Vaduz australia solar power

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Fifty years ago Martin Green began research into how to improve solar cells. In 1983 he led a team that invented the PERC cell, a solar power technology that allows more sunlight to be captured and turned into electricity.

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Australia is not rolling out clean energy projects nearly fast enough to reach the Australian government"s target of 82% renewable electricity by 2030. A huge build of solar and wind farms, transmission lines and big batteries is needed. But progress is challenged by the scale required, community resistance to new infrastructure and connecting all that new renewable electricity to the grid.

In the latest obstacle to expanding renewable energy capacity in the longer term, federal Environment Minister Tanya Plibersek knocked back a plan by the Victorian government to build a sea terminal to service offshore wind farms, saying it posed "clearly unacceptable" environmental risks.

The roadblocks facing large projects present an opportunity to ramp up the contribution of small-scale technologies in the energy transition. Recently, federal and state energy ministers agreed on the need for a national roadmap and a co-ordinated approach to integrating into the grid what they call "consumer energy resources" (CER), which include batteries, electric vehicles and rooftop solar.

More than one in three Australian houses have solar panels on their roofs. Australia leads the world in rooftop solar per head. During the past year these systems generated close to 10% of our electricity. Several times over the past few months, they even provided enough electricity to briefly meet all South Australia"s electricity

demand.

And the technology still has great potential to grow: although installed capacity has doubled in the last four years, these systems cover only about 10% of Australia"s estimated usable roof area. So, how large a share of our electricity needs might rooftop solar provide? The answers are not simple.

In electricity systems, demand and supply must be balanced at all times. The Australian Energy Market Operator (AEMO) runs the grid and keeps it secure to avoid blackouts in case of unexpected events such as the sudden disconnection of a transmission line.

To meet demand, every five minutes AEMO dispatches electricity from large-scale generators such as coal-fired power stations or large solar farms. As the grid operator, AEMO must also procure reserve capacity to balance any differences in demand and maintain security.