



Thematic Action Plan 'Climate Neutral Territories'

Context

Climate change has been recognised as a global challenge and is being addressed by the EU as a top priority with high urgency. Scientific evidence of climate change has accumulated over several decades. The latest IPCC report showed that greenhouse gas emissions have been responsible for approximately 1.1°C of global warming since 1850-1900. In addition, global temperatures are expected to reach or exceed an average of 1.5°C of warming over the next 20 years. This anthropogenic contribution to climate change runs parallel to natural climate variability. The impact of the resulting changes in our climate differ between regions, i.e. each region is affected by different hazards and their intensity, each region has distinct physical, environmental, social, cultural and economic characteristics that result in different exposure and vulnerability to climate change. Based on these distinct regional features, each region also disposes of distinct potentials to react to these challenges and to set up and implement bespoke mitigation and adaptation measures.

The concept of climate neutrality aims at reaching zero net emissions of greenhouse gases (GHG) by reducing them to the point where they are equal or lower than emissions that are removed through absorption. Mitigation measures are crucial on the way to climate neutrality as they contribute to preventing or reducing GHG emissions into the atmosphere.

The need to radically reduce GHG emissions is the underlying storyline for this research area, which is underpinned by the EU's geopolitical goal to advance the use of renewable energies, the exploitation of renewable energy sources, among which blue energy, and material self-sufficiency of the continent.

Challenges specific to the TAP theme

Existing ESPON evidence and other research on the subject have shown that the territories covered by the ESPON Programme area show a diverse sensitivity to climate changes, depending on their natural characteristics and their readiness to deal with environmental risks. This also influences their development paths towards climate neutrality. The ESPON LOCATE project (2017) demonstrated that the unleashing of regional low-carbon potential requires strategies that make use of specific regional strengths and involve regional stakeholder networks. In order to support such regional-level policy making, national framework conditions, EU directives and EU Cohesion Policy need to be designed in a way to better allow regions to use their potentials in the two main development strands, i.e. increasing energy efficiency and the production, storing and distribution of renewable energies. A recent update of key LOCATE indicators and data (2022) reveals that some European regions are more advanced in generating electricity from renewable energy sources and reducing their energy consumption for heating and cooling. Other regions are lagging behind and much more needs to be done to advance the decarbonisation of the power system and the heating and cooling sector, including further integration of decentralised production from intermittent sources and reduction of demand following thermal renovations of buildings.

By the same token, the ESPON GRETA (2019) project made a case for considering contextual factors (e.g. spatial configuration, local climate, governance, local skills and knowledge) and creating a shared vision among all stakeholders involved in developing and/or managing green infrastructure and reaping the benefits of ecosystem services (among which, for instance, carbon sequestration). One major barrier to the deployment of nature-based solutions (which can play a crucial role in consuming less energy and mitigating climate change impacts) in planning is the still insufficient understanding among stakeholders of the way natural ecosystems function, how they can be identified and their benefits

quantified. This calls for capacity building and integrated planning processes across sectors and governance levels, all of which this TAP sets out to address by different activities.

Following the consultation, the screening of EU documents and internal reasoning, the following types of challenges have been found relevant to this TAP theme.

Radically reducing GHG emissions cannot be done without transforming the current economy into a climate neutral economy. The main challenge for this transformation is the process of decoupling economic growth from resource use and transforming it into a climate-neutral and more circular economy. Decoupling economic growth from resource consumption is a transition process leading to an economy that ensures that everyone has access to education, healthcare, food and a good quality of life (i.e. a just transition) while staying in the ecological limits of our planet and restoring our fragile ecosystems when needed. Municipalities and regions are well positioned for such a transition as they are responsible for planning and investing e.g. in infrastructure and can make important choices there (e.g. they can promote greener, more sustainable infrastructure, opt for renewal instead of building new infrastructure). Their size, proximity to local environmental, economic and/or social problems, as well as to local knowledge to address these problems, are instrumental in bringing about tangible and stable changes. But there are significant challenges that can hinder such a transition, which are mostly systemic in nature and cannot be overcome by individual organisations alone.

One of these challenges is resource use. A green transition is very resource intensive with a highly increased use of, e.g. rare minerals that are often mined outside Europe. What options and limitations do we have to obtain the resources needed for a green transition from within Europe? What are the recycling possibilities of these resources from redundant products (circular economy)? How green is a digital transition when, for example, more electric vehicles lead to increased energy use? Also related to resource use is the exploitation of blue renewable energy, which is key in meeting energy demands and transitioning to climate neutrality. Offshore wind energy along with other forms of blue energy generation, including ocean energy derived from the power of currents, tides and waves and, to a lesser extent, from thermal and saline gradients in some locations, is emerging as a key element of Europe's Blue Economy, with ambitions of contributing to economic growth in coastal regions as well as inland.

Climate neutrality is in fact about every aspect of our lives and challenges related to social issues need to be considered. Since the well-being and quality of life of all citizens is affected, there is a need to involve them in the transition process and get them engaged to ensure a long-term behavioural change in the way we live, move, consume and play. In this context, the open consultation on this TAP mentioned the implementation of energy efficiency measures or energy communities. Policy and territorial actions can influence such changes directly and this TAP intends to look into the questions how participation can be encouraged in relation with energy consumption and production, how behavioural patterns can be changed and how spatial planning can support such change. Involvement of the private sector is equally important.

The open consultation on this TAP confirmed the importance of the challenge to ensure a just transition. The path towards climate-neutrality bears the risk of increasing territorial inequalities and resulting in social exclusions (e.g. energy poverty). Some regions, like old coal regions, rural areas with a strong dependency on private cars, regions hosting seaports, airports and logistic hubs with a high environmental footprint will mostly encounter costs of transitioning. How will climate-neutrality policies impact different areas in different ways?

Another aspect related to spatial planning for climate neutral territories is how to deal with conflict of interest, for example between different sustainable development goals, between technologies and between regions or land use conflicts in relation to the production of renewable energy, which could contribute to geographies of discontent, especially in territories with geographical specificities like rural, mountainous and coastal areas, islands, etc. Climate neutrality in rural regions does not only relate to agriculture but also to mobility, housing, energy, etc. Stakeholders need to understand how to manage such conflicts and which elements to weigh to which degree.

To measure the progress of territories on their road towards climate neutrality, relevant indicators and/or a specific climate neutrality index for regions at the NUTS3 level would be needed to allow for continuous monitoring. At national level, the Climate Change Performance Index (CCPI) evaluates and

compares, since 2005, the climate protection performance of 60 countries and the European Union (EU). However, comparable sub-national data related to climate neutrality are lacking. Regional data at longer time scales are needed on (renewable) energy consumption and production, ecosystem services, biodiversity, and natural resources. For example, empirical evidence on the benefits of implementing GI and using natural carbon sinks would require specific monitoring over a certain period of time. This TAP offers the possibility of developing relevant indicators and a specific climate neutrality index.

The open consultation revealed that there is a need to understand and measure climate-neutral policies' interdependencies with other emerging macro-trends (pandemics, geopolitical developments, etc.). To support policymaking and implementation, a taxonomy of main interdependencies, key performance indicators to measure them, and impact analyses at the regional level considering the different situations among European regions (climatic, economic, social, geopolitical, etc.), would be helpful. Building a mechanism for monitoring and evaluation with regional indicators that are easy to quantify is key to understanding how a strategy delivers clear benefits to a region, and can be used for adjusting implementation strategies.

Purpose and policy use of the TAP

The 'Climate neutral territories' TAP has been profiled to target policy response to the challenges named above by further developing the knowledge base regarding the territorial aspects of a green transition towards a climate neutral economy in its broader sense, i.e. taking into account mobility, spatial planning, consumption, energy and society. This TAP will look into possibilities to transform existing challenges into opportunities by, inter alia, decreasing carbon emissions; increasing carbon sinks and energy efficiency; becoming more energy self-sufficient; creating, enhancing and managing green infrastructure (GI), supporting the energy transition, green digital transition and a shift towards a green and circular economy; and eradicating energy poverty.

This TAP intends to provide new insights and possible pathways for all types of territories to encourage and stimulate their transition to climate neutrality by 2050. Following the consultation, the screening of EU documents and internal reasoning, the following main research lines have been identified as areas where ESPON can offer critical contributions towards reaching climate neutrality by 2050, in line with the European Green Deal:

- 1) Accelerating Territorial Energy Transitions,
- 2) Supporting Circular Economy towards Territorial Climate-Neutrality, and
- 3) Applying a Systemic Approach to Climate-Neutrality.

This TAP aims to produce territorial evidence on (renewable) energy consumption and production, ecosystem services, biodiversity, and natural resources within European territories and its seas. The new evidence to be created will provide information on the territorial opportunities and challenges that could affect the transition of cities and regions towards climate neutrality by 2050, as well as to understand possible territorial consequences for cities and regions, following different development pathways towards complete carbon neutrality by 2050.

This TAP aims also to stimulate peer-learning to inform stakeholders on national, regional and local level of best-practices for developing climate neutrality strategies/strategies towards a greener Europe. It is intended to promote networking and involvement of civil societies and other stakeholders that could play important roles in terms of elaborating and implementing place-based climate neutrality strategies.

Altogether, territorial evidence and knowledge development activities in this TAP should strengthen the capacity and skills' development of different actors across all levels of governance and across policy sectors in planning, implementing, monitoring and evaluating climate neutrality strategies and measures across all European regions and cities.

This TAP theme underpins the majority of Cohesion Policy objectives for 2021-2027. It connects to the objective of Greener, low-carbon Europe – by promoting policy actions towards a clean and fair energy transition, green and blue investments and the circular economy, but also towards climate change mitigation and risk prevention and management, and sustainable urban mobility. It also adheres to the objective of Smarter Europe by addressing an innovative, smart but green digital transformation of the national economic systems as well as regional ICT connectivity. It links to the objective of a More connected Europe by addressing the sustainable component of enhancing mobility. Finally, it is also in line with the objective of a Europe closer to citizens by providing input to the rationale for sustainable and integrated development of all types of territories and local initiatives.

This TAP is at the heart of the European Green Deal - Europe's endeavour to be the first climate-neutral continent by helping to make the EU's economy sustainable and to overcome the challenges of climate change and environmental degradation. The strive for a clean energy transition is being accelerated by Russia's invasion of Ukraine, which triggered the European Commission to develop new instruments to support Member States (e.g. the REPowerEU plan). The TAP will help to achieve the aim to phase out Europe's dependency on Russian gas, oil and coal imports as soon as possible - starting with diversifying gas supplies and accelerating renewables and energy efficiency.

This TAP will also support the aims of the Paris Agreement to strengthen the global response to the threat of climate change and to increase the ability of countries to deal with the impacts of climate change. In addition, it helps to implement the 2030 Agenda for Sustainable Development providing a shared blueprint for peace and prosperity for people and the planet, now and into the future by ending poverty and other deprivations hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

This TAP also helps implementing the Territorial Agenda 2030. It targets the Green Europe objective by contributing to a healthy environment, a circular economy and more sustainable connections. It also responds to the Just Europe objective by investigating ways to ensure that the transition towards a climate-neutral economy happens in a fair way.

Strategic orientation of the TAP

The comprehensive stakeholder consultation process combined with a state-of-affairs analysis by the ESPON EGTC allowed for determining the specific thematic orientation of this TAP. Due attention has been given to:

- the evidence gaps that ESPON would be suited to fill, while avoiding duplication and enhancing synergies with peer providers of territorial evidence and policy advice;
- the identified general policy needs vis-à-vis the stock of territorial evidence accumulated within ESPON – to justify choosing the types of evidence production activities in this TAP to start with;
- the baseline mapping of stakeholders relevant to this TAP (while the more detailed identification of stakeholders will be carried out at a later stage).

The open consultation revealed high interest among stakeholders, researchers and practitioners to better understand the challenges and opportunities of European territories in becoming climate neutral. Energy transition was the overarching challenge brought forward as very relevant by many of the organisations involved. Related topics mentioned included energy communities, blue energy, climate justice, energy efficiency, rural areas, land use planning, promoting strong local communities and data development.

Responding to evidence and knowledge gaps raised by public authorities and experts as well as policy needs expressed by the stakeholders, this TAP will initiate in first instance two European research projects (see Section 2). The first one, following the knowledge and experience obtained within a targeted analysis of the ESPON 2020 SO, aims to develop the knowledge base for understanding the strategic cooperation and coordination between European countries and regions in maritime spatial planning and land-sea interactions with a specific focus on offshore renewable energy and the land use related

to this. The topic of the second one is quite new to ESPON and aims to draw a policy trajectory for the efficient and inclusive uptake of energy communities.

In addition, following the outcomes of two projects in the ESPON 2020 SO (see Section 5), at the outset of this TAP two targeted analyses will be offered to interested stakeholder regions. The first one is related to applying, testing and further developing the current version of the Greenhouse Gas Impact Assessment tool. The second one aims to support policy makers from coal and carbon intense regions to develop and implement a policy strategy towards a circular economy by using the CIRCTER policy guide.

Moreover, following the outcomes of two applied research projects in the ESPON 2020 SO (see Section 5), at the outset of this TAP some knowledge transfer activities will be offered to discuss among local/regional stakeholders/planners insights on how to use current data on electricity generation and energy consumption at regional scale, as well as on how to plan and develop climate neutral settlements.

Finally, at the outset of this TAP, support will be offered to the Swedish EU Council Presidency (Spring 2023) with dedicated evidence production activities related to the specific challenges for Sweden related to the "Provision of renewable energy for new industrial production and impacts on land take and social acceptance for energy transition" (see Section 5).

This TAP has a potential to address a wide group of stakeholders, on the account of addressing the challenge to achieve climate neutrality. It may offer EU institutions a set of longitudinal datasets and indicators to shape the future EU Cohesion Policy and sectoral EU policies with a distinct territorial dimension. It may also provide policy guidance to macroregional stakeholders as well as stakeholders of the ESPON member countries and partner states to support them in the process to accelerate the green transition and achieve carbon-neutral territories.

The tailoring of specific activities under this TAP requires collaboration with other organisations that have been active in the field of climate neutral territories, such as the Joint Research Centre (JRC), the European Environment Agency (EEA) and the OECD. The ESPON EGTC has already scheduled exchanges with the JRC in order to more precisely scope the research content of the evidence production work, to select directions of further activities, and also to discuss the synergies in knowledge development events planned. These exchanges will be used to identify where ESPON research under this TAP will make a contribution to the current policy discourse. In addition, it would be helpful to periodically exchange with networks of local and regional authorities on policy needs and research results to enhance the uptake of ESPON evidence. For instance, the Council of European Municipalities and Regions (CEMR) produces reports on climate change, decarbonisation, etc. The Scoping Note for each of the European Research Projects under this TAP will set out in more detail how each proposed activity sits within the overall 'state of the art' in climate neutral research and its wider added value to the policy research field. The TAP relevance aspect will also be considered in initiating evidence production and knowledge development activities following policy support proposals by stakeholders.