



THE GAS SECTOR IN THE CONTEXT OF THE EUROPEAN ENERGY TRANSITION

APPROACHING A JUST TRANSITION FOR
WORKERS

INTERMEDIATE REPORT

MARCH 2022

OBJECTIVE OF THE INTERMEDIATE REPORT

- # Give a broad approach of the context in which workers and their current employers will have to transition.
- # Provide a global overview of the gas nowadays and by 2030, taking into account:
 - the industrial, regulatory, environmental and technological developments.
 - the main foreseen changes in terms of consumption, production and storage.
- # Impacts on employment and skills: A preliminary work of identifying some of the foreseen issues in terms of employment, job profiles and skills.
 - Given the difficulties in gathering complete and reliable information, this report should be seen as a first basis for discussion, and it must be “feed up” by experiences and demands coming from gas stakeholders.
 - This intermediate report aims at presenting some of the already identified good practices either at national or company level so that they could be used as a first basis for discussion with gas stakeholders during the planned mid-term workshop.
- # The intermediate report came out in an uncertain time, due to the war in Ukraine. Beyond the human disaster that it entails, the shifting relationship between Russia and Europe will have an impact on the gas sector that is currently difficult to assess.

THE SHARE OF RUSSIAN PIPELINE GAS IN EU GAS IMPORTS WAS 41% IN 3Q 2021 AND THE SHARE OF GAS TRANSITING THROUGH UKRAINE TO THE EU REACHED 25% IN 2021

- ▶ The EU's dependence on energy imports has increased in recent years due to the decline in non-renewable energy production in several European countries, combined with stable energy demand.
 - Portugal and Spain use little Russian energy, while Germany relies on natural gas for more than half of its supply and oil for more than 30%. France is more independent thanks to nuclear power, but it depends on Russia for its fossil fuel needs.

- ▶ Although two pipelines have been built (Nord Stream 1 in 2012 and Nord Stream 2 in 2021) bypassing Eastern European countries, Gazprom owns 51% of NS1 and is the sole shareholder in NS2.
 - On 22/02/2022, the German government suspended the licensing process for NS2 due to the conflict between Russia and Ukraine.

- ▶ The future of gas supplies from Russia is becoming uncertain and further developments are possible:
 - interruption of deliveries for political reasons ;
 - uncertainty over energy payments as part of the sanctions imposed on Russia;
 - damage to Ukrainian pipelines.

THE EU HAS DECIDED TO STRENGTHEN AND ACCELERATE THE IMPLEMENTATION OF THE EUROPEAN GREEN DEAL INVESTMENT PROGRAM SO AS TO SUBSTITUTE FOSSIL FUEL IMPORTS FROM RUSSIA

▶ Gas storage: the regulation of the gas market is currently under review in the European Parliament* but the procedure could be sped up to minimize the impact of the possible consequences of the conflict.

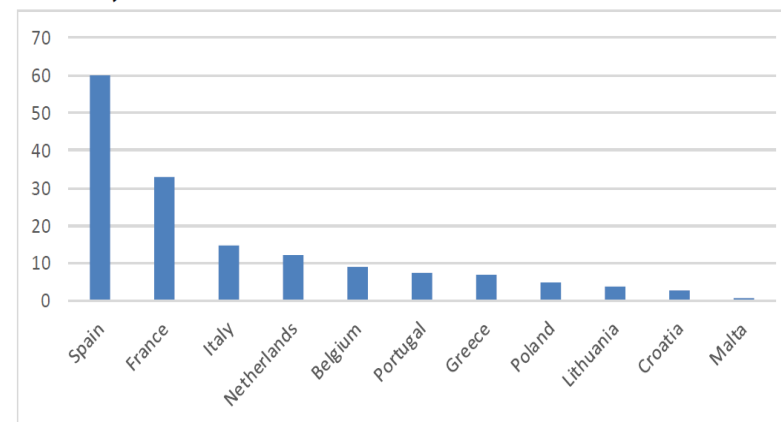
- Currently, storage tanks are about 30% full, but efforts to increase this can be expected.
 - The countries with the largest storage capacity in the EU are Germany, Italy, the Netherlands and France.

▶ **Potential use of LNG:** in the eventuality of Russian natural gas supplies being cut off, although the price is significantly higher.

- The EU-27 currently has a total annual import capacity of 156 bcm.
 - Spain and France would be the main players due to its capacity and trade links with other partners outside Russia

▶ **Development of renewable energy, promotion of energy efficiency and infrastructure development.**

EU27 annual regasification capacity of LNG large-scale import terminals (bcm(N)/year)

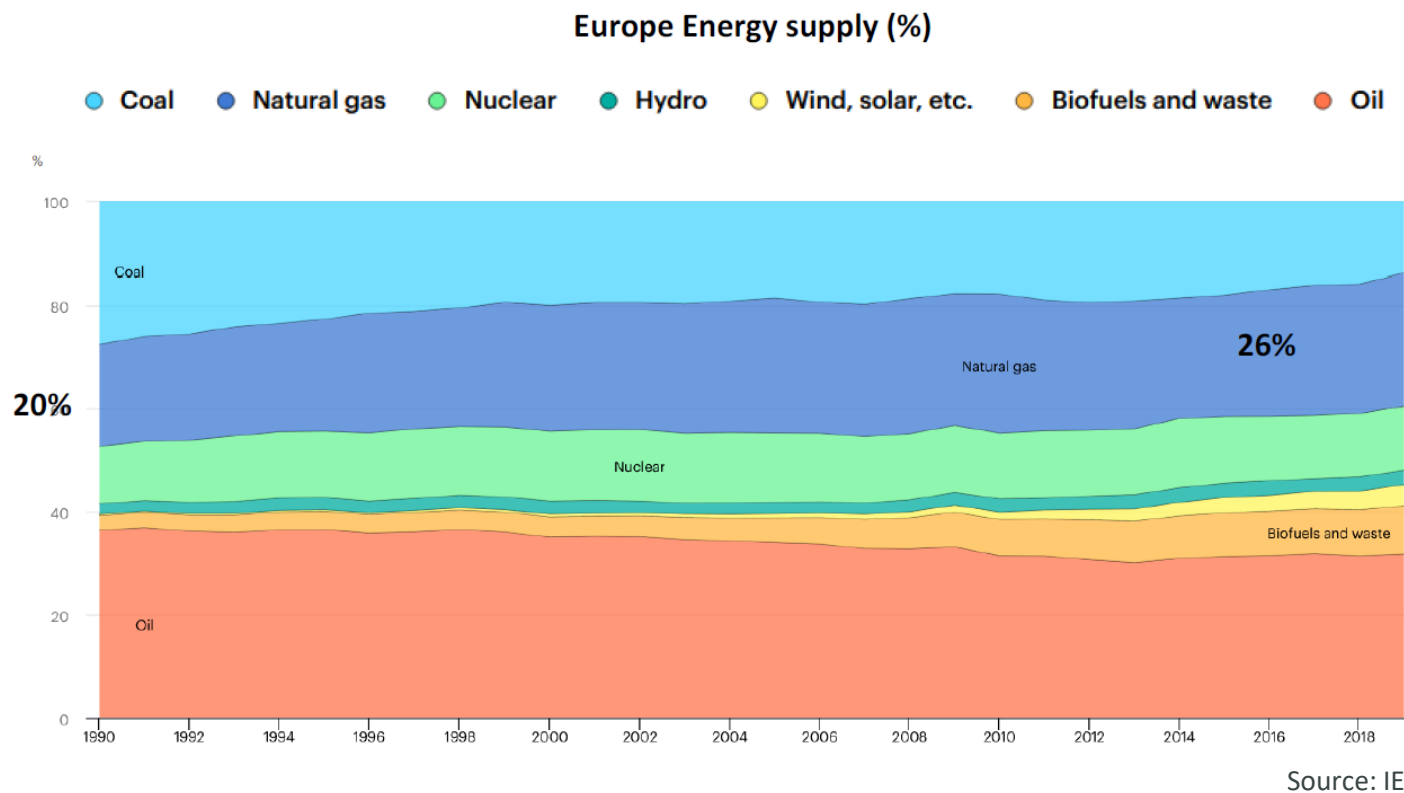


Data source: Gas Infrastructure Europe.

*European Commission (2021, December). *Proposal on common rules for the internal markets in renewable and natural gases and in hydrogen*. COM(2021) 803 final; European Commission (2021, December). *Proposal on the internal markets for renewable and natural gases and for hydrogen (recast)*. COM(2021) 804 final.

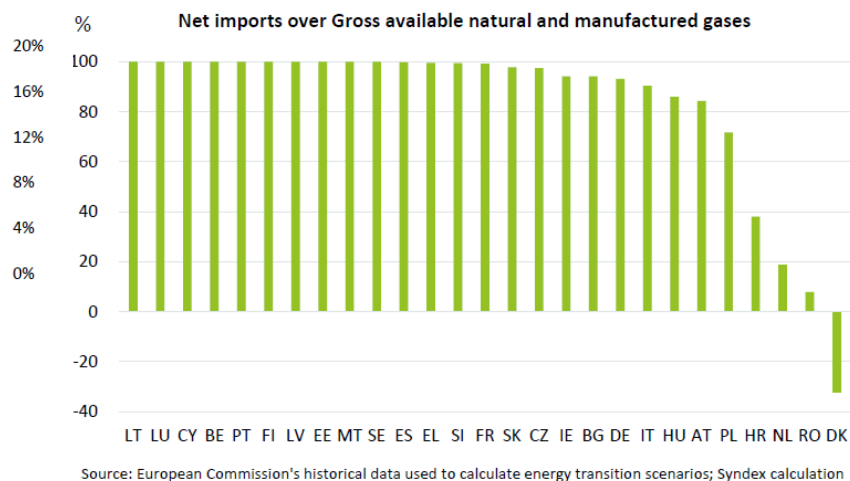
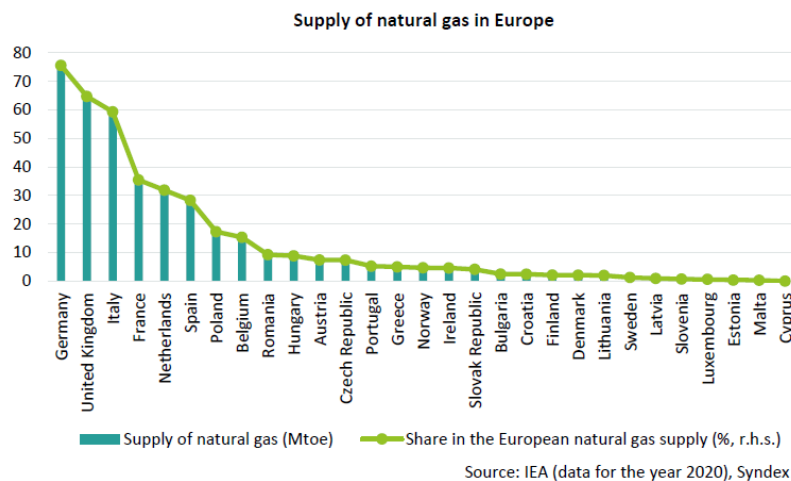
A GLOBAL OVERVIEW OF THE GAS SECTOR (I)

Europe mostly relies on fossil fuels (71%): oil (32%), natural gas (26%) and coal (14%). Biofuels and waste represents 9%. Europe relies on foreign gas producers as net imports represented 63% of its natural gas consumption in 2019



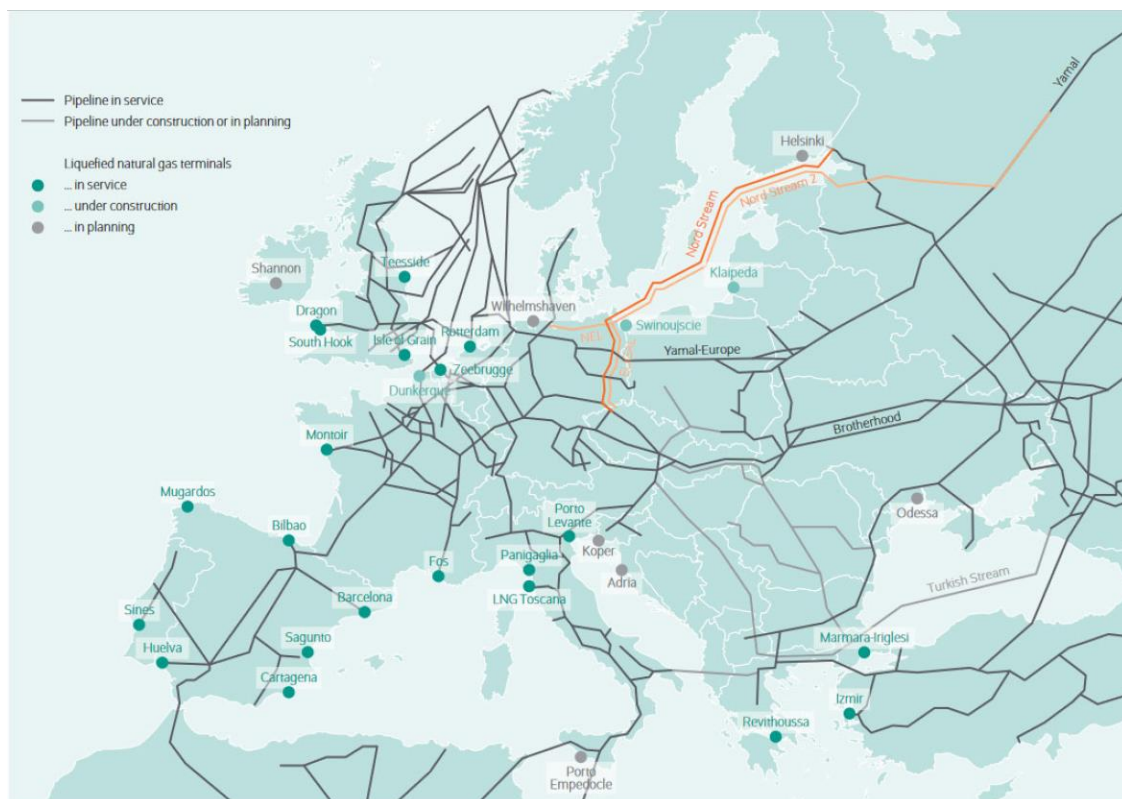
A GLOBAL OVERVIEW OF THE GAS SECTOR (II)

A few countries accounts for most of the gas supplied in Europe (Germany, UK and Italy represent half of the continent supply), but almost all of them depend on imports for their gas supplies

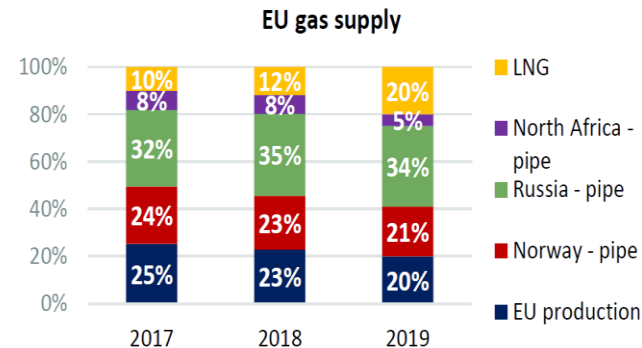


A GLOBAL OVERVIEW OF THE GAS SECTOR (III)

One of the relevant aspects in the gas sector value chain is the development of LNG as an alternative to traditional transportation systems and gas providers: from 2017 to 2019, LNG has increased from 10% to 20% of EU gas supply



Source : DIW Weekly Report 2018, ENTSOG



Source: CEDIGAZ

MAJOR PLAYERS PER COUNTRY IN THE VALUE CHAIN

- ▶ Focusing our analysis on Extraction & Production, Transmission, Storage, Distribution and Trading.
- ▶ Among the major European gas supplying countries: Germany, United Kingdom, Italy, France, the Netherlands, Spain, Poland, Belgium, Romania and Norway.
- ▶ Identifying major TSO in Europe
- ▶ Identification process more or less challenging depending on: data availability, markets' competitiveness, involvement of companies in diverse economic activities (e.g. Oil & gas) and companies' structure (whether a company is a subsidiary or not).

IDENTIFICATION OF MAJOR EUROPEAN TSO



EUROPEAN LEGISLATION AND INITIATIVES ON THE DECARBONISATION OF THE GAS SECTOR (1)

- ▶ **EU Strategy to reduce methane emissions (2020)** which sets out measures to reduce methane emissions in Europe.
 - Obligation to improve the detection and repair of methane leaks in gas infrastructure.
 - Specific attention is given to biogas production as effectively contributes to reducing methane emissions from anaerobic decomposition processes

- ▶ **Proposal for an amending Directive as regards the promotion of energy from renewable sources (2021)**, with the aim of achieving an increase in the use of energy from renewable sources by 2030.
 - Establishes accounting rules for greenhouse gas emissions affecting biogas.
 - Encourages the use of biogas and other renewable gases in sectors such as transport and heating and cooling

- ▶ **Legislative proposals to decarbonise the EU gas market (regulation + directive)** which aims at:
 - Establish the necessary conditions to facilitate the rapid and sustained uptake of renewable and low-carbon gases.
 - Improve market conditions and increase the participation of gas consumers.
 - Better address security of supply concerns.
 - Addressing price and supply concerns within the EU.
 - Recalibrate the structure and composition of regulatory bodies.

EUROPEAN LEGISLATION AND INITIATIVES ON THE DECARBONISATION OF THE GAS SECTOR (2)

- ▶ **Proposal for a regulation on methane emissions reduction in the energy sector (2021).**
- ▶ **Global Methane Pledge** issued during the COP 26 in Glasgow.

INITIATIVES TO TACKLE DEPENDANCY TO RUSSIAN GAS

- ▶ **The European Commission (EC) presented on 8 March the "REpowerEU" plan**, which aims to reduce Russian gas imports by two-thirds within a year; a final version of the plan is expected at the end of May. This proposal is more ambitious than the one proposed on 3 March by the International Energy Agency

IEA 10-point plan			European Commission "REpowerEU"				
10 measures presented in 4 main areas		Drop in Russian imports by one year (in mmc)	Set of measures presented in 2 main areas		Drop in Russian imports by one year (in mmc)		
Gas supply	1- No new contracts with Russia		Gas supply	Increasing the supply of non-Russian gas			
	2 - Replace Russian gas supply with alternative energy sources	-30 of which -20 thanks to LNG		Increasing the share of renewable gas via biomethane	-60 of which 50 by LNG-3 .5		
	3 - Introduce minimum gas storage obligations to improve market resilience			Increasing stocks for the next winter	-		
Electrical sector	4 - Accelerate the deployment of new wind and solar projects	-6	Electrification of Europe	Accelerate wind and solar deployment, (increase deployment rate by 20%)	-20		
	5 - Maximising production from low-emission energy sources: bioenergy and nuclear	-13		Increase rooftop solar panels	-2,5		
	6 - Adopt short-term measures to protect vulnerable electricity consumers from high prices	-		Adopt emergency measures on prices	-		
End user	7 - Accelerate the replacement of gas boilers with heat pumps	-2	Electrification of Europe	Double the rate of deployment of heat pumps	-1,5		
	8 - Accelerate energy efficiency improvements in buildings and industry	-2		Encourage temporary thermostat adjustment by consumers	-14		
	9 - Encourage temporary thermostat adjustment by consumers	-10					
Transversal	10 - Intensify efforts to diversify and decarbonise the sources of flexibility of the electricity system						
Effect within one year	Total decrease of "one third" indicated by the IEA		63	Effect within one year	Total decrease of 'two thirds' indicated by the commission		-101,5
Long-term effect	Independence from Russian gas by 2030			Long-term effect	Independence from Russian gas "well before 2030"		

DEVELOPMENTS IN THE GAS SECTOR TOWARDS ITS DECARBONISATION



In the long-term scenario of zero net emissions by 2050, gas generation continues to grow in the short term as a substitute for coal, but is expected to start falling in 2030.

After 2030, other resources, like hydrogen, are expected to be developed.

By 2050, the share of unabated natural gas is estimated to fall to 0,4%, some replaced by its decarbonised options (biogas, biomethane, blue hydrogen and green hydrogen, natural gas with CCUS and synthetic fuels).



Pathways for decarbonisation currently being explored and developed in the gas sector:

Renewable gas like biogas and biomethane. Its relevance is highlighted by some players from the industry. The development of those gas will be linked with the development of circular economy.

Hydrogen, blue (with CCUS) and green. Economic model are still challenge to make it viable.

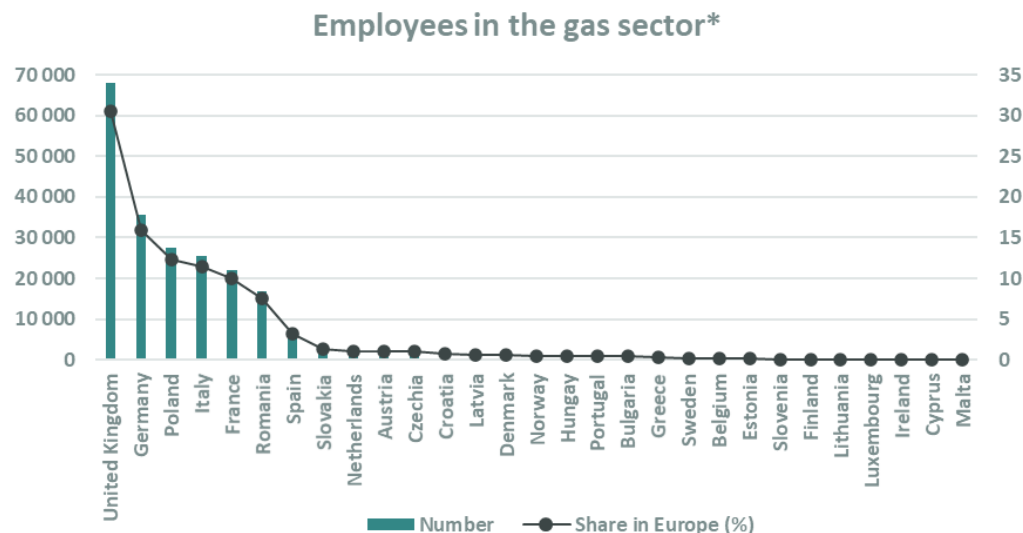
CCUS technology.



Questions arise around the future of the gas grid.

EMPLOYMENT IN EUROPE

- ▶ Difficulty to have a correct estimation of total employment in the gas sector from public data.
- ▶ Eurostat estimates employment in the gas sector for four type of activity:
 - “extraction of natural gas”,
 - “manufacture of gas”,
 - “distribution of gaseous fuels through mains”
 - and “trade of gas through mains”.

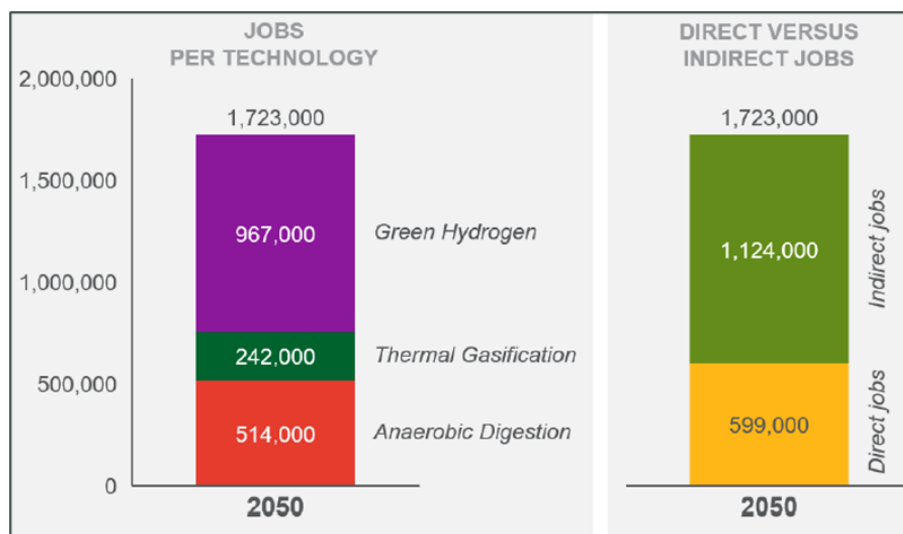


Source: Eurostat, Syndex calculation

- ▶ The Figure of 220 000 employees in the gas sector in the EU should be taken cautiously
 - For instance, some data are not available for some Countries in specific segment (NL).
 - Data gather by Eurogas should give more specific figures.

IMPACT ON EMPLOYMENT AND SKILLS: A FIRST OVERVIEW

- ▶ Quantitative estimates are always uncertain, with different sources giving different impacts:
 - The IEA estimates that 5 millions jobs will be lost in fossil fuel worldwide, but 14 millions would be created in the energy sector by 2030.
 - Irena & ILO report explain that almost 7 million jobs will be lost in the energy transition, but 25 millions created. The development of hydrogen, despite the great importance being given, will represent a small part of the total number of jobs in the renewable energy sector (1 to 2 millions between 2030 and 2050)
 - Gas for climate gives a more optimistic forecast, providing the technological choices set in their reports are developed (bio methane & green hydrogen):



CHALLENGES OF THE GAS SECTOR (1)

- ▶ Decline in the share of natural gas in the European mix (carbon neutrality by 2050, security of supply...): a need for the sector to find pathway o adapt to this new challenges, which comes with new challenges:
 - Biomethane: Question arising on the future needs, the competitiveness of its production, potential land conflict and solidity of the network.
 - Hydrogen: economic model of green hydrogen is still at stakes. Moreover, actual network can only carry 10% of blended hydrogen, raising the questions of financing new infrastructure.

Natural gas forecasts		Historical		Stated Policies	Announced Pledges	Sustainable Development**
		2010	2020	2030	2030	2030
Production (bcm)	Europe	341	241	200	179	172
	<i>Variation compared to 2020 (%)</i>	41		-17	-26	-29
	European Union (EU)	148	55	41	32	32
	<i>Variation compared to 2020 (%)</i>	169		-25	-42	-42
	Non-EU members*	193	186	159	147	140
	<i>Variation compared to 2020 (%)</i>	4		-15	-21	-25
Demand (bcm)	Europe	696	596	587	504	483
	<i>Variation compared to 2020 (%)</i>	17		-1	-15	-19
	European Union	446	401	392	315	314
	<i>Variation compared to 2020 (%)</i>	11		-2	-21	-22
	Non-EU members	250	195	195	189	170
	<i>Variation compared to 2020 (%)</i>	28		0	-3	-13
Generation (TWh)	Europe	947	846	802	742	734
	<i>Variation compared to 2020 (%)</i>	12		-5	-12	-13
	European Union	590	556	535	459	459
	<i>Variation compared to 2020 (%)</i>	6		-4	-17	-17
	Non-EU members	357	291	268	283	275
	<i>Variation compared to 2020 (%)</i>	23		-8	-2	-5

Source: IEA's 2021 Energy Outlook
 *IEA does not provide specific estimates for the United Kingdom and Norway, which are part of the Non-EU members
 **IEA's does not provide Europe forecasts regarding the NZE scenario.

CHALLENGES OF THE GAS SECTOR (2)

- ▶ The future of the gas industry, considering its know-how regarding infrastructure, may also involve other and more distant alternatives:
 - **Setting up hydrogen networks in extenso**, with materials allowing 100% H₂.
 - and/or the creation of infrastructure for **large-scale carbon capture and storage (CCUS)**.
 - However, concerns over the safe transport and storage of captured carbon could make CCUS options less attractive.
- ▶ The key question of financing arises:
 - **Who will finance** new gas transport infrastructures, in a context where geopolitics also plays a major role? (ex: NordStream2).
 - Maintaining gas transport networks generates very high fixed costs. How far will this cost be sustainable in a context of a sharp decline in the share of gas in the mix and therefore in a context of a small number of consumers?
- ▶ It could push major players to change their strategy, moving up the value chain for examples (ex: producing “green” electricity that can be converted in hydrogen).
- ▶ Clear Impact of the war in Ukraine still unknown (north stream 2, development of LNG (Germany just announced 1,5 Bn to purchase LNG)...))

SKILLS AND EMPLOYMENT

- ▶ Uncertainties surrounding the future of the gas sector affect the assessment of the impact of decarbonisation on the number of workers needed to match the new technologies and the foreseen evolutions.

- ▶ Some trends identified, that will be explored in the second phase of the study:
 - The transition will require a major and sustained reallocation of labour across sectors, occupations and regions as well as significant investment in re- and up-skilling, retention of existing workers and attracting new workers.

 - Skills development will be a particularly important challenge as new capacities will be necessary.

 - High demand is forecast for engineers, specialists and business professionals who have emerging technology expertise.

 - New job opportunities can be expected in design, innovation and product development, disassembling, remanufacturing, repair, administrative handling of new service contracts, resource scouting and information management.

AN EXEMPLE OF METHODOLOGY TO BE IMPLEMENTED TO MITIGATE THE POTENTIAL NEGATIVE IMPACTS OF THE DECARBONISATION TRANSITION

- ▶ A collective work involving all the potential stakeholders
- ▶ A comprehensive methodology:
 - ▶ Identification of the actual jobs and of the actual skills
 - ▶ Identification of tomorrow's jobs and the related required skills
 - ▶ Building career paths between today's and tomorrow's jobs
 - ▶ Identifying pathways that will lead to defining the needs for successful transition/mobility/up-skilling/re-skilling
 - **Vocational training: the main lever for transition.**
 - **The role of public authorities : public aid for upskilling/re-skilling and geographical mobility**
 - **Securing career paths: key to a successful transition**
 - **Regular monitoring and follow-up of upskilling/re-skilling programs to ensure their success and to develop efficient mechanisms**

