Towards Carbon-neutrality by 2029

Creating Sustainable Energy with Citizens and Stakeholders

Presentation by Risto Veivo, City of Turku, Finland

Union of the Baltic Cities / Sustainable Cities Commission

Klaipeda, Lithuania 14 September 2018

The first carbon-neutral city in Finland by 2029

City Council 16 April 2018

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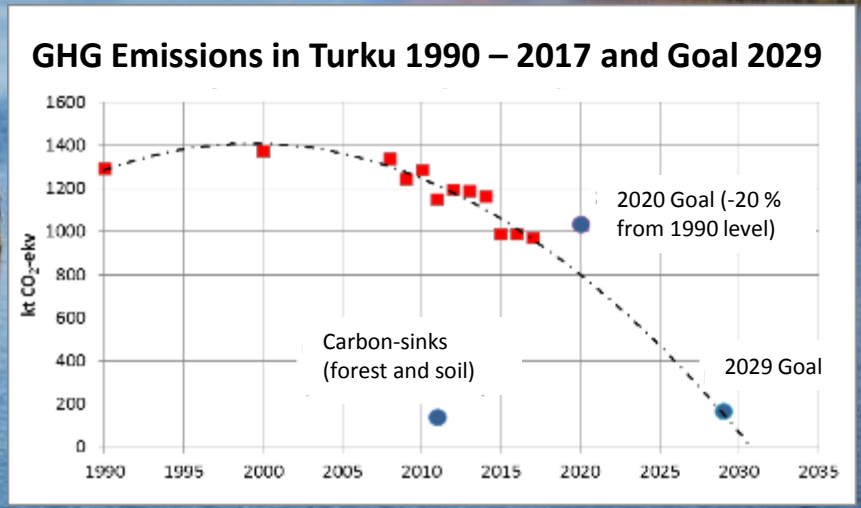


Turku Climate Plan 2029

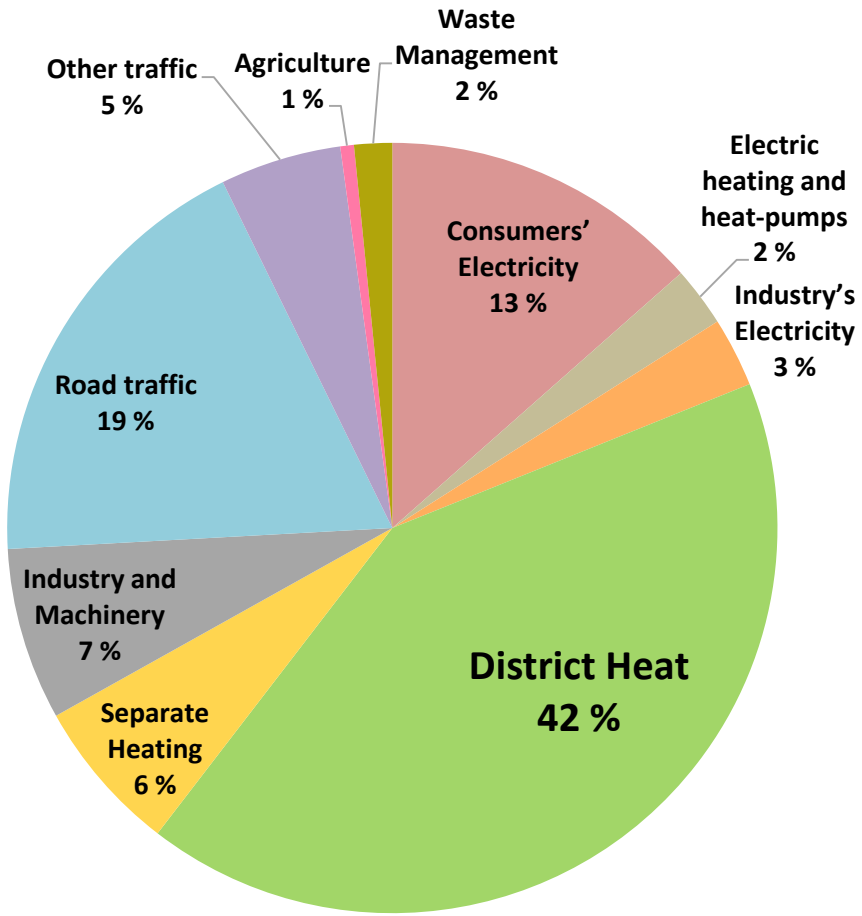
Sustainable Energy and Climate Action Plan

City Council 11 June 2018

Covenant of Mayors for Climate & Energy

Carbon-neutral City (area) by 2029 and Climate-positive thereof!

- Interim goals and milestones 2021 – 2025 – 2029 (for each City Council period)
  - Halving GHG emission from 1990 level by 2021
  - Phase-out of coal and over 80 percent renewable energy by 2025 (in coop. with state of Finland)
  - Halving transport emissions from 2015 level by 2029
- Increasing carbon-sinks and ecosystem-services
- Analysing risks and vulnerabilities and developing resilience for the impacts of Climate Change



GHG Emissions in Turku 2015

Investments for transition to renewable energy 2015–2017

Mix of renewable energy sources

- Wind and solar power, wood, waste water, municipal waste, landfill gas, biogas, industrial loss heat.

Water

- Hydro-electricity in Turku Energia's affiliate companies

Wind

- Increase of wind-generation through affiliate company Suomen Hyötytuuli Oy.

Solar

- Developing the procurement of solar power by investing in solar power plants.

BIO / CHP

- 2017, new multi-fuel power plant, replacing use of coal for both electricity and heat production.
- 2015, new 40 MW pellet-fuelled stand-by and peak lopping generation plant
- 2014, a new wood gasification facility for steam generation was completed (for a laundry).

➢ **Total investment of 300 MEUR within Turku City Group and affiliated companies**

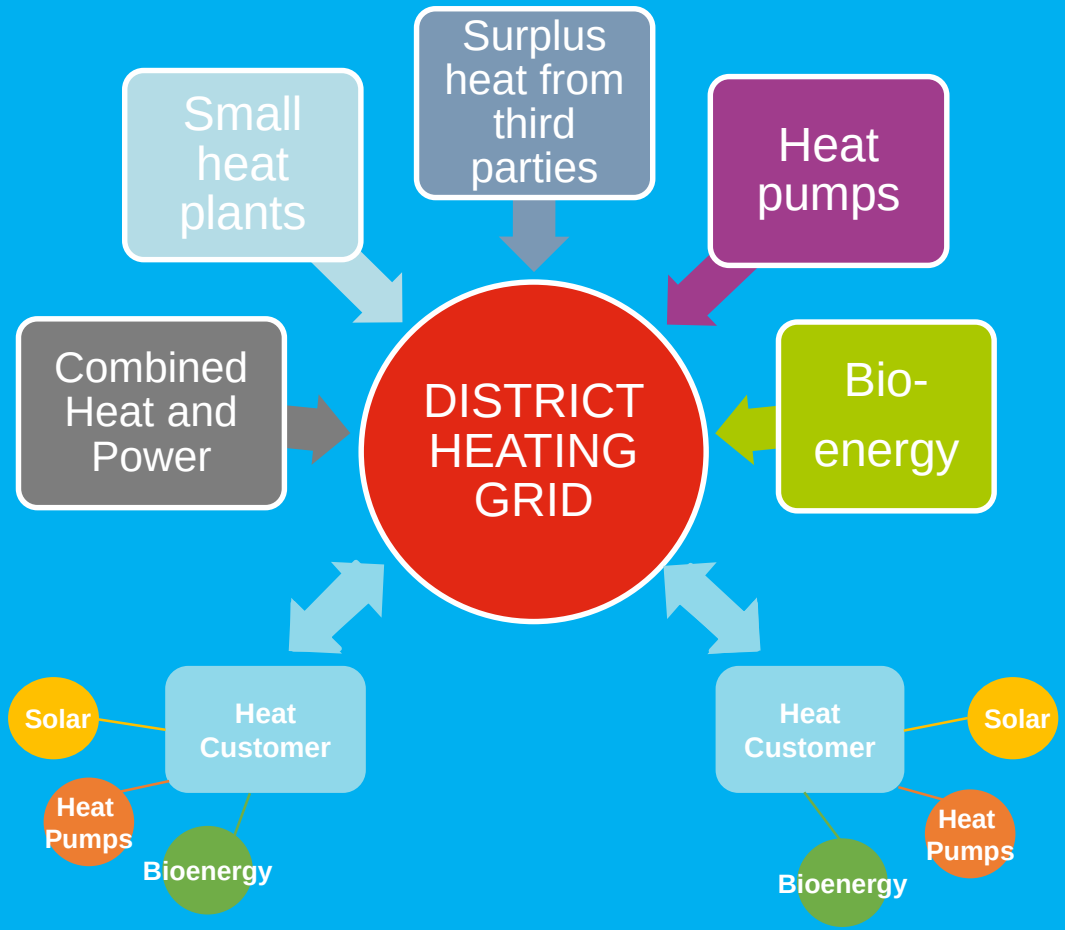
➢ **Creating over 300 new jobs in value chains of renewable energy**

TAP Transformative Actions Program

CERTIFIED BY inspecta

ISO 9001
ISO 14001
OHSAS 18001

TURKU ENERGIA



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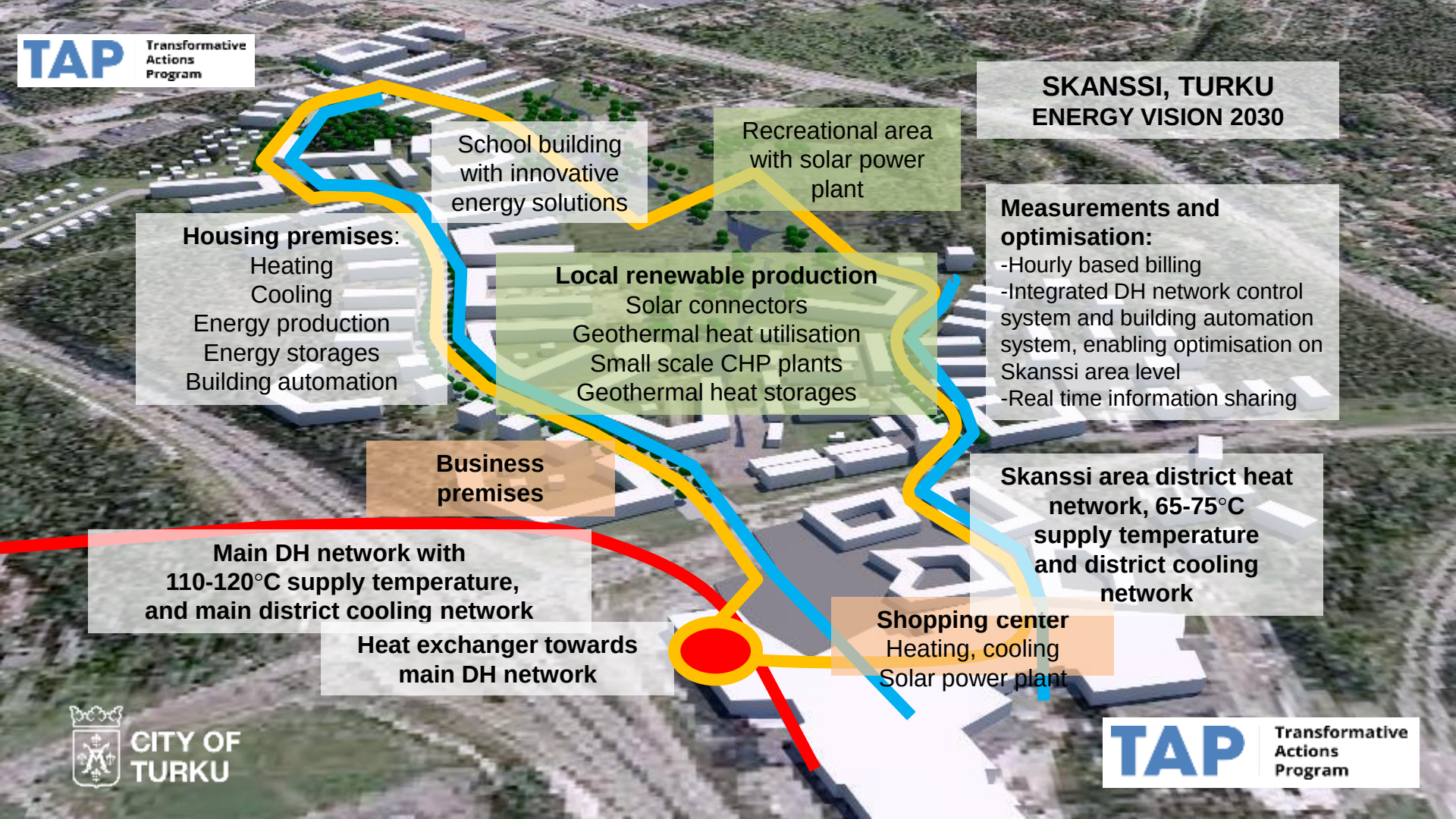
TAP Transformative Actions Program


TAP Transformative Actions Program
SKANSSI, TURKU
ENERGY VISION 2030
School building with innovative energy solutions
Recreational area with solar power plant
Housing premises:
Heating
Cooling
Energy production
Energy storages
Building automation
Local renewable production
Solar connectors
Geothermal heat utilisation
Small scale CHP plants
Geothermal heat storages
Measurements and optimisation:
-Hourly based billing
-Integrated DH network control system and building automation system, enabling optimisation on Skanssi area level
-Real time information sharing
Business premises
Skanssi area district heat network, 65-75°C supply temperature and district cooling network
Main DH network with 110-120°C supply temperature, and main district cooling network
Heat exchanger towards main DH network
Shopping center
Heating, cooling
Solar power plant
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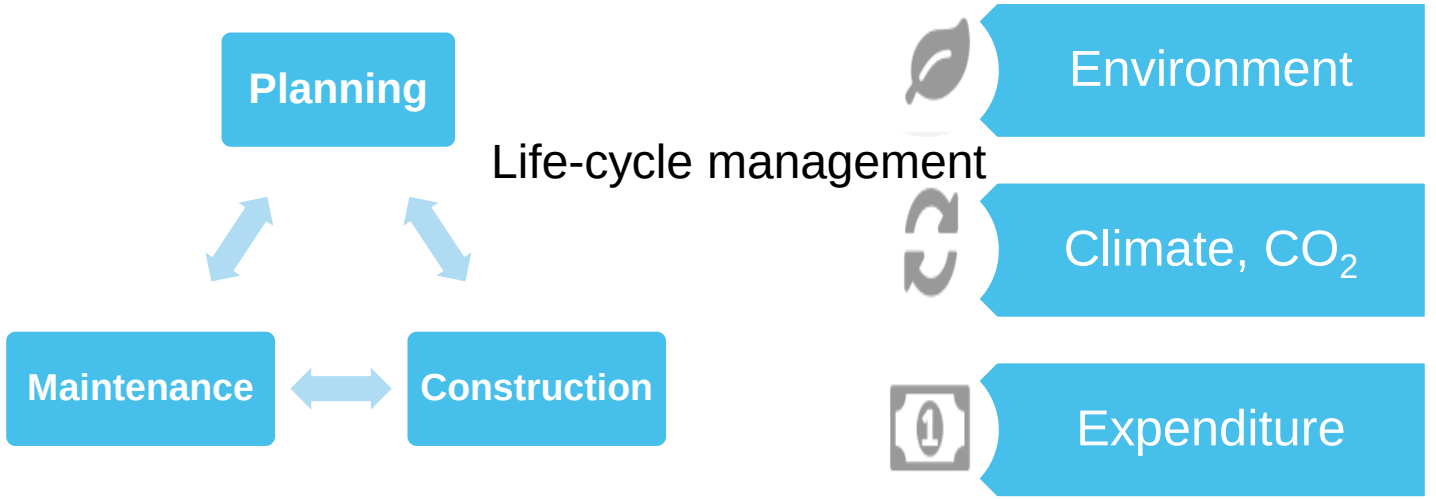
TAP Transformative Actions Program

Life-cycle Steering Model for Investment Planning and Implementation

- Making environmental and financial impacts of investments visible.
- Enabling projects to be managed from a holistic economic perspective.



TURKU
ÅBO

The model is being developed and tested in co-operation between the cities of Turku, Helsinki and Tampere as part of the Climate Commitment of the Mayors of the six largest cities of Finland.

Solar power as
Part of renovation

Citizen's
Energy
Transition

Solar power plants

Private solar power

Risks, vulnerabilities and adaptation in the SECAP Process

- Climate-related risks and vulnerabilities with potential impacts on the city, consequences to humans, properties, livelihoods and environment are identified.
- The outcomes are used for planning and implementing effective adaptation policies and measures.

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The analysis addresses:

- Climate risks threatening the city
- Socio-economic, physical and environmental vulnerabilities of the city
- The impacts of climate risks and vulnerabilities on the city

The process is four-fold:

1. Analysis of current situation
2. Risks threatening the city
3. Vulnerabilities of the city
4. Expated impacts

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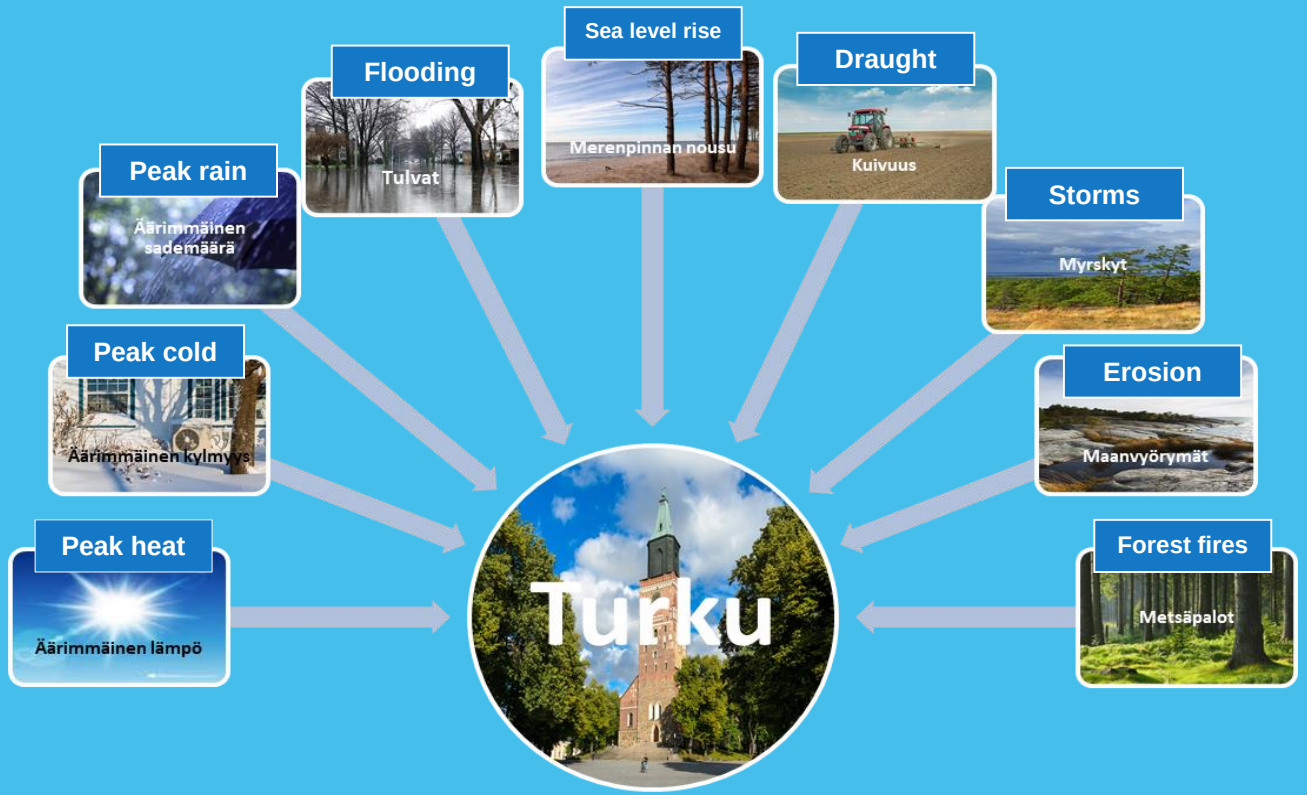
2. Climate-risks threatening the city (of Turku)

Identifying the risks and assessing their level

- Current risk level
- Changes of intensity
- Changes of frequency



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Suvi Monni ja Emma Liljeström,
Benviroc Oy

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Thank you!

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