

Setting new standards with a climate-neutrality chapter

State Aid Fitness-Check

Siemens contribution to the EU consultation on state aid

1. Context: Political ambition requires bold measures

The European Union wants to become climate neutral in line with the Paris Agreement. This will only work if we do everything now to bring new energy-transition technologies onto the market **on a scale that is relevant to industrial applications. This will not work without a more targeted framework for state aid to innovate and implement climate-neutral technologies.**

Becoming carbon-neutral is technologically feasible, but market and regulatory conditions are decisive for these technologies to compete. Climate technologies still face significant market failures as the market does not give meaningful signals supporting their uptake. This market failure becomes also apparent within companies' internal budget allocations: improving the perspective of a business case leads to an immediate shift towards new climate technologies. **Therefore, industrial scaling and demonstrating technological feasibility require more focus and tailored political frameworks, including state aid rules. In fact, the legal certainty and scope of state aid rules needs to match Europe's determination to become climate neutral by 2050.**

Otherwise Europe will not only fail on its targets, but also lose out in the race for global leadership in new climate technologies. Creating the right framework *now* allows the industry to start operating industrial-scale demonstrators in three years; and it takes another two years to learn, redesign and adapt, before commercial industrial deployment with manageable risks can start. Hence, with **political leadership now, the European Union can translate state aid modernization into tangible industrial results already by the end of the Commission's mandate.**



2. The example of Power-to-X – a key enabler for a carbon-neutral economy

In wind and solar energy, Europe has already embarked on the energy revolution. The largest wind turbine was 30kW in 1980. Today we have reached almost 10 MW. Nearly 30% of electricity in Europe comes from renewable sources and the two largest offshore wind turbine manufacturers in the world come from Europe. Europe can repeat this industrial policy success with Power-to-X and hydrogen technologies such as electrolyzers and H₂ gas turbines, and subsequent synthesis of electric fuels. These technologies are indispensable to decarbonize transport, including aviation and shipping, industrial processes, and to provide a fossil-free security of electricity supply. The amount of renewable energy needed will be massive: The DENA Leitstudie estimates in its technology mix scenario for Germany that reaching a decarbonization of 95% will reduce the import of conventional primary energy by 2446 TWh, whilst 744TWh of climate-neutral energy carriers will need to be imported. This is almost four times the entire German renewables generation in 2018. The hydrogen roadmap of the Joint Fuel Cells and Hydrogen Undertaking suggests 5.4 million new jobs could be created throughout the EU.

The German Reallabore

Against this background, Germany initiated the very ambitious programme “Reallabore” to support the scaling up of climate technologies, in particular power-to-X and hydrogen technologies.

However, the programme is at risk to reach its full potential due to the limited funding scope:

- Funding is limited to € 15 mn per project partner and spread out over 5 years
- The funding rate for companies is capped at 45%
- No OPEX funding is possible

These funding rates and the lack of OPEX funding impose very high hurdles to demonstrating new climate technologies in industrial scale, such as the GET-H2 Project in Lingen (6 industrial partner including RWE and Siemens). The green hydrogen produced in the Lingen project could reduce CO₂ emissions between 113.000 and 261.000 t of CO₂ per year depending on the mix of the offtakers. The funding operational costs, including the questions whether the supply of electricity will include taxes and levies, are a paramount factor for the competitiveness of power-to-X technologies.

To turn renewable hydrogen technologies into the next gigawatt industry after wind, regulatory frameworks must be adapted, so that the use of these technologies makes economic sense in the long run for all parties involved. **This also includes that Member States must be able to provide sufficient financial resources to test these technologies on an industrial scale and various new applications involving the entire value chain, including the offtaking sectors.**



The European Commission should use the fitness-check to turn the state aid regime into a meaningful enabler for member states to support the transition of their economy towards climate neutrality.

3. Setting new standards with a climate-neutrality chapter

Siemens proposes to create a new chapter for climate-neutral technologies and applications that is consistently included into the General Block Exemption Regulation and the Guidelines on R&D and on Energy and Environmental aid. This new chapter should significantly increase the legal certainty for state aid and match the ambition of Europe's thrive for climate neutrality by 2050.

At present, neither the General Block Exemption Regulation, nor the Guidelines on R&D or Energy and Environmental Aid set rules which provide a sufficiently clear and reliable framework. This undermines the necessary financial support to innovate and implement technologies at industrial scale which will be key to reach climate neutrality by 2050. Among others, unclear definitions (e.g. of industrial research vs experimental development), missing references to new energy carriers (e.g. renewable fuels of non-biological origin, renewable hydrogen), or uncertainty around scope and eligibility significantly contribute to legal uncertainty. Furthermore, some provisions of state aid framework fall short of addressing the climate challenge and require adjustments.

4. Our proposal for new chapter on climate neutral technologies and applications

- **Carbon-neutrality is a journey:** Carbon neutral technologies should include all technologies that are or have the potential to be carbon-neutral by 2050. It should inter alia also include also CCU/S technologies, fuel synthesis with CO₂, Power-to-X technologies, energy storage, digital technologies for the integration of renewable sources, or renewable energy technologies. About electrolysis, electricity taken from the grid, independently of the share from renewable sources, should be eligible. This is because the purpose of demonstration projects is to demonstrate the feasibility of the new technologies. For this, the electricity mix is secondary. However, for subsequent commercial applications in the market, guarantees of origin would need to guarantee the electricity supply from renewable sources.
- **Increase the aid intensity to 100% for climate-neutral technologies in first-of-its kind large scale installations.** The General Block Exemption Regulation, the R&D guidelines and the Energy Aid Guidelines limit the aid intensity for large companies to 50% for national industrial R&D and/or Energy Aid programs. This is insufficient to trigger investments in industrial-scale demonstration plants achieving full carbon neutrality.
- **It's the competition with fossil fuel that matters:** Currently, state aid rules very much stick to a traditional eligible cost approach. More than 80% of emissions within Europe are energy-related. In order to achieve climate neutrality, the European Union must therefore convert its energy consumption towards CO₂-neutral sources. This can only work with a massive fuel switch from



fossil fuels to renewable energy sources without damaging the competitiveness of industry. The switch to climate neutrality must become a business case – the cost difference between “kWh renewable” vs. “kWh fossil” must be positive. Member States should have the opportunity to fully fill this cost difference in demonstration plants over the entire life cycle (i.e. CAPEX and OPEX) and create a cost-competitive situation with fossil fuels-based solutions. **We therefore propose to allow calculating the maximum aid also based on a reasonable financing gap analysis rather than only on a rigid eligible cost approach.**

- **Strengthen OPEX support:** Investments in the energy sector often have very long lifecycles. Certain assets have a lifetime of more than 20 years. The funding of long-term operating costs is often decisive for the realisation of a project. Because the fight against climate change is a collective task, the risk cannot be completely passed on to the operator. **Therefore, the funding of operational costs together with capital investment needs to be considerably strengthened within the new state aid framework.**
- **Faster and simpler notification procedures:** When aid cannot be granted under the General Block Exemption Regulation, it needs to be notified. Notification procedures are often too lengthy and burdensome to match the level of urgency in tackling climate change. The procedures also add to legal uncertainty. **We therefore recommend setting up a fast-track procedure for projects under the new climate neutrality chapter.**
- **Make Sandboxing a permanent tool in the state-aid toolbox:** New technologies often need different legislative frameworks to gain a foothold in the market. The current political process is often too slow and rigid to take into account the urgency of climate change or the speed of global competition in digital technologies, such as grid edge solutions. Sandboxing allows project partners to significantly reduce the operational risk of new technologies on an industrial scale and to test the feasibility and social benefits in a geographically and temporally clearly defined framework. At the same time, this approach allows project participants and decision-makers to gain detailed knowledge of the optimal regulatory framework needed to fully exploit the societal benefits of the new technologies and avoid potential pitfalls. In fact, we believe that regulatory sandboxes can also contribute to speeding up the harmonization of legislation at European level, but for this to be achieved a coordination at European level, especially with regard to the communication of the results is needed. **We would recommend the Commission to issue clear and ambitious provisions on sandboxing which cover, inter alia, a state aid exemption, that create more legal certainty about how industrial-scale sandboxes could be implemented.**
- **Increase notification thresholds:** The General Block Exemption regulation currently sets very low notification thresholds. The key challenge for new climate technologies is less fundamental research, but industrial scaling. For these, notification thresholds are too low. **We recommend increasing notification thresholds for climate neutral technologies at € 200mn with the possibility of an ex-post control mechanism for the European Commission.**
- **Supporting the transition away from coal.** The current block exemption regulation and guidelines allow an increase of 15% in aid intensity for outermost regions with an extremely unfavorable economic situation. However, in order to reach climate-neutrality by 2050, regions



with a strong economic and social footprint in coal and lignite activities will face major challenges. These are of social, political, economic, and technological nature. **Therefore, we recommend that regions with an adopted plan to phase-out coal in line with the European climate targets should benefit from more favourable aid conditions, e.g. an increase of aid intensity of 10-15%.**

- **Include clear and simple procedures for cumulation of aid:** Technologies like wind power or combined and heat power (CHP) plants receive state support. In Germany, e.g. with the EEG or KWK law. The climate performance of CHP could be significantly improved with a fuel switch to renewable hydrogen. However, this requires the project partners of a first-of-its kind demonstration plant to first apply for CHP support, and then for additional aid for the fuel switch to green hydrogen. Current rules are insufficiently clear under which conditions such cumulation of aid would be at all be possible. **We therefore suggest streamlining and clarifying the existing rules for the cumulation of aid, including a provision that generally allows the cumulation of aid for climate-neutral technologies.**
- **Refinancing the energy system transformation should not undermine climate-neutrality:** Wind and solar energy has become a great success for industrial policy, because the costs of the transition were socialized. However, some member states such as Germany, saw a massive increase in the electricity prices, because the costs of the transition have been entirely refinanced over the electricity bills. This leads to a declining competitiveness vis-à-vis fossil energy sources and in consequence stands in sharp contradiction to the climate targets, which can only be achieved if the energy demand is met directly or indirectly from renewable sources. The exposure to high network charges and electricity levies is a fundamental barrier for the competitiveness of power-to-X technologies converting renewable electricity into renewable hydrogen. **Therefore, exempting producers of renewable-electricity based hydrogen from network charges and environmental taxes should be compatible with the EEAG. Furthermore, the European Commission should proactively seek the dialogue with Member States to ensure that national refinancing mechanisms for energy system transformation are fair, transparent and most importantly not undermining the long-term climate targets.**