



EUSALP EU STRATEGY FOR THE ALPINE REGION

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Activities Lower Austria Smart Villages

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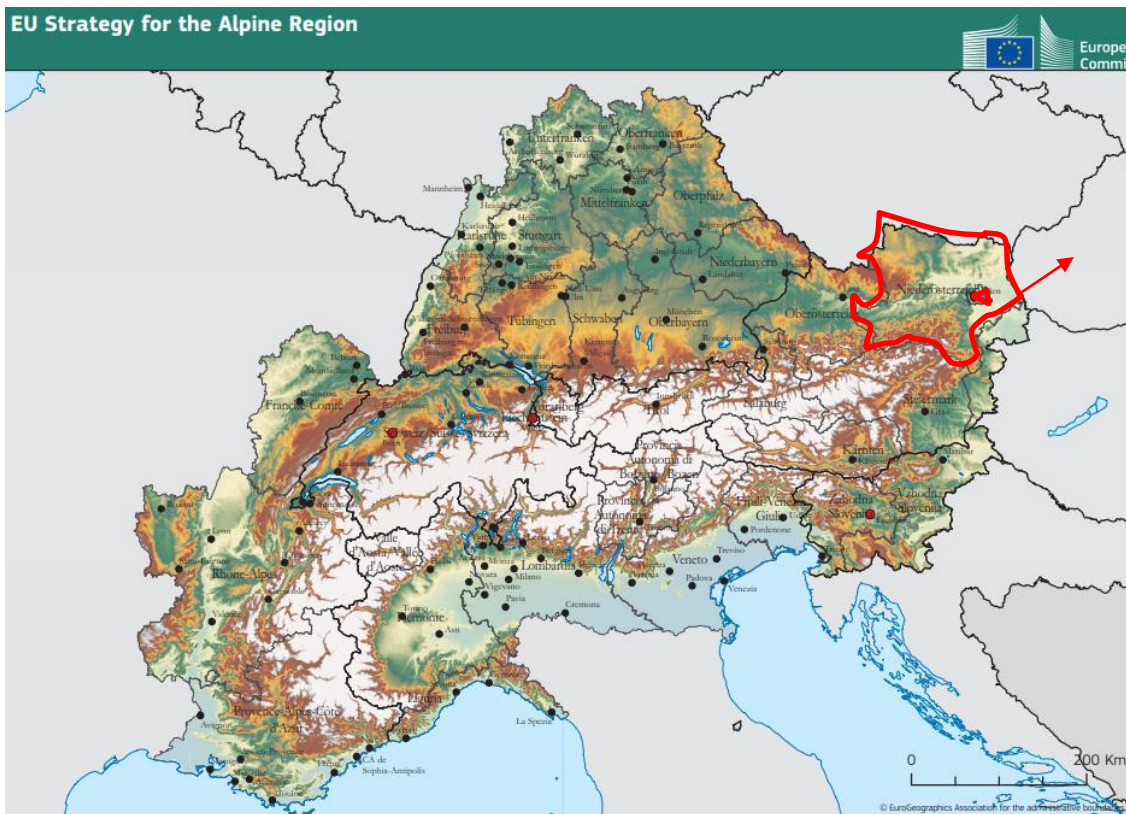


80 million people, 7 countries, 48 regions,
mountains and plains addressing together
common challenges and opportunities



This project is co-financed by the European Union via Interreg Alpine Space

Figures Lower Austria



One of 9 federal regions of Austria

Area: 19.200 km²

Population: 1.66 mio.

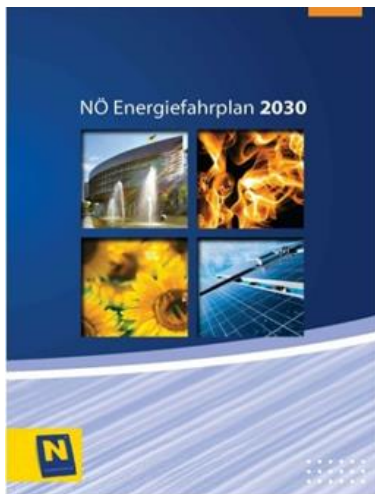
Capital: St.Pölten
573 municipalities

GRP: 33,100 EUR
p.capita

Highest elevation:
Schneeberg (2,076 m)

Energy and Climate policy – Lower Austria

✓ **100% of renewable electricity until 2015**



Energy Road Map

Climate and Energy Program
more than 200 measures e.g.
No more oil boilers

and

Legislation on energy efficiency;
e.g. energy officials and energy accounting for municipalities



Lower Austrian Climate and energy road map

Our energy and climate policy goals



CREATION OF A
SUSTAINABLE ENERGY
SYSTEM



LIMITING THE
IMPACT OF
CLIMATE CHANGE



GUARANTEEING A
SUSTAINABLE AND
HIGH-PERFORMANCE
INFRASTRUCTURE



INCREASING REGIONAL
VALUE AND EMPLOYMENT
CREATION THROUGH
"GREEN TECHNOLOGIES"



INVOLVING THE
POPULATION - BRINGING
ENERGY TRANSITION
TO THE PEOPLE

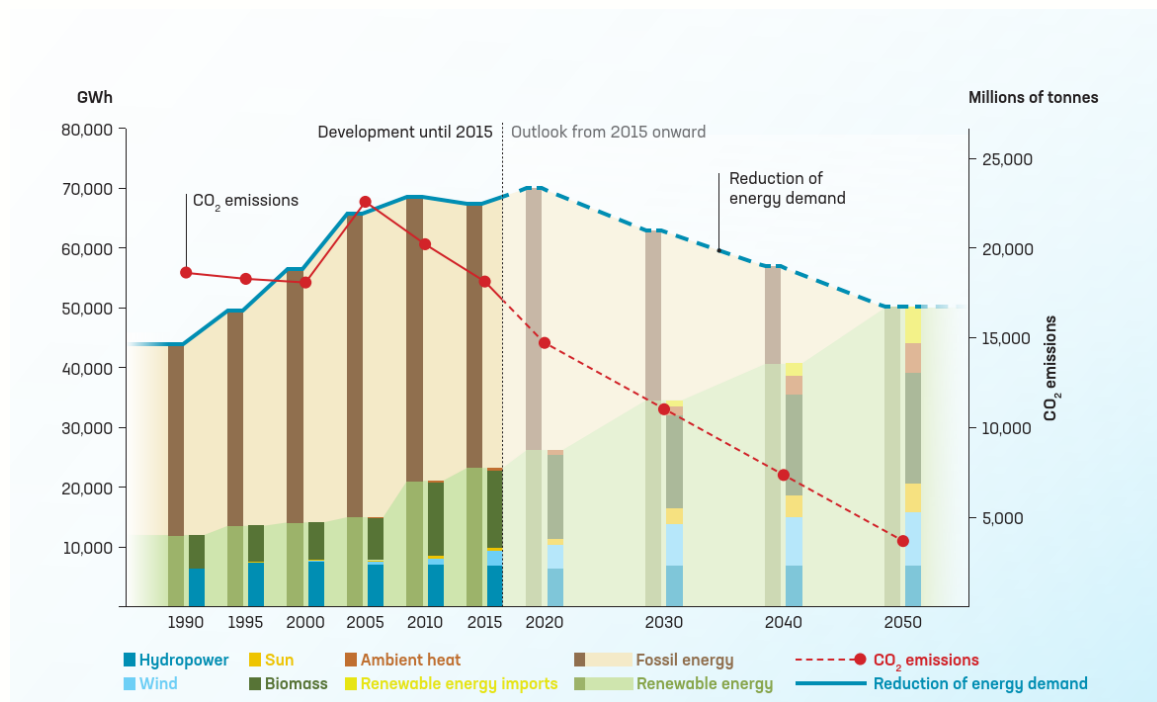


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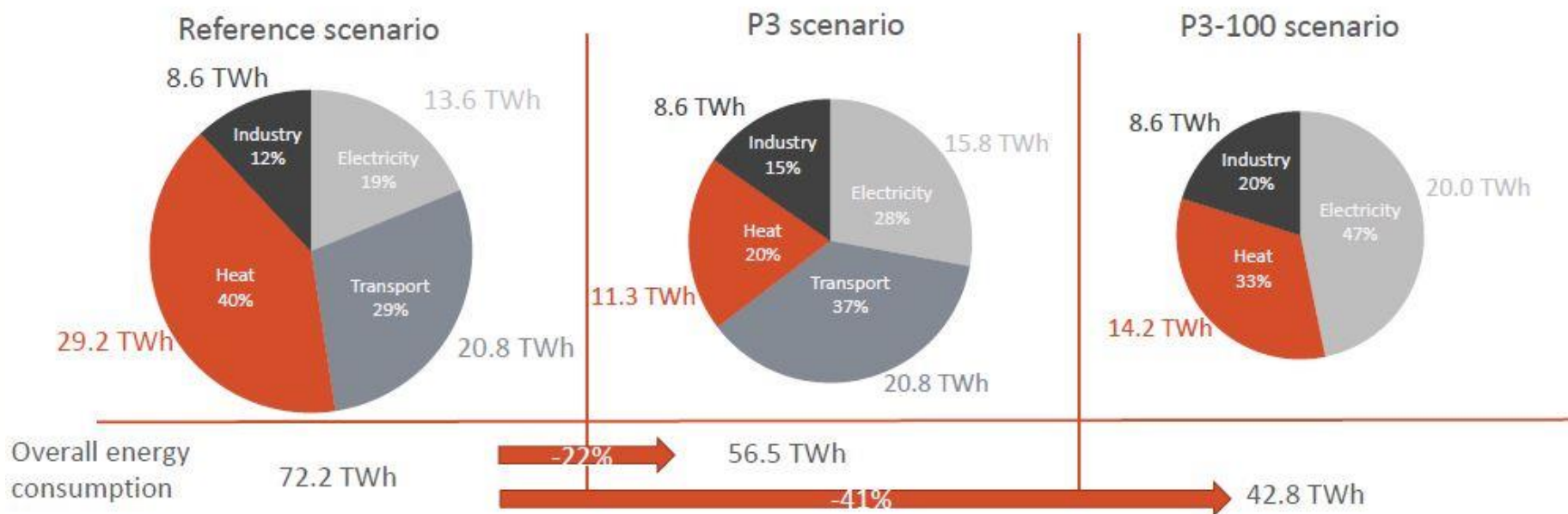
Our vision of Lower Austria for 2050

Efficiency – Development – Decarbonisation





3 scenarios comparison: RS, P3, P3-100



eurac research

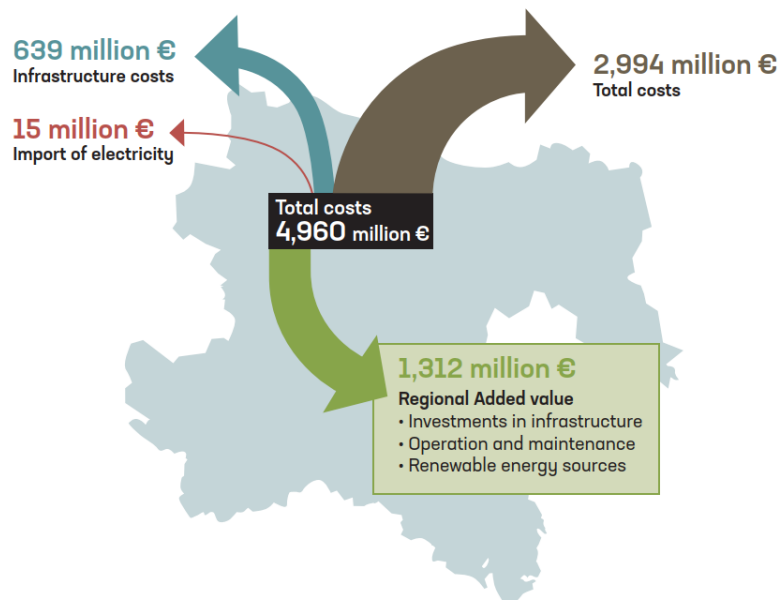


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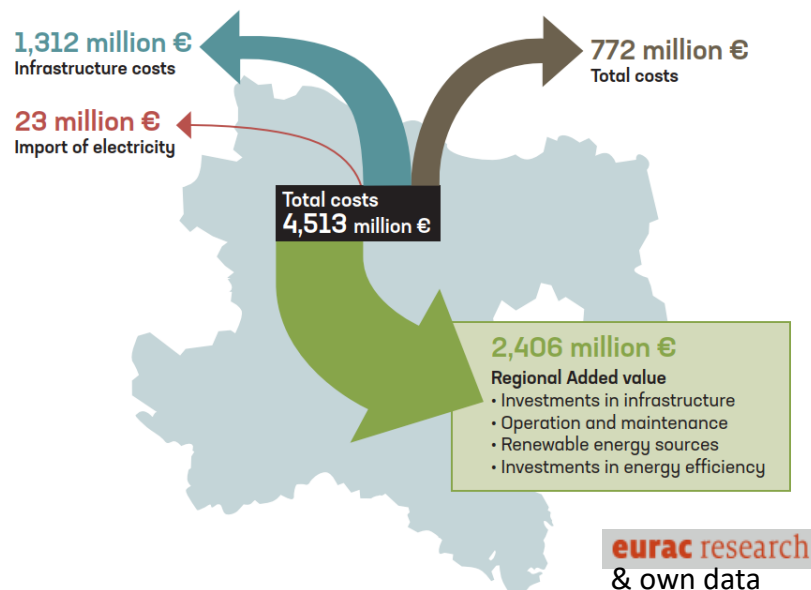


Regional value creation through renewable energy and energy efficiency

Reference Scenario

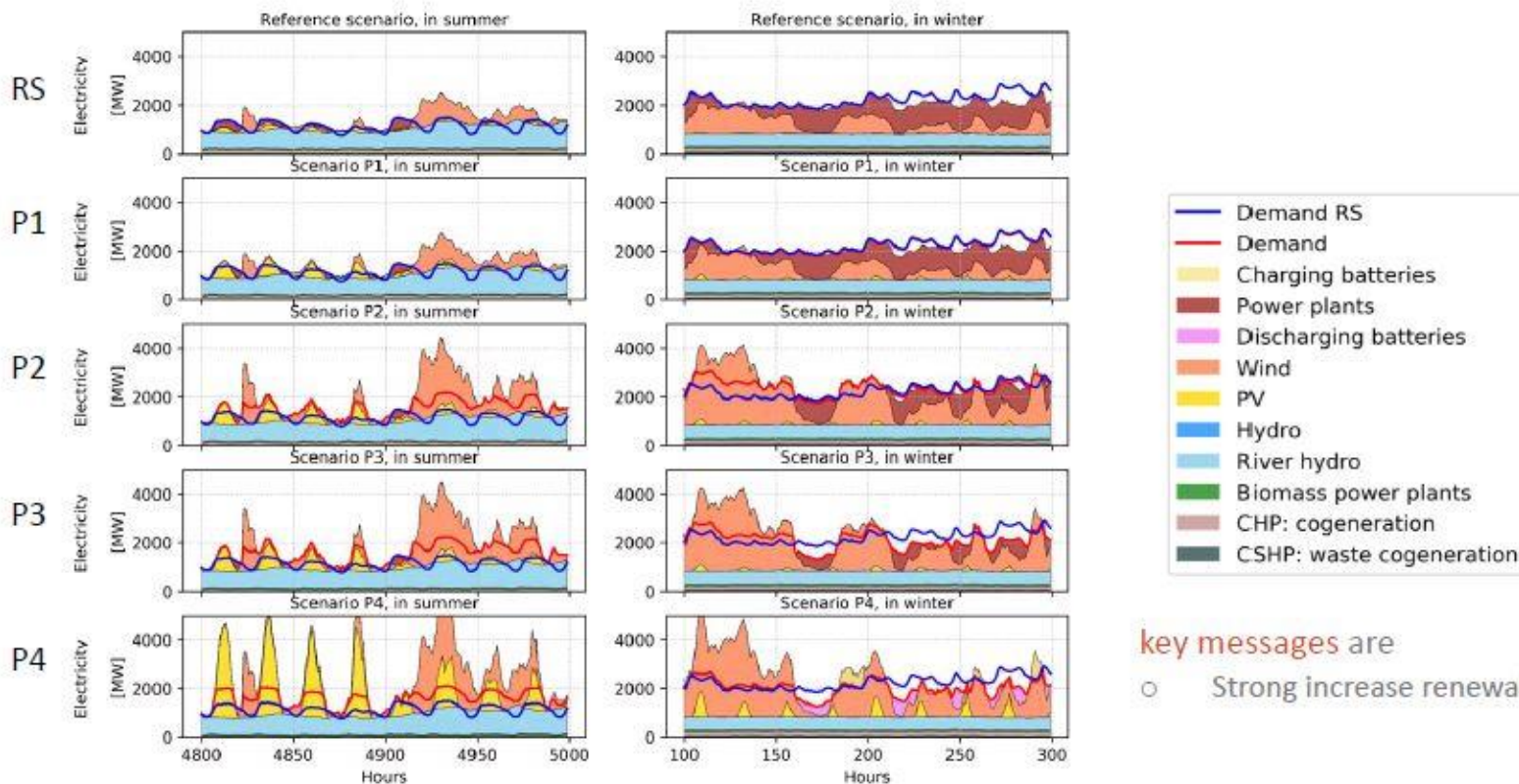


Scenario -80% CO₂ 2050





Pareto front analysis: electricity dispatch



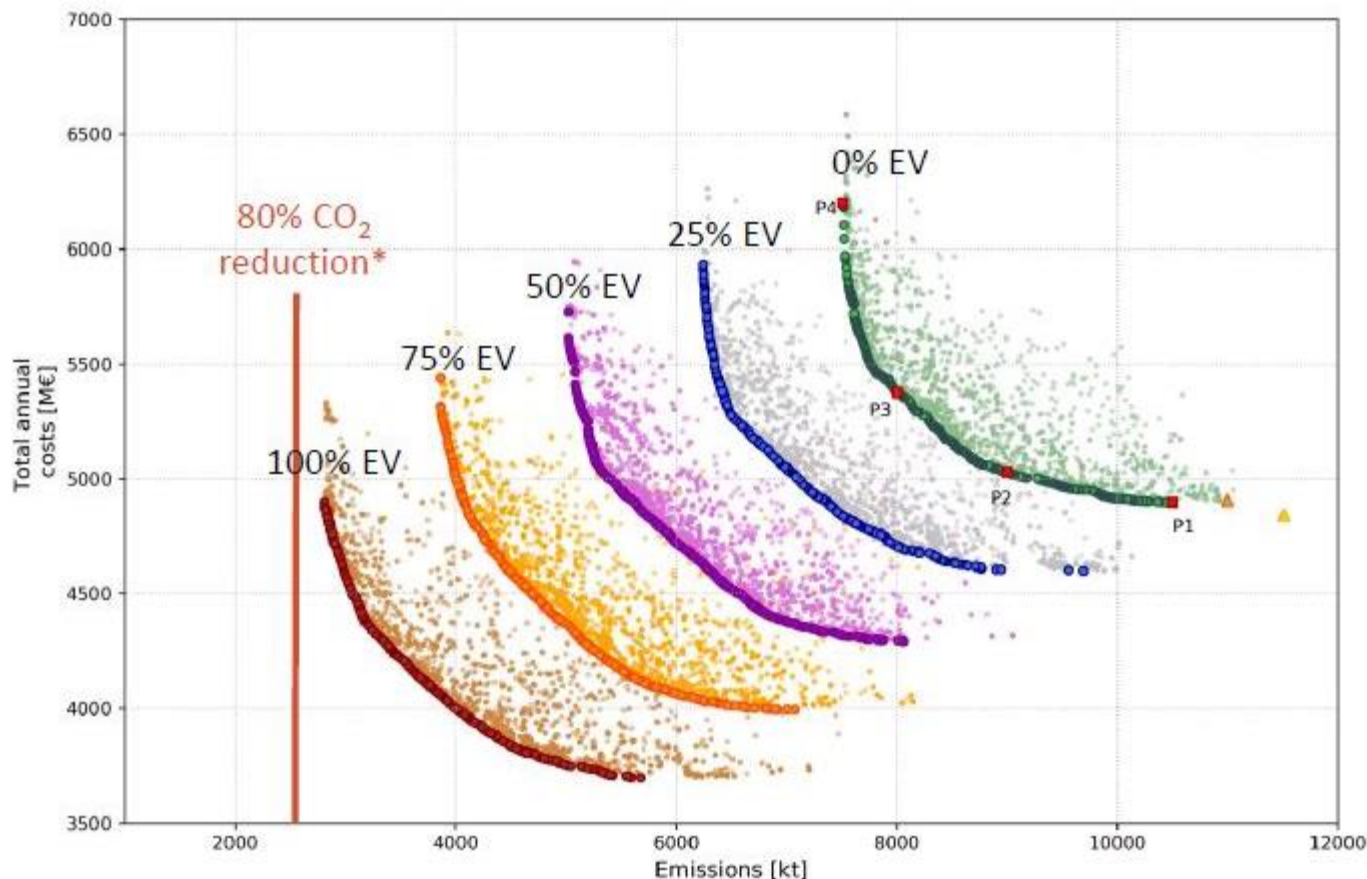
key messages are

- Strong increase renewable energy sources



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Key messages

- The objective of 80% emission reduction is an ambitious target that can be met only with a strong transformation of the energy system
- The **key transformations** are
 - Energy efficiency of buildings
 - Electric transportation
 - A deep exploitation of the Renewable energy potential

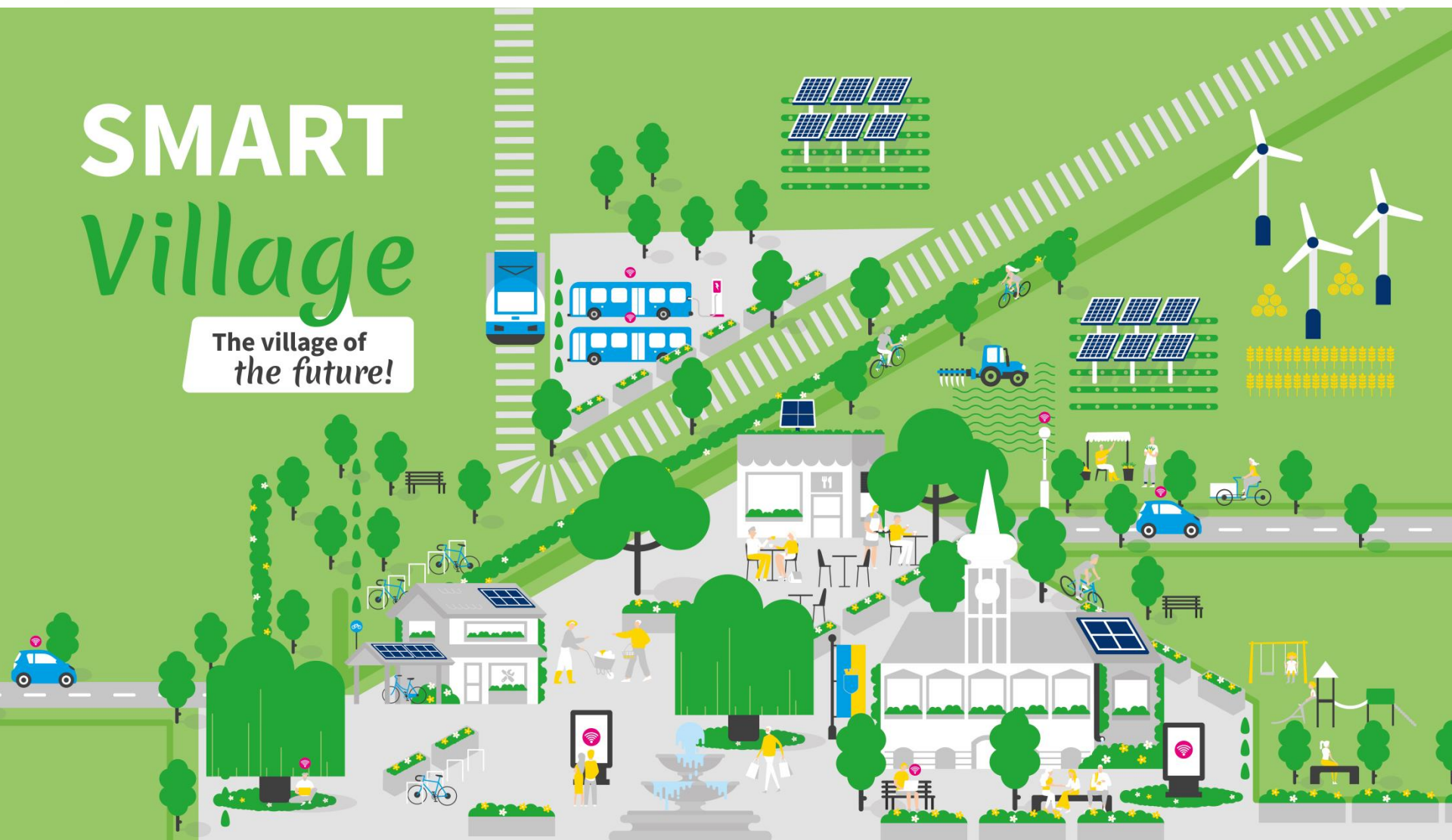


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SMART Village

The village of
the future!



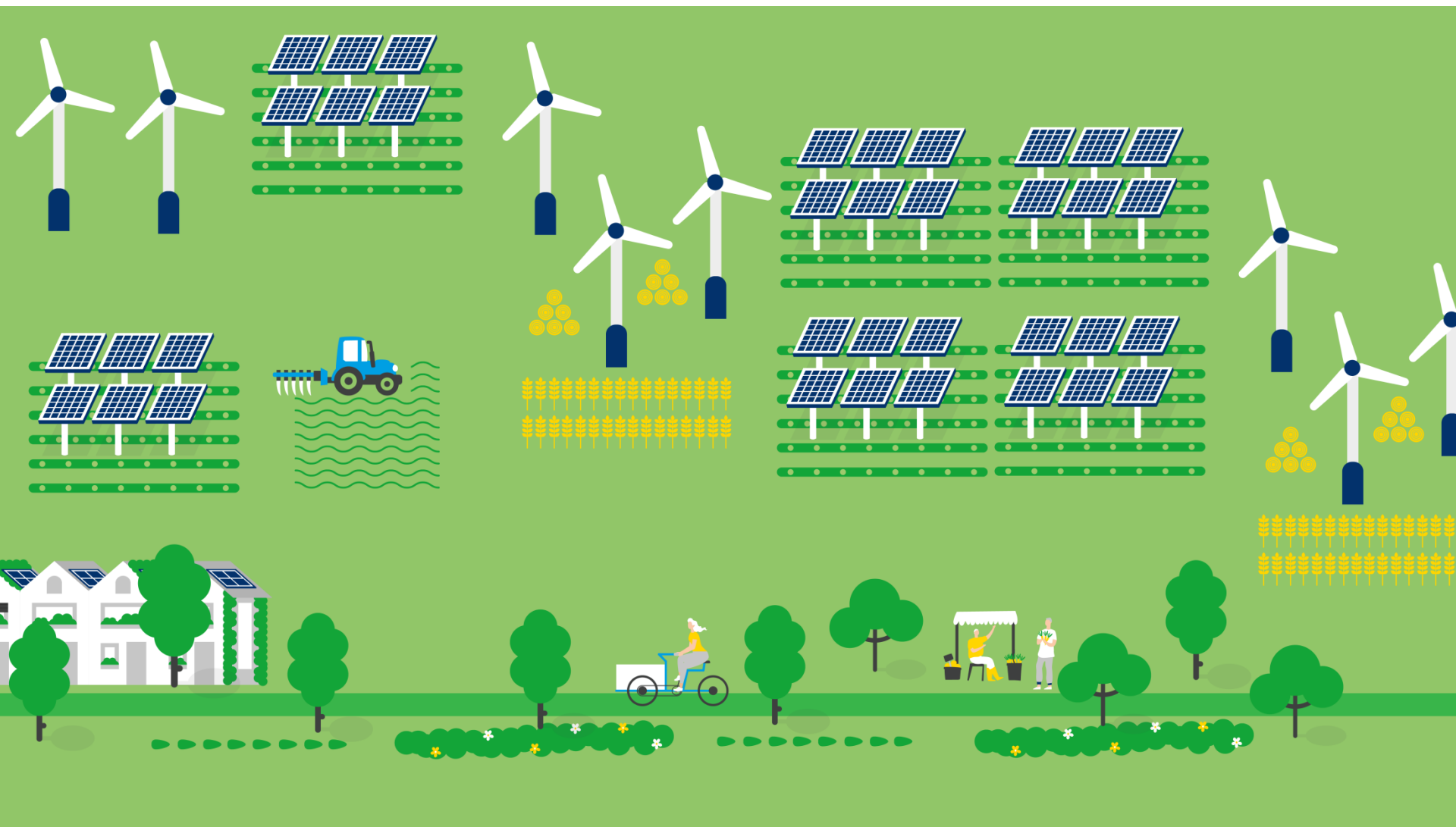
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Energy



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Self-sufficient villages

100 % renewable forms of energy: Electricity from sun, wind, water and biomass will fully provide us with energy in the future. Surpluses on days with lots of wind and sun are used for mobility, heat and storage.

Virtual power plant: decentralised power generation plants such as photovoltaic, wind, biogas, hydropower or combined heat and power plants are interconnected to form a network.

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Volatile Renewable Energy Production and Demand

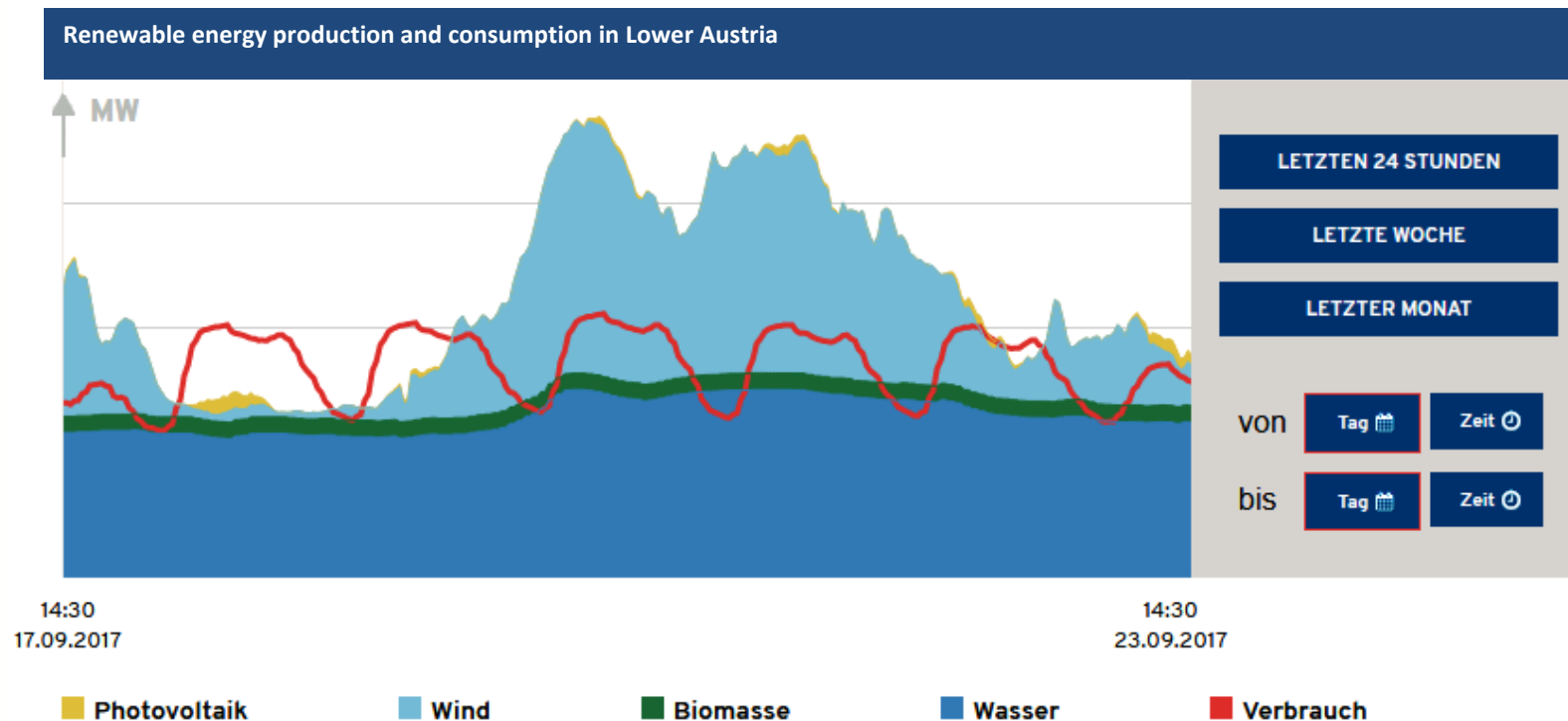


Figure 1: Renewable energy production and consumption in Lower Austria. www.energiebewegung.at

Smart Grids

Smart grids are intelligent power grids, encompassing all players of the energy system via a communication network.

Smart grids work on the basis of communication network and cost efficient balance between:

- Energy consumers and prosumers
- Electricity producers
- Energy storages.



Self-sufficient villages

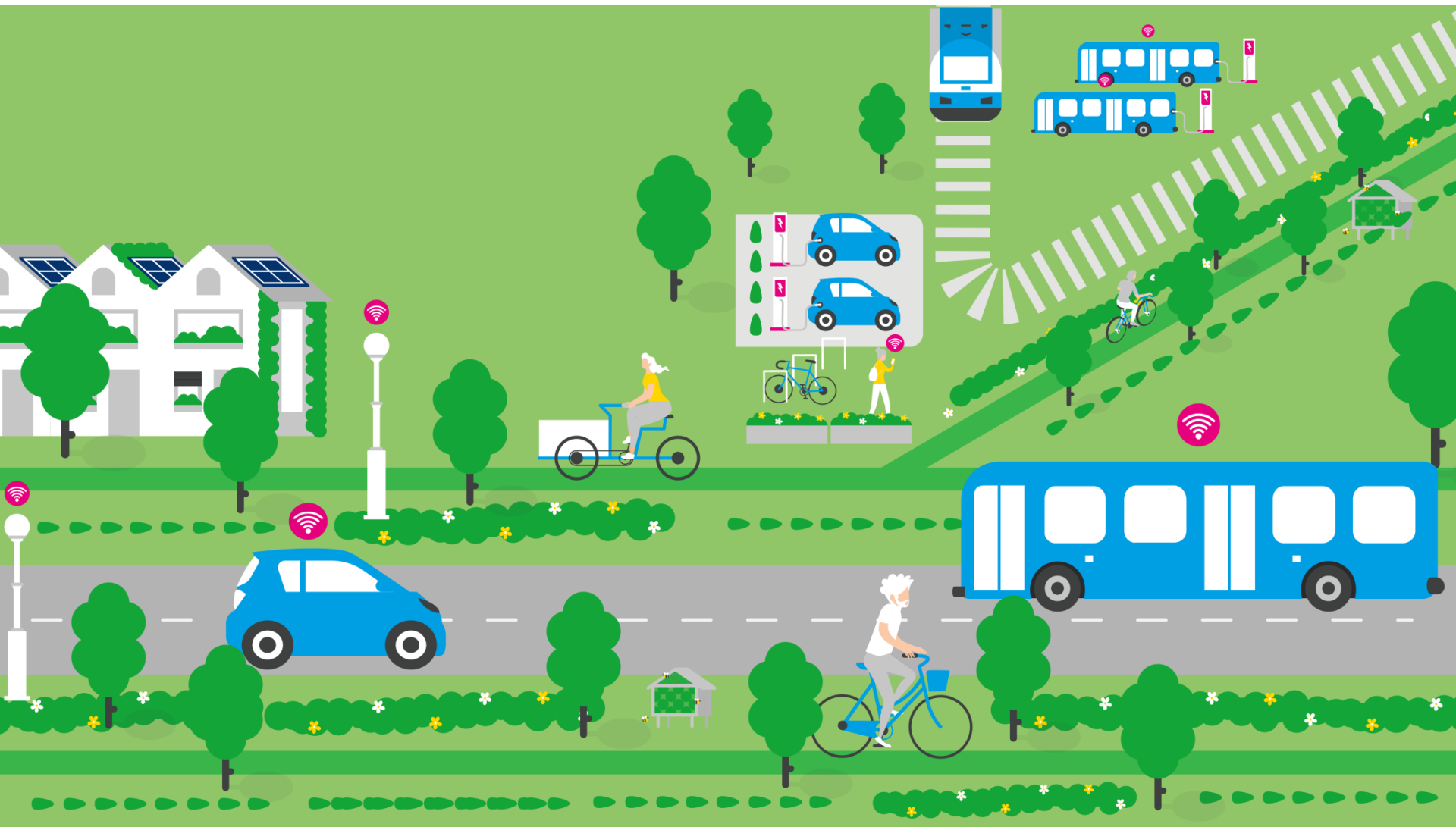
Smart grids know where how much energy is currently being generated and can provide this energy and, for example, charge an e-car, heat up hot water storage tanks or switch on a pumping station in the Alps.

Large local solar systems (**Agro PV**) protect the farmers' fields from increasing global warming and the increasing downpour of hail, thereby increasing crop yields.

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Mobility



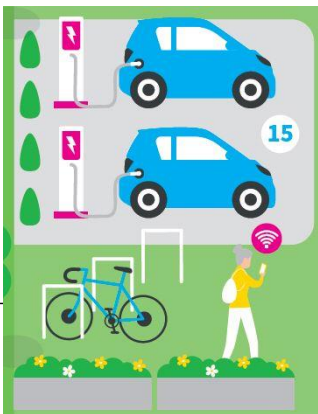


Mobility

Roads with green areas are great for **cycling** and walking. Short distances for running errands can be covered conveniently with (e-)bikes or (e-)carrier bikes.



Public transport is convenient, saves space and is energy-efficient. Long distances are covered by fully electrified railway systems and electric or hydrogen buses; for shorter distances



Micro-public transport : In the village of the future, there is a wide array of options: call and collect taxi services, e-transport services, e-car, public transport system.

E-cars drive quietly, exhaust-free and can also be shared. The future of mobility is electric ,locally generated renewable electricity is used.

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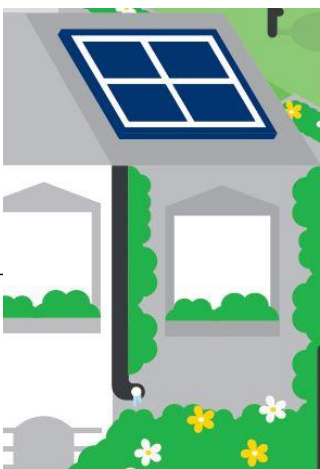
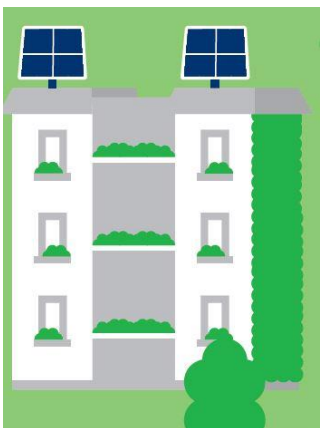
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Housing & building



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Housing & building

A **Plus Energy building** uses solar energy optimally. In summer, the heat is kept out by excellent thermal insulation, outside shading and green areas.

Solar cells The variety of possible applications such as on roofs or facades, makes solar systems a form of energy for all buildings.

Buildings of the future rely on **renewable energy** such as solar energy, heating pumps, cord firewood or pellets with the advantage that the added value stays in the region.

The thermal **activation of components** uses ceilings or walls for heating and cooling. Combined with a heating pump, surplus energy from sun and wind can be stored in the components.

Green areas on roofs and facades (12) are natural air conditioning systems for buildings, streets and squares. Plant shading protects components from heating up too much.

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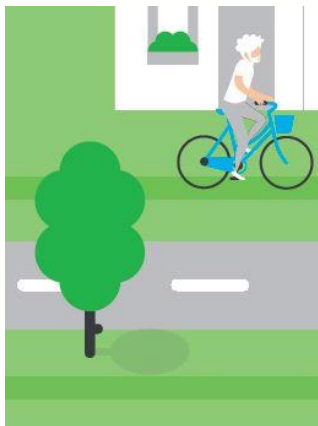
Areas to live





Areas to live

Trees are the air conditioners of the streets and squares. A full-grown tree can evaporate up to 500 litres of water and thus pleasantly cool down and shade the environment.



Flowering meadows create a vivid sea of colours with beautiful shapes of flowers and provide a habitat and food for useful insects such as bees and the like.

Perennial flower beds During heavy rainfall, perennial flower beds can absorb a lot of water thanks to permeable soil.



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Working & everyday life



Regional food creates local jobs and builds trust between consumers and farmers. Due to short transportation routes, regional food is fresh and sustainable.



Shopping locally: The village of the future is characterised by short distances. Therefore, everyday products can be purchased or repaired locally in the town centre.

Smart working: Long distances to work are reduced in the village of the future. Teleconference rooms, shared offices and flexible working provide for a pleasant working atmosphere and significantly reduce daily commuting and business travel. Many tasks, such as dealing with public authorities, can be carried out digitally.



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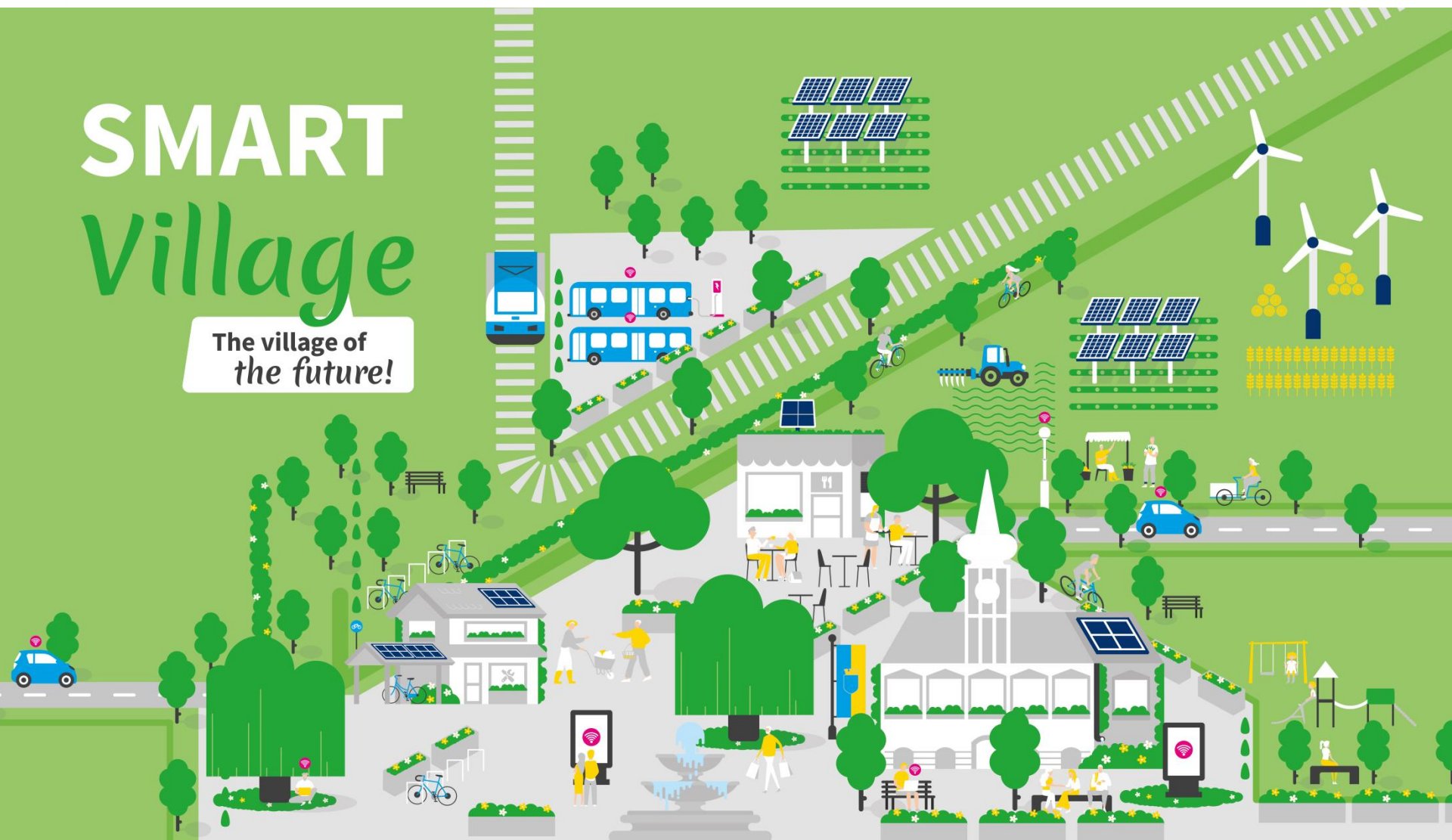


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