



E3G

**EMBER**  
COAL TO CLEAN ENERGY POLICY

---

**BRIEFING PAPER** October 2022

## MORE RENEWABLES, LESS INFLATION RESTORING EU ECONOMIC STABILITY THROUGH INVESTMENT IN RENEWABLES

**PIETER DE POUS, ARTUR PATULEIA, SARAH BROWN,  
CHRIS ROSSLOWE**

Wind and solar energy produced a record quarter of the EU's electricity in the period since March 2022. Given the rampant inflation mainly caused by the high price of gas, this amounts to significant cost savings. The total renewable energy capacity saved the EU €99bn in avoided gas imports, a record increase of €11bn compared to last year.

EU energy ministers now have the opportunity to drive home the advantages of clean energy. In addition to the climate benefits, accelerating deployment of cheap renewable energy will reduce Europe's exposure to costly fossil fuels. The REPowerEU proposal sets new, higher targets for renewable energy and energy efficiency. Backing these targets will drive accelerated investment ahead of future winters. It's the sensible option for Europe's energy security, strained government budgets and consumer energy bills.



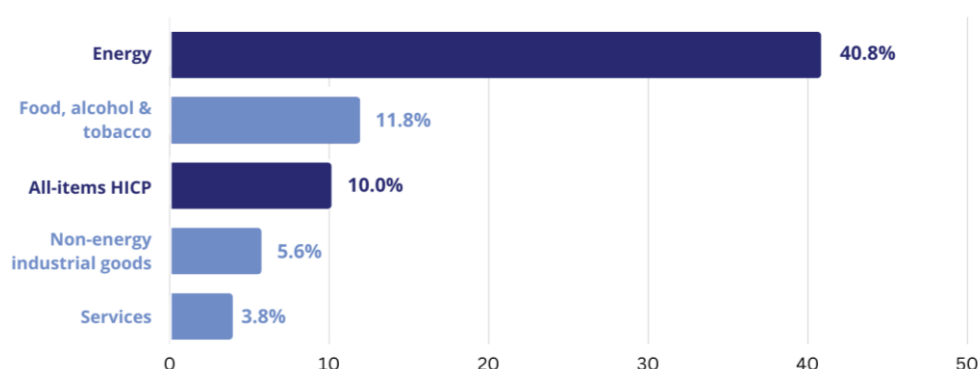
E3G



## The source of Europe's inflation: dependence on Russian gas

Fossil fuels have been responsible for the largest inflationary shocks in Europe since World War II, beating that of the oil crisis in the 1970s. The EU was heavily dependent on Russian gas imports – 41% of the EU's gas imports in 2020<sup>1</sup> – when Russia started constraining its gas supply in 2021. This led to severe consequences for energy prices across the continent. The EU's exposure to these high-priced fossil fuels is the major contributor to the current inflationary crisis. In September 2022, the price of energy was 40.8% higher than a year before,<sup>2</sup> contributing to 36% of the overall high inflation figures in the EU (Figure 1).

Figure 1: Euro area annual inflation, September 2022. Inflation in energy prices was over 40%, contributing significantly to overall inflation.



Source: Adapted from Eurostat.<sup>3</sup> HICP = harmonised indices of consumer prices.

The EU's current high exposure to Russian fossil fuel imports is the result of gas network operators systematically overestimating future gas demand when developing gas infrastructure.<sup>4</sup> Earlier efforts to reduce this dependence, such as diversifying gas supply in response to Russia's illegal occupation of Crimea, have been unsuccessful. In fact, Russia's share in the EU's gas imports even increased after Crimea was invaded in 2014 (see Figure 2, next page). The construction and use of Nord Stream2 would have increased import capacities even further.

<sup>1</sup> Eurostat Statistics Explained, March 2022, [EU energy mix and import dependency](#)

<sup>2</sup> Eurostat Statistics Explained, September 2022, [Inflation in the euro area](#)

<sup>3</sup> Eurostat, September 2022, [Euro area annual inflation up to 10.0%](#)

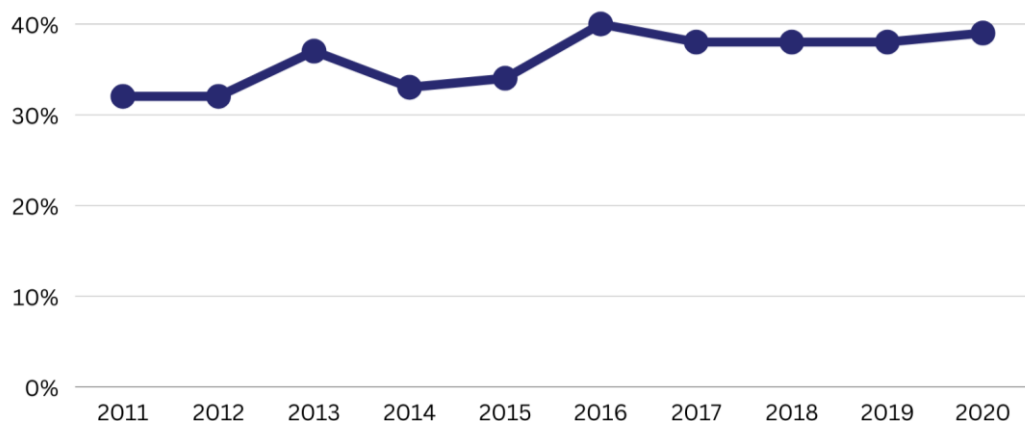
<sup>4</sup> E3G, December 2016, [European gas network plans based on industry fantasy](#)



E3G

**EMBER**  
COAL TO CLEAN ENERGY POLICY

Figure 2: The share of Russian supplies in EU natural gas imports has increased over time.



Source: Eurostat<sup>5</sup>

While gas was being promoted as a “bridge fuel”, the ambition on clean energy investment was being undermined at EU legislative negotiations. As an example, the Renewable Energy Directive (RED) and Energy Efficiency Directive (EED) negotiations in 2018 delivered outcomes that were short on ambition. The Renewable Energy Directive negotiation resulted in a 32% target for renewables as a proportion of total energy generation. This was below the 35% supported by the European Parliament. The Parliament advocated the same 35% target in the Energy Efficiency Directive, but negotiations with member states led to a lower target of 32.5%.

Betting on gas as a bridge fuel and holding back on expanding renewable capacities are the main causes of Europe’s energy crisis. The decision to pursue yet another diversification strategy and develop new gas infrastructure in the context of sustained high prices<sup>6</sup> and tight LNG markets<sup>7</sup> risks replicating past mistakes and will fail to bring relief from the current crisis.

<sup>5</sup> Eurostat, [Imports of natural gas by partner country](#)

<sup>6</sup> BNN Bloomberg, July 2022, [Gas Crunch to Haunt Europe for Winters to Come, LNG Lobby Says](#)

<sup>7</sup> IEA, October 2022, [Natural gas markets expected to remain tight into 2023 as Russia further reduces supplies to Europe](#)



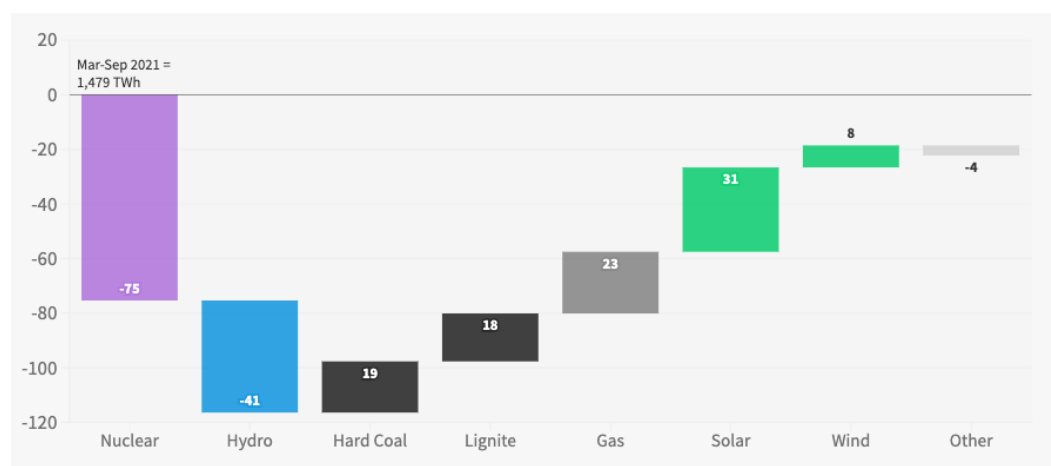
E3G



## Renewable energy saved the EU €99bn in avoided costs since March 2022

The total amount of currently installed wind and solar capacity avoided 70 bcm<sup>8</sup> of gas imports to the EU since the war escalated in February 2022,<sup>9</sup> amounting to €99 bn in avoided costs. In this period, wind and solar reached a share of 24% of the EU’s electricity. The increase in wind and solar helped to mitigate the impacts caused by drought (21% reduction in hydro electricity generation) and unavailability of nuclear capacity (19% reduction) (Figure 3).

Figure 3: Change in EU-27 electricity generation for March–September 2022 compared to 2021 (TWh). Wind and solar have filled a third of the EU’s deficit in hydro and nuclear electricity since Russia’s invasion of Ukraine.



Source: Analysis by Ember. Other includes bioenergy, other renewables and other fossil fuels.

In total, wind (192 TWh) and solar (153 TWh) generated 345 TWh of electricity across the EU from March to September this year — a record year-on-year increase of 39 TWh or 13%. Without this wind and solar generation, the EU would have required 690 TWh (~70 bcm) of additional natural gas to produce that electricity from gas instead. Based on the average EU benchmark TTF Day Ahead gas price for March to September 2022, this additional gas would have cost the EU €99 billion. The year-on-year increase in wind and solar generation resulted in 8 bcm of gas savings, making up €11 bn in avoided gas costs.

<sup>8</sup> Billion cubic meters.

<sup>9</sup> Period March–September 2022.



E3G

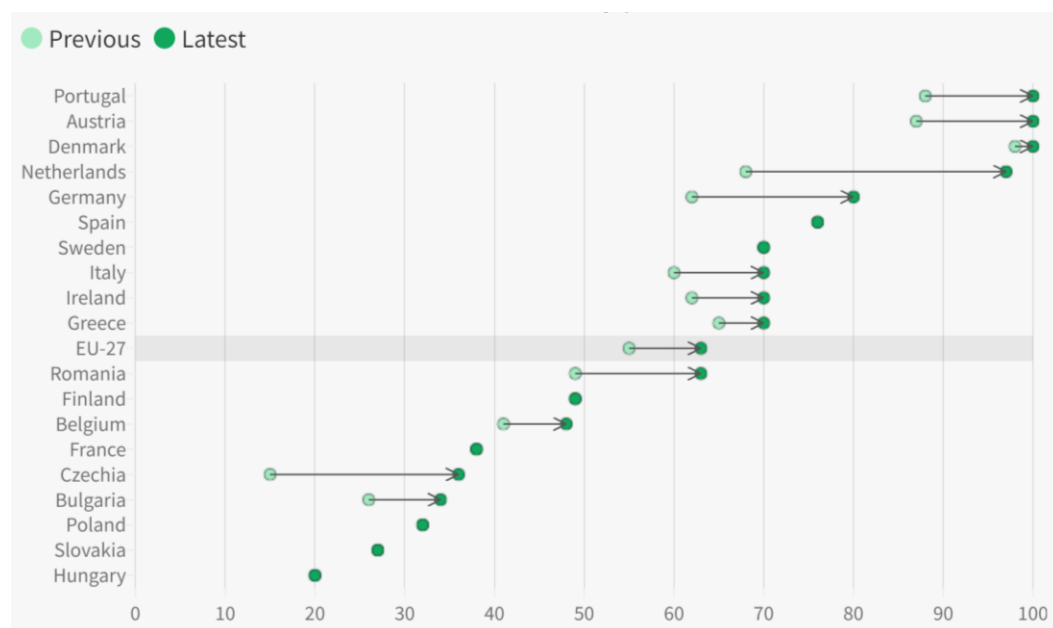


## EU's record growth in wind and solar avoided €11bn in gas costs since the start of the war.

In the period March to September 2022, 19 countries achieved record wind and solar electricity generation. Out of these countries, Poland had the greatest percentage year-on-year increase (+48.5% and +5 TWh). Spain registered the greatest absolute generation increase with 7.4 TWh. Producing this electricity in Spain with gas instead would have required an amount of gas costing approximately €1.7bn. Wind and solar grew in Germany by 5.4 TWh year-on-year, avoiding the use of gas costing €1.6bn.

Member states and the European Parliament have already recognised the role of wind and solar in Europe’s energy security. Analysis by Ember and CREA<sup>10</sup> has shown that 19 EU governments have increased ambition in renewables in recent years. Some countries are planning to generate close to all electricity from renewables by 2030 (see Figure 4).

Figure 4: Planned share of renewables in EU-27 electricity production in 2030 (%).



Source: Analysis by CREA and Ember. Previous: National Energy and Climate Plans (NECPs) from 2019; Latest = national policy announcements as of May 2022. The countries displayed account for >97% of EU-27 electricity consumption.

<sup>10</sup> EMBER, June 2022, **Shocked into action**



E3G



---

## RePowerEU: a solidarity agenda for Europe's energy security and affordability

The European Commission's RePowerEU proposal, presented in May, includes an increase in the Renewable Energy Directive (RED) target from the 40% of the overall energy mix in its original proposal to 45%. It also moves the additional reduction of energy consumption to be achieved through energy efficiency from 9 to 13%,<sup>11</sup> and proposes easier permitting procedures. The European Parliament supported the new 45% renewable energy target and even raised the efficiency target further to 14.5%. However, the Council has yet to start discussing it as part of the trilogue negotiation on the RED and EED with the European Parliament and Commission.

The Council's delay in aligning with the RePowerEU 45% target is in clear contrast with the surge in clean economy investments already committed by EU governments at the national level, as presented previously in Figure 4. These national commitments will lead to the share of renewable energy in the EU power sector increasing from the current 55% NECP ambition to 63% by 2030. The effort represents more than half of what is required to meet the RePowerEU 45% share of renewable energy in the overall energy mix, which corresponds to a 69% share in the power sector.

The Council must learn from the choices that maintained high fossil fuel dependency and reduced clean energy ambition. This legacy is now amplifying the socio-economic consequences of a fossil fuel price shock. By supporting the RePowerEU ambition, the Council would contribute to increasing Europe's energy security and signal their intention to reduce European citizens' and businesses' exposure to future fossil fuel supply shocks. As a war response package, delivering RePowerEU is also an opportunity to show solidarity by ensuring that the effort to achieve higher energy security is shared among member states, especially supporting those more dependent on Russian fossil fuel supplies.<sup>12</sup>

---

<sup>11</sup> Additional reductions compared to 2020 reference scenario projections. 9% corresponds to the 39% and 36% energy efficiency targets for primary and final energy consumption respectively as outlined in the EU's Climate Target Plan. European Commission, [Energy efficiency directive](#)

<sup>12</sup> E3G, September 2022, [Managing the EU's winter crisis](#)



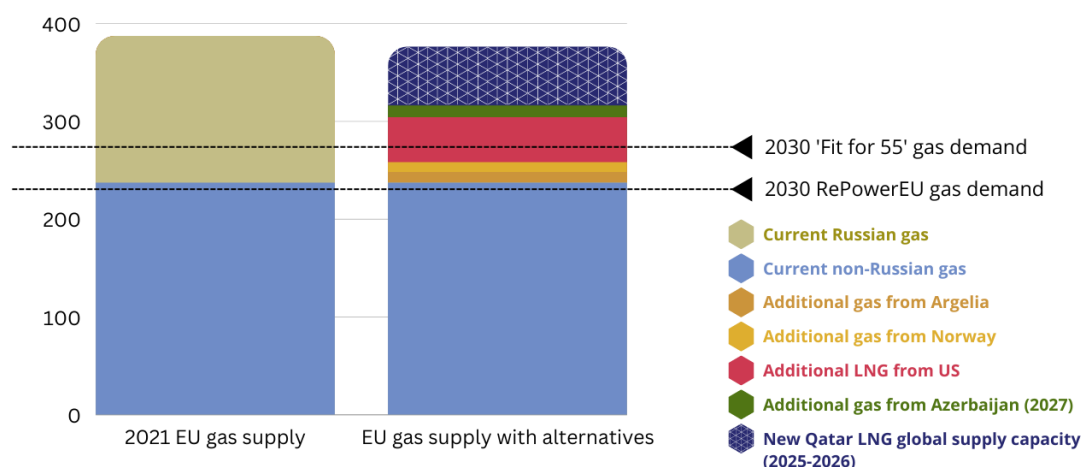
E3G



## Increasing ambition will help deliver quick results for the next three winter seasons

Global gas markets are likely to remain tight for the next years<sup>13</sup> as there will be low additional supply from LNG producers in the near term (see Figure 5). A gas diversification strategy is therefore unlikely to solve the energy cost crisis in Europe, especially for the next three to five years. In addition, it could risk creating a gas oversupply in the long run, taking into consideration the EU gas demand projections by 2030 (Figure 5).<sup>14</sup>

Figure 5: Gas imports and added gas supplies in relation to the 2030 gas demand projections (Fit for 55) in billion cubic meters (bcm).



Source: IEA<sup>15</sup> Bruegel<sup>16</sup>, Business Wire<sup>17</sup> and Euractiv.<sup>18</sup> New Qatar LNG global supply capacity also includes potential supplies to other global economies. Deliveries from Azerbaijan are expected to increase by 4 bcm from 2023 with additional 8 bcm by 2027.

<sup>13</sup> IEA, October 2022, **Natural gas markets expected to remain tight into 2023 as Russia further reduces supplies to Europe**

<sup>14</sup> E3G, April 2022, **Future of EU gas demand**

<sup>15</sup> IEA, June 2022, **The energy security case for tackling gas flaring and methane leaks**

<sup>16</sup> Bruegel, September 2022, **A grand bargain to steer through the European Union's energy crisis**

<sup>17</sup> Business Wire, September 2022, **Qatar: TotalEnergies selected as QatarEnergy's first partner in the North Field South LNG project**

<sup>18</sup> Euractiv, July 2022, **EU signs deal to double gas imports from Azerbaijan by 2027**



E3G

**EMBER**  
COAL TO CLEAN ENERGY POLICY

---

EU governments are exhausting their fiscal space for measures to cushion the short-term socio-economic crisis impacts, and the the European Central Bank (ECB) is tightening its monetary policy at a fast pace. The International Monetary Fund has flagged the uncertainty over future winters.<sup>19</sup> Governments will not be able to sustain the pressure on national budgets caused by costly programmes to compensate for high fossil energy prices over a longer period of time. The crisis response now therefore needs to shift its focus to ensuring that the underlying causes for the current crisis are effectively addressed. EU governments need to demonstrate that they intend to reduce exposure to high-priced gas imports. They should set a clean investment agenda by supporting the new RePowerEU targets, and making rapid progress in achieving the projected reduction of 41% of gas demand by 2030. This will bring relief to tight international LNG markets.<sup>20</sup>

The additional ambition embedded in the RePowerEU plans increases certainty for policy makers, businesses and financial institutions to bring forward implementation timelines. It can therefore act as a major driver for an immediate accelerated deployment of clean energy technologies. The record year-on-year increase in solar and wind generation in the EU – up 39 TWh (13%) between March and September this year, permanently eliminating the need for 8 bcm of gas imports and saving €11 billion in avoided costs – shows that these technologies are ready to take over.

## EU's credibility as a global energy transition leader is at stake

The RePowerEU package is also a critical signal to the rest of the world. It shows that Europe is responding to the current crisis by accelerating its clean energy transition to achieve a considerable reduction in gas consumption over the next years. The importance of this signal is hard to overstate given how the EU's current presence in global LNG markets has been a major driver of the increase in global LNG prices. Major producers are opting to break existing long-term contracts in order to benefit from those prices, causing very significant political and economic challenges for the EU's partners.

Adding to these political tensions is the fact that a significant number of EU governments actually committed to ending all public financing of fossil fuels as

---

<sup>19</sup> IMF Blog, October 2022, [Policymakers need steady hand as storm clouds gather over global economy](#)

<sup>20</sup> Bruegel, September 2022, [A grand bargain to steer through the European Union's energy crisis](#)

---





E3G

**EMBER**  
COAL TO CLEAN ENERGY POLICY

---

recently as last year at COP26. The strong focus that EU energy diplomacy currently has on securing new sources of gas imports especially is now making it very vulnerable to accusations of hypocrisy. One example is the declarations of a South African energy minister,<sup>21</sup> who used the EU's shifting some short-term gas to coal as an example not to pursue climate ambition.

On the other hand, energy ministers will provide more legitimacy for the EU's global climate action efforts if they support a package with clear targets for clean energy and energy efficiency.

Once adopted, RePowerEU can become a foundation on which the EU can build energy partnerships, in support of a global energy transition. This would make clean energy diplomacy a pillar of the European Green Deal, building on its domestic action to strengthen international outreach. Only when the EU has these higher renewable and energy efficiency targets in place, can it credibly claim to be on track to achieve a fossil-free power system, as agreed under the German G7 Presidency in June 2022.<sup>22</sup>

## Note on methodology

Monthly electricity generation is from Ember's dataset ([see methodology and download data](#)), and the EU data is taken from ENTSO-E. The dates considered were 1 March to 30 September. It has been assumed that, due to the costs of producing electricity from gas power plants being the most expensive, any wind and solar power generated replaced gas in the electricity mix. A gas plant efficiency rate of 50% (gross calorific value/higher heating value) has been used. Average day ahead prices from March to September on the Dutch Title Transfer Facility (TTF) fossil gas prices have been used to calculate gas cost savings. A conversion factor of 1 bcm = 9.7 TWh has been applied.

## Acknowledgements

We would like to thank our colleagues at E3G Raphael Hanoteaux, Lisa Fischer for their valuable insights and support

---

<sup>21</sup> Bloomberg, September 2022, [Europe's Energy Crisis Shows Value of Coal, South African Minister Says](#)

<sup>22</sup> G7, May 2022, [G7 Climate, Energy and Environment Ministers' Communiqué](#)



E3G

**EMBER**  
COAL TO CLEAN ENERGY POLICY

---

## About EMBER

Ember is an independent climate and energy think tank focused on accelerating the global electricity transition from coal to clean. It gathers, curates and analyses data on the global power sector, using cutting edge technologies and making data and research as open as possible. It uses this evidence to inform high impact and politically viable policies that accelerate the coal phase-out. Founded in 2008 as Sandbag, it formerly focused on analysing, monitoring and reforming the EU carbon market.

More information is available at [www.ember-climate.org](http://www.ember-climate.org) global transition from coal to clean electricity.

## About E3G

E3G is an independent climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action.

E3G builds broad-based coalitions to deliver a safe climate, working closely with like-minded partners in government, politics, civil society, science, the media, public interest foundations and elsewhere to leverage change.

More information is available at [www.e3g.org](http://www.e3g.org)

### Copyright

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 2.0 License. © E3G 2022