

Tim Peake backs idea for solar farms in space as costs fall

Astronaut says rockets from Elon Musk's SpaceX can reduce price of launching equipment

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• Tim Peake taking part in a space walk in 2015 during his time on the International Space Station. Photograph: ESA/Getty Images

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Tim Peake has backed the idea of solar farms in space, saying the concept is “becoming absolutely viable”.

Astronaut Maj Peake said the falling cost of launching heavy cargoes into orbit means that complex structures, such as solar power farms, could soon be launched into space, and had the potential to provide significant power.

Peake – the first European **Space** Agency (ESA) astronaut from Britain to visit the International Space Station – said: “It boils down to hard numbers at the

end of the day. Launching thousands of tonnes of hardware into low Earth orbit is becoming absolutely viable.”

The ESA has been exploring the idea of space-based solar power plants, and commissioned two “concept studies” this year. It is hoping to present a business case to the EU by 2025.

Peake said the agency had calculated that solar farms in space would be financially viable when cargoes could be launched at a cost of \$1,000 (£807) per kg or less.

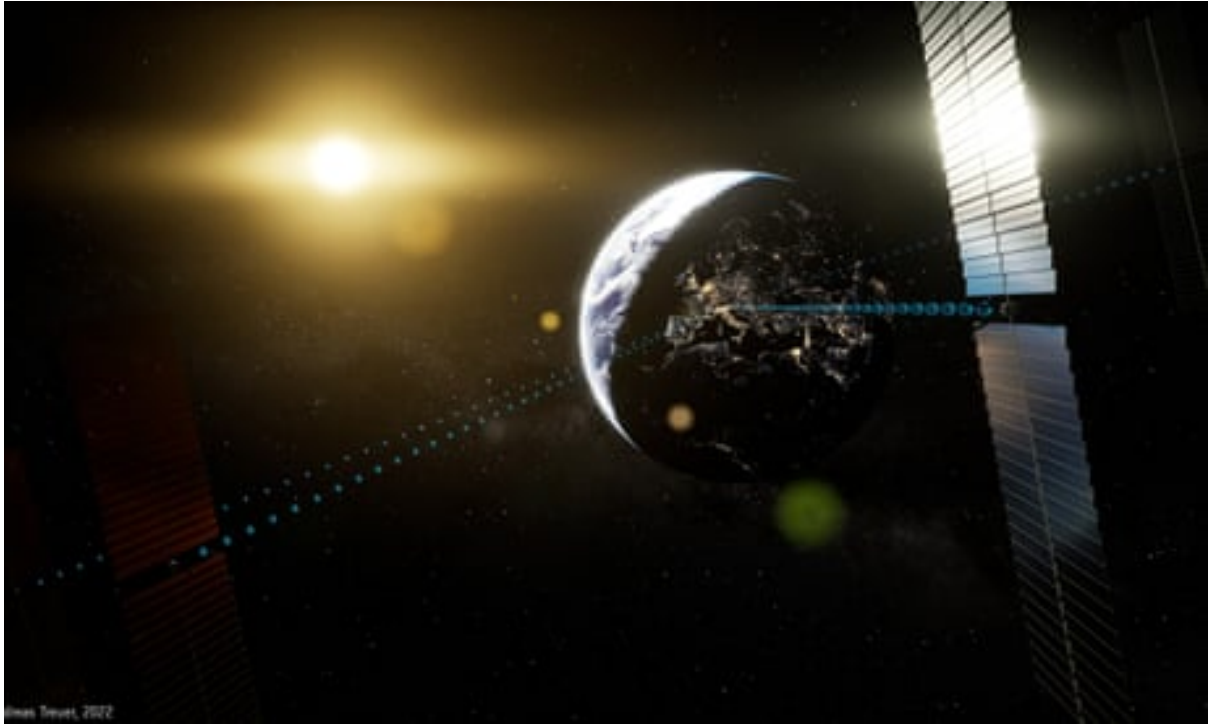
“So far, the actual costs have been about \$2,700 per kilo,” he told an energy tech summit last week, but he said two rockets designed by **SpaceX**, the aerospace company founded by Elon Musk, could cut this. “Launches using the Falcon Heavy can reduce that to about \$1,500 and the so-called Starship brings that down by an order of magnitude to about \$300 per kilo.”

The Falcon Heavy is already transporting cargo such as satellites into space, while the Starship is in development. **An unmanned test flight in April exploded minutes after lift-off.**

Unlike previous launchers, they are programmed to return to Earth intact and are reusable. This means there is no need to construct a completely new rocket for each launch, bringing the overall cost down.

ESA’s Solaris programme aims to launch solar panels into space, each programmed to robotically link up with others to build a solar farm.

While Earth-based solar farms are unable to generate electricity during times of darkness, such as at night or when the weather is bad, space-based panels are able to harvest the sun’s energy continuously.



Beam me down: can solar power from space help solve our energy needs?

Peake said: “If you can build solar farms in space, then you can beam that energy down to ground stations via microwaves. It means clean, limitless energy from space becomes an absolute possibility.”

This year, it was announced that UK universities and tech companies were to receive £4.3m in government funding to develop **space-based solar power**.

It followed a 2020 **UK government-commissioned report into space-based solar farms** which said the systems had the potential to provide energy equivalent to a large power station, up to a quarter of the country’s electricity needs, and, in time, to become an unlimited and constant zero-carbon power source.

Such developments, though, would take many years and are unlikely to help solve any of the world’s urgent energy challenges.