May 10, 2018

NASA iTech Selects Top 25 Semifinalists in Energy Competition

NASA iTech today announced the selection of 25 of the most promising ideas submitted by innovators across the United States as semifinalists in the 2018 NASA iTech Cycle II-Energy.

NASA iTech is an initiative by NASA’s Space Technology Mission Directorate (STMD) to find innovative ideas that address important problems here on Earth and also hold great potential to overcome critical technology hurdles in future space exploration.

NASA has teamed up with the U.S. Department of Energy’s (DOE) Advanced Research Projects Agency Energy (ARPA-E) on this unique iTech competition to identify transformational technologies to improve how energy is generated, distributed and stored to the benefit of both space exploration and life on Earth. These game-changing ideas may come from small or large businesses, academia, and other government organizations that may not have previously had a forum to present their solutions to NASA.

“Making it into the top 25 as a semifinalist for a NASA iTech cycle is no easy feat for the entrepreneurs. The quality and creativity of the proposals we receive to address some of space exploration’s toughest technical objectives are always very impressive, and it’s tough to make the cut,” said Kira Blackwell, NASA iTech program executive for STMD. “This cycle is unique, as it addresses groundbreaking approaches within energy-specific focus areas that could solve important problems here on Earth and in the space community.”

In March, the iTech Challenge issued a call for ideas within energy focus areas such as Fuel Cells and Regenerative Fuel Cells; High-energy-density Batteries and Supercapacitors; Solar Power Systems; Small Fission Power Systems; Innovative Power Management and Distribution (including Smart Grids and Wireless Power Transfer); and X-Factor Energy.

A panel of subject-matter experts from NASA and ARPA-E will now review the top 25 Cycle II-Energy semifinalist entries based on their relevance, likelihood of success, and potential positive impact on space exploration and life on Earth.
The top 10 finalists for Cycle II-Energy will be announced on May 25. These finalists will be invited to present their ideas to NASA and DOE leadership, space industry leaders, and potential investors at the NASA iTech Cycle II-Energy Forum to be held at Citi’s global headquarters in New York City, June 11-14.

The top 25 2018 NASA iTech Cycle II-Energy semifinalists are (in alphabetical order):

1. AGPower92 - Poway, California
   *Improve Space and Terrestrial Power Systems*

2. AsterTech. LLC - Beavercreek, Ohio
   *3D Additive Manufacturing of High Efficiency and Light-Weight Solar Cells for In-Space Applications*

3. ATEIOS - La Jolla, California
   *Printed Batteries for Ubiquitous & Conformal Electronics*

4. ATOMOS - Denver
   *Splitting the Atom to Connect the Planets: A Commercial Nuclear Power System for Space Operations*

5. Birmingham Technologies - Arlington, Virginia
   *The Nano-Boxx: A Nanoscale Energy Harvester*

6. Cactus Materials, Inc. - Tempe, Arizona
   *Nanoengineered Li7La3Zr2O12 (LLZO) thin film solid state batteries on roll-to-roll manufacturing for EV Vehicle*

7. Castor Air 2 Electricity and Water Solutions Inc. - Chelsea, Massachusetts
   *Onsite Air to Electricity & Water Multiplier Microgrid*

8. Environment and Energy Benefit Co. - West Sacramento, California
   *BBB: X Factor Liquid Fuel*

   *Alternate Polymer-Based H2 from Tap Water Electrolyzer*

10. HE3DA USA - Redondo Beach, California
    *Innovative 3D Nanotechnology for Energy Storage*

11. Howe Industries, LLC - Tempe, Arizona
    *Ion Enhanced Thermoelectric Generator (ITEG)*

12. Idaho National Laboratory - Idaho Falls, Idaho
    *Remediation of Hydrocarbon-Contaminated Ground and Water Using a Novel Trace Element Humate Surfactant Solution (TEHS)*

13. iFeather - Boulder, Colorado
    *In-situ Fabrication of Extraterrestrial Aerogels for Transparency, Heat, and Energy Regulation (iFEATHER) for Habitat, Aeronautic and Space Vessel, and Space Suit Applications*

14. Ion Power Group, LLC - Navarre, Florida
    *Nanomaterial Breakthrough Generates Electricity Day & Night on Earth & Mars*

15. Lugar Center for Renewable Energy - Indianapolis
    *Complete Hydrogen Storage Systems by ISRU*

16. MCE Nexus - Dublin, Ohio

17. NT Ionics - Boulder, Colorado
    *High Performance Ceramic Electrolyte for High Energy Density and All Solid-State Lithium Batteries*

18. OptiCOMP Networks - Attleboro, Massachusetts
    *Rapid Wafering of Wide Bandgap Substrates*

19. The Pennsylvania State University - Department of Materials Science and Engineering - University Park, Pennsylvania
    *Lightweight Nanomaterial Microcell CPV for Space*
Lightweight Monolithic Microcell CPV for Space

20. Power System Engineers - Chula Vista, California
   Orbital Observation, Data Collection and Analysis of Power Consumption

21. Stanford - Department of Electrical Engineering - Stanford, California
   Two C: Transportation electrification through ubiquitous wireless charging

22. Solar Under Transmission with Shared Ownership (SUTSO) - Gaithersburg, Maryland
   Solar Under Transmission with Shared Ownership


24. V-Glass - Pewaukee, Wisconsin
   Vacuum Glass for R-10 Windows

25. WBGlobalSemi, Inc. - La Honda, California
   Commercializing High Power Silicon Carbide (SiC) Bipolar Junction Transistors (BJTs) and Power Modules for Power Management and Distributed Power Applications

For information about the NASA iTech initiative, visit:

https://www.nasa.gov/directorates/spacetech/itech

For information about NASA's Space Technology Mission Directorate, visit:

https://www.nasa.gov/spacetech

For information about DOE’s ARPA-E, visit:

https://arpa-e.energy.gov/

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