



Experiences with renovation of apartment buildings in residential district in Tartu

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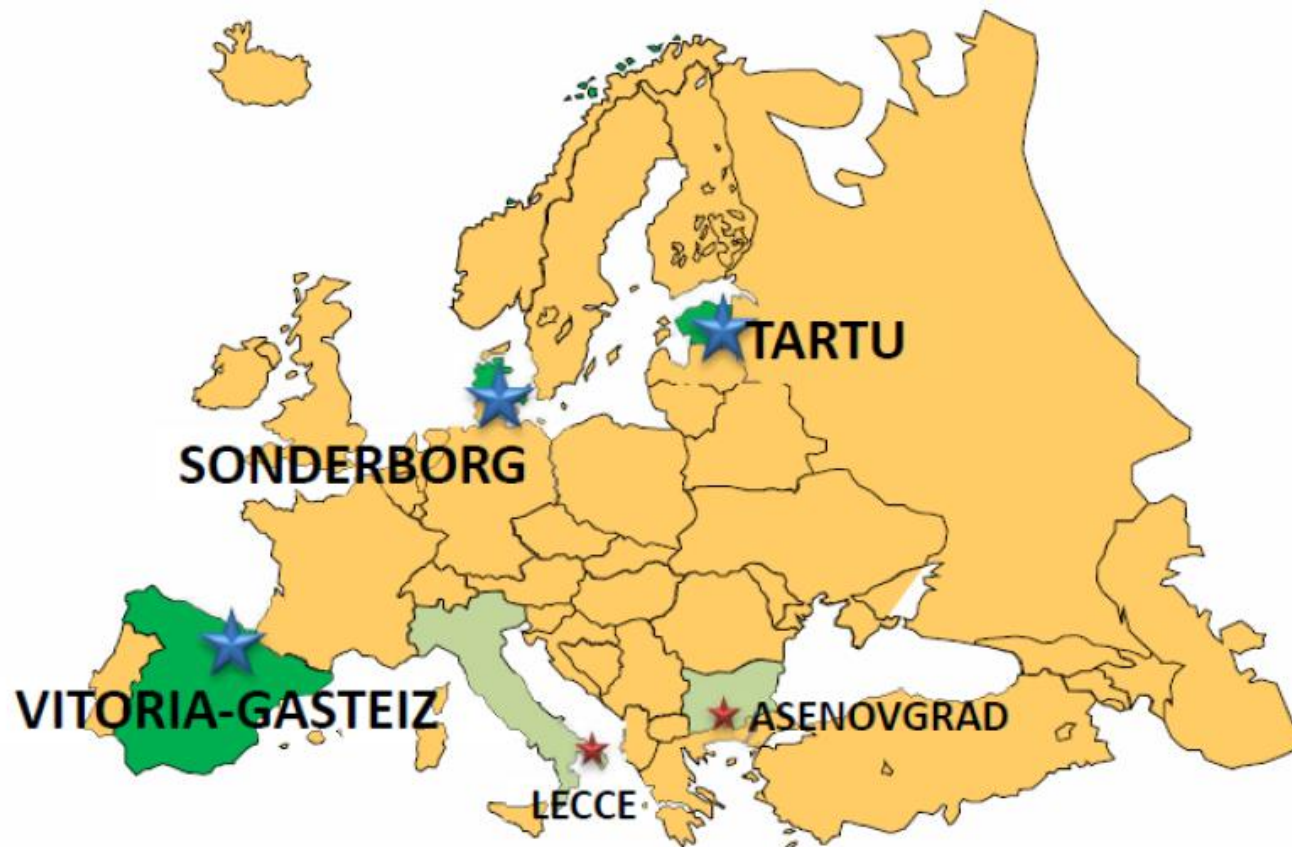
Horizon 2020

Initiative „Smart Cities and Communities“

Lighthouse project

3 „lighthouses“ – Vitoria-Gasteiz, Sønderborg, Tartu

2 followers – Asenovgrad, Lecce



SmartEnCity's vision...

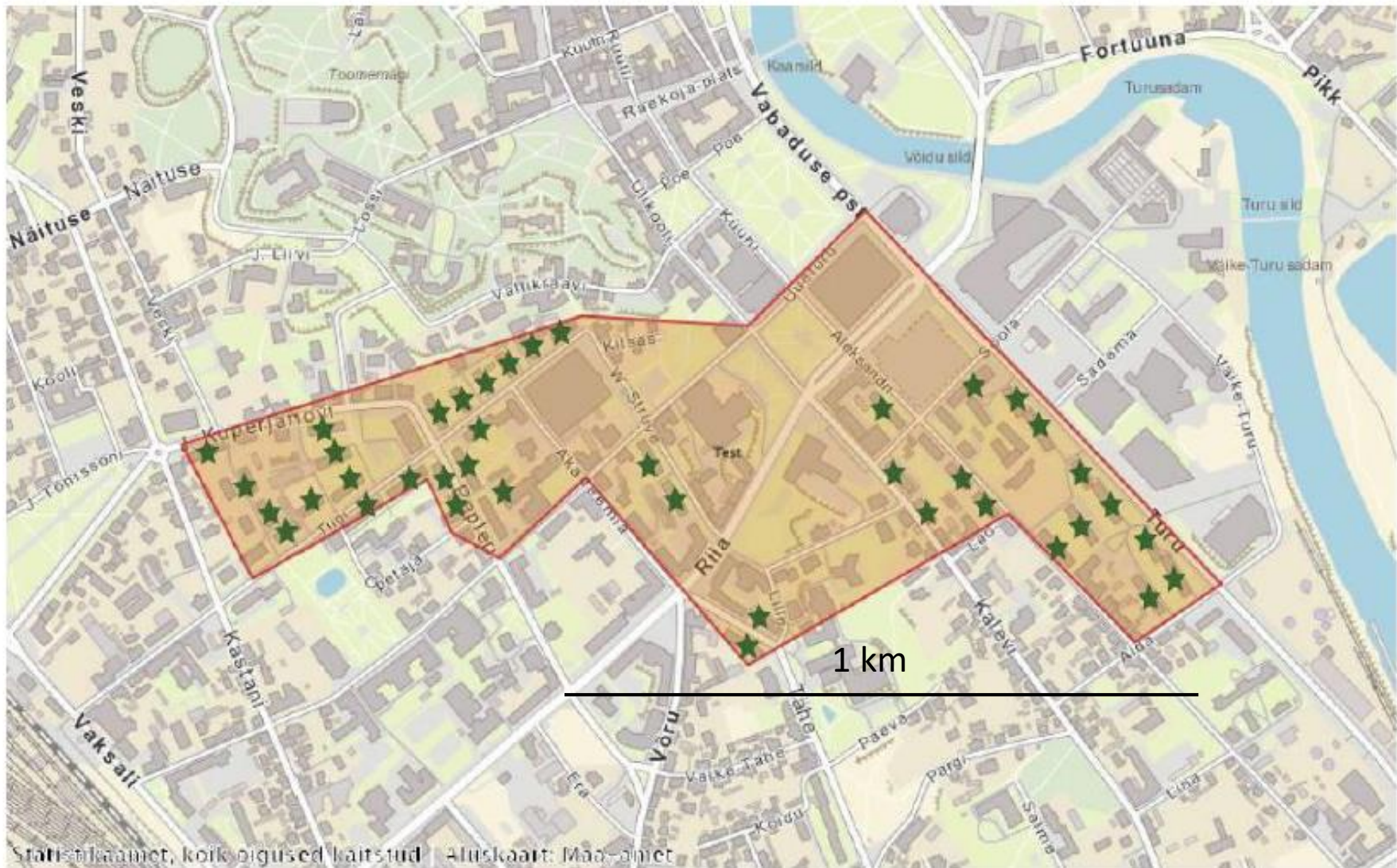
...is to create Smart Zero Carbon Cities that are more sustainable and inclusive, improve citizens' quality of life, create jobs and wealth, and offer equal growth opportunities.

Activities include...

...retrofitting in buildings, integrating infrastructures, developing sustainable mobility and the intelligent use of Information and Communication Technologies.



Project area



SmartEnCity in Tartu

- 22 houses to be renovated
- Altogether <39 000 m²
- EPC **230** → **90** kWh/m²a
 - New windows
 - DHW from DH grid instead of gas & electric boilers
 - Heat recovery demand based ventilation
 - PV microgeneration: 20-30 kW capacity per building
- Smart monitoring & control of indoor climate
- Open platform ITC



Foto: register.muinas.ee, V.Ranniku, 1961

What is a Khrushchevka?

Хрущёвка



- Dominant type of multi-apartment house in Soviet Union late 1950s to early 1990s;
- Usually 2 room (1 bedroom) flats;
- Tiny kitchen appr. 4 m²;
- Initially built of sand-lime bricks, later mainly reinforced concrete;
- One size fits all: from Pacific to Baltic; from Black Sea to White Sea



According to area-based regeneration principle certain elements should be achieved area-wise:

- modernisation of public and private transportation systems;
- upgrade of the areas appearance;
- adaption of the neighbourhood to new lifestyles;
- creation of new uses and activities;
- place making.

The realisation of such a strategy is linked with integrated planning, which is a guiding principle of smart city planning, whereby stakeholders jointly resolve relevant urban problems.

Ahas, R., Mooses, V., Kamenjuk, P., Tamm, R. (in press). Retrofitting Soviet-Era Apartment Buildings with 'Smart City' features: The H2020 SmartEnCity Project in Tartu, Estonia. In D.B. Hess, T. Tammaru (Eds), *Housing Estates in the Baltics*, Springer

Social innovation, engagement and training

- People need to be actively educated and trained because energy performance depends greatly on the residents' user skills and consumption patterns.
- Engagement is important because people must invest significantly themselves.
- Explaining the technical details of the project to residents ensures that they understand and can use the new technical solutions.
- Ahas, R., Mooses, V., Kamenjuk, P., Tamm, R. (in press). Retrofitting Soviet-Era Apartment Buildings with 'Smart City' features: The H2020 SmartEnCity Project in Tartu, Estonia. In D.B. Hess, T. Tammaru (Eds), *Housing Estates in the Baltics*, Springer

Smart house – smart city



Is a city „smart“ with all its buildings being „smart“?

Is it possible to have a smart city with all houses being „dumb“?

Extensive use of ITC by
Smart Governance which both are accepted by
Smart Citizens

Thank You!

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