

# Energy renovation of buildings in the framework of the Slovenian NECP and Long-term renovation strategy

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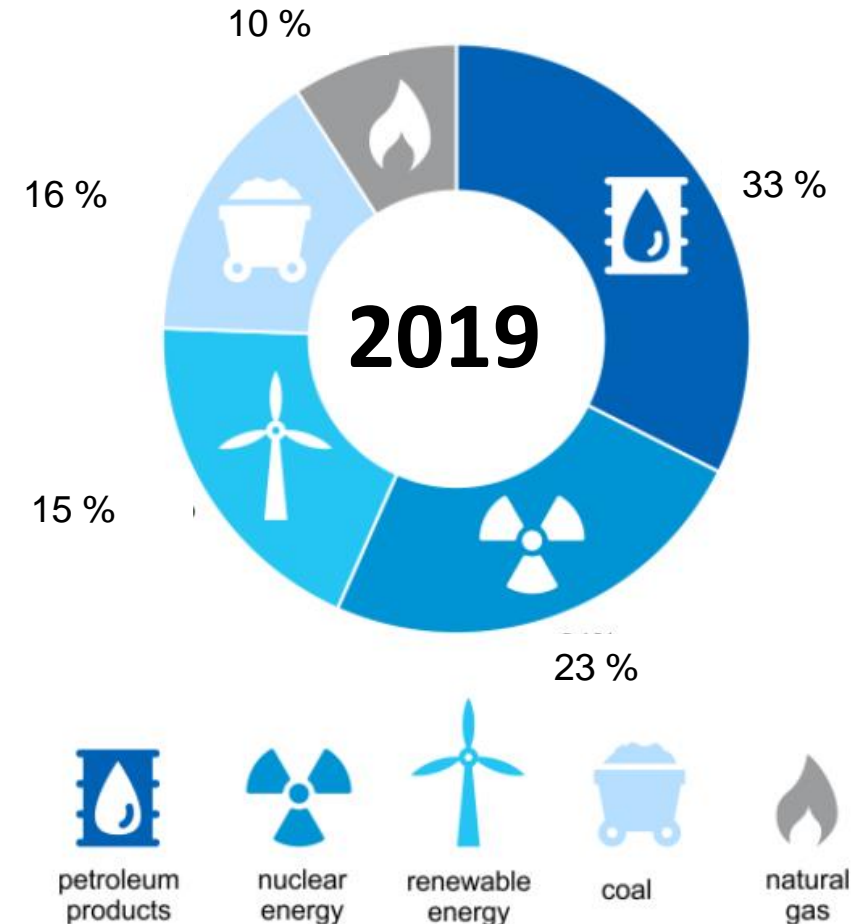
# General energy information Slovenia

Population 2 mio

Final Energy (2018) cca. 200 PJ

Energy Dependency cca. 55%  
(without nuclear fuel)

Energy supply 2019  
(source:MZI)



# National strategic Framework

National energy  
and climate plan

*Action plan 2030 / 2040  
(goals, measures)*

Longterm strategy  
*Emission Scenarios 2050*

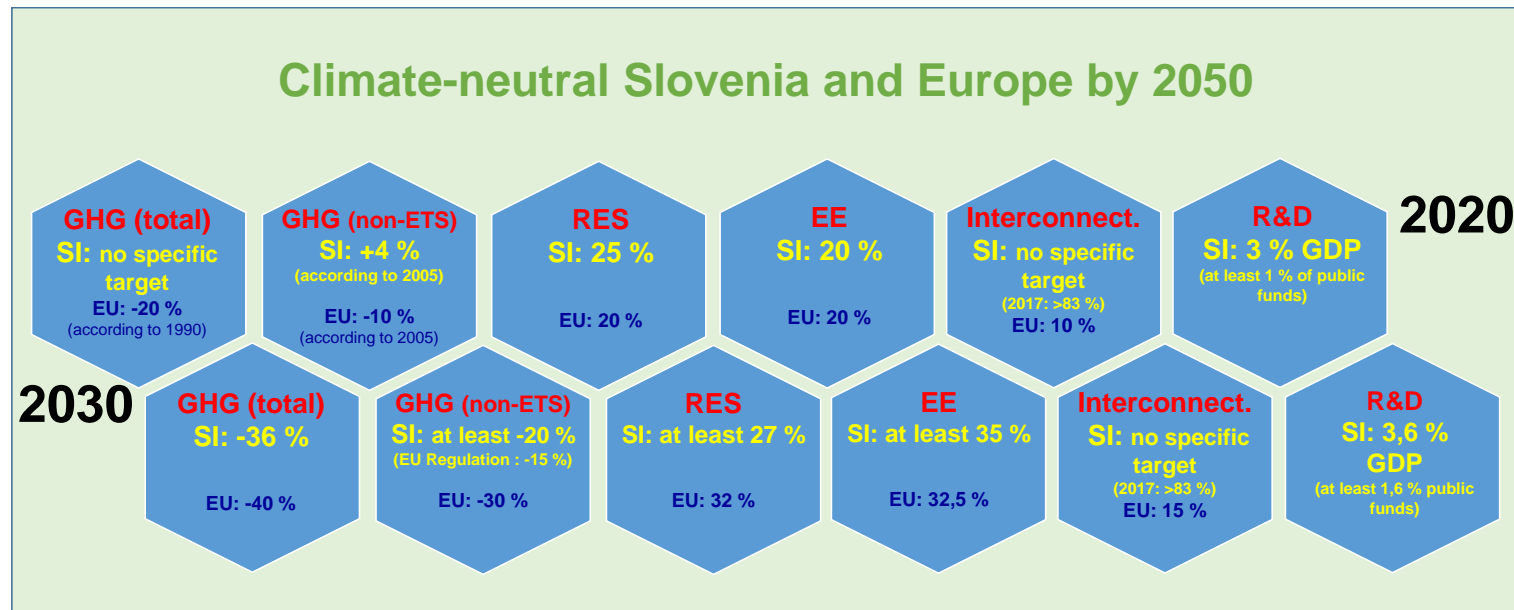
- **DSEPS 2050**
- **EZ-1 (Heat Supply Act, Gas Supply Act, Electricity Supply Act, Energy Policy Act, Energy Efficiency Act, Renewable Energy Promotion Act)**





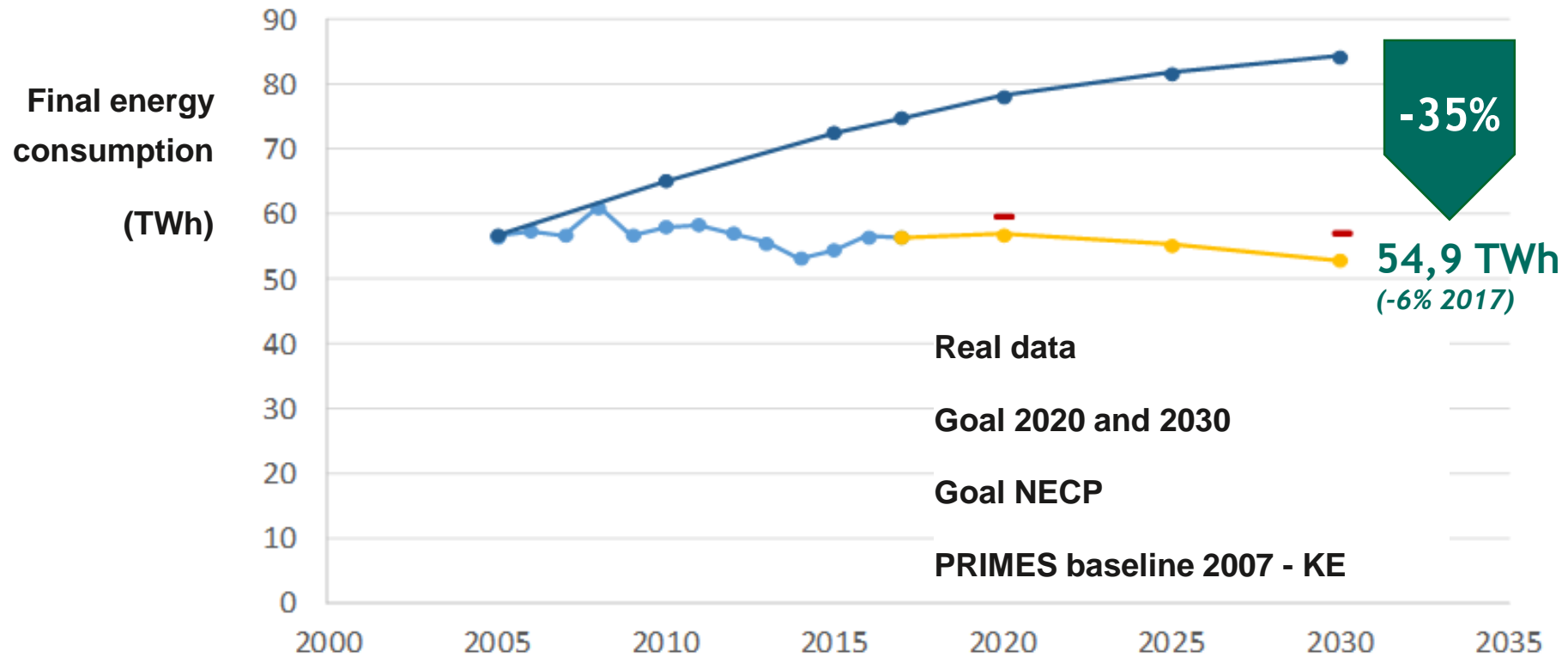
# Objectives NECP

- to 2030 increase energy efficiency by at least **35%** compared to the 2007 baseline scenario (under the Energy Efficiency Directive)
- ensure systematic implementation of adopted policies and measures so that final energy consumption does not exceed **54.9 TWh (4,717 ktoe)**. Calculated at the level of primary energy, consumption in 2030 will not exceed **73.9 TWh (6,356 ktoe)**



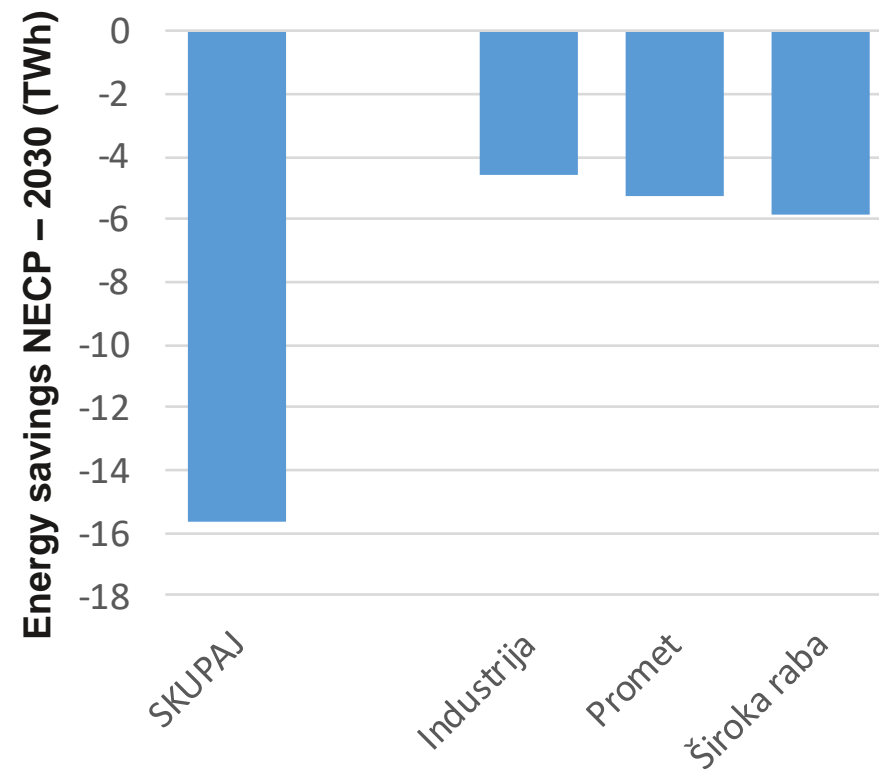
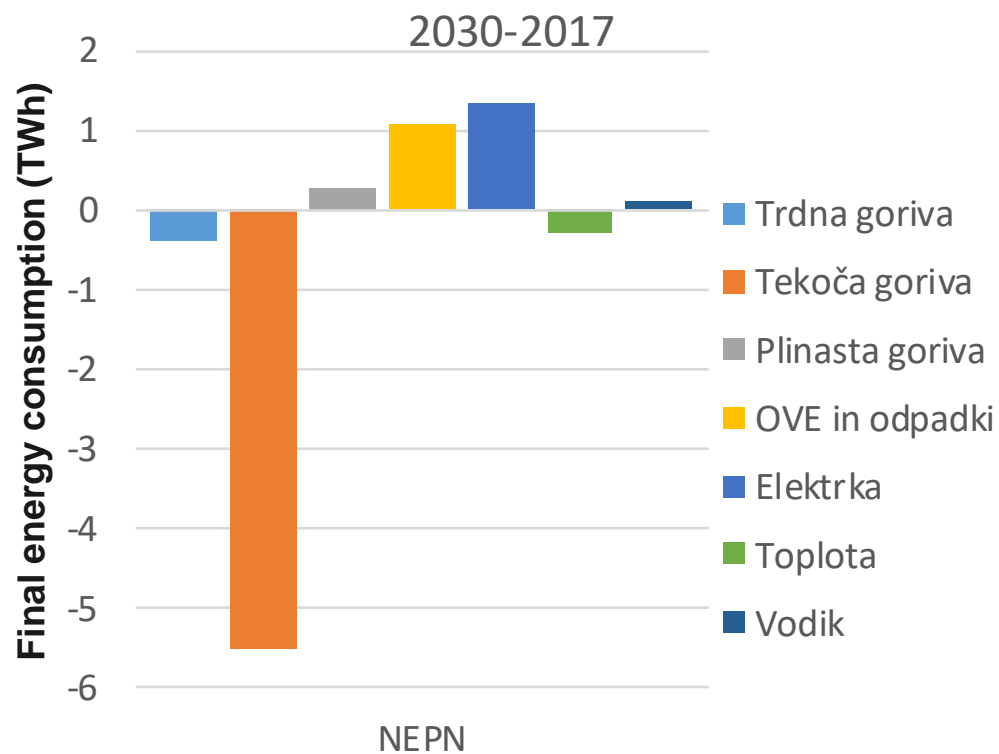


# Progress of the contribution to energy efficiency by 2030 in final energy consumption





# Expected changes in final energy consumption by individual sectors and fuels





# Measures „NECP“

Energy efficiency measures:

- the public sector
- households
- industry
- transport
- heating and cooling
- sectors of energy transformation, transmission and distribution



# Law of Energy Efficiency

- long-term building renovation strategy
- energy savings for end customers energy management system
- charging stations for electric vehicles (construction of new non-residential buildings and major renovations, more than 10 PM - at least 1 EPP, infr. leads to 5 PM, non-residential existing buildings (at least 20 PM - 1 EPP and infr. leads to 10 PM))
- construction of new residential buildings and major renovations (more than 10 PM - installation of infrared lines)
- inspection of air conditioning systems (over 70 kW, 5 years from the operating permit)
- inspection of heating systems (over 70 kW, 8 years from the operating permit)
- obligation to introduce building automation and control systems (above 290 kW)

cost sharing, information on metering, energy performance certificates, public sector energy management system





# Targets – building sector

„energy efficiency first“

## 2030

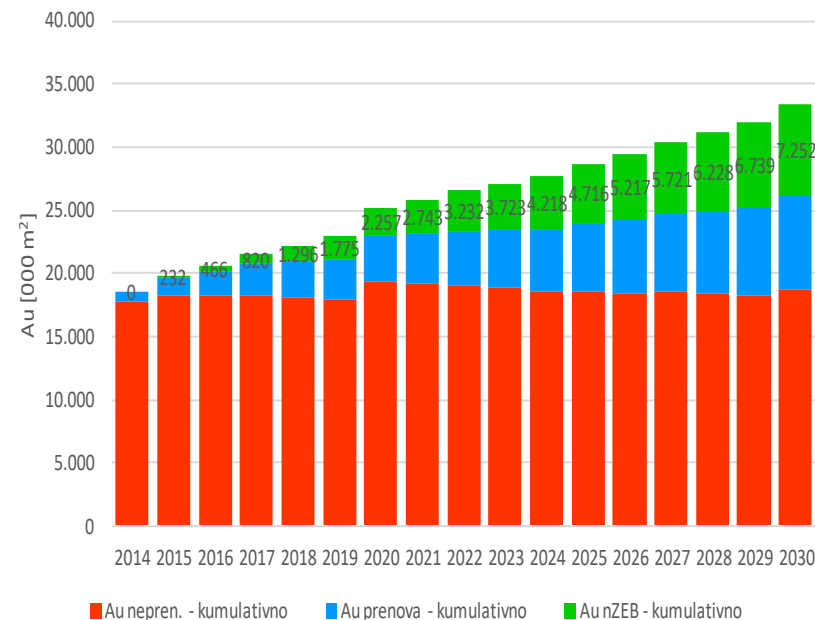
Reduce greenhouse gas emissions in buildings by **at least 70%** compared to 2005.

At least **2/3 of energy use in buildings** from renewable energy sources (share of RES use in final use of energy sources without electricity and district heat).

## 2050

Net zero emissions in the building sector by maintaining **a high level of energy renovation of buildings** with low-carbon and renewable materials and by focusing on heating methods in **RES technologies and district heating systems with RES**. Wider renovation of buildings is encouraged.

## Residential buildings nZEB renovation





# Energy renovation measures

**By 2050, 74% of single-dwelling and 90% of multi-dwelling buildings will be energy renovated.**

**At the same time, final energy consumption will be reduced by 45% and CO<sub>2</sub> emissions by 75% compared to 2005.**

This will be achieved by:

- (high) rates of energy renovations, promoting comprehensive / nZE renovations
- directing heating technologies to district heating systems in densely populated areas and heat pumps and biomass in sparsely populated areas
- greater use of RES for the purpose of heating and DHW preparation



# Energy Poverty

Around 100,000 households face high energy consumption for heating and associated costs. The share of such multi-apartment buildings is almost 8% or around 24,000 households. These buildings were built mostly before 1980.

In the period up to 2030, it will be necessary to:

- to continue with the programs
- define the definition of energy poverty (by 2022)
- draw up an action plan to reduce energy poverty and ensure a systemic solution to this problem



## Wider renovation of buildings

As much as 76% of the floor area of the building stock belongs to buildings that were built before 1990.

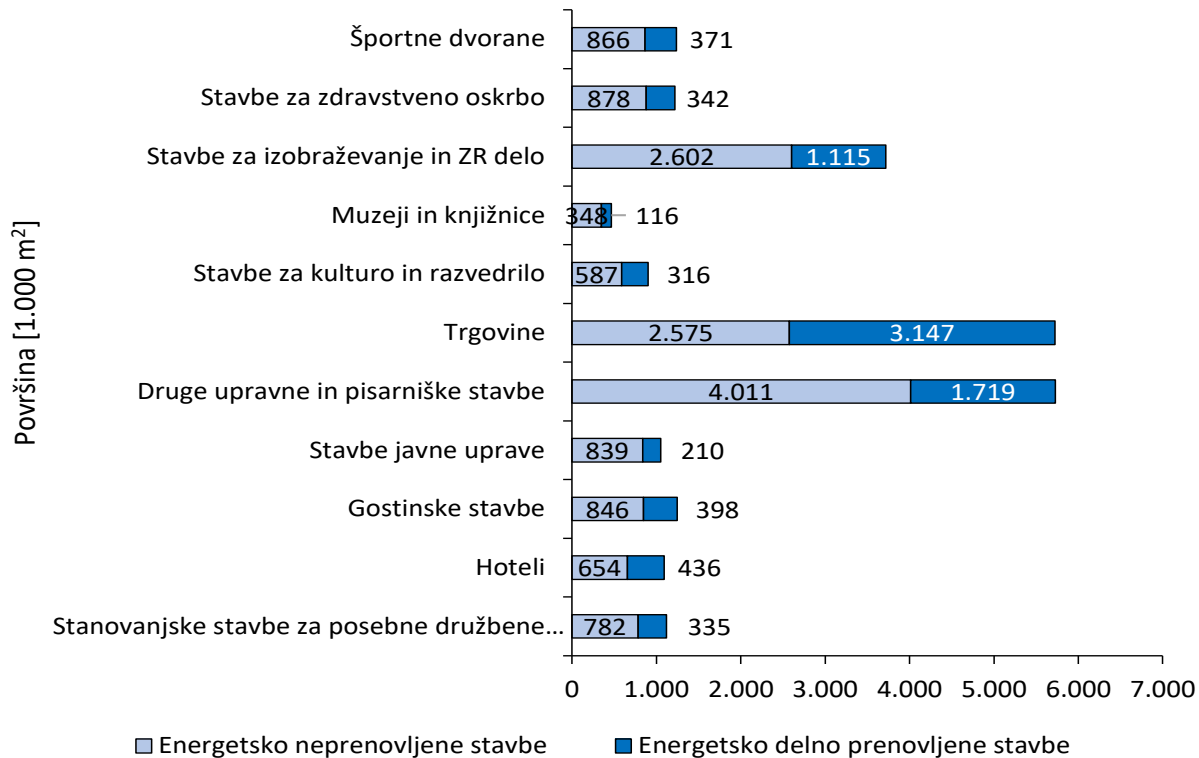
DSEPS 2050 provides „building cards“ in multi-apartment buildings by 2024 at the latest. This addresses the energy, seismic and fire aspects of renovation and provides guidelines for recommended and required measures for gradual wider renovation.

Slovenia will have to be one of the first EU countries to start systematically resolving this aspect of renovation.

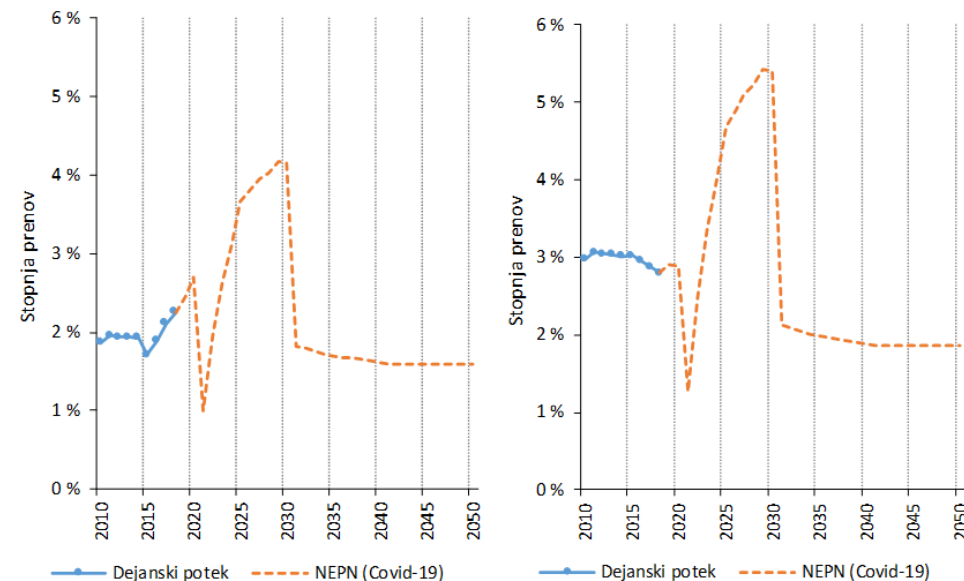


# Wider public sector - buildings

## Technical potential for energy renovation



## Predicted reduced economic growth due to Covid-19 disease



Slika 3: Dejanska in predvidena po scenariju NEPN utežena stopnja energetskih prenov enostanovanjskih (levo) in večstanovanjskih (desno) stavb od leta 2017 do leta 2050. /

# Encourage renovation of buildings in the public sector

For these buildings, as part of DSEPS 2050:

- list of all public buildings
- defined required annual 3% renovation of buildings (25,069 m<sup>2</sup>)
- analyzed / model estimated seismic hazard of buildings
- prepared priority groups of public buildings for the implementation of energy renovation of buildings.





# nZEB definition

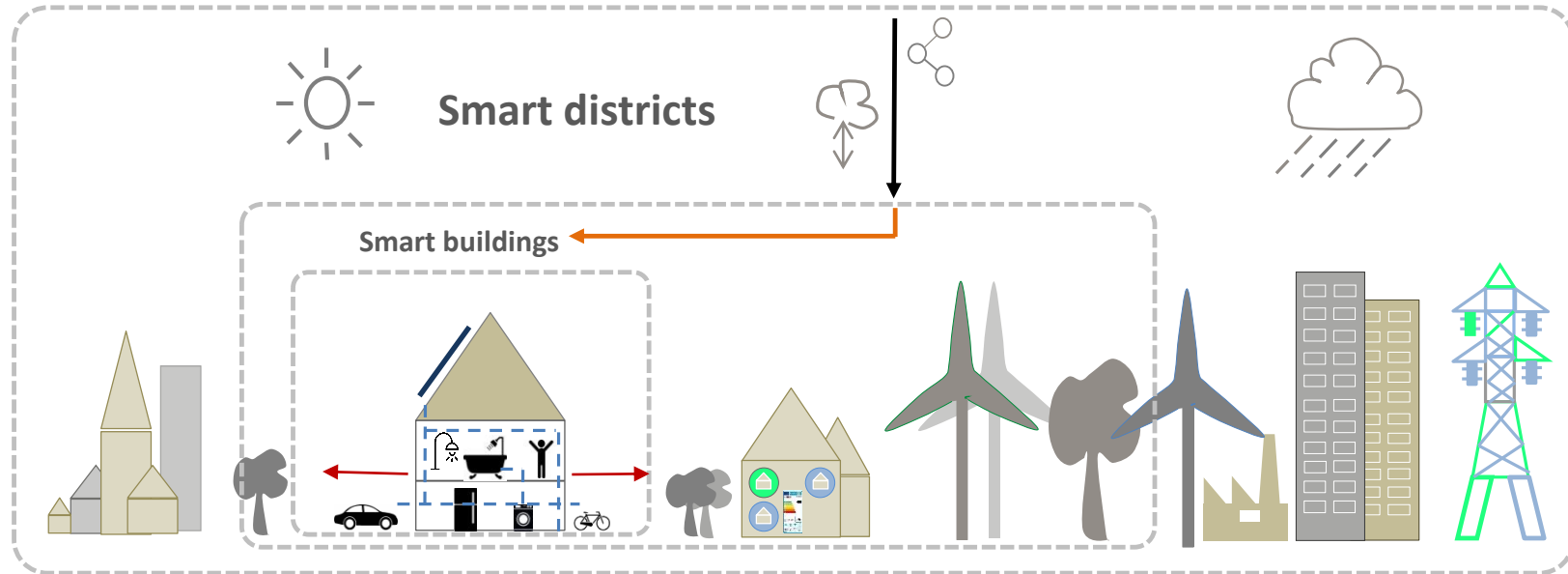
Type of building	Maximum permitted value of primary energy per unit of conditioned area per year (kWh / m2a)		Share of RES (%)
	New construction	Major renovation (reconstruction)	RER **
Single-family buildings	75	95	50
Multi-apartment buildings	80	90	50
Non-residential buildings	55	65	50

\*\* RER is the share of renewable sources in terms of total energy input, as defined by REHVA



# Modern almost zero energy buildings also as positive buildings

## Smart cities



Vir: CA EPBD

### 3 types of self-sufficiency

1. individual self-sufficiency

2. community self-sufficiency - members agree on the key of sharing the produced electricity:

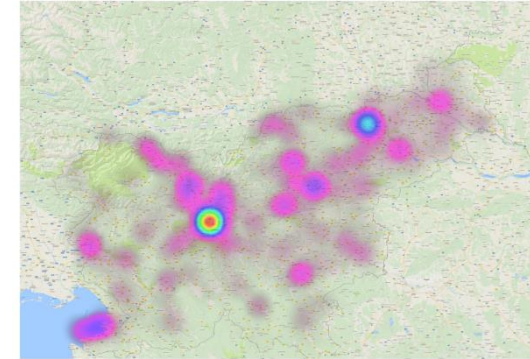
- self-sufficiency of a multi-apartment building
- RES energy supply communities (RES communities)





# Challenges

Further production of sustainability indicators

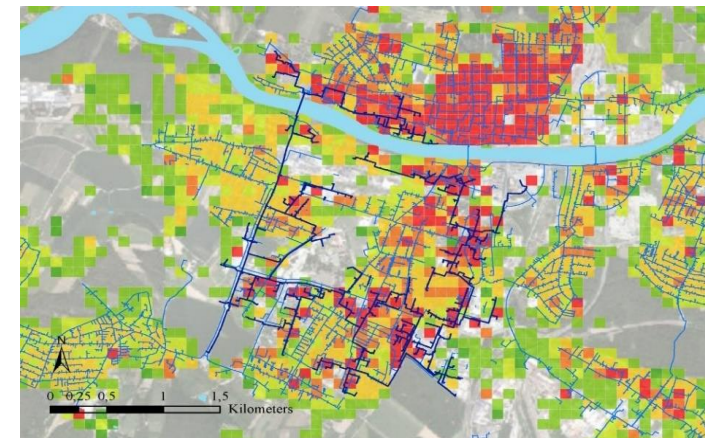


**Challenges related to renovation of nZEB buildings**

protection of cultural heritage, wider renovation (seismic aspect, fire aspect)

**Cost-effectiveness of measures in energy renovation of buildings**

**Determination of energy use in space** (future energy supply, mandatory connection, priority energy use, consideration of new technologies,...)



# Thanks for your attention!

If you would like to have more information,  
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