TYNDP 2024

The Hydrogen and Natural Gas TYNDP



Infrastructure Report

Draft for information

entsog

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1 INTRODUCTION

The ENTSOG TYNDP is a comprehensive strategic plan which, together with the selection process of Projects of Common Interest (PCI) and Projects of Mutual Interest (PMI), coordinated by the European Commission (EC), aims to ensure the development of a reliable, integrated, and efficient infrastructure for the transport of energy molecules across Europe. The Infrastructure Report, one of the main TYNDP documents, provides a detailed overview of the future network, starting from its current configuration.

ENERGY TRANSITION PROJECTS AT THE FOREGROUND

TYNDP 2024 reflects ongoing decarbonisation efforts and the European path to decrease its fossil fuel dependence. It underlines that gas infrastructure must be developed in accordance with the EU energy and climate policy objectives, recognising that a resilient and sustainable network can only be achieved by focusing on renewable and low-carbon gases.

In the 2020 TYNDP edition, ENTSOG introduced Energy Transition Projects (ETR) as a new infrastructure category. This category gained dimension in TYNDP 2022, expanding into Hydrogen, Biomethane, Retrofitted and Other infrastructure categories. The shift to hydrogen and other energy transition projects is even more pronounced in the 2024 TYNDP edition, which comprises 8 such types of infrastructure categories. For instance, hydrogen projects are now structured into separate Transmission, Reception facility, Storage, Electrolyser and Mobility projects. This shows the growing trend for decarbonisation and on the integration of renewable energy sources within the EU's energy system.

Another improvement brought by the 2024 TYNDP edition concerns energy system and project assessment: a hydrogen-electricity interlinkage was added to the existing natural gas and hydrogen modelling. Therefore, the interactions between the hydrogen, natural gas and electricity sectors are better captured.

PROJECT SUBMISSION PROCESS AND PROJECT COMPLIANCE

For TYNDP 2024, the project submission process took place between 23 November 2023 and 11 February 2024. Project data was uploaded through an online portal, adapted to cover particular aspects of pure hydrogen, renewable gas, natural gas or other type of gas infrastructure. ENTSOG provided a dedicated handbook[1] to facilitate the data fill-in process.

In addition, as legally required by Annex III.2(5) of the Regulation (EU) 2022/869[2] (TEN-E Regulation), projects submitted to the TYNDP 2024 must comply with specific administrative and technical criteria for inclusion in the TYNDP. These are defined in ENTSOG's TYNDP 2024 Guidelines for Project Inclusion[3] (GPI). ENTSOG consulted the GPI with the EC and ACER and took their inputs into consideration in the final version of this document.[4]

Projects submitted to TYNDP 2024 present different levels of maturity and their inclusion in the TYNDP does not make their development legally binding and should not be interpreted as an endorsement by ENTSOG or an EU body.

1 TYNDP 2024 Project Submission Handbook Update

2 Regulation (EU) 2022/869

3 TYNDP 2024 Guidelines for Project Inclusion

4 A consultation report on the GPI is publicly available at TYNDP 2024 Guidelines for Project Inclusion Consultation Report (ENTSOG.eu)


Picture courtesy of TAP

2 EUROPEAN ENERGY POLICY ON HYDROGEN AND GAS INFRASTRUCTURE

Renewable and low-carbon fuels, including hydrogen, are one of the pillars of the EU Strategy on Energy System Integration[5]. Along with the "energy efficiency first" principle and with direct electrification, they are the necessary tools to achieve cost-effective decarbonisation. Further, the Hydrogen Strategy, adopted at the same time as the Strategy on System Integration, established a gradual trajectory to develop clean hydrogen and achieve its role in a climate-neutral European energy system by 2050.

In the context of an integrated energy system, renewable and low-carbon hydrogen, biogas and biomethane, are acknowledged as a solution for hard-to-abate sectors. Additionally, they can act as storage of otherwise unused variable renewable electricity production. Ultimately, they have a "nodal" role, interlinking gas and electricity production between themselves and with demand – like industry and transport.

The new legislative package on the internal markets of hydrogen and decarbonised gas establishes common rules covering supply, transport and storage. It consists of a Regulation and of a Directive that entered into force on 4 August 2024:

- The recast Regulation on decarbonised gas and hydrogen markets defines the framework for the future gas and hydrogen infrastructure to integrate a higher share of hydrogen and renewable gases;
- The recast Directive on decarbonised gas and hydrogen markets aims at creating a certification framework; it sets a timeline for agreement on a definition for low-carbon hydrogen.

5 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0299

The rules are designed from a cross-sectoral and technology-neutral perspective and build on previous developments, such as:

1. **The "Fit for 55" package**, created to put in place policy enabling the EU to reach its climate goals. As a next development, in 2022, REPowerEU Plan[6] aimed towards supply source diversification in a changing geopolitical context, including though the acceleration of hydrogen deployment, required for a system with a growing share of electricity.
2. **General support for the integration** of renewables and clean energy technologies through the European Climate Law and the European Green Deal, the rules for which were defined in the 2022 revision of the TEN-E Regulation.
3. **The principle of market-based energy infrastructure development,** for which legal context was created by unbundling rules laid down in the Third Energy Package.[7]

The revised EU-wide rules aim to create the right conditions and incentivise the development of a new cross-border hydrogen network and repurposed natural gas infrastructure for hydrogen in a cost-effective way. The 6th Union list – or the 1st Union list of PCIs and PMIs under the new TEN-E Regulation – was adopted by the EC in November 2023 and subsequently accepted by the European Parliament and the Council. The Union list includes hydrogen-related projects for the first time, with new natural gas infrastructure no longer eligible. The number of hydrogen projects on the Union list is significant – 65 out of a total 166 – and confirms the European commitment to build a hydrogen backbone.

Growing regulatory support for renewable electricity deployment goes hand in hand with the development of renewable hydrogen and power-to-gas, hydrogen storage and CCUS projects. The new Regulation (EU) 2024/1789 reflects this at network planning level. Thus, planning for hydrogen and natural gas will expressly be done in direct collaboration between network operators. In particular, hydrogen infrastructure is seen as a priority solution for carbon-intensive areas.

6 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0230

7 The Third Energy Package consists of two directives and three regulations, two of which concern natural gas markets: Directive 2009/73/EC concerning common rules for the internal market in natural gas and Regulation (EC) No 715/2009 on conditions for access to the natural gas transmission networks The Directive was recently repealed by Directive (EU) 2024/1788, valid starting August 2024, while the regulation is repealed by Regulation (EU) 2024/1789, applicable as of February 2025.

3 TYNDP 2024 PROJECT COLLECTION PROCESS

In order to ensure the quality of the project collection and project assessment, ENTSOG, as in every TYNDP cycle, has made a substantial effort to improve the process by adjusting and upgrading its Project Data Portal and by focusing on better communication, as well as clearer instructions to the promoters, ensuring the best possible availability, consistency and quality of the collected project data.

For each TYNDP, ENTSOG gathers information on existing firm capacities directly from TSOs for transmission infrastructures and from Gas Infrastructure Europe (GIE) for LNG regasification terminals and storage facilities. For the TYNDP 2024, data on existing firm capacities were collected as of 1 January 2024.

To offer a comprehensive view of the European gas system over the next years, it is crucial to include all relevant infrastructure projects in the TYNDP. ENTSOG has conducted an open and transparent data collection process, actively encouraging project promoters to submit their projects. Recognising the submission of detailed project data as essential for infrastructure analysis, ENTSOG has provided a Project Data Portal accessible to all project promoters to facilitate this process.

Only projects that have been actively (re-)submitted by promoters through the Project Data Portal are included in the TYNDP 2024. This ensures transparency and non-discrimination between projects. Before the submission phase, ENTSOG offered support to project promoters by providing a documentation kit with a handbook on using the Project Data Portal and organised dedicated webinars.

To enhance transparency and accuracy of information and facilitate coordination among promoters, the ENTSOG Project Data Portal provides capacity monitoring interfaces. This allows project promoters to monitor their submissions actively through specific reports and check the final capacity value resulting from the application of the "lesser-of-rule"[8].

By submitting projects, promoters commit to providing accurate and up-to-date information. In specific cases, ENTSOG has taken corrective actions in accordance with pre-defined rules. Each project is assigned a unique TYNDP code by the Project Data Portal upon first submission. This code remains consistent across future TYNDP updates, allowing the project's progress to be tracked across different editions and during the PCI and PMI selection process. Promoters were also required to provide detailed implementation schedules and estimated costs.

8 The "lesser-of-rule" means that, on a Point with Entry and Exit capacities, the minimum of the two values will be considered as the firm capacity available for use. Example: Promoter A submits an Exit capacity on Point P in the value of 100. Promoter B submits an Entry capacity on the other side of the Point P, in the value of 200. After the application of the rule, the firm capacity considered for modelling will be 100.

As presented in Figure 1, for TYNDP 2024 the initial project submission phase occurred from 23 November 2023 to 22 December 2023. This was followed by a verification and correction phase from 23 December 2023 to 11 February 2024, allowing both ENTSOG and promoters to review and amend the submitted data. To ensure data consistency, ENTSOG collaborated with ACER and National Regulatory Authorities (NRAs) after the initial data collection, informing promoters of any comments received and allowing them to update their submissions if necessary. This information was also shared with the EC.

Within 3 months after the close of the check and validation phases, ENTSOG published on its website the list of projects accepted for inclusion in the TYNDP. In advance of the TYNDP 2024 project list's publication, ENTSOG informed the relevant promoters about any non-inclusion of their project(s) in the TYNDP 2024 and provided the relevant justification for the non-inclusion. It should be noted that no promoter appealed against any decision for project non-inclusion.



Figure 1: Phases and timeline of the TYNDP 2024 Project Collection.


Picture courtesy of Teréga

4 PROJECT MATURITY STATUS AND INFRASTRUCTURE LEVELS

4.1 PROJECT MATURITY STATUS

Depending on their level of maturity, **hydrogen projects** are categorised along different status. In TYNDP 2024 there are three different project maturity status: FID[9], Advanced and Less-Advanced. Each project maturity status is directly derived from the information provided by its promoter and according to the rules set in the ENTSOG GPI document:

- The **FID status** is applied to projects that, based on the information submitted,
  - have taken the final investment decision ahead of the closure of TYNDP 2024 project collection.

  Projects with FID status are identified in TYNDP project code with an **F** (e.g., H2T-**F**-000).

- The **Advanced status** is applied to projects that, based on the information submitted, have:
  - commissioning expected at the latest by 31 December 2029
  - AND the project fulfils at least one of the following criteria:
    - Project is included in the national development plan(s) (NDP) or in the national law of the respective country(ies)
    - Project has successfully consulted the market through a market test (including non-binding processes)

  Hydrogen projects with Advanced status are identified in TYNDP project code with an **A** (e.g., H2T-**A**-000).

- All hydrogen projects which do not meet the criteria of having FID or Advanced status are considered as having the **Less-Advanced status**[10].

  Projects with Less-Advanced status are identified in TYNDP project code with an **N** (e.g., H2T-**N**-000).

Similarly, in TYNDP 2024 **natural gas or other projects** were categorised following their maturity status. The FID status has the same definition as for hydrogen projects, while the Advanced status for natural gas infrastructure is restricted to projects that, based on the information submitted, have:

- commissioning expected at the latest by 31 December 2029
- AND the project fulfils at least one of the following criteria:
  - Permitting phase has started ahead of the TYNDP 2024 Project Collection
  - Front-End Engineering Design (FEED) has been completed ahead of the TYNDP project data collection

Based on past TYNDP process experiences and the recommendations expressed by ACER in their Opinions[11], the Advanced status was already introduced in the 2017 edition and allows to better reflect the different project maturities. This status was defined in close cooperation with ACER and the European Commission, and in consultation with stakeholders.

9 FID: Final Investment Decision

10 Less advanced projects are considered as important input for the TYNDP assessments. One reason is that Annex III.2(1)(d) of the TEN-E Regulation in principle allows less advanced projects to become a PCI or PMI. Due to Annex III.2(4) of the TEN-E Regulation, being part of the latest ENTSOG TYNDP is thereby a requirement to become a PCI or PMI for hydrogen projects falling under the categories listed in Annex II(3) of the TEN-E Regulation. In order not to unduly restrict such less mature projects from receiving a PCI or PMI status, they must also be collected for the TYNDP.

11 https://www.acer.europa.eu/gas/infrastructure/network-development-plans

All natural gas projects which do not meet the criteria of having FID or Advanced status are considered as having the **Less-Advanced status**.

Additionally, the **PCI/PMI status** is assigned to a project which is part of the Union list of PCIs and PMIs as detailed in section B of the Annex VII to the TEN-E Regulation, irrespective of the above-mentioned project maturity status.

4.2 INFRASTRUCTURE LEVELS

Infrastructure levels are defined as the potential level of development of the European hydrogen network, electricity network, or natural gas network.

An infrastructure level represents the complete set of infrastructure elements assumed to be in place along the considered analysis time horizon.

4.2.1 HYDROGEN INFRASTRUCTURE LEVELS

There are two hydrogen infrastructure levels (see Figure 2):

- A PCI/PMI hydrogen infrastructure level consisting of:
  - **Existing hydrogen infrastructure** which refers to hydrogen infrastructure that is operational at the time of the TYNDP 2024 Project Collection as well as projects that acquired the final investment decision (FID) ahead of the relevant TYNDP project data collection and that are expected to be commissioned no later than 31 December 2023.[12]
  - **FID hydrogen projects**, which refers to projects having taken the final investment decision ahead of the TYNDP 2024 Project Collection. The FID status was defined in Art. 2(3) of Regulation (EC) 256/2014 as follows: "final investment decision" means the decision taken at the level of an undertaking to definitively earmark funds for the investment phase of a project (...)".
  - Hydrogen projects in the Union list of PCIs and PMIs in force.
  - **Modidications by requests of the European Commission concerning import corridors.**
- An **Advanced hydrogen infrastructure** level consisting of:
  - **PCI/PMI hydrogen infrastructure level** as defined above.
  - **Hydrogen projects** with Advanced status[13].
  - **Modifications by requests of the European Commission concerning import corridors**.

The Advanced hydrogen infrastructure level broadens the range of the TYNDP 2024 System assessment, by including the advanced hydrogen projects on top of PCI/PMI infrastructure, allowing for a better and more complete infrastructure gaps identification.

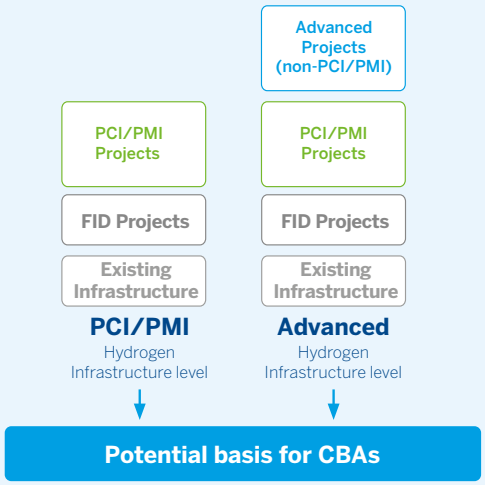

Figure 2: Hydrogen infrastructure levels in TYNDP 2024.

12 It is important to note that for the TYNDP 2024, no hydrogen infrastructure was collected that fulfils these conditions.
These rules are general in nature, intended for application in future versions, similar to those applied to natural gas infrastructure.

13 Additional advanced projects that are not part of the Union list.


Picture courtesy of GAZ-SYSTEM

4.2.2 NATURAL GAS INFRASTRUCTURE LEVELS

There are two natural gas infrastructure levels (see Figure 3):

- A **Low natural gas infrastructure level** consisting of:
  - **Existing natural gas infrastructure** which represents the minimum level of natural gas infrastructure development and refers to natural gas infrastructure that is operational at the time of the TYNDP 2024 Project Collection as well as natural projects with the final investment decision taken (FID) and expected commissioning before 31 December 2024.
  - **FID natural gas projects** which refers to projects having taken the final investment decision ahead of the TYNDP 2024 Project Collection
  - **Individual projects identified by the European Commission**[14]. Despite not having taken final investment decision ahead of TYNDP 2024 Project Collection, identified projects are likely to show higher certainty of implementation, as they have been fully or partially funded by the respective EU Member States through the Recovery and Resilience Facility (RRF).
- An **Advanced natural gas infrastructure level** consisting of:
  - The **Low natural gas infrastructure level** as defined above.
  - The **Advanced natural gas projects**.

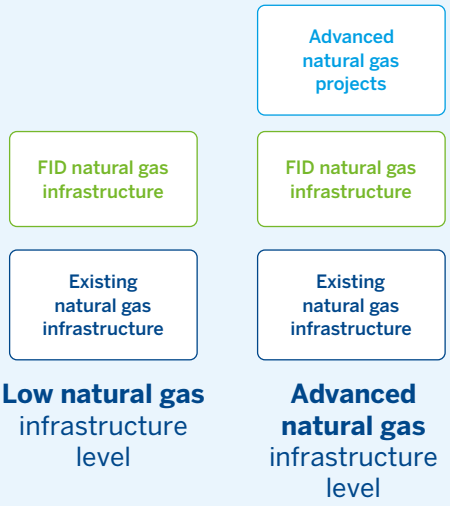

Figure 3: Natural gas infrastructure levels in TYNDP 2024.

14 Refers to the following projects that are (at least partially) funded by the Recovery and Resilience Facility (RRF): Cluster Croatia – Slovenia at Rogatec (bidirectional) [TRA-A-86], LNG Gdansk in Poland [LNG-A-947], Expansion of LNG terminal in Krk in Croatia above 2.6 bcm/a – Phase II and evacuation pipline Zlobin – Bosiljevo [TRA-A-75 and LNG-N-815], Bosiljevo-Sisak-Kozarac pipeline Croatia – Hungary [TRA-A-75], Poggio Renatico Compressor Station upgrade and reverse flow on the Malborghetto Compressor Station [TRA-N-954 (no RFF funding) and TRA-F-1145]

Infrastructure levels are the basis for the identification of infrastructure gaps in the TYNDP 2024 System assessment. The 2024 TYNDP System Assessment considers both hydrogen and natural gas infrastructure levels through the Dual Hydrogen/Natural Gas Model (Dual Gas Model, DGM). Hydrogen infrastructure is composed of newly built infrastructure dedicated to hydrogen and hydrogen infrastructure repurposed from natural gas infrastructure. Thus, it is necessary for the natural gas infrastructure level to consider the potential impact of repurposing of natural gas infrastructure to hydrogen infrastructure in the context of security of supply. TYNDP 2024 has gone one step further and foresees also the interlinkage between hydrogen and with the electricity sectors through the Dual Hydrogen/Electricity Model (DHEM). The interaction between the energy carriers can be seen below in Figure 4. The usage of these models and further information of their outputs are described in the TYNDP 2024 Implementation Guidelines, the TYNDP 2024 Hydrogen Infrastructure Gaps Identification methodology, and the TYNDP 2024 System Assessment methodology.

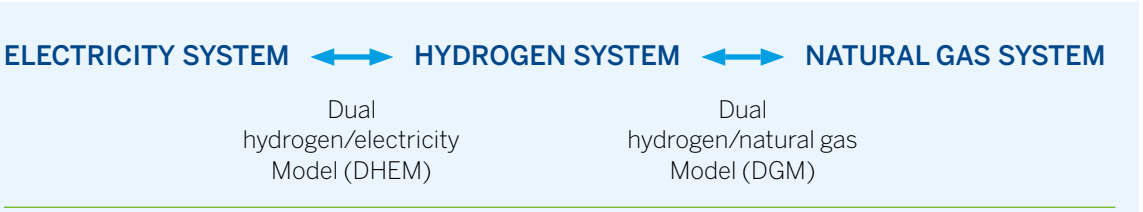

Figure 4: Description of the interactions between Electricity, Hydrogen and Natural gas systems in TYNDP 2024.


Picture courtesy of FGSZ

5 OVERVIEW OF PROJECT SUBMISSION

Overall, 326 investments[15] have been included in the TYNDP 2024 by more than 90 different project promoters including both TSOs and third-party promoters. The graph below provides the overview for this submission, compared to the previous TYNDP editions. The full details of the project information included in the TYNDP 2024 can be found in **Annex A** of this Report. This section of the report provides a general information of the received submissions. Submissions are further analysed in sections 6, 7 and 8.

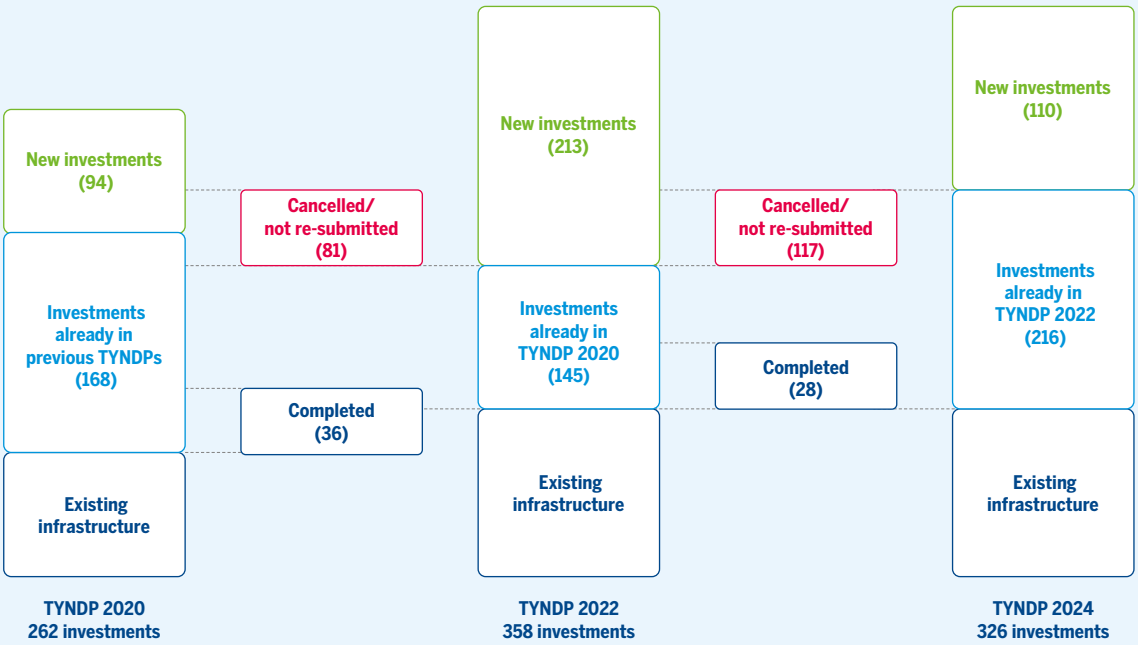

Figure 5: Comparison between TYNDP 2020, TYNDP 2022 and TYNDP 2024.

In Table 1 below, the detailed evolution of projects between TYNDP 2022 and TYNDP 2024 is presented.

Status	Completed in TYNDP 2024	FID in TYNDP 2024	Advanced in TYNDP 2024	Less Advanced in TYNDP 2024	Cancelled/ Not resubmitted in TYNDP 2024	Total
FID (TYNDP 2022)	19	15	2	1	4	41
Advanced (TYNDP 2022)	6	13	31	11	33	94
Less-Advanced (TYNDP 2022)	3	5	60	75	80	223
Total	**28**	**33**	**93**	**87**	**117**	**358**

Table 1: Evolution of projects from TYNDP 2022 to TYNDP 2024 (all Categories).

15 The terms investment and project are used interchangeably in this report.

5.1 INFRASTRUCTURE CATEGORIES

The TYNDP 2024 is designed to offer a view of the future hydrogen and natural gas infrastructure evolution. One aim of the TYNDP 2024 is to include projects that bring benefits to the European society beyond an exclusive eligibility assessment of projects for the status of PCI or PMI. For this reason, promoters can submit to the TYNDP, on a voluntarily basis, also production facilities (such as electrolysers), as well as natural gas projects needed to complete market integration or to ensure security of supply and reduce dependence on Russian gas. In TYNDP 2024, projects are classified into four different categories based on the energy carrier as defined in the TYNDP 2024 GPI. In addition, each main category is divided into different subcategories, as it follows:

1. HYDROGEN

- Hydrogen transmission pipelines (H2T)
- Hydrogen storage facilities (H2S)
- Hydrogen reception facilities (H2L)
- Hydrogen in the transport sector for mobility (H2M)
- Electrolysers for hydrogen production (H2E)

2. NATURAL GAS

- Gas transmission pipelines (TRA)
- Underground storage facilities (UGS)
- Reception and storage and regasification or decompression facilities for liquefied natural gas (LNG)

3. SMART GAS GRID

- Retrofitting projects to integrate hydrogen blends (RET)
- Biomethane development projects (BIO)
- Synthetic methane projects (SYN)

4. OTHERS

- Repurposing of natural gas infrastructure for CO_2 transport
- Other infrastructure related projects (OTH)

Project subcategories allow for an adapted and fit-for-purpose project submission process. Figure 6 provides an overview of the submitted investments per type of infrastructure.

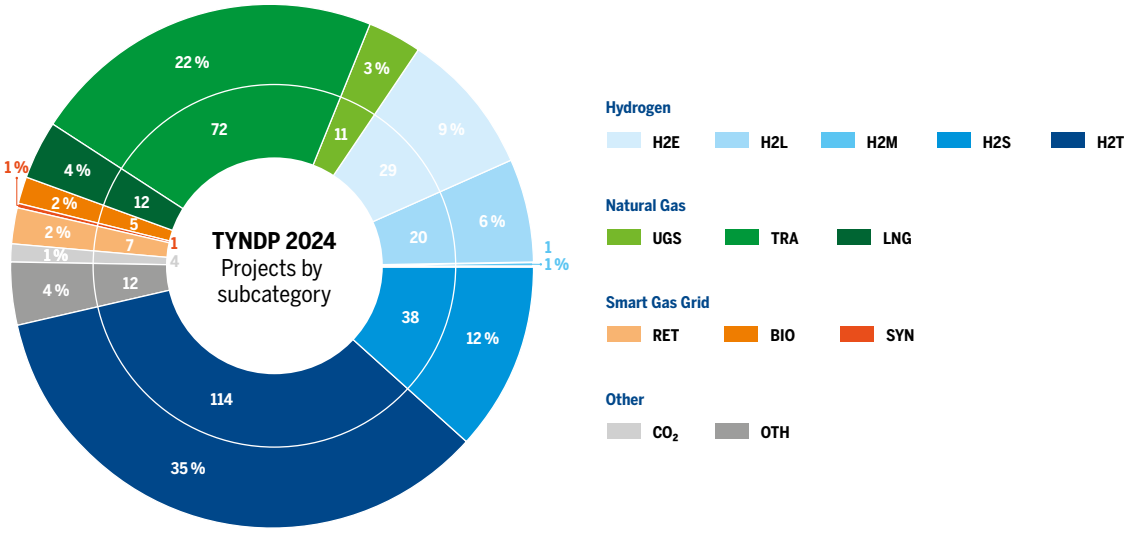

Figure 6: Project inclusion in TYNDP 2024 by subcategory.

5.2 NATURAL GAS PROJECTS COMMISSIONED SINCE TYNDP 2022

The following map shows all projects that, from the last TYNDP edition, have been completed.

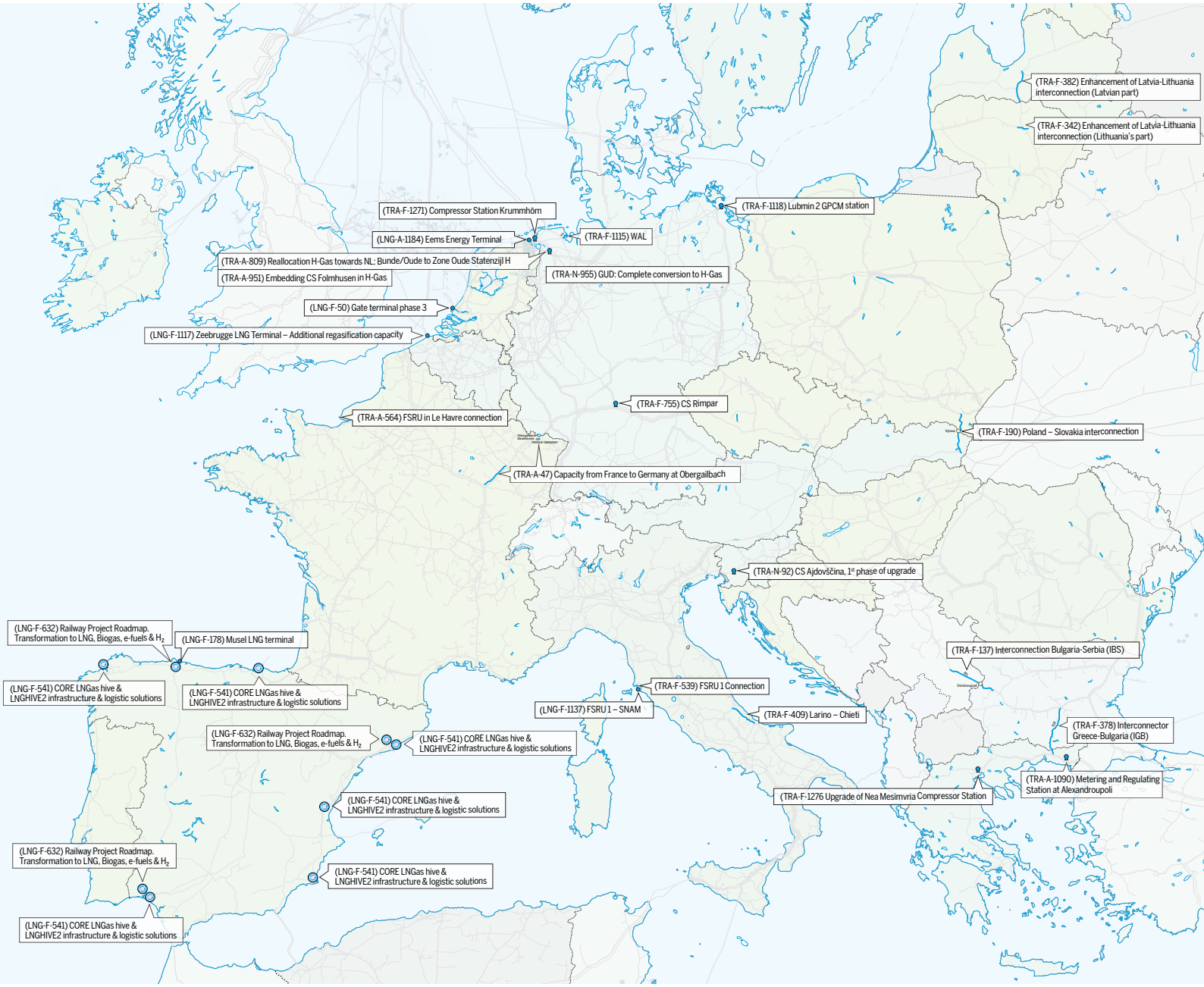

Figure 7: Map of projects commissioned since 2022.

Project code	Project name	Project promoter
TRA-F-342	Enhancement of Latvia-Lithuania interconnection (Lithuania's part)	AB Amber Grid
TRA-F-382	Enhancement of Latvia-Lithuania interconnection (Latvian part)	Conexus Baltic Grid, JSC
TRA-F-1118	Lubmin 2 GPCM station	GASCADE Gastransport/Fluxys Deutschland/GUD GmbHCo.KG/ONTRAS Gastransport
LNG-F-50	Gate terminal phase 3	Gate
TRA-F-539	FSRU 1 Connection	Snam Rete Gas S.p.A.
LNG-F-1134	FSRU 1 – SNAM	FSRU Italia
TRA-F-137	Interconnection Bulgaria – Serbia	Bulgartransgaz EAD
LNG-F-178	Musel LNG terminal	Enagas Transporte S.A.U.
TRA-F-190	Poland – Slovakia interconnection	eustream,a.s. (a joint-stock company)
TRA-F-409	Larino – Chieti	SGI S.p.A
OTH-F-541	CORE LNGas hive and LNGHIVE2 Infrastructure and logistic solutions	Enagas Transporte S.A.U.
OTH-F-632	Railway Project roadmap. Transformation to LNG, Biogas, e-fuels and H_2	Enagas S.A
TRA-F-755	CS Rimpar	GRTgaz Deutschland GmbH and Open Grid Europe GmbH
TRA-F-378	Interconnector Greece-Bulgaria (IGB Project)	ICGB a.d.
TRA-A-1090	Metering and Regulating Station at Alexandroupoli	DESFA S.A.
TRA-F-1115	WAL	Open Grid Europe GmbH
LNG-F-1117	Zeebrugge LNG Terminal – Additional regasification capacity	Fluxys LNG
TRA-F-1271	Compressor Station Krummhoern	Open Grid Europe GmbH
TRA-F-1276	Upgrade of Nea Mesimvria Compressor Station	DESFA S.A.
TRA-A-809	Reallocation H-Gas towards NL: Bunde/Oude to Zone Oude Statenzijl H	Gasunie Deutschland Transport Services GmbH
TRA-A-951	Embedding CS Folmhusen in H-Gas	Gasunie Deutschland Transport Services GmbH
TRA-N-92	CS Ajdovščina, 1st phase of upgrade	Plinovodi d.o.o.
TRA-A-564	FSRU in Le Havre connection	GRTgaz
TRA-N-955	GUD: Complete conversion to H-gas	Gasunie Deutschland Transport Services GmbH
LNG-A-1184	Eems Energy Terminal	N.V. Gasunie

Table 2: Natural gas projects commissioned since TYNDP 2022.

25 projects that were part of TYNDP 2022 were completed between the two TYNDP editions. The commissioning of these projects further contributes to the development of the European gas system, enhancing the level of market integration, security of supply, and competition.

Some of the above projects have been submitted to TYNDP 2024 but have been commissioned in the following months directly after the end of the project submission phase and will be therefore considered in the TYNDP 2024 Low natural gas infrastructure level and are no longer part of the project submission analyses in the next chapters.

5.3 PROJECTS FORESEEN TO BE COMMISSIONED BEFORE 2025

In addition to the 25 commissioned projects, 23 investments which are about to be commissioned before the end of 2025 haven been submitted to TYNDP 2024. These projects are further contributing to the security of supply. A list of these projects is presented below:

Project code	Project name	Project promoter	Country	Commissioning ends
TRA-F-1199	LNG Terminal Brunsbuettel – Grid Integration	Gasunie Deutschland Transport Service GmbH	DE	2024
LNG-F-62	LNG terminal in northern Greece/ Alexandroupolis – LNG Section	Gastrade S.A.	GR	2024
TRA-F-63	LNG terminal in northern Greece/ Alexandroupolis – Pipeline Section	Gastrade S.A.	GR	2024
TRA-F-566	FSRU Ravenna Connection	Snam Rete Gas S.p.A.	IT	2024
LNG-F-1142	FSRU Ravenna	FSRU Italia	IT	2024
H2S-F-1304	HYPSTER	STORENGY	FR	2025
TRA-N-1169	Trans-Balkan Bi-directional Flow (Third stage)	LLC Gas TSO of Ukraine	UA	2025
TRA-F-1031	Reverse flow at IP Cieszyn – Polish section	GAZ-SYSTEM S.A.	PL	2024
TRA-F-128	Compressor Station Komotini (former Kipi)	DESFA S.A.	GR	2025
UGS-F-138	UGS Chiren Expansion	Bulgartransgaz EAD	BG	2025
LNG-F-272	Upgrade of LNG terminal in Świnoujście	GAZ-SYSTEM S.A.	PL	2024
TRA-F-362	Development on the Romanian territory of the Southern Transmission Corridor	SNTGN Transgaz SA	RO	2025
UGS-F-374	Enhancement of Incukalns UGS	Conexus Baltic Grid, JSC	LV	2025
TRA-F-402	TENP Security of Supply	Fluxys TENP GmbH & Open Grid Europe GmbH	DE	2024
TRA-F-500	L/H Conversion Belgium	Fluxys Belgium	BE	2024
TRA-F-505	Lucera – San Paolo	Società Gasdotti Italia S.p.A.	IT	2025
TRA-F-967	Pipeline Nea Messimvria – Evzoni/Gevgelija and Metering Station	DESFA S.A.	GR	2025
TRA-F-1095	TENP Security of Supply plus	Fluxys TENP GmbH & Open Grid Europe GmbH	DE	2025
OTH-F-1254	CS Elten	Open Grid Europe GmbH and Thyssengas GmbH	DE	2024
TRA-F-1278	Compressor station at Ambelia	DESFA S.A.	GR	2024
LNG-A-1005	Thrace LNG Terminal	GASTRADE SA	GR	2025
H2E-A-1230	Green H_2 at CS01	eustream,a.s.	SK	2025
LNG-N-610	Extension of the LNG Terminal Krk 1st phase	LNG Hrvatska d.o.o.	HR	2025

Table 3: Natural gas projects foreseen to be commissioned before the end of 2025.



Picture courtesy of Gas Connected Austria


Picture courtesy of bayernets

6 PROMOTERS' SUBMISSIONS FOR HYDROGEN TO TYNDP 2024

The full details of all project information included in the TYNDP 2024 can be found in Annex A. This section provides a general overview of the received submissions specifically under the hydrogen subcategories (as defined in section 5.1).

Compared to the previous TYNDP version, ENTSOG expanded the hydrogen category into 5 new subcategories in TYNDP 2024: H2T, H2L, H2S, H2E and H2M. This approach allowed for more precise information in different sector developments and providing a better reflection of the requirements of the revised TEN-E Regulation. 202 hydrogen submissions in total have been included in the TYNDP 2024 falling under the five infrastructure subcategories mentioned above.

6.1 H2T – HYDROGEN TRANSMISSION PIPELINE PROJECTS

For TYNDP 2024, promoters submitted 114 projects. Among the 114 projects, 64 (56 %) are new, 36 (32 %) are a mix of new and repurposed infrastructure and 14 (12 %) are repurposed (see Figure 8).

→ see maps in figure 13 on pages 22/23

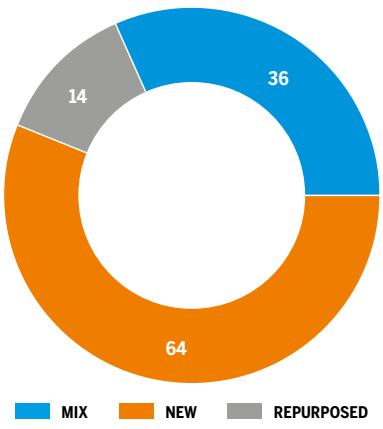

Figure 8: H2T infrastructure projects submitted to TYNDP 2024.

6.2 H2L – HYDROGEN RECEPTION FACILITIES AND H2S – HYDROGEN STORAGE FACILITIES PROJECTS

For TYNDP 2024, promoters submitted 20 projects under the hydrogen reception facilities category. 19 of them are new and one is repurposed (see Figure 9).

- For 18 out of 20 H2L projects, the importing hydrogen carrier will be ammonia, whereas for the remaining two H2L projects, the carrier will be LOHC.

Furthermore, promoters submitted 38 hydrogen storage projects to enable the storage of pure hydrogen. 21 projects are new infrastructure, two are a mix of new and repurposed infrastructure and 15 are repurposed (see Figure 10).

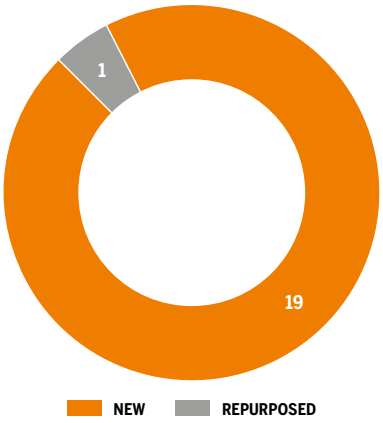

Figure 9: H2L infrastructure projects submitted to TYNDP 2024.

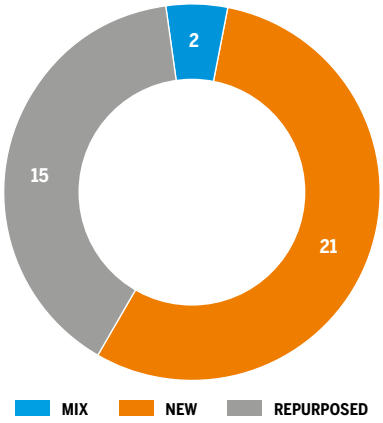

Figure 10: H2S infrastructure projects submitted to TYNDP 2024.

6.3 H2E – ELECTROLYSERS FOR HYDROGEN PRODUCTION AND H2M – HYDROGEN IN THE TRANSPORT SECTOR FOR MOBILITY PROJECTS

For TYNDP 2024, promoters submitted 29 H2E projects. In addition, one project was submitted in the sub-category Hydrogen in the transport sector for mobility (H2M).

→ see maps in figure 14 on pages 24/25

6.4 HYDROGEN PROJECT ANALYSIS AND COMPARISON WITH TYNDP 2022

Out of the 326 investments that have been included in TYNDP 2024, 202 or more than 60 % fall under the hydrogen category. In Figure 11, a simple comparison between the TYNDPs of 2020, 2022 and 2024 is presented. It is evident that, starting from 2020, the number of hydrogen projects is increasing.

Figure 12 below provides the overview for this submission, compared to the previous TYNDP editions.

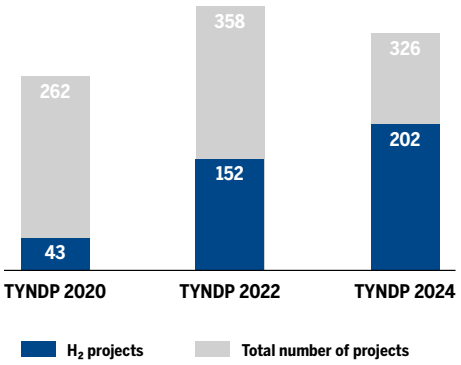

Figure 11: Evolution of total amount of projects and hydrogen projects.

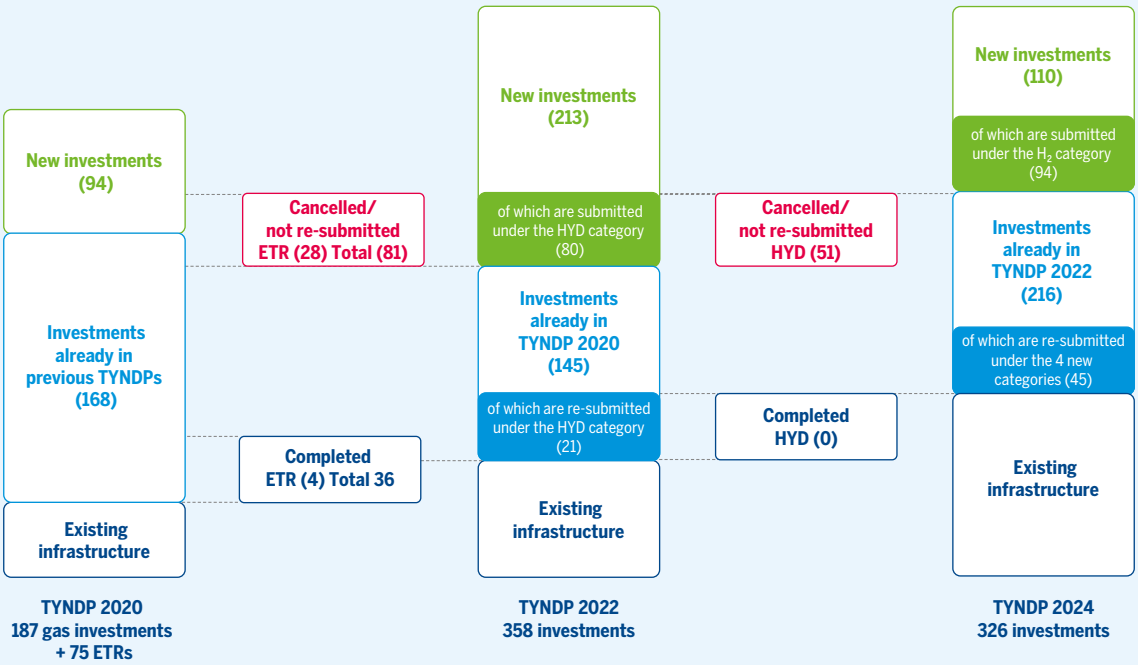

Figure 12: Comparison between TYNDP 2020, TYNDP 2022 and TYNDP 2024 – Hydrogen category.

From the graph the following conclusions can be drawn:

- In TYNDP 2022, nearly 40 % of new investments were categorised under the HYD category. For TYNDP 2024, this proportion has almost doubled (around 80 %).
- The high number of new hydrogen investments through the submission of newly introduced TYNDP 2024 project subcategories[16], reiterates the commitment of promoters to advance towards the EU decarbonisation goals.

The following assessment chapters will elaborate the submissions in more detail.

16 By introducing the new project categories and subcategories for TYNDP 2024, promoters had the possibility to further split HYD projects.

MAP FOR HYDROGEN TRANSMISSION PIPELINE PROJECTS IN TYNDP 2024

HYDROGEN TRANSMISSION PIPELINES (H2T)

	H2T-F-468	National H2 Backbone	FID	PCI
★	H2T-F-899	mosaHYc - Mosel Saar Hydrogen Conversion	FID	PCI
	H2T-A-443	Nordic-Baltic Hydrogen Corridor - FI section	Advanced	PCI
	H2T-A-642	HyPipe Bavaria - The Hydrogen Hub	Advanced	PCI
	H2T-A-757	H2 Backbone WAG + Penta West	Advanced	PCI
	H2T-A-788	H2 transmission system in Bulgaria	Advanced	PCI
★	H2T-A-906	Vlieghuis - Ochtrup	Advanced	PCI
	H2T-A-909	Connection HY-FEN-GeoH2	Advanced	PCI
★	H2T-A-926	Baltic Sea Hydrogen Collector – Offshore Pipeline [BHC] – Sweden	Advanced	PCI
	H2T-A-969	RHYn	Advanced	PCI
	H2T-A-978	Portuguese Hydrogen Backbone	Advanced	PCI
	H2T-A-986	H2 Readiness of the TAG pipeline system	Advanced	PCI
	H2T-A-987	MosaHYc (Mosel Saar Hydrogen Conversion) - Germany	Advanced	PCI
	H2T-A-990	Czech H2 Backbone SOUTH (formerly CEHC, Czech part)	Advanced	PCI
	H2T-A-1001	Hyperlink 3 Danish-German Hydrogen Network - German part	Advanced	PCI
	H2T-A-1034	Czech H2 Backbone WEST (formerly CGHI, Czech part)	Advanced	PCI
	H2T-A-1035	Franco-Belgian H2 corridor (incl. WHHYN)	Advanced	PCI
	H2T-A-1037	H2ercules Network North	Advanced	PCI
	H2T-A-1038	H2ercules Network West	Advanced	PCI
★	H2T-A-1052	H2ercules Network South-West	Advanced	PCI
	H2T-A-1055	H2ercules Network South-East	Advanced	PCI
	H2T-A-1075	H2ercules Network North-West	Advanced	PCI
	H2T-A-1096	RHYn Interco (Section 1-3)	Advanced	PCI
★	H2T-A-1136	Nordic Hydrogen Route – Bothnian Bay – Finnish section - Pipeline	Advanced	PCI
	H2T-A-1137	Central European Hydrogen Corridor (CEHC) (UKR part)	Advanced	PCI
	H2T-A-1144	Nordic-Baltic Hydrogen Corridor - PL section	Advanced	PCI
	H2T-A-1049	Spanish hydrogen backbone 2030	Advanced	PCI
★	H2T-A-1056	H2Med/CelZa	Advanced	PCI
	H2T-A-1171	Nordic Hydrogen Route- Bothnian Bay- Swedish part	Advanced	PCI
	H2T-A-1236	Danish Backbone West	Advanced	PCI
	H2T-A-1264	Slovak Hydrogen Backbone	Advanced	PCI
	H2T-A-1280	Nordic-Baltic Hydrogen Corridor - LV section	Advanced	PCI
	H2T-A-1310	Nordic-Baltic Hydrogen Corridor - DE section	Advanced	PCI
	H2T-A-1311	Belgian Hydrogen Backbone	Advanced	PCI
	H2T-A-1355	Baltic Sea Hydrogen Collector - Offshore Pipeline [BHC]	Advanced	PCI
★	H2T-A-0	OGE H2ercules Central	Advanced	Non-PCI
★	H2T-A-66	Interconn. Croatia-Bosnia &Herzegov. (Slobodnica-Bosanski Brod)	Advanced	Non-PCI
★	H2T-A-68	H2 Ionian Adriatic Pipeline	Advanced	Non-PCI
★	H2T-A-70	Interconnection Croatia/Serbia (Slobodnica-Sotin-Bačko Novo Selo)	Advanced	Non-PCI
★	H2T-A-224	Northern Interconnection BiH/CRO	Advanced	Non-PCI
★	H2T-A-302	Interconnection Croatia-Bosnia and Herzegovina (South)	Advanced	Non-PCI
★	H2T-A-303	Interconnection Croatia-Bosnia and Herzegovina (West)	Advanced	Non-PCI
	H2T-A-418	Connection Fiume Treste Livello F	Advanced	Non-PCI
	H2T-A-443	Nordic-Baltic Hydrogen Corridor - FI section	Advanced	Non-PCI
	H2T-A-444	HySoW Mediterranean (Hydrogen South West corridor of France)	Advanced	Non-PCI
★	H2T-A-542	HyBRIDS	Advanced	Non-PCI
	H2T-A-555	Apulia H2 Backbone	Advanced	Non-PCI
	H2T-A-633	GETH2-IPCEI	Advanced	Non-PCI
	H2T-A-666	H2Coastlink	Advanced	Non-PCI
★	H2T-A-735	North Africa Hydrogen Corridor	Advanced	Non-PCI
	H2T-A-779	Pomeranian Hydrogen Cluster	Advanced	Non-PCI
	H2T-A-821	Hydrogen Highway - Northern Section	Advanced	Non-PCI
	H2T-A-835	SK-HU H2 corridor	Advanced	Non-PCI
★	H2T-A-851	Southern Interconnection BiH/CRO	Advanced	Non-PCI
★	H2T-A-876	IP Elten/Zevenaar - Cologne	Advanced	Non-PCI
★	H2T-A-910	Western Interconnection BiH/CRO	Advanced	Non-PCI
★	H2T-A-917	Emsbüren - Leverkusen	Advanced	Non-PCI
	H2T-A-933	Hyperlink 4-5 Wilhelmshaven - Emsbüren	Advanced	Non-PCI
	H2T-A-1000	Hyperlink 1-2	Advanced	Non-PCI
	H2T-A-1014	Giurgiu Nădlac hydrogen corridor with new H2 interconnector	Advanced	Non-PCI
★	H2T-A-1015	New Hydrogen pipeline from Black Sea area to Podișor	Advanced	Non-PCI
	H2T-A-1049	Spanish hydrogen backbone 2030	Advanced	Non-PCI
	H2T-A-1065	HU hydrogen corridor I HU/UA	Advanced	Non-PCI
★	H2T-A-1091	Connection of DESFA's transmission system with East Med pipeline	Advanced	Non-PCI
★	H2T-A-1092	Metering and Regulating Station at UHS South Kavala	Advanced	Non-PCI
	H2T-A-1096	RHYn Interco (Sections 4-5)	Advanced	Non-PCI
	H2T-A-1205	Italian H2 Backbone	Advanced	Non-PCI
	H2T-A-1206	HU hydrogen corridor IV HU/SK	Advanced	Non-PCI
★	H2T-A-1250	NWH2	Advanced	Non-PCI
	H2T-A-1259	HU hydrogen corridor V HU/RO	Advanced	Non-PCI
	H2T-A-1291	Hynframed 1	Advanced	Non-PCI
	H2T-A-1327	HySoW Atlantic (Hydrogen South West corridor of France)	Advanced	Non-PCI
	H2T-N-569	HY-FEN H2 Corridor Spain France Germany connection	Less-Adv.	PCI
	H2T-N-738	Delta Rhine Corridor H2	Less-Adv.	PCI
	H2T-N-796	FLOW – making hydrogen happen (East)	Less-Adv.	PCI
	H2T-N-884	CHE Pipeline	Less-Adv.	PCI
	H2T-N-970	Dedicated H2 Pipeline	Less-Adv.	PCI
	H2T-N-991	AquaDuctus	Less-Adv.	PCI
	H2T-N-1122	Nordic-Baltic Hydrogen Corridor - EE section	Less-Adv.	PCI
	H2T-N-1151	H2Med-BarMar	Less-Adv.	PCI
	H2T-N-1239	Nordic-Baltic Hydrogen Corridor - LT section	Less-Adv.	PCI
	H2T-N-1324	H2Med-CelZa (Enagas)	Less-Adv.	PCI
	H2T-N-572	Project Union and the UK Hydrogen Backbone	Less-Adv.	Non-PCI
★	H2T-N-573	UK-BE H2 Interconnector	Less-Adv.	Non-PCI
	H2T-N-619	H2 interconnection Croatia/Slovenia (Luko-Zabok-Rogatec)	Less-Adv.	Non-PCI
	H2T-N-667	MIDHY	Less-Adv.	Non-PCI
★	H2T-N-740	Alpine HyWay	Less-Adv.	Non-PCI
★	H2T-N-777	H2 transm. system Bulgaria (Phase 2 of SEE H2 Priority Corridor)	Less-Adv.	Non-PCI
	H2T-N-800	H2 Interconnector Bornholm-Lubmin (IBL)	Less-Adv.	Non-PCI
	H2T-N-849	FLOW – making hydrogen happen (West)	Less-Adv.	Non-PCI
★	H2T-N-856	Baltic Sea Hydrogen Collector - tie-in to the Polish system	Less-Adv.	Non-PCI
	H2T-N-983	Hydrogen Highway - Southern Section	Less-Adv.	Non-PCI
	H2T-N-989	Doing Hydrogen	Less-Adv.	Non-PCI
	H2T-N-996	Green Octopus Mitteldeutschland	Less-Adv.	Non-PCI
	H2T-N-1011	HyONE Network NL	Less-Adv.	Non-PCI
	H2T-N-1017	Levante Pipeline Project	Less-Adv.	Non-PCI
★	H2T-N-1178	Rostock - Wrangelsburg	Less-Adv.	Non-PCI
★	H2T-N-1179	Edesbüttel - Bobbau	Less-Adv.	Non-PCI
★	H2T-N-1187	HY4Link (FR)	Less-Adv.	Non-PCI
	H2T-N-1237	Croatia-Slovenia-Austria H2 corridor	Less-Adv.	Non-PCI
	H2T-N-1245	AtlantHYc (Phases 1-2-3)	Less-Adv.	Non-PCI
	H2T-N-1251	Czech H2 Backbone NORTH	Less-Adv.	Non-PCI
	H2T-N-1252	Spanish hydrogen backbone 2040	Less-Adv.	Non-PCI
★	H2T-N-1255	H2 repurposing interconnection HR-HU	Less-Adv.	Non-PCI
	H2T-N-1274	H2 supply system Croatia - North	Less-Adv.	Non-PCI
	H2T-N-1281	Hungarian-Slovenian hydrogen corridor	Less-Adv.	Non-PCI
	H2T-N-1283	H2 Larrau	Less-Adv.	Non-PCI
	H2T-N-1285	H2 Irún (Enagás)	Less-Adv.	Non-PCI
★	H2T-N-1286	Alpine H2 Corridor	Less-Adv.	Non-PCI
	H2T-N-1294	HY4Link	Less-Adv.	Non-PCI
	H2T-N-1307	H2 supply system Croatia - South	Less-Adv.	Non-PCI
★	H2T-N-1315	H2 interconnection DE-PL (FLOW East)	Less-Adv.	Non-PCI
★	H2T-N-1328	TSO conn. capacities to RWE H2 Storage Staßfurt (H2S-N-802)	Less-Adv.	Non-PCI
★	H2T-N-1329	TSO conn. capacities to EWE H2 Storage Ruedersdorf (H2S-N-574)	Less-Adv.	Non-PCI
	H2T-N-1354	H2 Backbone Murfeld	Less-Adv.	Non-PCI
	H2T-N-1356	Italy-Slovenia-Hungary H2 corridor	Less-Adv.	Non-PCI
	H2T-N-1360	H2 offshore pipeline between Morocco and Spain	Less-Adv.	Non-PCI

Figure 13: Map for hydrogen transmission pipeline projects in TYNDP 2024

DOWNLOAD THE MAP

KEYS

ENTSOG currently comprises 43 TSO members, 1 Associated Partner and 9 Observers from 32 European Countries

When the same point is affected by several projects, the point is shown with the highest project status (operational, FID, advanced, non-FID), the status from single projects can vary from that. The projects are shown with the planning status reported in their TYNDP 2024 submission.

Project information, initially based on TYNDP project collection conducted in Nov 2023 - Feb 2024.

All data provided on this map is for information purposes and shall be treated as indicative and non-contractual in nature, without pre-empting different outcomes of any possible discussion held at regional level. Under no circumstances shall it be regarded as information intended for commercial use.

Project status :

TRA-F-123 | Infrastructure Project Name | BULGARTRANSGAZ | FID | PCI

Project ENTSOG code | Project Name | Project Promoter | Project status codes

Project not marked on map:
Exact project location is not available or is marked as confidential

Exact project locations not marked on map:
Project has several locations/points.
The indicated location is for representation purposes only and does not indicate the exact location of the project

Newly added project in TYNDP 2024:
(additional to www.h2inframap.eu)

Project ENTSOG codes / color :

TRA-N-000 — Project is part of 1st PCI/PMI list

TRA-N-000, TRA-N-000, TRA-N-000 — Project is not part of 1st PCI/PMI list

Project status codes :
The project advancement status is based on the TYNDP project collection conducted in Nov. 2023 - Feb. 2024.

PCI | Non-PCI — PCI status (Project of Common Interest)

FID | Advanced | Less-Adv. — FID status (Final Investment Decision)

Advanced status is applied to all projects that, based on the information submitted, have:
Commissioning expected at the latest by 31 December 2029
AND the project fulfils at least one of the following criteria:

- *Project has taken the final investment decision (FID) ahead of the TYNDP 2024 project collection*
- *Project is included in the NDP(s) of the respective country(ies) or in the national law*
- *Project has successfully consulted the market through a market test (including non-binding processes), which delivered positive results*

Cross-border points / intra-country or intra balancing zone points

- Cross-border interconnection point within Europe or export point to non-EU country
- Cross-border interconnection point within Europe or export point to non-EU country *Under construction or Planned*
- Cross-border interconnection point with third country (import)
- LNG Import terminal (operational)
- LNG Export terminal (operational)
- Intra-country or intra balancing zone points
- Third country cross-border interconnection point
- Cross-border interconnection point (Virtual Point)
- Third country cross-border (Virtual Point / import)

Transport by pipeline

Existing infrastructure for natural gas :
- Diameter < 600 mm
- Diameter 600 - 900 mm
- Diameter > 900mm
- Not operational

Planned infrastructure for natural gas :
- Project

Storage facilities

- Acquifer
- Salt cavity - cavern
- Depleted (Gas) field on shore / offshore
- Other type
- Gas storage projects

Gas Reserve areas

Gas field | Drilling platform

Countries

EU Countries | Other Countries

Hydrogen Transmission Pipelines (H2T)

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification :
- H2T-N-123 — ENTSOG project code

MAP FOR HYDROGEN RECEPTION TERMINAL, STORAGE, ELECTROLYSER AND MOBILITY PROJECTS IN TYNDP 2024

HYDROGEN STORAGE FACILITIES (H2S)

★	H2S-F-887	H2CAST	STORAGETZEL	FID	Non-PCI
	H2S-F-1304	HyPSTER (1st phase)	storengy	FID	Non-PCI
	H2S-A-508	H2 storage North-1	enagas	Advanced	PCI
	H2S-A-565	GeoH2	Géométhane	Advanced	PCI
	H2S-A-767	RWE H2 Storage expansion 2 Gronau-Epe	RWE	Advanced	PCI
	H2S-A-1152	H2 storage North-2	enagas	Advanced	PCI
	H2S-A-1238	DK Hydrogen Storage		Advanced	PCI
	H2S-A-1279	Hystock	gasunie	Advanced	PCI
	H2S-A-1284	RWE H2 Storage Gronau-Epe - 2nd expansion	RWE	Advanced	PCI
★	H2S-A-749	EWE Hydrogen Storage Huntorf	EWE	Advanced	Non-PCI
	H2S-A-761	JemgumH2	SEFE	Advanced	Non-PCI
	H2S-A-802	RWE H2 Storage expansion 1-2 Stassfurt	RWE	Advanced	Non-PCI
	H2S-A-805	HENRI (H2I-S&D)	nafta	Advanced	Non-PCI
	H2S-A-818	RWE H2 Storage expansion 1 Xanten	RWE	Advanced	Non-PCI
	H2S-A-839	Clean Hydrogen Coastline - Storage Huntorf	EWE	Advanced	Non-PCI
	H2S-A-1244	Hydrogen Pilot Cavern Krummhorn	uniper	Advanced	Non-PCI
	H2S-A-1287	RWE H2 Storage expansion 1 Gronau-Epe	RWE	Advanced	Non-PCI
	H2S-A-1352	HySoW storage (Hydrogen South West corridor of France)	Terega	Advanced	Non-PCI
	H2S-N-934	SaltHy Harsefeld	storengy	Less-Adv.	PCI
	H2S-N-356	UGS Velke Kapusany	nafta	Less-Adv.	Non-PCI
	H2S-N-385	South Kavala Underground Gas Storage facility		Less-Adv.	Non-PCI
	H2S-N-425	UGS Lab - H2	nafta	Less-Adv.	Non-PCI
	H2S-N-574	HyCAVmobil - Hydrogen Cavern for Mobility	NOW EWE	Less-Adv.	Non-PCI
	H2S-N-671	SpHyGER	gasunie	Less-Adv.	Non-PCI
★	H2S-N-775	EWE Hydrogen Storage Nuettermoor	EWE	Less-Adv.	Non-PCI
★	H2S-N-823	Development of Green Hydrogen Cretan Value Chain (Cretan H2SF)	EUNICE	Less-Adv.	Non-PCI
★	H2S-N-861	NWKG H2 Storage		Less-Adv.	Non-PCI
★	H2S-N-862	Development of Green Hydrogen Cypriot Value Chain (Cyprus H2SF)	EUNICE	Less-Adv.	Non-PCI
	H2S-N-907	SaltHy Harsefeld II A	storengy	Less-Adv.	Non-PCI
	H2S-N-981	Damaslawek Hydrogen Storage	GA2	Less-Adv.	Non-PCI
	H2S-N-1189	Fiume Treste UHS pilot test	Snam TAG	Less-Adv.	Non-PCI
	H2S-N-1282	Yela H2 storage	enagas	Less-Adv.	Non-PCI
	H2S-N-1288	RWE H2 Storage expansion 2 Xanten	RWE	Less-Adv.	Non-PCI
★	H2S-N-1295	UST Hydrogen Storage Epe	uniper	Less-Adv.	Non-PCI
	H2S-N-1296	StorgrHYn	storengy	Less-Adv.	Non-PCI
	H2S-N-1297	StorgrHYn 2	storengy	Less-Adv.	Non-PCI
	H2S-N-1319	StorgrHYn 3	storengy	Less-Adv.	Non-PCI
	H2S-N-1320	HyPSTER (2nd phase)	storengy	Less-Adv.	Non-PCI
★	H2S-N-1321	HyPSTER (3rd phase)	storengy	Less-Adv.	Non-PCI

HYDROGEN RECEPTION FACILITIES (H2L)

	H2L-A-754	ACE Terminal	gasunie	Ammonia	Advanced	PCI
	H2L-A-665	Eemshaven H2	gasunie	Ammonia	Advanced	Non-PCI
	H2L-A-1041	Ammonia terminal in Gdansk	GA2	Ammonia	Advanced	Non-PCI
★	H2L-N-543	LH2.Rotterdam	Vopak	Ammonia	Less-Adv.	PCI
	H2L-N-664	Antwerp NH3 Import Terminal	fluxys	Ammonia	Less-Adv.	PCI
	H2L-N-820	Dunkerque New Molecules development	fluxys	Ammonia	Less-Adv.	PCI
	H2L-N-968	Green Wilhelmshaven Terminal/Storage/Cracker	uniper	Ammonia	Less-Adv.	PCI
	H2L-N-1099	Ammonia Import Terminal Brunsbuttel	RWE	Ammonia	Less-Adv.	PCI
	H2L-N-1100	Amplifhy Antwerp	vtti	Ammonia	Less-Adv.	PCI
	H2L-N-1127	Amplifhy Rotterdam	vtti	Ammonia	Less-Adv.	PCI
	H2L-N-1159	bp Wilhelmshaven Green Hydrogen Hub	bp	Ammonia	Less-Adv.	PCI
	H2L-N-1325	Zeebrugge New Molecules development	fluxys	Ammonia	Less-Adv.	PCI
	H2L-N-741	Green P(Hy)sics	Bordeaux Port	Ammonia	Less-Adv.	Non-PCI
	H2L-N-776	Mediterranean Hydrogen Gateway	Port Lattes	Ammonia Methanol	Less-Adv.	Non-PCI
★	H2L-N-822	Vopak Energy Park Antwerp	Vopak	Ammonia	Less-Adv.	Non-PCI
	H2L-N-863	IPCEI Blue Danube	Hydrogenious	LOHC	Less-Adv.	Non-PCI
★	H2L-N-932	Ionian Energy Terminal	IGI Poseidon	Ammonia	Less-Adv.	Non-PCI
★	H2L-N-1056	HyTechHafen - Rostock		Ammonia	Less-Adv.	Non-PCI
★	H2L-N-1186	WH2V - e-NG hub	TES	LOHC	Less-Adv.	Non-PCI
★	H2L-N-1314	North Adriatic H2 Terminal	edison	Ammonia	Less-Adv.	Non-PCI

ELECTROLYSERS FOR HYDROGEN PRODUCTION (H2E)

H2E-F-1357	Andalusian Green Hydrogen Valley (Algeciras) Phase I-II	CEPSA	Advanced	PCI
	Andalusian Green Hydrogen Valley (Huelva) - Phase I-II-III	CEPSA	Advanced	PCI
H2E-A-442	SLOP2G	Plinovodi	Advanced	Non-PCI
H2E-A-1006	Hydrogen Cifer	SIDERTOON	Advanced	Non-PCI
H2E-A-1230	Green H2 at CS01	eustream	Advanced	Non-PCI
H2E-A-1272	Network related electrolyser in South of Italy (Sicily and Apulia)	Snam TAG	Advanced	Non-PCI
H2E-N-571	CHC Wilhelmshaven	EWE	Less-Adv.	PCI
H2E-N-836	Jyske Banke Nord PtX	CIP	Less-Adv.	PCI
H2E-N-847	CarlHYng	VERSO	Less-Adv.	PCI
H2E-N-853	H2V Valenciennes	H2V	Less-Adv.	PCI
H2E-N-858	Bay of Biscay - Phase 2	Petronor	Less-Adv.	PCI
H2E-N-992	GreenWilhelmshaven Electrolyser	uniper	Less-Adv.	PCI
★ H2E-N-1012	Bay of Biscay - Phase 1	Petronor	Less-Adv.	PCI
H2E-N-1082	H2V Thionville	H2V	Less-Adv.	PCI
H2E-N-1150	AsturiasH2Valley	edp	Less-Adv.	PCI
H2E-N-1293	Cartagena large scale electrolyzer	REPSOL	Less-Adv.	PCI
H2E-N-1305	Tarragona Hydrogen Network (T-HYNET)	REPSOL	Less-Adv.	PCI
H2E-N-1353	Eneco Electrolyzer - Green Hydrogen plant	Eneco	Less-Adv.	PCI
H2E-N-427	H2Pole	reganosa	Less-Adv.	Non-PCI

★	H2E-N-669	Bordeaux Port H2Hub - Production	Bordeaux Port	Less-Adv.	Non-PCI
★	H2E-N-737	Development of Green Hydrogen Cretan Value Chain (Cretan H2EL)	EUNICE	Less-Adv.	Non-PCI
	H2E-N-747	HyLacq	Elyse	Less-Adv.	Non-PCI
★	H2E-N-838	Development of Green Hydrogen Cypriot Value Chain (Cyprus H2EL)	EUNICE	Less-Adv.	Non-PCI
★	H2E-N-840	PALOS DE LA FRONTERA I HYDROGEN	Iberdrola	Less-Adv.	Non-PCI
★	H2E-N-859	PUERTOLLANO II	Iberdrola	Less-Adv.	Non-PCI
	H2E-N-875	Hygreen	ENGIE	Less-Adv.	Non-PCI
★	H2E-N-877	GREEN MEIGA HYDROGEN	Iberdrola	Less-Adv.	Non-PCI
★	H2E-N-1030	PALOS DE LA FRONTERA II	Iberdrola	Less-Adv.	Non-PCI
★	H2E-N-1039	H2ELEKTRA HYDROGEN	Iberdrola	Less-Adv.	Non-PCI
★	H2E-N-1177	Green H2 Los Barrios	H2 Los Barrios	Less-Adv.	Non-PCI

HYDROGEN IN TRANSPORT SECTOR - MOBILITY (H2M)

⊛	H2M-N-1016	BARCELONA PHASE II	Iberdrola	Less-Adv.	Non-PCI

Figure 14: Map for hydrogen reception terminal, storage, electrolyser and mobility projects in TYNDP 2024.

DOWNLOAD THE MAP

KEYS

ENTSOG currently comprises 43 TSO members, 1 Associated Partner and 9 Observers from 32 European Countries

When the same point is affected by several projects, the point is shown with the highest project status (operational, FID, advanced, non-FID), the status from single projects can vary from that. The projects are shown with the planning status reported in their TYNDP 2024 submission.

Project information, initially based on TYNDP project collection conducted in Nov 2023 - Feb 2024.

All data provided on this map is for information purposes and shall be treated as indicative and non-contractual in nature, without pre-empting different outcomes of any possible discussion held at regional level. Under no circumstances shall it be regarded as information intended for commercial use.

Project status :

TRA-F-123 | Infrastructure Project Name | BULGARTRANSGAZ | FID | PCI

- Project ENTSOG code
- Project Name
- Project Promoter
- Project status codes

Project not marked on map
Exact project location is not available or is marked as confidential

Exact project locations not marked on map
Project has several locations/points.
The indicated location is for representation purposes only and does not indicate the exact location of the project

Newly added project in TYNDP 2024
(additional to www.h2inframap.eu)

Project ENTSOG codes / color :

- TRA-N-000 — Project is part of 1st PCI/PMI list
- TRA-N-000
- TRA-N-000
- TRA-N-000 — Project is not part of 1st PCI/PMI list

Project status codes :
The project advancement status is based on the TYNDP project collection conducted in Nov. 2023 - Feb. 2024.

PCI | Non-PCI — PCI status (Project of Common Interest)

FID | Advanced | Less-Adv. — FID status (Final Investment Decision)

Advanced status is applied to all projects that, based on the information submitted, have:
Commissioning expected at the latest by 31 December 2029
AND the project fulfils at least one of the following criteria:
- *Project has taken the final investment decision (FID) ahead of the TYNDP 2024 project collection*
- *Project is included in the NDP(s) of the respective country(ies) or in the national law*
- *Project has successfully consulted the market through a market test (including non-binding processes), which delivered positive results*

Cross-border points / intra-country or intra balancing zone points

- Cross-border interconnection point within Europe or export point to non-EU country
- Cross-border interconnection point with third country (import)
- Cross-border interconnection point within Europe or export point to non-EU country *Under construction or Planned*
- LNG Import terminal (operational)
- LNG Export terminal (operational)
- Intra-country or intra balancing zone points
- Third country cross-border interconnection point
- Cross-border interconnection point (Virtual Point)
- Third country cross-border (Virtual Point / import)

Gas Reserve areas
Gas field | Drilling platform

Countries
EU Countries | Other Countries

Transport by pipeline

Existing infrastructure for natural gas :
- Diameter < 600 mm
- Diameter 600 - 900 mm
- Diameter > 900mm
- Not operational

Planned infrastructure for natural gas :
- Project

Storage facilities
- Acquifer
- Salt cavity - cavern
- Depleted (Gas) field on shore / offshore
- Other type
- Gas storage projects

Hydrogen Storage Facilities (H2S)

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification : H2S-N-123 — ENTSOG project code

Hydrogen Reception Facilities (H2L)

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification : H2L-N-123 — ENTSOG project code

Electrolysers for Hydrogen Production (H2E)

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification : H2E-N-123 — ENTSOG project code

Hydrogen in the Transport Sector for Mobility (H2M)

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification : H2M-N-123 — ENTSOG project code

6.4.1 OVERVIEW PER STATUS

From the total of 326 projects included in TYNDP 2024, 202 hydrogen projects have been submitted for the categories H2T, H2L, H2S, H2E and H2M (62 % of the total number of projects). As mentioned in section 6.4, the number of hydrogen projects increased compared to TYNDP 2022. This increase results from:

- The need to reduce GHG emissions to comply with the European Climate Law 2030 and 2050 targets.
- The enhancing deployment of renewable gases, supported by the REPowerEU targets, the hydrogen targets of the Renewable Energy Directive, the EU Hydrogen Strategy and the requirement of inclusion of hydrogen infrastructure and electrolysers in the revised TEN-E Regulation.
- The combination of supportive policies, technological advancements, growing market demand, and strategic investments.

The following figures and tables provide a statistical overview of promoters' submissions for hydrogen (see TYNDP 2024 Annex A for further details) based on information such as the subcategory of infrastructure or the FID status or the PCI or PMI status. Those reports reflect all the details entered as part of the data collection process by hydrogen project promoters.

Figure 15 presents an overview of all the projects accepted for inclusion in TYNDP 2024 per hydrogen subcategory – H2T, H2L, H2S, H2E and H2M.

In addition, Figure 16 indicates the maturity status of the TYNDP 2024 submissions for H2T, H2L, H2S, H2E and H2M. 88 out of the total 202 projects (43 %) are "Advanced", while only 4 projects have taken FID and 110 projects are "Less-Advanced". The substantial number of advanced hydrogen projects underscores the sector's growing maturity and highlights its rapid development and consequent contribution to decarbonisation.

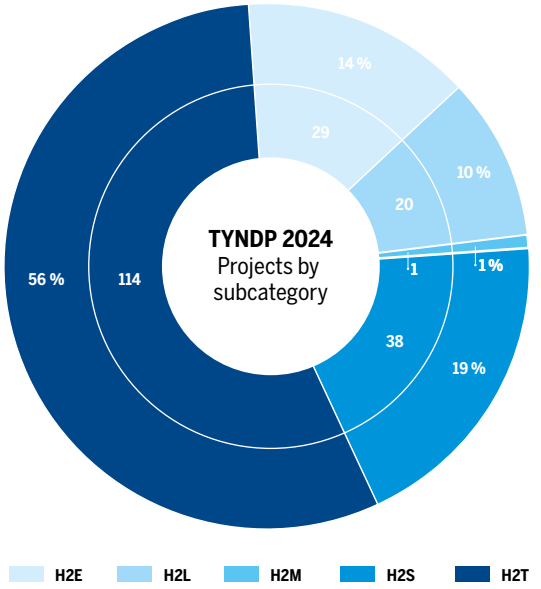

Figure 15: Project inclusion in TYNDP 2024 per subcategory of the hydrogen category. The inner circle represents absolute numbers of projects; the outer circle represents the shares of each subcategory.

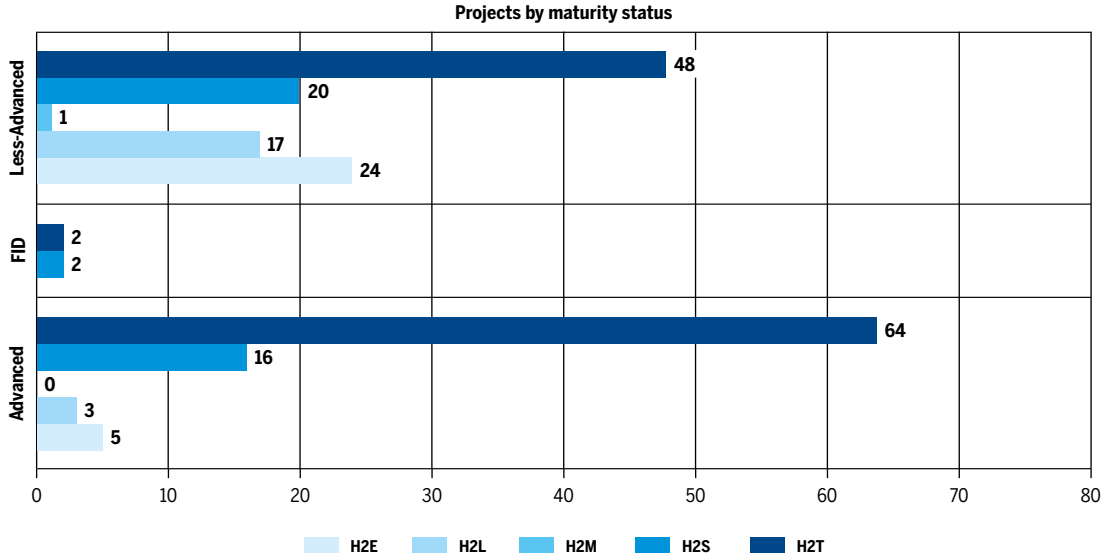

Figure 16: Projects by maturity status – H2T, H2L, H2S, H2E and H2M.

6.4.2 OVERVIEW OF PROMOTERS' SUBMISSIONS PER GEOGRAPHICAL LOCATION

The following figures provide an overview of promoters' submissions based on their geographical location, infrastructure type and maturity status for the five subcategories H2T, H2L, H2S, H2E and H2M.

For TYNDP 2024, 202 projects relevant for the five above-mentioned subcategories were included for 31 countries. 6 non-EU countries submitted hydrogen projects to TYNDP 2024 as presented in Figure 17[17].

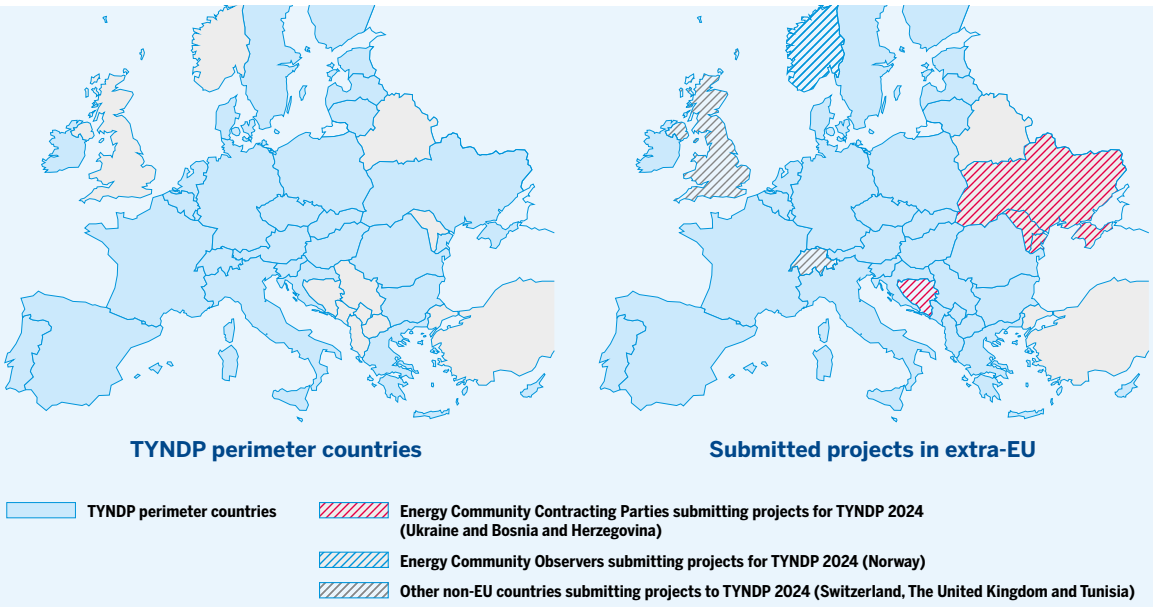

Figure 17: TYNDP perimeter countries and countries outside the European Union for which H2T, H2L, H2S, H2E or H2M projects were submitted to TYNDP 2024.

17 Bosnia Herzegovina, the United Kingdom, Ukraine, Norway, Tunisia and Switzerland.


Picture courtesy of Enagás

Figure 18 presents the number of projects per country and per subcategory and Figure 19 the number of projects per country and their maturity status.

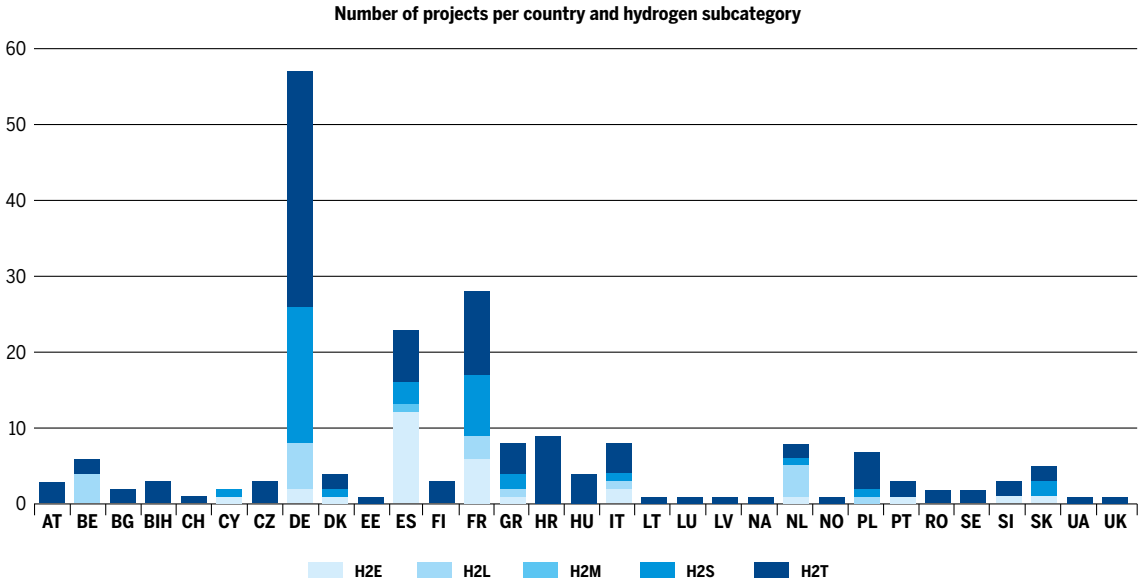

Figure 18: Number of projects per country and hydrogen subcategory – H2T, H2L, H2S, H2E and H2M.

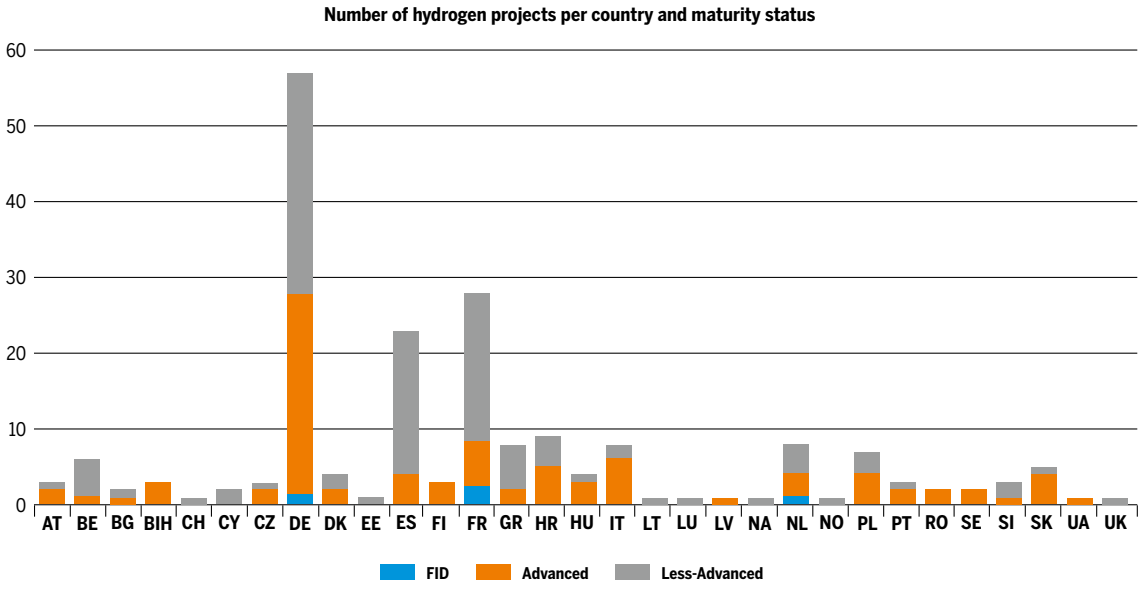

Figure 19: Number of hydrogen projects per country and maturity status – H2T, H2L, H2S, H2E and H2M.

6.4.3 ANALYSIS OF PROJECT SCHEDULE

Figure 20 and Figure 21 show the distribution of projects included in TYNDP 2024 according to the expected (first) commissioning year, also in an aggregated way. The majority of projects falling under the subcategories H2T, H2L, H2S, H2E and H2M are expected to be commissioned by 2029 (150 out of the 202 or 74 %).

41 Investments indicated to finish commissioning until the end of 2035 (20 %), while 11 projects (6 %) will be commissioned between 2036 and 2041. It should be noted that several years are not displayed in the graph, indicating that there are no projects to be commissioned during those periods.

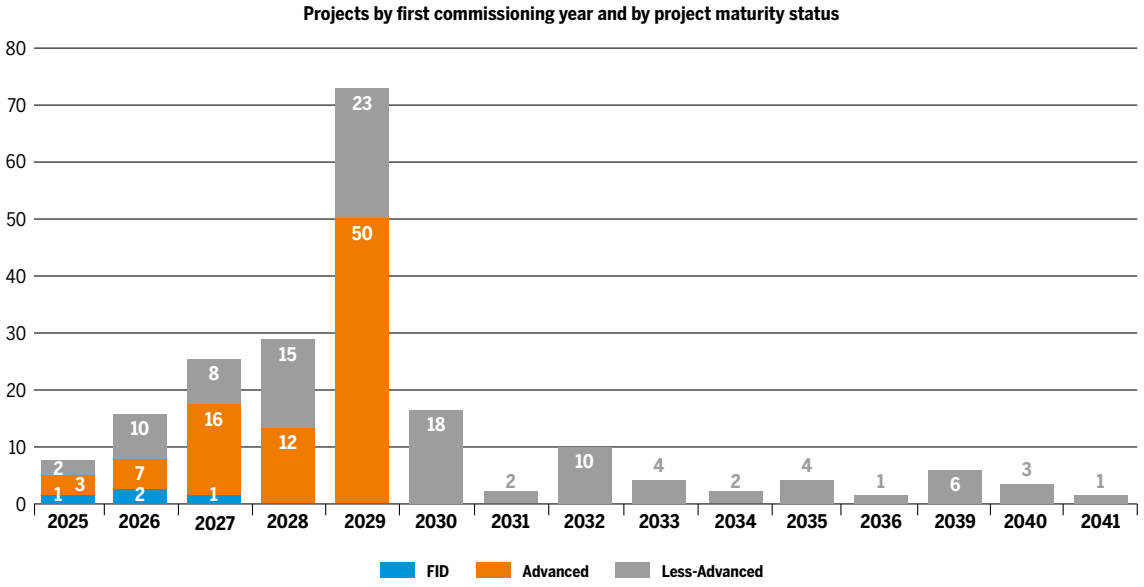

Figure 20: Projects by commissioning year and by project maturity status – H2T, H2L, H2S, H2E and H2M.

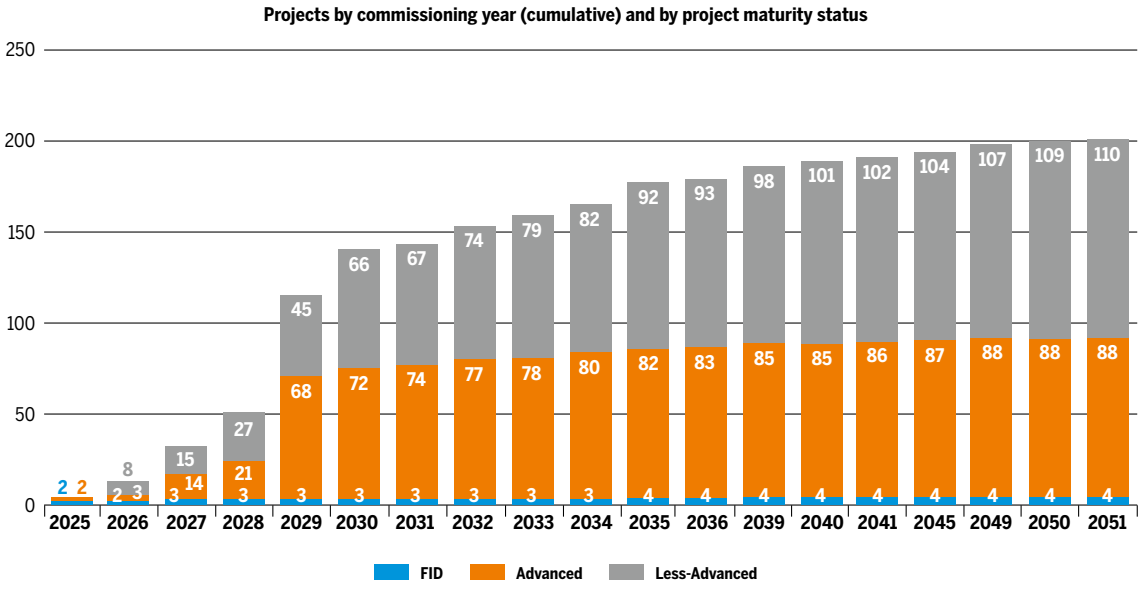

Figure 21: Projects by commissioning year (cumulative) and by project maturity status – H2T, H2L, H2S, H2E and H2M.

As part of the TYNDP 2024 Project Collection, promoters are required to provide information (with the exception of some specific situations) regarding the main project phases and the expected FID date (i.e., Feasibility study, FEED, Permitting, FID, Construction and Commissioning). ENTSOG analysed the provided data, considering that among hydrogen infrastructure projects a significant proportion is less advanced. Therefore, the development and the time schedule of these projects are more susceptible to changes according to the development of the projects.

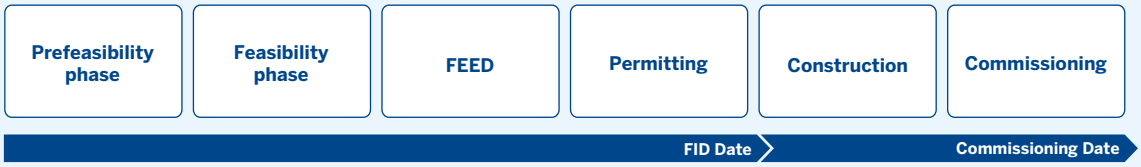

Figure 22: Simplified representation of the main project phases.

It should be noted that phases might not be consecutive and might overlap depending on project subcategory and/or country. In addition, FID in many cases is expected after permitting phase and before starting the construction phase. However, this can vary.

In case of the **Feasibility Study phase**, the start and end dates, either past or expected, have been provided for 175 projects. The average duration of the Feasibility Study phase for these projects is 9 months with the highest average duration in case of H2L projects (12 months) and the lowest average duration for the H2M project (3 months).

In addition, 61 investments have indicated the completion of the feasibility study until the end of the project data collection phase. 26 projects have started the feasibility study before the end of the project data collection phase but are still ongoing with the latest finalisation date in January 2031. The remaining 88 projects are expected to start their feasibility study beginning of 2024.

Regarding the **FEED phase**, the start and end dates, either past or expected, have been provided for 199 projects. The average duration of the FEED phase for hydrogen projects is 14 months with the highest average duration in case of H2L projects (16 months) and the lowest average duration in case of the H2M project (4 months).

19 projects have indicated to complete the FEED phase until the end of the project data collection phase. 35 investments have started FEED phase before the end of the project data collection phase, but are still ongoing with the latest finalisation date in December 2035. The remaining 144 projects have not started the FEED phase by the end of 2023.

In case of the **Permitting phase**, the start and end dates, either past or expected, have been provided for 201 projects[18]. The average duration of the Permitting phase for these projects is 25 months, with the highest average duration for H2S and H2T (31 months) and the lowest average duration in case of the H2M project (13 months).

More specifically, two projects have completed the permitting phase until the end of the project data collection phase. 43 projects have started the permitting process before the end of the project data collection phase but are ongoing with the latest finalisation date provided as March 2031. The remaining hydrogen projects are projected to conclude the permitting process at later dates, with the latest anticipated completion in June 2037.

The **FID date**, either past or expected, has been provided for all hydrogen projects. The graph below shows the distribution of projects per FID date. The average expected FID date is 12 January 2027 (see Figure 23).

18 Project H2S-F-1304 was under construction during the project submission phase and promoter indicated the dates of the previous project schedule phases as "finished".

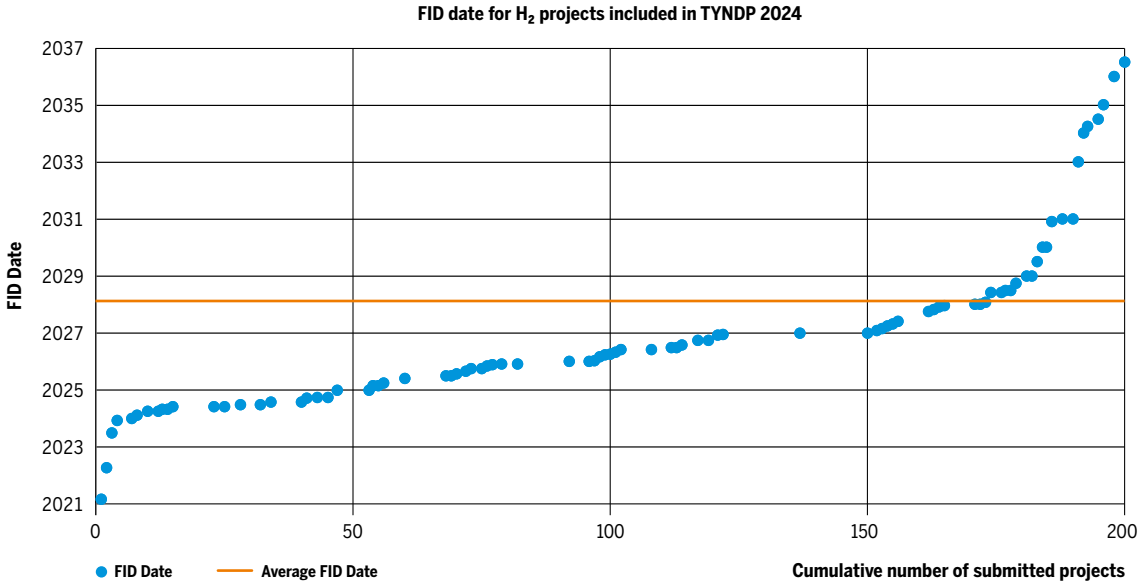

Figure 23: Cumulative distribution of projects per FID date – H2E, H2L, H2S, H2M and H2T.

Regarding the **Construction phase**, the start and end dates, either past or expected, have been provided for 201 hydrogen investments. The average duration of the Construction phase for these projects is 27 months, with the highest average duration in case of H2S projects (37 months) and the lowest average duration in case of the H2M project (6 months).

Three projects have started their construction prior the end of 2023. The remaining 198 projects have foreseen the start of the construction after the end of the project collection with the latest end date in December 2041.

Figure 24 below provides all the information for the different phases described above.

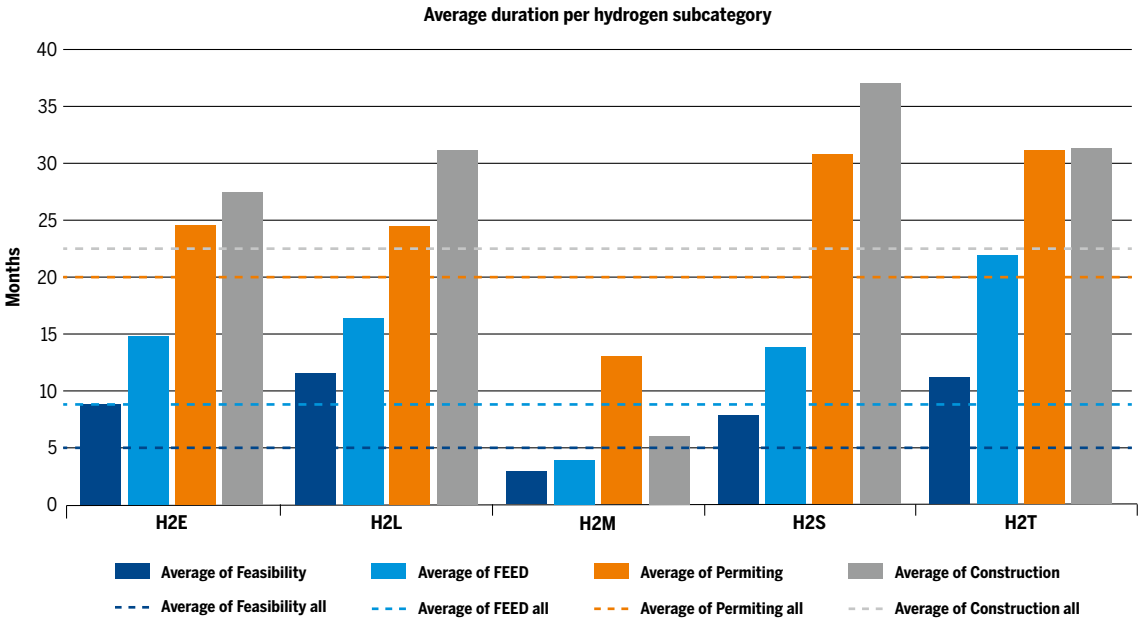

Figure 24: Average duration of Feasibility, FEED, Permitting and Construction phase – H2E, H2L, H2S, H2M and H2T.



The Commissioning year has been provided for all the hydrogen projects in TYNDP 2024. The average Commissioning year for these projects is 2031 with 116 hydrogen investments expected to be commissioned by the end of 2029, while the remaining 86 are expected to be commissioned until 2051 (see Figure 25).

The estimation of average duration for the different project phases (feasibility, FEED, permitting and construction) for hydrogen infrastructure is lower than the average durations provided for Natural gas infrastructure projects as described in section 7.3.3 (with the lowest difference of 18 % for feasibility phase and with a highest difference of 44 % for FEED phase).

Project promoters estimated their project's schedule based on the best available information at the time of submission. However, considering that hydrogen projects are generally less mature than natural gas infrastructure, it could be possible that above-mentioned difference might be even lower.

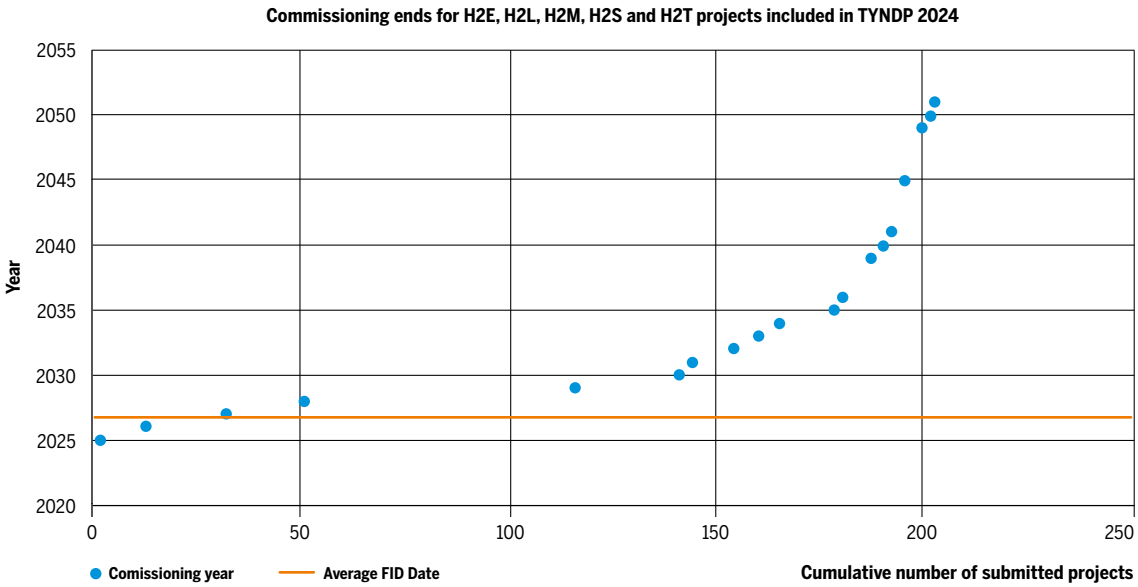

Figure 25: Distribution of projects per end commissioning year.

Status	Completed in TYNDP 2024	FID in TYNDP 2024	Advanced in TYNDP 2024	Less Advanced in TYNDP 2024	Cancelled/ Not resub-mitted in TYNDP 2024	Total
FID (TYNDP 2022)	0	1	0	0	0	1
Advanced (TYNDP 2022)	0	0	4	2	7	13
Less-Advanced (TYNDP 2022)	0	2	53	39	44	138
Total	**0**	**3**	**57**	**41**	**51**	**152**

Table 4: Evolution of projects from TYNDP 2022 to TYNDP 2024 – Hydrogen category.

Of the one hydrogen project submitted already having the FID status in TYNDP 2022:

- Still in progress maintaining the FID status (H2S-F-1304).

Of the 13 hydrogen projects submitted already having the Advanced status in TYNDP 2022:

- Four still have the Advanced status;
- Two moved from Advanced to Less-Advanced due to delay or rescheduling (H2E-N-427 and H2T-N-996[19]);
- Seven were cancelled or not resubmitted by the promoter (HYD-A-770, HYD-A-562, HYD-A-549, HYD-A-396, HYD-A-745, HYD-A-315 and HYD-A-312).

Of the 138 hydrogen projects submitted already having the Less-Advanced status in TYNDP 2022:

- two got the FID after the TYNDP 2022 project collection;
- 53 moved from Less-Advanced to Advanced[20];
- 39 are still planned and maintained the Less-Advanced status;
- 44 were cancelled/not-resubmitted.

Additionally:

- Five were merged with another project (HYD-N-1172, HYD-N-1350, HYD-N-1036, HYD-N-848 and HYD-N-931);
- Five were submitted with a new project code (HYD-N-772, HYD-N-819, HYD-N-793, HYD-N-1153 and HYD-N-1273).

59 hydrogen projects stated their scheduled status:

- Four investments are behind the schedule;
- 36 investments are on time;
- 19 investments are rescheduled.

Among the main reasons indicated by promoters for delay and rescheduling are:

- Permitting and regulatory delays;
- Environmental and impact assessments;
- Project dependencies;
- Financial and funding issues.

19 Projects H2T-N-996 and H2T-N-989 fulfil both the conditions of an advanced maturity status. However, the corresponding national legal framework conditions, which are prerequisites for the Advanced status, were not yet in place at the time of project submission in December 2023, but were already foreseeable and in progress. With the publication of the final TYNDP 2024, these legal national framework conditions exist, which thus confirms the Advanced status of the projects.

20 Despite the progress of Less-Advanced projects, a high number of projects that moved to Advanced status are related to the difference of the definition of the Advance status between TYNPD 2022 and 2024. In the TYNDP 2022, projects with FEED started or granted with CEF funds for FEED fulfilled Advanced criteria, while in TYNDP 2024 projects should be in NDP or should have completed market test but might be at an earlier phase.

6.4.4 INVESTMENT COSTS

Investment costs are for project promoters in many cases deemed as commercially sensitive information. Sharing this information might potentially negatively affect the competitive position of project promoters vis-à-vis contractors. On that basis, and as part of the transparency process adopted, ENTSOG has collected information from promoters on indicative investment costs for all submitted projects.

In line with section 4.1 of the TYNDP 2024 GPI, the cost data submitted by the project promoters for the projects to be included in the TYNDPs is made public by ENTSOG unless the data is deemed confidential by the respective project promoters.

The highest share of costs is represented in the Advanced status (52 %) while the share of advanced projects for all the hydrogen investments is approximately 47 %. Furthermore, H2T is further separated into new, repurposed or a mix of new and repurposed transmission infrastructure. The biggest proportion is invested in new infrastructure (64 % of the total H2T investment cost) (see Figure 26).

As seen in Figure 27[21], H2T projects (56 % or 114 out of the total number of hydrogen projects) cover the highest share of the hydrogen project capital expenditures (68 %). In order to provide greater cost granularity, H2T sub-category is split into newly build pipelines (NEW), repurposed pipelines (REP) and a both new and repurposed parts (MIX). In addition, almost half of the total costs for hydrogen projects are planned to take place until 2029 (47 %), with a peak in 2029 of more than 60 billion euros (see Figure 28).

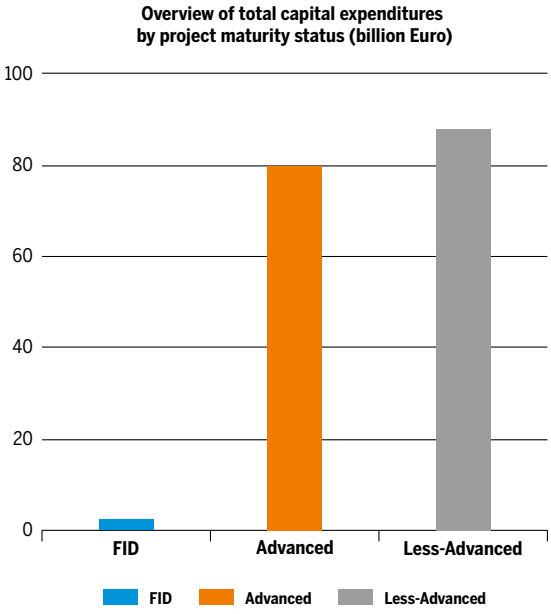

Figure 26: Overview of total investment cost by project maturity status for hydrogen category.

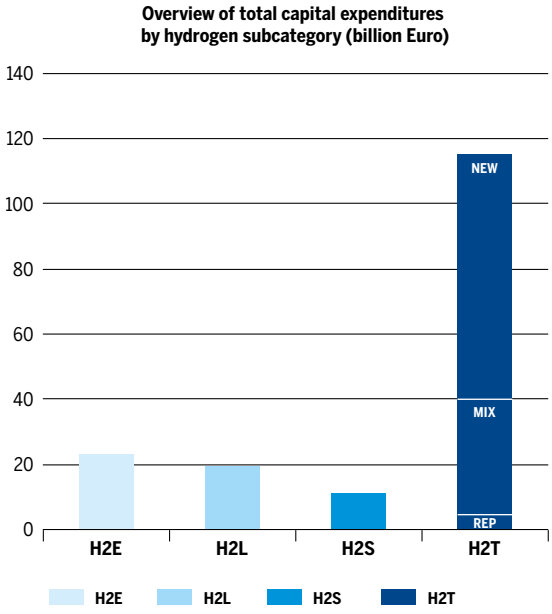

Figure 27: Overview of total cost by hydrogen subcategory – H2E, H2L H2S and H2T.

21 The costs for the H2M project (only one project) are not presented in the figure due to confidentiality.

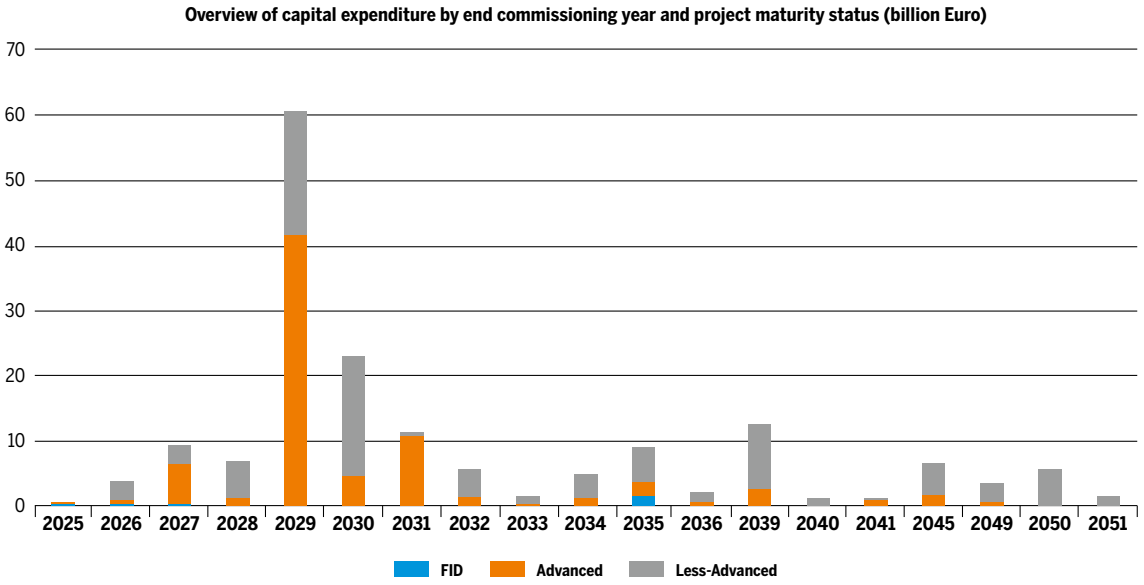

Figure 28: Overview of costs by end commissioning year and project maturity status – H2E, H2L, H2S, H2M and H2T.

It should be noted that the cost for 2025 appears close to zero in the graph due to its significantly lower value (~3 million euros), compared to the other years represented in billion euros. In addition, several years are not displayed in the graph, indicating that no cost values were recorded for those periods.

6.4.5 TYNDP 2024 SUBMISSIONS AND NATIONAL DEVELOPMENT PLANS

According to Article 8 of Regulation (EC) No. 715/2009[22], the Community-wide network development plan is required to build on national ten-year network development plans. As of 5 February 2025, when the GHR starts to apply, this requirement is specified in Article 32, point (a), for natural gas and Article 60, point (a), for hydrogen. As the Union-wide TYNDP is a non-binding exercise, this does not prevent, from a legal perspective, that projects are submitted to the TYNDP even if they are not part of a national development plan (NDP). Further, in Article 26 of the GHR, it is described how ACER can mandate a review of either a national or the Union-wide TYNDP, in case of inconsistencies.

In line with the Annex III of the GPI, promoters should indicate if their initiatives are part of the NDP. In case not, the reason for which projects are not part of the NDP must be specified.

Furthermore, ENTSOG initiated a feedback loop with ACER and NRAs to collect relevant feedback and comments.

Out of the total number of projects that were listed under the hydrogen category, 67 (33 %) were included in the NDP, while the remaining 135 were not. The subcategory with the highest number of included projects was H2T (49), followed by H2S (11), H2E (4) and H2L (3). In TYNDP 2022, the inclusion rate of hydrogen TYNDP projects in the NDPs was 17 %. This shows that the level of consistency between TYNDP and NDPs increased between the two TYNDP cycles.

22 Reg. (EC) No 715/2009 on conditions for access to the natural gas transmission networks, to be repealed by Reg. (EU) 2024/1789, applicable as of February 2025.



Picture courtesy of Gas Connect Austria

Country	Part of NDP	NOT Part of NDP	Country	Part of NDP	NOT Part of NDP
AT	3	–	IT	6	2
BE	1	5	LT	–	1
BG	1	1	LU	–	1
BIH	3	–	LV	1	–
CH	–	1	MT	–	–
CY	–	2	NA	–	1
CZ	2	1	NL	4	4
DE	24	33	NO	–	1
DK	–	4	PL	–	7
EE	–	1	PT	2	1
ES	–	23	RO	–	2
FI	–	3	SE	–	2
FR	–	28	SI	3	–
GR	2	6	SK	5	–
HR	5	4	UA	1	–
HU	4	–	UK	–	1
IE	–	–	–	–	–

Table 5: Overview of hydrogen projects being part or not of NDPs by country – H2E, H2L, H2S, H2M and H2T.

For the projects reported as not part of any NDP, promoters have generally indicated one of the following reasons:

- National Development Plans for hydrogen are not yet developed;
- Projects are still undergoing adoption or approval processes by relevant authorities;
- Lack of legal obligation to draft a national development plan for hydrogen grids.

The provided reasons show that, in most of the cases, a project is not part of any NDP for reasons lying outside the control of the project promoters themselves. For further details, please refer to TYNDP 2024 Annex A. Additional assessments are available in ACER's opinion 07-2024 of 29 October 2024 on the review of gas and hydrogen national development plans to assess their consistency with the EU-TYNDP.

According to ACER's opinion, only eight EU Member States (AT, BE, CZ, DE, FR, LT, LV, PT) seem to already have included hydrogen in the most recent gas NDPs, while in 15 Member States, there is no framework in place regarding hydrogen network planning. Furthermore, ACER underlines that "the data suggests that as national plans for hydrogen infrastructure will develop, a better alignment between EU-level plans and national plans can be anticipated over time."

6.5 TYNDP 2024 HYDROGEN PROJECTS BEING PART OF THE 1ST UNION LIST UNDER THE REVISED TEN-E REGULATION

ENTSOG also collects information related to projects already having the PCI or PMI status and projects that intend to apply to the following PCI and PMI selection process.

The EC's 1st Union list of PCIs and PMIs under the revised TEN-E Regulation was published on 28.11.2023. The updated TEN-E Regulation focuses on decarbonisation and sustainable energy infrastructure including renewable and low-carbon gases like biomethane and hydrogen. Thus, from the projects collected by ENTSOG for the TYNDP 2024, only hydrogen and renewable gas projects are eligible for the PCI or PMI label[23]. From the Union list, 71 projects items are included in the TYNDP 2024 of which 13 were submitted as H2E subcategory, while the remaining 58 were submitted under the H2T, H2L and H2S subcategories.

The TEN-E Regulation does not require electrolyser projects, CO_2 and smart gas grid projects to be part of the TYNDP in order to be eligible for PCI or PMI status. Thus, out of the 17 projects included in the Union list, only 13 were submitted to the TYNDP 2024.

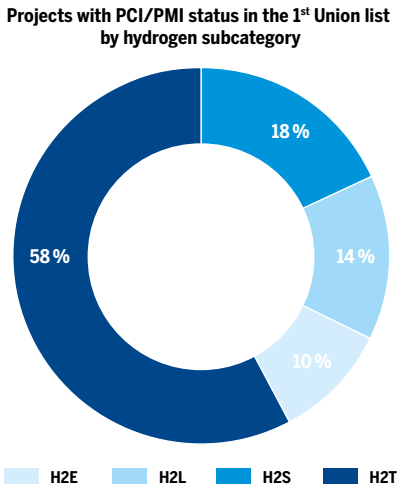

Figure 29: Projects having PCI or PMI status in the 1st Union list by subcategory.

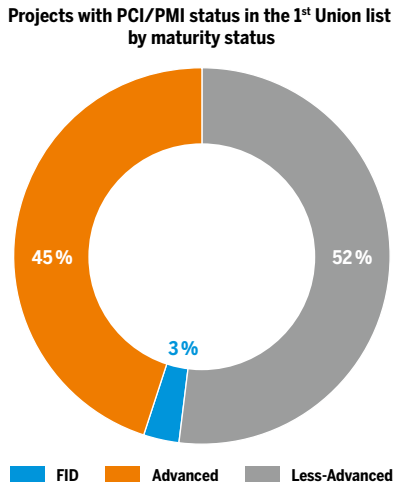

Figure 30: Hydrogen projects having PCI or PMI status in the 1st Union list by maturity status.

23 Natural gas projects maintain their PCI status as defined by Article 24 of the TEN-E Regulation.

7 PROMOTERS' SUBMISSIONS FOR NATURAL GAS TO TYNDP 2024

95 natural gas submissions have been included in TYNDP 2024 falling under the TRA, LNG and UGS subcategories, compared to 112 that were submitted to TYNDP 2022.

7.1 TRA – GAS TRANSMISSION PIPELINE PROJECTS INCLUDING COMPRESSOR STATIONS

Today, in the EU, CH and the UK around 206,737 km of transmission pipelines exist. The data included in the map represent the total length of 46 TSOs' transmission pipelines. The definition of transmission pipeline might differ country by country.



Figure 31: Transmission length in EU, CH and UK in km (year 2024).



Picture courtesy of bayernets

72 TRA projects have been submitted to TYNDP 2024. These projects can be summarised as follows:

- 19 interconnection projects between two or more countries. In some cases, only one side of the interconnection has been submitted since the other part is already existing or the project consists of the creation of additional capacity at the same IP where an interconnection already exists;
- 10 projects related to the construction of compressor or metering stations;
- 1 project related to new import or production development;
- 21 projects related to expansion of an existing pipeline;
- 3 projects concerning upgrade, modernisation or enhancement of the system;
- 4 infrastructure projects supporting the switch from low-calorific gas to high-calorific gas in France, the Netherlands and Belgium;
- 4 reverse flow projects to enable or enhance bi-directional flows;
- 8 projects related to terminals connection to the grid;
- 2 projects concerning methanisation of new areas.

The following map shows the list of all projects concerning transmission and compressor (or metering) stations development. Evacuation pipelines to connect regasification terminals or storages are considered as part of section 7.2.

7.2 UGS – UNDERGROUND STORAGE FACILITIES

For TYNDP 2024, promoters submitted 11 projects related to underground gas storage facilities (UGS).
Four of these projects are concerning expansion/enhancement of existing storage facilities, while one is related to the modernisation.

MAP FOR NATURAL GAS PROJECTS IN TYNDP 2024

TRANSPORT BY PIPELINES (INCL. COMPRESSOR STATIONS)

	TRA-F-7	Development for new import from the South (Adriatica Line)	FID	Non-PCI
	TRA-F-63	LNG terminal northern Greece / Alexandroupolis - Pipeline Section	FID	Non-PCI
	TRA-F-128	Compressor Station Komotini (former Kipi)	FID	Non-PCI
★	TRA-F-192	Entry capacity expansion GATE terminal	FID	Non-PCI
	TRA-F-329	ZEELINK	FID	Non-PCI
	TRA-F-362	Devt on the Romanian territory of Southern Transmission Corridor	FID	Non-PCI
	TRA-F-402	TENP Security of Supply	FID	Non-PCI
	TRA-F-439	Stazione di Spinta "San Marco"	FID	Non-PCI
	TRA-F-496	Increase of Gas Transport to the Netherlands	FID	Non-PCI
	TRA-F-500	L/H Conversion Belgium	FID	Non-PCI
	TRA-F-505	Lucera - San Paolo	FID	Non-PCI
	TRA-F-566	FSRU Ravenna Connection	FID	Non-PCI
	TRA-F-873	Additional import at Oude StatenZijl area	FID	Non-PCI
	TRA-F-967	Pipeline Nea Messimvria – Evzoni/ Gevgelija and Metering Station	FID	Non-PCI
	TRA-F-971	Booster Compressor Station for TAP in Nea Messimvria	FID	Non-PCI
★	TRA-F-1031	Reverse flow at IP Cieszyn - Polish section	FID	Non-PCI
	TRA-F-1095	TENP Security of Supply plus	FID	Non-PCI
	TRA-F-1145	Export enhancements phase 1	FID	Non-PCI
	TRA-F-1199	LNG Terminal Brunsbuettel - Grid Integration	FID	Non-PCI
	TRA-F-1278	Compressor station at Ambelia	FID	Non-PCI
	TRA-A-330	EastMed Pipeline	Advanced	PCI
	TRA-A-10	Poseidon Pipeline	Advanced	Non-PCI
	TRA-A-75	LNG evacuation pipeline Zlobin-Bosiljevo-Sisak-Kozarac	Advanced	Non-PCI
	TRA-A-86	Interconnection Croatia/Slovenia (Lučko - Zabok - Jezerišće - Sotla)	Advanced	Non-PCI
	TRA-A-298	Modernization and rehabilitation of the Bulgarian GTS - Phase 3	Advanced	Non-PCI
	TRA-A-429	Adaptation L- gas - H-gas	Advanced	Non-PCI
	TRA-A-607	Transmission Hybrid Compressor Stations	Advanced	Non-PCI
	TRA-A-628	Eastring - Slovakia	Advanced	Non-PCI
	TRA-A-655	Eastring - Romania	Advanced	Non-PCI
	TRA-A-786	Capacity Expansion for the German LNG Terminals	Advanced	Non-PCI
	TRA-A-810	TAP Expansion	Advanced	Non-PCI
	TRA-A-988	LNG Terminal Stade - Grid Integration	Advanced	Non-PCI
	TRA-A-1009	Czech-Polish Gas Interconn. Bezměrov (CZ) – Hať (CZ/PL Border)	Advanced	Non-PCI
	TRA-A-1114	Grid extension for LNG Wilhelmshaven	Advanced	Non-PCI
	TRA-A-1141	Czech-Polish Gas Interconnection - PL section	Advanced	Non-PCI
	TRA-A-1194	Sardinia Methanization	Advanced	Non-PCI
	TRA-A-1268	Romania-Serbia Interconnection	Advanced	Non-PCI
	TRA-A-1275	Zeebrugge-Opwijk	Advanced	Non-PCI
★	TRA-A-1317	Connection FSRU Alto Tirreno	Advanced	Non-PCI
	TRA-A-1322	Devt. on Romanian territory of NTS (BG–RO-HU-AT) - Phase II	Advanced	Non-PCI
	TRA-N-31	Melita TransGas Hydrogen Ready Pipeline	Less-Adv.	Non-PCI
★	TRA-N-9	Additional Southern developments	Less-Adv.	Non-PCI
★	TRA-N-94	CS Kidričevo, 2nd phase of upgrade	Less-Adv.	Non-PCI
★	TRA-N-99	M3/1a Šempeter - Ajdovščina	Less-Adv.	Non-PCI
	TRA-N-112	R15/1 Pince - Lendava - Kidričevo	Less-Adv.	Non-PCI
	TRA-N-245	North - South Gas Corridor in Eastern Poland	Less-Adv.	Non-PCI
	TRA-N-258	Developments for Montoir LNG terminal 2.5 bcm expansion	Less-Adv.	Non-PCI
★	TRA-N-269	Developments for Fosmax (Cavaou) LNG 8.25 bcm expansion	Less-Adv.	Non-PCI
	TRA-N-389	Upgrade of Murfeld/Ceršak interconn. (M1/3 Interconn. Ceršak)	Less-Adv.	Non-PCI
	TRA-N-390	Upgrade of Rogatec interconnection (M1A/1 Interconn. Rogatec)	Less-Adv.	Non-PCI
	TRA-N-602	Upgrading GMS Isaccea 2 and GMS Negru Voda 2	Less-Adv.	Non-PCI
★	TRA-N-603	Capacity increase at RO-BG IP Ruse Giurgiu	Less-Adv.	Non-PCI
★	TRA-N-670	IGB 3to5 Expansion & H2 Upgrade (the Project)	Less-Adv.	Non-PCI
★	TRA-N-736	Duplication of the High Pressure branch Karperi - Komotini	Less-Adv.	Non-PCI
	TRA-N-766	Entry Murfeld	Less-Adv.	Non-PCI
★	TRA-N-888	Upgrading GMS Isaccea 3 and GMS Negru Voda 3	Less-Adv.	Non-PCI
	TRA-N-954	TAG Reverse Flow	Less-Adv.	Non-PCI
★	TRA-N-959	Further enlarg. of BG—RO—HU—AT transm. corr. (BRUA) phase 3	Less-Adv.	Non-PCI
	TRA-N-1058	LNG Evacuation Pipeline Kozarac-Slobodnica	Less-Adv.	Non-PCI
	TRA-N-1063	Export to Malta	Less-Adv.	Non-PCI
★	TRA-N-1080	Interconnection between NTS and the Black Sea LNG Terminal	Less-Adv.	Non-PCI
	TRA-N-1124	Capacity increase Bulgaria to Romania (Rupcha-Vetrino Looping)	Less-Adv.	Non-PCI
	TRA-N-1131	Reinforcement of NNGTS-South section	Less-Adv.	Non-PCI
	TRA-N-1140	Technical capacity increase gas transm. GR to BG	Less-Adv.	Non-PCI
	TRA-N-1143	Capacity intensification of the Poland – Slovak Interconnector	Less-Adv.	Non-PCI
★	TRA-N-1169	Trans-Balkan Bi-directional Flow (Third stage)	Less-Adv.	Non-PCI
	TRA-N-1170	Maritsa East pipeline	Less-Adv.	Non-PCI
	TRA-N-1195	Matagiola - Massafra pipeline	Less-Adv.	Non-PCI
	TRA-N-1235	Firm transmission capacity increase at the IP Veľké Zlievce	Less-Adv.	Non-PCI
★	TRA-N-1260	Reverse Flow at IP Cieszyn	Less-Adv.	Non-PCI
★	TRA-N-1299	Export enhancements phase 2	Less-Adv.	Non-PCI
★	TRA-N-1313	Transferring L-gas infrastructure to H2-gas infrastructure OSZ	Less-Adv.	Non-PCI

LNG IMPORT TERMINALS

	LNG-F-62	LNG terminal in northern Greece / Alexandroupolis - LNG Section	FID	Non-PCI
	LNG-F-272	Upgrade of LNG terminal in Świnoujście	FID	Non-PCI
★	LNG-F-880	Gate 4th tank, 4 bcma expansion	FID	Non-PCI
★	LNG-F-1142	FSRU Ravenna	FID	Non-PCI
	LNG-A-304	Italy-Sardinia Virtual Pipeline	Advanced	Non-PCI
	LNG-A-947	FSRU terminal in Gdańsk	Advanced	Non-PCI
	LNG-A-1005	Thrace LNG Terminal	Advanced	Non-PCI
	LNG-N-227	Fos Cavaou LNG Terminal Expansion	Less-Adv.	Non-PCI
	LNG-N-225	Montoir LNG Terminal Expansion	Less-Adv.	Non-PCI
	LNG-N-610	Extension of the LNG Terminal Krk 1st phase	Less-Adv.	Non-PCI
	LNG-N-815	LNG terminal Krk 2nd phase	Less-Adv.	Non-PCI

UNDERGROUND GAS STORAGE FACILITIES

	UGS-F-138	UGS Chiren Expansion	FID	Non-PCI
	UGS-F-260	System Enhancements - Stogit - on-shore gas fields	FID	Non-PCI
	UGS-F-311	Bilciuresti daily withdrawal capacity increase	FID	Non-PCI
	UGS-F-374	Enhancement of Incukalns UGS	FID	Non-PCI
	UGS-F-398	Ghercesti underground gas storage in Romania	FID	Non-PCI
	UGS-N-356	Underground Gas Storage Velke Kapusany	Less-Adv.	Non-PCI
	UGS-N-371	Sarmasel underground gas storage in Romania	Less-Adv.	Non-PCI
	UGS-N-399	Falticeni UGS	Less-Adv.	Non-PCI
	UGS-N-606	Modernization of natural gas storage infrastr. - Balaceanca UGS	Less-Adv.	Non-PCI
★	UGS-N-659	RENC-7 and RENC-8 Carriço UGS caverns	Less-Adv.	Non-PCI
	UGS-N-1182	Alfonsine UGS Enhancement	Less-Adv.	Non-PCI

Figure 32: Map for natural gas projects in TYNDP 2024.

DOWNLOAD THE MAP

KEYS

Cross-border points / intra-country or intra balancing zone points

- Cross-border interconnection point within Europe or export point to non-EU country
- Cross-border interconnection point (Virtual Point)
- Cross-border interconnection point with third country (import)
- LNG Import terminal (operational)
- LNG Export terminal (operational)
- Intra-country or intra balancing zone points
- Cross-border interconnection point within Europe or export point to non-EU country *Under construction or Planned*
- Third country cross-border (Virtual Point / import)
- Cross-border third country (import) *Under construction or Planned*
- LNG Import terminal (Under construction or planned)
- LNG Export terminal (Under construction or planned)
- Third country cross-border interconnection point

Gas Reserve areas

Gas field ▲ Drilling platform

Countries

EU Countries | Other Countries

ENTSOG currently comprises 43 TSO members, 1 Associated Partner and 9 Observers from 32 European Countries

When the same point is affected by several projects, the point is shown with the highest project status (operational, FID, advanced, non-FID, less advanced); the status from single projects can vary from that.

The projects are shown with the planning status reported in their TYNDP 2024 submission.

All data provided on this map is for information purposes and shall be treated as indicative and non-contractual in nature, without pre-empting different outcomes of any possible discussion held at regional level. Under no circumstances shall it be regarded as information intended for commercial use.

Project status :

TRA-F-123 | Infrastructure Project Name | BULGARTRANSGAZ | FID | PCI

Project ENTSOG code | Project Name | Project Promoter | Project status codes

Project not marked on map
Exact project location is not available or is marked as confidential

Exact project locations not marked on map
Project has several locations/points.
The indicated location is for representation purposes only and does not indicate the exact location of the project

Newly added project in TYNDP 2024

Project ENTSOG codes / color :

TRA-N-000 Project is part of 1st PCI/PMI list

TRA-N-000 Project is not part of 1st PCI/PMI list

Project status codes :

The project advancement status is based on the TYNDP project collection conducted in Nov. 2023 - Feb. 2024.

PCI | Non-PCI — PCI status (Project of Common Interest)

FID | Advanced | Less-Adv. — FID status (Final Investment Decision)

Advanced status is applied to all projects that, based on the information submitted, have:
- Commissioning expected at the latest by 31 December 2029
- AND the project fulfils at least one of the following criteria:
  - *Permitting phase has started ahead of the TYNDP project data collection*
  - *FID has been completed ahead of the TYNDP project data collection*

TRA	Gas transmission pipeline
LNG	Reception, storage and regasification or decompression facilities for liquefied natural gas (LNG) or compressed natural gas (CNG)
UGS	Underground storage facilities
RET	Projects for retrofitting infrastructure to further integrate hydrogen
BIO	Biomethane development projects
SYN	Synthetic methane projects
CO2	Repurposing of natural gas infrastructure for CO2 transport and/or storage
OTH	Other infrastructure related projects

Transport by pipeline

Existing infrastructure for natural gas :
- Diameter < 600 mm
- Diameter 600 - 900 mm
- Diameter > 900mm
- Not operational

TYNDP project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project is part of 1st PCI/PMI list :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Compressor stations
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

LNG Terminals and Plants
- LNG Terminals' entry point Intra transmission system *Operational*
- LNG Plants' export point

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification :
- 6554-161 — ENTSOG project code

Project identification :
- 6554-161 — ENTSOG project code

Storage facilities
- Acquifer
- Salt cavity - cavern
- Depleted (Gas) field on shore / offshore
- Other type | Unknown

Project categories :
- FID projects
- Non-FID, advanced projects
- Non-FID, less-advanced projects

Project identification :
- 6554-161 — ENTSOG project code



7.3 FURTHER DETAILS ON THE TYNDP 2024 PROMOTERS' SUBMISSIONS FOR NATURAL GAS PROJECTS

Similar to Chapter 6, this section provides more details on the investments under category TRA, LNG and UGS submitted to TYNDP 2024. The high level of investments should be considered in the context of the background described in section 6.4.

95 projects in total aim to transport and store natural gas or to receive LNG. Figure 33 provides the overview for this submission phase, compared to the previous TYNDP editions, emphasising the comparison for natural gas submissions (NG).

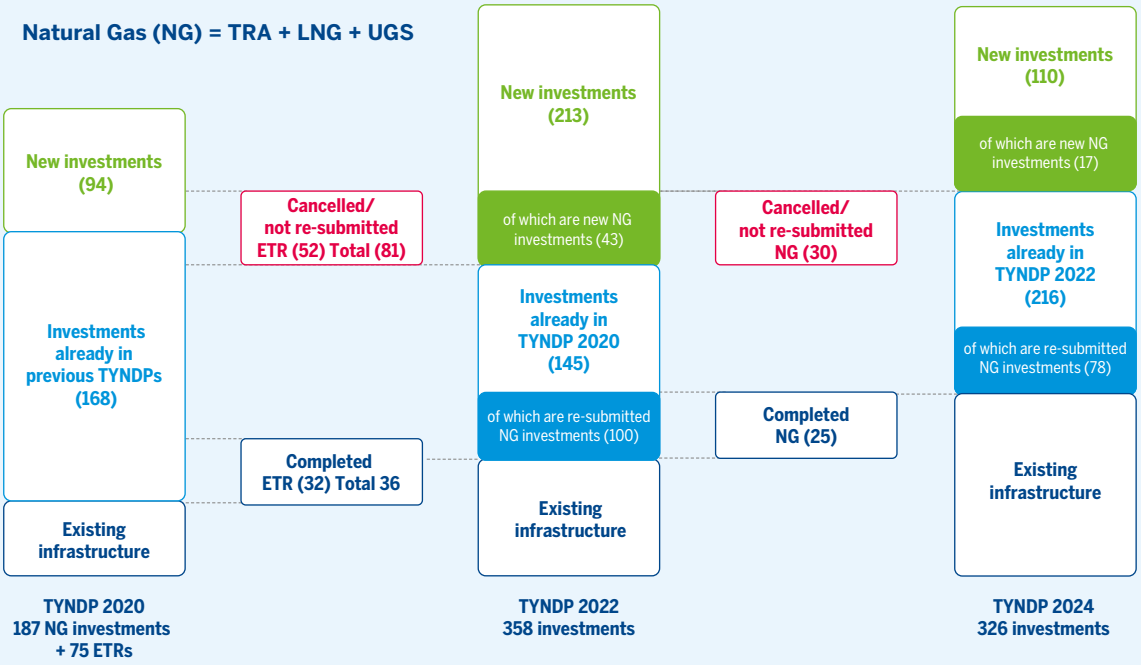

Figure 33: Comparison between TYNDP 2020, TYNDP 2022 and TYNDP 2024 – NG.

From Figure 33 the following conclusions can be drawn:

- The total number of new natural gas projects has declined. 143 natural gas projects were submitted to TYNDP 2022, while only 95 were submitted to TYNDP 2024.
- The European gas infrastructure has significantly developed since TYNDP 2020, increasing its resilience thanks to the commissioning of 57 natural gas projects from TYNDP 2020, of which 25 natural gas projects were commissioned since TYNDP 2022.

7.3.1 OVERVIEW PER TYPE AND STATUS

From the total of 326 projects included in TYNDP 2024, 95 natural gas projects have been submitted for the subcategories TRA, LNG and UGS (30 %). Compared to 143 Investments in these three subcategories in TYNDP 2022 and 187 in TYNDP 2020, a stable reduction of NG submissions can be observed for this TYNDP edition. This reduction is relevant for all three subcategories TRA, LNG and UGS.

The decrease is explained by the following reasons:

- The application of the GPI that sets clear administrative and technical criteria to be matched by promoters and projects in order to be considered eligible for inclusion in the TYNDP;
- Completed projects have in the meantime further contributed to the reduction of the infrastructure gaps (25 NG projects were completed between TYNDP 2022 and 2024);
- Development and inclusion of hydrogen becomes more and more important;
- The implementation of new TEN-E Regulation that prevents natural gas projects to be eligible for PCI/PMI status, and therefore, reduces the overall number of projects of European relevance submitted to TYNDP process.

The following figures and tables provide a statistical overview of promoters' submissions (see TYNDP 2024 Annex A for further details) based on information such as the type of infrastructure or the FID status or PCI or PMI status. The Annex A reflects all the details entered by project promoters during the data collection process. Figure 35 shows a summary of TYNDP 2024 natural gas projects by project maturity status.

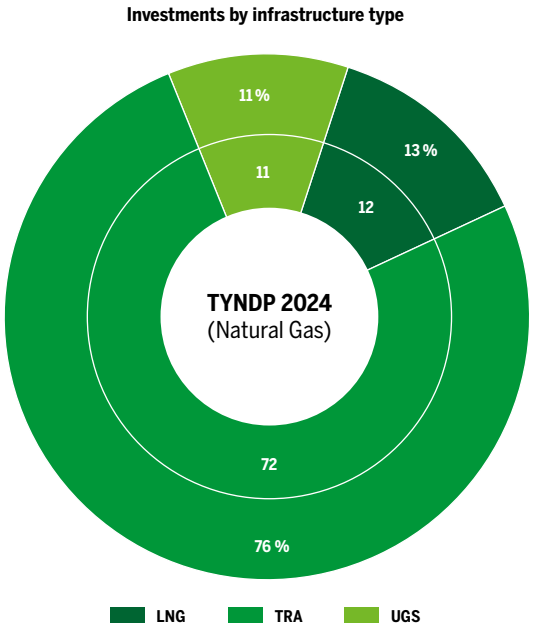

Figure 34: Natural gas projects in TYNDP 2024 by subcategory – LNG, TRA, UGS. The inner circle represents absolute numbers of projects; the outer circle represents the share of each subcategory.

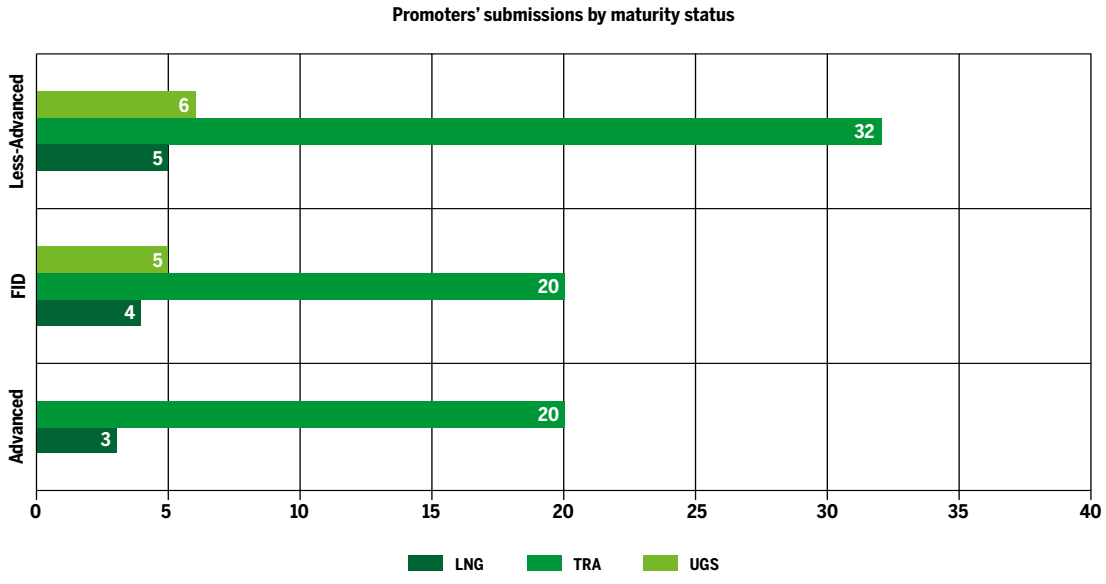

Figure 35: Promoters' submissions for natural gas by maturity status.

Due to the information collected, it has been possible to identify projects submitted for TYNDP 2022 that were not active anymore but for which promoters had missed to previously report the information to ENTSOG or that were deleted or not resubmitted (see Table 6).

17 new natural gas projects were submitted: 16 TRA and one UGS (UGS-N-659).

Table 6 provides a status update for the natural gas projects in TYNDP 2024.

Status	LNG	TRA	UGS	Grand Total
Cancelled	4	14	–	18
Completed	5	20	–	25
In Progress	3	20	5	28
Not resubmitted	2	8	2	12
Planned	9	46	5	60
Grand Total	**24**	**109**	**12**	**143**

Table 6: Number of projects for natural gas from TYNDP 2022 completed, planned, in progress, not resubmitted and cancelled.

Regarding transmission projects, an overall reduction of number of investments can be seen: 20 have been completed since TYNDP 2022, while 21 TRA projects have been cancelled or not resubmitted.

Considering LNG projects, five LNG terminals has been commissioned since TYNDP 2022 while six projects were not resubmitted or cancelled. Finally, nine LNG projects are ongoing and one of them was resubmitted with a new code (LNG-A-792 became LNG-F-880).

Among the UGS submissions' evolution from TYNDP 2022 to TYNDP 2024, two TYNDP 2022 projects have not been resubmitted. 10 projects were resubmitted and thus, the amount of UGS submissions is very stable.

The following table provides an overview of all cancelled and not resubmitted projects.

Project code	Project name	Status
TRA-F-814	Upgrade for IP Deutschneudorf et al. for More Capacity	Cancelled
TRA-A-656	Eastring – Hungary	Cancelled
TRA-N-524	Enhancement of Transmission Capacity of Slovak-Hungarian interconnector	Cancelled
TRA-N-377	Romanian-Hungarian reverse flow Hungarian section 2nd stage	Cancelled
TRA-N-325	Slovenian-Hungarian interconnector (HU hydrogen corridor III)	Cancelled
LNG-A-912	Skulte LNG	Cancelled
TRA-A-1181	Connecting pipe to LNG terminal in Latvia	Cancelled
TRA-N-600	Czech-Austrian Interconnection (AT)	Cancelled
LNG-A-559	Hanseatic Energy Hub	Cancelled
LNG-N-1196	Tie-In LNG Rostock	Cancelled
TRA-A-339	Trans-Caspian	Cancelled
TRA-A-1060	NEL (Middle) compressor station	Cancelled
TRA-A-1109	Greifswald GPCM station	Cancelled
TRA-N-8	Import developments from North-East	Cancelled
TRA-N-612	ES-IT Offshore-Interconnector	Cancelled
TRA-N-913	Modification of NP23 MW turboset to a hydrogen-ready low-emissions at CS04	Cancelled
TRA-N-1112	Upgrade of Compressor Station at Komotini	Cancelled
LNG-A-1123	Expansion of Revithoussa LNG Terminal via installation of FSU	Cancelled

Project code	Project name	Status
LNG-A-1198	LNG Terminal Brunsbuettel	Not resubmitted
TRA-N-1059	Czech-Austrian Interconnection (CZ)	Not resubmitted
UGS-F-347	Underground gas storage Grubisno Polje	Not resubmitted
UGS-A-233	Depomures	Not resubmitted
TRA-A-598	NTS developments in North-Vest Romania	Not resubmitted
LNG-F-1146	Cyprus LNG Import Terminal (CyprusGas2EU)	Not resubmitted
TRA-N-108	M3 pipeline reconstruction from CS Ajdovščina to Šempeter/Gorizia	Not resubmitted
TRA-N-570	Expansion Compressor Station Rehden	Not resubmitted
TRA-N-782	TANAP X- Expansion of Trans Anatolian Natural Gas Pipeline Project	Not resubmitted
TRA-N-1057	Compressor stations 2 and 3 at the Croatian gas tranmission system	Not resubmitted
TRA-N-1138	South Caucasus Pipeline Future Expansion (SCPFX)	Not resubmitted
TRA-N-1175	NEL Compressor Station Wittenburg	Not resubmitted

Table 7: Cancelled and not resubmitted natural gas projects from TYNDP 2022

For a better analysis, a comparison at the maturity level between the TYNDP 2022 and the TYNDP 2024 submission is presented in the following graph. For this TYNDP, a majority of TRA, LNG and UGS projects is in the Less-Advanced status. In the previous TYNDP 2022 the highest number of projects were recorded in status "Advanced". For the FID status, a slight reduction can be seen, while the number of "Less advanced" natural gas projects remained the same.

The reduction of the advanced share of natural gas projects is explained by the modification of the criteria in the TYNDP 2024. While in TYNDP 2024 advanced natural gas projects have already started permitting phase or completed FEED, the advanced definition applied in the TYNDP 2022 allowed for natural gas projects with FEED started or granted with CEF funds for FEED to fulfil the advanced criteria.

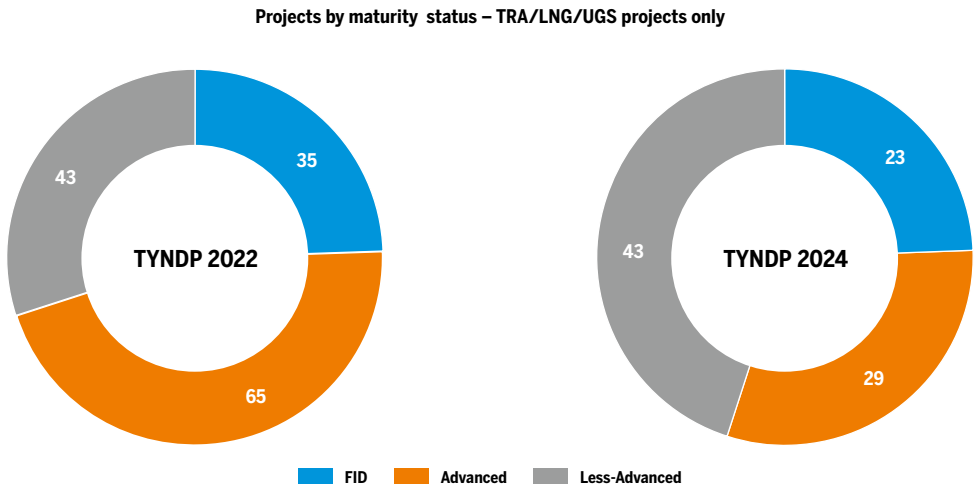

Figure 36: Comparison of natural gas submissions in TYNDP 2022 and TYNDP 2024 per maturity status.

7.3.2 OVERVIEW OF PROMOTERS' SUBMISSIONS PER GEOGRAPHICAL LOCATION

The following charts provide a summary of promoters' submissions based on their geographical location, infrastructure type and maturity status for investments in the area of natural gas categories.

The total number of natural gas submissions for TYNDP 2024 concerns 17 countries of the European Union and one (Ukraine) which is part of the Energy Community[24] as contracting party.

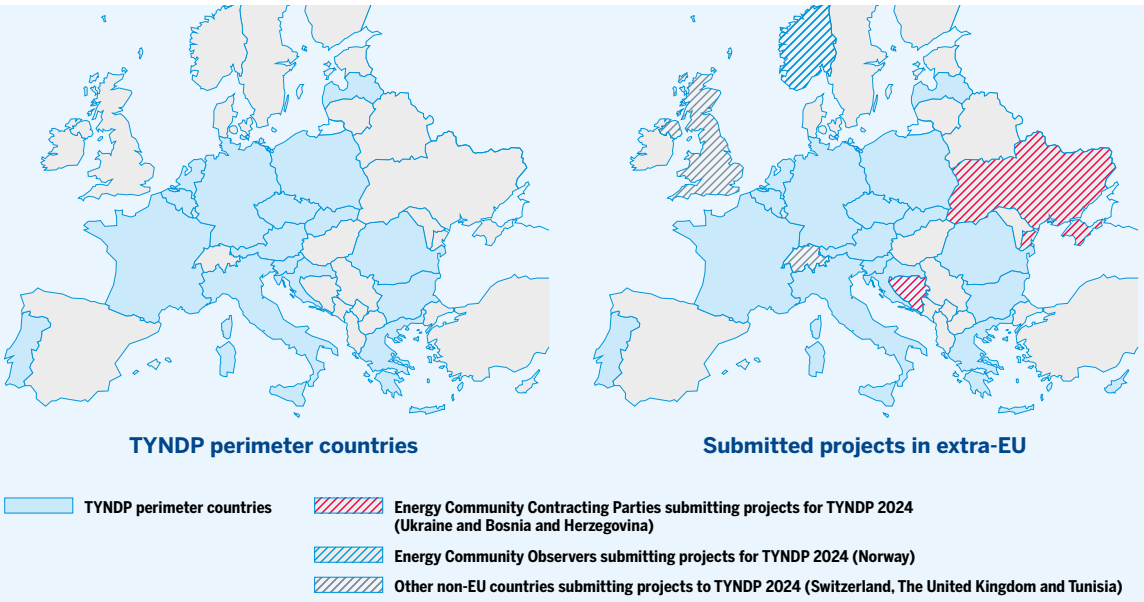

Figure 37: TYNDP perimeter countries and countries outside European Union for which Natural gas projects were submitted in TYNDP 2024

Figure 38 and Figure 39 provide an overview of the natural gas projects per country and per maturity status. The highest number of natural gas projects were submitted for Italy (16), followed by Romania (14).

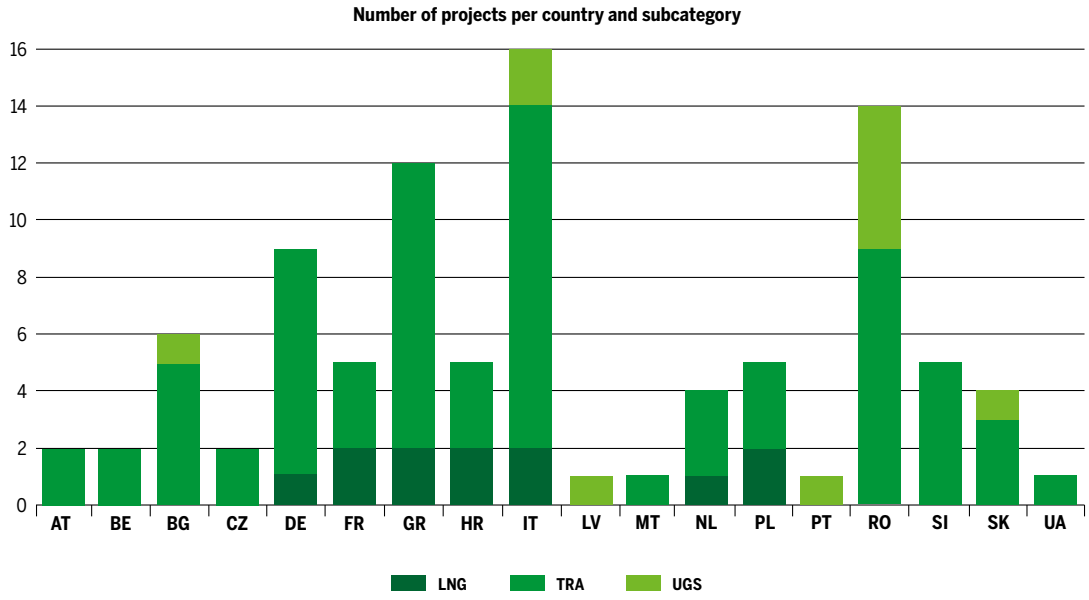

Figure 38: Number of natural gas projects and subcategory per country.

24 The Energy Community is an international organisation which brings together the European Union and its neighbours to create an integrated pan-European energy market (https://www.energy-community.org/).

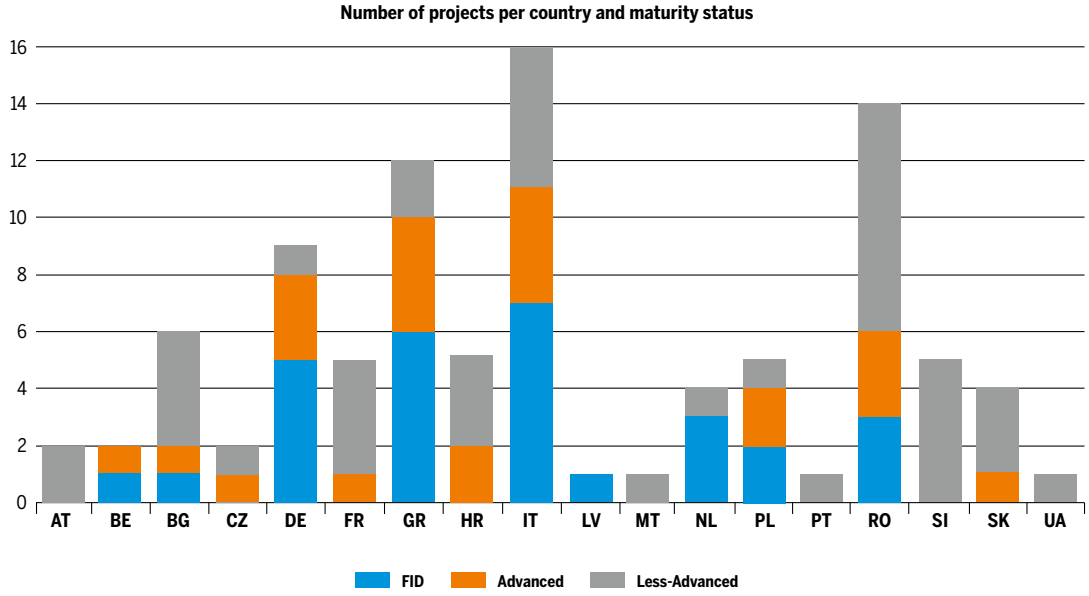

Figure 39: Number of natural gas projects and maturity status per country.

The variations of submissions per country is caused by the fact that some TSOs are required to ensure some consistency between projects included in the National Development Plans and projects included in the ENTSOG TYNDP while in other countries only projects with cross-border significance should be submitted.

Natural gas infrastructure of which there are still numerous projects (most of them with FID or advanced maturity status), will continue to be necessary to address needs, such as:

- Security of supply needs as a consequence of the Russian invasion of Ukraine and subsequent reduction of Russian natural gas supplies.
- Sustainability needs derived from coal to gas switch.
- Flexibility and security of supply needs driven by bottlenecks in the electricity transmission system (e.g., natural gas transmission projects that connect new natural gas fired plants to overcome electricity bottlenecks).
- To balance fluctuating renewable electricity production.

In this context, as shown in Figure 39 a significant number of natural gas projects are currently being developed to address such needs in Italy, Germany, Greece, Bulgaria and Romania.

7.3.3 ANALYSIS OF PROJECT SCHEDULE

Figure 40 and Figure 41 show the distribution of projects included in TYNDP 2024 according to the expected (first) commissioning year in an aggregated way. The majority of projects falling under the natural gas category will be commissioned within the next five years (83 out of the 95 or 87 %), while the last commissioning year is 2035. All of the projects having FID or Advanced status are expected to be commissioned until 2028.

In addition, several years are not displayed in the following graphs, indicating that there are no projects to be commissioned during these years.

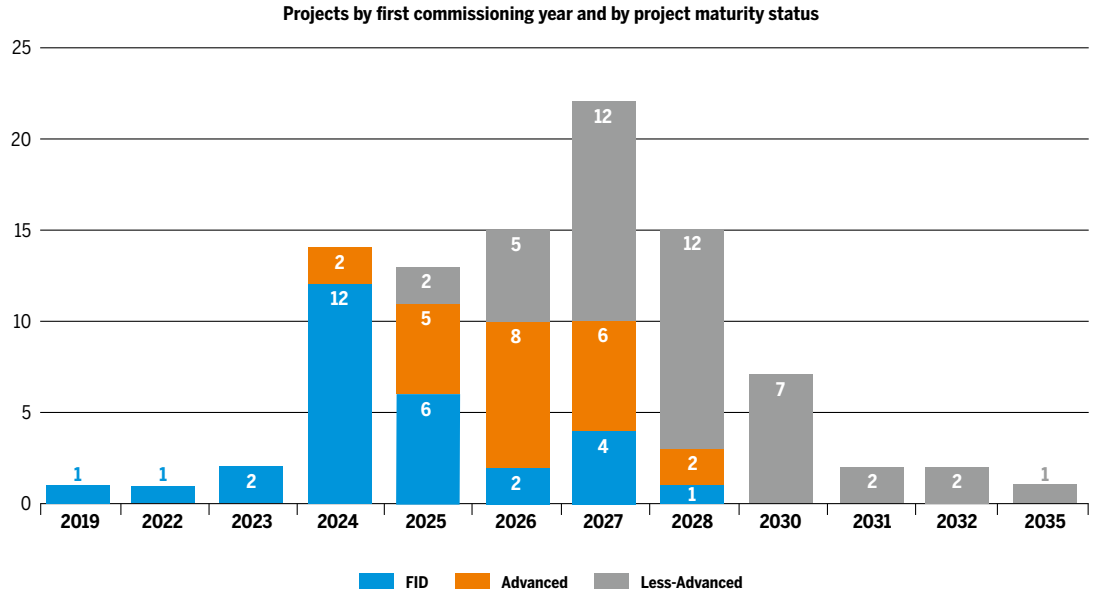

Figure 40: Natural gas projects by commissioning year and by project maturity status – TRA, UGS & LNG.

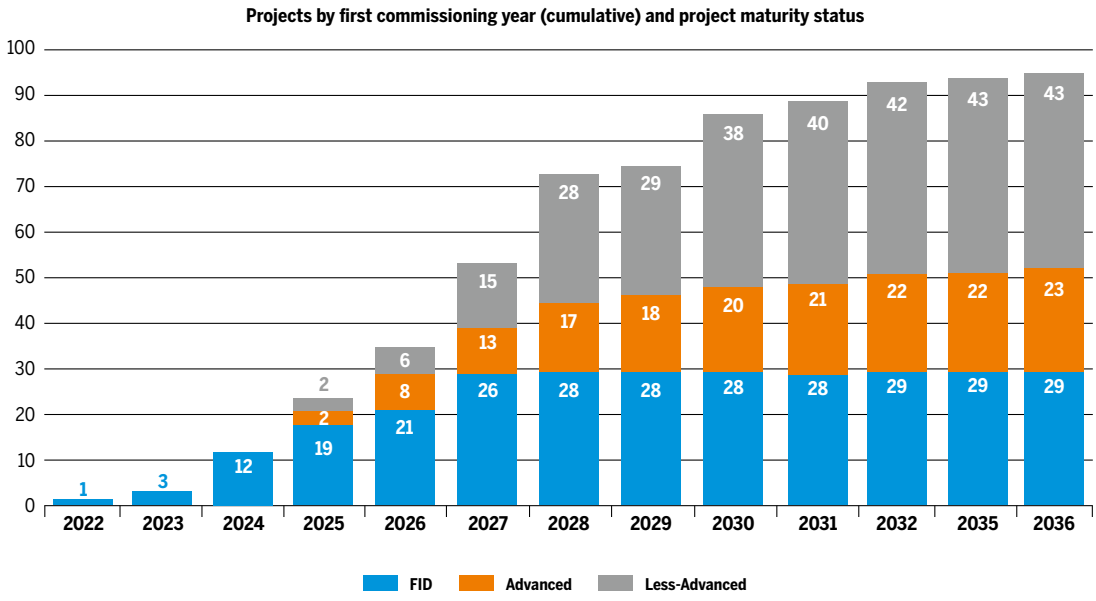

Figure 41: Natural gas projects by commissioning year (cumulative) and by project maturity status – TRA, UGS & LNG.

As part of the project collection, promoters have to provide information (except for some specific situations) about the projects' schedules of the main project phases and milestones (i.e., Feasibility study, FEED, Permitting, FID, Construction and Commissioning).

In case of the **Feasibility Study phase**, the start and end dates, either past or expected, have been provided for 70 projects. The average duration of the Feasibility Study phase for these projects is 11 months with the highest average duration in case of UGS projects (13 months) and the lowest average duration for LNG projects (7 months).

In addition, 58 projects have indicated the completion of the feasibility study until the end of TYNDP 2024 project collection period. Three projects have started the feasibility study before the end of the project collection period but expect to complete them within 2024. The remaining nine projects are expected to start their feasibility study during 2024 with the latest end June 2026.

Regarding the **FEED phase**, the start and end dates, either past or expected, have been provided for 90 projects. The average duration of the FEED phase for natural gas projects is 25 months with the highest average duration in case of UGS projects (47 months) and the lowest average duration in case of LNG projects (8 months).

51 projects have indicated to complete the FEED phase until the end of TYNDP 2024 project collection period. In addition, seven projects have started FEED phase before the end of the project collection period but are still ongoing with the latest finalisation date in December 2028. The remaining 32 projects will not have started the FEED phase by the end of the TYNDP 2024 project collection phase.

In case of the **Permitting phase**, the start and end dates, either past or expected, have been provided for 90 projects. The average duration of the Permitting phase for these projects is 39 months, with the highest average duration for UGS (60 months) and the lowest average duration in case of LNG projects (20 months).

More specifically, 34 projects have completed the permitting phase until the end of TYNDP 2024 project collection period. 20 projects have started permitting phase before the end of the project collection period but are still ongoing with the latest finalisation date in December 2029. The remaining 36 projects have not started the permitting phase by the end of 2023.

The **FID date**, either past or expected, has been provided for 91 natural gas projects. 32 projects have obtained the FID until the end of the project collection phase. The graph below shows the distribution of projects per FID date. The average FID date is 10 August 2023 (see Figure 42).

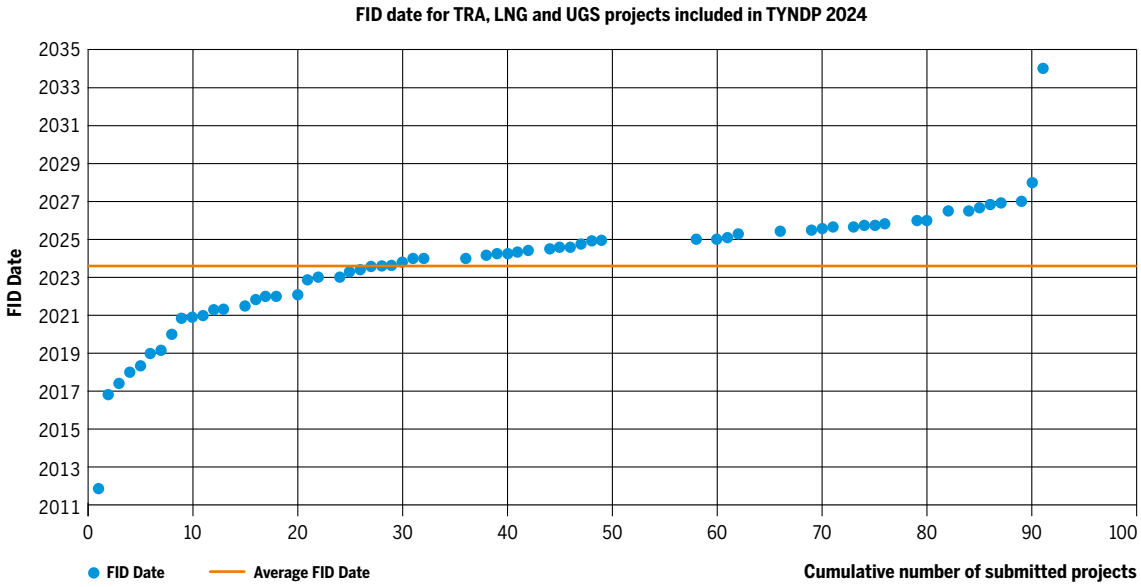

Figure 42: Cumulative distribution of natural gas projects per FID date – TRA, UGS & LNG.

Regarding the **Construction phase**, the start and end dates, either past or expected, have been provided for 92 projects. The average duration of the Construction phase for these projects is 38 months, with the highest average duration in case of UGS projects (55 months) and the lowest average duration in case of LNG projects (30 months).

24 projects have started their construction prior the end of the project collection period. The remaining 68 projects have foreseen the start of the construction after the end of 2024 with latest end date in December 2037.

Figure 43 below provides all the information for the different phases described above.

The **Commissioning year** has been provided for all natural gas projects in TYNDP 2024. The average Commissioning year for these projects is 2027 with 54 natural gas projects expected to be commissioned by the end of 2027 and the remaining 41 until 2036 (see Figure 44).

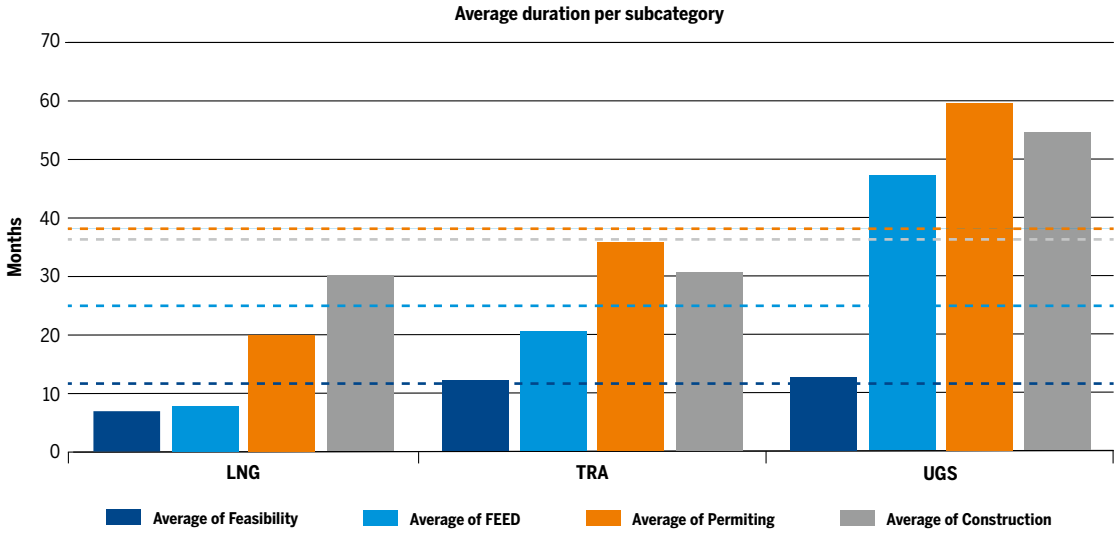

Figure 43: Average duration of Feasibility, FEED, Permitting and Construction phases – TRA, UGS and LNG.

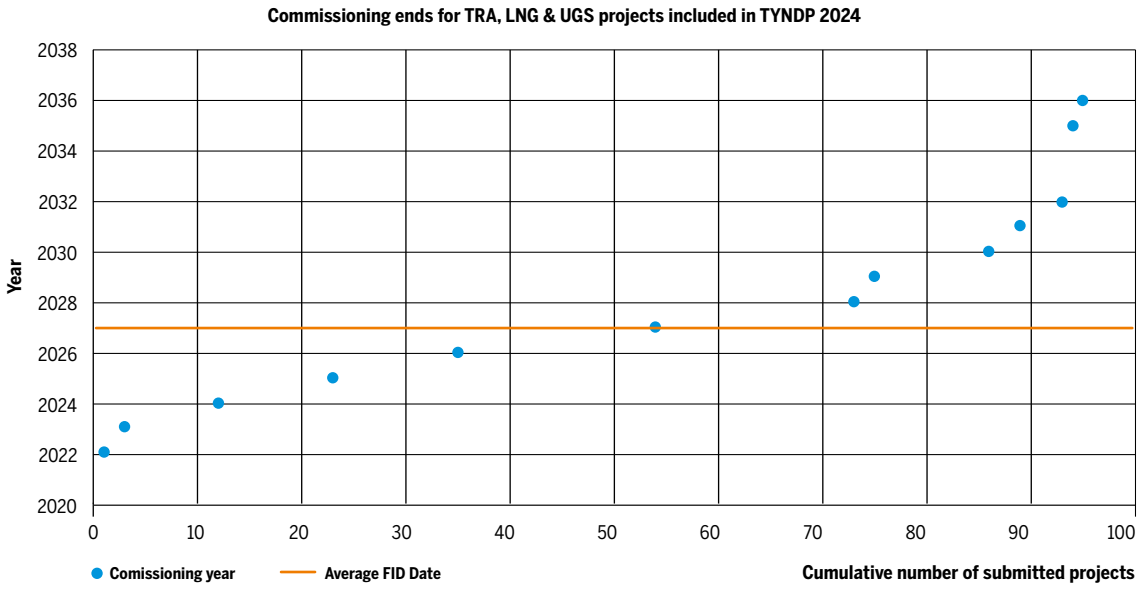

Figure 44: Distribution of natural gas projects per end commissioning year.

Status	Completed in TYNDP 2024	FID in TYNDP 2024	Advanced in TYNDP 2024	Less Advanced in TYNDP 2024	Cancelled/ Not resub-mitted in TYNDP 2024	Total
FID (TYNDP 2022)	17	14	1	1	3	36
Advanced (TYNDP 2022)	6	13	26	8	11	64[25]
Less-Advanced (TYNDP 2022)	2	1	4[26]	20	16	43
Total	**25**	**28**	**31**	**29**	**30**	**143**

Table 8: Evolution of projects from TYNDP 2022 to TYNDP 2024 (natural gas category).

Of the 36 projects submitted for TRA, LNG and UGS already having the FID status in TYNDP 2022:

- 17 were completed;
- 14 are still in progress keeping the FID status;
- One is still planned but no more FID[27];
- Two projects (UGS-F-347 and LNG-F-1146) were not resubmitted by the promoters, while one (TRA-F-814) was cancelled.

Of the 64 natural gas projects submitted already having the Advanced status in TYNDP 2022:

- Six were completed;
- 13 got the FID status after the TYNDP 2022 project collection;
- 26 still have the Advanced status;
- Eight moved from Advanced to Less-Advanced due to delay or rescheduling;
- 10 were cancelled or not resubmitted by the promoter (LNG-A-1198, TRA-A-656, LNG-A-912, TRA-A-118, LNG-A-559, UGS-A-233, TRA-A-339, TRA-A-1060, TRA-A-1109 and LNG-A-1123);
- One project was submitted with a different code number and obtained the FID status in TYNDP 2024 (LNG-A-792 became LNG-F-880).

Of the 43 natural gas projects submitted already having the Less-Advanced status in TYNDP 2022:

- Two were completed;
- One got the FID after the TYNDP 2022 project collection;
- Four moved from Less-Advanced to Advanced. Three out of the four (TRA-N-224, TRA-N-303 and TRA-N-910) changed their project type from TRA to H2T;
- 20 are still planned and maintained the Less-Advanced status;
- 16 were cancelled/not-resubmitted.

For natural gas projects not having gotten the FID yet but presenting an Advanced status (23 projects) the analysis shows:

- For all natural gas projects the FID date was provided and 19 are expected to be commissioned within five years from when the FID is expected to be taken, while for four submissions it is between six and twelve years;
- An average of **almost two years** between the year when the construction works are expected to start and when the project is expected to be commissioned.

25 Two natural gas projects were neither cancelled nor completed but submitted with a new code.

26 Three out of the four projects (TRA-N-224, TRA-N-303 and TRA-N-910) which moved to "Advanced" status changed their code from TRA to H2T.

27 Project TRA-N-245 has a Less-Advanced status in TYNDP 2024 while in TYNDP 2022 it had FID status. The promoter noted that the scope of TRA-N-245 was wider in TYNDP 2022 as it contained a project more advanced than others. That project has been completed and it is not part of TRA-N-245 anymore. Therefore, the status is now Less-Advanced.

For natural gas projects not having gotten the FID yet but presenting a Less-Advanced status (43 projects) the analysis shows:

- For 40 "Less-Advanced" natural gas projects the FID date was provided. 34 are expected to be commissioned within five years from when the FID is expected to be taken, while for the rest of the submissions it is within seven years;
- It should be noted that information may not be always reliable with regards to Less-Advanced projects.

The way FID is taken by each promoter may differ. Some may take FID after the granting of permits and some before initiating the permitting procedure. Those permitting procedures often represents the longest phase of the whole project schedule which often lasts more than five years.

Figure 45 and Figure 46 illustrate the status of those common projects according to TYNDP 2022 and TYNDP 2024 submissions. The charts show the share of those projects for which a delay has been reported regarding their expected commissioning date and the length of this delay.

Three natural gas projects have been submitted with an earlier commissioning date.

Among the main reasons indicated by promoters for delay and rescheduling are:

- Permitting and regulatory delays;
- Environmental and impact assessments;
- Project dependencies;
- Financial and funding issues;
- Technical and engineering challenges;
- COVID-19 pandemic impact;
- Other specific delays.

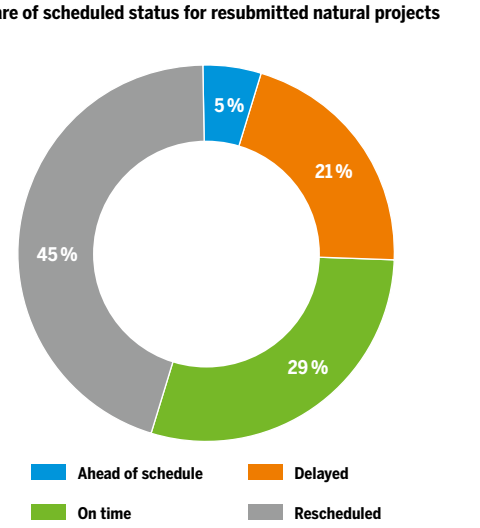

Figure 45: Share per scheduled status for resubmitted natural gas projects.

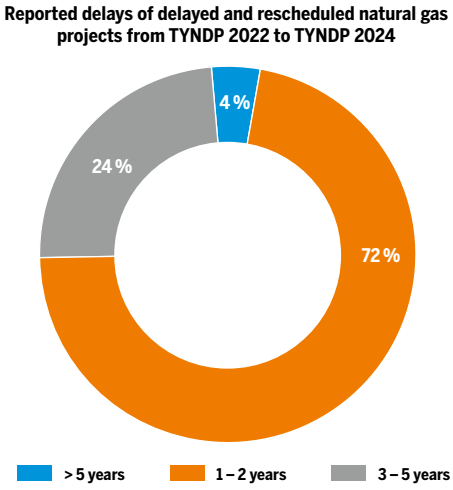

Figure 46: Reported delays from TYNDP 2022 to TYNDP 2024 for natural gas projects.

7.3.4 INVESTMENT COSTS

As mentioned in section 6.4.4, investment costs might be commercially sensitive information and in some cases have the potential to negatively affect the competitive position of project promoters vis-à-vis contractors. As part of the transparency process adopted, ENTSOG has collected information from promoters on indicative investment costs for all submitted projects.

71 out of 95 submissions declared their costs as non-confidential. The total capital expenditure for all the three natural gas subcategories was more than 37 billion euros in TYNDP 2024. The highest share of costs is represented in the advanced status (48 %) while the share of advanced project for all the natural gas projects is around 53 % (see Figure 47).

As shown in Figure 48, TRA projects (76 % of the total number of natural gas projects) cover the majority of the investment costs for the respective category (90 %). In addition, almost half of the total costs for natural gas investments will take place until 2027 (44 %) (see Figure 49).

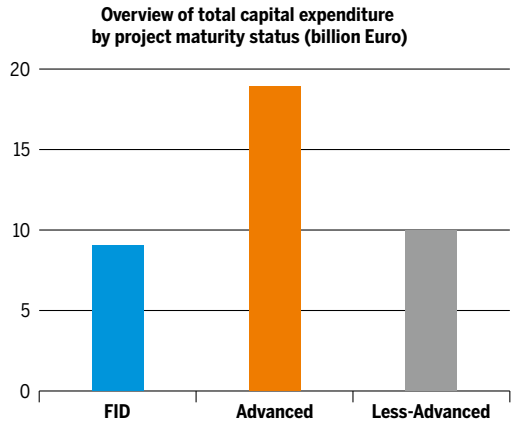

Figure 47: Overview of total capital expenditure by project maturity status – TRA, UGS and LNG.

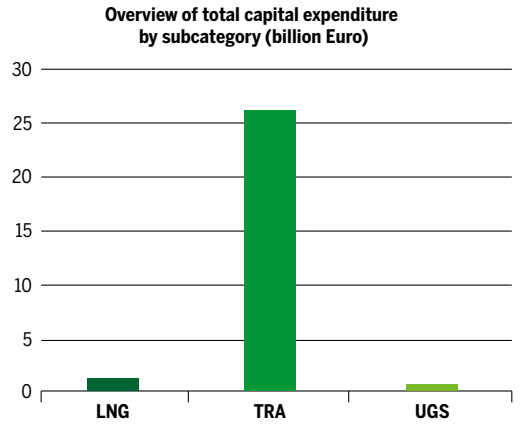

Figure 48: Overview of total capital expenditure by subcategory – TRA, UGS and LNG.

In addition, several years are not displayed in the graph, indicating that no cost values were recorded for those periods.

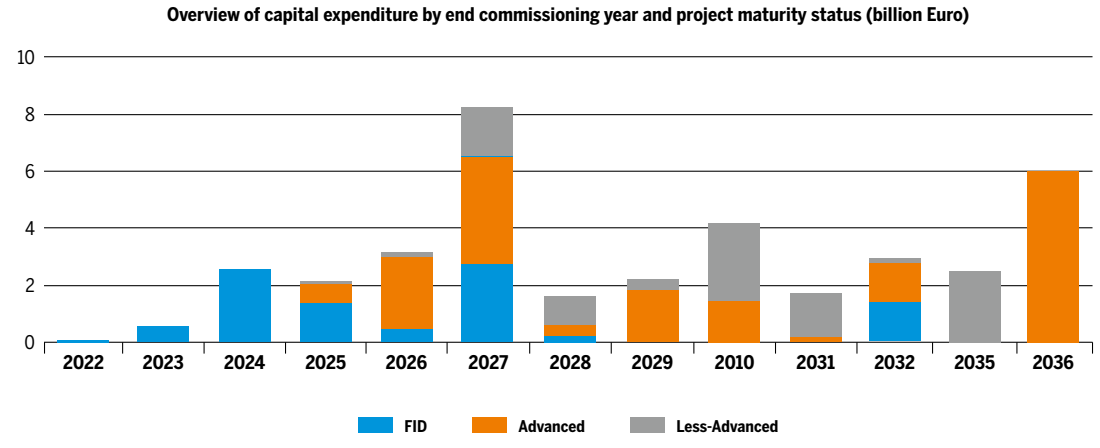

Figure 49: Overview of total capital expenditure by last commissioning year and project maturity status – TRA, LNG and UGS.

7.3.5 TYNDP 2024 SUBMISSIONS AND NATIONAL DEVELOPMENT PLANS

Following the legal framework mentioned in section 6.4.5 and ACERs' recommendations, ENTSOG requested project promoters to always indicate if their initiatives are part of the NDP. If not, the project promoters had to indicate the reason for its project not being part of the NDP. Out of the total number of projects that were listed under the natural gas subcategories, 84 (88 %) were included in the NDP. The subcategory with the highest number of included projects was TRA (66), followed by UGS (10) and LNG (8).

Table 9 below presents the number of projects per country that are included or not in the respective NDP.

Country	Part of NDP	NOT Part of NDP	Country	Part of NDP	NOT Part of NDP
AT	2	–	IT	16	–
BE	2	–	LT	–	–
BG	5	1	LU	–	–
BIH	–	–	LV	1	–
CH	–	–	MT	1	–
CY	–	–	NA	–	–
CZ	2	–	NL	2	2
DE	9	–	NO	–	–
DK	–	–	PL	4	1
EE	–	–	PT	1	–
ES	–	–	RO	13	1
FI	–	–	SE	–	–
FR	5	–	SI	5	–
GR	7	5	SK	4	–
HR	4	1	UA	1	–
HU	–	–	UK	–	–
IE	–	–	–	–	–

Table 9: Overview of projects being part or not of NDPs by country – TRA, LNG and UGS.

For 11 projects reported as not part of any NDP, promoters have indicated the following reason:

- Project is exempted from the network development obligations of Article 22 Gas Directive 2009/73/EC and hence from the obligation to be included in the NDPs.

For further details, please refer to TYNDP 2024 Annex A. Additional assessments are available in ACER's opinion 07-2024 of 29 October 2024 on the review of gas and hydrogen national development plans to assess their consistency with the EU-TYNDP.

7.4 TYNDP 2024 NATURAL GAS PROJECTS BEING PART OF THE 1ST UNION LIST UNDER THE REVISED TEN-E REGULATION

Although, as a general rule, natural gas projects are ineligible for PCI and PMI status (see section 6.5), the EastMed Pipeline (TRA-A-330) retained its PCI status as a unique exception, alongside the project connecting Malta to the European gas network (TRA-N-31). This exception was granted due to geographical constraints and the fact that these countries lack connections to the trans-European gas network. It is important to note that this exemption is temporary and subject to stringent conditions to align with the European Union's broader energy and climate policy objectives.



Picture courtesy of TAP



Picture courtesy of Teréga

8 PROMOTERS' SUBMISSIONS FOR SMART GAS GRID AND OTHER PROJECTS TO TYNDP 2024

While Energy Transition projects were first included in TYNDP 2020, in TYNDP 2024 there is a further division replacing the ETR projects into hydrogen, smart gas grid and others.

In order to present more precise information in these evolving subcategories, ENTSOG provides a separate analysis of these subcategories in this chapter. This analysis includes only RET, BIO, SYN, CO_2 and OTH investments. 29 projects have been included in TYNDP 2024 and are falling under the five mentioned subcategories. It should be noted that, as for electrolyser projects (see section 6.5), the TEN-E Regulation does not require CO_2 and smart gas grid projects to be part of the TYNDP in order to be eligible for PCI or PMI status.

8.1 SMART GAS GRID PROJECTS

For TYNDP 2024, promoters submitted 13 smart gas grid projects. More specifically, five BIO, one SYN and seven RET projects.

- **Three BIO** projects enabling the reverse transportation between DSO and TSO of biomethane and **two** network development projects enabling biomethane production/injection into the gas grid;
- **Six RET** projects regarding Retrofitting of existing gas pipelines and other network related assets for (bio-)methane-hydrogen blending and **one** investment regarding retrofitting of existing storages for H_2 blending.

8.2 OTHER PROJECTS

For TYNDP 2024, promoters submitted 16 projects in the Others category. More specifically, 12 OTH investments and four CO_2 investments.

- **Four OTH** dedicated projects to reduce methane emissions in existing infrastructure, **two** projects enabling gas/electricity integration, **four** projects enabling the production, reception, injection, transportation or end-use supply of hydrogen and **two** projects dedicated to the conversion of natural gas network for CO_2 transport or storage.

→ see maps in figure 50 on pages 58/59

MAP FOR SMART GAS GRID AND OTHERS PROJECTS IN TYNDP 2024

BIOMETHANE DEVELOPMENT PROJECTS

	BIO-F-497	Reverse flow biomethane Denmark vol. 2	ENERGINET	REVERSE	FID	Non-PCI
	BIO-F-624	Biomethane: Reverse flow projects	GRTgaz	REVERSE	FID	Non-PCI
	BIO-A-1265	Biomethane productions interconnection	snam	PROD-INJ	Advanced	Non-PCI
	BIO-N-547	Biomethane : Reverse flow Projects	TERĒGA	REVERSE	Less-Adv.	Non-PCI
	BIO-N-728	Biomethane: connection of production units	TERĒGA	PROD-INJ	Less-Adv.	Non-PCI

OTHER INFRASTRUCTURE RELATED PROJECTS

	OTH-F-1254	CS Elten	OGE Thyssengas	OTH	FID	Non-PCI
	OTH-A-1269	Belgian CO2 Transmission Facilities	fluxys	OTH	Advanced	PCI
	OTH-A-743	Impulse 2025	TERĒGA	OTH	Advanced	Non-PCI
★	OTH-A-841	PALOS DE LA FRONTERA / AMMONIA	Iberdrola	OTH	Advanced	Non-PCI
★	OTH-A-1040	H2ELEKTRA AMMONIA	Iberdrola	OTH	Advanced	Non-PCI
	OTH-A-1242	Modernisation of compressor units	nafta Joint Stock Company	OTH	Advanced	Non-PCI
	OTH-N-322	North Sea Wind Power Hub	ENERGINET TenneT gasunie	OTH	Less-Adv.	PCI
	OTH-N-984	Pycasso	TERĒGA	OTH	Less-Adv.	PCI
	SYN-N-305	PEGASUS	SGI	SYN	Less-Adv.	Non-PCI
	CO2-N-456	SAVA aquifer CO2 transmission cluster	plinacro	CO2	Less-Adv.	Non-PCI
	CO2-N-551	DRAVA aquifer CO2 transmission cluster	plinacro	CO2	Less-Adv.	Non-PCI
	CO2-N-554	Osijek aquifer CO2 transmission cluster	plinacro	CO2	Less-Adv.	Non-PCI
★	OTH-N-778	Gas transmission methane emission reduction project	plinacro	OTH	Less-Adv.	Non-PCI
★	OTH-N-878	GREEN MEIGA METHANOL	Iberdrola	OTH	Less-Adv.	Non-PCI
	OTH-N-920	Measures for the reduction of methane emissions	eustream	OTH	Less-Adv.	Non-PCI
	CO2-N-1157	Italian CO2 Network	snam	CO2	Less-Adv.	Non-PCI
	OTH-N-1201	Reduction of transmission system methane emissions	Plinovodi	OTH	Less-Adv.	Non-PCI

RETROFITTING INFRASTRUCTURE FOR HYDROGEN (RET)

Retrofitting : infrastructure upgrades to allow hydrogen blends

RET-N-558	Smartening up existing BG gas transm. network (SmartSwitch)	BULGARTRANSGAZ	Less-Adv.	Non-PCI
RET-N-661	Adjustment of existing eus pipeline SK-HU	eustream	Less-Adv.	Non-PCI
RET-N-973	Smartening up existing GR gas transm. network (SmartSwitch)	Bulgaria	Less-Adv.	Non-PCI
RET-N-1049	H2RENGRID - Transport Network	REN Gasodutos	Less-Adv.	Non-PCI
RET-N-1050	H2RENGRID - Carriço UGS	REN Gasodutos	Less-Adv.	Non-PCI
RET-N-1155	Gas system retrofitting for 100% H2 future capability	plinacro	Less-Adv.	Non-PCI
★ RET-N-1318	Gas Networks Ireland Hydrogen Integration (Hybernia)	Gas Networks Ireland	Less-Adv.	Non-PCI

Figure 50: Map for smart gas grid and others projects in TYNDP 2024.

DOWNLOAD THE MAP


KEYS
Cross-border points / intra-country or intra balancing zone points
Cross-border interconnection point within Europe or export point to non-EU country
Cross-border interconnection point (Virtual Point)
Cross-border interconnection point with third country (import)
LNG Import terminal (operational)
LNG Export terminal (operational)
Intra-country or intra balancing zone points
Cross-border interconnection point within Europe or export point to non-EU country
Under construction or Planned
Third country cross-border (Virtual Point / import)
Cross-border third country (import)
Under construction or Planned
LNG Import terminal (Under construction or planned)
LNG Export terminal (Under construction or planned)
Third country cross-border interconnection point
Gas Reserve areas
Gas field
Drilling platform
Countries
EU Countries
Other Countries
ENTSOG currently comprises 43 TSO members, 1 Associated Partner and 9 Observers from 32 European Countries
When the same point is affected by several projects, the point is shown with the highest project status (operational, FID, advanced, non-FID, less advanced), the status from single projects can vary from that.
The projects are shown with the planning status reported in their TYNDP 2024 submission.
All data provided on this map is for information purposes and shall be treated as indicative and non-contractual in nature, without pre-empting different outcomes of any possible discussion held at regional level. Under no circumstances shall it be regarded as information intended for commercial use.
Project status :
TRA-F-123
Infrastructure Project Name
BULGARTRANSGAZ
FID
PCI
Project ENTSOG code
Project Name
Project Promoter
Project status codes
Project not marked on map
Exact project location is not available or is marked as confidential
Exact project locations not marked on map
Project has several locations/points.
The indicated location is for representation purposes only and does not indicate the exact location of the project
Newly added project in TYNDP 2024
Project ENTSOG codes / color :
TRA-N-000
Project is part of 1st PCI/PMI list
TRA-N-000
Project is not part of 1st PCI/PMI list
Project status codes :
The project advancement status is based on the TYNDP project collection conducted in Nov. 2023 - Feb. 2024.
PCI
Non-PCI
PCI status (Project of Common Interest)
FID
Advanced
Less-Adv.
FID status (Final Investment Decision)
Advanced status is applied to all projects that, based on the information submitted, have:
- Commissioning expected at the latest by 31 December 2029
AND the project fulfils at least one of the following criteria:
- Permitting phase has started ahead of the TYNDP project data collection
- FID has been completed ahead of the TYNDP project data collection
TRA Gas transmission pipeline
LNG Reception, storage and regasification or decompression facilities for liquefied natural gas (LNG) or compressed natural gas (CNG)
UGS Underground storage facilities
RET Projects for retrofitting infrastructure to further integrate hydrogen
BIO Biomethane development projects
SYN Synthetic methane projects
CO2 Repurposing of natural gas infrastructure for CO2 transport and/or storage
OTH Other infrastructure related projects
Transport by pipeline
Existing infrastructure for natural gas :
Diameter < 600 mm
Diameter 600 - 900 mm
Diameter > 900mm
Not operational
Planned infrastructure for natural gas :
Project
Biomethane projects
FID projects
Non-FID, advanced projects
Non-FID, less-advanced projects
PROD-INJ
Network development projects enabling biomethane production/injection into the gas grid
REVERSE
Projects enabling the reverse transportation between DSO and TSO of biomethane
Project identification :
ENTSOG project code
Storage facilities
Acquifer
Salt cavity - cavern
Depleted (Gas) field on shore / offshore
Other type
Gas storage projects
Other infrastructure projects
FID projects
Non-FID, advanced projects
Non-FID, less-advanced projects
Project identification :
ENTSOG project code
Retrofitting for hydrogen
Retrofitting - infrastructure upgrades to allow hydrogen blends
FID projects
Non-FID, advanced projects
Non-FID, less-advanced projects
Project identification :
ENTSOG project code
CO2 transport
FID projects
Non-FID, advanced projects
Non-FID, less-advanced projects
Project identification :
ENTSOG project code
North Sea
Baltic Sea
Irish Sea
Atlantic Ocean
Mediterranean Sea
Black Sea
Skagerrak
Kattegat
Gulf of Riga
Gulf of Lion
Bay of Biscay
Ligurian Sea
Adriatic Sea
Tyrrhenian Sea
Ionian Sea
Aegean Sea
Balearic Sea
Sea of Azov
Sea of the Hebrides
Bristol Channel
English Channel
Strait of Gibraltar
IRELAND
UNITED KINGDOM
THE NETHERLANDS
BELGIUM
DENMARK
GERMANY
POLAND
CZECH REPUBLIC
SLOVAKIA
AUSTRIA
HUNGARY
SWITZERLAND
FRANCE
SPAIN
PORTUGAL
ITALY
CORSICA
SARDINIA
CROATIA
SERBIA
BULGARIA
ROMANIA
GREECE
ESTONIA
LATVIA
LITHUANIA
RUSSIA
BELARUS
UKRAINE
MOLDOVA
TÜRKYE
MALTA
CANARY ISLANDS

8.3 FURTHER DETAILS ON THE TYNDP 2024 PROMOTERS' SUBMISSIONS FOR RET, BIO, SYN, CO_2 AND OTH PROJECTS

Following the same structure as Chapter 6 and 7, this section provides more details on the investments under category RET, BIO, SYN, CO_2 and OTH submitted to TYNDP 2024. The high level of investments should be considered in the context of the background described in section 6.4.

29 projects were submitted in total under these subcategories. Figure 51 provides the overview for this submission, compared to the previous TYNDP editions, emphasising the comparison for the above-mentioned subcategories.

From Figure 51, the main points are:

- Four new OTH projects and one new RET project were submitted to TYNDP 2024;
- Three OTH projects were completed between the TYNDP 2022 and TYNDP 2024.

In addition:

- One RET project was resubmitted in another category.[28]
- One TRA project was resubmitted as BIO project.[29]
- One OTH project was resubmitted as SYN project, one OTH project was resubmitted as H2E project and four OTH projects were resubmitted as CO_2 project.[30]

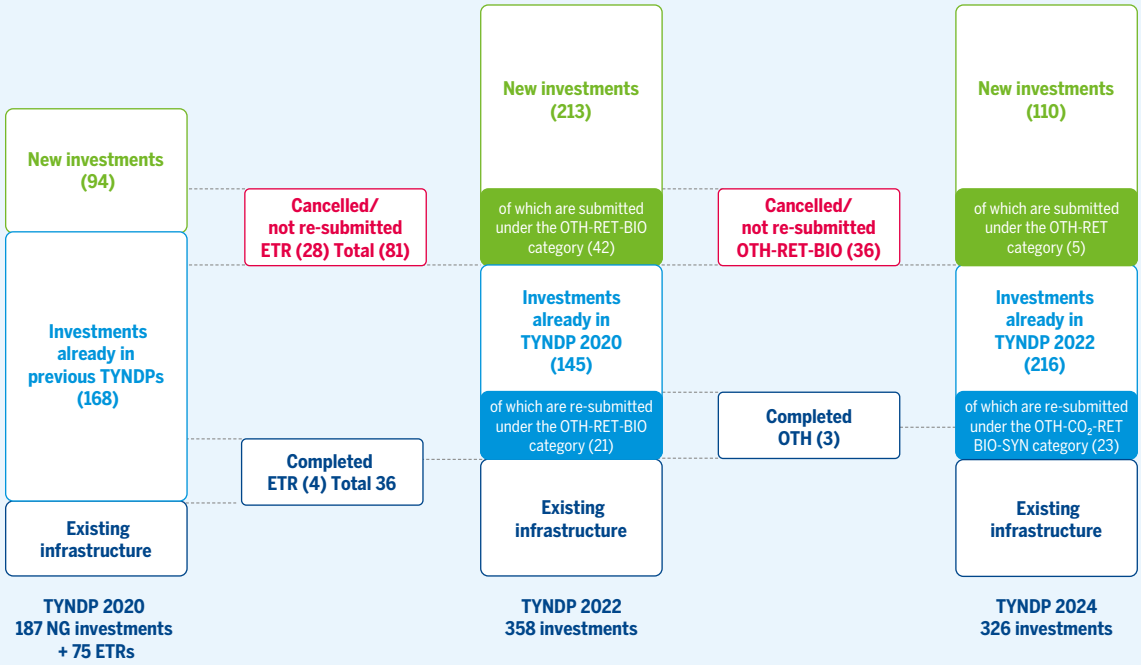

Figure 51: Comparison between TYNDP 2020, TYNDP 2022 and TYNDP 2024 – Smart gas grid and Other categories.

28 Project RET-A-425 submitted as hydrogen storage (H2S-N-425).

29 Project TRA-F-1254 submitted as OTH (OTH-F-1254).

30 OTH-A-305 submitted as SYN-N-305, OTH-N-1230 submitted as H2E-A-1230 and OTH-N-456, OTH-N-551, OTH-N-554, OTH-N-1157 submitted as CO_2.

8.3.1 OVERVIEW PER TYPE AND STATUS

From the total of 326 projects included in TYNDP 2024, 29 Smart gas grid and Other projects have been submitted for the subcategories RET, BIO, SYN, CO_2 and OTH (9 %). These subcategories constituted 17 % of the total number of submitted projects in TYNDP 2022. This slight decrease is mainly due to the further splitting of the ETR categories and a more precise definition of the hydrogen categories, which gave promoters the opportunity to submit their projects accordingly.

The following figures and tables provide a statistical overview of promoters' submissions (see TYNDP 2024 Annex A for further details) based on information such as the type of infrastructure or the FID/PCI status. Those reports reflect all the details entered as part of the data collection process by project promoters.

Figure 52 presents an overview of all the projects accepted for inclusion in TYNDP 2024 per type of infrastructure for subcategories RET, BIO, SYN, CO_2 and OTH.

Figure 53 shows the submissions sorted by the maturity status. The majority of projects are Less-Advanced (69 %), six projects have the Advanced status, while only three out of the 29 projects acquired the FID status.

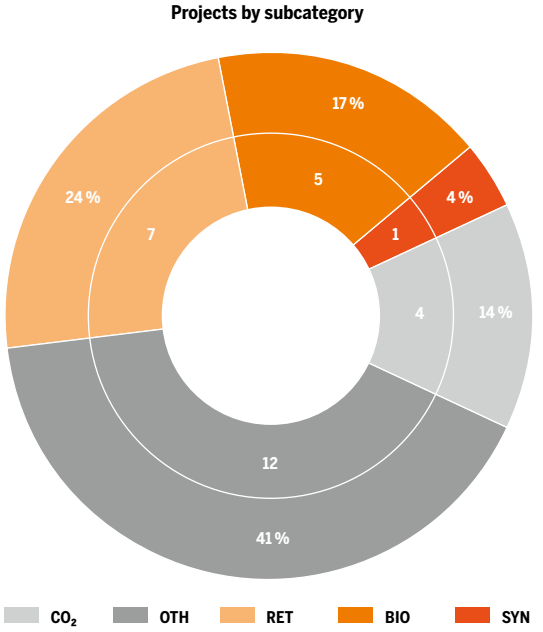

Figure 52: Project inclusion in TYNDP 2024 per subcategory. The inner circle represents absolute numbers of investments; the outer circle represents the share of each subcategory.

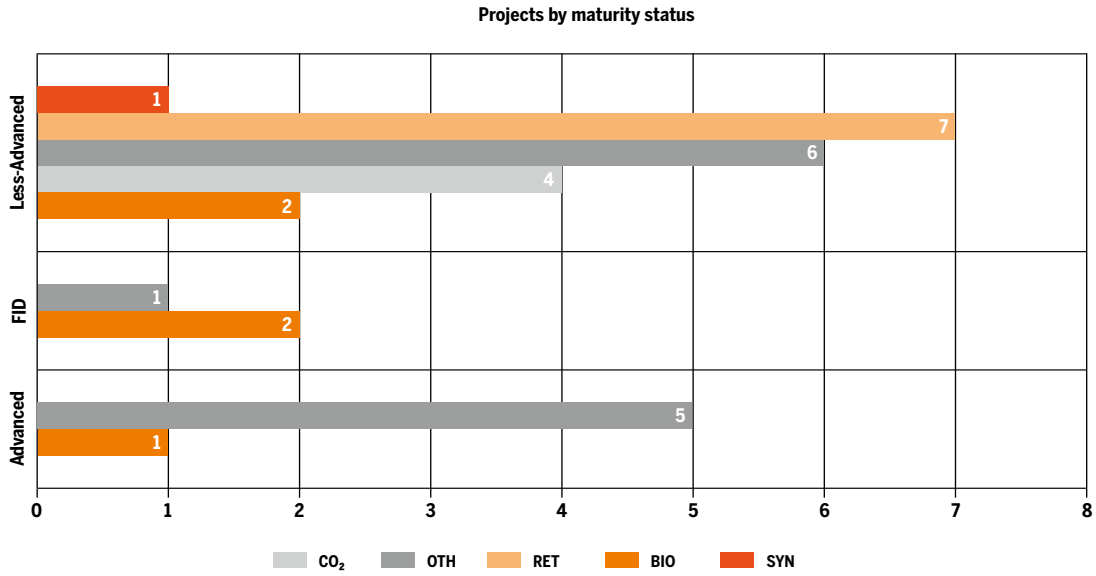

Figure 53: Projects by maturity status – BIO, CO_2, OTH, RET and SYN.

Due to the information collected, it has been possible to identify projects submitted for TYNDP 2022 that were not active anymore but for which promoters had missed to previously report the information to ENTSOG or that were deleted or not resubmitted (see Table 10).

Status	BIO	OTH	RET	Grand Total
Cancelled	–	11	2	13
Completed	–	3	–	3
In Progress	4	3	–	7
Not resubmitted	6	12	5	23
Planned	1	10	6	17
Grand Total	**11**	**39**	**13**	**63**

Table 10: Number of projects for OTH, RET and BIO from TYNDP 2022 completed, planned, in progress, not resubmitted and cancelled.



Picture courtesy of terranets bw

The following table provides an overview of all cancelled and not resubmitted projects.

Project code	Project name	Status
OTH-A-300	HyOffWind Zeebrugge	Cancelled
OTH-A-401	Antwerp@C	Cancelled
OTH-A-898	CNG filling station system development (CroBlueCorr project)	Cancelled
OTH-A-924	Power to Methanol Antwerp	Cancelled
OTH-N-453	Hydrogen production for fuel gas at Városföld CS	Cancelled
OTH-N-929	Ghent Carbon Hub	Cancelled
OTH-N-972	Methane emission reduction booster compressor at Mosonmagyaróvár CS	Cancelled
OTH-N-982	Portable compressor to reduce methane emission	Cancelled
OTH-N-1069	Methane emission reduction booster compressor at Városföld CS	Cancelled
OTH-N-1070	Methane emission reduction at 7 compressor station	Cancelled
OTH-N-1071	Hydrogen production for fuelgas at Mosonmagyaróvár CS	Cancelled
RET-N-1113	Replacement of chromatographs	Cancelled
RET-N-1135	Retrofitting pipelines	Cancelled
RET-N-1081	Cross border gas transmission system retrofitting for hydrogen	Not resubmitted
BIO-F-437	Supercritical water gasification demonstration facility Alkmaar	Not resubmitted
OTH-A-430	Porthos	Not resubmitted
BIO-A-921	Circular economy: waste to biomethane	Not resubmitted
RET-A-1003	Power recovery with a turboexpander in Kardoskut Underground Gas Storage	Not resubmitted
OTH-A-1043	Power conversion with fuel cell in Kardoskút Underground Gas Storage	Not resubmitted
RET-A-1044	Upgrade of compressor control system of TH-W compressor units for Hydrogen	Not resubmitted
OTH-A-1046	Replacement of boilers in Zsana and Hajduszoboszlo Underground Gas storages	Not resubmitted
OTH-A-1073	Sector-coupling with installing and relocating compressor units	Not resubmitted
OTH-A-1104	Synthetic methane production in Zsana UGS with electricity balancing	Not resubmitted
BIO-A-1107	Energy conversion of waste organic materials to biomethane in Zsana	Not resubmitted
OTH-A-1110	Reduction of methane emission with portable compressor	Not resubmitted
OTH-A-1337	Reduction of methane emissions in UGS Lab	Not resubmitted
BIO-N-20	GNI Sustainable Renewable Gas Central Grid Injection Project	Not resubmitted
BIO-N-125	Implementation of smart solutions for injection of renewable gases	Not resubmitted
BIO-N-287	Production of biomethane as a fuel for compressors	Not resubmitted
OTH-N-306	Greening of Gas (GoG)	Not resubmitted
RET-N-483	L2DG (LNG to Decarbonised Gas)	Not resubmitted
OTH-N-560	Establishing a power plant capable to use max. 25 % hydrogen at Szőreg-1 UGS	Not resubmitted
OTH-N-604	P2G4A.	Not resubmitted
RET-N-916	Blending readiness of the transmission system	Not resubmitted
OTH-N-993	LNG Hub: 2nd jetty for maritime fuel	Not resubmitted
OTH-N-1338	Hydrogen production for fuelgas at Szőreg-1 UGS	Not resubmitted

Table 11: Cancelled and not resubmitted projects for OTH, RET and BIO from TYNDP 2022.



Picture courtesy of Enagás

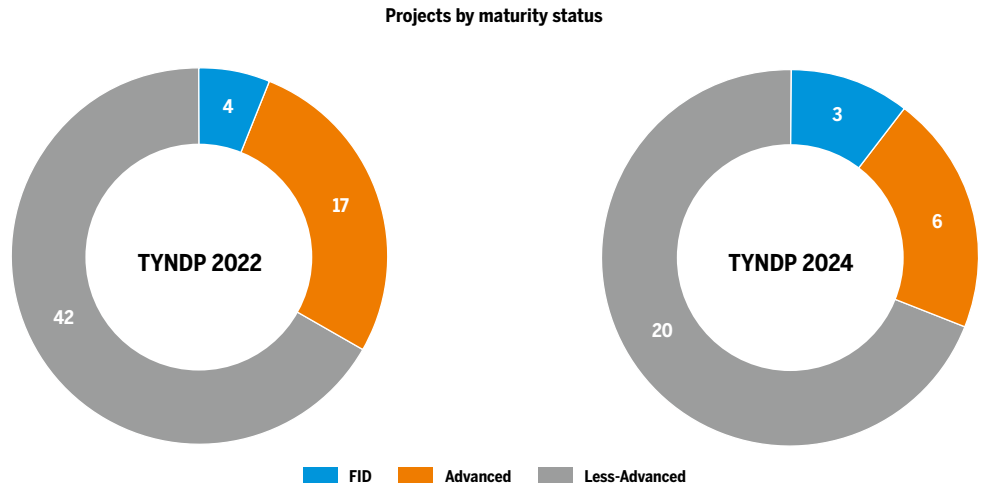

Figure 54: Comparison of submissions in TYNDP 2024 and TYNDP 2022 per status – only OTH, RET and BIO in TYNDP 2022 and SYN, RET, BIO, CO_2 & OTH in TYNDP 2024.

For a better analysis, a comparison of the maturity level between the TYNDP 2022 and the TYNDP 2024 submission is presented in Figure 54.

For this TYNDP, a majority of smart gas grid and other projects has the Less-Advanced status. In the previous TYNDP, the highest number of projects were also recorded with the Less-Advanced status. For FID, a slight reduction can be seen, while the number of Advanced smart gas grid and other projects reduced as well. In the context of this TYNDP, projects with commissioning expected at the latest by 31 December 2029 and either in permitting phase or FEED phase, obtained the Advanced status.

In TYNDP 2024, three projects have the FID status:

- Two were Less-Advanced in TYNDP 2022;
- One was already FID.

More details on the maturity status for these subcategories can be found in Chapter 4.



8.3.2 OVERVIEW OF PROMOTERS' SUBMISSIONS PER GEOGRAPHICAL LOCATION

The following charts provide an overview of promoters' submissions based on their geographical location, (sub)category and maturity status for the five subcategories RET, BIO, SYN, CO_2 and OTH.

In TYNDP 2024, for 14 countries (BE, BG, DE, DK, ES, FR, GR, HR, IE, IT, NL, PT, SI, SK) were submitted in total 29 projects concerning smart gas grid and other categories.

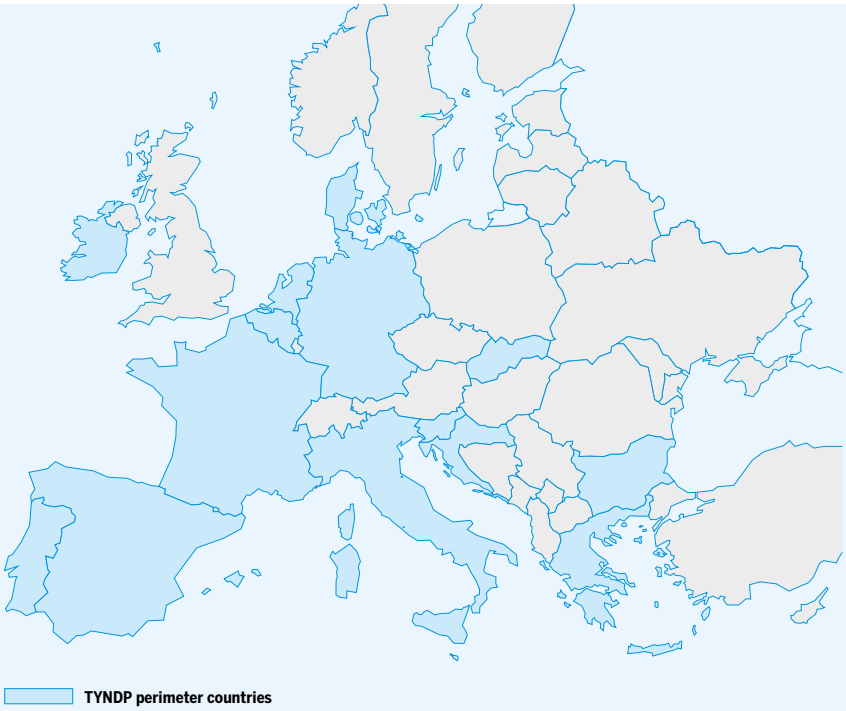

Figure 55: TYNDP perimeter countries for which RET, BIO, SYN, CO_2 and OTH projects were submitted in TYNDP 2024.

Figure 56 presents the number of projects per country for the five subcategories. France and Croatia are the countries with the highest number of projects (10 each). In Figure 57 the five subcategories are sorted by their maturity status. 20 out of the 29 projects are Less-Advanced.

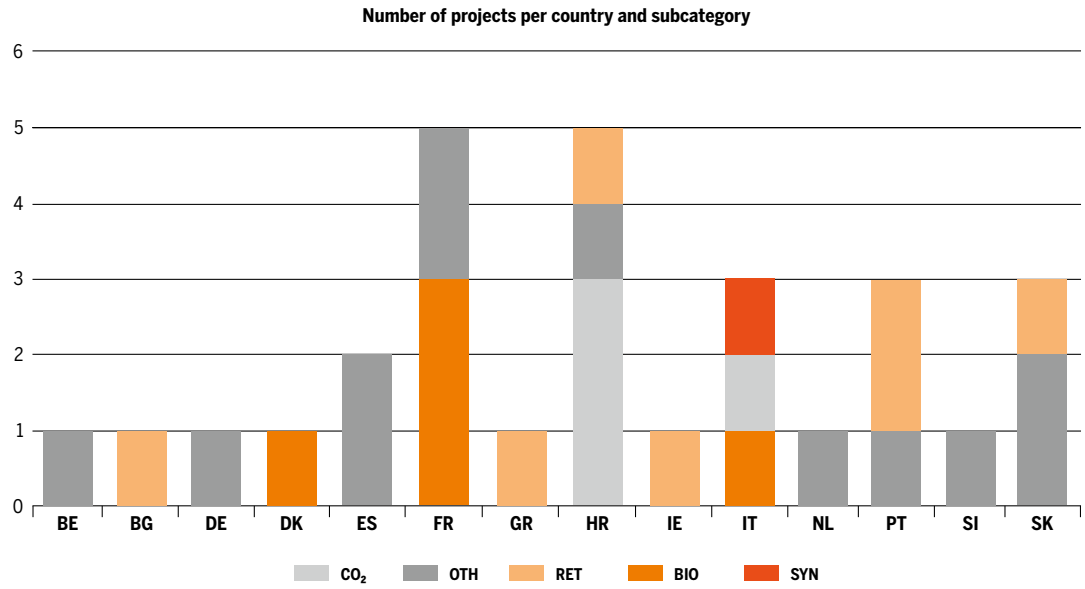

Figure 56: Number of projects per country and subcategory – BIO, CO_2, OTH, RET and SYN.

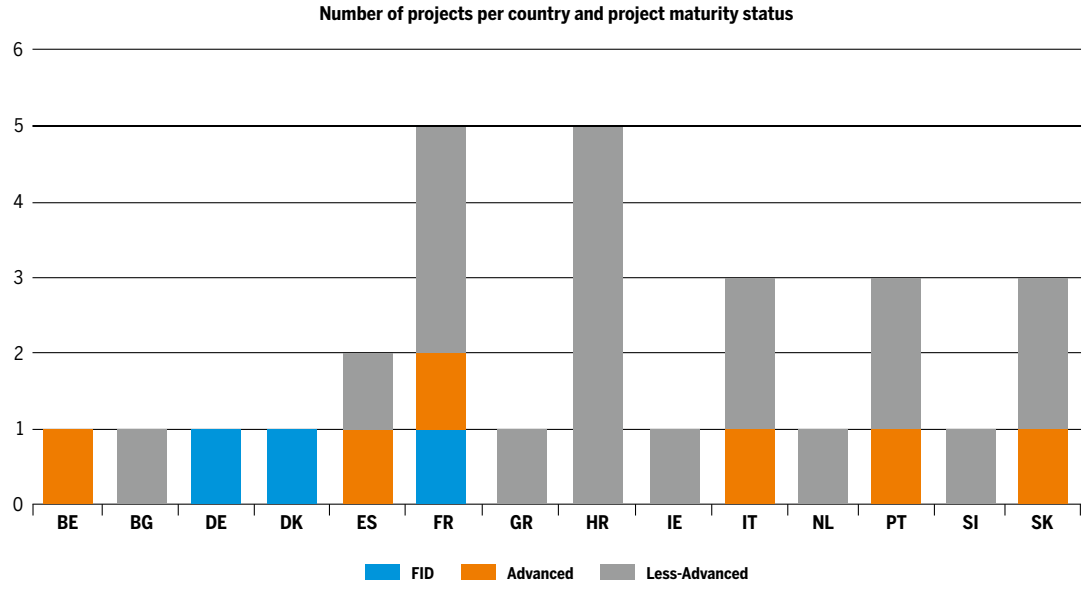

Figure 57: Number of smart gas grids and other projects per country and project maturity status.

8.3.3 ANALYSIS OF PROJECT SCHEDULE

Figure 58 shows the distribution of projects included in TYNDP 2024 according to the expected (first) commissioning year, in Figure 59 also in an aggregated way. The majority of projects falling under the smart gas grid and other subcategories is planned to be commissioned within the next 6 years (21 out of the 29 or 72 %), while the last commissioning year is 2040. All of the projects having FID or Advanced status are expected to be commissioned by 2030.

Additionally, several years are not displayed in the following graphs, indicating that there are no projects to be commissioned during those periods.

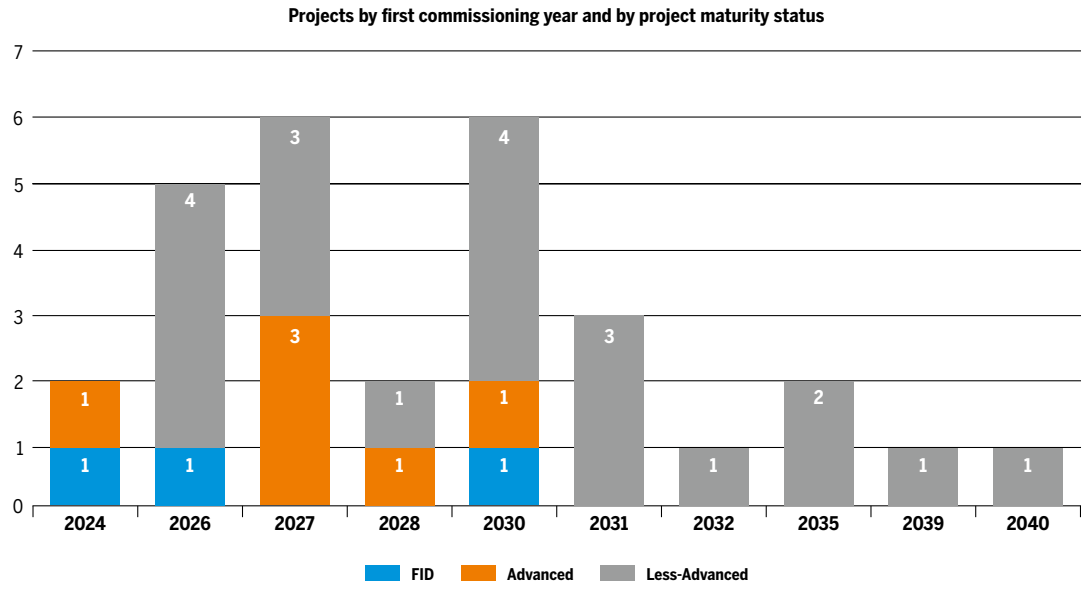

Figure 58: Projects by commissioning year and by project maturity status – BIO, CO_2, OTH, RET and SYN.

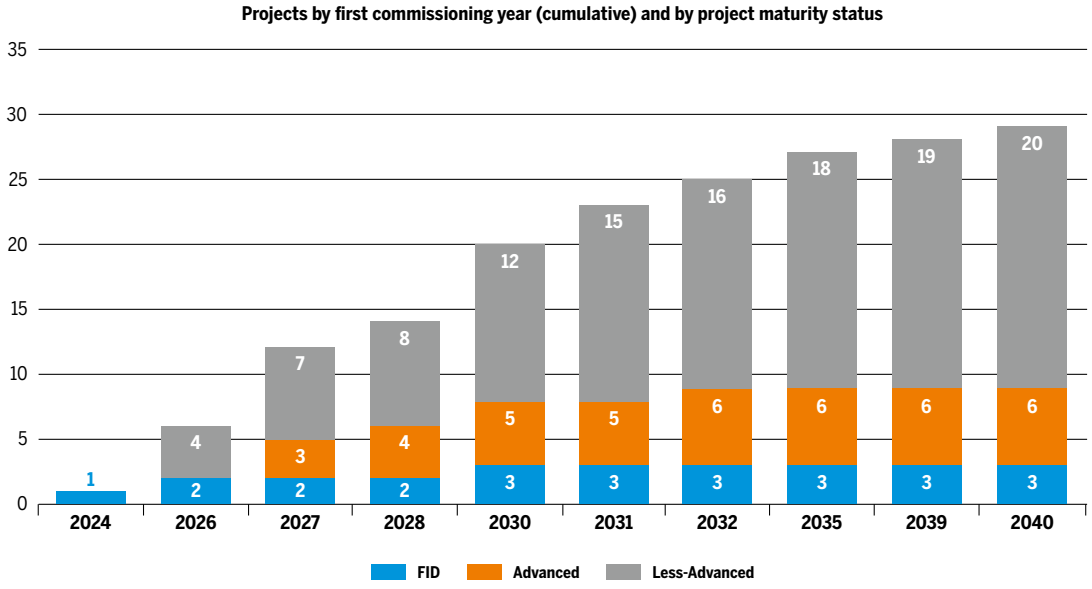

Figure 59: Projects by commissioning year (cumulative) and by project maturity status – BIO, CO_2, OTH, RET and SYN.

Feasibility, FEED, Permitting, FID, Construction and Commissioning

The **Feasibility Study** phase, the start and end dates, either past or expected, have been provided for 20 projects. The average duration of the Feasibility Study phase for these projects is 10 months with the highest average duration in case of CO_2 projects (19 months) and the lowest average duration for SYN project (1 month).

In addition, 6 projects have indicated the completion of the feasibility study until the end of TYNDP 2024 project collection period, while eight projects have started the feasibility before the end of the project collection period, with expected finalisation date until the end of 2024. The rest are expected to finalise the feasibility study until December 2029.

Regarding the **FEED phase**, the start and end dates, either past or expected, have been provided for 28 projects. The average duration of the FEED phase for smart gas grid and other projects is 23 months with the highest average duration in case of BIO projects (63 months) and the lowest average duration in case of SYN projects (1 month).

One project has indicated the finalisation of FEED phase until the end of TYNDP 2024 project collection period. In addition, six projects have started FEED phase before the end of the project collection period but are still ongoing with the latest finalisation date in December 2032.

The remaining 21 projects have started the FEED phase within 2024, while the latest end of the FEED phase is December 2037.

In case of the **Permitting phase**, the start and end dates, either past or expected, have been provided for 28 projects. The average duration of the permitting phase for these projects is 25 months, with the highest average duration for BIO (56 months) and the lowest average duration in case of SYN projects (14 months).

More specifically, two projects have completed the permitting phase until end of the project collection period. Two projects have started permitting phase before the end of the project collection period but are still ongoing with the latest finalisation date in December 2029, while the remaining 24 projects will start their permitting process after the beginning of 2024 with the latest finalisation date in December 2038.

The **FID date**, either past or expected, has been provided for all of the smart gas grid and other projects. Five projects have obtained the FID until the end of the project collection period[31]. The graph below shows the distribution of projects per FID date. The average FID date is 3 January 2026 (see Figure 60).

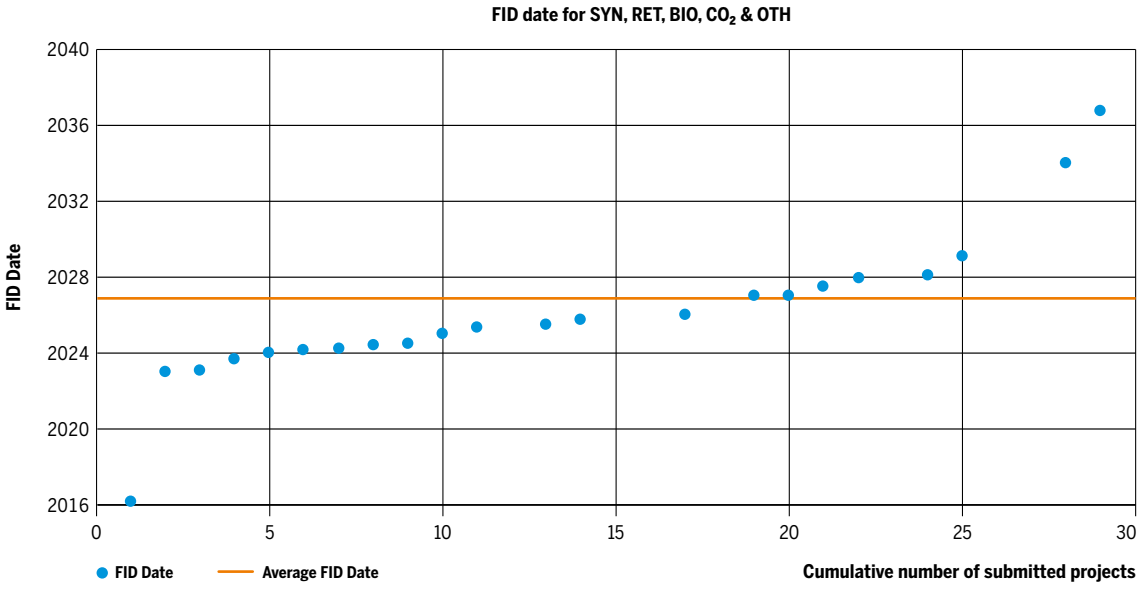

Figure 60: Cumulative distribution of projects per FID date – BIO, CO_2, OTH, RET and SYN

31 Even though three projects have officially the FID status in TYNDP 2024, two more projects are supposed to receive it by the end of 2023 and thus, were included in the analysis.

Regarding the **Construction phase**, the start and end dates, either past or expected, have been provided for 28 projects. The average duration of the Construction phase for these projects is 33 months, with the highest average duration in case of BIO projects (69 months) and the lowest average duration in case of CO_2 and SYN projects (21 months).

Two projects have started their construction prior the end of the TYNDP 2024 project collection period. The remaining 26 projects have foreseen the start of the construction after the beginning of 2024 with latest end date in December 2039.

Figure 61 below provides all the information for the different phases described above.

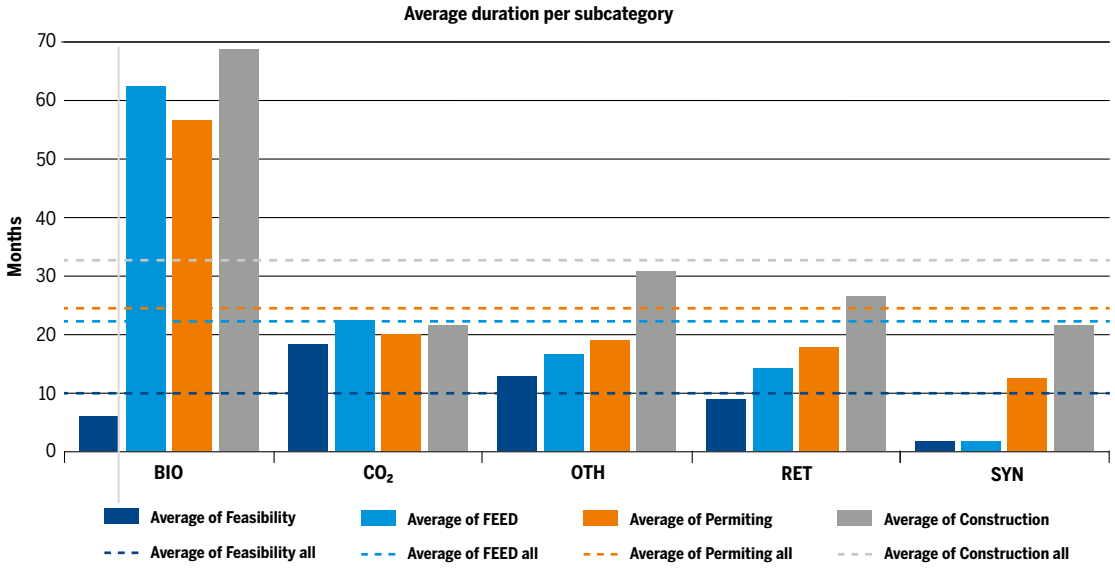

Figure 61: Average duration of Feasibility, FEED, Permitting and Construction phases – BIO, CO_2, OTH, RET and SYN.

The **Commissioning year** has been provided for all smart gas grid and other projects in TYNDP 2024. The average Commissioning year for these projects is 2029 with 20 Smart gas grid and Other projects expected to be commissioned by the end of 2030 (see Figure 62).

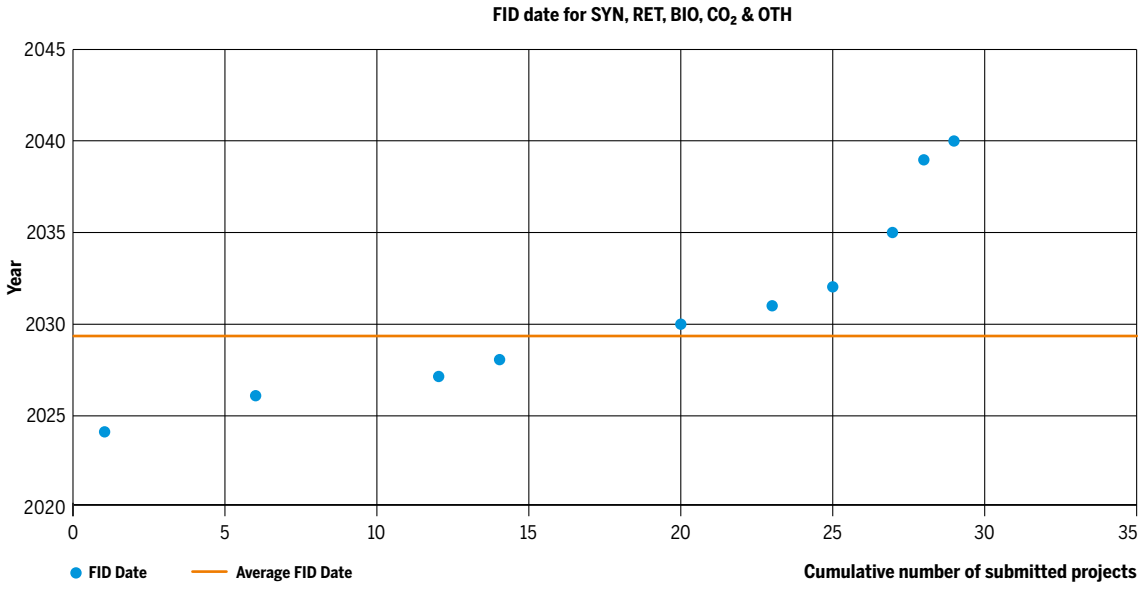

Figure 62: Distribution of projects per end commissioning year – BIO, CO_2, OTH, RET and SYN.

Status	Completed in TYNDP 2024	FID in TYNDP 2024	Advanced in TYNDP 2024	Less Advanced in TYNDP 2024	Cancelled/ Not resubmitted in TYNDP 2024	Total
FID (TYNDP 2022)	2	0	1	0	1	4
Advanced (TYNDP 2022)	0	0	1	1	15	17
Less-Advanced (TYNDP 2022)	1	2	3	16	20	42
Total	**3**	**2**	**5**	**17**	**36**	**63**

Table 12: Evolution of projects from TYNDP 2022 to TYNDP 2024 (Smart Gas Grid and Other category).

Of the four Smart Gas Grid and Other projects submitted already having the FID status in TYNDP 2022:

- Two projects were completed (OTH-F-541 and OTH-F-632);
- One still in progress but no FID (OTH-F-743);
- One was not resubmitted (BIO-F-437).

Of the 17 Smart Gas Grid and Other projects submitted already having the Advanced status in TYNDP 2022:

- One still has the Advanced status (OTH-A-1269);
- One moved from Advanced to Less-Advanced due to delay or rescheduling and submitted under a different infrastructure type (RET-A-425 became H2S);
- 15 were cancelled or not resubmitted by the promoter.

Of the 42 Smart Gas Grid and Other projects submitted already having the Less-Advanced status in TYNDP 2022:

- One was completed between TYNDP 2022 and TYNDP 2024;
- Two got the FID after the TYNDP 2022 project collection (BIO-N-497 and BIO-N-624);
- Three moved from Less-Advanced to Advanced, however investment OTH-N-1230 submitted as H2E;
- 12 are still planned and four are in progress while still maintained the Less-Advanced status;
- 20 were cancelled/not-resubmitted.

Finally, only eight Smart Gas Grid and Other projects stated their scheduled status:

- 3 investments are delayed;
- 5 investments are on time.



Picture courtesy of Gas Connect Austria

8.3.4 INVESTMENT COSTS

Investment costs are for project promoters in many cases commercially sensitive information and might have the potential to negatively affect the competitive position of project promoters vis-à-vis contractors.

As part of the transparency process adopted, ENTSOG has collected information from promoters on indicative investment costs for all submitted projects.

In line with the TYNDP 2024 GPI, the cost data submitted by the project promoters for the projects to be included in the TYNDP is made public by ENTSOG unless the data is deemed confidential by the respective project promoters.

Smart gas grid and Other category represent almost 3 % of the total TYNDP 2024 investments in terms of cost. The highest share of costs is represented in the less-advanced status (61 %) while the share of less advanced projects for all the Smart gas grid and Other projects is around 70 % (see Figure 63).

As seen in Figure 64, OTH projects (41 % of the total number of projects in this category cover the highest share of the Smart gas grid and Other projects project costs (63 %). It should be noted that CO_2 (4 projects) and SYN (1 project) are not included due to confidentiality reasons. The rest of the subcategories were submitted as aggregated data.

In addition, almost half of the total capital expenditures for Smart gas grid and Other projects will take place until 2030 (78 %), with a peak in 2030 of more than 5 billion euros (see Figure 65).

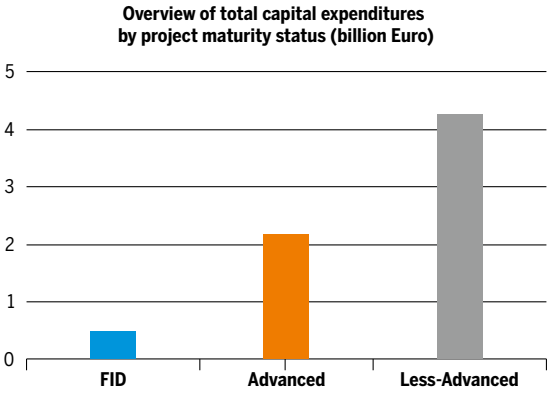

Figure 63: Overview of total capital expenditures by project maturity status – BIO, CO_2, OTH, RET and SYN.

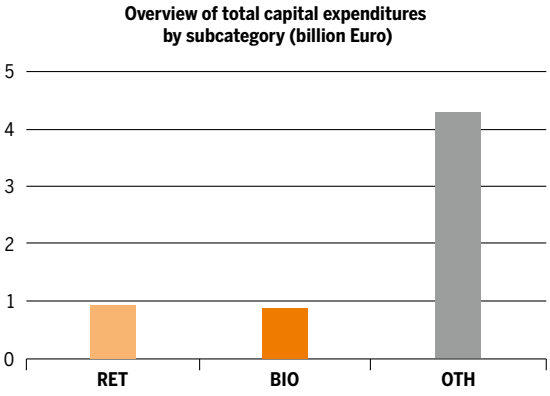

Figure 64: Overview of total capital expenditure by subcategory – BIO, OTH, RET.

In addition, several years are not displayed in the Figure 65, indicating that no cost values were recorded for those periods.

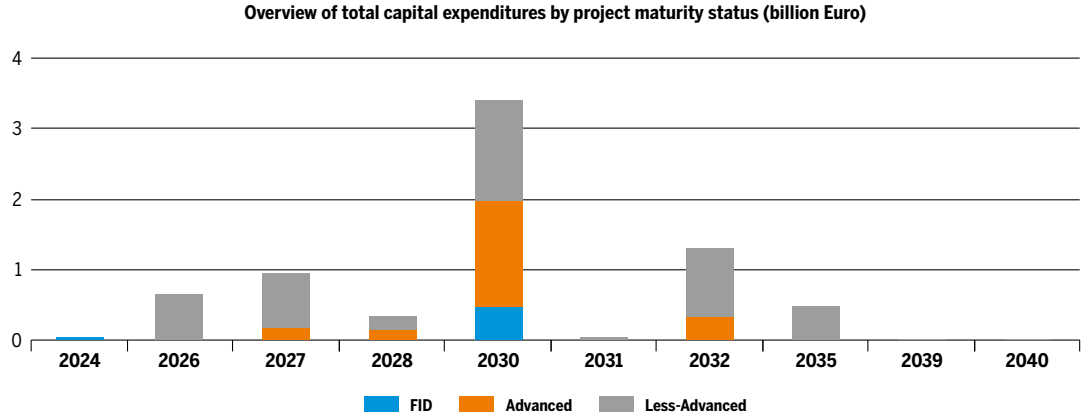

Figure 65: Overview of total capital expenditures by last commissioning year and project maturity status – BIO, CO_2, OTH, RET and SYN.

8.3.5 TYNDP 2024 SUBMISSIONS AND NATIONAL DEVELOPMENT PLANS

Table 13 below presents the number of projects per country that are included or not in the respective NDP. 15 Smart gas grid and Other projects were included in the relevant NDPs. The country with the most projects included in its NDP is Slovakia.

Out of the total number of projects that were listed under the Smart gas grid and Other category, 15 (51 %) were included in the NDP. The subcategory with the highest number of included projects was OTH (6), followed by RET (5), BIO (3) and CO_2 (1).

Country	Part of NDP	NOT Part of NDP	Country	Part of NDP	NOT Part of NDP
AT	–	–	IT	2	1
BE	1	–	LT	–	–
BG	1	–	LU	–	–
BIH	–	–	LV	–	–
CH	–	–	MT	–	–
CY	–	–	NA	–	–
CZ	–	–	NL	–	1
DE	1	–	NO	–	–
DK	1	–	PL	–	–
EE	–	–	PT	2	1
ES	–	2	RO	–	–
FI	–	–	SE	–	–
FR	2	3	SI	1	–
GR	–	1	SK	3	–
HR	–	5	UA	–	–
HU	–	–	UK	–	–
IE	1	–	–	–	–

Table 13: Overview of projects being part or not of NDPs by country – BIO, CO_2, OTH, RET and SYN.

Only for six projects reasons for non-inclusion were provided by the respective promoters:

- Either the development of the NDP is ongoing or the project is partly included in the NDP.

More details can be found in the relevant sheet in the TYNDP 2024 Annex A.

9 INCREMENTAL CAPACITY PROCESS

9.1 DESCRIPTION OF THE INCREMENTAL CAPACITY PROCESS

The incremental capacity process has been introduced by the Commission Regulation (EU) 2017/459[32] as a streamlined and harmonised Union-wide process to react to possible market-based capacity requests for an increase in technical capacity or creation of new capacity.

The requested incremental capacity is offered based on market demand: Technical capacity will be increased at an existing IP or through establishing a new IP, or by creating a physical reverse flow capacity at an IP that has not been offered before, but only if there are binding market commitments and subject to the positive outcome of an economic test.

The aim of setting rules for incremental capacity is to identify the need for new/incremental capacity and to allocate both existing and incremental capacity in an integrated way.

The process lasts two years and is divided into two phases: a non-binding phase in which demand for incremental capacity is assessed, and a binding phase in which network users make binding commitments for incremental capacity.

The **non-binding phase** starts immediately after the annual yearly auctions, at least in each odd-numbered year, with the assessment of demand indications for incremental capacity. Network users provide TSOs with their non-binding capacity demand. No later than 8 weeks after the start of the annual yearly auctions, TSOs shall produce market demand assessment reports (DARs) which shall be published within 16 weeks after the start of the annual yearly auctions. Among other things, the DARs should consider whether the TYNDP identifies a physical capacity gap that would leave a specific region undersupplied in a reasonable peak scenario, and whether providing incremental capacity at the interconnection point in question would bridge the gap.

They must also consider whether a national network development plan identifies a concrete and ongoing physical transport need. If the DAR identifies demand for incremental capacity that cannot be met by existing available capacity, the TSOs involved will continue with the incremental capacity process. If no respective demand for incremental capacity is identified, the process stops here.

In the **design phase**, TSOs carry out technical studies for incremental capacity projects and coordinated offer levels based on technical feasibility and on the basis of the DARs. A public consultation is held on the key elements of the draft project proposal and stakeholders are given the opportunity to provide feedback on the TSOs' proposals. A key milestone following the design phase and public consultation is the submission of a comprehensive incremental capacity project proposal to the relevant NRA. The NRAs then have 6 months to issue coordinated decisions on the project proposal(s).

Following the NRAs' decisions, the **binding phase** starts and binding commitments for incremental capacity are collected from network users during the annual yearly auctions. Auctions are used by default, but, subject to NRA approval, an **alternative capacity allocation** mechanism may be used.

After receiving binding commitments for incremental capacity offered in the annual yearly auctions, the economic viability of the incremental capacity project is assessed through the economic test. If the outcome of the economic test is positive on both sides of an interconnection point for at least one offer level that includes incremental capacity, an incremental capacity project is initiated. If more than one offer levels results in a positive economic test, the offer level including the highest amount of incremental capacity will be realized.

32 Reg. (EU) 2017/459, Network code on capacity allocation mechanisms in gas transmission systems.

9.2 INCREMENTAL CAPACITY PROCESS INITIATED IN 2021

The third incremental capacity process started immediately after the start of the annual yearly auction in 2021 when TSOs initiated the demand assessment phase. To analyze the progress of the incremental capacity process and to determine whether new capacity projects would be initiated as a result, data was collected from 37 ENTSOG members. Based on these data and further interaction with the TSOs, a report on the third incremental capacity process[33] was prepared and published. Additional information on this process can also be found in the annexes to that report, in particular in Annex 3.1 which contains the TSOs' responses to the launched questionnaire. The figure below summarizes the results of the third incremental process. It shows the number of TSOs involved in the different steps of the process, as well as the outcomes of each phase.

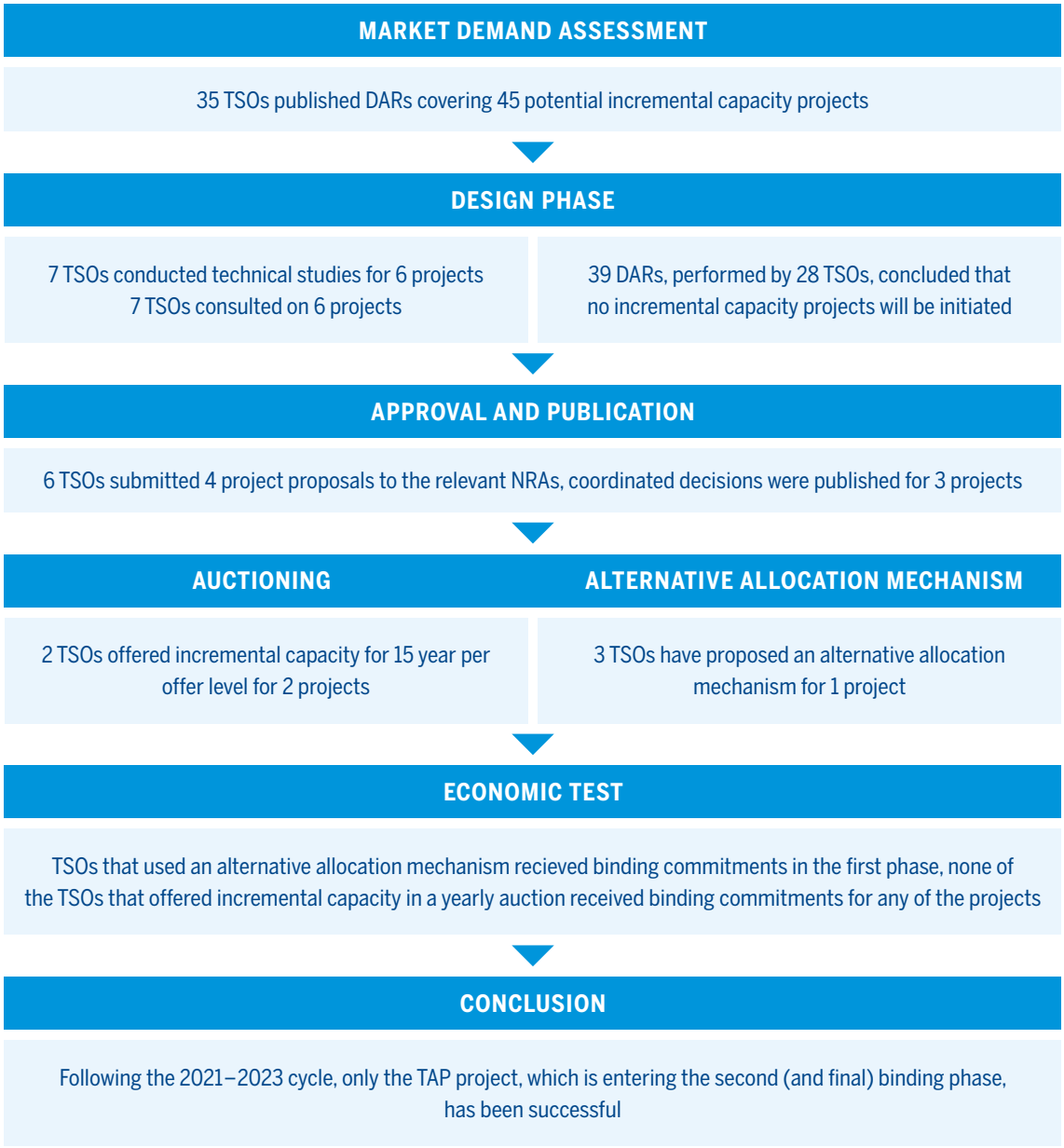

Figure 66: Summary of the results of the third incremental process.

33 ENTSOG Third Incremental Capacity Process Report 2021–23

The DARs related to the second incremental capacity process are available on the ENTSOG website. The table below shows the projects where a demand for incremental capacity was reported in the DARs and provides information on the entry-exit borders and the TSOs concerned, and whether the different steps of the incremental capacity process have been executed or not. The table also includes the specific TYNDP reference number for the projects included in the TYNDP 2024.

TYNDP 2024 reference number	Entry-exit border	Involved TSOs	Execution of technical studies	Launch of public consultation	Submission of project proposal to NRA	Publication of coordinated decisions by NRAs	Yearly auctions for incremental capacity
TRA-A-971 TRA-F-1276 TRA-F-1278	GR-TAP	DESFA TAP	✔	✔	✔	✔	Alternative allocation mechanism
TRA-N-128 TRA-N-1112 TRA-F-378	GR-ICGB	DESFA ICGB	✔	✔	✘	✘	✘
TRA-A-1141 TRA-A-1009	CZ-PL	GAZ-SYSTEM NET4GAS	✔	✔	✘	✘	✘
Not included	PL-UA	GAZ-SYSTEM GTSOU	✔	✔	✔	✔	✔
Not included	BE-DE	Fluxys OGE Fluxys TENP Thyssengas GASCADE Creos	✔	✔	✔	✔	✔
TRA-N-1195	IT-TAP	SNAM TAP	✔	✔	✔	✔	Alternative allocation mechanism
TRA-A-810	GR-AL-IT	DESFA TAP SNAM	✔	✔	✔	✔	Alternative allocation mechanism
Not included	RO-UA	TRANSGAZ GTSOU	✔	✔	✔	✘	✘

Table 14: Projects for which a demand for incremental capacity was identified in the DARs.

None of the TSOs that were involved in auctioning of incremental capacities (the default option as explained earlier) received binding commitments from network users. Consequently, based on Art. 22 of CAM NC, none of these TSOs or NRAs had to carry out a single economic test, however the German NRA did perform the test. In the end no positive outcomes of the economic tests were reported. However, the outcome of the (first) binding phase for the Greece-Albanian-Italian project that was offered through an alternative allocation mechanism was positive. This means that binding commitments were received from network users and the economic test performed in this regard was positive. The next part of the binding phase organised by the TSOs involved (SRG, DESFA and TAP) was successfully closed during the first quarter of 2024.

9.3 INCREMENTAL CAPACITY PROCESS INITIATED IN 2023

Immediately after the start of the annual yearly capacity auctions in July 2023, a new cycle of the incremental capacity process has started. Figure 67 illustrates the timeline for this process.

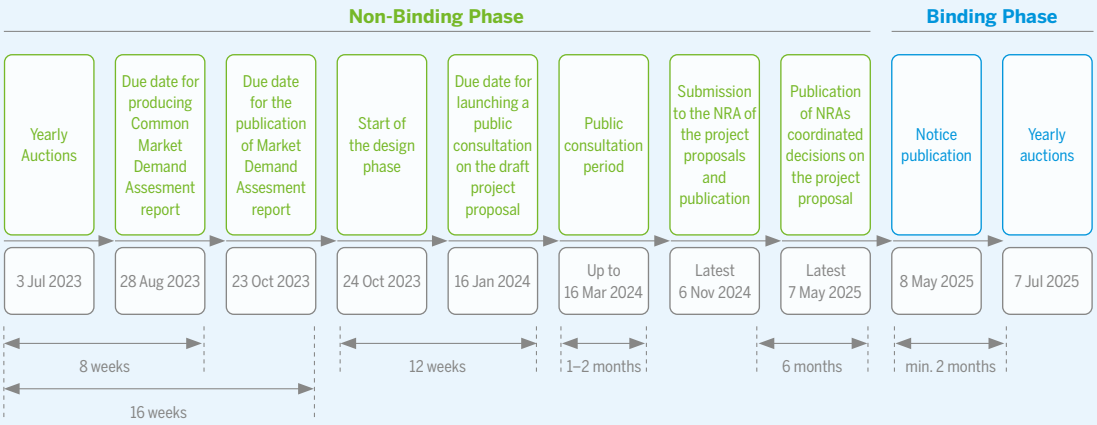

Figure 67: Timeline for the incremental capacity process initiated in 2023.



Picture courtesy of Gasum

The table below shows the current status of the incremental capacity process cycles that have had a positive outcome from the market demand assessment and for which a project proposal has also subsequently been submitted for consultation. During this cycle, a number of TSOs and NRAs have chosen to accelerate the phases from the public consultation period in order to be able to offer incremental capacity during the annual auctions in July 2024 instead of a year later. As a result, a number of cycles have now been fully completed (status "Finished"), as can be seen in the table.

TYNDP 2024 reference number	Entry-Exit border	TSOs involved	Gas flow direction(s) concerned	Status & results of INC project
TRA-F-1048 TRA-N-670	BG-BG (ICGB)	Bulgartransgaz EAD ICGB AD	Exit BG – Entry BG	Binding phase ongoing – IP Stara Zagora (Art. 30 CAM)
TRA-N-1140	BG-GR	Bulgartransgaz EAD DESFA S.A.	Exit GR – Entry BG	Binding phase ongoing – IP Kulata/ Sidirokastro (Art. 30 CAM)
TRA-N-1124	BG-RO	Bulgartransgaz EAD SNTGN Transgaz S.A.	Exit BG – Entry RO	Finished without allocation of INC capacity – IP Negru Voda 1/ Kardam (Art. 30 CAM)
TRA-F-128	GR-GR (ICGB)	DESFA S.A. ICGB AD	Exit GR – Entry GR	Binding phase ongoing – IP Komotini (Art. 30 CAM)
TRA-F-1278 TRA-N-736 TRA-N-1131	GR-GR (NNGS)	DESFA S.A.	Expansion of the Greek National Natural Gas System (NNGS)	Binding phase ongoing – Multiple Greek IPs (Art. 30 CAM)
TRA-N-1195	GR-IT (TAP)	Trans Adriatic Pipeline (TAP) Snam Rete Gas DESFA	Multiple	Consultation ongoing until 15 August 2024
TRA-A-1322 TRA-N-959	HU-RO	SNTGN Transgaz SA FGSZ Ltd.	Exit RO – Entry HU	Finished after negative economic test – Csanádpalota (Art. 30 CAM)
TRA-N-245	PL-UA	GAZ-SYSTEM S.A. LLC Gas TSO of Ukraine	Exit PL – Entry UA	Finished without allocation of INC capacity – IP GCP GAZ-SYSTEM/ UA TSO (Art. 30 CAM)
Not included	RO-UA	LLC Gas TSO of Ukraine SNTGN Transgaz SA	Bi-directional	Finished without allocation of INC capacity – IP Isaccea 1/ Orlovka 1 (Art. 30 CAM)

Table 15: Current status of incremental capacity process cycles with positive market demand assessment and submitted project proposals.

A full overview of the Demand Assessment Reports is available on the ENTSOG website.



ANNEX

DIFFERENCES BETWEEN TYNDP AND TRANSPARENCY PLATFORM DATA

Regulation (EU) no. 2024/1789 and its amendments require ENTSOG to provide a Union-wide central platform where all Transmission System Operators for gas shall make their relevant data publicly available.

The Transparency Platform provides technical and commercial data on gas transmission systems on a daily and hourly basis, which include interconnection points and connections with storages, LNG facilities, distribution networks, final consumers and production facilities.

The platform is available online: https://transparency.ENTSOG.eu/#/map where the interested parties are able to access valuable information uploaded by all TSOs.



Firm technical capacity data collected and used for the TYNDP might differ from the capacity data published on the ENTSOG Transparency Platform for the main following reasons:

- Though the modelling mostly uses the ENTSOG Transparency Platform topology, in some cases the topology used in the TYNDP differs from the latter. This is to better serve simulations purposes;
- Both existing capacity and project capacities are not constantly updated during the TYNDP process but have a specific time stamp (1 January 2024 for existing infrastructure while for projects the closure day of the data collection);
- Capacities are modelled in the TYNDP after the application of the Lesser-of-Rule.



Picture courtesy of Gas Connect Austria

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LIST OF **ABBREVIATIONS**

ACER	Agency for the Cooperation of Energy Regulators
BIO	Biomethane Projects
CAPEX	Capital expenditure
CBA	Cost-Benefit Analysis
CO_2	Carbon Dioxide
DAR	Demand Assessment Report
DGM	Dual Hydrogen/Natural Gas Model or Dual Gas Model
DHEM	Dual Hydrogen/Electricity Model
EC	European Commission
ENTSOG	European Network of Transmission System Operators for Gas
ETR	Energy Transition in previous TYNDPs
EU	European Union
FEED	Front End Engineering Design
FID	Final Investment Decision
GCV	Gross Calorific Value
GHG	Greenhouse Gases
GIE	Gas Infrastructure Europe
GPI	Guidelines for Project Inclusion
GWh	Gigawatt hour
H2E	Electrolysers for hydrogen production
H2L	Hydrogen reception facilities
H2M	Hydrogen in the transport sector for mobility
H2S	Hydrogen storage facilities
H2T	Hydrogen transmission pipeline

H-gas	High calorific gas
IP	Interconnection Point
L-gas	Low calorific gas
LNG	Liquefied Natural Gas
MS	Member State
MWh	Megawatt hour
NCV	Net Calorific Value
NDP	National Development Plan
NG	Natural Gas
NRA	National Regulatory Authority
OTH	Other Infrastructure-Related Projects
P2G	Power-to-Gas
PCI	Project of Common Interest
PMI	Project of Mutual Interest
RES	Renewable Energy Sources
RET	Projects for Retrofitting Infrastructure to further integrate Hydrogen
RRF	Recovery and Resilience Facility
SYN	Synthetic methane projects
TEN-E	Trans-European Networks for Energy Regulation
TRA	Gas transmission pipelines
TSO	Transmission System Operator
TWh	Terawatt hour
TYNDP	Ten-Year Network Development Plan
UGS	Underground Gas Storage (facility)

COUNTRY CODES (ISO)

AL	Albania
AT	Austria
AZ	Azerbaijan
BA	Bosnia and Herzegovina
BE	Belgium
BG	Bulgaria
BY	Belarus
CH	Switzerland
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
DZ	Algeria
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
LY	Libya
MA	Morocco
ME	Montenegro
MK	North Macedonia
MT	Malta
NL	Netherlands, the
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
RU	Russia
SE	Sweden
SI	Slovenia
SK	Slovakia
TM	Turkmenistan
TN	Tunisia
TR	Turkey
UA	Ukraine
UK	United Kingdom

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The TYNDP was prepared by ENTSOG on the basis of information collected and compiled by ENTSOG from its members and from stakeholders, and on the basis of the methodology developed with the support of the stakeholders via public consultation. The TYNDP contains ENTSOG own assumptions and analysis based upon this information.

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In particular, the information hereby provided with specific reference to the Projects of Common Interest ("PCIs") and Projects of Mutual Interest ("PMIs") is not intended to evaluate individual impact of the PCIs and PMIs and PCI candidates and PMI candidates. For the relevant assessments in terms of value of each PCI and PMI the readers should refer to the information channels or qualified sources provided by law.

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