Macro Keys – Economics

Gas exposure in CE4 and Greece

Economics

Global

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Reliance on Russian gas imports in total energy mix

We discuss the exposure of five countries - Czechia, Hungary, Poland, Romania and Greece - to Russian imported gas, in part to assess the vulnerabilities related to a potential stop in Russian gas flows. The countries display a very diverging mix of available energy. Based on the 2020 data, Hungary stands out with the highest reliance on imported gas from Russia - with Russian gas accounting for 27% of domestic energy usage. The second most exposed in our coverage is the Czech economy, where 18% of energy need is covered by Russian gas imports. The rest of the countries are showing a lot smaller exposures: Romania, Poland and Greece cover only 7-9% of their energy needs from Russian gas - so these economies have a greater ability to substitute away from Russian gas. In fact, Poland no longer receives Russian gas (directly) since late April 2022. There are two countries with floating LNG terminals: Poland and Greece (Świnoujście and Revithoussa), which already receive LNG from the USA and Qatar. We highlight the relatively high reliance on solid fossils in the total energy mix in Poland and Czechia (30-40%) given the role of coal. Czechia and Hungary have the highest share of nuclear energy (16-19%), while Greece covers more than 50% of its energy need from petroleum products. Renewable energy plays the largest role in Romania (19%).

Mitigating factors: storage fill-up and diversification

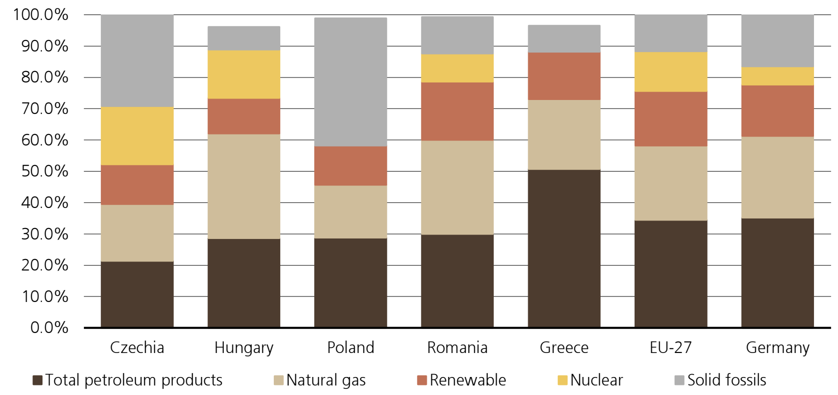
Filling up storages is one of the key measures to try to minimize the hit to these economies in case of a stoppage of Russian gas supply. Hungary and Czechia have the highest storage capacities with 6.5-8.0 months' worth of annual gas consumption, while the rest of the countries have capacities for 2-3 months. Poland is the most advanced in terms of filling up its gas storage capacity, with basically all of its gas storage capacity being full - although that only covers about two months of consumption. The Czech Republic is also very advanced by having 80% of its storage capacity filled. They already met the European Union target of having 80% of storage capacity full by 1 November. In Romania and Hungary, storage levels are considerably lower at 60% and 55%, respectively. Current storage levels would cover 4.5-5.5 months' worth of consumption in Czechia and Hungary. We list the key measures of diversification in Figure 15 of the note.

Sectoral exposures

In terms of sectoral exposures, households are a key consumer of gas in terms of total gas usage: the lowest ratio is in Greece (30%), while the ratio is the highest in Hungary (almost 50%). Commercial and public services are also a main user of gas: c20% of total gas used ended up with these sectors in Czechia, while the lowest exposures are around 10% in Greece and Poland. Among industries it is the chemical and petrochemical industry which is using most of the gas as it is not only a source of energy for these sectors but also a production input. The share of chemical and petrochemical industry in total gas consumption ranges from 7% (Czechia) to 28% (Greece). There are three more sectors with high gas consumption shares: non-metallic minerals (c2.5-10% share); food, beverages & tobacco (c3.5-7.5% share); and iron & steel production (c1-4.5% share). The industrial sector combined - including construction - consumes between 22% (Hungary) to up to 39% (Czechia) of total gas usage. Industry accounts for 23.5-28% of value-added in CE4 and c16.5% in Greece.

Role of Russian gas in energy supply

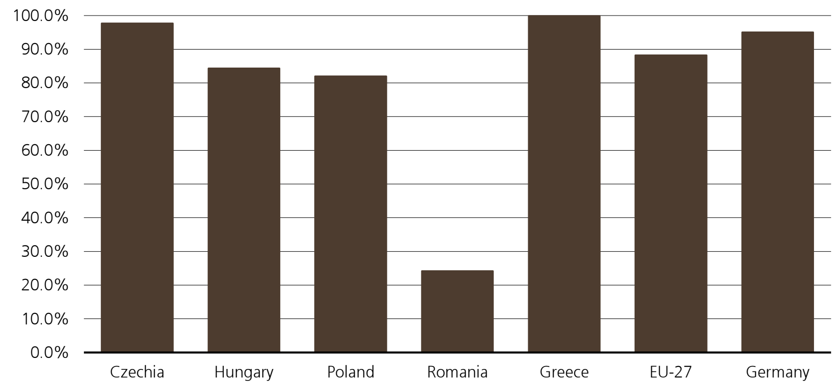
Figure 1: Mix of available energy source, % of total, 2020



Source: Eurostat, UBS

Countries display a very diverging mix of available energy. The role of natural gas in the total energy mix is the most significant in Hungary (34%), Romania (30% - but is largely covered from own production), while the lowest is in Czechia (18%) and in Poland (17%). We also highlight the relatively high reliance on solid fossils in Poland and Czechia (30-40%) given the role of coal. Czechia and Hungary have the highest share of nuclear energy (16-19%), while Greece covers more than 50% of its energy need from petroleum products. Renewable energy plays the largest role in Romania (19%).

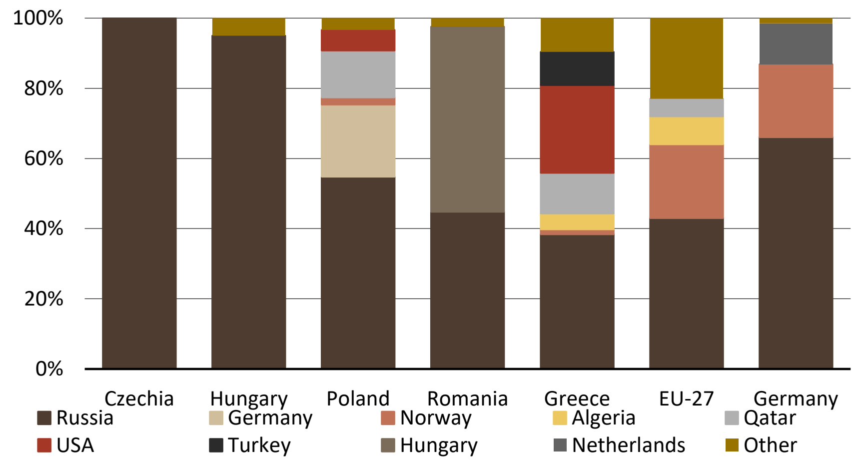
Figure 2: Net gas imports as a% of domestic demand, 2021



Source: Eurostat, UBS

This chart clearly reveals that CE3 and Greece are fully reliant on imported gas to cover their gas consumption need - similar to the EU and Germany. Here Czechia and Greece cover c100% of their gas need from imports, while in case of Hungary and Poland the ratio is 82-85%. Romania, on the other hand, actually covers almost 80% of its gas usage from domestic consumption. If we combine the information on Figure 1 and Figure 2, that the share of imported gas in the total energy mix is the highest in Hungary (28%), followed by Greece (22%), Czechia (18%) and Poland (14%). It is only in Romania, where the reliance on imported gas is very low (7%).

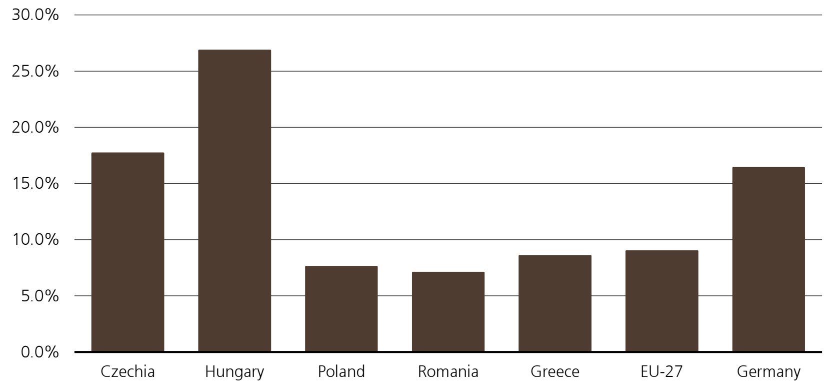
Figure 3: Origin of imported gas, % of total gas imports, 2020



Source: Eurostat, UBS

Russia was a key source of gas imports for Europe. Based on the 2020 data, both Czechia and Hungary secured 95-100% of their gas imports from Russia. In Poland the share of Russian gas imports from total imports was c55%, and c40-45% in Greece and Romania (though here the gas coming from Hungary is also likely to be Russian gas). For the EU as a whole the share was 45%, while in Germany 65%. Among other countries, Qatar and USA played an important role (LNG imports) for Poland and Greece - the two countries with LNG terminals (Świnoujście and Revithoussa). There is also Azeri gas flowing from Turkey to Greece.

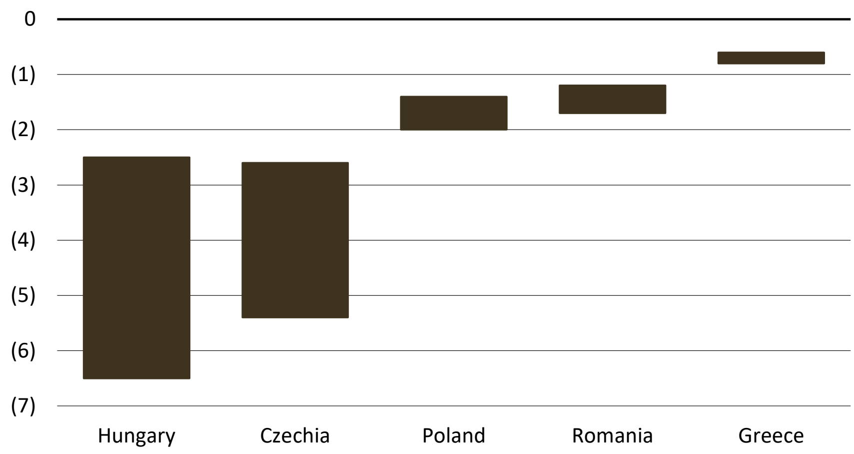
Figure 4: Reliance on imported Russian gas as % of total energy mix, 2020



Source: Eurostat, UBS calculations

This chart summarizes the above analysis and shows the share of imported Russian gas as a % of total energy need. Hungary stands out as the most exposed, with imported gas from Russia accounting for 27% of domestic energy usage. The second most exposed in our coverage is the Czech economy, where 18% of energy need is covered by Russian gas imports. The rest of the countries are showing a lot smaller exposures: Romania, Poland and Greece cover only 7-9% of their energy needs from Russian gas - so these economies have a greater ability to substitute away from Russian gas. In fact, Poland no longer receives Russia gas (directly) since late April 2022.

Figure 5: IMF's simulations for the economic impact of a stop in Russian gas flow, % of total GDP loss versus baseline over 12 months

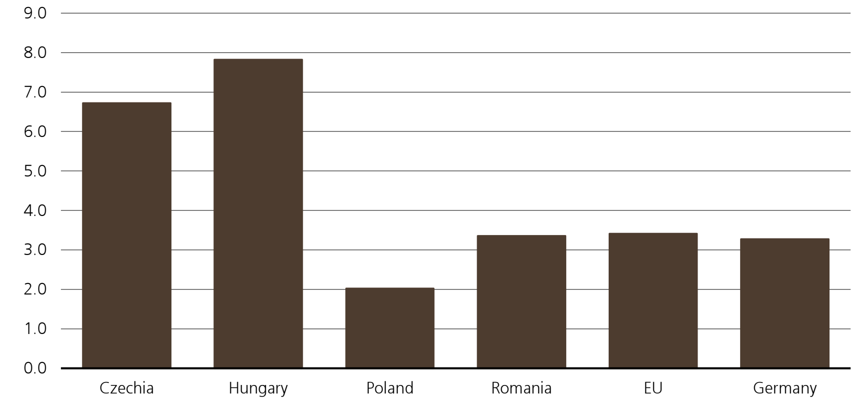


Source: IMF: Natural Gas in Europe, The Potential Impact of Disruptions to Supply (Page 27, Table 5), UBS

The IMF published a study in late July to quantify the potential impact of supply disruptions of Russian gas to Europe (the study assumes no Russian gas flowing from June 2022 through June 2023) - the analysis is not taking into account all of the recent mitigation measures, like the Czech government securing a 5-year contact to receive gas worth ⅓ of the annual consumption from the Eemshaven LNG terminal via the Netherlands starting from September 2022. The study considers a situation of low/high gas demand and gas solidarity. Similar to our analysis the study points out the highest impact for Hungary and Czechia (exposed both directly and indirectly) and a lot smaller impact for Poland, Romania and Greece (only indirectly exposed via the hit to trading partners).

Gas storage situation

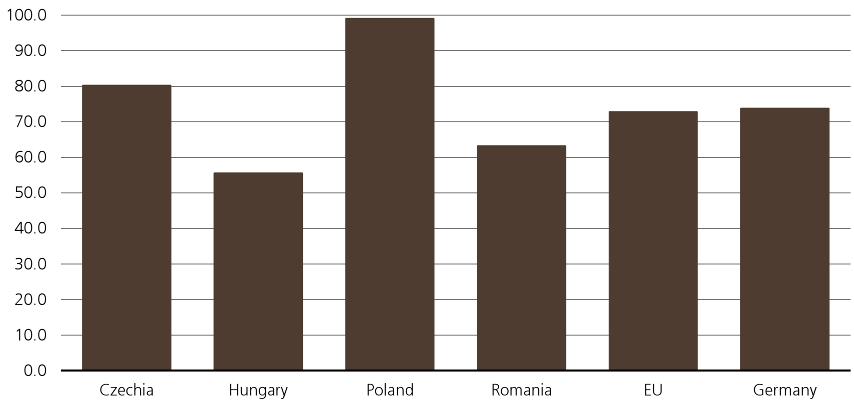
Figure 6: Maximum gas storage capacity versus gas consumption (based on 2020 levels) in months



Source: Gas Infrastructure Europe, Eurostat, UBS calculations

In terms of gas storage capacity - measured as months of gas consumption covered - two countries stand out: Hungary and Czechia. Hungary, in theory, could cover its consumption for close to 8 months - though for practical purposes a situation of running down the storage to zero would probably never occur. In Czechia, a full gas storage capacity would allow the economy to operate for more than half a year. The situation in Romania is closer to Germany's, with roughly a quarter of a year of gas storage capacity, while in Poland the capacity is closer to 2 months.

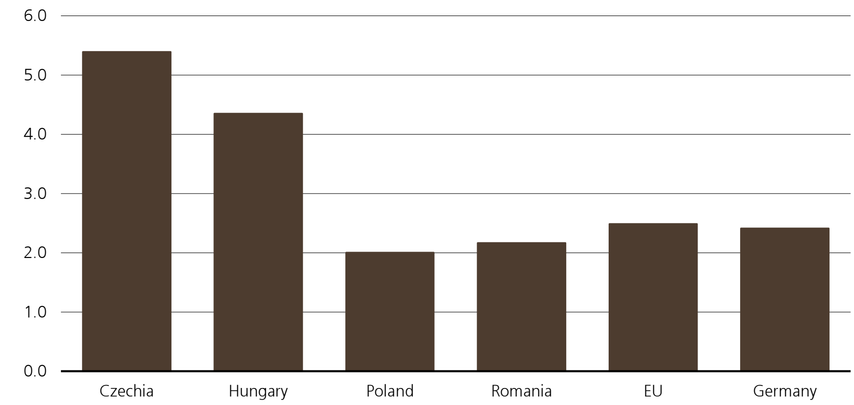
Figure 7: Current gas storage levels, % of total capacity (as of 9 August)



Source: Gas Infrastructure Europe, UBS

Poland is the most prepared in terms of filling up its gas storage capacity, with basically all of its gas storage capacity being full. The Czech Republic is also very advanced by having 80% of its storage capacity filled. They already met the European Union target of having 80% of storage capacity full by 1 November. In Romania and Hungary storage levels are considerably lower: 60% and 55% - both of these levels are below the EU average rate of 72%.

Figure 8: Current gas storage capacity versus gas consumption (based on 2020 levels) in months



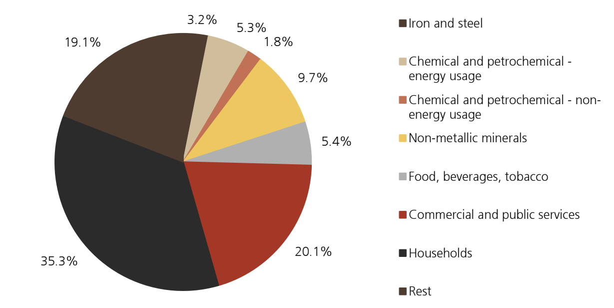
Source: Gas Infrastructure Europe, Eurostat, UBS calculations

Translating the current storage levels in terms of months of actual consumption, the Czech Republic is in the best position - the current level of storage would cover more than 5 months of consumption. In Hungary's case it is somewhat smaller, covering around 4.5 months. In Romania and Poland the gas storage levels would cover around 2 months of consumption - which is broadly aligned with the current level of storage in the EU on average or in Germany.

Sectoral energy consumption

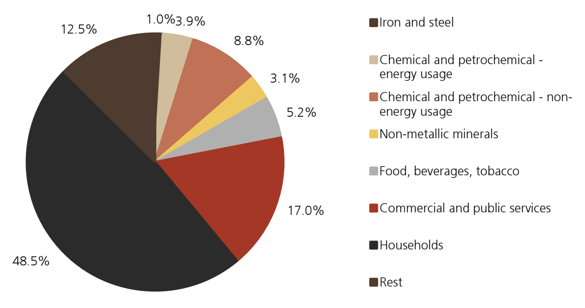
Households are a key consumer of gas in terms of total gas usage: the lowest ratio is in Greece (30%), the highest is in Hungary (almost 50%). Commercial and public services are also a main user of gas: c20% of total gas used ended up with these sectors in Czechia, while the lowest exposures are around 10% in Greece and Poland. Among industries it is the chemical and petrochemical industry which is using most of the gas as it is not only a source of energy but also a production input. The share of chemical and petrochemical industry in total gas consumption ranges from 7% (Czechia) to 28% (Greece). There are three more sectors with high gas consumption shares: non-metallic minerals (c2.5-10% share); food, beverages & tobacco (c3.5-7.5% share); and iron & steel production (c1-4.5% share). The industrial sector combined consumes between 22% (Hungary) to up to 39% (Czechia) of total gas usage. Industry accounts for 23.5-28% of value-added in CE4 and c16.5% in Greece.

Figure 9: Czechia, % of total gas usage, 2020



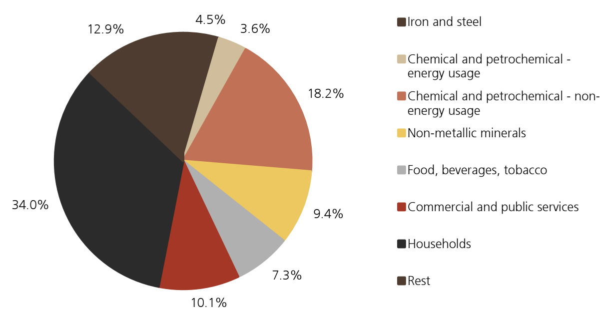
Source: Eurostat, UBS

Figure 10: Hungary, % of total gas usage, 2020



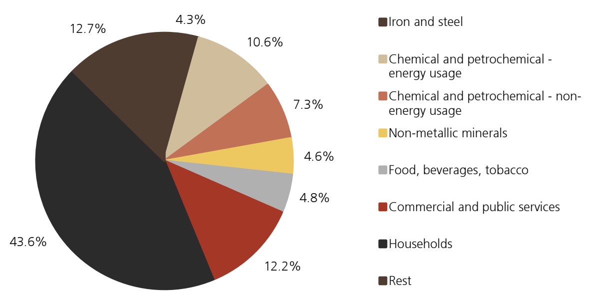
Source: Eurostat, UBS

Figure 11: Poland, % of total gas usage, 2020



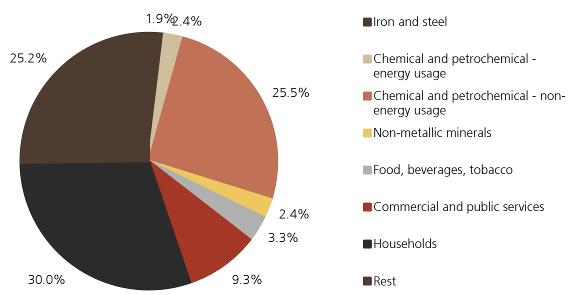
Source: Eurostat, UBS

Figure 12: Romania, % of total gas usage, 2020



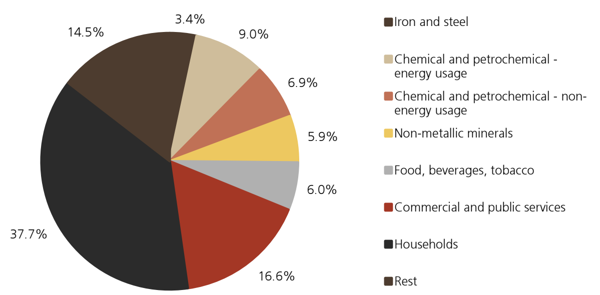
Source: Eurostat, UBS

Figure 13: Greece, % of total gas usage, 2020



Source: Eurostat, UBS

Figure 14: EU average, % of total gas usage, 2020



Source: Eurostat, UBS

Key mitigation measures taken/considered

Figure 15: Overview of country measures

Country	Measures
Czechia	The Ministry of Industry and Trade of the Czech Republic together with ČEZ negotiated a capacity of three billion cubic meters of gas per year, which corresponds to about 1/3 of the annual gas consumption of Czechia. The contract was concluded for 5 years. At the same time, gas transport routes from the Netherlands to Czechia have also been contracted. The operator of the terminal, the Dutch national company Gasunie, expects to start operations during September 2022. ČEZ plans to use the terminal immediately after its launch. The country is currently in negotiations with Germany in regard to the latter's planned construction of gas storage facilities, which should be finished sometime around 2025. Czechia is currently exploring two options in this regard, either purchasing a share in the ownership of the facilities themselves, or renting them out. The Ministry of Industry and Trade has proposed that buildings be heated at lower temperatures if heating plants are affected by a lack of fuel caused in the event of gas supply outages. The proposal counts on lowering heating temperatures in centrally heated living spaces such as kitchens or eating rooms, but also offices to 18 degrees Celsius. Meanwhile, school classrooms and bathrooms would be heated at a temperature of 19 degrees.
Hungary	Hungary signed a long-term (15 year) contract with Gazprom to receive 3.5 billion cubic metres (bcm) of gas per year via Bulgaria and Serbia, and a further one bcm via a pipeline from Austria. The agreement is valid for 15 years, with an option to modify purchased quantities after 10 years. Hungary expects to agree on a new deal with Russia this summer that would provide the country with an additional 700 million cubic meters of gas - given that it is lagging behind in filling up storages.
Poland	Poland pursued several gas supply diversification projects and accumulated gas in storage as the country had planned to end purchases from Russia after the long term supply contract expiry at the end of 2022. The supplies were halted on 27 April. Poland plans to replace Russian gas imports by increasing purchases of LNG and Norwegian gas through the Baltic Pipe (10bcm capacity) due to start in October. The LNG terminal in Świnoujście currently has regasification capacity of 6.2bcm per year, with plans to increase to 8.3 bcm by end of 2023. According to Poland's energy and climate Minister Anna Moskwa, the capacity of the planned floating LNG strorage and regasification terminal (FSRU) under construction in Gdansk will be doubled to 12 bcm; in March the planned FSRU capacity was put at 6.1 bcm by 2027-28. The cross-border gas flow capacity is also boosted by new interconectors with Lithuania (2bcm capacity) launched in May, and with Slovakia (4.7-5.7 bcm) due to be opened later in 2022. In July, Polish goverment approved a package of anti-crisis measures including more relaxed gas trading rules for gas companies, contingency planning for gas storage and transmission and extension of tariff protection for 7.1mn small consumers until 2027.
Romania	Romania opened a processing plant belonging to Black Sea Oil & Gas (BSOG). BSOG began to tap into underwater deposits, becoming the first new offshore Black Sea development in the past 30 years. The $400-million platform extracts three million cubic metres of gas per day. It is due to recover one billion cubic metres per year for 10 years, or around 10 percent of Romania's needs. Romania has offshore gas reserves estimated at 200 billion cubic metres of gas, but the Austrian group OMV and its Romanian partner Romgaz have yet to decide whether they will go ahead with the Neptun Deep project to tap between 42 billion and 84 billion cubic metres of gas. Romania was seeking to diversify supply routes and gas producers, including liquefied natural gas, Azeri gas, gas from other sources, from the US, Qatar, Saudi Arabia, the United Arab Emirates.
Greece	The Regulatory Authority for Energy and grid operator DESFA presented Public Power Corporation with an action plan in the event of an interruption of Russian gas supplies. Key steps addressing a potential shortfall: a) LNG imports are expected to cut the shortfall by 60%; b) using the gas storage in Italy; c) reduction in electricity exports and fuel switch in the five gas-fired power stations; and d) temporary reduction of gas exports to Bulgaria for a few days. Among the key meaures the Greek government is implementing: the Greek-Bulgarian natural gas pipeline (expected to be put into operation over the summer), a new liquefied natural gas tank in Revithoussa, and the floating liquefied natural gas tank in Alexandroupoli in 2023. These projects are included in the RePower EU program. The Environment and Energy Ministry also issued a positive opinion on the construction of the EastMed pipeline (Cyprus-Greece-Italy).

Source: LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK, LINK

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Risks include macroeconomic variables (such as GDP growth rates and inflation), economic slowdown, a weakening currency, global economic events, and government policy changes.

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