

**Key messages for the 2050 Strategy for long-term EU greenhouse gas emissions reduction**

1. The Strategy should use all available levers (energy efficiency, renewables, fuel switching, CCS, etc.) in order to protect and preserve the carbon budget.
2. Increase usage and optimize energy distribution and transportation networks. Prioritize distribution network development, including automatization and digitalization.
3. Continuous efforts for decarbonizing the electricity are key to meet 2050 targets.
4. EU-wide renewable and decarbonized gases targets.
5. Specific strategy and implementation plan for the transportation sector.
6. International collaboration and climate diplomacy: emissions abatement commitment by international multilateral organizations.
7. Demand-side policies, as well as enhanced circular economy measures, should complement supply-side initiatives.
8. Markets are tools that should support reaching climate and energy targets.. To this extent, capacity markets and market-based instruments to develop renewable sources will be required
9. Evaluation of the geopolitical dimension of the Strategy on neighbouring countries and ulterior repercussions at European level.

1. **The Strategy should use all available levers (energy efficiency, renewables, fuel switching, CCS, etc.) in order to protect and preserve the carbon budget.** Emissions reduction is the guiding goal of the European energy and climate policy. This abatement can only be achieved utilizing all available levers: renewables, energy efficiency, primary energy conversion processes, fuel substitution, carbon sequestration, capture, usage and storage, etc. European targets for renewables and energy efficiency are tools that ought to be aimed at achieving the fundamental targets, but they have to grant sufficient flexibility to prevent compromising the efficiency and affordability of the decarbonization strategy. As technology evolution is hardly predictable, the Strategy should avoid predetermining what the best available technologies will be in the long term. Public authorities should not anticipate and choose winning technologies, but favour the development of a broad range of technological solutions.

Furthermore, to ensure achieving the commitments of the Paris Agreement, careful observance of the global and European carbon budgets is paramount. Any suitable choice of policies will need to assess its impact on the preservation of the 2050 carbon budget. Sound cost benefit analysis of alternative paths should be carried out, also considering its contribution to this constraint,

2. **Increase usage and optimize energy distribution and transportation networks.** Europe is blessed with large, modern and efficient gas and electricity networks. These networks are capable of transferring vast amounts of energy, including gas and electricity of renewable origin, to most –if not all– European consumers. The Strategy ought to maximize the integrated utilization of these complementary networks by increasing the usage and efficiency of the assets already in place. **New initiatives focused on distribution networks, including automatization and digitalization, need to be prioritized** in order to improve system operation and integration of technologies required for the energy sector's decarbonization (energy storage, distributed renewable energy, demand response, etc.).
3. **Continuous efforts for decarbonizing the electricity are key to meet 2050 targets.** Electricity has proven to be the energy vector that integrates the largest share of emission-free sources. The decarbonization of the electricity sector by 2050 will bring important emission-reductions that will help to comply with the Paris Agreement
4. **EU-wide renewable and decarbonized gases targets.** Every long-term projection deems gas as a necessary and fundamental source of energy. Diverse studies conclude that the mere promotion of electrification in energy end-use sectors is far from being a cost efficient way to decarbonize the economy. Its ease of transportation and distribution, and ability of networks to store large volumes of energy, as well as its environmental benefits, make gas hard to match. Thus, considering renewable gases in the short- and mid-term (e.g., biomethane, syngas, hydrogen), and CO<sub>2</sub> capture and storage technologies (decarbonized gas) in the long-term, will become more relevant to decarbonize energy demand. Accordingly, establishing European targets for renewables gases, and encouraging Member States to introduce promotion systems tailored to the realistic feasible potential of every country, should be given careful consideration.
5. **Specific strategy and implementation plan for the transportation sector.** Transportation makes up a third of the final energy consumption in the EU and more than a fifth of the emissions of greenhouse gases. It is also accountable for a significant portion of Europe's air pollution. Efforts in the manufacturing of vehicles and in the use of alternative fuels need to be boosted, considering the current competitiveness of gas-based transport solutions, and electric mobility

in the medium to long term. Accelerating the substitution of oil-driven vehicles by others based on alternative fuels is key to realizing the EU's climate targets. In the long-term, and only after achieving the full decarbonization of the electricity sector, the electrical vehicle may emerge as the best solution for light-duty passenger vehicles, but whether EVs succeed also for other forms of transportation still remains to be seen.

6. **International collaboration and climate policy.** The Strategy should comprise high-level initiatives to secure global decarbonization agreements and targets. These are critical for businesses where effective decarbonization is not evident and which operate at a worldwide scale, such as aviation and international marine transportation. Achieving progress on these sectors will likely require firm commitments by international organizations such as ICAO and IMO.
7. **Circular economy and decarbonization of demand of products and services.** Efforts to decarbonize the European economy cannot be made on the supply side only (through energy efficiency in processes, turn to renewable and low carbon fuels, CCS, etc.). The EU also needs to incorporate strategies on the demand side (better use of products and services) such as: recirculating larger shares of materials; reducing waste in production; lightweighting products and structures; fostering demand of local goods; fostering sharing economy business & public transport services; reducing the use of fertilizers in agriculture; extending the lifetime of products; valorization of biomass and food waste; etc.
8. **Markets are tools that should support reaching climate and energy targets.** Capacity markets, for instance, are essential. The increasing penetration of technologies with low operating costs increase the necessity of capacity remuneration mechanisms. CRMs remunerate the back-up service provided by certain technologies as they provide a long term price signal necessary either to invest or to keep plants operative, but which is missed in the power market. Furthermore, some renewable energy sources are already competitive in current electricity markets. However, the establishment of market mechanisms for the development of RES may be necessary in order to cope with increasing market volatility and uncertainty about long term prices. Competitive, effective and credible price signals are necessary to invest and to operate in the electricity markets. Price signals provided by capacity markets or market-based instruments for the development of RES will be indispensable to guarantee the necessary investments in the energy sector. The introduction of competitive mechanisms and regulatory monitoring will ensure that such instruments are effective as well as efficient.
9. **Geopolitical dimension of the Strategy on neighboring countries.** The Strategy may likely have diverse geopolitical implications which must be properly assessed. Reducing energy imports impacts on the commercial relations of the EU with many countries. The EU should consider the effect of its Strategy on the Economy of third countries, in particular those included in the European Neighbourhood Policy, and the ulterior repercussions at European level (e.g., security and immigration)

