solestial

The Solar Energy Company for Space.

Solar Energy for Space

www.solestial.com

RFS
5.0

solestial

We exist to deliver abundant energy in Space

Silicon solar technology with breakthrough radiation hardening in a rollable package. In space now.

Virtually unlimited scale at 1/10 the cost

Minimized degradation and over 10 years lifespan


Image: ESA

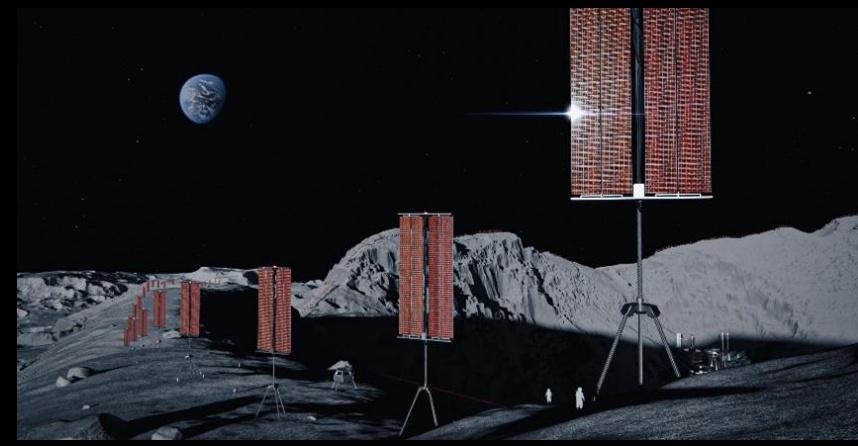
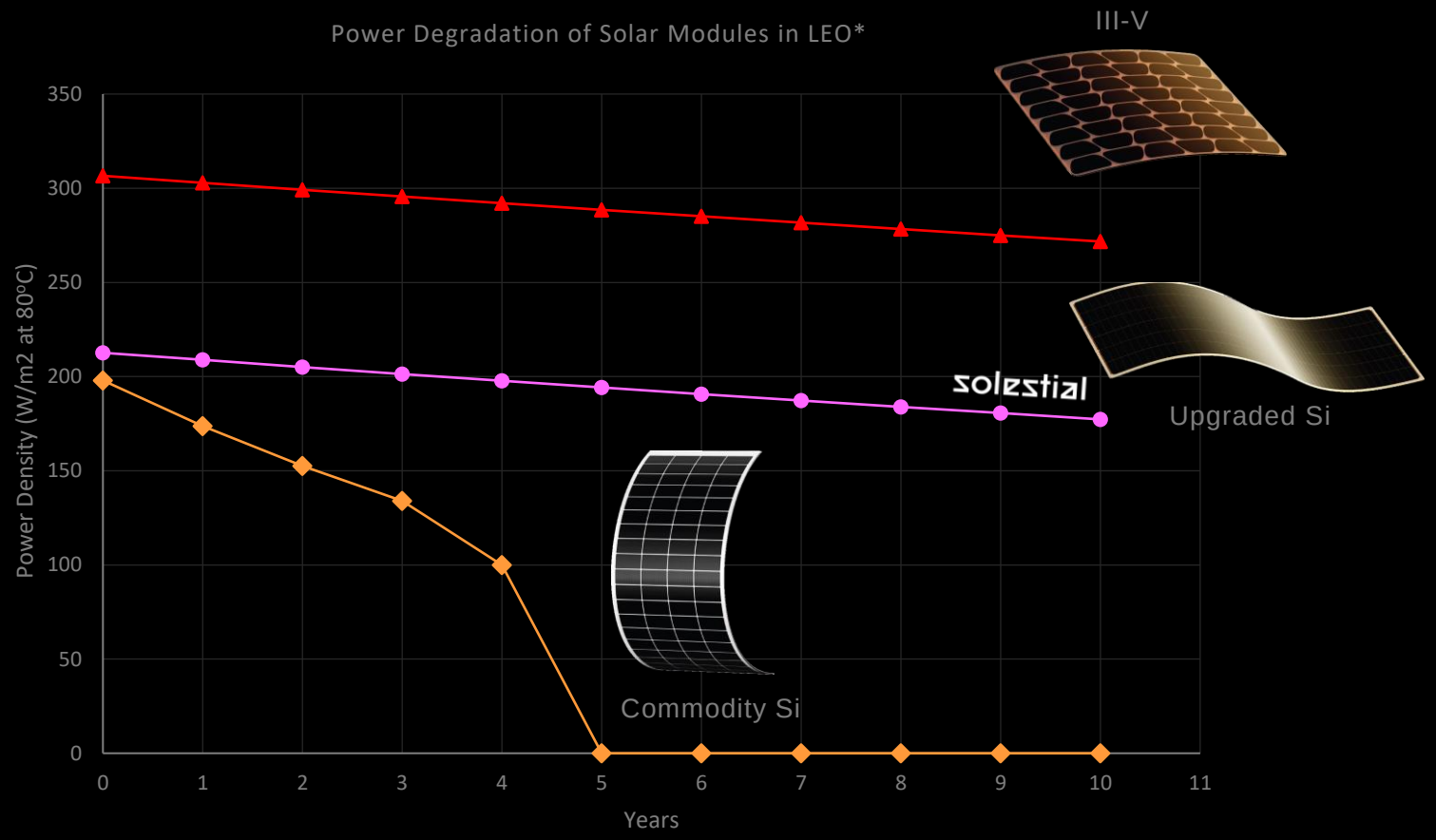



Image: SpaceX

We Solved Degradation of Silicon Solar Cells & Modules in Space

1. **Rad hard Si solar cell** that can self-cure radiation damage at operating conditions.
2. **Thermally stable electroplated metallization** and robust cell-to-cell interconnectors.
3. **UV and AO stable cover layers** with protective coatings.

These innovations allow Si modules with <2% annual degradation rates and >10 years lifespan.

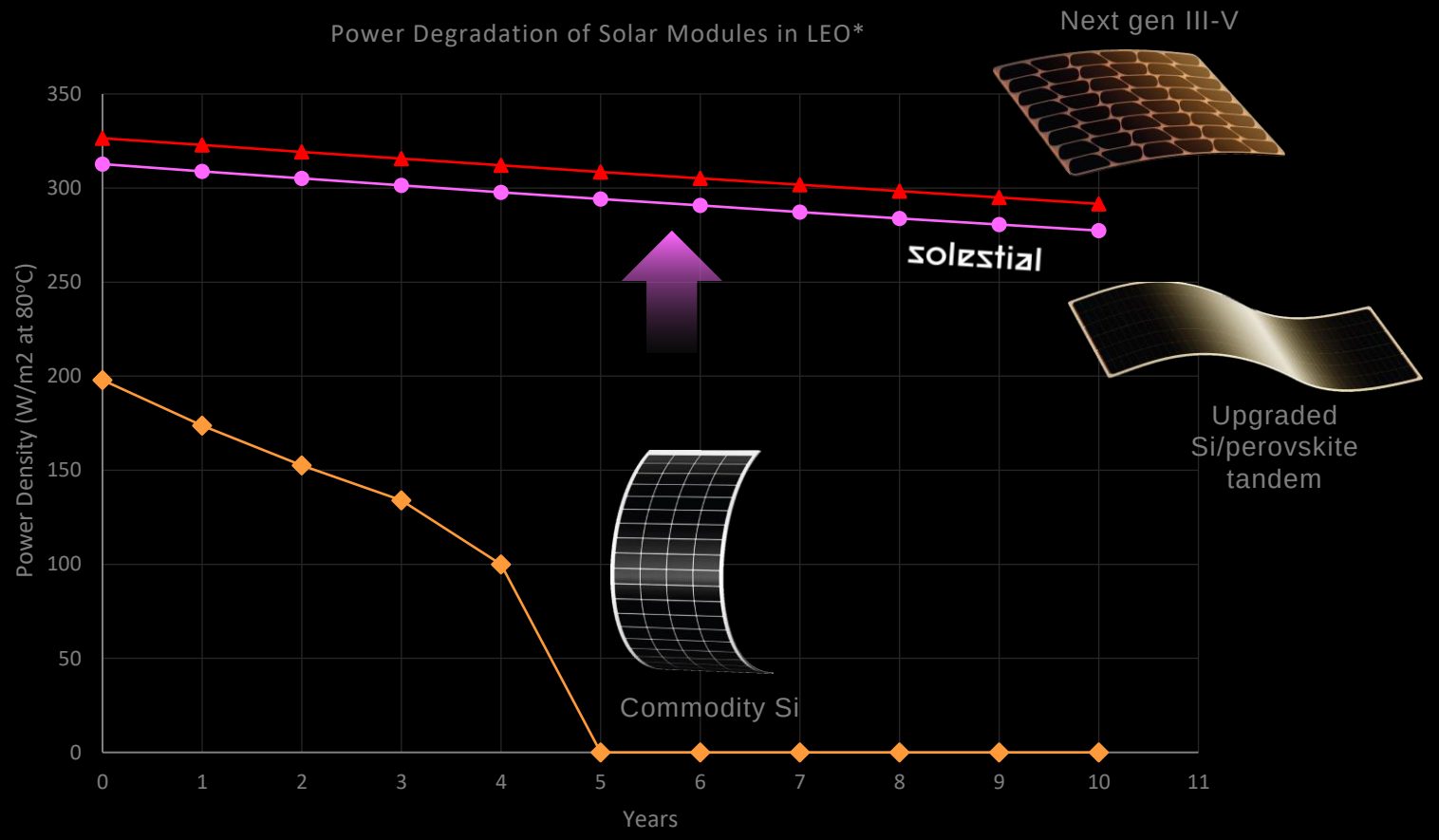


* Based on internal estimates

Solestial Si Cell Enables Rad Hard Tandem with >30% Efficiency

1. Solestial cell is a perfect bottom solar cell for a silicon/perovskite tandem.
2. While perovskite layer can be made radiation hardened, self-curing of the bottom Si cell solves radiation induced degradation of a Si/perovskite tandem.

Breakthrough radiation hardening and tandem integration enables solar modules with the **performance of III-V at 1/100 cost and with no scaling bottlenecks**.



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Overview

STAN HERASIMENKA
Cofounder and CEO

13 years in solar R&D.
PI on 6 SBIR contracts.
PhD in EE from ASU.

ANDY ATHERTON
COO

Cofounder at Brand.net and Optivo.
Sr. Exec at Healthline, AppNexus and Yahoo

VINCE HEARN
Head of Government BD

Retired SMSgt USAF. >20 years of government contract leadership at various startups

MIKHAIL REGINEVICH
Cofounder and CTO

23 years in semiconductor mfg.
Built and ran 10 MW solar cell production line

DIANA APONTE
Head of Product

10 years solar array and smallsat engineering at Boeing. 4 years systems engineering at Virgin Orbit.

LUKE GORDON
Head of Commercial BD

Cofounder of K&G Data Solutions, Sales Manager at Harting

Headcount – 35 Technical– 29, Non-Technical – 6

Space expert investors	$12M	Public R&D funding (SBIR)	$4M	>10 yrs. of academic research	$12M

AIRBUS VENTURES · STELLAR VENTURES · GPVC · HORIZONX · industrious VENTURES · SILENT VENTURES · NASA · NSF · AFWERX · U.S. DEPARTMENT OF ENERGY · NSF ERC ENGINEERING RESEARCH CENTERS · ASU

Our Modules Are in Space Now

- Flew 60W panel with Atomos and 2 x 30W panels with another commercial customer on SpaceX Transporter 10 in March 2024.

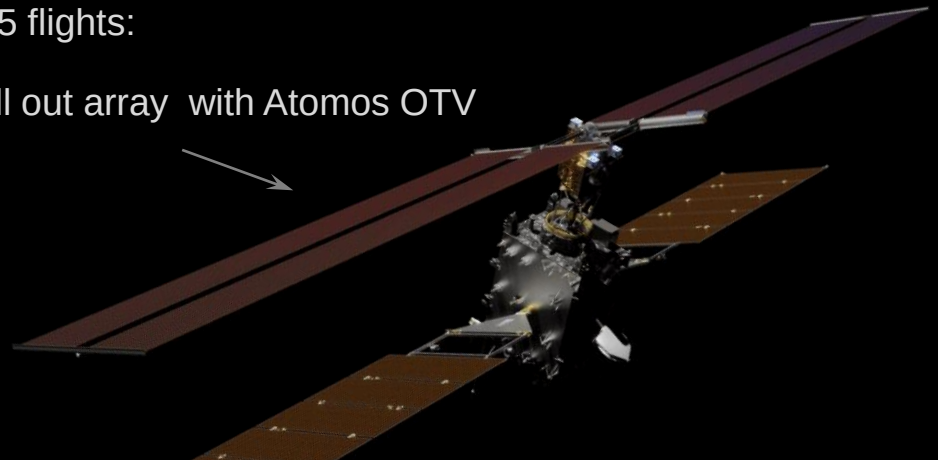
  Both spacecraft are nominal in orbit.

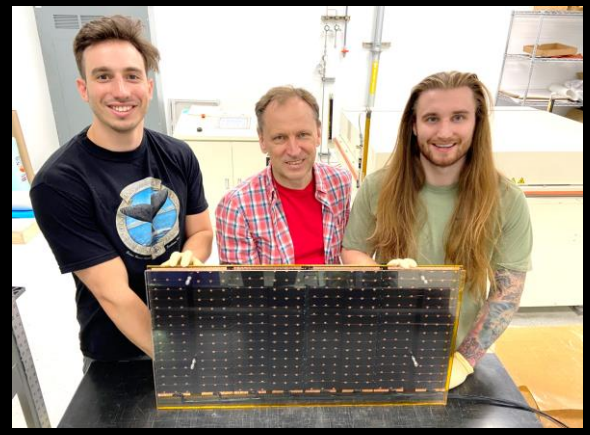
- Upcoming 2024 flights:

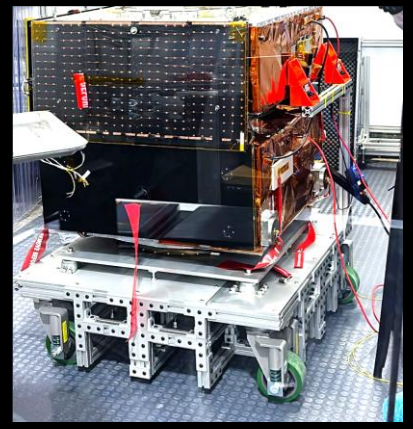
  1x ISRO PSLV C59
  3x Transporter 11
  2x Transporter 12

- Upcoming 2025 flights:

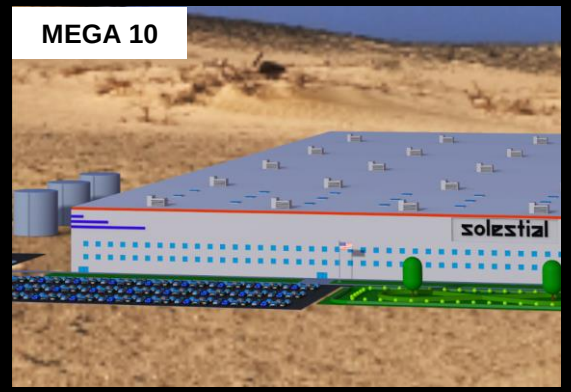
  Up to 15kW roll out array with Atomos OTV







Scaling Up Manufacturing



ASU
WARNER
MEGA 10

Timing	2019-2022	2023	2024-2026	2027+
Scenario	ASU MTW	ASU MTW + Solestial Warner 108	Partner + Solestial Warner 101, 108	Solestial Mega 10
Description	Shared R&D facility	- Shared R&D facility - Dedicated facility for flexible SPM assembly	- Partner for capital intensive commodity wafer processing - Dedicated facility for finishing of cells and flexible SPM assembly	- Integrated facility for automated production of cells and flexible SPMs - Warner becomes R&D facility
Size (ft^2)	7,000	16,000	27,000 (+ Partner)	100,000+
Automation	None	None	Partial	Full
Capacity (kW/year)			500-2,000	10,000

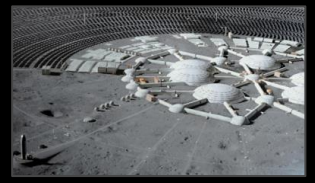
Now

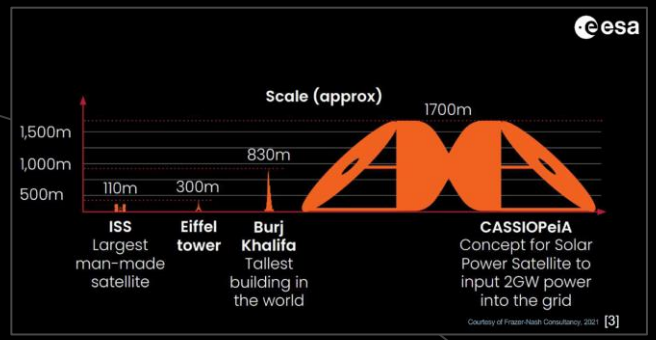
Commercial and National Security Markets

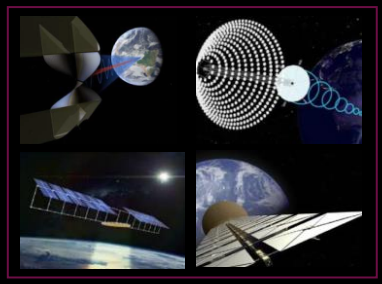
Model

Service

Operating large-scale systems and selling the power they produce is a logical evolution.

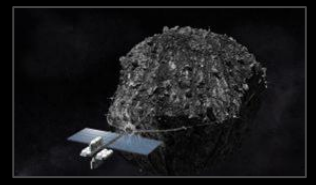


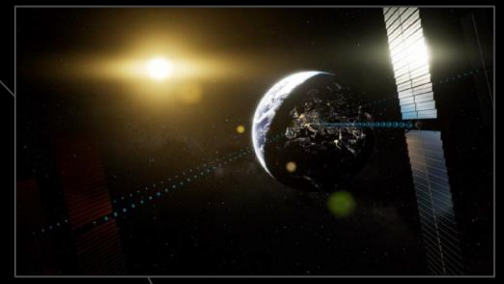




System

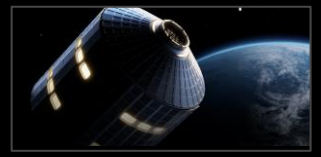
As arrays get larger, we will expand into full power systems.





We are actively working with partners to develop full arrays for spacecraft.

Component



Solestial currently manufactures proprietary solar cells and flexible SPMs.

As launch costs come down, many more, ever-larger spacecraft will be launched.

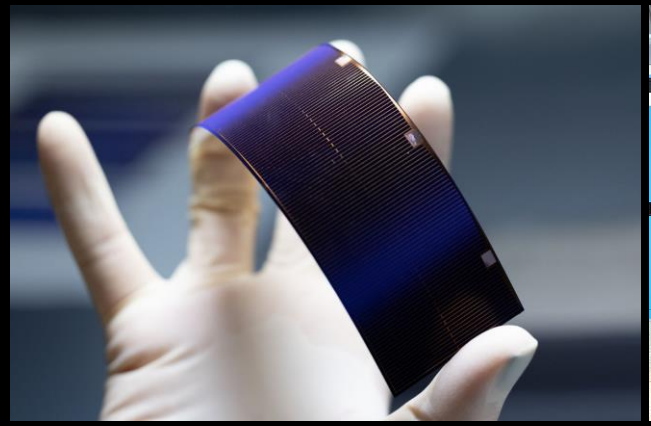
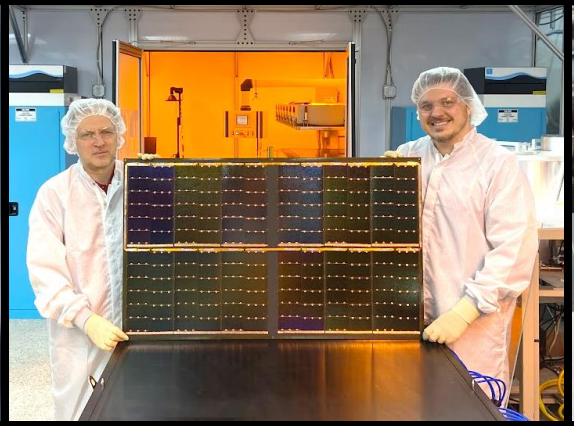
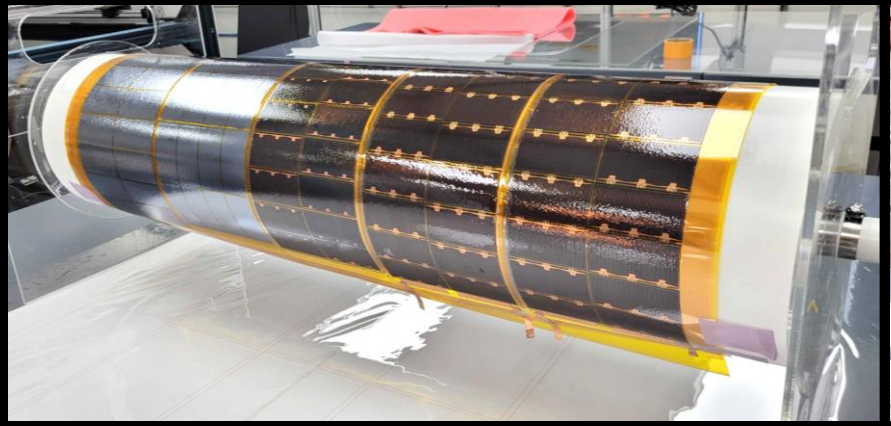
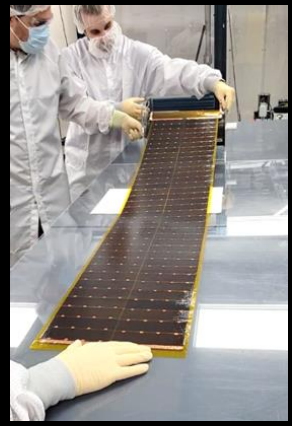
As human activity in space grows and diversifies, large-scale power systems will be needed.

A sustainable economy in space will require utility-scale power generation just like on earth. Advances in wireless transmission will enable large, centralized, generation assets powering space-based and terrestrial loads.

Spacecraft **Infrastructure** **Utility**

Scale

Thank You

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