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## The UPM Market Informer

### Amazon to Buy Energy from Windfarms in Europe and US

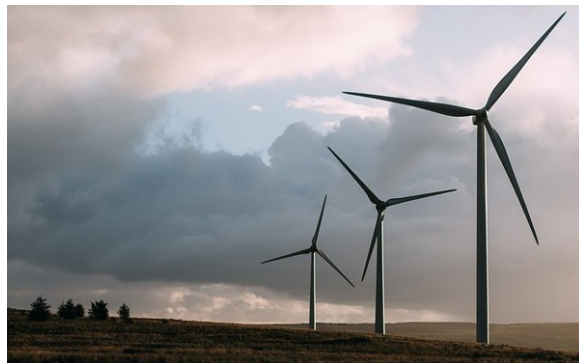
Amazon plans to purchase energy produced by three windfarms as part of its long-term goal to power all Amazon Web Services (AWS) global infrastructure via renewables. The three projects – two 91 MW windfarms in Ireland and Sweden and a 47 MW plant in California – will deliver an expected 670,000 MWh annually.

“Each of these projects brings us closer to our long-term commitment to use 100% renewable energy to power our global AWS infrastructure,” said Peter DeSantis of AWS.

Beyond the sustainability initiatives focused on powering the AWS global infrastructure, Amazon recently announced Shipment Zero, which is Amazon’s vision to make all Amazon shipments net zero carbon, with 50 percent of all shipments net zero by 2030.

The company also recently announced the deployment of an intelligent street lighting system as part of its smart city and energy efficiency initiatives in Australia's Northern Territory.

In total, Amazon has enabled 53 wind and solar projects worldwide, which produce more than 1,016 MW. Amazon has also set a goal to host solar energy systems at 50 fulfillment centers by 2020. This deployment of rooftop solar systems is part of a long-term initiative that will start in



North America. Amazon also implemented the District Energy Project that uses recycled energy for heating offices in Seattle.

Source, Power Engineering International, Clarion Energy Editors

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OMTEC is coming up June 11-13 in Chicago, IL. Visit UPM in Booth #504.

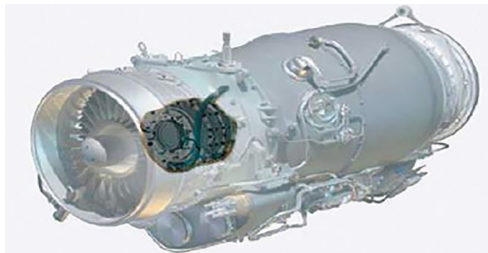


The Paris Airshow is coming up June 17-21 in Le Bourget, France. Visit UPM in Booth #3-E150

## Rolls-Royce Unveils Comprehensive Electric Power Plan

Like many of the world's aerospace gas turbine-makers, Rolls-Royce is coming to terms with the emerging electric-power revolution in civil and military aviation, and as it embarks on several parallel new propulsion technology ventures, the company is revealing key details of its 21st-century strategic development game plan.

"We are at a pivotal point in history," says Sara Poxon, head of operations for Rolls-Royce Electrical, a group recently formed within the company to oversee a new industrial strategy to take advantage of what she describes as an "inescapable trend."



*Embedded starter/generator tests target near-term more electric needs E-Fan X will be the world's most powerful flying electrical generator ACCEL, eVTOL and Volante projects are helping to drive electric technology*

With up to a billion electric cars predicted to be on the road by 2040, and technology pushed primarily by the automotive industry for greater power densities in electrical machines, power electronics

and energy storage systems, "we are reaching the point where they become viable for aerospace; we are starting to see and acknowledge that," says Poxon.

Yet for all this, while embracing the future, the strategy remains rooted in the company's existing industrial strengths in gas-turbine technology. "We don't expect it to happen overnight," she says. "Over the next 5, 10 and 15 years, we expect the majority of our core capability to still be in the gas-turbine remit, and that is why we continue to revitalize existing capabilities."

Alongside continued optimization of gas turbines and closer engine-airframe integration on future aircraft, two other key factors played a part in Rolls' recent decision to make electrification one of its key areas of product innovation. These are an awareness that electrification is spawning a new generation of agile competitors with deep pockets, and the realization that long-term sustainability of aviation could become unattainable as advances in jet design threaten to plateau in the coming decades. *Source: Aviation Week*

## AISI: US Raw Steel Production Up 6.8% in Year to Date

According to the American Iron and Steel Institute (AISI), U.S. steel mills have increased their steel production total by 6.8% for the year to date through April 13 compared with the same period in 2018. Adjusted year-to-date production through April 13 reached 28.0 million net tons, at a capability utilization rate of 81.9%.

Output during the aforementioned period marked a 6.8% increase from the 26.3 million net tons during the same period last year (when the capability utilization rate was 76.4%).

Meanwhile, for the single week ending on April 13, raw steel production hit 1.9 million net tons — up 7.6% from the same week in 2018 — at a capability utilization rate of 82.3%. Production for the same week in 2018 reached 1.8 million net tons at capability utilization rate of 76.0%.

Production for the week ending April 13, 2019, was down 0.7% from the previous week ending April 6, 2019 when production was 1.9 million net tons at a capability utilization rate of 82.8%. By region, the Southern region led the way in raw steel production for the week ending April 13:

- Northeast: 184,000 tons
- Great Lakes: 725,000 tons
- Midwest: 183,000 tons
- Southern: 748,000 tons
- Western: 75,000 tons

Steel production has steadily grown in the year-plus since President Donald Trump opted to impose tariffs on imports of steel and aluminum. In the leadup to the tariffs, the Department of Commerce identified 80% as its goal for the steel sector's capacity utilization rate, as that level is considered to be an indicator of industry health. *Source: MetalMinor*

## V-280 Valor May Fly Autonomously This Year

Bell anticipates its V-280 Valor will fly autonomously by the end of the calendar year and is in negotiations with the U.S. Army for more funding to continue envelope expansion, trades and sensitivity analysis, a company executive says.

The Army would like for Bell to conduct more operational maneuvers, such as going to an alternate landing zone at a high rate of speed, Keith Flail, vice president of advanced tiltrotor systems at Bell, told Aerospace DAILY here April 16 at the Quad-A Army aviation conference.

The Army issued a request for proposals to Bell for the potential work, and Flail said the conversation is ongoing. Separately, Flail's team is preparing for the V-280's first autonomous flight. "We'll have a safety pilot onboard but basically take off on its own, fly around, come back and land on its own," he said. The V-280 has surpassed 300 kt. of airspeed, 200 operational rotor-turn hours, both unrestrained and restrained, and 100 flight hours of envelope expansion to date, Flail said.



The Valor is one of two aircraft built for the Joint Multi Role program, which is the precursor to the Future Long-Range Assault Aircraft (FLRAA). The Army has released a request for information for the effort and gave vendors one week to respond.

"The team rallied, we put the response together—there was the Army piece, the Marine Corps piece, and the [U.S.] Special Operations Command piece," Flail said. "Fortunately, over the last year we've been talking to all three of them about their needs and their unique requirements to make sure we understand what they're looking for and how we would incorporate the unique requirements into the aircraft while still maximizing commonality between the different variants." Flail is confident his team can "absolutely" meet the Army's \$43 million cost target. FLRAA is intended to replace the Army's Sikorsky UH-60 Black Hawk and the Marine Corps' Bell UH-1Y Venom.

*Source: Aerospace Daily & Defense Report, Lee Hudson*

## Stratolaunch Carrier Aircraft Completes First Flight of the World's Largest Airplane

Stratolaunch is making some history even as it scales back its ambitions -- the company has successfully flown the world's largest aircraft, the Scaled Composites Stratolaunch, for the first time. The dual-fuselage rocket hauler took off from the Mojave Air and Space Port soon after 10AM Eastern on April 13th and completed a roughly 2.5-hour journey, reaching a maximum altitude of 17,000 feet. It wasn't carrying a payload, but its trip is still a big deal for a machine that was first announced eight years ago and boasts an unprecedented 385-foot wingspan.



The aircraft is central to the late Paul Allen's vision for Stratolaunch when he started the company in 2011. In many ways, it's a larger parallel to Virgin Galactic's White Knight Two. It's meant to reduce the costs of spaceflight by ferrying rockets to an altitude of 35,000 feet and making it easier to complete the journey into orbit.

There have been more than a few hurdles to clear along the way. There were plans to test-fly the aircraft back in 2016, but it clearly wasn't ready. It didn't start engine tests until 2017, and taxi tests have been underway in the months since. Now, though, Stratolaunch can

focus on preparing its vehicle for its core mission. The main challenge at this stage may be landing customers. Northrop Grumman has already committed to launching its Pegasus XL rockets using the aircraft, but it's not clear who else will line up. Stratolaunch may have to work hard to woo customers, especially as it's becoming easier to launch some payloads using conventional rockets. *Source: Engadget*

## United Technologies Profit Beats on Rockwell Collins Boost

United Technologies Corp reported a higher-than-expected quarterly profit on Tuesday, boosted by robust demand for aircraft parts at one of the producers better placed to ride out the fallout of this year's Boeing 737 MAX groundings.

The company's shares were up 4 percent at \$142.50 in early trading, after it raised the low end of its 2019 forecast for adjusted earnings per share by 10 cents to \$7.80, while keeping the upper end unchanged at \$8.00.

UTC, whose stock has risen 10 percent since the fatal crash in Ethiopia in March, said it is benefiting from better-than-expected performance of its recently acquired aero parts maker Rockwell Collins.

Shares of aerospace suppliers have been under pressure following the second deadly crash of a Boeing Co 737 MAX jet within five months, grounding the planes and forcing Boeing to cut production of its best-selling jets.

UTC's stock, however, has outperformed a 0.2 percent decline in the broader S&P 500 Aerospace and Defense index, due to the aerospace supplier's small exposure to the 737 MAX jets.

Read More here:  
<http://bit.ly/2KUpDmF>



## Surcharge Totals February, 2019 - July 2019

	Feb	Mar	Apr	May	June	July
15-5	0.4682	0.4865	0.5269	0.5186	*	*
15-7	0.6837	0.7158	0.7894	0.7753	*	*
17-4	0.4647	0.4802	0.5205	0.5124	*	*
17-7	0.5292	0.5701	0.6235	0.6144	*	*
201	0.4490	0.4712	0.5117	0.5053	*	*
301 7.0%	0.5246	0.5643	0.6171	0.6081	*	*
302/304/304L	0.5678	0.6142	0.6721	0.6630	*	*
304-8.5%	0.5854	0.6351	0.6952	0.6859	*	*
305	0.7123	0.7856	0.8607	0.8506	*	*
309	0.7410	0.8146	0.8927	0.8829	*	*
310	1.0030	1.1236	1.2328	1.2214	*	*
316/316L	0.8228	0.8784	0.9686	0.9537	*	*
316LS/316LVM	1.0700	1.1900	1.2600	*	*	*
317L	0.9748	1.0354	1.1440	1.1268	*	*
321	0.5945	0.6475	0.7087	0.6992	*	*
347	0.9041	0.9572	1.0183	1.0089	*	*
409/409 Mod	0.2275	0.2197	0.2379	0.2301	*	*
410/410S	0.2340	0.2263	0.2450	0.2373	*	*
430	0.2707	0.2633	0.2861	0.2787	*	*
434	0.3461	0.3373	0.3696	0.3604	*	*
439	0.2785	0.2713	0.2948	0.2876	*	*
440A	0.2707	0.2633	0.2861	0.2787	*	*
2205	0.8105	0.8331	0.9209	0.9060	*	*
263	9.0396	8.7744	8.1914	6.6255	5.6357	5.1224
276	5.2863	4.9542	4.8268	4.8402	5.3238	5.5766
A286	1.4048	1.2671	1.1942	1.2554	1.4141	1.4935
330	1.7080	1.5083	1.4042	1.5145	1.7351	1.8334
400	3.0360	2.6645	2.5065	2.6933	3.1557	3.3232
455	0.6000	0.6800	0.7000	*	*	*
465	0.7400	0.8300	0.8700	*	*	*
600	3.2486	2.8281	2.6425	2.8836	3.3514	3.5278
601	2.8487	2.5046	2.3368	2.5331	2.9156	3.0716
617	7.0476	6.7235	6.3381	5.5608	5.2837	5.1310
625	5.5100	5.1717	5.0201	5.1199	5.5572	5.7679
718	5.2874	4.9963	4.8583	4.9881	5.3343	5.4896
X-750	3.8219	3.4131	3.2307	3.4651	3.9198	4.0928
825	2.3497	2.1291	2.0167	2.1033	2.3732	2.5047
HX	3.4674	3.2009	3.0669	3.0802	3.4023	3.5678
188	10.4500	8.1300	6.7400	*	*	*
CCM	14.7200	10.0800	7.1700	*	*	*
L-605	12.4900	9.3700	7.5400	*	*	*

\*Surcharge currently not available