BRIEFING

European Added Value in Action

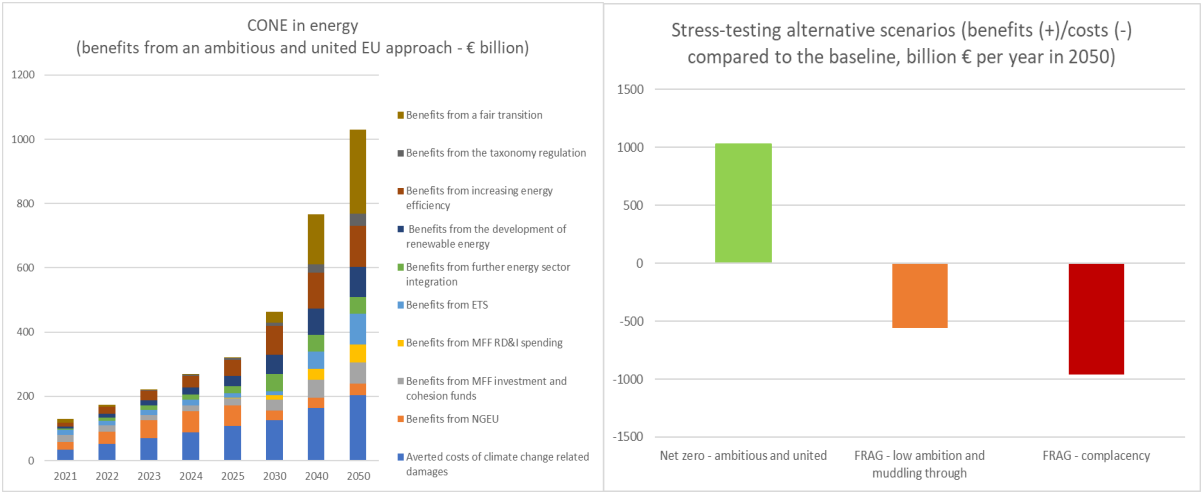
Towards carbon neutrality through ambitious transformation of the EU energy system

SUMMARY

According to a recent European Parliamentary Research Service Cost of Non-Europe (CONE) report, ambitious and united European Union (EU) action in climate and energy policy could be very beneficial, bringing gains of up to 5.6 % of gross domestic product (GDP), equal to **€1 trillion additional GDP per year in 2050**, compared to a continuation of the status quo (see Figure 1). However, failure to arrive at a common approach, in particular by collectively addressing volatile energy prices and systemic risks emerging from EU dependency on external suppliers such as Russia, could result in the EU missing out on some, or the entirety, of these potential benefits.

In this briefing we confirm that the **EU has a key role to play** to attenuate and eliminate the related risks and in making the transformation possible and successful. We also confirm that fragmentation driven by low ambition and muddling through, or even worst case scenarios of fragmentation, would result in relatively high negative impacts.

Figure 1 – Cost of Non-Europe (CONE) in energy: Net zero in 2050 – ambitious and united EU action vs the baseline – detailed results and stress testing of alternative scenarios



Source: EPRS 2021 (left), and authors' calculation based on EPRS, 2021 (right).

An ambitious transformation path towards net zero

As highlighted in the Cost of Non-Europe (CONE) report published in October 2021, there is now an urgent need to decisively accelerate the transformation of the EU energy system, so as to arrive at carbon neutrality as soon as possible. The report also demonstrates that the past achievements in

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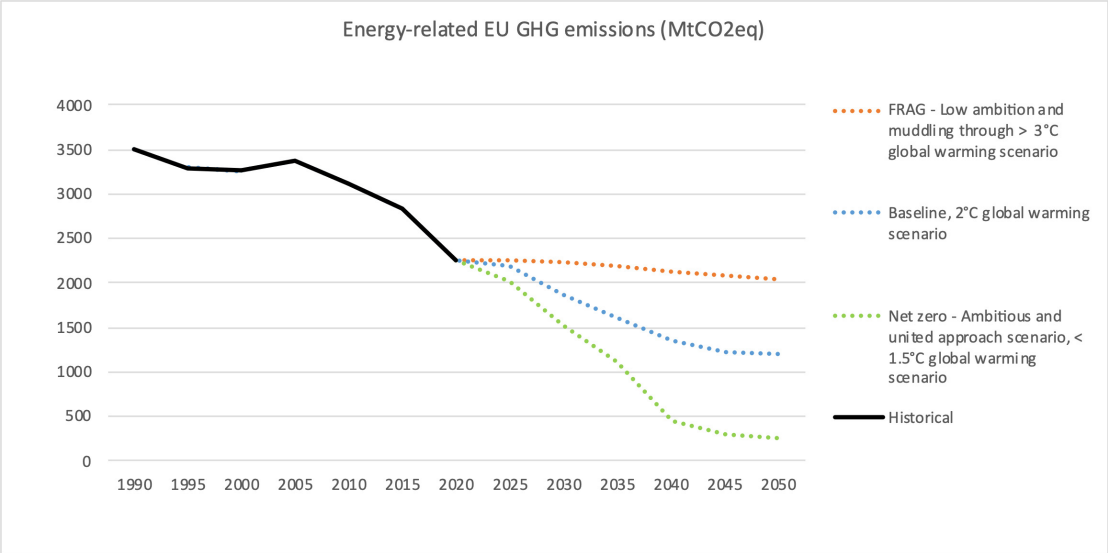
EU energy and climate policy would not have reached current levels if EU Member States had acted in a fragmented way, instead of having initiated a common policy. This can notably be seen in the decline of greenhouse gases (GHG) emissions since 1990. Furthermore, and very relevant in the context of the ongoing war in Ukraine, a successful decarbonisation of the EU energy system by 2050 would contribute to ensuring a **double dividend** of more strategic autonomy on the one hand, and preservation of the climate and respect of pledges made under the Paris Agreement on the other.

Complacency, however, would be misplaced, because the transformation to a sustainable and carbon-neutral energy system represents an unprecedented and difficult endeavour at both EU and global levels.[1] Climate and energy policies have profound and potentially disruptive consequences on societies and economies – and geopolitical considerations are never far away. The EPRS CONE report explored precisely what would be the risks of reverting to complacency scenario and of neglecting further ambitious action beyond 2030 and up to 2050. The EPRS report estimated that EU will face large environmental, social, political and economic costs and the results showed that a **successful transformation can only happen if Member States act together**. As shown in Figure 2, the net zero scenario[2] of ambitious and united EU action, modelling EU energy system decarbonisation by 2050, is much more successful in reducing EU GHG emissions than alternative scenarios, including the status quo (baseline),[3] fragmentation driven by low ambition, and 'muddling through'.

Figure 2 – Potential adverse environmental impact of fragmentation (land use, land-use change, and forestry are not included)[4]

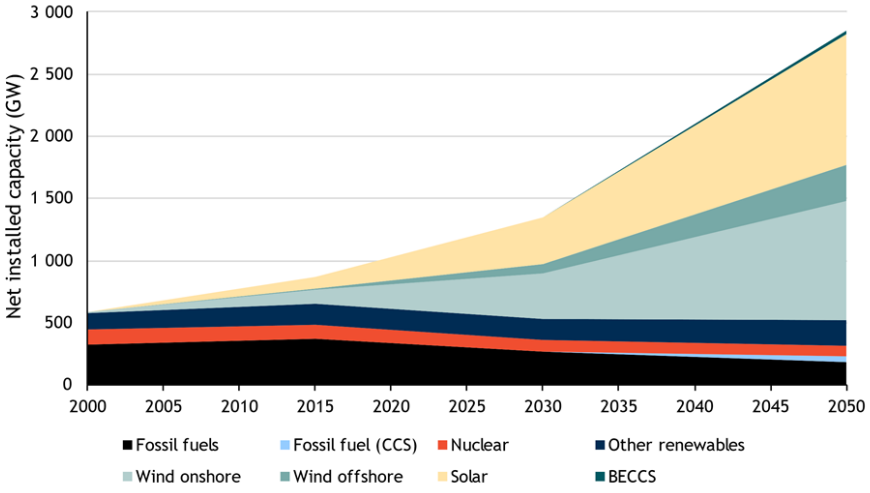


Source: Authors' calculation based on data from EPRS, 2021, Hoogland et al., 2021, European Commission, 2021, IEA, 2021 and IPCC, 2021.

In particular, in the context of its deep transformation, a key challenge for the EU energy system is to continue to reduce GHG emissions while simultaneously ensuring a **secure, reliable, integrated, affordable and sustainable energy supply**. A successful EU decarbonisation pathway modelled in the CONE report, the net zero scenario, predicts a stark decrease in CO_2 emissions by 82 % compared to the baseline and by 94 % compared to 1990 levels, by 2050.[5] This could be possible thanks to a **mix of regulatory and pricing measures**.[6] These projected increases in energy efficiency, renewable energy use and reduction of fossil fuel use in different sectors are key to the energy transformation. The transformation would also require **ambitious and long-term financing**, including at EU level. Only in such a way could **convergence between EU Member States** be ensured and market access increased for clean technologies.

More specifically, **decarbonisation of the power sector** will be crucial and will serve as an indicator of progress in the depth of the transformation. The pathway to carbon-neutrality, modelled in the net-zero scenario, envisages electrification of many end-uses, such as in road transport and buildings. Thus, sources of electricity generation would need to change rapidly. Phasing out fossil fuel-based power generation and rapid deployment of renewables, especially after 2030, (wind and solar in particular) would ensure success (see Figure 3). Moreover, as renewable sources of energy are intermittent, the projected growth in power production capacities would need to be higher than in a conventional electricity system.

Figure 3 – Historical and projected EU net installed electricity production capacity by source in the net zero emissions scenario by 2050



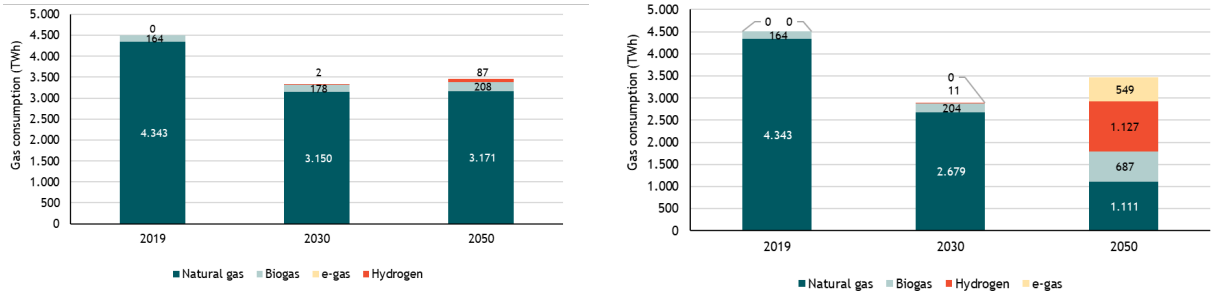
Source: Hoogland et al., 2021, based on European Commission data.
BECCS is bioenergy with carbon capture and storage, and CCS is carbon capture and storage.

Moreover, in the net zero scenario, **in 2050 nearly 90 % of net installed electricity production capacity will be in all renewable types**, with over 80 % coming from wind (34 % onshore and 10 % offshore) and solar power (37 % – see Figure 3). This would mean a need for an 800 % increase to a level of 2 300 Gigawatts (GW) in the share of solar and wind in electricity production capacity by 2050, compared to actual shares (around 286 GW) in 2020.[7] According to the net zero scenario, the capacity level of these intermittent sources would be around 810 GW in 2030 (370 GW solar and nearly 440 GW wind, of which 366 GW onshore and 73 GW offshore). In terms of gross electricity generation, intermittent renewables would constitute 54 % of the mix in 2030 and 64 % in 2050 (compared to 54 % in 2050 in the baseline).[8] In comparison, the European Commission sets an even more ambitious target in the May 2022 REPowerEU plan, which raises EU climate and energy policy ambitions beyond the recently proposed Fit for 55 legislative package aimed at decreasing EU dependence on Russian fossil fuels in the wake of Russia's attack on Ukraine. The plan envisages that over 320 GW of solar photovoltaic will be newly installed by 2025, and almost 600 GW by 2030.

Awareness of the global climate crisis, and ambitious recovery spending envisaged for climate mitigation and adaptation purposes in the EU, together with recent disruptive events of extremely high energy prices and the war in Ukraine, create momentum for massive investment in energy transformation. Whereas in 2020 renewables generated more primary energy (over 40 %) than fossil fuels (25 %) for the first time, solar and wind constituted only 20 % of total renewable energy supplies.[9] Building such a renewables-reliant power system will also require parallel grid reinforcement and extension, as well as flexibility to absorb the fluctuating electricity supply. It will necessitate greater storage capacity and introduction of power-to-hydrogen plants at commercial scale, as well as battery storage. It would also be necessary to further strengthen connections between EU electricity markets, as many gaps in this respect still remain to be addressed, as well as further stimulation of digitalisation and sector integration. This transition will not be effective without a parallel phasing-out of fossil-based power generation. Calculations carried out by EPRS

predict a **90 % decrease in fossil power generation without carbon capture and storage (CCS) by 2050, compared to 2015 to reach carbon neutrality**. In comparison, the baseline in the EPRS study only predicts a 50 % reduction in fossil fuel-powered generation without CCS by 2050.

Figure 4 – EU gas consumption per fuel in the baseline scenario (left) and in the net zero scenario (right)



Source: Hoogland et al., 2021, based on European Commission data.

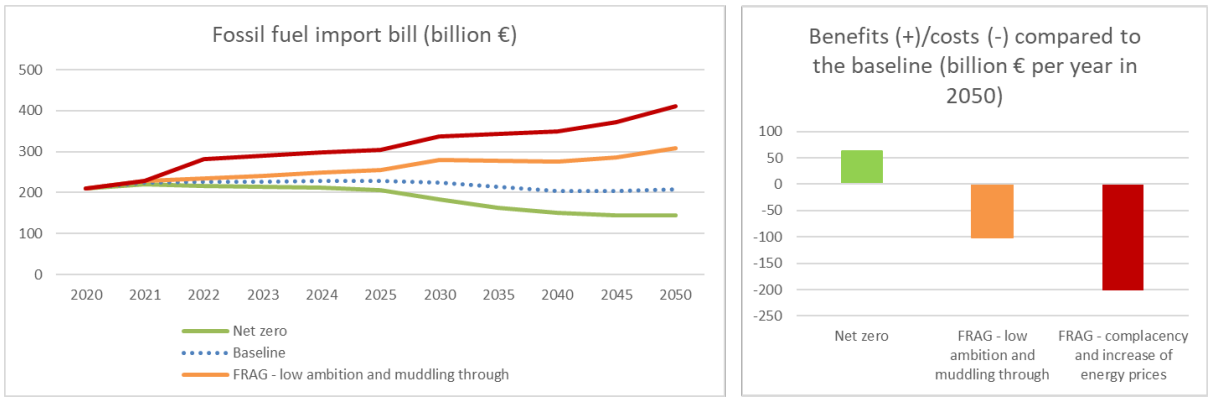
In addition to changes to the EU power sector, the CONE report also predicts profound changes in other energy supplies, such as gases, under the net zero scenario. By 2030, natural gas consumption would be reduced by 38 %, compared to 2019. In 2030, hydrogen consumption is predicted to reach 11 Terrawatt hours (TWh) (approximately 333 000 tonnes), constituting only around 0.4 % of all gases. In 2050, the structure of gas consumption in the successful decarbonisation scenario will be diversified and green hydrogen (produced from clean and renewable energy sources) could constitute the biggest share of gases at over 32 %, with consumption of natural gas decreasing by nearly 75 %, compared to 2019, to below 32 % (see Figure 4). Between 2030 and 2050, e-gases and biogas could also boom, to represent EU gas consumption of over 15 % and nearly 20 % respectively in 2050. The European Commission's REPowerEU plan again predicts a much steeper and more ambitious trajectory – reducing EU consumption of natural gas with a faster deployment of hydrogen. It predicts that the EU will be using 660 TWh (20 million tonnes) of green hydrogen as early as 2030.

Quantifying and stress testing the impact of EU action

While continuing to fight climate change, EU policy-makers should consider the short and long-term impact of their actions and pursue a strategic approach that guarantees that structural weaknesses, challenges and trade-offs are addressed and significantly reduced. In that respect, political will and the capacity to act in greater solidarity will be key to a successful energy transformation. Only balanced action on all the challenges can reduce the costs of the transformation and reap its benefits. The **total economic benefits** of an ambitious EU climate and energy policy, estimated by EPRS in the CONE report, represent **up to 5.6 % of GDP in 2050**, equal to €1 trillion in additional GDP per year, compared to continuation of the status quo in the baseline scenario. Benefits might be even greater if the EU opts for an even steeper GHG reduction, of 60 % by 2030, compared to 1990 levels.[10] These economic gains would mainly be due to investment in clean technologies and energy efficiency and, in the later period, growth is driven by higher consumer spending.

More specifically, one of the first benefits of resolutely pursuing the full decarbonisation path, as revealed by extreme scenario calculations carried out by EPRS (in addition to those in the CONE report), is that **harmful EU fossil fuel dependency would fall substantially** (Figure 5). Given the current international context of Russia's war of aggression against Ukraine and the EU decision to phase-out its dependency on Russian energy imports as soon as possible, this is an even more crucial development and even greater argument in favour of ambitious action.

Figure 5 – Impact on the fossil fuel import bill

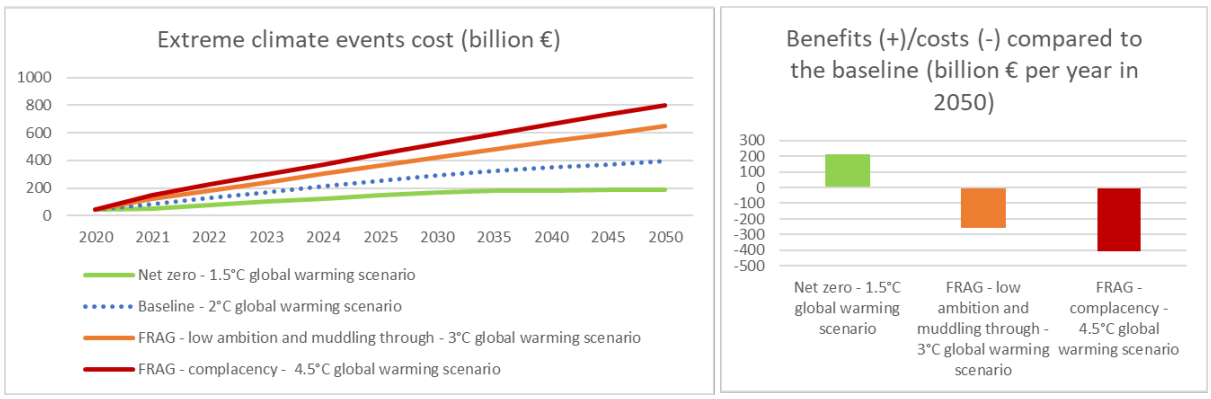


Source: Authors' calculation based on data from EPRS, 2021.

Estimations in the CONE report (dating from before the surge in energy prices and the war in Ukraine), show that, in a successful decarbonisation scenario, the EU could reduce its fossil fuel imports by over 30 % by 2050, representing an **economic benefit of around €63 billion per year from 2050**. This would be mainly due to improvements in energy efficiency and development of renewable energy. In a more adverse scenario, assuming that the price of fossil fuel continues to be permanently impacted by the war in Ukraine and ongoing international tensions, the benefits in terms of savings for the EU to pursue through a policy of net zero emissions are even higher, potentially reaching more than **€200 billion per year** in 2050 (see Figure 5). This is an annual saving of more than the entire annual EU budget, of around €173 billion in 2020. In comparison, the latest Commission REPowerEU plan, which sets out an accelerated reduction in dependency on fossil fuel imports from Russia by 2030, would save nearly €94 billion (if fully realised).

A second source of benefits is linked to **avoiding economic and welfare loss due to adverse impacts of extreme climate events**, reaching over **€200 billion per year** in 2050, if the temperature rise is maintained at 1.5 degrees Celsius until the end of the century (Figure 6). However, very high costs will have to be borne if the EU pursues a short-sighted and an unambitious climate and energy policy in subsequent decades. If climate warming is not contained and the temperature increases above 1.5 degrees Celsius, a series of high-impact negative consequences will materialise. Events such as windstorms, drought, river and coastal floods would cause damage and extensive socio-economic loss. Under a 3 degree Celsius warming scenario of low EU ambition and 'muddling through', the impact could amount to €255 billion per year in 2050 (compared to the assumed baseline of 2 degree Celsius climate warming). In an even more extreme 'complacency' scenario of an over 4.5 degree Celsius warming, over €400 billion per year could be lost to the EU economy compared to the baseline.

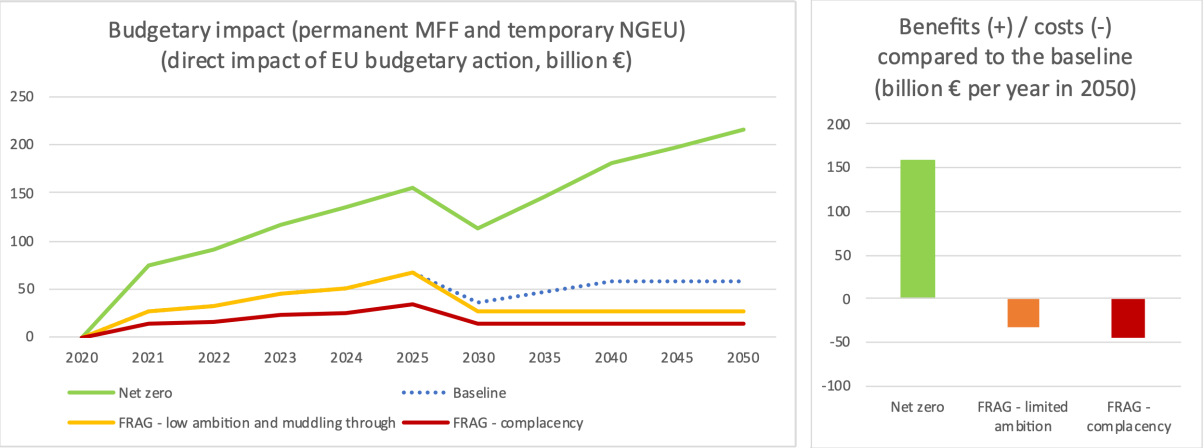
Figure 6 – Extreme climate events impact



Source: Authors' calculation, based on data from EPRS, 2021.

A third source of benefits is directly related to **budgetary action**, notably through the EU multiannual financial framework (MFF) and through Next Generation EU (NGEU). This is particularly relevant as, according to the CONE report, the benefits lost are mainly due to insufficient investment and weak support for innovation.

Figure 7 – Impact of EU budgetary action

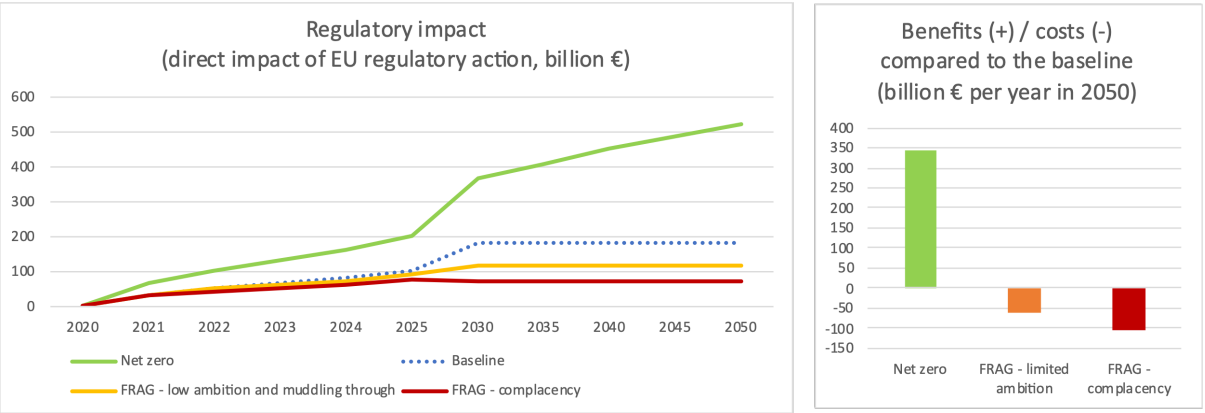


Source: Authors' calculation based on data from EPRS, 2021

In a case of low EU budgetary ambition (beyond 2027 and until 2050), as well as in an even more adverse 'complacency' scenario, economic costs range between €23 billion and €45 billion per year in 2050 (Figure 7). These macroeconomic losses would result from the minimal EU-level financing available in the period between the end of the current EU budget (2027) and 2050. Conversely, the net zero scenario assumes that the level of EU budget financing in 2021-2027 will continue at the same level until 2050. This could ensure an additional boost to GDP growth in the two decades after 2027, resulting in **a benefit of more than €150 billion per year in 2050**.

In the CONE report, EPRS also analysed the economic potential of **EU regulatory policy**. The 'ambitious and united action' scenario leading to net zero emissions in 2050, envisages application of carbon pricing to EU buildings and transport sectors, as well as application of the taxonomy regulation[11] for climate-related investments until 2050. It also includes the impact of regulatory actions on further energy sector integration, the impact of regulatory actions on developing renewable energy (excluding reduction of the fossil fuel bill), and the impact of regulatory actions on increasing energy efficiency (excluding reduction of the fossil fuel bill). These **regulatory tools could bring a benefit of €334 billion in 2050**, whereas 'low ambition' and 'complacency' again prove they would result in economic loss (Figure 8).

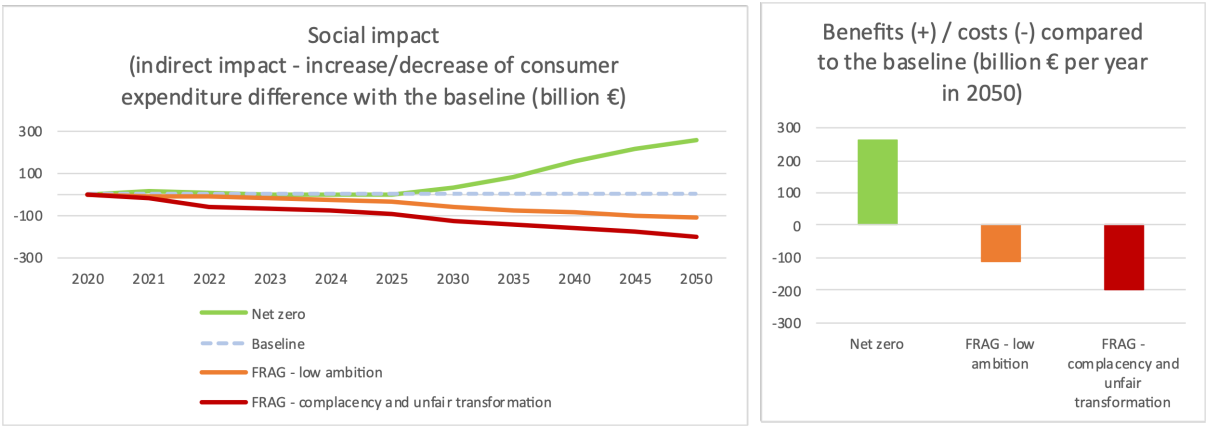
Figure 8 – Impact of EU regulatory action



Source: Authors' calculation based on data from EPRS, 2021

Finally, and beyond a purely technical focus, the **social impact** of the transformation must be considered. The success of the energy transformation and the benefits it will yield depends largely on how the social costs will be handled and on the acceptability of the transformation. First, estimations in the CONE report consider the positive economic impact of the transformation in terms of additional employment. According to the study, employment in the long term could be 2.1 million, or 1.1 %, higher, compared to the baseline, as employment in the construction and utilities sectors increase, mostly due to the higher labour intensity of low-carbon generation technologies. This contributes positively to raising household income and consumption. Second, as already highlighted in the simulations from the climate target plan, the positive impact on convergence largely depends on an assumption of better redistribution of revenues. This could finance a smooth transition through a rapid green transformation and address losses of employment in fossil fuel and mining sectors. Here, the results of the CONE stress the positive role of EU action with a positive convergence impact in the net zero scenario compared to the baseline.[12] This would mean that, thanks to EU intervention, a fairer and more equitable transition would be ensured in the sectors, regions and social groups most impacted by decarbonisation of the economy. Considering the potential positive developments in terms of increased employment and convergence, further gains of around **€260 billion in 2050** could be expected to result from a fair transformation, in particular in terms of increased purchasing and consumption power for EU consumers[13] (see Figure 9). To the contrary, a fragmented approach would result in less convergence and could cost up to €200 billion per year in 2050, as Member States would not benefit from EU budgetary and technical support, and fewer consumers would be able to buy green technologies.

Figure 9 – Impact of a fair transformation towards net zero



Source: Authors' calculation based on data from EPRS, 2021

Mitigating risks: more resilience and strategic action needed at EU level

Recent shocks and crises, such as the post-pandemic recession, the surge in energy prices and Russia's attack on Ukraine, have merely confirmed that the energy transformation is an immense and unprecedented socio-economic endeavour. The international reality has swiftly caught up with the ideal EU objective of an **affordable, secure, safe, competitive and sustainable energy system**, where worst-case scenarios had not been carefully considered and prepared.[14] Recent events have also revealed many **weaknesses and blind-spots in the EU energy system**. Moreover, the shocks have revealed that, if the EU does not act in a united manner, some challenges and trade-offs might be compromised, complicating the achievement of EU objectives.[15] For example, if the affordability aspect is not, or only partially, addressed by some Member States, this could create an uncompetitive and distortive situation on the EU's single market, as well as triggering vast socio-

political consequences. The situation therefore requires that the EU consistently assesses potential trade-offs, threats and challenges to transforming its energy system.

Security of energy supply

The EU's **energy security vulnerability** is clearly due to **over-dependence on imported energy sources, in particular from Russia**.[16] EU energy security has been listed as a top security threat to the bloc for years, and as a policy area that is more at risk than the world average.[17] The situation is also complicated by a difficult decarbonisation moment with an over-reliance on gas as a transition fuel (following the switch from more-emitting coal to gas). Other challenges inherent to an unprecedented transition from fossil fuels have also been highlighted, including EU energy consumer (both private and business) vulnerability to record-high energy prices, the as-yet unfinished process of EU energy market integration (coupled with untapped gas infrastructure potential),[18] incoherence between EU Member State energy taxation regimes (favouring the use of and investment in fossil fuels),[19] and EU climate policies – to name just a few.

Some climate and energy experts have even argued that **Europe's energy prices crisis is self-inflicted because of lack of resilience and preparedness** to address the challenges, gaps and barriers persisting in both the decarbonisation of energy system and its integration processes.[20] The CONE report on energy system transformation concluded that, considering the uncertainty of today's world, systematic stress-testing of EU energy and climate policy is needed, as well as a move towards resilient and robust strategic vision and action. This could be achieved by closing the gaps that seem to develop in parallel between EU policy-making and strategic foresight.[21]

Recent disruptive events were a wake-up call and seem to accelerate initiatives that were used only exceptionally or were not previously considered. This includes the EU allowing for public intervention in energy markets to protect citizens and business from soaring energy prices, as well as the EU leaders' agreement at the 10 March 2022 meeting in Versailles to cut EU energy dependency on Russian fossil fuels as soon as possible. So far, EU leaders have not agreed on a specific date for ending gas imports from Russia.[22] Although the latest shocks pose existential risks to EU energy security, they are also perceived as an opportunity for even faster transformation and a proof of the necessity of decarbonisation of the EU energy system.[23]

Ongoing EU policy developments – Towards greater resilience

The **European Parliament supports ambitious EU climate and energy action** to speed-up the energy system transformation. Parliament has long warned about the challenges to the EU energy system during decarbonisation: foreign energy supply dependencies, and failure to complete the European energy market.[24]

Policy-makers should swiftly draw lessons from the recent disruptive events and adjust the ongoing legislative work (the Fit for 55 Package) revising key EU climate and energy laws accordingly, to ensure the decarbonisation of the EU economy by 2050.

The Parliament is already considering an increased EU climate ambition in renewable energy generation and in energy efficiency by 2030, in view of current events.[25] In a recent resolution, Parliament called for an immediate and full embargo on Russian fossil and nuclear fuel imports. At the same time, Parliament has been concerned about the affordability of energy having regard to the current record-high energy prices. Members have proposed to tax energy companies' windfall profits and for governments to use this revenue to alleviate the burden on vulnerable citizens and businesses.

One of the key priorities of the von der Leyen Commission is the European Green Deal, the ultimate goal of which is to decarbonise the EU economy and do no significant environmental harm by 2050. Within this priority, the Commission assessed the EU decarbonisation trajectory if the status quo were maintained. As the results showed it would be harder to reach net zero emissions in 2050 if

there is no policy change, the Commission has proposed legislative and other measures to increase the ambition of emissions reductions to at least 55 % by 2030 (the Fit for 55 Package).

Nevertheless, the European Commission's REPowerEU plan acknowledges that there is a need for **more ambitious 2030 targets than those proposed in the Fit for 55 package**, especially in the context of cutting EU energy ties with Russia. The realisation of this plan, which proposes an acceleration in red-tape removal, regulatory adjustments and mobilisation of financing, will be key to EU energy independence, to building energy system resilience, and to advancing on the decarbonisation pathway.

REPowerEU launched an EU energy purchase platform, a voluntary cooperation mechanism to secure gas, liquid natural gas (LNG) and hydrogen supplies – an initiative advocated by Parliament several years ago, but which did not materialise due to Member State differences on common gas purchases. How the European Parliament and the EU government's representatives in the Council will legislate upon the initiatives proposed by the Commission will be seen in the coming months. As many risks and challenges still lie ahead, it remains to be seen how issues such as affordability of energy prices could be solved, and whether the, so far, fragmented EU Member State approach will evolve and whether a Community-level solution will be found. Meanwhile, EU leaders have called for increased preparedness and resilience in the EU gas market, to mitigate possible major supply disruptions in the near future.

MAIN REFERENCES

Bańkowski, K., Ferdinandusse, M., Hauptmeier, S., Jacquinot, P., Valenta, V., The macroeconomic impact of the Next Generation EU instrument on the euro area, occasional paper series 255, European Central Bank, January 2021.

ECB, ECB economy-wide climate stress test, methodology and results, occasional paper series 281, September 2021.

ECB, Natural gas dependence and risks to euro area activity, Economic Bulletin, Issue 1, February 2022.

Erbach G., et al., EU climate action policy. Responding to the global emergency, European Parliament, EPRS, March 2021.

European Commission, REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition, COM(2022) 230 final, April 2022.

Heflich, A., and Saulnier, J., EU energy system transformation – Cost of non-Europe, European Parliament, EPRS, October 2021.

Hoogland et al., Annex - Cost of non-Europe in the area of energy, European Parliament, EPRS, October 2021.

IEA, Net Zero by 2050. A Roadmap for the Global Energy Sector, July 2021.

IEA, a 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas, March 2022

Tobias, A., Bolton P., and Kleinnijenhuis, A. The Great Carbon Arbitrage, IMF working paper No 2022/107, June 2022.

Varga, J., and Roeger, W., E-QUEST - A Multi-Region Sectoral Dynamic General Equilibrium Model with Energy: Model Description and Applications to Reach the EU Climate Targets, September 2021.

IMF, Investment needs fostering the transition to a green economy, Chapter 3, Global Financial Stability Report, October 2021.

IPCC, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press.

OECD, Managing Climate Risks, Facing up to Losses and Damages, October 2021.

Sabbati, G., Wilson, A., Monitoring the energy situation in the EU, EU energy monitor, EPRS, European Parliament, June 2022.

Widuto, A., Preparing for 'RepowerEU': Action for more secure, more affordable and cleaner energy, EPRS, European Parliament, May 2022.

Wilson A. and Boehm L., EU gas storage and LNG capacity as responses to the war in Ukraine, EPRS, European Parliament, April 2022.

ENDNOTES

1 See especially IEA, Net Zero by 2050, 2021, that shows that net-zero GHG emissions can be only achieved by common global decarbonisation efforts.

2 The net zero scenario is based on the European Commission MIX scenario.

3 The baseline scenario is based on the European Commission REG scenario.

4 Values up to 2015 are historical figures, and 2020 onwards are projections.

5 The remainder of the GHG emissions is expected to be absorbed by land use, land-use change and forestry (LULUCF).

6 The pricing assumption envisages a carbon tax from 2030 in all currently non-EU ETS sectors, with the same price as assumed in EU ETS i.e. €74/tCO_2 in 2030, €146/tCO_2 in 2040 and €289/tCO_2 in 2050.

7 According to Eurostat data in 2020, EU electricity production capacity from solar was 111 GW and from wind 175 GW.

8 See Chapter 2, Key challenges for the energy transition, in Hoogland et al., Annex – Cost of non-Europe in the area of energy, European Parliament, EPRS, October 2021.

9 Mainly produced by bioenergy and waste (nearly 60 %).

10 Pollitt, H. and Chewpreecha, U., Achieving 60% emission reductions by 2030. Assessment of policy options, Cambridge Econometrics, The Greens/EFA in the European Parliament, 2021.

11 The taxonomy identifies economic activities substantially contributing to climate change objectives within selected sectors representing 93.2 % of GHG emissions.

12 The convergence index, which is measured by the interquartile difference in terms of real income between the first and the fifth quintile and converted into a base 100 in the 2021 index, shows a continuation of the past convergence trend until 2050 in the net zero scenario, with a further reduction of the interquartile difference by 33 percentage points.

13 We subtracted the amount related to the savings from lower energy imports, as these have already been accounted for in the previous part.

14 In the latest Union-wide simulation of gas supply and infrastructure disruption scenarios, none of the analysed and tested scenarios assumed a truly disruptive supply scenario of no gas flow from Russia to the EU.

15 See Chapter 2 in the CoNE report (Heflich, A., and Saulnier, J., EU energy system transformation. Cost of non-Europe), describing the key challenges and trade-offs of energy transformation in relation to the energy system, to society and policy, as well as to finance.

16 EU net energy import dependency reached 60.6 % in 2019 compared to 58.2 % in 2018 and 56 % in 2000; the highest level in the past 30 years, according to the European Commission report on the state of the energy union, COM(2021)950.

17 'Energy insecurity has been identified by the EU's 2016 Global Strategy and the European Parliament/Normandy Region's Normandy Index as one of Europe's main external vulnerabilities. The 2018 summit declaration of the North Atlantic Treaty Organization (NATO) expressed similar concerns' see: Russel, M., Energy security in the EU's external policy, European Parliament, EPRS, March 2020.

18 EU gas storage capacity was not used to its full potential and there are several unfinished gas pipeline projects, limiting the diversity of supply routes to the EU.

19 European Commission initiative on EU Green Deal – Revision of the Energy Taxation Directive and European Court of Auditors, Review 01/2022: Energy taxation, carbon pricing and energy subsidies.

20 See e.g.: Carnegie Europe, Judy Asks: Is Europe's Energy Crisis Self-Inflicted?, Popkostova, Y., Europe's Energy Crisis Conundrum. Origins, impacts and way forward, EUISS, Brief 2, March 2022.

21 Fernandes, M., Heflich, A., How to stress-test EU policies - Building a more resilient Europe for tomorrow, EPRS, European Parliament, 2022.

22 EU leaders decided that energy dependency on Russia has to be phased-out as soon as possible. In the fifth round of sanctions of April 2022, the EU banned the import of Russian coal (with effect from August 2022); the sixth package of sanctions of June 2022 banned seaborne imports of crude oil and certain petroleum products from Russia (phased out over six months for oil and eight months for other petroleum products). For more detail, see EPRS analysis and follow-up to European Council activity.

23 Braun, S., Will war fast-track the energy transition?, DW, 4 March 2022; Hook, L. and Hume, N., Will the Ukraine war derail the green energy transition?, Financial Times, 8 March 2022.

[24] See e.g. European Parliament resolution of 15 January 2020 on the European Green Deal (2019/2956(RSP)), European Parliament resolution of 10 July 2020 on a comprehensive European approach to energy storage (2019/2189(INI)), European Parliament resolution of 19 May 2021 on a European strategy for energy system integration (2020/2241(INI)), European Parliament resolution of 16 February 2022 on a European strategy for offshore renewable energy (2021/2012(INI)) and European Parliament resolution of 7 April 2022 on the conclusions of the European Council meeting of 24-25 March 2022, including the latest developments in the war against Ukraine and the EU sanctions against Russia and their implementation (2022/2560(RSP)).

[25] EPP Group, EPP Group aims for higher renewables targets to ditch Russian gas, 3 March 2022; Euractiv, Widespread support in EU Parliament for 45% renewable energy target, 15 March 2022; Euractiv, EU ready to increase energy efficiency target to eliminate Russian gas, 28 March 2022.

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