



The UPM Market Informer

NASA Issues Call for Lunar Surface Instrument and Technology Payloads

NASA has issued a call for Lunar Surface Instrument and Technology Payloads that will fly to the Moon on lunar landers by early 2019 or 2020. The space agency has teamed up with U.S. and international partners to expand human exploration from the Moon to Mars. It begins with robotic missions on the lunar surface, as well as a space hub for astronauts orbiting the Moon. NASA is preparing to acquire commercial lunar payload delivery services for small payloads and build lunar landers for large payloads. It intends to carry out more research on the Moon’s surface ahead of human return.

NASA Science Mission Directorate deputy associate administrator for exploration Steve Clarke said: “We are looking for ways to not only conduct lunar science but to also use the Moon as a science platform to look back at the Earth, observe the Sun, or view the vast Universe. In terms of technology, we are interested in those instruments or systems that will help future missions, both human and robotic, explore the Moon and feed forward to future Mars missions.”

On early missions, lunar surface instrument technology is expected to collect data on heat flow within the Moon’s interior, solar wind, atmosphere and dust. Payloads may also carry out technology demonstrations by using the Moon as a technology testbed for Mars.

Clarke added: “The strategy is that these early missions will help us prepare for more complex future missions such as searching for useable resources, building up a seismic network to understand the Moon’s internal structure, and studying the lunar mineralogy and chemistry to understand the Moon’s origins.” The agency has sought payloads to be ready for delivery and integration into lunar landers before December 2021. Payloads will be under the principal investigator’s control until they are selected for a particular flight. This call for payloads comes under the Research Opportunities in Space and Earth Science (ROSES) funding program. It has requested for proposals for principal investigator-led science instrument and technology investigations. The deadline for the initial proposal is 19 November. *Source: Aerospace Technology Photo: Jessie Eastland*



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News Flash!

Universal Stainless & Alloy Products has increased base prices by 3-8% on select specialty steel long products. 10/22

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Development, Production of Medical Devices Designed Just for Kids



To foster development, production, and marketing of next-generation medical devices designed to meet growing pediatric needs, the U.S. Food and Drug Administration (FDA) awarded \$5 million to the National Capital Consortium for Pediatric Device Innovation

(NCC-PDI), led by Children's National Health System and University of Maryland, College Park. New Consortium members include BioHealth Innovation Inc., a Maryland-based innovation intermediary that supports the transformation of research projects into new business opportunities, and MedTech Innovator, a California-based virtual startup accelerator that matches healthcare industry leaders with early-stage and emerging growth medtech companies for mentorship and support. NCC-PDI's affiliated members include industry leaders such as Smithwise, Epidarex, and Cadence.

The Consortium's multi-disciplinary principal investigator team includes: Kolaleh Eskandanian, Ph.D., MBA, PMP, project lead, and Anthony Sandler, M.D., from Children's National; and William E. Bentley, Ph.D., from the Robert E. Fischell Institute for Biomedical Devices at the University of Maryland, College Park.

The key to ensuring the next generation of adults are healthy is to ensure children enjoy the best health," says Eskandanian, vice president and chief innovation officer at Children's National and the lead principal investigator of NCC-PDI. "That means underwriting and marketing life-saving devices like stents and heart valves, designed with children's growing bodies in mind, and shepherding such innovations through the challenging path to regulatory approval."

Medical devices designed for people who are younger than 22 travel a slower path to market and there are fewer pediatric medical devices compared with devices used by adults. Adding to the complexity of device development, pediatric devices must be sized appropriately as children transform from newborns to toddlers to adolescents and young adults.

"While exciting advances are being made in medical technologies for adults, crucial pediatric innovations often languish in areas like asthma, heart disease, and neonatal health," says Paul Grand, CEO of MedTech Innovator. "We are excited to bring the resources of our global accelerator to identify and advance best-in-class pediatric technologies, to ensure they reach the market and improve the health of the millions of children who need them most."

"Partnership, shared knowledge, and collaboration are vital to our overall progress. This month's grant renewal makes all that possible," Eskandanian adds. "Because of our ongoing collaborations with federal regulators, academic centers, pediatric leaders, device manufacturers, and potential investors, Children's National is uniquely positioned to draw together diverse stakeholders who share our goal of strengthening pediatric device innovation."

In fulfilling its mission, NCC-PDI annually hosts the "Make Your Medical Device Pitch for Kids!" competition in an effort to award funds and device development technical support to those innovations that address a significant unmet need for children and are deemed to be commercially viable. To date, NCC-PDI has awarded \$1.43 million to 31 startups and research labs and supported more than 80 pediatric medical devices.

"Many of the health challenges that impact pediatric populations require unique resources, treatment, and expertise," Bentley says. "NCC-PDI is a vital partnership in that it fosters innovation and knowledge-sharing between innovators, researchers, clinicians, and policymakers, all for the betterment of children's health. The Fischell Institute is proud to support NCC-PDI's mission by utilizing our resources, facilities, and expertise to help usher pediatric medical devices to market from the earliest stages of ideation through navigating the regulatory process."

Legislation passed by Congress in 2007 established the funding to be distributed as grants for nonprofit consortia to help stimulate projects to promote the development and availability of pediatric medical devices. This legislation was re-authorized as part of the FDA Safety and Innovation Act of 2012 and again in the FDA Reauthorization Act of 2017 to run through fiscal year 2022. *Source: Today's Medical Developments, Elizabeth Engler Modic*

GE's New Engine Brings Supersonic Private Jets Closer to Reality



At a press conference with Aerion Corporation, GE Aviation has announced it has completed the initial design of the first supersonic engine purpose-built for business jets. This new engine class, revealed as GE's Affinity turbofan, is optimized with proven GE technology for supersonic flight and timed to meet the Aerion AS2 launch.

The Affinity is a new class of medium bypass ratio engines that provide exceptional and balanced performance across supersonic and subsonic flights. The Affinity integrates a blend of proven military supersonic experience, commercial reliability and the most advanced business jet engine technologies. GE's Affinity is a twin-shaft, twin-fan turbofan controlled by a next generation Full Authority Digital Engine Control (FADEC) for enhanced dispatch reliability and onboard diagnostics. It is purposefully designed to enable efficient supersonic flight over water and efficient subsonic flight over land, without requiring modifications to existing compliance regulations. The engine is designed to meet stringent Stage 5 subsonic noise requirements and beat current emissions standards.

"In the last 50 years, business aircraft speeds have increased by less than 10%," said Brad Mottier, GE vice president and general manager for Business and General Aviation & Integrated Services. "Instead of going faster, cabins have increased in size and become more comfortable – and range has become longer. With large, comfortable cabin, long range aircraft in the marketplace, the next step is speed, made possible with GE's Affinity."

After two years of a preliminary study, GE Aviation and Aerion launched a formal process in May of 2017 to define and evaluate a final engine configuration for the AS2 supersonic business jet. A GE Project team, supported by a dedicated Engineering team, continue to work with Aerion in a formal and gated process. The next design review is targeted for 2020, signaling the beginning of detailed design and test article production. Aerion is collaborating with GE Aviation, Lockheed Martin and Honeywell to develop the AS2. *Source: Aerospace Manufacturing.com*

Safran Reveals Electric Motor for Hybrid Aircraft

Safran has revealed the first electric motor from its forthcoming ENGINEUS range of motors designed for use in hybrid and electric aircraft, after its successful ground testing and validation.

The French-company unveiled the ENGINEUS 45 motor at this year's NBAA's Business Aviation Convention and Exhibition (NBAA-BACE) in Orlando, Florida. The motor has a continuous power of 45kW with built-in, dedicated control electronics, an energy efficiency of over 94% and a power-to-weight ratio of 2.5kW/kg at 2,500rpm. The motor on display had been tested and validated on Safran's electrical integration benches to verify its performance. Safran has also tested four of these electric motors on the ground on a full distributed propulsion hybrid-electric system, which accurately recreates the demands of hybrid and electric aircraft.

Hervé Blanc, vice president and general manager of the electrical systems and motors division at Safran Electrical and Power said, "We are proud to present this equipment, that boasts top-level aeronautical performance from an electromagnetic, thermal and mechanical perspective. With this range of engines, we are making a major strategic shift towards the development of VTOL [vertical take-off and landing] and STOL [short take-off and landing] aircraft, thus opening up promising new markets for Safran."

The ENGINEUS product line will eventually include a range of electric motors with a power output of up to 500kw. According to Safran its motor technology consolidates several key conversion, control and battery interface functions to optimize the performance of the electrical architecture and is mechanically and structurally designed to be suitable for use in aircraft. *Source: Aerospace Testing International, Ben Sampson*



Nissan, EDG Energy to Test Second-Life EV Batteries in Demand Response

- Nissan and EDF Energy last week announced they have partnered on a project that will combine used electric vehicle (EV) batteries from the car manufacturer with demand response capabilities developed by the U.K. energy company.
- The push to experiment with second-life storage uses comes as the electric sector prepares for a stream of used EV batteries that can have a decade of life left in them, and up to 70% of their capacity, the companies said.
- The agreement also includes provisions for future collaboration on smart charging, distributed resources and grid integration. The current project will test whether the batteries can support on-site generation and demand management, along with additional revenue streams.

Source: Utility Dive



Surcharge Totals August 2018 - January 2019

	Aug	Sep	Oct	Nov	Dec	Jan
15-5	0.5897	0.5682	0.5229	0.5286	*	*
15-7	0.8335	0.8372	0.7808	0.7753	*	*
17-4	0.5803	0.5617	0.5165	0.5231	*	*
17-7	0.7137	0.6843	0.6219	0.6197	*	*
201	0.5871	0.5672	0.5178	0.5169	*	*
301 7.0%	0.7067	0.6780	0.6159	0.6139	*	*
302/304/304L	0.7699	0.7376	0.6700	0.6666	*	*
304-8.5%	0.7959	0.7618	0.6922	0.6883	*	*
305	0.9834	0.9368	0.8523	0.8447	*	*
309	1.0223	0.9760	0.8864	0.8781	*	*
310	1.4086	1.3372	1.2164	1.2002	*	*
316/316L	1.0378	1.0291	0.9556	0.9460	*	*
316LS/316LVM	1.3200	1.3500	1.2400	*	*	*
317L	1.2053	1.2084	1.1275	1.1142	*	*
321	0.8103	0.7744	0.7043	0.7001	*	*
347	1.1199	1.0840	1.0139	1.0097	*	*
409/409 Mod	0.2728	0.2689	0.2443	0.2508	*	*
410/410S	0.2814	0.2775	0.2519	0.2582	*	*
430	0.3316	0.3280	0.2957	0.3011	*	*
434	0.4015	0.4094	0.3768	0.3805	*	*
439	0.3423	0.3387	0.3050	0.3102	*	*
440A	0.3316	0.3280	0.2957	0.3011	*	*
2205	0.9565	0.9802	0.9167	0.9083	*	*
263	11.7569	11.8171	11.6936	10.8405	9.7101	9.0419
276	5.8231	5.8395	6.0286	5.6411	5.6731	5.3623
A286	1.6053	1.6528	1.7822	1.6116	1.5740	1.4268
330	2.0069	2.0861	2.2611	2.0116	1.9460	1.7418
400	3.6420	3.7841	4.1032	3.5365	3.3883	3.0746
455	0.7600	0.7600	0.6900	*	*	*
465	0.9200	0.9300	0.8500	*	*	*
600	3.8717	4.0371	4.3656	3.8412	3.7080	3.3263
601	3.3755	3.5110	3.7825	3.3532	3.2436	2.9116
617	8.7729	8.8389	8.8917	8.2215	7.6141	7.0881
625	6.0507	6.1228	6.3487	5.9410	5.9070	5.5805
718	5.7371	5.8290	6.0499	5.6919	5.6263	5.3430
X-750	4.4293	4.5901	4.9101	4.4003	4.2708	3.8974
825	2.7003	2.7645	2.9375	2.6616	2.6159	2.3896
HX	3.9584	4.0024	4.1715	3.8391	3.7980	3.5220
188	18.2600	16.5100	16.1600	*	*	*
CCM	28.1700	24.8300	25.1000	*	*	*
L-605	22.1000	19.8700	19.5400	*	*	*

*Surcharge currently not available