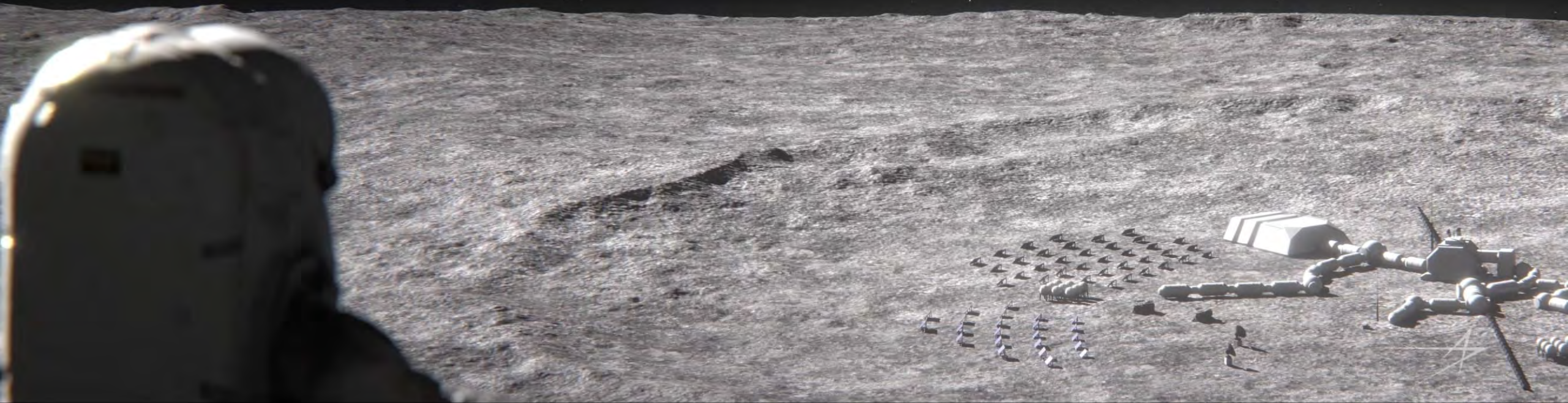


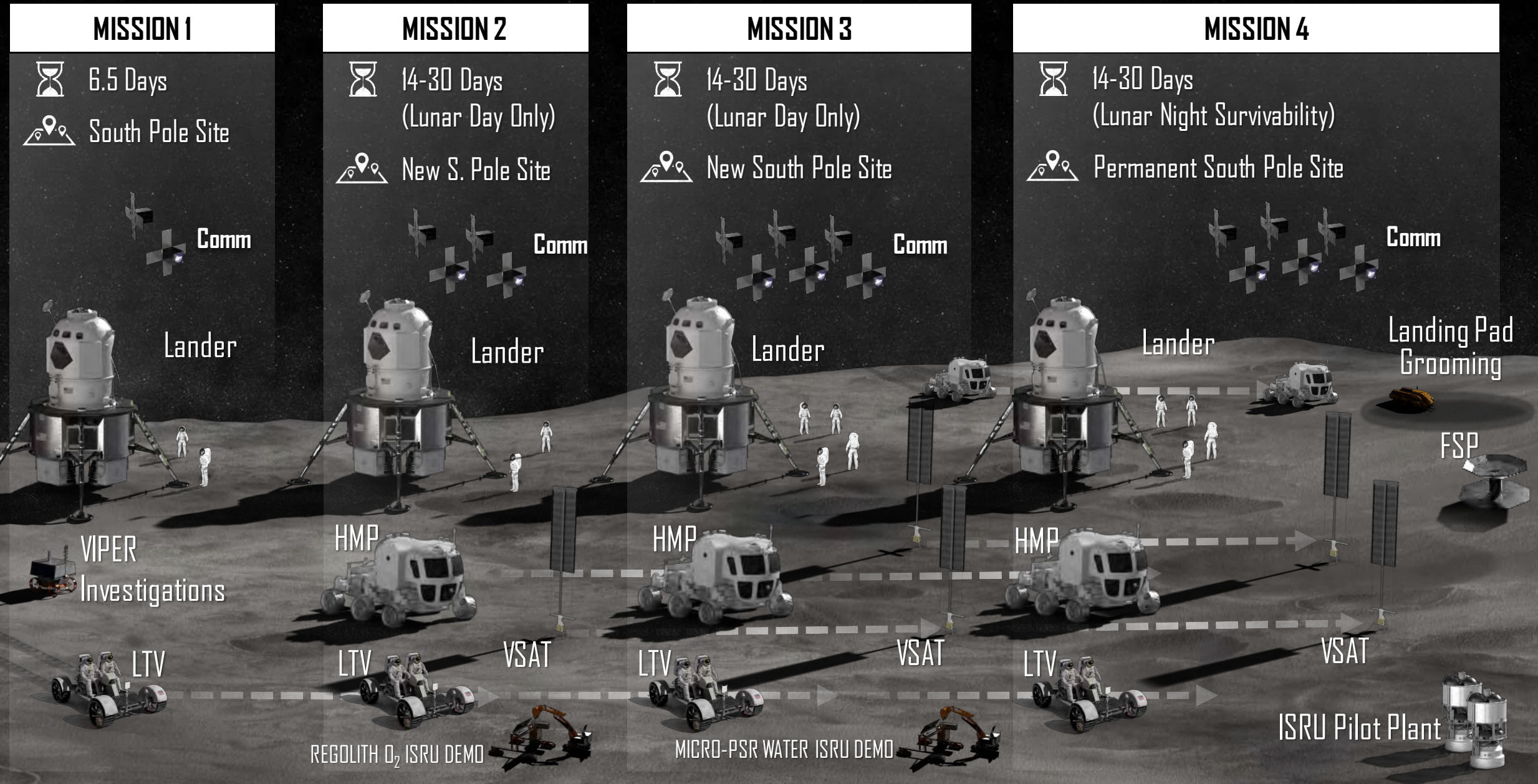
Lockheed Martin's Lunar Demonstration Projects



Dr. Christine Edwards
Lockheed Martin Space Deputy Exploration Architect
LSIC Spring Meeting
May 11-12, 2021



Initial Mission Sequence for South Pole Region

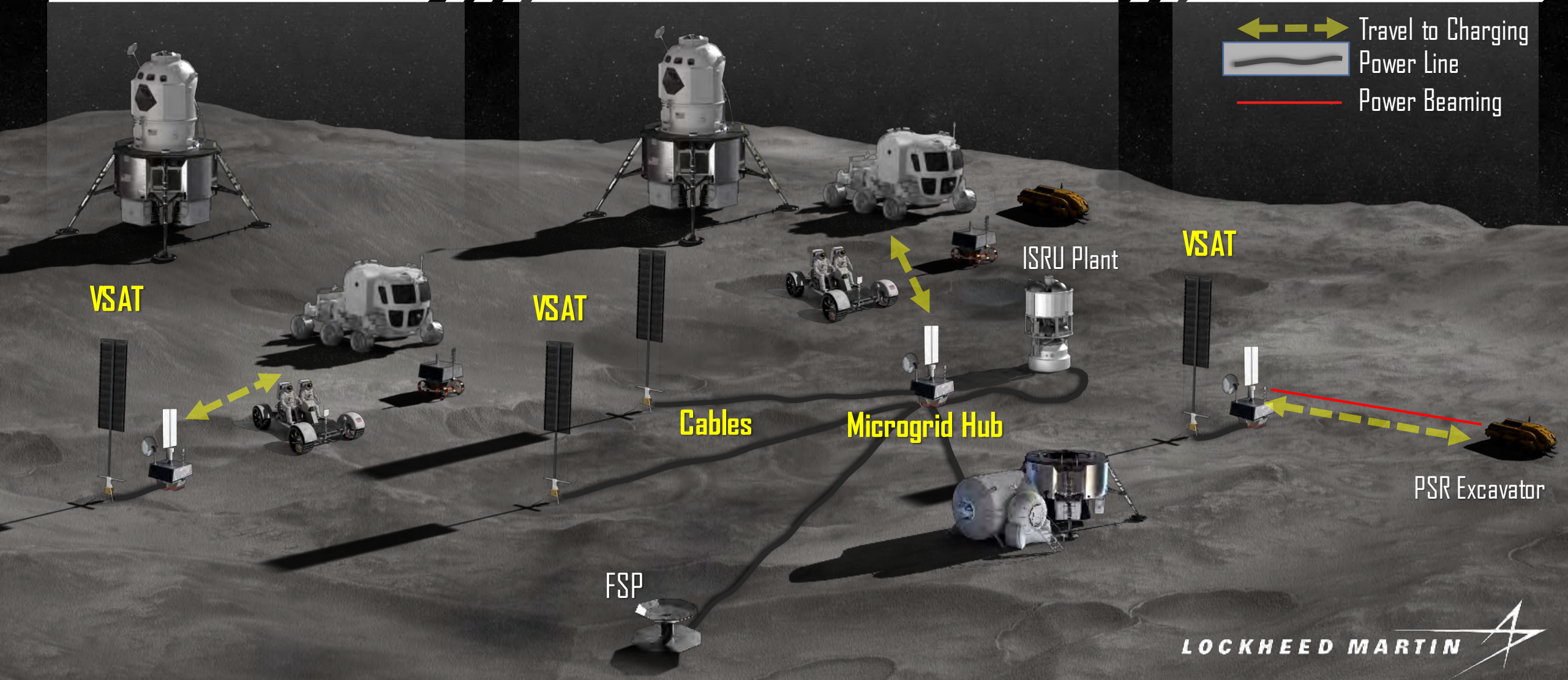
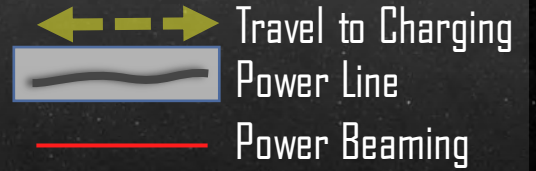


Transition from Mobile to Microgrid to Future Architectures

MOBILE ARCHITECTURE

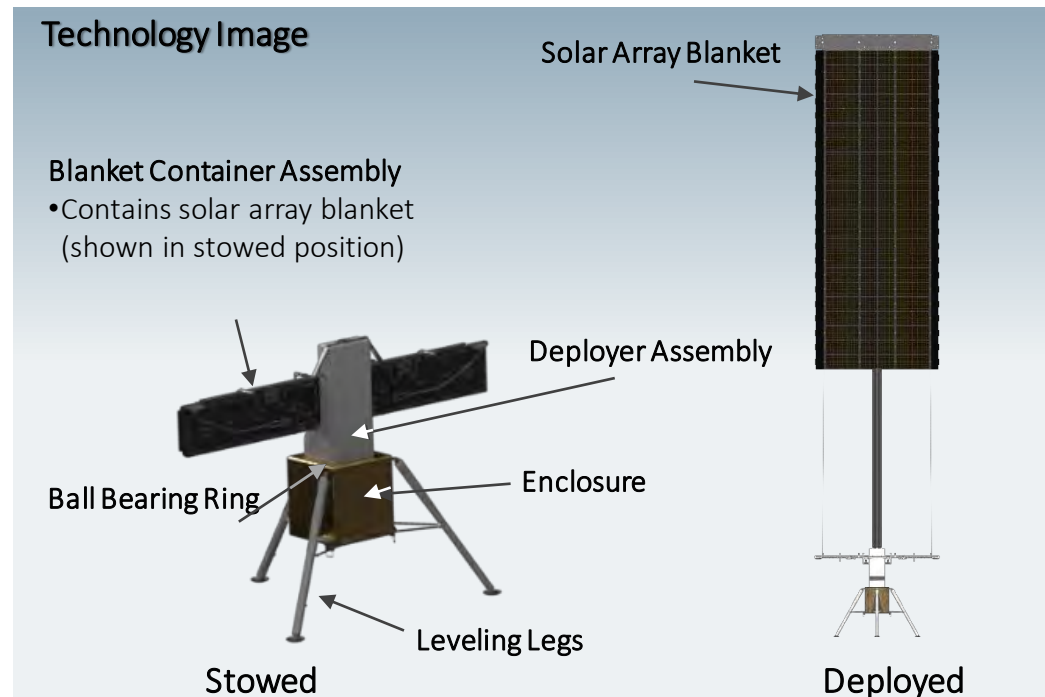
BEGINNINGS OF A MICROGRID ARCHITECTURE

ADAPTABILITY



Lockheed Martin's Vertical Solar Array Technology (VSAT)

The VSAT operational system concept combines innovative modifications to existing solar array technology, deployment and retraction mechanisms, and a composite mast design with leveling legs, gimbal, sun sensors, avionics, power and thermal systems while accommodating for the challenging lunar environment.



Commercial Impact:

- Reduce barrier of entry for lunar surface assets by providing mobile power station
 - Reducing functionality required of surface assets
- Catalyzing a commercial services by reducing environment risk for long-term lunar surface assets
 - i.e. dust mitigation, surviving lunar night
- Offering new, affordable capabilities for lunar surface applications

Cryogenic Demonstration Mission (CDM)

- NASA Space Technology Mission Directorate (STMD) Tipping Point project
- In-space demonstration mission using liquid hydrogen
- Testing more than a dozen cryogenic fluid management technologies



