

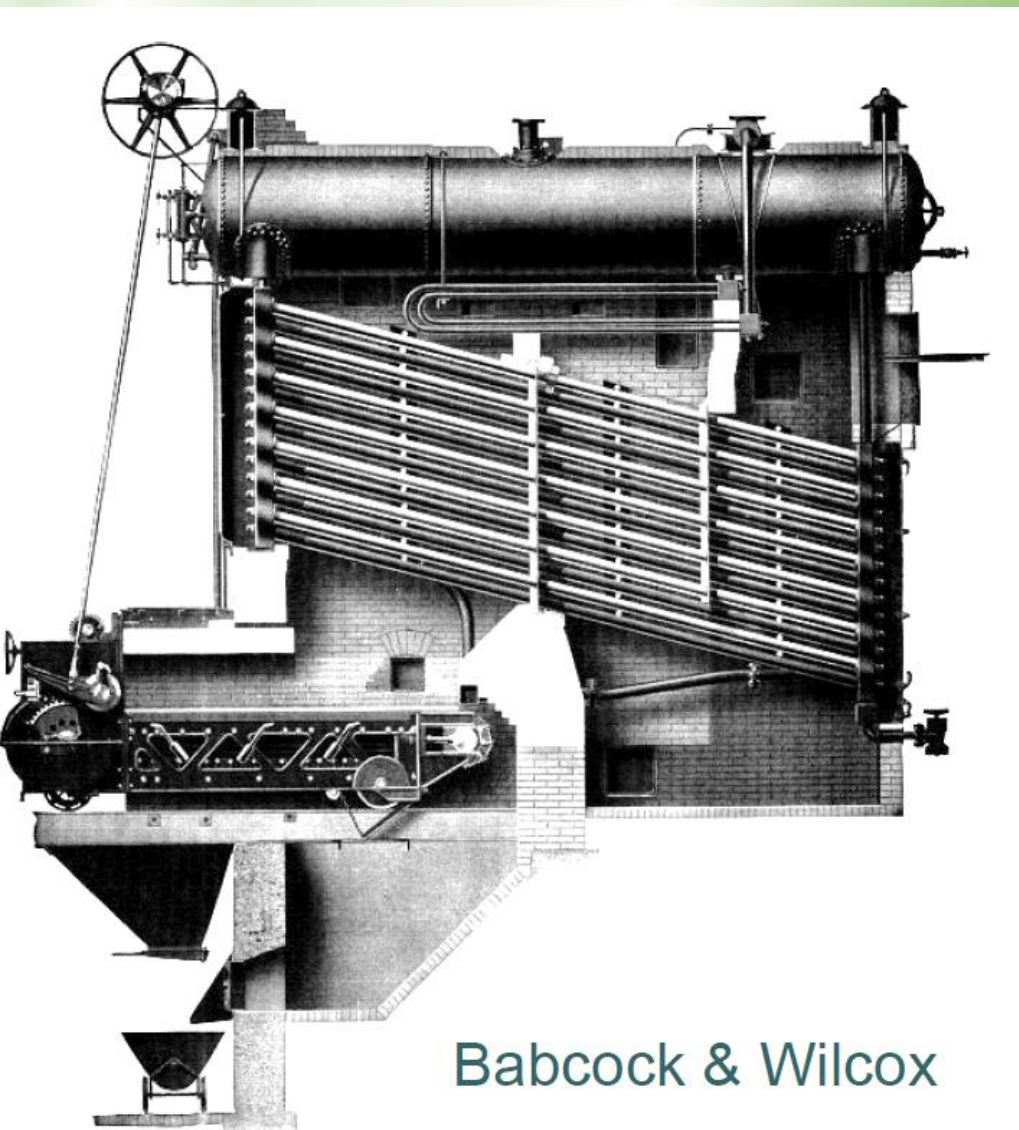


FAST PENETRATION AND WIDE USAGE OF RENEWABLE RESOURCES IN THE LITHUANIAN DISTRICT HEATING SECTOR

President of Lithuanian District Heating Association

dr. Valdas Lukoševičius

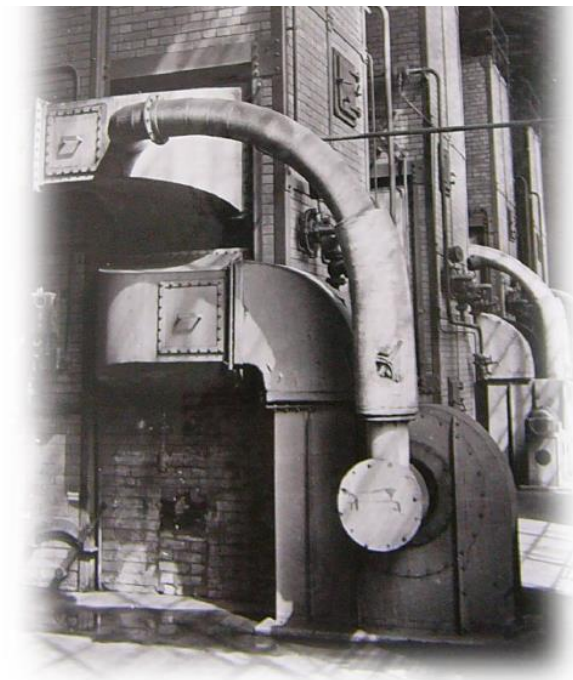
80 years of DH in Lithuania



Babcock & Wilcox



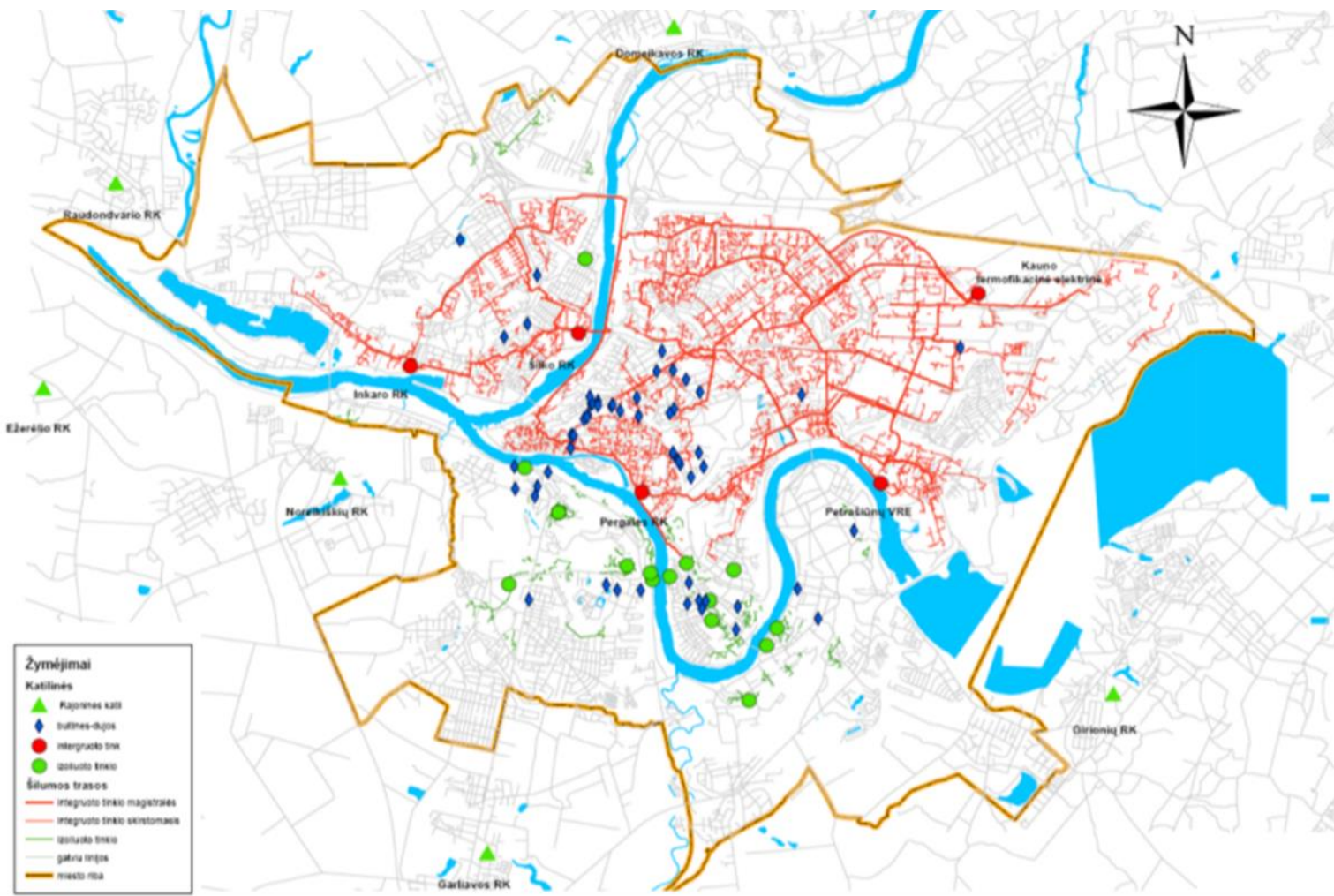
Babcock & Wilcox
1938 m
Gebrueder Wagner
Dampfkesselfabrik,
Stuttgart-Bad Cannstatt



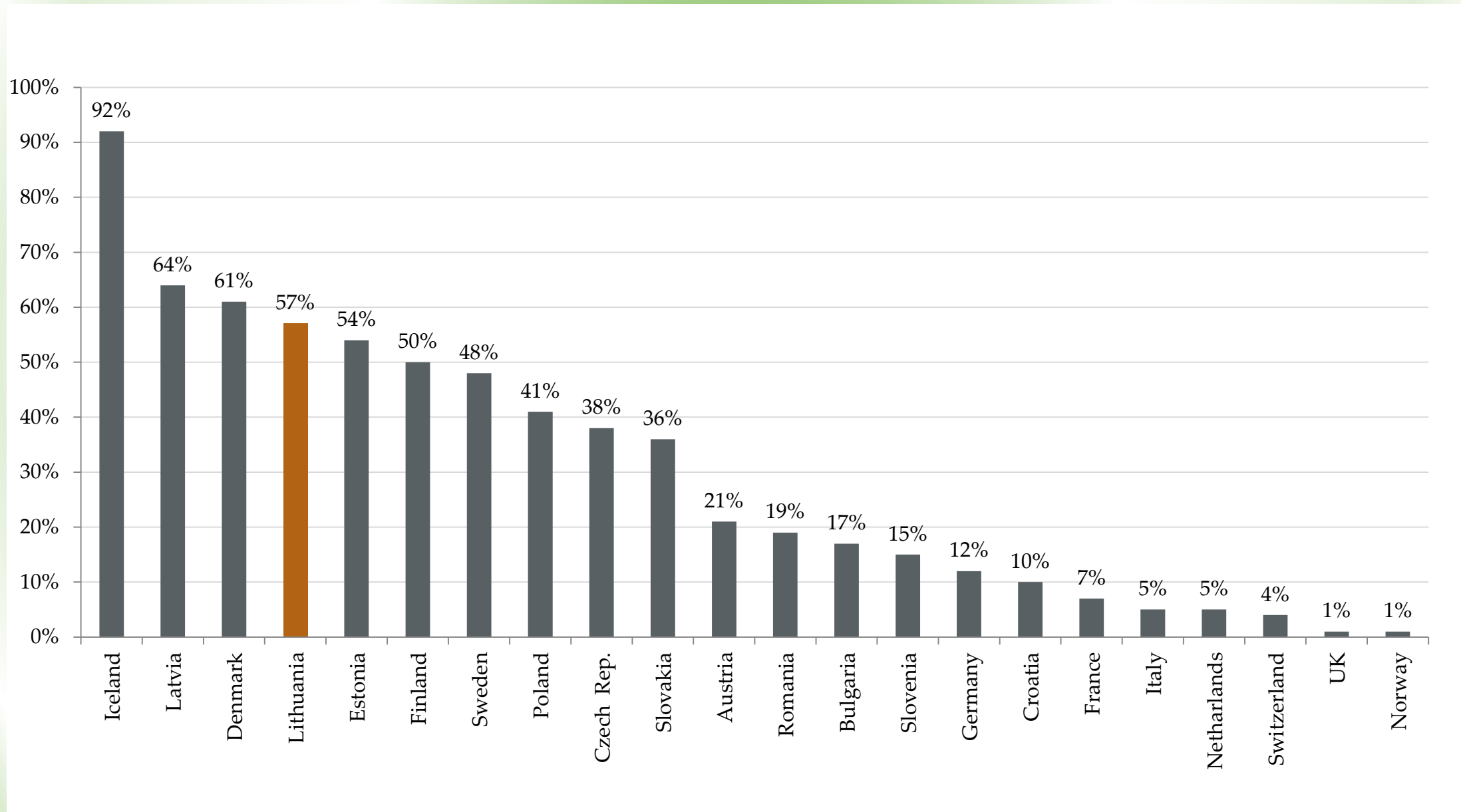
District heating in Lithuania, 2018

Annual DH production	~ 9 TWh
Heat losses in DH networks	15 %
Used heat production capacity	~ 3175 MW
The length of DH networks	2872 km

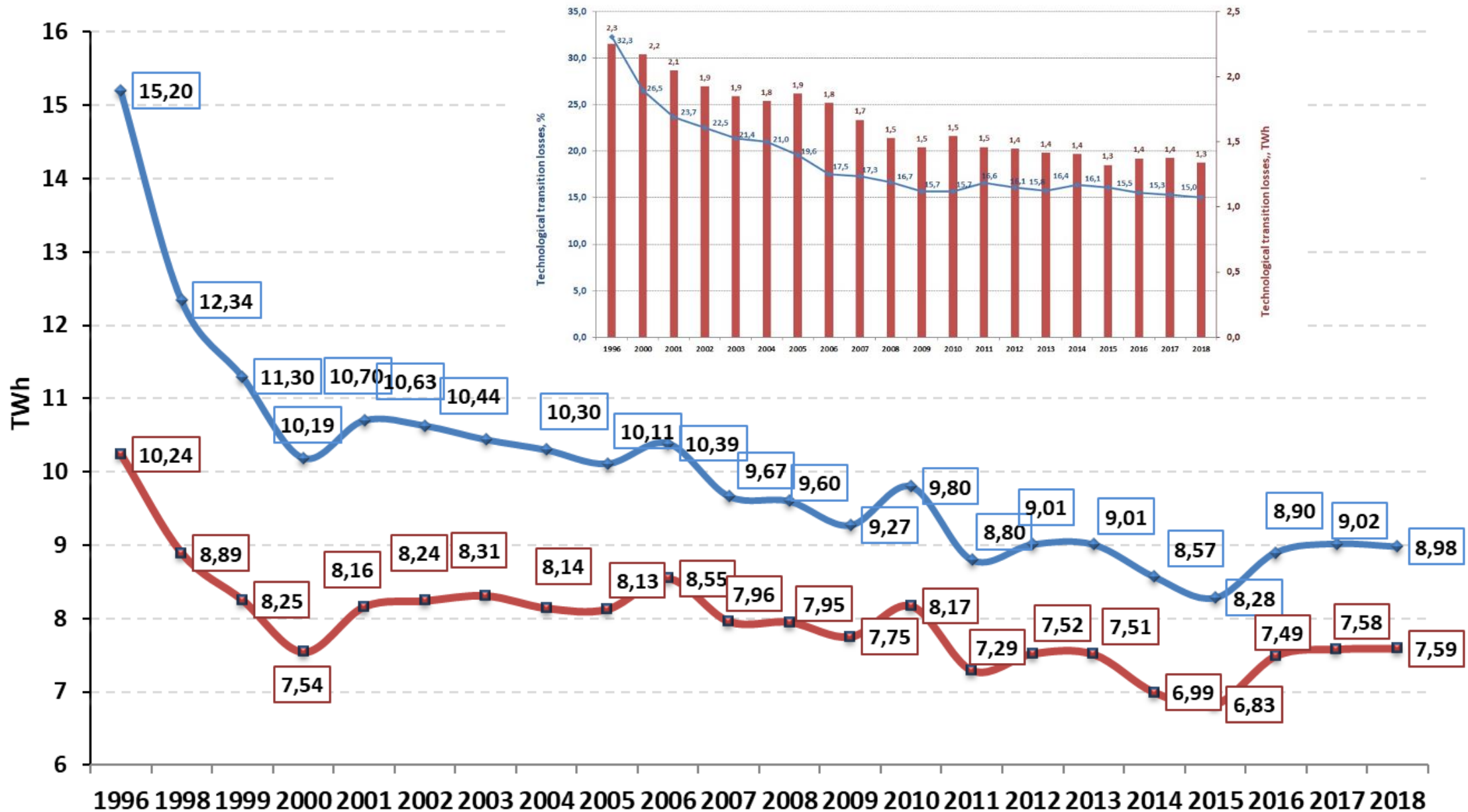
DH networks have been installed in all cities and towns



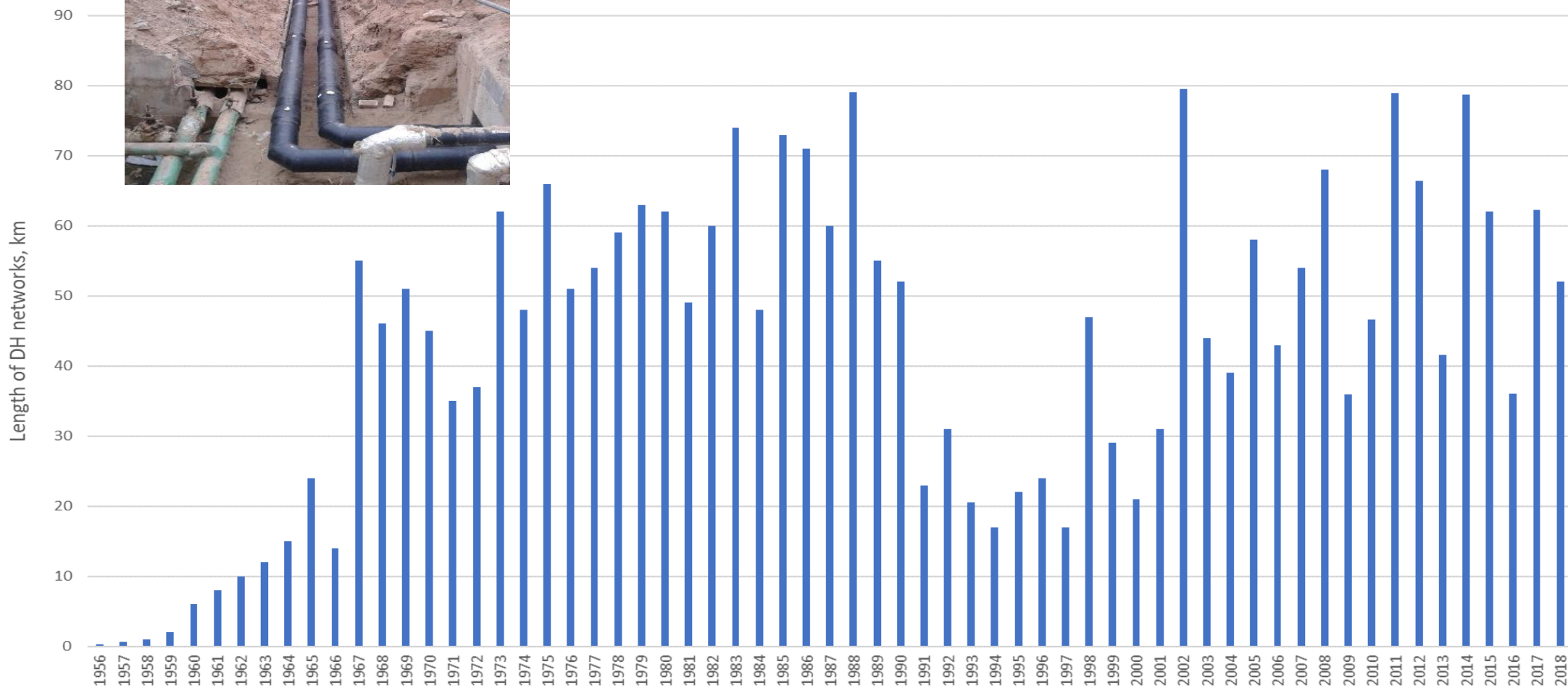
District heating share in European countries



DH PRODUCTION AND SALES, HEAT LOSSES

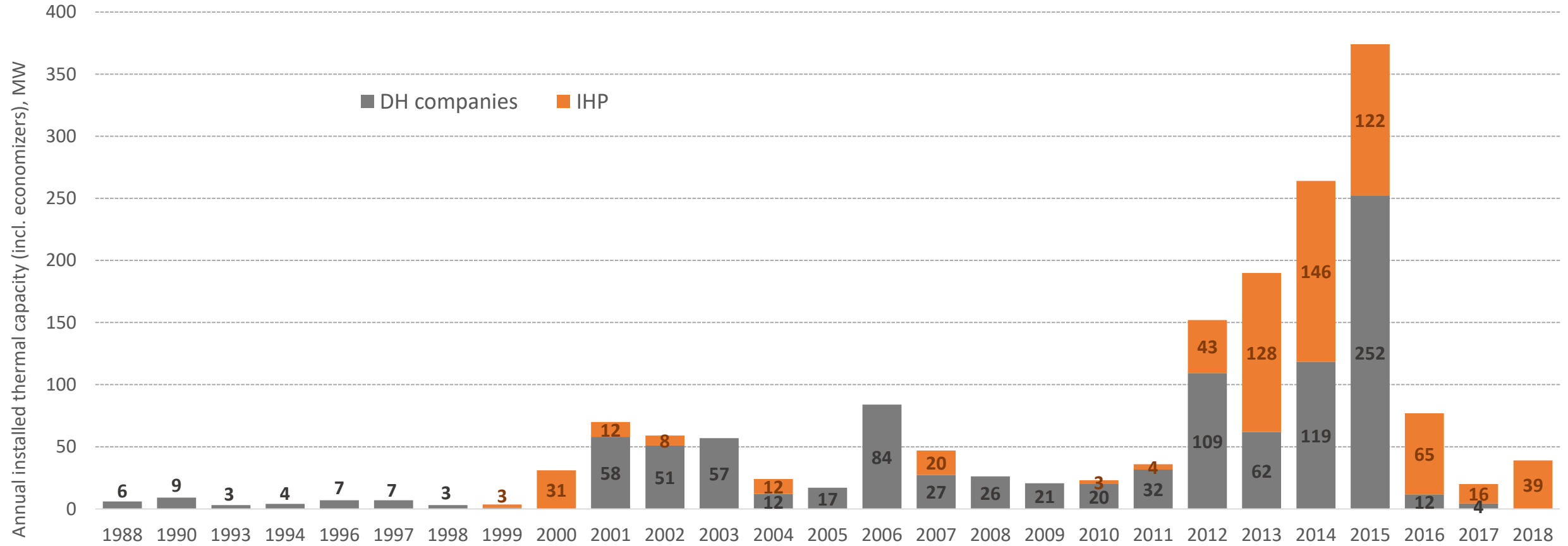


Annual replacement and expansion of DH pipelines, km



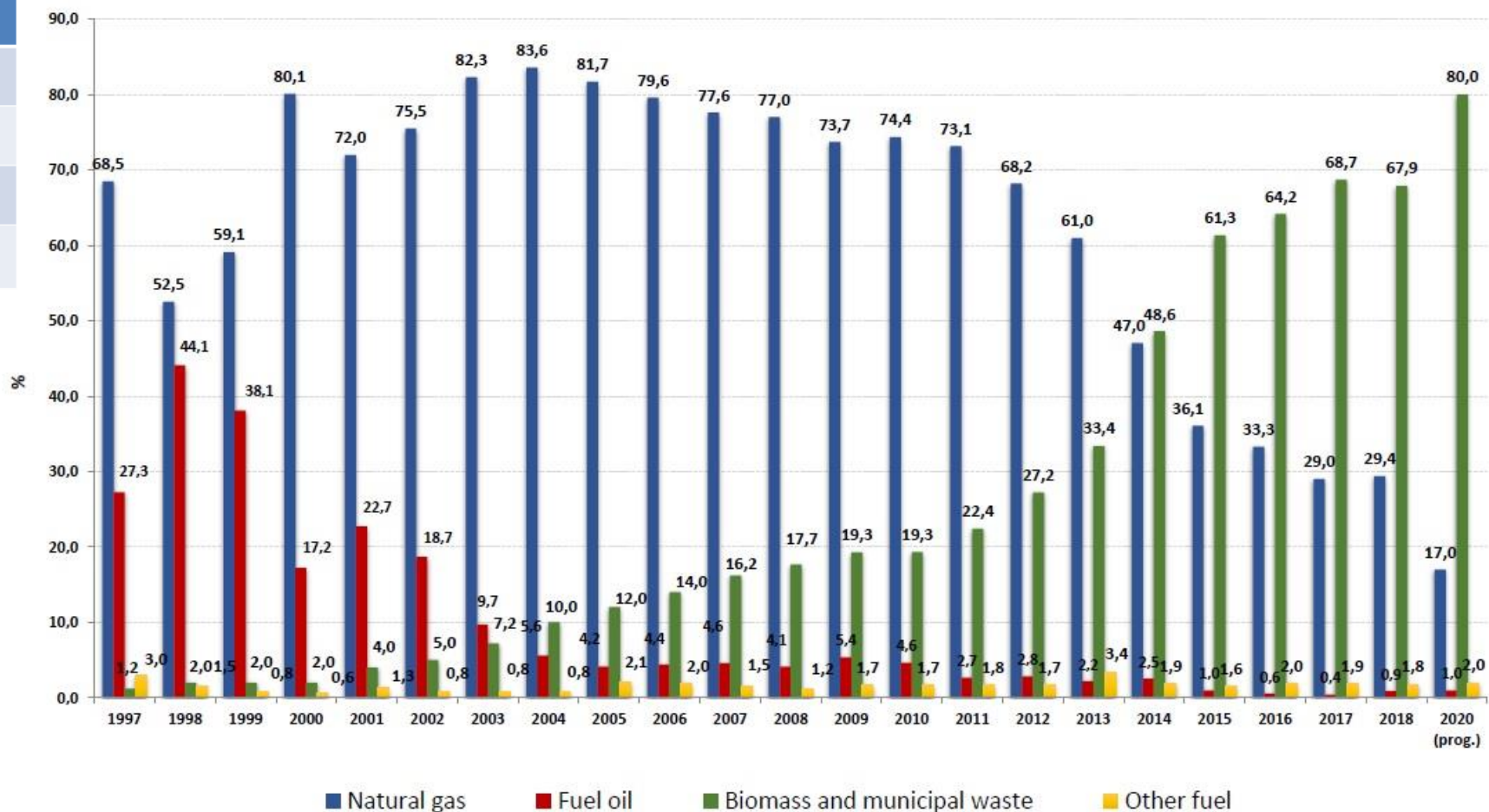
Installation of biomass firing boilers, MW/a.

The total thermal input of biomass boilers (DH companies and Independent Heat Producers) (HOB+CHP)

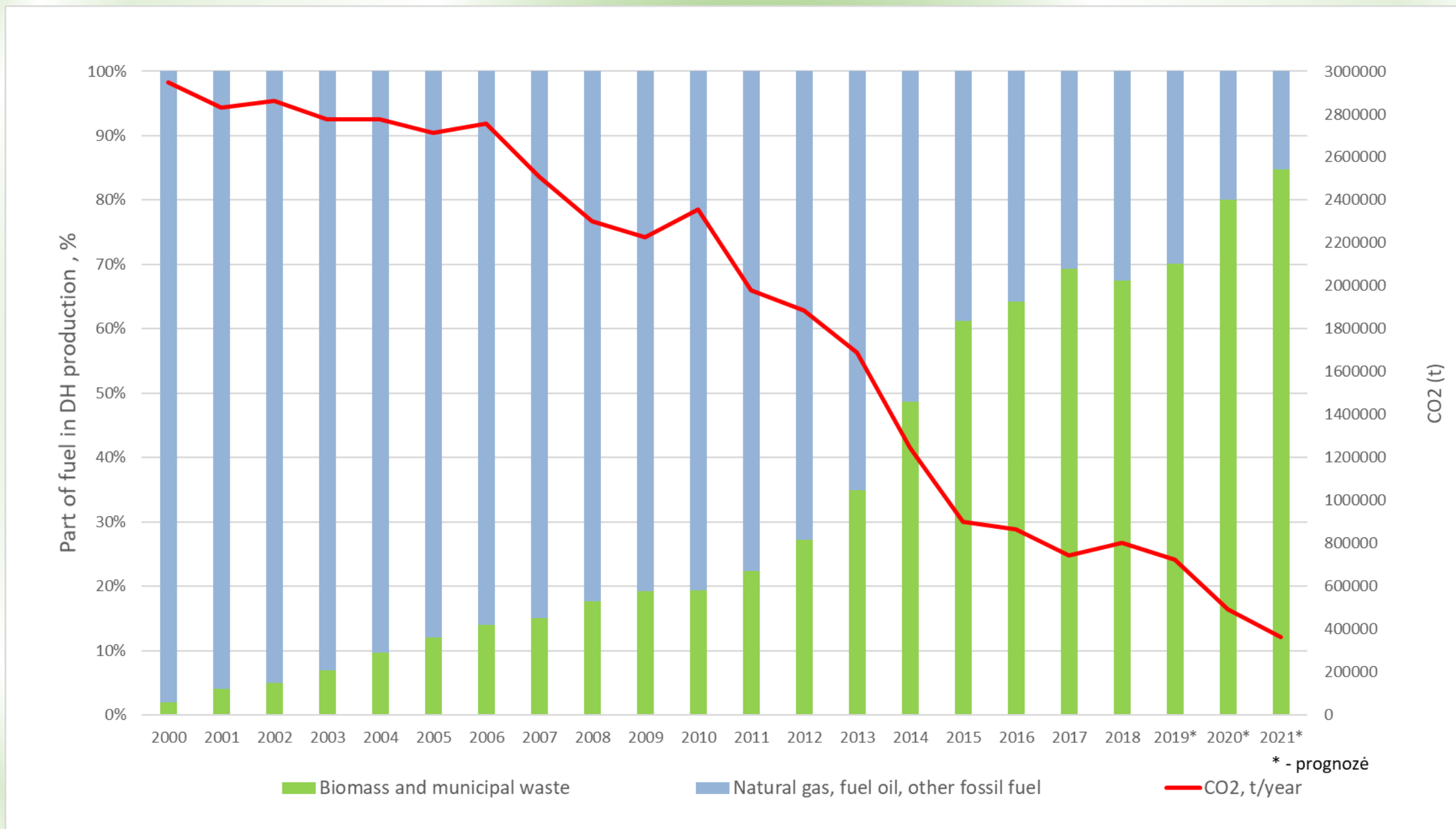


RES (green) and natural gas (blue) share

Primary energy	t _{o.e}	%
Solid wood biomass	526668	98,9
Straw	2445	0,5
Biogas	2109	0,4
Geothermal energy	849	0,2



CO₂ emissions in the DH sector



Biomass based CHP plants in the DH systems 2018, MW



CHP plants	Fuel type	Heat capacity	Electric power
		MW	MW
In operation	Biomass	283	78
	Wastes	50	20
Under construction	Biomass	174	70
	Wastes	123	42

Heat generation, GWh/a.	2584 (29%)
Electricity generation, GWh/a.	350

*DRIVING FORCES FOR REPLACEMENT OF
FOSSIL FUELS BY RENEWABLES*

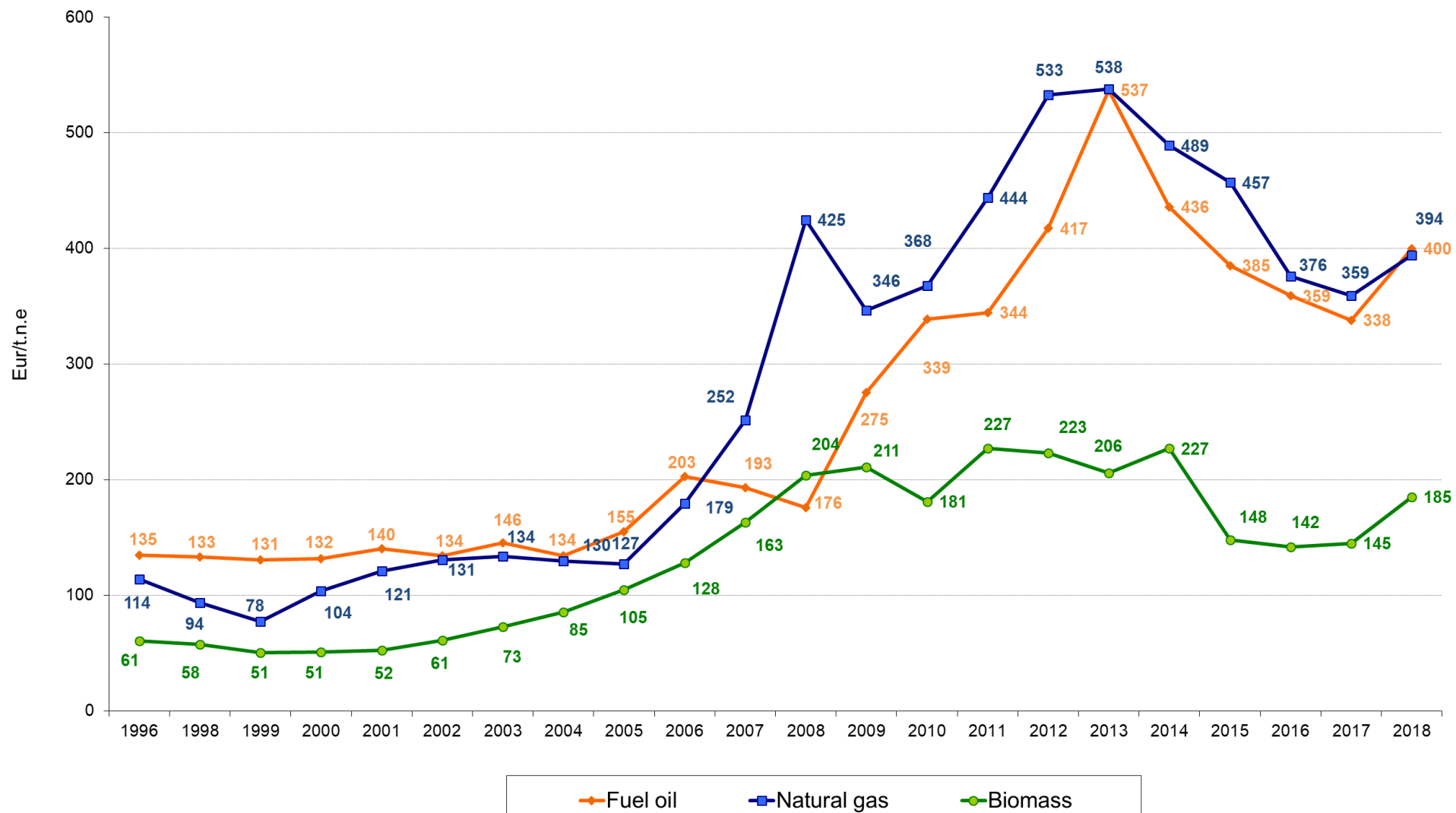
Benefits of natural gas replacement by biomass

- Strengthening of country's energy independence
- Fulfillment of international obligations – EU task: 20x20x20
- Macro economical and fiscal benefits
- Development of rural regions
- Promotion of local manufactures
- Decarbonization of the DH sector (saved emissions allowances sold to other countries)
- Green heat suitable even for class A++ buildings
- Significant reduction of DH prices
- Achieved targets of National Energy Strategy

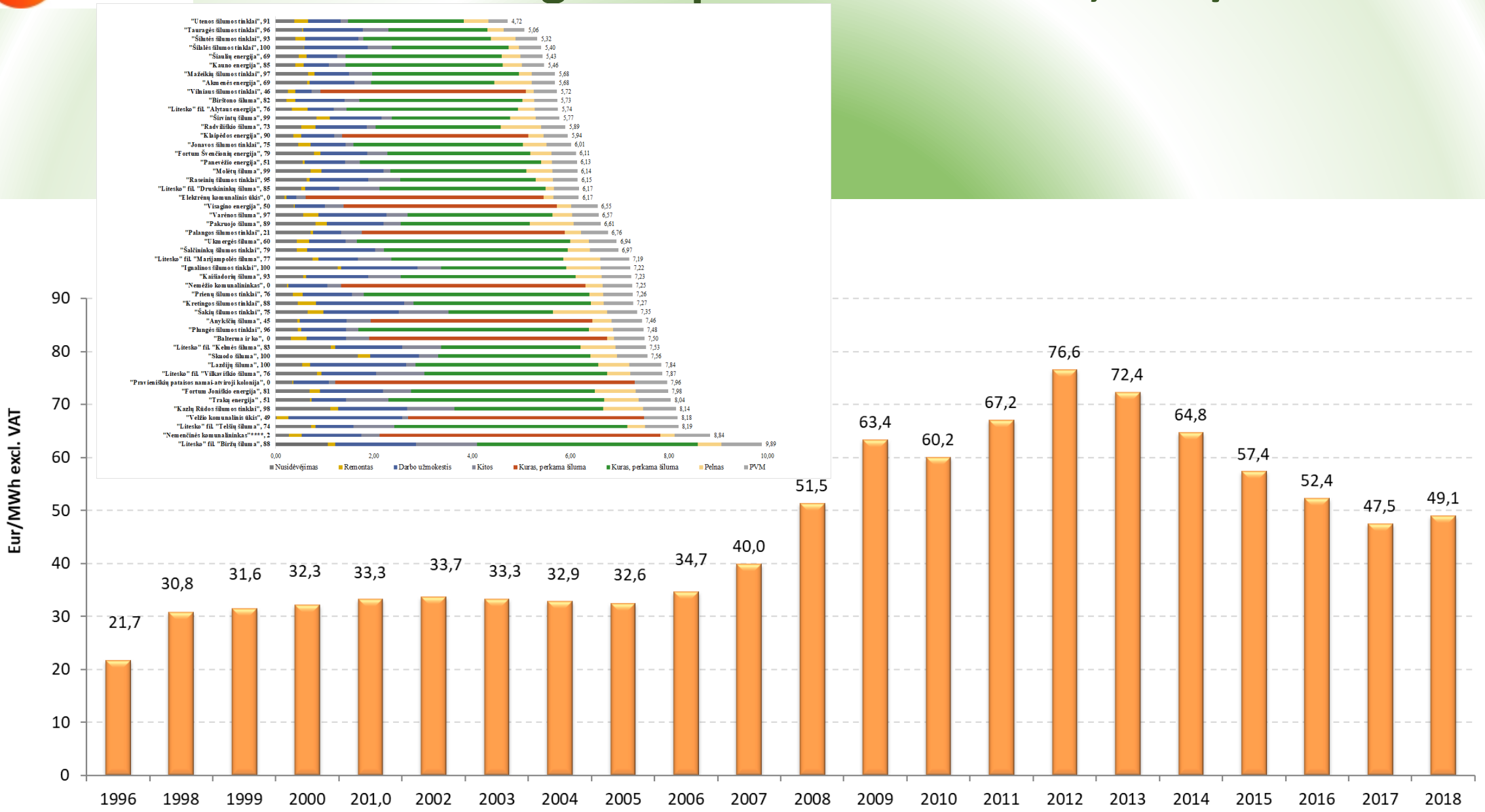
• Overall RES share up to: *30 % 2020*
45 % 2030
80 % 2050

• RES share in DH sector: *70% 2020*
90 % 2030
100 % 2050

Fuel prices in the DH sector



Average DH price in Lithuania, EUR/MWh



State support for usage of biomass

Year	<i>Volume of investment subsidies for biomass firing boilers (up to 50%), mln. EUR/a.</i>
2011	1,0
2012	35,6
2013	1,0
2014	25,6
2015	28,9
2016	0
2017	0
2018	11,9

Investment subsidies for biomass logistics and boiler plants

Competition among heat producers is organized on the basis of monthly heat sale auctions

There is a national fuel and energy exchange in Lithuania, BALTPOOL, where all heat producers are required to buy fuel and sell heat

EU structural funds support for biofuel penetration in the Lithuanian DH sector is considered one of the best examples of the use of EU financial support

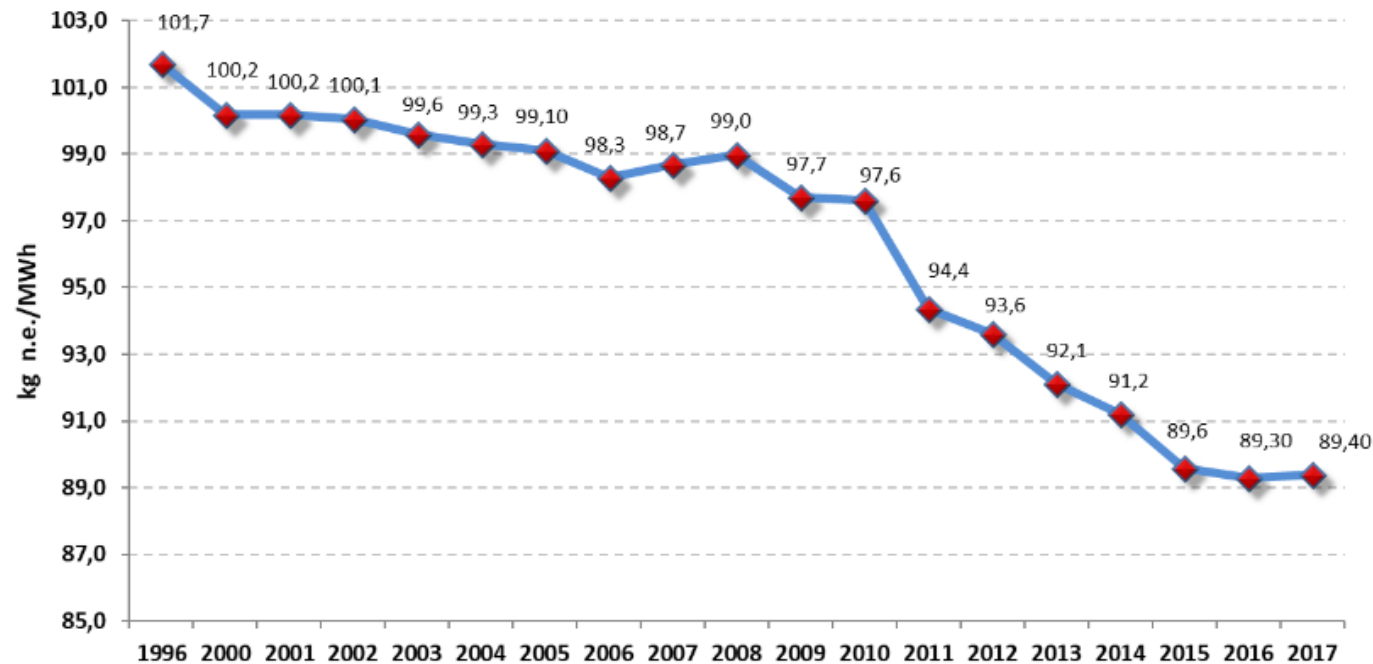
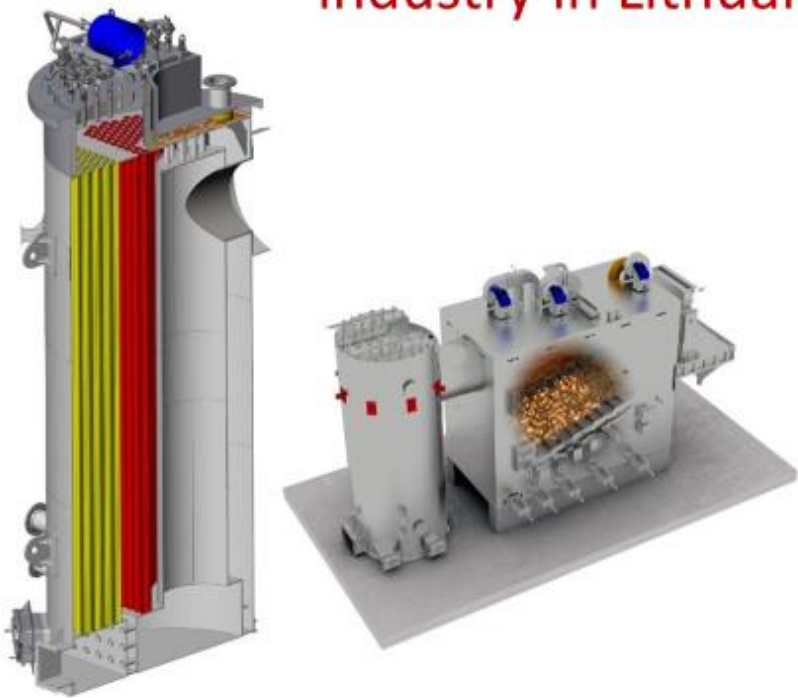
Regulatory incentives for usage of RES

- Double return on investments in the RES using facilities
- Obligation to buy heat from external heat producers if it's cheaper
- Mandatory connection of external heat producers to the DH networks
- Monthly auctions for heat production based on transparent rules and objective criterias
- Saved and sold carbon emission allowanses – investment funds for DH utilities

Additional benefits of biomass usage

- ✓ Biomass supply business has been developed
- ✓ Experience of DH rehabilitation applied to other countries

Formation of new boilerplant industry in Lithuania



Increased energy efficiency due to applied modern technologies

VISION - GREEN CITIES WITHOUT CHIMNEYS



VALDAS Lukoševičius

