FACTSHEET: ACCELERATING THE ENERGY TRANSITION FOR A CARBON-NEUTRAL ALPINE REGION

Alpine initiatives and the European policy landscape

Bioenergia Fiemme https://www.bioenergiafiemme.it/, Cavalese, Italy. Source: Astrid Severin

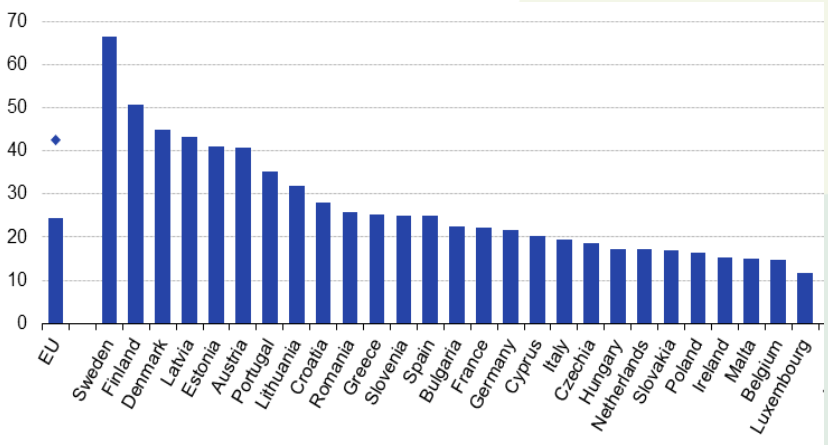
The energy transition is a shift from a traditional fossil fuel-based energy system to a system based on renewable energy sources. It requires changes in energy production, moving away from fossil fuels and towards locally available renewable energy sources like the sun, wind, biomass, hydropower and geothermal energy. On the consumption side, it requires action to reduce energy demand through energy efficiency measures as well as a fuel switch. A strong trend towards electrification is a key feature of the energy transition, especially in the transport sector, but also for heating, while green hydrogen emerges as the mid-to-long-term energy carrier for the decarbonisation of energy-intensive sectors that are hard to electrify. On the policy side, the energy transition requires supportive, predictable and stable political and legal frameworks for renewable energies in all forms that encourage public and private investment in new generation capacity and the related infrastructure for transmission and storage and foster the switch to renewables in all sectors.

Strategically placed in the centre of Europe, and with a wealth of natural resources, **the Alpine region has a unique role to play in the energy transition**. Already a leader in hydropower, the development of alternative renewable energies such as hydrogen and sustainable bioenergy will be key to diversify the energy mix and balance the grid. The Alps are also an ecologically sensitive area with strict conservation rules. Regions will therefore have a key role in balancing the need for new energy infrastructure with legitimate social and environmental concerns. As well as expanding cross-border governance, engaging with local communities will be essential to accelerate the energy transition in the Alps.

EU policy, initiatives and funding

The Energy Union strategy, first adopted in 2015, remains the cornerstone of the EU's energy policy. **It has three main objectives, linked to sustainability, security of supply, and competitiveness.** Energy transition is central to the **sustainability** objectives. To this end the EU launched its Green Deal, and accompanying 'Fit for 55' package of legislation, which introduced changes to the energy system, including reforming the EU Emissions Trading System, by tightening the overall emissions cap and extending the scheme to cover buildings and transport. It also saw the revision of the Renewable Energy Directive (RED II) in 2023, which set a new binding target of 42.5% renewable energy consumption in the EU by 2030 and created sector-specific targets for renewables in heating and cooling, transport, industry, buildings and district heating/cooling. The revised directive also places a strong emphasis on making it easier for citizens to consume and produce renewable energy by including provisions on self-consumption and renewable energy communities. To accelerate the energy transition, RED II introduced easier and faster permitting procedures for renewable energy. From 2026 EU countries will designate 'Renewables acceleration areas' in territories with low environmental risk factors, which will benefit from particularly streamlined permit-granting procedures. RED II also recognised the role of bioenergy in the energy transition, establishing more stringent sustainability criteria that will reduce the use of forest biomass for energy. The Energy Efficiency Directive was also revised in 2023, establishing a new EU level target and indicative national contributions.

Security of supply became an urgent priority following the Russian invasion of Ukraine. The EU responded with its REPowerEU Plan that aimed to save energy, boost renewables and reduce import dependency. Ensuring **competitiveness** in the EU energy landscape remains a challenge. Recognising this, the new Commission recently adopted an Affordable Energy Action Plan, building on the reform of the Electricity Market Design.



% share of energy from renewable sources in the EU in 2023. Source: Eurostat

Research and innovation for the energy transition is guided by the Strategic Energy Technology Plan (SET Plan), whose activities are clustered into 10 action areas addressing the whole value chain. European Technology and Innovation Platforms (ETIPs) such as ETIP Bioenergy were created to support the implementation of the SET Plan by bringing together EU countries, industry, and researchers in key areas. To ensure no-one is left behind by the transition, the EU has created the Just Transition Fund, which supports territories most negatively impacted by the transition towards climate-neutrality, and the Social Climate Fund, which supports the most affected vulnerable groups, such as households in energy poverty. A complete overview of EU funding possibilities in the energy sector is available on the European Commission website.

Accelerating the Energy Transition in the Alps

Fostering the transition towards more renewable and reliable energy solutions has been a priority of the EUSALP since its launch in 2015. Work in this area is spearheaded by EUSALP Action Group on Energy, whose mission is to "make the Alpine region a model region for energy efficiency and renewable energy". The Action Group operates five thematic sub-groups working on issues of strategic importance:

1. **Energy Observatory for energy data collection**: A limited amount of energy data sets are available for the transnational Alpine region. A tool to collect, process and visualise this data (see CERVINO project below) supports decision-makers when formulating energy strategies, policies and measures.
2. **Use and production of green hydrogen**: This sub-group will strengthen cooperation and transfer know-how between Alpine regions, with the ultimate aim of fostering investments in green hydrogen infrastructure and applications.
3. **Energy communities and smart communities**: Activities in this sub-group are closely linked to the SmartCommUnity project, which is creating a SmartAlps network to change the practices and perceptions of smart rural areas.
4. **Energy efficiency in enterprises and the building sector**: The focus is placed on energy efficiency and carbon footprint analysis, mapping relevant tools and projects and developing checklists for key economic sectors.
5. **CO2-compensation schemes**: The sub-group is assessing the feasibility of setting-up mechanisms to compensate for CO2 emissions coming from private and public actors with the goal of supporting local sustainability projects.

The EUSALP Presidency 2025, held jointly by Austria and Liechtenstein, has made the energy transition one of its three priorities. It will increase attention on topics requiring macro-regional and transnational collaboration, such as the establishment and expansion of resilient infrastructure, conflict management in renewable expansion, and collaboration among Alpine countries for energy supply and security.

The **EUSALP Energy Award** is an annual prize, initiated under the umbrella of the Italian Presidency in 2022. The award recognises pioneering individuals or organisation that are contributing to the Alpine energy transition through the implementation of renewable energy and energy efficiency measures. The 2024 edition was on the theme of energy transition in SMEs, and had four winners. Look out for the launch of the 2025 Energy Award this summer!

Pictured: Zotter Schokolade, a winner of the 2024 EUSALP Energy Award. Photo: Peter Irman

Interreg Alpine Space projects take the lead

The recently completed **CERVINO** project has revolutionalised the exchange and visualisation of energy data within the Alpine territory, creating the first Alpine Energy Data Platform. The free-to-use platform compiles datasets related to energy consumption, production and transition and displays them on an interactive map that can be filtered per country or region within EUSALP. It is possible to learn more about the features, benefits, and usability of the platform in this video.

Given the huge reserves of biomass in the Alps, bioenergy could play an important role in the region's energy transition. The **DIVERSE** project is helping to ensure that Alpine bioenergy production respects sustainability criteria, particularly those related to biodiversity. Partners are currently developing an Open Dialogue Toolkit that will support bioenergy and biodiversity actors to improve the sustainability of regional bioenergy value chains. A final set of guidelines will outline Alpine trajectories for sustainable and biodiversity-positive energy routes.

The **ALPHA** project has recently been launched to accelerate the adoption of 5th Generation District Heating and Cooling (5GDHC) in the Alpine space. 5GDHC systems operate through low-temperature networks that minimise energy losses and allow bi-directional energy flow, enabling end-users to both receive and supply energy based on demand. By the end of the project (in 2027), the partners will jointly implement a common decarbonisation plan across selected pilot territories, and create a replication toolbox to foster wider uptake and upscaling.