Putting Regions on Track for Carbon Neutrality by 2050

D3.3: Report on regional and local energy priorities

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Preface

Local and regional authorities play a decisive role in the attainment of the EU’s long-term climate and energy targets. C-Track 50 aims to support local and regional authorities in energy and climate planning, so as to contribute considerably towards achieving the 2030 and 2050 EU energy and climate targets. More specifically, C-Track 50 will promote multi-level governance and support local and regional authorities in developing, financing and implementing ambitious integrated sustainable energy and climate policy action plans in order to achieve climate resilience and carbon neutrality by 2050.

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1. Introduction

In most European countries, regions and municipalities are not legally bound by national energy targets. However, in a few cases, minimum requirements or actions are mandatory. For instance, in France, regional authorities are required to develop a regional integrated plan (SRADDET addressing energy, spatial planning, air quality, biodiversity), according to a regulatory framework which sets compatibility rules with other planning documents at national and local levels. In this respect, regions and municipalities have sovereignty to set ambitious goals and put in place different measures.

Therefore, within the framework of C-Track 50, regional and local priorities for 2050 were formulated, whilst in parallel long-term and interim targets were set. Priority actions and exemplar measures, in line with the national policy priorities, were also identified. These will inform the development of regional and local Energy and Climate Policy Plans for 2050.

Regional and local priorities were formulated by effectively engaging with key stakeholders in in-person meetings but also during the two roundtables for local/ regional authorities organised in each country. The roundtables focused on discussing local and regional priorities and facilitating the dialogue between regional authorities, local authorities and other local stakeholders to strengthen their collaboration.

This deliverable outlines the regulatory framework for regional and local energy planning in the C-Track 50 countries, as well as the status quo in regional and local energy planning. Regional and local priorities for energy planning are described per country, along with key recommendations that aim to facilitate local and regional collaboration and energy planning efforts.
2. Austria

2.1 The regulatory framework for regional and local energy planning

Regional planning instruments at the level of the province of Styria are outlined below:

- The Spatial Planning Act creates the legal framework for spatial planning. This includes supra-local spatial planning at the level of the province and of small regions, and also the framework for local spatial planning (law).
  - Instruments of supra-local spatial planning are development programmes, which are drawn up or sustained by means of ordinances. Subject areas are developed as subject programmes. In the energy sector, for example, the "Wind" programme is relevant, in which suitable wind farm sites are pre-assessed and identified. The programme on air pollution control and flood protection also has an impact on the energy sector. In addition, sub-regional development programmes can also be drawn up, which in turn can contain one or more sectoral programmes.
  - Instruments of local spatial planning are local development concepts. These are developed by municipalities, and set long-term, coordinated development goals, which serve as the basis for all further planning. Building on this, zoning plans and development plans are also produced. Municipal energy concepts can be drawn up, for example, in district heating connection areas or air remediation areas, designated in order to reduce emissions. It should be noted that:
    ▪ During the preparation phase, stakeholders can actively participate as these plans are available in the municipal office.
    ▪ Energy issues/actions can be included.
    ▪ Municipalities decide on settlement areas and the respective demand, and thereby also influence the interface of public transport, infrastructure, etc.
    ▪ Legal requirements, such as building density etc., are binding.
- Building law and regulations: Building law is passed by the federal state; implementation is binding at municipal level. This includes specifications regarding energy efficiency in construction, whilst minimum standards for buildings are prescribed (U-values, energy indicator). The use of renewable energy sources is also recommended, in particular connecting to district heating, using biomass, installing photovoltaics (PV), heat pumps etc.
- The Housing Promotion Act: Housing construction and renovation is promoted by the state and the federal government. Minimum standards are defined and adhered to for both new constructions and renovations of buildings in order to be eligible to receive subsidies, such as meeting certain energy performance indicators, or being fossil fuel-free.
- The Environmental Promotion Act and Climate Fund Act at state level, as well as the Environmental Fund of the State of Styria: Additional subsidies for renewable energy sources, such as biomass or solar energy, as well as premiums for the switch from fossil fuels such as heating oil or natural gas, to renewable energies, are available.
- Regional Planning Act, defining regions at NUTS 3-level, which are supported by regional management, politically represented by the Regional Executive Committee and the Regional Assembly. At this level, regional development models are regularly developed and implemented.
Since 2018, regions have also had their own budgets, which can be used specifically for development projects.

- Municipalities and regions/municipal associations have the opportunity to voluntarily participate in various programmes and focus on the fields of climate protection and energy:
  - e5 municipalities - EEA European Energy Award - voluntary
  - KEM - Climate Energy Model Regions - supported by KLIEN (Climate and Energy Fund, on behalf of the federal ministry)
  - KLAR - Climate Change Adaptation Regions – KLIEN
    - The preparation of implementation concepts and technical support, such as expert services and the introduction of a model region management, is promoted.
    - In addition, KEM/KLAR has access to extended funding for renewable energy sources, such as biomass, PV systems, etc.
    - Municipalities must co-finance projects with a percentage contribution and can/should also directly technically contribute to the activities and projects - if staff resources are available.
  - Climate Alliance municipalities - voluntary
  - LEADER Action Groups (according to ELER fund)

- Many municipalities also support citizens to install renewable energy sources, through non-repayable subsidies, as an incentive for investments (biomass heating, solar thermal, photovoltaics or heat pumps).

### 2.2 The status quo in regional and local energy planning

The numerous strategies and plans that have been developed at a regional and local level are outlined below:

- The Climate and Energy Strategy Styria – KESS 2030, which is structured as follows:
  - Vision 2050;
  - Key objectives 2030;
  - Priorities and packages of measures by sector;
  - Action plans.
- The E-Mobility strategy Styria, which aims to expand electric mobility and the electric vehicle charging infrastructure by 2030.
- As mentioned previously, within the context of regional spatial planning, a special programme for wind energy had been developed and was revised in 2019. Potential wind power sites were identified and pre-assessed for their suitability. Restricted zones were also identified, e.g. sites that are considered natural habitats of wild fauna and flora.
- Climate and energy model regions. These model regions are associations of municipalities that have voluntarily joined forces to set energy and climate protection goals, which are in line with national objectives, and implement measures. Initially, an implementation concept is developed. Subsequently, measures are implemented under the supervision of a model region management. There are currently 25 such regions active in Styria and 95 throughout Austria.
- Municipal energy concepts have been developed by several municipalities. In most municipalities these energy concepts focus on biomass district heating projects.
- The municipality of Judenburg has adhered to Covenant of Mayors (CoM) initiative and has developed a Sustainable Energy Action Plan.
A number of municipalities have voluntarily joined the e5 programme, which encourages municipalities to act in a sustainable manner at all levels: in dealing with energy, consumption, mobility and the economy. A working group (e5 team) is set up to develop strategies and work programmes. Technical and financial support is provided by the Province of Styria (Energy Agency Styria). Austrian municipalities taking part in the e5 programme are automatically part of the “European Energy Award” programme.

Regions and municipalities collaborate in the preparation of development concepts and also in local spatial planning in accordance with the Spatial Planning Act. With regard to the development and implementation of other strategies, such as the climate and energy strategy, the e-mobility strategy, climate and energy model regions or even e5 communities, coordination is pursued at state or federal level, where goals and measures are discussed. Training and other educational courses are offered to employees of municipalities and other organisations, such as model region management or energy agencies.

Overall, municipalities and regions can set their own objectives, as long as these are in line to the objectives of the supraregional strategies at state and federal level or more ambitious than these.

Technical support and coordination is available for regional and local planning. For example:

- Various funding programmes offered by the federal and state governments provide support from experts, such as the Climate and Energy Fund, or from specialist departments of the federal states. In Styria, for example, this includes state and regional planning or the Department of Energy Technology and Climate Protection.
- As mentioned there are also other structures that provide support, such as regional management (according to the Spatial Planning Act), regional and local energy agencies or model region management. In addition, there is an advisory network of trained energy consultants for municipalities and housing, and also for industry (Ich-Tu's, EB-NET, WIN Wirtschaftsinitiative Nachhaltigkeit).
- In the province of Styria, the Styrian Energy Agency also acts as an advisory centre for various focal issues on energy and housing construction.
- Within the municipalities, there is often also a department for the environment, climate or energy.

Interactions between regions and municipalities

- On the one hand, interactions are regulated by law, as described above in the preparation of development concepts and also in local spatial planning in accordance with the Spatial Planning Act.
- For other strategies such as the climate and energy strategy, the e-mobility strategy, climate and energy model regions or even e5 communities, there are coordination meetings at state or federal level, where goals and measures are discussed and coordinated. At this level there are also training and further education courses for specialist staff in the municipalities or for outsourced organisations such as model region management or energy agencies.
- Municipalities and regions are basically free in their choice of objectives, but they have to orient themselves to the objectives of the supraregional strategies at state and federal level. The goals and the corresponding laws must be adhered to, but the goals may be individually defined and more ambitious than the supraregional ones.
Technical support and coordination

- The various funding programmes offered by the federal and state governments also provide support from experts, such as the Climate and Energy Fund, or from the specialist departments of the federal states. In Styria, for example, this includes state and regional planning or the Department of Energy Technology and Climate Protection.
- In the province of Styria, the Styrian Energy Agency also acts as an advisory centre for various focal points in energy and housing construction.
- At regional and local level, these are regional management (according to the Spatial Planning Act), regional and local energy agencies or model region management. In addition, there is an advisory network of specially trained energy consultants for municipalities and housing, and also for industry (Ich-Tu’s, EB-NET, WIN Wirtschaftsinitiative Nachhaltigkeit).
- In the municipalities themselves, there are often also departments for the environment, climate or energy.

2.3 Regional priorities for energy planning

The target area for the support being provided by C-Track 50 is the federal state of Styria. The province of Styria embodies a regional authority with its own legislation in the areas of regional development (Regional Development Act), spatial planning (Spatial Planning Act), construction (Building Act), housing promotion (Housing Promotion Act), Nature Conservation Act, etc., to name only the most important energy-relevant laws. Furthermore, all laws at federal level are binding for the federal states.

As mentioned previously, a climate and energy strategy and a mobility strategy for Styria have been developed, both for 2030, with a vision up to 2050. At the regional level, the objectives of the climate and energy strategy are set to be the objectives of the province, which include:

- A 36 % reduction in greenhouse gas emissions;
- A 30 % increase in energy efficiency;
- Increasing the share of renewable energy sources by 40%;
- Security of supply.

Proposed regional actions per sector are outlined in the following sections.

2.3.1 Proposed actions for the public sector

- Conversion of the energy supply of public buildings to 100 % renewable energy;
- Thermal refurbishment of public buildings;
- Increased own power supply through PV systems;
- Increased electricity generation from renewable sources such as hydropower, wind power, biomass, biogas/sewage gas and photovoltaics;
- Expansion of regional district heating supply and increased integration of industrial waste heat;
- Upgrade of public street lighting and use of modern, energy-saving technologies such as LEDs and smart control systems.
2.3.2 Proposed actions for residential buildings

- Conversion of the energy supply to renewable energy, if available connection to district heating networks using 100% renewable energy;
- CO₂ reduction by 70% by 2030, to zero CO₂ emissions by 2050;
- Thermal refurbishment: Increased refurbishment rate to 2% per year;
- Increased own electricity supply through PV systems;
- Creation of electric vehicle charging stations at residential structures.

2.3.3 Proposed actions for residential buildings

- Conversion of the energy supply to renewable energies, if available connection to district heating networks using 100% renewable energy;
- CO₂ reduction by 50% by 2030, to zero CO₂ by 2050;
- Increase of own power supply by PV plants.

2.3.4 Proposed actions for commercial buildings

- Creation of a regional mobility concept;
- Promotion of the development of e-mobility and electric vehicle charging infrastructure for private transport;
- Expansion of (electric) car-sharing services;
- Improvement of local public transport services, especially in first/last mile connections.

2.4 Local priorities for energy planning

The municipalities supported by C-TRACK 50 are located in a sub-region of the federal state of Styria, i.e. the Region Upper Styria West. This region represents a community cooperation in which the municipalities are represented as members. The operational unit is the Regional Management Obersteiermark West (ROW-GmbH) that aims to promote regional development, develop regional guidelines and sub-regional development programmes (but it cannot issue any laws and regulations).

As mentioned previously, municipalities develop local development concepts, development and zoning plans and are also responsible for the implementation of the Building law. Municipalities can voluntarily set objectives; the overarching objectives at federal and state level are not binding for municipalities (unlike the superordinate laws that are binding). Within the framework of C-TRACK 50, the following local objectives have been defined:

- CO₂ emissions to be reduced by 50% by 2030 and to zero by 2050. This applies to all non-emissions Trading System (ETS) sectors;
- Energy efficiency to be increased by 30% by 2030;
- Increased uptake of renewable energy sources. By 2030, 50% of the energy consumed should come from renewable sources, by 2050 this should be 100%. In order to achieve this the following are envisaged:
  - Further expansion of biomass district heating and biomass heating systems;
  - Further development of waste heat sources in industry (primarily ZPA-Pöls) and feeding into the regional district heating network;
Use of roof areas for solar energy generation;
- Expansion of the use of biogas and sewage gas, as well as sewage sludge for energy generation;
- Expansion of existing small hydropower plants and revitalisation of larger hydropower plants (e.g. Judenburg);
- Wind energy: due to their special geographical location, wind turbines and wind farms are only possible at mountain ridges. Three projects have already been successfully implemented in the region: the Tauernwindpark, Gaberl and Speikkogel. The Wind sectoral programme is currently being revised at a province level. The feasibility of new installations cannot be assessed at present.

Objectives are more ambitious at the local level than at the regional level. This is also due to the fact that the target area of C-Track 50 has a high potential for renewable energy and waste heat.

Proposed local actions per sector are outlined below, which are similar to the regional ones.

### 2.4.1 Proposed actions for the public sector
- Conversion of the energy supply of public buildings to 100 % renewable energy;
- Thermal refurbishment of public buildings;
- Increased own power supply through PV systems;
- Increased electricity generation from renewable sources such as hydropower, wind power, biomass, biogas/sewage gas and photovoltaics;
- Upgrade of public street lighting and use of modern, energy-saving technologies such as LEDs and smart control systems.

### 2.4.2 Proposed actions for residential buildings
- Conversion of the energy supply to renewable energy, if available connection to district heating networks using 100 % renewable energy;
- CO₂ reduction by 70 % by 2030, to zero CO₂ emissions by 2050;
- Thermal refurbishment: Increased refurbishment rate to 2 % per year;
- Increased own electricity supply through PV systems;
- Creation of electric vehicle charging stations at residential structures;
- Non repayable subsidies for single family houses if they invest in renewables.

### 2.4.3 Proposed actions for commercial buildings
- Conversion of the energy supply to renewable energies, if available connection to district heating networks using 100 % renewable energy;
- CO₂ reduction by 50 % by 2030, to zero CO₂ by 2050;
- Increase of own power supply by PV plants.

### 2.4.4 Proposed actions for the transport sector
- Creation of a regional mobility concept;
- Promotion of the development of e-mobility and electric vehicle charging infrastructure for private transport;
- Expansion of (electric) car-sharing services;
- Improvement of local public transport services, especially in first/last mile connections.

2.5 Recommendations

Multilevel governance in energy planning is considered important at all levels. There are already many successful examples of multilevel governance. For example, the draft federal energy and climate strategy (mission2030, KESS 2030, NKEP) was discussed and agreed in a broad online consultation process before it was officially adopted. Both regional and local authorities had the opportunity to express their views, as did industry associations and the general public.

There are similar examples at regional and local levels. In particular, the Styria 2030 Climate and Energy Strategy was developed following a broad stakeholder consultation process. Numerous activities were organised, for instance workshops were organised at sub-regional level by the state to engage with local representatives and stakeholders.

Consistency

It is recommended that both multi-level governance and stakeholder engagement are incorporated in the planning process.

Discrepancies

There are different views from stakeholders on objectives and measures. The higher governance levels want to oblige small regional and local authorities to implement measures, but cannot do so because municipalities are autonomous. On the other hand, municipalities, in particular, find it difficult to achieve long-term goals and develop long-term action plans; they would rather seek support for developing and implementing concrete measures in the short to medium term (e.g. through subsidies and financing as well as technical support). This leads to measures for (energy-relevant) investments in buildings and facilities, but also measures for climate change adaptation and mitigation.

Recommendations

- In order to achieve multilevel governance, important stakeholders need to be identified and assessed (e.g. matrix analysis). Stakeholders’ experience and relevance should be assessed to derive who should be engaged during the different parts of the process or planning;
- Climate policy must be envisioned in the long term. Regulatory and fiscal policy measures must create predictable framework conditions in the long term to which both businesses and citizens can adapt to. There should be a clear division of responsibilities among the regional and local authorities of the federal government, the Länder and the municipalities. While the division between the Federal Government and the Länder is supported by financial measures (financial equalisation, allocation of any fines), the involvement of the municipalities is to be encouraged by incentives in order to actively support energy and climate policy objectives;
- Related subsidy programmes, such as direct subsidies for installing renewable energy sources or tariff subsidies, should be designed on a long-term basis so that the market and all concerned parties, from customers to industry and suppliers, can adapt to them;
Especially when developing renewable energy projects, municipalities must be involved in a timely manner, as they are also aware of potential conflicts (e.g. programme for wind energy, flood protection);

An ecological tax reform is a basic prerequisite for a successful climate policy. There is also agreement on this by relevant international institutions and numerous European States. Only if climate-damaging behaviour costs more than climate-friendly behaviour will the latter prevail. In principle, the price advantage of climate-friendly behaviour can be achieved either by making fossil fuel energy more expensive or by making renewable energy cheaper. The latter has been attempted in the past with limited success through subsidies;

Education and training will play an important role to facilitate the transition to a low carbon economy. For this reason, a programme for educational initiatives should be established that is well endowed in the long term and can finance excellent initiatives every year;

Increased support should be given to regions and municipalities through programmes such as KEM, Klar!, e5 (EEA), including technical and financial support for the implementation of measures;

Municipalities should have access to more advice on funding and financing at national and EU level;

Bureaucratic obstacles for the implementation of measures and projects should be reduced and approval procedures simplified and accelerated;

Planning activities and planned measures must be accompanied by an appropriate awareness-raising campaign.
3. Croatia

3.1 The regulatory framework for regional and local energy planning

Energy planning in Croatia is an integrated activity among the different governance levels. It represents the analysis of all energy issues within a unified policy framework in order to arrive at a set of nationally optimal energy solutions over the long term, according to the Law on Energy Efficiency (Official Gazette No 127/14, 116/18), transposing the requirements of EU legislation.

Energy planning is an integrated activity among the different sectors and topics, and it is reflected in the National Energy Efficiency Action Plan (NEEAP). In accordance with the Law on Energy Efficiency, each county (regional level) and big city (local level) (> 35,000 habitants) in the Republic of Croatia is obliged to draw up an Energy Efficiency Action Plan for a three-year period and an Annual Energy Efficiency Plan, which set out the implementation of policies to improve energy efficiency in the county/city. While counties and big cities are obliged to draw up these plans, other cities and municipalities may voluntarily develop plans. This will increase their chances of obtaining co-financing for certain activities they intend to implement, because the NEEAP is the basis for planning the allocation of funds to the Environmental Protection and Energy Efficiency Fund.

The ordinance on the system for monitoring, measurement and verification of energy savings (Official Gazette No. 71/15) has set up a system for monitoring and evaluating the progress in the implementation of energy efficiency policy in achieving the objectives set out in the Energy Development Strategy of the Republic of Croatia and the National Energy Efficiency Action Plan. It also includes the methodology for monitoring and calculating energy consumption indicators at national and sector level, the method for calculating energy savings resulting from the implementation of measures for improving energy efficiency, energy savings resulting from the implementation of energy services and the verification process of energy savings, as well as the methodology for the development of the Energy Efficiency Action plan and the Annual Energy Efficiency Plan, respectively. Local and regional authorities are obligated to monitor and verify energy savings following this methodology.

In the National Energy Development Strategy of the Republic of Croatia by 2030, with an outlook to 2050, the need for the establishment of an institutional framework for strategic energy planning is emphasized and defined as a key element of the overall process of the energy transition. Past experience in energy planning and development of energy strategies has highlighted the tremendous need to align national and other strategic documents, to develop a more detailed methodology for the implementation of strategies, programs and plans, because this is the only way to valorise, verify and compare the results at the national level with those at regional and local level.

Unfortunately, there are no financial incentives from regional to the local level and vice versa, often because of a limited budget, which must cover their own costs.
3.2 The status quo in regional and local energy planning

In accordance with the Law on Energy Efficiency, each county (regional level) and big city (local level) (> 35,000 habitants) in the Republic of Croatia is obliged to draw up an Energy Efficiency Action Plan for a three-year period and an Annual Energy Efficiency Plan, which set out the implementation of policies to improve energy efficiency in the county/city. So far, these plans focus only on energy efficiency, whilst climate adaptation is not yet considered. As the Energy Efficiency Action Plans and Annual Energy Efficiency Plans are developed for a three-year and one-year period respectively, there is no target year defined, and policies focus on the defined time frame. Although there are no specific goals that need to be included in these plans in terms of savings, these Plans are obligatory and there are incentives in the form of the ECO fund large subventions for various energy efficiency measures. The deadline for submitting the National Energy Efficiency Action Plan (NEEAP) was the 30th April 2014 and every three years thereafter. In accordance with the NEEAP, Action Plans at a local and regional level must be carried out for the same three-year period (e.g. 2014 – 2016, 2017 – 2019, 2020 – 2022, etc.). Furthermore, NEEAPs form the basis for the Action Plans developed at a regional and local level. Most of the obligated parties have already developed Action Plans for the period 2017 – 2019 as well as Annual Plans for 2017, 2018 and 2019.

Currently, the Integrated National Energy and Climate Plan for the period 2021 to 2030 and the Low-carbon Development Strategy of the Republic of Croatia for 2030, with an outlook to 2050, are being developed at the national level. These documents will be the basis for mitigating CO₂ emissions and adapting to climate change at the national, regional and local level. It is expected that the documents will be finalised by the end of 2019, as well as the process of harmonization with other documents.

Regarding the Covenant of Mayors initiative and the development of Sustainable Energy Action Plans (SEAP), numerous cities and municipalities in Croatia (so far 82)¹ have voluntary joined the initiative and started developing SEAPs. So far, there are 62 SEAPs developed with 2020 as the target year. As the Covenant of Mayors initiative merged with the Mayors Adapt initiative, the new Covenant of Mayors for Climate and Energy requires the development of a Sustainable Energy and Climate Action Plan (SECAP). Signatories of the Covenant of Mayors initiative that had voluntarily committed to implement the EU's 2020 climate and energy targets, were invited to join the new initiative. To date, 14 cities have joined the Covenant of Mayors for Climate and Energy, and 2 SECAPs have been developed, with targets for the year 2030 to tackle mitigation and adaptation to climate change.

Even though targets set at a local and regional level can be very similar, there is no strong link between the two levels. At a national level help and support can be given to the local and regional level, regarding some financial incentives, but collaboration and support between the local and regional level does not exist. Therefore, local priorities are not integrated into regional ones.

3.3 Regional priorities for energy planning

Within the framework of C-Track 50, REAN will support the Koprivnica-Krizevci County (the administrative name for a regional authority in Croatia is a county). Koprivnica-Krizevci County is situated in the northwest part of the Republic of Croatia. Koprivnica-Krizevci County borders with the

¹ https://www.covenantofmayors.eu/about/covenant-community/signatories.html (access on 17th July 2019)
Medjimurje County in the north, Varazdin County in the northwest, Zagreb County in the southwest, Bjelovar-Bilogora County in the south, Virovitica-Podravina County in the southeast and Hungary in the east. The Koprivnica-Križevci County is extremely diverse and includes different areas which mutually distinguish not only due to natural-geographical but also economic, demographic, traffic and other characteristics. The county has three cities: Koprivnica, the capital of the county, Krizevci and Đurđevac and 22 municipalities, with a total population of 115,584 inhabitants and a population density of 66 inhabitants per km².

The regional priorities for energy planning of the Koprivnica-Križevci County are based on the National Energy Efficiency Action Plan. Even though the County has set ambitious targets for reducing energy consumption, the only measurable actions that they can directly implement relate to improving the energy efficiency of public buildings. As mentioned during the roundtables organized within the framework of C-Track 50, the issue is that the public sector spends a lot less energy compared to the tertiary sector or the residential sector. It is important to target these two sectors, because they are crucial in reducing the energy consumption of the county, even though regional authorities do not have a direct influence on these sectors.

According to the Regulation on Energy Management System in the Public Sector (Official Gazette No 18/15), the monitoring and validation of planned/implemented energy efficiency measures can be performed using an IT-tool called SMiV (System for Monitoring, Measurement and Verification of Energy Savings). In the SMiV application, 10,000 energy savings measures have been inserted, 90% of which were inserted by the Croatian Environmental Protection and Energy Efficiency Fund. Annual plans and Action Plans for Energy Efficiency, developed by local and regional authorities, are also uploaded into this application, with a total of more than 1 PJ energy savings.

The challenge is that regional authorities often do not have long-term targets, usually because of a limited budget, obstructing them from setting ambitious objectives. Regional authorities’ key priorities focus on the public sector, in which they have the highest influence. Measures related to increasing the energy efficiency of the public sector are also included in the NEEAP and can be co-financed at the national level. Regarding other sectors (e.g. industry, residential, tertiary sector, etc.), regional authorities can provide small financial incentives to encourage the implementation of measures, which can lead to significant energy savings. The aim is to show to citizens that the authorities are actively involved in energy planning and the implementation of energy efficiency measures. Priorities set at a regional level are not necessarily aligned with priorities set at a local level.

### 3.3.1 Proposed actions for the public sector

- **Education of employees of the public sector to reduce energy and water consumption** – putting notes near switches (e.g. turn off the light when nobody is in the room), near windows (e.g. do not open windows to cool the room, instead use the ventilation), in bathrooms (e.g. turn off the water after use), etc.
- **Energy renovation of public buildings** – public buildings will be renovated according to the nZEB standard. A key focus will be on the renovation of the envelope and the replacement of the heating/cooling system, lighting and home appliances with more energy efficient ones.
- **Increasing the use of Renewable Energy Sources in public buildings** – increase the installation of solar thermal collectors, PV modules, heat pumps, biomass furnaces.
3.3.2 Proposed actions for residential buildings

- **Financial incentives for the energy retrofitting of residential buildings** - regional authorities should provide non-refundable funds to encourage individuals to retrofit their houses.

3.3.3 Proposed actions for the transport sector

- **Intermodal transport** – build a network of intermodal terminals and public transportation stops to facilitate moving from one mode of transport to another and coordinate schedules;
- **Electrification of the regional authority’s transport fleet** – replace old cars with combustion engines and implement a green public procurement strategy to purchase electric vehicles.

3.4 Local priorities for energy planning

Within the framework of C-Track, REAN will support 10 local authorities in developing, financing and implementing ambitious integrated sustainable energy and climate policy action plans in order to achieve climate resilience and carbon neutrality by 2050.

Currently, 6 cities are being supported by the project:

1. Koprivnica
2. Krizevci
3. Varazdin
4. Ludbreg
5. Virovitica
6. Đakovo

**Koprivnica** is the capital of the Koprivnica-Krizevci County. In 2011, the city's administrative area of 90.94 km² had a total population of 30,854, with 23,955 in the city. Koprivnica is situated at a strategic location – on the slopes of Bilogora and Kalnik to the south and river Drava to the north.

**Krizevci** is a town in central Croatia with a total population of 21,122, 11,231 of which are located within the city. It is the oldest town in its county, i.e. the Koprivnica-Krizevci County. Because of its nearness to Zagreb (57 km), Krizevci is developing like a satellite city. It has a good geographical position, as it is close to all the regional centres: Koprivnica (31 km), Bjelovar (33 km) and Varazdin (48 km).

**Varazdin** is a city in Northern Croatia, 81 km north of Zagreb. The total population is 46,946, with 38,839 people located within the city. The centre of Varazdin County is located near the Drava River and it is mainly known for its baroque buildings, music, textile, food and IT industry.

**Ludbreg** is a city in Croatia, located halfway between Varazdin and Koprivnica near the river Drava. It has 3,603 inhabitants, and a total of 8,478 in the entire municipality. According to local legend, Ludbreg is considered as the centre of the world (centrum mundi) – many world cities are on concentric circles whose centre is in Ludbreg.

**Virovitica** is a Croatian city near the Hungarian border. It is situated near the Drava river and belongs to the historic region of Slavonia. Virovitica has a population of 21,291, with 14,688 people located within the city. It is also the capital of the Virovitica-Podravina County.
Djakovo is a city in the region of Slavonia in Croatia. Djakovo is located 37 km to the southwest of Osijek and 34 km southeast of Nasice. There is a total of 27,745 residents in the municipality, 19,491 of which are within the city.

The following cities and municipalities are interested in being supported within the framework of C-Track 50:

1. Vodnjan
2. Zminj
3. Kastav
4. Zadar

Vodnjan or Dignano (Italian) is a city in the Istria County in Croatia, located about 10 kilometers north of the largest city in Istria, Pula. According to the 2011 census, there are 3,613 inhabitants in Vodnjan-Dignano with a total municipal population of 6,119.

Zminj (Italian: Gimi no) is a municipality in Istria in Croatia, 15 km south of Pazin. It has a population of 3,483 and was first mentioned in 1177 as a parish of the Porec diocese. The town is located on a limestone hill between the Lim valley and the Rasa valley, 355 meters above the sea level.

Kastav was built on a 365 m high hill overlooking the Kvarner Bay in the northern part of the Adriatic coast. It is in close vicinity of Rijeka, the largest port in Croatia, and the Opatija Riviera, a popular tourist destination in Croatia. The total population of Kastav is 10,472.

Zadar is the oldest continuously-inhabited Croatian city. It is situated on the Adriatic Sea, at the northwestern part of the Ravni Kotari region. Zadar serves as the seat of the Zadar County and of the wider northern Dalmatian region. The city covers 25 km² with a population of 75,082 in 2011, making it the second-largest city of the region of Dalmatia and the fifth-largest city in the country.

Similar to regional authorities, local authorities are also aligning their priorities with the measures defined in the National Energy Efficiency Action Plan. As mentioned during the roundtables organised, the Law on Energy Efficiency (OG 127/14, 116/18) exempts small cities and municipalities from the obligation to develop energy efficiency plans (more than 100 cities and 400 municipalities). Thus, they are not legally bound by national energy targets. Cities and municipalities often have support from the regional and national level, but not in terms of financing energy planning priorities.

As mentioned previously, Annual Plans and Action Plans on energy efficiency, developed by local and regional authorities, are also uploaded into the SMiV application, with an estimated total of more than 1 PJ energy savings.

As with regional authorities, local authorities often do not have long-term targets, usually because of a limited budget, obstructing them from setting ambitious objectives. Some cities/municipalities, have adhered to the Covenant of Mayors for Climate and Energy initiative, and have set targets for 2030 (i.e. at least 40 % emission reduction, adaptation to climate change and secure, sustainable and affordable energy). Local authorities’ key priorities focus on the public sector, in which they have the highest influence. Measures related to increasing the energy efficiency of the public sector are included in the NEEAP and can be co-financed at the national level. Regarding other sectors within the city/municipality, local authorities can provide small financial incentives to encourage the implementation of measures which can lead to significant energy savings. The aim is actually to show to citizens that the city/municipality is actively involved in energy planning and the implementation.
of energy efficiency measures. Priorities set at a local level are not necessarily aligned with priorities set at a regional level.

3.4.1 Proposed actions for the public sector

- **Financing the modernization of street lighting via alternative funding sources (ESCO/EPC)** – local authorities’ budget is not sufficient to cover all costs for upgrading street lighting, so the use of alternative funding sources is pursued.
- **Aggregated public procurement of electricity** – two or more authorities procuring electricity together, so that there is only one tender published on behalf of all participating authorities. There are several benefits in this aggregated public procurement process, including: low electricity prices, administrative costs savings and pooling of different skills and expertise between authorities.
- **Education of employees of the public sector to reduce energy and water consumption** – putting notes near switches (e.g. turn off the light when nobody is in the room), near windows (e.g. do not open windows to cool the room, instead use the ventilation), in bathrooms (e.g. turn off the water after use), etc.
- **Energy renovation of public buildings** – public buildings will be renovated according to the nZEB standard. A key focus will be on the renovation of the envelope and the replacement of the heating/cooling system, lighting and home appliances with more energy efficient ones.
- **Increasing the use of Renewable Energy Sources in public buildings** – increase the installation of solar thermal collectors, PV modules, heat pumps, biomass furnaces.

3.4.2 Proposed actions for residential buildings

- **Financial incentives for the energy retrofitting of residential buildings** - local authorities should provide non-refundable funds to encourage individuals to retrofit their houses.
- **Encouraging the construction of low energy buildings by reducing public utility charges** – decrease by 50% public utility charges for every new low-energy building, and decrease by 100% public utility charges for every new passive building.

3.4.3 Proposed actions for the transport sector

- **Electrification of the local authority’s transport fleet** – purchasing electric vehicles to meet the transport needs of the local authority
- **Establishment of a car sharing system within public administration (public companies owned by the local authority)** – vehicles owned by the local authority (electric vehicles, if possible) can be shared and used by public servants in order to save energy.
- **Establishment of a bike sharing system** – install bicycle stations in strategic positions in the local authority, along with bicycles to be used in the bike-sharing system
- **Installation of Electric Vehicle (EV) charging stations** - in order to increase the uptake of EV, it is necessary to develop the necessary infrastructure.

3.5 Recommendations

The following recommendations for improving and facilitating local and regional energy planning have emerged during the roundtables organised:
• Engaging energy agencies during the development of national energy efficiency and climate resilient plans. This would be the first step in order to achieve carbon neutrality by 2050 because energy agencies, in most cases, develop Energy Efficiency Action Plans for local authorities and are familiar with all the challenges and problems faced during implementation of the measures at the local level (either administrative, financial or technical).

• Conducting multilateral meetings between local and regional authorities in order to improve collaboration on energy planning and the implementation of energy efficiency measures – discussing common issues and challenges and ways to overcome them or common opportunities and how to seize them.

• At a higher governance level, i.e. national level, guidelines for regional and local authorities should be provided for energy planning, setting energy targets and implementing energy efficiency measures.
4. France

4.1 The regulatory framework for regional and local energy planning

The law on the new territorial organisation of the Republic, known as the Notre law, creates a new planning scheme, the elaboration of which is entrusted to the regions: the regional spatial planning, sustainable development and equality plan (SRADDET). The regions are required to implement a SRADDET by mid-2019. This SRADDET defines:

- the Region's medium- and long-term objectives in terms of territorial balance and equality, the establishment of various infrastructures of regional interest, the opening up of rural areas, housing, economic spatial management, intermodality and transport development, the energy management and development, the fight against climate change, air, the protection and restoration of biodiversity, waste prevention and management;
- and the general rules planned by the Region to achieve these objectives.

The AURA Region has developed an energy strategy by 2030 with:

- a reduction of GHG emissions by 32% in 2030;
- a reduction of total energy consumption per inhabitant by 23% in 2030;
- an increase of renewable energy production by 36% in 2030.

The Act of 17 August 2015 on energy transition for green growth seeks to enhance France’s energy autonomy, cut its greenhouse gas emissions and provide effective tools to all stakeholders in order to boost green growth. As far as incentives and compulsory or voluntary measures in place to support the implementation of the national framework, the federations of municipalities with more than 20,000 inhabitants are required to implement a SECAP equivalent with air quality issues. As it is compulsory to implement a SECAP equivalent, there are no financial incentives.

At a regional level, Auvergne-Rhône-Alpes Region supports the Positive Energy Territories (TEPOS) initiative by 2050. This is a regional initiative that has the support of national institutions, such as the national energy agency, the delegation of the Ministry in the Region and the regional council. The aim is to support the implementation of local energy action plans through multi-level governance and finance. This initiative strongly contributes to the regional targets but also national and EU targets with a long term vision. At a regional level, the territories have to involve key stakeholders on different topics and local authorities have also to work together because the TEPOS initiative has engaged numerous territories, involving rural and urban areas. The regional consortium provides financial incentives for studies and for reinforcing human resources.

To date, there are 37 TEPOS, representing 54% of the population in the region. The objective of the Region is to have 80% of the regional territory covered by the TEPOS initiative.
4.2 The status quo in regional and local energy planning

The Region is the leader in terms of climate, air quality and energy. The SRADDET has to provide objectives in terms of mitigation and adaptation to climate change, air pollution control, energy management and development of renewable and recovery energies. The SECAPs equivalent have to take into account the SRADDET objectives. The target is 2030 for both climate and energy planning at regional and local levels.

With the adoption of the Energy Transition Law, the Regions are taking on the role of coordinating the territorial platforms for energy renovation. They must set quantified objectives for renovation, strive to link the entire regional territory so that citizens can have relevant information at their disposal and finally implement adequate financial measures. They will also have to develop:

- an energy efficiency public service;
- a regional biomass scheme;
- an intermodality scheme to review the public transport offer;
- a regional plan for circular economy.

To achieve regional energy objectives, the Auvergne-Rhône-Alpes Region launched the TEPOS initiative in 2013, with a 2050 target.

4.3 Regional priorities for energy planning

The regional council has been supported by AURA-EE on the elaboration of their energy strategy by 2030. The objective of our support within the framework of C-Track 50 is to extend the target to 2050 and to consider energy related issues in other sectors to achieve low carbon objectives.

![Flux d'énergie en Auvergne-Rhône-Alpes en 2015](image)

*Figure 1: Regional energy consumption in 2030 – AURA-EE, 2017*
For instance, AURA-EE developed a web-tool named terriSTORY® to help the Region to monitor and visualize GHG emissions, energy consumption and renewable energy production at a local and regional level. The Agency helped also the Region to identify the actions to be implemented to achieve the objectives and assess its economic impact.

### 4.3.1 Proposed actions for the public sector

**Public building sector**:
- Construction of new buildings at ambitious levels of energy performance (positive energy buildings or low carbon buildings);
- Carry out energy refurbishment at low-energy building levels.

**Renewable energy production**:
- Call for projects on methanisation, wood energy, partnership projects (public-private partnership).

### 4.3.2 Proposed actions for residential buildings

- Coordination of territorial platforms for energy renovation;
- Financial support to develop energy refurbishment in residential buildings.

### 4.3.3 Proposed actions for commercial buildings

- Projects to create or extend economic activity zones conditional on the integration of renewable energy production systems.

### 4.3.3 Proposed actions for the transport sector

- Promote low carbon mobility: launch of a call for projects for the development of hydrogen stations;
- Support for regional actions to promote more sustainable mobility.

### 4.4 Local priorities for energy planning

The table below presents the local authorities/agglomeration communities AURA-EE is supporting within the framework of C-Track 50:

<table>
<thead>
<tr>
<th>Agglomeration Community</th>
<th>Number of Municipalities</th>
<th>Number of Inhabitants</th>
<th>Energy Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agglo Pays d’Issoire</td>
<td>90</td>
<td>55,468</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050)</td>
</tr>
<tr>
<td>SYTEC</td>
<td>105</td>
<td>44,000</td>
<td>TEPOS initiative (2050)</td>
</tr>
<tr>
<td>CC Forez Est</td>
<td>42</td>
<td>63,070</td>
<td>SECAP equivalent (2030) under development</td>
</tr>
</tbody>
</table>
### Summary of Agglomeration Communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Number of Municipalities</th>
<th>Number of Inhabitants</th>
<th>Energy Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC Monts du Lyonnais</td>
<td>32</td>
<td>34,971</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050)</td>
</tr>
<tr>
<td>CC Genevois</td>
<td>17</td>
<td>39,787</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050)</td>
</tr>
<tr>
<td>Grand Annecy</td>
<td>34</td>
<td>205,214</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050) under development</td>
</tr>
<tr>
<td>Grand Chambéry</td>
<td>38</td>
<td>136,805</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050)</td>
</tr>
<tr>
<td>Grand Lac</td>
<td>28</td>
<td>73,756</td>
<td>SECAP equivalent (2030) and TEPOS initiative (2050) under development</td>
</tr>
<tr>
<td>PNR des Bauges</td>
<td>62</td>
<td>67,000</td>
<td>Voluntary SECAP equivalent and TEPOS initiative (2050)</td>
</tr>
</tbody>
</table>

Local priorities have been identified by AURA-EE for each territory, including strengths and weaknesses for each territory. For example, Agglo Pays d’Issoire is a semi-rural area with an interesting renewable energy potential but with a strong presence of industrial activities and important challenges in terms of mobility. The more urban territories have to tackle with climate change impact (urban heat island), preservation of urban nature and of carbon stock.

Key conclusions from the discussions / needs identified from territories:

- How can information be made visible to elected representatives and partners?
- How can private stakeholders be encouraged to be involved in the implementation of the action plan?
- An indicator that measures the objective, and assesses whether there is still a long way to go;
- Typologies of territories to be able to make comparisons with other similar territories;
- How can the action plan contribute to regional and national objectives?

All the territories supported within C-Track 50 project have planned actions for the sectors listed below. The objective of the C-Track 50 support is to introduce an integrated approach and integrate low carbon objectives in local and regional energy strategy.

#### 4.4.1 Proposed actions for the public sector

- Construction of new buildings at ambitious levels of energy performance (positive energy buildings or low carbon buildings);
- Energy refurbishments at low-energy building levels;
- Lighting strategy, including, turning off lighting on the road bypass, turning off night-time lighting in towns, modernizing lighting fixtures.
4.4.2 Proposed actions for residential buildings

- Reduce energy poverty;
- Implement a territorial platform for energy renovation.

4.4.3 Proposed actions for commercial buildings

Not addressed

4.4.4 Proposed actions for the transport sector

- Car-sharing car parks set up at the entrance of a built-up area;
- Soft mobility actions: self-service bicycles, development of bicycle and pedestrian paths etc.;
- Reinforcement of the public transport network.

4.5 Recommendations

The Region and the local authorities develop their own action plans. C-Track 50 will improve cooperation between local and regional levels. The Region needs to know if the financial support is really relevant and local authorities need to know if their measures are in line with regional objectives. Furthermore, some local authorities, especially in rural areas, would like to show at a higher level that, even if they have limited human and financial resources, they could be a strong contributor to the low carbon strategy thanks to their natural resources: biodiversity, renewable energy, carbon storage. AURA-EE developed TerriSTORY to aggregate local energy action plans to a regional level and to evaluate their impact in terms of energy savings, greenhouse gas emissions and number of local jobs created. This tool gives a common framework and promotes knowledge of what each territory is doing regarding climate and energy issues.

Through its role as coordinator on climate, air quality and energy issues, the Region already gives incentives to help local authorities to achieve the regional targets. But each territory has its own specific features. The incentives should be adapted to these features to improve the regional incentive efficiency. And a first step is to improve knowledge at each level through the supply of common data and data visualisation.

To accelerate the implementation of local energy planning, the Region and AURA-EE have planned to disseminate best practices. These good practices will be available in a resource centre for territories in transition.
5. Germany

5.1 The regulatory framework for regional and local energy planning

The relationship between the national and the local level is depicted in the figure below.

![Diagram of the regulatory framework]

**Figure 2: German energy and climate policy framework.**

*Source: Sophie Schetke, Heera Lee, Wanda Graf, Sven Lautenbach, Application of the ecosystem service concept for climate protection in Germany, Ecosystem Services, Volume 29, Part B, 2018, Pages 294-305, ISSN*

The listed policies and regulations are all issued by the federal government. The regions take up the federal laws and support their implementation, i.e. through financing or through setting other, additional programme initiatives. The regional government can also issue climate protection laws, with a more or a less binding character, which is the case for instance in Baden-Württemberg but also in a few other regions. Municipalities have to implement regional laws in such cases. If no such law exists, municipalities are in principal free to decide whether to embark on climate protection action or not. However, they are quasi-bound (not sanctioned), in the sense that they are strongly encouraged to adhere to international agreements, such as the Paris Agreement, as well as other initiatives, such as the EU’s Covenant of Mayors. Nevertheless, since municipal climate planning is voluntary in Germany, there are no resources earmarked for this in the municipal budget received from the federal or regional governments.

Financial incentives and funding for local and regional authorities are provided either through the National Climate Initiative (German NKI) run by the Federal Ministry for the Environment, Nature
Conservation and Nuclear Safety (German BMU), through regional funds, or through development- and modernization banks (e.g. KFW). Other major funding schemes for cities in energy and climate planning are European Programmes such as URBACT, LIFE, Horizon 2020 or the European Regional Development Fund (ERDF). In addition to this, there are several innovative funding schemes, such as crowd funding and other, which are not yet used extensively by local authorities, but are increasingly being considered.

### 5.2 The status quo in regional and local energy planning

Germany is a federal state divided into 16 province states, which are partially self-administered. Provinces have their own elected parliament and head of government as well as ministerial departments, similarly to the structure prevalent at the federal level. While taxes are collected at a federal level and budgets provided from national to regional governments, the provinces in Germany have limited legislative and executive rights, which fall into their mandate, e.g. in research and education policy, environment and climate as well as energy policy. This means for instance that provinces are able to issue laws and strategies that count for all counties and municipalities within their territory. Based on the subsidiary principle, municipalities are bound to these laws, just as the Provinces are bound to national legislation.

With regard to energy and climate planning at the provincial/regional level in Germany, the status quo is disperse. Owing to the fact that there are no binding laws in place, German Province States have a heterogeneous governance framework, ranging from strategies, plans and programmes to acts and legislative proposals. The current policies are summarized in the table below.

<table>
<thead>
<tr>
<th>Province State</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baden-Wuerttemberg (BW)</td>
<td>Climate Protection Act (issued July 2013)</td>
</tr>
<tr>
<td></td>
<td>Integrated Energy and Climate Concept (IEKK) (issued July 2014)</td>
</tr>
<tr>
<td>Bavaria (BY)</td>
<td>Bavarian Energy Concept (issued October 2015)</td>
</tr>
<tr>
<td></td>
<td>„Energie innovativ“ (issued May 2011)</td>
</tr>
<tr>
<td>Berlin (B)</td>
<td>Energy Concept 2020 (issued April 2011)</td>
</tr>
<tr>
<td>Brandenburg (BB)</td>
<td>Energy Strategy 2030 (issued February 2012)</td>
</tr>
<tr>
<td>Bremen (HB)</td>
<td>Energy and Climate Act (draft from April 2014)</td>
</tr>
<tr>
<td>Hamburg (HH)</td>
<td>Hamburg Climate Plan (issued December 2015)</td>
</tr>
<tr>
<td>Hesse (HE)</td>
<td>“Concept for Implementation” by the province government based on the results from the Energy Summit, January 2012</td>
</tr>
<tr>
<td>Mecklenburg-Vorpommern (MV)</td>
<td>Energy policy for the province state of Mecklenburg-Vorpommern (February 2015)</td>
</tr>
<tr>
<td>Lower Saxony (NI)</td>
<td>„Reliable, environmentally friendly, climate-friendly and affordable - energy policy for tomorrow“., The Energy Concept for Lower Saxony (issued January 2012)</td>
</tr>
<tr>
<td></td>
<td>An integrated energy and climate concept is currently under development, based on a decision of the government from August 2016.</td>
</tr>
</tbody>
</table>
As with the policy framework, provinces have set different emission reduction targets for different time horizons and with diverging focus action areas. The table below summarises CO₂ reduction targets.

Table 3: Overview of short, medium and long term CO₂ reduction targets at a provincial level in Germany

<table>
<thead>
<tr>
<th>Province State</th>
<th>CO₂ Reduction Target, as compared to 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
</tr>
<tr>
<td>Baden-Wuerttemberg (BW)</td>
<td>25%</td>
</tr>
<tr>
<td>Bavaria (BY)</td>
<td>5.5t/cap</td>
</tr>
<tr>
<td>Berlin (B)</td>
<td>40%</td>
</tr>
<tr>
<td>Brandenburg (BB)</td>
<td>n.a.</td>
</tr>
<tr>
<td>Bremen (HB)</td>
<td>40%</td>
</tr>
<tr>
<td>Hamburg (HH)</td>
<td>n.a.</td>
</tr>
<tr>
<td>Hesse (HE)</td>
<td>30%</td>
</tr>
<tr>
<td>Mecklenburg-Vorpommern (MV)</td>
<td>40%</td>
</tr>
<tr>
<td>Lower Saxony (NI)</td>
<td>40%</td>
</tr>
<tr>
<td>North Rhine-Westphalia (NRW)</td>
<td>25%</td>
</tr>
<tr>
<td>Rhineland-Palatinate (RLP)</td>
<td>40%</td>
</tr>
<tr>
<td>Saarland (SL)</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Source: “Energie- und Klimaschutzkonzepte - Politik - Übersicht zur Entwicklung Erneuerbarer Energien in allen Bundesländern,” n.d. adapted by the author
### 5.3 Regional priorities for energy planning

The province of Baden-Württemberg (approx. 11 Mio. inhabitants) aims to reduce GHG emissions by 25% in 2020 and by 90% in 2050, thus adhering (or potentially overreaching) to the federal target of 75%-95%. In addition to the 2013 integrated regional climate protection plan, the regional parliament has introduced a Climate Protection Act that aims to underpin and make obligatory the implementation of the integrated climate plan, as well as the provincial adaptation strategy. While the Climate Protection Act aims at serving as a role model for other German provinces (and perhaps to the federal government), it lacks mechanisms, which could support its application and, if needed, allow for sanctions. The province is engaged in numerous international activities such as the “Under2Coalition“ or “Four engines for Europe”, the EU strategy for the Danube Region, the International Lake Constance Conference and drives a strong cooperation agenda. In this regard, there were several good examples identified, which could be used in Germany, for instance from the Region Rhône-Alpes, which also collaborates with Baden-Württemberg in “Four Engines for Europe”.

The Integrated Energy and Climate Protection Concept (German IEKK) of Baden-Wuerttemberg provides concrete strategies and measures to reach the objectives enshrined in the Climate Protection Act. The IEKK considers all relevant sources of greenhouse gases. Therefore, it covers various areas of action such as electricity, heating & cooling, traffic, land use and material flows. All ministries of the state government contribute with their activities to reach the set goals. The IEKK is currently being revised for 2030 to include supporting action measures until 2030.

The IEKK provides the conceptual basis for the Baden-Württemberg energy and climate policy (§ 6 Climate Protection Act Baden-Württemberg). It outlines a pathway to achieve profound changes in the energy industry, such as the nuclear phase-out and ambitious climate protection goals that need to be achieved through an integrated energy and climate policy. The sector targets for 2020 are shown in the table below.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Sector targets for 2020, compared to 1990</th>
<th>Current reduction compared to 2010</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity production</td>
<td>-15% until -18%</td>
<td>-6%</td>
<td>-7%</td>
</tr>
<tr>
<td>Of which part of emission trading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private households</td>
<td>-20% until -28%</td>
<td>-24%</td>
<td></td>
</tr>
<tr>
<td>Industry (from energy use)</td>
<td>-55% until -60%</td>
<td>-31%</td>
<td>-18%</td>
</tr>
<tr>
<td>Of which part of emission trading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector</td>
<td>Sector targets for 2020, compared to 1990</td>
<td>Current reduction contribution, compared to 2010</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Industry (process)</td>
<td>-23%</td>
<td>-8%</td>
<td></td>
</tr>
<tr>
<td>Retail, trade and services</td>
<td>-35% until -40%</td>
<td>-29%</td>
<td></td>
</tr>
<tr>
<td>Of which in public sector</td>
<td>-35% until -40%</td>
<td>-29%</td>
<td></td>
</tr>
<tr>
<td>Agriculture, forestry and land-use</td>
<td>-35%</td>
<td>-22%</td>
<td></td>
</tr>
<tr>
<td>Traffic/mobility</td>
<td>-20% until -25%</td>
<td>-26%</td>
<td></td>
</tr>
<tr>
<td>Waste and circular economy</td>
<td>-90%</td>
<td>-52% (comp. to 2009)</td>
<td></td>
</tr>
</tbody>
</table>

Source: (Baden-Württemberg, n.d.), adapted by the author

In the summer of 2017, the Ministry of the Environment initiated a research project that set out the pathway to 2030. Scientists then developed a target scenario that forms the basis for the further development (update) of the Integrated Energy and Climate Protection Concept Baden-Württemberg (German IEKK), and the update of the Climate Protection Act Baden-Württemberg.

During the roundtables held, the Act was criticized that it lacks any implementation and enforcement mechanisms; i.e. it does not distribute reduction targets, nor does it include any structural funding mechanisms for municipalities. Participants argued that the Act makes climate protection obligatory and gives municipalities a mandate, on paper, but offers insufficient instruments for funding and inadequate sanctioning mechanisms to support its implementation.

Additionally, there seems to be consensus among supported municipalities that the provinces/regions in general should play a more active part in supporting municipalities’ climate action, both financially and in terms of capacity building and educational programmes.

Moreover, there were a number of further recommendations, such as to decrease bureaucracy, to promote the horizontal integration within the administrative departments, to encourage communication among municipalities on funding mechanisms and best practices (instead of blocking it). It was also proposed that provinces/regions should oblige municipalities to develop integrated climate plans, but granting them with sufficient resources to do so. Furthermore, the role of regional governments within a multilevel governance framework needs to be further defined and strengthened, as well as a stronger collaboration needs to be promoted both with the federal level in terms of defining regulations that are needed and with the local level in terms of needs that ought to be taken into account. The province/region should act as intermediate between the federal level (regulation, funding) and the local level (implementation, needs).

5.3.1 Proposed actions for the public sector

- An ambitious and attractive renewable feed-in-tariff for thermal energy supply should be established and enforced. Regional governments should enable and/or support respective framework conditions.

5.3.2 Proposed actions for residential buildings

- In light of the ambitious reduction target of 67% for 2030 set by the German Federal Government, the modernization rate of the building stock has to be accelerated. Funds and programmes have to be made available for implementation by the Regional Government. This
A recommendation was largely supported and validated by municipal and regional actors during roundtables. Additionally, the regulatory framework has to be adapted to make it easier for cities and regions to enact laws for renewable energy production on new buildings.

- Efforts in the heating and cooling sector have to be increased. Municipalities and regional stakeholders, as well as utilities and consumers have to be brought together to discuss how to advance the supply of district heating from renewable energy.
- Building renovation rates should target 3% per year and receive appropriate support.
- Buildings and the optimization of their energy performance should be analysed and implemented in order to identify the most cost-effective approach.

### 5.3.3 Proposed actions for commercial buildings

- Targets for using unavoidable excess heat/cold from industrial sites, data centers etc. should be formulated and regulations for their integration should reviewed and improved by regional governments.

### 5.3.4 Proposed actions for the transport sector

- With emissions from traffic and mobility being a great challenge for Germany, the regional government should take on a strong role in providing the necessary framework conditions for counties and municipalities to plan accordingly. One important step in this direction could be to provide the necessary sustainable mobility planning from the regional level (e.g. as a master plan on the county level) to avoid communication barriers and barriers induced by territorial issues between municipalities.

### 5.4 Local priorities for energy planning

Within the framework of C-Track 50, ICLEI Europe is supporting ten small and medium-sized municipalities in Germany in energy and climate planning (i.e. Bühl, Ludwigsburg, Arnsberg, Augsburg, Essen, Freiburg, Mannheim, Dortmund, Endingen, Riegel), ranging from 10,000- to 580,000 inhabitants. These are located in three different provinces/regions (i.e. North Rhine-Westphalia, Baden-Württemberg and Bavaria).

Municipalities' priorities in energy and climate planning are manifold and to a large extent subject to - and defined in - existing climate protection concepts. Priorities range from increasing renewable energy production (e.g. solar power in case of the City of Bühl) to increasing the energy renovation rates of buildings, or considering both climate change mitigation and adaptation, as well as air quality, in a new plan for the city (e.g. in the case of Dortmund). Most municipalities are in a process of updating existing plans for 2020, by setting targets for 2030 or 2050, underpinned with new measures. Most of the climate protection plans follow the same (or a similar) format in terms of sectors and focus areas. These include typically: energy production, buildings, mobility, industry and behaviour; however, there are different measures and alternate approaches employed by some municipalities. Typically, priority is given to building refurbishment (both municipal and private), district heating & cooling and/or renewable energy. Cutting down emissions from mobility, while being a pressing challenge, is often not tackled sufficiently. However, as existing plans are currently being updated to include new targets and measures for 2030 and/or 2050, priorities may shift or may be intensified.
While some municipalities have the concept of climate neutrality enshrined in their climate and energy plans, others are only at the beginning of assessing such options within the framework of the update of their plan, i.e. from SEAP to SECAP. However, not all participating municipalities are signatories of the Covenant of Mayors for Climate and Energy and thus have not submitted SEAP/SECAPs but rather adhere to the integrated climate concepts of the German climate and energy governance framework.

Furthermore, for some municipalities, climate neutrality is an important target to pursue, for others it is not (yet) on their agenda. Some municipalities do have climate planning as an integral part of their sustainability framework with a thematic integration across departments of municipal administration, which for instance want to further strengthen integration efforts as part of the Sustainable Development Goals (SDGs). Examples include: the cities Mannheim and Essen. For other, smaller municipalities climate and energy planning efforts are more isolated, which is strongly correlated to the availability of resources. Climate change adaptation is usually not part of the plans developed in most cases, with the exception of SECAPs developed within the framework of the Covenant of Mayors (CoM) initiative, e.g. the City of Ludwigsburg has an elaborated climate and sustainability framework with numerous best-practice examples that other participating municipalities can profit from. However, challenges that are common to all include lack of financing (connected to the lack of political mandate for climate protection in Germany), lack of know-how, i.e. on the concept of climate neutrality, silo mentality within municipal administrations, lack of multi-level dialogue and engagement of the public and lack of public awareness and acceptance.

In terms of setting priorities within the framework of C-Track 50, supported municipalities that participated in both the national and local roundtables, expressed different needs. A number of municipalities want to focus on creating a model or “leading narrative” for their plans towards 2030 and 2050. This may include working on processes, and co-creating and developing effective measures (i.e. in the case of Endingen, Essen, Arnsberg, Mannheim and Dortmund). Others want to focus on climate planning at district/neighbourhood level (e.g. Freiburg) or developing a SECAP (e.g. Ludwigsburg). In this regard, priorities were discussed with each municipality either during the roundtables organised and/or at bilateral exchanges. The support that ICLEI Europe will provide, within the framework of C-Track 50, has been defined (or has partly already been implemented) and can be categorized into three groups: (1) support in integrating the concept of climate neutrality when updating municipal integrated climate plans; (2) support in updating SEAPs to SECAPs and (3) support in developing participatory municipal processes to help solve acceptance issues and create a vision/narrative for 2030/2050.

5.4.1 Proposed actions for the public sector

- In a rapidly changing city, both socio-economically and technologically, local authorities will need to re-define their role, and lead the climate and energy transition. Given the increasing multitude of actors, as well as the knowledge required for the transition, authorities have to be able to initiate, facilitate and drive the dialogue. Thus, cities have to open up to such a process, embrace the complexity of the transition and redefine their role to lead the transition.
5.4.2 Proposed actions for residential buildings

- Given that there is a huge potential for emission reductions\(^2\), local authorities should strongly invest in the use and expansion of, for example, excess heat from thermal power stations, treatment plants etc., as well as respective distributions networks.

5.4.3 Proposed actions for the transport sector

- Car free city centres (examples Madrid and Copenhagen).
- Stop selling fossil fuels within the city limits (e.g. Stockholm 2040 Strategy).
- Large investment in biking lanes, as well as sharing initiatives.
- Tax incentives supporting bikes or sharing initiatives.

5.5 Recommendations

The table below outlines the main conclusions and recommendations regarding municipal and regional climate planning, as well as multi-level-governance in Germany, which were derived following the local roundtables organised by C-Track 50.

Table 5: Summary of key recommendations from the local roundtables concerning local and regional energy and climate planning and MLG in Germany

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Municipal Level</th>
<th>Provincial Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financially support building the capacity of municipal climate protection staff</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Supplement financial aid and incentives for the local from the federal side</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Financially support municipalities on climate action, independently of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>administrative departments, rather focus on results-oriented support</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Decrease bureaucracy in funding and incentive schemes</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Develop a financial aid programme specifically for developing energy plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for climate neutral districts</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Better use of existing funding options</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Not only support (financially) isolated singular climate actions but rather</td>
<td></td>
<td></td>
</tr>
<tr>
<td>promote more holistic local development concepts including climate</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>change mitigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oblige municipalities to draft integrated climate concepts (or SECAPs)</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Lift the communication ban for municipalities to be able to communicate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between each other on federal and provincial funding programmes and proposals.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Legally enshrine a climate protection action as a mandated task for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>municipalities, along with the required financial resources</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Integrate diverse departments under “one roof” as climate protection minstry</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Integrate horizontally climate- and environmental protection into other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>administrative departments at the local level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical/Content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Include EMAS certification in the German National Climate Initiative (NKI)</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>as a municipal management process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a local coalition of the willing to persuade local policy makers to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>engage in climate action. I.e. what can you do? How can we help?</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Paradigm shift away from “climate protection” towards “smart energy and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mobility systems”</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Integrate urban planning with climate protection as topics within the city</td>
<td></td>
<td></td>
</tr>
<tr>
<td>administration</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Stimulate competition over best practices among municipalities</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
6. Greece

6.1 The regulatory framework for regional and local energy planning

Law 4342/2015 (Government Gazette A 143 / 9-11-2015) transposes the Energy Efficiency Directive (2012/27/EU) and establishes the obligation for the elaboration of an Energy Efficiency Plan (EEP) at the local and regional level, with a primary focus on public buildings. The plan must contain specific objectives and outline energy efficiency measures to be implemented. It should be submitted to the Ministry of Environment and Energy and reviewed every two years. An energy management system, including energy audits as part of the energy efficiency plan, should be put in place, while an Energy Manager should also be assigned for the authority’s public buildings.

Besides the EEPs, Law 4414/2016 (Government Gazette A 149 / 09.08.2016), establishes the development of Regional Climate Change Adaptation Plans, which, based on the climatic conditions and vulnerability of each region, will define priority policy areas and specific targeted measures. The content of each plan was specified in Ministerial Decision 11258/2017 (Government Gazette B873).

Finally, the regional authorities of the thirteen regions in Greece are responsible for the expansion, planning and management of waste disposal sites. Their plans must adhere to the principles and conditions set out in the National Plan for Waste Management, which is the strategic plan for all waste streams at a national level.

Consequently, energy planning is compulsory at both regional and local levels, but only in terms of public buildings or relevant infrastructure. Nevertheless, this obligation has not been fully enforced.

On the other hand, local energy plans are being developed on a voluntary basis, within the framework of the Covenant of Mayors (CoM) initiative. The CoM is very widespread among Greek local authorities, with 223 signatories, many of which have developed a Sustainable Energy Action Plan (SEAPs) or a Sustainable Energy and Climate Action Plan (SECAPs).

Currently, there are no specific tools or national measures adopted in order to incentivise local / regional authorities to set ambitious energy targets, as the energy policy planning process is mainly considered a national undertaking. However, the Greek government is continuously launching calls for project proposals under the National Strategic Reference Framework 2014-2020 (NSRF) programme, for public entities. The calls mostly focus on priority sectors and areas identified in SEAPs/SECAPs and interventions outlined in EEPs.

Finally, regional authorities may finance the development of Sustainable Energy and Mobility plans for municipalities and the implementation of specific actions, through their Regional Operational Programme, funded by the European Structural and Investment Funds. For example, the region of Epirus has recently funded the development of Sustainable Energy and Mobility plans in four municipalities within its territory through its Regional Operational Programme.
6.2 The status quo in regional and local energy planning

As mentioned in the previous section, local and regional authorities are obliged to prepare EEPs. Although this obligation is in place since 2015, it has not been strictly enforced so far. According to the information provided by the representatives of the Ministry of Environment and Energy, during the national roundtables organised within the framework of C-Track 50, only a few local/regional authorities have submitted EEPs. As the EEPs submitted are not considered comparable and of satisfactory quality, the Ministry is currently working on issuing a common template to be used by public authorities when developing EEPs.

The majority of municipalities have already developed SEAPs and SECAPs under the Covenant of Mayors. Out of the 223 signatories (July 2019 status), 167 have committed to a 20% CO₂ emission reduction by 2020, while another 40 municipalities have committed to a 40% reduction by 2030. In addition to this, 13 municipalities had committed to meet the 2020 target, and have renewed their commitment for 2030. Finally, 3 municipalities have committed to prepare for the impacts of climate change adaptation only (Mayors’ adapt initiative).

Concerning the Regional Climate Change Adaptation Plans, the Ministry of Environment and Energy has specified their content with Ministerial Decision 11258/2017. Currently, all 13 regions have progressed in the development of their plans. More specifically, several regions are at the public consultation stage, which is either ongoing e.g. region of Ionian Islands, region of South Aegean, or has been completed e.g. Region of North Aegean, region of Eastern Macedonia and Thrace, region of western Macedonia and region of Western Greece.

From the discussions that took place during the two roundtables organized in Greece within the framework of C-Track, with the participation of regional and local stakeholders, it has been concluded that there is collaboration to some extent between regions and their respective municipalities, although the extent of this collaboration varies among the different regions. This is understood to be due to the lack of an appropriate regulatory framework on multi-level governance, and due to the diversified responsibilities on energy and climate. In waste management, which is a responsibility of both authority levels, a higher degree of collaboration is seen.

In terms of energy planning, there is no specific process envisaged for engaging with local authorities during the target setting process or the development stage at the regional level or vice versa. Nevertheless, when public consultations are launched, municipalities and regions have the opportunity to comment on the plans developed. As such, there are no common targets set at a local and regional level. However, it should be noted that targets are expected to be similar, even though efforts are not officially coordinated, as these are commonly in line with EU and national targets.

Finally, regions actively support municipalities in attaining local targets, as they finance local energy projects through their Regional Operational Programme, for example they regularly finance projects that aim to increase the energy efficiency of municipal buildings.

6.3 Regional priorities for energy planning

In Greece, two regional authorities are being supported within the framework of C-Track 50, namely the region of Thessaly and the region of Epirus, to develop a long-term energy and climate plan, and exchange technical know-how and experiences respectively. Both regions were established in the
1987 administrative reform, and received full financial and administrative autonomy under the Kallikratis reform in 2011.

The region of Epirus is divided into four regional units, which are further subdivided into 18 municipalities, with approximately 340,000 inhabitants (2011 census). The vision of the Region is to make Epirus a place worth living; competitive and outward-looking. By boosting investment in areas where the region has a competitive advantage, tackling unemployment, promoting social inclusion and equal opportunities it also actively contributes to achieving the Europe 2020 targets for smart, sustainable and inclusive growth. According to the Epirus Operational Programme, environmental protection and sustainable development is one of the region’s key funding priorities, which includes increasing the energy efficiency in public / private buildings and reducing the energy footprint of urban centres.

The region of Thessaly is divided into five regional units, which are further subdivided into 25 municipalities, with approximately 732,760 inhabitants (2011 census). The region’s strategic objective for its development is to comprise a strong and innovative economy in Europe, focusing both on humans and the environment, via smart, sustainable and inclusive growth. According to the Thessaly Operational Programme, environmental protection and adaptation to climate change is one of the key sectors addressed, receiving 22% of the regional budget. Priority activities in this sector include waste management, energy efficiency in public buildings, as well as protective measures against floods and forest fires.

During the three national/regional roundtables organized within the framework of C-Track 50, the two regions actively participated in the discussions and expressed their willingness to support the national energy and climate policies and priorities. Although decarbonisation for 2050 is considered a very challenging target at both levels, the regional administration is willing to work towards high emission reduction targets, especially if these are linked with additional, earmarked funds.

Regional stakeholders also participated in the second roundtable organized for local authorities and filled in a questionnaire regarding their long-term energy and climate targets, their priorities for 2030, 2040 and 2050, as well as key activities that will be implemented in the near future. The results from this analysis are presented below.

Both regions have not yet set any official commitment targets, although they are continuously working towards reducing the use of fossil fuels, increasing the penetration of renewable energy technologies, as well as increasing energy efficiency at both public and private buildings. Also, both regions have recognised the importance of taking all the necessary measures to ensure environmental protection and climate change adaptation, especially for sensitive ecosystems.

### 6.3.1 Proposed actions for the public sector

The actions that the two regions are already implementing and plan to further develop for 2030, 2040 and 2050 include:

- Upgrade of street lighting and adoption of street lighting management systems. During the roundtables organised, emphasis was given on developing a lighting study before upgrading street lighting, to reduce over lighting and improve the quality of lighting (i.e. meets certain street lighting standards);
- Water supply and irrigation projects, especially in rural regions;
- Deep renovation of public buildings, in order to comply with the nearly zero energy buildings’ requirements;
- Adoption of green public procurement procedures, which have not yet been implemented by the regional authorities;
- Expansion of the natural gas network in the regions, as this will provide an alternative fuel for heating purposes (schools, athletic facilities, offices).

6.3.2 Proposed actions for residential buildings

The proposed actions for residential buildings focus on:

- Awareness raising activities for residents in order to promote actions that trigger energy savings;
- Especially for the region of Epirus, promotion of natural gas for heating purposes in sight of 2030, bioclimatic design for 2040 and nearly zero energy buildings for 2050.

6.3.3 Proposed actions for commercial buildings

The proposed actions for commercial buildings are similar to the ones for the residential sector, but have a higher emphasis on the connection to the natural gas network, especially for tertiary sector services that engage high heating & cooking loads and other needs (hotels, hospitals, restaurants etc.)

6.3.4 Proposed actions for the transport sector

The majority of the regions’ activities are in line with the national policies. Following thorough discussions, the transport sector should receive more attention in the foreseeable future at the regional level. In this direction proposed actions include the promotion of electric vehicles and the creation of electric vehicle charging infrastructure.

Besides increasing the penetration of electric vehicles in the private sector, regions need to work towards the gradual replacement of their own vehicles. The region of Epirus plans to actively pursue electro mobility and low emission public transportation, while the region of Thessaly plans to focus on the electrification of the Palaiofarsala – Kalabaka railroad section.

Considering that the natural gas network has been expanding in the region of Thessaly, and that this is a key priority for the region of Epirus in the next few years, one of the proposed actions until the further roll out of electric vehicle infrastructure, is the conversion of existing vehicles into compressed natural gas.

6.4 Local priorities for energy planning

Within the framework of C-Track 50, 19 municipalities are supported in Greece, from 8 out of the 13 regions in total. The population of these municipalities vary from 5,000 to 110,000, reaching an overall number of 850,000 citizens.

The vast majority of these municipalities have adhered to the Covenant of Mayors initiative and have set targets for 2020 and/or 2030, and are willing to work towards the decarbonisation target for 2050. Moreover, supported municipalities are interested in improving their collaboration with regional authorities, to facilitate the implementation of planned actions.
An overview of these municipalities is provided in the following table.

### Table 6: Municipalities supported in Greece

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Population</th>
<th>Region</th>
<th>Policy and climate plans in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliartos - Thespieis</td>
<td>10,750</td>
<td>Central Greece</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Arta</td>
<td>43,150</td>
<td>Epirus</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
<tr>
<td>Chalandri</td>
<td>74,000</td>
<td>Chalandri</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
<tr>
<td>Chalkida</td>
<td>102,200</td>
<td>Central Greece</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
<tr>
<td>Chania</td>
<td>108,600</td>
<td>Crete</td>
<td>CoM member for 2030, with SECAP</td>
</tr>
<tr>
<td>Elliniko - Argiroupoli</td>
<td>51,330</td>
<td>Attica</td>
<td>Not available</td>
</tr>
<tr>
<td>Eretria</td>
<td>13,400</td>
<td>Central Greece</td>
<td>CoM member for 2020 and 2030, with SEAP</td>
</tr>
<tr>
<td>Faistos</td>
<td>24,300</td>
<td>Crete</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Farsala</td>
<td>23,500</td>
<td>Thessaly</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Ilioupoli</td>
<td>75,900</td>
<td>Attica</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Kantanou - Selinou</td>
<td>5,650</td>
<td>Crete</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Loutraki – Perachora – Agioi Theodoroi</td>
<td>15,000</td>
<td>Peloponnese</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Milos</td>
<td>4,770</td>
<td>South Aegean</td>
<td>CoM member for 2020 and 2030, with SEAP</td>
</tr>
<tr>
<td>Pylos - Nestor</td>
<td>21,000</td>
<td>Peloponnese</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
<tr>
<td>Rethymno</td>
<td>62,900</td>
<td>Crete</td>
<td>CoM member for 2020 and 2030, with SEAP and SECAP</td>
</tr>
<tr>
<td>Vari – Voula – Vouliagmeni</td>
<td>48,400</td>
<td>Attica</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Veria</td>
<td>66,500</td>
<td>Central Macedonia</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
<tr>
<td>Zirou</td>
<td>16,500</td>
<td>Epirus</td>
<td>CoM member for 2020 with SEAP</td>
</tr>
<tr>
<td>Zografou</td>
<td>81,100</td>
<td>Attica</td>
<td>CoM member for 2030, SECAP under development</td>
</tr>
</tbody>
</table>

Several of these municipalities participated in the two local roundtables organised that aimed to identify local priorities. During the first roundtable, the municipalities’ representatives worked together in a group exercise in order to specify local priorities and exemplar projects, while during the second roundtable, representatives filled in a questionnaire to define long-term targets and priorities. Finally, during various bilateral meetings organised to date (which are part of the C-Track 50 technical support process), municipalities have identified priority projects and activities.

As a result, key long-term priorities and actions identified include: the promotion of renewable energy sources and energy saving technologies in the building and transport sector.

### 6.4.1 Proposed actions for the public sector

- Use of cool colors in public buildings and building renovations, in order to reach nearly zero-energy building standards when required;
• Increase the use of natural gas and renewable energy technologies in public buildings and athletic facilities;
• Appointment of an energy manager for public buildings;
• Capacity building activities for employees;
• Development of lighting studies and upgrade of street lighting;
• Promotion of recycling in public buildings;
• Use of renewable energy sources in pumping stations used for irrigation of agricultural areas, or water supply of public spaces.

6.4.2 Proposed actions for residential buildings

• Provision of financial incentives to citizens for the implementation of renewable energy and energy efficiency actions, for example by reducing municipal fees. Alternatively, provision of incentives, such as free use of the municipal swimming pool or fitness center;
• Promotion of bioclimatic buildings;
• Promotion of composting and recycling, potentially also providing financial incentives;
• Awareness raising activities for citizens and children (for example at schools).

6.4.3 Proposed actions for commercial buildings

Proposed actions for the commercial buildings are similar to the ones proposed for the residential sector, with more emphasis on the promotion of bioclimatic buildings, as well as the promotion of natural gas for heating and cooking purposes.

6.4.4 Proposed actions for the transport sector

• Promotion of e-mobility and the use of compressed natural gas in vehicles;
• Renewal of the municipal fleet with cleaner vehicles, including electric vehicles;
• Promotion of cycling, and development of the necessary infrastructure, such as cycling paths and bike sharing stations;
• Promotion of municipal transport and other soft modes of transport (e.g. walking); improvement of sidewalks.
• Promotion of the use of shared mobility, supported by applications linked to the municipal webpage;
• Use of cool materials for the construction of roads in order to reduce the urban heat island effect.

6.5 Recommendations

A key conclusion, that emerged during the roundtable discussions organised in Greece, was that there is collaboration to some extent between regions and their respective municipalities, although the extent of this collaboration varies. Municipalities and regions are interested in improving their collaboration and this could be facilitated if an appropriate regulatory framework is developed.

On the other hand, an important challenge faced by municipalities is the lack of qualified personnel. Employees working at the technical department of a municipality provide municipal services on a daily basis, but also mature technical studies and projects, for which they don’t necessarily have the
relevant technical background and/or expertise. The issue of resources could be resolved and the collaboration between regions and municipalities could be strengthened, if regions actively supported local authorities in local energy planning, for example by providing technical support and guidance for developing local energy plans or maturing energy studies. The regions that have participated in the C-Track 50 activities to date, have expressed interest in further supporting municipalities, provided that the necessary resources and funds are available.

The collaboration between regions and municipalities could be further strengthened and the local energy planning process could be facilitated, if regional authorities earmarked funds for the elaboration and implementation of local energy plans. Regions could also provide extra incentives by financing additional energy interventions planned by local authorities.

Lack of energy data for key sectors, with the exception of the municipal sector, is also an important challenge faced. To ensure the comparability and coherence of the data collected within a region, regional authorities could coordinate the data collection and analysis process.

Furthermore, the decarbonisation target by 2050 is perceived as very ambitious. Achieving this target is considered a challenge by numerous local authorities. Therefore, further support at the regional or national level will be vital.

Finally, although regions are not obliged by law to prepare and implement energy policy plans, they must develop a Regional Climate Change Adaptation Plan. Municipalities should be encouraged to more actively participate in the development phase of the plan (e.g. by discussing priorities during bilateral and other meetings), but also provide input during the public consultation process.

Likewise, regions should be encouraged to actively participate in the development and implementation process of local energy plans, and provide input during the public consultation phase.
7. Hungary

7.1 The regulatory framework for regional and local energy planning

Hungary has transposed into national Law all relevant EU Directives. More specifically:

- Act LVII of 2015 transposes Directive 2012/27/EU on energy efficiency,
- Government Decree Nr. 193 of 2011 (IX.22.) transposes Directive 2010/30/EU on energy labelling (although from the 1st of August 2017, Directive 2010/30/EU was replaced Regulation (EU) 2017/1369),

According to the LVII. (2015) Act on Energy Efficiency from the 1st of January 2017, an energy saving action plan must be developed for every publicly owned and maintained building, which is used for providing public services, accompanied by awareness raising training for the users of the buildings. The action plan must be submitted to the National Energy Expert Network every five years. The establishment and operation of the National Energy Expert Network is the responsibility of county governments.

Furthermore, public institutions are also required to conduct energy audits before the conclusion of an energy service company (ESCO) agreement.

The Hungarian government supports regions to set ambitious targets. More specifically, during the development phase of the operational programme related to energy, the county government provides information on regional/local needs. The government then formulates calls for proposals, so that public authorities apply for grants to implement ambitious climate and energy projects.

7.2 The status quo in regional and local energy planning

In Hungary there are seven regions and 19 counties. There are no regional authorities in Hungary, but there are county governments. The Hungarian Climate Change Strategy (NCCS) determines the framework of county level planning. County level climate change strategies were developed within the framework of the Environment and Energy Efficiency Operational Programme between 2017 and 2018, based on standardized guidelines and in accordance with national objectives. The methodology for developing climate change strategies was compiled by the National Adaptation Centre Department of the Mining and Geological Survey of Hungary, on behalf of the Association of Climate Friendly Municipalities, to ensure the development of standardized comparable strategies.

The county level climate change strategies consider the natural resources available in each county. The content of the county level strategies mirror the structure of the national strategy: 1. General social and economic assessment; expected changes in the climate of the county 2. Mitigation assessment 3. Adaptation assessment 4. Change of approach assessment 5. Climate-based SWOT analysis, stakeholder analysis 6. Linked strategies at the national and county level 7. The outlook of county level climate change; general and county-specific objectives (mitigation, adaptation and change of approach objectives) 8. Areas of intervention/measures (mitigation, adaptation and
change of approach) 9. Tools for the implementation of the strategy (e.g. management, funding) 10. Monitoring, assessment and revision.

Overall, county governments consider both national targets and local needs when developing climate change strategies, spatial development programmes (which include energy priorities and targets), and regional operational programmes.

At a local level, only 79 municipalities have developed local climate change strategies (out of approximately 3,000 municipalities). More specifically in the Hajdú-Bihar county only 2 municipalities have developed such a plan.

On the other hand, 155 local authorities have adhered to the Covenant of Mayors initiative. Overall, 55 municipalities are committed to meet targets set for 2020, 95 are committed to meet targets set/to be set for 2030, whilst 4 municipalities have set targets for 2020 and renewed their commitment for 2030 (note: one municipality has only set targets for climate adaptation). Currently, municipalities in Hungary have not set targets for 2050.

Local targets are generally in line with national targets. Some municipalities have more ambitious goals and set more ambitious targets with the help of regional/local organizations, such as LENERG Energy Agency or Hajdú-Bihar County Development Agency.

7.3 Regional priorities for energy planning

LENERG Energy Agency is supporting the Hajdú-Bihar County Government, within the framework of C-Track 50. The county is responsible for: planning procedures, implementation and co-ordination of spatial development, rural development (decision making, monitoring of programmes, implementation of LEADERs/Community-Led Local Development), sport, youth and minority issues. In addition to this, they also cooperate in: preserving natural and cultural assets, finding new ways and fresh innovative solutions, green communities; sustainable tourism; ecotourism; thematic routes, agri-innovation, rural innovation - digital solutions, strengthening SMEs; clusters and networks, circular economy and renewable energy (waste management, climate adaptation, low-carbon issues) and cultural and creative industries.

The National Development and Territorial Development Concept presents the vision of Hungary for 2030 as well as development priorities for the programming period 2014-2020. It also determines development goals for each county.

County governments, as part of their coordination role, cooperate with local authorities. For instance, county governments collect information from municipalities (such as local needs and project ideas) to help National Authorities formulate the call for proposal of the next Operational Programme. County governments also participate in international energy projects, and gain experience and good practices from all over Europe, hence can support municipalities in their development ideas.

In the Climate Strategy of the Hajdú-Bihar County, the vision for 2050 is outlined: Hajdú-Bihar County will aim to mitigate and adapt to climate change, while at the same time preserve natural resources. The following specific targets have been set:

Mitigation targets
The following targets have been set:

- Greenhouse gas (GHG) emissions not to exceed the level of emissions reported in the inventory (baseline year) by 2020;
- A reduction of 6% in GHG emissions by 2030, when compared to the baseline year;
- A reduction of 43.6% in GHG emissions by 2050, when compared to the baseline year.

The climate strategy defines six mitigation objectives:

- Decreasing energy consumption and increasing energy efficiency;
- Increasing renewable energy use in electricity and heat production;
- Increasing the public acceptance of climate friendly transport;
- Promoting the concept of sustainable agriculture (which decreases GHG emissions);
- Decreasing the amount of waste and sewage, and improving the waste collection process;
- Increasing natural GHG sinks.

It is important to increase the commitment of public authorities, companies and the public to mitigate climate change.

### Adaptation target

The specific adaptation target of Hajdú-Bihar County is to improve the adaptation capability of inhabitants and affected sectors in the county, as well as raising awareness among inhabitants, public authorities and companies.

The climate strategy defines seven mitigation objectives:

- Reducing the negative impacts of heat waves on humans;
- Adapting the built environment for climate change, and preventing damages resulting from extreme weather events;
- Adjusting agricultural production methods to local conditions and considering complex solutions for addressing water shortage and flooding;
- Improving the adaptation capabilities of vulnerable touristic destinations;
- Adjusting silviculture to the changing climate conditions;
- Preserving vulnerable resources in the county.

### 7.4 Local priorities for energy planning

Within the framework of C-TRACK 50 project, 10 municipalities are being supported.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the beneficiary</th>
<th>Description of the beneficiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Municipality of Bedő</td>
<td>Bedő is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It covers an area of 10.2 km² (4 sq mi) and has a population of 307 people (2001).</td>
</tr>
<tr>
<td>2</td>
<td>Municipality of Bojt</td>
<td>Bojt is a village in Hajdú-Bihar county, in the Northern Great Plain region of</td>
</tr>
</tbody>
</table>
3.3: Report on regional and local energy priorities

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the beneficiary</th>
<th>Description of the beneficiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Municipality of Körösszakál</td>
<td>Körösszakál is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 15.02 km² (6 sq mi) and has a population of 833 people (2015).</td>
</tr>
<tr>
<td>4</td>
<td>Municipality of Szentpéterszeg</td>
<td>Széntpéterszeg is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 25.51 km² (10 sq mi) and has a population of 1216 people (2001).</td>
</tr>
<tr>
<td>5</td>
<td>Municipality of Furta</td>
<td>Furta is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 42.85 km² (17 sq mi) and has a population of 1179 people (2001).</td>
</tr>
<tr>
<td>6</td>
<td>Municipality of Újszentmargita</td>
<td>Újszentmargita is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 96.22 km² (37 sq mi) and has a population of 1591 people (2001).</td>
</tr>
<tr>
<td>7</td>
<td>Municipality of Görbeháza</td>
<td>Görbeháza is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 80.2 km² (31 sq mi) and has a population of 2366 people (2015).</td>
</tr>
<tr>
<td>8</td>
<td>Municipality of Nagyhegyes</td>
<td>Nagyhegyes is a village in Hajdú-Bihar county, in the Northern Great Plain region of eastern Hungary. It covers an area of 132.76 km² (51 sq mi) and has a population of 2714 people (2015).</td>
</tr>
<tr>
<td>9</td>
<td>Municipality of Hajdúböszörmény</td>
<td>Hajdúböszörmény is a town in North Eastern Hungary with a population of approximately 30,000 people.</td>
</tr>
<tr>
<td>10</td>
<td>Municipality of Hajdúszboszló</td>
<td>Hajdúszboszló is a town in Hajdú-Bihar county, Hungary, 19 kilometres (12 miles) southwest of county seat Debrecen. It is the third largest town in Hajdú-Bihar county.</td>
</tr>
</tbody>
</table>

The smallest municipalities (i.e. Bedő, Bojt, Körösszakál, Szentpéterszeg and Furta) are very poor, and do not have the necessary resources to develop long-term energy and climate plans without support. However, they are committed to increase the use of renewable energy sources (RES) and energy efficiency (EE) and develop such plans with the support of C-Track 50. Up to now, they have only implemented a few RES and/or EE projects, when funding was available.

The other municipalities supported (i.e. Újszentmargita, Görbeháza, Nagyhegyes, Hajdúböszörmény and Hajdúszboszló) are also committed to set long-term targets and develop energy and climate plans. So far, they have implemented several RES and/or EE projects.
Local goals usually mirror the goals set out in the Territorial and Settlement Development Operational Programme, which finances municipal energy projects. The Operational Programme focuses only on buildings, and not the whole territory.

Furthermore, some municipalities have developed a Sustainable Energy Action Plan/Sustainable Energy and Climate Action Plan within the framework of the Covenant of Mayors, and thus, as mentioned previously have set targets for 2020 and 2030.

The table below presents the local targets set by supported municipalities for 2020 and 2030.

<table>
<thead>
<tr>
<th>Name of the beneficiary</th>
<th>Signatory to the Covenant of Mayors</th>
<th>Target by 2020</th>
<th>Target by 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality of Bedő</td>
<td>No</td>
<td></td>
<td>61%</td>
</tr>
<tr>
<td>Municipality of Bojt</td>
<td>No</td>
<td></td>
<td>78%</td>
</tr>
<tr>
<td>Municipality of Körösszakál</td>
<td>No</td>
<td></td>
<td>45%</td>
</tr>
<tr>
<td>Municipality of Szentpéterszeg</td>
<td>No</td>
<td></td>
<td>61%</td>
</tr>
<tr>
<td>Municipality of Furta</td>
<td>No</td>
<td></td>
<td>79%</td>
</tr>
<tr>
<td>Municipality of Újszentmargita</td>
<td>No</td>
<td></td>
<td>44%</td>
</tr>
<tr>
<td>Municipality of Görbeháza</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality of Nagyhegyes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality of Hajdúböszörmény</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality of Hajdúszbszló</td>
<td>Yes</td>
<td>28%</td>
<td></td>
</tr>
</tbody>
</table>

**7.5 Recommendations**

From the C-Track 50 implemented activities, a number of recommendations have emerged for local and regional authorities, which are outlined below:

- Encourage the participation of regional and local experts and decision makers during the consultation phase of the forthcoming Climate Change Strategies at local/regional level.
- Cooperate with regional/local organizations (energy, development, innovation agencies) in order to get support in long-term planning.
- Create the necessary infrastructure for fast electric vehicle chargers at regional level.
- Compile and send local/regional project ideas to the Government during the planning phase of the Operational Programmes.
- Explore how local sources can be exploited in a more effective way.
- Organise more frequently energy awareness campaigns for residents.
8. Latvia

8.1 The regulatory framework for regional and local energy planning

Latvia has a series of regulatory and policy documents that define different short-term, medium-term and long-term objectives related to energy and climate. The most important long-term planning document is the new Latvian National Energy and Climate Plan (NECP) 2021-2030, succeeding the “Latvian National Development Plan 2014-2020” that sets the main priorities, which include energy efficiency and renewable energy production.

![Figure 3: Key priorities in the Latvian National Development Plan 2014-2020](image)

Local priorities for energy planning follow the national targets and local needs. The key objective of the National Energy and Climate Plan is to ensure a cost-effective and natural resource-saving transition to a low-carbon, regionally and globally competitive economy by developing a balanced, efficient, market-based energy policy that ensures Latvia’s economic and societal well-being.

**Key energy and climate policy objectives for 2030 are:**

- GHG emission reduction by -6% to 2005;
- CO₂ removals < 3.1 mil. units;
- A 45% RES share in the final energy consumption (7 – 14% RES share in transport);
- Energy efficiency targets to keep the level of primary energy consumption at 49.95 TWh and to achieve cumulative energy savings of 19.87 TWh (new annual savings ≥ 0.8%)

Regional energy planning institutions in Latvia were established in 1997. According to the Law on Regional development, there are five planning regions under the supervision of the Ministry of Environment Protection and Regional Development (see fig. 4).

The planning regions are determined by Cabinet Regulation No. 391, regarding the areas of the planning region, in accordance with the proposals submitted by local governments. Planning regions should ensure regional development, coordination, cooperation between municipalities and other public administration including:

- Defining the basic principles, objectives and priorities for the long-term development of the region;
- In cooperation with local governments and municipalities, developing long-term and medium-term planning documents (spatial planning and development program) and monitoring their implementation;
• Preparing reviews of the relevance of the national development planning documents to the planning region;
• Evaluating and providing opinions on the compliance of regional or local level planning documents with regulatory requirements;
• Evaluating and providing reviews on project applications from state for regional development with state support;
• Developing and implementing projects in the framework of regional development.

Before the amendments to the Law on Regional Development adopted on 22 June 2006, the law didn’t specify the status of the planning region and thus didn’t specify the planning region role in the national regulatory framework. As a result, the state administration functions under the Regional Development Law were carried out by non-governmental organizations – associations. The above-mentioned amendments to the Law on Regional Development, which entered into force on 1st August 2006, state that planning is a public affair, and the decision-making process is managed by the Planning Region development board.

Figure 4: Five planning regions

In order to exercise the competence of the planning region, the Planning regional development council shall approve a Planning regional regulation and budget, may establish, reorganize and eliminate the institutions and companies of the planning region, decide on participation in associations and delegate administrative tasks to individuals. Latvia has in total five planning regions.

**Kurzeme Planning Region (KPR)** is dealing with planning and coordination of KPR, public administration in the area of public transportation, cooperation among municipalities and other state administration institutions. The operation of KPR is regulated by the Law on Regional Development and other regulatory acts, Regulations of KPR and applicable Law on Territory Planning.³

For the *Kurzmes* Planning Region, the following plans have been developed:

• KPR Sustainable Development Strategy for 2015-2030 and development program for 2015-2030;


Latgale Planning Region (LPR) is a derived public entity that has been established in accordance with the Regional Development Law and its activity has been financed from the state’s principal budget. Latgale Planning Region has been founded with the aim to ensure the planning and co-ordination of regional development, and co-operation between local government and other state administrative institutions. For the Latgale Planning Region, the only plan that has been developed is LPR Sustainable Development Strategy for 2030 and development program for 2010-2017.4

Vidzeme Planning Region’s (VPR) main goal is to ensure regional planning and coordination, as well as cooperation between municipalities and different governmental institutions. VPR provides planning services at a national, regional and local level; it ensures regional and local representation during the elaboration of entrepreneurship, employment and social policies. VPR’s mission is to coordinate and promote a well-balanced long-term development of the Vidzeme region by providing effective services to local inhabitants, NGOs, entrepreneurs and municipalities.5

For the Vidzeme Planning Region, the following plans have been developed:

- VPR Sustainable Development Strategy for 2030 and development program for 2015-2020;
- Sustainable Energy Action Plan of the Vidzeme Planning Region 2015-2020;
- VPR development program (2015 – 2020), both strategic and action plans.

Zemgale Planning Region (ZPR) is a regional public entity with a mandate to carry out regional planning and development, coordination at regional level in different fields like transport, education, social services, environmental protection, and entrepreneurship support. The decision-making authority of Planning Region is Zemgale Planning Region Development Council consisting of 20 local authorities.6

For the Zemgale Planning Region, the following plans have been developed:

- ZPR Sustainable Development Strategy 2015-2030;
- Sustainable Energy Action Plan of the Zemgale Planning Region 2018-2025;
- ZPR development program (2015 – 2020), both strategic and action plans.

Riga Planning Region (RPR) focuses on development planning, coordination and cooperation between state institutions and local governments. Amongst other, RPR determines the main long-terming aims and priorities of regional development, coordinates the development, management, implementation and monitoring the RPR development program, evaluates the relevance and agreement of National Development documents to regional documents, as well as coordinates and promotes support activities for regional development7.

For the Riga Planning Region, the following plans have been developed:

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4 https://lpr.gov.lv/lv/padome-l2f3/planosana/#.XOZYuy9i1-U
5 http://www.vidzeme.lv/lv/regiona_attistibas_planosanas_dokumenti
- RPR Sustainable Development Strategy 2014-2030;
- The Riga Planning Region’s heating development action program (thematic plan) (2016);
- Sustainable Energy Action Plan of the Riga Planning Region 2014-2020 (2013);
- The potential for using environmentally friendly technologies in the planning region of Riga 2014-2020 (2013);
- Analysis of the potential of renewable energy sources in the planning region of Riga and recommendations for their development 2014-2020 (2013).

In the planning process, regions define the overall development direction of the region by setting long-term objectives and priorities. By defining energy efficiency and management as a priority for the region, this will also be a priority for municipalities that will in turn also contribute to the national energy targets. It is essential that planning regions promote cooperation between municipalities, gather and ensure access to good practices, support the exchange of experience, and as far as possible consult with specialists, in order to help achieve the objectives set by municipalities and the region.

Riga Planning Region (RPR) as a territory is situated in the central part of Latvia, and its centre is Riga - the capital of Latvia. 47% of the inhabitants of Latvia are concentrated in Riga Planning region, and as such, the region is the largest among the Baltic countries with more than 1.2 million inhabitants. Riga Planning region consists of 30 municipalities.

Since the economic, social, geographical and energy supply situation is different in each municipality, RPR municipalities can be divided into three groups: cities, Riga city suburb municipalities and municipalities in rural areas.
8.2 The status quo in regional and local energy planning

With the introduction of the Energy Efficiency Law in 2016, an Energy Management System (EMS) is mandatory for big cities and municipalities with a development level index of 0.5 or more and a population of 10,000 and above. More specifically, the law sets out the following obligations:

- Big cities should introduce a certified energy management system according to the ISO 50001 standard. The certificate should be issued by the certification authority;
- Municipalities with a development index of 0.5 or more and a population of 10,000 or more should implement an energy management system, however certification is optional;
- Governmental institutions which own or possess buildings with a total surface area of 10,000 m² or more must introduce an energy management system, however certification is optional;
- Every year until the 1st of November, a report should be sent to the Ministry of Economy, which outlines the energy savings achieved by the energy efficiency measures implemented in the previous year.

According to the Energy Efficiency law, commercial companies and all other municipalities have the option to have a voluntary agreement with the Ministry responsible for energy efficiency, including the promotion of energy efficiency services.

Moreover, municipalities may earn additional points, which increases their chances to benefit from national support programs and contests.

With the implementation of an energy management system, a municipality can become a role model for society, companies and other municipalities. EMS can also help promote cooperation between municipalities, as well as participation in international projects with common objectives; following good practices, sharing experience and thus contributing to the achievement of national energy targets. Several regions have voluntary developed their own sustainable energy action plans even though planning regions, as such, are not responsible for energy planning. The Ministry of Economics sets the overall energy and climate targets and is responsible for energy policy in the country. Local authorities receive support only through various activities such as training and experience exchange.
activities among municipalities etc. So far, there is no additional support for municipalities who have set ambitious targets and this is not expected to change in the near future.

Several municipalities have been supported by Planning regions in the form of projects by developing sustainable energy action plans. A number of methodological guidelines for both the implementation of an energy management system, as well as the calculation and reporting of energy savings achieved, have been published on the home page of the Ministry of Economics:

- Guidelines for the implementation of an energy management system;
- Methodical recommendations for reporting energy savings;
- Guidelines for evaluating energy savings from awareness raising and educational activities.

Within the framework of different EU supported projects, the planning regions have developed regional energy plans and guidelines in order to support the planning process in municipalities. The main regional energy plans and strategies include:

- “Zemgale planning region Energy Action Plan 2018 till 2025” - The aim of this Action Plan is to describe and analyse the current state of the energy sector of the Zemgale Planning Region, identify the strengths and weaknesses in energy related areas and provide regional actions aimed at promoting the use of renewable energy sources, improving energy efficiency, promoting the use of alternative road transport fuels, and applying the criteria for green public procurement;
- The Riga Planning Region’s (RPR) heating development action program (thematic plan) (2016) - A program of action (thematic plan) has been developed, which analyses the current situation of the heating sector in RPR municipalities, discusses the changes in thermal-energy demand in the coming years, identifies the most important future challenges and proposed actions for the efficient, cost-competitive and environmentally friendly development of the heating system in the region. District heating systems enable the effective use of cheap and - in some cases - poor quality fuel, which is not always possible by local heating solutions. In densely populated areas, district heating is capable of providing high-quality purification and distribution of flue gas. It provides an opportunity to create a flexible heating system, by diversification of fuels or cogeneration;
- Sustainable Energy Action Plan of the Riga Planning Region 2014-2020 (2013) - The Action Plan includes the energy strategy of the Riga Planning Region until 2020, which describes the priority measures to be implemented by the Riga Planning Regional administration in order to achieve the targets. The Action Plan sets out energy labelling guidelines for municipalities, which define key elements of the energy supply system and provides insight into possible measures in the field of sustainable energy;
- “The potential for using environmentally friendly technologies in the planning region of Riga 2014-2020 (2013)” - The report outlines best practices for public authorities. Each example corresponds to one of the 10 sustainable developments that describe the various aspects of environmentally friendly technologies in Latvia and RPR;
- “Analysis of the potential of renewable energy sources in the planning region of Riga and recommendations for their development 2014-2020, (2013) - The analysis covers only those types of RES that are already in use in RPR and have a high potential for use in the near future (2014-2020). The following types of RES are analysed in depth:
  - biomass (solid biomass and biogas);
- wind energy;
- solar power;
- hydropower.

- Vidzeme Planning Region Energy vision and Action Plan “Towards a sustainable, low-consuming carbon economy - The Vidzeme Planning Region vision for 2050” – The region makes efficient use of all available renewable energy sources (RES) and broadly implements energy efficiency measures. The region’s economy is based on the circular economy concept, focusing on development and prosperity and at the same time aiming to minimize CO₂ emissions. In 2050, the region is estimated to generate approximately 70% less CO₂ emissions than in 2015, with emission reductions achieved in all sectors of the region’s economy.

In total Latvia has 119 municipalities of which 110 are towns in rural areas or only rural areas and 9 big cities. Altogether 23 municipalities have signed the Covenant of Mayor (CoM), but 42 Sustainable Energy Action Plans (SEAPs) have been developed voluntarily. Thus, there are a number of municipalities that have developed SEAPs or equivalent, but have not signed the Covenant of Mayors (e.g. Ādaži, Salacgīva). Most of the SEAPs developed include measures until 2020. It is worth noticing that most of the SEAPs were developed with the support of experts, professional organizations and EU projects like Conurbant, SEAP+, Meshartility, 50000&1 SEAP and others. From the 23 municipalities that have signed the Covenant of Mayors initiative, only 2 (Smiltene and Daugavpils) have committed to set targets for 2030. The rest of the municipalities have set 2020 targets. Moreover, 3 Latvian municipalities have developed climate plans. A number of municipalities have already introduced (Ādaži) and/or will introduce an energy management system (Ķegums, Tukums), which makes it easier to plan SEAP measures. In the Riga Planning Region, 9 municipalities (including Riga) have signed the Covenant of Mayors initiative.

![Figure 7: Municipalities involved in project C-Track 50](image)

Within the framework of C-Track 50 project, Sustainable Energy Action Plans are being reviewed and updated for 8 municipalities, whilst new Plans are being developed for 2 municipalities.

The main actions planned are shown in the figure below:
In cooperation with municipalities, the next step is to extend SEAPs to 2030 (and 2050), which will contribute to the reduction of energy consumption and CO₂ emissions. Subsequently adaptation to climate change will be incorporated to SEAPs.

### 8.3 Regional priorities for energy planning

The current target of the Latvian national energy policy is to build a safe, efficient and competitive energy supply in the country, which ensures optimum use of energy, economic growth, and increases the quality of life and the environment. In the highest long-term development planning document of the state "Latvian Sustainable Development Strategy 2030" the main objective related to the energy sector is to achieve independence of the national energy supply, by increasing self-sufficiency of energy resources and integration into the EU energy networks. Overall, Latvia has set several goals:

- The share of renewable energy sources (RES) should be 40% in 2020 when compared to the total gross final energy consumption;
- Indicative target – the reduction of primary energy savings in 2020 should reach 7,792 GWh;
- Established mandatory target – every year, 3% of public administration buildings should be renovated, with a total of 678,460 m² of building area. In the residential building sector, the average energy consumption in buildings is expected to be reduced by up to 150 kWh/m² per year;
- The minimum target in terms of cumulative final energy savings for 2020 is 0.85 Mtoe or 9,897 GWh of the total savings.

A number of measures are also outlined for heating and energy efficiency:

- Renovation of apartment buildings and reduction of heat consumption;
• Improvement of heat production efficiency: for the heating supply of major cities in Latvia, biomass CHP plants and boiler houses with high efficiency (wood, straw) should be widely used, whilst in other cities the efficiency of thermal energy production should be increased in existing centralized heat supply systems;
• Investments in centralized heating systems – reduction of heating loss will result in substantial cost savings, which can be used to purchase fuel;
• Promotion of the rational use of energy in households: education of the population and raising awareness on energy-saving opportunities.

The Riga planning region’s overall strategy considers the national energy and climate targets. One of the greatest heat consumers in RPR are apartment buildings that need to be renovated to ensure comfortable and safe housing for people. Therefore, top priorities include: improving energy efficiency from the end-users side, ensuring thermal comfort, as well as rational energy use. As a long-term goal, a complete renovation of all apartment buildings in cities and centres in populated areas has been set.

In view of the existing regulatory framework, the Sustainable Energy and Action Plan of Riga Planning Region includes the following targets:

1. Develop, implement and certify an EPS in the municipality in accordance with the ISO 500001 standard
2. Reduce energy consumption in municipal buildings relative to the base year
3. Increase the efficiency and RES share in the production sector.
4. Contribute to the reduction of energy consumption in the private sector (households, production, services)
5. Decrease the region CO₂ emission level compared to the base year emission level

Figure 9: The Riga Planning Region SEAP targets

The Riga Planning Region consists of 30 different municipalities with different development rates. Therefore, targets, such as the reduction of energy consumption in municipal buildings and infrastructure differ between municipalities.

Based on the objectives set out and agreed in the Sustainable Energy Action Plans of local authorities, the RPR can also set equivalent quantitative and qualitative objectives at regional level, for example:
• Include targets for the reduction of energy consumption set out in the RPR municipalities’ action plans. Determine the percentage of the total RPR energy consumption (this information should be considered when setting the targets for energy savings);
• Include targets for the reduction of CO₂ emission set out in the RPR municipalities’ action plans. Determine the percentage of the total amount of CO₂ emissions generated (this information should be considered when setting new CO₂ reduction targets).

Based on the fact that the main challenges and problems faced in the Riga Planning Region, related to the energy, environmental and climate sectors, are similar, planned measures are also similar. Measures planned in municipal Energy Action Plans are summarised below.

8.3.1 Proposed actions for the public sector

The main policy measures foreseen include:

**Energy management system (EMS) development and implementation**

• EMS development and implementation;
• Accounting and analysis of energy consumption in public buildings;
• Accounting and analysis of energy consumption in public lighting;
• Accounting and analysis of energy consumption for municipal transport;
• Application of Green Procurement Criteria.

**Measures for municipal buildings**

• Energy efficiency measures for public buildings;
• Improve the quality of fuel used in buildings with local boilers;
• Transition to renewable energy sources (RES).

**Measures for public lighting**

• Inventory of public lighting;
• Modernisation of public lighting;
• Extension in areas where public lighting isn’t available.

**Municipal transport**

• Support the introduction of electric vehicles.

**Main policy measures foreseen for Energy production:**

• Improve energy efficiency in boiler house and cogeneration stations;
• Change heating pipelines, decrease heat losses;
• Connect new end-users to district heating systems;
• Increase the use of RES for the production of district heat;
• Increase the quality of the fuel in district heating systems;
• Install heat metering devices.

**For Informing the Public:**

• Organise energy days, mobility days, competitions for energy users;
• Publish energy consumption.
8.3.2 Proposed actions for residential buildings

Main policy measures foreseen for Multi-family (MF) buildings:

- Energy efficiency improvements in MF buildings using ALTUM grants and ESCOs;
- Actions for “chimney houses” and support for deep renovation and development of district heating;
- Install and establish metering systems for all consumers.

8.3.3 Proposed actions for the transport sector

For Private transport:

- Development of environmentally friendly infrastructure (electric cars and shared cars);

The table below summarises the performance indicators for the implementation and monitoring of existing energy plans in RPR municipalities:

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Trends/ results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council decision for EMS implementation and certification</td>
<td>Implemented</td>
</tr>
<tr>
<td>Total amount of funding for measures, EUR</td>
<td>↑</td>
</tr>
<tr>
<td>Invested municipal funding, EUR</td>
<td>↓</td>
</tr>
<tr>
<td>Amount of co-financing, EUR</td>
<td>↑</td>
</tr>
<tr>
<td><strong>MUNICIPALITY BUILDINGS</strong></td>
<td></td>
</tr>
<tr>
<td>Number of renovated municipality buildings</td>
<td>↑</td>
</tr>
<tr>
<td><strong>PUBLIC STREET LIGHTING</strong></td>
<td></td>
</tr>
<tr>
<td>Inventory (number and capacity of luminaires)</td>
<td>-</td>
</tr>
<tr>
<td>Construction of new lighting lines</td>
<td>-</td>
</tr>
<tr>
<td>Number of modernisation projects</td>
<td>↑</td>
</tr>
<tr>
<td><strong>MUNICIPALITY TRANSPORT</strong></td>
<td></td>
</tr>
<tr>
<td>Number of electric vehicles</td>
<td>↑</td>
</tr>
<tr>
<td><strong>GREEN PUBLIC PROCUREMENT</strong></td>
<td></td>
</tr>
<tr>
<td>Share of green procurement of all municipal procurement, %</td>
<td>↑</td>
</tr>
<tr>
<td><strong>ENERGY PRODUCTION</strong></td>
<td></td>
</tr>
<tr>
<td>Production of thermal energy, MWh</td>
<td>↓</td>
</tr>
<tr>
<td>Thermal energy losses in heating networks, %</td>
<td>↓</td>
</tr>
<tr>
<td>Number of connected customers</td>
<td>↑</td>
</tr>
<tr>
<td>Electricity produced from RES, MWh</td>
<td>↑</td>
</tr>
<tr>
<td>Thermal energy produced from RES, MWh</td>
<td>↑</td>
</tr>
</tbody>
</table>
### Performance Indicators

#### MULTI-APARTMENT BUILDINGS

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Trends/ Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific thermal energy consumption, kWh/m² (climate adjusted) in renovated and non-renovated buildings</td>
<td>↓</td>
</tr>
<tr>
<td>Number of renovated multi-apartment buildings</td>
<td>↑</td>
</tr>
</tbody>
</table>

#### PRIVATE TRANSPORT

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Trends/ Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of cycling track, km</td>
<td>↑</td>
</tr>
<tr>
<td>Number of bicycle holders</td>
<td>↑</td>
</tr>
<tr>
<td>Number of electric car charging points in the municipality</td>
<td>↑</td>
</tr>
<tr>
<td>Number of electric vehicles</td>
<td>↑</td>
</tr>
</tbody>
</table>

#### INFORMING THE PUBLIC

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Trends/ Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of information events organized</td>
<td></td>
</tr>
<tr>
<td>Number of participants attending information activities</td>
<td></td>
</tr>
<tr>
<td>Number of information materials prepared</td>
<td></td>
</tr>
</tbody>
</table>

#### GENERAL

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Trends/ Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total energy consumption, MWh</td>
<td>↓</td>
</tr>
<tr>
<td>Specific energy consumption, MWh/population</td>
<td>↓</td>
</tr>
<tr>
<td>Total CO₂ emissions, tCO₂</td>
<td>↓</td>
</tr>
<tr>
<td>Specific emissions, tCO₂/population</td>
<td>↓</td>
</tr>
</tbody>
</table>

The most important priorities, for the region as a whole, were also discussed with municipalities. During the roundtables held within the framework of C-Track 50, municipalities identified priority areas for the next period. After gathering the results, it was concluded that priority areas for municipalities include: sustainable transport and infrastructure development opportunities in the municipal management sector; municipal building management companies and organisation of energy efficiency projects in municipalities and; training in cooperation with Altum and citizens.

### 8.4 Local priorities for energy planning

At local level, particular focus is given on heat energy supply. Based on discussions and municipalities needs, the main priorities for RPR municipalities have been identified:
### D3.3: Report on regional and local energy priorities

<table>
<thead>
<tr>
<th>Policy measure</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Development and implementation of an energy management system** | Main tasks:  
1. Preparation of benchmarks; ensuring analysis of energy consumption data  
2. Monitoring energy consumption data (Lahvjas Gāze, Sadikes tilts, railways, solar cards, heat load mapping)  
3. Setting the annual energy reduction target and actions |
| **Municipal building management companies and organisation of energy efficiency projects in municipalities** | Main tasks:  
1. Training and cooperation of municipality management companies with AITUM. How to be a person empowered by the citizens?  
2. Exchange of experience and setting targets, for example, number of renovated buildings per year, number of projects supported per year.  
3. Good management practices and services, work with citizens. |
| **Promoting the use of energy efficiency services** | Main tasks:  
1. Information on the possibilities provided by the Energy Efficiency Service for the renewal of Infrastructure in the public and multi-apartment sector (publicity)  
2. Energy efficiency guarantees for EE projects and new construction of buildings (nearly zero energy buildings projects)  
3. Raising funding for energy efficiency projects  
4. Standardisation of contract model development, cooperation with EML, GTJA IUB, EM, VRAM |
| **“Energy Manager club”, exchange of experience and mutual learning** | Main tasks:  
1. RPR supports and coordinates the introduction of EMS in RPR municipalities  
2. Organise regular meetings of specialists (energy managers)  
   - Data monitoring and analysis (technical options)  
   - Work groups and its functions  
   - Involvement of institutional staff  
   - Verification of energy savings |
Public awareness campaigns and other measures on energy efficiency, the use of renewable energy resources and sustainable transport.

Development and innovation. Involvement in international projects.

Implementation of centralised procurement for the renovation of public buildings and infrastructure.

Sustainable transport and infrastructure development opportunities in the municipal management sector.

Central Heating System development opportunities in villages and areas with low population density.
8.5 Recommendations

Most of the Latvian municipalities still struggle to achieve their energy and climate goals, although municipalities tend to be very careful when setting targets. All municipalities have a CO\textsubscript{2} reduction goal, as it is required when developing a SEAP.

After analyzing sector specific goals, it is not clear whether municipalities have identified which sectors are the most important ones for reducing CO\textsubscript{2}, and how the CO\textsubscript{2} goal will be reached. Also, all municipalities have set higher goals at sectors they have full control on, like energy efficiency at municipal buildings. But when it comes to the private sectors, local authorities set very low targets. This may be due to the lack of knowledge and understanding on how to promote and support behavioural change at local communities.

Regarding energy planning, several municipalities highlighted the need to have better input data at a local and regional level, for example energy consumption data for different sectors within a municipality. Furthermore, a need for communication and information exchange has been identified.

The main challenges faced by most of the RPR municipalities, in the energy, environmental and climate sectors, include:

- There are no energy data records for municipal buildings and infrastructure;
- When energy consumption data are available, they are not collected and analysed together;
- Green procurement criteria are not always applied in the procurement process, which may impact the overall energy consumption of the municipality;
- There are numerous buildings within municipalities that need funding in order to be renovated;
- Fuel quality criteria are often not specified in public procurements;
- There is limited information on street lighting at municipal areas (types of lamps etc.);
- Boilers often have low efficiency rates;
- There is a need to encourage the renovation of multi-apartment buildings. Multi-apartment buildings that have an independent heating unit pose a challenge;
- There is a need to raise citizens’ awareness on energy use, energy savings and other environmentally friendly and sustainable practices, so each individual’s environmental impact is reduced.

Main conclusions and recommendations:

- An Energy plan must be perceived as a tool that ensures the systematic implementation of new energy and climate actions and energy management systems;
- When developing the plan, clear responsibilities should be assigned to each administrative level. Responsibilities for the implementation of the plan should also be clearly defined. Responsibilities and tasks that need to be performed should be clearly assigned to municipal employees;
- Energy and climate measures should be developed and updated frequently. A monitoring procedure should be in place to assess the effectiveness of the measures implemented;
- Once the energy and climate targets have been achieved, new targets should be set and evaluated, so that these are not too low or too ambitious.
9. Poland

9.1 The regulatory framework for regional and local energy planning

Local municipalities in Poland are obliged by Law to undertake the following tasks that are related to energy policy:

- Plan and organise the supply of heat, electricity and gas fuels within their territory;
- Plan and finance public lighting;
- Plan and organise activities aimed at rationalizing energy consumption and promoting solutions that reduce energy consumption within their territory;
- Assess the potential of high-efficiency co-generation and energy-efficient heating or cooling systems for the production of electricity within their territory.

Municipalities must develop a report on “Assumptions of the plan of supplying heat, electricity and gas fuels” focusing on a 15-year horizon, which should be updated every 3 years.

In accordance with the law on supporting thermo-modernization and renovation, the municipality may establish a municipal low-emission program to reduce pollutant emissions and improve air quality within its territory. For example the municipality may implement low-emission projects for the least-affluent households, co-financed by the “Fund of thermo-modernization and repairs”. The municipal low-emission program must be approved by the municipal council and adopted as a resolution. It should be in line with the low-emission economy plan, with the report on the “Assumptions of the plan of supplying heat, electricity and gas fuels”, and an air protection program, if these documents have been accepted by the municipality. Compliance with these documents ensures a coherent direction with air protection and anti-smog activities in the municipality.

Certain local authorities provide financial incentives to residents to replace existing heating systems with low-emission heating options (e.g. by providing funding for the installation of a heat pump, gas boiler, 5-class solid fuel boiler) or to install renewable energy sources.

Currently, there are no additional national support mechanisms for municipalities that meet ambitious energy goals and develop or plan to implement sustainable energy and climate plans.

9.2 The status quo in regional and local energy planning

Regions actively participate in energy and fuel supply planning within the area of the voivodeship (region) and ensure the compliance of the “Assumptions of the plan of supplying heat, electricity and gas fuels” with national energy policy. In accordance with the law on regional self-government, the regional development strategy cannot extend beyond the period covered by the current medium-term national development strategy.

The Konin sub-region is a special case in the Wielkopolska region. So far, its development was based on lignite mining and the energy industry. However, there is a need to restructure the energy system, due to the diminishing reserves of lignite and the requirement to limit carbon dioxide emissions.
Analyses are currently being conducted, which will help answer the following questions: How to use the available infrastructure? How to develop an ecosystem of start-ups and scientific institutions? How to convince local communities to support the vision of a region investing in technologies of the future and building a modern economy?

According to the regional authority's assessment, hydrogen is potentially an alternative for the Konin area. The construction of the Energetic Valley, with a hydrogen station and a Research Centre, is being planned, which will allow the further development of the region.

The draft document on the Energy Policy of Poland (PEP 2040) emphasizes that it is necessary to engage with communities, poviat (subregions) and regions on energy planning, in order to attain rational energy management, the development of clean energy sources and the improvement of air quality. Planning should be based on real cooperation between local governments, in order to pursue local synergies.

The PEP 2040, with regard to energy efficiency improvements, aspires that public entities maintain an exemplary role, by pursuing the thermo-modernization of buildings, purchasing energy efficient equipment and low energy consumption vehicles, and implementing environmental management systems. On the other hand, PEP 2020 highlighted the importance of local communities and local government administration to prevent the impacts of climate change.

Cooperation between communities can be also achieved by forming an energy cluster or energy cooperative. The law on Renewable Energy Sources (RES) outlines that the purpose and scope of such an entity is the production of electricity, biogas or heat, in RES energy installations, as well as balancing, distribution and trade of the energy produced.

According to the amendment of the Environmental Protection Law, the regional parliament may, by means of a resolution, introduce restrictions or prohibitions on the operation of installations that burn fuels in order to prevent adverse impacts on human health or the environment. At the same time, the resolution specifies the types and quality of fuels that are authorized for use and those that are prohibited.

### 9.3 Regional priorities for energy planning

The key priorities at the regional level for 2030, 2040 and 2050 for energy and climate change will be in line with EU and national policy. As a result, the available financial resources can be absorbed for investments on actions for sustainable energy and climate change.

The Polish government's long-term strategy for the energy sector is presented in the draft Energy Policy of Poland (PEP 2040). PEP 2040 defines the timeframe for implementing specific actions up to 2040. The following indicators have been identified for monitoring the implementation of the PEP and evaluating whether the goals set for 2040 will be achieved:

- Reducing the share of coal in electricity generation to 60% by 2030;
- 21% or renewable energy in gross final energy consumption by 2030;
- Introducing nuclear power by 2033;
- Improving energy efficiency by 23% by 2030 compared to 2007;
- Reducing CO₂ emissions by 30% by 2030 (in comparison to 1990).
So far there are no goals set at a national level for 2050.

9.4 Local priorities for energy planning

Ten municipalities will be supported by C-Track 50: Brudzew Commune, Municipality and Commune of Buk, Municipality and Commune of Grabów nad Prosną, Municipality and Commune of Kępno, Mycielin Commune, Powidz Commune, Przykona Commune, Municipality and Commune of Rawicz, Szydłowo Commune and Municipality and Commune of Trzcianka.

Although local low-carbon economy plans are in general prepared for 2020, within the framework of C-Track 50, municipalities will develop plans for 2050. Municipalities will also set intermediate targets for 2030 and 2040. Plans will also consider climate change adaptation (Risk and Vulnerability Assessment and climate adaptation measures) which was not required in SEAPs.

Local targets set for 2030, 2040 and 2050 in the plans that will be developed within the framework of C-TRACK 50 will be in line with the Covenant of Mayors (CoM) priorities, following the CoM guidelines in order to facilitate the transition from a SEAP to a SECAP and a plan for 2050.

Local priorities outlined in SEAPs reflect the EU climate and energy targets for 2020, whereas the CoM guidelines do not include minimum energy reduction targets for SEAPs. Another important goal that has been achieved, was the development of an inventory of energy/heat generation and emissions.

Proposed local actions for the public, residential, commercial sector and transport are outlined below.

9.4.1 Proposed actions for the public sector

- Planning public investments including adaptation to climate change;
- Restoration of urban greenery and planning of areas of increased water retention;
- Thermo-modernization of public buildings;
- Installation of photovoltaic panels on public buildings;
- Modernization of heating systems with a switch to low-emission fuels;
- Replacement of mercury lamps and high-pressure sodium lamps with LED technology.

9.4.2 Proposed actions for residential buildings

- Financial support for replacing old coal-fired boilers with low-emission heat sources or connection to the heating network (KAWKA program);
- Installation of photovoltaic panels on private buildings (so-called “umbrella projects” in which the local community is the main beneficiary);
- Municipal support to the government program “Clean Air”, in which the replacement of a heat source with a low-emission source must be accompanied by the thermal modernization of the building. It is possible to install renewable energy sources.
9.4.3 Proposed actions for commercial buildings

- Promotion of good practices and recommendations, in particular those resulting from the implementation of Directive 2010/31/EU on the energy performance of buildings.

9.4.4 Proposed actions for the transport sector

- Replacement of the bus fleet with low-emission vehicles;
- Construction of bicycle paths and town bypasses;
- Co-financing by neighbouring municipalities of the development of the Poznań agglomeration railway;
- Exemption of low-emission vehicles from parking fees.

9.5 Recommendations

The following recommendations have been developed, during the three national roundtables organised within the framework of C-Track 50, and have been sent to the Polish Ministry of Energy:

- Information and dissemination activities targeting local residents, local entrepreneurs and communities should also promote applicable innovative and existing financial support schemes for implementing sustainable energy actions, with an emphasis on "Coal Regions in Transition". It should be noted that good practices also consider the issue of energy poverty.
- Regional low-carbon economy plans, with integrated measures for adaptation to climate change, should be developed. These can inform the development of national objectives for energy and climate change. It is also recommended that the development of local plans addressing energy issues (e.g. assumptions of the plan of supplying heat, electricity and gas fuels and low-carbon economy plans) is obligatory and that their content is defined. At the same time, a framework should be set for the exchange of energy data, collected by a number of institutions, to facilitate the development of emission inventories and avoid a duplication of effort.
- Recommendations should be given to regions to update their development strategies to integrate sustainable energy and adaptation to climate change.
- The active participation and the role of regions, poviats and communalities during the development of the national energy and climate policy should be explored.
- It is necessary that certain standards are embedded in urban planning, which will facilitate the long-term planning of energy-efficient and low-carbon investments, plan urban ventilation corridors, especially at densely populated areas, and define urban microclimates.
- It is important to increase the participation of local communities in public consultations, especially when these concern energy and environmental issues. A clear process should be defined to facilitate the exchange of information between regions, poviats and communities, and ensure their active extensive participation during public consultations (also using modern internet-based communication tools).
10. Portugal

10.1 The regulatory framework for regional and local energy planning

Portugal has defined a strategic plan for energy and climate, the PNEC 2030 – Plano Integrado Energia e Clima 2030 (Integrated Plan for Energy and Climate 2030) in line with the targets defined by the European Union for 2030. It describes the strategic actions planned for the 2021-2030 horizon, which will be essential for achieving carbon neutrality by 2050. The 8 main national goals outlined in the PNEC 2030 are:

- Decarbonise the national economy;
- Prioritize energy efficiency;
- Reinforce the focus on renewable energies and reduce the energy dependence of the country;
- Ensure security of supply;
- Promote sustainable mobility;
- Promote sustainable agriculture and enhance carbon sequestration;
- Develop an innovative and competitive industry; and
- Ensure a fair, democratic and cohesive transition.

Main actors from different sectors are involved, including the Autonomous Regional Governments of Madeira and Azores, as energy planning is an integrated activity. The integration with the regional level is mandatory and is achieved by involving structures representing local authorities (e.g. national association of municipalities). Overall, multilevel governance facilitates the achievement of the objectives defined in the national plan.

Within the Autonomous Region of Madeira, two Sustainable Energy Action Plans (SEAP) for 2020 have been developed: one for Madeira Island and one for the island of Porto Santo. From the Region of Madeira, 10 municipalities have adhered to the Covenant of Mayors initiative, and have developed and approved a SEAP.

10.2 The status quo in regional and local energy planning

The first energy plan of the Autonomous Region of Madeira was approved in 1989 and updated in 1992 and 2002. Since 2012, the Region is implementing two Sustainable Energy Action Plans (SEAP), one for Madeira Island and one for the island of Porto Santo, the two inhabited islands in the region of Madeira. The target year for both SEAPs is 2020 and the main objectives of the strategy include:

- To improve the security of energy supply;
- To reduce the energy dependence on foreign fuel sources;
- To reduce energy intensity; and
- To reduce carbon dioxide emissions.

The targets and expected results are presented in the following table, presented per objectives:
Table 10: Targets and expected results for the island of Madeira and Porto Santo, 2020

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Targets for Madeira and Porto Santo</th>
<th>Expected results in Madeira</th>
<th>Expected results in Porto Santo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve the security of energy supply</td>
<td>Increase by 20% the number of days of autonomy of primary energy storage in comparison to 2005.</td>
<td>&gt;20%</td>
<td>&gt;20%</td>
</tr>
<tr>
<td>Reduce dependence on foreign fuel sources</td>
<td>Increase to 20% the use of renewable energy sources to meet primary energy demand.</td>
<td>20%</td>
<td>28%</td>
</tr>
<tr>
<td>Reduce energy intensity</td>
<td>Increase by 50% the use of renewable energy sources in electricity production.</td>
<td>50%</td>
<td>52%</td>
</tr>
<tr>
<td>Reduce carbon dioxide emissions</td>
<td>Reduce CO₂ by 20% in comparison to 2005.</td>
<td>23%</td>
<td>44%</td>
</tr>
</tbody>
</table>

The strategic guidelines to accomplish the objectives set in the Madeira Island and Porto Santo Island SEAP are presented in the following table:

Table 11: The strategic guidelines of the island of Madeira and Porto Santo

<table>
<thead>
<tr>
<th>Strategic guidelines</th>
<th>Madeira SEAP</th>
<th>Porto Santo SEAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve efficiency in terms of energy conversion and use.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Increase the contribution of renewable energy resources.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diversify energy sources.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Increase the capacity of energy storage infrastructures.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Promote energy products and services that encourage economic development, regional added value and skilled labour.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Promote low carbon energy carriers.</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

The Madeira Island and Porto Santo Island SEAPs can be consulted in English, at https://aream.pt/project/islepact/.

The Autonomous Region of Madeira is divided into 11 municipalities, 10 located in the island of Madeira and 1 in the island of Porto Santo. In 2012, the Municipality of Funchal developed a SEAP and by 2014, 9 of the remaining municipalities committed to the Covenant of Mayors (CoM) initiative and developed a SEAP, which included ambitious objectives and targets, and considered all sectors involved in local governance, including the private and residential sector. The SEAPs developed by the municipalities are aligned to the regional SEAPs. The key objectives of all SEAPs include:

- To improve the security of energy supply;
- To reduce the energy dependence on foreign fuel sources; and
- To reduce carbon dioxide emissions.

A reduction in energy consumption, an increase in the uptake of renewable energy sources and the reduction of CO₂ emissions is expected in the following sectors:
- Municipal services;
- Residential;
- Non-municipal trade and services;
- Street lighting;
- Primary and secondary sectors;
- Transport; and
- Local electricity production.

Each municipality has set their own targets that can be found in the SEAP of the municipality in Portuguese, at [https://aream.pt/project/pacto-de-autarcas/](https://aream.pt/project/pacto-de-autarcas/).

### 10.3 Regional priorities for energy planning

Within the framework of C-Track 50, the Regional Government of the Autonomous Region of Madeira is supporting the region’s municipalities. DROTA – Direção Regional do Ordenamento do Território e Ambiente (Regional Directorate for Spatial Planning and Environment), the Directorate representing the Regional Government in C-Track 50, is providing support to municipalities to achieve their targets, collect data and communicate with stakeholders. Besides, the Regional Government is committed to elaborate a Sustainable Energy and Climate Action Plan (SECAP) for the Autonomous Region of Madeira, for 2030 and 2050, with the support of C-Track 50.

The regional targets are in line with the National targets and commitments for 2030 and 2050. The main national goal for 2050 is to achieve carbon neutrality and, whilst the intermediate targets for 2030, include:

- 45% to 55% less CO₂ emissions.
- Increase energy efficiency by 35%.
- At least 47% of renewable energy in final energy consumption.
- Increase the use of renewable energy in transport by 20%.

Key sectors with a high potential to contribute to achieving the targets are: buildings and municipal facilities, transport, electricity production, services and land use planning.

As mentioned previously, the Regional Government is working with municipalities to develop an energy and climate plan for the region and numerous municipalities are working, with the support of C-Track 50, to compile a SECAP for 2030, with carbon neutrality as a target for 2050. As such, the project gives the opportunity to supported municipalities to work together and exchange knowledge and best practices.

### 10.3.1 Proposed actions for the public sector

The proposed actions for the public sector are:

- **To promote rehabilitation as the main form of intervention for public buildings and urban development** – This allows the increase of the useful lifespan of buildings; contributes to the reduction of greenhouse gas emissions; minimizes construction waste and contributes to the conservation of nature and biodiversity.
• **To promote sustainable buildings** – By promoting the certification of buildings as a distinctive tool for monitoring sustainability in construction.

• **To encourage the acquisition and renewal of heating and cooling systems that use renewable energy sources** – By encouraging the replacement and use of systems that produce heating and cooling from renewable energy sources.

• **To promote energy storage systems** – This is an important measure to adapt, since the grids of Madeira and Porto Islands are isolated, with no connection to the mainland or in between the islands.

### 10.3.2 Proposed actions for residential buildings

The proposed actions for residential buildings are:

• **To promote sustainable buildings** – By promoting the certification of buildings as a distinctive tool for monitoring sustainability in construction.

• **To encourage the acquisition and renewal of heating and cooling systems that use renewable energy sources** – By encouraging the replacement and use of systems that produce heating and cooling from renewable energy sources.

• **To promote information and awareness raising campaigns.**

### 10.3.3 Proposed actions for commercial buildings

The proposed actions for commercial buildings are:

• **To encourage the acquisition and renewal of heating and cooling systems that use renewable energy sources** – By encouraging the replacement and use of systems that produce heating and cooling from renewable energy sources.

• **To promote rehabilitation as the main form of intervention for public buildings and urban development** – This allows the increase of the useful lifespan of buildings; contributes to the reduction of greenhouse gas emissions; minimizes construction waste and contributes to the conservation of nature and biodiversity.

• **To promote sustainable construction techniques** – This allows the use of more energy efficient techniques for the construction of buildings.

• **To promote sustainable buildings** – By promoting the certification of buildings as a distinctive tool for monitoring sustainability in construction.

• **To promote the electrification of buildings accompanied by an increase in the use of renewable energy sources** – As one of the most important decarbonisation vectors of the economy, new buildings should use renewable energy sources and electricity, thus replacing the use of fossil fuels in buildings.

• **To encourage the acquisition and renewal of heating and cooling systems that use renewable energy sources** – By encouraging the replacement and use of systems that produce heating and cooling from renewable energy sources.

### 10.3.4 Proposed actions for the transport sector

The proposed actions for the transport sector are:
• **Promote electric mobility and the use of electric vehicles** – By offering specific benefits to those using electric vehicles (EV) in the city centre, such as free parking, dedicated routes, etc.

• **Promote two-wheeled vehicles** – To reduce traffic congestion in the city centre and as a result CO₂ emissions.

• **Promote the development of public access charging networks.**

### 10.4 Local priorities for energy planning

Within the framework of C-Track 50, the municipalities of Câmara de Lobos, Funchal, Machico, Ponta do Sol, Porto Santo, Ribeira Brava and São Vicente are being supported from the Autonomous Region of Madeira.

**Câmara de Lobos** – The municipality of Câmara de Lobos is located on the south coast of Madeira Island and has a territorial area of 52.15 km², divided into 5 parishes: Câmara de Lobos, Curral das Freiras, Estreito de Câmara de Lobos, Quinta Grande and Jardim da Serra. It concentrates around 16% of the population of Madeira Island, with 35,666 inhabitants; the parish of Câmara de Lobos being the most populous parish with 17,986 inhabitants.

**Funchal** – The municipality of Funchal is located on the south coast of Madeira Island and has a territorial area of 76.15 km², divided into 10 parishes: Imaculado Coração de Maria, Monte, Santa Luzia, Santa Maria Maior, Santo António, São Gonçalo, São Martinho, São Pedro, São Roque and Sé. It is the main city of the Autonomous Region of Madeira and has around 112,000 inhabitants.

**Machico** – The municipality of Machico is located on the eastern tip of Madeira Island and has a territorial area of 68.31 km², divided into 5 parishes: Machico, Água de Pena, Caniçal, Porto da Cruz and Santo António da Serra. It concentrates approximately 8.2% of the population of the island of Madeira, with 21,828 inhabitants, the parish of Machico being the most populous parish with 11,947 inhabitants.

**Ponta do Sol** – The municipality of Ponta do Sol is located on the south coast of Madeira Island and has a territorial area of 46.19 km², divided into three parishes: Ponta do Sol, Canhas and Madalena do Mar. It has approximately 3.3% of the population of Madeira Island, with 8,862 inhabitants, the parish of Ponta do Sol being the most populous parish with 4,577 inhabitants.

**Porto Santo** – Porto Santo Island is the smallest of the two inhabited islands of the Madeira Archipelago, with a single municipality. The territorial area of the Island of Porto Santo is 42.5 km², with almost 5,500 inhabitants.

**Ribeira Brava** – The municipality of Ribeira Brava is located on the south coast of Madeira Island and has a territorial area of 65.4 km², divided into four parishes: Ribeira Brava, Campanário, Tabua and Serra de Água. It has about 5% of the population of Madeira Island, with 13,375 inhabitants, the parish of Ribeira Brava being the most populous parish with 6,588 inhabitants.

**São Vicente** – The municipality of São Vicente is located on the north coast of Madeira Island, has a territorial area of 79 km², divided into three parishes: São Vicente, Ponta Delgada and Boaventura. It has approximately 2.1% of the population of the Region, the parish of São Vicente being the most populous parish with 3,139 inhabitants.
Currently, supported municipalities are developing a SEAP Monitoring Report for 2020. Subsequently, municipalities will be able to pledge action to support the implementation of the new 2030 EU targets and develop a SECAP, according to the CoM specifications. C-Track 50 will coordinate the efforts of the municipalities supported, ensure common measures, actions and targets, as well as ensure that these are in line with the SECAP of the Region.

10.4.1 Proposed actions for the public sector

The main proposed actions for the public sector are:

- Energy certification for large municipal buildings, including auditing and implementation of a preventive maintenance plan and an energy use rationalization plan.
- Installation of solar thermal collectors for water heating in buildings and municipal facilities.
- Adequate street lighting levels, installation of programmable energy management control systems for street lighting, public spaces, outside buildings, monuments, trees and other public areas.

10.4.2 Proposed actions for residential buildings

The main proposed actions for residential buildings are:

- Installation of solar thermal collectors for domestic water heating in buildings.
- Application of thermal insulation to buildings and other passive measures for energy conservation, including solar protection and natural ventilation.
- Rehabilitation of electrical installations, replacement of obsolete equipment by more energy efficient ones.

10.4.3 Proposed actions for commercial buildings

The main proposed actions for commercial buildings are:

- Energy certification for commercial buildings, including auditing and implementation of a preventive maintenance plan and an energy use rationalization plan.
- Information and awareness raising campaigns.

10.4.4 Proposed actions for the transport sector

The main proposed actions for the transport sector are:

- Implementation of monitoring and management systems to municipal fleets and optimization of routes to minimize distances travelled and fuel consumption.
- Implementation of energy efficiency improvement actions under the Energy Consumption Management Regulation for the Transport Sector (RGCEST).
- Introduction of electric vehicles in the municipal fleet.
- Development of a mobility and transport plan for people and goods, at local level.
- Introduction of zone restrictions and ban of older, more polluting cars.
- Creation of priority corridors within the structural axes of the city for public transport, taxis, bicycles and emergency services.
- Development of transport infrastructures for soft modes.
10.5 Recommendations

The Autonomous Region of Madeira is committed to achieve carbon neutrality by 2050, contributing to the National objectives. Therefore, at a local level, it is also necessary to achieve carbon neutrality by at least 80%.

In terms of financial support for the implementation of actions and measures, the participation and interest of the Regional Government in the development of local and regional SECAPs is crucial, as it can provide financial resources to municipalities and facilitate the dialogue with other financial instruments. Therefore, the Regional Government can directly support municipalities to secure financial resources for the implementation of the actions proposed. Financial instruments include European funding programmes and schemes (such as LIFE, Horizon 2020, InvestEU, Connecting Europe Facility, Common Agricultural Policy and Innovation Fund) and national public financial programmes (for example, Fundo Ambiental, Fundo de Inovação, Tecnologia e Economia Circular, Fundo para a Eficiência Energética, Fundo para a Sustentabilidade Sistémica do Setor Energético, Fundo Azul and Fundo Nacional de Reabilitação do Edificado). Municipalities can apply for funding independently or jointly with other municipalities, which will increase the probability of a stronger application. Also, the Regional Government can further help secure funds by involving the private financial sector, such as ESCOs. In such cases, municipalities are encouraged to develop a joint application, to increase reliability, and ensure that savings can have a bigger impact at regional and national level.
11. Romania

11.1 The regulatory framework for regional and local energy planning

Regional energy planning is not obligatory in Romania. There are other regional plans, such as the Regional Territorial Plan and the Regional Sustainable Development Plan prepared by the regional administration, or the Local Environmental Action Plan prepared by the Regional Environmental Protection Agency, which include to an extent measures related to energy and climate.

Overall, the national government provides limited support to regions in regard to sustainable energy planning.

Regarding local energy planning, Law No. 121/2014 on energy efficiency, under Art. 9 states the following:

- Economic operators consuming more than 1,000 toe of energy per year shall fill in and submit a total annual energy consumption statement and an energy analysis questionnaire.
- Economic operators consuming less than 1,000 toe of energy per year, with the exception of SMEs, shall coordinate every four years an energy audit undertaken by a certified energy auditor which shall be the basis of establishing and implementing energy efficiency improvement measures.

Art.9 (12) Local authorities in areas with a population higher than 5,000 inhabitants shall prepare energy efficiency improvement plans, which will include short-term measures and measures for 3-6 years.

Art.9 (13) Local authorities in areas with a population higher than 2,000 inhabitants shall:
- prepare energy efficiency improvement plans, which will include short-term measures and measures for 3-6 years;
- appoint an energy manager, certified as per the regulations in force, or conclude an energy management contract with a physical entity certified as per the law or a legal entity supplier of energy services authorised as per the law.

However, the law does not foresee any penalties in case of non-compliance with its provisions. Therefore, only a few local authorities have developed and submitted energy efficiency improvement plans. In addition, there is no feedback regarding the quality of the submitted plans.

Moreover, a number of municipalities and regional authorities have developed energy plans on a voluntary basis. There are also several municipalities that have developed Sustainable Energy Action Plans within the framework of the Covenant of Mayors initiative.

Since energy planning is mandatory for certain municipalities, the National Authority for Energy Regulation provides support in the form of information and training. However, there is little support to municipalities with regard to gathering the necessary energy and climate data for the development of an energy plan.
Furthermore, there are notable funds dedicated to energy efficiency and the use of renewable energy installations in public and private projects, especially through the Regional Operation Programme, funded by structural funds for the programming period 2014-2020. Finally, the Ministry of Economy will develop programmes to encourage SMEs to complete energy audits and implement the interventions proposed.

11.2 The status quo in regional and local energy planning

All of the regions in Romania have developed a Regional Sustainable Development Plan for 2020, which also considers sustainable energy and climate. In addition, a few regions have also developed comprehensive Sustainable Energy Master Plans for 2020, such as Maramures, Alba, Bistrita-Nasaud and Timis, mainly within the framework of European projects.

Even though there is an obligation for certain local authorities to prepare an energy efficiency improvement plan, very few municipalities have prepared the plan and thus, comply with the national regulations. This is due to the fact that the National Authority for Energy Regulations lacks interest in enforcing the law to public authorities.

As per the 2011 population census, 671 municipalities fall under the provisions of Art. 9 (Legea nr. 121/2014), of which:

- 105 municipalities have over 20,000 inhabitants (91 cities, 13 towns, plus Florest commune, Cluj County);
- 566 municipalities have between 5,000 and 20,000 inhabitants (19 cities, 172 towns and 375 communes).

In terms of developing an Energy Efficiency Improvement Plan (PIEE):

- Municipalities with a population over 20,000 (105 municipalities):
  - 23 submitted a PIEE;
  - 15 submitted similar documents (SEAP, Municipal Energy Plan, local energy strategy etc.);
  - 33 have no PIEE, but have been informed and should have started the development of the plan;
  - 34 big municipalities have not responded.

- Municipalities with a population between 5,000 and 20,000 (566 municipalities): 121 municipalities responded, of which:
  - 22 municipalities submitted a PIEE;
  - 9 submitted similar documents (SEAP, Municipal Energy Plan, local energy strategy etc.);
  - 39 local authorities have started the compliance process but have encountered difficulties (lack of skills, funds and energy managers).

In terms of the Covenant of Mayors initiative, there are 163 signatories from Romania, covering a population of 10,804,070 inhabitants.
There is no standard interaction between regions and municipalities when setting local or regional energy targets. The level of interaction depends on the specific relationship between a municipality and a region.

However, regions aim to actively involve all stakeholders during the development of a regional sustainable energy plan and regional territorial plan. More specifically, regions often pursue regular meetings with municipalities, discussions, roundtables, and consultations in the form of questionnaires for representatives of local authorities, but also the public. Furthermore, draft plans are published on the region’s website and it is open for public debate. It should be noted that the regional sustainable development plan is a useful planning tool and includes a fiche for each territorial administrative unit with information on the current situation, needs and development priorities for 2014-2020.

11.3 Regional priorities for energy planning

AMEMM will support the region of Maramures within the framework of C-Track 50 to update its Regional Energy Strategy prepared in 2008 for 2020. The region of Maramures, a former mining region, is located in the north-western part of Romania. It covers an area of 6,300 km² and has a population of 510,000 inhabitants.

The functions and power of the Maramures County Council include the coordination of municipal and town councils, and safeguarding public interests at a county level. Maramures County Council has the following duties:

- the organization and operation of the county council, public institutions, companies and services at county level as well as autonomous administrations of a county interest;
- social-economic development of the county;
- the administration of the public and private domain of the county;
- the management of subordinated public services;
- inter-institutional cooperation.

Regional priorities have been identified during the discussions that took place with key stakeholders at the roundtables organised within the framework of C-Track 50 and at several bilateral meetings held with the Sustainable Development department within the county council. More specifically, the regional targets set by the Maramures region are

- reducing CO₂ emissions by at least 40% by 2030 compared to the baseline year 2008;
- reducing CO₂ emissions by at least 50% by 2040;
- reducing CO₂ emissions by at least 60% by 2050.

Key priorities identified for 2030, 2040 and 2050 regarding energy and climate at the regional level include:

- Increasing GDP/capita;
- Increasing energy efficiency in public buildings;
- Increasing the use of renewable energy in public buildings;
- Reducing time of travel between areas of interest;
- Reducing pollution by the transport sector;
- Achieving higher employment rate;
- Achieving higher remuneration rates;
- Increasing the share of renewable energy in total energy consumption;
- Reducing primary energy consumption;
- Eradicating energy poverty;
- Reducing migration;
- Supporting SMEs in research, development and innovation.

Overall, the targets set by the region of Maramures are in line with national targets. Proposed actions per sector are outlined below.

### 11.3.1 Proposed actions for the public sector

- Thermal rehabilitation and use of renewable sources in public buildings;
- Development of renewable energy production facilities.

### 11.3.4 Proposed actions for the transport sector

- Rehabilitation of main county roads;
- Modernization of the regional airport.

### 11.4 Local priorities for energy planning

The following municipalities are being supported by AMEMM, within the framework of C-Track 50.

- Municipality of Baia Mare (Municipiul Baia Mare);
- Municipality of Cavnic (Orașul Cavnic);
- Municipality of Târgu Lăpuș (Orașul Târgu Lăpuș);
- Municipality of Baia Sprie (Orașul Baia Sprie);
- Municipality of Vișeu de Sus (Orașul Vișeu de Sus);
- Municipality of Dragomirești (Orașul Dragomirești);
- Municipality of Ulmeni (Orașul Ulmeni);
- Municipality of Șomcuta Mare (Orașul Șomcuta Mare);
- Municipality of Ocna Șugatag (Comuna Ocna Șugatag);
- Municipality of Grosi (Comuna Groși);
- Municipality of Dumbravita (Comuna Dumbrăvița).

Local priorities have been identified during the C-Track 50 roundtables held and during several discussions that took place with a number of municipalities and in particular with the municipality of Baia Mare.

More specifically the preliminary local target set by municipalities is reducing CO₂ emissions by 40% until 2030 compared to the baseline year 2008. Targets for 2040 and 2050 are still under discussion and will be defined at a later stage. Proposed actions per sector are outlined below.

### 11.4.1 Proposed actions for the public sector

- Thermal rehabilitation of public buildings;
• Installation of smart meters to measure and report energy consumption (i.e. electricity and heat) in public buildings;
• Introduction and implementation of an energy management system for public buildings;
• Engineering, Procurement and Construction (EPC) contracts for heating for some municipal buildings;
• Funding applications under the national programmes “Green House” and “Green House Plus” for municipal buildings;
• Upgrade of street lighting – use of modern technologies and a remote management system

11.4.2 Proposed actions for residential buildings
• Promotion of national and other funding programmes/instruments for the thermal rehabilitation of blocks of flats;
• Reductions of local taxes for the thermal rehabilitation of residential houses (when not funded by other sources);
• Promotion of building energy performance labels/certificates;
• Promotion of the use of software/tools for monitoring and assessing energy consumption.

11.4.3 Proposed actions for commercial buildings
• Introduction of minimum energy performance requirements for buildings as per Law 372/2005 on the energy performance of buildings;
• Promote/require energy audits and the display energy performance certificates.

11.4.4 Proposed actions for the transport sector
• Installation of electric vehicles charging stations;
• Purchase of electric buses;
• Construction of cycling tracks;
• Extension of wireless internet to public areas;
• Measures for decongesting city centres.

11.5 Recommendations
From the C-Track 50 implemented activities, a number of recommendations have emerged for local and regional authorities, which are outlined below:

• Prepare realistic energy actions plans with the involvement of relevant stakeholder. Plans should include coherent measures aligned with identified priorities, and measurable actions in terms of reduced energy consumption and CO₂ emissions. The plans should be monitored and updated on a regular basis;
• Prioritise, develop and implement integrated and complementary projects;
• Ensure stakeholder buy-in and obtain a long-term political commitment;
• Identify available resources (including financial resources). Set up an appropriate management system for the implementation stage and ensure that employees have the required capacity. If necessary provide training;
- Develop a carbon emission inventory, to identify priority sectors. Use information and communications technology (ICT) tools to monitor and report carbon emissions;
- Identify case studies, experiences and lessons learnt from the implementation of energy efficiency plans in other municipalities and utilise this information when possible;
- Cooperate with academia and industry to determine skill gaps and identify relevant university training courses;
- It is considered a priority to install a Building Management System in key public buildings (big administrative buildings, hospitals etc.);
- Smart energy meters should be introduced in public buildings to raise public awareness on energy savings and energy efficiency, and to identify priority actions to reduce energy consumption at a building level;
- Analyse the information and contract/invoicing clauses related to energy/water supply and use in public buildings to identify corrective actions;
- Organise energy awareness campaigns.
12. Spain

12.1 The regulatory framework for regional and local energy planning

National energy plans have been developed for different periods, the most recent ones were for 2004-2012 and 2012-2020. They outline the baseline situation and the improvement actions planned to achieve the objectives set. Different mechanisms are included (legal, normative, financial support, educational, etc.).

There is no obligation for regional and local governments to develop energy plans. However, some regions have elaborated energy plans or plans that contemplate energy to some extent:

- **Galicia.** Regional Energy Plan 2015-2020;
- **País Vasco.** Energy Strategy País Vasco;
- **Navarra.** Regional Energy Plan Navarra;
- **La Rioja.** Regional Energy Plan La Rioja;
- **Aragón.** Regional Energy Plan Aragón;
- **Cataluña.** Regional Energy and Climate Plan Cataluña;
- **Castilla y León.** Energy Strategy Castilla y León;
- **Madrid.** Regional Energy Plan Comunidad de Madrid;
- **Andalucía.** Action Plan Andalucía;
- **Murcia.** Regional Energy Plan Región de Murcia;
- **Comunidad Valenciana.** Energy Strategy Comunidad Valenciana;
- **Cantabria.** Energy Sustainability Plan Cantabria 2014-2020;
- **Canarias.** Regional Energy Plan Canarias (Pecan);
- **Asturias.** Energy Strategy 2015-2012. There are other relevant plans, in which energy is an integral part of the plan, like the Sustainable Tourism Program Principado de Asturias 2020.

In each of these plans, objectives are established that are not necessarily linked to national objectives, as there is inadequate coordination and plans are prepared independently from the national government.

To the same extent, municipalities also have no obligation to develop local energy plans. Nevertheless, plans are being developed within the framework of the Covenant of Mayors initiative. For example, in Comunidad Valenciana and Catalonia there are many municipalities that have developed a Sustainable Energy Action Plan, while in other regions, such as Asturias, there are only few signatories.

Furthermore, there are no specific financial incentives provided at national or regional level for preparing energy and climate plans (with the exception of mobility plans).

However, some national funds earmarked for municipalities include the obligation to prepare a sustainable urban development strategy in order to receive financial incentives for the implementation of measures.
Finally, there are some national and regional funds allocated for the implementation of energy and climate measures, for example for public lighting, retrofitting of buildings, mobility and public bikes.

12.2 The status quo in regional and local energy planning

The National Plan in Spain is currently being developed. National elections took place in April 2019 and, until now, a new national government has not been formed. As such, national targets have only been set for 2030, but this could change depending on the new government.

Overall, the electrification of the economy and the installation of new renewable energy sources (wind, solar, etc.) are key for the decarbonisation of the economy in all activity sectors. The introduction of electric cars, for example, will contribute to this target, mainly if the electricity for charging the vehicles is produced from renewable energy sources.

Some regional governments have prepared regional energy plans. The typical target year is 2020. For example, Catalonia or the Basque Country have specific regional plans. However, plans may have to be modified to be aligned to the national strategy. In other regions, there are no energy plans, although specific actions are being planned and implemented to reduce the associated environmental impact. This is the case in Asturias. Although there is no document that defines the regional energy policy, actions are being developed in all sectors of activity to reduce the consumption of fossil fuels and increase the uptake of renewable energy sources. In total, 13 out of the 15 regions have some kind of an energy plan but in some cases, it only relates to improving energy efficiency or introducing renewable energies in specific sectors, thus not a comprehensive energy plan.

Regarding Spanish municipalities, currently 2,271 out of 8,124 have joined the Covenant of Mayors initiative, most of which have set targets for 2020. It is not common for a municipality to have an action plan if it has not adhered to the Covenant of Mayors. Furthermore, municipalities do not typically develop medium and long-term plans. Specific actions are being developed for different sectors of activity, but not necessarily within the context of preparing an integrated plan.

As mentioned previously, regional and local energy plans are not coordinated. Regions do not actively participate in the preparation of local plans. As a result, it is possible that regional and local targets in the same region could differ. For this reason, regional agencies, working together with regional government in the preparation of energy plans, but also supporting municipalities in developing local plans, could be key in coordinating efforts.

For the implementation of measures, there are some financial instruments available from regions or the national government.

Overall, in terms of legislation, the national government prepares the national law. The implementation of the law or its further development is usually a competence of regions, so that they can introduce specific requirements for their territories.
12.3 Regional priorities for energy planning

The Consejería de Empleo, Industria y Turismo (Regional Ministry of Employment, Industry and Tourism) is in charge of energy planning in Asturias and FAEN is supporting this administration within the framework of C-Track 50.

Despite the fact that there is no regional energy plan for Asturias, there are some key priorities set related to energy:

- E-mobility;
- Natural gas for mobility;
- Biomass and geothermal installations;
- Energy storage;
- Industrial waste heat recovery;
- Energy efficiency;
- Industrial promotion activity in emerging sectors (innovation projects).

There are also subsidies at regional level for companies but also citizens in general and public bodies in order to improve the economic viability of projects.

There is also a new regional law on transport and sustainable mobility, in which the use of alternative fuels is an integral part.

There are no regional targets set yet for 2030, 2040 and 2050. An inventory of energy consumption, GHG emissions and other relevant data needed to assess the current situation in Asturias, has been developed and updated by FAEN during the last 15 years. With all this data, the new regional government can set official targets, once this is formed.

It is important to note that Asturias is a mining and industrial region with a very high energy consumption per capita. The production of electricity using conventional technologies is an important economic sector. As such, reducing GHG emissions is a challenge. Historically, employment and the economy of the region rely on these sectors. The closure of conventional thermal power plants, the reconversion of mining areas in the region, the presence of large companies that consume a lot of energy for their processes, are key considerations when defining targets, as these tremendously affect the regional economy and employment.

In any case, since national targets are set for 2030 in the national action plan, targets and actions for 2040 and 2050 will be the focus of political negotiations at regional and national level.

12.3.1 Proposed actions for the public sector

- Reduction of energy consumption in regional public buildings, by using energy monitoring and control systems;
- Electric vehicles for regional administration and public bodies;
- Subsidies for the preparation of mobility plans of municipalities;
- Subsidies for the implementation of public bikes in municipalities.

12.3.2 Proposed actions for residential buildings

- Subsidies for more efficient lighting systems;
• Subsidies for retrofitting buildings (windows, walls, etc.);
• Subsidies for more efficient heating and cooling systems.

12.3.3 Proposed actions for commercial buildings
• Subsidies for more efficient lighting systems.

12.3.4 Proposed actions for the transport sector
• New legislation on sustainable mobility, with obligations to install charging stations for electric vehicles in both public and private places;
• Subsidies for buying new vehicles that use alternative fuels;
• Educational courses that encourage more efficient driving practices.

12.4 Local priorities for energy planning

FAEN is supporting 10 municipalities within the framework of C-Track 50 in developing sustainable energy and climate action plans, i.e. Parres, Llanes, San Martín del Rey Aurelio, Navia, Ponga, Mieres, Las Regueras, Villaviciosa, Caso y Santo Adriano. Their average population is around 10,200 inhabitants.

In addition to this, as a regional agency, it provides advice and support to other municipalities in the region on how to reduce energy consumption and increase the uptake of renewable energy sources.

Supported municipalities are medium sized, some of which are in rural areas, others in mining areas and others in touristic areas. Therefore, it is important to replicate actions in different municipalities with similar characteristics.

In general, these municipalities want to reduce energy costs in buildings and street lighting, as energy costs account for a significant portion of their budgets. However, they also want to implement measures in other activity sectors, in particular measures that aim to change the mentality of citizens and companies, such as dissemination and awareness raising activities.

All supported municipalities have set ambitious targets, i.e. a 40% reduction of greenhouse gases by 2030 and between 80 and 95% reduction of greenhouse gases by 2050. Some of the municipalities consider these very ambitious targets, because it is very difficult to achieve them and large investments are needed.

Local priorities could be integrated in:
• Sustainable mobility;
• Energy management;
• Building and urban planning;
• Waste management;
• Participation and awareness;
• Cooperation;
• Cross-sectional measures.
An important measure considered is the creation of a Local Office for Climate Change. This is something that all municipalities are interested in, but key barriers are the associated cost and the lack of personal and knowledge. FAEN will explore the possibility to support small municipalities in creating such an office.

12.4.1 Proposed actions for the public sector
- Street lighting using LED technology;
- Implementation of a platform for the centralized management of energy in municipal buildings and services;
- Energy audits in public buildings.

12.4.2 Proposed actions for residential buildings
- Sustainability criteria in urban planning;
- Incorporation of bioclimatic techniques;
- Information and sensitization to achieve energy savings in the domestic sector.

12.4.3 Proposed actions for commercial buildings
- Program of energy audits in commercial buildings;
- Promote good practices for the purchase and use of energy efficient equipment;
- Voluntary agreements;
- Criteria for energy efficiency in new commercial activities.

12.4.4 Proposed actions for the transport sector
- Extension and improvement of the collective public transportation network;
- Promotion of the use of clean vehicles by companies and citizens;
- Public charging stations for electric vehicles;
- Promotion of the bicycle as a means of transportation;
- Public bikes (some of them electric).

12.5 Recommendations

In Spain, and specifically in Asturias, a collaboration process for energy planning between local and regional administrations has not been defined. If a Mayor is interested in developing and implementing a project for reducing energy consumption, a meeting can be organised with the competent department of the regional government in order to potentially receive support (technical or economic). Another complexity is that it is difficult for municipalities to identify the correct contact person to collaborate with, within the regional government, as competences are split in different departments.

Furthermore, there is lack of knowledge and experience in small municipalities, especially with regard to the energy transition, energy efficient technologies and financial instruments. There is also no experience in developing long-term energy and climate plans.
Consequently, a key recommendation is the creation of a mechanism/structure (new or existing) that will facilitate the collaboration of municipalities with different departments of the regional government. A regional energy agency could be the best structure available for this purpose, acting as an intermediate public body to connect both administrations. Regional energy agencies have the required expertise to do this, but it is necessary to have sufficient resources within the agency.

Another recommendation is to establish regular meetings (3 or 4 per year would be sufficient) between municipalities and the regional government, to better coordinate the different plans. For example, in the case of the transport sector, it is clear that a common approach contributes to a more efficient public transport system and to the development of more effective measures for trips inside cities but also interregional trips.

An additional recommendation is to provide supplementary training and information on climate and energy issues to politicians and people who work for public bodies. New legislation, more energy efficient technologies, the use of renewable energies and financing instruments are the main knowledge gaps to address.

The difficulties associated with public procurements, including drafting administrative and technical requirements, is also a barrier for small municipalities, when implementing projects. Therefore, regional authorities or the intermediate public body could provide support to municipalities on this.

Financial incentives or funding is also important, but it is even more important to be able to identify the different options. Again, the existence of a public structure/mechanism that provides information to small municipalities would be helpful.

Improvements to the administrative structure of local authorities, in order to better develop and implement energy plans, have not been identified, as the issue is the time and the resources required to prepare the plan (internally or contracting an expert or consultancy).

Finally, there is a lack of public interest in these issues. Thus, it is recommended to extensively promote the benefits of implementing sustainable energy actions and demonstrate the benefits (in terms of money, health and environmental benefits) to people per action or project implemented.
### Who We Are

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