

SECAP and climate action in Tampere

International workshop on Climate Change Strategies for Cities and Local Governments

Gwangju, 16.3.2018

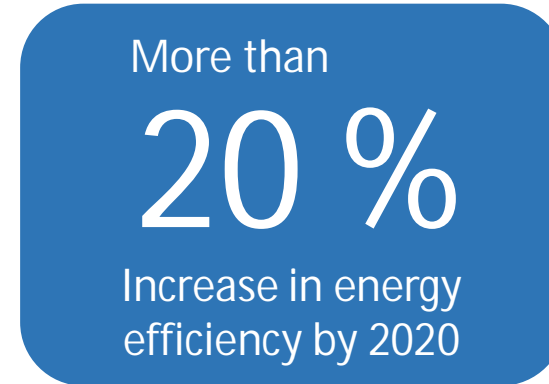
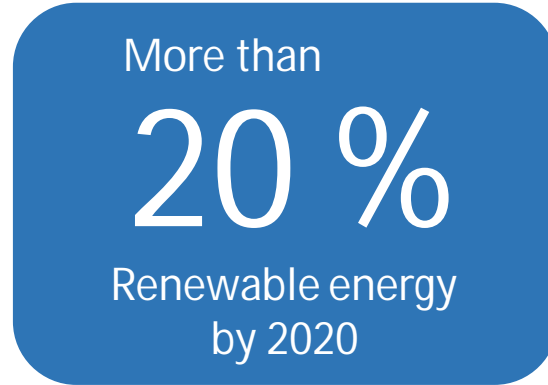
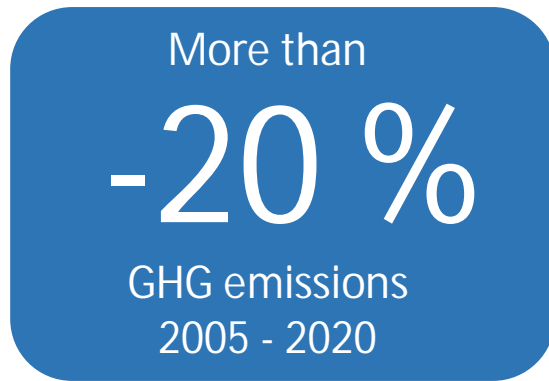


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Covenant of Mayors since 2009

Covenant of Mayors targets



- Tampere creates a Sustainable Energy Action Plan in 2009 and the calculations are updated in 2011
- In 2010 Tampere starts a project to coordinate climate work across the whole city organisation and assembles a team of specialists for the work



ECO2 – eco-efficient Tampere 2020

2010-2016



Energy



Buildings and
construction



Mobility

- Partnerships with companies, universities, research institutions etc.
- Several development projects on each topic mixing city units and partners
- Communicating about the city's climate work to a wider public



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Gradually raising climate objectives

- Suggestions for climate targets supported by studies
- Climate objectives exist on local, regional, national and international levels



City strategy 2012



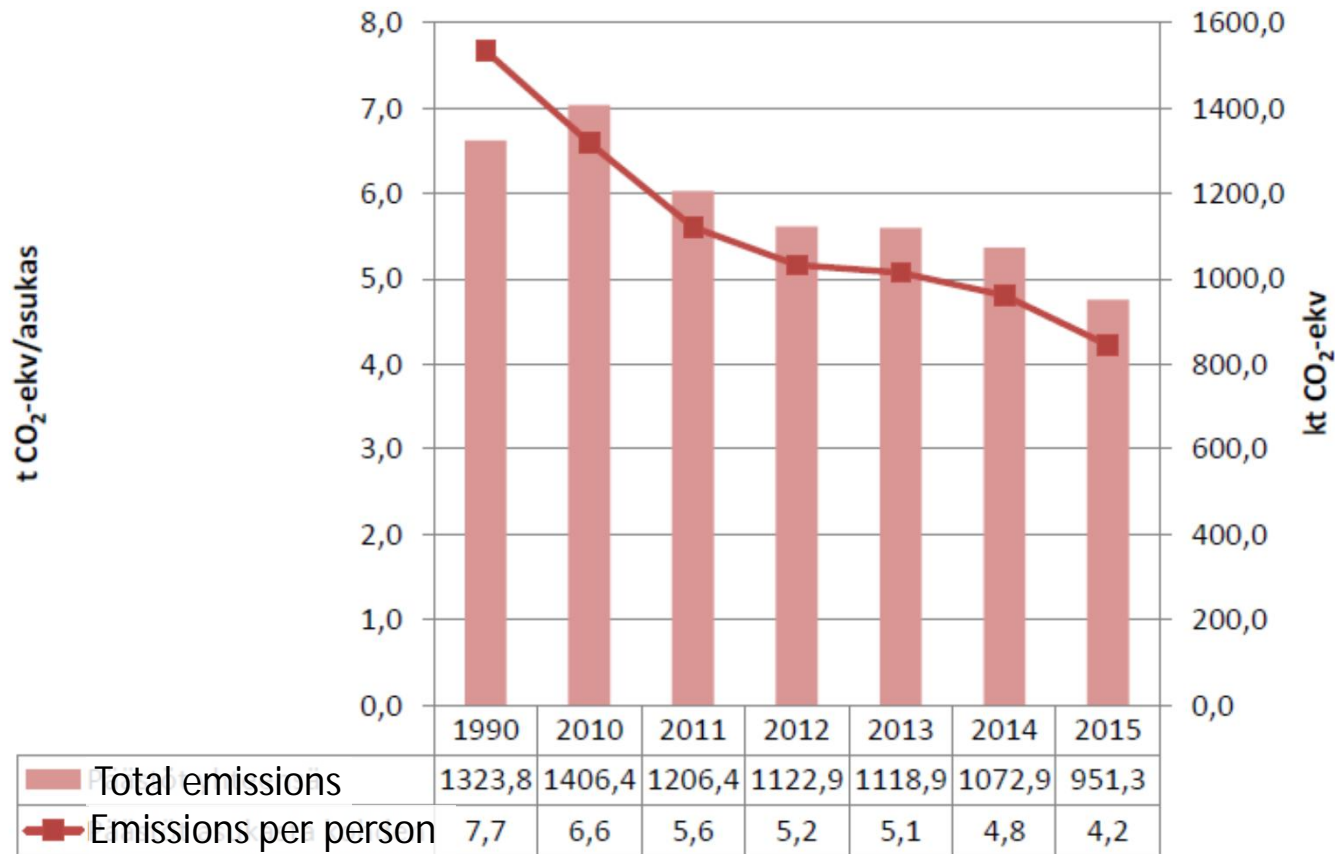
Environmental
policy 2012



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Emission Development



Change in Total Emissions
1990 - 2015

-28 %

Change per Inhabitant

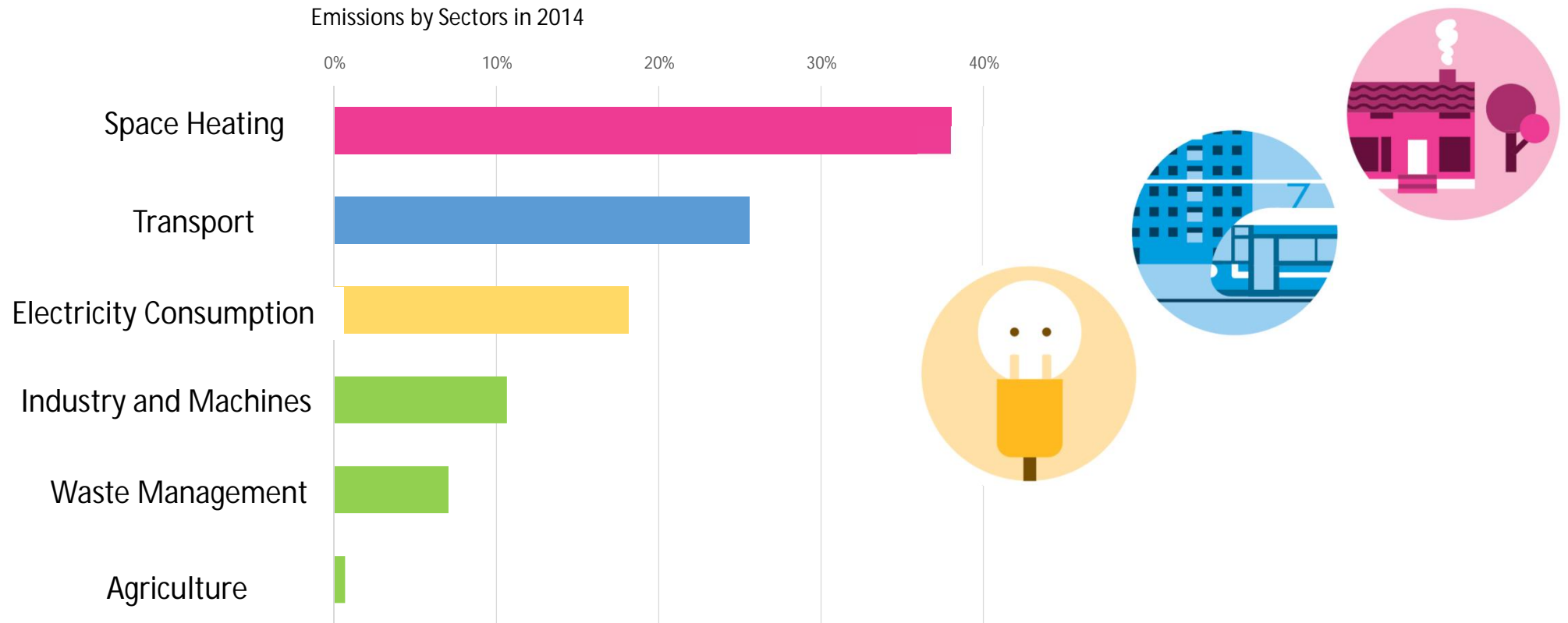
-45 %

Source: CO2-raportti, Benviroc Oy, 2017



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CO2 Emission Sources



New ambitious climate targets

Global

Covenant of Mayors

-40 %

GHG emissions
2005 - 2030

Tampere City Strategy

-40 %

GHG emissions
1990 - 2021

Carbon Neutral
Tampere

2030



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Sustainable Tampere 2030

Climate, energy, resources



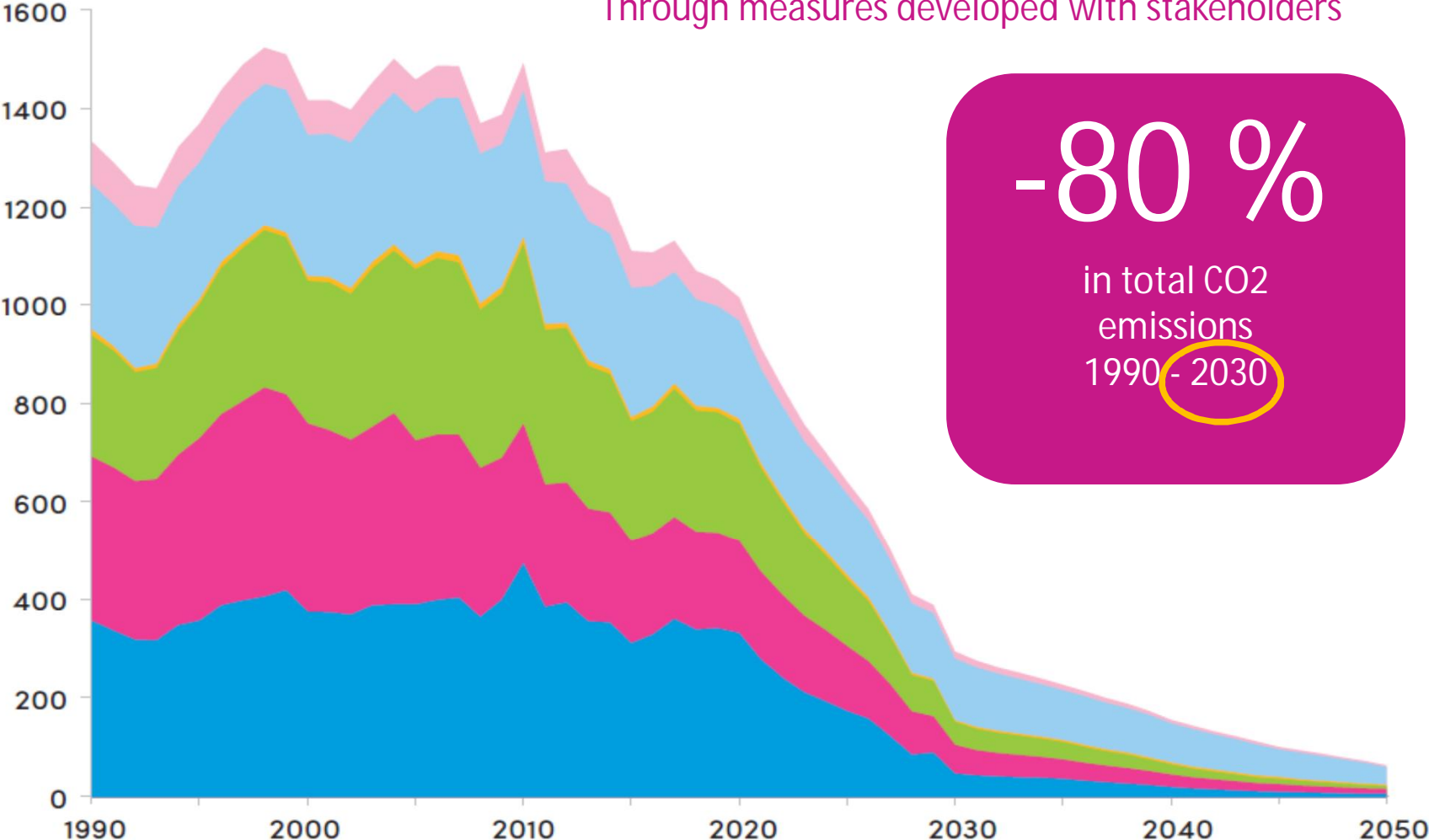
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Climate Vision

Through measures developed with stakeholders

1000 tonnia CO2-ekv

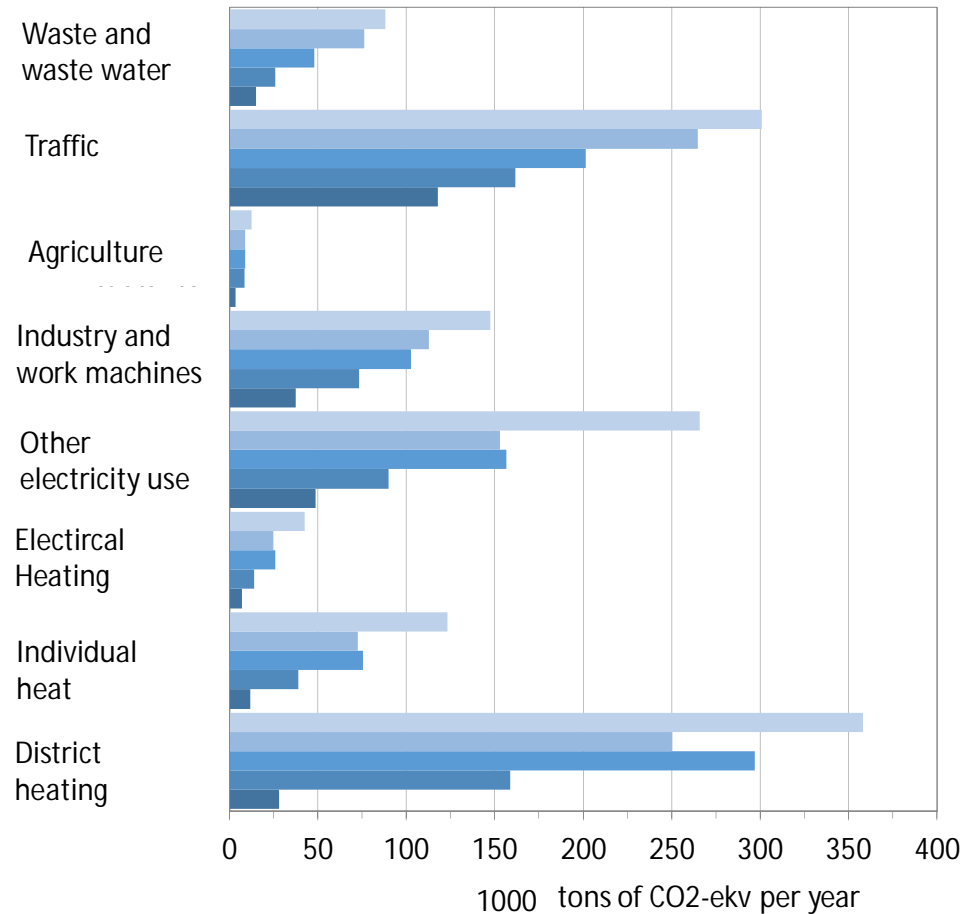


-80 %

in total CO2
emissions
1990 - 2030

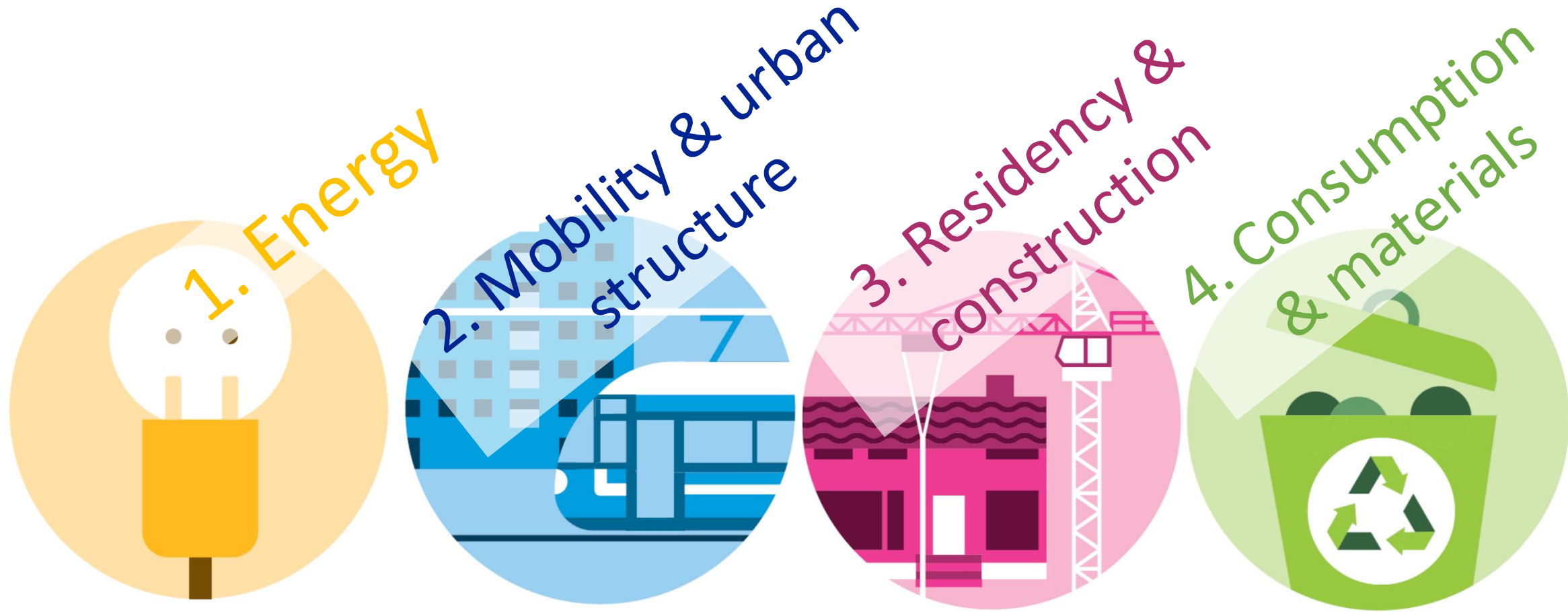
- Waste management
- Traffic
- Agriculture
- Services
- Industry
- Households

Change needs to happen in all emission sources



Päästölähde	Muutos 2015–2030
District heat	-89 %
Individual heating	-84 %
Electrical heating	-72 %
Other electricity use	-68 %
Industry and work machines	-66 %
Agriculture	-65 %
Traffic	-55 %
Waste and waste water	-80 %
<i>Sum</i>	<i>-72 %</i>

Climate action – roadmap



LIIKKUMISEN JA KAUPUNKIRAKENTEEEN TRENDIT

Liikenne sähköistyy ja biopolttoaineiden osuus lisääntyy
 Kaupunki kasvaa noin 3000 asukkaalla vuodessa

LIIKKUMISEN JA KAUPUNKIRAKENTEEEN TAVOITTEET



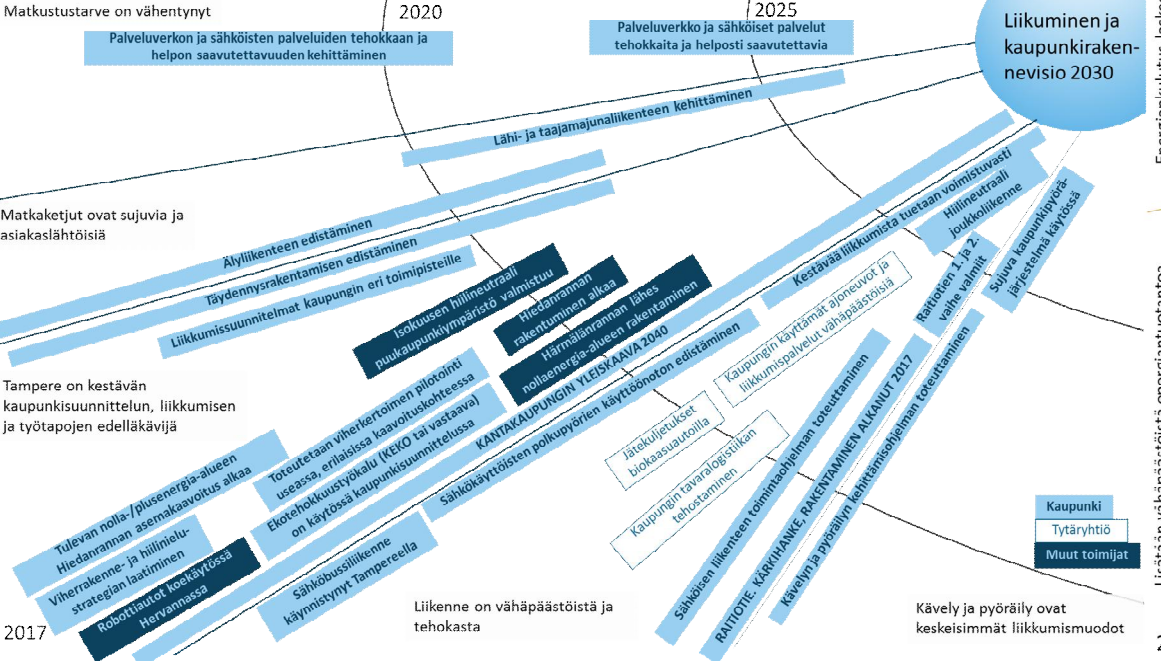
- | | |
|--|--|
| Härmälänrannan lähes nollaenergia-alue on valmis | Saumattomat matkaketjut |
| Aluekeskukset ovat monipuolisia palvelukeskuksia | Jakamistalous näkyy kaikessa liikumisvälineiden käytössä |
| Hiedanrannan nolla-/plusenergia-alue on valmis | Matkustustarve on vähentynyt merkittävästi |
| | Tampereella on kävelykeskusta |
| | Kaikki uudet asuinalueet ovat hiilineutraaleja |

2017

2020

2025

2030



ENERGIATRENDIT

Hajautettu energiantuotanto lisääntyy
 Toimintojen sähköistyminen
 Energian kulutus vähenee nopeutvasti
 Kansallisesti sähköntuotannon ominaispäästöt lähenevät nollaa > 2050

ENERGIATAVOITTEET



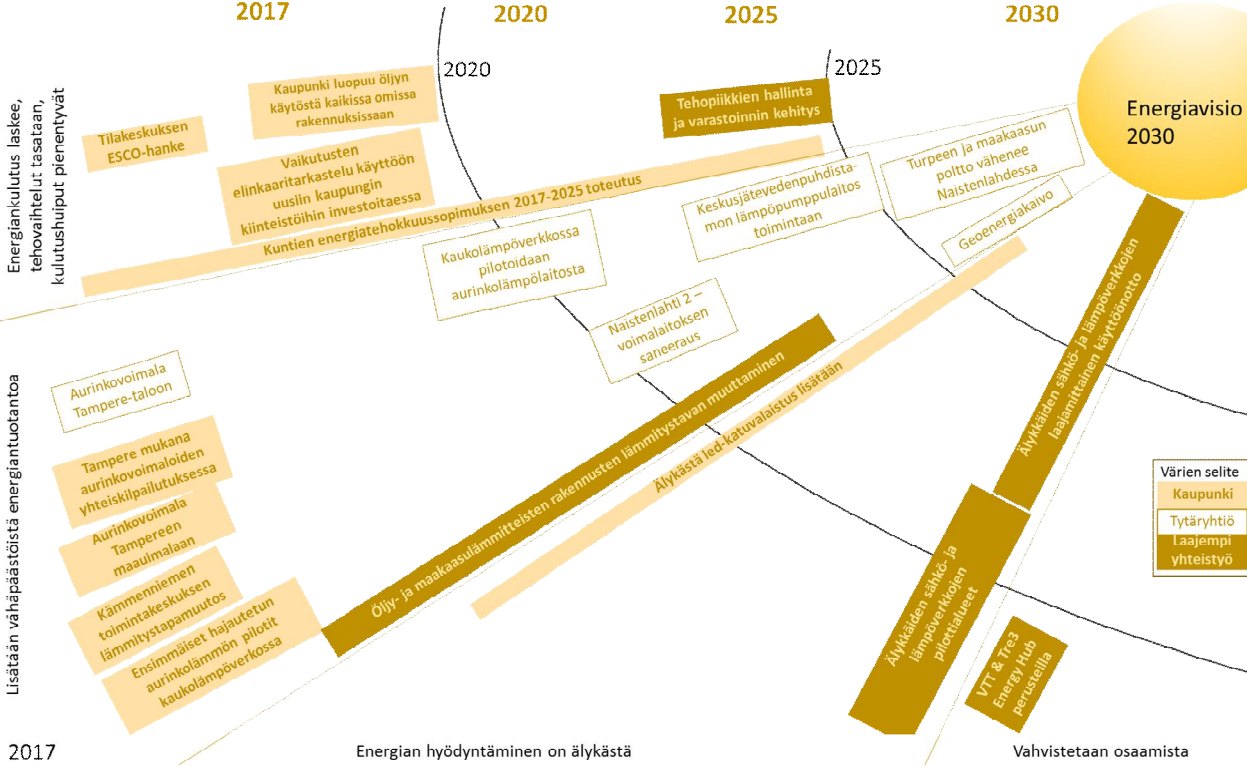
Fossiilisen öljyn käyttö erillislämmityksessä on loppunut
 Aurinkoenergiaa tuotetaan kaikilla sopivilla pinoilla
 Tampereen Sähkölaitoksen energiantuotanto on lähes päästötöntä

2017

2020

2025

2030



Värien selite
 Kaupunki
 Tytäryhtiö
 Laajempi yhteistyö

2017

Energian hyödyntäminen on älykästä

Vahvistetaan osaamista

Key elements of the roadmap

Analysis of the current energy balance and emissions as well as future developments in both

A wide array of actions in all of the city and their effects brought together in one place

Stakeholder involvement mostly for the sake of wide commitment to common goals

Political
commitment

Next step - SECAP

Tampere has become a part of the Global Covenant of Mayors for climate and energy

Main focus will be on the effects of specific action points in the roadmap: cost efficiency, indirect benefits, information for decision making

Having discussions with different city units on the roadmap in order to put it into action and collect more information

Most Important for the City:

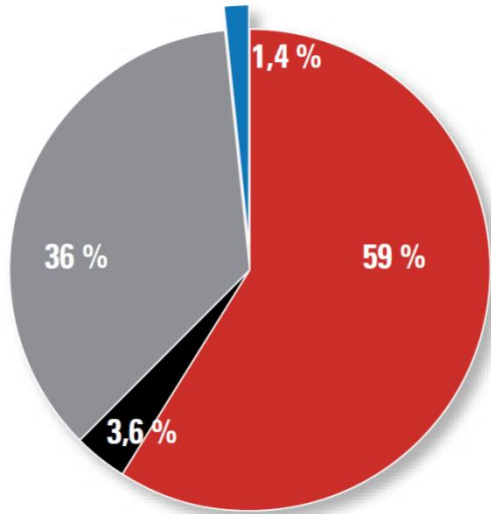
smart and
sustainable
energy,
land use and
mobility
planning



Climate action - examples



Turnaround in Power Production

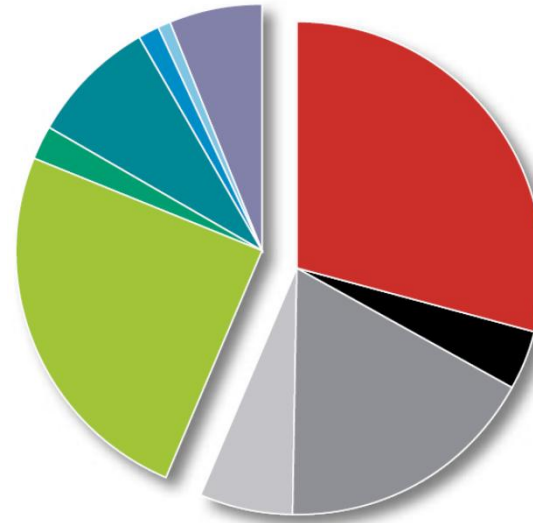


Energy Sources 1990

- Gas 59,0 %
- Oil 3,6 %
- Peat 36,0 %

Share of Renewables 1,4 %

- Hydro 1,4 %



Energy Sources 2016

- Maakaasu 29,2 %
- Öljy 4,1 %
- Turve 17,1 %
- Jäte 6,1 %

Uusiutuvien osuus 43,4 %:

- Puu (NSL2) 24,8 %
- Pelletti 2,3 %
- Hake (HRV) 8,1 %
- Vesi 1,6 %
- Tuuli 0,6 %
- Jäte 6,1 %

HRV = Hervannan hakelämpölaitos
NSL2 = Naistenlahden kakkosyksikkö

Renewable Energy
1990
1,4 %



Renewable Energy
2016
43,4 %

Source: Tampereen
Sähkölaitoksen
vuosiraportti 2016



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Recent investments in power production



Renewal of the hydropower plants at the Tammerkoski rapids, 2010–2012



Building of the district cooling network, started in 2012 (8.5 km so far)



Largest pellet heat plant in Finland, 10 MEUR



Wood chip heat plant in Hervanta, 30 MEUR



Flue gas scrubber for the Naistenlahti plant, 10 MEUR



Waste incineration plant, 110 MEUR

Plus investments in wind power, as a shareholder in Suomen Hyötytuuli Oy.



IEA 2008: Finland is a world leader in combined heat and power with high levels of development in district heating.

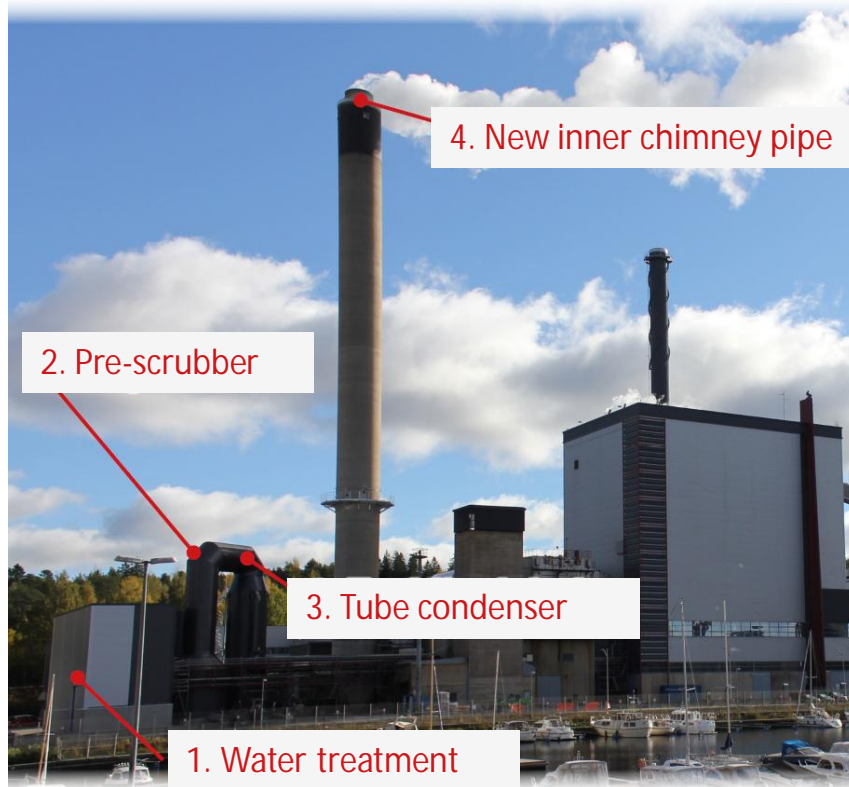
<http://www.iea.org/chp/countryscorecards/>



ENERGY EFFICIENT HEATING NETWORK

Approximately 90 % of inhabitants connected to the district heating network.

Three new scrubbers in power plants



The flue gas scrubber is used to condense the water vapour in the flue gases, enabling the recovery and use of the vaporization energy and temperature drop for preheating the district heating water.

The condensation equipment removes fine particles and recovers heat from the flue gases.

Naistenlahti CHP-plant scrubber



Setting an example for solar power

City has deployed PV in public buildings as an example to other building owners

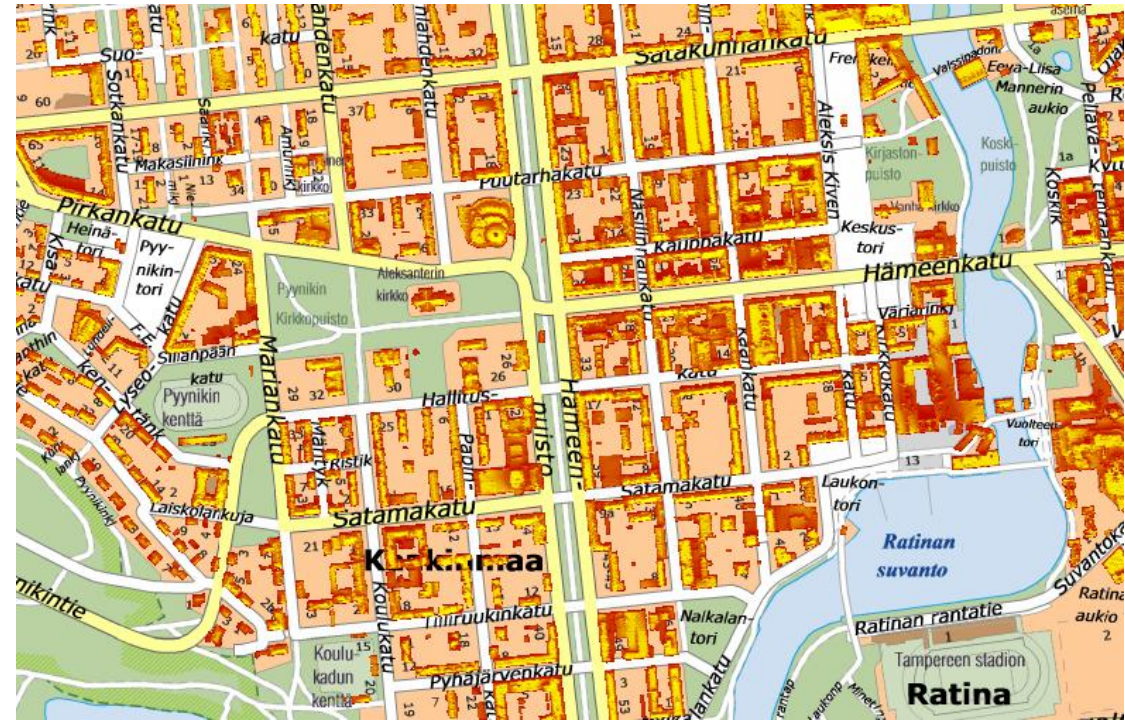
- Vuores house has a PV installation of , said to be the easiest part of the building to maintain
- Tampere hall (congress and culture centre) has a recent PV system of 48 kWp



Vuores-talo



Tampere hall



Solar potential map has been published as open data and available in map form for all to see

Green roofs in Tampere

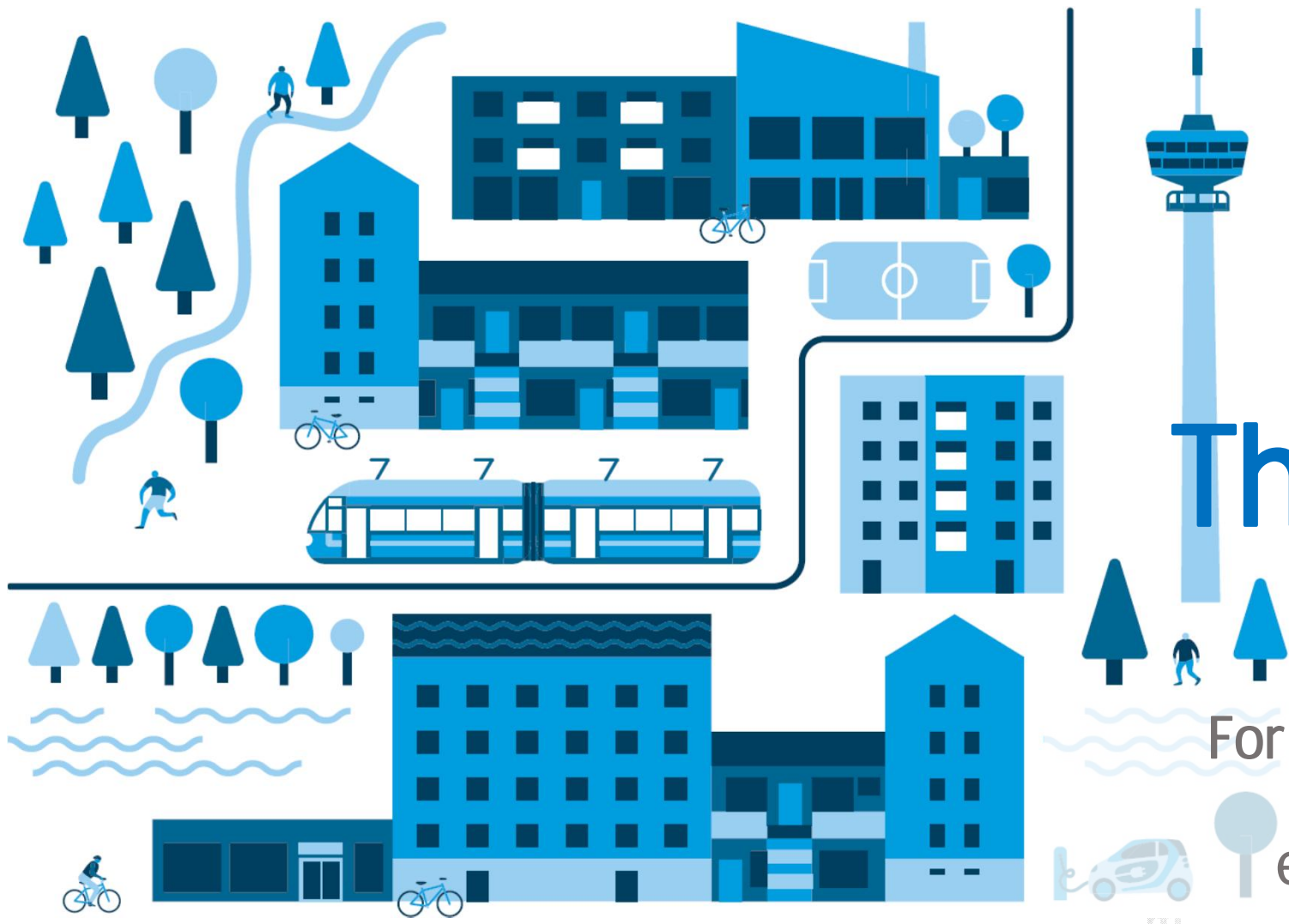
- Most visible example Tampere University of Technology Campus arena
 - Construction finished 2015
 - Also PV panels and a waterfree urinal
- Vuores area has car parking with green roofs



First electric buses as part of a wider e-plan

- Four electric buses started operation on the 19th of December 2016
- The bus line is in total 8,8 km long. The whole line is operated with electric buses.
- There is one fast charger at the end-stop and the buses are also charged overnight at the depot.
- Buses are manufactured by Solaris and the chargers by Ekoenergetyka.





Kiitos! Thank You!

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