**Space Solar Power: Europe is finally waking up (January - March 2022)**
The European Space Agency (ESA) has entered the race for space-based solar power. In November 2020, the U.K. government commissioned a study on the feasibility of solar power plants in space from Frazer-Nash Consultancy. This analysis, recently presented in September 2021, recommends dedicated research and development work to realize space-based power generation for plants with a capacity of one to two gigawatts. As a result, the European Space Agency (ESA) has finally taken a serious look at solar power generation in space. On December 9 and 10, 2021, an ESA conference was held on this subject, attended by the world's leading international experts in this field.
The study by Frazer-Nash Consultancy is entitled "Space Based Solar Power - De-risking the pathway to Net Zero." It concludes:
"The Net Present Value (NPV) of overall development costs, including optimism bias, is estimated at £16.3 billion. Public sector funding will be needed to mature the technology to a point where the private sector is prepared to invest in Space Based Solar Power. This is due to the low technical maturity, the significant development costs and the fact that the financial returns only occur after many years of investment. Our analysis suggests that the public sector would need to fully fund Phase 1, totalling £350 million over the first five years. Thereafter the private sector could reasonably be expected to start investing an increasing proportion."
The Financial Times promptly published an appealing video promoting private investment:
<https://lnkd.in/dQGspSDd>

ESA has long been dismissive of the issue, or at least hesitant to wait. With a deadline of January 2021, it had announced an ideas competition on the subject of "Clean Energy - Looking for new Ideas for Solar Power from Space".
The Frazer Nash study then apparently - late, but hopefully not too late - tipped the scales in favor of an active commitment to the vision of wireless energy transmission from orbit with a time horizon of 2040 and realizing demonstration plants by 2030.
National Geographic magazine has now reported from the ESA meeting in its January issue:
"The UK Government has already established a one-billion-pound fund to accelerate the commercialization of low-carbon technologies, and proposals are being sought for dual-use technology development that could assist both space-based and Earth-based power systems.
Reporter Debora Roth summarizes: "The expert community considers solar power plants ... technically feasible. The path to making them economically viable also seems more realistic than ever, despite gigantic challenges."

ESA, Linkedin-Post, March 10th, 2022

Greening our energy system is the key to achieving Net Zero by 2050. Could Space-Based Solar Power, a source of continuous, clean and inexhaustible energy, help Europe and the world become sustainable and meet our Net Zero by 2050 goals?

[#ESA](https://www.linkedin.com/feed/hashtag/?keywords=esa&highlightedUpdateUrns=urn%3Ali%3Aactivity%3A6907619446685343744) has just awarded two independent cost-benefit analysis studies, which will be based on two different technical solutions, to [Frazer-Nash Consultancy](https://www.linkedin.com/company/frazer-nash-consultancy/) and [Roland Berger](https://www.linkedin.com/company/rolandberger/) respectively.

These studies, funded through ESA's Discovery, Preparation and Technology Development Programme, will evaluate the ‘business case’ for space-based solar power in Europe, using orbiting solar power stations to complement terrestrial renewable power plants. The outcome of these studies will be ready at the end of summer 2022 and are intended to help inform decision makers in the public and private sector 👉 <https://lnkd.in/gcEm-gbr>

**Space Solar Power: What about an economic business model?**
According to the following ESA post, two expensive market studies have been commissioned to investigate the economic feasibility of solar power factories in space. However, based on a number of known facts and analyses, results should already be obvious: Small Space Solar Power plants (1 GW) in low Earth orbit are already economically feasible. Material transportation for larger plants in deeper space or even to the Moon cannot be accomplished cost-effectively at present. This prevents the economic operation of such plants. In addition to reducing the required material masses, the solution can only be new types of rocket propellants and engines. In fact, there could be a revolutionary chemical concept for this. The fact that there has been no attention to it so far is connected with an unusual story that can undoubtedly be described as an economic, scientific and media thriller.

DLR Deutsches Zentrum für Luft- und Raumfahrt / German Aviation Center subsequently issued me a written expression of interest in July 2020 that the researchers at its renowned Institute of Space Propulsion would like to conduct research on it. Although I have also addressed several members of the Bundestag on the subject, a corresponding research project has not yet come about according to the DLR. With this post I therefore give up my previous restraint on this subject by referring to my research results.

By Space Energy Initiative - March 11th, 2022 |

We’re proud to celebrate the official launch of the Space Energy Initiative. Mark Garnier MP, Chair of the Space Energy Initiative Advisory Board, extended personal invitations to join him and the rest of the Advisory Board for a reception to celebrate the launch of the Space Energy Initiative. The event took place on Thursday 10 March 2022, in the Churchill Room, House of Commons, Westminster.

The Space Energy Initiative has an ambitious vision for the UK, together with partners, to lead the development of Space Based Solar Power. This highly capable, clean energy technology will help the UK to deliver Net Zero and provide a long term sustainable, secure and affordable source of energy for the nation and the world.

Space Based Solar Power will harness the sun’s abundant energy in space, beaming it safely to Earth to provide a source of continuous clean energy, day and night, through all seasons and weather. Development of the technology will generate very substantial economic and societal benefits, positioning the UK as a leader in truly sustainable energy solutions. This programme will require collaboration across sectors, between government and industry, and across nations. By working together, we will achieve an even greater impact by harnessing our knowledge, technologies, and skills, to protect our planet and our communities.

Objective: Support the Design, Development, and Operationalisation of the first Space Based Energy system by 2040.

Mark Garnier was first elected as the Conservative Member of Parliament for Wyre Forest in 2010. On entering Parliament, he served for over 6 years on the Treasury Select Committee as well as the influential Parliamentary Commission for Banking Standards.

In 2016, after a short spell as the Prime Minister’s Trade Envoy for Thailand, Myanmar and Brunei, Mark was appointed Minister for Investment at the newly formed Department for International Trade.

On leaving government in 2018, Mark took up new positions in Parliament and now serves on the International Trade Select Committee, chairs the Committee for Arms Export Control, and chairs the All Party Group for the Association of South East Asian Nations, and the All Party Corporate Governance Group. He is also the vice chair of the All Party China Group, and the All Party Space Group.

Prior to coming to parliament, Mark had a 27 year career in the City, 15 years of which were specialising as an investment banking covering South East Asia and other emerging markets, and a further 10 years as an asset manager. Through his extensive career, Mark brings a wealth of practical and specific business and economic experience to his role as Wyre Forest’s MP.

<https://unhabitat.org/un-habitat-supports-the-space-energy-initiative-to-help-develop-sustainable-cities>

**London, 10 March 2022** – UN-Habitat Executive Director Maimunah Mohd Sharif today expressed her support for technological initiatives that use space-based solar power to produce clean, renewable, and affordable power that cities can use to build green and more sustainable communities.

Launched in London, the Space Energy Initiative comes at a time when much of the world relies on fossil-based fuels that are both expensive and heavily polluting.

“Advances in science and technology have made it possible for us to make this giant leap forward towards harnessing and transmitting the power of the sun to provide our planet with clean energy. More importantly, we can do this adequately, affordably, and equitably,” the UN-Habitat Executive Director told the London event.

British Member of Parliament Mark Garnier, who announced the launch of the Space Energy Initiative, said, “We all recognise the urgent need to think big and act now to reduce our reliance on carbon fuels to better protect the environment and our precious climate, while also increasing high-tech jobs and growth. I am delighted as Chair of the Advisory Board to witness for myself the commitment from every member of the Space Energy Initiative.”

More than half the world’s population currently lives in cities, and this is expected to rise to 70 per cent by 2030. Cities need to learn to keep up with the necessary growth whilst reducing the high-energy-consuming construction materials they use as well as the energy people use for daily consumption.

Reminding the audience that the energy consumed is not evenly distributed, the Executive Director pointed out that it is the most vulnerable who live in cramped informal settlements shrouded in darkness and suffer the most.

“We need to ensure that no one and no place is left behind in our urbanizing world. The Space Energy Initiative allows us to consume and generate energy equitably, distribute it with equity and ensure the opportunities that arise from its use contribute to human dignity,” she said.

Solar-based energy has very low environmental footprint and needs only modest infrastructure on Earth, either on land or coastal areas, while generating large scale electricity at very low cost.

**Alternative Energy Production: Space-based Solar Power Gains Broad Support in the United Kingdom and at the United Nations**

Against the backdrop of the energy crisis triggered by Russia's war of aggression on Ukraine, the vision of space-based solar energy production is currently gaining rapid and widespread support, at least in the United Kingdom of Great Britain and Northern Ireland. There, the Space Energy Initiative - a coalition of numerous industrial companies, financial institutions and universities - came together on March 10.

The goal is to have the first space-based energy system up and running by 2040, with a demonstration facility created by 2030. However, the British initiative is 13 years behind the plans of the Japan Space Agency in setting this goal.

<https://spaceenergyinitiative.org.uk/>

<https://youtu.be/-y37lo8o1oo>

The "Chair of the Advisory Board" is Mark Garnier MP, a former investment banker with top connections in Southeast Asia, and also Chairman of the Parliamentary Committee on Arms Export Controls.

<https://www.markgarnier.co.uk/about-mark-garnier>

The predominantly all-British initiative has also been joined by "Airbus Defence and Space." Among the universities involved, the University of Strathclyde, based in Glasgow, Scotland, stands out as having been active in SbSP research for some time, particularly in collaboration with the U.S. company Solaren. German researcher Prof. Bernd Hidding has also been working at the University of Strathclyde since 2013, where he now heads an international research group on the dynamics of laser plasma beams.

<https://www.strath.ac.uk/staff/hiddingbernhardprof/>

Why this particular scientist could play a significant role in the future of space power plants can be found on my private website:

<https://www.tenman.eu/Wirtschaft-Politik/Politik/Weltraum/>

<https://www.tenman.eu/.cm4all/uproc.php/0/0401_Bundeswehr_Uni_M%C3%BCnchen_diploma_thesis_Hidding-Silanes.pdf?_=172ec3ee652&cdp=a>

The foundation of the Space Energy Initiative was supported on the same day by Maimunah Mohd Sharif, the director of the "Habitat" organization of the United Nations, with a euphoric press release:

<https://unhabitat.org/un-habitat-supports-the-space-energy-initiative-to-help-develop-sustainable-cities>

