

20 JULY 2022

Managing the energy and food crises: Exceptional times call for exceptional measures

Annika Hedberg



Table of contents

Executive summary	3
1. The war in Ukraine: A defining moment for the EU	4
1.1. A defining moment for energy and food systems	4
1.2. Energy and food: Differences and similarities	5
1.3. Mobilising people's support and industry's contribution	6
2. A clean energy transition	7
2.1. Reduce the demand for energy and fossil fuels, now	8
2.2. Optimise energy consumption with energy efficiency	9
2.3. Step up the development and deployment of domestically produced energy	10
2.4. End the costly support for fossil fuels	11
2.5. Think big, remember the vulnerable and aim for multiple win-wins	12
3. Towards a sustainable food system	13
3.1. Help the vulnerable in the EU and beyond	14
3.2. Shift to sustainable agricultural production	15
3.3. Consume more sustainably	17
3.4. Support the development and uptake of needed solutions	18
3.5. Reduce food waste	18
4. The European Green Deal: The guiding light	19
Endnotes	21

ABOUT THE AUTHOR



Annika Hedberg is the Head of the Sustainable Prosperity for Europe programme at the European Policy Centre.

ACKNOWLEDGEMENTS/DISCLAIMER

The author would like to thank colleagues at the European Policy Centre (EPC), especially Fabian Zuleeg, Emi Vergels, Laura Rayner, Stefan Šipka, Melanie Fessler, Simon Dekeyrel and Irina Popescu for their suggestions and support.

The support the EPC receives for its ongoing operations, or specifically for its publications, does not constitute an endorsement of their contents, which reflect the views of the authors only. Supporters and partners cannot be held responsible for any use that may be made of the information contained therein.

Executive summary

The Russian war on Ukraine is an unprecedented test for the EU and its leaders. On top of the security, humanitarian and refugee crises, they must manage its impact on our economy, and energy and food systems. With prices soaring and supply chains disrupted, they must respond to the cost-of-living crisis.

Functioning energy and food systems are vital for our well-being and, ultimately, survival. And as they play a central role in driving the planetary crisis, from climate change to environmental degradation, what is done in these sectors has direct implications for the prospects for people, businesses and the planet. Thus, this is not the time for short-sighted decisions. The measures taken today must not lead to future regrets.

Exceptional times call for exceptional measures, including in how we produce and consume energy and food. This Discussion Paper identifies priorities for action to prevent the energy and food crises from spiralling out of control, and to enhance European resilience, sustainability and prosperity.

To get on the right track:

1. EU leaders must adopt a wartime mindset in their communication and actions.

The EU response to Russia's unlawful invasion of Ukraine was better than one might have feared. However, it is shameful that the member states continue to sponsor the Russian war machine, especially via energy imports. They must redouble their efforts to reduce their dependence and vulnerabilities vis-à-vis this aggressor.

EU leaders must level with their people and explain that ending the war, achieving peace and ensuring European prosperity require short-term sacrifices, which are manageable. If Europe fails to take the necessary measures now, including on energy and food, this will only prolong the pain and lead to devastating consequences for our society and economy.

2. EU leaders must accelerate the greening of our energy and food systems.

The EU and its member states must ensure that energy and food systems enhance Europe's security, well-being and prosperity in both the short and long term. When combining the economic, political, geopolitical, security, societal, moral and planetary considerations, it is evident that the European Green Deal provides a compelling basis and guidance for the needed measures.

As an immediate measure, the EU and its member states must encourage and, where needed, impose measures to improve energy and food consumption and to avoid unnecessary waste. Urgent energy-saving measures are needed in households, transportation and industry. We must reduce food waste. Edible crops should be for people rather than for animals or burned as biofuel.

In the short to medium term, the EU must stop supporting and subsidising harmful and costly practices for our society, economy and the planet (e.g. fossil fuel and intensive livestock production and consumption). The focus must shift to developing and deploying solutions to achieve clean energy as well as sustainable mobility and food systems.

Some emergency measures may be needed to address rising costs and supply disruptions, like temporarily extending nuclear or coal production. But plans must also be put in place to compensate for any delay in the green transition. There can be no doubt in anyone's mind about the EU's direction of travel toward a more sustainable economy and society.

3. EU leaders must collaborate and ensure solidarity across borders and society.

The war, including its implications for the energy and food systems, affects everyone in Europe. Amid the sanctions and rising prices, mechanisms supporting the vulnerable, including low-income households, must be established now. It is important to incentivise and enable people, workers and businesses to accelerate the greening of our energy and food systems.

Managing the energy and food crises will require tough political decisions, including trade-offs and measures that will inevitably upset some people and businesses. The EU desperately needs leaders who recognise the importance of collaboration, unity and solidarity while taking the necessary measures. They must put aside short-term national interests and political differences and strive towards the shared goals: stability, security and prosperity.

EU leaders are now being tested for their courage to do the right thing. They are being tested for their willingness and capacity to implement needed measures. In other words, they are being tested for their ability to lead. EU leaders will be judged not only for past mistakes but also the measures they take to correct these missteps. They will be judged on not just the immediate results of their actions but also the legacy they leave behind.

1. The war in Ukraine: A defining moment for the EU

President Vladimir Putin's criminal aggression against Ukraine is a defining moment for the EU. It is an ultimate test for the EU's leaders.¹ The measures they take to stop the aggression and help Ukraine win this war will determine their legacy and the prospects for European security, stability and prosperity. The actions they take to manage the war's implications for the EU economy and society, including the energy and food systems, will have profound consequences for the future of Europe.

This is not an easy task. So far, the EU's leaders are falling short when it comes to managing the war and its repercussions. Several months into the war, the member states continue to finance the Russian war machine. The leaders are more focused on avoiding short-term sacrifices than agreeing on effective ways to stop Russian aggression. Russia is weaponising not just food and energy but also refugees and information, aiming to break societal resilience in Europe and EU unity. For the sake of Ukraine, Europe and the world, EU leaders must rise to the occasion and ensure that Russia will not succeed.

Russia is weaponising food and energy to break societal resilience in Europe and EU unity. For the sake of Ukraine, Europe and the world, EU leaders must rise to the occasion and ensure that Russia will not succeed.

Moreover, the war comes on top of several crises the EU is already battling.² The EU is still recovering from the 2008 and 2011 economic crises.³ The COVID-19 pandemic continues to demand leaders' attention. Moreover, the urgency to address the planetary crisis, including climate emergency and environmental degradation, is growing by the day. Greenhouse gas (GHG) emissions, pollution, the unsustainable use of natural resources, inefficient energy use, biodiversity loss and waste are growing. Beyond the immediate impacts, the ongoing climate and environmental crises cast a long shadow over humanity's future.⁴ Europe is playing with fire: the recent heatwaves remind us of the growing costs of insufficient action.

Leadership is tested in times of crisis. Leaders are tested for their courage to do the right thing, willingness to implement needed measures and ability to lead. How they now react to and manage the two areas greatly affected by the war, energy and food, will be a test case for true leadership.

1.1. A DEFINING MOMENT FOR ENERGY AND FOOD SYSTEMS

Energy and food prices are going up. Supply chain disruptions are expected to affect the availability of needed resources. With many Europeans already struggling with rising living costs, these new pressures risk leading to a cost-of-living crisis. EU leaders are under great pressure to make swift decisions to manage these impacts.

The stakes are high. Leaders cannot afford to just react. The decisions, policies and investments of today will have implications for the EU, its citizens and its future not just now but also in the longer term. Irresponsible decisions could spiral the energy, food and planetary crises further out of control. This would undermine the EU's resilience, security and prosperity today and tomorrow.

To avoid unwanted consequences, EU leaders must combine economic, political, geopolitical, security, societal, moral and planetary considerations when deciding and designing the measures to be taken.⁵ When doing this, there are two fundamental considerations to keep in mind.

To avoid unwanted consequences, EU leaders must combine economic, political, geopolitical, security, societal, moral and planetary considerations when deciding and designing the measures to be taken.

First, the unprovoked war on Ukraine has confirmed once and for all that Russia cannot be trusted as an international actor or trade partner. This is exemplified by Russia's attempts to weaponise energy and food to create chaos in Europe and beyond. With energy, the trend has long roots. One only needs to look at the Russian decision to cut off gas supplies to Ukraine in 2006 and 2009, or its recent decisions to stop gas exports to several EU member states – with more to surely follow. Russia is also weaponising food by disrupting Ukrainian agricultural exports, including grain, maize and sunflower oil. Stealing Ukrainian grain and farming equipment, mining agricultural lands, destroying roads and railways, and blocking ports make Russia a driver of the global food crisis. Russia is also limiting its own exports of seeds, grains and fertilisers, which worsens the problem.

President Putin calculates that rising costs, supply disruptions, social unrest and heavy migration flows will destabilise the EU and help him achieve his goals in Ukraine and Europe. Only by working together can the EU member states stop this from happening. From both energy and food security perspectives, the EU must diversify its sources, suppliers and routes. To safeguard its energy, food and overall security, the EU must reduce its dependencies and vulnerabilities vis-à-vis Russia and contribute to international efforts to manage the war's impacts. There is no return to the kind of trade and commercial relations the EU and Russia had before the war.

Second, considering energy and food systems' major role in driving the planetary crisis, the decisions made should drastically reduce, not increase, these sectors' climate and environmental footprints. While Russia wages war in Ukraine, scientists around the world continue to sound the alarm that the world is speeding towards climate and ecological catastrophes, which could spell the end of our civilisation as we know it. The UN's Intergovernmental Panel on Climate Change (IPCC), for example, has given the world yet another grave warning: the world will only avoid the *worst* consequences of climate change if emissions peak by 2025 and fall to half of 2019 levels by 2030.⁶ The world has only a few years to get on the right track. Addressing the climate emergency requires taking swift measures now to reduce the EU's and the world's dependence on not just Russian fossil fuels but fossil fuels in general.

Addressing the climate emergency requires taking swift measures now to reduce the EU's and the world's dependence on not just Russian fossil fuels but fossil fuels in general.

Exceptional times call for exceptional measures, in speed and scope. It is time for EU leaders to adopt a wartime mindset and stop tiptoeing around the needed changes across society and the economy. When addressing the EU's multiple challenges, they must avoid unwanted consequences for people and the planet. They must put aside short-term national interests and collaborate in order to achieve stability and prosperity, as well as resilient and sustainable energy and food systems.

1.2. ENERGY AND FOOD: DIFFERENCES AND SIMILARITIES

Energy and food systems are often treated separately and in silos. This has also been the case when considering the impacts of the Russian war on the EU's energy and food systems. It is true that the dependencies and

vulnerabilities are different. While the EU's energy security is jeopardised due to several member states' reliance on Russian gas and oil, this is not the case with food. While food insecurity is growing globally, that of the EU is not *directly* threatened. Moreover, the ongoing energy and food transitions are different, and the necessary measures vary across the EU. The production and consumption of energy and food also accelerate the climate and ecological crises differently.

This said, there are also many similarities between the two sectors. This includes the rationale for and the barriers to making them more resilient and sustainable:

- ▶ Energy and food are basic human commodities. It is in the EU's interest to safeguard its citizens' access to these resources today and tomorrow. Greening European energy and food systems is central to increasing the EU's resilience, including food and energy security.
- ▶ Both energy and food systems will need to undergo a radical transformation as part of global and European efforts to address the planetary crisis. While the war creates new pressures on global cooperation as well as that between EU member states, addressing the planetary crisis actually requires more collaboration than ever.
- ▶ There are stakeholders in the energy and the food systems with a strong vested interest in maintaining support and subsidies for polluting practices or weaker environmental and climate goals. They use the war as an excuse to maintain the status quo, slow down progress and lock in a future that will be costly for people, industry and the planet. These attempts must be strongly opposed.
- ▶ The Russian war should lead to a serious rethink and restructuring of the EU's energy and food systems. Managing the immediate threats to the systems and avoiding unwanted consequences requires political courage to get member states, businesses and people on the right track. It implies industry's support and citizens radically changing their lifestyles. It requires collaboration and solidarity across the Union.

There are many similarities in the measures needed to ensure a secure and sustainable supply of affordable energy and food in the short and long term. When looking for solutions to improve the food system, we should study the past and present measures to address energy system challenges. When looking to improve the energy system, we should learn from the measures within the food sector. We should explore and exploit the synergies in the two sectors' green transitions. We should ensure that measures in one system do not lead to unwanted consequences in the other, as is the case when edible crops are used for energy rather than food. The energy and food transitions cannot be treated separately. Greening the energy system will make the food system more resilient and sustainable. Greening the food system can help obtain secure, affordable and sustainable energy.

The measures taken today must lead us to the future we want, with real short- and long-term benefits for our economy, society and planet. There is no shortage of studies and evidence outlining the actions to be taken to get on the right track.⁷ For example, while the IPCC sadly reminds us of the state of climate emergency, it also gives hope: the world has numerous options to reduce net emissions across different sectors by 2030. Furthermore, many of these options would help address the energy and food systems' challenges in the EU and beyond, which are now aggravated by the war.

The measures taken today must lead us to the future we want, with real short- and long-term benefits for our economy, society and planet.

For EU leaders, the European Green Deal provides a guiding light in the darkness, and they should accelerate efforts to turn the agreed vision and goals into concrete action.⁸ The EU has numerous tools to accelerate both the energy and food transitions, but in the end, it is the member states that have a central role in implementing the joint objectives.

In these exceptional times, the decisions, policies and investments – separately and together – should lead to no regrets and install the EU, its member states, citizens and industry on a stable path towards sustainable prosperity. The following principles must be applied to both energy and food systems:

- ▶ aim for the best win-win measures that can be adopted immediately and support the vulnerable in the process;
- ▶ ensure that energy and food production enhance Europe's security, well-being and prosperity;
- ▶ encourage sustainable consumption and demand-side measures;
- ▶ stop supporting and subsidising practices that are harmful and costly for our society, economy and planet; and
- ▶ support the development and uptake of needed solutions.

1.3. MOBILISING PEOPLE'S SUPPORT AND INDUSTRY'S CONTRIBUTION

The following sections propose recommendations for the best win-win measures that EU and member states should take if they are to enhance European security, resilience and prosperity today and tomorrow. Getting on the right

path will not be easy. However, leaders worth their salt must be ready to make difficult political decisions and also accept short-term trade-offs. To succeed, they must improve their communication and action vis-à-vis their citizens and businesses.

Firstly, EU leaders must convince their citizens to accept that these exceptional times call for exceptional measures, including in how we produce and consume energy and food. They must become better at showing the related benefits, be it in the form of lower bills, improved health, jobs, cleaner air or better-quality food.

EU leaders must convince their citizens to accept that these exceptional times call for exceptional measures, including in how we produce and consume energy and food.

Moreover, the message to European industry must be clear: continuing to do business with Russia or trying to circumvent sanctions as long as the war continues will not be tolerated. This undermines all of Europe's prospects for security, stability and prosperity. Responsible corporate citizens in the EU must have a clear moral compass. Nothing less will do.

Secondly, it is the leaders' responsibility to be frank about possible sacrifices. They should remind Europeans that they are small compared to what this war is costing Ukraine and its people and what inaction or inadequate action will cost the EU if it does not step up its efforts now. The costs related to the humanitarian and refugee crisis as well as rebuilding Ukraine are going up by the day, posing ever-growing challenges for the EU's unity, society and economy. Continuing to sponsor the Russian war machine undermines the EU's credibility at home and beyond, not to mention its security. Not stepping up the efforts to make European energy and food systems more resilient, affordable and sustainable would be short-sighted and reckless and risk accelerating the planetary crisis.

Thirdly, bringing people along requires recognising and managing the unwanted social impacts of the war and the measures taken. The war is already impacting living costs across the EU. Changing the energy and food systems will affect everyone. Trade-offs will need to be made, and there will be transitional costs, winners and losers. Managing these societal challenges requires candour about the measures and how the costs will be covered. It requires giving hope and prospects to those who are or will be most affected. It requires engaging with people, especially on the trade-offs, and co-creating solutions. The most vulnerable must not be left behind. Careful planning and socio-economic resources will be needed to address the impacts on the national,

subnational and European levels. This will require smart use of public and private funding.

Finally, policymakers must put in place conditions, be it policies or financial schemes, that allow – or nudge – individuals and businesses to play their part in the transition. The money is there but needs to be used more

effectively. This means shifting from supporting and subsidising harmful practices to taxing them and using the revenues to incentivise wanted action. It is time to become innovative in supporting, encouraging and empowering people, businesses and EU member states to address the energy and food crises with measures that lead to no regrets.

2. A clean energy transition

In 2014, following the Russian invasion of Crimea, there was no shortage of talk in the Union on what should be done to reduce member states' energy dependency on Russia. It was crystal clear that the EU and its members could not continue to rely on Russia for energy and had to increase their energy security by not only diversifying gas sources and routes, but especially by improving energy efficiency and the uptake of renewables.⁹

Instead, the opposite happened. The EU has not just remained addicted to fossil fuels; its share of gas and coal imports from Russia *increased*, while that of oil remained steady.¹⁰ Specifically, Germany's thirst for Russian hydrocarbons, driven by its energy transition called *Energiewende* and manifested in its forceful push for the Nord Stream 2 gas pipeline, has undermined not only Germany's but the EU's (energy) security.¹¹

It is now time to rectify past mistakes and take swift measures to improve the EU's energy security while ensuring affordable and sustainable energy for Europeans. We know what should be done.

EU member states must stop sponsoring the Russian war machine via oil, coal and gas imports.¹² With adequate management, cutting Russian coal and oil imports would only lead to temporary disruptions.¹³ Cutting off Russian gas is also feasible. Most importantly, it could be done sustainably: without a need for new gas import infrastructure and without slowing the decline of coal-fired electricity generation.¹⁴ If Russian imports are not cut off with immediate effect, punitive tariffs should be added to these imports.¹⁵ The EU and member states should also prepare for the likely scenario that there will not be an orderly reduction of Russian fossil fuels as planned, but that Russia takes pre-emptive action and cuts off gas and possibly oil exports to member states on its own initiative.

The overall short- and long-term direction should be clear for all.¹⁶ The security-related, moral, economic, planetary and fiscal considerations all speak in favour of avoiding carbon lock-in¹⁷ and accelerating – not impeding – the clean energy transition. Providing clean, affordable and secure energy starts with energy savings and efficiency. It requires shifting from fossil fuels to domestically produced clean energy, such as renewables. The benefits would be felt across sectors, including in agri-food, which is not only a major consumer of fossil fuels but also

heavily impacted by climate change driven by emissions from fossil fuels.¹⁸

Providing clean, affordable and secure energy starts with energy savings and efficiency. It requires shifting from fossil fuels to domestically produced clean energy, such as renewables.

The basis for action has already been laid out. One only needs to look at the European Green Deal, the Fit for 55 proposals, and the European Commission Communication on Energy Prices to get a sense of the EU's aspirations and tools for action. The Commission has estimated that just implementing the Fit for 55 package would reduce the EU's annual fossil gas consumption by 30%, which should provide an additional impetus for member states and the European Parliament to agree on the proposals quickly.¹⁹

The Commission's REPowerEU plan, published in May 2022, adds to the existing pool of proposals. It provides immediate and long-term plans to accelerate the phase-out of Russian gas imports and reliance on fossil fuels. It suggests ways to diversify gas supplies and reduce fossil fuel use by boosting energy savings and efficiency, increasing renewables and electrification, and addressing infrastructure bottlenecks.

In many ways, this plan reflects the short-term trade-offs and political tensions the EU battles with. It notably emphasises replacing Russian fossil fuels with other fossil fuels as a short-term measure. But in the long term, REPowerEU sends the right message on envisaged investment: while 4% of the expected €300 billion would support fossil fuel infrastructure (e.g. new oil and gas pipelines and terminals), the remaining 96% would support the clean energy transition.²⁰

There is no escaping reality. The context in which the necessary measures must be taken is difficult,

economically and politically. EU leaders are struggling with high energy prices, which risks leading to short-sighted decisions that could further undermine security, increase costs for people and worsen the planetary crisis. Moreover, although ceasing the sponsoring of the Russian war via energy imports should be a no-brainer from moral, security and energy transition perspectives, EU leadership wobbles. The EU member states took unbearably long to agree on gradually reducing coal and oil imports and now seem incapable of agreeing on sanctioning gas.

For now, the EU seems set on the path of prolonged pain. A gradual phase-out of Russian energy over the next years gives Russia the time to look for alternative buyers, in turn reducing EU decisions' shock effect.

For now, the EU seems set on the path of prolonged pain. A *gradual* phase-out of Russian energy over the next years gives Russia the time to look for alternative buyers, in turn reducing EU decisions' shock effect. Also, with the rising oil and gas prices, even if actual volumes of imports decrease, EU money is still sponsoring the Kremlin's war machine. Moreover, member states' subsidies and tax cuts for fossil fuels are not only expensive for taxpayers but also encourage consumption. This *increases* demand and dependence on Russian fossil fuels.

EU member states have a choice. Rather than prolonging the pain and taking costly measures that hurt EU security, Europeans and the planet, they would do well to implement the best win-win measures available at the moment. The good news is that – if done well – making the EU's energy system more sustainable and changing how we use energy benefits not only the climate but also our economy and society, energy security and people, in the form of lower costs and jobs.

To get on the right track, EU leaders must be honest with their citizens and show bold leadership. For moral and security-related reasons, the EU cannot continue to rely on Russian fossil fuels. Drastic measures are needed to cut this costly and dangerous dependency. It is also worth noting that Europeans are receptive to this message: 85% already believe that the EU should reduce its dependency on Russian gas and oil by increasing the energy efficiency of buildings, transport and goods. 84% think the war makes investing in renewable energies more urgent.²¹ In Germany, people have shown great support for the energy embargo against Russia, calling for a faster and deeper transition to renewable energies and reducing speed limits.²² Leaders should build on this support when taking the needed measures.

This is also a good time to consider lessons on past exceptional measures and how they could look today. One only needs to study the responses to the 1970s energy crisis, Chile's actions to address the electricity shortage caused by the 2007-08 drought, or Japan's measures in 2011 following the Fukushima nuclear disaster for inspiration. Measures like car-free Sundays, using less indoor heating, lowering speed limits, turning off lights, and energy companies encouraging their customers to use less energy via awareness campaigns have been tested – and they work.²³

Leaders must be frank: if needed measures are not taken now, the consequent and inevitable measures and impacts on people and businesses will only get tougher. States may need to ration energy, like in the 1970s. They may need to intervene directly in how people live, travel and work, as during the COVID-19 pandemic. The pandemic is a recent reminder that in times of emergency, states can take even drastic measures to manage crises. This possibility awaits the EU, its people and industry, should the energy crisis spiral out of control.

If needed measures are not taken now, the consequent and inevitable measures and impacts on people and businesses will only get tougher.

Building on these challenges and the possibilities, the following sections outline recommendations for EU action.

2.1. REDUCE THE DEMAND FOR ENERGY AND FOSSIL FUELS, NOW

European leaders must help and encourage their citizens to adjust their behaviour and habits to consume less energy without delay. Member states, people and businesses must step up efforts to prepare for a cold winter. Win-win measures not only reduce Europeans' energy bills and enhance European energy security by reducing supply risks. They also bring wider societal benefits by boosting public health and well-being through cleaner air, reducing noise pollution and improving road safety.

Several proposals that provide action points for delivering immediate results have been put forward. The latest IPCC report recognises how lifestyle and behavioural changes can lower our energy consumption significantly.²⁴ The International Energy Agency (IEA) has put forward a range of measures that can be implemented now to reduce gas and oil demand.²⁵ Under the REPowerEU package, the European Commission published a Communication that recognises how addressing

especially domestic heating, transport and mobility can lead to much-needed energy savings.²⁶

Countries and cities should explore measures that would deliver immediate benefits for them. While easily implementable measures will differ across the EU, possible actions could include improved and cheaper (or even free) public transportation; reduced highway speeds; or nudging people to walk, cycle and share rides. Information campaigns to reduce fuel use could cover, for example, the benefits of accurate tire pressures or adjusting indoor heating. European cities should implement car-free Sundays, if not weekends. Building on the lessons of managing the pandemic, people should be encouraged to work from home and fly less to reduce transport-related fossil fuel consumption.

One lesson from the 1970s oil crisis is that the wanted results are easier to achieve when people and businesses support energy-saving measures. The German motoring association ADAC's recent call on its members to save fuel and take the bicycle wherever possible to help reduce European reliance on Russian oil imports is a great example of how everyone and every organisation can make a difference via their communication and actions.²⁷

The EU should see campaigns on energy-saving measures to be taken at all levels of society and the related benefits for Europe and Europeans. The European Commission's support, as envisaged in its communication on saving energy, is welcome. To make energy-saving efforts fun for people to partake in, think of friendly competitions between neighbours, cities and regions to create positive peer pressure. Behavioural science can provide effective tools for connecting with and influencing relevant stakeholders and incentivising energy-saving culture.

To have the greatest impact, a political framework and financial incentives must support voluntary measures. Cities and member states play a crucial role in creating the necessary conditions. This will help not only get buy-in from citizens but also allow and empower them to contribute. As a short-term measure, member states should enforce new speed limits and subsidise urban public transport to become the most affordable mode of travel. When additional investments are needed in, for example, public transport infrastructure, they should be prioritised, even if the benefits will not be felt immediately. While the Commission's role in supporting energy-saving measures is limited, its envisaged European Product Registry for Energy Labelling database for supporting consumers and procurers to choose more efficient appliances is a welcome effort to help reduce and optimise energy demand in the long term.

2.2. OPTIMISE ENERGY CONSUMPTION WITH ENERGY EFFICIENCY

Energy efficiency is central to reducing fuel import dependence, lessening exposure to energy price volatility, mitigating climate change, and making energy systems and societies more resilient. Each one per cent gained

in energy efficiency cuts Europe's gas imports by 2.6%.²⁸ Besides, as energy prices rise, investing in energy efficiency will become an economically attractive solution for buildings, industry and transport.

Promoting and investing in cost-effective energy efficiency cannot wait. Buildings alone are responsible for about 40% of the EU's total energy consumption. Their renovation would cut gas imports while also benefiting people, the labour market and the climate.²⁹ Improving insulation, replacing windows and installing thermostats and heat pumps can bring immediate benefits. Many other solutions are less well-known, such as cost-effective natural solutions for improving ventilation, and should be considered more readily.

Accelerating the efforts to enhance energy efficiency will require a mix of policies, financing and campaigns.³⁰ The European Commission's proposal in REPowerEU to increase its 2030 energy efficiency target rightly highlights the importance of energy efficiency. As the European Parliament, European Council and Commission continue to negotiate the Fit for 55 package, the revisions of the EU's Energy Efficiency Directive 2012/27/EU and Energy Performance of Buildings Directive 2018/844/EU (EPBD) must lead to higher or earlier targets for energy efficiency.

Simultaneously, it should be stressed that even if the EU institutions agreed on a more ambitious target, this would not automatically lead to its implementation. Despite the existing EU-level framework and targets, the progress has fallen short of its ambition. The EU missed its goal to increase energy efficiency by 20% by 2020 by 3%, and it is not on track to achieve the initial goal of 32.5% by 2030.³¹ Recognising the gap between the set goals and member states' actions, the EU needs urgent mobilisation across the political spectrum and society to turn these aspirations into reality.

The EU needs urgent mobilisation across the political spectrum and society to turn its energy efficiency aspirations into reality.

As an immediate measure, member states, regions, cities and businesses must step up their efforts to learn good practices from one other. When it comes to cost-effective renovations, especially citizens and small businesses need guidance on measures that support both energy efficiency and climate action. As a continuous, longer-term development, the EU and national policy and financial frameworks must be geared to enable and incentivise cost-effective energy efficiency efforts across Europe.

2.3. STEP UP THE DEVELOPMENT AND DEPLOYMENT OF DOMESTICALLY PRODUCED ENERGY

EU member states should be taking immediate measures to support the development and uptake of domestically produced clean energy. This is an efficient way to reduce energy costs for EU citizens; enhance Europe's energy security; and decarbonise electricity production, heating, transport and industry.

Getting on the right path may require some short-term trade-offs and politically difficult decisions. As an example, member states with nuclear power capacity should consider extending it. Belgium has already made this decision. Germany should have the economic, energy security-related and environmental interest to follow suit. Member states with the capacity to produce clean energy should recognise their role and responsibility as part of the EU, contributing to not only their own but also the Union's energy security.

Member states with the capacity to produce clean energy should recognise their role and responsibility as part of the EU, contributing to not only their own but also the Union's energy security.

It is time to accelerate the renewable revolution. While there is not one technology that works as the silver bullet, the potential of solar panels, heat pumps, and onshore and offshore wind turbine projects cannot be understated.³² Electric heating systems and electric vehicle batteries provide interesting possibilities for balancing and storing renewable electricity. Large-scale battery energy storage systems will play a key role in helping balance renewable energy supply with energy demand.

The technologies exist, and accelerating their deployment requires eliminating existing barriers. This starts with eradicating fossil fuel subsidies. It entails educating consumers about the benefits of renewable energy for energy security, the climate and their purses. It requires making it easy for people and businesses to install and benefit from both solar panels and heat pumps. It requires training a workforce to carry out the installations. Supporting domestically produced renewable energy entails speeding up renewable energy auctions and permitting processes, and enhancing energy storage. More efforts are needed to develop energy communities that can produce, consume, store and sell renewable energy and thus share the costs and benefits.

Today's policy and investment choices will strongly impact how fast the EU will electrify its societies and economies, heating and cooling, mobility and industrial processes, and the role clean energy sources will play in these efforts. Several member states are already taking swift

measures in this direction. Poland is updating its long-term energy policy roadmap for 2040 with energy security provisions that call for a rapid increase in renewable and nuclear energy.³³ Italy, the Netherlands and Germany are accelerating their respective investment in renewables.³⁴ Belgium, the Netherlands, Germany and Denmark are pledging to build new offshore wind capacity that would increase the EU's offshore capacity tenfold.³⁵

Today's policy and investment choices will strongly impact how fast the EU will electrify its societies and economies, heating and cooling, mobility and industrial processes, and the role clean energy sources will play in these efforts.

EU collaboration will also be essential. As an immediate action point, the European Council, Parliament and Commission must agree on the Fit for 55 proposals and, where needed, increase the ambition. For example, as suggested in the Commission's REPowerEU proposal, the co-legislators should consider a higher 2030 target for renewable energy than proposed originally (i.e. increase the 40% target in the Renewable Energy Directive 2018/2001/EU to 45%). Furthermore, since fossil fuels account for around half of the energy consumption in buildings in the EU,³⁶ the EPBD review should lead to a reduction in Europeans' dependence on fossil fuels by incentivising the uptake of renewables. We should also see the swift implementation of the Solar Rooftop Initiative to increase solar uptake for certain buildings, and faster permitting of renewable projects, as proposed in REPowerEU.

As a necessary longer-term measure, the EU must continue developing a functioning electricity market to achieve secure, affordable and sustainable energy. Improving the electricity market design is important, and a careful evaluation of the current system – where gas price determines the price of low-carbon power – is needed. Moreover, electrification requires addressing the current transmission bottlenecks and developing the necessary infrastructure and interconnectors. Electrifying mobility will require major additional investments in charging infrastructure.

The EU must also continue mobilising both public and private funding to develop breakthrough technologies that could accelerate the clean energy transition. The Commission's REPowerEU plan ambitiously focuses on green, renewable hydrogen. Other attractive possibilities include large-scale electricity storage, nuclear fusion and wave energy. We need out-of-the-box thinking. Solutions like replacing windows with transparent solar panels demonstrate the endless possibilities of innovation.

As history reminds us, the measures taken today will have long-lasting impacts. The 1970s oil crisis led to nuclear development and deployment in Europe. It also led to efforts to enhance energy efficiency and invest in the research and development of renewable energy technologies. It encouraged the development of numerous successful clean technology companies. Once again, the EU has been offered an opportunity – in the form of a tragic war – to accelerate the transition to the future we want. This opportunity is not to be missed.

2.4. END THE COSTLY SUPPORT FOR FOSSIL FUELS

The war has brought the EU's costly dependence on fossil fuels and vulnerabilities to the fore. While the EU has been divided on the speed of transitioning away from fossil fuels, no more time nor money can be wasted in delaying needed action.

Achieving higher energy efficiency targets, deploying renewable energy technologies and developing an interconnected smart electricity grid require significant investments. Public money is limited and should be used wisely. To direct private investments in the clean energy transition, the financial market needs the signal that the EU and its member states are serious about shifting away from a fossil fuel economy.

Firstly, this means ending costly fossil fuel subsidies *now*. The EU has been one of the largest fossil fuel subsidisers in the world. The EU countries spent €159 billion on energy subsidies in 2018, of which nearly a third went to supporting coal, gas and oil through grants, loans, tax incentives and price support.³⁷ Now, as Russia's war in Ukraine has pushed fuel prices to their record level, several EU countries have responded yet again by subsidising fossil fuels.³⁸

While many suggested measures are temporary, cutting fossil fuel taxes is costly for taxpayers and does not help reduce the EU's demand for Russian fossil fuels. On the contrary, such measures risk *enhancing* the demand for and dependence on Russian fossil fuels and supporting the Kremlin's war machine. If they keep people hooked on increasingly expensive fossil fuels, they risk worsening the cost-of-living crisis. And not to forget, this support contradicts the EU's lofty climate commitment made at COP26 to phase out these subsidies.³⁹

Rather than continuing to subsidise the installation of new fossil fuel boilers, these should be taxed, and the proceeds used to support clean heating. Instead of cutting fuel taxes, the focus should be on encouraging and helping people to save energy, accelerating the renovation wave with a focus on energy efficiency and the uptake of renewables, and supporting household incomes.⁴⁰ As a good example, France is ending government subsidies for the installation of new residential gas heaters and boosting support for renewable energy heating instead.

The goal of European policies and investments must become clear: the EU's transition to a clean energy system starts now. This recognition should be reflected in the EU's taxonomy for sustainable activities and as it implements the revised State Aid guidelines. The European Commission's REPowerEU plan is rightly asking the co-legislators to increase the Fit for 55 package's ambition by, for example, introducing national bans on fossil fuel boilers in both existing and new buildings. Member states should ban the sale and installation of new gas boilers or other fossil fuel-based boilers from 2025 onwards (at the latest), as the IEA suggested in 2021.⁴¹

The goal of European policies and investments must become clear: the EU's transition to a clean energy system starts now.

Secondly, the current focus on replacing Russian gas imports with liquified natural gas (LNG) imports from other parts of the world is not an answer to the ongoing energy crisis. This could also become extremely costly for Europe. While in the short term, it makes sense to find alternative supplies to fill gas storages in preparation for the next winter, any long-term plans, including investments, must be monitored closely and scrutinised where needed. This is especially important as estimations reveal that achieving energy security while phasing out Russian gas requires no new fossil fuel infrastructure.⁴² Moreover, the focus on LNG imports ignores the fact that they will be insufficient to replace Russian imports in the short term, not least as it takes three to four years to build LNG terminals, and thus alternative solutions are needed desperately and now.⁴³

In UN Secretary-General António Guterres' words, "Investing in new fossil fuel infrastructure is moral and economic madness".⁴⁴ Even before the war, the European Commission's proposal in December 2021 to decarbonise the gas markets was criticised for not being in line with the 1.5°C target.⁴⁵ Investing in the expansion of European gas import capacity was seen to contradict the EU's climate neutrality goal for 2050.⁴⁶ Should the EU see massive investments in fossil fuels in the next years, they risk becoming stranded assets or locking the EU in a fossil fuel economy and accelerating the climate crisis. Failing to reduce the EU's dependence on gas could also be much more costly than the Commission's estimate.⁴⁷ Continuing dependence on fossil fuels would raise serious questions about the EU's and its leaders' responsibility over the longer-term negative impacts on the economy, society and the planet.

Where the EU finds itself in the next years depends on the short- and longer-term measures taken today. It is

important to keep the pressure on the EU, its member states and businesses regarding fossil fuel investments and closely monitor the actual use of money. If and when some short-term trade-offs need to be made, they must be controlled. To endure the coming winter, extending the usage of some existing coal capacities and domestic gas resources may need to be considered. However, any such decisions should come with clear conditions and cut-off dates. Any short-term measure that leads to halting or slowing down decarbonisation efforts in the name of energy security must be coupled with compensation plans to reduce the related emissions.

Any short-term measure that leads to halting or slowing down decarbonisation efforts in the name of energy security must be coupled with compensation plans to reduce the related emissions.

Also, as the EU looks to replace Russian oil and gas imports from alternative sources, it must incorporate the political risks of energy-exporting countries in its energy security considerations. It must become more strategic in energy trade and not shift dependence from Russia to other questionable partners with, for example, dismal human rights records. It must recognise that replacing Russian oil and gas with other fossil fuels, such as LNG, will mean increased global demand and competition for these resources. This would not only worsen the climate emergency but also drive up energy prices for people and countries that cannot afford them.

While fossil fuels will continue to be present in the EU energy mix for years to come, member states' internal and external communication and negotiations with third countries must leave no room for doubt. The end goal is a clean energy system that leads to a drastic decline in fossil fuel consumption. Now there is a huge risk that the fossil fuel industry will use the war as an excuse to expand rather than reduce its operations, and this must be opposed.⁴⁸ The world cannot afford the catastrophic consequences this would have on not just the economies and societies of today but also humanity in the long term.

2.5. THINK BIG, REMEMBER THE VULNERABLE AND AIM FOR MULTIPLE WIN-WINS

To guarantee that the measures taken now lead to no regrets requires focusing on multiple simultaneous goals: ceasing the EU's sponsoring of the war; enhancing energy security; reducing emissions and pollution; improving competitiveness, health and well-being; and addressing energy poverty. At the same time, getting on the right path cannot be done without short-term costs,

like investments, and some difficult political decisions, like cutting support for fossil fuels. Suggestions for measures to be taken are listed below.

The energy crisis will not be solved by subsidising fossil fuel consumption.

First, the energy crisis will not be solved by subsidising fossil fuel consumption – in other words, by throwing more money at the problem. Instead, this consumption should be reduced and targeted support provided to the most vulnerable.⁴⁹ If countries truly wish to support low- and middle-income families now and alleviate the cost-of-living crisis, they should provide emergency income support via consumption cheques or reduced labour taxes. They should also consider establishing minimum income schemes.

The wealthy use eight times more fuel than the poor. Cutting fuel taxes for all generates inequitable social outcomes.⁵⁰ Rather than subsidising fossil fuels for all now, tariffs on oil, gas and coal should be used to assist vulnerable groups. In the long term, initiatives like the European Commission's proposed Social Climate Fund should further support these efforts. While this fund would be allocated through national plans, ensuring that the money reaches the most vulnerable will require bottom-up collaboration with local governments, civil society and citizens.

Second, member states, regions and cities should be hastening efforts to ensure that low-income households benefit from energy efficiency and shift to cleaner energy. For example, citizens need support in reducing energy bills. Social services, civil society organisations and others with established relationships with citizens should help them access relevant information. While renovations take longer, immediate priority must be given to the worst-performing buildings in Europe. Governments must work with local municipalities, housing associations, NGOs and citizens to find optimal solutions for the vulnerable.

The wider social benefits of the clean energy transition should provide an additional impetus for action. The benefits include cleaner air and lower healthcare costs. On an urban level, investing in energy efficiency and retrofits can help create three times more jobs than fossil gas investments – and with jobs comes economic security.⁵¹

Furthermore, incentivising renovations now and in the long term would benefit from fresh thinking. For example, landlords could be obliged to invest part of their rent revenue in energy efficiency measures. There could be a minimum energy performance requirement for rental properties or a reduction in rent for those properties that

rank below Class D, as an example. It is also important to address existing barriers to the renewable revolution, such as burdensome administrative procedures for the installation of small-scale renewable systems and the shortage of skilled workers. There should be more training programmes for installing heat pumps, for instance, which would benefit the labour market and accelerate the clean energy transition.

When it comes to mobility, public transport should be made accessible and affordable, with the help of subsidies if needed. This must be coupled with investments in better public transport and infrastructure for walking and cycling. There should be incentive schemes for carpooling and -sharing.

Third, citizens must be guided in finding optimal, cost-effective measures that balance energy efficiency with the use of renewable energies now and tomorrow. Greater efforts are needed to boost the consumers' role in the energy market, empowering them to choose and change suppliers, generate their own electricity, and join energy communities which organise collective and citizen-driven actions that support a clean energy transition.

Fourth, enhancing the renewable revolution and energy security requires collaboration across borders. Member states must step up collaboration in creating an electricity market for renewables, where (i) installations are placed where they will be most efficient; (ii) electricity flows in a smart grid that connects different parts of the EU and allows for demand-side response and management; and (iii) energy storage is deployed on a large scale.

Fifth, it should not be forgotten that the EU's clean energy transition is happening globally and should result in a positive change *also beyond* EU borders.⁵² As an example, improving the renewable electricity capacity to produce renewable hydrogen in countries outside the EU could benefit both the EU and the countries in question.

The EU has both an interest and a global responsibility to avoid the unwanted international consequences of its clean energy transition. While pursuing the renewable revolution in the EU is critical, this will only be sustainable if it does not negatively impact countries that extract raw materials. The best way to reduce the EU's climate and ecological impacts on countries beyond its borders is to reduce its energy consumption, consume fewer resources and become smarter with its resources, with the help of the circular economy.

The EU has both an interest and a global responsibility to avoid the unwanted international consequences of its clean energy transition.

Finally, it should be remembered that the EU's efforts to enhance its energy efficiency, the uptake of renewables and the circular economy have already created a conducive environment for European businesses to develop the relevant solutions. As a result, European industry is in a good position to continue developing, for example, wind energy, heat pumps, demand-side management, sustainable buildings and efficient home appliances, aviation biofuels, shared mobility solutions, industrial efficiency, zero-emission steel, and material recycling and waste management.⁵³ There is great scope to continue developing business models like products-as-a-service, remanufacturing and upcycling to combine smarter resource use and even dematerialisation with increased competitiveness. The market for these solutions in Europe and beyond is growing. Creating enabling conditions for European industry to become a standard-setter and leader in these solutions would be a win-win for our competitiveness and prosperity.

3. Towards a sustainable food system

The Russian war in Ukraine poses an immediate challenge to the global as well as European food systems. While Russia deliberately weaponises food to create chaos in Europe and beyond, the war's impacts on food systems, logistical problems, and the unequal distribution of, access to and affordability of food highlight the urgent need to address the fundamental flaws in the existing system. For the EU, the war should be a wake-up call to shift from high-input agricultural systems, an intensive livestock sector, and unhealthy and costly consumption patterns to a more sustainable and resilient system.

Globally, the war's impacts on the wheat and maize markets could seriously impact food availability, especially in Africa and the Middle East. The UN's

Food and Agriculture Organization (FAO) warns that the war coupled with ongoing climate change and extreme weather events risk leading to a global food crisis and that failing to address this could result in starvation and mass migration.⁵⁴

Although the EU is largely self-sufficient and does not face food insecurity or food shortage problems (for now), the war is disrupting imports of animal feed and fertilisers. The rise in energy prices will also impact that of food.⁵⁵ A key question is how far the EU will go to maintain its intensive livestock sector, which is most affected by the war's disruptions, and at what cost.

While Russian actions drive the global food crisis, and although the EU is not threatened directly by the food shortages, to avoid the worst-case scenarios, the EU has a strong security-related and humanitarian interest in preventing and mitigating the food crisis. This requires actions in and outside the Union. The EU must ensure that these measures support European and global food security in the short, medium and long term.

One only needs to consider the science to understand what measures should be taken now to make our food systems resilient and sustainable, and how dietary choices can be aligned with food security, health, climate and environmental considerations.⁵⁶ In a nutshell, we should substantially limit foods from animal sources, increase the production and consumption of plant-based foods for feeding people, and reduce food waste.

However, similarly to energy, despite the sound evidence and solemn promises, the transition to a sustainable European food system has been inadequate, slow and undermined by vested interests. For decades, the EU's Common Agricultural Policy (CAP) has supported the development of a food system that is harmful to the climate, the environment, our food security, the farmers, the agricultural sector's competitiveness and people's health – and, as such, for the economy and society as a whole.⁵⁷

Similarly to energy, despite the sound evidence and solemn promises, the transition to a sustainable European food system has been inadequate, slow and undermined by vested interests.

While in past years, the European Green Deal and its Farm to Fork and Biodiversity for 2030 strategies provided a long-awaited effort to address the EU's inherently inconsistent approach to its food system, there is now a great risk that the war could be used as an excuse to weaken these endeavours. Since the invasion, some European politicians and agribusiness lobbies have increased their attacks on these efforts.⁵⁸ They hoped to weaken the European Commission's proposals for pesticide and fertiliser targets, as well as the EU Nature Restoration Law under the pretext of 'food security'. There have been calls to give up the 2030 organic farming targets, use fallow land for farming and postpone crop rotation. They have resisted the Deforestation Law proposal, which would introduce due diligence requirements for companies to ensure that imports of soya, beef and palm oil, for example, have not contributed to deforestation worldwide.

By demanding unconditional financial support for harmful farming practices and aiming to water down efforts to make farming more sustainable, these lobbyists show their true colours. They are more obsessed with preserving and benefiting from the existing farming model – which is costly for our economy and society and is destroying the ecosystems upon which it depends – than enhancing the EU's food security. Thankfully, their misinformation campaigns and fear-mongering tactics have been recognised and called out.⁵⁹ Now, also EU member states must hold their ground against such demands.

As the EU and its member states reflect on the measures to be taken, this is the time to accelerate the much-needed transition to a sustainable food system that is competitive and can feed people today and tomorrow. Climate change and biodiversity degradation already hamper Europe's food security, and the EU cannot afford to worsen the situation. Making the food system more sustainable makes it more resilient and helps to provide people access to healthy, affordable food.

What the EU does – often with the help of CAP – has implications beyond its borders. When the EU subsidises uncompetitive dairy and livestock production and consumption, it distorts the market vis-à-vis plant-based food. When the EU dumps its surplus of heavily subsidised dairy and meat products onto the developing world, it deprives, for instance, African farmers of their livelihood and ability to compete on the global market.⁶⁰ When the EU imports animal feed, it contributes to global ecological destruction and climate change. EU imports of, for example, soy (mainly for feeding animals), palm oil and beef account for 16% of global deforestation and drive the destruction of other global ecosystems (e.g. wetlands).⁶¹

Whatever happens in the EU's agri-food system also has implications for its clean energy transition.

Whatever happens in the EU's agri-food system also has implications for its clean energy transition. The EU recognises the importance of biogas and biomethane as energy sources, as indicated in the European Commission's Sustainable Carbon Cycles Communication and REPowerEU plan. While not without concerns, the sustainable farming sector and agricultural waste are envisaged to become important sources of biomethane.⁶² Most importantly, the food sector is a notable energy and fossil fuel user, and greater efforts are needed to improve food production, logistics and storage and to reduce reliance on fossil-based fertilisers.

Building on these challenges and possibilities, the following sections outline recommendations for EU action.

3.1. HELP THE VULNERABLE IN THE EU AND BEYOND

Economic shocks related to COVID-19, extreme weather events and now the Russian war on Ukraine are putting enormous pressure on global food security. Prices of agricultural products are projected to increase by almost 20% in 2022.⁶³ Wheat prices could increase more than 40%, impacting especially developing economies that rely on Russian and Ukrainian imports. These price hikes will impact all consumers across the globe, while the poorest suffer the most.⁶⁴

For the time being, the greatest pressure comes from the increased prices. However, food *availability* is also a risk for vulnerable nations in Africa and the Middle East. The UN World Food Programme (WFP) estimates that up to 323 million people could become acutely food insecure by the end of this year.⁶⁵ At its worst, this would lead to social unrest, destabilised societies, famine and mass migration.

As Russia weaponises food and drives the global food crisis, the EU must put pressure on countries like China, India and those African and Middle Eastern states that have not yet condemned Russia's actions. Russia is a bandit that must be held accountable by the global community.

The EU must fight any Russian attempt to use the food crisis to pressure the world to recognise its territorial gains in Ukraine, or lift sanctions.

The humanitarian and development assistance the EU has already provided to Ukraine and developing countries is notable.⁶⁶ Going forward, supporting the WFP's food security support schemes and providing bilateral aid in the form of monetary or food transfers to the most vulnerable countries will be essential.⁶⁷ A priority should be given to those that condemn Russia's aggression and efforts to weaponise food. The EU should also consider cutting development support to those states that have not yet clarified their position regarding Russia's genocidal policies and, as such, support its aggression. The EU must also step up its efforts to address Russian propaganda and misinformation regarding the drivers of the global food crisis. The EU must fight any Russian attempt to use the food crisis to pressure the world to recognise its territorial gains in Ukraine, or lift sanctions.

Furthermore, the EU must continue its efforts to get Ukrainian food to the global market and help ensure its proper functioning. Collaborating with international partners like the US will be crucial to mitigating the food crisis.⁶⁸

In the long term, the EU should do more to support farmers in, for example, Africa to sustainably produce a greater variety of foods for local consumption. The war in Ukraine highlights the vulnerabilities of the global food system. Similarly to energy security, enhancing global food security requires diversifying production and sources. Monoculture and the concentration of crop production in a small number of countries make the world vulnerable to supply disruptions, also caused by environmental catastrophes. This food crisis will not be the last. As the future shadowed by climate change promises more draughts and floods, and consequently devastating impacts on the world food supply, it is high time to prepare for and adapt to these pressures.⁶⁹

In the short term, the vulnerable in the EU, most affected by the rise in food prices, must be supported with targeted measures. As set out also in the energy section, this should include socio-economic measures, like emergency income support in the form of consumption cheques or reduced labour taxes to improve their purchasing power. We should also see an open discussion about minimum income schemes.

Member states should implement reduced value-added tax (VAT) rates for healthy plant-based foods. There could be food vouchers for local sustainable products. Supporting and encouraging food banks is another win-win measure, providing low-income households easy access to free or affordable food while also preventing food waste. We should see efforts to support sustainable local food production and connect farmers with citizens, including via online platforms and apps.

What the EU does within its borders, especially under the support schemes of the CAP, impacts local and global food security directly.

It cannot be stressed enough: What the EU does within its borders, especially under the support schemes of the CAP, impacts local and global food security directly. The measures taken today and tomorrow must address not just the rising cost of food but also the root causes of hunger and food insecurity, including the climate emergency and environmental degradation.

3.2. SHIFT TO SUSTAINABLE AGRICULTURAL PRODUCTION

The world could easily grow enough food to feed the people, but instead, global food security is under threat. Firstly, degrading biodiversity and ecosystems coupled with the climate crisis create urgent threats to food security, which are aggravated by intensive agricultural farming practices. Secondly, rather than growing healthy food for people, most of the world's and EU's agricultural land – and subsidies – are used to raise livestock and grow animal feed. Thirdly, the pandemic and the Russian war create new pressures, heightening the urgency to transform European agricultural production.

In Europe, agricultural yields have stagnated for years due to climate change, soil degradation and the loss of pollinators.⁷⁰ Any suggestions to address the looming food crisis by producing more food without considering the environment and climate would be suicidal, as agricultural production depends on healthy ecosystems. For example, pollinators are needed to produce 75% of all food crops, which accounts for hundreds of billions of euros for the global food industry.⁷¹ The ongoing, drastic insect population decline is a real threat to food security in the EU and beyond. The causes for this – industrial farming and heavy pesticide use – must be addressed. The EU needs ambitious pesticide and fertiliser targets and a Nature Restoration Law that build on scientific evidence to ensure food security.⁷²

Any suggestions to address the looming food crisis by producing more food without considering the environment and climate would be suicidal, as agricultural production depends on healthy ecosystems.

This is also the time for the EU to accelerate – not slow down – its efforts to address global deforestation, including via the new Deforestation Law. Deforestation is accelerating climate change and has immediate impacts on rainfall and temperature, which, again, are felt by the agricultural sector.⁷³ The EU must ensure that its measures in and outside Europe do not short-sightedly convert climate-critical forests into agricultural land, as this would accelerate climate change and contribute to more volatile and less secure global supply chains for food.⁷⁴

If the EU is serious about global and local food security, mitigating climate change and stopping environmental degradation, it should focus on growing healthy, sustainable food for people rather than supporting intensive livestock farming and production of feed for animals.⁷⁵ Livestock takes up nearly 80% of the world's

agricultural land.⁷⁶ In the EU, over 71% of all agricultural land is dedicated to producing animal feed.⁷⁷ And yet, livestock produces less than 20% of the world's supply of calories.⁷⁸ If people were to consume plant-based foods only, the global land use for agriculture would be reduced by 75%.⁷⁹

While livestock farming will have a place in the food systems of the future, reducing *intensive* livestock production would free significant plots of land to grow healthy food for people, restoring carbon and supporting ecosystem services essential for maintaining life. It would address the climate emergency since the livestock sector accounts for 14.5% of global GHG emissions.⁸⁰ And as livestock production greatly consumes fresh water resources, its reduction would help address growing water scarcity.

As a major meat and dairy producer and consumer, there is no better time to rethink the EU's love affair with livestock.

As a major meat and dairy producer and consumer, there is no better time to rethink the EU's love affair with livestock. Due to the EU's dependence on imports of animal feed, it now faces a meat production crisis. While this supply challenge should lead to immediate efforts to accelerate the production of, for example, edible insects for animal feed, the EU and its member states should be clear in their communication and actions that this is the end of business-as-usual. It is time to adopt a more sustainable approach to European livestock production and consumption. In addition to ending extravagant subsidies for industrial livestock production, taxpayers' money should not be used to advertise meat-eating⁸¹ or supply dairy products in schools,⁸² as they undermine the imperative shift towards a more resilient and sustainable plant-based food system in Europe.

Public money is limited, and the EU and its member states must use it responsibly. The CAP and the EU's wasteful subsidies and support for animal farming – often with no conditions attached – have incentivised a creation of an unsustainable food system in the last decades. The EU can no longer afford to continue costly subsidies for unsustainable and uncompetitive farming practices.⁸³ Every cent should be spent to make the agricultural sector more competitive and resilient, increase people's welfare and protect the planet. As a whopping third of the EU budget is spent to support European agricultural production via the CAP, it can either deliver on or sabotage these efforts.

The most costly and short-sighted reaction to the rising energy prices is increasing support for what we should actually reduce: fossil fuel production and consumption. This rationale also applies to food. Now encouraging food

production with no conditions attached or maintaining support for intensive livestock farming and meat and dairy consumption would be irresponsible. Any short-term measure to intensify the EU's agricultural production must respect environmental and climate goals to avoid worsening our food insecurity and the global food crisis.⁸⁴ In the member states' latest national CAP strategic plans, about 70% of coupled income support is planned for the livestock sector.⁸⁵ This support must be reassessed in light of the ongoing crisis.

The Commission's recent decision to give an "exceptional and temporary" derogation, permitting farmers to plant crops on fallow lands while receiving full greening payments, demonstrates the dangers of political decisions that ignore science. This conclusion was taken despite the evidence that fallow tends to have low productivity as such but does provide critical habitat for biodiversity and ecosystem services central for maintaining agricultural production.⁸⁶ If the member states implement this decision, restoring biodiversity and ecosystem services on these lands will take years. This, in turn, will undermine the EU's food security further.

As with energy, the EU must focus on the best available win-win measures to avoid unwanted consequences in and outside its borders. As the increase in food prices is affected by supply disruptions and higher feed, fertiliser and energy costs, the immediate short-term measures should aim to lower food production costs by reducing dependence on these inputs. Like in energy, the cheapest resource is the one not used. The EU should support farmers going through an agroecological transition, which helps address the existing vulnerabilities and ensure fair incomes for farmers and farmworkers.

Keeping the pressure on member states to accelerate rather than slow down the transition toward more sustainable food systems is essential. The starting point is to review the national CAP strategic plans that fall short of promised ambitions and lack clear targets, measures and funding to halt biodiversity loss and cut GHG emissions.⁸⁷ The member states' updates to these plans should result in enhancing organic farming, low-input farming and regenerative agriculture. They should reduce support for livestock farming and fertiliser dependency.⁸⁸

As another concrete step, it is necessary to start interventions to reduce industrial livestock farming. In order to support this transition, the EU and member states could consider compensation and support schemes for the farmers.⁸⁹ This is already happening in the Netherlands, which has announced a plan to reduce its livestock radically.⁹⁰ How the EU and member states support the clean energy transition and, for instance, coal regions in transition can provide inspiration also for the agricultural sector.

3.3. CONSUME MORE SUSTAINABLY

The EU is not just an important food and feed producer but also a major consumer and importer. What Europeans

consume as feedstocks and food or import as animal feed has implications for local and global food security, climate and environment.

Firstly, when land – be it in the EU or beyond – is diverted away from food production to cater for the EU's biofuel demand, this contributes to a rise in food prices and undermines global food security. Europe burns the equivalent of 15 million bread loaves for biofuels for cars every day.⁹¹ If the EU were to stop importing wheat for biofuels, around 20% of Ukraine's wheat supply could be exported to other countries to be consumed as food.

Moreover, the EU's thirst for biofuels impacts not just global food security but also land use in the EU and beyond, negatively impacting the climate and biodiversity.⁹² While the biofuel industry argues that it produces not just fuel but also food and animal feed and that biofuel production is strictly controlled, there can be no doubt: addressing the challenges requires increasing reforestation and enhancing agricultural land use to support climate action and environmental protection.

In the face of the global food crisis, the Union has a responsibility to ensure that its policies on energy and alternative fuels address this crisis, not worsen it. While the EU has set a 7% limit on the quantity of crop-based biofuels to be used in the transport sector, its policies on biofuels must be carefully considered in the context of global developments. Food belongs on the table, and this is surely not the time to burn edible crops like wheat, corn, barley, sunflower, or rapeseed for fuel.

Food belongs on the table, and this is surely not the time to burn edible crops like wheat, corn, barley, sunflower, or rapeseed for fuel.

Secondly, Europeans' carnivorous diets have serious impacts on global food security. Shifting to healthier, more plant-based diets could alleviate these pressures immediately. For example, reducing the EU's use of grains to feed its livestock by one-third would compensate the collapse of Ukrainian grain and oilseed exports.⁹³ Shifting diets would also enhance food security in the long term. Reducing Europeans' demand for livestock would help address the major drivers of global food insecurity: climate crisis, deforestation and the destruction of global ecosystems.⁹⁴ It would also free land in the EU and beyond that could be used for growing food for human uptake, restoring carbon and/or revitalising ecosystems.

In the same way, as the EU and member states should now incentivise their citizens to reduce their energy consumption, they should also encourage a shift to healthier, more plant-based diets. This would help reduce the amount of grains needed for animal feed and make

more food available worldwide.⁹⁵ Awareness campaigns should be coupled with reduced or eradicated subsidies for livestock production, which currently keep meat and dairy prices artificially low. Financial support schemes and marketing campaigns for consuming livestock products should cease. If needed, financial support for producing edible crops, plant-based protein and vegetables for people should be increased. Financial incentives like 0% VAT on fruit, vegetables and pulses should be considered.

The basis for incentivising more plant-based diets is there: a growing number of Europeans are already changing their behaviours and are interested in changing their food consumption patterns. Many are willing to waste less food, buy more seasonal produce and eat more plant-based foods.⁹⁶ But people need support in these efforts. The general barriers to changing food habits include pricing, insufficient marketing, lack of information on sustainable options, and the (un)availability of products.

Some EU leaders are already rightly communicating to their citizens that adopting healthier, plant-based diets is positive for not just our planet but also our food security.⁹⁷ This kind of leadership must be coupled with creating a food environment that encourages and enables European citizens to shift to sustainable diets.

3.4. SUPPORT THE DEVELOPMENT AND UPTAKE OF NEEDED SOLUTIONS

The transition to a more resilient and sustainable EU food system can benefit from a range of innovative approaches and solutions. It is in the EU's interest to address the ongoing challenges using available policy and financial tools to develop and deploy the needed solutions and innovations.

The Russian war has brought to the fore the EU's need to reduce its agricultural sector's dependency on energy imports and energy-intensive imports (e.g. nitrogen fertilisers) from Russia. The disruption to the supplies and higher prices of petrochemical fertilisers is a welcome opportunity to rethink the EU's agricultural production, reduce its vulnerabilities and ensure its sustainability in the short and long term.

As a result of the recent disruptions, many farmers are already looking for more agroecological ways to produce food. As organic food producers use fewer fertilisers, the EU should use the occasion to enhance organic production, which also benefits people's health, the climate and the environment.⁹⁸ EU regions and cities should incentivise the consumption of organic produce in canteens, for example.

Precision farming, improved nutrient and pest management, biological alternatives to chemical pesticides and biobased fertilisers can all help make the agricultural sector more resilient and sustainable. Using the Horizon Europe funding programme to support

research and innovation in substituting, for example, synthetic fertilisers is a welcome longer-term plan.

Developing alternative protein sources for livestock provides interesting long-term prospects, not least as the market demand for these is growing in the EU and beyond. Consumers' interest in organic plant-based food is on the rise.⁹⁹ The EU market for plant-based meat and dairy alternatives has seen an annual double-digit growth.¹⁰⁰ The number of innovative products, from lab-grown meat and dairy to protein from air, is skyrocketing. As new products emerge, it is important to study and keep track of their impacts on people's health, the climate and the environment to enhance trust in them and to avoid unwanted longer-term consequences.¹⁰¹

Recognising the EU's interest in enhancing biomethane and biogas production to replace some fossil fuel imports, for example agricultural by-products, sewage sludge, animal manure and food waste, offer interesting possibilities for this already today.¹⁰² However, measures to boost biomethane production must not lead to increased emissions and pollution or compete with food production and food security.

Furthermore, measures must be taken to enable and empower consumers to support the agri-food transition. For example, various technological and digital solutions can make sustainable choices – be it consuming more climate- and environmentally friendly food, or reducing food waste – easy and attractive.¹⁰³ They can create awareness about needed measures, connect farmers to consumers, 'reconnect' people with food, incentivise sustainable behaviour and diets, enhance trust and transparency, and help prevent food waste.

Sustainable consumption should be made easy, and this requires addressing the existing barriers. For example, as people find it extremely difficult to evaluate the environmental, climate-related and health impacts of food products, food labelling would ideally build on a simple score system that captures the health, environmental and climate-related impacts of food products. In the long term, better use of data and digital solutions can provide interesting prospects for making such labelling a reality.

3.5. REDUCE FOOD WASTE

Energy saved and not consumed is often recognised as the cheapest, and since Russia started a full-scale attack on Ukraine, there has been a strong focus on improving energy saving and efficiency. Surprisingly, this kind of public discussion seems non-existent when it comes to food lost and wasted, although just the amount of wheat wasted in the EU equals about half of Ukraine's wheat exports.¹⁰⁴

According to the FAO, globally, around 30% of food produced for human consumption is lost or wasted annually.¹⁰⁵ In the EU, around 88 million tonnes of food are wasted yearly, equivalent to 173kg per person

and 20% of all food produced in the EU.¹⁰⁶ This is not just a cost for the climate and environment, a waste of resources and a contributor to food insecurity; it is a real economic loss. According to the European Commission, the annual monetary value of EU food waste is €143 billion.¹⁰⁷

Food waste is created across the value chain, from farms to consumers. About 50% of EU food waste is created in households due to poor planning, a lack of value for food, impulsive shopping, overbuying and overpreparing. People often disvalue food, as they are disconnected from how it is produced. Labelling is also a challenge: many do not understand the difference between use-by and best-before dates and want labels to be clearer about the edibility of food.¹⁰⁸

As an immediate measure, EU member states, cities and institutions should hold campaigns against food waste, focusing on benefits and needed measures. Food banks should be promoted and destigmatised, and food redistribution – especially for the vulnerable – ensured. Channels, including online platforms, are needed to distribute food directly from farms to consumers to avoid food waste at the farm level.

As an immediate measure, EU member states, cities and institutions should hold campaigns against food waste, focusing on benefits and needed measures.

As a longer-term plan, the reduction of food loss and waste should be integrated into strategies and programmes for food policy and climate action. Efforts are needed to address the reasons behind food waste, from clarifying labels to improving food donation rules. Moreover, better access to and quality of data on food loss and waste levels and their related impacts are the basis for understanding the scale of the problem and a way to measure progress. The Commission should propose a legally binding target for reducing food waste across the EU much earlier than envisaged (planned for end of 2023).¹⁰⁹

4. The European Green Deal: The guiding light

During these crisis-driven times, EU leaders are being tested for their courage to do the right thing. They are being tested for their willingness to implement measures that will lead to greater stability, security and prosperity. They are being tested for their ability to lead.

EU leaders will be judged for not only past mistakes but also the measures they take to correct these missteps. They will be judged on not just the results of their actions in the short term but also the legacy they leave behind. This is also the case now, as the EU and its leaders look to respond to not only Russian aggression but also the repercussions of the war.

Two areas greatly affected by the war are energy and food. Prices are rising, and the possible disruptions to supply chains are expected to affect the availability of these vital resources, further worsening the cost-of-living crisis. But while leaders are under great pressure to react quickly to the ongoing crises, the EU cannot afford more costly, short-sighted investments and policymaking. The decisions made today will have not just short- but also longer-term economic, political, geopolitical, societal, moral and planetary consequences.

In this context, the European Green Deal provides a comprehensive, strategic and forward-looking basis for action. It proposes goals to make the EU more sustainable, resilient and prosperous. It provides much-needed guidance on the needed measures, including in our energy and food systems.

There is no time to waste. It is more urgent than ever that the agreed vision is turned into action *now*.¹¹⁰ The EU leaders must step up their communication and actions to reflect this urgency. Exceptional times call for exceptional measures, in speed and scope. Business-as-usual is not an option.

It is more urgent than ever that the agreed vision for the European Green Deal is turned into action *now*.

EU leaders must adopt a wartime mindset in their communication and actions. They must convince their citizens to accept that managing and enduring these exceptional times will require exceptional measures, including in how we produce and consume energy and food. They must be frank: if Europe fails to take needed measures now, this will only prolong the pain and lead to devastating consequences for our society and economy. The leaders must communicate clearly that no matter how dire or daunting, all possible costs and sacrifices will be manageable. They must take the needed measures to manage them.

The stakes are high. Russia expects Western unity to crumble. It is weaponising energy and food to break societal resilience in Europe and EU unity. If Russia were to succeed, it would lead to catastrophic consequences for Ukraine and the European order and undermine prospects for peace and stability in Europe.

The EU desperately needs leaders who recognise the importance of collaboration, unity and solidarity when addressing the shared challenges. The EU needs its leaders to prioritise shared European goals over narrow, short-term national interests. The EU is stronger than the sum of its parts, but only when it works together to address joint challenges.

Moreover, the leaders cannot afford to just react to the impacts of the war, including for the energy and food systems. The decisions, policies and investments of today will have profound implications for the EU's security and prosperity today and tomorrow. Thus, the Union and its member states must fight any effort to use the war in Ukraine as an excuse to slow down efforts to make the European economy and society more sustainable and resilient. When it comes to energy and food, this is the time to accelerate – not slow down – the transition to more sustainable systems. In the case that short-term emergency measures to address the rising costs and supply disruptions lead to an increase in emissions, plans must be put in place to compensate for the delay in the green transition. There can be no doubt in anyone's mind about the EU's objective to reduce these systems' climate and environmental footprints in the next years.

To ensure secure and sustainable supplies of affordable energy and food in the EU, the communication to and actions across EU society must build on the following principles and measures:

- ▶ think big, aim for the best possible win-wins and support the vulnerable;
- ▶ ensure that energy and food production enhance the EU's and Europeans' security, well-being and prosperity today and tomorrow;
- ▶ encourage the sustainable consumption of energy and food and demand-side measures;
- ▶ stop supporting and subsidising solutions and practices which are harmful and costly for our society, economy and planet; and
- ▶ support the development and uptake of needed, innovative solutions for the clean energy transition and sustainable food systems.

Overall, the measures must enhance energy and food security, reduce Europe's dependence on fossil fuels, and create sustainable energy, transport and food systems. It is time to improve the energy and food systems, both separately and together. It is time to gear policies and investments in accelerating transitions to clean energy and sustainable food systems.

These exceptional times call for unity, collaboration and courage to do the right thing. These times call for exceptional measures to enhance European resilience, sustainability and prosperity. These times call for EU leaders to lead us to the future we want.

- 1 Hedberg, Annika (2022), "[Wake up, EU! We are at war](#)", Brussels: European Policy Centre; Zuleeg, Fabian (2022), "[A watershed moment in European history: Decision time for the EU](#)", Brussels: European Policy Centre; Emmanouilidis, Janis A. and Fabian Zuleeg (2022), "[Europe's moment of truth: United by adversity?](#)", Brussels: European Policy Centre.
- 2 Borges de Castro, Ricardo; Janis A. Emmanouilidis; and Fabian Zuleeg (2021), "[Europe in the age of permacrisis](#)", Brussels: European Policy Centre.
- 3 Mrkaic, Mico and Malhar Nabar, "[The most surprising long-term impacts of the 2008 financial crisis](#)", World Economic Forum, 05 October 2018.
- 4 E.g. Intergovernmental Panel on Climate Change (2018), "[Global Warming of 1.5°C](#)". Brondizio, Eduardo; Josef Settele; Sandra Díaz; and Hien T. Ngo (2019, eds.), "[Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#)", Bonn: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. United Nations Environmental Programme (2021), "[Making Peace With Nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies](#)", Nairobi.
- 5 E.g. Rayner, Laura and Aileen McLeod (2022), "[Solidarity, sustainability and well-being at the heart of the EU mission](#)", Brussels: European Policy Centre; Mollet, Frederico and Georg E. Riekes (2022), "[Europe must prepare for a wartime economy](#)", Brussels: European Policy Centre.
- 6 Intergovernmental Panel on Climate Change (2022), "[Climate Change 2022: Mitigation of Climate Change](#)".
- 7 E.g. European Commission (2019), "[Reflection Paper: Towards a sustainable Europe by 2030](#)", COM(2019) 22 final, Brussels; European Environment Agency (2020), "[Towards zero pollution in Europe](#)", Copenhagen; International Labour Organization (2019), "[Skills for a greener future. Key findings](#)", Geneva.
- 8 Hedberg, Annika (2021), "[The European Green Deal: How to turn ambition into action](#)", Brussels: European Policy Centre.
- 9 Hedberg, Annika (2014), "[Russian belligerence and Europe's energy security](#)", Brussels: European Policy Centre. Hedberg, Annika (2015a), "[EU's quest for energy security - What role for the Energy Union?](#)", Brussels: European Policy Centre.
- 10 Eurostat (2022), "[Main origin of primary energy imports, EU, 2010-2022 \(% of EU imports\) v2](#)".
- 11 Hedberg, Annika (2017), "[Germany's energy transition: making it deliver](#)", Brussels: European Policy Centre; Hedberg, Annika (2015b), "[Nord Stream II – Testing EU unity and credibility](#)", Brussels: European Policy Centre.
- 12 Centre for Research on Energy and Clean Air (2022), "[Financing Putin's war on Europe: Fossil fuel imports from Russia during the invasion of Ukraine](#)".
- 13 E.g. McWilliams, Ben; Giovanni Sgaravatti; Simone Tagliapietra; and Georg Zachmann, "[Can Europe manage if Russian oil and coal are cut off?](#)" *Bruegel*, 17 March 2022. Bachmann, Rüdiger; David Baqaee; Christian Bayer; Moritz Kuhn; Andreas Löschel; Benjamin Moll; Andreas Peichl; Karen Pittel; and Moritz Schularick (2022), "[What if? The Economic Effects for Germany of a Stop of Energy Imports from Russia](#)", Munich: Center for Economic Studies.
- 14 International Energy Agency (2022a), "[A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas](#)", Paris. Brown, Sarah; Domien Vangenechten; Bram Claeys; and Marta Lovisolo (2022), "[EU can stop Russian Gas imports by 2025](#)", Regulatory Assistance Project. Artelys (2022), "[Does phasing-out Russian gas require new infrastructure?](#)".
- 15 Tagliapietra, Simone; Guntram B. Wolff; and Georg Zachmann (2022), "[A phase out of Russian oil may be less effective than a tariff at reducing Putin's rents](#)", Brussels: Bruegel.
- 16 E.g. Buck, Matthias; Alexander Dusolt; Fabian Hein; Christian Redl; Andreas Graf; Michaela Holl; Oliver Sartor; and Claudio Baccianti (2022), "[Regaining Europe's Energy Sovereignty: 15 Priority Actions for REPower EU](#)", Berlin: Agora Energiewende. Brown *et al.* (2022), *op.cit.*
- 17 'Locking in' a carbon-intensive energy system and 'locking out' technological alternatives.
- 18 E.g. Compton, Jason, "[The Coming Energy Transition: How It Will Affect 5 Industries](#)", *Forbes*, 02 August 2018; *US Agency for International Development*, "[Clean Energy Solutions For Agricultural Productivity](#)" (accessed 28 June 2022); *pv magazine*, "[How Agri-PV can support the EU clean energy transition in rural communities](#)", 20 February 2020.
- 19 European Commission, "[REPowerEU: Joint European action for more affordable, secure and sustainable energy](#)", Strasbourg, 08 March 2022a.
- 20 European Commission (2022b), "[Financing REPowerEU](#)", 18 May 2022.
- 21 European Commission, "[Eurobarometer on EU's response to the war in Ukraine](#)", Brussels, 05 May 2022c.
- 22 Müller, Claudia, "[45 Prozent geht Ukraine-Politik nicht weit genug](#)", *tagesschau*, 07 April 2022.
- 23 E.g. Motherway, Brian; Kristina Klimovich; Vida Rozite; and Edith Bayer (2022), "[Accelerating energy efficiency: What governments can do now to deliver energy savings](#)", Paris: International Energy Agency. Rapid Transition Alliance, "[From oil crisis to energy revolution – how nations once before planned to kick the oil habit](#)", 16 April 2019. Myllyvirta, Lauri and Justin Guay, "[How Japan Replaced Half Its Nuclear Capacity With Efficiency](#)", *Greentech Media*, 10 April 2014.
- 24 Intergovernmental Panel on Climate Change (2022), *op.cit.*
- 25 International Energy Agency (2022a), *op.cit.*; International Energy Agency (2022b), "[A 10-Point Plan to Cut Oil Use](#)".
- 26 European Commission (2022d), "[EU 'Save Energy'](#)", COM(2022) 240 final, Brussels.
- 27 Wettengel, Julian, "[German auto association calls for bicycle use to save energy](#)", *Clean Energy Wire*, 28 April 2022.
- 28 European Commission (2014), "[Impact Assessment: Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy](#)", SWD(2014) 255 final, Brussels, p.40.
- 29 Cambridge Econometrics (2021), "[Warmer homes and lower bills – the impact of the Renovation Wave](#)"; International Energy Agency (2020a), "[Sustainable Recovery](#)", Paris, pp.68-80; *European Commission*, "[Renovation wave](#)" (accessed 28 June 2022).
- 30 European Alliance to Save Energy (2022), "[Energy efficiency to address the energy & climate crisis: Short to mid-term measures in energy efficiency to reduce gas consumption in Europe](#)"; Buildings Performance Institute Europe (2022), "[Solidarity and resilience: An action plan to save energy now!](#)".
- 31 Economidou, Marina; Marc Ringel; Marie Valentova; Paolo Zancanella; Sofia Tsemekidi-Tzeiranaki; Paolo Zangheri; Daniele Paci; Tiago Serrenho; Valentina Palermo; and Paolo Bertoldi (2020), "[National Energy and Climate Plans for 2021-2030 under the EU Energy Union](#)", JRC122862, Joint Research Centre, p.45.
- 32 E.g. Hemetsberger, Walburga; Claire Couet; and Michael Schmela (2021), "[EU Market Outlook for Solar Power 2021-2025](#)", Brussels: SolarPower Europe. International Energy Agency (2021), "[Heat Pumps](#)", Paris. *Market Watch*, "[Onshore Wind Energy Market 2022](#)", 27 April 2022. Global Wind Energy Council (2021), "[Global Offshore Wind Report 2021](#)", Brussels. Kretchmer, Harry, "[The cost of renewable energy is increasingly undercutting fossils](#)", World Economic Forum, 23 June 2020.
- 33 Wanat, Zosia, "[Poland to EU: Follow our lead on scrapping Russian energy](#)", *POLITICO*, 30 March 2022.
- 34 *France 24*, "[The Med gets first offshore wind farm as Italy vows energy revolution](#)", 16 March 2022; *Reuters*, "[Netherlands ramps up plan for doubling offshore wind capacity by 2030](#)", 18 March 2022a; Whitlock, Robin, "[Germany raises the bar on renewable energy with new set of laws for 100 percent renewable power](#)", *Renewable Energy Magazine*, 14 April 2022.
- 35 *Reuters*, "[Four countries pledge tenfold rise in EU offshore wind power capacity](#)", 18 March 2022b.
- 36 International Energy Agency (2020b), "[European Union 2020: Energy Policy Review](#)", Paris, p.97.
- 37 European Commission (2020), "[Annex to the 2020 report on the State of the Energy Union pursuant to Regulation \(EU\) 2018/1999 on Governance of the Energy Union and Climate Action](#)", COM(2020) 950, Brussels.

- ³⁸ *Transport & Environment*, “[Cuts to fuel taxes](#)” (accessed 29 June 2022).
- ³⁹ European Court of Auditors, [EU’s energy taxation policies don’t square with its climate goals](#), Luxembourg, 31 January 2022.
- ⁴⁰ Blas, Javier, “[Countries Are Pursuing the Wrong Energy Policies](#)”, *Bloomberg Tax*, 24 March 2022; Borenstein, Severin, “[Cut the Electricity Tax, not the Gas Tax](#)”, *Energy Institute Blog*, 28 February 2022; *European Commission*, “[Renovation wave](#)” (accessed 28 June 2022); *The Economist*, “[Cutting fuel taxes is a bad idea](#)”, 26 March 2022.
- ⁴¹ Bouckaert, Stéphanie; Araceli Fernandez Pales; Christophe McGlade; Uwe Remme; and Brent Wanner (2021), “[Net Zero by 2050: A Roadmap for the Global Energy Sector](#)”, Paris: International Energy Agency.
- ⁴² Brown et al. (2022), *op.cit.*; Artelys (2022), *op.cit.*
- ⁴³ Slav, Irina, “[Why LNG Won’t Fully Replace Russian Gas In Europe](#)”, *oilprice.com*, 13 March 2022; Brown, Sarah, “[EU can stop Russian gas imports by 2025](#)”, *Ember Climate*, 23 March 2022a.
- ⁴⁴ Iaconangelo, David and Carlos Anchondo, “[IPCC report: Oil, renewables and ‘stranded assets’](#)”, *E&E News*, 04 May 2022.
- ⁴⁵ E.g. Climate Action Network Europe, “[Fossil gas dressed up like a Christmas tree: 2nd part of the EU’s ‘Fit For 55’ not in line with 1.5°C](#)”, 15 December 2021.
- ⁴⁶ E.g. Inman, Mason; Greig Aitken; and Scott Zimmermann (2021), “[Europe Gas Tracker Report 2021](#)”, Global Energy Motor.
- ⁴⁷ Brown, Sarah, “[The EU’s €250 billion gas gamble](#)”, *Ember Climate*, 11 May 2022b.
- ⁴⁸ Taylor, Matthew, “[Revealed: the ‘carbon bombs’ set to trigger catastrophic climate breakdown](#)”, *The Guardian*, 11 May 2022; Keating, Dave, “[As Ukraine war rumbles on, EU looks to turn energy promises into actions](#)”, *Energy Monitor*, 12 May 2022.
- ⁴⁹ Blake, Hélène and Tim Bulman, “[Surging energy prices are hitting everyone, but which households are more exposed?](#)”, *ECOSCOPE*, 10 May 2022. James, Emma; Alastair Macdonald; Carolin Piras; Jennifer Rübél; Christopher Shaw; and Richard Steinberg (2022), “[Fair Energy Transition for All: What Vulnerable People Have to Say](#)”, Brussels: Fair Energy Transition for All. Rayner, Laura (2021), “[Renewing the social contract to deliver a just energy transition](#)”, Brussels: European Policy Centre; Rayner and McLeod (2022), *op.cit.*
- ⁵⁰ *Transport & Environment*, “[Cuts to fuel taxes](#)” (accessed 29 June 2022).
- ⁵¹ C40, “[Mayors and unions collaborate to avert sky-rocketing energy poverty crisis with emergency action to boost jobs via relief, renewables and retrofits](#)”, 20 April 2022; Garrett-Peltier, Heidi (2017), “[Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model](#)”, *Economic Modelling*, Volume 61, pp.439-447.
- ⁵² Dixon-Declève, Sandrine; Heather Grabbe; and Janez Potocnik (2022), “[International System Change Compass: The global implications of achieving the European Green Deal](#)”, Open Society Foundations.
- ⁵³ Hedberg, Annika and Martin Porter, “[Competitive sustainability: time to realise the EU’s new approach](#)”, *EURACTIV*, 18 November 2020.
- ⁵⁴ Harvey, Fiona, “[Ukraine invasion may lead to worldwide food crisis, warns UN](#)”, *The Guardian*, 14 March 2022. Tisdall, Simon, “[Apocalypse now? The alarming effects of the global food crisis](#)”, *The Guardian*, 21 May 2022.
- ⁵⁵ European Commission, [Commission acts for global food security and for supporting EU farmers and consumers](#), Brussels, 23 March 2022e.
- ⁵⁶ E.g. Potsdam Institute for Climate Impact Research, “[Food crisis due to Ukraine war calls for demand-side action: less animal products, less waste, and greening EU agricultural policy](#)”, 18 March 2022; Food Policy Coalition, “[Joint open letter: EU food supply and solidarity response to the war in Ukraine](#)”, 10 March 2022; EAT-Lance Commission (2019), “[Summary Report of the EAT-Lancet Commission](#)”.
- ⁵⁷ Hedberg, Annika (2020), “[The Farm to Fork strategy and the inconvenient truth](#)”, Brussels: European Policy Centre.
- ⁵⁸ Dahm, Julia, “[MEPs ask to pause CAP biodiversity requirements amid Ukraine war](#)”, *EURACTIV*, 19 May 2022a; Corporate Europe Observatory, “[Agribusiness lobby against EU Farm to Fork strategy amplified by Ukraine war](#)”, 17 March 2022; BirdLife International, “[Farm lobby uses Russia-Ukraine war as opportunity to attack the European Green Deal](#)”, 08 March 2022a.
- ⁵⁹ Foote, Natasha, “[Timmermans: Scaremongering on food security ‘dishonest, irresponsible’](#)”, *EURACTIV*, 28 April 2022a.
- ⁶⁰ Barbieri, Cécile, “[The CAP has devastating effects on developing countries, report says](#)”, *EURACTIV*, 18 October 2019.
- ⁶¹ Wedeux, Béatrice and Anke Schulmeister-Oldenhove (2021), “[Stepping up? The continuing impact of EU consumption on nature](#)”, World Wildlife Fund; *European Environment Agency*, “[Ecological footprint of European countries](#)” (accessed 30 June 2022).
- ⁶² Abdalla, Nabil; Silvana Bürck; Horst Fehrenbach; Susanne Köppen; and Tim Janosch Staigl (2022), “[Biomethane in Europe](#)”, Heidelberg: Institut für Energie- und Umweltforschung; Foote, Natasha, “[Commission doubles ambition for EU biomethane production from agricultural waste](#)”, *EURACTIV*, 09 May 2022b.
- ⁶³ World Bank, “[Food and Energy Price Shocks from Ukraine War Could Last for Years](#)”, Washington, 26 April 2022.
- ⁶⁴ United Nations, “[Ukraine war squeezes food supplies, drives up prices, threatens vulnerable nations](#)”, Geneva, 13 May 2022; Egan, Matt, “[War-fueled food inflation will cause social unrest, UN official says](#)”, *CNN*, 16 May 2022.
- ⁶⁵ World Food Programme (2022), “[Projected increase in acute food insecurity due to war in Ukraine](#)”, Rome.
- ⁶⁶ European Commission, [Commission acts for global food security and for supporting EU farmers and consumers](#), 23 March 2022f; European Commission, [Food security in Horn of Africa: EU steps up support to drought-affected countries](#), 26 April 2022g.
- ⁶⁷ Aubert, Pierre-Marie; Nathalie Bolduc; Michele Schiavo; and Xavier Poux, “[War in Ukraine and food security: what are the implications for Europe?](#)”, *Institute for Sustainable Development and International Relations*, 09 March 2022.
- ⁶⁸ E.g. Fortuna, Gerardo; Mathieu Pollet; and Natasha Foote, “[Food security is back on EU leaders’ menu with a global flavour](#)”, *EURACTIV*, 26 March 2022. Dahm, Julia, “[Germany calls for global food security alliance](#)”, *EURACTIV*, 20 April 2022b.
- ⁶⁹ Clapp, Jennifer, “[Op-ed: Food Price Spikes Are About Much More than Ukraine](#)”, *Civil Eats*, 16 May 2022.
- ⁷⁰ E.g. Le Gouis, Jaques; Francois-Xavier Oury; and Gilles Charmet (2020), “[How changes in climate and agricultural practices influenced wheat production in Western Europe](#)”, *Journal of Cereal Science*, Volume 93.
- ⁷¹ Chemnitz, Christine, “[Global insect deaths: A crisis without numbers](#)”, Heinrich Böll Stiftung, 27 May 2020.
- ⁷² Wax (2022), *op.cit.*; Corporate Europe Observatory (2022), *op.cit.*; BirdLife International (2022a), *op.cit.*
- ⁷³ Climate and Land Use Alliance (2014), “[Effects of Tropical Deforestation on Climate and Agriculture](#)”.
- ⁷⁴ Oakeshott, Veronica, “[The invasion of Ukraine, global food security, and deforestation](#)”, *Global Witness*, 06 April 2022.
- ⁷⁵ McGrath, Matt, “[Nature loss: Insatiable greed degrading land around the world – UN](#)”, *BBC News*, 27 April 2022. Buckwell, Allan and Elisabet Nadeu (2018), “[What is the Safe Operating Space for EU livestock?](#)”, Brussels: Rural Investment Support for Europe Foundation. Vanham, Davy; Arjen Y. Hoekstra; and Giovanni Bidoglio (2013), “[Potential water saving through changes in European diets](#)”, *Environment International*, Volume 61, pp.45-56.
- ⁷⁶ Ritchie, Hannah, “[How much of the world’s land would we need in order to feed the global population with the average diet of a given country?](#)”, *Our World in Data*, 03 October 2017a.
- ⁷⁷ Greenpeace European Unit (2020), “[Feeding the Problem: the dangerous intensification of animal farming in Europe](#)”, Brussels.
- ⁷⁸ Ritchie (2017a), *op.cit.*
- ⁷⁹ Ritchie, Hannah, “[If the world adopted a plant-based diet we would reduce global agricultural land use from 4 to 1 billion hectares](#)”, *Our World in Data*, 04 March 2021.
- ⁸⁰ Gerber, Pierre J.; Henning Steinfeld; Benjamin Henderson; Anne Mottet; Carolyn Opio; Jeroen Dijkman; Alessandra Falucci; and Giuseppe Tempio (2013), “[Tackling Climate Change Through Livestock: A global assessment of emissions and mitigation opportunities](#)”, Rome: Food and Agriculture Organization.
- ⁸¹ Sánchez Nicolás, Elena, “[EU spent €252m on meat and dairy ads, despite green pledges](#)”, *EUobserver*, 12 April 2021.
- ⁸² *European Commission*, “[School scheme explained](#)” (accessed 30 June 2022).
- ⁸³ European Court of Auditors (2021), [Common Agricultural Policy and climate: Half of EU climate spending but farm emissions are not decreasing](#), Special Report 16/2021, Luxembourg. See also Hedberg (2020), *op.cit.*
- ⁸⁴ Baldrock (2021), *op.cit.*
- ⁸⁵ Council of the EU (2022), [Proposed CAP Strategic Plans – Overview of selected issues](#), 7022/22, Brussels, p.5.

- ⁸⁶ European Commission, [Address by Mr Janusz Wojciechowski on the adoption of the European Commission Communication “Safeguarding food security and reinforcing the resilience of food systems”](#), 23 March 2022h. For critique, see e.g. Luckmann, Jonas; Christine Chemnitz; and Olesya Luckmann (2022), [“Effects of a change to fallow land in the EU on the global grain market”](#), Berlin: Heinrich Böll Foundation.; Pe’er, Guy, [“The EU has just decided to cancel fallow land for the year 2022”](#), *Twitter*, @GuyPeer3, 24 March 2022.
- ⁸⁷ *European Commission*, [“Observation letters on CAP strategic plans”](#) (accessed 30 June 2022); BirdLife International, [“CAP national strategic plans will fail to deliver on EU Green Deal environmental and climate objectives”](#), 21 February 2022b.
- ⁸⁸ Midler, Estelle; Juliette Pagnon; and Jean-Francois Hulot (2022), [“Reducing European fertiliser and feed dependency through the CAP”](#), Institute for European Environmental Policy.
- ⁸⁹ Baldock, David and Alan Buckwell (2022), [“Just transition in the EU agriculture and land use sector”](#), Institute for European Environmental Policy.
- ⁹⁰ Levitt, Tom, [“Netherlands announces €25bn plan to radically reduce livestock numbers”](#), *The Guardian*, 15 December 2021.
- ⁹¹ Transport & Environment, [“Food crisis: Europe burns equivalent of 15 million loaves of bread every day in cars”](#), 24 March 2022.
- ⁹² Searchinger, Tim; Oliver James; and Patrice Dumas (2022), [“Europe’s Land Future? Opportunities to use Europe’s land to fight climate change and improve biodiversity – and why proposed policies could undermine both”](#), Princeton University.
- ⁹³ Potsdam Institute for Climate Impact Research (2022), *op.cit.*
- ⁹⁴ Searchinger, James and Dumas (2022), *op.cit.*; Wedeux and Schulmeister-Oldenhove (2021), *op.cit.*
- ⁹⁵ Christen, Caroline, [“Food Over Feed: War in Ukraine Highlights Need for Dietary Change”](#), *Sentient Media*, 24 March 2022.
- ⁹⁶ Euroconsumers (2020), [“Food waste: consumers are ready for change: Ambitious engagement from both consumers and businesses is needed”](#).
- ⁹⁷ E.g. Dahm, Julia, [“Germany must send aid, change diet amid global food crisis, says official”](#), *EURACTIV*, 13 April 2022c.
- ⁹⁸ El-Hage Scialabba, Nadia and Caroline Hattam (2002, eds.), [“Organic agriculture and climate change”](#) in *Organic agriculture, environment and food security*, Rome: Food and Agriculture Organization; Ritchie, Hannah, [“Is organic really better for the environment than conventional agriculture?”](#), *Our World in Data*, 19 October 2017b.
- ⁹⁹ Shahbandeh, Melissa, [“Organic food market in Europe – Statistics and Facts”](#), Statista, 19 April 2022.
- ¹⁰⁰ European Commission (2018), [Report on the development of plant proteins in the European Union](#), COM(2018) 757 final, Brussels.
- ¹⁰¹ International Panel of Experts on Sustainable Food Systems (2022), [“The Politics of Protein: Fake Meat in the Spotlight. Infosheet”](#), Brussels. Humpenöder, Florian; Benjamin Leon Bodirsky; Isabelle Weindl; Hermann Lotze-Campen; Tomas Linder; and Alexander Popp (2022), [“Projected environmental benefits of replacing beef with microbial protein”](#), *Nature*, Volume 605, pp.90-96.
- ¹⁰² International Energy Agency (2020c), [“Outlook for biogas and biomethane: Prospects for organic growth”](#), Paris; Zafar, Salman, [“Biomethane Industry in Europe”](#), BioEnergy Consult, 20 January 2021; Baraniuk, Chris, [“How waste food can reduce our reliance on natural gas”](#), *BBC News*, 25 March 2022.
- ¹⁰³ Hedberg, Annika; Said El Khadraoui; and Vadim Kononenko (2021), [Meeting the Green Deal objectives by alignment of technology and behaviour](#), PE 656.337, Brussels: European Parliamentary Research Service.
- ¹⁰⁴ Potsdam Institute for Climate Impact Research (2022), *op.cit.*
- ¹⁰⁵ The global carbon footprint of food loss and waste equals at least 8% of all global greenhouse gas emissions caused by humans. If food waste were a country, it would be the third-largest emitter after the US and China. Oakes, Kelly, [“How cutting your food waste can help the climate”](#), *BBC News*, 26 February 2020.
- ¹⁰⁶ Stenmarck, Åsa; Carl Magnus Jensen; Tom Quedsted; and Graham Moates (2016), [“Estimates of European food waste levels”](#), FUSIONS.
- ¹⁰⁷ *European Commission*, [“Food Waste”](#) (accessed 30 June 2022).
- ¹⁰⁸ Euroconsumers (2020), *op.cit.*
- ¹⁰⁹ *European Commission*, [“EU actions against food waste”](#) (accessed 30 June 2022).
- ¹¹⁰ Hedberg (2021), *op.cit.*

The **European Policy Centre** is an independent, not-for-profit think tank dedicated to fostering European integration through analysis and debate, supporting and challenging European decision-makers at all levels to make informed decisions based on sound evidence and analysis, and providing a platform for engaging partners, stakeholders and citizens in EU policymaking and in the debate about the future of Europe.

The **Sustainable Prosperity for Europe** programme explores the foundations and drivers for achieving an environmentally sustainable and competitive European economy. While the climate crisis is a complex challenge to be addressed, non-action is not an option. Prospering within the planetary boundaries requires rethinking the existing take-make-dispose economic model, reducing pollution and being smarter with the resources we have.

The Paris Agreement and the Sustainable Development Agenda provide a direction for travel. The programme engages in a debate on the needed measures to achieve a fair transition to an environmentally sustainable economy and society. It focuses on areas where working together across the European Union can bring significant benefits to the member states, citizens and businesses, and ensure sustainable prosperity within the limits of this planet.

With the strategic
support of



King Baudouin
Foundation

Working together for a better society



Co-funded by
the European Union