sbpsonne

APV – Agricultural Photovoltaics

Company Profile

schlaich bergermann partner are independent consulting engineers.

Since the founding of our office in 1980 by Jörg Schlaich and Rudolf Bergermann, our aim has been to design and develop innovative structures. Our projects range from long-span lightweight roofs, a wide range of bridge types, slender towers and innovative buildings, to pioneering solar power plants.

For more than three decades, schlaich bergermann partner has been consulting and developing technologies in the renewable energy sector. Due to outstanding success, sbp sonne gmbh was spun off in 2009 to house all the office's renewable energy activities, and became subsidiary of schlaich bergermann partner in early 2021.

Today, sbp sonne is arguably the most experienced solar engineering office globally, leading specialized and cutting-edge technology development projects in six continents.

Alf Oschatz
Managing Director

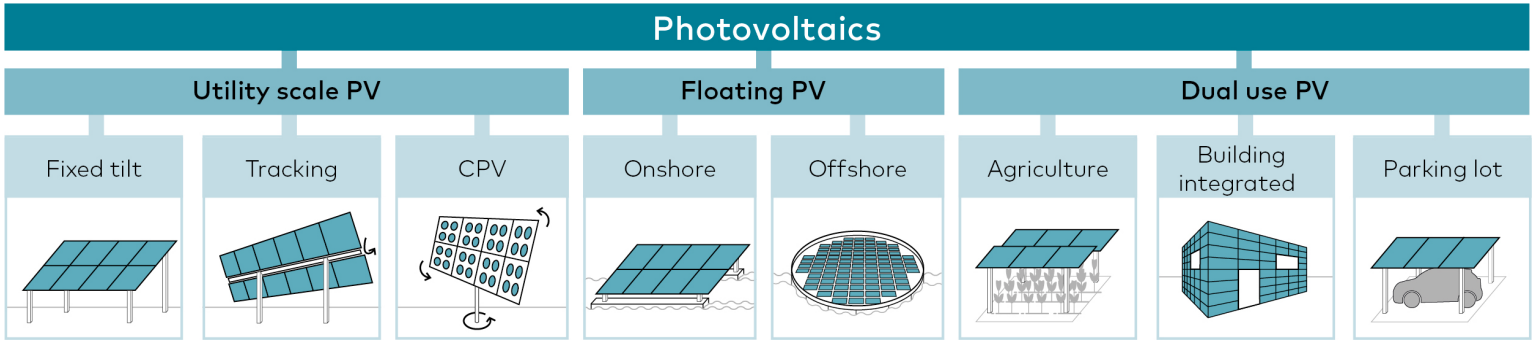
Matthis Bohn
APV Specialist

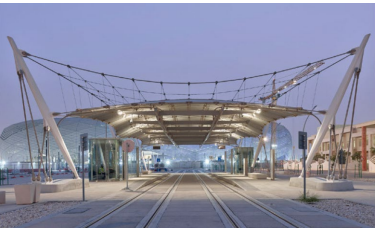
Scope of Work of sbp sonne gmbh

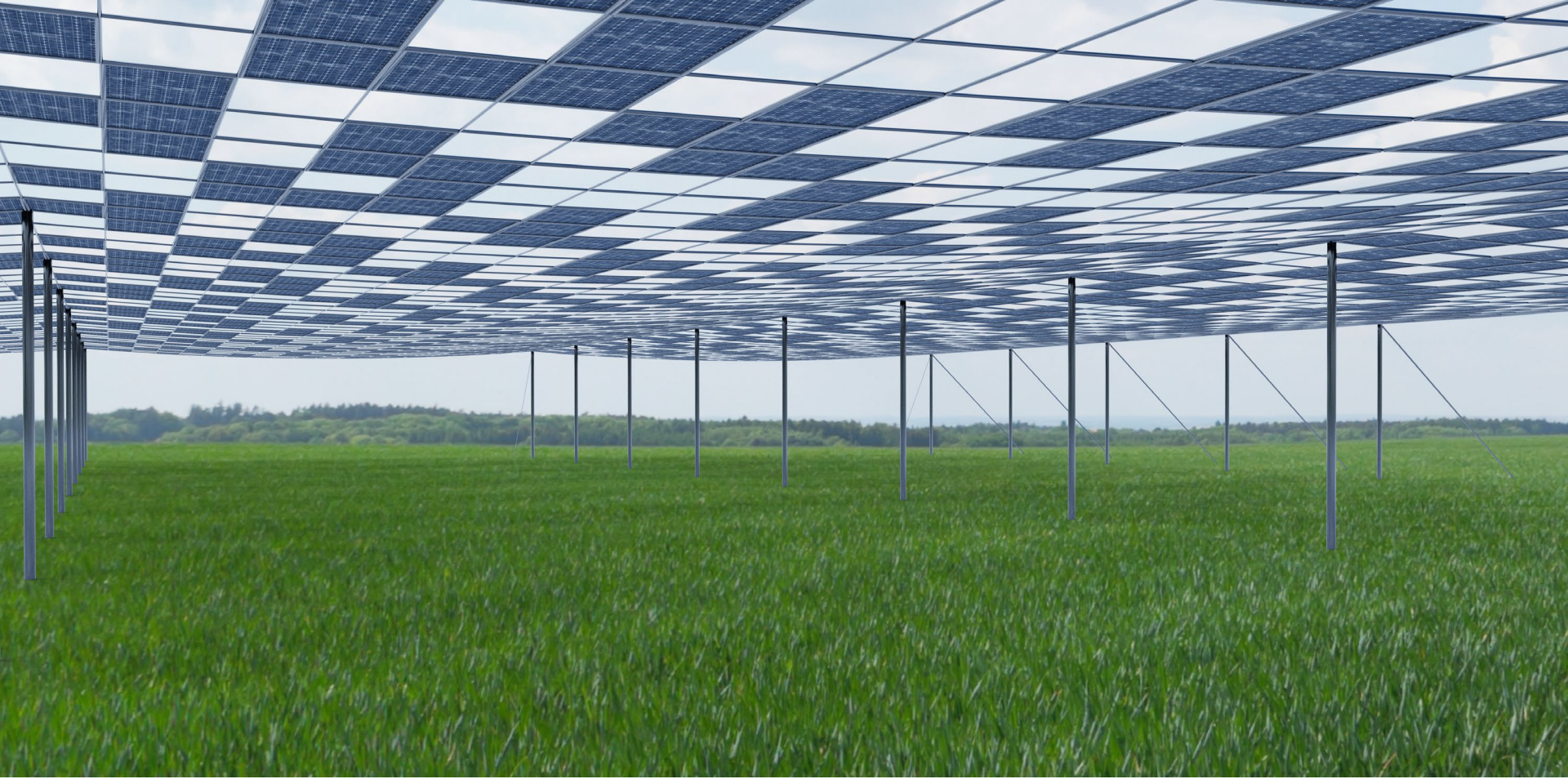
Solar power will play the most important role for future energy supply. For this reason, sbp sonne is dedicated to developing new technologies for the use of solar radiation – ranging from large utility scale power plants to decentralized power production.

Our key technologies include:

- Single axis photovoltaic trackers
- Fixed-tilt photovoltaic structures
- Floating photovoltaic systems (FPV)
- Agricultural photovoltaic systems (APV)
- Parking lot photovoltaic systems (PPV)
- Building integrated photovoltaic systems (BIPV)
- Concentrating photovoltaic systems (CPV)
- Parabolic trough collectors
- Heliostats and technologies related to solar power towers
- Climate covers
- Dish Stirling systems
- Solar updraft towers







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Standard PV Module - Wide Span - Agrivoltaics

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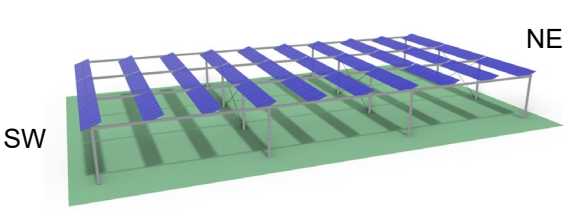
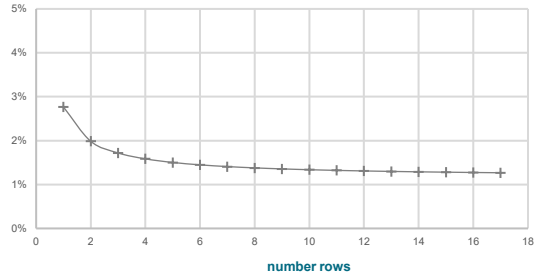
Wide-span Cooperation with TubeSolar

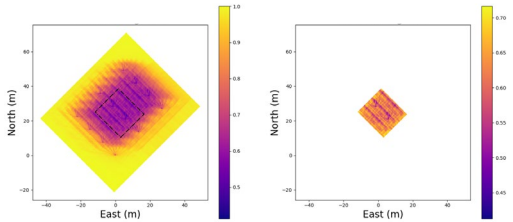
Conventional steel structure



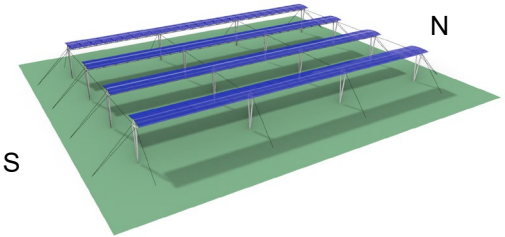
land loss



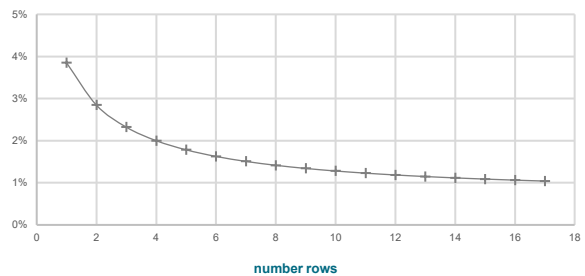
average shading: 37.9%



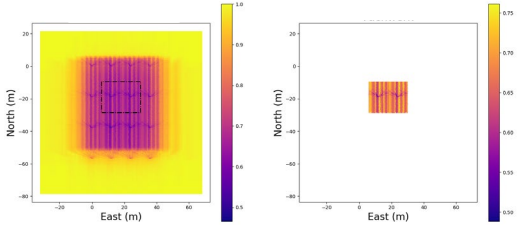
Light-weight truss structure



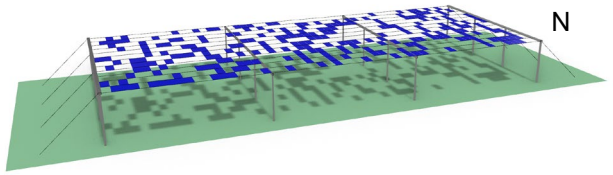
land loss



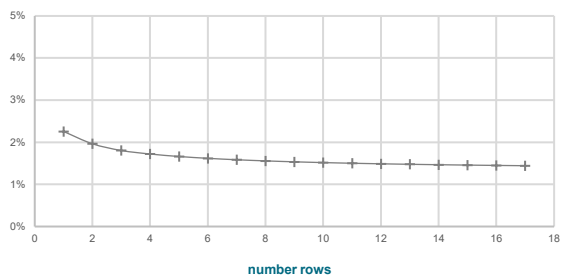
average shading: 32.8%



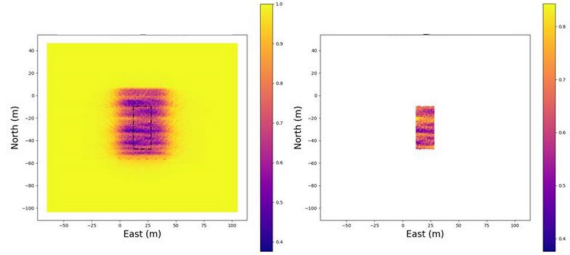
sbp tension structure



land loss



average shading: 36.4%



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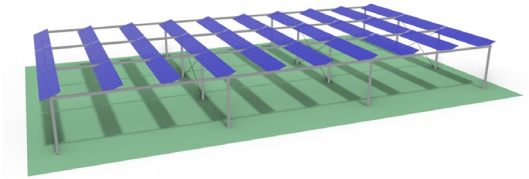
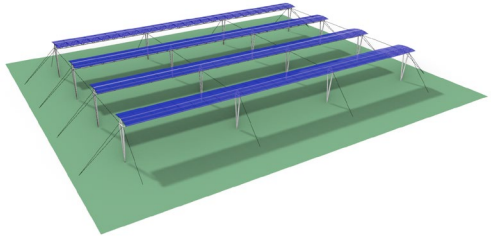
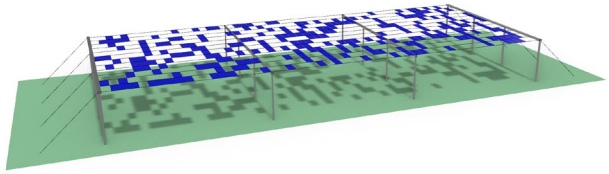
Land Loss and Shading

Conventional steel structure	Light-weight truss structure	sbp tension structure
		
Installation	Installation	Installation
Flexibility	Flexibility	Flexibility
Cost potential due to scalability	Cost potential due to scalability	Cost potential due to scalability
Recycling potential	Recycling potential	Recycling potential
Environmental impact	Environmental impact	Environmental impact

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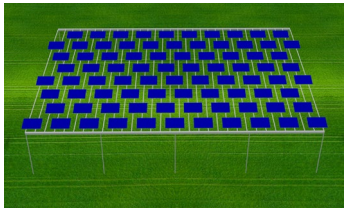
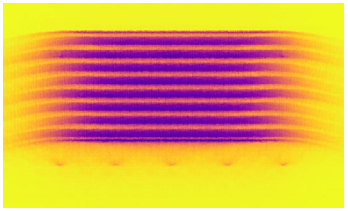
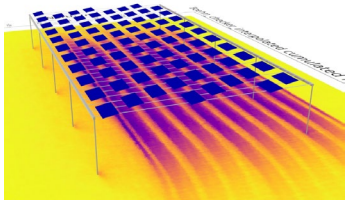
Secondary Performance Indicator

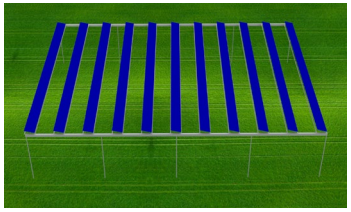
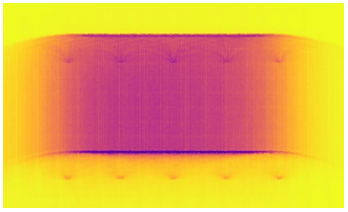
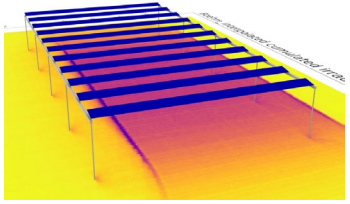
PV Layout → Homogeneity → Result

- Chessboard pattern
  PV orientation
  south

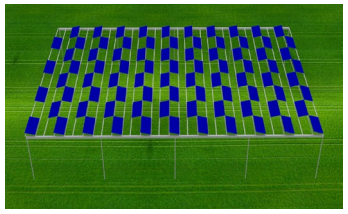
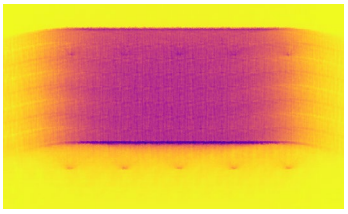
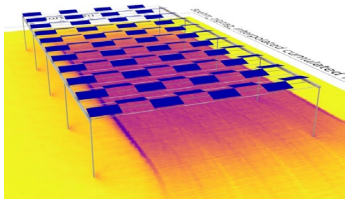
➡ 6-7 % higher efficiency

- Conventional row
  PV orientation
  east

- Chessboard pattern
  PV orientation
  east/west

Project		TubeSolar Weihenstephan
Location		Weihenstephan, Bayern, Germany
Owner		TubeSolar AG, Germany
APV - plot used	[m²]	1,250
Used PV Area	[m²]	Not disclosed by TubeSolar
Clearance height	[m]	6
Total rated power of the plant	[kWp]	135
Agricultural use	[]	conventional farming
Harvest efficicency	[]	To be evaluated University of Weihenstephan
Irrigation requirements reduced by	[%]	To be evaluated University of Weihenstephan
Investment cost	[€/kWp]	Not disclosed by TubeSolar
Levelized cost of energy	[€/kWh]	Not disclosed by TubeSolar
Date of installation	[]	2022

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