-INIT/en/pdf
https://data.consilium.europa.eu/doc/document/ST-16522-2023-INIT/en/pdf

Regarding vertical unbundling of hydrogen distribution network operators, legal separation and unbundling of accounts should be in place where the distribution system operator or the hydrogen distribution network operator is part of a vertically integrated undertaking (Article 42 recast Gas Directive), with a derogation from legal unbundling provisions for smaller operators (Article 42(4) recast Gas Directive). Member States may provide that hydrogen distribution network operators may rent or lease hydrogen network assets from other natural gas distribution system owners, natural gas distribution operators or hydrogen distribution network operators within the same undertaking. Such leasing shall not lead to cross-subsidies between different operators.

Apart from the abovementioned rules on vertical unbundling, the recast Gas Directive also provides for **horizontal unbundling** rules. Article 63 stipulates that, where a hydrogen transmission network operator is part of an undertaking active in transmission or distribution of natural gas or electricity, it shall be independent at least in terms of its legal form. Member States may grant derogations, on the basis of a publicly available positive cost-benefit analysis, from such obligation.
In addition, Article 64 provides for accounting unbundling of hydrogen network operators.
Since Article 63 only applies to hydrogen transmission network operators, it follows that hydrogen distribution network operators are only subject to accounting unbundling requirements with regards to the horizontal separation from other activities.

Derogations are allowed for existing hydrogen networks (Article 47 recast Gas Directive) and geographically confined networks (Article 48 recast Gas Directive): they are granted **by the relevant NRA** on the basis of fulfilment of specific conditions and are reviewed every 7 years. **Existing hydrogen networks** can be exempted from unbundling and access rules. Hence, Member States may grant a derogation from the requirements of regulated third party access for hydrogen networks and regulated tariffs, OU, legal and accounting unbundling.
For **geographically confined hydrogen networks** (i.e. networks transporting hydrogen from one entry point a limited number of exit points within a geographically confined, industrial or commercial area), Member States may provide for a derogation from unbundling rules.

5 Unbundling and Certification of storage system operators

An important development with regard to gas storage facilities is the new obligation for storage system operators to be **certified** under the aspect of **security of supply**. Such a certification is not an unbundling certification. The obligation was established in 2022 by **Regulation (EU) 2022/1032 on gas storage**[64], which introduces a new Article 3a into Regulation (EC) 715/2009 and subsequently taken over in Article 13a of the recast Gas Regulation.

This new requirement is **to be differentiated from existing rules on unbundling**, even as far as such rules already apply to certain storage facilities according to Article 15 of the Gas Directive (2009/73/EC). In consequence, it is explicitly provided that the new certification procedure shall also be carried out with regard to storage operators controlled by TSOs that are already certified under the existing unbundling regime.

The main focus of this new rule is related to the risk of **security of supply** (Article 3a(3)).

[64] Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage:https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1032

Certifying authorities, which can be either the NRA or another competent authority designated by the Member State concerned pursuant to Article 3(2) of Regulation (EU) 2017/1938 of the European Parliament and of the Council, may be able to rely on experience they already have from certifying TSOs under the Gas Directive, as TSOs under the influence of third countries, persons or entities in third countries are only allowed to be certified if they do not put at risk the security of supply. The new provision is however broader in scope, not being limited to risks originating in third countries. It is also stricter in its requirements.

The certification timeframe under the new Article 3a of the Gas Regulation varies, depending on the capacity of the storage facility concerned. Larger facilities have to be certified sooner than smaller facilities, the threshold being a capacity of 3.5 TWh. For such larger facilities, certifying authorities were required to make their best efforts to issue a draft certification decision by 1 November 2022. Thus, at least two NRAs' draft certification decisions were submitted to the EC for opinion (the certification of Fluxys Belgium NV as a gas storage system operator by the Belgian NRA[65] and certification of Podzemno Skladište Plina Ltd. as gas storage system operator by the Croatian NRA[66]). For all other storage systems operators, the deadline for the certifying authorities to issue a draft certification decision is set at 2 January 2024 or within 18 months of the receipt of a notification. The Spanish NRA is proceeding with the certification of Enagas Transporte and Trinity Almacenamientos Andalucía, but both the Commission's opinion and the NRA's final decision are still pending.

6 Conclusions

Since the introduction of unbundling provisions and certification requirements in the 3rd energy package, CEER has closely monitored the developments and practices related to TSO and DSO unbundling. This report assesses these developments following the implementation of the CEP provisions which introduced some far-reaching unbundling related requirements and rules.

In general, it can be concluded that no major changes in the unbundling practices have been observed following the implementation of the CEP.

The total number of TSOs and DSOs has not significantly changed. Only 3 cases of changes in the unbundling model of TSOs (all from ITO to OU) were reported. 8 NRAs reported new or modified certification decisions since 2018, which concerned 14 TSOs in total. No exemptions have been granted to any gas interconnector to or from third countries following the revision of the Gas Directive (EU) 2019/692, except for one case (Nord Stream AG).

[65] Commission opinion pursuant to Article 3a of Regulation (EC) No 715/2009 - 15 February 2023 Certification of Fluxys Belgium N.V. as gas storage system operator – C (2023) 1007 final Opinion: https://energy.ec.europa.eu/system/files/2023-02/C_2023_1007_1_EN_ACT_part1_v4.pdf.

[66] Commission opinion pursuant to Article 3a of Regulation (EC) No 715/2009 – 26 May 2023 Certification of Podzemno Skladište Plina Ltd. as gas storage system operator. https://ec.europa.eu/transparency/documents-register/detail?ref=C(2023)3368&lang=en Following the procedure, HERA issued its final certification decision on 20 June 2023.

None of the Member States have transposed in their national legislation the possibility for their respective TSOs to assign certain tasks or responsibilities to another TSO (as foreseen in Article 40(2) of the Electricity Directive). However, 7 Member States have allowed TSOs to perform activities other than those provided for in the Electricity Directive and Regulation in their national legislations (by transposing Article 40(8) of the Electricity Directive into their national laws). In 15 Member States, a derogation possibility which allows TSOs to own, develop, manage, or operate energy storage facilities has been transposed into national law.

As for DSOs, a large majority of Member States do not foresee rules which allow them to perform other activities than those foreseen in the Electricity Directive and Regulation. 10 NRAs have reported on the transposition in their national legislation of derogations allowing DSOs to own, develop, manage, or operate energy store facilities in accordance with Article 36(2) of the Electricity Directive. The same 10 NRAs also confirmed the transposition of derogations allowing DSO to own, develop, manage, or operate recharging points for EVs in their countries. Only 4 Member States report exemptions for CDSs from requirements which are applicable to DSOs.

Additionally, 7 NRAs count registered and active CECs in their countries. However, in several Member States, there is no requirement for CECs to register with the NRA and thus not all NRAs have adequate information regarding the actual number of CECs operating in their Member States. In total, 813 registered CECs are declared active.

When it comes to future policy developments in the context of the energy transition, it became clear that many TSOs tend to diversify their activities, especially in the fields of hydrogen, power to gas or electrolysers, which might raise issues with regard to unbundling rules.

In particular with regard to hydrogen, a majority of NRAs reported ongoing hydrogen projects in their Member States with TSO involvement. Some cross-border H2 infrastructure projects at supra-national level are also being set up (e.g. the EHB of which a very large number of TSOs are members).

At EU level, the development of a legislative framework for H2 networks and operators, including unbundling and certification rules was recently adopted. At the same time, a number of Member States have already enacted a H2 legislative framework at national level, including rules on unbundling and certification of H2 network operators. Referring to the several case studies presented in this report, it can be observed that there is great interest and engagement by various (mainly gas, but also electricity) TSOs to experiment, adapt and deploy their networks for H2 transport. TSOs are also involved in experimental projects concerning H2 production, whereas here the unbundling provisions have to be taken into account in the long-term perspective.

CEER will continue monitoring the developments in the unbundling practice in the future.

Annex 1 – List of abbreviations

Term	Definition
2nd Package	Second Energy Package
3rd Package	Third Energy Package
ACM	Autoriteit Consument & Markt (The Netherlands Authority for Consumers and Markets – Dutch NRA)
ADMIE	The Independent Power Transmission Operator (GR)
ARERA	Autorità di regolazione per energia reti e ambiente (Italian NRA)
BNetzA	Die Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen (German NRA)
CDS	Closed Distribution System
CEC	Citizen Energy Community
CEER	Council of European Energy Regulators
CEP	Clean Energy Package for all Europeans
ČEPS	Česká energetická přenosová soustava (Czech TSO)
CNMC	La Comisión Nacional de los Mercados y la Competencia (Spanish NRA)
CRE	Commission de régulation de l'énergie (French NRA)
CREG	Commission de Régulation de l'Électricité et du Gaz (Belgian NRA)
DESFA	The National Natural Gas System Operator
DSO	Distribution System Operator
EC	European Commission
EDF	Électricité de France SA
ENTSO-E	The European Network for Transmission System Operators for Electricity
ENTSO-G	The European Network for Transmission System Operators for Gas
EU	European Union
EVs	Electric vehicles
FiT	Feed-in tariffs
FiP	Feed-in-premiums
GCA	Gas Connect Austria GmbH
H2	Hydrogen gas
i.a.	Inter alia

Term	Definition
ISO	Independent System Operator
ITO	Independent Transmission Operator
LNG	Liquefied Natural Gas
MS	Member State
NRA	National Regulatory Authority
OU	Ownership Unbundling
PCI	Project of Common Interest
PTX	Power-to-X
RAE	Ρυθμιστική Αρχή Ενέργειας / Regulatory Authority for Energy (Greek NRA)
Resp.	Respectively
RTE	Réseau de Transport d'Electricité (French TSO)
R&D	Research and Development
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan
VIU	Vertically Integrated Undertaking

Annex 2 – List of TSOs

Electricity TSOs

Country	Electricity TSOs by unbundling model			
	ITO		OU	
Austria	1	Austrian Power Grid AG	2	Vorarlberger Übertragungsnetz GmbH
				Eneco Valcanale S.r.l.
Belgium			1	Elia Transmission Belgium
Bulgaria			1	Electroenergien Sistemen Operator EAD
Croatia	1	Hrvatski operator prijenosnog sustava d.d.		
Cyprus	1	Cyprus Transmission System Operator[67]		
Czechia			1	ČEPS
Denmark			1	Energinet[68]
Estonia			1	Elering AS[69]
Finland			1	OyFingrid Oyj
France	1	RTE		
Germany	3	TransnetBW GmbH	5	TenneT TSO GmbH
				50Hertz Transmission GmbH

[67] TSOC is not required to be certified according to derogation of Art. 66(3) Directive 2019/944 granted to Cyprus. TSOC is not the owner of the transmission system but is legally unbundled and functions independently in terms of organisation and decision making from the owner of the transmission system.

[68] Energinet is an independent public enterprise owned by the Danish Ministry of Climate, Energy and Utilities, which owns, operates, and develops the transmission systems for electricity and gas in Denmark.

[69] Elering maintains and develops both electricity and gas internal transmission networks and external connections. All Elering's shares belong to the Republic of Estonia whose shareholder`s rights are being executed by Ministry of Economic Affairs and Communications.

		Amprion GmbH		Offshore: TenneT Offshore DolWin3 GmbH & Co. KG
				Offshore: TenneT Offshore 9. Beteiligungsgesellschaft mbH
		Offshore: Baltic Cable AB		Offshore: TenneT Offshore 1. Beteiligungsgesellschaft mbH
Greece			1	ADMIE S.A.
Hungary	1	MAVIR		
Italy			1	Terna S.p.A.
Latvia			1	JSC Augstsprieguma tīkls
Lithuania			1	Litgrid AB
Luxembourg			1	Creos Luxembourg SA[70]
Malta				
North Macedonia			1	MEPSO JSC Skopje
The Netherlands			2	TenneT TSO B.V.
				BritNed Development Ltd
Norway			1	Statnett SF
Poland			1	Polskie Sieci Elektroenergetyczne (PSE) S.A.
Portugal			1	Rede Eléctrica Nacional (REN), S.A.
Romania	1	C.N. Transelectrica S.A.		

[70] Creos Luxembourg S.A. is required to comply with the rules on accounting unbundling. In addition, Creos is subject to the DSO legal and functional unbundling rules.

Slovakia		1	SEPS, a.s.
Slovenia		1	ELES d.o.o.
Spain		1	Red Electrica de España
Sweden		1	Svenska kraftnät

Gas TSOs

Country	Gas TSOs by unbundling model					
	ITO			OU		ISO
Austria	2	Gas Connect Austria GmbH				
		Trans Austria Gasleitung GmbH				
Belgium				2	FLUXYS BELGIUM	
					INTERCONNECTOR	
Bulgaria				1	Bulgartransgaz EAD	
Croatia				1	Plinacro L.T.D.	
Czechia	1	NET4GAS, s.r.o.				
Denmark				1	Energinet[71]	
Estonia				1	Elering AS	
Finland				1	Gasgrid Finland Oy	
France	1	GRTgaz		1	Teréga	
Germany[72]	11	Thyssengas GmbH		3	Gasunie Deutschland Transport Services GmbH	

[71] Energinet is an independent public enterprise owned by the Danish Ministry of Climate, Energy and Utilities, which owns, operates, and develops the transmission systems for electricity and gas in Denmark.

[72] Plus two gas TSOs without a model: (1) OPAL Gastransport GmbH & Co. KG – certified interconnector according to the provisions of Directive 2003/55/EC; (2) Lubmin-Brandov Gastransport GmbH – (as an operator of the released OPAL capacities) exempted from unbundling provisions.

		GRTgaz Deutschland GmbH		Fluxys TENP GmbH	
		Nowega GmbH		Fluxys Deutschland GmbH	
		Open Grid Europe GmbH			
		GASCADE Gastransport GmbH			
		ONTRAS Gastransport GmbH			
		Bayernets GmbH			
		Terranets bw GmbH			
		Gastransport Nord GmbH			
		NEL Gastransport GmbH			
		Ferngas Netzgesellschaft GmbH			
Greece			1	DESFA S.A.	
Hungary	1	FGSZ Ltd.			
Italy			3	Snam Rete Gas (SRG) S.p.A.	
				Infrastrutture Transporto Gas (ITG) S.p.A.	
				Società Gasdotti Italia (SGI) S.p.A.	

Latvia			1	JSC Connexus Baltic Grid		
Lithuania			1	AB “Amber Grid”		
Luxemburg			1	Creos Luxembourg S.A.[73]		
Malta						
North Macedonia			(1)	GAMA AD Skopje[74]		
The Netherlands			2	Gasunie Transport B.V.		
				BBL Company V.O.F.		
Norway						
Poland			1	Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A.	1	Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A.[75]
Portugal			1	REN Gasodutos, S.A.		
Romania	1	Transgaz S.A.				
Slovakia	1	Eustream, a.s.				
Slovenia	1	Plinovodi d.o.o.				
Spain			2	Enagás Transporte	2	Enagás Transporte
				Reganosa		Enagás Transporte del Norte
Sweden			1	Swedegas AB		

[73] Creos Luxembourg S.A. is required to comply with the rules on accounting unbundling. In addition, Creos is subject to the DSO legal and functional unbundling rules.

[74] Not yet certified.

[75] There is one gas TSO in Poland - Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A. – which functions under the OU model on its own networks and under the ISO model on the Polish section of the Yamal pipeline.

Annex X – About CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national energy regulators. CEER's members and observers comprise 39 national energy regulatory authorities (NRAs) from across Europe.

CEER is legally established as a not-for-profit association under Belgian law, with a small Secretariat based in Brussels to assist the organisation.

CEER supports its NRA members/observers in their responsibilities, sharing experience and developing regulatory capacity and best practices. It does so by facilitating expert working group meetings, hosting workshops and events, supporting the development and publication of regulatory papers, and through an in-house Training Academy. Through CEER, European NRAs cooperate and develop common position papers, advice, and forward-thinking recommendations to improve the electricity and gas markets for the benefit of consumers and businesses.

In terms of policy, CEER actively promotes an investment friendly, harmonised regulatory environment and the consistent application of existing EU legislation. A key objective of CEER is to facilitate the creation of a single, competitive, efficient, and sustainable Internal Energy Market in Europe that works in the consumer interest.

Specifically, CEER deals with a range of energy regulatory issues including wholesale and retail markets; consumer issues; distribution networks; smart grids; flexibility; sustainability; and international cooperation.

CEER wishes to thank in particular the following regulatory experts for their work in preparing this report: Alexander Linov, Barbara Heremans, Pauline Lego, Filipe Matias Santos, José Veiga, Nazim Khiari.

More information is available at www.ceer.eu.