

TARTU

City baseline

Facts and figures

Population and history: around 100.000 inhabitants, Tartu is the second largest city in Estonia and education capital of Estonia. Tartu is the third political power in Estonia with the state being first and city of Tallinn being the second.



Tartu is a very young city as it is called the “*university town of Estonia*”. Back in the XVII century, the University was created and played a great role in Tartu’s development.

Tartu can count on a vibrant cultural life, embedded in the city and including the population (not an elite culture); it has 20 museums and one national museum. Tartu just won the race to be the European Capital of Culture in 2024 with the theme: “the art of survival”.

Location: the biggest and only urban centre of the south east Estonia, Tartu is lying at 80 km from the Russian border but not connected with this country either. In a land of forest and lake, nature is vibrant and also plays a great role in the image of the city and its quality of life.

Economic indicators: very low unemployment rate, the economy of Tartu is twofold: in education and services sector, retail sector and mainly tertiary activities: the city has 15 higher education institutions including Tartu University with its buildings and University Hospital. Half of the city’s annual budget is dedicated to education.

Energy and Climate: As in other cities in Eastern Europe, the carbon footprint has worsened a lot in the last decades, starting with 1990 when more than a third of transport was done by walking to around 21% today. One of the main issue is the national energy mix, with electricity production coming from own Estonian energy source: 70% of the energy consumed in the country comes from oil shale. The advantage of Tartu is that they can count on a very large recently modernised district heating system and that Structural Funds were used to set up large scale refurbishment programmes for housing cooperatives.

Climate issues are only mentioned in the note of natural disasters and coping with the effects. Environmental protection and climate is only mentioned in the form of maintaining and creating a natural and nature-like living environment in the city.



General context

For Tartu's population, the education to environment and nature is well embedded into the culture, as it is in most part of the country. Tartu city has founded an Environmental Education Centre and 10 years ago constructed a Nature House to accommodate all its activities. The house is based on an initiative that started in 1947 during the communist era. It has a greenhouse and an energy neutral building (2012), a B energy class building designed as a lighthouse on climate friendly buildings.

In 2024, Tartu will be European Capital of Culture. "The three main themes are the Arts of Survival: *"Tartu with Earth: Ecology Before Economy"*, *"Tartu with Humanity; Forward to the Roots"*, *"Tartu with Europe: Greater Smaller Cities"*.

There is a tradition for Neighbourhoods' parties (flea markets) and Tartu is the birth place of the Estonian tradition of song festivals since 1869 with tens of thousands of people participating and singing and diaspora coming back to their roots. The theme of "Arts of survival" is also linked to the big transformation the city witnessed in the last 30 years after the fall of the soviet regime. The population is aware of how fast changes might occur and what resiliency means.

The strong community cohesion is also highlighted via the participatory budgets implemented by the municipality since 2013. In this framework, 200 000 Euros of the municipal budget is allocated to citizen imagination. The call for ideas is open to everyone and 15-20 are chosen by a group of experts as being realistic and beneficial to all citizens. Thereafter, only registered Tartu citizens can vote online and two of the ideas with most votes will be implemented during next budget year. This initiative could be used further to develop and implement a Zero Carbon Strategy for Tartu.

Citizen involvement has been in the municipality's focus for a long time. Citizens are involved through a number of means be it digital channels or good old fashioned city hall meetings. For example, citizens were involved in the light traffic problem mapping where Tartu GIS system was used to map out problematic spots in pedestrian and/or cycling roads in Tartu. Citizens were able to mark difficult or dangerous places but also suggest new routs or solutions on which the municipality is now basing the upcoming roadworks and light traffic investments. As an introductory measure for new bus lines a comparison tool was presented. It enabled to compare routes between new and old bus lines and give feedback in the same tool. But digital tools have not substituted face to face meetings.

In terms of climate and energy policies, Tartu joined The Covenant of Mayors in 2014 and the City Council approved the Sustainable Energy Action Plan for 2020 (SEAP) in 2015. Furthermore, energy and climate issues are dealt with in:

- Tartu city masterplan including district heating zones, gas supply, electricity supply, solar energy zones, ground heating zones, light traffic scheme etc
- Tartu air quality action plan (2019) that includes measures for heating and traffic. Tartu has air quality issues due to certain historic and heritage protection regions using wood for heating.
- Tartu strategic action plan of bicycle transport 2020-2024 focusing on the reduction of individual car use to 20% and have combined cycling and walking for 60% of all travels.

Tartu's Sustainable Energy and Climate Action Plan (SECAP) for 2030 titled "Tartu Energy 2030" will be approved by the city council in April 2020.

In terms of transport, Tartu is a round city with short walking distances. However, during the last 20 years the share of private car use in Tartu's modal split has doubled. Private car share increased from 20% in 2002 to 40% in 2018. It mainly increased on account of walking as public transportation has been in minimal decline but has roughly maintained its share. Walking and cycling represented 45% in

2003 and in 2018 it represented only 29,5%. Main pressure to private car use is coming from urban sprawl as poor planning and invisible border make it difficult to connect the developing areas to the city's bus routes.

In terms of housing, the buildings are mostly from the soviet era. They are thermally inefficient and indoor climate is under standards. The city's district heating is mostly renewable. Renovation of apartment buildings remarkably reduces heating energy consumption but raises electricity consumption (mostly due to installation of mechanic ventilation). Renovation of housing creates a situation where reaching indoor climate norms is objectively energy efficient, however CO2 emissions have risen due to the energy mix and the fact that indoor climate quality consumes more energy.

Concerning the public buildings, as they are well insulated heating is not an issue, however cooling is a significant consumer of energy even in Estonian climate. In 2016 Tartu started the first district cooling network in the Baltic States. It uses the coolness of the river water to provide cooling to the city's public buildings. Statistics show that district cooling is 40% more energy efficient than on-site solutions.

Since the municipality is not a major land owner, it is difficult to act on land use locally.

Tartu has no major manufacturing impacting city's energy consumption or CO2 emissions. Main drivers of energy consumption and emissions are public sector in terms of Tartu University and service sector represented by new SPA-s and shopping centres.

Tartu has minimal electricity production.

Institutional context

The political situation in the city is stable, the coalition has always agreed on the Climate goals, but mobility and land use are controversial issues, dividing car and bicycle lovers and only small step by step actions are possible at this stage (e.g. closing streets to car one by one, dedicating less space to the car and more for bicycles). However, climate change is broadly understood in the city council being one step ahead of the population's expectations. The local demands of the young generation (Fridays for Future – 50 members) are mainly concerning stopping the use of oil shale at national level.

Local elections will take place in March 2021

On energy and climate policies

➤ Local

Having a "Climate Neutral" Tartu is a shared objective (also part of the candidacy for Capital of culture and of the current SmartEnCity project funded under the EU's H2020 programme).

Since the city signed the Covenant of Mayors, the deep renovation of schools has been the priority of the city. So far, 4 schools out of 25 were refurbished at an average cost of EUR 8 million/school. This programme is the city's priority. Cooperation with the national government has been essential with inclusion of the ERDF funding.

The municipality is providing land for community gardening (often run by NGOs) as in Tartu it is quite popular to have your own or shared garden. It is a priority for Tartu to expand the possibilities around the city.

The city council cannot really mitigate the city's electricity mix. One possibility is to buy green electricity via public procurement, but the electricity consumed locally will still be 'brown' because of the national energy mix. So far the city consumes around 33% of renewable electricity.

Since 2010, Tartu has launched an international call for projects to attract architects and ensure that lighthouse public spaces and buildings are visible in Tartu both from an architectural and sustainable perspectives. This strategy to invest in the public space by using every urban redevelopment as lighthouse aims at increasing the sense of belonging, the sense of the common space and preservation of the resources. In this framework, the municipality is also trying to attract more retail shops to the city centre in order to stop the development of big shopping malls on the outskirts of the city. It also included the revitalisation of the old military airport of the Soviet Union into a national museum.

➤ **National**

The national government is carrying out research on climate neutrality in 2050. The main issue here is the electricity production based on oil shale as mountains of ashes are produced when burning it and it represents the main waste of the entire country: 80%! Oil and gas coming from Russia is also an issue, but last summer the power plants could be closed because the renewables were producing enough. The electricity grids are not disconnected from Russia yet, but this is planned in the next 3 years.

Estonian economy is very closely tied to Nordic economies. Swedish banks of Swedbank and SEB are the biggest banks in Estonia, Nordic companies have branches and production in Estonia. Estonian module building companies' main export markets are Norway and Sweden. Swedish and Finnish companies are confident to invest in Estonia explaining why climate change is high on the economic agenda since these companies are very concerned by their green image. A benefit of being connected to Nordic markets is the environmental and quality standards Estonian companies have abided by in order to do business in the Nordics.

Energy policy is mainly decided by the energy industry, owned by big international company, being quite climate neutral and a good driver.

Important aspects of climate and energy planning

Tartu Regional Energy Agency (TREA) is a great tool carrying out the monitoring, planning and pilots linked to energy and climate issues. They employ 10 qualified experts. TREA is involved and consulted by politicians and city officials in all energy and climate related issues. Tartu is also cooperating with Baltic Environmental Forum and Stockholm Institute of Environment on climate and sustainability issues.

Main achievements in past SEAP and SUMP

The statistics between 2010 and 2017 show a 23% increase in energy consumption and 17% increase in GHG emissions (business retails, services, shopping malls). It also shows a huge **private car** traffic increase. All other sectors reached the goal. In addition, there were an increase of 34% of renewables in the energy mix.

The 2030 SECAP will be approved in May 2020 with a 40% CO₂ reduction objective.

80% of the Tartu building stock is obligatorily connected to the district heating network, therefore one main axis to reach the goal is the 100% REN of the district heating (already achieved). Another important milestone is that public transport is running on biogas from the 1st January 2020.

Nevertheless; as already mentioned, nothing can be done on the overall electricity production as this is done at national level.

Car use is rising 1% annually, walking decreasing by 1.5% (since 2003 till 2015). Walking and cycling represented 45% in 2003 and in 2018 it represented only 29,5%.

Currently, cycling is starting to rise. An electric bike sharing system was set up in June 2019, the first one in the Baltic countries, and it has been a major success: 750 bikes, including 500 e-bikes, 1 million rides in 4 months. It was initially budgeted at EUR 500.000 for the first year, but due to the very intensive use it will cost most probably EUR 800.000. Luckily, the city could save money with a new procurement for the bus services, so the entire budget for urban transport, remains stable.

The city department is doing an intensive and comprehensive use of mobility data to understand mobility needed and to adapt the bus plan. In the design of the mobility plan citizens are included via public consultation.

Every 5 years the city conducts a survey: "Tartu city and its citizens". The mobility section of the 2018 survey showed that citizens would prefer the bicycle as the main transportation means. Inhabitants of neighbouring municipalities stated public transportation as their preferred transportation means. Accordingly, the lack of safe and clear infrastructure was stated as the main obstacle for cycling. Lack of quick and frequent connection was stated as the main obstacle for switching from individual car to public transportation in neighbouring municipalities.

Past projects to build on

Tartu has been very active in the digital area with several projects linked to digitalisation.

The SmartEnCity project is focusing on innovation in the refurbishment of the condominiums from the communist era. The housing association had to reach the C class, by using the national refurbishment funding. However, with the SmartEnCity project, the municipality provided additional funding for associations that were willing to push the energy efficiency to A class.

Furthermore, Tartu is active in an URBACT project focusing on green spaces.

The URBACT Local Group

Some of local stakeholders are involved in every day work. There is cooperation with Tartu University, Tartu Science Park, Tartu Regional Energy Agency, Fortum Tartu (heat supplier) etc. Other stakeholders are usually included through planning processes.

- The regional energy agency and the Nature house, together with the municipal energy company are three major stakeholders, as they can gather a wider number of actors on board
- Cultural and educational institutions are crucial given the high branding of the city around these two sectors
- Involving businesses, especially the retail sector will be a challenge, but it is an important need

Initial SWOT

<p>Strengths</p> <p>Culture, identity, innovation Urban-rural links inside the city; river Resiliency (being a former Russian State) 100% renewable heat; 100% REN public transport</p>	<p>Weaknesses</p> <p>Congestion and heavy traffic The city council cannot really mitigate the electricity mix. The only possibility is to buy green electricity via public procurement, but the electricity consumed locally will still be 'brown' because of the national energy mix.</p>
<p>Opportunities</p> <p>ESCOs models are win-win and the energy agency is doing a solar academy. 50 Mw of solar farm will be installed by private sector > more than the city's consumption in the direct rural area, but this production will not be used locally. Involvement of retail businesses, strong development in the late year and representing a huge part of the energy demand Enterprises are not considering energy production at all, neither in the residential sector – this is seen as a potential even though the payback without support is 9 years.</p>	<p>Threats</p> <p>The biggest shopping mall is consuming the same amount of electricity than the entire city's lighting system, but the municipality does not know how to involve them and has no information on the way the shopping mall is considering environmental objectives.</p>

How Tartu wants to use the ZCC project?

Manchester's Zero Carbon approach is not transferable to Tartu as the Estonian target for 2030 in the non-ETS sector is of -13%, but the main reason is that the carbon is emitted by the national electricity mix.

ZCC will be mainly about the branding of the city: as the sense of common belonging is strong, the climate neutrality has to be embedded in the culture of the city to consider the economic development of the area while taking into account the main climate goals.

Definitely, the fact that Tartu will be European Capital of Culture in 2024 is a great "hook" for the ZCC, in preparing the ground and embedding the Zero Carbon approach into the local culture. Involvement of the culture sector in the Climate Change Partnership in Manchester as well as the URBACT project MAST (lead by Manchester) focusing on cultural centres can provide further knowledge to Tartu.

The new city strategy for 2040 is currently under preparation and Tartu wishes to use ZCC tools on carbon impact to support and inform this process.

Tartu would like to go through a refurbishment process by providing the architect with the goal of minimising the life-cycle emissions of the refurbishment project. For this Tartu wishes to use the knowledge of ZCC project. The results of the pilot would serve as input to planning of the new Jaamamõisa neighbourhood.

Tartu would like to focus on the socio-economic impact of climate change and include it in the public procurement and/or local decision making processes.

In 2020, the city will start a pilot district project to focus on the life-cycle approach of the construction of a neighbourhood on a land owned by the municipality. In this project, the nearly zero building definition will include the embedded emissions of the construction process.

The participatory budgets implemented by the municipality since 2013 can be a good tool to leverage on to develop a Zero Carbon strategy.

The Manchester climate change partnership is an inspiring example for the Tartu Energy Agency to mobilise the private sector.

Sources:

Interviews with:

- Raimond Tamm, Deputy Mayor
- Tonis Arjus, Tartu City Architect
- Kaspar Alev, Analyst
- Jaanus Tamm, Project manager
- Martin Kikas, Head of Tartu Regional Energy Agency
- Marek Muiste, Senior Expert of Tartu REgional Energy Agency
- Margus Raud, Head of Fortum Annelinna Heating
- Margo Külaots, Head of Fortum Estonia