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EU to Invest 200 Million Euros into Space Industry

The European Union will provide 200 million euros (\$222 million) to support Europe’s space industry, in the form of a loan to help fund development of the Ariane 6 and investment in space startups. The European Commission and the European Investment Bank Group announced at a space policy conference in Brussels Jan. 21 that it would provide the space industry funding, a move that one EU official called a “game changer” for its support of the industry.

Half of the 200 million euros will be in a form of a loan to ArianeGroup to help the company pay for its share of the costs of developing the Ariane 6 rocket, set to make its debut late this year. The European Commission said in a statement that the loan will support “an innovative financing structure which will be contingent on Ariane 6’s commercial success, once operational.” André Hubert Roussel, chief executive of ArianeGroup, said the loan will help finance facilities in France and Germany that will be used to produce and launch the rocket. The financing, he said, “fosters technological expertise allowing European launcher industry to remain always at the leading edge, becoming even more innovative and environmentally responsible.”

The other 100 million euros will go towards a new program, the InnovFin Space Equity Pilot, being developed in cooperation between the European Commission and European Investment Fund (EIF). That program will invest in European venture funds that support startups in the space sector. The first example of such investment is Primo Space, an Italian firm raising an 80 million euro fund for backing early-stage companies seeking to commercialize space technologies. The agencies did not disclose how much they were investing into Primo Space.

“The first ever space equity pilot and our first fund, based in Italy, are a giant leap for the EIF in this sector,” Alain Godard, chief executive of the EIF, said in a statement. “Attracting more private capital to this sector enables us together to drive forward Europe’s space ambitions.”

European space startups have complained in recent years about the lack of venture financing available for their companies, in sharp contrast to the growing interest in space among venture capital funds in the United States and China. That has forced European companies to either seek alternative forms of financing or work with American or other non-European funds.

[Click here for more on this story by Jeff Foust, Space News](#)



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Surcharge Totals November 2019 - April 2020

	Nov	Dec	Jan	Feb	Mar	Apr
15-5	0.5117	0.4942	0.4561	0.4717	*	*
15-7	0.8339	0.7395	0.6608	0.6833	*	*
17-4	0.4897	0.4763	0.4443	0.4600	*	*
17-7	0.7036	0.6553	0.5711	0.5864	*	*
201	0.5250	0.4921	0.4374	0.4495	*	*
301 7.0%	0.6918	0.6449	0.5630	0.5783	*	*
302/304/304L	0.7699	0.7153	0.6214	0.6370	*	*
304-8.5%	0.8052	0.7467	0.6469	0.6628	*	*
305	1.0559	0.9703	0.8288	0.8467	*	*
309	1.0829	0.9970	0.8544	0.8719	*	*
310	1.5918	1.4518	1.2256	1.2472	*	*
316/316L	1.0960	0.9745	0.8537	0.8781	*	*
316LS/316LVM	1.5100	1.3100	1.1900	*	*	*
317L	1.2821	1.1269	0.9920	1.0204	*	*
321	0.8327	0.7704	0.6647	0.6811	*	*
347	1.1426	1.0803	0.9745	0.9909	*	*
409/409 Mod	0.1500	0.1577	0.1606	0.1722	*	*
410/410S	0.1559	0.1636	0.1663	0.1779	*	*
430	0.1904	0.1977	0.1993	0.2103	*	*
434	0.2655	0.2535	0.2538	0.2674	*	*
439	0.1980	0.2052	0.2064	0.2172	*	*
440A	0.1904	0.1977	0.1993	0.2103	*	*
2205	0.9128	0.8005	0.7317	0.7558	*	*
263	4.8125	5.7479	6.8100	6.6353	5.8912	5.1666
276	5.5403	6.2513	6.8100	6.4227	5.5170	5.1098
A286	1.4758	1.7724	2.0100	1.9110	1.6451	1.4517
330	1.8453	2.2659	2.6200	2.5054	2.1497	1.8705
400	3.3721	4.0981	4.7800	4.5835	3.9451	3.4856
455	0.8600	0.7900	0.7200	*	*	*
465	1.0800	0.9500	0.8700	*	*	*
600	3.6423	4.5129	5.2800	5.0575	4.3080	3.7388
601	3.1387	3.8529	4.4700	4.2918	3.6784	3.2082
617	4.9728	5.8546	6.7400	6.4867	5.6610	5.0440
625	5.7753	6.4882	7.0900	6.8049	6.0346	5.5965
718	5.5170	6.1274	6.6500	6.4507	5.8690	5.4781
X-750	4.2008	5.0473	5.7900	5.5760	4.8474	4.2933
825	2.4954	2.9598	3.3500	3.1856	2.7310	2.4350
HX	3.5368	4.1138	4.6000	4.3452	3.6989	3.3456
188	8.4200	7.7500	6.7800	*	*	*
CCM	10.4300	9.7000	8.3400	*	*	*
L-605	9.4600	8.8100	7.6700	*	*	*

*Surcharge currently not available



Changing Parameters in World Stainless Steel Markets

World stainless steel markets are in a state of transformation, due to shifts in the established patterns of supply and demand. This has resulted in diverse production trends, across different regions. Moreover, pricing has become detached from raw material costs.

The latest crude stainless steel production figures, from the International Stainless Steel Forum, show global output growing by 3.4 percent, in the first three quarters of this year, compared with the same period in 2018.

However, within these numbers are significant variations. Chinese output rose by 11.7 percent, year-on-year, in the nine months surveyed, while production fell by 7.2 percent, in the European Union, and by 7.5 percent, in the United States, during the same timeframe.

In recent years, the supply of nickel – a major element in stainless steel costing – has been disrupted by government trade restrictions in major producing countries such as Indonesia and the Philippines. Furthermore, the use of the metal in batteries for electric vehicles, has reduced stainless steel's influence as the main demand factor in nickel pricing.

Consequently, in a period when stainless steel consumption has been mediocre, nickel pricing has soared. The LME nickel cash value on December 19, 2019, was 30 percent higher than the figure exactly one year earlier. This is partially offset, in mill raw material outlay, by reduced chromium unit costs.

However, the December transaction price for grade 304 cold rolled coil, in Germany, was only 2.7 percent above the figure in 2018. In the United States, the corresponding increase was 4.3 percent, year-on-year. Surprisingly, in China, where production continues to boom, the latest price is less than one percent more than the value recorded one year ago. *Source: World Steel News*

EIA: U.S. Crude Production From Tight Formations Continues to Grow

U.S. oil production from tight formations increased in 2019, accounting for 64% of total U.S. crude oil production. This share grew because of the increasing productivity of new wells that were brought online during 2019. Since 2007, the average first full month of oil production from new wells in regions tracked by the U.S. Energy Information Administration's (EIA) Drilling Productivity Report (DPR) has increased.

The average new well in each DPR region produced more oil in 2019 than wells drilled in previous years in those same regions. This trend has persisted for more than 10 consecutive years. More effective drilling techniques, including the increasing prevalence of hydraulic fracturing and horizontal drilling, have helped to increase these initial production rates. In particular, well productivity was improved because of the injection of more proppant during the hydraulic fracturing process and the ability to drill longer horizontal components (also known as laterals) and perforate more stages.

Increasing well productivity has supported crude oil production even in years such as 2015, when oil prices fell and rig counts dropped. In 2016, rig counts continued to decline sharply, and total U.S. crude oil production decreased for the first time in 10 years. Fewer wells were drilled; however, those that were drilled were drilled more quickly and located in more productive areas, which led to increasing per-well production.

Rig counts have fluctuated throughout 2019 in all DPR regions. The aggregate rig counts declined 16% in the first 11 months of 2019. Despite the decrease in rig count, producers are capable of drilling more efficient wells faster to keep U.S. crude oil production growing. Oil producers have increasingly targeted the Permian region, which spans parts of western Texas and eastern New Mexico. The geological structure in the Permian region is more complicated than in other regions, and it took producers more time to advance the drilling and completion technology in the region. However, the Permian region is larger and has more potential for oil production than other regions. Total production and production per new well have increased in the Permian region for 13 consecutive years. In the other four DPR oil regions, oil production fell from 2016 to 2017 because of low oil prices. In Eagle Ford, oil production in 2019 is still lower than its peak in 2015. *Source: Josef Lieskovsky and Richard Yan, Worldoil.com*



Satellite Propulsion Startup Dawn Aerospace Developing Small Launch Vehicle

A green propulsion startup with more than \$1 million in sales says it is gaining traction in the smallsat market while funding its own small launch vehicle.

Dawn Aerospace, based in New Zealand and the Netherlands, has its first propulsion system launching in March on a D-Orbit cubesat aboard a Vega rocket. A second is scheduled to launch

on an Indian PSLV in the second quarter of 2020 on a cubesat for Hiber, a Dutch Internet of Things startup. Dawn Aerospace also has contracts from the New Zealand Space Agency and the U.S. Air Force, Dawn Aerospace CEO Jeroen Wink said in an interview. Formed in late 2017, Dawn Aerospace has raised a little over \$2 million. Tuhua Ventures, a firm that invests in New Zealand startups, led the company's seed round in 2018.

"The idea is to be able to commercialize something very early, to help fund future launcher development," said Joshua Rea, who does business development at Dawn Aerospace, said. "People we sell propulsion to will likely be customers for launch in the long term."

Dawn Aerospace is commercializing thrusters that use nitrous oxide and propene instead of hydrazine. Its 5-pound-force thruster is produced without components restricted by U.S. International Traffic in Arms Regulations, according to the company. Wink said Dawn Aerospace built three flight-ready propulsion systems for cubesats in 2019, and eight larger thrusters for microsattellites. This year the company aims to build 50 cubesat thrusters and 100 microsat thrusters, he said.

Dawn Aerospace is using revenues from those sales to develop a drone-launched rocket system. Rea said the uncrewed spaceplane would fly above 100 kilometers, reaching a speed of 4-kilometers per second. An expendable two-stage rocket would then vault "several hundred kilograms" into low Earth orbit, Wink said. Dawn Aerospace hasn't finalized how much mass its future launch system will be able to carry, Wink said. The company plans to conduct a suborbital flight this year, in hopes of maturing launcher technology and creating an additional revenue stream by carrying payloads to microgravity, he and Rea said. The company's orbital launch system is at least four years away from flying, Wink said.

"What we're really after is applying the model of aviation to space transportation," he said. "Part of that is not requiring a whole lot of ground infrastructure. We want to be as flexible as possible, taking off from any place in the world."

Dawn Aerospace is not alone in planning an air-launched rocket system. Virgin Orbit says it will debut LauncherOne with its modified Boeing 747 carrier aircraft early this year, and Huntsville, Alabama, startup Aevum plans a first launch using a drone in 2021. Wink said Dawn Aerospace's founding team met during 2010 while working on suborbital rockets at the Delft University of Technology. That work gave them experience now leveraged on building a commercial launch system.

Dawn Aerospace's New Zealand staff handle launcher airframe development, in-space propulsion assembly, verification and validation and most commercial activities, Wink said. Launcher propulsion and avionics are under development in New Zealand, where test flights are planned, he said. Wink said Dawn Aerospace is working to close a \$10 million Series A round in the second quarter of 2020. He said spaceport discussions are also underway with airports in New Zealand and Germany. Rea said Dawn Aerospace plans to open an office in the U.S. and build up a sales team there. The company is comprised of 25 people today, Wink said. For satellite propulsion, Dawn Aerospace is using a combination of commercial off the shelf technologies and customized 3D-printed parts, Wink said. He said Dawn Aerospace can provide propulsion systems for larger satellites by scaling the number of thrusters, but that that method loses efficiency as satellites grow into the multi-ton range. *Source: Caleb Henry, Space News*