

# FAQ: European Independence From Russian Natural Gas

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## Why must Europe reduce and ideally eliminate reliance on natural gas imports from Russia?

- The European Commission's REPowerEU plan calls for a two-thirds reduction in Russian gas imports this year. This would leave Europe critically vulnerable to a sudden cessation of gas flows, particularly in winter months.
- European countries paid Russia more than \$70 billion for fossil fuels in the first two months after the invasion of Ukraine, including \$31 billion for natural gas. This far exceeds the total aid provided to Ukraine since the war began.

## How much natural gas does Europe import from Russia?

- Roughly 140 billion cubic meters per year (bcm/yr) via pipelines and 15 bcm/yr via liquefied natural gas (LNG).

## Is elimination of European gas imports from Russia feasible?

- Yes. Analysis and modeling of European gas and electricity systems identifies several feasible paths for Europe to eliminate imports of Russian natural gas by October 2022.

## What measures can Europe employ to eliminate reliance on Russian gas this year?

- Increasing pipeline gas and LNG imports from alternative sources.
- Reducing gas demand in heating and industry.
- Reducing gas-fired electricity generation by temporarily increasing coal use and reducing electricity demand while accelerating renewable energy deployment.
- Recalibrating gas storage targets to reflect reduced natural gas demand under this scenario.

## What role will alternative sources play in eliminating gas imports from Russia?

- Non-Russian pipeline imports should increase by 22 bcm/yr over the next two years.
- Net LNG imports need to increase by up to 30 bcm/yr. An additional 15 bcm/yr is needed to replace current Russian LNG imports, for a total need for about 45 bcm/yr of alternative LNG supplies.

## How much end-use demand reduction is required to eliminate European reliance on Russian gas?

- We model gas demand reductions of 2.5% in industrial applications, 8% in residential and commercial heating, and 4% in combined heat and power plants, equal to 4.3% of total EU gas use (slightly below the REPowerEU plans for a 5% reduction via behavioral measures).
- Feasible alternative pathways exist with higher or lower levels of demand reduction.

## How much must natural gas use be reduced in Europe's electricity sector?

- Roughly 50 bcm/yr, which can be achieved through various combinations of electricity demand reduction, renewable energy deployment, and substitution by coal power.
- Maximum achievable gas use reduction in Europe's electricity sector is roughly 70 bcm/yr.

## How much must Europe increase its coal consumption in this scenario?

- European hard coal consumption increases by 40-65 MT during the 2022/2023 heating year (April 2022-March 2023) compared to the year prior and 10-50 MT during the 2023/2024 heating year.
- Coal consumption can be reduced to 2021 levels or below by the end of 2024 through accelerated renewable electricity deployment and restoration of French nuclear fleet availability.

## How can Europe meet this demand for additional coal?

- European lignite production can likely increase by 30 MT in 2022, the equivalent of about 10 MT of hard coal.
- Europe would need 80-105 MT of additional hard coal imports in 2022/2023 heating year to displace both gas and hard coal imports from Russia, which stood at 50 MT/yr in 2021.
- Assuming Russia's current exports to Europe are purchased elsewhere on the global market, meeting Europe's needs will require an increase of 30-55 MT/yr of new supplies delivered to the global seaborne coal market, an increase of about 3-6% in the global thermal coal trade.
- The United States could supply ~30-55 MT/yr by drawing down ample stocks, increasing domestic production, and reducing coal-fired generation in the US power sector.

## What is the emissions impact of expanding coal generation and eliminating Russian gas?

- Territorial greenhouse gas emissions would change by -2.2% to -4.4% relative to 2021 levels in 2022/2023 (-89 to -180 MTCO<sub>2</sub>e/yr) and by -4.3% to -7.0% relative to 2021 levels in 2023/2024 (-177 to -294 MTCO<sub>2</sub>e/yr), depending on the level of coal use and rate of renewable deployment.
- Total upstream emissions decrease by an additional 71 MTCO<sub>2</sub>e/yr in 2022/2023 and 97 MTCO<sub>2</sub>e/yr in 2023/2024.