

IOGP assessment of draft **National Energy and Climate Plans**



As EU Member States develop **National Energy and Climate Plans (NECPs)**, IOGP examined their drafts to assess the attitudes of Member States towards solutions provided by the oil and gas industry.

The draft NECPs were submitted by Member States at the end of 2018. The drafts are currently being revised, and final NECPs are due to be submitted to the European Commission by the end of 2019.

What do the draft NECPs tell us?

- The draft NECPs should set out the direction of national objectives and policies to align with the objectives of the Energy Union – in particular the 2030 targets.
- The draft NECPs should cover the period 2021-2030, including a perspective until 2050 to ensure consistency with long-term objectives.
- The draft NECPs do not always give a full picture of future energy mixes, nor do they reflect the full range of national policies planned or in place.

IOGP assessed attitudes in draft NECPs towards:

1. Oil and gas domestic exploration and production (E&P)

2. The use of natural gas

3. The use of oil

4. Carbon capture and storage (CCS)

5. Hydrogen

¹ All draft NECPs available from:
<https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans>

1. Oil and gas domestic exploration and production (E&P)

Exploration & Production (E&P)



14 draft NECPs are positive towards domestic E&P.

One draft NECP is negative towards domestic E&P.

	Attitude towards domestic E&P in draft NECP
AT	
BE	
BG	POSITIVE
CR	POSITIVE
CY	POSITIVE
CZ	
DE	
DK	POSITIVE
EE	POSITIVE
ES	
FI	
FR	NEGATIVE
GR	POSITIVE
HU	POSITIVE
IE	POSITIVE
IT	
LI	
LT	
LU	
MT	POSITIVE
NL	POSITIVE
PL	POSITIVE
PT	
RO	POSITIVE
SE	
SK	POSITIVE
SL	
UK	POSITIVE

Positive aspects of E&P reflected in draft NECPs

- Delivers on Member States' **self-sufficiency, energy security** and **supply diversification** objectives
- Facilitates a **shift away from more polluting fuels**
- Makes **positive contributions to the economy**

Negative aspects of E&P reflected in draft NECPs

- One Member State refers to **a ban on domestic E&P** in its draft NECP (France)



IOGP FACTBOX: Exploration & Production²

Europe consumes about 15% of the world's natural gas production, and produces around 45% of its own demand. Despite a slight rise in European production, imports reached a record high in 2017 as a consequence of **a rise in demand driven by industrial use, and higher demand in power generation** where gas replaces coal in parallel with the rise of renewable energies in response to climate change concerns.

Looking at ten-year averages in demand, Europe's appetite for natural gas has risen constantly, rising from 290 billion cubic metres in the decade from 1978 to 1987 to an average of 520 billion cubic metres in the period from 2008-2017. To maintain a large share of domestic production and to offset natural production decline, **there is a need for keeping up strategic investment in natural gas E&P.**

The environmental footprint of European oil & gas production is lower than the global average. Bans on exploration & production in Europe while oil & gas demand remains high will lead to additional imports and be counter-productive from an environmental perspective.

With only 4% of the world's oil production but 15% of demand, Europe has long imported most of the oil it needs to maintain the region's prosperity and well-being. **For the last five years, Europe has produced around 23-25% of its own oil**, requiring the import of three quarters of its oil needs.

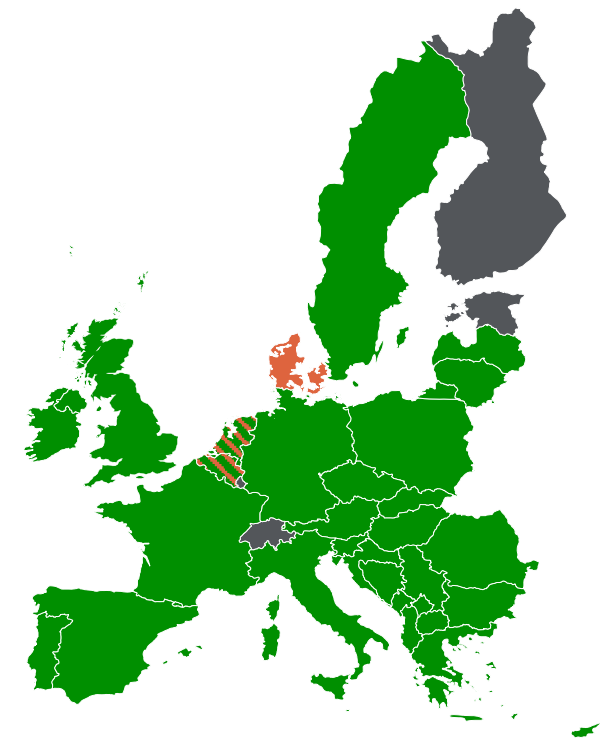
According to Wood Mackenzie, **Europe holds 32 billion barrels of recoverable oil in reserve.** This could sustain current production levels for another 12-25 years. Continuing development, however, would rely on **the industry's continuous improvement of the energy efficiency of its operations**, as well as **a responsive fiscal framework and strong cooperation between regulators and industry.**

While most Member States with domestic E&P activities see it as an enabler to reach their Energy Union objectives, a number of them have partial E&P bans or restrictions which are not reflected in their draft NECP.

² Information from IOGP (2018). *Global Production Report 2018*.
Available from: <https://www.iogp.org/bookstore/product/global-production-report-2018/>

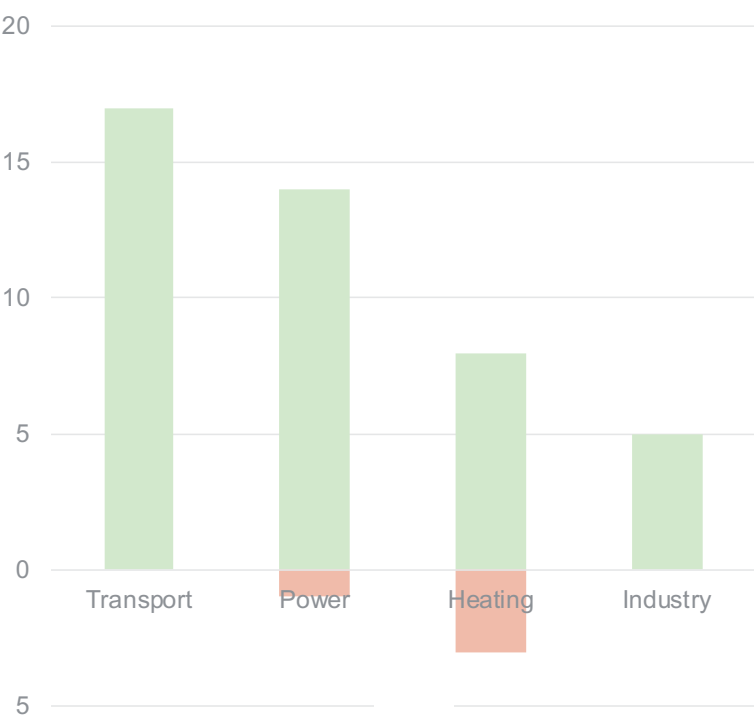
2. The use of natural gas

The use of natural gas



- 23 draft NECPs are positive towards natural gas approaching 2030 in one or several sectors.
- Three draft NECPs are negative towards natural gas approaching 2030 in one or several sectors.

Number of draft NECPs **positive** and **negative** towards the use of natural gas approaching 2030, in four sectors



Positive aspects of natural gas reflected in draft NECPs	Negative aspects of natural gas reflected in draft NECPs
- Provides a viable alternative fuel for transport, reduces emissions from maritime and heavy and long-haul road transport - Facilitates a shift away from coal in power generation - Delivers flexible capacity to complement a growing share of renewables - Provides reliable supply of heat through the seasons - Reduces air pollution from heating, used either directly or in highly efficient co-generation - A secure source of energy for intensive industrial processes - A raw material for key industries	- Plans to reduce emissions from heating include building new homes without connection to the gas grid, and basing district heating on energy sources other than coal, oil, or gas - Plans to achieve a move to a 100% renewables share in electricity includes phasing out natural gas

Attitude towards natural gas approaching 2030 in draft NECP in four sectors				
	Transport	Power	Heating	Industry
AT				
BE	POSITIVE	POSITIVE	NEGATIVE	
BG		POSITIVE	POSITIVE	POSITIVE
CR	POSITIVE	POSITIVE		
CY	POSITIVE	POSITIVE	POSITIVE	POSITIVE
CZ	POSITIVE		POSITIVE	
DE	POSITIVE	POSITIVE		
DK		NEGATIVE	NEGATIVE	
EE				
ES	POSITIVE	POSITIVE		
FI				
FR	POSITIVE			
GR	POSITIVE	POSITIVE	POSITIVE	POSITIVE
HU		POSITIVE		
IE	POSITIVE	POSITIVE	POSITIVE	POSITIVE
IT	POSITIVE	POSITIVE		
LI	POSITIVE	POSITIVE		POSITIVE
LT	POSITIVE			
LU				
MT	POSITIVE	POSITIVE		
NL		POSITIVE	NEGATIVE	
PL	POSITIVE	POSITIVE		
PT			POSITIVE	
RO			POSITIVE	
SE	POSITIVE			
SK			POSITIVE	
SL	POSITIVE			
UK	POSITIVE			



IOGP FACTBOX: The use of natural gas

Natural gas emits around **50% less CO₂** than coal when combusted for power generation, and using natural gas instead of coal can **improve air quality** due to lower NO_x emissions, no SO_x emissions and virtually no particulate matter. Between 2010 and 2018, coal-to-gas switching has **saved around a cumulative 500 million tonnes of CO₂ globally** – an effect equivalent to putting an extra 200 million EVs running on zero-carbon electricity on the road over the same period³. In Europe, **a switch from coal to gas** can provide cleaner heating, and make the energy system more efficient⁴.

With **compressed natural gas (CNG)** and **liquefied natural gas (LNG)**, a complete range of transport applications can be supported, from small passenger cars to long-haulage trucks, from small pleasure craft to larger cargo ships. **Technology maturity, availability, and competitive fuel costs** are key factors to boost the role of natural gas⁵.

Today, **natural gas feeds a vehicle fleet smaller than 1% of all European vehicles**. However, over the last five years, the number of CNG stations grew from 2,600 to more than 3,600 units, while the number of LNG stations has increased by a factor of 6, to reach more than 200 stations today⁶.

In the longer term, as Europe's electric and gas networks are coupled, increasing volumes of decarbonized gas will be injected into the European gas grid, reducing the risk of stranded assets.

³ IEA (2019). *The Role of Gas in Today's Energy Transitions*. Available from: <https://www.iea.org/publications/roleofgas/>

⁴ IOGP (2018). *Moving together, into tomorrow: Vision & policy recommendations from the upstream oil & gas industry in Europe*. Available from: <https://www.iogp.org/wp-content/uploads/2018/07/IOGP-Manifesto.pdf>

⁵ NGVA (2018). *G-mobility: Driving Circular Economy in Transport*. Available from: https://www.ngva.eu/wp-content/uploads/2019/07/circular-economy-leaflet_190718.pdf

⁶ NGVA (2019). *Gas in transport manifesto: Policy recommendations*. Available from: https://www.ngva.eu/wp-content/uploads/2019/07/NGVA-Europe_gas-in-transport-manifesto_July2019.pdf

3. The use of oil

The use of oil



- Eight draft NECPs are positive towards oil approaching 2030 in one or several sectors.
- Four draft NECPs are negative towards oil approaching 2030 in one or several sectors.

Number of draft NECPs positive and negative towards the use of oil approaching 2030, in four sectors



Positive aspects of oil reflected in draft NECPs	Negative aspects of oil reflected in draft NECPs
- Oil will be needed to fuel a fast-growing ground freight transport sector - Environmental impacts from using oil in transport can be reduced by using efficient combustion engines - Oil can deliver a considerable amount of heating to key sectors through fuel-efficient oil boilers and district heating system - A large and efficient refining capacity contributes to meeting domestic demand, guaranteeing the reliability, sustainability and security of necessary supplies - Oil products can be produced with higher added value while minimising emissions and avoiding increases in other negative environmental impacts	- Plans to reduce emissions from heating include meeting the heating demands of newly constructed buildings as far as possible without using fossil fuels, or achieving a phase-out of oil-fired boilers in the longer term - Plans to reduce emissions from transport include achieving a phase-out of sales of petrol and diesel cars, and ending CO₂ emissions and air pollution from buses

Attitude towards oil approaching 2030 in draft NECP, in four sectors				
	Transport	Power	Heating	Industry
AT			NEGATIVE	
BE	POSITIVE		NEGATIVE	
BG				
CR				
CY			POSITIVE	
CZ				POSITIVE
DE				
DK	NEGATIVE		NEGATIVE	
EE	POSITIVE	POSITIVE	POSITIVE	POSITIVE
ES				
FI			NEGATIVE	
FR	POSITIVE			
GR				
HU				
IE				POSITIVE
IT	POSITIVE			POSITIVE
LI				
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MT				
NL	POSITIVE			POSITIVE
PL				POSITIVE
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UK				



IOGP FACTBOX: The use of oil⁷

The refining of crude oil leads to a vast array of products that fulfil the needs of both citizens and businesses. About 65% of the crude oil processed in EU refineries is transformed into **transport fuels**, about 10% goes to **petrochemical feedstocks**, and about 25% is employed for **other products**.

The evolution of oil demand will depend on a variety of factors. These include the speed at which **disruptive technologies, replacement products, and new business models** emerge in transport and other sectors.

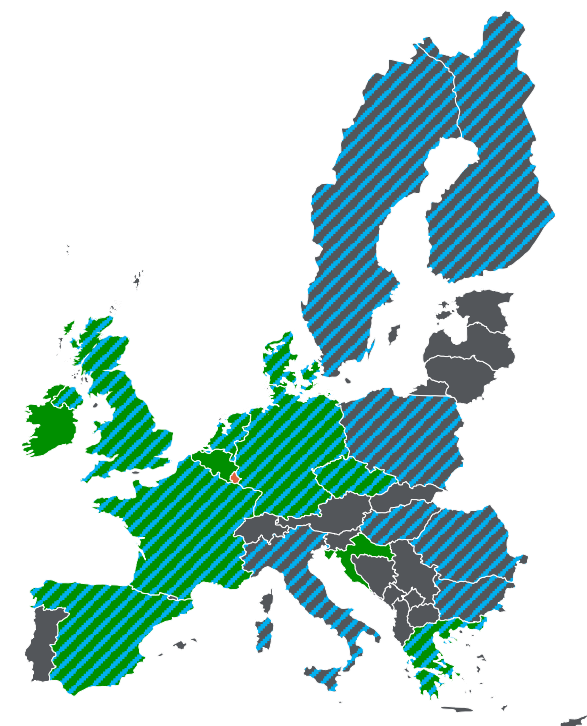
Demand for oil products will also feel an impact from **policy measures** aimed at addressing **climate change** and risks linked to the emissions of **air pollutants**. For example, **fuel economy standards for cars and trucks** introduced in the EU will play a major role in the short-term in reducing or containing the growth of demand for liquid fuels.

In Europe, the IEA WEO 2017 assumes that EU oil demand will decrease from 13 million barrels per day in 2016 to between 5.7 and 8.7 million barrels per day by 2040. The **largest reduction will be in transport**, where there will be **smaller decreases for hydrocarbon feedstocks** (for petrochemicals, solvents, lubricants, waxes and bitumen).

⁷ Information from FuelsEurope (2018). *Vision 2050 – A pathway for the evolution of the refining industry and liquid fuels*. Available from: https://www.fuelseurope.eu/wp-content/uploads/DEF_2018_V2050_Narratives_EN_digital.pdf

4. Carbon capture and storage (CCS)

Carbon Capture and Storage



- Eleven draft NECPs are positive towards CCS.
- One draft NECP is negative towards CCS.
- 13 Member States participate in European research initiatives aimed at accelerating CCS technology*

*including under the SET-Plan, ERA-NET CoFund ACT and EEA-grants 2014-2021

	Attitude towards CCS in draft NECP	Member State is part of European CCS Research initiatives
AT		
BE	POSITIVE	
BG		YES
CR	POSITIVE	
CY		
CZ	POSITIVE	YES
DE	POSITIVE	
DK	POSITIVE	YES
EE		
ES	POSITIVE	YES
FI		YES
FR	POSITIVE	
GR	POSITIVE	YES
HU		YES
IE	POSITIVE	
IT		YES
LI		
LT		
LU	NEGATIVE	
MT		
NL	POSITIVE	YES
PL		YES
PT		
RO		YES
SE		YES
SK		
SL		
UK	POSITIVE	YES

Positive aspects of CCS reflected in draft NECPs

- Can deliver emission reductions in **industrial processes** where CO₂ emissions are difficult or even impossible to avoid
- Large-scale, low-cost clean hydrogen** can be produced from natural gas with CCS, and used as an energy source for transport and heating
- In combination with bioenergy, CCS enables the **removal of CO₂ from the atmosphere**

Negative aspects of CCS reflected in draft NECPs

- One Member State (Luxembourg) plans to continue advocating for a policy of not promoting the capture and storage of CO₂



IOGP FACTBOX: Carbon capture and storage

Pathways in the **IPCC Special Report on Global Warming of 1.5°C**, the **IEA's World Energy Outlook** and the European Commission's **2050 long-term strategy** all show that utilising CCS is essential to meet the 1.5°C target.

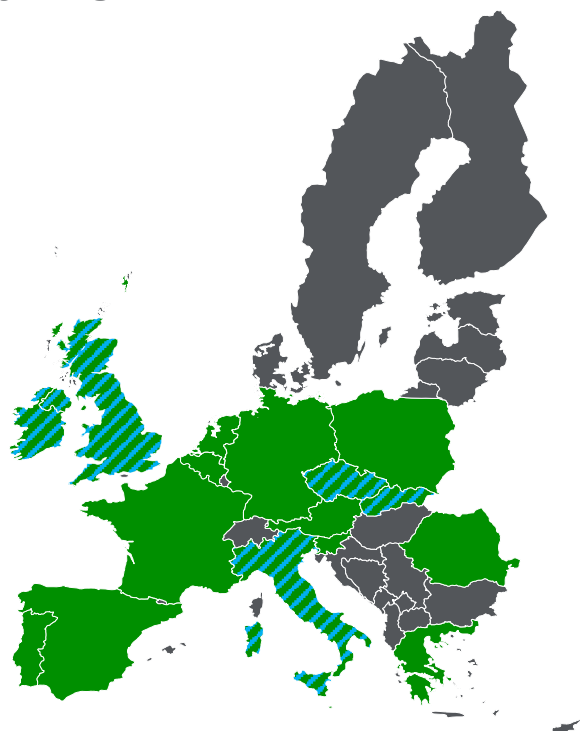
Today, there are two large-scale CCS facilities operating in Europe, capturing a total of 1.55 million tonnes of CO₂ per year for storage. **To be on track for 1.5°C, one CCS facility capturing 1.5 million tonnes CO₂ per year would have to be added every week from now and until 2050.**

As many as **15 large-scale CCS projects are planned or under construction in Europe**, many of which are reflected in Member States' draft NECPs. Further, 12 Member States are participating in **research initiatives aimed at accelerating CCS technology in Europe**, including under the SET-Plan, ERA-NET CoFund and EEA-grants 2014-2021. However, this research activity, despite being central to bringing costs down, is not always well-reflected in draft NECPs⁸.

⁸ IOGP (2019). *Scaling up CCS in Europe: An overview of CCS in Europe and where it can make a difference*. Available from: <https://www.iogp.org/bookstore/product/scaling-up-ccs-in-europe/>

5. Hydrogen

Hydrogen



17 draft NECPs are positive towards hydrogen.

Five draft NECPs are positive towards clean hydrogen from natural gas.

	Attitude towards hydrogen in draft NECP	Attitude towards clean hydrogen from natural gas in draft NECP
AT	POSITIVE	
BE	POSITIVE	
BG		
CR		
CY		
CZ	POSITIVE	POSITIVE
DE	POSITIVE	
DK		
EE		
ES	POSITIVE	
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GR	POSITIVE	
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PL	POSITIVE	
PT	POSITIVE	
RO	POSITIVE	
SE		
SK	POSITIVE	POSITIVE
SL	POSITIVE	
UK	POSITIVE	POSITIVE

Positive aspects of hydrogen reflected in draft NECPs

- Provides a **system solution**: clean energy for mobility, energy production, transport and storage and raw materials
- **Stabilises the energy system** by integrating an ever greater quantity of intermittent renewables thanks to its capacity for energy storage and transfer
- Reducing emissions and reusing existing infrastructure through **hydrogen blending in the natural gas grid**
- **Powering public transport** in the city centres and decarbonising **rail and maritime transport**

Negative aspects of hydrogen reflected in draft NECPs

None



IOGP FACTBOX: Hydrogen

Hydrogen can be extracted from fossil fuels and biomass, or from water, or from a mix of both. **Natural gas is currently the prime source of hydrogen production**, accounting for around three-quarters of the annual global dedicated hydrogen production, or 6% of global natural gas use.

The dependence on natural gas means that **hydrogen production today generates CO₂**, most of which is emitted to the atmosphere. However, CCS and CCU can be applied to hydrogen production from natural gas, which can lead to **a reduction in CO₂ emissions of up to 90%**. Several CCS and CCU natural-gas-to-hydrogen plants are operational today, producing around **0.4 million tonnes of hydrogen per year** – about equivalent to the amount of hydrogen currently produced with renewable electricity⁹.

Hydrogen plays a negligible role in the power sector today, accounting for less than 0.2% of electricity generation. However, there is potential for this to change in the future. For example, hydrogen in the form of compressed gas, ammonia or synthetic methane could become **a long-term storage option** to balance seasonal variations in electricity demand or intermittent generation from renewables¹⁰.

Around 20% of greenhouse gas emission cuts needed to reach climate neutrality by 2050 could be delivered by a fuel-switch to hydrogen in Europe's power, residential, transport and industry sectors, provided the hydrogen is produced with a low carbon footprint. Hydrogen from different low-carbon sources, including renewable electricity and natural gas with CCS and CCU, can support **the development of a large-scale market**¹¹.

⁹ IEA (2019). *The Future of Hydrogen: Seizing today's opportunities*. Available from: <https://webstore.iea.org/the-future-of-hydrogen>

¹⁰ Ibid.

¹¹ SINTEF & IFPEN (2019). *Hydrogen for Europe: Final report of the pre-study*. Available from: https://www.sintef.no/globalassets/sintef-energi/hydrogen-for-europe/hydrogen-for-europe-pre-study-report-version-4_med-omslag-2019-08-23.pdf

The International Association of Oil & Gas Producers (IOGP) currently has around 80 members globally, of which around 30 members are in Europe. IOGP represents most of the world's leading publicly traded, private and state-owned oil and gas companies, industry associations and major upstream service companies. Our Members produce 40% of the world's oil and gas, and 90% of Europe's indigenous supplies.

IOGP's mission is to provide a forum for sharing experiences, debating emerging issues and establishing common ground to promote cooperation, consistency and effectiveness in every aspect of health, safety, the environment, security, social responsibility, engineering, efficiency and operations.

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