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Europe's Energy Quadrilemma

Energy Security in a New Era

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econ management

OFFSHORE NORGE

Foreword

Since the fall of the Berlin Wall in 1989, Western, and especially European, politics has taken an approach that can partly be understood through the ideology of Francis Fukuyama's book 'The End of History'. The belief that free trade and openness would lead to an increasingly liberal, democratic and peaceful world order laid the foundation for international trade and technology exchange. 'Wandel durch Handel' (change through trade) was a central part of European policy.

Increased global trade has driven global growth and has been particularly positive for many previously poorer countries. Several have experienced marked economic growth, while many have also become more democratic, safer and enjoyed improved living standards.

At the same time, this has meant that large parts of the West have transitioned from industrial economies to service economies. Europe's own production of energy and raw materials such as oil, gas, steel and minerals has declined drastically, and reliance on imports has increased significantly. In recent decades, this has largely been imports of energy from Russia and raw materials from Asia, primarily China.

With mutual trust, such a system is win-win for all parties. However, the last ten years have shown that such a system is vulnerable in turbulent times – something that became particularly evident when Russia attempted to pressure Europe through energy supplies.

In this report, we examine the new global situation, with a focus on energy and energy supply. We show that the traditional energy trilemma does not provide an adequate overview of the challenges facing Europe's energy system, and introduce a fourth element: security policy.

Furthermore, we examine Europe's potential energy and mineral suppliers and show how these countries rank according to internationally recognised indices for democracy, freedom and human rights. We then place this in the context of Europe's energy security in the new global situation. We show that from a long-term strategic perspective, Europe's already challenging energy trilemma is best understood as an energy quadrilemma.

To simplify verification and data collection, this report focuses solely on the EU. Furthermore, for readability, 'EU' and 'Europe' are used interchangeably to refer to the EU-27.
The report's findings are, however, relevant for Europe as a whole, including the United Kingdom, even though the UK may, to a somewhat greater extent than the rest of the EU, be able to maintain its own petroleum production.

The report has been prepared jointly by Offshore Norge and Econ Management.

Table of Contents

Executive Summary

Over the past decade, we have witnessed a major upheaval in world trade and international relations. Several trends point towards a more confrontational and less trusting world, where global trade has become part of a larger strategic game and realpolitik is once again making itself felt.

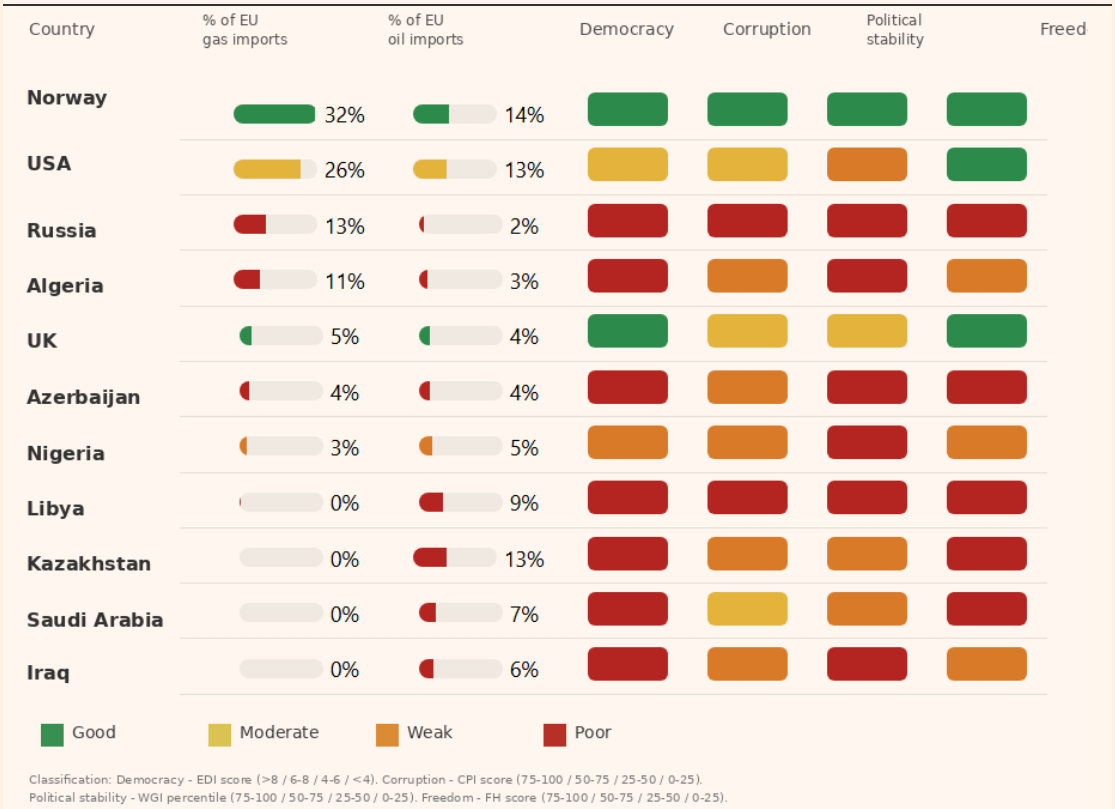
This has had a number of unfortunate effects. Europe, which is heavily dependent on energy imports, has been particularly hard hit. Both because of its dependence on imports and for climate reasons, Europe aims to reduce the use of fossil energy sources as much as possible.

The EU's own scenarios show that even with a marked decline in the use of fossil energy over the next 15 years, there will still be significant European demand for oil and gas in 2040. Since the EU lacks real production potential, this means that the need for oil and gas imports will persist.

With a global situation that is significantly more unpredictable and conflict-ridden than it has been since the Cold War, the EU therefore faces a significant challenge: How to secure supplies of energy and raw materials, while reducing the risk of energy coercion and simultaneously stopping the financing – through the purchase of energy or goods – of hostile states.

To illustrate this issue, we show the EU's supplier countries for oil and gas ranked according to internationally recognised rankings. We focus on rankings in democracy, corruption, political stability and freedom. We have consistently divided the international rankings into four categories, where the best category receives a green colour code, the second best yellow, the second worst orange, and the worst red. See the methodology chapter for more on these rankings. In Table 1, we show the EU's largest importers of oil and gas in 2025, and how these countries score on the aforementioned rankings.

Table 1: Categorisation of the EU's largest oil and gas suppliers according to four governance indices. Colour coding from best to worst: green-yellow-orange-red.



Sources: The Economist Democracy Index, Transparency International Perceived Corruption Index, World Bank Political Stability Index, Freedom House Freedom Index, Eurostat and Bruegel. Compiled by Econ Management 2026.

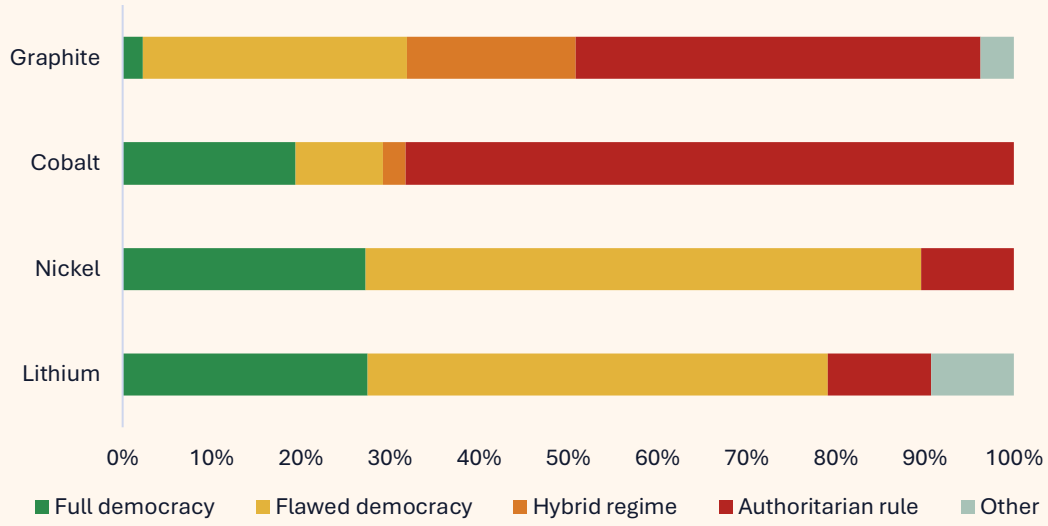
As shown in the table, Norway consistently scores green across all rankings. The United Kingdom scores highly on democracy and freedom. The supplier countries that deliver the most after Norway are generally ranked as either red or orange, with the exception of the USA, which scores green on freedom but is ranked yellow on democracy and corruption, and orange on political stability.

The analysis shows that if the EU wishes to function as an organisation for peace, democracy and international law, there is a need for a broad and comprehensive assessment of Europe's current and future energy suppliers.

The EU Faces the Same Challenge in Importing Critical Minerals for Renewable Energy

In the analysis, we have also mapped supplier countries of critical minerals – which are crucial for the production of renewable energy and electrification of society. This is particularly relevant because the EU has committed to and strongly desires minimal fossil energy use and net zero emissions by 2050, along with a high degree of self-sufficiency in energy production. In Figure 1, we show access to critical minerals mapped according to The Economist's Democracy Index.

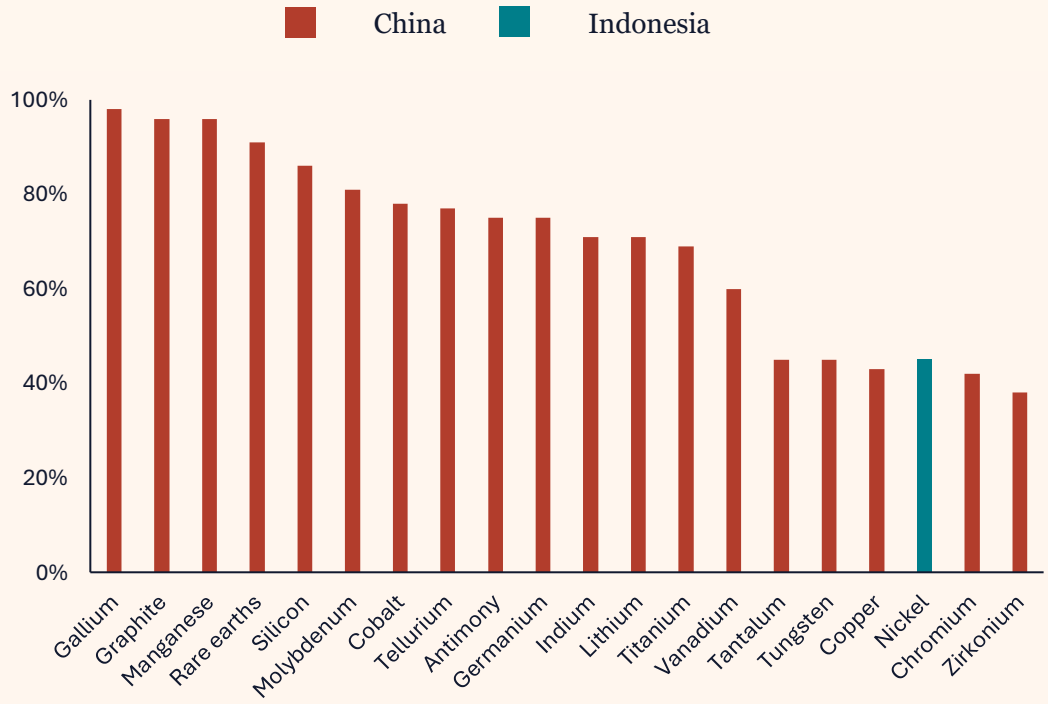
Figur 1: Size of critical mineral reserves distributed by countries' democracy status.



Source: US Geological Service, 2024 and Economist (2025). Compiled by Econ Management.

Som it is shown by figure 1, is mineral reserves mainly concentrated about countries with limited demokratier, in hybride regimer and in authoritarian regimes. The security policy dimension is therefore also relevant here. The processing capacity for energy-related minerals is also highly concentrated, as shown in Figure 2.This creates security policy vulnerabilities along several parts of the value chain.

Figur 2: Share of processing capacity for the country with the largest processing capacity for 20 energy-related minerals



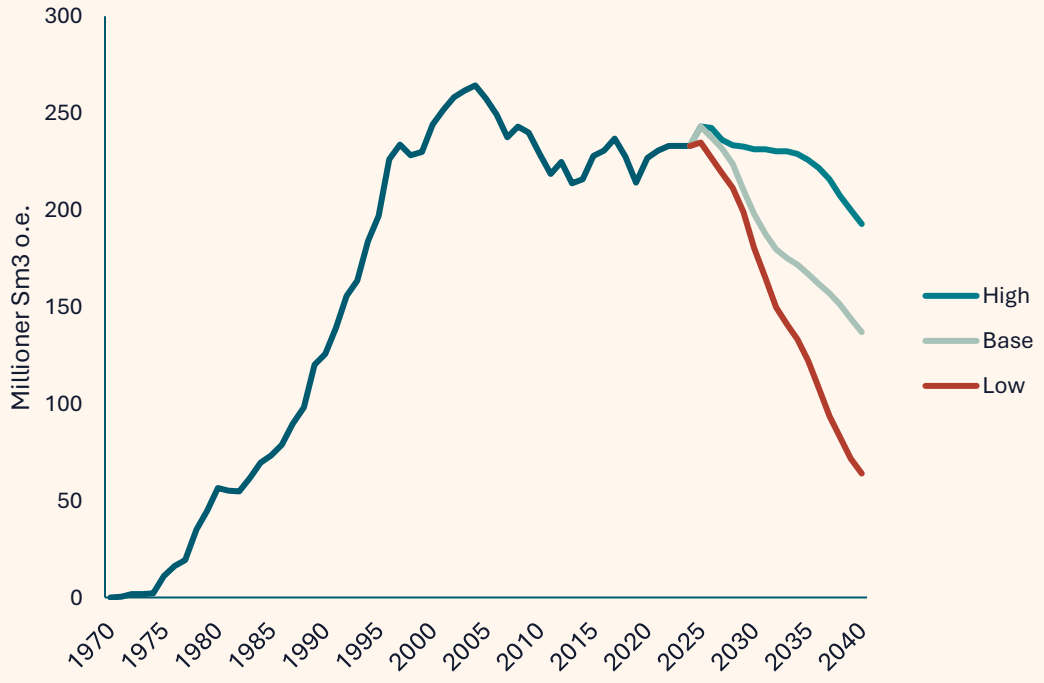
Source: IEA Critical Minerals Outlook 2025

Norway's Role – Production Prospects for the Norwegian Continental Shelf

The energy crisis in Europe that emerged in the wake of Russia's attack on Ukraine clearly demonstrated the consequences of the EU being dependent on unstable trading partners. In the new security policy reality, the EU will likely seek to shift its energy imports towards friendly, democratic, stable and low-corruption countries. Given the EU's list of alternative suppliers to Norwegian oil and gas, Norway appears as the most suitable trading partner that can also deliver large volumes. The question is whether Norway has sufficient resources to meet EU demand.

In Figure 3, we show the Norwegian Petroleum Directorate's opportunity scenarios for production on the Norwegian continental shelf.

Figur 3: Three opportunity scenarios for production development on the Norwegian continental shelf.



Source: Norwegian Petroleum Directorate 2025

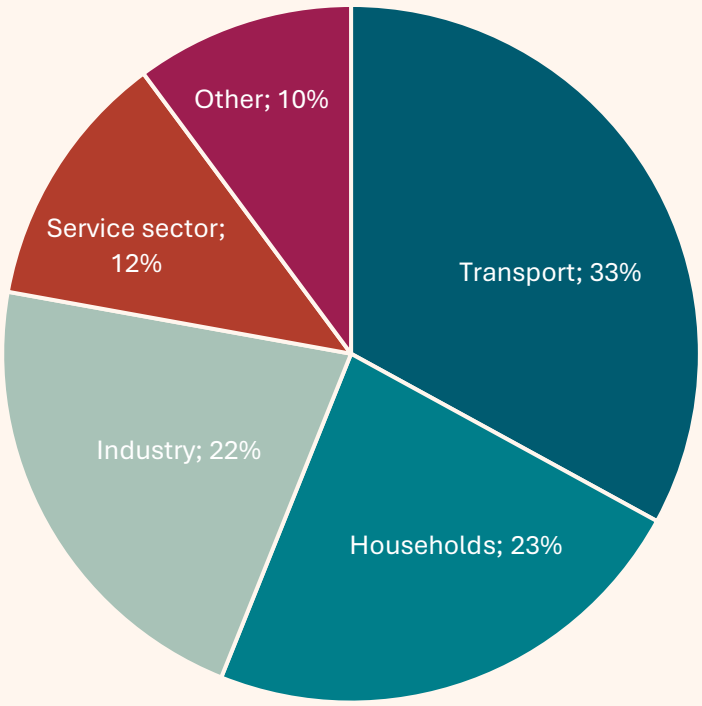
The Norwegian Petroleum Directorate shows that the scope of exploration, and naturally also discoveries, will be decisive for which opportunity scenario is realised. To meet the EU's future demand for deliveries from friendly, democratic, stable, free and low-corruption countries, Norway will therefore likely need to maintain a high level of exploration activity.

In addition to securing stable supplies for the EU, this will also help secure revenues for the community, as approximately 90% of the surplus accrues to the Government Pension Fund through the petroleum tax, the state's direct financial interest in the fields (SDFI) and state ownership in Equinor.

1 Background: EU Energy Demand is Largely Met by Oil and Gas, Despite Long-Term Plans for More Renewables

In 2024, the EU's final energy consumption was approximately 11,000 TWh. Since 2000, the level has remained around 12,000 TWh, with a decline in 2022 to approximately 11,300 TWh followed by a levelling off at around 11,000 TWh in recent years. The figure below shows the distribution of final consumption by main sectors in 2024.

Figur 4: Distribution of final energy consumption in the EU by sector i 2024.



Source: Eurostat 2026

Transport accounts for approximately one-third of total energy consumption. Energy in this sector is primarily used to keep vehicles, ships and aircraft running, ensuring mobility for both people and goods across borders.

Households account for approximately one-quarter of energy use. Most of this is used for heating buildings and hot water, which is essential for comfort and health. The remaining energy in this sector goes to cooling, cooking and running electrical appliances that are part of daily life in Europe.

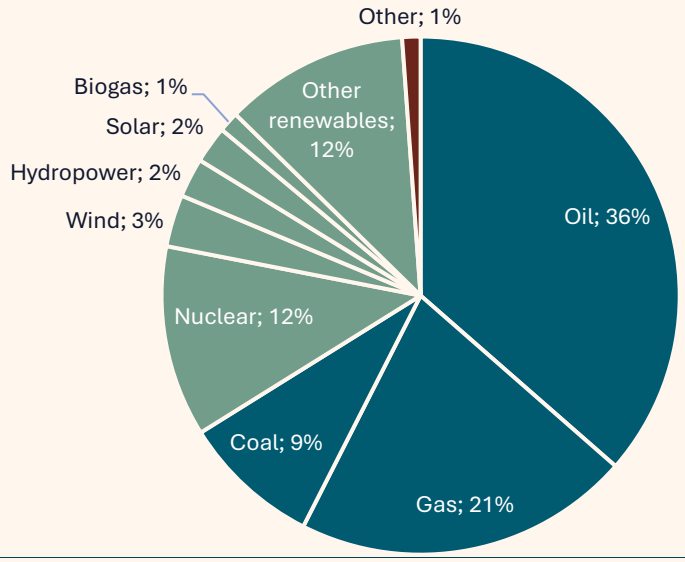
Industry and business account for the remaining energy consumption. Here, energy is used for everything from production processes, machinery operation and temperature regulation, to advanced industrial purposes. Access to stable and

affordable energy is crucial for competitiveness and for maintaining uninterrupted production.

1.1 Fossil Energy Sources Dominate

Oil and gas accounted for just under 60% of the EU's energy mix measured in primary energy supply in 2021. Overall, the share of oil and gas in the energy mix has been slightly increasing since 2014, but in absolute terms has fallen by approximately 250 TWh, or 3%. The distribution between different energy sources in 2024 is shown in Figure 5.

Figure 5: Energy supply by energy source in the EU in 2024, in percent.



Source: Eurostat 2026

Petroleum, coal and nuclear power together account for over three-quarters of total energy supply. This illustrates how these resources still hold a central position in the EU's energy supply, despite growth in renewable sectors.

Oil and gas accounted for just under 60% of total energy supply. Coal and nuclear power each account for approximately 10% of the EU's available energy. Renewable energy sources – such as solar, wind, hydropower and biogas – make up the remaining just over 20 percent.

The Draghi Commission's main report (European Commission, 2024) shows that the decline in energy consumption is related to energy-efficiency measures, as well as to the relocation of energy-intensive production to countries where energy is cheaper and support schemes for industrial production are more favourable. The report also shows that EU countries, on average, have significantly higher energy costs than alternative locations for production.

The main explanation is increased gas prices in the aftermath of Russia's brutal war of aggression against Ukraine. The fact that the EU has a significantly higher level of

CO2 taxes, as well as stricter and more extensive regulations, also contributes to weakened competitiveness and attractiveness for localisation.

1.2 The EU Imports Approximately 90% of Its Oil and Gas Consumption

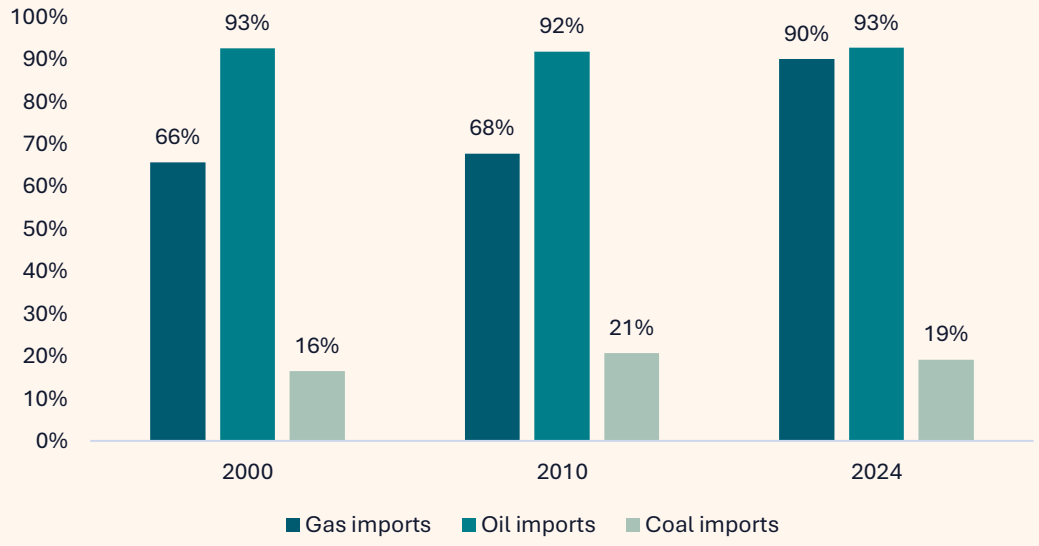
The EU's own production of oil and gas is relatively small, at approximately 330,000 barrels per day of oil[1] and 33 bcm of natural gas, equivalent to approximately 550 TWh.

The EU is therefore entirely dependent on imports to meet its own energy demand and will increasingly be so in the years ahead.

This has made the EU more dependent on imports, especially from countries such as Norway, Russia, the USA and Algeria. At the same time, the expansion of infrastructure for liquefied natural gas (LNG) has enabled the EU to purchase gas from more countries outside Europe.

The EU imports approximately 90% of both its oil and gas. The share of gas that is imported has increased markedly over the past 20 years, as shown in Figure 6.

Figure 6: Import share of gas, oil and coal in the EU from 2000 to 2024.



Source: Eurostat

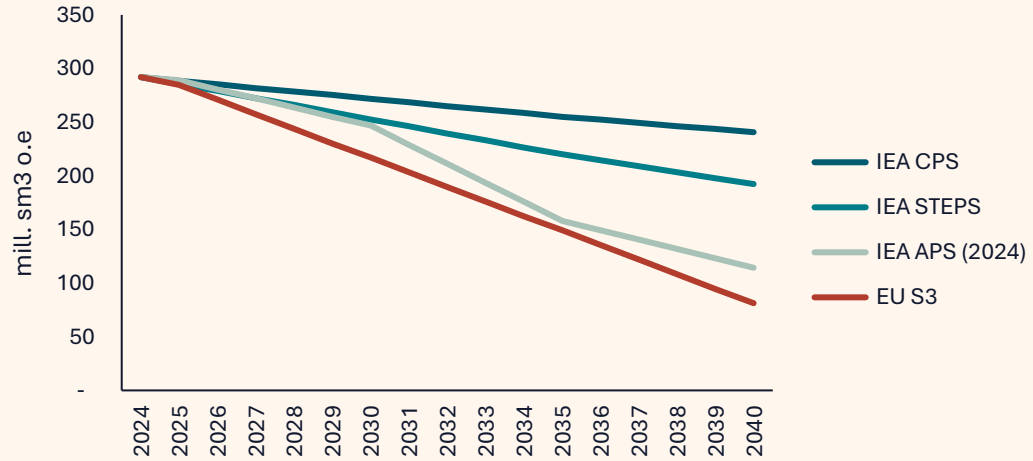
[1] Energy Institute Statistical Review of World Energy 2025 s. 21

1.3 The EU Has Ambitious Plans for Energy Transition

The EU aims to significantly reduce its dependence on fossil energy, both to reduce the vulnerability illustrated by Russia's brutal war of aggression, and to cut greenhouse gas emissions in the region.

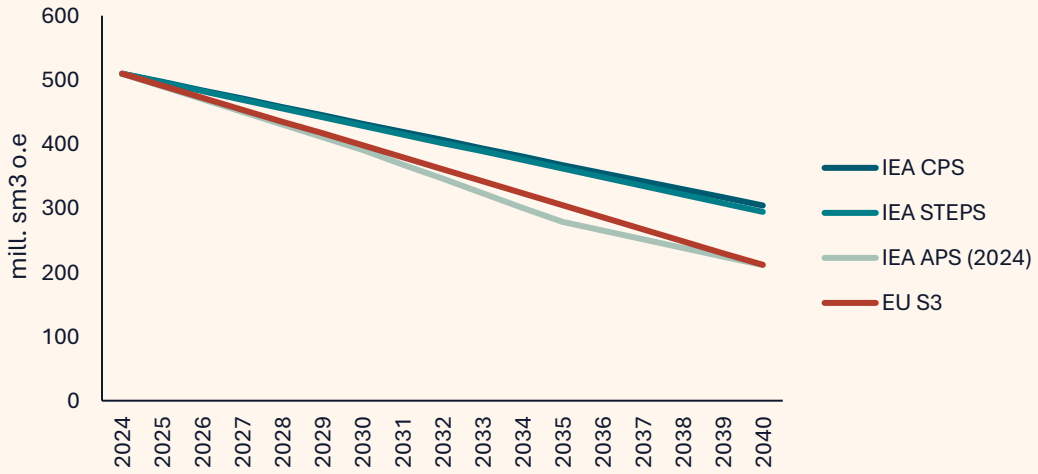
In Figures 7 and 8, we show various scenarios for the EU's import needs for oil and gas respectively.

Figure 7: Scenarios for the EU's gas import needs towards 2040.



Source: IEA (2024 and 2025) and the European Commission (2025)

Figure 8: Scenarios for the EU's oil import needs towards 2040.



Source: IEA (2024 and 2025) and the European Commission (2025)

The reduction in the EU's demand for oil and gas varies depending on the assumptions made. Under IEA CPS, a continuation of current policy is assumed, while in the IEA STEPS scenario it is assumed that politicians will follow the policy currently outlined towards 2040. IEA APS indicates import needs when countries honour all their emission reduction promises, while EU S3 is the most ambitious of four scenarios presented in the European Commission's report regarding reduction of fossil energy use. EU S3 is inline with the EU's target of 90% emission reductions by 2040 without the use of international quotas. In IEA APS and EU S3, net zero emissions in the EU are achieved by 2050. This is not achieved in IEA CPS or IEA STEPS.

In the IEA CPS scenario, the EU's gas import needs in 2040 are estimated at 82% of today's level. The equivalent figures for STEPS, APS and S3 are 66%, 39% and 28%, respectively. For oil, the EU's import needs in 2040 are estimated at 60%, 58%, 41% and 42% of the 2024 level in the CPS, STEPS, APS and S3 scenarios, respectively.

2 From Trilemma to Quadrilemma

In energy policy, the 'energy trilemma' is well known. In a well-functioning energy system, three often conflicting considerations must be balanced:

- Low and predictable prices: The system should deliver energy at an affordable price so that costs remain acceptable for the population and businesses receive competitive conditions.
- Low emissions and low environmental impact: The system should deliver energy with minimal damage to climate and the environment.
- Reliable and accessible: The system must deliver sufficient energy where it is needed, when it is needed, and withstand fluctuations in demand.

The elements of the trilemma are mutually dependent. A greater focus on one may entail less focus on the others. For example, an attempt to make energy cheaper may weaken the ability to handle fluctuations in demand by reducing redundancy and robustness, or it may harm the environment and climate by, for example, increasing the share of emission-intensive or land-intensive energy.

However, the trilemma only provides a complete picture in a free and well-functioning market and takes little account of external factors such as security policy or political interests.

This has been clearly demonstrated by Russia's ongoing brutal war of aggression against Ukraine and today's security policy reality. In the period from February 2022 to the end of February 2026, EU countries imported oil and gas from Russia with a total value of approximately EUR 220 billion, according to the Centre for Research on Energy and Clean Air (CREA). The Swedish institute SIPRI (2025) estimates that Russia's total defence expenditure in the period 2022-2025 was approximately EUR 350 billion. EU purchases of Russian oil and gas have therefore likely financed a significant share of Russia's war spending.

The EU's purchase of oil and gas from Russia constitutes significant economic support for Russia and the Russian political apparatus. This is obviously not in the EU's interest, having clearly taken Ukraine's side against Russia's illegal invasion. The EU has nevertheless maintained imports to safeguard its own energy security[2] and thereby ensure reliable and accessible energy for the population.

The EU's dependence on Russian energy supplies has made the Union vulnerable to political pressure from Russia. This is not a new issue: the United States warned against European dependence on Russian gas as early as the 1980s and sought to accelerate the development of Norway's Troll field. The countries of Eastern Europe, which had previously been under Russian domination, were also quick to recognise the danger.

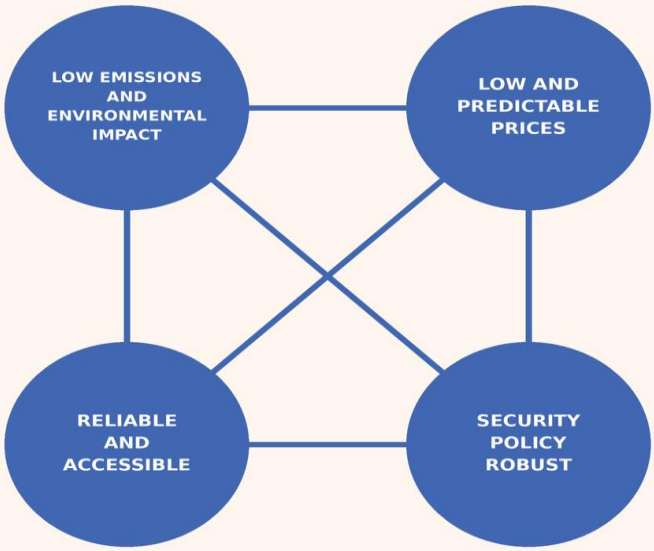
Many countries and analysts have therefore long acted and warned against not including a security policy dimension when energy policy is formulated. We now see

[2] The EU has decided to phase out Russian oil and gas. In June 2025, the Commission presented its proposal (COM(2025) 828) to stop imports of Russian natural gas by the end of 2027. The European Parliament adopted the regulation on 17 December 2025, and the Council gave final approval on 26 January 2026.

the EU doing this as well, most recently with the decision to phase out all Russian pipeline gas by autumn 2027[3].

We therefore believe that energy policy in today's security policy reality is better understood through an energy quadrilemma. This is shown in Figure 9.

9Figure 9: Energy Quadrilemma



In addition to the three aforementioned considerations, the energy system must also be security policy robust. The system must not make the country or region in question vulnerable to energy coercion. As with the trilemma, the variables here are also interdependent, and strengthening one factor may weaken one or more of the other three.

For example, the EU could have chosen to resume purchasing significant volumes of pipeline gas from Russia. This could potentially have reduced greenhouse gas emissions (if it displaced coal power), it would have enabled rapid filling of gas storage and improved the energy system's ability to deliver reliable energy. This in turn would have provided lower and more predictable prices during, for example, the winter months when fluctuations in demand can be significant.

At the same time, this would have been extremely damaging for EU security policy, once again making the EU more vulnerable to energy coercion from Russia.

For countries and regions with an import-dependent energy system, energy policy should therefore today be assessed from the perspective of an energy quadrilemma.

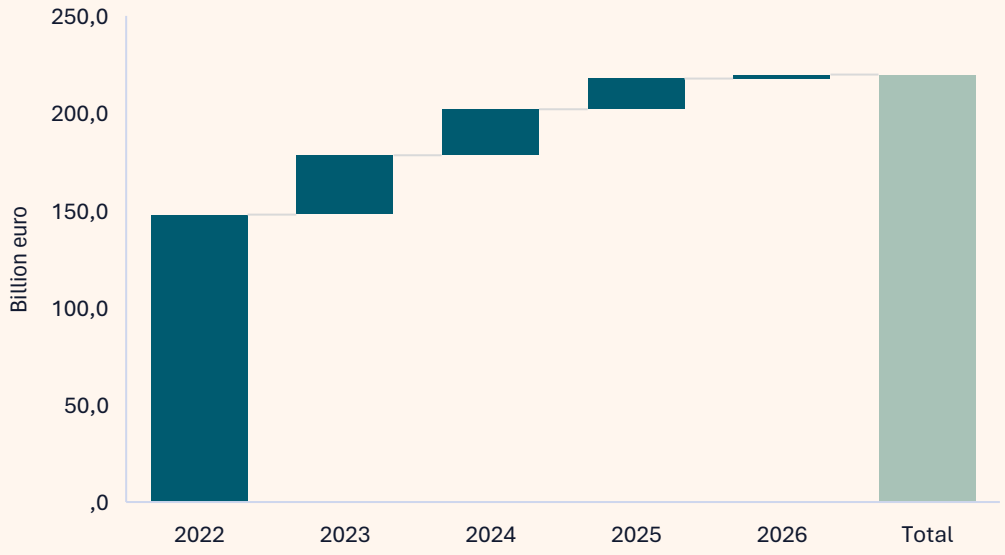
[3] A more detailed description of the decision can be found here: https://www.consilium.europa.eu/en/press/press-releases/2026/01/26/russian-gas-imports-council-gives-final-greenlight-to-a-stepwise-ban/

3 Status of EU Oil and Gas Imports – Who Are the Supplier Countries?

In the period from 2021 to the present (early March 2026), the value of EU oil and gas imports has undergone significant changes.

The value of EU oil and gas imports peaked in 2022 due to the extremely high gas prices that followed Russia's full-scale invasion of Ukraine in February that year. In 2022, EU countries paid approximately 150 billion euros for their imports of petroleum products[4] from Russia etter the war's outbreak. Prisene has since fallen tilbake. The sum of import since the outbreak is on approximately 220 billion euros according to CREA, equivalent approximately 2500 billion Norwegian kroner with the average exchange rate which has been in the period.

Figure 10: The EU's imports of oil and gas products from Russia from the outbreak of the war in 2022 to 23 February 2026, in euros.

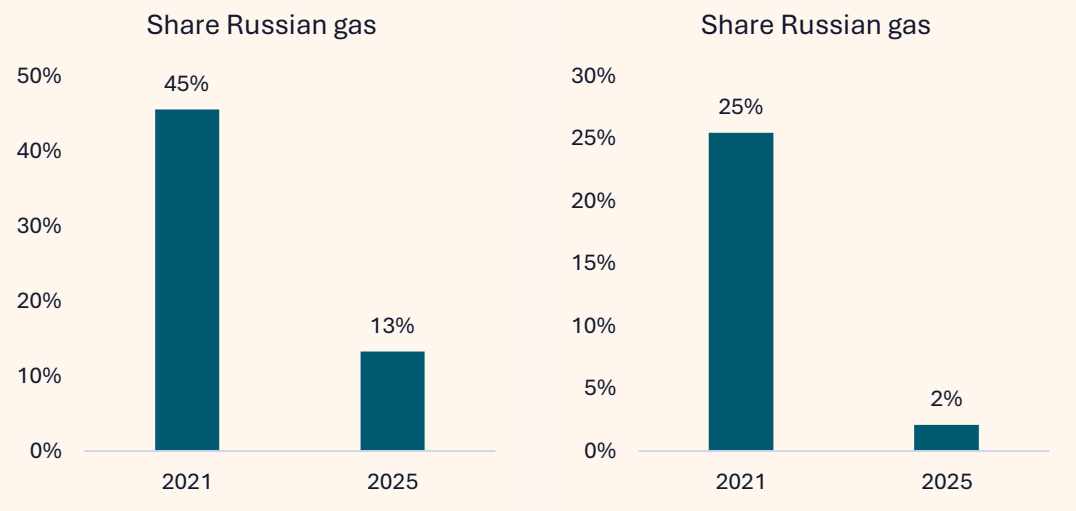


Source: Russia Fossil Tracker (CREA). Daily figures summarised per year

Russia's invasion of Ukraine triggered a historic restructuring of EU energy imports. In 2021, 45 percent of EU gas imports and 25 percent of oil imports came from Russia. By 2025, the gas share had been reduced to 13 percent and the oil share to 2 percent, as shown in Figure 11.

[4] Please note that the figures also include oil, coal and petroleum products

Figure 11: Share of EU oil and gas imports covered by Russia in 2021 and 2025



Source: Eurostat and Bruegel 2026

The transition has been rapid but costly. The EU has had to replace Russian supplies with more expensive alternatives, particularly LNG from the USA. At the same time, the EU still imports gas from Russia – underscoring how difficult it is to fully replace a previously dominant supplier in a short time.

The experience illustrates two key points: First, geopolitical shocks can force dramatic changes in energy supply in a very short time. Second, the cost and complexity of the transition demonstrates the value of having stable, democratic trading partners that can ensure reliable energy deliveries to the European population over time.

3.1 Who Has Taken Over Russia's Oil and Gas Supplies?

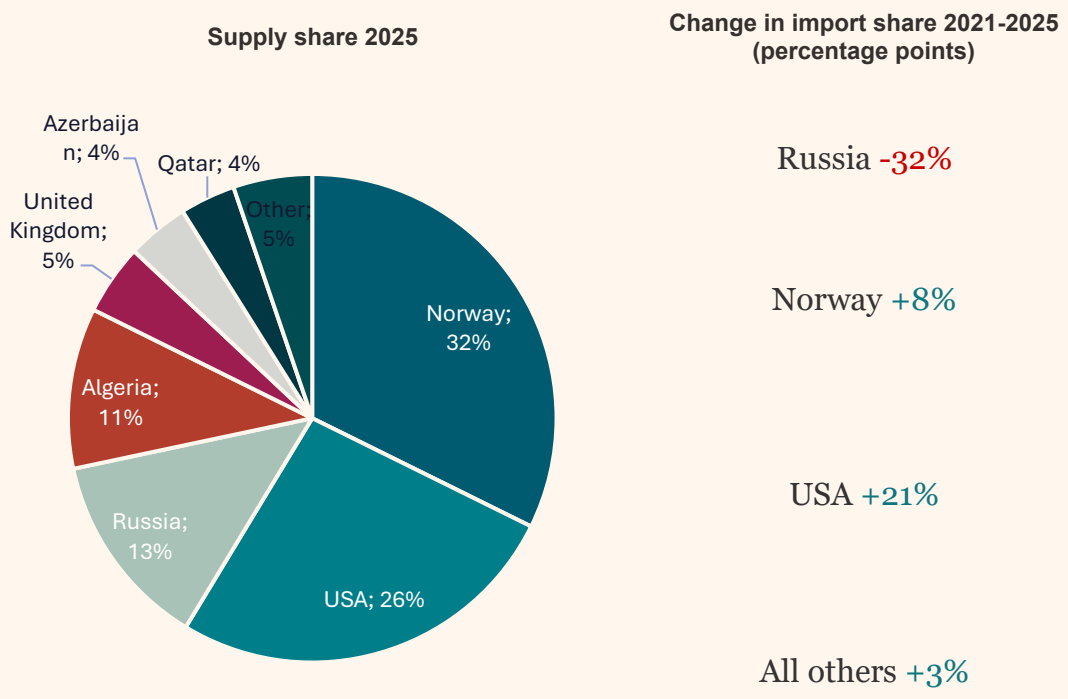
Russia was previously the EU's largest supplier of oil and gas. As shown in the previous subsection, the EU's dependence on Russia has been markedly reduced since Russia's full-scale invasion of Ukraine in 2022. At the same time, the EU's energy demand has remained largely stable, which means that imports have increasingly shifted towards other supplier countries.

In Figures 12 and 13, we show EU imports of gas and crude oil respectively by supplier country in 2025, as well as the change in import shares (percentage points) from 2021 to 2025.

As shown in Figure 12, gas imports are concentrated among few countries. Norway (32%), USA (26%), Russia (13%) and Algeria (11%) together account for approximately 82% of EU gas imports in 2025. The United Kingdom accounts for 5%, while Qatar and Azerbaijan each account for 4%. Other suppliers account for a combined 5%.

The reduction in Russian gas imports has largely been compensated by increased imports from Norway and the USA. Norway's share has increased by 8 percentage points from 2021 to 2025, while the USA has increased by 21 percentage points. Russia's share has simultaneously been reduced by 32 percentage points. Overall, this has resulted in a clear shift in EU gas imports towards Norway and the USA in particular, while other suppliers collectively account for a smaller increase.

Figure 12: Gas import share by country in 2025, and change from 2021 to 2025 in percentage points

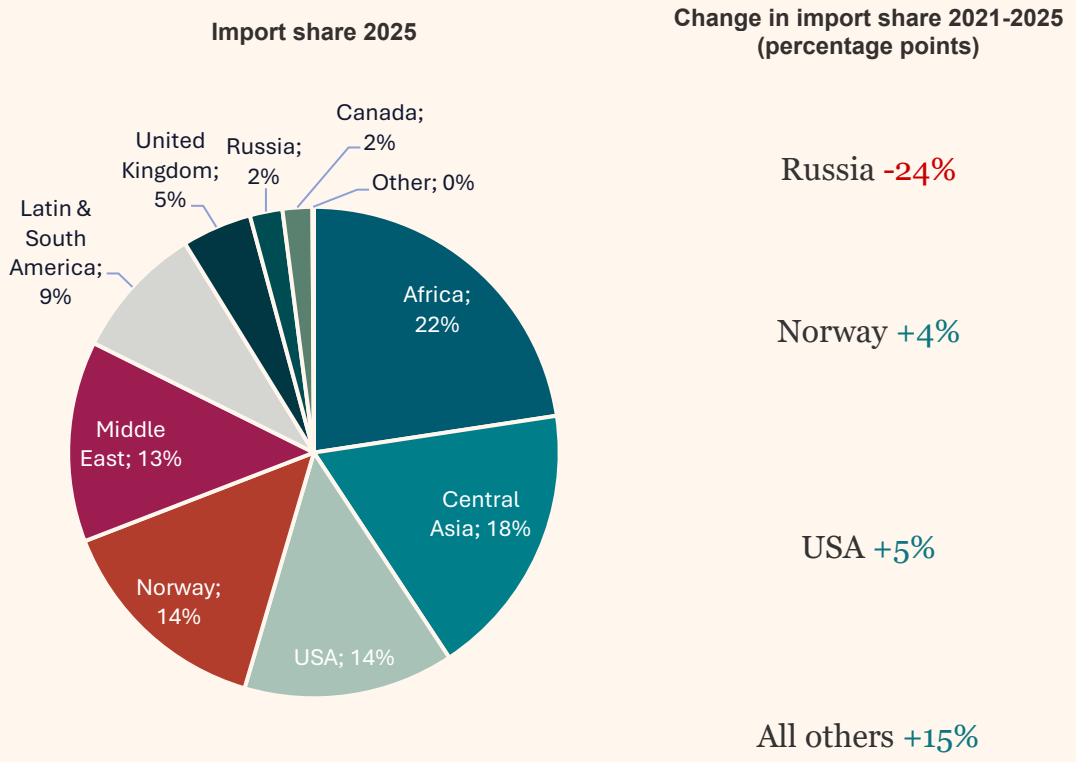


Source: Eurostat and Bruegel 2025

EU oil imports are more geographically diverse than gas imports. In 2025, oil imports come from a broad range of suppliers, with Africa (22%) and Central Asia (18%) constituting the largest regional contributions. The USA and Norway each account for 14% of EU oil imports, while the Middle East accounts for 13%. Furthermore, 9% comes from Latin and South America, 5% from the United Kingdom, and smaller shares from Russia (2%) and Canada (2%), as shown in Figure 13.

At the same time, the figure shows that Russia's share of EU oil imports fell by 24 percentage points from 2021 to 2025. This reduction has to a large extent been offset by increased imports from the USA and Norway, whose shares rose by 5 and 4 percentage points, respectively. The remaining adjustment is distributed across the group of other suppliers combined ('all others'), which increased by 15 percentage points. This underlines that, to a greater extent than for gas, the restructuring of oil imports has been spread across several alternative suppliers and regions.

Figure 13: Oil import share by country in 2025, and change from 2021 to 2025 in percentage points



Source: Eurostat and Bruegel 2026

4 How Do Supplier Countries Score on Relevant Security Policy Rankings?

To map political and institutional conditions in the EU's most important energy supplier countries, we have used recognised international indices for democracy and human rights. These indices were chosen because they represent broad, established and methodologically robust measures of institutional quality and risk.

These sources represent independent, international expert communities with standardised and transparent methodologies. We have exclusively used published rankings and scores as they appear from the original sources, without modifications or adjustments.

Table 2 shows all indices used in the analysis. In the analysis, we have chosen to rank countries on a four-tier scale. The top quarter receives the colour green, those in the middle receive yellow and orange, and the lowest red.

Tabell 2: Overview of aspects, indicators and sources used in the analysis

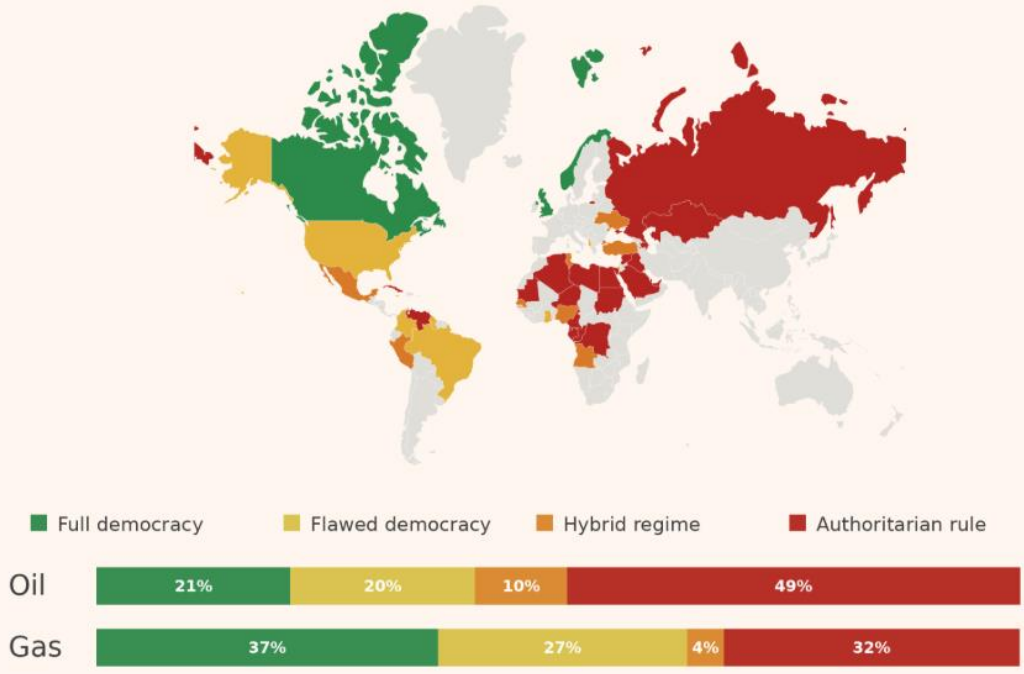
Indicator	Source
Democracy	The Economist
Political Stability	World Bank
Corruption	Transparency International
Freedom	Freedom House

4.1 The Economist's Democracy Index

The Economist Intelligence Unit (EIU) publishes its Democracy Index annually, assessing the state of democracy in more than 160 countries. The latest index was published in February 2025. It is based on five main indicators: electoral process and pluralism, functioning of government, political participation, political culture and civil liberties.

Based on these, countries are categorised as full democracies, flawed democracies, hybrid regimes or authoritarian regimes. The map on the next page shows the democracy level in the most important oil and gas supplier countries to the EU. Below the map, the distribution of the EU's total oil and gas imports by democracy index is shown.

Figure 14: EU supplier countries for oil and gas by democracy status.



Source: Eurostat, Bruegel and Economist

For gas, 37% of the EU's imports originate in countries classified as full democracies, including Norway and the United Kingdom. A further 27% comes from flawed democracies, of which the USA accounts for the largest share. Around 4% comes from hybrid regimes, while 32% is sourced from countries classified as authoritarian regimes, including Russia, Algeria, Qatar and Azerbaijan.

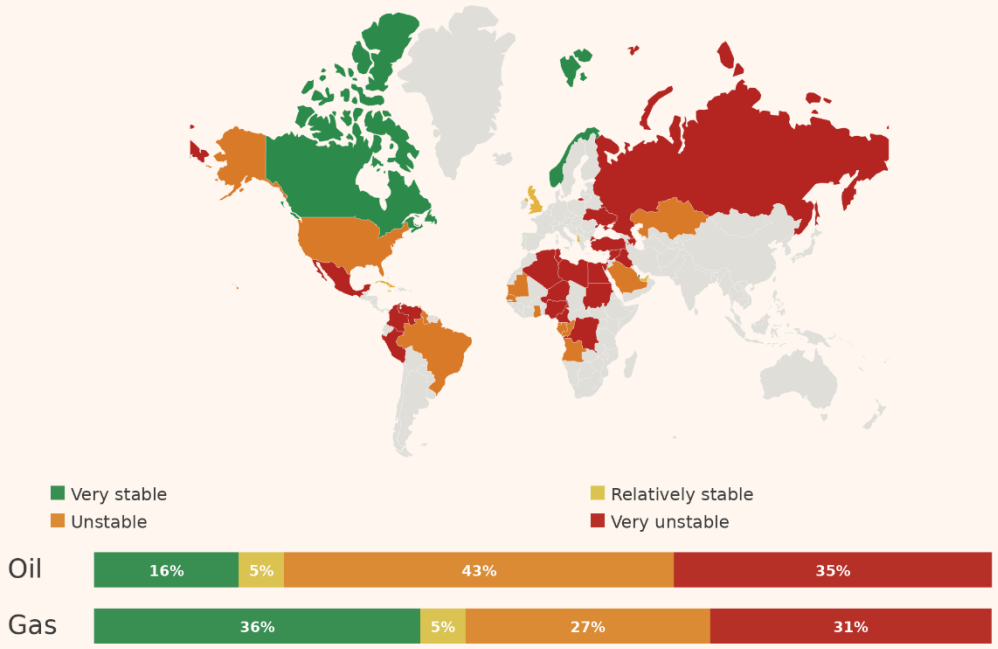
Looking at oil imports, the figures show that 21% comes from full democracies, mainly Norway and the United Kingdom. A further 20% is imported from flawed democracies, in this context primarily the USA and Brazil. The remaining 59% is imported from hybrid regimes (10%) or authoritarian regimes (49%), including Kazakhstan, Saudi Arabia, Libya, Iraq, Nigeria, Azerbaijan, Algeria and Russia.

4.2 Political Stability

The World Bank's indicator for political stability is part of its global Worldwide Governance Indicators framework and measures the extent to which a country is exposed to violence, unrest and political instability, including the risk of terrorism and regime collapse. In this report, the indicator is used to assess the political

stability of countries that are major exporters of oil and gas to the EU. The map on the right shows stability levels among the EU's oil and gas supplier countries.

Figure 15: EU supplier countries for oil and gas by political stability.



Source: Eurostat, Bruegel, World Bank

36 percent of gas imports to the EU come from countries with very stable regimes, and 5 percent from relatively stable ones. This means that a total of 58 percent of gas is supplied from either unstable or very unstable regimes.
If we focus on oil imports, we see that 16 percent is supplied from very stable regimes and approximately 5 percent from relatively stable ones. Approximately 78 percent of oil is delivered from unstable or very unstable regimes – a significantly higher share than for gas

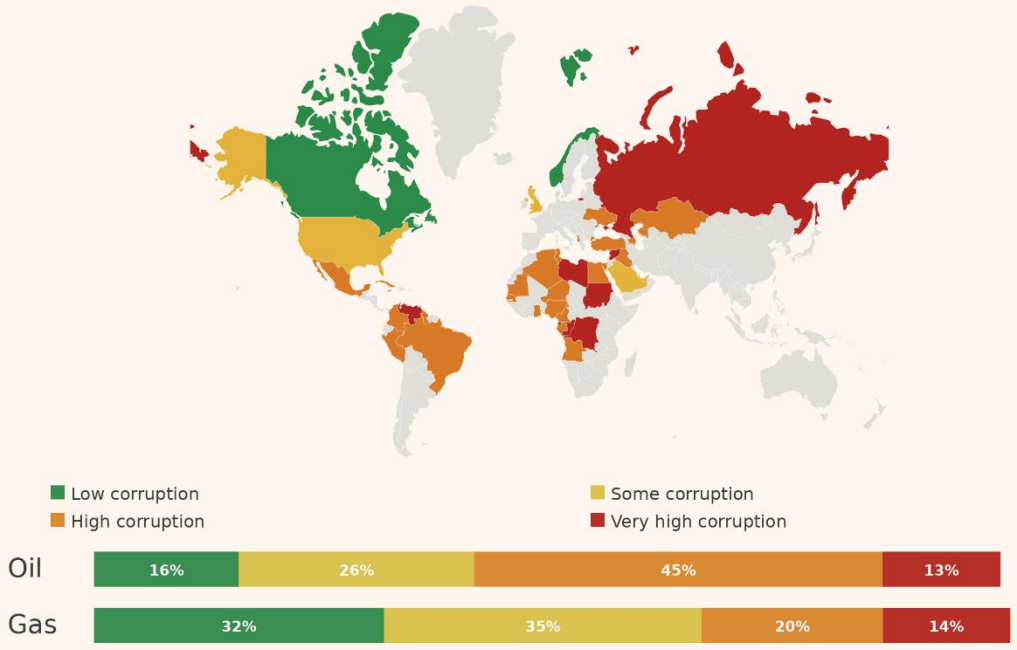
The World Bank's ranking was updated in December 2025, and the USA was assigned a percentile score of 47, placing the country in the category 'unstable'. Since the USA accounts for 17% of the EU's gas imports, this lowers the overall stability profile. This development underlines that political stability is a dynamic factor, and that the EU's energy purchases may become more vulnerable to changes in the governance of supplier countries than previously assumed.

The data has not been processed or adjusted, but is based directly on the World Bank's most recently available assessments.

4.3 Transparency International's Corruption Index

Transparency International's Corruption Perceptions Index is used to assess the degree of perceived corruption in the public sector. The index does not measure actual corruption, but is based on assessments by experts and business leaders regarding the occurrence of bribery, abuse of power and unhealthy links between politics and business, among other things. The map in Figure 16 shows how the EU's most important supplier countries are ranked according to the index.

Figure 16: EU supplier countries for oil and gas by corruption level.



Source: Eurostat, Bruegel, Transparency International

One-third of gas imports (32%) comes from countries with low levels of corruption, primarily Norway and the United Kingdom. A further approximately one-third (35%) comes from countries with some corruption. This means that approximately 34% is delivered from countries with either high or very high corruption.
For oil, 16% comes from countries with low corruption, mainly Norway and Canada. Approximately one-quarter (26%) comes from countries with some corruption. This means that approximately 58% of oil imports come from countries with high or very high corruption - a significantly higher share than for gas. Here too, Norway's dominant position in gas imports improves the overall quality of the supplier mix.

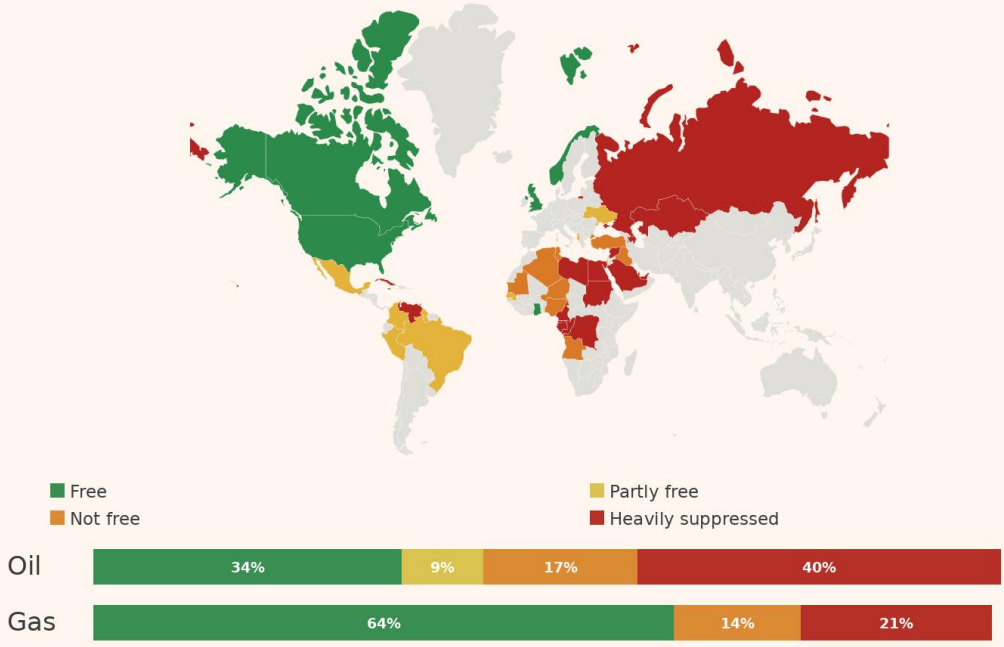
The data is taken from Transparency International's latest published assessments (CPI 2025), without further processing[5].

4.4 Freedom House's Global Freedom Score

Freedom House's Global Freedom Score index provides a comparable assessment of political rights and civil liberties in over 190 countries. The index is used here to assess the general level of democratic freedom.

The map in Figure 17 shows the freedom score of the most important oil and gas supplier countries to the EU. Below the map, the distribution of the EU's total oil and gas imports by freedom score is shown.

Figure 17: EU supplier countries for oil and gas by freedom status.



Source: Eurostat, Bruegel, Freedom House

64 % of EU gas imports comes from green countries (free). This inkluderer Norge, USA and the United Kingdom. 14 % comes from orange countries (not free). 21 % comes from red countries (heavily suppressed), mainly Russia and Azerbaijan..

[5] Recent developments in US political administration may indicate that corruption levels are now higher than what was reported in 2024.

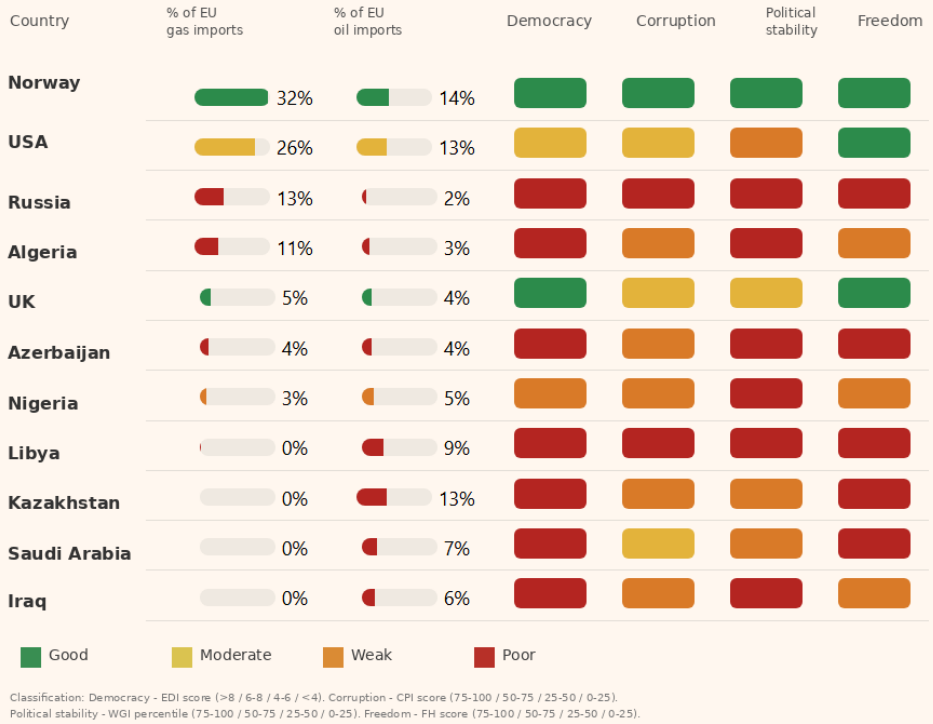
Thirty-four percent of oil imports comes from green countries (free): the USA, Norway, the United Kingdom and Canada. Nine percent comes from yellow countries (partly free), namely Brazil, Mexico and Colombia. Seventeen percent comes from orange countries (not free), including Nigeria, Algeria and Angola. Forty percent comes from red countries (heavily suppressed), including Kazakhstan, Saudi Arabia, Libya, Azerbaijan and Russia.

The figures are based on Freedom House's latest assessment and have not been adjusted in any way.

4.5 Summary of Current Supplier Countries and Their Institutional Frameworks

The table shows the EU's most important oil and gas suppliers ranked according to relevant recognised indices related to democracy and human rights.

Figure 18: Categorisation of the EU's largest oil and gas suppliers according to four governance indices. Colour coding from best to worst: Green-yellow-orange-red.



Sources: The Economist Democracy Index, Transparency International Perceived Corruption Index, World Bank Political Stability Index, Freedom House Freedom Index, Eurostat and Bruegel. Compiled by Econ Management 2026.

Norway and the United Kingdom score consistently green across all indices, with high political stability, low corruption, full democratic governance, strong civil liberties and low conflict levels.

The USA has an orange marking on political stability (WGI 47th percentile), but green on freedom and yellow on democracy due to weaker rankings on electoral system and political polarisation in the Democracy Index.

Russia and Azerbaijan has red markings on all or nesten all indices, with authoritarian governance, extensive restrictions on civil rights, high corruption and lav peace score.

Libya and Iraq also have red on most indices, characterised by political instability, armed conflict and weak institutions.

Saudi Arabia shows yellow on political stability, but red on democracy and freedom, with an authoritarian regime without free elections and extensive restrictions on freedom of expression and association.

Algeria and Kazakhstan have varying colours between yellow and red, with hybrid regimes, limited democratic institutions and varying degrees of political control.

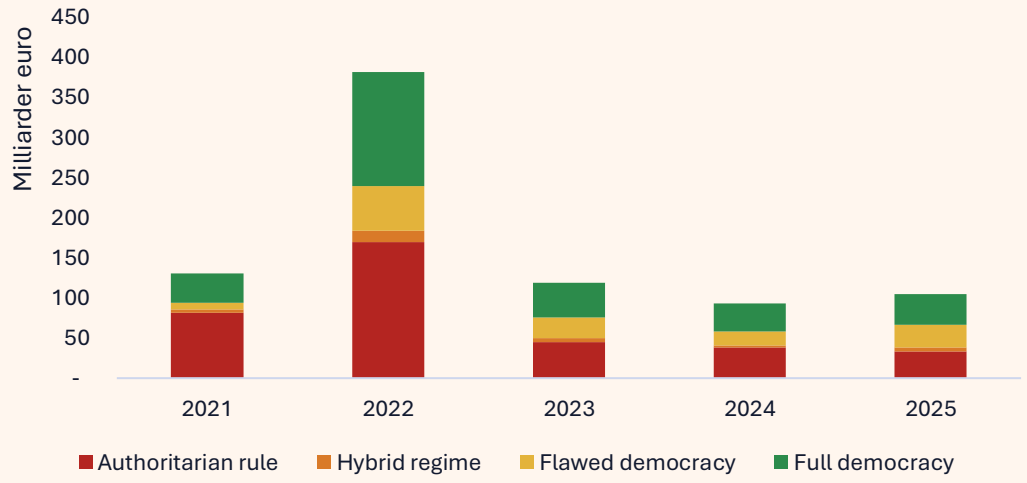
Nigeria has red on political stability and peace levels due to internal conflicts and security challenges, as well as orange on corruption indicating high perceived corruption, but somewhat better than the lowest ranked.

Qatar has green on political stability and peace, due to low conflict levels and strong state control, but red on democracy and corruption due to the absence of free elections and limited transparency.

4.6 The EU Still Imports Heavily from Authoritarian Regimes

In Figure 19, we show the value of EU gas imports in the period 2021 to 2025 categorised by The Economist's Democracy Index.

Figure 19: EU gas imports in the period 2021 to 2025 by Economist Democracy Index.



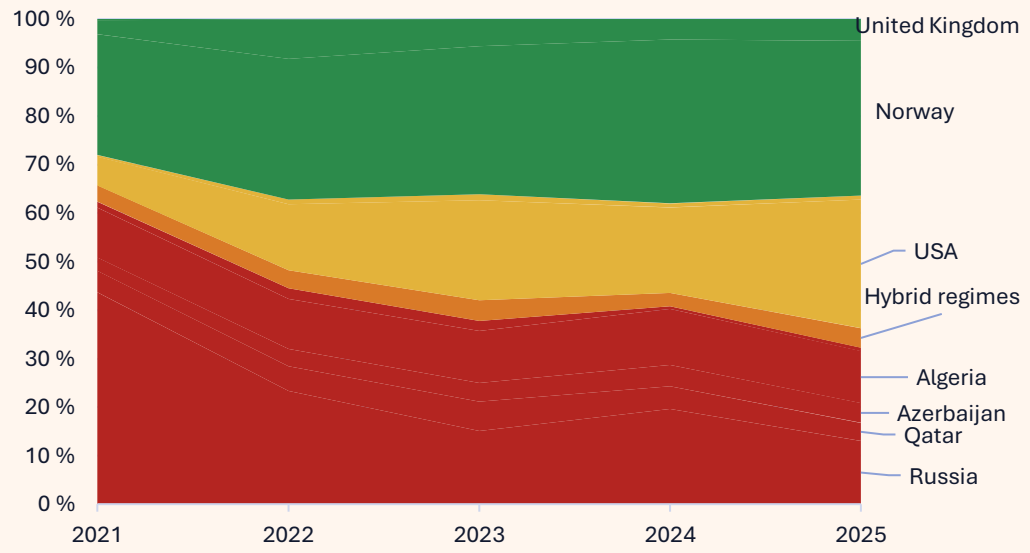
Source: Eurostat (2025), Bruegel (2025), Economist (2025). Compiled by Econ Management (2025)

As shown in the figure, there was a significant peak in 2022, driven by high gas prices.

In Figure 20, we show the development in share by regime type. The share of gas purchased from authoritarian regimes fell from just over 60% in 2021 to just over 30% in 2025.

The share delivered from regimes classified as full democracies has increased during the period, driven by Norway increasing its share. We also see that the USA, classified as a flawed democracy by the Economist, has significantly increased its exports.

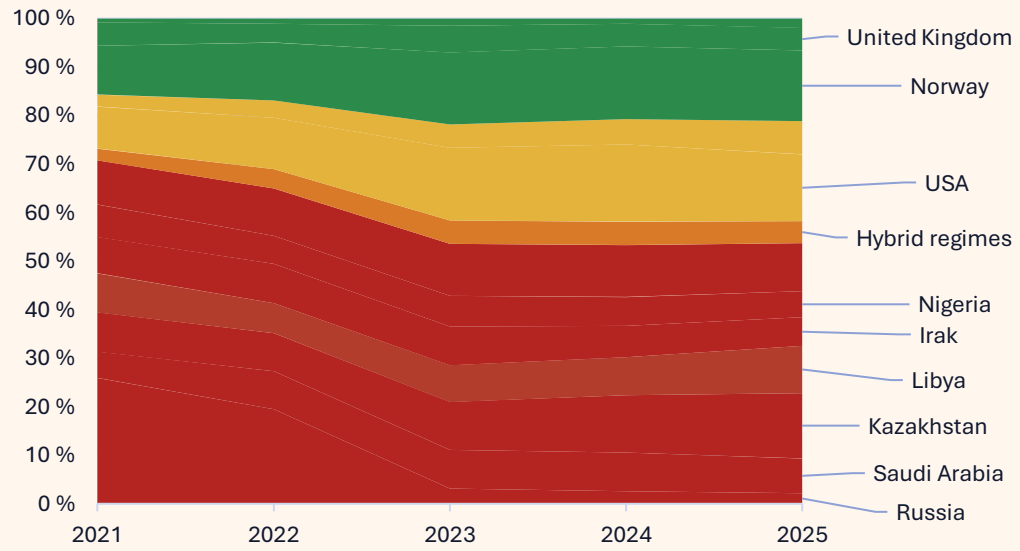
Figure 20: EU gas imports in the period 2021 to 2025 categorised by Economist Democracy Index.



Source: Eurostat (2025), Economist (2025). Compiled by Econ Management (2025)

In Figure 21 below, we show the corresponding mapping for oil imports

Figure 21: EU oil imports in the period 2021 to 2025 categorised by Economist Democracy Index.



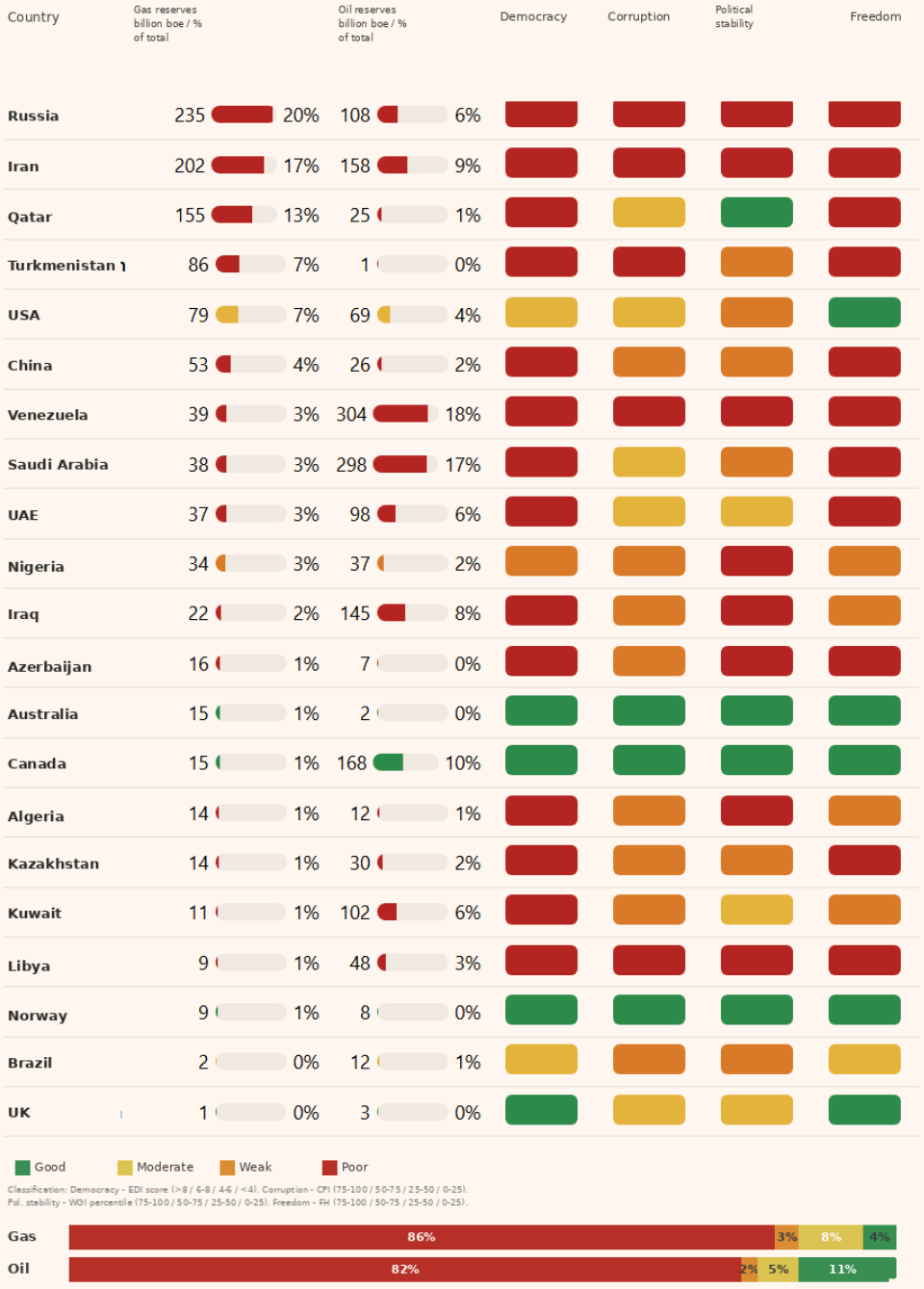
Source: Eurostat (2025), Economist (2025). Compiled by Econ Management (2025)

We see the same pattern as for gas: the share from authoritarian regimes has fallen. For oil, however, we see that the share of deliveries from green countries such as Norway and the United Kingdom is more stable. At the same time, we see that the USA has significantly increased its exports.

4.7 Overview of Oil and Gas Reserves by Country

For a country to be a reliable trading partner for oil and gas in the future, the EU depends on the country having sufficiently large reserves. In the table below, we have listed the countries with the largest oil and gas reserves in the world. In addition to stating the size of the reserves, we have indicated each country's categorisation according to recognised indices regarding democracy, freedom, political stability, etc. This is shown in Figure 22.

Figure 22: Global oil and gas reserves by country. The colour codes indicate each country's score on four recognised indices for democracy, corruption, political stability and freedom.



Sources: Energy Institute Statistical Review of World Energy (reserves as of end 2020), Economist Intelligence Unit (Democracy Index 2024), Transparency International (CPI 2025), World Bank Governance Indicators, Freedom House 2025.
Conversion gas→boe: 6.29 billion boe per tcm. Canada's oil reserves incl. oil sands. Venezuela's reserves incl. Orinoco Belt.

The overview shows that reserves are geographically dispersed, but that the largest volumes are found in relatively few countries.

As clearly shown in the overview, the world's oil and gas reserves are largely located in countries with significant challenges regarding both political stability and human rights.

Based on the Economist Intelligence Unit's Democracy Index for 2024, only approximately 4 percent of the world's gas reserves are in fully democratic countries (Australia, Canada, Norway and the United Kingdom). For oil reserves, the share is somewhat higher – around 11 percent – mainly due to Canada's large oil sand reserves. Over 80 percent of both oil and gas reserves are in authoritarian states. Including hybrid regimes, authoritarian states and hybrid regimes control close to 90 percent of gas reserves and approximately 84 percent of oil reserves. The USA, which is the world's largest gas producer, is now classified as a 'flawed democracy' in the Democracy Index. In several of the largest producing countries, there is also extensive state ownership and control over resources, which can affect both investment climate and access for foreign companies.

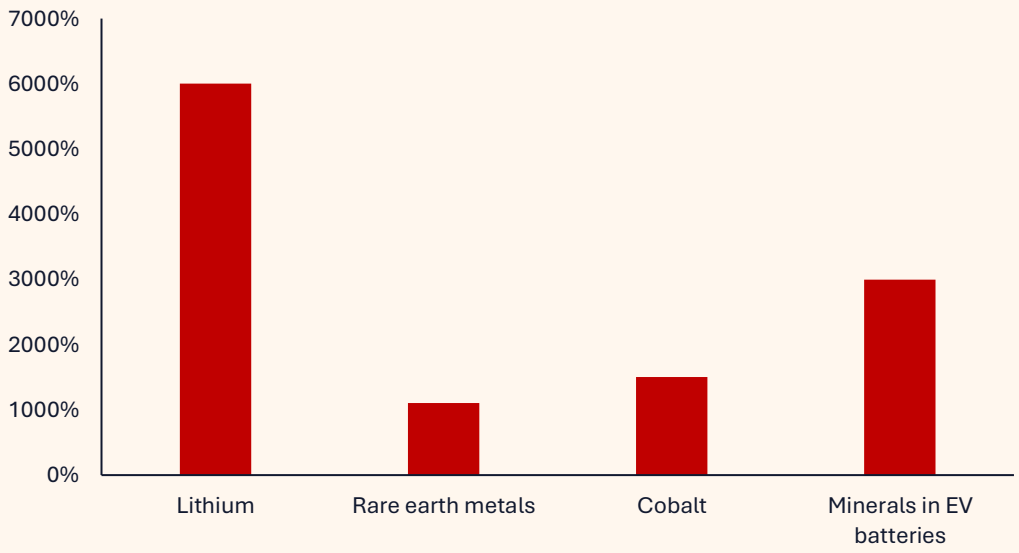
Going forward, the EU is expected to be interested in ensuring that the largest possible share of oil and gas imports comes from stable democratic countries, in addition to being competitive in terms of cost and emissions. If countries like Norway choose to reduce their exploration, the EU would need to import from other countries, and most reserves are found in authoritarian regimes. This makes supply security, predictability and sustainable deliveries central themes in assessing future energy partners.

5 EU's Energy Transition Requires Significant Increase in Mineral Use

The EU's ambitious plans for significant reduction in the import and consumption of oil and gas, presented earlier in this report, require significant electrification and investment in renewable energy production. This transition, however, requires access to a range of critical minerals necessary for the production of batteries, wind turbines, solar panels and electric vehicles.

Electric vehicles, wind power, solar panels and battery storage require large quantities of lithium, cobalt, nickel and rare earth metals, among others. Demand for these raw materials is expected to increase markedly towards 2050, according to the European Commission (1).

Figure 23: Expected demand growth for selected minerals from 2023 to 2050.



Source: European Commission

According to the European Commission, the need for lithium could increase up to 60 times by 2050 compared to current levels. This is mainly due to the strong growth in battery-based technologies for use in electric vehicles and stationary energy storage. Demand for rare earth metals, which are essential for wind turbines and electric motors, is also estimated to increase by 5 to 12 times. Regarding batteries for electric vehicles alone, mineral use is expected to increase 30-fold from 2020 to 2040.

By 2030, the EU has set targets under which at least 10% of critical minerals should be extracted within the Union, 40% should be processed in the EU, and approximately 25% of demand should be covered through recycling. At the same time, no third country should account for more than 65% of the supply of any given

strategic raw material. These targets are intended to reduce supply risk and make Europe more self-sufficient in the inputs needed for green technology.

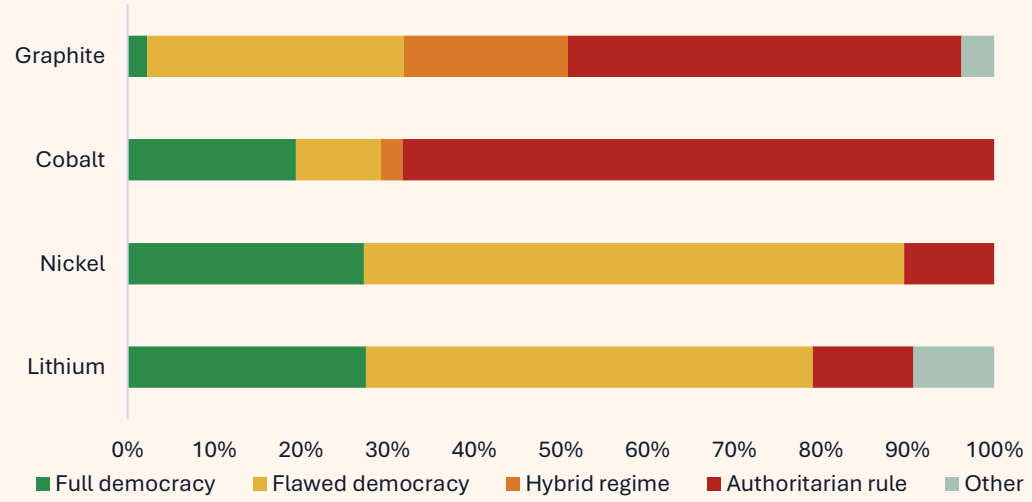
To reach these targets, the EU's own bodies estimate that at least 10 billion euros in public financing is needed by 2034, in addition to up to 100 billion euros in private capital. These investments shall support extraction, processing, innovation and development of recycling systems in Europe.

5.1 Electrification Brings the EU Into a New but Familiar Dilemma

IEA (2022) shows that the most important minerals for electrification are lithium, cobalt, nickel and graphite. Although the EU's Green Deal and Critical Raw Materials Act provide for increased recycling, the EU's own analyses still indicate a significant need to import minerals.

In Figure 24, we show in which type of countries the critical minerals for electrification are located. We have chosen to show access, categorised according to the Economist's Democracy Index. As the figure shows, the global reserves of these minerals are largely concentrated in countries that are not classified as full democracies according to The Economist's Democracy Index.

Figure 24: Mineral reserves distributed by countries' democracy status.



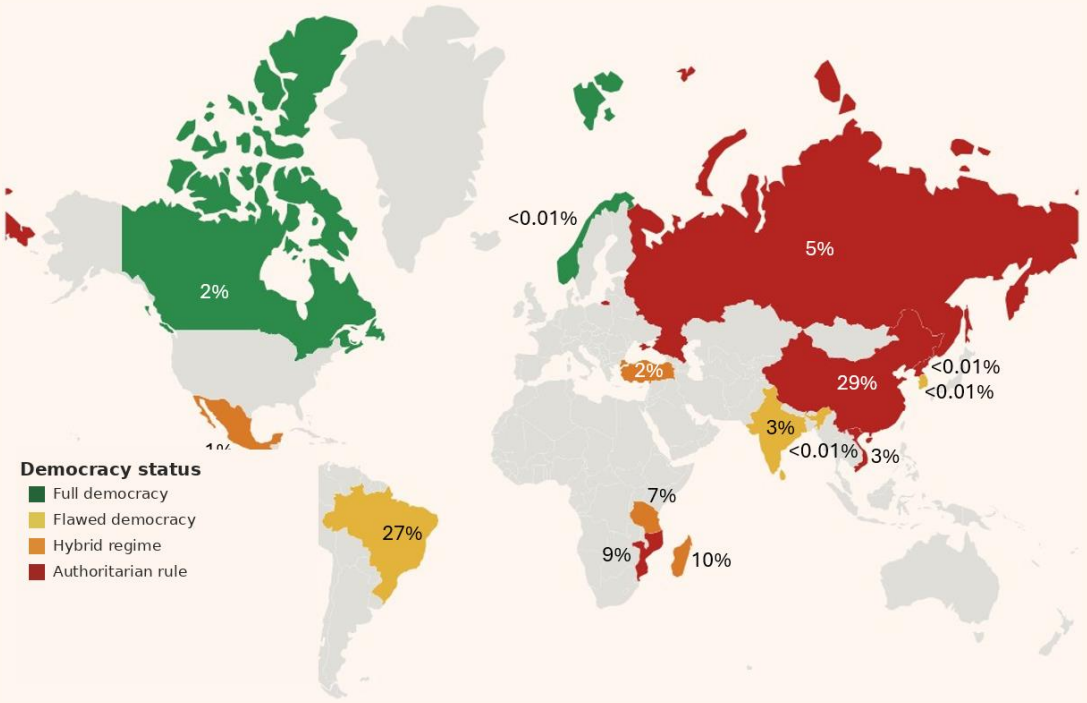
Source: US Geological Service 2025

In the following, we show which specific countries hold reserves of the four minerals discussed above, the size of those reserves, and the democracy status of those countries.

Over 80% of the world's graphite reserves are concentrated in China, three African countries and Brazil. In Africa, reserves are located in Madagascar, Mozambique and Tanzania. All of these countries rank below the level of full democracy in The

Economist's Democracy Index. Brazil is categorised as a flawed democracy, Madagascar and Tanzania as hybrid regimes, and China and Mozambique as authoritarian regimes. Other countries with significant reserves include Russia, Vietnam, India, Turkey, Mexico and Canada. This is shown in Figure 25.

Figure 25: Overview of global graphite reserves. Countries are colour-coded by their democracy status and their share of global reserves is indicated in percent.

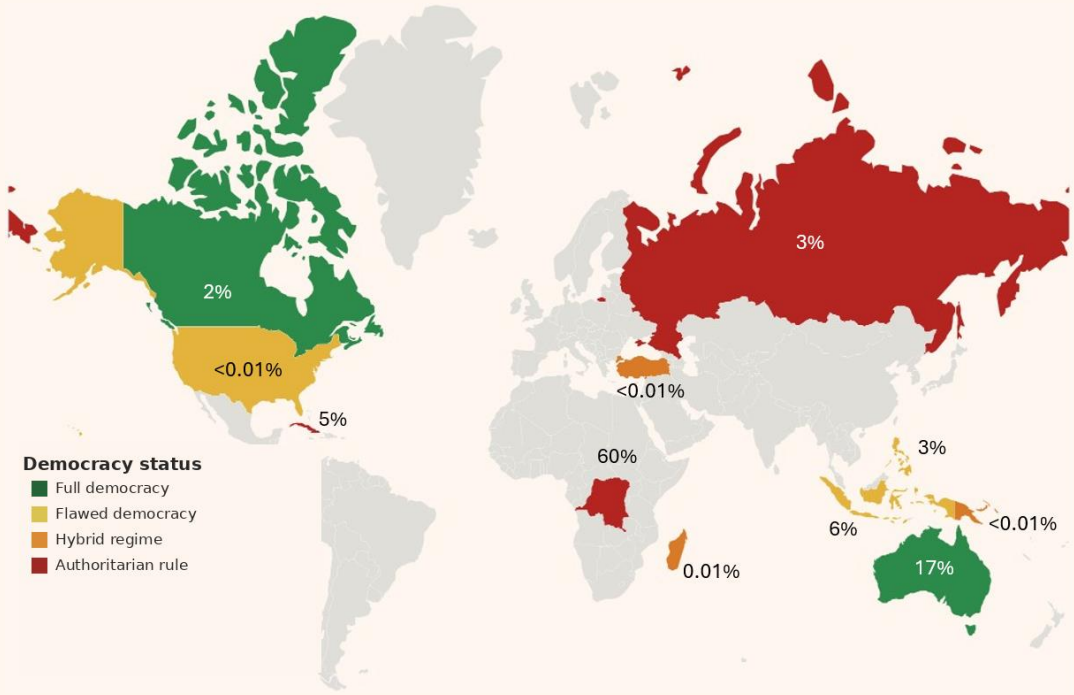


Source: The Economist, US Geological Survey

More than 60% of the world's cobalt reserves are concentrated in the Democratic Republic of the Congo, which is classified as an authoritarian regime in The Economist's Democracy Index. Australia, the only full democracy among the largest reserve holders, accounts for approximately 17% of global cobalt reserves. Indonesia and the Philippines, both classified as flawed democracies, account for roughly 6% and 2.6% of the world's reserves, respectively. Cuba and Russia, both authoritarian regimes, also hold significant reserves, at approximately 5% and 2.5%, respectively. Canada, which is a full democracy, possesses around 2.2% of global cobalt reserves.

Furthermore, there are smaller reserves in Madagascar, Turkey and Papua New Guinea, all classified as hybrid regimes, as well as in the USA, categorised as a flawed democracy. This shows that cobalt reserves, in line with graphite, are largely concentrated in countries with challenging political governance structures, and that only a few fully democratic countries hold larger shares of the world's cobalt resources. The overview is shown in Figure 26.

Figure 26: Overview of global cobalt reserves. Countries are colour-coded by their democracy status and their share of global reserves is indicated in percent.



Source: The Economist, US Geological Survey

More than 80% of the world's nickel reserves are concentrated in Indonesia, Australia and Brazil. Indonesia, which accounts for as much as 45% of global nickel reserves, is categorised as a flawed democracy in The Economist's Democracy Index. Australia is the only full democracy among the largest reserve holders and has around 20% of the world's reserves. Brazil, also classified as a flawed democracy, possesses around 13%.

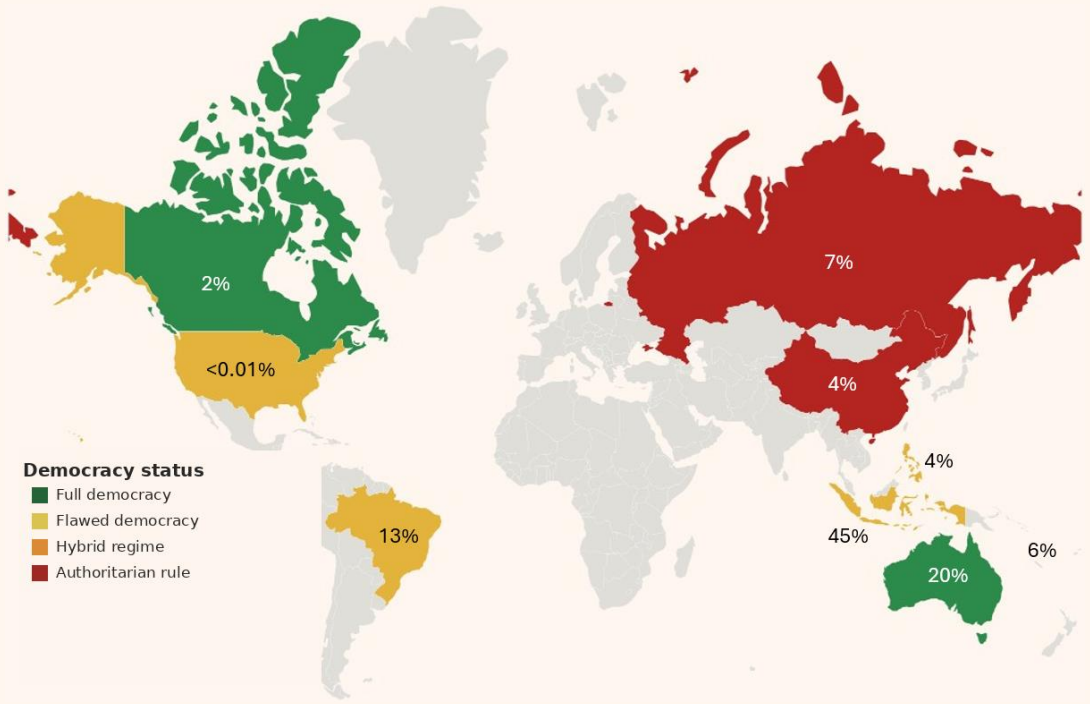
Russia, with nearly 7% of global reserves, is classified as an authoritarian regime. New Caledonia has 6% of reserves but is not assessed in the Democracy Index. The Philippines, which has just under 4%, is a flawed democracy, while China, with just over 3%, is an authoritarian regime. Canada has around 2% and is categorised as a full democracy, while the USA, also a flawed democracy, holds a marginal share of around 0.25% of global nickel reserves.

As for graphite and cobalt, we see that nickel reserves are largely concentrated in countries that are not considered fully democratic. This means that supply security for nickel, which is crucial for electrification and battery production, may be

vulnerable to political changes and uncertainty in several of the leading supplier countries. At the same time, we see that a few fully democratic countries, such as Australia and Canada, have significant reserves.

The overview is shown in Figure 27.

Figure 27: Overview of global nickel reserves. Countries are colour-coded by their democracy status and their share of global reserves is indicated in percent.

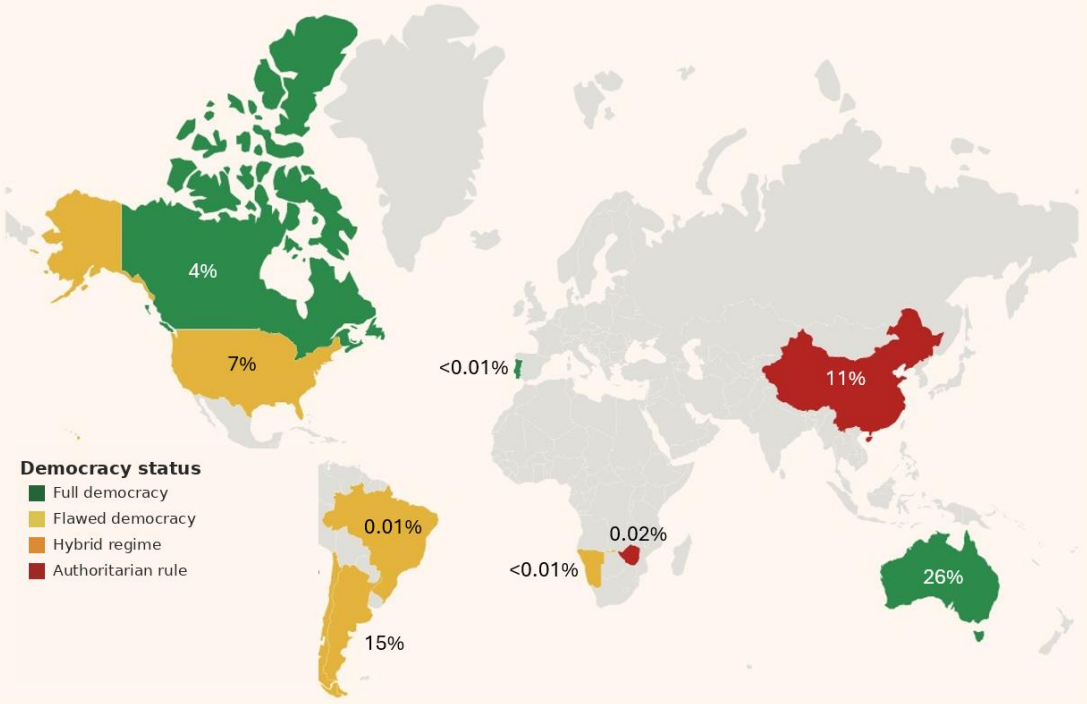


Source: The Economist, US Geological Survey

More than 85% of the world's lithium reserves are concentrated in Chile, Australia and Argentina. Chile, which accounts for the largest share at approximately 34% of global lithium reserves, is classified as a flawed democracy in The Economist's Democracy Index. Australia, the only full democracy among the largest reserve holders, has around 26% of the world's reserves. Argentina, also categorised as a flawed democracy, possesses around 15% of reserves.

China, which is classified as an authoritarian regime, has around 11% of the world's lithium reserves. The USA, a flawed democracy, has a share of around 6.6%, while Canada, categorised as a full democracy, has around 4.4%. Among the remaining countries with significant reserves are Zimbabwe (authoritarian regime), Brazil (flawed democracy), Portugal (full democracy) and Namibia (flawed democracy), but their combined share amounts to less than 2% of global reserves.

Figure 28: Overview of global lithium reserves. Countries are colour-coded by their democracy status and their share of global reserves is indicated in percent.

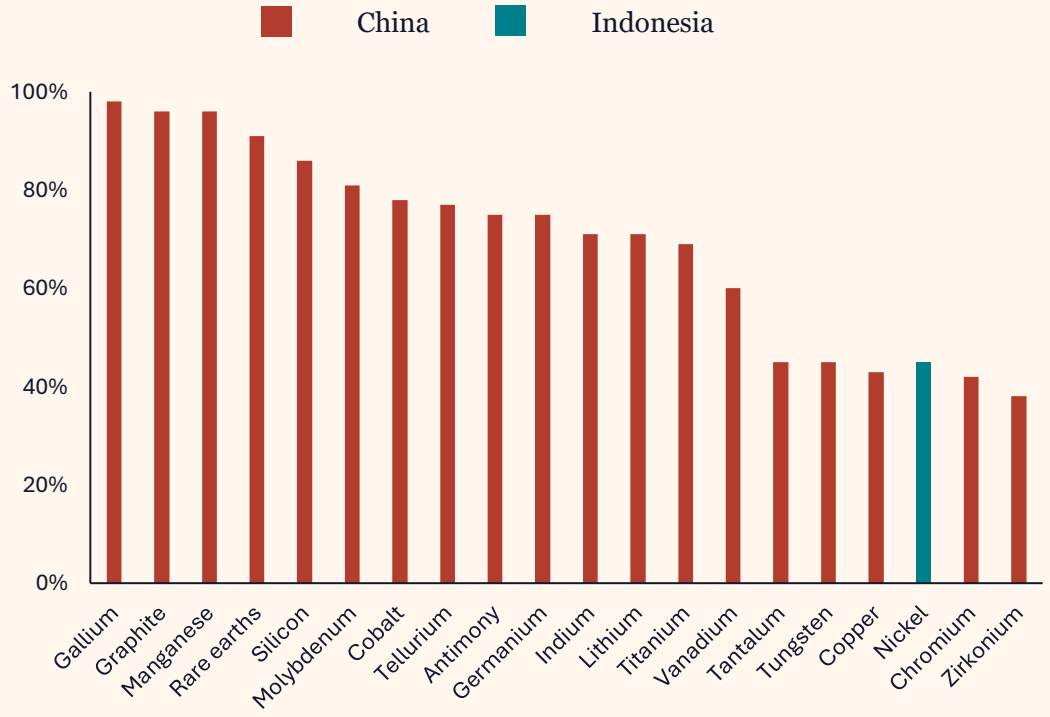


Source: The Economist, US Geological Survey

Overall, the picture is that Australia is the only fully democratic country with large mineral reserves for minerals widely used in renewable energy. Other major mineral nations are either authoritarian regimes or assessed as flawed democracies. Electrification and investment in renewable energy production is therefore not an unproblematic solution to the EU's energy policy quadrilemma. Rather, it brings the EU into similar challenges as we know from oil and gas.

Admittedly, mineral resources are to a large extent less concentrated in authoritarian regimes compared with oil and gas. On the other hand, we see that reserves are more concentrated among a few supplier countries. The same applies to the processing of the same minerals, shown in the figure on the next page. This may bring the EU into a trade policy dependence on a few countries – a dependence those countries could exploit. Electrification and investments in renewable energy could therefore bring the EU into a similar situation as they experienced with Russia's brutal war of aggression against Ukraine, albeit with less acute consequences.

Figure 29: Share of processing capacity for the country with the largest processing capacity for 20 energy-related minerals.



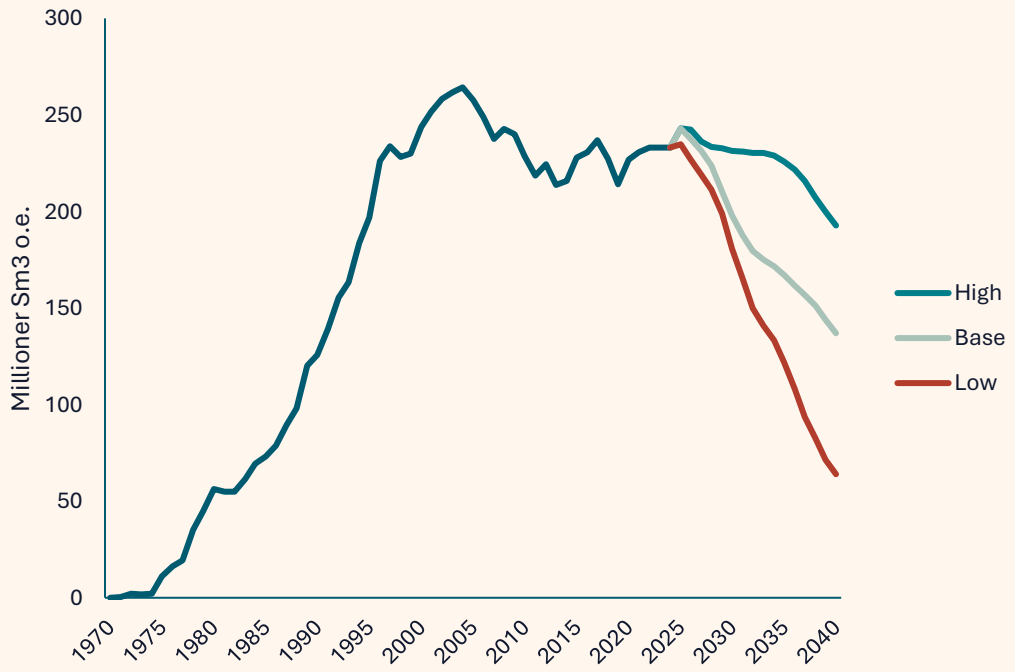
Source: IEA Critical Minerals Outlook 2025

6 The role of Norway – future production outlook

In Chapter 1, we showed that the EU will continue to demand oil and gas after 2040. In Chapter 4, we showed that Norway and the United Kingdom are the only countries that consistently score green across virtually all international rankings of democracy and human rights. In the new energy-policy quadrilemma, the EU will likely seek to shift its imports particularly towards friendly, democratic, stable and low-corruption countries. The question is whether Norway has sufficient resources to meet the EU's demand.

In the figure below, we show the Norwegian Petroleum Directorate's opportunity scenarios for production on the Norwegian continental shelf.

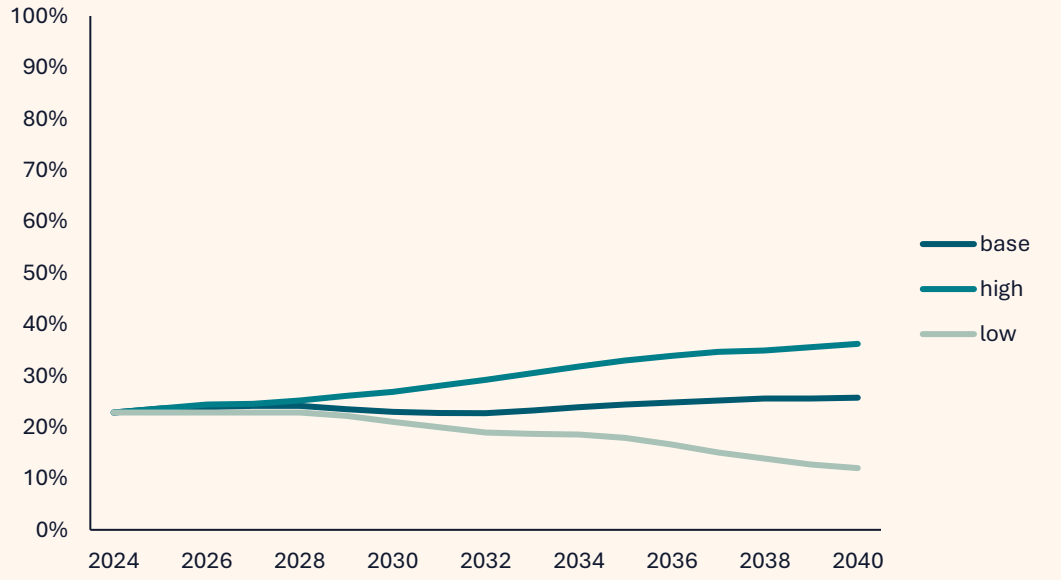
Figure 30: Three opportunity scenarios for production development on the Norwegian continental shelf.



Source: Norwegian Petroleum Directorate 2025

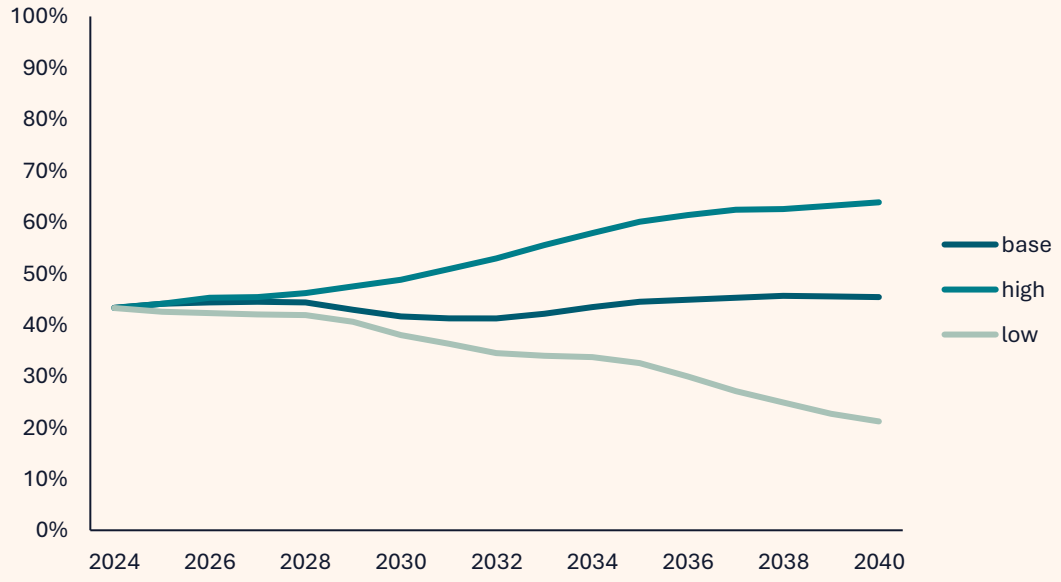
The Norwegian Petroleum Directorate shows that the scope of exploration, technology development and naturally also discoveries will be decisive for which opportunity scenario is realised. To meet the EU's future demand for deliveries from friendly, democratic, stable, free and low-corruption countries, Norway will therefore likely need to maintain a high level of exploration activity.

Figure 31: Norwegian oil production as a share of EU import needs.



Sources: Norwegian Petroleum Directorate, IEA, European Commission. Compiled by Econ Management 2025. It is assumed that the share of oil and gas in total production on the Norwegian continental shelf remains constant at current levels and that production develops in line with the Norwegian Petroleum Directorate's opportunity scenarios. For the EU's import needs, an average of the import needs in the scenarios IEA CPS, IEA STEPS, IEA APS and EU S3 is used.

Figure 32: Norwegian gas production as a share of EU import needs.



Sources: The Norwegian Petroleum Directorate, IEA, the European Commission. Compiled by Econ Management 2025. It is assumed at share of oil and gas in total production on the Norwegian continental shelf remains constant on today's levels and at production develops in line with The Norwegian Petroleum Directorates opportunity scenarios. For the EU's import needs legges it to reason a snitt of import demand in scenarioene IEA CPS, IEA STEPS, IEA APS and EUS3.

From the figures, we see that Norwegian oil production today can cover just over 20% of EU import needs. This figure is higher than actual imports in 2024 because some oil is exported to markets outside the EU. Depending on the future level of activity on the Norwegian continental shelf, Norwegian production could cover between 12% and 36% of the EU's import needs in 2040.

Norwegian gas production today can cover just over 40% of the EU's import needs. The figure is higher than actual imports in 2024 for the same reasons as above. Depending on future activity levels on the Norwegian continental shelf, Norwegian production can cover between 21% and 64% of the EU's import needs in 2040.

The four scenarios IEA CPS, IEA STEPS, IEA APS and EU S3 show that the EU will have significant import needs for oil and gas towards 2040. How large a share of these import needs Norway can cover, and how much must be left to other suppliers, will depend on the future activity level on the Norwegian continental shelf and the EU's import needs. Even with high exploration activity on the Norwegian continental shelf, the EU will in all probability still be dependent on other suppliers. Norway can, however, through its petroleum policy contribute to limiting this need. This has a security policy dimension.

7 Methodology

In this report, we have directed the spotlight at the EU's suppliers of oil and gas to provide deeper insight into which actors actually cover Europe's energy demand. We have not only mapped who these suppliers are, but also analysed the framework conditions and societal circumstances that characterise the various countries. This has contributed to providing a more comprehensive picture of the challenges and trade-offs the EU has faced in the energy landscape.

We have conducted a ranking of petroleum suppliers to the EU using established international indices. These indices assess countries' quality in democracy, personal and political freedom, as well as the degree of political stability. This has provided an overview of how supplier countries rank on scales commonly used to assess institutional strength and societal framework conditions. This approach has been an important supplement to the economic and energy analysis, and has contributed to illuminating the significance such conditions have had for Europe's energy security.

The report is primarily based on publicly accessible statistics and information from recognised and reputable sources. These include Eurostat, various EU reports and briefing notes, as well as international organisations such as OPEC, the IEA, the World Bank, the UN, and Freedom House, in addition to several other key institutions. For statistics on oil and gas, including future scenarios, particular emphasis has been placed on official EU sources, OPEC, and the IEA. Rankings and assessments of countries' status with regard to democracy and freedom are based on recognised and widely used international indices.

Table 3: Overview of aspects, indicators and sources used in the analysis.

Indicator	Source
Oil and gas historical statistics	Eurostat and other EU sources
Projections for oil and gas demand	European Commission, IEA,
Oil and gas reserves	Energy Institute Statisical Review of World Energy
Democracy Index	The Economist
Corruption Index	Transparency International
Global Freedom Index	Freedom House
Political Stability	World Bank

7.1 Rankings and Colour Coding

7.1.1 Democracy Index

Link to The Economist's Democracy Index: https://www.eiu.com/n/global-themes/democracy-index/

The Economist's Democracy Index is a standardised measurement system for political governance. It assesses countries on five parameters: electoral process and pluralism, civil rights, government functioning, political participation and political culture. Each parameter is scored on a scale from 0 to 10 through a set of fixed questions.

The country's total score is an average of the five sub-scores. The result places the country in one of four categories: full democracy (total score 8-10), flawed democracy (6-8), hybrid regime (4-6) or authoritarian regime (<4).

Our colour coding:

Full democracy	Hybrid regime
Flawed democracy	Authoritarian rule

7.1.2 Corruption Index

Link to Transparency International's Corruption Index: https://www.transparency.org/en/cpi/2024

Transparency International's Corruption Perceptions Index is based on expert and business leader assessments of public corruption. Countries are assessed on a scale from 0 to 100 through a set of standardised sources that measure the perception of bribery, misuse of public funds, integrity in public administration and the degree of independent institutions.

The total score is an average of all available data sources for the country. A high score means low corruption levels; a low score means extensive corruption problems.

We have categorised and colour-coded the corruption index by total score. 75-100 points gives the top category Low corruption, 50-75 Some corruption, 25-50 High corruption, 0-25 Very high corruption.

Our colour coding

Low corruption (score 75-100)	High corruption (25-50)

Some corruption (50-75)	Very high corruption (0-25)

7.1.3 Global Freedom Index

Link to Freedom House's Global Freedom Index:
https://freedomhouse.org/report/freedom-world

Freedom House's Global Freedom Index measures political rights and civil liberties. The assessment is based on a fixed questionnaire covering the electoral process, political pluralism, the functioning of government, freedom of expression, freedom of association, the rule of law and personal freedoms.

Each country receives points within two main categories: political rights (0-40 points) and civil liberties (0-60 points). The sum gives a total score from 0 to 100.

We have categorised and colour-coded the freedom index by total score. 75-100 points gives the top category Free, 50-75 Partly free, 25-50 Not free, 0-25 Heavily suppressed.

Our colour coding

Free (score 75-100)	Not free (25-50)
Partly free (50-75)	Heavily suppressed (0-25)

7.1.4 Political Stability

Link to World Bank's Worldwide Governance Indicators:
https://data.worldbank.org/indicator/PV.PER.RNK

The World Bank's Worldwide Governance Indicators measure six governance dimensions: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.

Each dimension is based on a broad set of data sources from experts, institutions and surveys. The result is reported as a standardised indicator ranging from approximately -2.5 to +2.5, where a higher value indicates stronger institutions.

We have chosen to focus on the dimension of political stability as this factor complements our other chosen rankings. Due to the somewhat unusual scale, we have subsequently categorised political stability into four quartiles. The 25% of countries with the best score on political stability receive the designation Very stable,

the next 25% Relatively stable, the next 25% Unstable, while the bottom 25% of countries receive Very unstable.

Very stable (percentile 75-100)	Unstable (25-50)
Relatively stable (50-75)	Very unstable (0-25)

7.2 Data Sources

7.2.1 Oil and Gas

Historical figures

Historical figures for the EU's oil and gas imports are based on two sources: Eurostat, the EU's statistical office, and data from Bruegel, an independent European think tank.

https://ec.europa.eu/eurostat/databrowser/view/nrg_ti_oilm__custom_18123576/default/tableFor oil imports, we use crude-oil figures from the Eurostat dataset 'Imports of oil and petroleum products by partner country - monthly data'.
Link:
https://ec.europa.eu/eurostat/databrowser/view/nrg_ti_oilm__custom_18123576/default/table

https://www.bruegel.org/dataset/european-natural-gas-importsFor gas imports, we use Bruegel's dataset 'European natural gas imports'.
Link: https://www.bruegel.org/dataset/european-natural-gas-imports

Where we only have volume data, prices have been sourced from a wide range of sources in order to calculate the nominal figures for imports. We only occasionally use nominal figures in the report, and this is explicitly stated wherever we do.

Reserves

Countries' oil and gas reserve sizes are obtained from the Energy Institute Statistical Review of World Energy (reserves as of end of 2020).

7.2.2 Minerals

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401252Expected demand for critical minerals is taken from the EU document European Commission (2024): Regulation (EU) 2024/1252 of the European Parliament and of the Council.
Link: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401252

Reserver

https://pubs.usgs.gov/periodicals/mcs2025/mcs2025.pdfCountries' reserves of critical minerals are taken from the dataset accompanying the report Mineral Commodity Summaries, published by the U.S. Geological Survey.
Link: https://pubs.usgs.gov/periodicals/mcs2025/mcs2025.pdf

7.2.3 EU Energy Consumption

Historical figures

Historical figures on the EU's energy consumption are obtained from Eurostat.

https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_s__custom_18099397/default/tableFinal consumption by sector is taken from the table 'Simplified energy balances'.
Link:
https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_s__custom_18099397/default/table

*https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_c/default/table?lang=en&category=nrg.nrg_quant.nrg_quanta.nrg_bal*Energy consumption by energy source is taken from the table 'Complete energy balances'.
Source:
https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_c/default/table?lang=en&category=nrg.nrg_quant.nrg_quanta.nrg_bal

Scenarios for EU Oil and Gas Demand

The scenarios for EU oil and gas demand are taken from the IEA's World Energy Outlook 2024 and 2025, and from the EU report Securing our future - Europe's 2040 climate target and path to climate neutrality by 2050, building a sustainable, just and prosperous society. The EU operates with four alternative trajectories for oil and gas import needs towards 2040: S1, S2, S3 and LIFE. Import needs for oil and gas fall the most in S3 by 2040, and it is this scenario that we use in this report.

https://www.iea.org/reports/world-energy-outlook-2024https://www.iea.org/reports/world-energy-outlook-2025Link - IEA:
https://www.iea.org/reports/world-energy-outlook-2024,
https://www.iea.org/reports/world-energy-outlook-2025

https://eur-lex.europa.eu/resource.html?uri=cellar:6c154426-c5a6-11ee-95d9-01aa75ed71a1.0001.02/DOC_3&format=PDFLink - EU: https://eur-lex.europa.eu/resource.html?uri=cellar:6c154426-c5a6-11ee-95d9-01aa75ed71a1.0001.02/DOC_3&format=PDF