

LSIC Surface Power Telecon

April 28, 2022

Begins at 11:03



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- Community Updates
 - Upcoming/recent events
 - Solicitations
 - LSIC SP Summer Workshop
 - MOSA Updates
- **Technical Talk:** Ansel Barchowsky
 - Tethered Power Systems for Lunar Mobility and Power Transmission



LSIC | Upcoming Meetings and Workshops



- **LSIC Spring Meeting: Keynote NASA Associate Administrator Robert D. Cabana**
 - Abstracts due March 4, 2022, Event May 4-5 (hybrid) <https://lsic.jhuapl.edu/Events/Agenda/index.php?id=200>
- **Nuclear and Emerging Technologies for Space (NETS)**
 - May 8-12, Registration open <https://www.ans.org/meetings/nets2022/>
- **Advanced Power Systems for Deep Space Exploration**
 - Aug 30-Sept 1 <https://www.usasymposium.com/deepspace/default.php>
 - Abstract Due Date: 13 May 2022
- **Lunar Surface Science Workshop.**
 - Sept “Lunar Resource Evaluation Campaign - Implementing”
- **LSIC Surface Power Workshop**
 - July 27th/28th
- **AIAA ASCEND.**
 - 24- 26 Oct. Las Vegas. Abstracts due 3/31.
- **More complete calendar on LSIC website: email with additional events!**

NASA has identified two critical gaps for lunar surface power systems:

1. Power Transmission that can deliver power from a remote generation source to critical mission operation loads where a) power loads are frequently or permanently immersed in extreme cold; and b) there are large variations in average power loads versus peak power loads. NASA has significant interest in both wired and wireless transmission, and the challenge seeks to incentivize and demonstrate both types of solutions.

2. Energy Storage that can a) power mission operation loads when power generation is not available; and b) survive and operate in extreme cold environments.

<https://www.herox.com/WattsOnTheMoon>

Phase 2 of the competition will last approximately 30 months and award up to \$4.5 million.

LSIC | Solicitations: Tipping Point and ACO



Process is complex and involves multiple steps to be carried out by all participants in the proposal.

- Two step process. (for an initial vetting)
- **Topic 1. Cislunar/Lunar Surface Infrastructure & Capabilities**
 - Technologies that support global lunar utilization leading to commercial commodities and services for a robust lunar economy. Such infrastructure could include examples such as **long-distance lunar power distribution; survive and operate during lunar night;** in-situ Resource Utilization; lunar communications; autonomous construction...
- Funded Space Act Agreement
 - Cost sharing, more agency to industry

A space technology is at a Tipping Point if:

- TRL \sim >4 at time of submission of the Mini Proposal.
- Ground demonstration or flight demonstration will result in:
 - Maturation to TRL 6+
 - More able to bring technology to market
- There is a robust plan for commercialization

Schedule	
Mini Proposal Q	3/15
Mini Proposal due	3/31
Notifications	5/31
Final Proposal Q	7/14
Final Proposal due	7/28
Selections Notified	11/30
Funding	Jan 2023

Space Tech Solicitations (<https://www.nasa.gov/directorates/spacetech/solicitations>)

Announcement for Partnership Proposals (AFPP) to Advance Tipping Point Technologies

Mini proposals due: March 31, 2022

Final proposals due: July 28, 2022

Space Technology Announcement of Collaboration Opportunity (ACO)

Final proposals due: July 28, 2022

Watts on the Moon Challenge, Phase 2

Registration due: June 15, 2022 at 5 p.m. EDT

Request for Information - NASA's Strategic Technology Framework "GO Thrust"

Closes May 20, 2022

Technology Advancement Utilizing Suborbital and Orbital Flight Opportunities "TechFlights"

Response due: June 2, 2022

Upcoming:

Early Stage Innovations Solicitation

NASA Innovative Advanced Concepts (NIAC) 2023 Phase I

Space Technology Research Institutes (STRI) Solicitation

LSIC | Summer Workshop: Potential Agenda (1 or 2 days)



- **Context:** Needs within the lunar thermal environment
 - Breakdown of thermal environment
 - Power needs during eclipse
- **Near-term system solutions**
 - Panel discussion or technical talks
- **Advanced Technologies**
 - lightning talks
- **Collaborative System Solutions**
 - Participants address a given scenario
 - “mobile-scale” needs (landers and rovers)
 - “grid-scale” needs and solutions
- **Networking**

Virtual, July 27th/28th

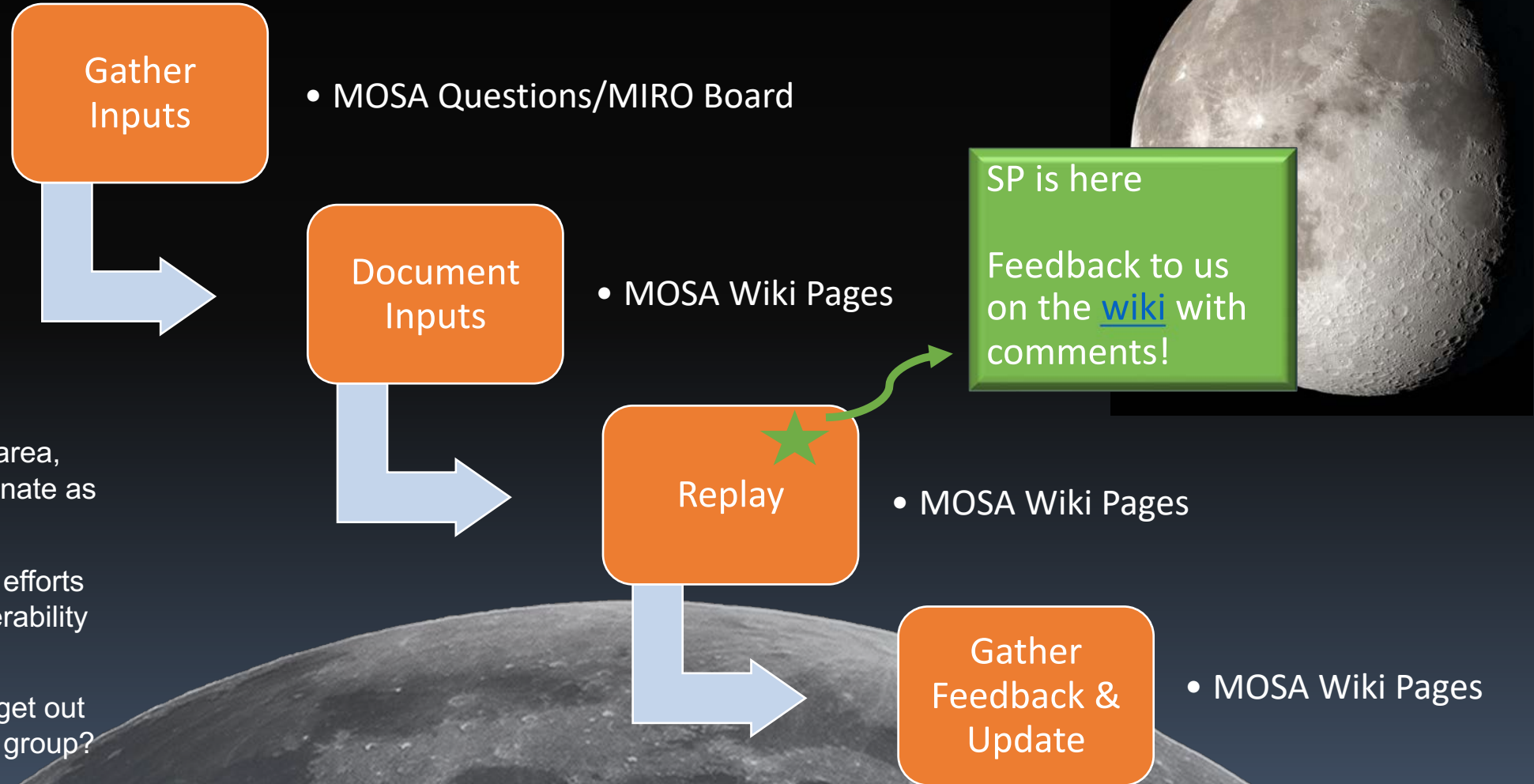
Zoom Webinar Registration



LSIC | MOSA Working Group Update

We are marching towards our goals ...

Goal #1 & #2 - Document community feedback on recommended lunar MOSA activities & existing efforts



MOSA Questions

- Within this capability area, what would you designate as a critical interface?
- What are the existing efforts on standards/interoperability in this area?
- What do you want to get out of the MOSA working group?

We are marching towards our goals ...

MOSA Goal #3 - Host talks on lunar interoperability

- Launched a MOSA monthly telecon series
 - April 6 featured NASA's Chad Thrasher, from the Artemis Campaign Development Division, presenting on Artemis' Graphical User Interface standards
 - Next meeting will be held in June
 - Do you want to present a MOSA topic? Contact Us!
- Find MOSA at the Spring LSIC Meeting!
 - MOSA Panel - Wednesday, May 4th @ 3 PM EDT
 - Breakout Session: Space Law, MOSA, and the Big-Picture – Thursday, May 5th @3:30 PM EDT

Moderators:

- Jessy Kate Schingler, Open Lunar Foundation
- Dr. James Mastandrea, APL

Panelists:

- Mark Mazzara, Robotics Interoperability, Engineer & Project Manager, US Army
- Meera Towler, Senior Research Engineer, Southwest Research Institute
- Mathew DeMinico, Power Portfolio Manager, NASA Glenn Research Center
- Amalaye Oyake, Senior Flight Software Engineer, Blue Origin
- Chad Thrasher, Systems Interoperability Lead, NASA's Artemis Campaign Development Division



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