Deliverable 5.2

City Profiles for the MICAT Pilot Cities

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MICAT
Multiple Impacts Calculation Tool

Abstract

The MICAT project is collaborating with three cities – **Calvià**, **Tartu** and **Vitoria-Gasteiz** – to develop and test a new online tool that estimates the multiple benefits of energy efficiency measures, and helps policy makers make better, more informed decisions about energy-efficiency policies and investments. The MICAT Pilot City Profiles outline the cities' biggest achievements on their sustainability pathways, including key climate and energy strategies on the European, national/regional and local level, current energy-relevant processes, and key challenges regarding energy efficiency, as well as the cities' relation to the MICAT project. This Deliverable serves as the basis for the City Profiles on the MICAT website, which will be updated throughout the project.

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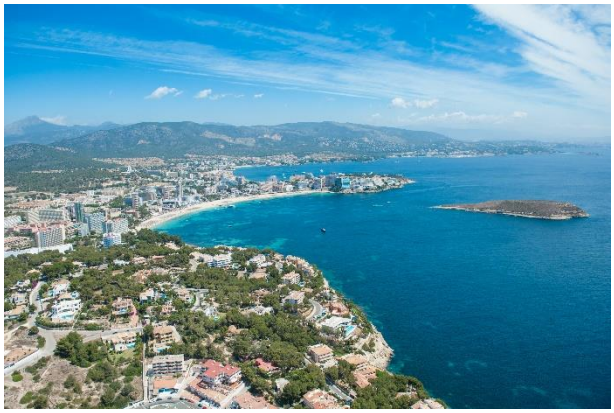
Introduction

The MICAT project is working with three EU Member States (Germany, Poland and Italy) and three pilot cities (**Calvià**, **Tartu** and **Vitoria-Gasteiz**) to co-develop and explore the MICATool's efficacy in the context of their sustainability, energy efficiency, and/or climate action planning processes (Figure 1).

The three MICATool Pilot Cities were selected by the project team through an open call for services in early 2020. The pilot cities will work with the project team to develop and test the MICATool with the goal to help policy makers make better, more informed decisions about energy-efficiency policies and investments. The MICAT Pilot City Profiles outline the cities' biggest achievements on their sustainability pathways, including key climate and energy strategies on the European, national/regional and local level, current energy-relevant processes, and key challenges regarding energy efficiency, as well as the cities' relation to the MICAT project. This Deliverable serves as the basis for the City Profiles on the MICAT website, which will be continuously updated throughout the project.

FIGURE 1. THREE EU MEMBER STATES AND THREE CITIES INVOLVED IN THE MICAT PROJECT

City Profile: Calvià, Spain



The Municipality of Calvià, located on Mallorca, in the Balearic Islands, Spain, is one of the Mediterranean's most popular sun, sea and sand tourist destinations. Although its economy heavily depends on tourism, the municipality wants to grow and develop in more sustainable ways. It was one of the first municipalities to create and implement a sustainable tourism policy, and today it is a successful example of how to implement sustainable tourism practices.

The municipality has ambitious climate goals, which include improving energy efficiency in municipal buildings, increasing the share of renewable energy sources in the energy mix, and making the tourism sector more sustainable.

Country	Mallorca, Spain
Population	51,567 inhabitants
Occupied surface	145 km²
Sustainability Awards/Distinctions	European Commission's Award for Sustainable Cities for the Calvià Local Agenda 21, 1997 Green Globe Award from the World Travel and Tourism Council, 1998 Award for the best initiative and municipal effort in support of the environment, World Project EXPO, Hannover, 2000 100 BEST practices for the implementation of Local Agenda 21 at International Best Practices Competition in Dubai, 2002 Quality Coast Award in 2007 and 2009

	Sustainable City Prize awarded by the Environmental Forum Foundation for Calvià Climate Strategy, 2011 Permanent Host of the International Smart Island World Congress

Path towards sustainability | milestones

Since the late 1980s, the Calvià Town Council has developed different policies to minimise the impact of tourism on the natural environment. These policies led to the creation of the Tourism Excellence Plan (1990), which included building removal to regain open space, attempts to offset the impacts of seasonal tourism, and training and employment. It outlined three key climate targets: environmental recovery of coastal areas; promotion, improvement of quality and professionalism in their sustainable tourism model; and cooperation, social cohesion and citizen participation.

In 1996, the municipality of Calvià joined ICLEI - Local Governments for Sustainability, and signed the Aalborg Charter. A year later it implemented the Local Agenda 21 for Calvià, which aimed to develop a new strategy for local development based on sustainable tourism and protecting the natural environment. In 2004, Calvià signed the Aalborg Commitments, and in 2015, it endorsed the Basque Declaration, which outlines new pathways for European Cities and Towns to create productive, sustainable and resilient cities for a liveable and inclusive Europe.

The municipality has been a part of the Covenant of Mayors for Climate & Energy since 2011, which is a consortium of local governments who voluntarily commit to meeting and exceeding the EU climate and energy targets. Calvià submitted its first Sustainable Energy Action Plan (SEAP) for 2013-2020 in 2012. In November 2020, the municipality approved the Sustainable Energy and Climate Action Plan (SECAP) for 2021-2030.

Calvià's Sustainable Energy and Climate Action Plan aims to reduce CO_2 emissions by more than 40% and increase the share of renewable energy sources by 27%.

Key climate and energy strategies

Calvià's **Sustainable Energy Action Plan (SEAP) of Calvià: 2013-2020** committed to reducing CO_2 emissions by 20% by 2020 compared to 2007. This SEAP was envisioned to be a flexible tool for long-term planning to develop actions and projects that reduced emissions in various sectors, like economic, residential, transport, waste production, etc. Some of the actions in the plan included improving energy efficiency of heating and cooling systems, increasing the share of renewables in the city's energy mix, and making the tourist sector more sustainable.

In November 2020, the municipality approved the **Sustainable Energy and Climate Action Plan (SECAP)**, which outlines the updated objectives and strategies until 2030. Its key targets are to reduce CO_2 emissions by more than 40% and increase the share of renewable energy sources by 27%. To reach these goals, the municipality plans to improve energy efficiency in public buildings, reduce energy consumption, promote renewables and more sustainable transport, and raise awareness among citizens, in addition to other actions.

Calvià has participated in the European Commission's initiative "**European Mobility Week**" since 2008. The European Mobility Week raises awareness among policy makers and citizens about the impacts of excessive car use on public health and the environment, and showcases the benefits of using more sustainable transportation modes, like public

transport, cycling and walking. Participating in the initiative involves developing various actions and activities aimed at reducing CO_2 emissions and pollution in the municipality.

National level

The **Carbon Footprint Register**, created by the Spanish Ministry of Agriculture, Food and Environment, aims to support organisations and entities at different governance levels to demonstrate, track and reflect on their climate actions. The register introduced three labels to distinguish the different implementation phases and degrees of effort made by administrations in the fight against climate change: 1. Calculating, 2. Reduction and 3. Offsetting the carbon footprint. Calvià recently obtained both calculation and reduction labels for reducing its CO_2 emissions from 2016-2019.

Local level

Calvià aims to develop greener and more sustainable model of tourism that promotes the conservation of biodiversity and protects valuable spaces and areas, fundamental for the tourism sector. To advance this objective, the municipality will develop the **Sustainable Tourism Plan** and continue working on creating public-private partnerships to incorporate tourism sector into the municipality's energy transition plan.

The city has ambition to provide its citizens and tourists with more sustainable mobility systems. It therefore develops a **Sustainable Mobility Plan** that aims to reduce CO_2 emissions and promote more sustainable modes of transportation. The strategy also includes concrete propositions on how to build sustainable and accessible infrastructure for everybody that connects all neighborhoods and beaches with public services, such as schools, health centers, libraries, cultural centers, sports facilities, etc.

Another relevant local strategy is the **Public Lighting Renovation Plan** that aims to reduce energy consumption of public lighting in the municipality, and increase the share of renewable energies in the lighting infrastructure. To do so, the city plans to use parking decks and roofs of municipal buildings to produce more green energy. The municipality also invests in LED lighting and replaces the old and inefficient sodium vapor bulbs. Calvià estimates that this way the city can reduce the energy consumption even by 80%.

Calvià also developed a **Citers Calvià** project that aims to promote local sustainable development and accelerate transition towards more sustainable tourism model. The goal of the project is to create a *think tank* within the framework of the Galatzó Public Estate, which would play a role of a collaborative laboratory for the co-creation of knowledge, policies, strategies and models, and the dissemination of good practices and innovative projects. The entity would promote research, dialogue and reflection-action approach, as well as public-private partnerships to achieve relevant improvements in the following five areas: climate change; ecological transition; tourism and sustainable local development; social cohesion and gender approach; green economy, blue and circular economy.

Energy-relevant processes

Energy efficiency: The municipality is carrying out energy audits and evaluations in municipal buildings, and organising energy savings and energy efficiency trainings for city administration. It is also working on implementing an energy data management and monitoring system.

The city is currently planning to develop 376 social housing units that include potential sustainability measures, such as renewable energies for self-consumption, thermal insulation, natural or recyclable materials, and installing a monitoring and verification energy performance dashboard, which would enable quick reaction to problems in the system.

Over the next few years, the municipality plans to introduce a biogas production and energy co-generation project in a municipal wastewater treatment plant (Santa Ponça WWTP). The goal is to produce heat and electricity for self-consumption in the municipal treatment facilities from the biogas generated by anaerobic digestion of sludge. It would reduce fossil fuel consumption and external electricity, and reduce gas emissions from burning excess biogas.

Renewables: The city installs renewable energy systems (photovoltaic energy) in public facilities, buildings and parking. It also promotes the use of renewables in private households, companies and hotels. The municipality plans to establish mixed energy communities and implement agreements with regional and autonomous administrations.

It is also involved in a comprehensive refurbishment process for the most degraded residential buildings in the Mature Tourist Areas. This process aims to improve energy efficiency in the buildings, reduce energy demand, and improve the overall sustainability of the area. The actions will be carried out both on buildings' façades and roofs, in order to achieve a better thermal and acoustic insulation. The solar collection systems will be installed on the buildings. In addition, the project will improve the comfort and accessibility of the buildings and the common areas.

Transportation: The municipality intends to promote electric vehicle use by installing public charging points throughout the city, and implementing tax incentives, as well as reduced parking fees for electric vehicles. A 30+ kilometer network for personal mobility vehicles is also planned for the coming years, as well as expanding the network and charging points for electric vehicles.

There is also the idea to replace obsolete municipal vehicles with hybrid or electric vehicles based on existing subsidies or the needs of each department or area. However, at the moment, there is no comprehensive and coordinated plan to change the fleet of vehicles in the municipality.

Lighting: The municipality has adopted a Public Lighting Efficiency Plan that aims to reduce energy consumption of public lighting in the municipality. In recent years, the City Council has replaced more than 12,000 discharge lights (sodium/mercury/halogen) and 761 fluorescent lights, and installed 1,583 LEDs in different areas, which resulted in a total of 14,344 light points.

Education: Calvià City Council has recently designed an environmental education plan to be carried out in the Galatzó Public Estate "Finca Pública de Galatzó," a municipality-owned area with rich natural heritage. The plan aims to educate people about Mediterranean biodiversity, environment and nature in the Galatzó area, as well as promote the area to residents.

Key challenges

- Develop a more sustainable and environmentally friendly tourism model
- Promote energy transition in the municipality
- Introduce new sustainable mobility guidelines
- Reduce pollution and carbon footprint
- Reduce waste and improve waste management
- Position Finca Galatzó as a model for sustainable development and comprehensive management of the natural environment

Relation to the MICAT project

Calvià is interested in co-developing a unified, comprehensive and user-friendly approach that would support the city in collecting data, as well as to measure and monitor impacts of its efforts towards better energy efficiency. Changing measuring criteria and fragmented monitoring systems based on different indicators make it hard for municipalities to make well-informed decisions and develop long-term planning and implementation strategies. A simplified tool, like the MICATool, could potentially help cities make the decision-making processes more efficient. Moreover, having evidence for positive outcomes of the city's climate policies could increase support for further, bolder sustainability actions.

City Profile: Tartu, Estonia

Tartu is the oldest and second largest city in Estonia. It is often referred to as the intellectual centre of the country as it is home to the nation's oldest and most renowned academic institution, University of Tartu, as well as to smart and high-tech businesses, creative industries and innovative research.

Tartu has ambitious climate goals and is on the right track to meet them. It aims to reduce its ecological footprint with more renewable energy sources and using modern technologies, as well as by educating and nudging citizens to be more environmentally responsible. The City of Tartu has already taken many actions related to sustainability, like retrofitting municipal buildings, increasing the share of renewables in the city's energy mix, investing in more sustainable public transportation and lighting solutions, and exploring smart energy solutions, and many more.

Tartu's vision for 2030 states: "An ecological way of living must reach all citizens. In city life, this means a more environmentally-friendly system of waste collection, sorting and storage. For residential building construction and renovation, environmentally-friendly solutions and materials as well as efficient energy use will be preferred. City life management will curb uncontrolled urban sprawl, while promoting the use of non-motorised and public means of transport."

Country	Estonia
Population	95,036 inhabitants
Occupied surface	146 km²
Sustainability Awards/Distinctions	2020 Green Destinations Stories Awards (2nd Place) Energy Action of the Year 2019 award (1st Place)

Path towards sustainability | milestones

Tartu City signed the Aalborg Charter in 1995 and adopted Tartu Agenda 21 three years later, a document reflecting the principles and aspirations for sustainable urban development. Tartu became a member of ICLEI - Local Governments for Sustainability in 1997. The municipality is also a member of the Lighting Urban Community International (LUCI) network (2012) and the Covenant of Mayors (2014).

Tartu submitted its first Sustainable Energy Action Plan (SEAP) for 2015-2020 in 2015. In April 2021, the municipality approved the Sustainable Energy and Climate Action Plan 2020-2030 (SECAP) including updated goals and strategies until 2030. Locally, Tartu is currently developing the new City Masterplan 2040+, which includes ambitious goals for sustainable development in the city. The strategy is anticipated to be accepted in September 2021. Tartu's public transport system became 100% carbon neutral in 2021.

Tartu City is committed to reach climate neutrality by 2050, reduce CO_2 emissions by 40% by 2030 compared to 2010, and to use 100% renewable energy in the municipal sector.

Key climate and energy strategies

Tartu's Sustainable Energy Action Plan (SEAP): 2015-2020 included three strategic objectives: to reduce CO_2 emissions, to consume less energy, and to increase the share of renewable energy sources in the energy mix from 38% in 2010 to 45% in 2020.

In April 2021 the municipality approved the **Sustainable Energy and Climate Action Plan (SECAP)** "Tartu Energia 2030+", which includes updated objectives and strategies to reach them by 2030. The city is committed to reach climate neutrality by 2050, reduce CO_2 emissions by 40% by 2030 compared to 2010, and to use 100% renewable energy in

the municipal sector, for example, in city-owned buildings, street lighting, and public transport. Tartu also wants to increase both renewable energy production and consumption, make greater efforts toward climate adaptation, as well as to deepen cooperation with European cities to reach climate neutrality and participate in various European initiatives, including the European Commission's Mission for "100 Climate neutral cities by 2030 - for and by citizens". The SECAP was developed together with citizens through in-person and online consultations.

Tartu is also one of the three cities engaged in the Horizon 2020 Lighthouse Project **"SmartEnCity: Towards Smart Zero CO_2 Cities across Europe"**, which aims to develop a highly adaptable and replicable systemic approach for transforming European cities into sustainable, smart and resource-efficient urban environments. This will be achieved through integrated planning and implementing measures to improve energy efficiency in the principal consuming sectors in cities, while increasing their supply and demonstrating the benefits of renewable energy.

National level

At the national level, **Sustainable Estonia 21** is Estonia's long-term sustainability and climate strategy. Its key objectives are:

- Growth of prosperity: People's economic prosperity and living standards will be at least 80% of the average of the current EU Member States by 2030, and there is still potential (education, training, internationalization, innovation) to further reduce the development gap and catch up with the EU average in the long run.
- A cohesion society: All members of society participate in the creation/production of benefits in the affordable and fair way.
- Ecological balance: The main function of environmental protection is not only the protection of resources and the natural environment, but also their harmonious and balanced management in the interests of Estonian society and local communities.

The **Estonian Environmental Strategy 2030** builds upon the principles of Sustainable Estonia 21 and serves as the basis for the preparation and revision of all sector-specific development plans related to environmental protection. In regards to the energy sector, the

strategy mentions that the high-quality energy should be available at acceptable prices to ensure the development of entrepreneurship in Estonia. National energy security is provided with diverse and sustainable energy production – renewable energy accounting for a large share of it – and high-quality external connections and supplies. The document also indicates that investing in energy efficiency, implementing smart energy solutions, and preserving natural environment, improve the competitiveness of the entire nation.

Local level

Tartu is currently working on the **City Master Plan 2040+,** which outlines the city's vision, strategic goals and directions for the city development in the next two decades, as well as guidelines for long-term planning and implementation. The document determines the general trends of spatial development, conditions of use of land and water areas, general conditions of construction and landscaping of regions, transport network, conditions of protection and use of environmentally valuable areas, green network, valuable agricultural land and landscapes, restrictions of high water boundaries, settlement development and more. It includes a separate chapter that focuses specifically on energy with sub-topics like district heating, geothermal heating, solar and wind energy, gas supply and electricity networks. The document sets the following principles that support improving energy efficiency in the municipality:

- Using residual heat and constructing heat accumulators in the district heating network
- Further developing a district cooling system
- Setting conditions for constructing geothermal heating systems to protect drinking groundwater aquifers
- Constructing a larger (1.5 - 3 MW) solar power plant to achieve the climate goals
- Permitting to use and produce solar energy in the city of Tartu as a supporting purpose regardless of the plot's management purpose
- Permitting to use and produce wind energy in the city of Tartu regardless of the management purpose of the plot on the basis of a detailed plan or design conditions

The new City Master Plan is being developed through a participatory process based on public consultations and inputs provided by citizens.

Relevant energy-related processes

Energy efficiency: The city invests in making municipal buildings and facilities more energy efficient. It develops energy efficiency measures for constructing, renovating and managing buildings. It cooperates with Tartu Region Energy Agency in raising awareness and educating citizens on changing their energy behaviour, as well as participates in many energy-saving projects.

As a part of the Horizon 2020 SmartENCity project, Tartu City is running a pilot that aims to renovate the old Soviet-era apartment buildings in the downtown Khrushchyovkas area into energy-efficient and modern houses. Eighteen buildings have been already renovated and equipped with solar panels to produce renewable energy. The apartments were also supplied with a smart home system that enables data exchange and monitoring.

Renewable energy: Tartu also supports and invests in a variety of renewable energy sources, particularly solar energy. It financed the construction of a cooling station that produces and supplies cooling for buildings through using cold water from the Emajõgi River. This "natural" cooling system is estimated to reduce traditional cooling energy costs by roughly 90%, and can reduce CO_2 emissions by 70%. Since 2017, the investment has expanded: a second cooling station was built in another city area and the cooling network for the whole city is currently under construction.

The city's heating system is almost entirely based on renewable energy. The Tartu power station uses only local fuels, 80% of which comes from renewable biomass (woodchips). It also generates heat and electricity at the same time which reduces fossil fuel use and is more energy efficient.

Tartu develops the biogas production based on sewage sludge and organic waste.

Lighting: In recent years, the city of Tartu has also made its street lighting more economical and environmentally friendly. On streets with higher traffic, nearly 1,500 lights have been replaced (10-11% of the total number of street lights), more than half of which are

radio controlled LED lamps. By the end of 2022, around 4,000 lighting points will be renovated, at which point at least 30% of public lighting will be renovated.

Transport: Tartu's public transport runs entirely on renewables. All city buses run on biogas, and the Tartu's Smart Bike Share bicycles are powered with electricity generated from renewable resources.

Education: Tartu City is organising various campaigns and trainings to raise awareness and change energy behaviour of citizens.

Key challenges

- Increase the share of renewable energy in the city's energy mix: electricity generated from non-renewable sources comprises the largest share of the city's current carbon emissions
- Introduce renewable fuels in connection with important services procured by the city, such as waste transport and street maintenance
- Develop a comprehensive approach, including a financing strategy, to retrofit public buildings and improve their energy efficiency
- Engage the private sector in energy efficiency projects and investments: support environmentally and climate-friendly entrepreneurship
- Raise awareness about energy efficiency benefits among citizens
- Engage in actions against energy poverty
- Develop a convenient network of bicycle paths
- Implement of an environmentally friendly and smooth public transport system
- Further develop coherent recreation areas and green network
- Implement IT solutions to ensure the well-being of Tartu residents
- Ensure a safe living environment, including adaptation to climate change and mitigation of climate damage

- Ensure access to quality services for people in sparsely populated areas

Relation to the MICAT project

Tartu City is interested in exploring multiple benefits of energy efficiency to make better informed decisions and develop relevant strategies and action plans for the city. The municipality is especially interested in the correlation between energy efficiency investments and emission reduction. It also wants to understand the impacts of energy efficiency measures on GDP, energy savings, and the public budget. Recently, Tartu also started to focus on the topic of energy poverty. The city wants to explore how energy efficiency measures can minimize and/or eliminate the problem of energy poverty.

City Profile: Vitoria-Gasteiz, Spain

Vitoria-Gasteiz is the capital and the second largest city in the Basque Country, Spain, and has some 254,000 inhabitants. The city has ambitious climate goals and strives to achieve them by becoming greener and more energy-efficient, as well as promoting renewable energy, sustainable mobility and smart solutions. The City Council develops specific sustainability policies and programs, and actively collaborates with Government departments, provinces, territories and international partners in the fight against climate change. For decades, the municipality successfully implemented various environmental projects, including the popular Green Belt, which aimed to restore and recover the outlying areas in order to create a large green area for recreational use around the city.

Vitoria-Gasteiz was the European Green Capital in 2012 and the recipient of the Global Green City Award in 2019.

Country	Basque Country, Spain
Population	254,001 inhabitants
Occupied surface	276,81 km²
Sustainability Awards/Distinctions	Amongst 100 best projects at the Third International Competition of Good Practices 2000 by the UN 1st prize for Good Local Climate Practices 2006 by the Spanish Network of Cities for Climate European Green Capital 2012 Global Green City Award 2019

Path towards sustainability | milestones

Vitoria-Gasteiz signed the Aalborg Charter in 1994. Four years later, it was the first Spanish municipality to approve the Local Agenda 21, which marked a milestone in the development of sustainability policies and measures in the city. This structural plan for the municipality introduced sustainability criteria and indicators for all areas of municipal management. It also integrated environmental, economic and social policies that aimed to improve the quality of life in several areas, like health, environment, urban planning, services, mobility, etc. Vitoria-Gasteiz is also a signatory of the Aalborg Commitments (2004), the Basque Declaration (2018) and the Mannheim Message (2020).

In 2008, Vitoria-Gasteiz joined the Covenant of Mayors for Climate & Energy, a network of local governments voluntarily committed to achieving and exceeding the EU climate and energy targets, and became a member of ICLEI – Local Governments for Sustainability in 2010.

In 2010, the municipality submitted its first Sustainable Energy Action Plan (SEAP) for 2010-2020 "Plan Against Climate Change 2010-2020". They are currently developing their Sustainable Energy and Climate Action Plan (SECAP) outlining the updated objectives and strategies to reach climate neutrality by 2050 at the latest.

Vitoria-Gasteiz is currently exploring an ambitious goal to reduce CO_2 emissions by 60% by 2030, in line with the European Commission's proposal to increase Europe's climate-neutrality ambitions.

Key climate and energy strategies

Vitoria-Gasteiz's **Sustainable Energy Action Plan (SEAP) for 2010-2020** "Plan Against Climate Change 2010-2020" committed to reduce city emissions by 25,7% and CO_2 emissions of municipal services and equipment at least by 56,1% by 2020 compared to 2006. The strategy outlined the main action areas in the municipality until 2020, which included renovating and retrofitting old buildings, improving energy efficiency, installing renewable energy systems, promoting the use of hybrid and electric vehicles, renovating public lighting, installing LED technology, using biomass and condensing boilers, micro-cogeneration systems, and radiant floors, amongst others.

In 2020, Vitoria-Gasteiz ratified a commitment to the Covenant of Mayors to increase its emissions reduction at least by 40% by 2030 through energy savings and efficiency improvements, using renewable energy sources, and increasing resilience by adapting to the impacts of climate change. The municipality is currently exploring an even more ambitious goal of reducing CO_2 emissions by 60% by 2030, in line with the European Commission's Green Deal ambition to dramatically reduce emissions by 2030 and achieve climate neutrality by 2050. Vitoria-Gasteiz wants to set more ambitious climate targets for the next decade. These commitments will be included in the city's in-progress **Sustainable Energy and Action Plan (SECAP)**, which will outline the updated objectives and strategies for the city to reach climate neutrality by 2050 at the latest.

In 2020, the municipality also joined the **Green City Accord (GCA)** through which cities commit to addressing five areas of environmental management (air; water; nature and biodiversity; circular economy and waste; and noise) and improving the quality of life of all Europeans, as well as accelerating the implementation of relevant EU environmental laws.

The municipality is also working to develop its **Agenda 2030** to align with the UN-Agenda 2030 including the 17 Sustainable Development Goals.

Vitoria-Gasteiz is a part of the Horizon 2020 project "**POWERPOOR: Empowering Energy Poor Citizens through Joint Energy Initiatives"**, which works to empower energy-poor citizens through joint energy initiatives that encourage the use of alternative financing schemes, like energy communities and/or cooperatives, crowdfunding, etc. POWERPOOR facilitates experience and knowledge sharing, and funds small-scale energy

efficiency interventions and renewable energy installations. It also contributes to increasing active citizen participation in energy projects.

Vitoria-Gasteiz is also one of three cities engaged in the Horizon 2020 Lighthouse Project **"SmartEnCity: Towards Smart Zero CO_2 Cities across Europe",** which aims to develop a highly adaptable and replicable systemic approach for transforming European cities into sustainable, smart and resource-efficient urban environments. This will be achieved through integrated planning and implementing measures to improve energy efficiency in the principal consuming sectors in cities, while increasing their supply and demonstrating the benefits of renewable energy. As a part of SmartENCity, Vitoria-Gasteiz works on an energy rehabilitation pilot project in the Coronación, one of the city's most vulnerable neighbourhoods in regards to liveability, accessibility and energy efficiency.

National level

In January 2020, the **"National Integrated Energy and Climate Plan (PNIEC) 2021-2030"** including Spain's long-term goal to become carbon neutral by 2050, was published. The strategy sets an objective to reduce emissions by at least 20% by 2030, and at least 90% by 2050 compared to 1990. The sectors where the emissions reduction will be the most radical and relevant are electricity generation, mobility and transport, residential, commercial and institutional sector, as well as industry.

Another relevant law on the national level is the **"Law Against Climate Change and on Energy Transition"** approved by the Congress of Deputies on 13 May 2021. The regulation sets a series of specific targets for this decade, like to reduce greenhouse gas emissions by at least 23% compared to 1990, and to increase the share of renewable energies in the final energy consumption by at least 42% (compared to around 20% at present) as well as in the electricity generation by at least 74 % (compared to 40% at present). The law also includes the revision system of these targets to make sure they are compliant with the Paris Agreement.

Vitoria-Gasteiz is also a part of the two **national city networks** supporting the autonomy of local governments, also in regards to climate and sustainability policies: Spanish Federation of Municipalities and Provinces and Spanish Network of Cities for Climate.

Regional level

Over the last decades, the Basque Country kicked off several energy-related processes and actions. In 1982 the **Basque Energy Agency** (Ente Vasco de la Energía, EVE) was created with the aim to plan, coordinate and control the current and future energy activities in the public sector in the Basque Country.

In December 2011, the **Basque Country Energy Strategy 2030 (3E2030)** was approved and set the goal to intensify energy efficiency actions in all consumer sectors, with a saving of 1,250,000 toe in 2030, as well as to improve final energy intensity by 33%. The aim was also to increase share of alternative energies in road transport to 25% and the use of renewables to 966,000 toe by 2030, meaning 21% in final consumption.

The real environmental milestone for the Basque Country however, was the adoption of the **"Climate Change Strategy 2050 of the Basque Country. KLIMA 2050"** in 2015, as it provided the region with its own tool to deal with future climate challenges. It sets a target to reduce GHG emissions by 40% by 2030, and by 80% by 2050 compared to 2005. It also aims to reach the 40% share of renewable energies in final consumption by 2050.

Finally, in February 2019, the "**Law 4/2019 on Energy Sustainability in the Basque Country"** was approved and established in its 71 articles the normative pillars of energy sustainability based on the promotion of energy efficiency measures, energy saving and the promotion and implementation of renewable energies in both the public and the private sector. In case of the public sector, the main objectives are to reduce energy consumption by 35% by 2030 and 60% by 2050; to purchase electricity from renewable sources starting from 2020; and to ensure that all buildings have sufficient renewable energy installations to supply 32% of their consumption by 2030, including both thermal energy and electricity generation systems.

On the regional level, Vitoria-Gasteiz is a part of UDALSAREA 2030, the Basque Network of Municipalities towards Sustainability, and collaborates intensively with IHOBE, the Basque Government Public Company for Environmental Management.

Local level

After the city was awarded the Global Green City Awards in 2019, it developed the **Vitoria-Gasteiz Green Deal**, which strengthened the city's commitment and responsibilities to fight climate change. The strategy included actions to promote projects and initiatives to meet the climate targets, create a working group to monitor the efforts in reaching goals, promote transparency, citizen engagement and participation, as well as engage with other social and economic stakeholders to help meet the commitments. It also addressed initiatives developed within the Vitoria-Gasteiz Green Deal and disseminated the commitments and accomplishments to involve other stakeholders in the process, and to set an example for other institutions. Additionally, within the framework of the Green Deal, a committee of five external experts was set up to analyse and evaluate the initiatives and proposals put forward by the Vitoria-Gasteiz City Council and to propose and promote initiatives and pilot projects, like a "laboratory city" that are in line with the Green Deal's objectives and areas of action.

As explained above, Vitoria-Gasteiz is currently working on the development of the SECAP 2030 and Agenda 2030:

Sustainable Energy and Action Plan (SECAP)

Agenda 2030

The governance of the agenda has been defined, an internal awareness-raising process has begun for the city council staff, and working groups are being set up to localise the SDGs and keep working on the development of the Agenda 2030.

Relevant energy-related processes

Energy efficiency: The municipality is developing a new strategy to refurbish and regenerate neighbourhoods built in the industrialization years (1950-1970), as well as residential buildings in the Old Town. The city also aims to develop a district heating network for city. The first pilot network in the Coronación district was created as a part of the European project SmartENCity. In 2019, the Municipal Plenary approved the specific structural modification of the General Urban Development Plan of Vitoria-Gasteiz to implement solutions such as the so-called "urban heating infrastructures" or district heating systems, which compared to individual or centralised building systems, save water, reduce energy consumption and have a lower atmospheric impact, to further reduce CO2 emissions.

Renewables: The city council has a renewable energy target of at least 32% and is developing a plan to install a minimum of 33MW of photovoltaic (budget of 33€ million) in municipal buildings and public space to increase its self-consumption quota.

Vitoria-Gasteiz is currently developing the Sustainable Energy and Climate Action Plan (SECAP). As a part of the process, the city is assessing the energy efficiency of biomass and solar panels. The municipality will include the assessment of these two technologies in the Strategy and Action Plan for 2020-2025.

Transportation: The municipal company, TUVISA, responsible for the management of urban bus transport, replaces the existing fleet with electric vehicles as they deteriorate, and it is working on the city's next Electric Mobility Centre which will include a pilot hydrogen generation plant to create fuel for part of the bus fleet. The first Intelligent Electric Bus (BEI) will start operating in September 2021 and two of the existing tram lines will be extended.

Vitoria-Gasteiz City Council is also working on its urban mobility plan, based on the superblock model, which reduces space for private vehicles, thus facilitating and promoting human movement on foot, by bicycle and by public transport.

Lighting: The municipality is developing a Public Lighting Efficiency Plan that aims to reduce energy consumption of public lighting in the municipality by installing 100% LED lighting by 2030.

Key challenges[1]

- Reduce energy consumption by 35% by 2030 by refurbishing 175,000 m² of public buildings (budget of 87,55€ million); reduce energy consumption by 60% in 2050.
- City council's energy consumption must include at least 32% in renewables.
- Update the Sustainable Mobility and Public Space Plan of Vitoria-Gasteiz.
- Develop the agri-food strategy of Vitoria-Gasteiz to include a city food flows to know how much, where and how the food consumed in our city is produced. Vitoria-Gasteiz also wants to carry out a historical study of the rural landscape in order to value the capacity for food self-sufficiency that the region (Araba's plain) had in the past and to know its potential in the future.
- Increase the percentage of recycling of the city's urban waste so that the joint percentage of preparation for reuse and recycling reaches the 60% by weight in 2030, with respect to the total urban waste produced in the historic territory, Araba.

Relation to the MICAT project

Vitoria-Gasteiz is interested in exploring multiple impacts/multiple benefits of energy efficiency and co-developing the MICATool because it wants to better understand and monitor the socio-economic and environmental impact of the city's actions and policies on energy efficiency. This would help the municipality to make better informed decisions and carry out more efficient and accurate programs in the future. The MICATool could also help identify causal chains in regards to energy efficiency projects and so it would enable the city to act faster. In addition, it would support the municipality to build bridges and initiate cooperation between different city departments, as well as help engage other actors, such as politicians and citizens.

The municipality is currently working with all energy performance units in its organisation to develop the techno-economic co-governance to meet the energy sustainability goals.

[1] The outlined key challenges are in line with the Law 4/2019 of the Basque Government and they apply to all the public administrations within the Basque Country, not only the municipality of Vitoria-Gasteiz.

In parallel to the energy scenario envisaged by our SEAP 2030 for the municipality of Vitoria-Gasteiz, the following energy performance indicators have been identified and quantified for 2030 and will be taken into account while creating the MICATool:

- Final energy consumption: 1,863GWh/year; reduction in final energy consumption of 786GWh, which represents a 30% reduction in relation to energy consumption in the base year 2006.
- GHG emissions: 325kt CO2/year; reduction of GHG emissions of 513kt CO2, a reduction of 61% compared to base year 2006 emissions.
- Degree of electrification: 43% electrification of energy demand (45% for urban demand, i.e. excluding the primary sector).
- Coverage of final energy consumption with renewable energies: production of 218GWh of renewable energies, representing a coverage rate of 12%.
- Installed photovoltaic power: 120MW (excluding installations on industrial roofs).
- Electricity generated on site as a percentage of total electricity consumption: 123GWh/year, which represents a coverage rate of 15% of renewable electricity generated.

The 2030 energy scenario for the Vitoria-Gasteiz City Council (under the format "including bus public transport consumption" / "excluding") presents the following energy performance indicators:

- Final energy consumption: 122.1/ 102.1 GWh/year; reduction in final energy consumption of 18.3GWh/ 24.4GWh, which is a reduction of 13%/ 19% compared to the base year 2006 energy consumption.
- GHG emissions: 9.4/ 6.1 kt CO2/year; reduction of GHG emissions of 36.0/ 35.6kt CO2/year, a reduction of 79%/ 85% compared to base year 2006 emissions.
- Degree of electrification: 58%/ 61% electrification of energy demand.
- Coverage of final energy consumption with renewable energies: production of 43.6/ 41.2GWh of renewable energies, representing a degree of coverage of 35.6/ 40.3%.

- Installed photovoltaic capacity: 33MW.

- Electricity generated on site over total electricity consumption: 34.0/ 32.7GWh/a, giving a coverage rate of renewable electricity generated of 53.5/ 52.6%.