Tartu Regiooni Energiaagentuur
Tartu Regional Energy Agency

Renovation of housing area in Tartu, Estonia to low energy buildings

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Tartu Energy 2030

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Integrated energy and climate actionplan for City

Goal: Climate - neutral city of Tartu by 2050.

On the road to climate neutrality, the intermediate target is to reduce CO2 emissions by 40% by 2030

More information about Tartu:

http://tartu.ee/en

http://tarktartu.ee/eng/

Tartu Energy 2030

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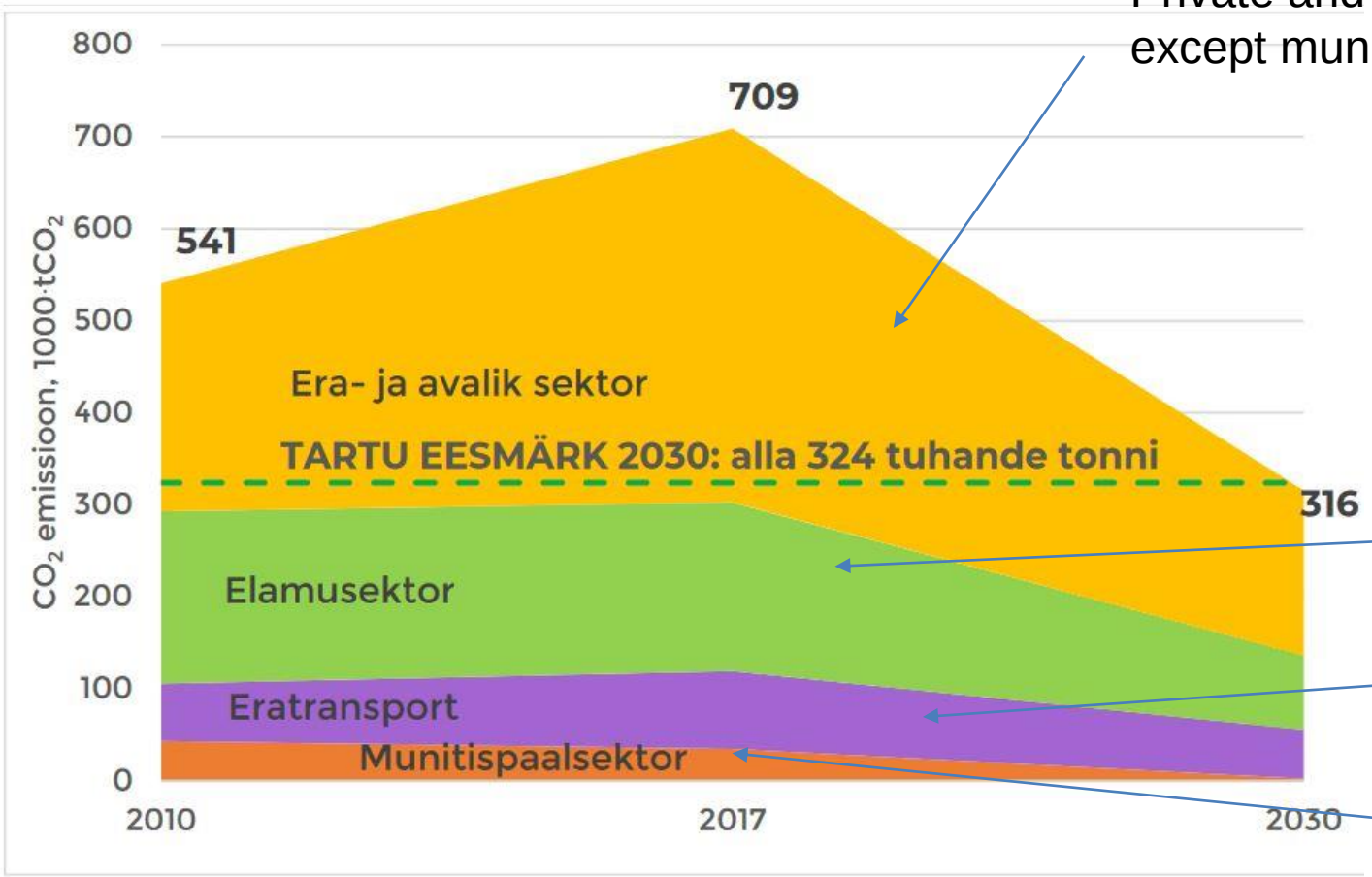
Emissions in City, 1000 tCO^2



Private and public sector, except municipal sector

Goal 2030

Residential

Transport, private

Municipal

Renovation progress in Tartu

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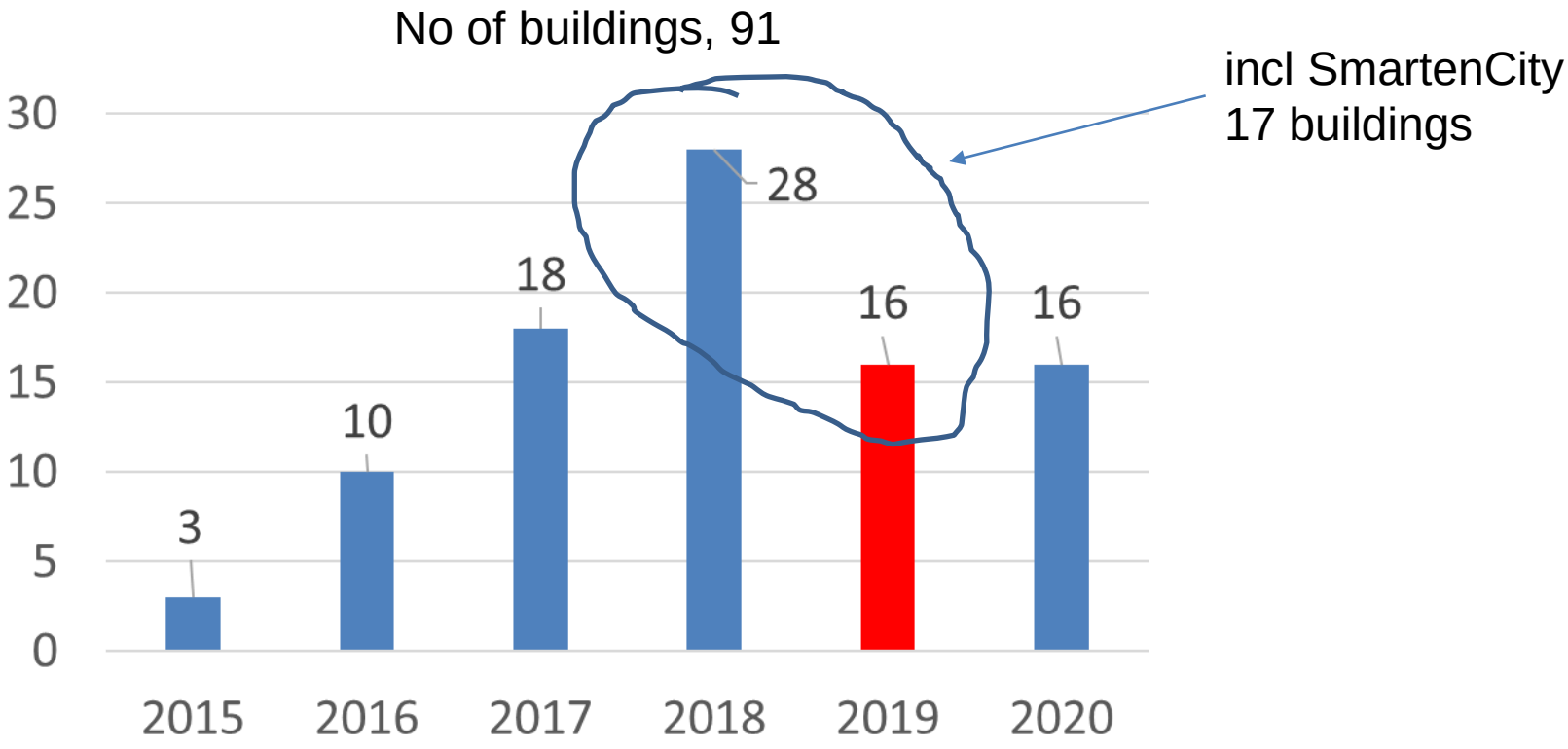
With grant from Kredex in Tartu in 2015-2020 was renovated 91 multiapartment buildings, with total cost more then 25 MEUR



Renovation progress in Tartu

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Renovation cost:

Average cost of renovation of buildings renovated between 2015-2020 was ca 280 eur/m^2 (Kredex)

In Kredex grant application in 2020 average cost for renovation in Tartu was 320 € per m^2 of net area.

Maximun cost was 400 €/m^2

„From Hruštšovka to Smartovka“

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H2020 project „SmartenCity“ (2016-2021, smartencity.eu)

SmartEnCity’s **main objective** is to develop a highly adaptable and replicable systemic approach for transforming European cities into sustainable, smart and resource-efficient urban environments.

On of challenging tasks was to renvovate 39 000 m2 of living area to low energy buildings with perfect indoor climate.

As it was called:
„from Khrushchyovka to Smartovka“

Video of the project:
http://tarktartu.ee/valmis-smartencity-projekti-kokkuvottev-video/

„From Hruštšovka to Smartovka“

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	Kredex requiremets	SmartEnCity requirements
Energy performance label	< 150 kWh/m^2 a, „C“	<90 kWh/m^2 a, „A“
Windows	U= 1,1	U= 1,0
Wall insulation		Ca 10% parem „C“
PV	Not obligatory	Installed 24-50 kW

„From Hruštšovka to Smartovka“

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	Kredex	SmartEnCity
Ventilation	with heat recovery	with heat recovery demand based (CO2)
Smart home	not obligatory	installed
work of art on exterior walls	not obligatory	installed
Training for residents	not obligatory	Done

17 buildigs

32 000 m2

664 kWp

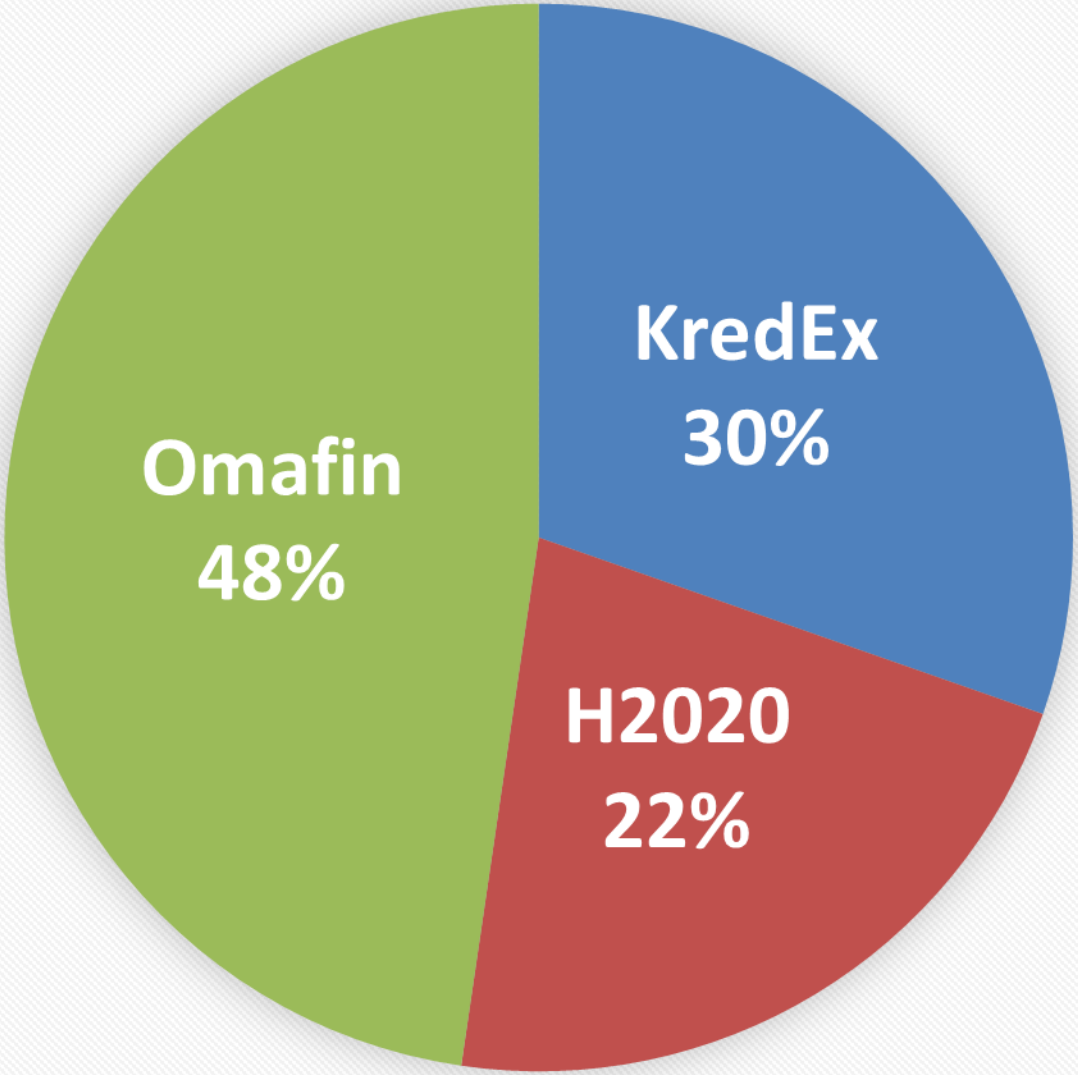
Trainings

smar+ en. ci+y

Heat 166 ➡ 54 kWh/m²

Powerr 39 ➡ 28 kWh/m²

Funding sources



Tähe 2, Tartu

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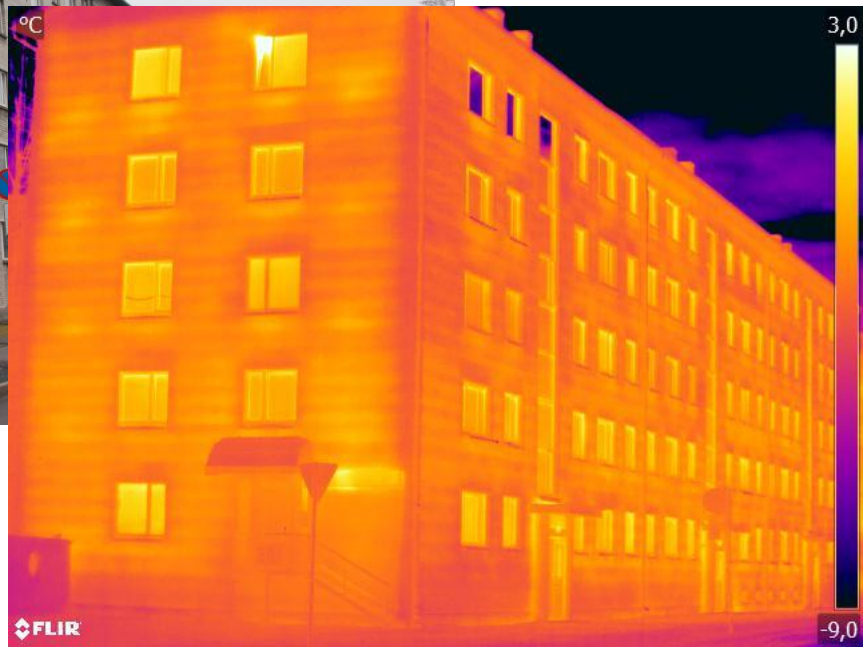
www.trea.ee

Tähe 2, 32 korterit

	Power, MWh	Heat, MWh	Gas, m3
Before renovation 2018	50	179	2953
	Power	**Heat**	**Gas**
After renovation 2020	38	111	557
	-24%	-38%	- 79%
PV: Produced Sold to network	 29 MWh 26 MWh		

Tiigi 8, before

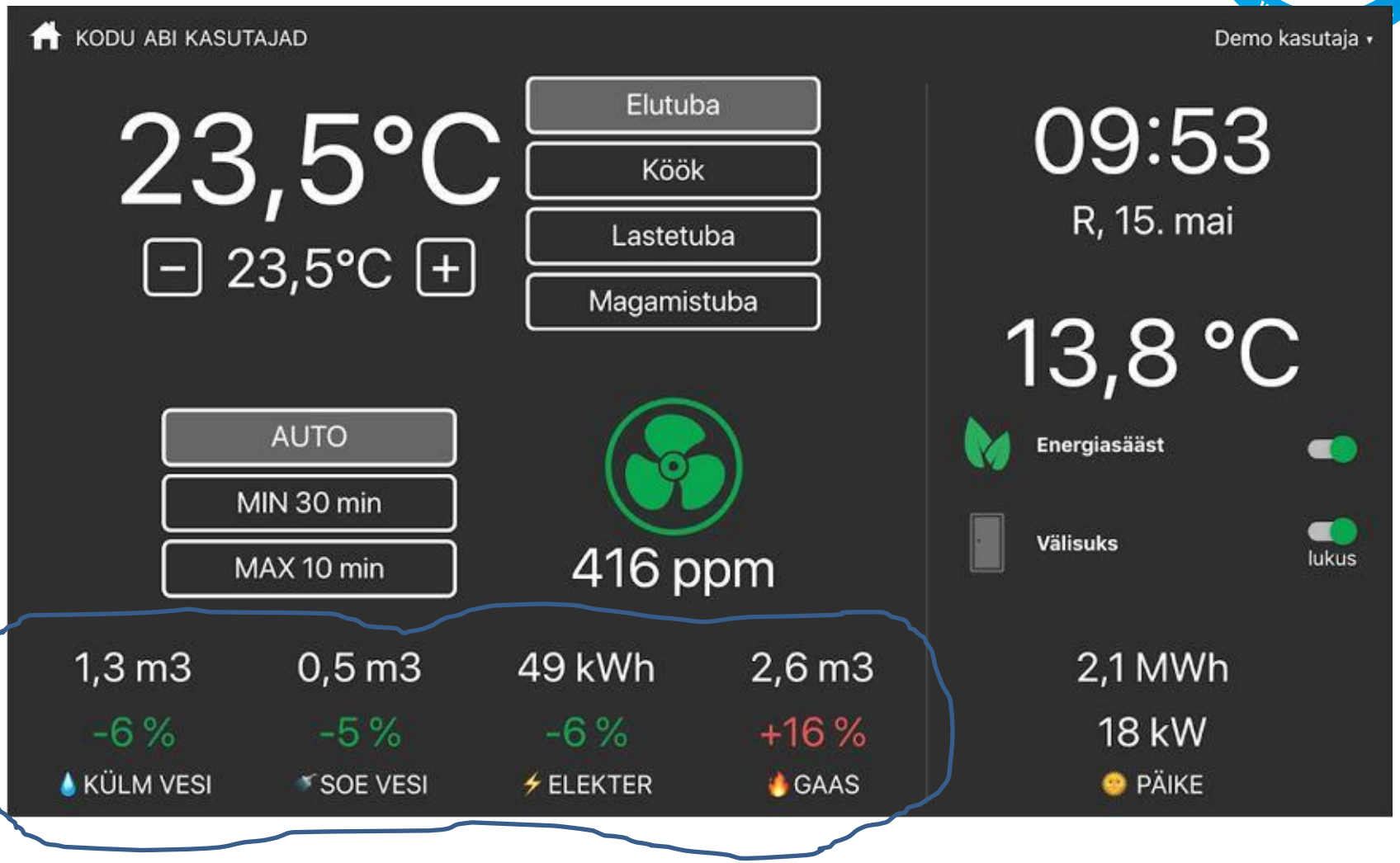


Tiigi 8, after

Tiigi 8, 60 korterit

	Power, MWh	Heat, MWh	Gas, m3
Before renovation 2018	102	464	5406
	Power	**Heat**	**Gas**
After renovation 2020	78	205	1151
	- 24%	-56%	- 79%
PV Production Sold to network	35 MWh 29 MWh		

Smart home solution



Monthly consumption with comparison with last month

Lessons learned:

On renovation, it becomes increasingly important:
prior in-depth planning;
technical consultation;
technical project expertise (in case of Kredex grant, provided by the Kredex)
quality of work performance;

later setup, tuning and maintenance !!!

Training of residents !!!

The energy consumed by the people, not the buildings!

TREA

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Thank you for your attention!
Questions?

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