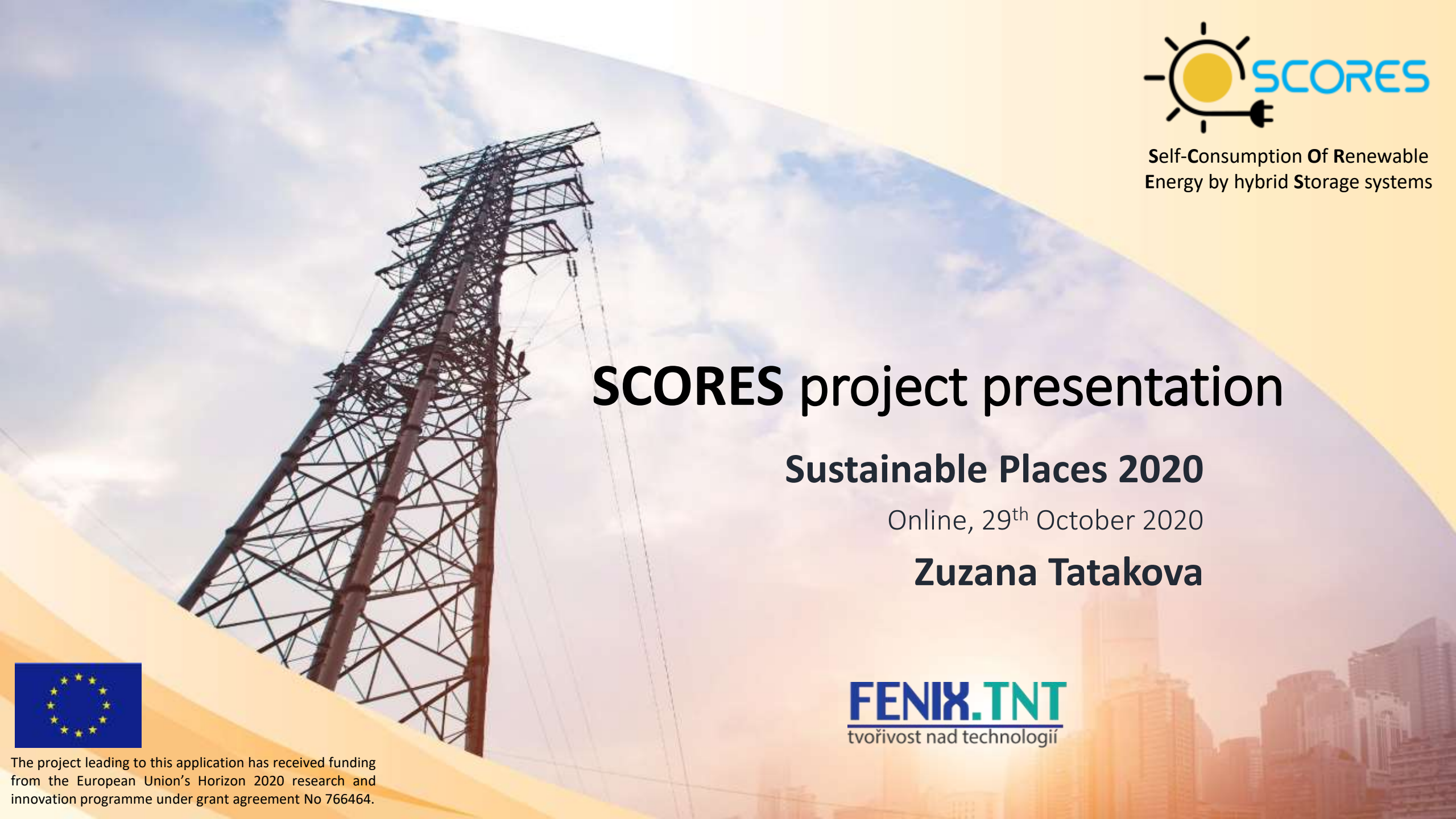


SCORES

**S**elf-**C**onsumption **O**f **R**enewable **E**nergy by hybrid **S**torage systems

# **SCORES** project presentation

## Sustainable Places 2020

Online, 29th October 2020

**Zuzana Tatakova**

FENIX.TNT
tvořivost nad technologií

The project leading to this application has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 766464.

**12** Partners

**9** Work Packages

Budget **€6M**

**48** Months

HYBRID STORAGE TECHNOLOGIES
MULTI-ENERGY GENERATION
LOCAL RENEWABLE ENERGY
OPTIMIZATION OF SELF-CONSUMPTION
GRID SUPPLY
RENEWABLE ENERGY
POSITIVE BUSINESS CASE
STORAGE
RELIABLE OPERATION
FLEXIBILITY
CONSUMPTION
RESIDENTIAL BUILDINGS


INDUSTRY
CAMPA
KÖNIG METALL
RINA
Stadtwerke GLEISDORF
heliopac
FORSEE POWER
SIEMENS Ingenuity for life
EDF
Solar supply and energy conversion
Electrical and thermal storage
Building Energy Management System
Demonstration
Dissemination Exploitation
IPS Instituto Politécnico de Setúbal
TNO innovation for life
AEE INTEC
FENIX.TNT
RESEARCH

**BARRIERS**

Renewable energy is abundant, but variably available

Renewable energy generation puts stringent demands on the energy grid to cope with fluctuations

Surplus renewable electricity from the grid

Locally produced electricity and heat from solar collectors

District heating grid feeding from industrial waste (when avaiable)

**IN**

**HYBRID SYSTEM**

Electricity storage

Power to heat conversion

Heat storage

**OUT**

Space heating (in winter only)

Domestic hot water (daily)

Electricity use

Re-feeding of electricity (and heat) into the grid

**SOLUTIONS**

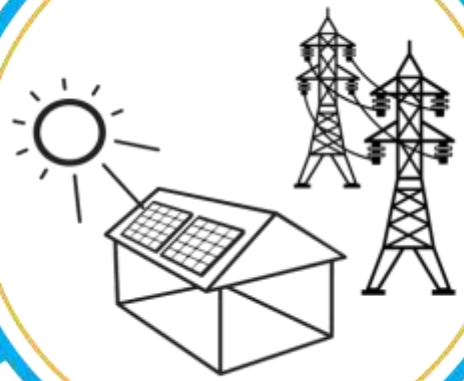
Increase the self-consumption of local renewable generation

Introduce new sources of flexibility for the grids

## Local level

Increase the self-consumption of local renewable generation

Bridge the gap between supply and demand



## Global level

Defer investment in the energy grids

Introduce new sources of flexibility for the grids

Competitive industry

Grid stability

Energy Independency

$CO_2$ reduction

Jobs Creation

More renewables

Develop a technology of second life Li-ion batteries

Electric driven heating with intraday PCM heat storage

Optimize a high performance water to water heat pump supplied by hybrid PV and solar collectors

Improve and optimize compact loss free heat storage technology

Develop an integrated building energy management system

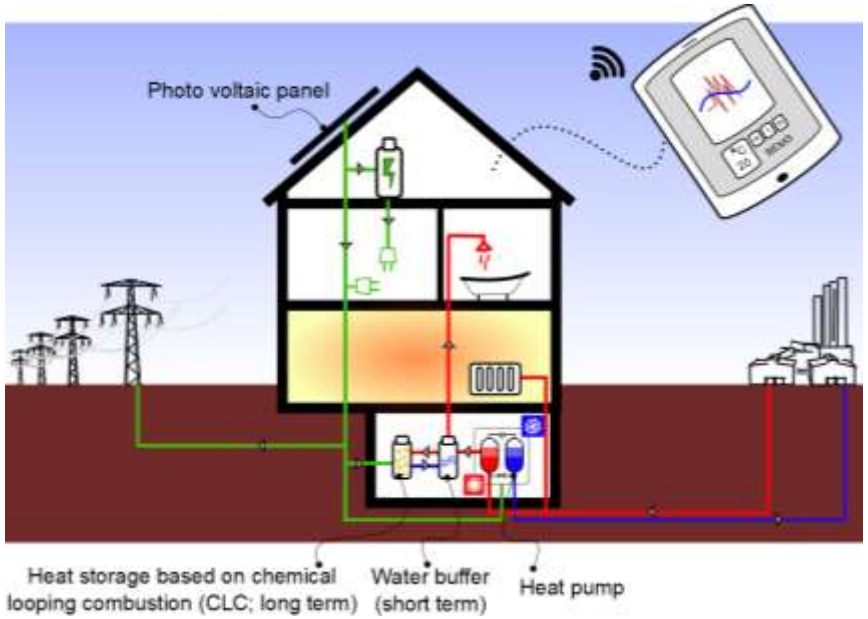
Assess the economical potential of the hybrid system

Efficient air to air heat pump for space heating with intraday PCM storage


Office
PV system
Office
Residential houses
Connection
construction (office)

## Configuration A

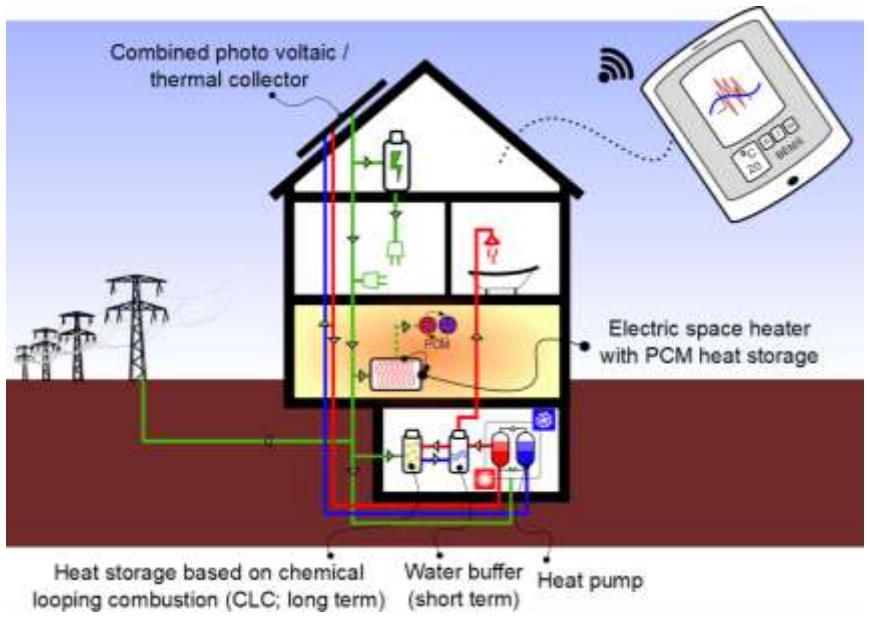
Connected to district heating grid:



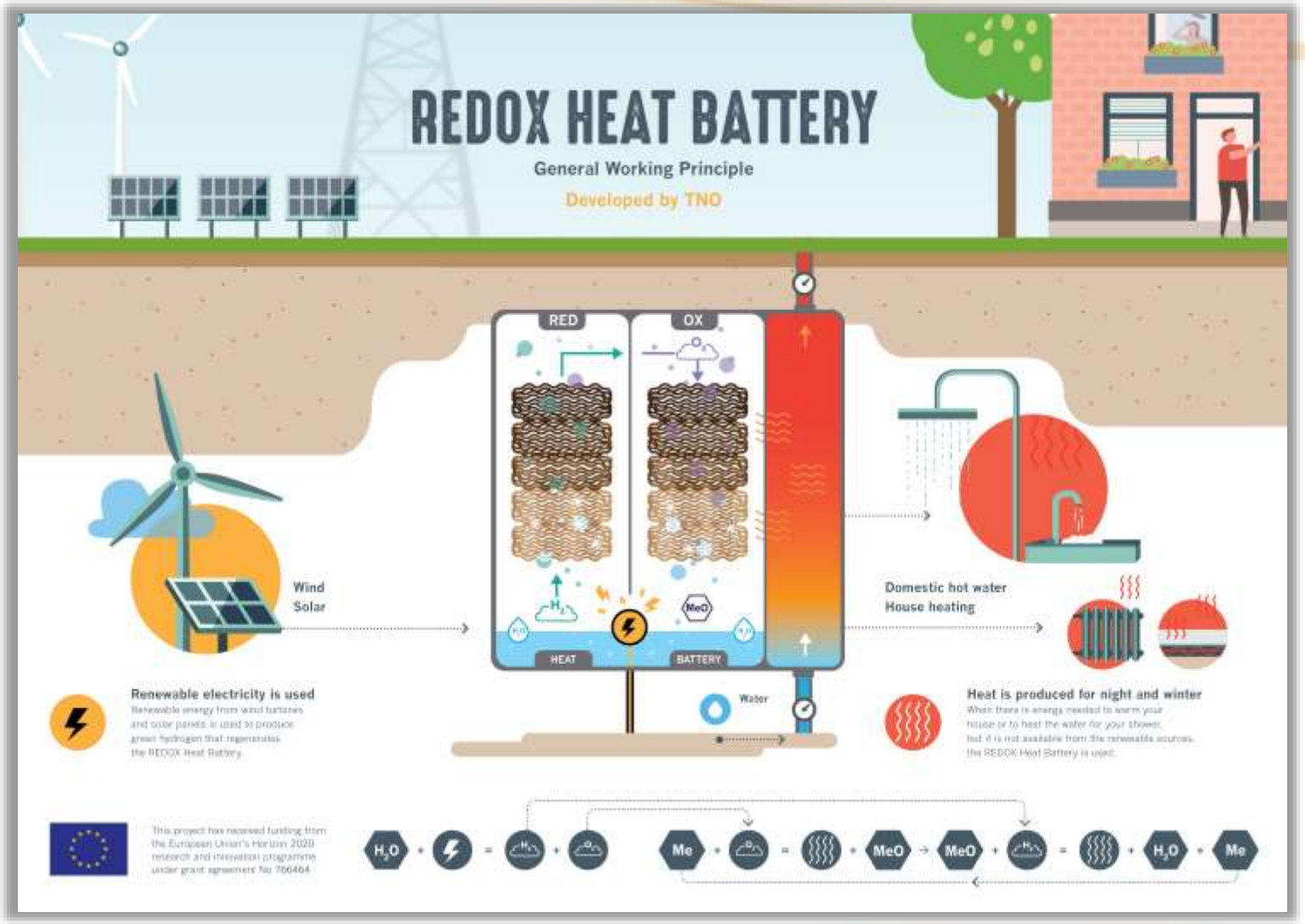

**Demo in Austria**

## Configuration B

Based on electric heating:




**Demo in France**


REDOX HEAT BATTERY
General Working Principle
Developed by TNO
RED
OX
HEAT
BATTERY
Wind
Solar
Water
Domestic hot water
House heating
Renewable electricity is used
Renewable energy from wind turbines and solar panels is used to produce green hydrogen that regenerates the REDOX Heat Battery.
Heat is produced for night and winter
When there is energy needed to warm your house or to heat the water for your shower, but it is not available from the renewable sources, the REDOX Heat Battery is used.
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 766464
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**FOLLOW UP PROJECTS!**

SCORES

**S**elf-**C**onsumption **O**f **R**enewable **E**nergy by hybrid **S**torage systems

# THANK YOU FOR ATTENTION!


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