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Committee on Social Affairs, Health and Sustainable Development

Analysis and guidelines for a sustainable and socially fair energy transition

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Draft report[1]

A. Preliminary draft resolution[2]

1. Clean, safe and affordable energy is essential to securing Europe's continued prosperity. It is also central in addressing the triple planetary crisis of pollution, climate change and biodiversity loss. As part of the international community's efforts, the Council of Europe member States have committed to changing their legislation and policies in the light of the Sustainable Development Goals, climate treaties and the European Green Deal.

2. This commitment was further strengthened at the Reykjavik Summit when member States of the Council of Europe recognised that "human rights and the environment are intertwined" and that "a clean, healthy and sustainable environment is integral to the full enjoyment of human rights by present and future generations". The Parliamentary Assembly considers that socio-economic transformation, including the transition to a more sustainable energy system, is essential in this collective endeavour and should take a human rights based approach as both the goal of a clean and safe energy system, and the transition towards it, are strongly affecting basic human rights.

3. The Assembly highlights the importance of stable access to clean energy for the enjoyment of fundamental social rights to housing, work, health, education, protection from poverty and social exclusion, as well as the rights of vulnerable persons (notably children, persons with disabilities and older persons), as enshrined in the European Social Charter. The Assembly is concerned that in Europe, millions of people still experience energy poverty caused by a combination of low income, high energy costs and poor energy efficiency in buildings, as well as the choice of transport modes. In line with the requirements of the Charter, States have the obligation to remedy and prevent, as far as possible, the situation of energy poverty; a well-designed national strategy of energy transition with strong social and economic dimensions is crucial to this end.

4. The Assembly acknowledges the challenges of building sustainable and socially fair energy systems in member States. The transition to renewable energy technology requires strong and stable investment, social adaptation and decisive governance measures to guide and support citizens and businesses to adapt to the renewable energy systems. There is a need to embrace new technologies, improve energy-efficiency in companies, housing and modes of transport and change both products and procedures, including their location. Special attention is needed for citizens to view the transition as a positive development.

5. The Assembly considers that the transition to clean energy systems presents real opportunities for European countries to boost the resilience of their national economies against external shocks, strengthen energy security, enhance competitiveness with green technologies, empower consumers and improve public health. This complex undertaking requires a holistic vision accompanied by ambitious and stable long-term policies, sectoral synergies and coherent investment strategies, aiming to support large-scale deployment of renewable energy sources and phase out fossil fuels which, according to the International Energy Agency, still

[1] Reference to Committee: Doc. 15515, Reference 4653 of 20 June 2022.
[2] Draft resolution adopted unanimously in Committee on 16 May 2025.

account for about 70% of energy produced in Europe. The Assembly highlights that new investment in solar and wind projects in the European Union is now cheaper than that in coal and gas.

6. The Assembly believes that in exercising their responsibility for ensuring access to clean, safe and affordable energy for all which is a key goal of transition, States should act through regulatory and budgetary tools on three main axes: providing for adequate energy supplies by maximising investment in clean, locally available energy sources; designing fair pricing strategies that underpin responsible production and use of energy; and supporting vulnerable users in the transition to more sustainable and energy efficient systems. Measures should prioritise transport and housing sectors which are the largest energy consumers and significant emitters of greenhouse gases in Europe.

7. The Assembly welcomes the targets of cutting national greenhouse gas emissions by at least 55% and enhancing the share of renewable energy to 45% of a national energy mix by 2030 under the European Green Deal. It also welcomes the EU's Action Plan for Affordable Energy and it underlines that switching to more environment-friendly sources of energy and improving efficiency of energy use makes good economic sense by saving costs in the long term for households, businesses and States and enhancing energy security through abundant free-of-charge local resources, while also benefiting society at large in terms of better public health, improved wellbeing and reduced pollution. However, in the transition phase, States should protect citizens, notably vulnerable groups, against expensive lock-in problems or help support high transition costs, especially in rural areas.

8. The Assembly calls on member States to steer sustainable energy policy choices for all stakeholders at national level, while at the same time ensuring their consistent and long-term implementation by building synergies through cooperation at pan-European level. It therefore recommends to member States to:

8.1. consolidate their national strategy for transition to clean, safe and affordable energy and promote it through a public communication drive highlighting the advantages of embracing renewable energy sources;

8.2. put in place more incentives for investment in sustainable mobility, renovation of older buildings, green technologies and smart grids to improve energy efficiency, where appropriate through public-private partnerships;

8.3. considering that data centres and artificial intelligence (AI) applications increase significantly energy consumption, make better use of AI as a powerful tool to develop policies that can foster dramatically the energy transition;

8.4. consider the possibilities offered by the Council of Europe Development Bank for financing projects that promote a sustainable and socially fair energy transition;

8.5. promote local production of clean energy by private and public stakeholders, notably through local cooperative initiatives;

8.6. eliminate public subsidies to fossil fuels and scale down public investment in such sources of energy;

8.7. foster sustainable mobility by improving public transport infrastructure, accessibility and affordability, encouraging walking and cycling, and accelerating the shift to shared mobility and clean vehicles;

8.8. with a view to shielding vulnerable members of society from energy poverty, consider using structural measures such as:

8.8.1. price caps and tax reductions on energy to offset the effect of spikes in energy prices;

8.8.2. targeted payments and income support to support the most vulnerable;

8.8.3. grants to implement housing renovation schemes and facilitate the acquisition of electric vehicles;

8.8.4. bans on disconnection of vulnerable users from energy supply;

8.8.5. professional training schemes to enable workers acquire new skills and access green jobs in the energy sector;

8.9. involve citizens and municipalities in the shaping and implementation of local energy partnerships, in order to empower them as prosumers (producers-consumers);

8.10. develop socially fair green taxation schemes that favour transition to clean energy by stimulating investment and shifting financial overheads onto polluting activities and away from green solutions;

8.11. engage in regional cross-border projects aimed at optimising interconnections, improving network stability and guaranteeing mutual support in situations of disruption in energy supply;

8.12. invest in back-up and storage capacity to manage fluctuations in renewable energy supply and demand;

8.13. support job creation in sectors that underpin transition to the sustainable energy system and set up social transition funds to help employees to move from fossil fuel based sectors to clean sectors;

8.14. conduct regular and independent energy audits at national level to track progress and ensure accountability in the clean energy transition.

B. Explanatory memorandum by Ms Saskia Kluit, Rapporteur

1. Introduction: transition to clean and affordable energy is vital and urgent to secure Europe's prosperity

1. Our civilisation is facing a huge challenge in fighting the climate crisis and pollution, as well as preserving the integrity of ecosystems and protecting biodiversity, the so-called triple planetary crisis. The success of this fight is vital for human development and prosperity. As part of the international community's efforts, the Council of Europe member States have committed to changing their legislation and policies in the light of the Sustainable Development Goals, climate treaties and the European Green Deal. With the Reykjavik Declaration, our member States have recognised that "human rights and the environment are intertwined" and that "a clean, healthy and sustainable environment is integral to the full enjoyment of human rights by present and future generations". Economic transformation, and in particular the transition to a more sustainable energy system, is central to this joint endeavour.

2. A motion for a resolution (Doc. 15515) picks up this matter,[3] pointing out that "the transition to a sustainable and socially fair economy" and "the search for green, clean and renewable energies" should not collide with natural ecosystems, nor with the social realities of our countries, in particular rural areas. There is a growing concern about the negative impact on human life and ecosystems from the mining of rare minerals used for delivering materials to the energy transition (such as lithium for batteries), the possible risks stemming from the operation of mega wind farms and deep drilling for tapping the geothermal energy in Europe. However, the transition to the green economy comes also with socio-economic benefits, not just risks: there is the potential for well-paying jobs in the sector, including manual ones (such as installation and maintenance of solar panels), which could relieve joblessness amongst the long-term unemployed, for example. Improved energy efficiency would also help lower energy bills for both industries and households, cut pollution and greenhouse gas emissions, as well as enhancing prosperity.

3. However, in the short-term, replacing the use of dirty fossil fuels with more sustainable and renewable energy sources implies massive investment and may lead to higher costs for all energy consumers in the initial phases of the green transition. As discussions in committee have shown, policies to embrace "greener and cleaner" energy alternatives can lead to major economic hardship for low and middle-income households and small enterprises when public policies do not provide targeted support throughout the adaptation period to accompany this energy transition.

4. In this context, we should recall that further to the launch of the European Green Deal in 2019 and the adoption of the 'European Climate Law' at the European Union level in 2021, the European Commission made a series of legislative and financing steps for ensuring a fair transition towards climate neutrality. This includes the establishment of the Social Climate Fund "to support vulnerable households, transport users and micro-enterprises" in line with the defining principles of fairness and solidarity for the European Green Deal.[4] It remains to be seen though whether this proposed funding will be accessible to non-EU countries enjoying a candidate for membership status. Moreover, we should welcome the EU's Action Plan for Affordable Energy, unveiled in February 2025, which aims to accelerate investment in "renewable energy, energy savings, deeper market integration and better interconnections" with benefits for all energy users.

5. The International Labour Organization (ILO) has published "Guidelines for a just transition towards environmentally sustainable economies and societies for all" and the User's manual to these guidelines which provide a roadmap and policy framework helping countries with different levels of development to manage fairly their transition towards greener and cleaner economies by taking into account the principles of sustainable development and decent work.[5] These guidelines insist on the need for adequate social protection for the vulnerable segments of the population and cover mechanisms for social dialogue in policy making at all levels.

6. Acting at the global level, the Conference of Parties to the UN Framework Convention on Climate Change meeting in November 2021 (COP-26 in Glasgow, the United Kingdom) also adopted the Declaration on "Supporting the Conditions for a Just Transition Internationally", with a focus on transition to clean, sustainable, affordable, and reliable energy supplies. The declaration urges countries to move away from highly polluting energy sources (coal and other fossil fuels) and to improve access to clean energy for all. The

[3] The motion was referred to our committee for report, and I was appointed rapporteur on 6 December 2023 in succession to Mr Antón Gómez-Reino.
[4] See COM(2021) 801 final – Proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality.
[5] See https://www.ilo.org/actrav/pubs/WCMS_826060/lang--en/index.htm.

OECD estimates that reaching net-zero emissions and circular economy objectives by 2050 might require additional annual investment worth between 1% and 1.5% of GDP annually at country level.[6]

7. The Energy Transition Council (ETC)[7] was set up on the same occasion "to enable an effective dialogue between countries that require support for their energy transition on the one hand, and the major international actors offering support on the other, to find, coordinate and implement tailored solutions more rapidly". The ETC's priority areas of engagement are particularly relevant in the context of this report. These are: integrated energy planning, long-term commitments to renewable energy, a gradual exit from fossil fuels, massive investment, managing of intermittency of green grids, energy efficiency, smart technologies, and socially compatible industrial strategies.

8. Geopolitical circumstances are also pushing Europe into action. Because of Russia's war of aggression against Ukraine, Europe is weaning itself off Russia's fossil fuels in a very tight timeframe. This is positive in that it is now cheaper to turn to renewable energies than to build, for example, a new coal-powered plant, but negative in that the timeframe has been too short not to resort to LNG (liquefied natural gas) and nuclear to fill the gap.

9. At the Council of Europe level, issues relating to sustainable energy have been debated by the Parliamentary Assembly in the framework of reports on Europe's energy security[8], energy diversification[9], nuclear safety[10], climate change[11], non-conventional fuels[12] and renewable energy sources[13]. More recently, the Assembly has been advocating the right to a healthy environment[14], linking up human rights with environmental challenges and public health and calling on the Organisation "to show ambition and strategic vision for the future by facing up to this major transformative challenge to human rights and securing their enhanced protection in the era of systemic environmental threats to present and future generations".

10. This report looks at the current situation in Europe as regards transition to clean energy. On the basis of expert contributions, Committee discussions and hearings held by the Parliamentary Network for a healthy environment,[15] as well as my further fact-finding and research, the report seeks to assess the strong and the weak points of Europe's transition to clean energy for all. It aims to formulate recommendations to member States for mainstreaming good practices in the matter of sustainable and socially fair energy transition into their policy making.

2. Accelerating a shift towards clean energy for sustainable mobility and housing

11. Europe needs clean, secure, safe and affordable energy supply to ensure its continued prosperity. However, its energy mix is still dominated by fossil fuels which contribute significantly to air pollution, greenhouse gas emissions and dependence on external suppliers. According to the International Energy Agency (IEA), about 70% of energy produced in Europe in 2022 came from fossil fuels; the nuclear energy and biofuels plus waste incineration contributed close to 11% each, while hydropower represented about 3%. Electricity generation also largely depends on fossil fuel sources (about 40%), with the nuclear sector wielding about 19%, hydropower about 15%, wind some 14%, solar about 6% and biofuels nearly 5%. Transport and housing are the largest energy consumers in Europe (respectively, 28% and 25%), ahead even of industrial consumption of energy.

[6] OECD (2020), Managing Environmental and Energy Transitions for Regions and Cities, OECD Publishing, Paris, https://doi.org/10.1787/f0c6621f-en.
[7] This structure in 2022 is co-chaired by the UK, COP President Sharma and Damilola Ogunbiyi, and its membership includes major multilateral financial institutions and international organisations, such as IEA, IRENA, ILO, IFC, WB, ADB, EBRD, EIB, etc. For more information see https://ukcop26.org/focus-of-energy-transition-council-etc/.
[8] Resolution 1774 (2010) on "Enhancing Europe's energy security through greater use of liquefied natural gas".
[9] Resolution 1977 (2014) on "Energy diversification as a fundamental contribution to sustainable development".
[10] Resolution 2241 (2018) on "Nuclear safety and security in Europe".
[11] Resolution 2210 (2018) on "Climate change and implementation of the Paris Agreement".
[12] Resolution 2140 (2016) on "The exploration and exploitation of non-conventional hydrocarbons in Europe".
[13] Resolution 1737 (2010) on "Geothermal energy – a local answer to a hot topic?"
[14] Resolution 2396 (2021) and Recommendation 2211 (2021) on "Anchoring the right to a healthy environment: need for enhanced action by the Council of Europe".
[15] Notably, during the meetings held in Marrakech and Ben Guerir (Morocco) on 17-18 March 2023 and in Lisbon and Cascais (Portugal) on 12-13 September 2024.

12. Transport and housing are also responsible for the lion's share of CO_2 emissions in Europe (respectively, 29% and 11%).[16] Overall, energy production and use in Europe is responsible for the majority of greenhouse gas emissions. According to the IEA, in the European region, the top five emitters of CO_2 are Germany, Türkiye, Italy, the United Kingdom and Poland, followed by France, Spain, the Netherlands, Ukraine and Czechia.

13. In terms of air pollution, the situation in Turkey, Poland, Slovakia, Czechia and Greece appears to be the worst, and in Sweden, Iceland, Finland, Estonia and Norway – the best.[17] If we look at this picture from the angle of public health, Latvia, Hungary, Lithuania, Poland and Slovakia have the highest death rates attributable to air pollution, which is strongly correlated with the use of fossil fuels in general and diesel-powered engines more specifically. Improving the energy transition therefore also means reducing health hazards.

14. As all 46 member States of the Council of Europe have ratified the Paris Agreement on climate change and those that are also members of the EU are in addition bound by the European Green Deal, transition to cleaner energy is a major developmental and strategic goal. Indeed, the EU countries alone were the third-largest source of greenhouse gas emissions worldwide in 2021, behind only China and the United States.[18] Achieving the reduction of net greenhouse gas emissions by at least 55% by 2030 and net-zero emissions by 2050 is thus a tall order for the EU countries under the European Green Deal.

15. Switching to more environment-friendly sources of energy and improving efficiency of energy use makes good economic sense by saving costs and also benefits society at large in terms of enhanced public health and wellbeing. However, the switchover itself requires adequate investment (both public and private), policies and long-term incentives to deliver the change and tangible results. The OECD considers that investment in fossil fuels which become redundant with the environmental and energy transition needs to be stopped because any delay in action only leads to higher emissions and overall costs.[19]

2.1. Towards more sustainable energy use in housing

16. If we look at the housing sector, it appears that about 75% of buildings are energy inefficient.[20] Improvements are needed to improve insulation of buildings (walls, roofs, windows), heating, cooling and ventilation systems, as well as overall energy supply and use. This has already created massive economic opportunities for both households and industries but their affordability remains uncertain for the more vulnerable households. The ongoing cost-of-living crisis unfortunately penalises the ability of the disadvantaged households to have access to quality housing which is a fundamental human right as highlighted in the report currently under preparation by our colleague Aurora Floridia.[21] Organising the needed

[16] See https://www.iea.org/regions/europe/energy-mix.

[17] https://www.greenmatch.co.uk/blog/2018/11/mapped-europes-most-and-least-polluted-countries#Top-Metric.

[18] See https://www.mckinsey.com/capabilities/sustainability/our-insights/five-key-action-areas-to-put-europes-energy-transition-on-a-more-orderly-path.

[19] OECD (2020), Managing Environmental and Energy Transitions for Regions and Cities, OECD Publishing, Paris, https://doi.org/10.1787/f0c6621f-en.

[20] Goyens, M. (2022) "The cost of living crisis: an opportunity to move to sustainable lifestyles?", OECD Forum Network, Paris.

[21] The working title of the report in question is "Analysis and guidelines to guarantee the right to housing and to decent housing".

investments for reducing the costs of warming and cooling in a housing is financially unachievable by themselves for most low- and middle-income households.

17. One major aspect of energy use in housing is energy poverty which refers to a situation where households struggle to pay for adequate energy services, such as heating, cooling, lighting and electricity. It is typically caused by a combination of low income, high energy costs, and poor energy efficiency in buildings. In Europe, millions of people experience energy poverty, particularly in central and eastern European countries, but also in Southern Europe, where extreme weather conditions exacerbate the issue. According to Eurostat, about 7% of the EU population cannot afford to keep their homes adequately warm. However, this figure varies widely across countries, with rates exceeding 20% in some regions.[22]

18. Energy poverty can have severe consequences, including health problems (due to cold and damp living conditions), social exclusion, and increased financial stress. Vulnerable groups, such as the elderly, low-income families, young adults in transition to autonomous living and people living in rural areas, are particularly affected. In countries where a large proportion of people live in rented accommodation, tenants often have limited control over home improvements, further exacerbating the problem.

19. The European Committee of Social Rights (ECSR) has recently examined a specific case of electricity cuts for about 4 500 inhabitants (including some 1 800 children) of a shantytown in Madrid under the collective complaints procedure (Complaint No. 206/2022). In its decision the ECSR highlights the link between human rights and access to energy while pointing out that people need "stable, consistent and safe access to adequate energy" in order to be able to enjoy their rights to housing, health and education enshrined in the European Social Charter. The ECSR notably clarifies that when States choose to ensure electricity supply through private companies, they cannot devolve their duty to protect human rights and must guarantee the rights under the Charter which remain a state responsibility. The situation of energy poverty runs counter the right of persons to protection from poverty and social exclusion under Article 30 of the Charter.[23]

20. The European energy crisis, exacerbated by geopolitical tensions and the phasing out of fossil fuels, has led to unprecedented energy price spikes. According to Eurofound, energy costs were up by nearly 42% in EU countries in mid-2022 compared to a previous year, before decreasing slightly in 2023 and stabilising at high level in 2024. The price volatility of gas and electricity has made it harder for lower-income households to afford their energy bills: about 9.5 million people in employment were struggling to pay energy bills in 2022, and 41 million faced hardship to afford adequate heating at home.[24] Despite government interventions, such as subsidies and price caps, many families still struggle to meet their basic energy needs.

21. The IEA estimates that nearly 20% of the existing building stock in Europe needs to be renovated to significantly reduce carbon emissions by 2030, given that at least 40% of buildings in developed economies were built before 1980 when the first thermal regulations were adopted. This renovation goal is ambitious but realistic if policy guidance and public-private investment partnerships can support these efforts.

22. At the EU level, energy poverty is recognized as a critical challenge and has led to proposals for policy frameworks such as the European Green Deal and REPowerEU, which aim to reduce dependence on fossil fuels and accelerate the adoption of renewables. The Energy Efficiency Directive and Renovation Wave Strategy set ambitious goals for improving building's energy efficiency, targeting low-income households for financial support. The Social Climate Fund, endowed with more than € 86.7 billion for the period 2026-2032 and set to be launched next year, is designed to support vulnerable households, micro-enterprises, and transport users who are disproportionately affected by rising energy costs. The fund will, amongst other, provide direct income support, finance home renovations and promote energy-efficient appliances, thus helping to alleviate the burden of high energy prices.

23. There are also some good examples of action at national levels. France for example has used (gas and electricity) tariff freezes and implemented an 'energy-cheque system', whereby low-income households receive direct financial assistance to pay for electricity and gas bills or invest in energy-saving improvements.

[22] Such as 22.5% in Bulgaria, 19.2% in Cyprus, 18.7% in Greece, 17.5% in Lithuania and Portugal, and 17.1% in Spain, according to Eurostat. See also Ad hoc Review on "Social rights and the cost-of-living crisis" by the European Committee of Social Rights, published in March 2025.

[23] The ECSR also found a violation of Articles 31 §1, 16, 11 §1, 11 §3, 17§1 & 2, 23 and 15§3 regarding measures to ensure housing of an adequate standard, to protect health, to guarantee food safety, assistance to children and young persons and protection of older persons and those with disabilities.

[24] The cost-of-living crisis and energy poverty in the EU: Social impact and policy responses – Background paper, Eurofound, 28 October 2022.

This targeted approach ensures that financial aid reaches those who need it most, reducing the risk of disconnection from electricity supply. Spain offers a *Bono Social* (Social Tariff), which provides discounted electricity rates for vulnerable consumers. The Spanish government has also introduced emergency measures to limit price increases and has invested heavily in retrofitting low-income housing with energy-efficient solutions. In Germany, the focus has been on large-scale renovation programs under the KfW energy efficiency scheme, which provides government-subsidized low-interest loans and grants for homeowners and landlords to upgrade their buildings. This approach not only reduces energy poverty but also contributes to the country's pursuit of broader climate goals. Austria has the '*clima bonus'* system.

24. Addressing energy poverty requires a multi-faceted approach that combines social welfare policies with ambitious energy transition strategies. Governments must ensure that subsidies, energy price regulations and building renovations specifically target vulnerable households. At the same time, investment in renewable energy sources and decentralized energy production (such as community solar projects) can help lower energy costs in the longer run. By coordinating efforts at both national and regional levels, Europe can move toward a more sustainable and socially just energy system.

2.2. Sustainable mobility challenges in Europe

25. Sustainable mobility in Europe faces multiple challenges, including high greenhouse gas (GHG) emissions from transport, urban congestion, reliance on fossil fuels, and insufficient public transport infrastructure in some regions. The transport sector accounts for about 29% of Europe's and nearly 25% of the EU's total GHG emissions, with road transport being the largest contributor; those emissions have kept increasing in the recent years instead of decreasing. The transition to sustainable mobility requires reducing car dependency, encouraging walking and cycling, improving public transport and accelerating the shift to shared mobility and clean energy alternatives.

26. Many European cities suffer from high levels of traffic congestion and air pollution due to excessive car use. The World Health Organization (WHO) estimates that air pollution causes over 300,000 premature deaths in Europe annually, with transport being a major contributor. Reducing car use in favour of walking, cycling, and public transport is crucial for improving air quality and public health. Where car use is unavoidable, (shared) electric and hybrid vehicles represent a good compromise solution but it needs to be promoted with adequate public incentives in terms of policies, targeted financial subsidies and regulations.

27. The European Green Deal aims to cut transport emissions by 90% by 2050. The Sustainable and Smart Mobility Strategy sets out ten key action areas, including expanding the use of electric vehicle infrastructure, increasing rail transport efficiency and promoting cycling and shared mobility. The EU is also investing in digital solutions to enhance transport efficiency and reduce emissions. Under the Fit for 55 package, the EU has set stricter CO_2 emission standards for new vehicles, with plans to phase out sales of internal combustion engine cars by 2035. The Alternative Fuels Infrastructure Regulation (AFIR) seeks to ensure that charging stations for electric vehicles and hydrogen refuelling stations are widely available across Europe.[25] Impressively, evidence shows that owning and using an electric car is now cheaper than having a fossil-fuelled car in 19 out of 22 European countries.[26]

28. In terms of national-level solutions and good practices, we could cite the example of France which has implemented Low-Emission Zones (LEZs) in major cities, restricting the use of polluting vehicles. Paris has gone further by banning diesel cars from 2024 and petrol cars by 2030. The city has also launched "Paris Respire" (Paris Breathes), which involves car-free Sundays in several districts. Germany, following the success of its temporary €9 ticket in 2022, introduced the €49 "Deutschlandticket" in 2023 (which became €58 per month in 2025), offering unlimited travel on local and regional public transport at an affordable price. This initiative aims to encourage public transport use, reduce car dependency, and lower emissions. Spain has one of the world's most extensive high-speed rail networks (AVE), providing a fast and sustainable alternative to domestic flights. The Spanish government has also introduced free train tickets for short- and medium-distance travel, encouraging people to use public transport instead of cars.

29. The Netherlands is a global leader in cycling, with over 35% of trips in cities like Amsterdam made by bike. The Dutch government has invested heavily in dedicated cycling lanes, bike parking facilities, and bike-friendly urban planning. Employers also offer financial incentives for commuting by bike. With a kilometre-

[25] See https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/transport-and-green-deal_en.
[26] EU Policy Factsheet, May 2024.

allowance for cyclists, that is being paid by companies to their employees, bike-sharing schemes (often combined with public transport for the first and last mile) and massive investments in safe, child-friendly cycling infrastructure make cycling a normal part of urban transport.

30. Scandinavian cities like Oslo, Stockholm and Copenhagen are good examples of sustainable mobility by leading in terms of electrification of the car fleet and development of public transport. Oslo, for instance, has the highest electric vehicles adoption rate in the world, supported by strong state subsidies, toll exemptions and extensive charging infrastructure. Meanwhile, Copenhagen has set a target of carbon neutrality for its public transport by 2025 and promotes cycling through extensive bike lanes and priority signals.

31. Achieving sustainable mobility in Europe requires a coordinated effort at both European and national levels. Policies should focus on reducing petrol-powered car dependency, improving public transport affordability, expanding cycling infrastructure, and electrifying transport. Investment in digital solutions, smart cities and clean energy sources will further accelerate the transition. By sharing best practices and supporting ambitious policies, Europe can lead the way in creating a sustainable, efficient and inclusive mobility system for the future.

32. Just like in housing, the transition to a clean transport system can leave people with low incomes vulnerable due to extra costs or obstacles. People using public transport, for example have less access to jobs than people in cars. Thanks to the low price per kilometre, people in electric cars have better access to jobs than people in a small fossil-fuelled car. It is therefore very important that equality and accessibility is an explicit part of the decision-making when policy choices are made.

3. Ensuring energy security for all

33. Energy security has become a major strategic concern for Europe. It is crucial for Europe's socio-economic stability and political independence by underpinning the continuous supply of affordable energy to industries, households and essential services. The recent energy crisis triggered by Russia's war of aggression against Ukraine, energy supply/demand bottlenecks and price volatility has highlighted the vulnerabilities associated with structural weaknesses (such as insufficient storage capacity) and over-reliance of certain European countries on a single supplier, emphasising the need for greater regional solidarity and cooperation among countries.

34. The Council of Europe member States have been working to reduce their dependence on fossil fuel imports, particularly from Russia which uses oil and gas supplies as a tool of political pressure[27]. Clean and decentralised energy solutions also have a positive feature in that it is relatively difficult to disconnect them in a situation of a hybrid war. However, natural gas remains important for electricity generation, heating and industrial production in Europe. With pipeline gas supplies from Russia declining, European countries have turned to liquefied natural gas (LNG) imports. Countries like Germany, the Netherlands, and Italy have built new LNG terminals, but this raises concerns about long-term reliance on fossil fuels and price volatility in global LNG markets.

35. In 2022, wind and solar surpassed fossil fuels as the main source of electricity generation for the first time in the EU countries, marking a significant milestone in the clean energy transition.[28] Improving energy infrastructure and interconnection between European countries remains a continuous challenge. The EU has set a target of achieving at least 15% electricity interconnection capacity for its member States by 2030, in particular in order to improve cross-border interconnections and enhance stability of the energy system with a growing share of renewables replacing imported fossil fuels.[29]

[27] Before 2022, the EU imported 40% of its natural gas, 27% of its oil, and 46% of its coal from Russia. Following Russia's invasion of Ukraine and the imposition of sanctions on Russia, the EU countries sought alternative suppliers. By 2023, Russian gas imports to the EU had dropped to less than 10%, replaced by LNG (liquefied natural gas) imports from the United States and Qatar, as well as increased pipeline supplies from Norway and Algeria.

[28] EU Policy Factsheet, May 2024.

[29] See https://energy.ec.europa.eu/topics/infrastructure/electricity-interconnection-targets_en.

36. With renewables being increasingly seen as a key pillar of energy security, many European countries have significantly expanded their renewable energy production capacity. The EU countries aim to generate at least 42.5% and ideally 45% of their energy from renewables by 2030, with wind and solar playing a central role. Denmark, Germany, and Spain have led this transition. Outside the EU, Iceland is undoubtedly the leading country: nearly 100% of its electricity already comes from renewable sources such as hydropower and geothermal resources. The expansion of renewables across Europe requires further investment in generation and storage capacity, grid integration and managing intermittency. By benefitting from economies of scale, new investment in solar and wind projects in the EU is now cheaper than that in coal and gas.

37. For some countries nuclear energy provides a stable and low-carbon electricity source. While some countries like France, Finland, and Hungary are investing in new nuclear plants, others like Germany have been phasing out nuclear power due to safety concerns. Small modular reactors are emerging as an attractive potential solution to balance energy security and sustainability. In addition, investments in green hydrogen production could support industrial decarbonisation and provide an alternative to fossil fuels in the transport sector. Moreover, continued investment in energy efficiency measures would help reduce waste and demand for energy.

38. The 2022 energy crisis led to record-high electricity and gas prices, forcing governments to intervene with subsidies, price caps, and emergency energy policies. However, long-term price stability remains uncertain, unless all European countries reduce reliance on imported fossil fuels and disruptions in their global supply chains. At the same time, the shift to renewables increases dependence on critical raw materials like lithium, cobalt, and rare earth metals, which are primarily sourced from China, the Democratic Republic of Congo and Chile. Diversifying supply chains and increasing recycling efforts to recuperate rare minerals are essential for securing Europe's clean energy transition.

39. While policymakers push for a green transition, some industries, professional unions and political groups oppose rapid changes due to concerns about job losses, high costs and reliability of energy supply. France's farmer protests and resistance to wind farms in rural Germany highlight the need for carefully designed and inclusive energy transition policies. Europe's energy security is clearly at a turning point, shaped by geopolitical shifts, climate policies, and technological advancements. While the continent has made progress in diversifying energy supplies, investing in renewables and improving efficiency, balancing security, sustainability and affordability will require a further push of policy reforms, infrastructure investments and close cooperation.

4. The role of states as catalysts for change

40. The transition to sustainable and socially fair energy puts our states in a driving seat. Governments, as regulators and policymakers, play a pivotal role in setting clear policies, enforcing regulations, putting in place green taxation and incentivising investments that drive the shift toward renewable energy, energy efficiency, and fair energy access for all the population. Without strong state intervention, market forces alone may not deliver the speed and fairness required for a just energy transition.

41. First and foremost, states must guide and provide long-term legal certainty for investors, industries and consumers by setting clear climate, sustainable development and energy goals. For the EU countries, the European Green Deal and Fit for 55 package set important benchmarks in this regard: these strategic documents establish overall goals for the green transition aiming to reduce emissions and increase renewable energy use, but national governments are responsible for translating these goals into national policies and implementing these targets through national energy and climate plans (including precise roadmaps) so as to ensure compliance across all economic sectors and full participation of the population. Non-EU countries could take inspiration from the European Green Deal goals and adapt them to national circumstances, setting the course with clear and visible priorities. I believe that governments should seek to use more "carrots" than "sticks" to accompany the change and achieve the broadest possible voluntary adherence to its policies. Germany, with its *Energiewende*, is a good example of incentives delivering results: the country's incentivised investments in solar and wind power over the last two decades made Germany a European leader in renewable energy capacity.[30] At the same time it remains extremely important that states organise a predictable level playing field in the energy market by setting clear priorities.

42. A modernised energy market at national level is essential for integrating wind, solar, geothermal, hydropower and other renewables into the grid. To this end, governments must seek to gradually phase out fossil fuel subsidies to create a level playing field; encourage long-term power purchase agreements for renewable energy; promote decentralised energy production (such as community solar, heat and wind projects

[30] By 2023, renewables accounted for over 50% of Germany's electricity mix.

with local “prosumers”). Through these reforms, states ensure that clean energy competes fairly against the traditional energy sources while demonstrating its competitive advantages and benefits for a lasting change. The Danish government, for example, has removed subsidies for fossil fuels while subsidising wind energy (which now supplies over 50% of Denmark’s electricity) and ensuring stable regulatory support for the sector; public-private partnerships were used to expand offshore wind (also making wind power more efficient and cost-effective), with the government co-financing projects. Poland, traditionally dependent on its local coal resources, is investing €30 billion in offshore wind farms and phasing out subsidies to the coal sector; its offshore wind industry is expected to generate tens of thousands of green jobs for workers moving away from the coal sector.

43. A greater effort should be done for the energy efficiency of electric appliances in Europe. Reducing passive electricity consumption by non-essential goods is also needed. Energy efficiency measures like automated electricity switch-offs and a progressive electricity usage norms for electrical equipment can help ensure that energy consumption will decline within the same level of comfort.

44. Although efforts are made to decouple economic and demographic growth from the energy consumption, there is an ongoing need to invest in energy infrastructure. States must facilitate grid modernisation, interconnectivity and electricity storage capacity to ensure a stable and resilient renewable energy supply. Enhancing investments, including through the public participation, is vital for smart grids to optimise energy distribution through networks; for cross-border interconnectors to ensure smooth regional energy sharing and avoid electricity blackouts; for energy storage solutions (batteries, hydrogen, and pumped hydropower) to absorb excess electricity during generation peaks and to retrieve it when it is needed during consumption peaks. I believe that governments should consider setting tariff ceilings in order to avoid speculative moves in the energy market and to protect all users.

45. Governments play a key role in shaping fair economic incentives through pollution pricing and green taxation. For example, the EU Emissions Trading System (ETS) sets a price on CO_2 emissions, encouraging industries to decarbonise. Tax incentives for renewables, electric vehicles, energy efficiency measures and targeted subsidies to support the uptake of clean energy by all users accelerate the transition. By shifting the financial burden from green solutions to polluting activities, states drive systemic change toward sustainability. Such measures also improve efficiency and reliability, making renewables the backbone of Europe’s energy system. Sweden thus introduced Europe’s highest carbon tax (€120 per ton of CO_2), incentivising industries to switch to clean energy and fostering the shift towards green mobility with electric vehicles (over 60% of new cars sold in Sweden in 2023 were electric or hybrid).

46. A successful clean energy transition must be socially inclusive, ensuring that no group of energy users is left behind. Governments ought to effectively shield vulnerable populations from energy poverty through targeted subsidies and social tariffs, leaving power cuts and exclusion from the electricity supply only to cases to clear abuses of the system. Authorities could support workers in fossil fuel industries with retraining programmes so as to acquire new skills in high demand for the deployment and upkeeping of clean technologies. Promoting community-led energy projects would empower citizens to benefit fully from the transition while ensuring that all views and needs are duly taken onboard. A just transition fund has been established at the EU level to support affected regions and economic sectors; it could be better used by the EU countries and their non-EU partners to accelerate the greening of national economies through the clean energy axis. Moreover, member States of the Council of Europe Development Bank can benefit from advantageous loans for projects advancing transition to more sustainable and socially fair energy.

47. In this context, accelerating innovation and green technology development is another major area for state intervention, whilst ensuring that Europe remains a global leader in green technology innovation. States need to foster research, development and deployment of new clean energy technologies by funding pilot projects in offshore wind, hydrogen and advanced battery storage; supporting public-private partnerships to scale up emerging solutions; streamlining permit-issuance processes to facilitate deployment of clean energy production capacity. Finland has opted to advance with a new-generation biofuels and circular economy with strong regulations to support waste-to-energy programmes, whereby bio-waste is used to generate clean energy; the success is such that Finland has become a global leader in sustainable bioenergy, with major national companies exporting advanced biofuels worldwide, and the country has cut its transport sector emissions by 40% in just a decade. By combining a hydrogen strategy with surplus solar energy, Morocco and Portugal are spearheading their large-scale green hydrogen production and exports. France is also developing green hydrogen production based on nationally abundant nuclear power under the 2030 Investment Plan.

48. Energy security and sustainability in Europe require further scaling-up of cross-border cooperation. Governments should continue the diversification of energy supply chains to reduce reliance on unstable fossil fuel imports, expand clean energy partnerships between EU and non-EU countries (for example, importing green hydrogen from north African countries), harmonising regulations across Europe to facilitate a smooth

and integrated energy market based on the rising share of renewables, and enhancing both local and international coordination for the sake of greater energy security and climate resilience. In Italy, laws support sub-national energy communities, allowing local groups, municipalities and businesses to generate and share renewable energy, which has helped rural and low-income communities benefit from the energy transition.

49. Last but not least, by enforcing compliance and monitoring progress states must ensure that energy companies, industries and local governments comply with sustainability targets by imposing stricter emissions regulations for high-polluting industries, conducting regular and independent energy audits to track progress, applying penalties for non-compliance while rewarding sustainability leaders and foreseeing transparent monitoring/reporting mechanisms to ensure accountability in the clean energy transition.

5. Way forward

50. Europe must act decisively to build a resilient, low-carbon energy future while ensuring that the transition is socially fair and economically viable. The coming years will be crucial in determining whether the continent can achieve long-term energy independence and climate neutrality. In transition towards clean, reliable and sustainable energy, our member States face energy security challenges that are complex and multifaceted, requiring a comprehensive approach that balances immediate security needs with long-term sustainability goals.

51. While significant progress has been made in diversifying energy sources and accelerating the clean energy transition, continued regulatory efforts and investment will be necessary to ensure a secure, affordable, and sustainable energy future for Europe based on renewable energy sources. States as supreme regulators should use their prerogatives fully in helping all energy producers and users to embrace this clean energy future through a gradual approach, clear timetables and a collective effort.

52. As Europe moves forward, the success of its strategy for energy sustainability and security will depend on effective policy implementation, optimised regulation and enhanced investment, including in technological innovation, as well as continued cooperation among European states, institutions and international partners. By addressing these challenges head-on, Europe can build a more resilient and sustainable energy system that supports its economic growth, social development and environmental objectives.