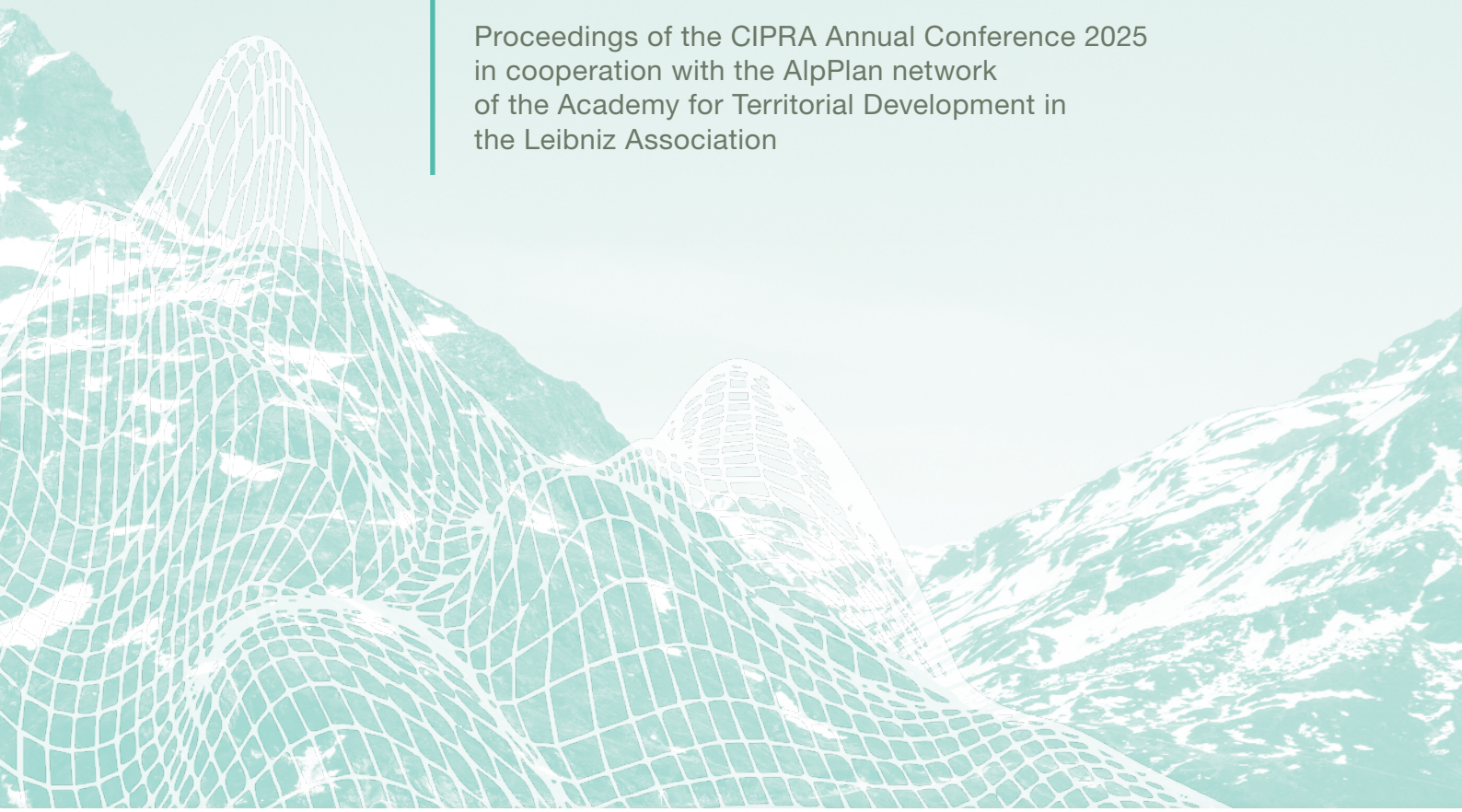
Alpine Spatial Planning

Spatial planning perspectives for overcoming conflicts of use in the context of the energy transition

Proceedings of the CIPRA Annual Conference 2025
in cooperation with the AlpPlan network
of the Academy for Territorial Development in
the Leibniz Association



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ALPENKONVENTION
CONVENTION ALPINE
ALPSKA KONVENCIJA
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Forewords

The Alps are facing profound changes.

The decarbonisation of energy systems and society must proceed rapidly in order to slow down the serious consequences of climate change. Whereas energy production used to be largely centralised in conventional power plants far away from residential areas and recreational spaces, renewable energy sources, with their space requirements, are now coming more closely into the public eye.

However, the Alpine region has been contributing to renewable energy production for a long time, namely through hydropower. Due to the significant impact on the landscape, it has always been difficult to balance the interests of energy production with those of landscape conservation. While the expansion of hydropower is still a hot topic and the subject of heated debate in some Alpine valleys, nowadays the energy transition is being driven primarily by photovoltaics and wind power. The political strategies of the countries and regions in the Alpine arc have so far differed greatly in some respects, for example regarding the planning of wind power areas. The third version of the EU Renewable Energy Directive (RED III) makes the requirements somewhat more comparable and are linked to ambitious timetables. At the same time, there is tension between accelerating planning and approval procedures on the one hand, and ensuring public participation and careful consideration of environmental protection aspects on the other. The Alps in particular still contain considerable amounts of open spaces, whether large-scale near-natural areas or undeveloped cultural landscapes that fulfil a variety of functions for nature conservation, recreational purposes and as a culturally valuable natural heritage. This means that the Alpine arc can also make an important contribution to other European objectives, such as the equally ambitious agenda set out in the EU Regulation on the restoration of nature.

Ultimately, it will depend on the votes of national and regional decision-makers and their implementation by planning bodies as to how the requirements at European level are handled in practice. We are convinced that Alpine spatial planning already plays an important role in this regard and that its role as coordinator of various spatial demands will become even more prominent in the future. The ARL European Working

Group AlpPlan (alpine spatial planning network) acts as an intermediary platform between science and planning practice. Through Alpine-wide exchanges on an independent expert platform, sustainable solutions and positions are developed for how spatial planning can manage current and future challenges facing Alpine territorial development. CIPRA, the International Commission for the Protection of the Alps has already dealt extensively with issues of Alpine spatial planning in the past and is therefore an important cooperation partner for our AlpPlan network.

The collaboration of CIPRA and AlpPlan has yielded interesting and diverse perspectives on the topics examined.

We hope that this publication, along with its recommendations, will contribute to advancing the implementation of the energy transition in a way that is tailored to the specific characteristics of the Alps. We are sure that this process will comprehensively address and concretise the principles of the Alpine Convention to preserve and develop the Alps as a natural, living and economic space for generations to come.

Hubert Job
Chair of Geography and Regional Science, Julius-Maximilians-University Würzburg
Chairperson of the ARL European Working Group AlpPlan

The Alps are under growing pressure.

While they have long provided refuge for biodiversity and traditional forms of land use, their delicate balance is increasingly disrupted by overlapping demands and accelerating change. Alpine topography amplifies these dynamics: the impacts of climate change become more visible and extreme, competition over limited settlement and agricultural land grows more intense, and the region's energy potential becomes increasingly attractive in the context of Europe's transition to renewables.

This dual role of the Alps, as both a vulnerable landscape and a strategic resource, requires careful consideration. It also demands planning approaches that are not just technically sound, but guided by long-term vision, social responsibility, and ecological integrity. Against this backdrop, Alpine spatial planning emerged as the central theme of the 2025 Annual Conference, jointly organised by CIPRA Österreich and CIPRA Deutschland and supported by the ARL and CIPRA International.

In times of increasing spatial claims and regulatory complexity, spatial planning becomes more than a procedural tool, it becomes a cultural and political act. It determines how we allocate space and, ultimately, how we envision the future of the Alps. When done well, spatial planning can balance use and protection, foster dialogue among sectors, and steer transitions in a fair and transparent way.

CIPRA has been positioning Alpine spatial planning as a key instrument for sustainable regional development. In the light of ambitious EU legislation, such as the Renewable Energy Directive (RED III) and the Nature Restoration Law, and similar developments in Switzerland, such as the "Mantelerlass", the importance of spatial planning is growing.

This includes bridging long-standing divides between sectors: energy policy and nature protection, land use and biodiversity, tourism and agriculture. It also means involving civil society early in the process, not just as a stakeholder but as a co-creator of meaningful and legitimate planning outcomes. And perhaps most importantly, it requires a shift in perspective: from seeing Alpine space as a resource to be allocated, to understanding it as a shared good that calls for collective stewardship.

The contributions gathered in this volume offer valuable insights into how these ideas are being translated into practice. They showcase different perspectives from across the Alpine region and reflect the willingness of stakeholders to engage in constructive dialogue, even where interests diverge. The documentation highlights both the potential and the limits of current practice, and it provides inspiration for further exchange, adaptation, and collective learning.

I would like to express my sincere thanks to all those who made this dialogue possible—especially our colleagues at CIPRA Österreich, the members of the AlpPlan network, and the many partners from the Alpine Convention, EUSALP and beyond who supported the event. The fact that this conference formed part of the EUSALP presidency programme already sends a strong signal in favour of cross-border cooperation on this topic. Organising such a multifaceted conference was a considerable effort, and its success is a testament to strong collaboration and shared purpose.

It is my hope that the ideas and examples presented in these pages will continue to resonate and take root, supporting more coherent and future-oriented spatial decisions throughout the Alpine space.

Uwe Roth
President of CIPRA International

More than 160 participants gathered in Salzburg on 27 February 2025 for the CIPRA Annual Conference 2025.

1 Introduction

The International Commission for the Protection of the Alps (CIPRA) and the AlpPlan network of the Academy for Territorial Development in the Leibniz Association (ARL) have come together to address the spatial planning challenges of the energy transition in the Alpine region. Taking into account the different distribution of competencies of the Alpine states in spatial planning, the aim is to develop solution-oriented approaches for overcoming conflicts of use arising from the expansion of renewable energy sources in the Alpine region from a spatial planning perspective.

Recognising that the energy transition requires a combination of energy saving, energy efficiency and energy production measures, the focus was placed on renewable energy production and distribution, as their expansion, including grid infrastructures, entails the greatest potential for conflicts with spatial impact. The overarching objective of the collaboration was to emphasise the importance of Alpine spatial planning and its potential for overcoming conflicts of use and finding possible solutions, while taking into account current legal frameworks and strengthening cross-sectoral cooperation.

The objectives and measures discussed at the CIPRA Annual conference 2025 with the title “High Tension in the Alps” were developed with the support of spatial planning experts in a Thematic Support Group of the AlpPlan network and served as a foundation for discussion among participants from various stakeholder groups. The conference proceedings document the content of the preparatory work, the topics discussed and the results of the annual conference. The content of the conference proceedings is thus also a documentation of a learning process that must continue beyond the annual conference and the completion of this document: a learning process to unlock the potential of Alpine spatial planning for an environmentally and landscape-friendly energy transition and to overcome conflicts of use.

Both the preparatory work for the conference and the feedback gathered during the discussions contributed to the formulation of **strategic policy and planning recommendations**. These recommendations are directed at political decision-makers in the Alpine region and provide concrete suggestions, based on the discussed content, on how to unlock the potential of Alpine spatial planning to address conflicts of use.

Hydropower has been the dominant source of renewable generation in the Alpine region for decades, but this position is expected to change in the future.

2 Alpine Spatial Planning and the energy transition in the Alps

Space as a finite resource in the Alps

Space and soil are a limited resource – especially in mountainous regions such as the Alps in the centre of Europe. As defined by the Alpine Convention, the Alpine region covers a total area of 190,912 km² with around 13 million inhabitants. Administratively, the Alpine region is spread over 8 states, around 100 regions (NUTS3) and more than 6,200 municipalities.

Due to the restrictions caused by the topography such as steep slopes, danger zones, altitudes, etc. less than 20% of the surface in the Alps is suitable for human settlements. Anthropogenic uses are therefore concentrated in a relatively small part of the Alpine region – mostly valleys, basins and low mountain terraces – where they are confronted with in part mutually exclusive demands. The focus of spatial planning in all Alpine states has therefore so far been on the most orderly and politically desirable development of these settlement and economic areas, without, however, making too much reference to the much wider Alpine region. But those areas cover the remaining 80% of the surface as mentioned at the beginning. And it is precisely in these areas, many of which are still near natural or even untouched, that anthropogenic pressure of use has been steadily increasing in recent years and decades.

The idea of harmonising the various, often conflicting interests in the Alpine region is not new. Shortly after the Second World War, the various interests in the Alpine region began to spread. The clash of divergent utilisation interests, but also the idea of protection, led to the founding of CIPRA in 1952. Even then it was clear that only a joint, Alpine-wide approach – by means of an international treaty – could steer the spatial development of the entire Alpine region in an orderly fashion. And this idea has now been given new impetus, not least by the accelerated expansion of renewable energy sources and the implementation of the “Renewable energy directive” (RED III) in the Alps.

Energy transition and diverging spatial interests

Mountains, people and energy – a relationship that has existed since time immemorial. One of the reasons is the long-standing desire of people to participate from the power of nature and recharge body and mind in the mountains. However, the association between “energy” and “Alps” has recently undergone several significant changes. Currently, and in view of the massive changes in geopolitical and global economic conditions, there has been a growing desire to use renewable energy sources. Due to their topography and climatology, mountains such as the Alps offer favourable conditions for the energetic use of water, solar and wind power.

The use of hydropower has a long history in the Alps. For centuries, the power of water was used to operate mills or the first ironworks. Then, more than a century ago, the first large power plants were built to generate and later store electrical energy. The economic upturn following the destruction caused by the Second World War necessitated a massive expansion of energy production, in the Alpine region primarily in the form of hydro-electric power plants of previously unknown dimensions. At the same time, the progressive development and motorisation of remote valleys and regions enabled an economic transformation from the agricultural to the tourism sector. As a result, the Alpine region increasingly produced electrical energy for industries outside the mountains, but at the same time, as a leisure and tourist destination, ensured that the physical and mental capacity of the urban population was recharged.

While the first large pumped-storage power plants were often designed as storage facilities for nuclear power, energy generation from wind and solar power plants nowadays demands flexible and cheap storage.

Electricity from wind or solar power generation is still a marginal phenomenon in the central Alpine region and high mountain areas. However, the economic and political pressure to construct new wind and solar energy generation plants is increasing, not least due to the promotion of renewable energy sources. The potential for utilisation in the Alpine region is – especially regarding hydropower – still high. In many places it nevertheless conflicts with the interests of nature and habitat conservation, but also economic interests, especially tourism. Therefore, foresighted, coordinated and cross-sectoral planning is required, especially where conflicts of utilisation can arise.

RED III calls for strategic and integrated planning

The Renewable Energy Directive establishes targets for increased renewable energy use, supporting cooperation between EU countries towards this goal. To overcome major obstructions to the deployment of renewables on the ground, the Directive asks for permit-granting procedures to be made easier and faster: both for renewable energy projects, including through shorter approval periods and the creation of “renewables acceleration areas”, as well as for the necessary infrastructure projects such as power transmission lines, etc.

Managing the energy transition means addressing both renewable energy sources and the infrastructure they depend on – an additional challenge for spatial planning.

The EU member states are mandated to designate, by February 2026, special “renewables acceleration areas” for at least one type of renewable energy technology, with particularly streamlined permit-granting procedures for projects deployed in those areas. These should be areas that are particularly suitable for such projects, on the basis that the type of renewable energy source being deployed is not expected to have a significant environmental impact. This designation is to be preceded by a coordinated mapping exercise by May 2025 in order to identify suitable locations for renewable energy deployment. The Directive emphasises the importance of strategic spatial planning to ensure efficient deployment while minimising environmental impacts as outlined in the Directive: “(…) spatial planning is an essential tool with which to identify and steer synergies for land, inland water and sea use at an early stage. Member States should explore, enable and favour multiple uses of the areas identified as a result of the spatial planning measures adopted.” [1]

The implementation of the Directive will pose a massive challenge for the Alpine region in particular over the next few years, as suitable instruments for such “spatial energy planning” that are available throughout the Alps are still largely lacking. On a positive note, this also offers the opportunity to establish an interdisciplinary Alpine spatial planning system as a coordinating planning instrument for the entire Alpine region.

1 Recital 27, Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023

Alpine spatial planning

The discipline of spatial planning, with its central instruments such as land use, zoning or urban development planning, was – and still is – primarily focused on the forward-looking planning of structural development in permanent settlement areas – inside and outside the Alps. In general, spatial planning refers to a range of instruments implemented by public or commissioned private actors with the aim of organising the use of a particular space. It is an attempt at holistic planning in political and economic systems that are characterised by sectoral approaches.

Based on increasing conflicts between agriculture, tourism and nature conservation regarding the use of open space areas, the need for spatial planning of the higher mountain regions was recognised in the 1980s and increasingly referred to as "Alpine spatial planning". As noted in the "Handbuch Alpine Raumordnung", Alpine spatial planning as a separate discipline requires a very comprehensive view of the development of the Alpine region, i.e. one that is not focused on individual sectors and/or areas. Accordingly, the following definition was given:

> "Alpine spatial planning is the totality of all measures and activities of public regional authorities that are aimed at shaping the Alpine region based on political objectives. The Alpine region includes those areas that are located within the Alpine Convention perimeter." (Tischler 2022, p. 10)

This definition is in line with the "Protocol on the implementation of the Alpine convention of 1991 relating to spatial planning and sustainable development" which obliges the signatory states to co-operate (Article 4) and coordinate sector policies (Article 6) with new instruments where these do not exist.

However, one of the biggest challenges in terms of the concrete implementation of an "Alpine spatial planning" is the many different competences in spatial planning in individual countries.[2] Due to the different histories and political cultures of the Alpine countries, there are various forms of spatial planning in the Alpine region, as summarised in the following table:

2 Further information: ARL – Academy for Territorial Development in the Leibniz Association: Country Profiles. URL: https://www.arl-international.com/knowledge/country-profiles (last accessed: 26/05/2025).

Alpine spatial planning takes a holistic approach to the development of the Alpine region, including integrated energy planning.

Table 1: Comparison of the relevant spatial planning competences in the states of the Alpine regions (Meyer et al. 2022, p. 27)

Relevant legal planning competence (administrative planning levels)	DE	AT	CH	FR	IT	SLO	LIE
National level	(X)		X	(X)	(X)	X	X
State / Canton	X	X	X				
Region / Province	X	X		X	X	(X)	
Agglomeration			(X)	X	X		
Municipality	X	X	X	X	X	X	X

The "OpenSpaceAlps" project showed that forward-looking spatial development in the Alpine region is not necessarily about creating completely new planning approaches, but rather about applying existing planning approaches consistently and in combination and continuously developing them further in a transnational exchange of knowledge and experience (Meyer et al. 2022).

Nevertheless, the concept of Alpine spatial planning seems to be fundamentally compatible in all countries bordering the Alps. Regarding the energy transition in Alpine regions, spatial planning plays a crucial role in enabling integrated energy planning due to the inherent constraints and unique characteristics of mountainous environments. It is therefore high time that Alpine spatial planning is given the attention it deserves, and its important role recognised.

EU goals for energy must take into account the specific conditions of the Alpine region and align with the Alpine Convention.

3 Legal requirements: urgent need for action

With Russia's attack on Ukraine and the resulting sharp rise in energy prices, the energy transition has gained new momentum. The accelerated expansion of renewable energy in Europe is intended to ensure independence from fossil fuels: in response to this, the European Union and the Alpine states themselves have issued corresponding legislative pacts. Ultimately, the energy transition and the associated expansion of renewable energy is a key element in climate protection. These laws set targets and comprehensive measures that include easier authorisation criteria or even the elimination of authorisation requirements. They also stipulate the designation of fast-track “acceleration areas” for renewable energy installations. The implementation of these requirements demands space and thus increases the pressure on the Alpine region. The main requirements are presented below in order to show that there is an urgent need for action due to legally binding regulations.

A report by the Alpine Convention's Compliance Committee on deregulation measures to accelerate the expansion of renewable energy also makes it clear that implementation must be in line with the provisions of the Alpine Convention. It should be noted that protocols ratified by the EU take precedence over secondary EU legislation, which must therefore not contradict the protocols. The report was provisionally published on 15 May 2025.

EU legislation

In 2022, Council Regulation (EU) 2022/2577 laying down a framework to accelerate the deployment of renewable energy was ratified.[3] This provided for significant simplifications for the authorisation of renewable energy installations: among other things, the overriding public interest and the possibility of waiving mandatory environmental impact assessments[4] or assessments of the implication for Natura 2000 sites of projects. This emergency decree was limited to 18 months and was extended by one year. In the end, the Renewable Energy Directive (RED III) adopted the requirements in a modified form and thus incorporated them into a binding long-term framework. Comprehensive negotiations on the Nature Restoration Law took place in parallel, which was only adopted by a very narrow majority in July 2024. While RED III therefore aims to accelerate the expansion of renewable energy plants and the associated storage and grid infrastructure by simplifying authorisation procedures, comprehensive obligations to restore nature have also been enacted. These two pieces of secondary legislation are in competition, particularly when it comes to available space.

Renewable Energy Directive III (RED III)

The EU member states have two years to implement the requirements of the EU Energy Directive III.5 As of 21 February 2024, the overriding public interest for the first acceleration measures had to be implemented by 1 July 2024 for the planning, construction and operation of generation plants for energy from renewable sources as well as their grid connection, the grid itself and the storage facilities

Renewable Acceleration Areas (RAA)

By 21 May 2025, the domestic potential and available areas required for the construction of plants for the generation of energy from renewable sources and the associated infrastructure such as grid and storage facilities had to be recorded.
On this basis, the acceleration areas must be determined by 21 February 2026 by carrying out a strategic environmental assessment (SEA) and, in the event of possible significant effects on a Natura 2000 site, an assessment must also be carried out in accordance with Art. 6 para. 4 of the Habitats Directive.

3 Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the depoyment of renewable energy, OJ L 2022/335

4 Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, OJ L 2014/124 pp. 1–18.

5 Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Councili Directive (EU) 2015/652, OJ L 2023/77.

Authorisation procedure

In RAAs, neither an Environmental Impact Assessment (EIA) nor an assessment in accordance with Art 6. Para. 4 of the Habitats Directive need to be carried out for projects unless the authority determines within 30 or 45 days that the project is “highly likely to have significant unforeseen adverse effects on the environment. Otherwise, the project is deemed to be approved from an environmental point of view.

Overriding Public Interest

Authorities must assume that the planning, construction and operation of production plants for energy from renewable sources as well as their grid connection, the grid itself and the storage facilities are in the overriding public interest and serve public health and safety. This overriding public interest applies to the entire national territory, unless a Member State restricts the application to certain areas, technologies and projects in justified cases.

Nature Restoration Law (NRL)

The EU Regulation on Nature Restoration[6] was adopted by the Council on 17 June 2024 and aims to achieve the long-term and sustainable restoration of biodiverse and resilient ecosystems by restoring degraded ecosystems. By 2030, 20 % of land and sea areas must be restored and by 2050 all ecosystems in need of restoration. Articles 4 to 13 – with the exception of Articles 6 and 7 – contain additional specific requirements for the various ecosystems, such as terrestrial and freshwater ecosystems, as well as for rivers, agricultural ecosystems and forest ecosystems.

National restoration plans

As a central instrument of implementation, member states must submit their draft national implementation plans by 1 September 2026. The European Commission then has six months to comment. Restoration plans must be finalised within six months of the Commission's comments. These plans must locate and quantify the areas that must be restored to fulfil the obligations set out in Articles 4 to 13 and describe the planned restoration measures.

Deterioration prohibition

In areas where restoration measures are implemented, measures shall be taken to ensure continuous improvement of the sites. In areas that have achieved good status and sufficient quality of the species’ habitats, measures must be taken to prevent significant deterioration.

6 Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869, OJ L 2024/93.

Exemption for renewables

The planning, construction and operation of plants for the generation of energy from renewable sources as well as their grid connection, the relevant grid itself and the storage facilities are considered to be of overriding public interest. If these projects are located outside Natura 2000 sites, the prohibition of deterioration does not apply.

Spatial planning context

The evaluation and subsequent designation of RAAs within the meaning of RED III are traditional spatial planning practices, but they must be carried out in accordance with specific requirements and bring significant benefits for renewable energy projects. In contrast, the preparation of the national restoration plans must be developed from a nature conservation perspective in particular. What both instruments have in common is that they require appropriate areas. Taking into account the ambitious goals of both items of EU secondary legislation, competition from a spatial perspective can be distinguished. For this reason, even if the implementation periods are staggered, it seems urgently necessary to harmonise the processes so that the implementation of the two legal acts does not make it more difficult for each to achieve their objectives.

Swiss Legal Acts on Renewable Energy

Starting in 2022, Switzerland – like the EU and its member states – reacted to the growing energy crisis by introducing several laws. These laws should ensure the security of energy supply, stabilise prices and accelerate the energy transition to renewable energy sources.

Swiss Coat Degree (Schweizer Mantelerlass)

The Swiss Coat Decree, officially the Federal Act on a Secure Electricity Supply with Renewable Energies, was approved by a majority of the population (68.72%) in a referendum held in June 2024. It aims to make Switzerland's electricity supply secure, sustainable and independent in the long term. By 2040, winter electricity production from renewables is to be expanded by 6 TWh, of which 2 TWh must be reliably available from storage hydropower.

Go-to-Areas

Priority areas for renewable energies, in particular for solar and wind power projects, are to be designated in which simplified and accelerated authorisation procedures apply.

Overriding Public Interest

There is an overriding public interest in the use of renewable energy, and this leads to preferential treatment of renewable energy projects over other concerns such as nature conservation when weighing up interests.

Prioritised Hydropower

16 prioritised hydropower plants were selected, for which greatly simplified and shortened approval procedures apply. In particular environmental reviews and appeal options are reduced to key aspects.

Swiss Solar and Wind Express

In addition, Switzerland has enacted two further laws, the Solar Express and the Wind Express, with the aim of accelerating the expansion of renewable energy.

Solar Express

The aim is to achieve an additional annual production of 2 TWh. To this end, 60% of the investment costs for systems will be subsidised until the end of 2025. Simplified authorisation criteria have been introduced for large-scale PV systems, which are particularly feasible in Alpine locations. The cantons must designate suitable areas for solar installations.

Wind Express

Until an additional 600 MW of installed wind energy is reached, simplified authorisations will apply to wind turbines of national interest. The right of appeal is limited to one cantonal instance or, in the case of appeals to the Federal Supreme Court, to legal issues of fundamental importance.

Urgent need for action

The momentum of the energy transition has increased, albeit not primarily due to environmental protection aspects, but because of the energy crisis. The ambitious, legally binding targets, coupled with the short implementation deadlines and the comprehensive measures, which also shorten or even partially eliminate environmental assessments, have triggered an urgent need for action. The basis for successful implementation, taking into account an energy transition that is as environmentally friendly and landscape friendly as possible, is being laid at the planning level.

4 Impulses by spatial planning experts – AlpPlan thematic support group

AlpPlan (alpine spatial planning network) is a European Working Group (EWG) at the Academy for Territorial Development in the Leibniz Association (ARL). The overall objective of AlpPlan is to promote cooperation and coordination in the field of spatial planning in the Alpine region, especially from a cross-border perspective. Through mutual exchange and cooperation, the network is committed to contributing to sustainable territorial development from an ecological, economic and social perspective. The realisation and coordination of the objectives set by the Alpine Convention by means of spatial planning form are the framework for the activities of the network. The network brings together practitioners and scientists from the entire Alpine region with an interest and expertise in spatial planning. It provides an independent platform for the transnational knowledge exchange on good practices and future solutions for sustainable land-use and territorial development.

AlpPlan has been working for some time on various issues relating to the energy transition in the Alpine region and the steering capacities of Alpine spatial planning. Through existing links with CIPRA, it quickly became clear that substantial cooperation on the 2025 annual conference and the underlying project would be of great interest to both sides. For AlpPlan, this represents a good opportunity to reach professionals and NGOs from CIPRA's broad network. For CIPRA, AlpPlan is a relevant cooperation partner that can pool and provide scientific and application-oriented expertise from its circle of contributing experts. Following the decision to collaborate,

a call for participation was published within the AlpPlan network, to which several experts responded. The temporary “Thematic Support Group” formed as a result met several times from fall 2024 onwards to discuss relevant priorities for the topic and the program of the annual conference. It has also been involved in the development of the final recommendations in these conference proceedings and intends to ensure the (scientific) quality and relevance of the content covered.

In view of the legal challenges posed by legislation at EU and national level between 2023 and the end of 2024, CIPRA, together with the AlpPlan network, identified the areas of Green Infrastructure, Participation and Cross-sectoral Cooperation as important components for successful spatial energy planning in the Alps.

Green Infrastructure

A strategically planned network of natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services, while also enhancing biodiversity and ecological connectivity.[7]

Participation

Participatory approaches in spatial planning enable the involvement of different actors in the planning process. According to the planning theory model of communicative planning, the focus is on the discussion of options for future developments in order to provide space for dialogue and coordination between different social groups such as decision-makers, stakeholders, experts and citizens.

Cross-sectoral Cooperation

Spatial planning has to take into account various ecological, economic and social aspects and pursues sustainable spatial development. Effective cooperation across sectors is therefore intrinsic and necessary in order to overcome the current challenges of spatial development.

The group members developed several thematic impulses with the aim of identifying concepts, instruments and processes for resolving conflicts between renewable energy development, restoration efforts and the needs of local communities. For every thematic impulse, the main legal, financial and governance requirements were worked out within the three thematic fields: Green Infrastructure, Participation and Cross-Sectoral Cooperation.

In summary, the Thematic Support Group identified key aspects relating to three topics, which are listed here and reflected in the objectives and measures.

7 Cf. EU Green Infrastructure Strategy, COM(2013) 249 final.

Green Infrastructure

- Strategic Environmental Assessment (SEA)
- Monitoring
- Nature-based Solutions
- (Digital) Tools

Participation

- Local knowledge
- Early stage / continuous involvement
- Regional visions
- Transparency
- Citizen involvement

Cross-sectoral Cooperation

- Landscape approaches
- Mediation
- Multi-level coordination
- Resources / capacity building

Thematic field: Green Infrastructure (GI)

Thematic impulse	Main legal requirements	Main financial requirements	Main governance requirements
Addressing **negative effects of governmental subventions** on nature restoration efforts	Limiting the legal possibilities of (regional) governments to enforce subventions that rule out current nature laws	Limiting subventions that support “quick and dirty” solutions for renewable energy development	Limiting the possibilities of government actions that do not follow parliamentary decisions
Evaluation of **ecosystem services** for specific land use types at local and regional level	Further defining legal foundations that enable either single-case adaptation or cascaded planning mechanisms	Providing financial resources for planning staff and education as well as compensation payments for landowners	Making data available and communicating it between thematic bodies in administrations and towards the public
Evaluation of **multifunctional land use potentials** for planning procedures	Enabling legal context to make data on land ownership and geological processes available as basis for multifunctionality analysis	Making financial resources available for administrations/ research and for compensation of economic losses of private landowners	Involving owners of affected areas in planning processes at an early stage to take precautions and agree on appropriate coordination/ compensation
Harmonisation of **Environmental Impact Assessment (EIA)** and **Strategic Environmental Assessment (SEA)** for coherent GI planning	Harmonising the application of existing laws on EIA and SEA procedures within the Alpine region, particularly for cross-border and transnational projects	Improving the involvement of the European Investment Bank (EIB) to support actions and projects to integrate RED III and GI	Creating an explicit reference to the role EIA and SEA in the inclusion of NRL and RED III objectives at the Alpine Convention level
Joint integration of **Renewable Energy Acceleration Areas** and **Nature Restoration Areas** in spatial planning	Promoting a comprehensive legal approach to policies that contribute together to the “carbon neutral 2050” target at EU level	Improving the role of the European Investment Bank (EIB) and of ERDF 2021 – 2027 Programmes (including ETC)	Setting up an Alpine Convention task force to address the cross-cutting aspects of spatial planning, energy transition and biodiversity protection
Low-conflict expansion areas for renewable energy by promoting **multifunctional landscape use** and **clear zoning**	Adapting legal foundations of spatial planning to establish corresponding zoning categories for (multifunctional) GI	Providing financial support for education of administration staff regarding multifunctional land use	Promoting close coordination between the responsible authorities, including binding coordination meetings.
Designation of **exclusion zones** parallel to acceleration areas ensuring the preservation of open spaces with high **restoration potential**	Including exclusion zones as an obligatory planning instrument in legal foundations	—	Promoting close coordination between the responsible authorities, including binding coordination meetings.
Impact monitoring of the energy transition on the environment and living species	Introducing biodiversity protection measures in legal acts for renewable energy planning and development	Financially supporting comprehensive data collections that are accurate for decision making at local level	Prioritise fauna and flora investigations in renewable energy project sectors identified in town planning documents to prevent irreversible impacts

Thematic impulse	Main legal requirements	Main financial requirements	Main governance requirements
Discouraging the use of GI areas for PV by providing a **solar cadastre** that only highlights **existing building areas**	Including energy in town planning documents (diagnosis of energy resources and needs, solar cadastre and zoning	Setting aside a budget for setting up the solar cadastre and for promoting the project to the general public and to project sponsors	Promoting the solar cadastre tool, which also takes biodiversity issues into account, in co-operation with energy providers investors
Consolidation of **natural hazard prevention** and overall GI through **Nature-based Solutions** and binding **risk-based spatial planning**	Determining the legal provisions for appropriate planning measures (e.g. building bans and building with technical protection measures)	Providing resources for the analysis of risk (type and intensity of use and susceptibility to damage) posed by existing or intended land uses	Proactively carrying out natural hazard planning by means of open space planning, which also contributes to climate and biodiversity protection
Comprehensive consideration of GI through **digital tools for landscape planning** in the energy transition	Adapting the legal basis to link legal criteria (for planning and approval of renewable energies) closer to available landscape functions data	Financially supporting the development of comprehensive digital tools that fit specific planning tasks ("planning support systems")	Using the respective tools for cross-sectoral coordination within administrations and for coordination with public/ expert participation
Integration of GI into energy planning supporting energy transitions, ecological connectivity and biodiversity conservation	Integrating GI into planning at diverse levels, e.g. in regional landscape planning policies, in connection with Natura 2000 Network and EU GI Strategy	—	Integrating the paradigm of GI in planning at diverse administrative scales, enabling the integrated planning of both natural and degraded areas alongside energy innovations

Thematic field: Participation

Thematic impulse	Main legal requirements	Main financial requirements	Main governance requirements
Participation from the **early stage** of spatial planning for renewable energy installations for the definition of RAAs on a regional scale (not for single projects)	Organising planning procedures to be more bottom-up from the beginning, integrating the regional scale more strongly into planning processes	Providing funds for these processes (as well as expertise by moderating organisations)	Involving organisations acting on a regional scale as neutral and moderating partners (e.g. parks), including the estimations of "average citizens" on suitable areas for RE and developing dialogue between nature conservation and RE stakeholders
Early, transparent and systematic public participation, supplemented by **regular participation formats** (e. g. dialogue forums)	Anchoring of public participation by law, including in the sense of the Aarhus Convention, more strongly in spatial planning processes	Providing staff resources for the coordination and realisation of public participation (e.g. for designation process of RAAs)	Promoting carefully prepared and modernised formats for Strategic Environmental Assessments (SEA)
Interactive 3D visualisations to promote the emergence of shared visions and thus the identification of low-conflict locations	Establishing legal obligations to harmonise and provide necessary geodata	Providing financial resources for the preparation and realisation of visualisations by experts as preparation	Making open access data available, which is also harmonised, so that visualisation programs can be used in as many regions as possible
Integration of **existing traditional local knowledge** and narratives on energy efficiency into spatial planning processes	Incorporating provisions for the documentation, assessment and integration of local knowledge into planning documents	Allocation funding for research and documentation of traditional local knowledge and to support community engagement activities	Improving interdisciplinary collaboration between spatial planners, anthropologists, sociologists, etc. and community members via dedicated platforms
Fostering renewable energy adoption and climate change adaptation through **collective action and local engagement** in **Renewable Energy Communities (RECs)**	Establishing legal foundations in line with the 2019 European Green Deal, European directives and National Laws	Providing financial support opportunities for the establishment of RECs	Promoting participatory governance and citizen-led renovation

Thematic field: Cross-sectoral cooperation

Thematic impulse	Main legal requirements	Main financial requirements	Main governance requirements
Landscape approach to achieve cross-sectoral cooperation, thinking on a landscape level (what **services** does landscape provide?)	Mandatory integration of landscape roundtables in planning processes	Providing funds and professional support for this planning step	Bringing different sectors together and thinking on a landscape level, finding a common language and understanding the needs of other stakeholders
Enhanced **cross-sectoral, parallel and integrative planning**, enabling better management of land use conflicts	Using "soft instruments" and continuously communicating land saving and sustainability targets, addressing local landowners and sectoral planning	Providing financial resources for cross-sectoral events and time for communicative exchange	Including cross-sectoral exchange and highlighting mandatory exchanges, drawing on network analyses or visualisation tools
Strengthen the **collaboration** between the institutional and administrative bodies with spatial planning competencies, strengthening **Territorial Impact Assessment (TIA)**	Formal address of the EU to approach in a comprehensive and integrated way renewable energy and biodiversity policies to implement RED III and NRL avoiding potential conflict.	Involving the European Investment Bank (EIB) to support actions and projects to integrate RED III and Biodiversity protection areas into planning and financing of climate-oriented solutions	Promoting soft planning to approach common issues at cross-border or transnational level by different bodies and institutions with competence in strategic and operative planning (ETC projects, EUSALP AGs, AC WGs).
Mediating role for Alpine spatial planning by creating **joint platforms and exchange formats** for cross-sectoral collaboration	No legal requirements are necessary, but a legal basis can help to standardise such processes	Providing sufficient financial resources for creating valuable exchange formats, including trained staff	Enhancing cooperation, creating context-specific platforms and getting all stakeholders involved
Integration of **changed assessment bases** and **climate impacts on renewable energy projects** into planning decisions	Upgrading of climate-proofing, possibly integration with Strategic Environment Assessment or Environmental Impact Assessment	Enabling additional institutional capacities for the implementation of climate-proofing	Systematic integration of climate impacts into all planning and decision-making levels, cooperation between authorities with energy planning relevance and project developers

Learning from existing approaches and selected examples of good practice

The challenges facing Alpine spatial planning are not abstract; they are being addressed every day in concrete regional contexts. As part of the preparation for the conference, promising approaches and innovative practices dealing with above mentioned challenges were gathered from all around the Alps. The following selected examples offer insights into how theory translates into practice, how conflicts can be constructively managed, and how integrated solutions are already being shaped. These cases are not meant to be exhaustive, but to inspire further exchange, adaptation, and collaboration across the Alps.

Green Infrastructure

Integration of Green Infrastructure into energy planning in Piedmont

Piedmont has two diverse methods: ARPA Regional tools for evaluating biodiversity and Turin Metropolitan guidelines that local plans need to consider. The Politecnico di Torino has worked with ENEA on many local experiments. The ENEA (National Agency for New Technologies, Energy and Sustainable Economic Development) methodology allows the identification of sensitive areas of high ecological value

that need to be preserved, as well as degraded areas suitable for restoration and the development of renewable energy projects.
More information on the methods and application to the Metropolitan Area of Turin (in Italian): https://iris.enea.it

Interactive solar cadastre of the Tarentaise Vanoise Valley
The association of municipalities in the French Tarentaise Vanoise Valley has developed a solar cadastre that only highlights existing building areas, which is available as an interactive web atlas. At the same time, appropriate rules were incorporated in the municipal spatial plan of the Tarentaise Valley for how energy issues and especially solar panels are dealt with in urban planning.
More information on the solar cadastre (in French): https://cadastre-solaire-tarentaise.siterre.fr/

Coordination of integrated photovoltaic systems in protected contexts in Lombardy
The INTERREG IT-CH "BIPV meets history" project (2019-2022) has set itself the goal of deepening the potential uses of the integrated photovoltaic systems (BIPV – Building Integrated Photovoltaic) in locations under landscape and cultural protection in the cross-border territories between Italy and Switzerland. The project developed guidelines that define the first criteria that try to guide the integration of photovoltaic systems on buildings falling within protected contexts under Legislative Decree no. 42 of 22 January 2004, "Code of Cultural Heritage and Landscape" as amended, in Italy's Lombardy region.
More information on the guidelines document (in English): www.regione.lombardia.it/wps/wcm/connect/

Sensitivity mapping for Renewable Energy
To identify where renewable energy infrastructure should be appropriately assessed, sensitivity maps developed by NGOs exist in some countries. These maps are desirable for all Alpine countries and – where they exist – should be taken into consideration.
More information: sensitivity map for wind power development in Italy by LIPU BirdLife Italy (only in Italian): www.lipu.it/news/impianti-eolici-mappe-della-lipu-evitare-aree-sensibili-uccelli
Ornithological sensitivity map for wind power in Austria by BirdLife Austria (only in German): www.birdlife.at/vogelschutz/naturschutzpolitik/erneuerbare-energien/

Participation

Recommendations for the Swiss energy transition based on perceived landscape changes
The transformation of the Swiss energy system requires the expansion of the use of various renewable energies. The necessary infrastructure is changing the landscape. How the population perceives these changes has a decisive influence on the social acceptance of the energy infrastructures. The ENERGYSCAPE project examined in a preference study how the people judge the impact of a combination of different types of renewable energy infrastructures on the landscape.
More information on the ENERGYSCAPE project (in English, German and French): https://energyscape.ethz.ch/

Using landscape services to spatially moderate the energy transition
The concept of landscape services can offer support by helping to find a common language within a participatory approach. Together with researchers at the Universities of Zurich and Lausanne, the Forum Landscape, Alps, Parks (FoLAP) of the Swiss Academy of Sciences has produced a factsheet that introduces readers to the concept. Drawing on case studies, the factsheet shows how the landscape services approach can be used for local and regional landscape development.
More information on the Swiss academies factsheet (in English, German, French and Italian): https://landscape-alps-parks.scnat.ch/en/what_we_do/

Cross-sectoral cooperation

Central interface for data and information on the energy transition in Bavaria
The Energy Atlas of Bavaria ("Energieatlas Bayern") is an online platform that brings together a wide range of data and services relating to the energy transition, energy saving, energy efficiency and renewable energies. It provides a wide range of stakeholders with, for example, planning fundamentals for renewable energies and innovative tools (e. g. for 3D analyses of potential wind power plants).
More information on the Energy Atlas (in German): www.energieatlas.bayern.de/

Involving stakeholders and citizens in Italian Renewable Energy Communities
A Renewable Energy Community is a free aggregation of citizens, businesses, local administrations and third sector entities, created with the aim of producing and sharing electricity generated by renewable source plants locally. It is an autonomous legal entity established for this purpose, whose main objective is to provide community-based environmental and economic benefits to its shareholders or members, or to the local areas in which it operates.
More information on the Renewable and Solidarity Energy Community of Fervores (in English and Italian): https://greencommunitysinergieincanavese.it/fervores

Regional Framework Concept for Wind Power Plants – Burgenland
Although located outside the perimeter of the Alpine Convention, the regional framework concept for wind power plants in Burgenland stands out as an established example of good practice, due also to the extensive public participation that now serves as a model for other regions. It defines spatially designated "priority zones with reservations" based on exclusion criteria such as settlement development, landscape character, habitat protection, and the preservation of recreational areas, as well as the cumulative and dominance effects of wind power plants. This overarching regional approach, unique in Austria, has helped to reduce the regulatory workload for authorities while increasing planning security for wind power developers.
Detailed best-practice report by WWF (available in German only): https://partizipation.at/wp-content/uploads/2021/05/wwf-burgenland-best-practice-beispiel-fuer-oekologisch-vertraeglichen-windkraft-ausbau.pdf

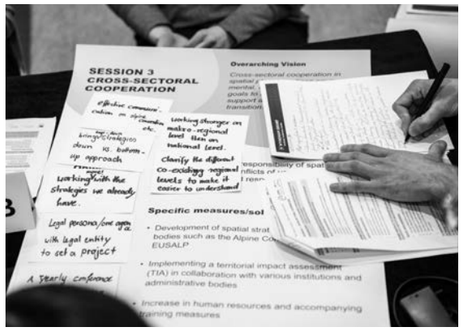
The CIPRA Annual Conference brought together knowledge and experience across sectors, regions, and borders.

5 CIPRA Annual Conference: Review and Learnings

How can spatial planning manage conflicts of use within renewable energy expansion? Which aspects need to be taken into account, and which stakeholders need to be involved in the planning process? These and other questions were addressed by a total of 160 participants from a wide range of fields, such as environmental protection, administration, research and business, on 27 February 2025 in Salzburg.

The aim of the conference was to promote a broad discourse among relevant stakeholders and to seek joint solutions. The focus was deliberately placed on the expansion of renewable energy as this, alongside necessary energy savings and energy efficiency, represents the most spatially effective measure of the energy transition.

The introductory presentations in the morning provided an overview of the topic. **Thomas Kissling** (ETH Zurich) gave impressions of how the Alps are changing as a result of climate change and outlined the associated new utilisation requirements. Owing to melting glaciers, around 700 new high alpine lakes will accrue by the year 2100 in Switzerland alone. According to him, the ‘interlinking of different utilisation requirements’ could create a ‘new type of alpine landscape’, such as the already emerging lake on the melting Gorner Glacier near Zermatt. Electricity could be produced there even without a large dam. **Stephan Tischler** (President of CIPRA Österreich) introduced the participants to the concept of Alpine spatial planning in the context of the tensions surrounding the expansion of renewable energy. The content can be found in Chapter II of this publication. **Lea Reusser** (Swiss Academy of Sciences) presented criteria that ensure biodiversity protection and can serve as a basis for identifying exclusion zones. She emphasised that it is indeed possible to find locations that combine high potential for energy production with low nature and landscape impacts. **Gernot Stöglehner** (BOKU University, Vienna) pointed out that



Presentations, thematic sessions, and cross-sectoral conversations shaped the conference's collaborative atmosphere.

the energy transition is, above all, a social learning process that requires integrating facts and values. Using the case study of a dam in the Vanoi Valley, **Mauro Varotto** (University of Padua) stressed the importance of participation in both the planning and implementation phase and pleaded that mountains should not be seen merely as reservoirs or resources.

In the afternoon, three thematic sessions allowed in-depth discussions on Green Infrastructure, Participation and Cross-sectoral Cooperation. Even though the diverse professional background of the participants presented some challenges, it enabled cross-sectoral exchange and the formulation of application-related and participatory recommendations for dealing with the conflicts of use in the energy transition. The results are presented in Chapter B and may serve as inspirations for municipalities, regional authorities and their civil society actors. As part of the EUSALP presidency program 2025, the findings and implications are also disseminated to decision makers at their respective levels.

Expert Statements

Planning for the energy transition – a societal learning exercise

Gernot Stöglehner (BOKU University)

The energy transition is inherently linked to climate change mitigation and the biodiversity crisis, but also to land consumption for built-up areas and infrastructures. The energy transition is a necessary precondition to resolve all these topics. For instance, if spatial structures are built according to the principles of a spatial mix of functions, moderate density, nearness, greening, and compact developments within settlement borders, they are more energy efficient, reduce land take, and give more room for habitats as well as protection from natural hazards. In participatory planning, it is important to start learning processes about how the energy transition can be achieved, by mixing measures to reduce the energy demand and supply the remaining energy demand with renewable and sustainable energy sources. Concerning energy supply, it is agreed that the energy transition will reduce overall energy demand but is likely to more than double the demand for electricity. Therefore, renewable electricity installations like wind power plants, ground-mounted and building-integrated PV-systems and electricity grids will become more common features in landscapes, and they will be visible. Participatory processes shall allow to integrate climate protection and energy transition into the basic values of society, to understand the demand for certain renewable energy projects, and to choose suitable, low impact sites for renewable energy projects at the local level. Participation is more successful if it does not end at the planning level, but if the surrounding societies can participate in the implementation also economically.

The energy transition is not only a technical challenge, but above all a matter of shared values and meaningful participation.

Planning renewable energies expansion in a biodiversity- and landscape-friendly way

Lea Reusser, Sascha Ismail, Urs Neu (SCNAT)

In our presentation we introduced the Swiss Academies' project on biodiversity- and landscape-friendly planning for renewable energy expansion. Motivated by recent developments in Swiss legislation (e.g. Solarexpress, Windexpress, Stromgesetz 2025) to facilitate large-scale energy infrastructure in sensitive Alpine regions, we developed a set of criteria to guide spatial planning and reduce environmental conflicts. Over the course of three workshops, we collaborated with experts from science, administration, NGOs, and the energy sector to define these criteria. They cover key dimensions such as biodiversity conservation, landscape protection, social acceptance, and technical feasibility—particularly for photovoltaics. Our 2024 report provides a set of concrete planning criteria and compiles available spatial data sources to help cantonal authorities and energy developers identify areas with high energy potential and low impact on biodiversity and landscape quality. We conclude that sound spatial planning, based on robust scientific knowledge and stakeholder engagement, is essential for a successful and broadly accepted energy transition.

Successful cross-sectoral planning and management of Green Infrastructure

Florian Lintzmeyer, Sabine Weizeneger

The Alpine region faces particular challenges in implementing the international targets of the Global Biodiversity Framework and the EU Nature Restoration Law. In addition to the established components of spatial planning documents, such as landscape protection and local recreation provision, ecological concerns are becoming (even) more prominent. The multifunctional concept of 'green infrastructure' should be considered as a beneficial approach for promoting a stronger coordinating role for spatial planning in the northern Alpine region with regard to open space-related planning and measures, which have previously fallen within the remit of a wide range of specialist departments and are often considered in isolation.
A vision of an efficient network of green infrastructure in the Alpine region should above all strengthen ecological connectivity and be based on a framework provided by spatial planning. To achieve this, action needs to be taken with regard to the strengthening of the legal framework, to the suitability of planning instruments, to the promotion and financing of measures to implement green infrastructure and, not least, to the strengthening of interdepartmental cooperation and the mobilisation of civil society actors.

Balancing of new utilisation requirements in changing landscapes

Thomas Kissling (ETH Zurich)

Small-Scale Structure
In the Alps, we encounter an abundance of diversity across all spatial dimensions and qualities. The different forms of life respond, on the one hand, to the delicate relief of the area, and on the other hand, to the continuous changes in external conditions. The complex structure of the Alps is not static, but in a state of constant transformation.

Urbanisation
In modern times, the governance of landscape development processes in the Alps has gradually been removed from the hands of those affected. What was once perceived as a unified whole by the resident Alpine population has split into diverging, multi-perspective directions. In small-scale settings, the defining features intermix. The cluster formed by such a mixture creates a sense of identity. In the Alps, "the Other" is omnipresent in a neighbouring context.

Difference
Based on detailed descriptions of space, we advocate for the accelerated generation of difference. In doing so, the transformative processes triggered by climate change must also, or above all, be anticipated. Interventions must therefore always be understood as processual. The valley offers an obvious spatial container for this purpose: not understood as an isolated unit, however, but as part of the overall structure that exploratively develops connections and potentials beyond the borders of the Alps.

Gorner Glacier today and tomorrow, student project from the Günther Vogt studio, ETH Zurich, DARCH, Gokulan Manoharan (FS 2023).

Visions and objectives for overcoming conflicts of use during the energy transition

The jointly developed theses of the AlpPlan Thematic Support Group (see Chapter IV) proved to be too extensive, which is why the content was summarised and structured in overarching visions, objectives and specific measures. The content prepared for discussion (see Table 2) did not represent the final results of the preliminary work but served to set thematic priorities and stimulate discussion.

Overarching Visions	Strategic Objectives	Specific Measures
The overarching visions were formulated as guiding principles for the respective focal topic, while always focusing on overcoming conflicts of use from a spatial planning perspective in the context of renewable energy expansion.	The strategic objectives described a desired target state that is to be achieved through measures.	Specific measures are seen as an open collection of approaches that are as concrete as possible (also with reference to existing examples), which can be expanded by the participants as required (in bullet point form). They do not have to be completely consistent with each other.

The challenge was to prepare the content elaborated by spatial planning experts for a broad discussion with people from different areas and with different levels of knowledge of spatial planning. The overarching visions served in particular to provide an initial impulse for discussing the necessary goals and measures in line with the respective thematic focus. For this purpose, three objectives were formulated for each topic area (i.e. Green Infrastructure, Participation, and Cross-sectoral Cooperation), which contain key aspects that were collected in the thematic support group meetings. The synthesis of all strategic objectives and specific measures can be found in Table 2 (p. 40).

Participants were given the opportunity to provide feedback on the preparatory materials throughout the conference day and also to point out any missing aspects. In addition to the opportunity to make comments on the content, participants were also asked to rate the objectives and measures using a points system. All participants were asked to score three points each for the objectives and measures that they felt had the greatest potential for overcoming conflicts of use. The central exchange took place in the afternoon in three workshop sessions.

Table 2: Overview of the strategic objectives and measures that were prepared for discussion, including the votes by the participants divided into five stakeholder groups

	Strategic Objective	Specific measures/solutions	Votes
Green Infrastructure	A: Nature-based Solutions become an integral part of spatial planning instruments and procedures	▶ Highlighting multifunctional areas (not solely based on nature conservation value)	
		▶ Risk-based spatial planning, consolidating prevention of natural hazards, climate change adaptation and overall Green Infrastructure consideration	
		▶ Specific zoning categories for Nature-based Solutions	
	B: (Digital) Tools support planning and monitoring of energy developments and restoration actions	▶ Digital tools for energy project planning, incorporating various Green Infrastructure criteria	
		▶ Realtime monitoring regarding the impact of energy installations on the environment and living species	
		▶ Inclusion of “soft” criteria (e. g. aesthetic landscape values) in digital suitability models	
	C: Legal frameworks define specific criteria and assessment procedures that include various ecosystem services	▶ Cascading evaluation system of ecosystem services	
		▶ Adapted assessment criteria for governmental subventions	
		▶ Adaptation of Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA) and Territorial Impact Assessment (TIA)	
		▶ New legal zoning category for Green Infrastructure	
		▶ Solar cadastres, directing developments towards existing building areas	
Participation	A: Early public participation in planning processes ensures a high level of acceptance of renewable energy installations at local/regional level	▶ Clear regulation for transparent early-stage participation for designation of renewable acceleration areas (go-to areas), especially for assessment procedures (Environmental Impact Assessment, Strategic Environmental Assessment)	
		▶ Regional focal points provide information on planned renewable expansion areas and projects as well as on opportunities for public participation	
		▶ Visualisations support the creation of a shared vision for the region	
		▶ Harmonised participation formats for strategic environmental assessments (e. g. for the designation of renewable acceleration areas)	
	B: Traditional (local/ecological) knowledge and narratives about energy efficiency are integrated into spatial planning processes	▶ Provisions for integration of traditional local knowledge	
		▶ Documentation of traditional local knowledge related to energy efficiency	
		▶ Development of interdisciplinary participatory tools	
		▶ Stocktaking of traditional ecological knowledge in potential energy expansion areas and nature restoration areas	
	C: The public bears shared responsibility for the energy transition and participates in achieving the goals in cooperation with municipalities through energy communities	▶ Participatory governance and citizen-led renewable expansion and nature restoration	
		▶ Development of shared strategies for energy transition and nature restoration	
		▶ Professional support and offers for participation in energy communities	
Cross-sectoral Cooperation	A: Cross-sectoral cooperation is strengthened by the landscape approach (ecosystem/landscape services) in spatial planning	▶ Integration of a landscape-roundtable into planning processes	
		▶ Identifying landscape services across sectors and integrate them into spatial planning instruments	
		▶ Development of necessary governance structures for improved cross-sectoral cooperation	
		▶ Harmonisation of the visions and objectives of the areas with spatial impact	
	B: The importance and responsibility of spatial planning for managing conflicts of use is recognised across all sectors and responsible authorities	▶ Development of spatial planning strategies in international bodies such as the Alpine Convention or EUSALP	
		▶ Implementing a territorial impact assessment (TIA) in collaboration with various institutions and administrative bodies	
		▶ Increase in human resources and accompanying training measures	
		▶ Strengthening the mediation skills of relevant administrative staff	
	C: The institutional capacities of spatial planning actors/ authorities get strengthened in order to be able to fulfil the enhanced coordination function	▶ Develop collaborative platforms for stakeholders to share data, best practices and tools for integrative planning	
		▶ Introduction of climate-proofing in spatial planning scenarios	
		▶ Scientific support for evidence-based decision-making	
		▶ One-stop-shop approach in spatial planning decisions	
		▶ Clear division of roles and responsibilities between the different levels of institutions and sectors	

Legend:

- Research
- Private Sector
- Advocacy Group
- Civil Sector / NGO
- Public Administration

What can we take away from the discussions?

The conference made one thing clear: the complexity of Alpine spatial planning cannot be tackled in silos. What emerged across case studies and interactive sessions was not just a set of answers, but a shared recognition of the need to think and act across sectors, disciplines, and borders. The structured proposals presented for the three thematic sessions served as both stimulus and sounding board.

General learnings

From the perspective of conflict-preventing spatial planning for the energy transition, the following general insights were gained from the discussions:

- **(New) role of spatial planning**
  Spatial planning should increasingly understand itself as a discipline that fosters transformative cross-sectoral thinking and engages with the local population and local needs. In addition, a shift from a project-based approach to overarching strategic and spatial frameworks is required to avoid inconsistent local decisions.

- **A common language**
  It requires a language that is understandable for everyone involved and avoids misunderstandings. Relevant technical terms must be clarified, and unclear terms must be concretised. Furthermore, a shared understanding of spatial planning terminology, which has proven to be lacking, is needed across Alpine countries and their respective planning systems.

- **Macro-regional perspective**
  The Alpine space should be acknowledged as a coherent territorial unit with cross-border cooperation, coordinated approaches, and regular exchange formats. Since autonomous solutions for the Alpine Space as a separate territorial unit would be desirable, cooperation should focus more on the macro-regional level than on the national level.

- **Effective use of existing spatial planning instruments and networks**
  The Alpine states possess numerous and well-established planning instruments that enable various specialised aspects and interests to be taken into account, among others by the Alpine Convention or EUSALP. However, it is often asked whether the potential of these instruments is being fully utilised and communicated. The Alpine Convention for example could be valuable to reinforce sustainable municipal development and can serve as an argumentation guideline for municipalities. This would be of great importance before introducing new instruments.

- **Resource requirements**
  The spatial planning processes require sufficient financial and human resources to fulfil the requirements for implementing their ambitious goals and targets. Participation and cross-departmental collaboration take time and expertise, especially when it comes to implementing new requirements. Public funding schemes and project-based approaches are significant obstacles to long-term implementation.

- **Data basis**
  Knowledge-based and well-founded spatial planning requires up-to-date and comparable data. However, many areas of application are based on insufficient, outdated or difficult to compare data.

- **Participatory renewable energy planning**
  Rather than being driven by the goals of project developers, renewable energy planning should be oriented towards the common good, drawing more strongly on aspects such as Green Infrastructure and guided towards a more participatory approach. In practice, this is often hindered by political goals.

Specific learnings on the focus topics

Green Infrastructure

Overarching Vision:
The coherent consideration of Green Infrastructure in spatial planning makes it possible to find low-conflict areas for energy production while preserving important habitats and promoting nature restauration potential.

Differing expectations and overlapping use of concepts. Participants had a wide range of interpretations regarding measures that are encompassed by the concept of Green Infrastructure. Within the discussion the terms “Green Infrastructure” and “Nature-based Solutions” were used interchangeably. While Green Infrastructure is often used in infrastructure planning and refers to a coherent network of natural and semi-natural areas with other environmental structures (see glossary), Nature-based Solutions are superordinate measures inspired by natural processes.

Multifunctionality of Green Infrastructure. High-quality spaces and connecting elements that extend beyond nature conservation objectives are defining characteristics of Green Infrastructure. Several participants were placing a strong emphasis on biodiversity within Green Infrastructure and emphasised the connections between Green Infrastructure and climate change adaptation. At the same time, it was noted that overburdening the concept with too many functions should be avoided, and the objectives should rather be communicated clearly. Concerns were also raised about the extent to which Green Infrastructure criteria can be effectively transferred to different regional contexts.

Strategic Objective A:
Nature-based Solutions become an integral part of spatial planning instruments and procedures

Multidisciplinary boards. For a systematic integration of Nature-based Solutions and Green Infrastructure into spatial planning processes, participants suggested bringing ecologists and planners together in educational formats and multidisciplinary boards. This would help raise awareness and enhance knowledge within the planning profession.

Intrinsic values of open spaces. Open spaces are areas outside housing and industrial zones that remain largely undeveloped and unsealed, with minimal technical or traffic infrastructure (Meyer et al. 2022). They must no longer be treated as a residual category but seen for their ecological value, which currently receives minor attention in spatial planning. In the context of renewable energy development, the designation of priority areas must always be complemented by exclusion zones.

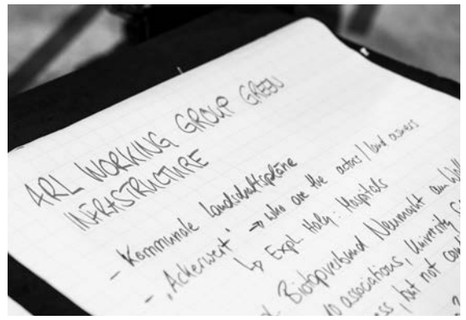
Strategic Objective B:
(Digital) Tools support planning and monitoring of energy developments and restoration actions

Further development of digital suitability models to support energy planning and monitoring. Even though participants noted a lack of digital solutions that allow the integration of Green Infrastructure with other criteria and the real-time observation of environmental and biodiversity impacts, they highlighted that existing tools offer a solid foundation for further development. While expert-based approaches can accompany and complement digital models, these tools must reflect the needs of the local population and communicate information in a clear and user-friendly way. Tools for the integration of softer criteria such as aesthetic landscape values were in contrast considered less important.

Strategic Objective C:
Legal frameworks define specific criteria and assessment producers that include various ecosystem services

Enforce planning regulations. In introductory voting, nearly two-thirds of participants indicated that Green Infrastructure is insufficiently integrated into current planning procedures, which underscores the need for stronger national frameworks and more binding legislation. Also, supralocal spatial planning specifications must be binding. Participants questioned whether adequate planning instruments are currently in place or whether existing tools are being effectively applied, pointing to an implementation gap. It was emphasised that planning regulations must be enforced more consistently, especially regarding private sector actors who do not always adhere to the requirements.

Directing development towards developed areas. As a specific recommendation, participants advised that both legal instruments and soft planning criteria should guide renewable energy development towards built-up areas and brownfield sites. In contrast, the introduction of specific zoning categories for Nature-based Solutions and Green Infrastructure was considered a lower priority by participants.



Participation

Overarching Vision:
Transparent participation in spatial energy planning reduces conflicts of use and increases the acceptance of renewable energy.

Participation is recognised as important to overcome conflicts of use. The topic of participation was a recurring theme throughout the conference, as the issue of public participation also found its way into the two other sessions. At the beginning of this session, participants were asked whether they considered public participation to be compatible with the energy transition. The majority of participants agreed that public participation is conducive to a successful energy transition, but it also bears challenges. There is also a need to be aware that public participation cannot solve all the problems related to the energy transition, but can help to overcome conflicts of use if the entire process is carried out professionally.

A meaningful and not only transparent participation is needed. It was emphasised that although transparent participation is important, it is more about meaningful participation that is open in its outcome. This requires mutual trust between the stakeholders, which varies from region to region. There must be clarity about the process for all those involved, and it must be shown how the results of the participation process are taken into account in the decision-making process.

Strategic Objective A:
Early public participation in planning process ensures a high level of acceptance of renewable energy installations at local/regional level

An adequate and non-biased approach is crucial for successful participation. While strategic objective A was perceived by the participants as particularly relevant in relation to the other objectives, the session also raised concerns. The question was raised as to how early participation should take place. The group did not find a final answer to this but emphasised that the form of communication is essential and that transparent sources of information are needed in addition to qualitative support. With regard to regional focal points, which could provide information on projects and renewables, it was argued that these might not guarantee the necessary objectivity and could therefore influence decisions. The goal of high acceptance was seen as a top-down approach. An acceptance rate of just over 50% of those involved could fulfil this criterion. The phrasing of objective A implies that, regardless of the

outcome of participation, renewable energy projects will continue to be pursued. It is important that an uninfluenced approach is taken to participation, in which all aspects are discussed in an open-ended manner without anticipating the outcome.

Learn from each other. A comparison of different participation formats in the various Alpine states with different legal frameworks was recommended. It was also emphasised that sufficient time is needed to incorporate opinions. Citizens' councils based on the Swiss model were cited as an example of a valuable alternative to broad public participation. There was also a warning about the danger of exploiting democratic processes.

Visualisations help to get a realistic idea of a project. One measure put forward for discussion was visualisation to create a shared vision for the region. The session highlighted visualisation as a positive supporting tool, not on a regional level but on a project level. Visualisation at a regional level can lead to misconceptions and subsequently frustration for stakeholders if these do not materialise.

Strategic Objective B:
Traditional (local/regional) knowledge and narratives about energy efficiency are integrated into spatial planning processes

The concepts of traditional knowledge and local knowledge, which originate from a development discourse, refer to expertise, practices, skills and innovations of local communities that result from daily interaction with the local environment. Such knowledge has been passed down through generations and is adapted to the local culture and environment, which makes it highly context specific. In today's world, traditional local knowledge is shaped by interactions with other knowledge systems, making it both vulnerable to external pressures, but also capable of continuous evolution. Integrating local knowledge into planning decisions provides complementary perspectives to often generalised scientific insights and enables the consideration of complex spatial and social dynamics, e. g. when incorporating local knowledge on Green Infrastructure.

Traditional local knowledge is an unknown concept that has yet to be discovered. The concept of traditional local knowledge was largely unknown to the session participants. In the voting, the measure to introduce provisions for the integration of traditional local knowledge was the most popular compared to the other measures of Objective B – Participation (see Table 2). After brief explanations of the concept, questions such as ‘How do you distinguish knowledge from opinion’ and are socio-economic aspects of environmental problems sufficiently taken into account. Good examples of how traditional knowledge is incorporated in different areas would be helpful in order to evaluate the potential for managing conflicts of use in the area of the energy transition. The discussion group also suggested that an independent body was needed for the methodological consultation of traditional local knowledge.

Strategic Objective C:
The public bears shared responsibility for the energy transition and participates in achieving the goals in cooperation with municipalities through energy communities

A shared narrative and sound information are the basis for shared responsibility. The public needs to support and share responsibility for a successful energy transition. The participants emphasised the need for a narrative that enables people to identify with the energy transition. This must be accompanied by scientific research to promote an objective perception. One particular challenge is to arouse the population's interest in becoming sufficiently informed and to realise the importance of the necessary change.

Responsibility must not be shifted from politics to civil society. While the active participation of the population in the energy transition and in the restoration of nature was seen as positive and valuable, the participants also emphasised the need for politicians and administrations to make appropriate decisions to create a suitable framework. The sovereign administration has a special responsibility here, with greater decision-making power in comparison to the population, and is responsible for creating the framework conditions for an energy transition that protects the environment and landscape.

Cross-sectoral cooperation

Overarching Vision:
Cross-sectoral cooperation in spatial planning aligns environmental, economic and social goals to resolve conflicts and support a sustainable energy transition.

Cross-sectoral cooperation and participation are linked. Within cross-sectoral cooperation, involving the general public and taking their goals into account was seen as essential, yet insufficiently realised. As for participation, the inclusion of all age groups and genders in cross-sectoral cooperation is essential, underscoring participation as the recurring topic of the conference.

Cross-sectoral cooperation is a core principle of spatial planning. It contains what spatial planning ought to be, with particular focus on the translation between science, cities, authorities and politics. Spatial planning should strengthen its engagement with local communities to bridge the gap between planning and people, while providing guidance in terms of objectives and content. Innovative forms of communication tailored to different stakeholder groups should be used by spatial planning authorities.

Strategic Objective A:
Cross-sectoral cooperation is strengthened by the landscape approach (ecosystem/ landscape services) in spatial planning

Harmonisation of the visions and objectives with spatial impact. While spatial planning should ideally guide the spatial implementation of sectoral goals, these inputs are in practice predefined by the sectors themselves, which restricts the scope of spatial planning. Therefore, the harmonisation of goals and visions across sectors with spatial influence was voted highly by the participants. As regards the energy transition, the participants considered the response of spatial planning to be insufficient. Rather, they proposed that spatial planning should play a more active role in coming up with new approaches for sectoral demands, while also encouraging other sectors to think outside the box.

Integrated territorial approach. Participants encountered terminological differences, as their understanding of landscapes varied according to the respective planning systems in their countries of origin. Bearing in mind that the European Landscape Convention has not been ratified by all countries, they emphasised the multifunctionality of landscapes and put more emphasis on an integrated territorial approach than the landscape approach, which has been proposed by members of the AlpPlan Thematic Support Group.

A shared understanding of landscape planning. Landscape planning refers to the anticipatory planning of nature conservation and landscape management, implemented through both formal and informal instruments. While it is an established planning tool in some countries (e.g. Germany), it remains underdeveloped in others. In the latter case, many challenges can be attributed to the lack of dedicated landscape planning frameworks, with spatial planning having to take on responsibilities typically assigned to landscape planning. The different planning approaches led to varying interpretations of the landscape approach among participants. One highly voted measure was the integration of a landscape roundtable into planning processes, but participants once again had different understandings of this.

Uncertainty concerning the most appropriate level for cross-sectoral cooperation. While the appropriate governance level for cross-sectoral cooperation differs regarding the different planning systems, it remained unclear which level is most suitable. The municipal level was considered particularly important, as strategic development plans often fail to be implemented at this scale. A clear division of roles and responsibilities between the different institutional levels and sectors is therefore desirable.

Strategic Objective B:
The importance and responsibility of spatial planning for managing conflicts of use is recognised across all sectors and responsible authorities

The role of spatial planning within cross-sectoral cooperation has to be strengthened. Federal countries in particular were considered to lack cross-sectoral understanding, but this would be a prerequisite for spatial planning to fulfil its mandate both in centralised and federal planning systems. In the experience of the participants the role of spatial planning is so far not sufficiently recognised by different sectors, including the energy sector.

Strategic Objective C:
The institutional capacities of spatial planning actors/ authorities get strengthened in order to be able to fulfil the enhanced coordination function

Implementation challenges. Even though the strengthening of institutional capacities and resources was considered to be a prerequisite for cross-sectoral collaboration, participants were aware of the practical challenges related to this recommendation and the risk of the demands remaining aspirational. The project-based funding mechanisms and their current revision could have significant implications for spatial planning and the project-based approach on regional development and cross-sectoral cooperation.

Strengthening municipal capacities. Capacity-building and scientific support measures at the municipal level could be a major lever. Specific recommendations included courses on spatial planning tailored to municipal politicians or mediation training for administrative staff. Another valuable input could come from cross-regional knowledge and capacity building, for example with cross-border excursions and exchange formats.
Developing collaborative platforms to share information. The development of platforms that enable stakeholders to share data, best practices and tools was a highly voted measure, clearly reflecting the stakeholders perceived need. Particular attention should be given to consolidated data and synthesised information, which may be more effective for certain stakeholders. In the best case, these platforms should be in the form of permanent sociocratic participation models that involve municipalities and regions.

One-stop-shop approach for bottom-up approaches. Centralising planning-related procedures and approvals at a single place, summarised as the one-stop-shop principle, could improve cross-sectoral coordination and facilitate the integration of the local population. The expansion of the one-stop-shop principle was recommended particularly for bottom-up processes that promote initiatives by the local population and younger generations in planning, such as low-level, creative and temporal use of spaces.

Emphasis on biodiversity-proofing. Climate-proofing spatial planning scenarios, which was proposed by members of the AlpPlan Thematic Support Group, was seen to be insufficient. One suggestion that emerged from the discussion was the integration of biodiversity protection and restoration measures into all sectors and decision-making processes, which was summarised as biodiversity-proofing. This shows close links and practical implications with the topic of Green Infrastructure.

6 Policy and planning recommendations

Based on the experiences and learnings of the CIPRA annual conference 2025, CIPRA and the AlpPlan Thematic Support Group developed normative policy and planning recommendations that are addressed towards different stakeholder groups, such as administrations/ public sector [A], policy-makers/ legislative bodies [P], transnational institutions [T], general public/ civil society [G], companies/ private sector [C] as well as research and education [R]. From the perspective of the involved experts, these recommendations represent the most important implications to advance spatial planning, energy and nature conservation policy in line with the new legal obligations and associated challenges. The recommendations are divided into three sections, ranging from general recommendations to specific recommendations relating to the energy transition in general and the implementation of the Renewable Energy Directive III (RED III) and Nature Restoration Law (NRL) in particular.

General recommendations on the energy transition in the Alps:

- Planning and approval procedures require **clear** and **easy-to-understand** terms and concepts so that participation processes and co-operation across different sectors can succeed. There is a need to make spatial planning processes and instruments **more accessible** to the broader public to facilitate their participation. [A/P]
- To identify low-conflict areas for renewable energies, besides experts from relevant fields, the **local population** must be involved at an **early stage**. It should be clearly structured which opportunities for influence exist at which point to set realistic expectations for all stakeholders involved. [A/P/G/C]

- The Alpine region has been contributing to the production of renewable energy for a long time and will continue to play a part in the energy transition in the future. However, the issue of **energy production** should **not be approached in isolation**, as the Alpine region also serves **other crucial functions** for the viability of the biosphere and hydrosphere. In times of the climate crisis, water in particular can no longer be considered as a renewable resource that can be used without limitation. [P/T/R]

- In addition to the **urgency of decarbonisation**, it should also be considered that the future **land requirements for adaptation to climate change** are not yet fully known, for example for the expected shifts of habitats or the future demand of natural hazard zones, which must be addressed by **risk-based spatial planning**. In the sense of a 'no-regret' approach, open spaces must therefore be safeguarded proactively through spatial planning. [A/P/T/R]

- The outstanding **beauty of the Alpine landscape**, its function for outdoor **recreation, quality of life** and the importance of the **traditional cultural landscape** are key aspects that must be considered when planning and approving energy infrastructure. [A/P/T]

- The **expansion targets** of the EU and the member states for renewable energies must be **broken down concretely** in terms of the spatial impact and of how these can be harmonised with other spatial requirements. **Interactive visualisations** support the negotiation of the final zoning decisions at regional level. [P/C/R]

- The **expansion paths** for renewable energies must be considered **comprehensively** in the long term for the entire Alpine region. In addition to the areas for energy generation, the requirements for the **expansion of electricity grids and storage capacities** must also be considered and how these can be combined efficiently. [A/P/T/C/R]

General recommendations on strengthening the coordinative role of Alpine spatial planning:

- Tasks for spatial planning are becoming more **complex and extensive**, especially in the spatial coordination of the energy transition and nature restoration. To fulfil these tasks, spatial planning authorities need **additional staff and financial resources** as well as continuous training opportunities. [A/P]

- Scientific networks and professional associations should work out exactly where there is a **need and opportunity for coordination from a spatial planning perspective** and which conflicting interests are involved. [R/C/T]

- Municipalities and regions should establish **long-term exchange formats as round tables** at which different sectors and stakeholders continuously negotiate spatial planning issues beyond short-term projects. [A/G]

- Throughout the Alpine region, **energy planning** stakeholders should be linked with **spatial planning** experts. This **exchange** could enable mutual transnational learning and should not be limited to delegates within the framework of the Alpine Convention but should take place at the **level of planning practitioners**. [T/R/C/A]

- A **digital platform** should be created on which **tools, knowledge and good practices** for an environmentally compatible implementation of the energy transition in the Alpine region can be collected. This could, for example, be combined with the existing services of the Alpine Climate Board.[8] [T/R/A]

- **Spatial planning for the coordination of general land use** needs to cover energy issues in a comprehensive and forward-looking way. Along with securing land for energy production, this also includes planning **energy-efficient settlement structures and combined building/energy solutions**. [P/A]

- Successful cross-sectoral coordination and cooperation can only be achieved if **relevant data and information** is made **available to all stakeholders in a standardised/harmonised and user-friendly manner**, which allows for interactive overlay analysis and combination. [A/R/C]

Specific recommendations for the implementation of RED III and NRL in the Alps:

- In the context of procedural simplifications, **Strategic Environmental Assessment (SEA)** plays an important role in the adoption of RAAs. In the Alpine region in particular, the **protected assets** considered in the SEA should be **interpreted broadly** to include open spaces, in particular traditional cultural landscapes. [P/A/R]

- When **identifying 'no-go areas'** for renewable energy, it is important to consider not only protected areas themselves, but also their **buffer zones and functional connections** as well as **biodiversity hotspots** in general, even if these have not yet been formally designated for nature conservation purposes. [P/A/T/R]

- **Region-wide concepts for Green Infrastructure** must be implemented as part of spatial planning for **ecological corridors and networks**. They should go beyond national/regional protected areas and the Natura 2000 network and emphasise multifunctional elements of Green Infrastructure. [P/A/G/R)

- It is difficult to maintain an overview of how the **different countries**

8 A publicly accessible website providing information on relevant available data, spatial planning tools and methods as well as examples of good spatial energy planning in the Alps. The information could be regularly supplemented and updated via the community of the Alpine Climate Board

and regions in the Alpine region are handling the **implementation of RED III**. To learn from each other during the implementation process, an **exchange forum** is needed through a cooperation project (e.g. an Interreg Alpine Space project that elaborates Alpine-specific guidelines in a cooperative process). [T/A/C/R]

- The implementation of RED III must **take special account of the Alpine Convention** (e. g. in the Energy Protocol or the Spatial Planning and Sustainable Development Protocol). The Alpine Convention should provide a guideline to support the interpretation of the requirements within the framework of implementation. At the regional level, special committees or institutions are needed to ensure the quality and conformity of planning documents (such as the Comité de Massif des Alpes in France). [T/P/A]

- **Local/regional energy communities** are considered a successful model for enabling local communities to have a say in the implementation of the energy transition and to benefit financially from it. In the course of implementing RED III, it should be examined to what extent energy communities can be **promoted and prioritised through spatial planning**. In addition, the Alpine-wide exchange on energy communities should be strengthened in order to learn from good practices across all regions. [P/A/G/C]

- The **implementation of NRL** will take considerably more time at various levels, as more complex land use requirements need to be coordinated for nature restoration, e. g. with agricultural management. This means that the faster planning and implementation of (renewable) energy infrastructure must take into account that **sufficient areas must be kept free for nature restoration projects** in order to be able to implement them in the future. [P/A/R]

- Alpine countries and regions must work together to find **solutions specific to the Alps** in the course of the **NRL implementation**. This is underlined by the Alpine Biodiversity Board's ongoing process of developing an Alpine **Biodiversity Action Plan** that breaks down the international Global Biodiversity Framework for the European Alps. [T/P/A]

- Future-oriented planning in the sense of the NRL requires, on the one hand, the **maintenance of traditional extensive land use and nature conservation measures** (e. g. the mowing of litter meadows or the clearing of alpine pastures) and, on the other hand, the **recognition of wilderness** (e. g. in floodplains or moorland areas). Both together are necessary for a serious **paradigm shift towards safeguarding and developing open spaces for future generations** through spatial planning. [P/A/R/G]

The recommendations were formulated with the aim of providing an impetus for political processes. Their implementation may vary due to the different circumstances in the Alpine countries and regions. However, it is important to note that solutions are needed that take into account the specific characteristics of the Alpine region and integrate them into the current implementation process.

Glossary

Energy transition
"The energy transition is part of a broader green transition, which the EU defines as the transition of the economy and society towards the achievement of the climate and environmental objectives, in line with the European Green Deal. As energy accounts for 75% of overall EU greenhouse gas (GHG) emissions, it plays a central role in this process. Decarbonisation of the energy system requires a structural transformation in the way energy is produced and consumed, phasing out fossil fuels and replacing them with renewable and low-carbon energy sources. It also requires incentives for consumers and businesses to reduce energy use, for instance by using energy-efficient appliances and adopting cleaner manufacturing processes."
(EPRS 2023)

Environmental Impact Assessment (EIA)
"An Environmental Impact Assessment (EIA) is an ex ante analytical process for identifying and assessing the potential environmental impacts of a project in its different phases (construction, operation and decommissioning). EIA applies to projects with potential significant adverse impacts on the environment, and informs the development consent process. An EIA proposes measures to avoid and/or mitigate negative impacts, optimise positive effects, and includes an Environmental Management Plan (EMP) laying out how such measures should be implemented and monitored."
(European Commission – Directorate-General for International Partnerships 2025a)

Green Infrastructure
"Green Infrastructure has been defined as 'A strategically planned network of natural and semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services, while also enhancing biodiversity.' Such services include, for example, water purification, improving air quality, providing space for recreation, as well as helping with climate mitigation and adaptation. This network of green (land) and blue (water) spaces improves the quality of the environment, the condition and connectivity of natural areas, as well as improving citizens' health and quality of life. Developing Green Infrastructure can also support a green economy and create job opportunities. The Natura 2000 network of protected areas constitutes the backbone of the EU's Green Infrastructure."
(European Commission – Directorate-General for Environment 2025)

Nature-based Solutions
"Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural fea-

tures and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions."
(European Commission – Directorate-General for Research and Innovation 2025)

Participatory planning
"Participatory approaches in spatial planning enable involving different stakeholders in the planning process. Based on the planning theory approach of communicative planning the focus is on the discussion about options for future development. This way the need for dialogue and coordination among the different social groups such as decision-makers, stakeholders, experts and citizens is accommodated correspondingly. Participation processes can be viewed as processes of social learning. They should enable sufficient discourse on the value level of a plan. In this way rejection or even active resistance can be avoided. For a successful implementation one especially needs the approval and active involvement of the stakeholders and the public, so that a great number of stakeholders support and actually implement the planning results […]."
(BOKU University, Institute of Spatial Planning, Environmental Planning and Land Rearrangement 2025)

Spatial planning
"Spatial planning refers to the collective efforts of both the public and private sectors to influence the distribution of people and activities within the space of their municipality or region. The objective of spatial plans is to develop an effective territorial organisation of land uses and economic demand while protecting the environment and achieving social objectives. The integration of energy, climate, and mobility plans into local and regional space planning allows for complementarity and consistency of actions, where the objectives of each plan would be shared and considered in all the others."
(European Covenant of Mayors 2024)

Strategic Environmental Assessment (SEA)
"A Strategic Environmental Assessment (SEA) is a systematic process for evaluating the environmental implications of a proposed policy, plan or programme and provides means for looking at cumulative effects and appropriately address them at the earliest stage of decision making alongside economic and social considerations. The SEA assesses the extent to which a given policy, plan or programme:

- provides an adequate response to environmental and climate change–related challenges;
- may adversely affect the environment and climate resilience, and
- offers opportunities to enhance the state of the environment and contribute to climate-resilient and low-carbon development."

(European Commission – Directorate-General for International Partnerships 2025b)

Territorial Impact Assessment
"Territorial Impact Assessment (TIA) helps to identify the effects that the achievement of objectives and the implementation of policies can have on the use and management of territories and, more broadly, on the economy, society, and the environment. It informs policy makers about the impacts of their policies and allows policy objectives and measures to be aligned with the needs and challenges of different areas, e.g., rural, urban, mountainous, and cross-border."
(Republic of Slovenia, Ministry of Natural Resources and Spatial Planning 2023)

Landscape planning
"Typically, landscape planning provides information about the existing qualities of the landscape and nature, which are considered to be nature or landscape potentials, and their value as well as their sensitivity to impacts, the existing and potential impacts on these potentials, and the objectives and guidelines for the development of the landscape and nature, upon which proposed measures and development plans can be measured.
With this information, landscape planning provides evaluation guidelines for the impact regulations and for the part of the environmental impact assessment which is concerned with the landscape and nature. In the beginning phases of planning projects, landscape planning offers a background for the evaluation of alternatives, for example, in the placement of transportation corridors. Landscape planning provides a basis for preliminary opinions about proposed projects, even for projects which were proposed after the completion of the landscape plan. […]"
(Mander & Uuemaa 2015)

Climate-proofing
"Climate-proofing is a process that integrates climate change mitigation and adaptation measures into the development of infrastructure projects. The technical guidance adopted today sets out common principles and practices for the identification, classification and management of physical climate risks when planning, developing, executing and monitoring infrastructure projects and programmes. The process is divided into two pillars (mitigation, adaptation) and two phases (screening, detailed analysis) and the documentation and verification of climate-proofing forms is considered an essential part of the rationale for making investment decisions."
(European Commission – Directorate-General for Communication 2021)

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