



HOW TO FINANCE SPACE BASED SOLAR POWER AND THE IMPACT OF BLENDED FINANCING

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AGENDA



Net Zero Targets and Rising Demand Present a Difficult Supply Challenge

Space Based Solar Power is a prime opportunity



Financing will be needed to Fund this Transition

Strong terrestrial precedent, but limited options in Space



Blended Financing is a powerful catalyst for Financing

Public Support can dramatically accelerate development without much direct funding

NET ZERO TARGETS AND RISING DEMAND



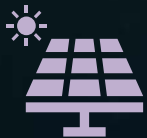
Global Energy Consumption is ~590 Exajoules or 163,900 TWh



+80% of it comes from Fossil Fuel sources



Electricity demand is expected to grow 80%-120% by 2050
Up from 20% to 50% of total energy consumption



To cover this growth and transition to net zero will require an average of
3,333 TWh of new capacity from low-carbon energy sources every year



Demand growth from rising population, quality of life increases, and low carbon incentives will fuel significant supply pressure regionally

ENERGY MIX CONTEXT

Electricity Source	Acres per Megawatt Produced	Levelized Cost of Energy \$/MWh	Kg Carbon per MWh + \$0.3 / kg CO ₂ to LCoE
Biomass	1000-4000	250-375	230-740
Hydro	304.91	60-80	24
Wind w/o Storage*	60.02	29-56	11-12
Solar w/o Storage*	33.37	30-41	27-48
Nuclear	2.40	90-204	12
Natural Gas	2.00	41-196	490
Coal	1.61	65-152	820
Space Based Solar	0.89	40-75 @\$600/kg	??
<i>4-hr Power Storage*</i>	<i>0.12</i>	<i>150-250</i>	<i>59-119</i>
<i>Transmission Lines</i>	<i>~10.3 in US</i>	<i>0.4-2.21</i>	

WHY IS FINANCE IMPORTANT?



Finance enables paying for investments today based on increased prosperity of tomorrow

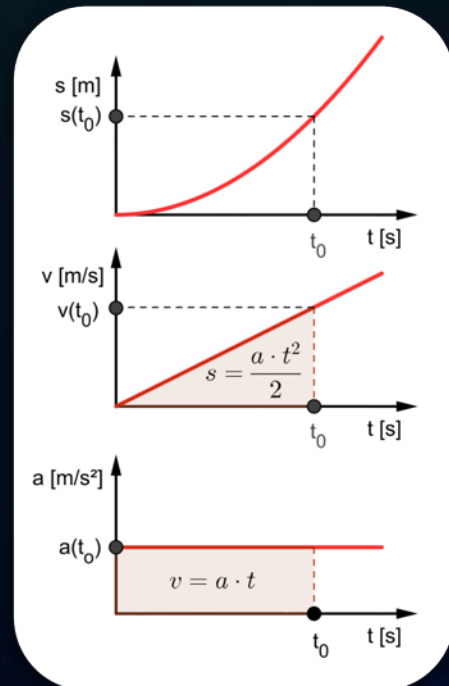
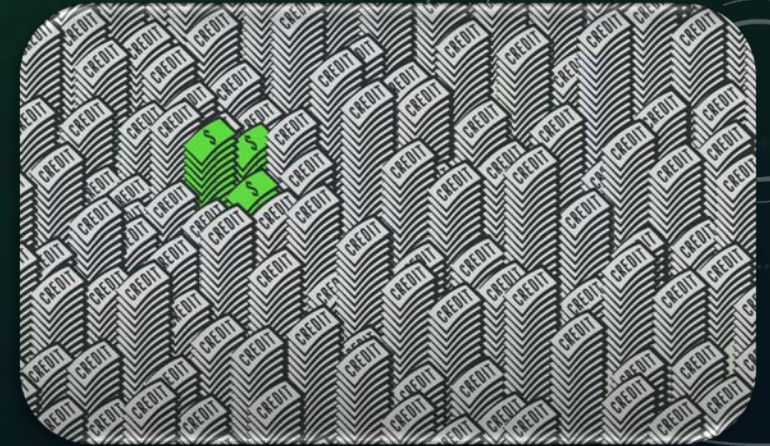


Most of the US Economy is Credit

In 2020 the debt-to-equity ratio was 85:6



Financial leverage accelerates the velocity of money and exponentially increases wealth



FINANCE CONCEPTS



- Initial Funding is the spark needed to create **Ignition**
- Value is generated from resources and activities **Fuel**
- Finance does not create value, it is an accelerant **O2**

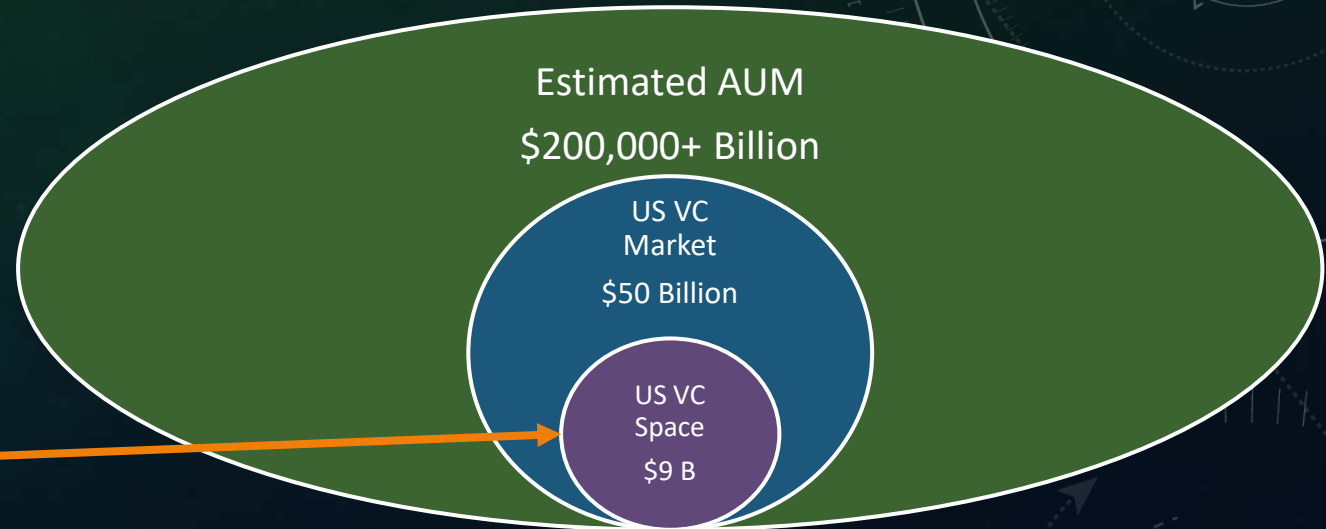
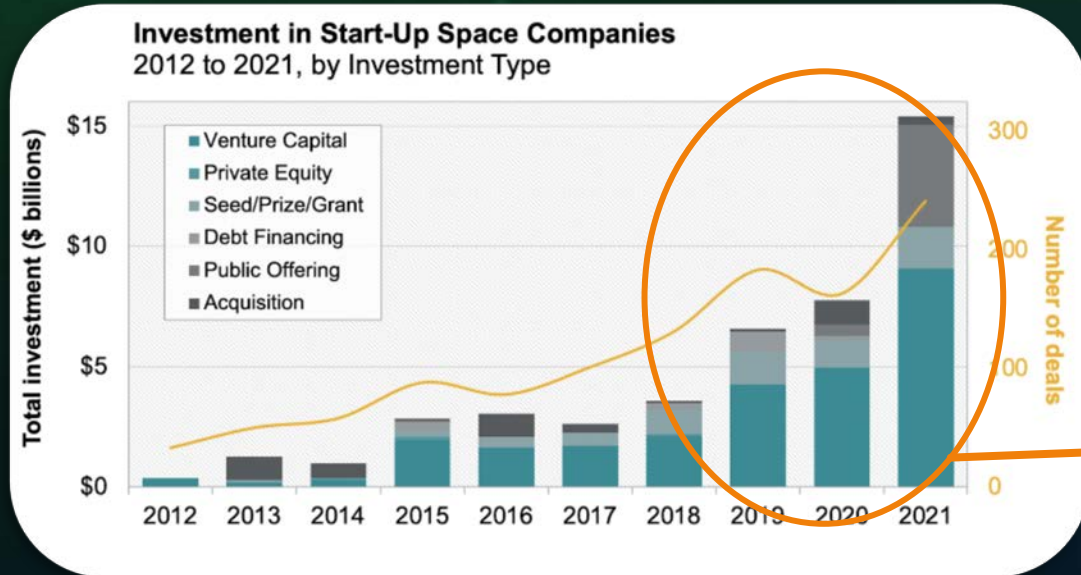


- Finance borrows against the future to build today
- Its success depends on the future prosperity being greater than the cost today plus interest



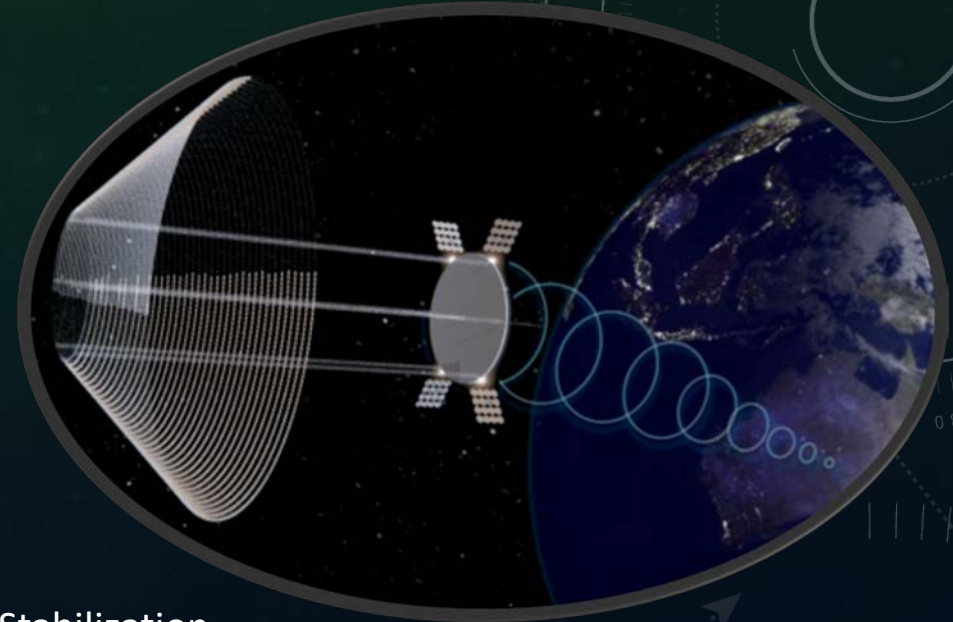
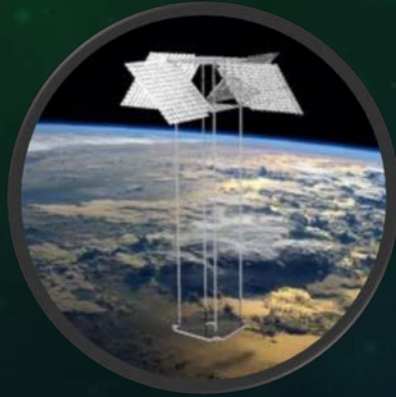
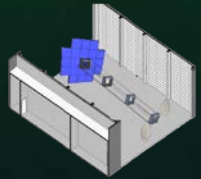
Prioritized access to finance in climate projects →
\$300B/year investment to accelerate energy transition

EXPANDING FINANCIAL OPPORTUNITY



- Venture Capital equity rapid growth
- High capital cost, failure rate, and low resilience
- Suboptimal timeline for space 5-7 years to exit

PROJECTS STEPS OF SBSP



Theory
validation

Eng. Validation

Stabilization

Tech. feasibility

Initial operations

Growth

Grants

Angel/Seed
Fund

VCs or R&D
Budget

Series
Funding

Revenue
stabilization

Access to
debt

SPACE SOLAR POWER AND UN SUSTAINABLE DEVELOPMENT GOALS OVERLAP

8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



7 AFFORDABLE AND
CLEAN ENERGY



11 SUSTAINABLE CITIES
AND COMMUNITIES

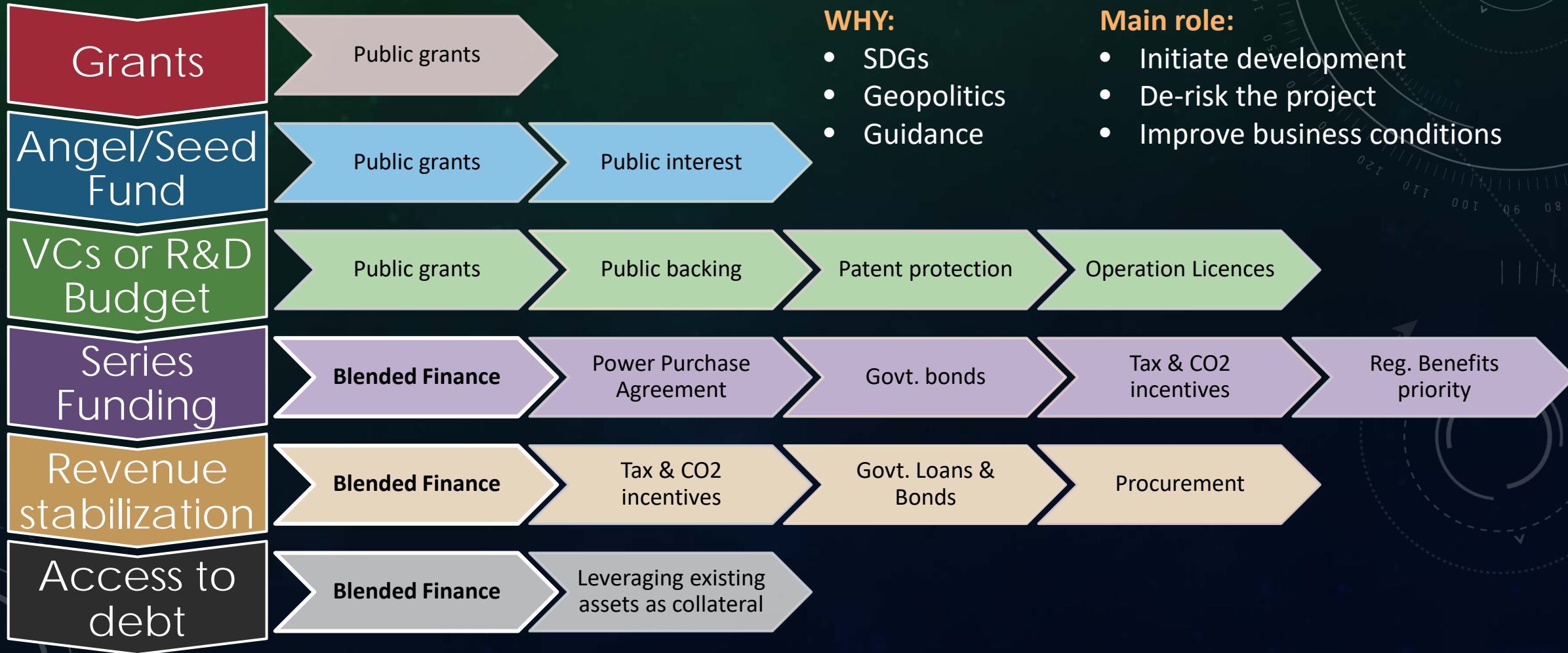


13 CLIMATE
ACTION



Direct Benefits

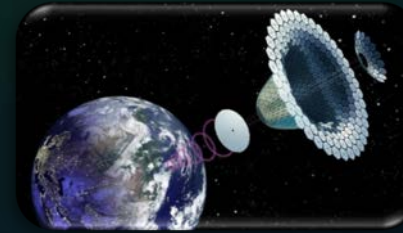
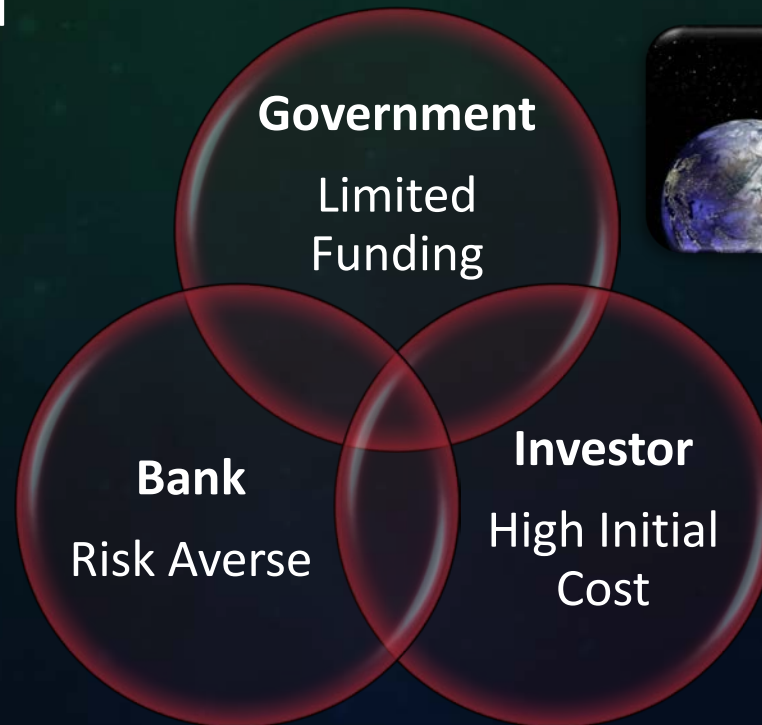
PUBLIC ROLE



WHAT IS BLENDED FINANCE

- Used mostly for International Development Projects
- Outsized impact
- The Space Industry has high perceived risk
- Decreased risk profile
- Very high early capital requirements and long timelines

Concessional capital → Commercial capital & Debt Financing



BLENDED FINANCE IN ACTION



- **IFC World Bank Group \$160 Billion**
- **International Development Programs**
 - Agriculture (AAF \$246M)
 - Education (Catalyze USAID \$2B)
 - Housing
 - Climate Change Adaption
- **Chinese Utility Energy Efficiency Plan**
 - 45-50x indirect leverage
- **Indian Solar Development**
 - \$292 B → 175 GW
 - FX Hedging → 9x direct leverage



SEVERAL PATHWAYS

Government led
consortium

ITER

Government
yearly budgets

Transition to
markets

Corporation new
business line

From Mac to
iPhone

Internal funds &
collaterals

Spin-off or
business line

Private-led
Start-Up

SpaceX

VCs rounds

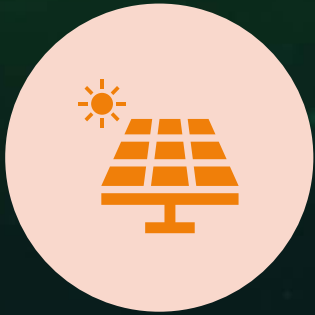
Acquisition or IPO

Key example

Major fund
source

Common final
stage

CLOSING REMARKS



SBSP IS NEEDED TO CLOSE
THE GAP OF NET-ZERO
GOALS BY 2050



FINANCE IS NEEDED TO
CLOSE THE FINANCIAL GAP
NEEDED FOR SBSP



BLENDED FINANCE IS A
GREAT CATALYST FOR
MOTIVATING COMMERCIAL
CAPITAL



PUBLIC HAS A BIG ROLE IN
FACILITATING A SMOOTH
AND RAPID TRANSITION

QUESTIONS?

