



NASA's Space Solar Power Plan Lacks Ambition

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Last month, NASA released its long overdue report on Space-Based Solar Power, a revolutionary green energy concept highlighted at COP26, the World Economic Forum at Davos, and the Dubai Future Forum, shocking a community who had applauded NASA's re-entry into the discussion in May of 2022. However, after fifteen months of reviews, rewrites, and the optimistic tone articulated at the 2022 International Space Development Conference, the finished study reflects the lack of ambition currently afflicting America's space agency. Furthermore, the NASA report appears carefully calculated to ensure nobody in the White House takes notice.

In 2021, the White House's Long-Term Strategy on Climate Change set a goal of net zero emissions by 2050. However, as if to spite the administration, the NASA report guarantees its irrelevance by estimating the start date of space-based solar power in 2050, clearly outside the timeline. Furthermore, NASA chose 2050 despite knowing that other programs, including the European and British programs, aim to have a fleet of operational systems by 2040. This date was also set even though at least three startups in the United States are looking for capital to deploy prototypes in the next five years.

The report focuses heavily on the prohibitive costs of Space Solar Power generation, attempting to cause sticker shock among policymakers. In reality, NASA's estimate is based on flawed assumptions that are out of touch with the industry, leading to greater numbers than European and British evaluations. Although NASA examined a range of assumptions, the report only highlighted the worst-case "baseline," a transparent scare tactic to keep the White House and Congress from investigating it further.

However, buried in the fine print is vital information: "Cost competitiveness may be achieved through a favorable combination of cost and performance improvements related to launch and manufacturing." Given the progress we've seen on Starship and Starlink, there is reason to believe these improvements are feasible and well within the reach of U.S. engineers. If successful, Space Solar Power will become—as the NASA report acknowledges—the cheapest and lowest-intensity carbon system.

The report is also unresponsive to the administration's other national policy objectives. Absent is any ambition to respond to the Biden administration's Twenty-First Century Industrial Strategy, which seeks to "revitalize our manufacturing base, strengthen critical supply chains, and position U.S. workers and businesses to compete and lead globally in the 21st century," or to lead in clean energy technologies. The report provides only weak options and makes no recommendations in this arena. Similarly, no choice is offered where the United States could take leadership with a dedicated program and funding line to develop Space Solar Power and its enabling technologies. Nor does the report provide an option to counter the Chinese Space Solar Power program with its plans for demonstrations and tests just a few years from now.

The NASA report is bizarrely tone-deaf and disconnected from the agency's own Moon-to-Mars infrastructure objectives. Unlike the European Space Agency, which has done excellent work visualizing the link between a lunar base camp and Space Solar Power, the NASA study does not consider any unity with the Artemis Accords, the America-led project to return to the Moon.

Nor does NASA attempt to address the goal outlined in the National Cislunar Strategy, to "leverage collaborations with private entities to enable capabilities for large-scale ISRU and advanced manufacturing at the Moon" to catalyze an in-space economy.

The result is a stunningly unambitious study that casts NASA in a supporting role for other agencies and allies while providing no clear options for the administration to assume leadership on an issue that will help shape the future of space. It is also a poison pill designed to paint a grim picture to ensure the National Space Council and its head, Vice President Kamala Harris, are prevented from taking action on this powerful technology. Hopefully, however, the White House Climate, Energy, and Space staff will look past this blatant attempt by NASA to "cook the books" and see the true potential of Space Solar Power.