ACER
European Union Agency for the Cooperation of Energy Regulators

OPINION No 08/2022 ON THE REVIEW OF GAS AND HYDROGEN NATIONAL NETWORK DEVELOPMENT PLANS TO ASSESS THEIR CONSISTENCY WITH THE EU TEN-YEAR NETWORK DEVELOPMENT PLAN

Annexes:

I – National Development Plans: Methodological Aspects

II – Consistency of NDP/TYNDP Projects

16 December 2022

ANNEX I - NATIONAL DEVELOPMENT PLANS: METHODOLOGICAL ASPECTS

A. REGULATORY ASPECTS

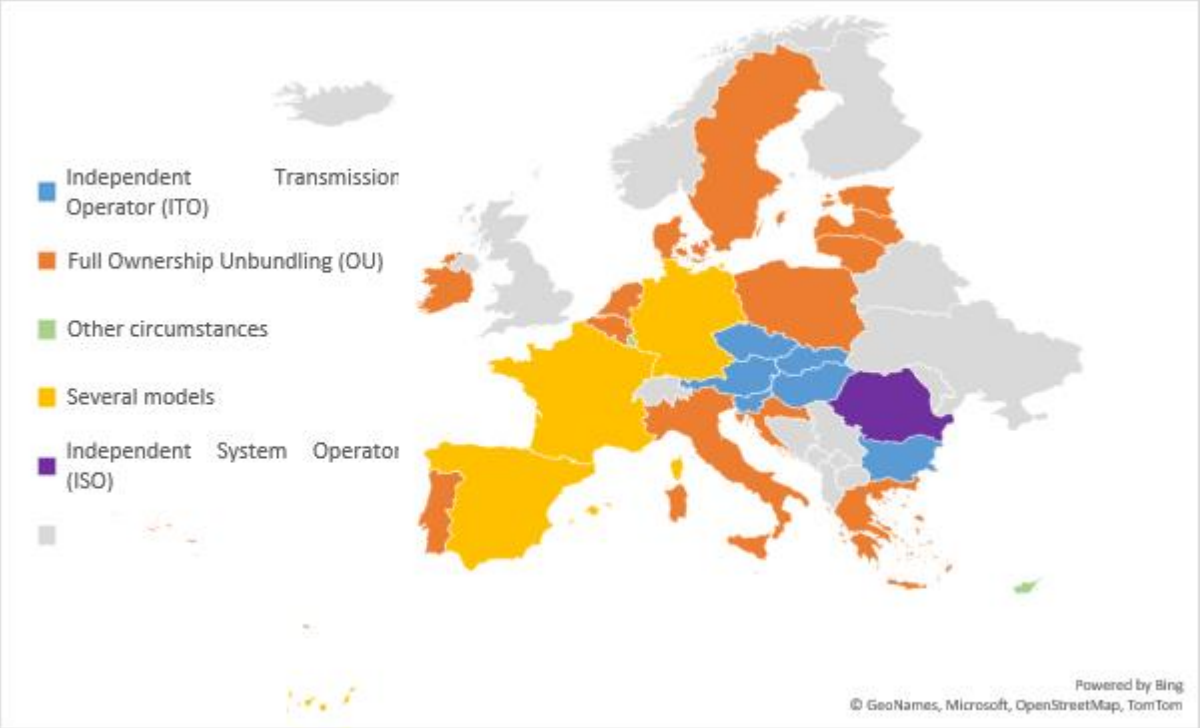
Q 3.1 How many certified gas TSOs are operating in your country?

Answers to Q3.1	Reporting NRA's MS	Number	%
0 certified TSOs	Cyprus, Malta, Luxembourg	**3**	**12%**
1 certified TSO	Belgium, Croatia, Czech Republic, Denmark, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden	**17**	**65%**
2 certified TSOs	Austria, Bulgaria, France	**3**	**12%**
3 certified TSOs	Italy	**1**	**4%**
4 certified TSOs	Spain	**1**	**4%**
16 certified TSOs	Germany	**1**	**4%**
Grand Total		**26**	**100%**

Summary: Most members states have 1 certified TSO (65%), while Austria, Bulgaria, France, Germany, Italy and Spain have 2 or more (23%). Only Cyprus, Malta and Luxembourg do not have any certified TSO (12%).

Q 3.2 Under which unbundling model does the gas TSO(s) in your country operate?

Answers to Q3.2	Reporting NRA's MS	Number	%
Full Ownership Unbundling (OU)	Belgium, Croatia, Denmark, Estonia, Greece, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Portugal, Sweden	**13**	**50%**
Independent System Operator (ISO)	Romania	**1**	**4%**
Independent Transmission Operator (ITO)	Austria, Bulgaria, Czech Republic, Hungary, Slovak Republic, Slovenia	**6**	**23%**
Several models (in case of several TSOs operating in your Member State)	France, Germany, Spain	**3**	**12%**
Other circumstances	Cyprus, Luxembourg, Malta	**3**	**12%**
Grand Total		**26**	**100%**



Map 1: Unbundling model of the gas TSO(s) per Member State

Summary: 50% of respondents indicate that their TSOs are certified under Full Ownership Unbundling. 6 Member States (23%) have their TSOs certified as Independent Transmission Operators, 3 (12%) use several models, while the TSO in Romania operates as an Independent System Operator. Cyprus, Luxembourg and Malta (12%) stated "Other circumstances" related to derogations and exemptions from EU regulatory provisions.

Reporting NRA's MS	Comment to Q3.2. If selected Several models or Other circumstances, please elaborate.
Cyprus	Being an emerging gas market, derogation from TSO unbundling rules apply for Cyprus until it ceases to be characterised as an emerging gas market or by decision of the Council of Ministers.
France	In France, there are two gas TSOs operating with different unbundling models: GRTgaz is certified as ITO and Terega as OU.
Germany	16 TSOs are certified in Germany, of which 4 TSOs are certified as OU and 12 TSOs as ITO.
Luxembourg	Luxembourg holds a derogation towards Art 9 of EU Directive 2009/73/EC: art 10 of this Directive and Art 3 of Regulation 715/2009 are not applicable.
Malta	Article 49 of Directive 2009/73/EC states that Article 9 on 'unbundling of transmission systems and transmission system operators' shall not apply to Malta. There is no TSO in Malta.
Spain	There are 4 TSOs in Spain, all of them certified. Enagás and Reganosa (2 TSOs) are certified as OU. Saggas and Enagás Transporte del Norte (2 TSOs) are certified as ISO, being Enagás (OU) their ISO.

Q 3.3 Are there any specific provisions regarding NDPs in your national framework in line with the provisions of Article 22 of Directive 2009/73/EC?

Answers to Q3.3	Reporting NRA's MS	Number	%
Yes	Austria, Croatia, Cyprus, Czech Republic, France, Germany, Greece, Hungary, Ireland, Portugal, Romania, Slovak Republic, Slovenia, Spain	**14**	**54%**
No	Belgium, Bulgaria, Denmark, Estonia, Italy, Poland, Sweden	**7**	**27%**
Others	Latvia, Lithuania, Luxembourg, Malta, Netherlands	**5**	**19%**
Grand Total		**26**	**100%**

Summary: Slightly more than half of respondents (54%) noted that there are specific provisions regarding NDPs in their national framework. On the other hand, 7 countries (27%) stated that there are no such provisions. 5 respondents (19%) answered *Others* to the question.

Reporting NRA's MS	Comment on Q3.3. If selected Yes or Others, please explain in the text box below.
Austria	The Austrian law reflects the provisions of the directive. The NRA is entitled to amend indirectly the gas NDP.
Croatia	As prescribed by Article 28 of Gas Market Act (Official Gazette No. 18/18, 23/20) the TSO is obliged to draw up a 10-year NDP in accordance with the Energy Development Strategy and the Energy Development Strategy Implementation Program and submit it to the NRA for approval every two years, and also in connection with implementation of tariff setting regulations.
Cyprus	According to national law, CERA shall monitor the network development plan prepared by the TSO and may provide recommendations and/or require amendments.
France	CRE launches a public consultation on the NDP's content, verifies that the TSOs cover the investment needs, checks the consistency with the TYNDP and can ask TSOs to modify the NDP.
Germany	The regulatory authority may require the TSO to amend its 10-year NDP. The regulatory authority will monitor and evaluate the implementation of the 10-year NDP. In circumstances where the TSO, other than for overriding reasons beyond its control, does not execute an investment, which, under the 10-year NDP, was to be executed in the following three years, Member States shall ensure that the regulatory authority is required to take at least one of the following measures to ensure that the investment in question is made if such investment is still relevant: (a) to require the TSO to execute the investments in question; (b) to organise a tender procedure open to any investors for the investment in question
Greece	Within a period of two (2) months from the submission of the draft NDP, RAE may request modifications from the TSO of the plan which concern, in particular, the inclusion of a project in the NDP or the removal of a proposed project from the NDP or as regards specific conditions for a specific project to be included in the NDP. The TSO, considering the Regulator's observations, prepares final draft of the NDP, which is submitted for approval to RAE. RAE determines another Public Consultation of the NDP and then it approves it
Hungary	The provisions of Article 22 are implemented by including the relevant rules in Articles 81-83/A. of the Gas Act (Act XL of 2008).

Ireland	Article 22 of the is transposed into Irish legislation in S.I. No. 16/2015, in particular in Article 11 National ten-year network development plan. Where the Irish Regulatory Commission has made use of its powers under to modify the draft NDP, the charges approved by the Commission, under section 10A of the Act of 1976, shall cover the costs of the investments in question.
Latvia	In July 2022, the Parliament of the Republic of Latvia approved amendments to the national Energy Law with requirements to gas TSO and gas DSOs to develop 10-year NDPs. According to the national Energy Law, the PUC must develop regulation for these plans. Amendments in Energy Law determines that the PUC approves the 10-year NDPs for gas transmission system developed by the gas TSO and the natural gas distribution system 10-year NDPs developed by the gas DSO every two years. Also, PUC determines the information that should be included in these development plans, the procedure for submitting, and also monitors the implementation of the plans.
Lithuania	OU model was implemented, however Lithuania transposed Article 22 of the Gas Directive into national legislation.
Luxembourg	The NRA (ILR) is notified the NDP
Malta	There is no TSO in Malta.
Netherlands	The TSO sends to the NRA an investment plan every two years.
Portugal	ERSE has the legal responsibility to issue an opinion on the TSO's NDP proposal, after a public consultation.
Slovak Republic	The NRA shall impose on the gas TSO a change to the NDP in a reasonable period in case the NDP either fails to reflect economically reasonable and technically feasible requirements for implementation of the investments, or is in conflict with the European Union TYNDP or is not prepared in accordance with the defined conditions.
Slovenia	The provisions regarding the ITO model are in line with Directive 2009/73/EC. The NRA may request the TSO to amend the NDP if it is not in line with the results of the public consultation or if the investment projects are not adequately justified.
Spain	CNMC participates in the NDP elaboration via a non-binding report on the draft NDP. In 2019 a Royal Decree Law (RDL 1/2019) was approved assigning CNMC the competence to monitor investments plan

Q: 3.4 Changes and updates: Please elaborate on, if any, relevant changes / updates during the last 2 years regarding section 3 Regulatory aspects (questions 3.2-3.3)

Reporting NRA's MS	Changes / updates during the last 2 years regarding section 3 Regulatory aspects (questions 3.2-3.3)
Austria	Yes , the NDP has to be published at least every 2 years, instead of once per year. The NDP has to consider a deep coordination with other energy vectors, and be coherent with the electricity NDP scenarios and with climate neutrality objectives by 2040
Cyprus	On 26/2/2021, CERA in its Decision 74/2021 issued Guidelines for the method of drawing up the development program of the Natural Gas Transmission System.
Hungary	No significant changes in the past two years.

Italy	3 TSOs are currently operating national pipelines and being certified; all of them have been certified as OU. 6 other minor TSOs only operate regional pipelines, and they have not been certified given there is no legal duty for their certification; they still have to comply with national provisions on NDPs. 1 TSO (TAP AG) has been certified as ITO but it is not compelled to comply with Article 22 of the Gas Directive, since the scope of the provisions of Article 22 of the Gas Directive are sufficiently addressed by the in-depth assessment of the Authorities and by the conditions and time limits which are imposed by the exemption decision (article 4.5 of the Final Joint Opinion by ARERA, ERE and RAE, approved by ARERA opinion 249/2013).
Lithuania	No changes/updates in the last 2 years
Malta	No relevant changes to report during the last 2 years
Poland	On 3 July 2021 a new provision under the Energy Law Act entered into force: In case of transmission network that is owned by a third-party and operated on basis of ISO model, NDP shall be prepared and updated annually only by the operator of that system. In practice, this applies to the Yamal gas pipeline and accompanying infrastructure. The only entity authorized to prepare and update the plan is the operator of this system, currently TSO Gaz-System S.A. Furthermore on 5 August 2022 the Energy Law Act was amended to require UGS operators to prepare a development plan for storages (first one expected by October 2022)
Portugal	No changes during the last 2 years
Romania	There are no changes
Slovak Republic	no changes
Sweden	There is not yet a Swedish NDP. Therefore, most of the questions in this form are not applicable.

B. KEY FEATURES OF THE NDP

Q 4.1 Role of the TSOs, NRA and Ministries in the NDP development process

Answers to Q4.1	Reporting NRA's MS	Number	%
Proposal developed by TSO, formal non-binding scrutiny (e.g. opinion) by both NRA and Ministry	Belgium, Italy, Portugal, Slovak Republic	**4**	**15%**
Proposal developed by TSO, formal non-binding scrutiny (e.g. opinion) by NRA	Bulgaria, Estonia, Ireland	**3**	**12%**
Proposal developed by TSOs, approved by Ministries. NRA is consulted on the proposal of the TSOs	Spain	**1**	**4%**
Proposal developed by TSOs, approved by NRA. NRA can amend the TSOs' proposal	Cyprus, Germany, Greece, Hungary	**4**	**15%**
Proposal developed by TSOs, approved by NRA. NRA can only approve / reject the proposal (but not amend it)	Austria, Croatia, Lithuania, Poland, Romania, Slovenia	**6**	**23%**
Other options	Czech Republic, Denmark, France, Latvia, Luxembourg, Malta, Netherlands, Sweden	**8**	**31%**

Grand Total		26	100%

Summary: At least 13[1] (50%) of public authorities, either NRAs or Ministries, have approval or some kind of amendment, rejection or validation powers over the draft NDPs, while the current EU legal framework does not provide such powers for the EU TYNDP.

Reporting NRA's MS	Comment on Q4.1. Please provide any further comment on the NDP process, in particular on the role of TSOs, NRA or Ministries in the NDP process according to national legislation
Austria	The NRA can enforce an amended proposal by not approving the present version of the NDP.
Belgium	However, if the non-binding scrutiny by NRA and/or Ministry may lead to the identification of an important shortcoming (for instance missing investment which was qualified important by e.g. market and authorities), and the TSO does not revise the NDP, the Minister of Energy may be advised to intervene (e.g. require the incorporation of the investment in the NDP). In any case, the NRA (CREG) decides which investments may enter into the regulated tariff regime (RAB).
Cyprus	Within a period of two (2) months from the submission of the NDP developed by the TSO to CERA for approval, CERA may request from the TSO amendments to the NDP. The TSO, taking into account CERA's observations, draws up within one (1) month a final NDP, which is submitted to CERA for approval.
Czech Republic	Proposal developed and consulted by the TSO. NRA consults the TSO proposal, can make amendments and approves the proposal. The Ministry issues a binding opinion.
Denmark	Publication developed by TSO, the Ministry is informed about date of publication
France	CRE cannot amend directly the NDP but it can request amendments from TSOs.
Latvia	See the answer to question 3.3. of this survey.
Luxembourg	There is no approval of the NDP: according to our national law, our TSO has to develop a ten-year national plan, notify this plan to the Ministry and copy the NRA (ILR).
Malta	NDP is not published since there is no TSO and no gas transmission system in Malta. The answers provided mainly refer to the "Malta's 2030 National Energy and Climate Plan" published in December 2019.
Netherlands	Proposal developed by the TSO. NRA can reject and oblige TSO to amend, but not amend the proposal by itself (binding guidelines). Ministry checks if plan is consistent with national policies, has same authority as NRA.
Poland	According to the Energy Law Act, the NDP proposal is developed by TSO (including a 30-day period of public consultation) and subsequently the President of the NRA (Energy Regulatory Office) agrees or rejects the proposal.
Portugal	Proposal approved by the Government
Slovak Republic	TSO elaborate and submit the NDP to NRA and Ministry for opinion (no approval process).

Q 4.2 Frequency of the NDP publication

Answers to Q4.2	Reporting NRA's MS	Number	%

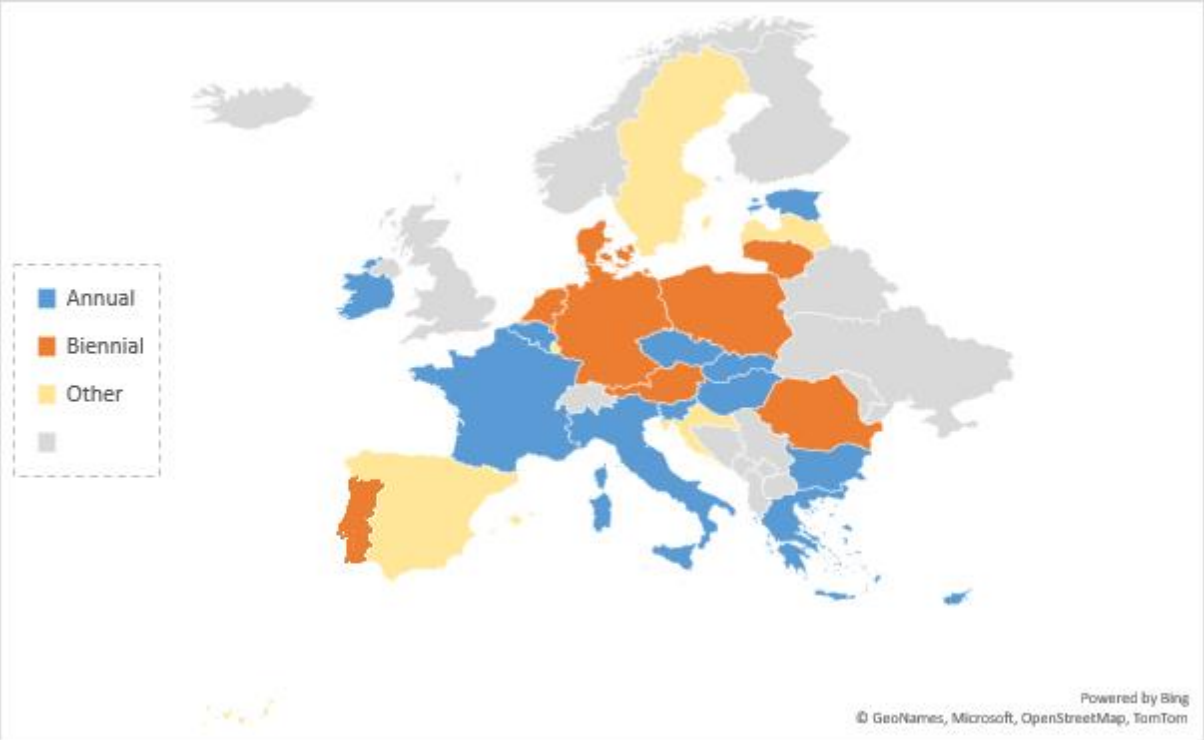
[1] Counting Czech Republic and Netherlands.

Annual (yearly)	Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, France, Greece, Hungary, Ireland, Italy, Slovak Republic, Slovenia	**12**	50%
Biennial (every two years)	Austria, Croatia, Denmark, Germany, Lithuania, Netherlands, Poland, Portugal, Romania	**9**	38%
Other (please specify)	Spain, Sweden, Luxembourg	**3**	13%
Grand Total		**24**	**100%**

**not applicable in the case of Malta and Latvia*

Summary: Half of all member states publish their NDP on an annual basis, 9 (38%) every two years, while the remaining countries answered "Other". NRAs comments and updates during last 2 years, as well as explanations are provided in the table below.

Map 2: Frequency of gas NDP publications



Reporting NRA's MS	Comment on Q4.2. Please provide any further comment, in particular on plans to change the frequency of NDP to biennial. Indicate since when (year) this frequency applies
Austria	Biennial frequency since 2022

Belgium	The annual update and publication is rather a voluntary commitments from the TSO after non-binding recommendations from NRA CREG. However, the last NDP (for the period 2021-2030) was published in February 2021. The updated version for the period 2022-2031 is still under consideration since recent developments (e.g. congestion from west to east in NWE) require further market analysis and checks (e.g. compatibility of possible new investments with the energy transition goals and whether the market conditions have a structural nature).
Croatia	As prescribed by Article 28 of Gas Market Act (Official Gazette No. 18/18, 23/20) TSO is obliged to draw up a 10-year NDP in accordance with the Energy Development Strategy and the Energy Development Strategy Implementation Program and submit it to the NRA for approval every two years
Cyprus	Annually, by the 30th of June of each year.
Ireland	Due to a reprioritisation of work, the next NDP will be published in 2023. It has not yet been decided whether the NDP will move to a biennial basis. This will be finalised upon publication of the new Gas Directive
Latvia	See the answer to question 3.3. of this survey.
Malta	Not applicable. The "Malta's 2030 National Energy and Climate Plan" was published developed by the Ministry for Energy and Water Management.
Poland	NDP consists of two main parts: A - concerning transmission network owned by TSO that is agreed biennially and part B - concerning the transmission network that is owned by a third party and operated on basis of ISO model (i.e. Yamal Pipeline with accompanying infrastructure) updated annually.
Portugal	No plans to change
Spain	NDP publication is every 4 years. However, the last NDP in Spain was approved in 2008 and it has not been updated yet
Sweden	Not applicable

Q 4.3 Which type of conventional gas infrastructure assets are covered by the gas NDP(s)?

Reporting NRA's MS	Transmission (pipelines and compressor stations)	LNG terminals (including FSRU)	Underground gas storages (UGS)
Austria	X		
Belgium	X	X	X
Bulgaria	X		X
Croatia	X		
Cyprus	X		
Czech Republic	X		
Denmark	X		
Estonia	X		
France	X		
Germany	X		

Greece	X	X	
Hungary	X		X
Ireland	X		
Italy	X		
Latvia	X		
Lithuania	X		
Luxembourg	X		
Malta	X	X	
Netherlands	X	X	X
Poland	X		
Portugal	X	X	X
Romania	X		X
Slovak Republic	X		
Slovenia	X		
Spain	X	X	X
Sweden			X

Summary: The gas NDP(s) from 25 out of 26 member states cover transmission infrastructure. In comparison, a smaller number of member states have included LNG terminals (6 MS) and underground gas storages (8 MS) in their NDP(s), but it should be noted that not all Member States have preconditions (e.g. access to seaside and specific geological characteristics) to have LNG regasification and underground gas storage sites.

Q 4.4 Time horizon of the NDP

Answers to Q4.4	Reporting NRA's MS	Number	%
10 years, flexible deadline (possible to include some projects expected for commissioning after 10 years)	Belgium, Estonia, Greece, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Poland, Slovenia, Spain	**11**	**42%**
10 years, strict deadline (only possible to include projects expected for commissioning within 10 years)	Austria, Bulgaria, Croatia, Cyprus, Czech Republic, France, Germany, Ireland, Portugal, Romania, Slovak Republic	**11**	**42%**
Other	Denmark, Latvia, Malta, Sweden	**4**	**15%**
Grand Total		**26**	**100%**

Summary: 11 respondents (42%) reported that the time horizon for their respective NDP is 10 years, with a strict deadline. The same number of NRAs (42%) stated that the 10-year deadline of the NDP is flexible, meaning that some projects expected for commissioning after 10 years can be included. 4 NRAs opted for the option *"Other"*. Comments and updates during last 2 years are provided in the table below.

Reporting NRA's MS	Comment on Q4.4. If selected Other, please specify the years
Denmark	No deadline for commissioning of projects

Latvia	The system operator must submit to the NRA information about planned investments for the next five years and information about actual investments in the reporting year. However, this information is not detailed and generally presented at aggregated level per cost categories (the total amount of investment in categories such as land, buildings, equipment and other main categories), not on specific projects.
Malta	Not applicable. Malta's 2030 NECP was elaborated for the period 2021-2030.

Q 4.5 Mandatory or indicative date of commissioning for NDP projects

Answers to Q4.5	Reporting NRA's MS	Number	%
Indicative for all projects	Austria, Belgium, Bulgaria, France, Germany, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovak Republic	**14**	**54%**
Mandatory for all projects	Cyprus, Greece	**2**	**8%**
Mandatory for projects to be commissioned in next "x" years, indicative for others (comment in textbox below)	Croatia, Czech Republic, Hungary, Slovenia	**4**	**15%**
No date of commissioning is provided in the NDP	Denmark, Estonia	**2**	**8%**
Other	Latvia, Malta, Spain, Sweden	**4**	**15%**
Grand Total		**26**	**100%**

Summary: 14 (54%) respondents stated that the date for commissioning of projects is indicative for all projects, while 2 (8%) countries stated that it is mandatory for all projects. 4 respondents (15%) noted that all projects to be commissioned in the short-term (next 3 years) are mandatory, while others are indicative. Denmark and Estonia NDPs do not contain a commissioning date for projects. 4 countries opted for “Other”. Comments, explanations and updates during last 2 years can be found in the table below.

Reporting NRA's MS	If selected Other, please specify
Latvia	See the answer to question 3.3. of this survey.
Malta	Not applicable
Spain	In general, most of the projects include an indicative date of commissioning, but a few of them were subject to some viability studies and therefore a date of commissioning could not be provided by the TSO.

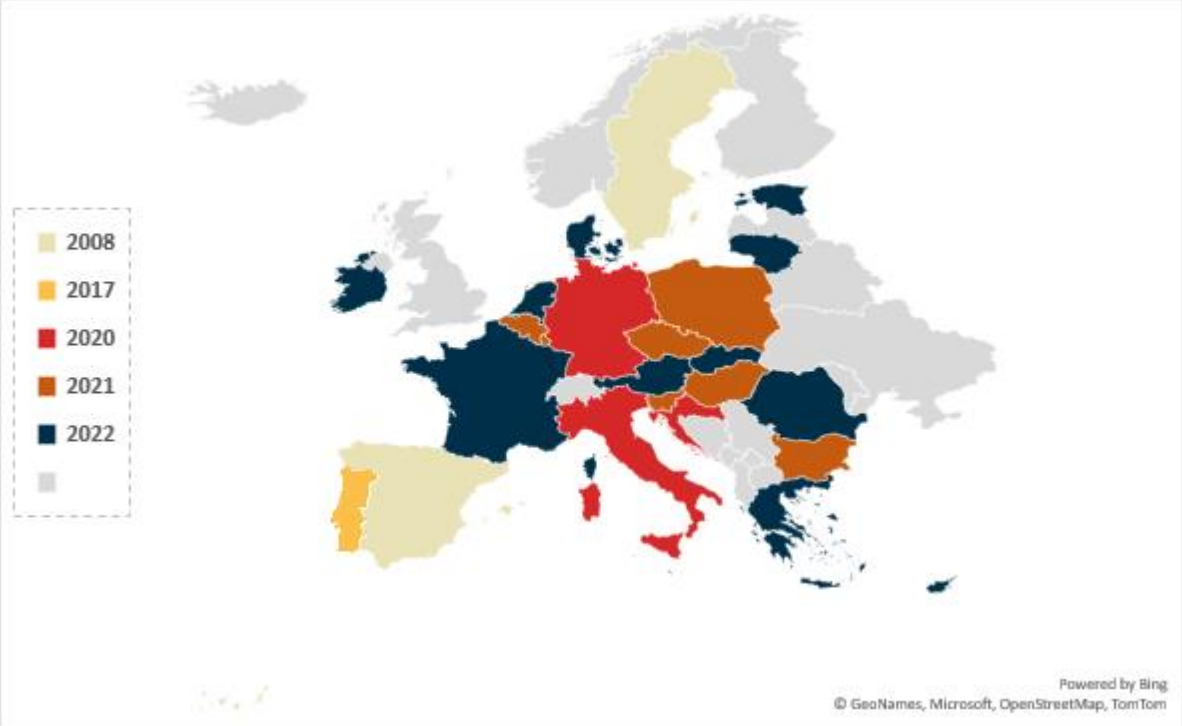
Q 4.6 Latest approved/ published NDP (specify year) + Q4.7 Expected year of approval/publication of latest NDP in draft if not yet approved/published + Q4.8 Link(s) to latest NDP publication(s) in the official language(s) of the Member State

Reporting NRA's MS	4.6 Latest approved/ published NDP (specify year)	4.7 Expected year of approval/ publication of latest NDP in	Please provide any other comments (e.g. month of publication of final / draft NDPs. If applicable, provide reasons why the NDP is not recent)

		draft if not yet approved /published	
Austria	2022		It was approved in April 2022
Belgium	2021	2022	The last NDP (for the period 2021-2030) was published in February 2021. The updated version for the period 2022-2031 is still under consideration since recent developments (e.g. congestion from west to east in NWE) require further market analysis and checks (e.g. compatibility of possible new investments with the energy transition goals and whether the market conditions have a structural nature).
Bulgaria	2021	2022	
Croatia	2020	2022	
Cyprus	2022	2022	The first draft of the first NDP is expected to be submitted to the NRA (CERA) within 4 weeks after the conclusion of the first Open Procedure relating to the connection capacity estimation and signature of the first connection agreements. The publication of the first NDP is expected in late 2022/early 2023.
Czech Republic	2021	2022	The NDP 2022-2031 was approved in December 2021. The NDP 2023-2032 is expected to be approved by December 2022.
Denmark	2022	2022	
Estonia	2022	2022	
France	2022	2022	The two gas NDP were provided to CRE in July 2021 and CRE's decision was adopted in January 2022
Germany	2020	2022	
Greece	2022	2022	RAE Decision 666/2022, 29.08.2022
Hungary	2021	2022	
Ireland	2022	2022	Published in June of 2022, covers period 2021-30
Italy	2020	2022	The Opinion process on 2021 and 2022 NDPs is still ongoing
Lithuania	2022	2022	
Luxembourg	2021	2022	The NDP is neither approved, nor published. The year of the latest NDP at our disposal is given as for information
Malta	2022	2022	This refers to the "National Reform Programme 2022" issued by the Ministry for Finance and Financial Services in April 2022
Netherlands	2022	2022	
Poland	2021	2021	Latest comprehensive NDP for transmission network was agreed on 29 October 2021. On 9 June 2022 President of ERO agreed the update of part B concerning the transmission network that is owned by a third party and operated on basis of ISO model
Portugal	2017	2021	Submitted in 06/2017 approved in 12/2018

Romania	2022	2022	
Slovak Republic	2022	2022	NDP public consultation started on 17 December 2021 and ended on 17 January 2022. No comments were raised during this consultation period.
Slovenia	2021	2022	The NDP 2022-2031 was approved in November 2021. This NDP was amended in March 2022 for SoS reasons and re-approved in May 2022. The draft NDP 2023-2032 was published in June 2022. It is expected to be approved by the NRA in autumn / winter 2022.
Spain	2008		NDP publication is every 4 years. However, the last NDP in Spain was approved in 2008 and it hast not been updated yet.
Sweden	2008	2020	Not applicable

Map 3: Year of publication of latest approved gas NDP



Summary: 12 NDPs (46%) have been published in 2022, 7 (27%) in 2021 and 6 before 2021. Most NDPs have been published, 9 NDPs are also available in full in English and in 2 cases a summary of the NDP is available in English. The latest editions of the gas NDPs in Spain date back to 2008 and in Sweden date back to 2018.

Reporting NRA's MS	Link(s)
Austria	https://www.gasconnect.at/fileadmin/Fachabteilungen/ST/NEP/01-KNEP_2021-DE.pdf
Belgium	in Dutch: https://www.fluxys.com/nl/company/fluxys-belgium/infrastructure in French: https://www.fluxys.com/fr/company/fluxys-belgium/infrastructure

Reporting NRA's MS	Link(s)
Bulgaria	https://www.bulgartransgaz.bg/files/useruploads/files/amd/TYNDP%202022-2031%20EN.pdf
Croatia	https://www.plinacro.hr/default.aspx?id=698
Czech Republic	https://www.net4gas.cz/files/rozvojove-plany/ntyndp22-31_cz_211027schvalen.pdf
Denmark	https://energinet.dk/Om-publikationer/Publikationer/Energinets-Langsigtede-Udviklingsplan-2022 https://en.energinet.dk/About-our-reports/Reports/Long-term-development-plan-gas-2021
Estonia	https://elering.ee/sites/default/files/2022-03/Eesti%20gaasi%C3%BClekandev%C3%B5rgu%20arengukava%202022-2031.pdf
France	GRTgaz : https://www.grtgaz.com/medias/actualites/publication-du-plan-decennal-developpement-grtgaz-2019-2030 Terega : https://assets.ctfassets.net/ztehsn2qe34u/5qe02zxdp9CZLUVScuY0RK/fcf8fc55f21edb00c2950d377d673125/TER__GA_PDD_2020-2029_VF.pdf
Germany	https://fnb-gas.de/en/network-development_plans/archive/?t=nep https://fnb-gas.de/en/network-development-plans/network-development-plan-2022/
Greece	https://diavgeia.gov.gr/decision/view/ΨΒ92ΙΔΞ-P51
Hungary	https://fgsz.hu/file/documents/2/2112/2021_12_17_10_fejlesztesi_terv_publikalasa_hu.pdf
Ireland	https://www.gasnetworks.ie/docs/corporate/gas-regulation/GNI-2021-Network-Development-Plan.pdf
Italy	https://arera.it/it/comunicati/22/220329pds.htm
Lithuania	https://www.ambergrid.lt/lt/perdavimo-sistema/perdavimo-sistemos-pletra/perdavimo-sistemos-pletros-planas
Malta	https://ec.europa.eu/energy/sites/ener/files/documents/mt_final_necp_main_en.pdf https://finance.gov.mt/en/Library/Documents/National_Reform_Programme_2022/National_Reform_Programme_2022.pdf
Netherlands	https://www.gasunietransportservices.nl/gasmarkt/investeringsplan/investeringsplan-2022
Poland	https://www.gaz-system.pl/dam/jcr:8dfb8bfc-c33d-4107-95a4-16efc89f0ab9/krajowy-plan-rozwoju-gaz-system-2022-2031.pdf
Portugal	https://www.erse.pt/media/webc2lrm/pdirgn-2018-2027-9_junho_2017_vers%C3%A3o_-sem_trackchanges.pdf
Romania	https://www.anre.ro/ro/gaze-naturale/legislatie/documente-de-discutie/planuri-de-investitii/planul-de-dezvoltare-a-sistemului-national-de-transport-al-gazelor-naturale-pentru-perioada-2022-2031&page=1
Slovak Republic	https://www.eustream.sk/files/sk/transparency/rozvoj-siete/plany-rozvoja-siete/eus_tyndp_2022_2031.pdf
Slovenia	https://www.plinovodi.si/media/5495/razvojni-na%C4%8Drt_2022-2031_dopolnitev-marec-2022-obarvane-spremembe-in-dopolnitve_07_04_2022.pdf
Spain	Question 4.7 shouldn´t be filled in, but it obliged me to write something. Latest NDP is approved in Spain.

Reporting NRA's MS	Link(s)
	https://energia.gob.es/planificacion/Planificacionelectricidadygas/desarrollo2008-2016/DocTransportes/planificacion2008_2016.pdf

Q 4.9 NDP publication available in English and links

Row Labels	If selected Yes, please provide the link to the English language version
Yes, the full NDP	
Austria	https://www.gasconnect.at/fileadmin/Fachabteilungen/ST/NEP/02-KNEP_2021-EN.pdf
Belgium	https://www.fluxys.com/en/company/fluxys-belgium/infrastructure
Bulgaria	https://www.bulgartransgaz.bg/files/useruploads/files/amd/TYNDP%202022-2031%20EN.pdf
Germany	https://fnb-gas.de/en/network-development-plans/network-development-plan-2022/ https://fnb-gas.de/en/network-development_plans/archive/?t=nep
Ireland	https://www.gasnetworks.ie/docs/corporate/gas-regulation/GNI-2021-Network-Development-Plan.pdf
Lithuania	https://www.ambergrid.lt/en/transmission-system/development-of-the-transmission-system/gas-transmission-system-development-plan
Malta	https://ec.europa.eu/energy/sites/ener/files/documents/mt_final_necp_main_en.pdf https://finance.gov.mt/en/Library/Documents/National_Reform_Programme_2022/National_Reform_Programme_2022.pdf
Slovenia	https://www.plinovodi.si/media/5454/ten-year-gas-transmission-network-development-plan-2022-2031.pdf
Yes, a summary of the NDP	
Croatia	https://www.plinacro.hr/default.aspx?id=698
Hungary	https://fgsz.hu/file/documents/2/2111/2021_12_17_tyndp_publication_en.pdf

Q 4.10 Legal nature of the NDP (indicative, mandatory)

Answers to Q4.10	MS	Number	%
Indicative and mandatory (on a project-by-project basis)	Austria, Estonia	**2**	**8%**
Indicative, for all projects	Belgium, Bulgaria, Denmark, Ireland, Italy, Lithuania, Luxembourg, Poland, Romania, Slovak Republic	**10**	**38%**
Mandatory, for all projects	Cyprus, Germany, Greece, Portugal	**4**	**15%**
Mandatory in the short term (projects to be commissioned in 3 years) and indicative in the long term	Czech Republic, France, Hungary, Netherlands, Slovenia	**5**	**19%**
Other	Croatia, Latvia, Malta, Spain, Sweden	**5**	**19%**
Grand Total		**26**	**100%**

Reporting NRA's MS	Comment on Q4.10. If selected Other, please explain
Croatia	Mandatory in the short term (for the projects commissioned in the current regulatory period - maximum up to 5 years) and indicative in the long term (for the projects planned to be commissioned in the subsequent regulatory period/s).
Latvia	See the answer to question 3.3. of this survey.
Malta	Not applicable.
Sweden	Not applicable

Map 4: Legal nature of the gas NDP (indicative, mandatory), per Member State

Summary: In only two countries (8%, Austria and Estonia) the NDPs are indicative and mandatory depending on the specific project. 10 respondents (38%) stated that their NDPs are indicative for all projects, while 4 (15%) that they are indicative for all projects. 5 NDPs (19%) are mandatory in the short-term (projects to be commissioned in the next 3 years) and indicative in the long-term. Further, 5 NRAs (19%) opted for the option "Other".

Q 4.11. One or more gas NDPs per country

Answers to Q4.11	MS	Number	%
One TSO, one NDP	Croatia, Cyprus, Czech Republic, Denmark, Estonia, Greece, Hungary, Ireland, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia	**16**	**62%**
Several TSOs, one consolidated NDP	Austria, Germany, Spain	**3**	**12%**

Several TSOs, several NDPs (one per TSO)	France, Italy	**2**	**8%**
Other options	Belgium, Bulgaria, Latvia, Malta, Sweden	**5**	**19%**
Grand Total		**26**	**100%**

Summary: 16 member states (62%) have one TSO and one NDP per country. 3 member states (12%) have several TSOs with one consolidated NDP, while only France and Italy (8%) have several TSOs and several NDPs (one per TSO). The remaining 5 countries (19%) of respondents answered with the option "Other", is most cases because one of the TSOs holds a derogation form the obligation to develop an NDP.

Map 5: Number of gas NDPs per Member State

Reporting NRA's MS	Please provide an explanation, in particular, if selected other options (e.g. each TSO, UGS operator, and LNG operator develops its own plan), or if there are plans to move to a consolidated NDP
Belgium	One consolidated NDP covering the network (TSO Fluxys Belgium), LNG facilities (Fluxys LNG) and UGS (SSO Fluxys Belgium).
Bulgaria	2 TSOs, but only one currently has the obligation to have NDP. The other has a derogation from this obligation.
Italy	Snam Rete Gas also assesses the potential interlinkages between projects of different TSOs.
Malta	Not applicable.
Poland	The TSO during preparation of the plan takes into account information regarding cooperation with LNG installations. SSO prepares its own plan according to article 16(1) Energy Law Act (amendment of 5 August 2022)
Portugal	The TSO presents a consolidated NDP which results from the coordination with the UGS and LNG operators.
Romania	The NDP includes UGS projects

Slovak Republic	In this NDP there is also information about evolution of UGS in Slovakia and the research launched by SSO for the option: LNG, H2, and related studies.
Sweden	One TSO, no NDP.

Q 4.12 Process timeline of last NDP published

	Stakeholder consultation:		TSO draft:		NRA consultation dates:		NRA opinion or approval		Ministerial consultation or approval	
Reporting NRA's MS	**From**	**To**	**From**	**To**	**From**	**To**	**From**	**To**	**From**	**To**
Austria	25 October 2021	15 November 2021	16 November 2021	13	14 December 2021	14 January 2022		7 April 2022	N.A	N.A.
Belgium	n.a.	n.a.	2020Q4	2020Q4	no formal process: TSO updates NDP in cooperation with NRA CREG	no formal process: TSO updates NDP in cooperation with NRA CREG	n.a.	n.a.	no formal process: there may be rather informal contacts during update NDP	no formal process: there may be rather informal contacts during update NDP
Bulgaria	12.03.2021	31.03.2021	01.04.2021		11.08.2021	25.08.2021	09.09.2021			
Croatia	3/2020	4/2020	6/2020	9/2020	11/2020	11/2020		12/2020		
Czech Republic	7/2021	8/2021	2/2021	6/2021	11/2021	11/2021	12/2021	12/2021	12/02021	12/02021
Denmark	March 2022	April 2022	May 2021	February 2022						
France	December 2 2020		July 2021	July 2021	October 28 2021	November 30 2021	January 27 2022	January 27 2022	/	/
Germany	04/2020	05/2020	06/2020	06/2020	06/2020	08/2020	03/2021	03/2021	n/a	n/a
Greece	07.10.2021	08.11.2021	15.11.2021 20.01.2022 15.07.2022		28.02.2022 16.07.2022	11.04.2022 25.07.2022	29.08.2022		n.a.	n.a.
Hungary	05.2022	05.2022	05.2022	05.2022			in progress		not applicable	
Ireland	02/2022	02/2023	10/2021	01/2022	02/2022	03/2022	03/2023	06/2022	N/A	N/A
Italy					03/2022	05/2022				
Lithuania	31/05/2022	13/06/2022	11/07/2022	10/08/2022	11/07/2022	10/08/2022	08/08/2022			
Netherlands	11/2021	12/2021	01/2022	01/2022			01/2022	03/2022	03/2022	04/2022
Poland	12 April 2021	12 May 2021	27 August 2019	13 May 2021	14 May 2021	5 October 2021	5 October 2021	29 October 2021	N/A	N/A
Portugal				06/2017	12/2017	02/2018		04/2018		12/2018
Romania	05.2022	06.2022	06.2022	07.2022	09.2022	09.2022	10.2022	12.2022		
Slovak Republic	9.2021	9.2021	11.2021	11.2021	17.12.2021	17.1.2022	16.2.2022		-	-
Slovenia	04/2021	05/2021	06/2021		06/2021	07/2021	22/11/2021 and 6/5/2022 (amended NDP)		/	/

Spain	08/2007	09/2007	08/2006	07/2007	10/2007	1/2008	01/2008	01/2008	05/2008	05/2008

Q 4.13 Use of criteria for the classification of the projects in the NDP

Answers to Q4.13	Reporting NRA's MS	Number	%
Yes	Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Portugal, Romania, Slovak Republic, Slovenia, Spain	**18**	**69%**
No	Belgium, Denmark, Germany, Latvia, Luxembourg, Malta, Poland, Sweden	**8**	**31%**
Grand Total		**26**	**100%**

Reporting NRA's MS	Maturity	Urgency	Decarbonisation	Sector integration	Security of supply	Market integration	Others	If selected Others, please explain. NRAs are invited to provide a brief definition of possible criteria used in their national context
Austria							X	new projects, reinvestments, CAM Incremental, projects in the planning status
Belgium								
Bulgaria	X	X			X	X		
Croatia	X				X	X	X	Projects are classified in groups by technical type of project, including abandonment of projects
Cyprus							X	NDP projects are classified as "major" and "minor", i.e. there is a budgetary distinction. Minor projects are considered the ones with budget less than 2million euro and are listed supplementary to the NDP. There is also a distinction in terms of newly added or continued development, reinforcement and connecting projects.
Czech Republic	X							
Denmark								
Estonia				X	X	X		
France	X							
Germany								
Greece	X	X	X	X	X	X	X	The Development Plan is structured as follows[2]

[2] : **I. Projects included in the three years Development Period** *A. New Projects* 1. Projects for the interconnection of National Natural Gas System (NNGS) with other interconnected systems (connection/development projects); 2. Projects for the connection of Users; 3. Development Projects:

Reporting NRA's MS	Maturity	Urgency	Decarbonisation	Sector integration	Security of supply	Market integration	Others	If selected Others, please explain. NRAs are invited to provide a brief definition of possible criteria used in their national context
Hungary	X	X	X					
Ireland			X	X	X	X		
Italy	X	X					X	Development projects are mainly grouped according to priority and maturity. [3]
Latvia								
Lithuania							X	Process description[4]
Luxembourg								
Malta								
Netherlands							X	Significance ("Major" and "regular" investments). Significant expansions and very expensive projects are classified as major. Last plan only had “regular” investments.
Poland								
Portugal		X	X		X	X	X	Replacement of equipment at the end of life-cycle
Romania	X				X	X		

Expansion of NNGTS to new areas connected to distribution network; 4. Development Projects: Expansion of NNGS to new markets; 5. Development Projects: Increase of capacity & security of supply of NNGS; 6. Development Projects: Improvement / modernization/ maintenance of NNGS; 7. Incremental Capacity Projects according to CAM NC. *B. Planned Projects:* 1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects); 2. Projects for the connection of Users; 3. Development Projects: Expansion of NNGS to new areas connected to distribution network; 4. Development Projects: Expansion of NNGS to new markets; 5. Development Projects: Increase of capacity & security of supply of NNGS; 6. Development Projects: Improvement / modernization/ maintenance of NNGS
II. Projects outside the three years Development Period. *A. New Projects* 1. Projects for the interconnection of NNGS with other interconnected systems (connection/development projects); 2. Projects for the connection of Users; 3. Development Projects.

[3] However, the NDP also shows, in a dedicated chapter, the connection projects and the main maintenance investments. For each project, the NDP indicates its main objective among the following: a) market integration; b) security of supply; c) competition and diversification of sources; d) coverage of new demand; e) environmental sustainability; and f) quality of the service.

[4] 1. Stakeholders are identified as the most important transmission infrastructure to be built or upgraded in the next ten years; 2. All investments for which a decision has already been made are specified, and new investments that will need to be made in the next three years are identified; 3. The term of all investment projects is determined; 4. The alternatives for reducing the possible demand presented in the investment projects by implementing or promoting the implementation of measures to increase energy efficiency in the natural gas transmission system are indicated in order to implement the priority principle of increasing energy efficiency specified in the Law on Increasing Energy Efficiency of the Republic of Lithuania; 5. The NPD is prepared taking into account main goals named in the National Energy Independence Strategy of Lithuania; 6. Projects of common interest of the European Union; 7.Transmission system reliability assurance development projects; 8.Restoration and modernization of the transmission system.

Reporting NRA's MS	Maturity	Urgency	Decarbonisation	Sector integration	Security of supply	Market integration	Others	If selected Others, please explain. NRAs are invited to provide a brief definition of possible criteria used in their national context
Slovak Republic	X		X		X	X	X	Sustainability
Slovenia	X	X			X	X	X	Projects are also classified as internal projects in Slovenia and cross-border projects. Maturity is related to project implementation status. The priority list of projects is developed on urgency/maturity.
Spain		X						
Sweden								

Q 4.14 Features of the projects published in the NDP

Reporting NRA's MS	NDP Commissioning Date	Implementation Status	Progress since the previous NDP	Increase of cross border capacity	Project Cost Published	Project Benefits Published	Project Economic test, outcomes of	Project Contribution to Energy Transition	Contribution to security of gas
Austria	Partially (*)	Yes	Yes	Yes	Partially	No	No	Partially	Partially
Belgium	Partially	Partially	Partially	Partially	Partially	Partially	Partially	Partially	Partially
Bulgaria	Yes	Yes			Yes	Yes			
Croatia	Yes	Partially	No	Yes	No	No	No	No	No
Cyprus	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Czech Republic	Yes	Yes	Yes	Yes		Partially	Partially	Partially	Partially
Denmark	Partially	Partially	Partially	Partially	No	No	No	Yes	Yes
Estonia	No	No	No	No	Partially	Partially	No	No	No
France	Yes	Yes	No	Partially	Yes	No	No	No	No
Germany	Yes	Yes	Yes	Partially	Yes	No	No	No	No
Greece	Yes	Yes	Yes	Yes	Yes	Yes	Partially	Partially	Partially
Hungary	Partially	Partially	Partially	Partially	Partially	Partially	Partially	Partially	No
Ireland	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	Partially	Yes	Yes	No	Partially	Partially
Latvia									
Lithuania	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Luxembourg	Yes	No	No	No	Yes	No	No	No	No
Malta	Partially	Partially	No	Partially	No	Partially	No	Partially	No
Netherlands	Yes	Yes			Yes	Yes	Partially		
Poland	Yes	Yes	Yes	Yes	Yes	Yes	Partially	Yes	Yes
Portugal	Yes	Yes	Yes	Partially	Yes	Yes	No	Partially	No
Romania	Yes	Yes	Yes	Yes	Partially	Partially			
Slovak Republic									
Slovenia	Partially	Yes	Partially	Partially	Yes	Partially	Partially	No	Partially

Spain	Partially	No	Yes	Yes	Partially	Yes	Yes	Yes	
Sweden									

(*) Partially means not for all projects

Q 4.15 Projects for security of supply that aim to cope with the changing gas supply patterns

Reporting NRA's MS	4.15 Elaborate if there are projects for security of supply aimed to cope with the changing gas supply patterns (from E/W to W/E) due to decreasing flows from Russia, and/or investments to attract supplies from other sources (e.g. from LNG/FSRU, or import
Austria	No
Belgium	These recent developments explain why an updated NDP is not yet published. There is a SoS project (capacity W/E) under consideration to increase potentially the exit flows to DEU (IP Eynatten) from the Zeebrugge area (Zeepipe from NO, UK from GB, LNG terminal Zeebrugge, LNG terminal Dunkirk).
Croatia	Projects for evacuation gas pipelines from LNG FSRU terminal on island Krk in Croatia towards interconnections with Hungary and Slovenia: 1.1.-1.4. Croatia-Hungary (Zlobin-Bosiljevo-Sisak-Kozarac-Slobodnica); 1.11.-1.13. Croatia-Slovenia (Lučko-Zabok-Rogatec); they are connected with upgrading the LNG FSRU terminal on island Krk and increase of its capacity from 2.6 Bcm/year up to 6.1 Bcm/year.
Germany	For the last approved NDP 2020 this is not applicable. Changing flow patterns are one of the main criteria/parameter which will be included in the development of the current NDP under development.
Greece	1. Connection with the FSRU of Alexandroupolis (for a total capacity of 865.000 Nm3). 2. Metering and Regulating Station for connecting with Dioryga Gas FSRU (with capacity of 490.000 Nm3). 3. Metering and Regulating Station for the connection to East Med Pipeline
Ireland	None
Lithuania	The project "Gas pipeline connection between Poland and Lithuania" (GIPL) has been completed. Implementation of "Increasing the capacity of the gas pipeline connection between Latvia and Lithuania" still continues.

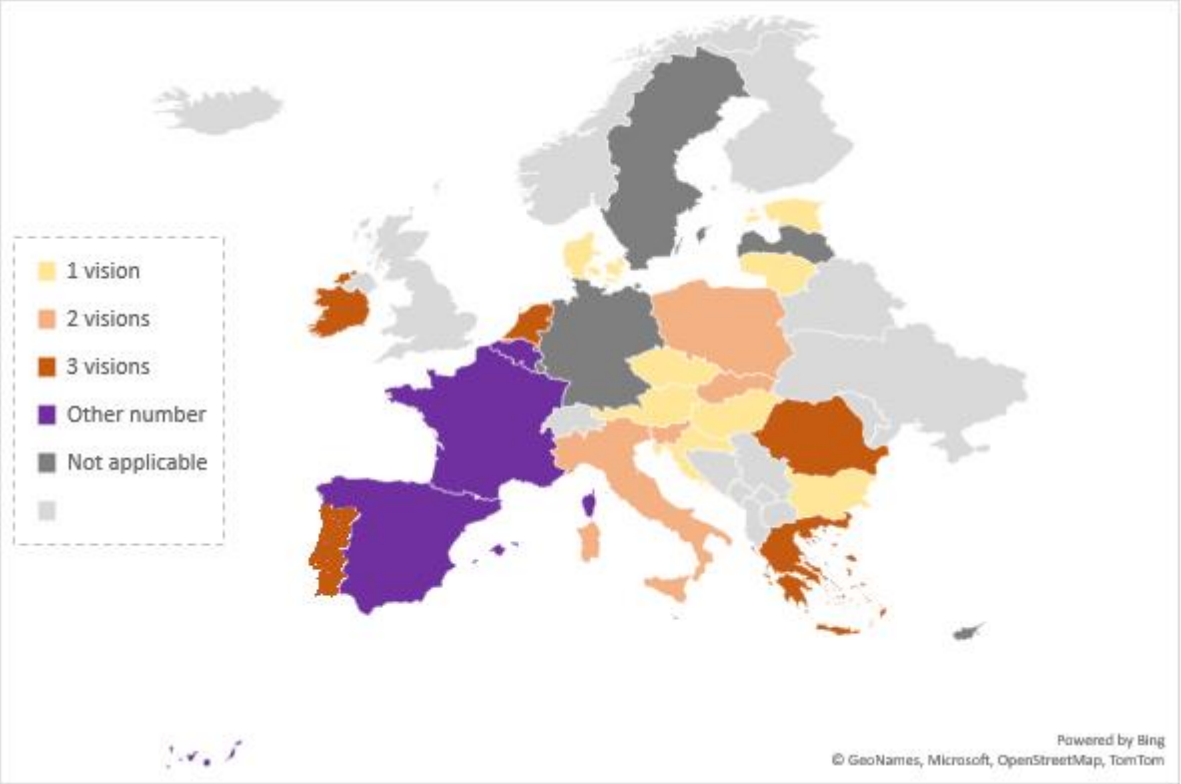
Poland	The whole TYNDP with its components is aimed at changing supply patterns (from E/W to W/E). Interconnectors and also internal infrastructure such as pipelines and several compressor stations are dedicated to redirect gas flows from new supply directions. AG-TRA-0086-0212 Poland-Denmark Interconnection "Baltic Pipe"; AG-LNG-0029 FSRU Polish Baltic Sea Coast. Floating terminal in bay of Gdańsk with regasification capacity approx 6.1 bcm/y (an increase currently under consideration) as well as connecting pipelines with the Polish Transmission System; AG-TRA-0078 North - South Gas Corridor in Eastern Poland transmission line aiming at integration with Slovakia, Ukraine and other CEE countries along the North-South axis; AG-TRA-0088 Poland - Slovakia Gas Interconnection; LNG-F-272 Expansion of LNG Terminal in Świnoujście enabling to increase the volume of natural gas imported to Poland by at least 2.5 billion Nm3/year. Construction of two SCV units and new LNG storage tank (capacity of approx. 180 000 m3) along with new maritime LNG infrastructure
Romania	There are projects that ensure the diversification of sources
Slovak Republic	1. ReNet - Redesign of compressor stations, 2. The goal of the projects included in this category is mainly the automation of already installed ones equipment of the Eustream transport network, 3. H2 - project of possibility of injection of 5% H2 into NG 4. Energy efficiency 5. SoS - as far as the NDP included unchanged predictions, based on actual contracts
Slovenia	For SoS reasons, the following two projects have been given the highest priority in the revised NDP 2022-2031: Project C1: CS Ajdovščina extension, Project C2: Reconstruction of M3 at section CS Ajdovščina-Miren with branches
Spain	Contribution to security of gas supply (e.g. reduce dependence on Russian gas) is not applicable for Spain, as Spain does not receive gas piped from Russia

C. INPUT USED TO ELABORATE NDPS

Q 5.1 How many visions / general scenarios are used for the elaboration of the gas NDP?

Answers to Q5.1	Reporting NRA's MS	Number	%
1 vision/ general scenario	Austria, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Hungary, Lithuania	**8**	**31%**
2 visions/ general scenarios	Italy, Poland, Slovak Republic, Slovenia	**4**	**15%**
3 visions/ general scenarios	Greece, Ireland, Netherlands, Portugal, Romania	**5**	**19%**
Other number of visions/ general scenarios	Belgium, France, Spain	**3**	**12%**
Not applicable	Cyprus, Germany, Latvia, Luxembourg, Malta, Sweden	**6**	**23%**
Grand Total		**26**	**100%**

Map 6: Number of visions / general scenarios used for most recent gas NDP



Summary: 8 out of 26 respondents (31%) stated they envision 1 scenario, 4 (15%) answered that they envision 2 scenarios, while 5 NRAs (19%) stated 2 scenarios. 3 respondents (12%) opted for the option "*Other*".

Reporting NRA's MS	Comment on Q5.1. If selected Other, please indicate and or elaborate on the number of scenarios
Belgium	NDP is mainly driven by market demand (demand for capacity incl. cross-border capacity) and to accommodate the L to H gas conversion. The Belgium transmission grid is quite mature and necessary investments are mainly limited to local reinforcements and replacements.
Cyprus	The first NDP has not been submitted to CERA for approval yet, nor has it been placed under public consultation, therefore cannot be assessed yet.
France	4 scenarios are used
Germany	Draft NDP not yet finalised.
Latvia	n.a.
Luxembourg	n.a.
Malta	n.a. Malta's 2030 NECP provides 2 visions ('With Existing Measures' and 'With Planned Measures' scenarios).
Spain	Two scenarios for the total demand forecast, one per yearly peak demand. Then, the system is simulating considering conditions of normal operation, the failure of the main infrastructure and a cold spell (peak demands).
Sweden	Not applicable

Q 5.2 Time horizon of the general scenarios / visions in the NDP – in years

Answers to Q5.2	Reporting NRA's MS	Number	%

10 years	Austria, Belgium, Croatia, Czech Republic, Estonia, France, Germany, Greece, Hungary, Ireland, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain	**19**	**95%**
20 years	Denmark	**1**	**5%**
Grand Total		**20**	**100%**

Summary: the NDPs of 19 countries (95%) cover a time horizon of 10 years, while only the NDP of Denmark (5%) cover an expanded timespan of 20 years.

Q 5.3 Stakeholders consulted for NDP scenario determination

Reporting NRA's MS	Public consultation	Universities, academics	Market players	Ministries	NRAs	Environmental [illegible]	Others	Total	Text box for comments on stakeholders' consultation
Austria							X	1	"National Trends" is used, and it is not directly consulted
Belgium			X	X	X			3	The NDP considers several scenarios (e.g. compatible with ENTSOG) but projects are mainly driven by the market interest / Open Season procedure
Bulgaria	X				X			2	
Croatia	X							1	
Cyprus	X							1	Public consultation for NDP scenario determination is not mandatory
Czech Republic							X	1	No scenario consultation (developed by external consultant for Market operator, then it is adjusted by the TSO.
Denmark	X							1	
Estonia	X							1	
France	X		X	X	X			4	
Germany	X	X	X	X	X	X	X	7	
Greece	X				X			2	
Hungary			X		X			2	
Ireland	X		X		X			3	NRA consults all actual or potential system users on the ten-year NDP, which includes scenario
Italy	X							1	Snam and Terna, in charge of jointly preparing the scenarios, organise workshops on the scenario document involving a wide variety of stakeholders. The time horizon of the scenarios is jointly identified by Terna and Snam with the aim of granting data comparability and consistency with ENTSOG TYNDP and Scenario Report. According to the regulation, scenarios are developed with reference to short, medium and long term time frame.
Latvia							X	1	See the answer to question 3.3. of this survey.

Lithuania	X		X	X	X		X	5	
Luxembourg				X				1	
Malta							X	1	Not applicable.
Netherlands	X		X	X	X			4	
Poland	X						X	2	NDP is consulted also with regional authorities (Voivodship Boards) on compliance with the local spatial development plans or the directions of development of the municipalities specified in the study of conditions and directions of the spatial planning of the municipality.
Portugal				X				1	The NDP scenarios are based on the last approved RMSA a law defining the Security of supply monitoring report, consisting in a planning document with a horizon of at least 10 years, approved by the Ministry
Romania	X		X	X		X		4	
Slovak Republic							X	1	The plan was prepared by Eustream and submitted to public consultation
Slovenia	X							1	
Spain	X							1	Scenarios are submitted to public consultation with together with the NDP proposal, not in a previous phase
Sweden							X	1	

Summary: scenarios used in NDPs are in most cases subject to a public consultation. In addition, for some NDPs stakeholders such as academics, market players, Ministries, NRAs and environmental organisations are specifically consulted during the scenario development process.

Q 5.4 Gas demand breakdown: Do gas demand scenarios consider a breakdown of demand (e.g. by type of customers or by economic sector)?

Answers to Q5.4	Reporting NRA's MS	Number	%
Yes	Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Romania, Slovenia, Spain	**20**	**77%**
No	Austria, Latvia, Luxembourg, Malta, Slovak Republic, Sweden	**6**	**23%**
Grand Total		**26**	**100%**

Summary: 20 out of 26 respondent NRAs (77%) stated that gas demand scenarios do consider a breakdown of demand by type of consumer or economic sector, while 6 (23%) answered they did not.

Q 5.5 Gas supply breakdown: Please elaborate on demand disaggregation by type of costumer or economic sector

Reporting NRA's MS	Industrial	Power generation	Commercial and Households	Border to border flows (gas transit)	Other sectors (e.g. good and beverage, transportation, agriculture, etc.)

Austria				X	
Belgium	X	X	X	X	
Bulgaria	X		X		X
Croatia	X		X		
Cyprus	X	X	X		
Czech Republic	X	X	X		X
Denmark	X	X	X	X	X
Estonia	X		X	X	
France	X	X	X		X
Germany	X	X	X	X	X
Greece	X	X	X	X	
Hungary		X		X	
Ireland	X	X	X		X
Italy	X	X	X	X	X
Latvia					
Lithuania	X	X		X	
Luxembourg					
Malta		X			
Netherlands	X	X	X	X	X
Poland	X	X	X	X	X
Portugal	X	X	X		
Romania	X	X	X	X	X
Slovak Republic				X	
Slovenia	X	X	X		X
Spain		X			
Sweden					

Summary: 23 NDPs (88%) provide gas demand disaggregated figures, normally with a breakdown for industrial, power generation, commercial and households, transit and other sectors.

Q 5.6 Alignment of the scenarios

The scenarios are aligned with…

Reporting NRA's MS	the latest National Energy and Climate Plan (NECP)	the REPowER EU plan (diversification of supplies, etc.)	Fit for 55 scenarios for achieving climate neutrality	Other relevant scenarios at national neutrality	Not possible to assess
Austria	X			X	
Belgium					X
Bulgaria					
Croatia	X				
Cyprus					X
Czech Republic					X
Denmark	X				
Estonia			X		

France	X			X	
Germany					X
Greece	X				
Hungary			X	X	
Ireland	X		X		
Italy	X				
Latvia					
Lithuania	X	X	X	X	
Luxembourg					X
Malta	X				
Netherlands	X			X	
Poland	X	X		X	
Portugal	X	X	X	X	
Romania					
Slovak Republic	X	X	X	X	
Slovenia					X
Spain					X
Sweden					

Summary: 13 (50%) respondent NRAs indicate that NDP is aligned with the latest National Energy and Climate Plan (NECP), 4 NRAs (15%) inform that scenarios are aligned with the the REPower EU plan, 6 (23%) refer to the "Fit for 55 scenarios" for achieving climate neutrality, while 8 respondent NRAs (31%) indicate alignments with other relevant scenarios at national level. In 7 (27%) instances, the respondent NRAs were not in a position to assess an alignment of scenarios.

Reporting NRA's MS	Comment on Q5.6. Provide info and/or a link to the last NECP (specify year) or any other national plan in case it covers scenarios of gas demand
Austria	https://energy.ec.europa.eu/system/files/2020-03/at_final_necp_main_en_0.pdf
Belgium	Scenarios are mainly checked vis-à-vis the ENTSOG TYNDP. However, the main driver for projects is the interest and commitments from the market to develop additional capacities and connections.
Croatia	"Energy development strategy of the Republic of Croatia until 2030 with a view to 2050" (Official Gazette No. 25/20) adopted by Croatian Parliament in 2020: https://narodne-novine.nn.hr/clanci/sluzbeni/2020_03_25_602.html
Czech Republic	Scenario was developed for Market operator by external consultant as a foundation for Expected long term balance report - however the report should respect the State Energy Conception (plan) and the latest National Energy and Climate Plan - to what extent is difficult to say.
France	National low carbon strategy: https://www.ecologie.gouv.fr/sites/default/files/en_SNBC-2_complete.pdf NECP : https://www.ecologie.gouv.fr/sites/default/files/PNIEC_France_mars_2020.pdf Pluriannual energy plan (2019-2028) https://www.ecologie.gouv.fr/sites/default/files/20200422%20Programmation%20pluriannuelle%20de%20l%27e%CC%81nergie.pdf
Ireland	https://assets.gov.ie/94442/f3e50986-9fde-4d34-aa35-319af3bfac0c.pdf
Italy	https://www.mise.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf The information provided above refer to the scenario report 2021, used for the elaboration on the current NDPs (2022). The most recent scenario report (published 1st of August 2022) that will be used for

	the next NDPs (2023 edition), instead, takes into account: the latest NECP, the Repower EU plan, the FIT for 55 scenarios, Directive RED II (and Lgs decree 8 nov 2021 n.1999), Directive UE electricity market (and Lgs Decree 8 nov. 2021 n.210), the new biomethane draft decree, the national strategic guidelines on hydrogen In the latest Scenario Report, the scenarios analysed are 4: Fit-For-55 (2030), Distributed Energy e Global Ambition (2040), and Late Transition (2030 and 2040).
Lithuania	(2021) https://ec.europa.eu/energy/sites/ener/files/documents/lt_final_necp_main_en.pdf
Malta	https://ec.europa.eu/energy/sites/ener/files/documents/mt_final_necp_main_en.pdf
Netherlands	It's aligned with the targets set in the Dutch climate law. This in turn is aligned with the fit for 55 scenario's.
Poland	https://www.dziennikustaw.gov.pl/MP/2021/264 https://www.gov.pl/web/aktywa-panstwowe/krajowy-plan-na-rzecz-energii-i-klimatu-na-lata-2021-2030-przekazany-do-ke
Portugal	PNEC - https://files.dre.pt/1s/2020/07/13300/0000200158.pdf RMSA - https://www.dgeg.gov.pt/media/4zbfj0ck/rmsa-g-2021.pdf
Slovenia	NECP 2020: https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn_5.0_final_feb-2020.pdf
Spain	Not possible to assess because the gas NDP is very old (2008). It is likely it was aligned with the main axis of the energy policy at the moment it was developed. The Spanish NECP is available at: https://www.miteco.gob.es/es/prensa/pniec.aspx

D. OUTPUTS OF THE NDPS

Q 6.1 Does the NDP identify and quantify the estimated target cross-border capacities?

Answers to Q6.1	Reporting NRA's MS	Number	%
Yes	Bulgaria, Croatia, Estonia, Germany, Greece, Hungary, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia	**14**	**54%**
No	Denmark, France, Latvia, Luxembourg, Spain, Sweden	**6**	**23%**
No, the concept of target cross-border capacities is not applicable	Austria, Belgium, Cyprus, Czech Republic, Ireland, Italy	**6**	**23%**
Grand Total		**26**	**100%**

Summary: 14 NRAs (54%) stated that their NDPs indicate the estimated target cross-border capacities, while 6 (12%) responded that they did not. 6 out of the 12 respondents NRAs indicated that the concept of target cross-border capacities is not applicable.

Reporting NRA's MS	Comment on Q6.1. Please elaborate / comment
Austria	the NDP elaborates projects developed according to Incremental CAM NC, SOS, reinvestments, optimisation of the existing network
Belgium	However, the impact of investments on cross-border capacities is estimated for the relevant projects.
Croatia	For each project there is planned technical capacity stated (GWh/day).

Estonia	Overview of cross-border technical capacities and regional gas investment plans
Germany	Cross-border capacities are considered as exogenous parameter and are defined in the scenario framework. They are used accordingly in the modelling exercise by the TSOs.
Greece	The TSO, following art. 91 of its network code, publishes on a yearly basis a Development Study on its website (in both Greek and English), with forecasts of demand and allocation for the 10-year reference period. In the recent studies, demand for exports towards neighbouring countries or transmission systems (Bulgaria, North Macedonia and TAP) is also considered for the planning of future projects. Examples of such projects include the upgrade of the compressor at the Nea Mesimvria interconnection point with TAP, as well as the installation of a new compressor system at Komotini for the interconnection with IGB.
Ireland	There is currently no plans to connect Ireland's gas network with another EU Member State
Latvia	See the answer to question 3.3. of this survey.
Malta	It does not specifically refer to NDP but a general procedure used for technical analysis. According to Malta's 2030 NECP the gas interconnection to Italy is expected to have a flow capacity of 2 Bcm/y at standard conditions.
Poland	Section 5 of indicated NDP provides information about planned degree of diversification and obtained export and import capacities in system as a result of investment process.
Portugal	Regulation (EU) 2017/1938 (CAM NC) is applied
Slovak Republic	Based on market demand assessment
Slovenia	Planned technical capacity and estimated booked capacity are indicated.

Q 6.2 Are the estimated cross-border capacities (and their timing) in line with the latest available NDPs of your neighbouring Member States?

Answers to Q6.2	Reporting NRA's MS	Number	%
Yes	Bulgaria, Germany, Hungary, Malta, Poland, Portugal, Slovak Republic, Slovenia	**8**	**31%**
No	Ireland, Latvia, Spain	**3**	**12%**
Not able to assess	Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, France, Greece, Italy, Lithuania, Luxembourg, Netherlands, Romania, Sweden	**15**	**58%**
Grand Total		**26**	**100%**

Summary: 8 respondents (31%) stated that the estimated cross-border capacities are in line with the latest available NDP. Most respondents (58%) were not able to assess, while 3 respondents (12%) noted that this was not the case.

Q 6.3 Process of identification of investment gaps: Please indicate how investment gaps are determined in the NDP

Reporting NRA's MS	Evaluation after an in-depth analysis of the "needs" of infrastructure (top-down approach)	Outcome of the system and/or market modelling	Decided case-by-case after analysis of project candidates (bottom-up approach)	Outcome of economic test (capacity auction, market consultation, demand of	Outcome of decarbonisation assessments (e.g. network investments for additional biomethane volumes)	Outcome of security of supply assessments (diversification of gas supply)
Austria	X					
Belgium		X	X	X		
Bulgaria	X		X			X
Croatia		X	X			X
Cyprus			X			
Czech Republic		X	X	X		X
Denmark	X	X				
Estonia			X			
France	X					
Germany		X				
Greece	X	X	X	X		X
Hungary	X		X			
Ireland		X				
Italy	X	X			X	X
Latvia						X
Lithuania				X		
Luxembourg	X					
Malta	X	X	X	X		X
Netherlands		X	X	X		
Poland	X			X		X
Portugal			X			
Romania	X		X	X		X
Slovak Republic	X		X		X	X
Slovenia	X	X	X	X		X
Spain		X				
Sweden	X					

Reporting NRA's MS	Comment on Q6.3
Italy	Decisions on investment projects are taken according to a set of different criteria considering the European and national legislation (such as Regulation (CE) n. 2017/1938 on bidirectional cross-border flows) and the relevant regulation of the Energy Authority. The future transport capacities are identified making use of a gas hydraulic modelling software.
Latvia	n.a.

Lithuania	It is noted that we currently are not facing investment gaps because due to the decreased gas consumption the TSO system is not fully utilised. However, identification with brief analyses can be applied if the market participants indicates the necessity during the consultation. Also, projects that are included into the national strategic documents (National Energy Strategy) are implemented.
Malta	It does not specifically refer to NDP but a general procedure used for technical analysis.
Portugal	Currently in Portugal the Regulation (EU) 2017/1938 is not ensured as the N-1 rule is not accomplished in all demand scenarios in the nearby future. Nevertheless the construction of a 3rd interconnection has to be carefully evaluated, considering the foreseen decarbonisation, the associated cost and other conditions to fulfil it.
Slovenia	Process of identification of investment gaps depends on the type (purpose) of the infrastructure.

Summary: In 14 out of 26 ember states, investment gaps in the NDPs are determined by more than one approach. 14 member states indicate that investment gaps are determined after an in-depth analysis of the "needs" of infrastructure (top-down approach), a case-by-case basis after specific analysis of project candidates (bottom-up approach) is used in the same amount of NDPs, in 12 NDPs investment gaps are determined by the outcome of the system and/or market modelling, while in 9 NDPs by the outcome of economic tests (capacity auction, market consultation, demand of shippers).

Q 6.4 Do the project costs indicated in the NDP include an estimate of the following cost items?

Reporting NRA's MS	Investment costs (CAPEX)	Operational costs (OPEX)	NDP does not include cost information
Austria	X		
Belgium	X		
Bulgaria	X		
Croatia	X		
Cyprus	X	X	
Czech Republic	X		
Denmark			X
Estonia	X		
France	X		
Germany	X		
Greece	X	X	
Hungary			X
Ireland	X		
Italy	X	X	
Latvia			X
Lithuania	X		

Luxembourg	X		
Malta			X
Netherlands	X		
Poland	X		
Portugal	X		
Romania			X
Slovak Republic			X
Slovenia	X		
Spain	X		
Sweden			X

Summary: 19 NDPs (73%) include investment costs. In addition to the CAPEX, Cyprus, Greece and Italy NDPs include also the OPEX. The NDPs of 7 member states (27%) do not include any cost information yet.

Q 6.5 Total cost of the NDP planned investments, including replacements and refurbishments (in € million)

Reporting NRA's MS	6.5 Total cost of the NDP planned investments, including replacements and refurbishments (in € million)
Austria	CAPEX is provided just for the incremental projects. The NDP does not publish an aggregated value of the CAPEX, but this information is available to E-Control
Belgium	644 EUR million for the period 2021-2030 (natural gas) in NDP 2021-2030 (feb 2021)
Bulgaria	2 177.6 EUR million
Croatia	Confidential information. Not publicly available in NDP.
Cyprus	The first NDP is expected in end of 2022/early 2023.
Czech Republic	N.A.
Denmark	N.A.
Estonia	2021 year total investment was 24.7 EUR million
France	
Germany	7 830 EUR million
Greece	865 EUR million in the forthcoming 10 years.
Hungary	The publicly available version of the NDP does not contain cost information. The TSO submits a detailed cost assessment to the NRA with the NDP submitted for approval. Cost data is considered confidential information.
Ireland	554 EUR million for the 5 year period 2017-2022
Italy	Taking into account the 9 gas TSOs operating in Italy, the total cost of the NDPs planned investments (comprehensive of replacements and refurbishments) is 13 600 EUR million. Snam Rete Gas, the main gas TSO, accounts for 12 000 EUR million.
Latvia	N.A
Lithuania	263.55 EUR million in the forthcoming 10 years
Luxembourg	17.44 EUR million in the next 10 years
Malta	387.0 EUR million
Netherlands	218 EUR million in 2022, 160 in 2023, 130 in 2024, 85 after that

Poland	Cost is commercially sensitive and not publicly available in NDP in accordance with art. 16 section 15a Energy Law Act.
Portugal	124 EUR million for 2022-2031.
Romania	3 400 EUR million in the next 10 years
Slovak Republic	0
Slovenia	186 EUR million in the period 2022-2024
Spain	10 221 EUR million € in the forthcoming 10 years. Please note that the NDP is dated in 2008 and goes from 2008 to 2016.
Sweden	N.A.

Q: 6.6 Changes and updates: Please elaborate on, if any, relevant changes / updates during the last 2 years regarding section 6 Outputs of the NDP (mainly questions 6.1-6.3)

Reporting NRA's MS	Changes / updates during the last 2 years regarding section 6 Outputs of the NDP (mainly questions 6.1-6.3)
Austria	No
Latvia	See the answer to question 3.3. of this survey.
Lithuania	- The NDP identifies and quantifies the estimated target cross-border capacities. - Total cost of the NDP planned investments 2 years ago was 211.45 million Euros
Malta	Total cost investment cost in the gas infrastructure remained unchanged since 2020.
Poland	No significant changes during last 2 year period.

E. METHODOLOGY USED FOR THE NDPS

Q 7.1-7.3 Use of market studies: Are market studies carried out covering projections of gas market fundamental data (supplies, demand, peak demand capacity and prices?)

Reporting NRA's MS	market studies	network studies	sector integrated studies
Austria		X	
Belgium	X	X	
Bulgaria	X	X	
Croatia		X	
Cyprus	X	X	X
Czech Republic	X	X	
Denmark	X	X	X
Estonia	X		
France	X	X	
Germany	X	X	
Greece	X	X	X
Hungary	X	X	X

Ireland	X	X	
Italy	X	X	
Latvia			
Lithuania			
Luxembourg			
Malta	X		
Netherlands	X	X	X
Poland	X	X	
Portugal	X		X
Romania	X	X	
Slovak Republic	X	X	
Slovenia	X	X	
Spain		X	X
Sweden	X	X	X

Summary: 20 out of 27 respondent NRAs (74%) noted that market studies are carried out covering projections of gas market fundamental data. 74% of NDPs also carry out network studies. 8 respondent NRAs (31%) indicated that their gas NDPs include simulations performed by using an integrated network (at least covering electricity and gas) and market model.

Q 7.4 Please elaborate on the network-flow models of the TSOs and their simulations and on time granularity of market simulations (daily, hourly).

Reporting NRA's MS	7.4 Please elaborate on the network-flow models of the TSOs and their simulations and on time granularity of market simulations (daily, hourly)
Austria	Hydraulic simulation is carried out to optimise the typology of the investment.
Belgium	Network model Simone (hydraulic) on hourly/daily basis. Same model is used to identify on a continuous basis the available capacities for sales to the market. The list of existing and expected gas-fired power plants is common for NDP gas and NDP electricity.
Croatia	Network-flow models of the TSO are done by hydraulic simulations based on different scenarios for specific years, taking into account development of the significant infrastructure projects.
Denmark	The network-flow model used for the NDP uses a granularity at an hourly level. The model has the option for integrated network (electricity and gas) modelling but for the NDA a pure gas focus has been conducted
Germany	The TSOs use different network flow models.
Greece	Network flow software package: Pipeline Studio. Time granularity of simulations: hourly.
Hungary	Simone modelling tool
Ireland	Network analysis was carried out using hydraulic network modelling software, Pipeline Studio®. A single hydraulic model of the interconnector and ROI transmission systems was constructed using Pipeline Studio®. This simulation software was configured to analyse the transient 24-hour demand cycle over a minimum period of three days to obtain consistent steady results. In order to assess the system on days of different demand pattern, three demand day types were analysed for each supply scenario over a 10-year period to 2029/30; • 1-in-50 year winter peak day

	• Average year winter peak day • Average year summer minimum These demand days, which were generated from the gas demand forecast, have been chosen as they represent the maximum and minimum flow conditions on the transmission system. The ability of the ROI transmission system to accommodate the forecast gas flow requirements was validated against the following criteria; • Maintaining the specified minimum and maximum operating pressures at key points on the transmission systems; • Operating the compressor stations within their performance envelopes; and • Ensuring gas velocities do not exceed their design range of 10 – 12 m/s.
Italy	Concerning electricity, an expected hourly demand profile for all the market zones and the 8 760 hours is estimated using: - historical data on the yearly electricity demand; - historical data on the hourly demand profile - the expected spread of new electricity technologies This estimated hourly demand profile is an input to the market analysis devoted to the identification of the most efficient electricity generation mix (hourly granularity) to cover the expected demand. The electricity market model simulation necessarily involves a European perimeter. Likewise, concerning gas, an expected daily final demand profile is built starting form: - historical data on the yearly final gas demand; - historical data on the hourly final gas demand profile - the expected spread of new gas technologies The daily gas demand for power generation, instead, is the output of the electricity market model simulation. Final gas demand + gas demand for power generation make up the total gas demand which is used to identify the import needs. Then, gas supply routes and price differentials are identified through an optimization model of the European gas fluxes.
Poland	Detailed hydraulic simulations are carried out by TSO hourly and daily and are being shared with ERO but they themselves are not part of NDP. Plan consists analysis of resulting conclusions in terms ability of the network to cover stress demand situations and consumption increase.
Slovenia	On the request of the NRA the TSO must submit the market/network studies/simulations for the individual project to prove the eligibility of the project.
Sweden	Not applicable

Q 7.5 Is cost-benefit analysis (CBA) used to evaluate investments?

Answers to Q7.5	Reporting NRA's MS	Number	%
Yes	Bulgaria, Cyprus, Italy, Malta, Poland, Portugal, Romania, Slovak Republic, Slovenia, Sweden	**10**	**38%**
No	Austria, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Latvia, Lithuania, Spain	**11**	**42%**
Other	Belgium, Croatia, Greece, Luxembourg, Netherlands	**5**	**19%**
Grand Total		**26**	**100%**

Summary: 10 NRAs (38%) reported that cost-benefit analysis (CBA) is used to evaluate investments. 11 NRAs (42%) noted that the NDPs do not use CBA, while the remaining 19% opted for the option "Other" options for evaluating gas investments.

Reporting NRA's MS	Comment Q7.5. Please provide additional comments
Belgium	Project are basically evaluated by the willingness of the market to subscribe additional capacities. If market interest seems not sufficient to justify the investment, the 'missing money' is evaluated by valuing the social benefits of the project (e.g. contribution to SoS, energy transition)
Bulgaria	CBA is used for some of the projects
Croatia	Feasibility study is prepared by TSO and submitted with NDP to NRA.
Greece	All the proposed projects are evaluated according to their impact on the Average Tariff for the use of National Natural Gas System. CBA is carried out for major projects.
Italy	The CBA methodology is based on the monetization of benefits so as to provide results that are easily comparable and understandable. However, when security of supply issues are concerned, or in cases where the provision of additional information is considered useful for the clear representation of the project, additional quantitative indicators can be presented. The Italian regulation, consistently with TYNDPs, devotes particular attention to: - the N-1 indicator; - the Import Route Diversification Index, IRDI; - the Bidirectional Project Index, BPI
Malta	Applicable to all energy investments in the country
Netherlands	required in major investments, not in regular replacements
Poland	Cost-benefit analysis are being examined upon Operator request to evaluate the investments with cross border importance and they are taken into consideration in the process of developing the plan. Nonetheless final responsibility for the risks arising from project implementation and its effectiveness is the responsibility of Operator, NDP is not determinative in this respect. President of ERO do not approve individual projects but is agreeing certain level of expenditures that affects financing and through this provides guidance on the directions of investing.
Slovak Republic	Eustream provide CBA analysis for each project before realisation
Slovenia	The complete CBA is required for projects in new pipelines in the value more than 25 € million. Some elements of the CBA are required also for the projects between 5 – 25 € million.

Q 7.6 If the cost-benefit analysis is used, please specify the criteria and the monetization of benefits

Reporting NRA's MS	Security of Supply	Market Integration	Competition	Sustainability	Other
Bulgaria	Yes, and monetised	Yes, and monetised	Yes, and monetised	Yes, and monetised	
Italy	Yes, but not monetised		Yes, and monetised	Yes, and monetised	Yes, and monetised

Malta	Yes, and monetised	Yes, and monetised	Yes, and monetised	Yes, and monetised	
Portugal	Yes, but not monetised	Yes, but not monetised	Yes, but not monetised	Yes, but not monetised	Yes, but not monetised
Romania	Yes, and monetised	Yes, but not monetised	Yes, but not monetised	Yes, and monetised	
Slovak Republic	Yes, and monetised	Yes, and monetised	Yes, and monetised	Yes, and monetised	
Slovenia	Yes, but not monetised	Yes, but not monetised	Yes, but not monetised	Yes, and monetised	

Reporting NRA's MS	Comment on Q7.6. If selected Other, please elaborate
Belgium	Projects are basically evaluated by the willingness of the market to subscribe additional capacities. If market interest seems not sufficient to justify the investment, the 'missing money' (which may potentially be socialized in the regulated tariffs) is evaluated versus the social benefits of the project (SoS, energy transition, market integration, etc.).
Denmark	CBAs are not used in the NDP but in the investment decision
France	CBAs are not elaborated in the NDP context, but when projects are discussed for approval by CRE.
Italy	The monetized benefits included in the CBA are: B1 – social welfare change due to the reduction in the cost of gas supply; B2 – social welfare change due to fuel switching; B3 – security and affordability of infrastructures B4 – avoided costs; B5 – Reduction of CO2 emissions; B6 – Reduction of not-CO2 emissions; B7 – Integration of Renewable energy sources; B8 – Reduction of gas compression costs; B9 – Flexibility to the electricity system
Latvia	See the answer to question 3.3. of this survey.
Lithuania	Lithuanian NRA approves NDP as a strategic document. However, NRA approval of the NDP does not mean the approval of the specific projects. All Projects have to be approved individually. The CBA is provided during the individual approval process
Luxembourg	CBA not available
Malta	These figures refer to the investment request submitted in the process of the Cross Border Cost Allocation decision regarding the gas pipeline between Malta and Italy performed in 2019.
Portugal	Considering the demand forecast as well as the daily peak values for the next ten years, Security of supply, market integration, competition and sustainability attributes are evaluated. For specific projects other criteria are used. E.g. Criticality index, capacity under risk of interruption, reduction of failure probability, improvement in the security of persons and properties, reduction of environmental impacts, efficiency of the National Gas system, social risk index and resiliency to climate change.
Romania	The answer above refers to the projects included in the European PCI list The other projects are not analysed through the prism of these benefits.
Slovenia	One or more criteria may be used depending on the type of investment.
Spain	The plan was approved in 2008 and is outated

Summary: When the cost-benefit analysis is implemented, most of the methodologies use security of supply, competition and sustainability as criteria. Also market integration is used

except for Italy. The monetization of benefits varies with the criteria. In general, around half of the benefits are monetized.

Q 7.7 SoS evaluation: Is there in the NDP an economic valuation of gas lost load due to potential supply disruptions

Answers to Q7.7	Reporting NRA's MS	Number	%
Yes	Italy	**1**	**4%**
No	Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden	**22**	**85%**
Not able to assess	Cyprus, Malta, Slovak Republic	**3**	**12%**
Grand Total		**26**	**100%**

Summary: The majority of respondents (85%) noted that there is no economic valuation of gas load value, i.e. the cost of disruption of gas supply, in their NDPs. Only the Italian NRA confirmed that their NDPs contain an economic evaluation of the of gas lost load. The remaining 3 respondents (12%) were not able to assess.

Q: 7.8 Changes and updates. Please elaborate on, if any, relevant changes / updates during the last 2 years regarding section 7 Methodology used for the elaboration of the NDP (mainly questions 7.4-7.5, 7.7)

Reporting NRA's MS	Changes / updates during the last 2 years regarding section 7 Methodology used for the elaboration of the NDP (mainly questions 7.4-7.5, 7.7)
Greece	While the NDP does not include valuations suggested in questions 7.5 and 7.7 by default, the TSO performs cost-benefit analyses for major projects, where various extreme scenarios related to security of supply are considered. Most recently, while examining the possibility of constructing an underground gas storage facility at South Kavala, the TSO examined such scenarios, related to price volatility, extreme weather scenarios, as well as supply disruption due to geopolitical factors.
Italy	Following the evaluation on NDPs 2020, the CBA methodology has been amended to include two new categories of benefits: B8 – Reduction of gas compression costs B9 – Flexibility to the electricity system Benefit B8 is aimed at taking into account the effects produced by dual-fuel compression plants. Benefits B9 considers the impacts a gas project can have in terms of costs reduction for the provision of ancillary services to the power system.
Latvia	See the answer to question 3.3. of this survey.
Lithuania	no changes/updates in the last 2 years
Poland	No significant changes during last 2 year period.

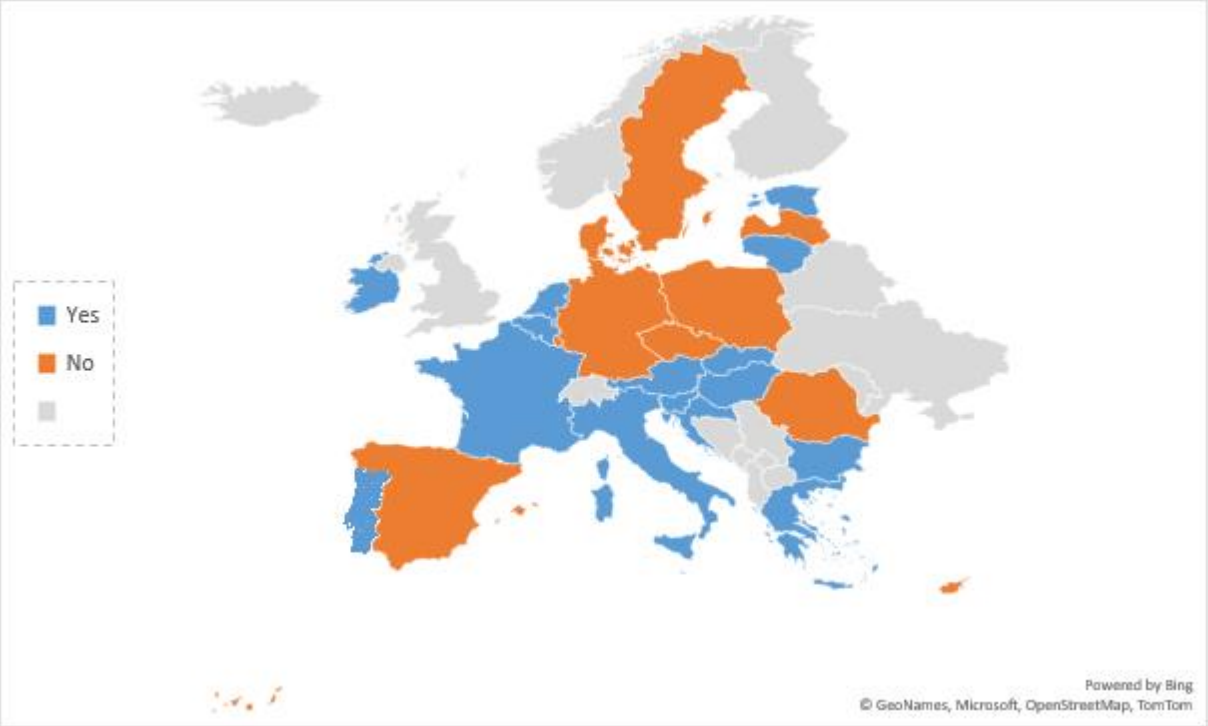
F. ENERGY TRANSITION ASPECTS IN GAS NDPS

Coverage of H2 in NDPs

Q 8.1 Does the most recent gas NDP(s) in your country address hydrogen?

Answers to Q8.1	Reporting NRA's MS	Number	%
Yes	Austria, Belgium, Bulgaria, Croatia, Estonia, France, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Portugal, Slovak Republic, Slovenia	**16**	**62%**
No	Cyprus, Czech Republic, Denmark, Germany, Latvia, Luxembourg, Poland, Romania, Spain, Sweden	**10**	**38%**
Grand Total		**26**	**100%**

Map 6: Most recent gas NDP covering H2 aspects



Summary: 16 NRAs (62%) reported that their most recent gas NDPs address hydrogen developments. 10 respondents (38%) reported that H2 developments are not covered in existing NDPs. In comparison with the 2020 data, where only 8 countries (30%) indicated that the most recent NDP(s) address hydrogen, 8 additional gas NDPs address hydrogen showing a clear upward trend of more gas NDPs addressing hydrogen.

The main hydrogen aspects covered in gas NDPs are Network adaptations (retrofitting) to allow H2 blending in gas networks (7 instances), new dedicated 100% H2 networks (6 instances) and H2 market demand studies underpinning a possible need of enabling H2 infrastructure (5 instances).

Q 8.1.1 If yes to (8.1), which H2 developments/projects are covered

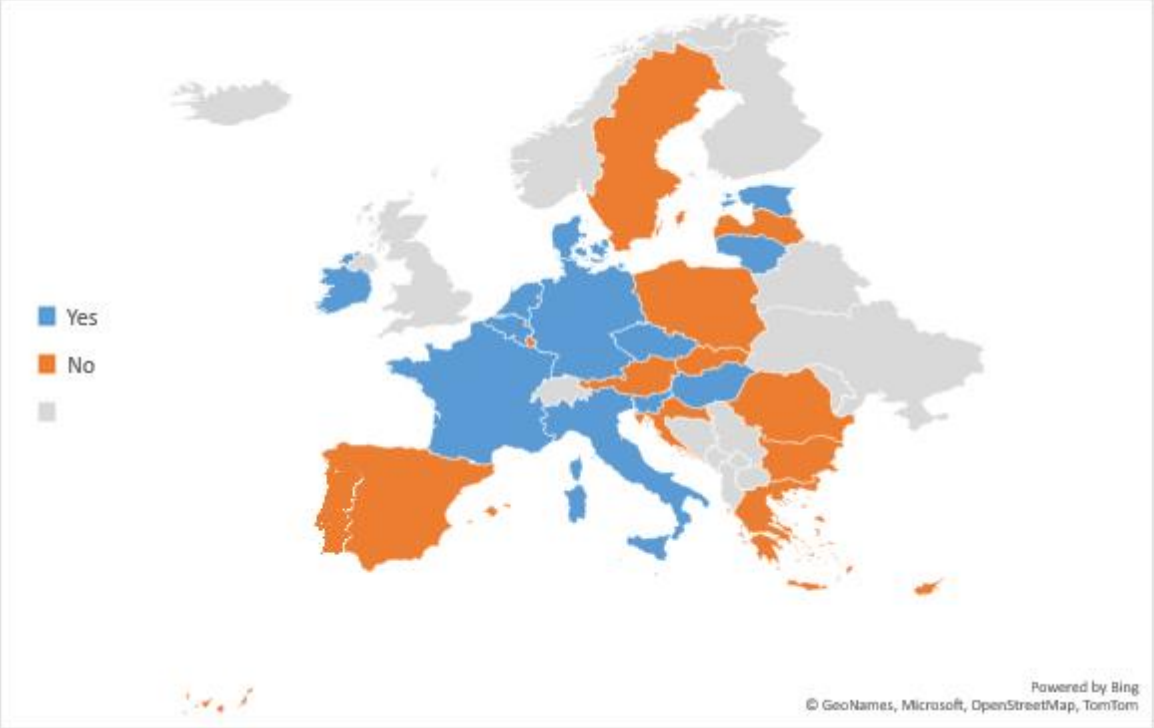
Reporting NRA's MS	Network adaptations (retrofitting) to allow H2 blending in gas networks	Repurposing existing gas networks to dedicated 100% H2 networks	Repurposing existing gas networks to CO2 networks	Decommissioning of gas networks	New dedicated 100% H2 networks	Connection points for H2 injection	Best locations for power-to-"x" developments, based on gas TSO analysis	Best locations for power-to-"x" developments, based on joint electricity and gas TSOs analysis	Hydrogen production development from renewable sources (electrolysers)	Hydrogen production developments from blue hydrogen, i.e. H2 produced from natural gas and supported by carbon capture and storage (CCS)	Imported hydrogen (reception, storage and regasification or decompression facilities for liquified H2 or H2 embedded in other substances (e.g. ammonia) for injecting H2 in the network)	Hydrogen underground storages	Compressor stations (new or adaptations)	H2 market demand studies underpinning a possible need of enabling H2 infrastructure
Austria					X									X
Belgium		X	X		X									X
Bulgaria						X	X							
Croatia	X													
Estonia														X
France						X								
Greece					X								X	
Hungary	X	X			X									
Italy	X	X			X	X	X		X				X	
Lithuania	X				X				X					X
Malta											X			
Portugal	X											X		
Slovak Republic	X	X								X		X	X	
Slovenia	X							X						X

Coverage of biomethane in NDPs

Q 8.2 Does the most recent gas NDP(s) in your country address biomethane developments?

Answers to Q8.2	MS	Number	%
Yes	Belgium, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Slovenia	**12**	**46%**
No	Austria, Bulgaria, Croatia, Cyprus, Greece, Latvia, Luxembourg, Malta, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden	**14**	**54%**
Grand Total		**26**	**100%**

Map 7: Most recent gas NDP covering biomethane developments



Summary: 12 NRAs (46%) reported that their most recent NDPs address biomethane developments. 14 respondents (54%) reported that biomethane developments are not covered in existing NDPs. Already in 2020, around 40% of the respondent NRAs indicated that the most recent gas NDP(s) already address biomethane. Therefore, little progress can be observed during the last two years in terms of more gas NDP covering biomethane developments.

The main aspects related to biomethane developments which are covered in gas NDPs are “direct connections points for biomethane injection at transmission level” and “Biomethane production potential (estimates of biomethane installed capacities)” (both 6 instances), followed by Network adaptations to allow biomethane injection at transmission level (5 instances).

If reported yes to 8.3, which biomethane developments/projects are covered?

Reporting NRA's MS	st	Direct connections points for biomethane injection at transmission level	Reverse flow capacity from the distribution to the transmission network	Biomethane production potential (estimates of biomethane installed capacities)	Biomethane storage projects	Best locations for biomethane potential
Belgium			X			
Czech Republic				X		
Denmark			X	X		X
Estonia	X		X	X		
France	X	X	X	X		
Germany		X				
Ireland		X		X		
Germany		X				
Lithuania	X	X		X		
Netherlands	X	X			X	
Slovenia	X					

Information on the cost of biomethane projects is generally not available in NDPs.

NRAs views on future gas NDPs in view of Energy Transition

0 – I do not have an opinion, 1- I totally disagree, 2 – I disagree, 3 – I somewhat agree, 4 – I agree, 5 – I totally agree

Reporting NRA's MS	remain business as usual and focus on traditional gas infra, but be open to include energy transition aspects	focus primarily on energy transition topics, and include traditional gas infra only if duly justified	focus only on energy transition topics and the decarbonisation of gas sector	be more coordinated and interlinked with electricity NDPs	be part of sector integrated plans	focus and prioritise on security of supply investments
Austria	4	2	1	4	4	2

Reporting NRA's MS	remain business as usual and focus on traditional gas infra, but be open to include energy transition aspects	focus primarily on energy transition topics, and include traditional gas infra only if duly justified	focus only on energy transition topics and the decarbonisation of gas sector	be more coordinated and interlinked with electricity NDPs	be part of sector integrated plans	focus and prioritise on security of supply investments
Belgium	4	2	1	5	5	4
Bulgaria						
Croatia	3	2	2	3	2	3
Cyprus	2	3	3	4	3	2
Czech Republic	3	3	1			4
Denmark	4					
Estonia	4	1	3	4	2	4
France						
Germany				3		
Greece	4	1	1	5	5	5
Hungary	4	2	2	4	4	4
Ireland	3	2	1	5	5	5
Italy	4	2	2	4	5	4
Latvia						
Lithuania	4	4	5	3	3	5
Luxembourg						
Malta	3	5	1	5	5	5
Netherlands	2	5	3	4	5	3
Poland	3	2	2	5	5	5
Portugal	2	4	1	4	4	3
Romania	4	2	1	4	3	4
Slovak Republic						
Slovenia	4	3	2	5	5	3
Spain	3	3	2	5	5	4
Sweden						
Average [numeric, no replies are not counted]	3.37	2.67	1.89	4.22	4.12	3.83
Average [qualitative]	3- I somewhat agree	3- I somewhat agree	2- I disagree	4- I agree	4- I agree	4- I agree

Summary: The majority of the NRAs agrees that while the focus of future NDPs should be on traditional gas infrastructure, NDPs should be open to include energy transition aspects and be better coordinated and interlinked with electricity NDPs. Most NRA respondents seem to be in favour of moving towards more sector-integrated plans which cover both the electricity and the gas sectors. Most NRAs agree that NDPs should keep an important focus and prioritise on security of supply investments.

ANNEX II – CONSISTENCY OF NDP/TYNDP PROJECTS

NRAs checks of project consistency, background

The NRAs were invited to crosscheck from 17 December 2021 until 14 January 2022 the input data (project attributes) of the draft TYNDP 2022 project candidates as submitted by the project promoters to ENTSOG, including the consistency with NDPs[5].

The views and comments of the NRAs on the projects were communicated to ENTSOG "as received" at a moment when the TYNDP 2022 was at an early phase of development with the aim of improving the quality of the input data for TYNDP 2022 projects, and to help resolve potential inconsistencies.

NRA Responses:

ACER received input from 21 NRAs:

1. 8 NRAs had "no comments/remarks on TYNDP 2022 projects": Denmark, Lithuania, Luxemburg, Malta, Netherlands, Romania, Slovak Republic and Sweden.
2. 13 NRAs had "comments/remarks on TYNDP 2022 projects": Austria, Croatia, Cyprus, Czechia, Germany, Greece, Hungary, Italy, Latvia, Poland, Portugal, Slovenia, Spain. Regarding the type of comments
    a. 9 NRAs have "Project-specific comments and remarks on data items of TYNDP 2022 projects": Austria, Croatia, Czechia, Germany, Greece, Italy, Latvia, Slovenia, Spain.
    b. 7 NRAs have "General comments and remarks on TYNDP 2022 projects": Austria, Cyprus, Hungary, Italy, Poland, Portugal, Slovenia.

List of TYNDP 2022 projects for which NRA comments were received

Austria	TRA-F-954
Austria	TRA-N-600
Austria	TRA-N-731
Austria	TRA-N-766
Austria	OTH-N_604
Austria	HYD-N_757
Croatia	TRA-A-86
Croatia	TRA-N-75
Croatia	TRA-N-1058
Croatia	TRA-A-68
Croatia	TRA-N-70
Croatia	TRA-N-336
Croatia	TRA-N-1057
Croatia	TRA-N-70
Czechia	OTH-N-306
Germany	LNG-N-559
Germany	HYD-N-562
Germany	TRA-N-809
Germany	TRA-F-814
Greece	LNG-A-62
Greece	TRA-A-63
Greece	TRA-A-10
Greece	TRA-A-330
Greece	TRA-N-128
Greece	TRA-N-971
Greece	RET-N-973
Greece	TRA-N-1090
Greece	TRA-N-1091
Italy	BIO-F-563

[5] On 20 October 2022, ENTSOG published an updated version of the TYNDP 2022 projects which has not been used for this analysis.

Italy	HYD-N-556
Italy	HYD-N-542
Italy	OTH-N-305
Italy	LNG-N-304
Italy	TRA-F-607
Italy	TRA-N-7
Italy	TRA-N-1194
Italy	TRA-N-1195
Latvia	LNG-N-912
Latvia	TRA-N-1181
Latvia	RET-N-1081
Latvia	HYD-N-1098
Latvia	UGS-F-374
Latvia	BIO-N-125
Slovenia	TRA-N-112
Slovenia	TRA-N-92
Slovenia	TRA-N-108
Slovenia	TRA-N-112
Slovenia	TRA-N-389
Slovenia	TRA-N-92
Slovenia	TRA-N-92
Slovenia	TRA-N-112
Spain	LNG-F-178
Spain	OTH-N-993

General NRAs comments and remarks on projects listed in TYNDP 2022

Reporting NRA's MS (*)	Please provide general comments and remarks on projects listed in the draft TYNDP 2022
Austria	E-Control is of the opinion that the project TRA-N-766 (Entry Murfeld) should not be part of the TYNDP. The project has been part of the TYNDP for several years, but it has not reached maturity nor its capacity was ever offered to the market; it was proposed by TSOs and not by market participants, it is over mentioned in relation to the regional sources and leads to costs that represent a real burden for any market participant intentioned to book capacity.
Cyprus	CERA has no information on TRA-F-467 (Cyprus-host country). Apart from the title and the code, the information provided for the project does not seem valid. There is no project description. CERA has no information on the intention for the submission of this project. CERA does not have any comments on LNG-A-1146. There are information that the commissioning date might be delayed but this has not been assessed yet. Additional clarifications and information have been requested.
Hungary	MEKH is aware of the projects indicated and supports them; no errors were found in the projects data. Furthermore, it should be noted that the costs are still very much planned and are subject to change. The cost plans have not yet been examined by MEKH. The new 10-year plan (NDP) will now include the new projects indicated this year, which will be finalised this autumn. The 10-year NDP will include a separate chapter on new hydrogen projects.
Italy	ARERA notes several inconsistencies between the TYNDP 2022 data and the data resulting from the 2021 NDPs. However, a further consistency check will be performed following the submissions by TSOs of the 2022 NDPs, expected by 31 January 2022. ARERA also notes that, in NDP 2021, projects TRA-N-8 (Import development from North-East) and TRA-N-9 (Additional Southern development) are mentioned as being over the 10-year timeframe, as there are currently no requests for additional capacity in the area.
Poland	Energy Regulatory Office does not oppose the placement of any listed projects in the draft. Provided data is consistent with the most recently approved National Development Plan. Although the submitted draft presents some minor alterations, e.g. in time schedule, this could be justified due to the preparation of documents over different periods. We can state that there are no substantial differences related to the scope of the documents, which currently might justify the amendment of TYNDP 2022.

Portugal	Projects in TYNDP 2022 are referred to as included in an NDP (PDIRG 2021), but in fact, they are not, as this Plan is only a proposal, was subject to public consultation and an opinion by ERSE but has not been approved.
Slovenia	Most of the comments refer to inconsistencies with data from the NDP 2022-2031. This may be due to the fact that the NDP was prepared in early 2021, and therefore the data is sometimes not as up-to-date as the data from the TYNDP. Some comments refer to data that was probably written or inserted by mistake.All NDP projects with cross-border impact are included in the TYNDP 2022.

Draft EU TYNDP 2022 projects present in NDPs[6]

The level of consistency of project inclusion on the NDPs projects in the draft EU TYNDP 2022 is assessed based on information available in Annex A – list of projects to the draft EU TYNDP 2022.

Number of NDP projects included in the draft TYNDP 2022, per EU Member State

Country	Included in NDP	Not included NDPs	Total	% of TYNDP projects included in NDPs
Austria	3	3	**6**	**50%**
Belgium	4	5	**9**	**44%**
Bulgaria	5	2	**7**	**71%**
Croatia	11	9	**20**	**55%**
Cyprus	0	1	**1**	**0%**
Czechia	1	1	**2**	**50%**
Denmark	1	5	**6**	**17%**
France	2	9	**11**	**18%**
Germany	22	23	**45**	**49%**
Greece	9	7	**16**	**56%**
Hungary	5	17	**22**	**23%**
Ireland	0	1	**1**	**0%**
Italy	14	2	**16**	**88%**
Latvia	0	7	**7**	**0%**
Lithuania	2	0	**2**	**100%**
Malta	1	0	**1**	**100%**
Netherlands	4	15	**19**	**21%**
Poland	7	3	**10**	**70%**
Portugal	2	0	**2**	**100%**
Romania	11	9	**20**	**55%**
Slovakia	14	2	**16**	**88%**
Slovenia	8	1	**9**	**89%**
Spain	1	8	**9**	**11%**

[6] Some EU countries like LU, not mentioned in the table, have no transmission projects in the NDP, and thus have none in the TYNDP.

Grand Total	**130**	**133**	**263**	**49%**

Number of NDP projects included in the TYNDP, per project type

Project Type	Included in NDP	Not included NDPs	Total	% of TYNDP projects included in NDPs
Biomethane	4	7	**11**	**36%**
Hydrogen	14	70	**84**	**17%**
LNG	8	5	**13**	**62%**
Retrofitting	5	8	**13**	**38%**
Transmission	86	10	**96**	**90%**
Underground Storage	8	4	**12**	**67%**
Other	5	29	**34**	**15%**
Grand Total	**130**	**133**	**263**	**49%**

Slightly less than 50% of projects included in the draft TYNDP 2022 are also included in the last version of NDPs. However, there are significant differences in the level of project consistency among Member States and, in particular, depending on the project type. 90% of TYNDP 2022 transmission are included in NDPs, followed by 67% of underground storages, 62% of LNG terminals, 38% of retrofitting projects, and 36% of biomethane projects. Only 17% of the TYNDP 2022 hydrogen projects are included in NDPs.