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Inside This Issue

Surcharge Update.....	2
Boeing GE9X Engine Certification.....	3
UV Aircraft Cabin Cleaning Distribution.....	3
AeroVironment Missile.....	4
Semiconductor Manufacturing.....	4
Indian Aerospace Growth.....	5

1.1 MW Floating Solar + Storage Power Plant to be Built at Fort Bragg

U.S. Army’s Fort Bragg in North Carolina will soon be the home of the largest floating solar plant in the Southeast. The 1.1 MW floating solar photovoltaics (PV) system, as part of a Utility Energy Service Contract (UESC), was awarded to Duke Energy.

The \$36 million contract focuses on energy resilience and security at Fort Bragg: infrastructure modernization including lighting and water upgrades, heating, ventilation and air-conditioning and boiler system improvements.

Ameresco, Duke Energy’s prime contractor, will build the system on the Big Muddy Lake located at Camp Mackall. Fort Bragg will own and operate the system once construction is completed.

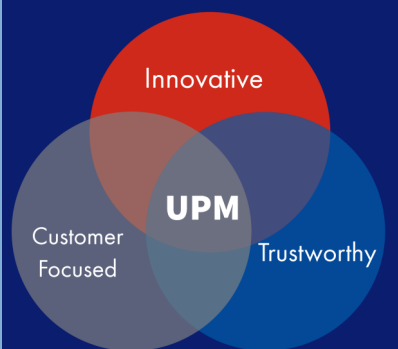
The floating solar installation will be paired with a 2-MW battery energy storage system. The system will supplement power to Fort Bragg from the local grid and provide backup power during electric service outages. Further details about the battery capacity in MW hours have not been finalized, according to Duke.

Construction is expected to begin in November 2020. Melisa Johns, vice president, Distributed Energy Solutions at Duke Energy, said, “This project takes a comprehensive look at the way energy is being used at Fort Bragg and will lead to more efficient energy use and significant cost savings.”

The National Renewable Energy Laboratory (NREL) estimates that installing floating solar PV on the more than 24,000 man-made U.S. reservoirs could generate about 10 percent of the nation’s annual electricity production. Currently, floating solar makes up only about 1-2 percent of the world’s solar capacity, about 90 percent of which is in Asia. *Source: Powergrid.com*



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Surcharge Totals July - December 2020

	Jul	Aug	Sep	Oct	Nov	Dec
15-5	0.4620	0.4637	0.4792	0.5133	*	*
15-7	0.6320	0.6105	0.6376	0.7062	*	*
17-4	0.4540	0.4563	0.4700	0.5015	*	*
17-7	0.5608	0.5635	0.5951	0.6478	*	*
201	0.4493	0.4405	0.4570	0.4944	*	*
301 7.0%	0.5548	0.6785	0.5874	0.6390	*	*
302/304/304L	0.6072	0.5569	0.6481	0.7052	*	*
304-8.5%	0.6292	0.6120	0.6738	0.7340	*	*
305	0.7871	0.8015	0.8591	0.9395	*	*
309	0.8177	0.8326	0.8906	0.9705	*	*
310	1.1421	1.1741	1.2700	1.3904	*	*
316/316L	0.8030	0.7902	0.8363	0.9251	*	*
316LS/316LVM	1.0800	1.0900	1.1800	1.2300	*	*
317L	0.9270	0.9058	0.9573	1.0616	*	*
321	0.6422	0.6492	0.6906	0.7537	*	*
347	0.9520	0.9590	1.0005	1.0635	*	*
409/409 Mod	0.1929	0.1774	0.1696	0.1813	*	*
410/410S	0.1996	0.1842	0.1765	0.1881	*	*
430	0.2389	0.2243	0.2170	0.2280	*	*
434	0.2860	0.2631	0.2556	0.2739	*	*
439	0.2474	0.2330	0.2258	0.2366	*	*
440A	0.2389	0.2243	0.2170	0.2280	*	*
2205	0.7135	0.6785	0.6995	0.7700	*	*
263	4.8689	4.6223	4.5819	4.5415	4.5356	5.0112
276	4.4746	4.3545	4.5443	4.5846	4.6333	5.0723
A286	1.2250	1.1963	1.2611	1.3262	1.3895	1.5397
330	1.5422	1.5141	1.5934	1.7000	1.8123	2.0237
400	2.6813	2.6200	2.7798	3.0520	3.3636	3.7780
455	0.6800	0.7000	0.7400	0.7700	*	*
465	0.7900	0.8200	0.8900	0.9100	*	*
600	3.0087	2.9608	3.1118	3.3344	3.5831	4.0314
601	2.6280	2.5877	2.7129	2.8952	3.0976	3.4642
617	4.5508	4.3728	4.4409	4.4718	4.5289	5.0047
625	4.9912	4.9088	5.0677	5.1746	5.2960	5.7021
718	4.9757	4.9239	5.0456	5.1730	5.3134	5.6402
X-750	3.5856	3.5389	3.6860	3.9024	4.1440	4.5797
825	2.0533	2.0068	2.1070	2.2015	2.3032	2.5553
HX	2.8722	2.7909	2.9228	2.9887	3.0624	3.3957
188	5.9700	5.8000	6.3400	*	*	*
CCM	6.5400	5.6500	6.8400	7.3000	*	*
L-605	6.8100	6.5200	7.1300	*	*	*

*Surcharge currently not available

GE9X Engine for Boeing 777X Earns FAA Certification

GE Aviation's GE9X, the largest aircraft engine yet developed, has received FAA certification, marking a major step toward entry-into-service on the Boeing 777-9, the first of the 777X family, in 2022.

Although certification tests were held up for several months in 2019 following the discovery of stator durability issues in the high-pressure compressor, GE cleared a redesign in time for the start of 777-9 flight tests in January. Eight GE9X engines, plus two spares, have so far been delivered to Boeing including powerplants for the fourth and final 777-9 test aircraft. That aircraft joined the certification campaign on Sept. 20.



The test engines accumulated just under 5,000 hr. and 8,000 cycles during the certification program which included flights on the company's 747-400 flying testbed. Overall, 72 GE9X test flights, totaling more than 400 hours, were flown on the 747 which first flew with the engine in the left inboard wing position in March 2018.

With FAR Part 33 engine certification completed, GE is also completing factory acceptance testing of the first batch of production GE9X units – deliveries of which to Boeing are expected to begin in the fourth quarter. The company also continues to run ground tests of engines in support of Extended Operations (ETOPS) approval and maturation as part of preparations for supporting engines in service. Pre-certification work also included 1,000 cycles of test time for the Initial Maintenance Inspection which establishes the maximum hours or cycles of service between maintenance intervals.

Aside from the 134-in. dia. fan, which comprises 16 composite blades, the GE9X is distinguished by an overall pressure ratio of 60:1, which is the highest for any commercial engine, as well as the incorporation of more than 300 additively manufactured parts. The engine also utilizes five components made from ceramic matrix composites including the first-stage shroud and first and second-stage nozzles on the high-pressure turbine, and the inner and outer linings of the combustor.

Commenting publicly on a GE engine program for the first time since taking the helm at the start of the month, GE Aviation President and CEO John Slattery describes the GE9X as a "game-changing product" and adds that "there is no substitute that can achieve the combination of size, power and fuel efficiency." *Source: Guy Norris Aviation Week*

GA Telesis, Honeywell in Distribution Deal

GA Telesis has teamed with Honeywell and entered into a distribution agreement to act as a global distributor for their UV Aircraft Cabin Cleaning system. This partnership is another step in the development of GA Telesis' Tarmac Solutions Group's ability to offer a fully comprehensive Specialized Tooling and Ground Support Equipment solution for airlines around the world. This cabin system utilizes Ultraviolet (UV) light to quickly traverse an aircraft cabin, galleys and lavatories in less than 10 minutes. In addition to measures already being taken by airlines in flight like the use of cabin air exchange and HEPA filters, this new system, when properly applied, reduces certain viruses and bacteria on airplane cabin surfaces and can assist in creating a cleaner environment for passengers and crew after the airplane lands and before each flight. The UV cabin cleaning system is intended to help instill confidence to business and leisure travelers as air traffic continues to rebound from the COVID-19 pandemic. *Source: Asian Aviation*



AeroVironment Unveils Switchblade 600 Loitering Missile

AeroVironment has unveiled a tube-launched loitering missile with an armor-piercing warhead and nearly three times the endurance of the original, man-portable Switchblade 300.

The new Switchblade 600 also is designed to be man-portable, while a “six-pack,” vehicle-mounted version will be offered for the U.S. Marine Corps. The Marines have a pending request for proposals for an Organic Precision Fires-Mounted (OPF-M) system, said Brett Hush, senior general manager of AeroVironment’s Tactical Missile Systems.

The Marines plan to conduct a fly-off of candidate OPF-M systems in January, then select a single supplier, Hush said. OPF-M will be added to the Marines’ Light Armored Vehicles, providing a long-range precision fires capability against targets up to 40 km away.

“We pioneered this category, and we continue to develop and introduce new capabilities,” said Wahid Nawabi, AeroVironment CEO.

The Switchblade 300 entered service in 2011 with the Army as essentially a flying, precision-guided grenade. The tube-launched missile is equipped with electro-optic and infrared cameras and an anti-personnel warhead. Once airborne, an operator on the ground can use the live video feed to identify and guide the missile to the target. The battery-operated Switchblade 300 comes with an endurance of 15 min.

The Switchblade 600 is designed to fly about 40 km in 20 min., then loiter in the target area for another 20 min., said Todd Hanning, AeroVironment’s product line manager for Tactical Missile Systems. The missile is fielded now with an anti-armor warhead, but it is capable in the future of carrying other payloads, such as an anti-radiation capability, Hanning said.

So far, AeroVironment has performed 60 test flights of the Switchblade 600 against fixed and moving targets, Hush said. The test flights have all been ground-launched, but the Switchblade 600 also is designed for air and surface launch, he said. The current design of the Switchblade 600 does not make it a recoverable system, but AeroVironment has launched a project to add that capability to the missile in the future, Hush said. *Source: Steve Trimble, Aviation Week, photo AeroVironment*



Study Finds Federal Incentives for Domestic Semiconductor Manufacturing Would Strengthen America’s Chip Production, Economy, National Security, Supply Chains

The Semiconductor Industry Association (SIA), in partnership with the Boston Consulting Group (BCG), released a study analyzing the impact of proposed federal incentives for domestic semiconductor manufacturing. The report, titled Government Incentives and U.S. Competitiveness in Semiconductor Manufacturing, finds robust federal incentives would reverse the decades-long trajectory of declining chip production in America and create as many as 19 major semiconductor manufacturing facilities (fabs) and 70,000 high-paying jobs in the U.S. over the next 10 years. Congress is considering legislation that calls for substantial investments in domestic semiconductor manufacturing and research. SIA represents 95 percent of the U.S. semiconductor industry by revenue and nearly two-thirds of non-U.S. chip firms.

“Federal incentives for U.S. semiconductor manufacturing are an investment in America’s economic strength, national security, supply chain reliability, and pandemic response,” said Keith Jackson, president, CEO, and director of ON Semiconductor and 2020 SIA chair. “With swift, ambitious action, the U.S. government can help turn the tide of decades of decline in the share of global chip manufacturing done in the U.S., which now stands at only 12 percent, and make America one of the most attractive places in the world to produce semiconductors.” *Continued on next page*

Tech Accelerator Eyes Indian Aerospace Growth



Aerospace tech accelerator Starburst is expanding to India following recent growth within the country's aerospace and defense (A&D) industry. The move will see Starburst looking at potential investments in areas such as MRO, urban air mobility (UAM), space hardware and software startups related to all segments within A&D.

According to Starburst CEO Francois Chopard, India has always been on its radar due to its strong capabilities in information technology and software, but it had been waiting for the right opportunity to develop its presence there. Now that the country has begun recognizing the importance of startups and the A&D industry, he says, the timing is finally right. Recent government initiatives to develop the aviation and MRO industries in the country may also provide a better

growth environment, including tax reforms targeting growth in the MRO industry and initiatives within its recent economic stimulus plan aimed at areas such as aircraft maintenance, civil aviation and defense production.

Starburst is opening its Indian subsidiary in Mumbai this month and plans to maintain a strategic presence in Delhi, Bangalore and Hyderabad through partnerships and other operating resources within the A&D ecosystem. Starburst will be engaging with local corporate and government stakeholders and Chopard says it will likely take around six months before it is able to launch its planned early-stage accelerator program in India, which will connect participants to Starburst's network of global partners in government and private sectors.

The move follows Starburst's recent launch of a new Aviation Tech Accelerator Program in Singapore, where it is partnering with Singapore Airlines Group to solve challenge areas shared by airlines, MROs and other players within the aviation ecosystem. While Chopard says it may be difficult to form partnerships with Indian airlines and MROs at the moment due to the COVID-19 crisis, there are still plenty of good prospects for partnerships within A&D and startups.

"We are mostly going to target the international base of OEM players, but also the local ones, and we're going to see if there's anything emerging in the MRO sectors. Usually the UAM [players] are interested in the MRO aspect, so we're going to be very much paying attention to these players," says Chopard. "Given the size of the country and their appetite for growing the A&D sector, I'm sure we're going to be able to find startups in all the 20 different sub-segments of A&D that we usually look at." He adds that this may include UAM for new types of aircraft platforms and software related to autonomy, communications and inflight entertainment.

Source: *Linday Bjerregaard, Aviation Week, photo Tata Aerospace & Defense*

Key report findings: *Continued from previous page*

1. A strong domestic semiconductor manufacturing presence is critical to America's economic competitiveness, national security, and supply chain resilience.
2. The share of global semiconductor manufacturing located in the U.S. has plummeted in recent decades, mostly because competing governments offer large incentives and the U.S. does not.
3. Robust federal incentives for semiconductor manufacturing are needed to strengthen national security, attract substantial chip manufacturing to the U.S., and create tens of thousands of American jobs.

The report also highlights several other areas where government action could help enable a thriving domestic semiconductor manufacturing sector. These include fundamental research in materials and manufacturing sciences, training to ensure the U.S. can have a robust and talented pool of workers, a continued commitment to maintaining U.S. R&D leadership and ensuring access to global markets.

"The country that leads in advanced chip research, design, and manufacturing will have a big leg up in the global race to deploy new game-changing technologies, such as 5G, artificial intelligence, and quantum computing," said John Neuffer, SIA president and CEO. "Leaders in Washington should seize this opportunity, level the global playing field to attract chip production, and invest boldly in domestic manufacturing incentives and research initiatives that will strengthen U.S. tech leadership for decades to come."

Source: *Dan Russo, Semiconductor Association* [Read the full story here.](#)