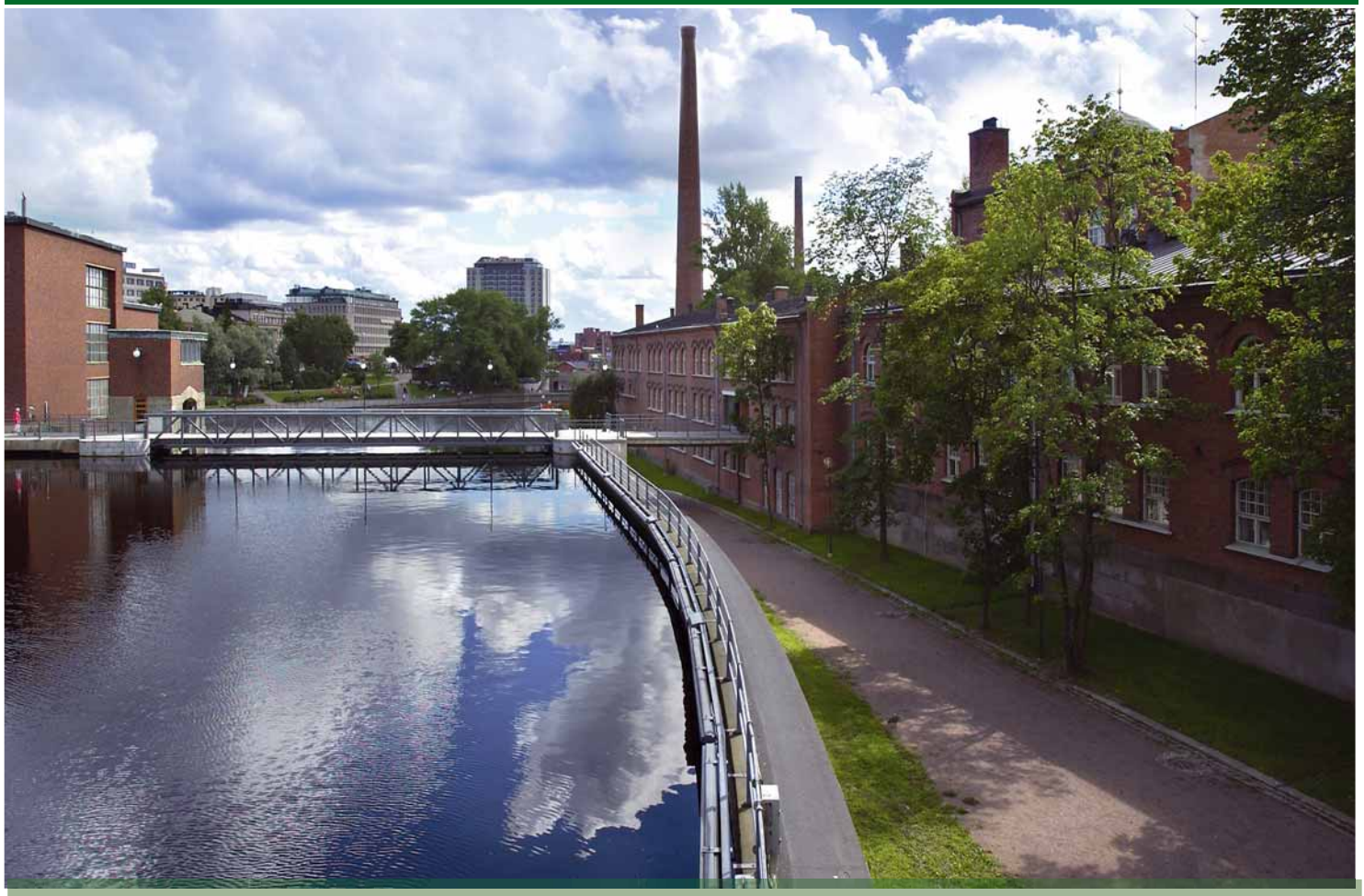

City Profile

Tampere

CASCADE Cities exchanging on local energy leadership

Supported by INTELLIGENT ENERGY EUROPE

Introduction

General information

The city of Tampere is located in the south of Finland. With a population of 210,000 it is the third biggest city of the country and constantly growing. Tampere is an industrial city and as an inland port city and shaped by water areas: 165 km^2 of the city's total area (690 km^2) is covered by water.

Organization of energy and climate policies

The City's sustainable community unit has the main responsibility for local energy policies. The Unit is located in the Economic and Urban Development Department. The sustainable community unit together with city council has initiated the ECO2-programme in spring 2010 as a cross-sectoral project coordinating climate and energy actions of the city, integrating local stakeholders and implementing the Regional Climate Strategy. It addresses all CASCADE themes and involves the Tampere Power Utility, EcoFellows Ltd. (Energy Agency), the City Planning Department, Tampere City Public Transport and Tampere Real Estate Services. Approximately 40 people are involved into local energy and climate policies, 10 of them coordinating climate and energy policies and 30 from other departments.

The ECO2-programme has a strong political back-up and long-term commitment to climate change abatement. With the implementation of the ECO2-programme the collaboration and exchange between the departments has improved.

Relevant stakeholders

Next to the administration other stakeholders are involved into energy and climate action and coordination:

- Tampere power utility (owned by the city)
- Ecofellows Ltd. (Energy Agency, partly owned by the city), coordinating the energy counselling in Tampere region
- Centre for Economic Development, Transport and the Environment
- University of Tampere
- Tampere University of Technology
- Non-Governmental Organisations: Dodo and Friends of the Earth
- Hermia Ltd. coordinates the Centre of Expertise for energy technology in Tampere. The Centre brings together companies working in the field of sustainable energy
- Stakeholders and companies especially in the construction sector

The City of Tampere emphasises an open and democratic ways of action. The promotion of participation is an important part of the city's strategy. In order to achieve this the city has developed new interactive channels called "Valma" and "Alvari". On the internet forum Valma the citizens have the chance to comment the decisions the city is preparing. The purpose of Alvari, a local working group, is to establish a link between the city's activities and both stakeholders and the general public.

During an integrated, regional community planning between 2008 and 2012

(see chapter "Context"), a campaign called ILMANKOS arranged a broad participation for citizens. The goal of the ILMANKOS project was to participate citizens in communal activities and to promote climate friendly behaviour. The project is trying to find ways to diminish the carbon footprint together with the citizens. It includes different events like excursions and collaborative projects e.g. an energy saving campaign for apartment houses or climate friendly cooking course.

Targets and programmes

The City of Tampere signed the Covenant of Mayors in 2009 and submitted its SEAP the same year. Tampere has graded emission reduction targets. The first interim target is a reduction of CO_2 emissions of 20 % by 2020 compared to 1990 and the next step is a 30 % reduction by 2030 compared to 1990. Another aim is the reduction of final energy use by 9 % between 2005 and 2016, as mentioned above. During the regional land use planning process 2007-2010 the local climate targets were integrated, evaluated and discussed quite well.
An output of the planning process was the Regional Climate Strategy that addresses the three main themes of the Cascade project (Buildings, Renewables and Transport). The city strategy "Tampere Flows", the Urban Region Strategy "Rakennesuunnitelma 2030" and the Transport system strategy "Tase 2025" (will) have reductive impacts on the level of carbon emissions of the city.

Context

European, national and regional framework

Finland ratified the Kyoto Protocol, developed a national Climate Strategy and started the programme "ERA 17 – for an energy-smart built environment" which are in a wider context the main supportive aspects for local energy and climate action. Though there are no obligations based on national law for municipalities to save energy or to lower emissions in Finland, the national targets demand municipalities to take action. The City of Tampere committed to the national "Energy Efficiency Plan 2008-2016" of the Ministry of Employment and the Economy and to the national "Climate Change Strategy". The Energy Efficiency Plan aims to increase energy efficiency by 9 % until 2016, the Climate Change Strategy's target is a reduction of at least 30% of CO_2 emissions untill 2030. The ERA 17 programme takes several factors into account that contribute to an energy-smart built environment, such as land use, construction of new buildings and renovation projects, building maintenance, and the use of renewable energy.

On the regional level the city of Tampere participated on an integrated, regional community planning between 2008 and 2010. The process integrated a Regional Plan for Welfare Services, a Regional Housing Platform, a Regional Business and Economy Strategy, a Regional Strategy for Climate Change and a Regional Public Transport System. The Regional Climate Strategy in combination with the ECO2 programme is an important support for the implementation of local climate policies.

A local structural benefit is that the most important actors in the energy,

waste management, water and public transport sectors are owned by the city. A structurally efficient and centralized energy production combining electricity and heat production supports the implementation of the energy policies. Additionally, another form of political back-up is The ERA 17 – programme.

Financially energy and climate policies are supported by subsidies and Feed-In Tariffs for renewable energies. Funding instruments enable many activities that wouldn't be possible otherwise (see chapter "Financing").

But though there is political back up on the national level the message could be even clearer than it is now. One important hindering aspect is seen in the people's attitude. Finns are described as not as urban as many other Europeans. Traditionally many people prefer living in a sparsely populated area. Urban structure is scattered and density is not wanted which makes an efficient public transport system difficult. With regard to renewable power generation the Feed-In Tariffs should rather apply distributed energy generation in Finland to support the development of small scale wind power, biogas and solar energy.

Energy Efficient Buildings and Districts

Main measures

Tampere is currently involved into two projects, in which tools for energy-efficient urban planning are developed. The idea is to integrate energy and climate issues into the urban planning process from the very beginning. The tools are being developed in a cooperation of numerous cities, research institutions and the private sector. Therefore, they have high acceptance on the national level. However, on the local level it will be a challenge for the people using the tools until the programme is installed and introduced finally. Next to that there are reservations about the acceptance of eco-efficient urban planning in Finland.

Another measure is an economic incentive for passive houses by a 50 % reduction of plot rent if the new building is constructed in passive house standard. The system is currently tested on a development area in Tampere and will be scaled up later. The system is easy to understand and not very cost-intensive so the effort to establish a new economic incentive at the city level and change the existing practices is rather low.
As a third point in this field Tampere mentions a couple of pilot projects with which the city sets examples for other constructors and developers. A Day Care Centre is under construction with passive house standards, another

center will be constructed in 2012. Furthermore, the housing fair in Tampere (July/August 2012) will present ten passive houses and a zero energy house. However, the gap between the political support of low energy technologies and standards in the building sector on the one hand and the still existing suspicion among the general public on the other is still regarded as an important obstacle.

Self assessment

In the field of "energy efficient buildings and districts" Tampere regards itself working on a high level and able to share expertise with others.

Renewable Energy Sources and Distributed Generation

Main measures

Tampere's measures in the field of "Renewable Energy Sources and Distributed Energy Generation" are mainly focussing energy generation from biomass, wind and solar power.

The local utility, Tampereen Sähkölaitos, which is owned by the city, is the main energy supplier in the region. Currently the main energy source is natural gas but the company's strategy has the target of increasing the share of renewable energy from less than 10% to 30 % by 2020. The plans foresee investments in waste incineration, wind and biofuel. The development of renewable energies is supported by European and national policies like feed-in tariffs for wind energy. However, there is insecurity about the availability of quality wood fuel and the consistency of energy policies.

Within several projects the potential of solar and wind energy in specific areas were identified. Based on the results the Tampere Power Utility has realised two small-scale wind turbines in the city centre with two windmills and a total investment of 70.000 €. Information from the studies shall be used for urban planning. Energy issues are of increasing interest in urban planning and development is done on this topic in several cities in Finland. However, the benefit of investing in small-scale wind turbines and solar systems is still non given due to lack of tariffs and other incentives.

In the rural areas of Tampere the focus is to substitute oil boilers by wood pellets. In an ongoing project coordinated by Ecofellows Ltd. advise is offered to citizens and institutions. The city provides some model projects by replacing oil boilers by wood heating systems in schools and kindergartens in these areas. The project will run until June 2012. A supportive factor are several small companies providing boilers and parts of heating systems in the area. Tampere Region has large wood resources and wood can be a cheaper option for heating compared to oil here. Furthermore, the government offers financial support for changing to renewable energy heating. But only very few companies provide full heating systems based on wood for private households and experts providing independent advice.

Based on a cooperation of the six biggest cities in Finland and focussing on solar energy, the project "Renewable Energy Pilots" has started. Solar

energy is underrepresented in the Tampere region though there is potential to tap. With this project the city hopes to develop further recent ideas for piloting solar energy technology. This project connects local experts and companies in the field of solar energy, city officials and construction companies. A supportive factor for the project is that building regulations are developing in a direction that emphasizes using renewable energy and integrating them into the design phase. Experiences in new and current available technology are needed, if people wish to start using them on a larger scale in the future. Solar energy is a very important factor in the built environment and a hindering factor is seen in a missing Feed-In Tariff at national level for small-scale solar systems.

Another project is a large-scale wood pellet boiler that is coordinated by the local utility. It shall be connected to the district heating system and support CHP production during peak consumption. The government has not yet decided about the financing. A supportive factor for this project is the national financial support programme for new technology in renewable energy and also the plentiful local wood resources in Finland and Tampere region. Hindering however is the production and transport chain of quality wood pellets that needs to be established.

Self assessment

Tampere sees its expertise in the field of renewable energy sources and distributed generation as middle class though the different aspects are very diverse. While the use of solar energy currently is rather low, Tampere has an exceptionally long experience in CHP-plants and wide use of district heating (district heating market share in the Tampere city area is more than 90 % based on combined heat and power production). But the major fuels are natural gas and peat. The plan is to use more wood-based fuels in the future. The city's interest is to learn more about distributed energy and related financial models.

Energy in Urban Transport

Main measures

The biggest project addressing "Energy in Urban Transport" in Tampere is a new light rail system. If the master plan for the rail system will be approved by the City Council the construction of the tramway might start around 2015. In Tampere there is the need for new public transportation modes that have the ability to attract more passengers. And the more passengers are attracted the more efficient the new tramway will be. Thereby, the increase in the price of petrol supports alternatives to car use. But the investment needed to build the tramway is fairly high. There is no experience in modern tramway projects in other middle-size Finnish cities, so the decision making process may have a lack of reliable and understandable Finnish benchmarking data.

In 2011 a real time information system has been introduced for the main bus stops in Tampere. They were equipped with screens that give real time information on when the next bus will arrive on the stop. Information screens on buses show the name of next stop and can be used to deliver information on disturbances in traffic, altered routes etc. Next to this, a public transport prioritization is included into the system, too. To tap the

full potential of the implemented system continuous planning efforts are needed next to a strong political will to support public transport.
For the city's own car fleet, Tampere is planning to acquire five electric vehicles in 2011/2012. Having low operating costs and the need to support new clean technologies and be a forerunner in climate change abatement are supportive factors for the implementation. Hindering is the lack of experience on electric cars and the price needs to be competitive compared to conventional cars.
Furthermore, a citybike system was introduced in 2010. 75 bikes at 18 bike stands are offered. With a 10 € registration fee people can use the bikes during summer. The citybike system was one of the projects listed in the mayor's official agenda. Unfortunately the budget was too low to implement a system with mobile registration and electronic locks, which would have provided a more flexible and easier use. There have been less users than expected. The chosen system might be a reason for this.
In the field "Energy in Urban Transport" Tampere describes its expertise as middle class and would like to learn from other cities.

Self assessment

Financing

National funding finances many energy and climate projects in Tampere. Sitra and Tekes are the most important sources here. Sitra, the Finnish Innovation Fund, promotes stable and balanced development in Finland, economical growth and its international competitiveness and co-operation. The focus is on sustainable development and people. Tekes is the most important public funded expert organisation for finance research, development and innovation in Finland. Its task is to boost innovation activities in research communities, industry and service sectors. Further funding, e.g. for energy audits, comes from the Ministry of Employment. EU structural funds and European social funds are also used. The budget of ECO2 programme is 482,000 € a year. Approximately half of it is used to fund projects on sustainable construction, energy and transport.

The financial resources dedicated to local energy policies increased over the last years, resources for energetic refurbishment from 15,000 in 2008 to 600,000 in 2010/2011 and resources for renewables from 47.000.000 in 2008 to 100,000,000 in 2010/2011. The ECO2-programm has been established with a budget of 482,000 € in 2010. The City of Tampere will prepare an environmental financial statement starting in 2011 with more detailed information about investments, costs and revenues from environmental protection inside the city organisation each year.

Emission Inventories and Monitoring

CO_2-inventory

Tampere has generated its last CO_2-inventory for 2010 in autumn 2011 and is planning to work out CO_2-inventories every year. The CO_2 emissions have been calculated by using the Kasvener Model. It is a model measuring greenhouse gas emissions and energy balance. Kavener is a geographical

model and it can be used to measure annual GHG emissions, energy production and consumption of a municipality or other geographical areas. The emission sectors of the model are energy, industrial processes, agriculture and waste management. The emissions are calculated based on both energy production and consumption in the municipality. The model includes power plants and energy intensive industries but excludes airports and waterborne traffic.

Level of CO_2-emissions by sector in 2007	
Sector	**CO_2 in t**
Service	244,000
Industry	340,000
Agriculture	16,000
Households	524,000
City	90,000
Public sector, other	54,000
Unclassified (including traffic)	368,000
Total	**1,637,000**

In baseline projections, the emissions of Tampere are expected to increase to 2,500,000 t by 2030: 950,000 t from residential buildings, 600,000 t from premises and 500,000 t from traffic. However, emissions scenarios assuming active intervention by the city project prject clear emissions reductions.

Tampere has developed monitoring tools for energy use and GHG emissions. The ECO2-programme reports its progress to the city every year. The first implementation report of SEAP is foreseen in 2012. Finally, the regional working group will follow the implementation of the regional climate strategy and will report to the regional board each year, starting in December 2011.

Future Visions and Expectations

Planned activities for the future are the continuing of the ECO2 programme, a stronger collaboration in the national and European level and a stronger focus on communicating the benefits of eco-efficiency and changing the peoples' attitude slowly but steadily.

Additional to activities in all sectors and fields of action, a secoial focus ist given on the following issues:

- Increase of the share of renewable energies of the local power utility
- Implement REN energy projects (solar energy pilots)
- Bring forward the local rail system planning
- Starting a big campaign on cycling

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CASCADE

Cities exchanging on local energy leadership

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CASCADE is a EU-funded project coordinated by EUROCITIES which aims to design and deliver large-scale networking and mutual learning actions on local energy leadership among members of the EUROCITIES network. The CASCADE consortium is composed of: EUROCITIES, Wuppertal Institut, Koucky & Partners and the following cities: Amaroussion, Amsterdam, Birmingham, Burgas, Edinburgh, Eindhoven, Gateshead, Genoa, Gijon, Malmo, Mannheim, Milan, Nantes, Stockholm, Sunderland, Tampere, Terrassa, Venice and Warsaw.

The CASCADE project is co-financed by the Intelligent Energy Europe Programme. The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.