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Housing & building

A **Plus Energy building (10)** uses solar energy optimally. The building is heated in winter via south-facing windows and a solar system generates energy. In summer, the heat is kept out by excellent thermal insulation, outside shading and green areas.

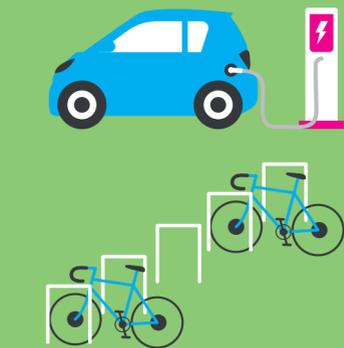
Solar cells (11) convert sunlight directly into electricity. The variety of possible applications such as on roofs or facades, as well as the low-maintenance service, makes solar systems a form of energy for all buildings. The self-generated electricity can be used for the e-car or for heating via heat pumps.

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: an ideal combination of comfortable living and integration of renewable energies.

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. Evaporation from the plants cools down the environment. Dust and CO₂ are bound, and oxygen is produced.

Mobility



Roads with green areas are great for **cycling (13)** and walking. Bad air quality and exhaust gases are a thing of the past. Short distances for running errands can be covered conveniently with (e-)bikes or (e-)carrier bikes.

Public transport (14) 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, different means of transport can be used as required (see micro-public transport).

Micro-public transport (15): In the village of the future, there is a wide array of options: call and collect taxi services, e-transport services with drivers or autonomous driving and e-car sharing offers are cheap, flexible, accessible at any time and complement the public transport system. Villagers of all ages are picked up from home and taken to the village centre, the bus or train station or other places in the village.

E-cars (16) drive quietly, exhaust-free and can also be shared. The future of mobility is electric - instead of petroleum, locally generated renewable electricity is used.

E-car sharing has the advantage that the specific costs of each individual are very low: There are no costs for purchasing, and you do not have to worry about insurance, maintenance or repair. Therefore, car sharing is an ideal alternative to having a second car and is a useful addition to public transport.



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How will we be living in the countryside in the future? Will rural communities structurally disperse even more, so that people's everyday lives consist of long commuting with traffic jams and traffic noise? Or can we shape our lives in such a way that the **energy revolution and climate protection can provide opportunities** that have a very positive influence on the future of everyday life?



Areas to live

In the village of the future **areas to live** are arranged rather than paved and full of cars. There is no more noise due to traffic, as only bicycles and e-cars move around. Parking spaces are hardly needed any more, because the e-transport services bring people from A to B whenever they want. Trees provide shade, flowering meadows and perennial flower beds bring nature back to the people and serve as a source of seepage during heavy rainfall. Wi-Fi and an intelligent charging infrastructure provide the connection to a global world.

Trees (1) 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 (2) 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. In addition to aspects for the protection of nature, flowering meadows have the advantage that they only need to be mowed twice a year.

Perennial flower beds (3) are a colourful alternative to trimmed lawns and provide food for bees, insects and birds. During heavy rainfall, perennial flower beds can absorb a lot of water thanks to permeable soil.

Zones with precedence for pedestrians (4) divide up the streets in a fair and just manner and encourage the idea of moving around with regard to others. These zones have proven themselves internationally and have a positive impact on traffic safety. Besides, they invite you to linger.

For e-mobility, the village of the future offers the right **e-charging infrastructure**: from the fast charging infrastructure on national roads, which charges the car in 5 minutes, via medium-speed charging infrastructure at train stations and on shopping streets to convenient „overnight charging“ via charging options at smart lanterns on residential streets.

Self-sufficient villages

100% renewable forms of energy (5): 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.

Renewable forms of energy are available at different times, no matter if much or only little energy is currently needed. **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.

In a **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. A village or a region can thereby replace the power of a large power plant and thus provide itself with energy.

Large local solar systems (**Agro PV (6)**) protect the farmers' fields from increasing global warming and the increasing downpour of hail, thereby increasing crop yields. Since both the wind turbines and the local solar systems are financed by public involvement, the village enjoys a double added value.

Working & everyday life

Regional food (7) creates local jobs and builds trust between consumers and farmers. Due to short transportation routes, regional food is fresh and sustainable.

Shopping locally (8): The village of the future is characterised by short distances. Therefore, everyday products can be purchased or repaired locally in the town centre. This not only reduces greenhouse gas emissions, but also generates local added value.

Smart working (9): 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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