Project Elara

Building an affordable space-based energy future - and doing it for people, not profit.

Our mission

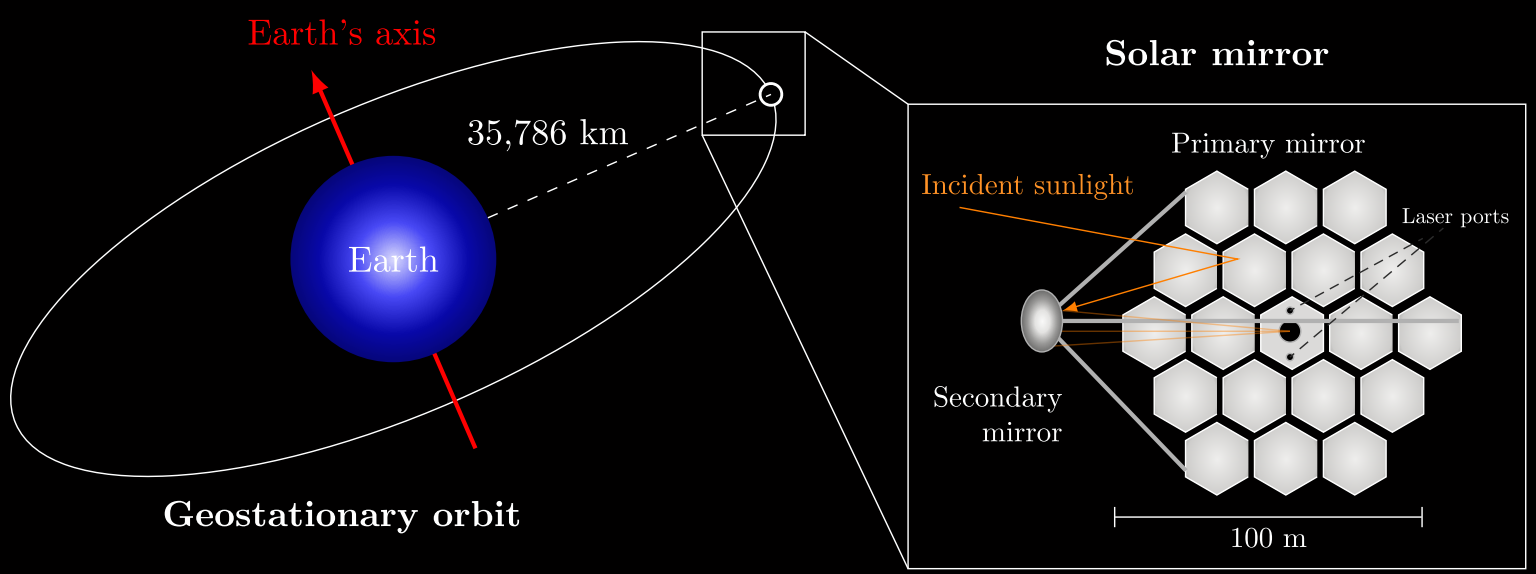
Space-based solar power (SBSP) is a technology that could transform our society. By capturing sunlight in space and sending it back to Earth, it offers an energy source that is near-limitless, reliably available 24 hours a day, and accessible to even the most far-flung parts of the world. On a large enough scale, space-based solar power can single-handedly power the world.

At Project Elara, our goal is to develop space-based solar technologies in a responsible, ethical way that makes the technology accessible to everyone. We are a 100% open-source organization that devotes all of its software and hardware to the public domain. We hope our world can create a better, more hopeful future for our future generations.

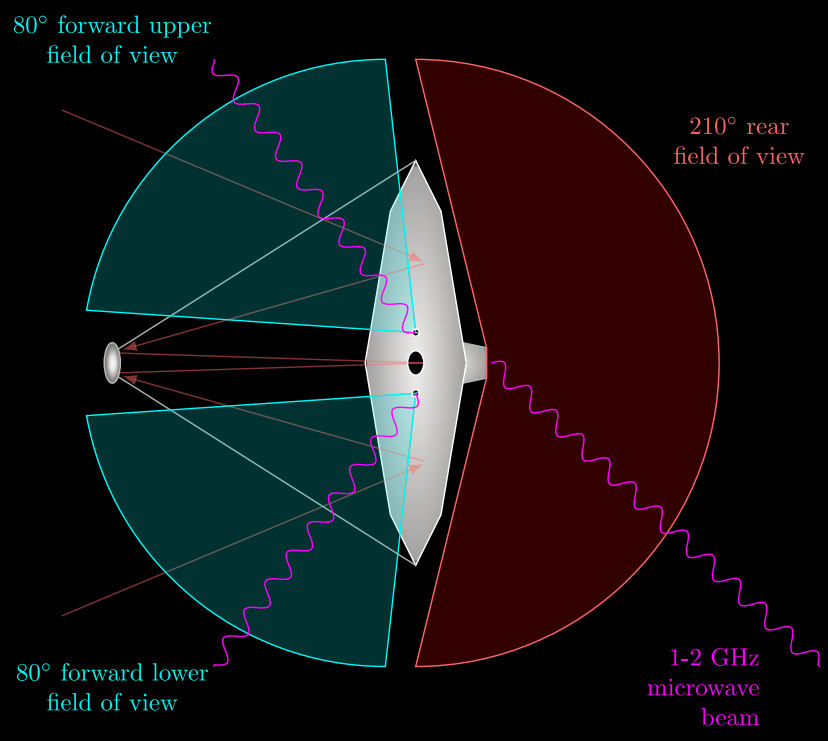
Our design concept

Our design for a fully open-source space-based solar power system is composed of several components:

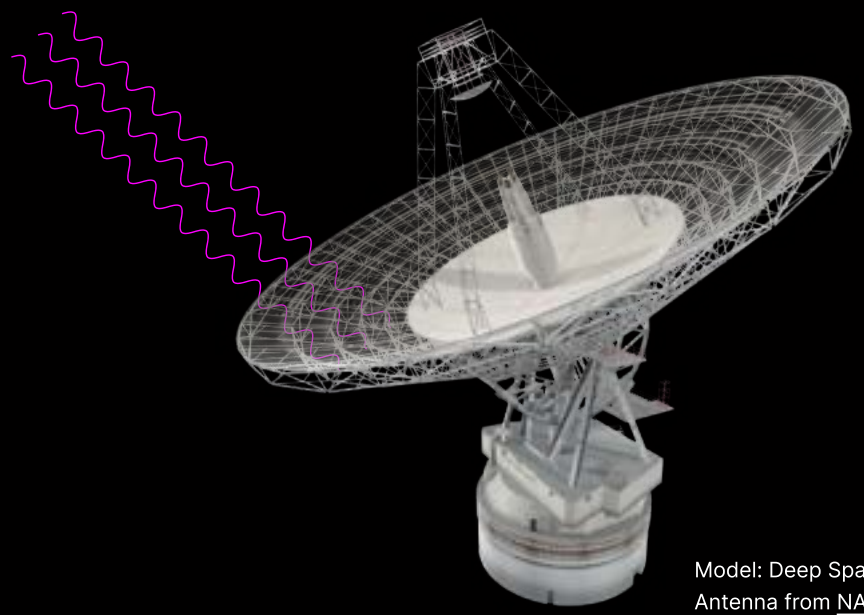
1. Giant mirrors in geostationary orbit focus and concentrate sunlight onto a transmitter.



2. The transmitter uses the concentrated solar energy to power a microwave laser to transmit energy to Earth.



3. The microwave laser beam reaches an Earth-based array that receives power and distributes it to the grid.



Model: Deep Space Network Antenna from NASA

Benefits of space-based solar power

Space-based solar power has numerous advantages compared to a variety of current and near-term energy solutions:

Availability & equity

Transmission from space allows sending power to virtually any place on Earth, including warzones, epicenters of natural disasters, remote regions, and impoverished regions without existing power infrastructure.

Power output

The Sun is a true nuclear furnace that can provide enough energy to power the entire world. Space-based solar power makes the best use of the Sun's 24-hour, plentiful sunlight and can provide near-limitless power.

24-hour reliability

Thanks to the excellent transmission characteristics of microwaves, space-based solar power can operate at night and even in poor weather conditions. In contrast, conventional solar power is sensitive to weather and cannot produce power at night.

Technology transfer

Space-based solar technology has the potential to boost the development of many other fields via technology transfer, including solar sail propulsion, inertial confinement fusion, and precise interferometry experiments for gravitational waves.

Our dedication to future generations

Our development of space-based solar technologies is **not for the purpose of earning a profit**. Instead, our goal is to **pass on a better world** for our future generations to live in. We will always share our technology and knowledge as **open-source** and work carefully to preserve and archive it, to carry it forward to the scientists and engineers that will come after us.

Learn more about us

If you'd like to learn more about our work and our mission, please feel free to see our official website and online Handbook!

Scan for our Handbook

Scan for our website

We welcome contributions and would be glad for others to join us! Reach out to us on GitHub at https://github.com/elaraproject/ or on Discord at https://discord.gg/Zr37GyxzDd

---

Project Elara
Dream. Hope. Inspire.

Rensselaer Polytechnic Institute
Troy, New York, 12180

For official inquiries, contact
elaraproject.sci@gmail.com