Factsheet

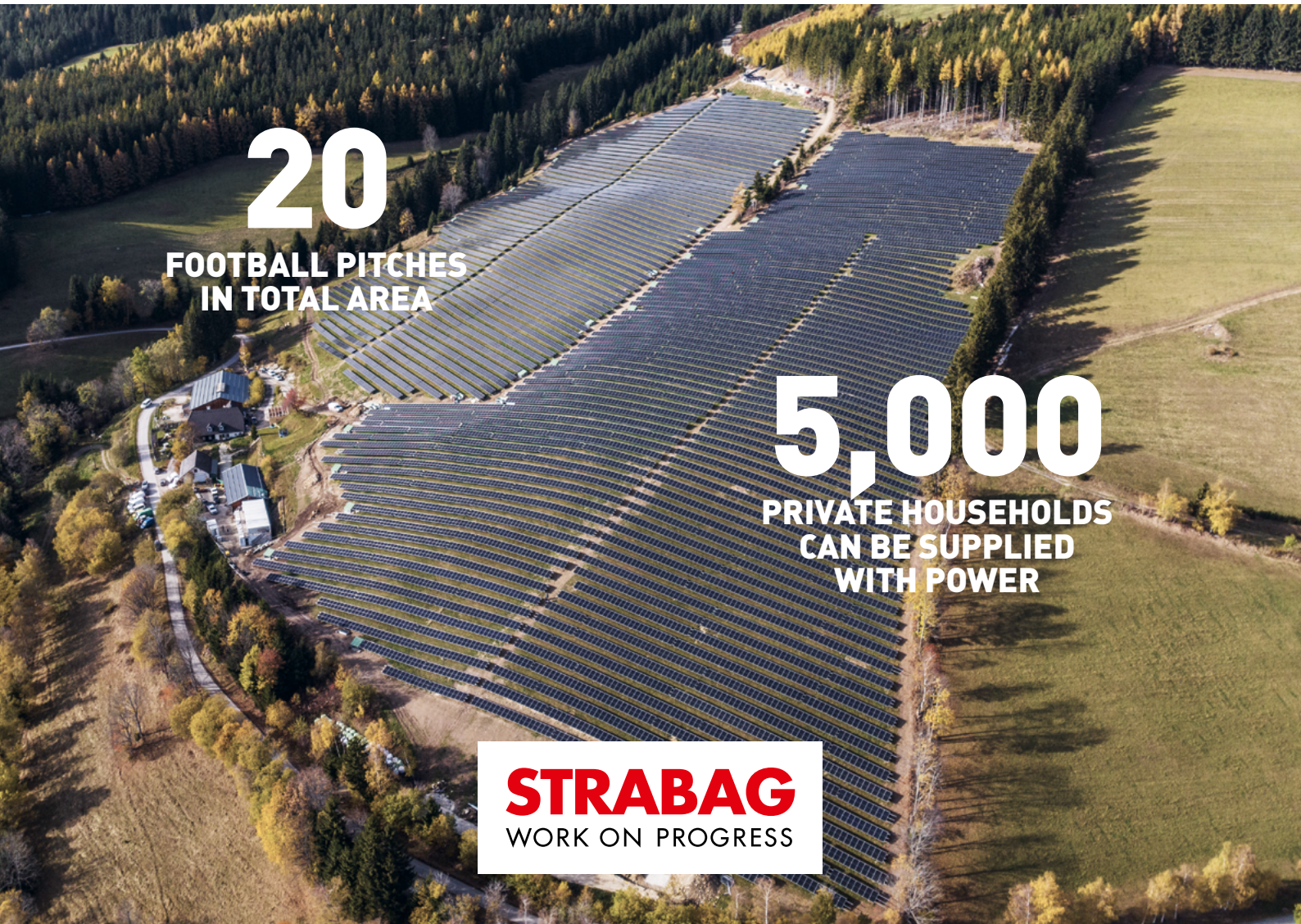
A solar park in a class of its own

STRABAG helps accelerate the energy transition with construction of photovoltaic megaplant

There are several advantages of photovoltaic energy. It is 100% renewable, solar systems are robust, durable and low maintenance, and the sun is powerful resource, making it one of the most interesting renewable sources of electricity.

A large photovoltaic system was built by STRABAG on behalf of Wien Energie in Ratten in eastern Styria. The solar park, which is roughly the size of 20 football pitches, can generate 15 MW of electricity, enough to cover the annual energy requirements of around 5,000 households. The STRABAG team installed a total of 26,488 photovoltaic modules. Stacked on top of each other, they would reach around 800 metres high, almost three times the height of the Eiffel Tower. This makes the PV park one of the largest of its kind in Austria and the largest that STRABAG has realised to date.

Cover Photovoltaic plant Ratten, Austria



Design and construction, all from a single source:

The cooperation of four subdivisions enabled STRABAG to realise the project along the entire value chain. With our expertise, we can carry out such projects completely from a single source: from the design and installation of the substructure and the civil engineering works to the turnkey construction of the photovoltaic system.

> Each and every one of us is called upon to help reach STRABAG's climate target: becoming climate neutral by 2040. One way to achieve this goal is to actively utilise our expertise in the energy sector. Together with Wien Energie and the realisation of the PV park in Ratten, we are taking an important step towards securing a sustainable energy supply.
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> **Ewald Müllner,** Project Manager Ratten PV Park

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1 Precision manual labour: the team in Ratten has installed over 26,000 panels. © Benjamin Wald

2 Five of these large transformer stations and several metres of cabling bring the electricity to private households. © Benjamin Wald

Green energy from the power of the sun

A photovoltaic array consists of individual solar panels that convert sunlight into electrical energy. These systems are often installed on roofs or in open spaces that face south or south-west towards the sun. The PV park in Ratten is located at an altitude of around 1,500 metres. The individual PV panels consist of many individual solar cells, usually made of silicon with glass surfaces, in order to optimise the use of sunlight. The sun causes the electrons in the solar cells to move. This movement produces direct current, which is converted into alternating current in a so-called inverter embedded within the system. The alternating current can then be used in households or businesses or fed into the general power grid if there is a surplus in production.

Everything at a glance:

- Client: Wien Energie
- Area: 14 hectares
- Installation:
  - 26,488 PV panels
  - 5 tansformer stations
  - 42 inverters
- Capacity: 15 MW
- Savings potential of PV park: 6,200 tonnes of CO_2 a year

XXL solar park

All photovoltaic systems are constructed in the same way, albeit in different sizes. The PV park in Ratten works in the same way as a private solar array on a balcony – only in XXL. A 14-hectare solar farm requires immense quantities of material to build. This calls for a well-organised supply chain and an efficient logistics management with the various subcontractors. The size of the plant ensures that a lot of electricity is produced but poses an enormous challenge during construction. The steel substructure on which the PV panels are installed was custom-made by STRABAG Metallica Stahl- und Fassadentechnik GmbH especially for the megaproject. The STRABAG entities also laid several metres of cable and installed five transformer stations to reduce the electrical voltage generated and make it usable for consumers. Forty-two inverters transform the system's direct current into alternating current before it arrives at the socket.

3 The system's sub-structure is made of steel and was custom-made by STRABAG Metallica.

We need to increase the use of photovoltaics if we want to achieve the climate targets by 2040. While the greatest potential in Vienna can be found in rooftop installations, the focus in Styria is on the growth of solar farms. The only way to meet Austria's electricity needs with green electricity in the future is by using both rooftop arrays as well as ground-based systems.

Karl Gruber, Chairman of the Management Board, Wien Energie

Concentrated power: hybrid power plant combines wind and solar

Together with the nearby Steinriegel wind farm, the PV park forms a new hybrid power plant. The location on a ridge is ideal for this purpose and shows how open spaces can be utilised for energy supply. “There’s no more effective way to utilise a site like this than for the production of renewable energy,” says project manager Ewald Müllner. The existing wind farm offers a decisive advantage for the new photovoltaic park: it is already connected to the grid. As a result, important resources could be saved during the realisation of the solar power plant. The green electricity from both farms is fed into the public grid via the shared power line. The two systems coordinate and communicate with each other, so to speak, to use the energy from the different sources more efficiently.


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Full speed ahead into the energy transition

STRABAG aims to become climate neutral by 2040, which makes it imperative to reduce our CO_2 emissions now. Projects in the renewable energy sector, like the PV park in Ratten, are an important lever in the energy transition. STRABAG wants to utilise the potential of photovoltaic electricity more effectively and is focusing on its local expertise. We have been a firm believer in the power of the sun not just since yesterday: STRABAG has been building and utilising solar power facilities for over ten years now.

4+5 While the system‘s wiring sometimes requires real dexterity, machines help with the rough work.


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