Wind turbines in a field/ CC0 Alex Eckermann

en | fr | de

Study | 07.09.2022

Accelerating the European renewable energy transition

A study from the Greens/EFA Ecological Transition cluster

While the detrimental impacts of climate change are unravelling around the world, a geopolitical crisis at the heart of Europe has brought to the forefront another dimension to the complexities of the energy transition. Energy security and energy independence have preceded to shape future energy decisions, not only in Europe but across the world. Europe has been at the forefront in driving the transition towards sustainable energy adoption as well as enhancing climate mitigation. The energy transition towards higher shares of renewable energy is already well underway in many European countries, particularly in the power sector. The European Commission has envisaged a long-term climate neutrality vision with the European Green Deal. However, compounding crises including the Russian invasion of Ukraine have accentuated the cost to the European economy that is coupled with a centralised energy system highly dependent on imported fossil fuels. In this context, accelerating the energy transition across the European Union (EU) is essential for enhancing energy security, ensuring long-term price stability and mitigating climate change. Amidst the current gloom and doom, there is a long-term opportunity for Europe to emerge as a global leader with an accelerated transition towards a highly efficient energy system based on 100% renewables, which will enable a range of benefits, not only for its economy but also for other economies around the world.

This research study, undertaken by LUT University and commissioned by The Greens / European Free Alliance, presents a first of its kind technology-rich, multi-sectoral, multi-regional cost optimisation driven analyses of energy transition pathways for the EU and its member states. Energy transition pathways for the EU are explored in three distinct scenarios:

- **REFERENCE (REF) scenario**: a slower energy transition in line with the climate neutrality objective by 2050 of the current Green Deal.
- **RENEWABLE ENERGY SYSTEM – 2040 (RES-2040) scenario**: an accelerated energy transition towards a highly efficient and 100% renewables based integrated energy system across the European Union by 2040.
- **RENEWABLE ENERGY SYSTEM – 2035 (RES-2035) scenario**: a rapid energy transition in the next decade resulting in a highly efficient and 100% renewables based integrated energy system across the European Union by 2035.

This study presents a techno-economic blueprint demonstrating cost optimal pathways of transitioning the

power, heat, transport and industry sectors towards an integrated, efficient and sustainable energy system across the EU embedded within Europe in the mid- to long-term, from 2035 to 2050.

- Download the full study (in English)
- **Download the policy makers summary :**
  in English
  in German
  in French
  in Finnish
  in Italian
  in Spanish
  in Catalan
- **Download the Greens/EFA recommendations**
- Annex
- **Data file (Excel)**

Recommended

Press release

@gettysignature



U-turn by Conservatives and Social Democrats Puts Jobs…

04.11.2026

Press release



Conservatives and Social Democrats Put Jobs at Risk

22.10.2026

Press release

© Eva Serrabassa



[Data centres: Tech companies must no longer be allowed…]

21.09.2026

Press release

©fre-sonneveld



Heatwaves and extreme record temperatures make the swi…

17.07.2026

Responsible MEPs



Ville Niinistö

Member



Jutta Paulus

Member

Contact person



Catherine Olier

Attached documents

Study - Accelerating the European Renewable Energy Transition
Policy makers summary - Study Accelerating European Renewable Energy Transition
Greens-EFA recommendations based on LUT university study on accelerating the European Renewable Energy Transition (Sept '22)
Annex - Accelerating the European renewable energy transition

Please share

- E-Mail