Solar power generation in mountain pastoral areas

Can multifunctional solar power plants support evidence-based and transparent decision-making processes?
Conclusion This study set out to create and test a typology of multifunctional solar power plants (SPP) that can support evidence-based and transparent decision-making processes. Informed by case evidence and confirmed by expert interviews, a typology with four main dimensions has been identified: energy, economic, nature and landscape.

What is the emergent typology of multifunctional solar power plants?
This paper presented an emergent typology of multifunctional SPPs. Compared to monofunctional SPPs,the spatial configuration of these solar power plants is adapted to include a variety of functions. The typology consists of four dimensions: energy,economic,nature and landscape.

Why is energy density of multifunctional solar panels lower than regular SPPS?
Often,energy density of multifunctional SPPs is lower compared to regular SPPs that focus only on maximizing electricity production. Attention for the other three dimensions decreases energy density because either available space for PV panels or panel efficiency is reduced.

What is a multifunctional solar power plant?
Development of ground-mounted solar power plants (SPP) is no longer limited to remote and low population density areas, but arrives in urban and rural landscapes where people live, work and recreate. Societal considerations are starting to change the physical appearance of SPPs, leading to so-called multifunctional SPPs.

Can a typology of solar power plants be expanded?
The typology may be further expandedand enriched by spatial analysis of solar power plants in other parts of the world. Furthermore,the experts that were interviewed were all Dutch and part of a professional and academic community that also includes the authors of this paper. This brings two limitations.

What are land use functions besides solar energy generation?
Based upon the case study,we found three major land use functions in addition to solar energy generation: agriculture,other renewable energy technologies and other commercial activities related to the SPP or the site.

The application and optimization of Wind-Solar Hybrid Generation. Shanghai Electric Power (2009) Google Scholar Zheng, S.-Z.: Wind Power and PV Power Electric Generating System ...

As a clean, safe, sustainable and easily accessible energy source, solar energy has attracted growing attention in the field of renewable energy, providing a solid opportunity ...

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The installed capacity of a roof-mounted PV system and the annual total solar radiation per unit area in Nanjing can be calculated according to the rooftop solar PV power ...

For the generation of electricity in far flung area at reasonable price, sizing of the power supply system plays an important role. Photovoltaic systems and some other renewable ...

Ma et al. [17] found remote pastoral areas in Gansu Province 130 averaged a lack of energy for 3-5 months because of insufficient biomass energy such as firewood and 131 biogas materials ...

power potential in mountainous areas and to estimate the levelized cost of electricity for PV power generation in mountainous areas. The results show that the ordinal priority approach (OPA) ...

5kW vawt wind turbine with a maximum power of 6kW can be adapted to 120V/220V voltage to ensure sufficient wind power supply. Featuring an advanced vertical axis design with a magnetic levitation generator for ...

Solar energy remains a viable energy source for rural mountain communities in remote off-grid areas (Bhandari et al 2014; Proietti et al 2017). In urban areas, grid connections can be ...

To what extent has solar power flipped the switch on popular demand? Energy experts with the Solar Energy Industries Association tout the 2020s as the "Solar+ Decade." The popularity of ...

In some specific geographies, generating PV electricity at high-altitude mountain terrains might help solve these challenges. Situating PV plants above winter cloud and fog cover, combined ...

PV systems in regions with high solar irradiation can produce a higher output but the temperature affects their performance. This paper presents a study on the effect of cold climate at high ...

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