

LOCAL ASPECTS, CHALLENGES AND POLICY SOLUTIONS FOR ENERGY EFFICIENCY IN DH SYSTEMS

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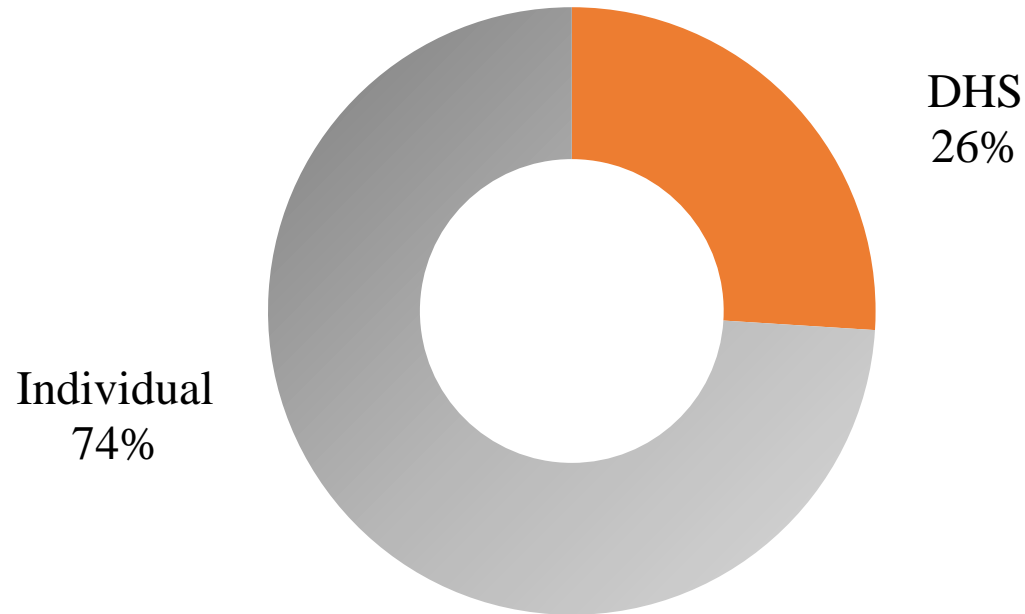
An aerial photograph of Riga, Latvia, taken during sunset. The sky is filled with soft, orange and pink clouds. The sun is low on the horizon, casting a warm glow over the city. In the foreground, the dense urban landscape of Riga is visible, with numerous buildings and rooftops. In the background, the Daugava River flows through the city, and the Riga Radio and TV Tower stands out prominently. A semi-transparent dark band across the middle of the image contains the text.

In Latvia climate zone, demand for heat is 3x higher than for electricity

In Latvia ~ 70% of population is connected to DH, but ...



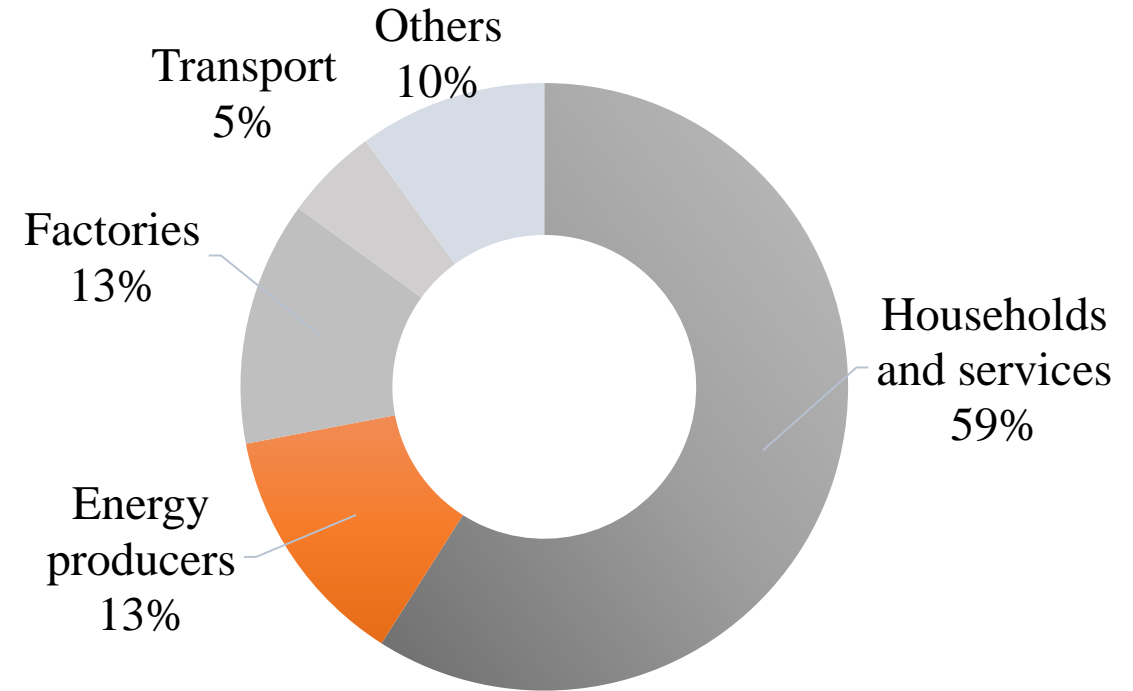
Primary energy
consumption in heat sector



Local heating systems:

- *Inefficient (KPI~60%);*
- *No monitoring.*

PM (small particles) sources



Local heating systems:

- *Generate more small particles;*
- *Use more fuel;*
- *No environment tax;*
- *No filters.*



Individual heating

District heating

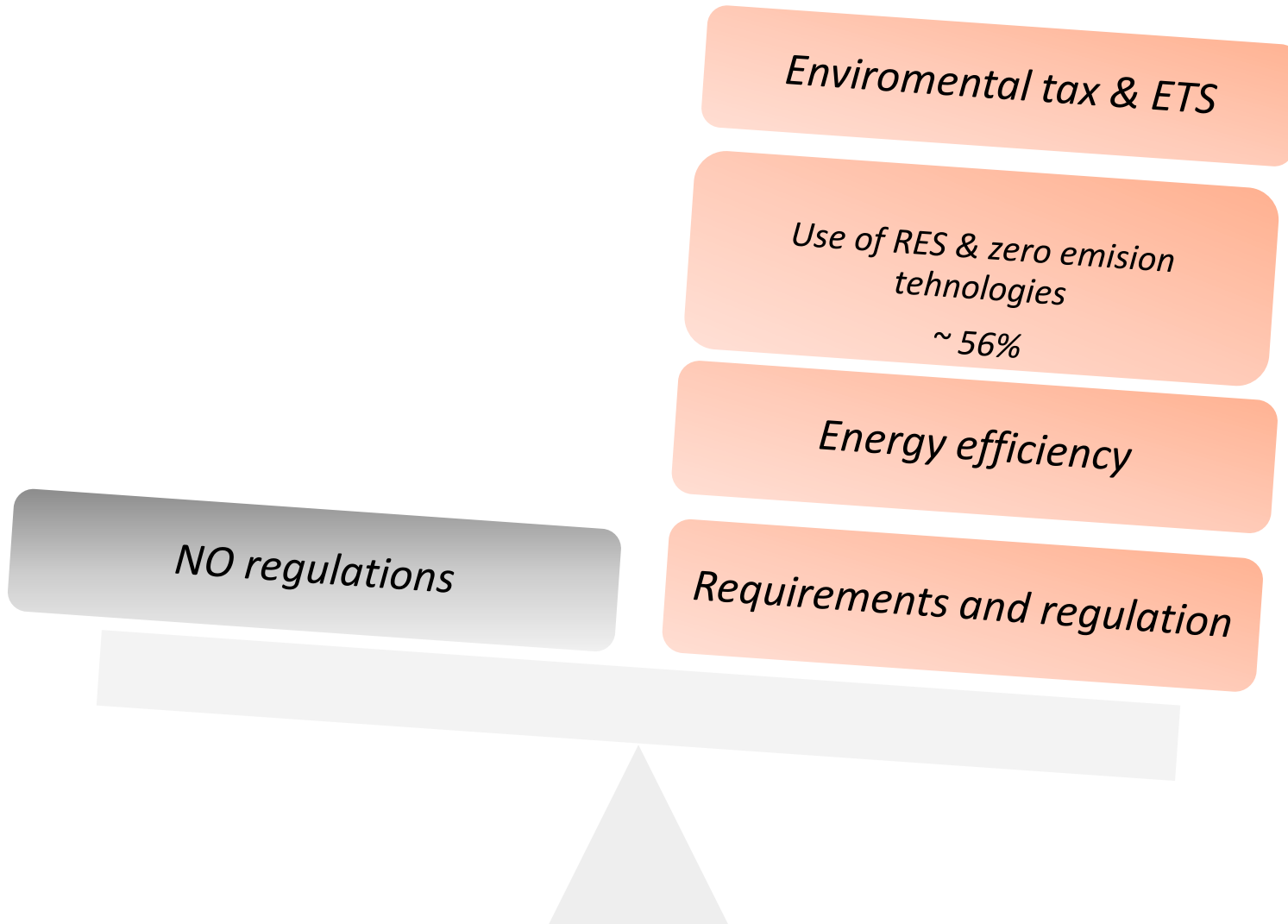
Environmental tax & ETS

*Use of RES & zero emission
technologies
~ 56%*

Energy efficiency

Requirements and regulation

NO regulations





Promote:

- *DH network extension;*
- *New connection to DH (substations);*
- *RES & zero emission technologies ;*
- *Electrostatic filter .*

Focus on:

- *Equal regulations & taxes for local as for DH*

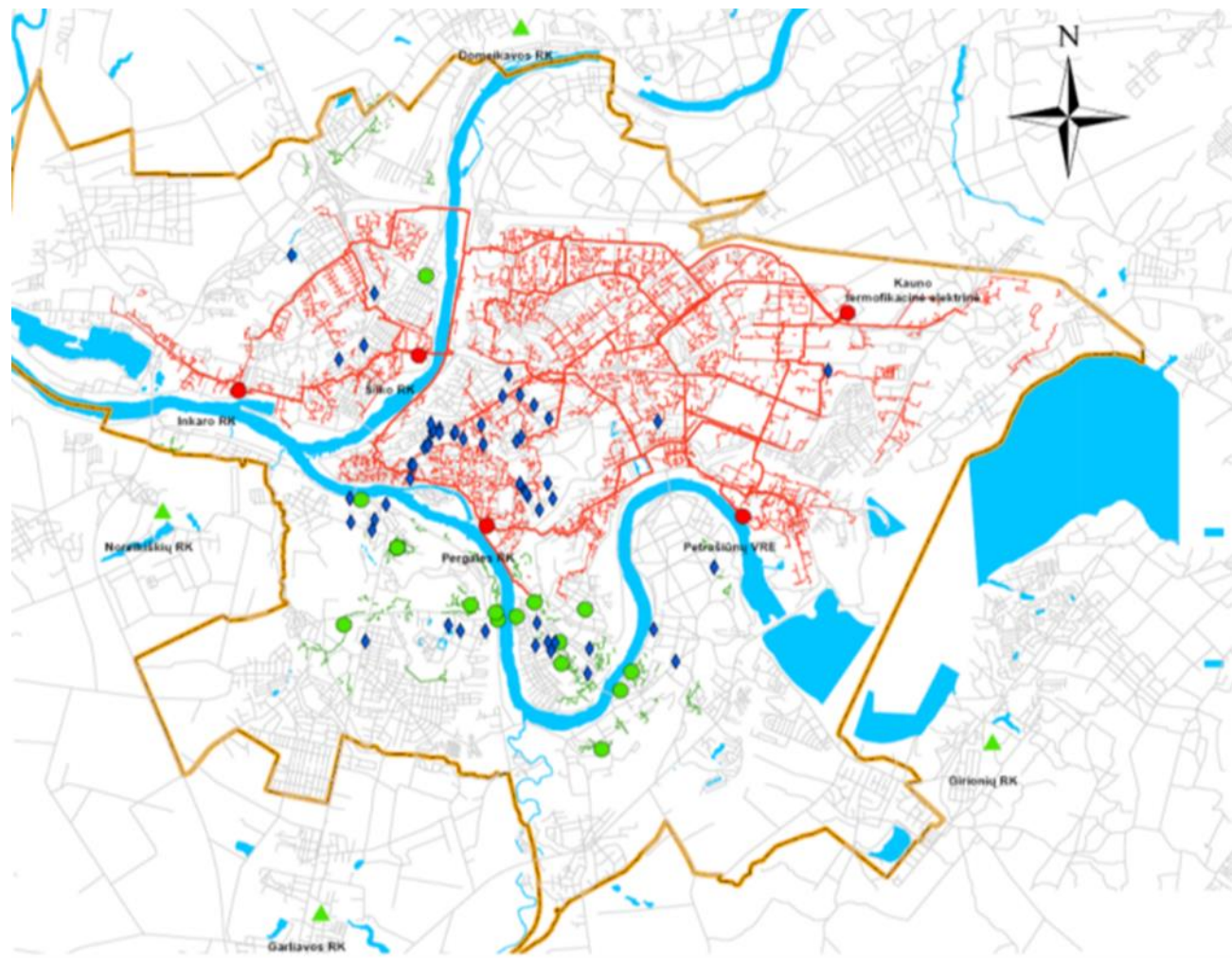


Potential and efforts to increase energy efficiency of DH chain in Lithuania

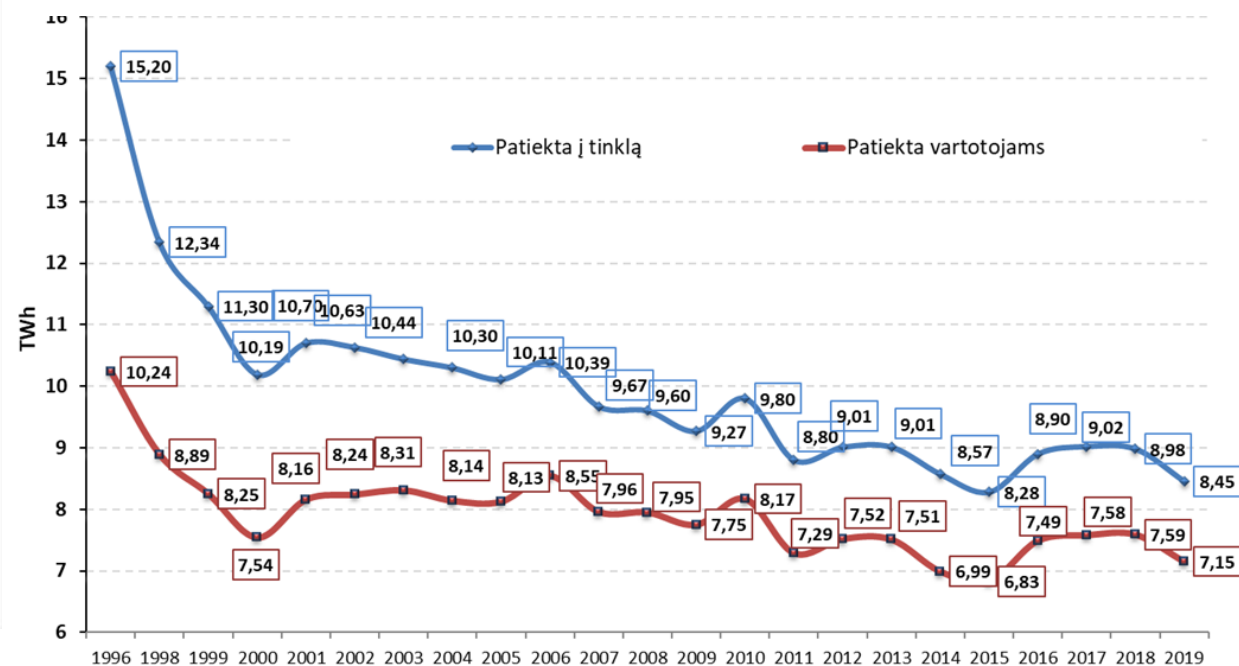
Local aspects, challenges and policy solutions for energy efficiency in DH systems

President - dr. Valdas Lukosevicius

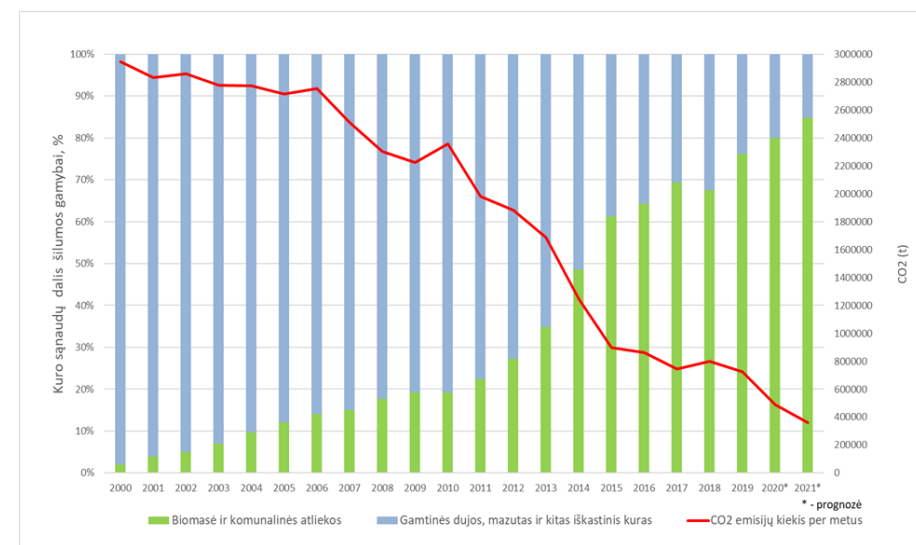
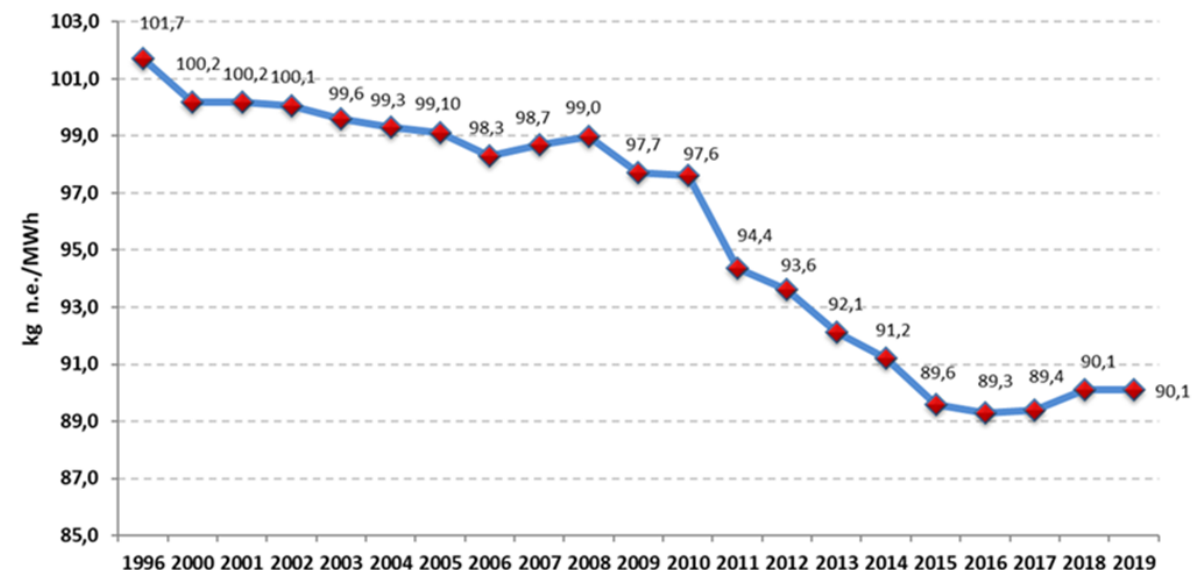
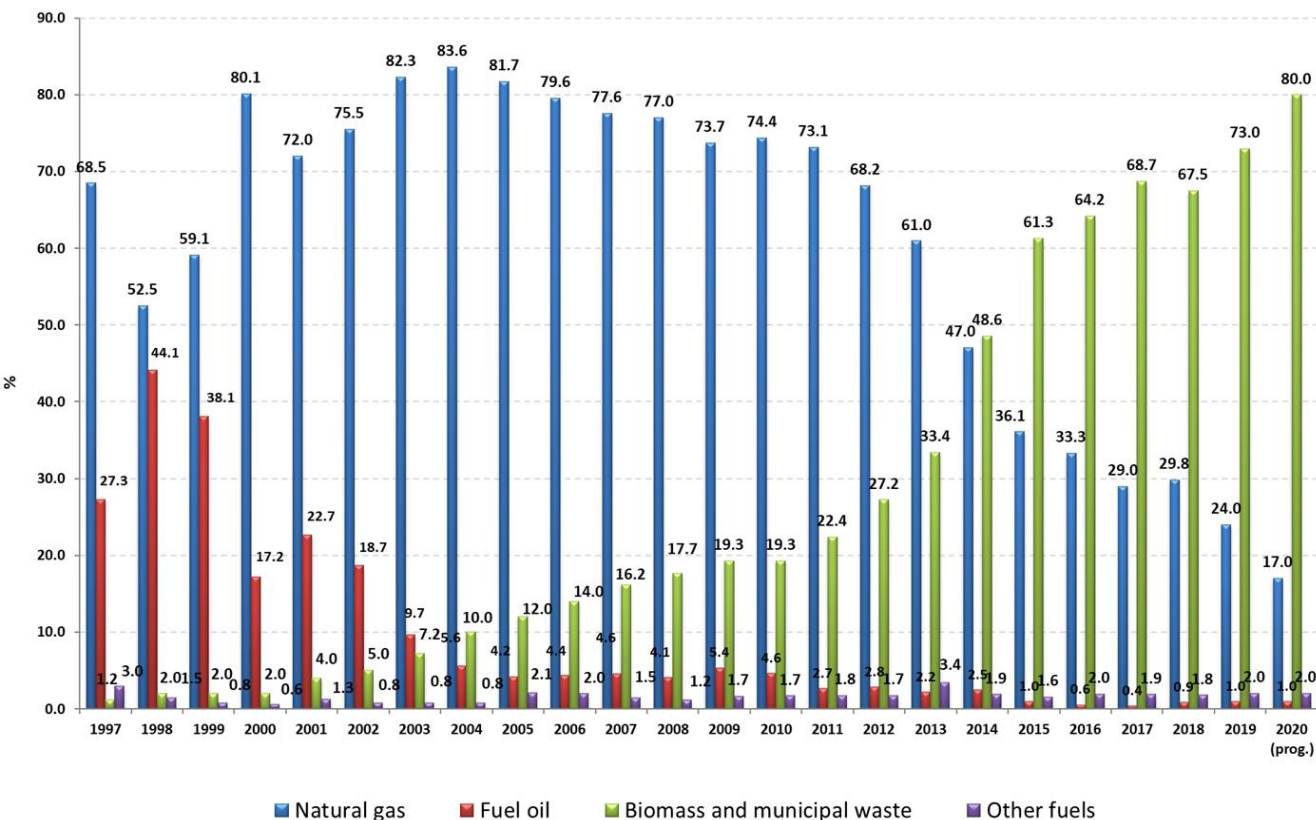
DISTRICT HEATING IN LITHUANIA



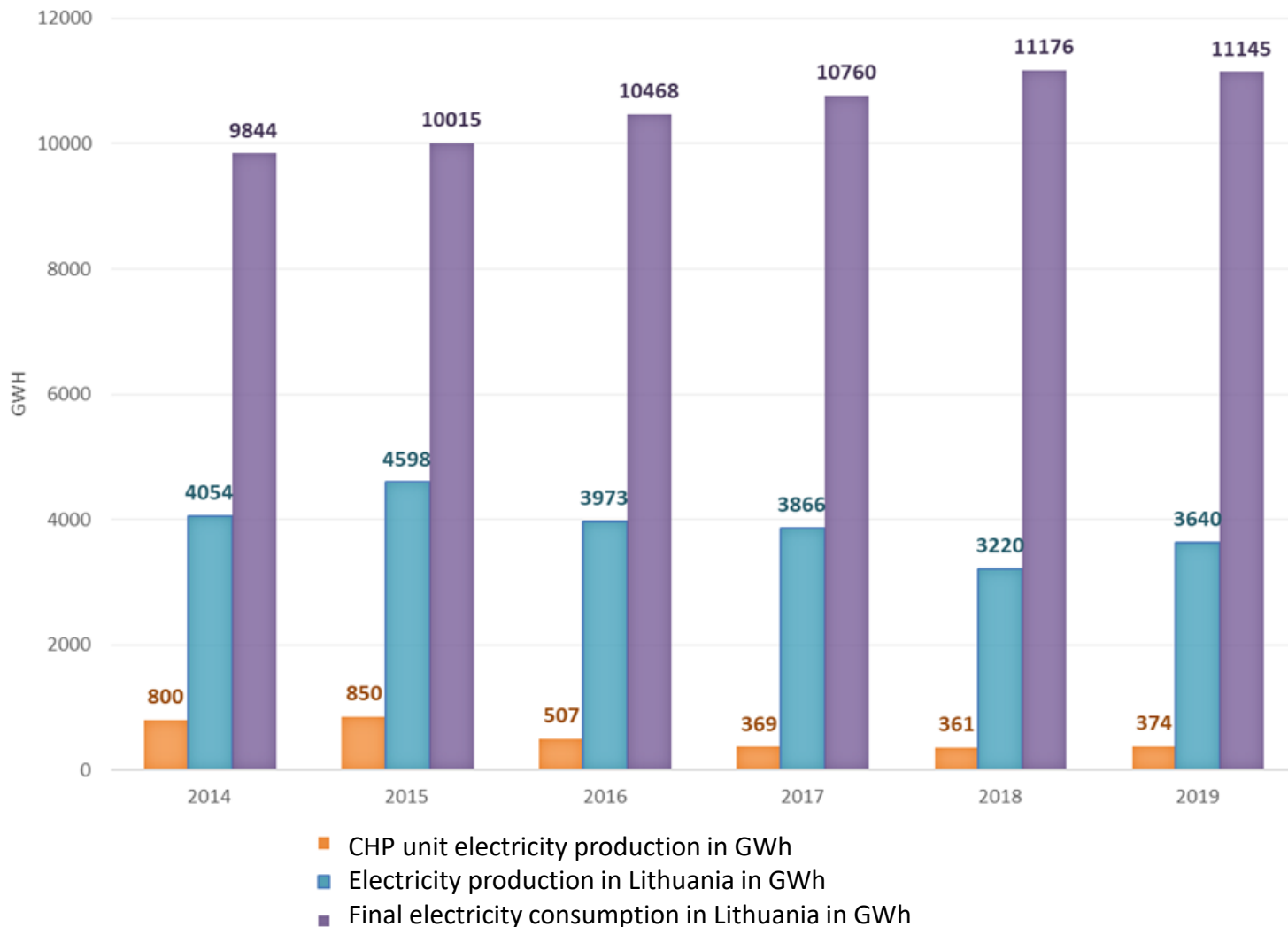
- *DH networks have been installed in all cities and towns*
- ***Oversized*** heat production and transmission capacities



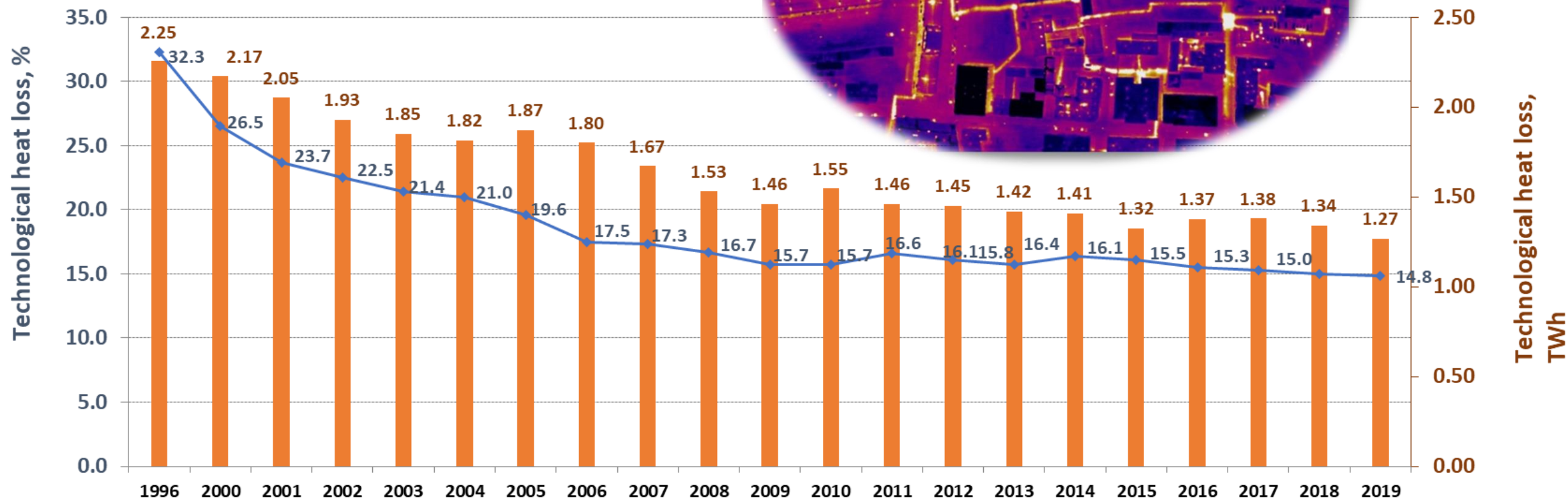
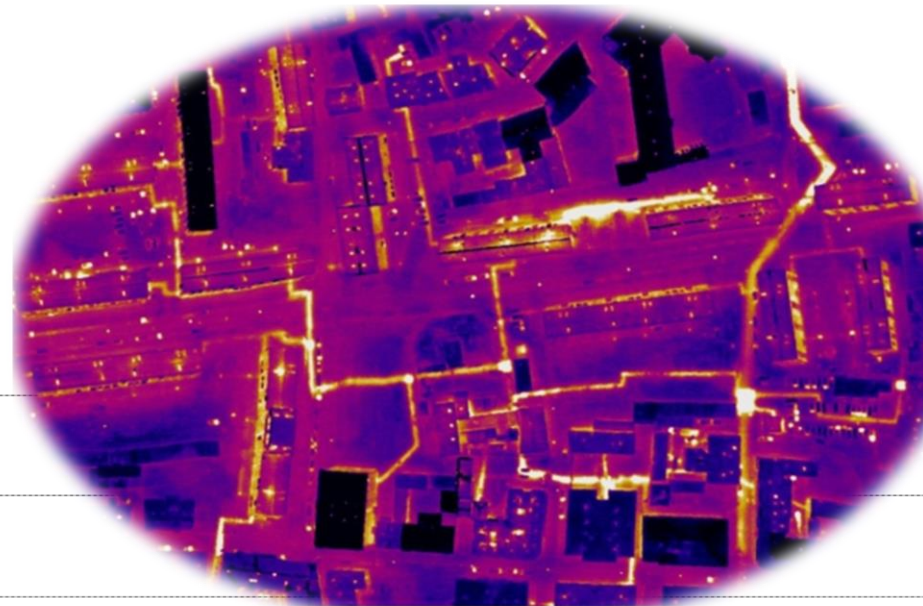
THE SHARE OF RENEWABLE ENERGY IN DH SECTOR AND EFFICIENCY OF DH PRODUCTION



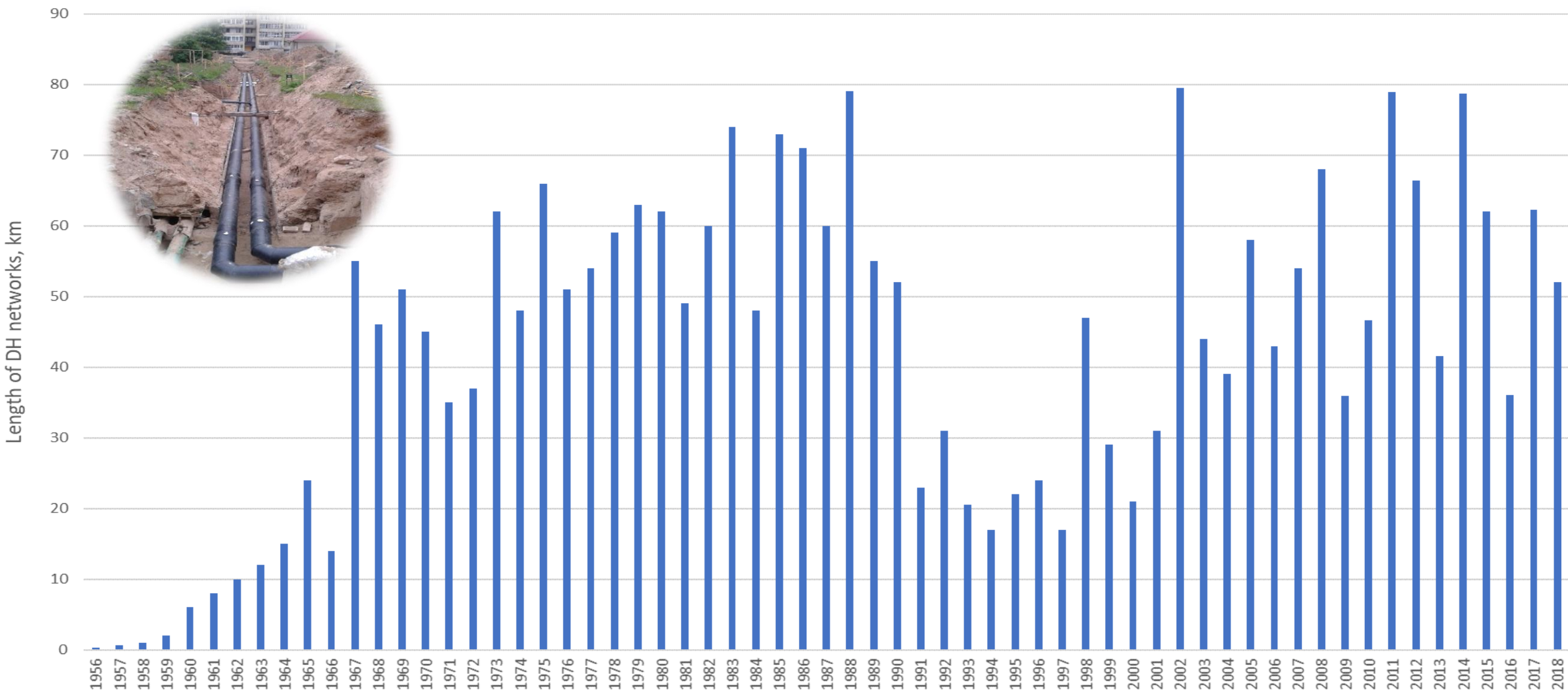
LOW SHARE OF COGENERATION



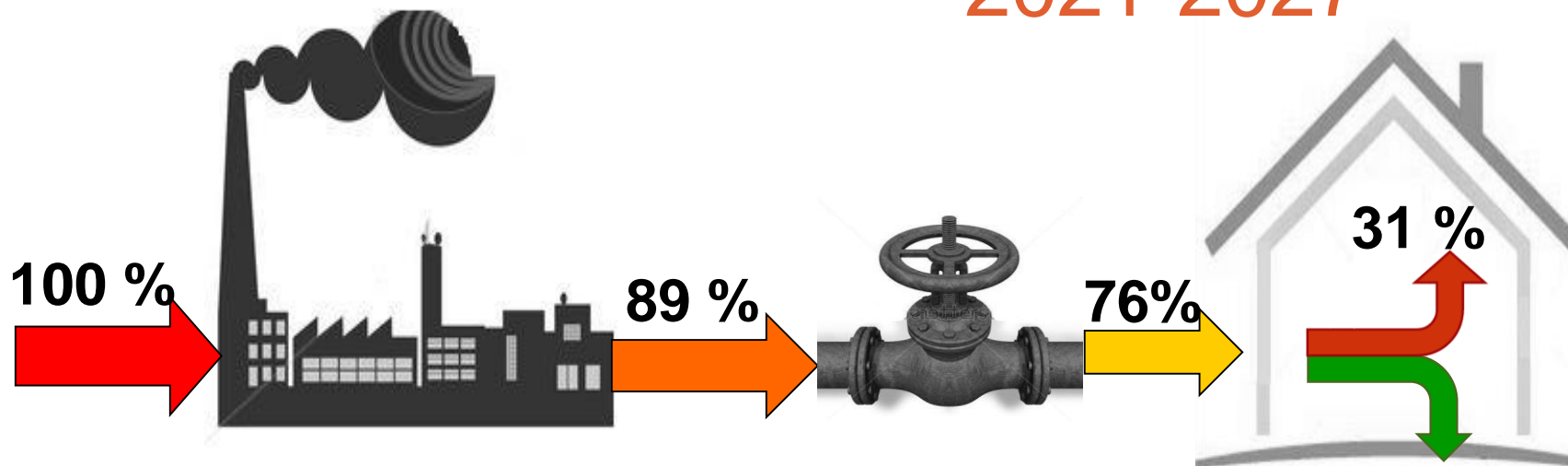
DH TECHNOLOGICAL HEAT LOSS



ANNUAL REPLACEMENT AND EXPANSION OF DH NETWORKS, KM

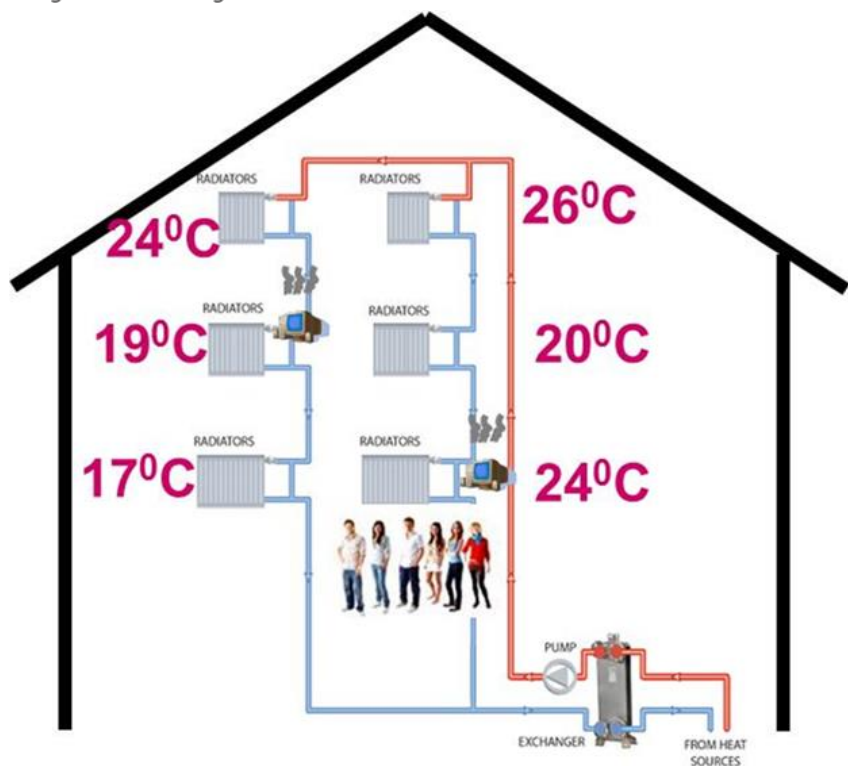


STATE SUPPORT FOR DH PRODUCTION IN 2021-2027



Heat loss reduction area	Required investment, mln. EUR/%	Heat loss reduction potential (upgrading opportunities)
Heat production	30	~3-7 %
Heat transfer	230	~3%
Heat use	60	~34%

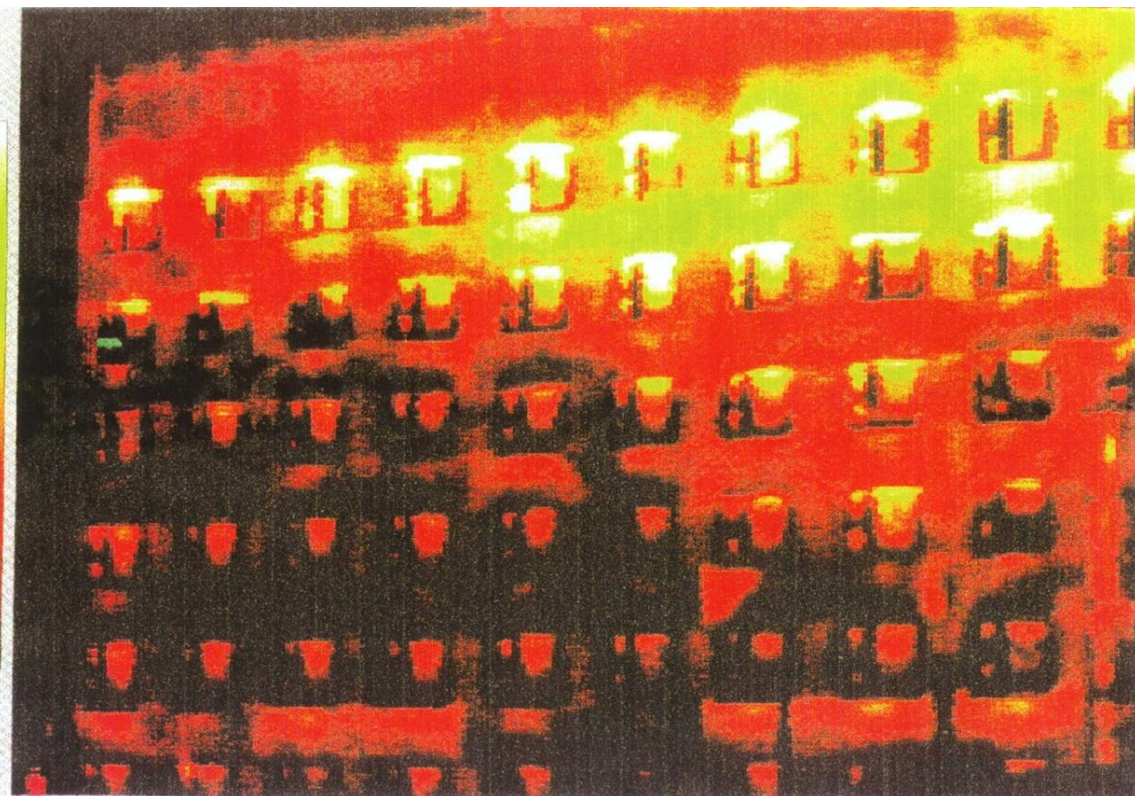
LOW ENERGY EFFICIENCY BUILDINGS



> -5.1°C

-6.0
-8.0
-10.0
-12.0
-14.0

< -15.0°C



State support available for engineering system renovation: modernization of heat substations, heat balancing, individual regulation of each apartment, etc.

KEY DH ACTORS IN LITHUANIA

- **Parlament:** general strategical documents
Law on the Heat Sector; National Energy Independence Strategy
- **Government:** intesectorial regulation
licencing, rules
- **Ministry of Energy:** technical and quality standart
- **State Energy Regulatory Council:** economical and technological regulator
(pricing methodologies, price setting, supervision and control...)
- **Municipalities:**
(planing of infrastructure, asset management, appointment of top management, support for vulnerable consumers etc.)
- **DH companies:**
routine operation and maintenance of DH systems



SPECIFIC SUPPORT AND PROMOTION MEASURES APPLIED IN THE DH SECTOR

1. Reduced VAT rate 9% instead of 21% applied for domestic consumers
2. Individual support for vulnerable heat and hot water consumers
3. EU funds allocated for biomass boilers, cogeneration, pipelines ...
4. Climate change program support for renewable energy production sources, environmental measures, etc.;
5. Municipal support for specific projects
6. Special **heat management plans** identify priority areas for DH (zoning);
7. Support for connection of new users;
8. Difficult disconnection of a separate apartment from the DH system;
9. Support for small (engineering) renovation - modernization of heat substations, inside facilities
10. Future support for the development of district cooling

STATE SUPPORT FOR DH PRODUCTION IN 2021-2027

- **Diversification of RES:** solar technologies, heat pumps and similar
- Expansion of efficient **biomass firing CHP plants**
- The **use of residual energy:** waste heat from industry, water treatment, cooling systems or power plants
- The development of **integrated district heating and cooling** systems with heat storages
- The modernisation and **expansion of district energy pipelines:** lowering of temperature in DH networks
- **Smart DH networks**
- **Integration and synergies** of various energy sectors

CHALLENGES

- National energy policy declares ambitious targets in usage of renewables, in environment protection, in energy efficiency but **municipalities' tactics based on lowest cost economy only**
- **Unpredictable and risky investment in heat production facilities**, since independent heat producers can enter any DH system and compete on „full cost“
- **Slow and limited progress in renovation of buildings** damages reputation of DH service
- **Complicated, inadequate and demotivating regulation and pricing**
- **Unpredictable and risky investment** in the connection of new consumers – they can change heating method any time (no long-term agreements);
- **Municipal heat plans** are rather formal



Thank you!

President - dr. Valdas Lukosevicius
Valdas.lukosevicius@lsta.lt

Keeping our cities sustainably warm:

Inspiring the Efficient Renewal of District Heating for the Just Transition



LOCAL ASPECTS, CHALLENGES AND POLICY SOLUTIONS FOR ENERGY EFFICIENCY IN DH SYSTEMS - TUZLA CITY SHOWCASE

12. November, 2020.

Ajla Merzic, EPBiH Power utility

POLICY-RELATED CHALLENGES/NEEDS AND SOLUTIONS IN BOSNIA AND HERZEGOVINA, TUZLA CITY, CONSUMPTION SIDE (1)

- Currently legislation that particularly regulates the heating sector does not exist.
 - There are no specific feed-in tariffs for heat production from cogeneration nor renewable sources.
 - Renewable energy technologies have higher specific investment costs than fossil fuel based technologies; a serious barrier for switching to renewable energy.
- Consensus on sustainable energy policy as well as adoption of this document.
 - Adoption of laws and by-laws that regulate the heating sector.
 - Subsidies and other reliefs for domestic production and procurement of equipment used for heating or cooling using RES (solar collectors, heat pumps, etc.)
 - Commercial banks to offer specialized products (favourable credit lines) to develop this sector.

POLICY-RELATED CHALLENGES/NEEDS IN BOSNIA AND HERZEGOVINA, TUZLA CITY, CONSUMPTION SIDE (2)



- The prices of thermal energy are not based on actual costs and are quite low (CHP).
- A vast majority of buildings are still covered by lump-sum billing systems.
- Only 15% of flats within the Tuzla DHS are equipped with thermostatic valves.
- Room temperature regulation often done via „window opening“.

POLICY AND PLANNING SOLUTIONS IN BOSNIA AND HERZEGOVINA, TUZLA CITY (2)

Investment (CAPEX):

Installing thermostatic valves - materials and works included (5 buildings)	150.000
TOTAL	150.000

Model of financing:

Credit funds	50%	Grant	50%	Own funds	0%
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Income:

Savings – consumer bills	MWh	1.430	EUR	44.330
Primary energy savings	MWh	1.430	EUR	13.156
GHG emission trading	tCO2	572	EUR	2.860
TOTAL				60.346

OPEX:

O&M costs	EUR	5.000
Main overhaul – half of the life time period	EUR	10.000
Insurance costs	EUR	375

IRR	NPV	Pay off time
11,60%	23.503	3-4 years

- Changing from surface-based billing to consumption-based billing.
- **Include into Law on thermal energy.**
- Installing thermostatic valves for heating room temperature regulation – a pilot project as **showcase** and **education**; **funds** for **financial assistance** at the local level.

- Improved comfort
- Increased efficiency in the energy system
- Community engagement
- Improving air quality (NOx, SOx, PM10 and PM2.5 emission reduction) and other related impacts on public health
- Decrease of CO2 emissions

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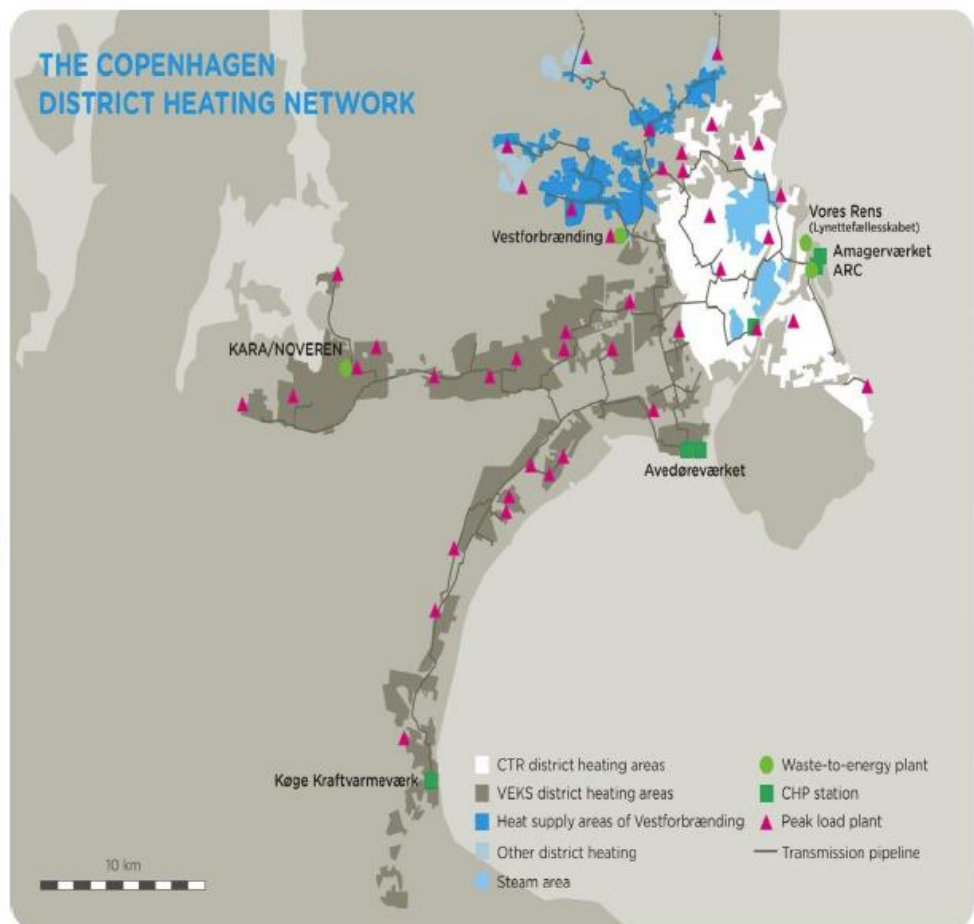


**SUPPORTIVE FRAMEWORKS DRIVING DECARBONISATION THROUGH A SWITCH TO
RES-DH**

Susana Paardekooper
12. November, 2020

RADICAL CHANGE IS NEEDED!

- Energy efficiency is complex
 - Diversity is inherent
 - It includes many sectors
 - It includes many actors
 - It is a secondary objective for many
- Energy infrastructures need clarity
 - Naturally monopolistic nature
 - Long-term decisions
 - Up front investments



BUT CHANGE IS POSSIBLE!



- Co-benefits are also driving for action
 - Transition of other energy sectors
 - Noise pollution, indoor air quality
 - Energy poverty and social responsibility
- Development of methodologies and instruments at different governance levels
 - Methodologies and assessments
 - Local approaches can be used to combine actions
 - But infrastructure development is still hard!



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