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Ра	rt I: Mexico						
1.	Mexico: Defence Budget and Procurements						
2.	. Mexico: Aerospace and Defence (A&D) Industry, Exports, Technological Level and International Cooperation						
3.	Epicos "Industrial Cooperation and Offset Projects"						
4.	4. Design and development of special machines and equipments for the aerospace industry						
5.	Design and manufacturing of customized injected parts for military applications						
6.	News from our A&D Business Network						
Part II: Epicos Newsroom							
1.	Boeing Partners with Emirates Flight Training Academy to Address Growing Pilot Demand						
2.	Cubic Receives \$13.9 Million Contract to Support US Army's Bradley Fighting Vehicle Conduct of Fire Trainer						
3.	Rheinmetall wins major order for ammunition worth over €400 million						
4.	Indira Gandhi International Airport selects Rockwell Collins to provide first mobile common use check-in platform in India						
5.	Orbital ATK and ECAPS Sign Agreement on Breakthrough Propulsion Technology						

Mexico: Defence Budget and Procurements

SECRETARÍA DE LA DEFENSA NACIONAL



According to official estimations, Mexican defence spending will rise slightly in 2016 compared to 2015,



reaching 116 billion Mexican Pesos (6.2 billion US dollars). The Secretaría de la Defensa Nacional (SEDENA), which operates as administrator of the army and air force and the Secretaría de Marina (SEMAR) which is responsible for the administration of the navy budgeting, will both receive similar increase in spending, while the budget allocated to the Procuraduría General de la República will be marginally decreased. Despite the fact that defence budget will slightly (64.4 million US dollars) increase, will experience a real fall, mainly due to the forecasted inflation of 3.2%, in Mexico, in the present year (2016).



Defence Expenditure in Billion MXN	2011	2012	2013	2014	2015	2016
Defensa Nacional	51.8	57.6	63.1	67.5	71.3	72.2
Procuraduría General de la República	12.4	15.4	16.4	17.9	16.5	16.4
Secretaría de Marina	18.9	20.4	22.7	25.4	27	27.4
Total	83.1	93.4	102.2	110.8	114.8	116

Source: http://www.gob.mx/hacienda

Mexico's defence budget will continue to slowly increase year-on-year, in the medium-term, owing to the fact that the country aims towards the maintenance of a well-equipped army capable of executing counter-narcotics and internal security operations. Moreover, the campaign against the drug cartels in recent years was rather successful; nevertheless, we should expect that the drug war will continue, creating an increased need for defence assets, like reconnaissance and intelligence equipment, to support such missions.

Mexico's army is considered to be one of the best equipped and trained in Latin America, as it has steadily been modernised, since the beginning of the 21st century. Also, it has taken

several steps to decrease spending and dependency on foreign equipment in order to become more autonomous; one such example is the production of the FX-05 Xiuhcoatl assault rifle, designed and built by the Dirección General de Industria Militar del Ejército (General Directorate of Military Industry of the Army), which is expected to fully replace the Heckler & Koch G3, currently in use, by the end of 2018.

More on that direction, the General Directorate of Military Industry has the capacity to build military vehicles, such as the M1152 High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs). On 2014, Mexico procured from the US 3,335 HMMWVs and related elements of logistical and programme support. The estimated cost of the procurement was 556 million US dollars. A small number the vehicles was manufactured in US, while the remaining HMMWVs were built under license in Mexico by the General Directorate of Military Industry.

Finally, several other indigenous companies, design and manufacture military systems such as electronics and body armour.

Since the beginning of this decade, the Mexican Air Force is in a state of modernization, reequipping and replacing a number of aircraft and helicopters. In 2011, Mexico procured 4 C-27J Spartan transport aircraft, for a deal reaching 200 million US dollars. Additionally, in 2014-15, the Latin American country procured 4 C-295 transport aircraft. With these two procurements Mexico replaced the ageing IAI Aravas aircraft fleet and updated its capabilities for a diverse range of transport missions for military, civil protection and humanitarian purposes. Furthermore, Mexico procured 21 Blackhawk helicopters for approximately 800 million US dollars and Beechcraft T-6C training planes, to replace the Pilatus PC-7 trainers. With these procurements Mexico's air force managed to enhance counter-narcotics operations and to upgrade logistics and personnel transportation, as well as to help civilian population in situations of national emergencies.

Given the country's extensive coastline, the Navy's duties are of great importance. The Mexican Navy mainly depends upon the Astilleros de la Secretaría de Marina –ASTIMAR-(Mexican Secretary of The Navy Shipyards), for construction and repairs of its ships. ASTIMAR have in total five facilities, all in the Gulf of Mexico and in the Pacific Ocean. Moreover, ASTIMAR has formed several strategic partnerships with foreign companies for the development and manufacture of vessels. One such partnership was reaffirmed at the beginning of 2016, when SEMAR signed a contract with the Dutch shipbuilder Damen Shipyards Group for three, 42-metre patrol vessels. All ships will be based on the Damen Stan Patrol 4207 design and will be built by the Mexican Navy Yard ASTIMAR 1 in Tampico. Finally, Damen will provide the engineering, material package, technical assistance and crew training.

Kyriazis Vasileios

Epicos Newsletter Head Editor

Mexico: Aerospace and Defence (A&D) Industry, Exports, Technological Level and International Cooperation





The Aerospace and Defence (A&D) industry is one of the

fastest growing industries in Mexico. The main driving factors are Mexico's proximity to the United States, its sophisticated knowledge and finally, its innovationdriven human capital. In the last ten years, the

aerospace sector has recorded an annual average growth of 16.5%, consolidating its position as a "key" player in the global aerospace industry. The sustained growth of the Mexican aerospace industry has been the result of the "triple helix" concept - a joint strategy involving initiatives from business, government and educational/R&D entities. On the other side, the Mexico's defence industry, is trying deliberately to intensify its R&D efforts, pursuing to link them with the needs of the local armed forces, targeting to reduce the country's dependency on military imports.

In 2015, there were 320 companies and support organizations active in the aerospace industry, within the 18 Mexican states, able to manufacture, maintain, repair, customise, engineer, design and provide auxiliary services (airlines, test laboratories, training centres, etc.) to commercial and military aircraft. As of 2015, according to a report provided by PROMEXICO1, 72.1% of these companies were engaged in manufacturing, 10.9% in maintenance, repair and overhaul (MRO) activities, 3.8% were support organisations (including universities and research centres), while the remaining 13.2% were firms working on engineering and design. The majority of these companies are NADCAP and AS9100 certified and generate more than 45,000 direct jobs.



Source: PROMEXICO

¹ PROMEXICO is the federal government agency responsible for coordinating strategies aimed at strengthening Mexico's participation in the international economy.

In 2013, Mexico was the 4th biggest destination for manufacturing investments in the aerospace sector, coming after China, India and the USA. The country has attracted more than 1.8 billion US dollars in accumulated foreign investment within the last 10 years. In January 2015, exports of the aerospace industry amounted to 467.9 US million dollars, while imports reached 376.7 million US dollars, for a favourable balance of 91.3 million US dollars, while in 2014 exports reached a value of 6.37 billion US dollars. According to estimations provided by the "Strategic Program of the Aerospace Industry 2010-2020," published by the Ministry of Economy, the industry is expected to export 12.26 billion US dollars and reach a total of 108,900 direct jobs, in 2020.

Mexico's national strategy in the aerospace sector, aims to transform the country into a technological hub that will serve the complete cycle of an aircraft production: from design and engineering; to part manufacturing and assembly; aircraft maintenance; and recycling and/or refurbishment of an aircraft.

The aerospace industry of Mexico is mainly concentrated in five regions:

- **Baja California** is one of the most important states for the Mexican aerospace industry, with approximately 80 companies and exports of 1.82 billion dollars a year. The US receives the majority of Baja California's exports, while Canada, the United Kingdom, France and Germany are following.
- Chihuahua has five OEMs and more than 37 certified suppliers that generate 13,000 direct jobs and a total of 1.5 billion US dollars in foreign and local investment. Chihuahua's industrial aerospace capacities are concentrated on composite materials, sheet metal, aerostructures, forging, welding, as well as heat and surface treatments.
- Sonora has more than 50 companies and support entities in the aerospace sector, exporting products of an approximate value of 250 million US dollars. Sonora is considered as the country's centre of excellence, for the manufacture of blades and components for turbines and aero-engines (casting and machining processes among others).
- Querétaro has 30 aerospace companies and support entities, and has reported exports of 1.14 billion US dollars. Querétaro companies' capacities are predominantly focused on products and machining processes for complex components, aerostructure manufacture, engine component manufacture, brake system manufacture, MRO for propulsion engines and landing gear manufacture.
- Nuevo Leon has 28 companies in the aviation sector, exporting aerospace products of 651 million US dollars per year. Nuevo Leon is the house of several large MRO centres.

As mentioned before, Mexico's defence industry is not as developed as the aerospace industry; nevertheless, it has helped the country's defence forces to decrease spending and dependency on foreign equipment and therefore become more autonomous. One such example is the production of the FX-05 Xiuhcoatl assault rifle, designed and built by the Dirección General de Industria Militar del Ejército (General Directorate of Military Industry of the Army).

More on that direction, the General Directorate of Military Industry has the capacity to build military vehicles, such as the M1152 High Mobility Multi-Purpose Wheeled Vehicles

(HMMWVs). On 2014, Mexico procured from US 3,335 HMMWVs and related elements of logistical and program support. The estimated cost of the procurement was 556 million US dollars. A small number was manufactured in US, while the remaining HMMWVs were built under license in Mexico by the General Directorate of Military Industry.

Finally, several other indigenous companies, design and manufacture military systems such as electronics and body armour.

Mexico has also developed shipbuilding capabilities. It is indicative that the Mexican Navy mainly depends upon the Astilleros de la Secretaría de Marina –ASTIMAR- (Mexican Secretary of The Navy Shipyards), for the construction and repairs of its ships. ASTIMAR have in total five facilities, all in the Gulf of Mexico and in the Pacific Ocean.

- ➢ Gulf of Mexico
 - Naval shipyard 1 (ASTIMAR 1) Tampico, Tamaulipas
 - Naval shipyard 3 (ASTIMAR 3) Coatzacoalcos, Veracruz
- Pacific Ocean
 - Naval shipyard 6 (ASTIMAR 6) Guaymas, Sonora
 - Naval shipyard 18 (ASTIMAR 18) Acapulco, Guerrero
 - Naval shipyard 20 (ASTIMAR 20) Salina Cruz, Oaxaca

In recent years, ASTIMAR has formed several strategic partnerships with foreign companies for the development and manufacture of vessels. One such partnership was reaffirmed at the beginning of 2016, when SEMAR signed a contract with the Dutch shipbuilder Damen Shipyards Group for three, 42-metre patrol vessels. All ships will be built by the Mexican Navy Yard ASTIMAR 1 in Tampico. Finally, Damen will provide the engineering, material package, technical assistance and crew training.

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Epicos "Industrial Cooperation and Offset Projects"

Cpicos.com Epicos "Industrial Cooperation and Offset Projects" provides a unique set of online tools enabling the structure, identification and implementation of comprehensive Offsets programs, through a searchable database. By introducing different offset projects and ideas proposed by local A&D industry it ensures the optimum cost for Prime Contractors and reassures that the priorities of local industry are fully met...

For Further Information Press Here

Design and development of special machines and equipments for the aerospace industry



A company with extensive experience in the manufacturing of structures and equipment for the aeronautical sector is proposing the collaboration with a Prime contractor for the design and development of special machines and equipment that can be used in the manufacturing and/or maintenance process in the aerospace industry.

For Further Information Contact our ICO Department Mail at: a-kintis@epicos.com

Design and manufacturing of customized injected parts for military applications



A company with long standing experience in the design, development and manufacturing of injected parts is willing to expand its activities in the direction of design and manufacturing of customized injected parts for military applications.

For Further Information Contact our ICO Department Mail at: a-kintis@epicos.com

News from our A&D Business Network





Boeing and Malaysia Airlines Berhad (Malaysia Airlines) announced today an order for 25 737 MAX 8 airplanes, valued at \$2.75 billion dollars at current list prices. The order, previously attributed to an unidentified customer on the Boeing Orders & Deliveries website, also includes purchase rights

for additional 737 MAX 8 and 737 MAX 9 airplanes. "This deal is a game-changer for Malaysia Airlines with much lower costs and greater efficiency which we will pass on to our loyal customers with lower fares," said Malaysia Airlines Chief Executive Officer Peter Bellew. "With the 737 MAX's longer range capabilities, we will be able to connect our passengers to more destinations, in greater comfort and with superior economics."

The Malaysian national carrier has operated almost every derivative of the 737 airplane family and took delivery of its 100th 737 in December 2014. Malaysia Airlines currently operates 56 737-800s.

"The 737 MAX will continue the superior operating economics and reliability of the 737 that Malaysia Airlines has depended on for more than 40 years," said Dinesh Keskar, senior vice president, Asia Pacific & India Sales, Boeing Commercial Airplanes.

"We are honored to continue our long partnership with Malaysia Airlines and welcome them to the growing 737 MAX family." "Malaysia Airlines is now on a path to growth across the Asean region," said Bellew. "This new aircraft order will set the stage for our continued recovery and success into the next decade."

The 737 MAX will deliver 20 percent lower fuel use than the first Next-Generation 737s and the lowest operating costs in its class -8 percent per seat less than its nearest competitor. The new single-aisle airplane incorporates the latest technology CFM International LEAP-1B engines, Advanced Technology winglets and other improvements to deliver the highest efficiency, reliability and passenger comfort in the single-aisle market.

Malaysia Airlines is the national carrier of Malaysia, offering the best way to fly to, from and around Malaysia. Among the few airlines to have won both a Skytrax five-star rating and World's Best Cabin Crew award, Malaysia Airlines takes our 40,000 guests daily on memorable journeys inspired by Malaysia's diverse richness. Malaysia Airlines embodies the incredible diversity of Malaysia, capturing its rich traditions, cultures, cuisines and warm hospitality on board, while opening up more of Malaysia's destinations than any other airline.

Since September 2015, the airline has been owned and operated by Malaysia Airlines Berhad. As a member of oneworld[®], Malaysia Airlines and its partners in the global alliance offer a superior, seamless travel experience to more than 1,000 destinations in 150 plus countries, with special privileges and rewards for frequent flyers, including access to more than 650 airport lounges worldwide. Up to 90 destinations will be serviced across Asia, Africa, the Americas and the Middle East via a new codeshare partnership with Emirates, signed in early 2016.

JetBlue orders 30 additional A321 aircraft



New York-based JetBlue Airways has amended its purchase agreement with Airbus to include an additional 15 Airbus A321ceo (current engine option) and 15 A321neo (new engine option) aircraft. The airline, which already operates A321s, has not yet announced its engine

selection for the newly ordered aircraft. Beginning in 2019, JetBlue has the flexibility to configure the New Engine Option aircraft to the Longer Range version of the A321 – the A321LR.

"Airbus has been our partner since the beginning, and we are proud that our partnership continues today," said Robin Hayes, president and CEO, JetBlue. "The A321 is an incredible aircraft that is delivering results for our business. We intend to deploy many of these aircraft to expand our successful Mint experience and our west coast presence."

Many of JetBlue's newly ordered A321 aircraft are expected to be delivered from Airbus' newest manufacturing facility in Mobile, Alabama. The first aircraft to be produced at Airbus' U.S. Manufacturing Facility – a JetBlue A321 known as "BluesMobile" – is on public display today at the EAA AirVenture air show in Oshkosh, Wisconsin. BluesMobile was delivered to the airline and entered service this spring.

"When we decided to build an assembly line in the U.S., we did it to help meet the increasing demand from our U.S. customers," said John Leahy, Chief Operating Officer – Customers. "The A320 Family is a market leader worldwide – one that has found particularly great success in the United States because of its economics, efficiency and comfort. We look forward to delivering more and more aircraft from our U.S. facility to our customers here in America."

JetBlue currently operates a fleet of 160 A320 Family aircraft, including 130 A320s and 30 A321s. Including the order announced today, the airline's backlog of Airbus aircraft comprises 116 planes: 25 A320neo, 31 A321ceo, and 60 A321neo aircraft.

The A320 Family is the world's best-selling single aisle product line with almost 12,600 orders since launch and more than 7,100 aircraft delivered to more than 320 operators worldwide. Thanks to their widest cabin, all members of the A320 Family offer unmatched comfort in all classes and Airbus' 18" wide seats in economy as standard. With one aircraft in four sizes, the A320 Family, seating from 100 to 240 passengers, seamlessly covers the entire single-aisle segment from low to high-density domestic to longer range routes.

Epicos NewsRoom

epicos.com Boeing Partners with Emirates Flight Training Academy to Address Growing Pilot Demand

Boeing announced a partnership today with the Emirates Flight Training Academy, a division of Emirates Airline, to collaborate on a comprehensive training curriculum and software infrastructure to help train pilot cadets.

"We are leveraging Boeing's expertise in airline pilot training to identify opportunities to enhance the Academy's curriculum" said Captain Alan Stealey, principal, Emirates Flight Training Academy.

Boeing is creating a customized, integrated software system for managing cadet learning and training using software developed by the recently-acquired Peters Software GmbH. Peters Software is a leading provider of European Aviation Safety Agency-based training systems and content for early stage ("ab-initio") aviation training.

"The program developed by Boeing will enhance the Emirates Flight Training Academy to efficiently train pilot cadets by integrating everything the academy needs into one place," said Sherry Carbary, vice president, Boeing Flight Services. "Boeing has forecasted the industry will need 617,000 pilots by 2035. We are dedicated to work with customers to create programs to help fill that demand."

The agreement with the Emirates Flight Training Academy is part of Boeing's Pilot Development Program, a comprehensive program designed to meet the training requirements to become a qualified airline first officer.

Emirates Flight Training Academy, currently under construction at Al Maktoum International Airport - Dubai World Central (DWC), is scheduled to open in October 2016.

Emirates designed the facility to promote advancements in four key areas of pilot training: interactive learning for theoretical subjects in classrooms, practical learning in the most capable training aircraft, practical learning in advanced flight simulators, and airline-focused line-oriented flight training. Once completed, the Academy will be able to accommodate over 600 students at a time.

For Further Information Click Here

Source: Epicos, Boeing

Cubic Receives \$13.9 Million Contract to Support US Army's Bradley Fighting Vehicle Conduct of Fire Trainer

Cubic Global Defense (CGD), a business unit of Cubic Corporation (NYSE: CUB), today announced an award of \$13.9 million from Oasis Advanced Engineering (OASIS) to produce and deliver Crewstation Subsystems in support of the Bradley Fighting Vehicle (BFV) Conduct of Fire Trainer (COFT). The COFT enables the BFV unit to perform critical skills required in combat and designed for gunnery proficiency. OASIS is the prime contractor for this program to support the U.S. Army's Program Executive Office for Simulation, Training and Instrumentation (PEO STRI).

Cubic received a base contract of \$4.18 million to produce and deliver nine Mobile and four Institutional Crewstation Subsystems with associated spares. Cubic also received an option award of \$9.74 million where Cubic will deliver an additional 21 Mobile and 10 Institutional Crewstation Subsystems with associated spares, for a total of 44 systems at nearly \$14 million to be delivered worldwide. Base and option awards provide both Cubic and customer continuous deployment of systems starting from April 2017 to March 2018.

"The Bradley trainers are part of an ongoing effort by the U.S. Army to improve training and reduce friendly fire causalities by focusing on simulated combat scenarios and mission readiness," said Dave Buss, president of Cubic Global Defense. "Cubic looks forward to continuing our successful partnership with OASIS and delivering enhanced gunnery proficiency training capabilities to the U.S. Army PEO STRI."

The COFT is a dual-configuration, virtual simulation system that replicates the Bradley M2/A2 Operation Desert Storm-Situational Awareness (ODS-SA) and the Bradley M2/A3 ODS vehicles. It functions in a synthetic environment and is used by an instructor to train and sustain the Bradley Gunner and Commander critical gunnery skills required for direct fire engagements.

About Cubic Corporation

Cubic Corporation designs, integrates and operates systems, products and services focused in the transportation, defense training and secure communications markets. Cubic Transportation Systems is a leading integrator of payment and information technology and services to create intelligent travel solutions for transportation authorities and operators. Cubic Global Defense is a leading provider of live, virtual, constructive and game-based training solutions, special operations and intelligence for the U.S. and allied forces. Cubic Mission Solutions provides networked Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) capabilities for defense, intelligence, security and commercial missions. For more information about Cubic, please visit the company's website at <u>www.cubic.com</u> or on Twitter @CubicCorp.

Source: Epicos, Cubic Corporation

Rheinmetall wins major order for ammunition worth over €400 million

The Rheinmetall Group of Düsseldorf has won another major order for ammunition from an international customer. Booked in the second quarter of 2016 and worth over €400 million, the contract runs for seven years. This underscores once again the Group's global reputation for excellence, which has made it one of the world's top three makers of military munitions.

For many years Rheinmetall has numbered among the leading system suppliers of the international defence and security industry. Rheinmetall Defence, with 10,000 employees working at production and sales locations in over 15 countries, achieved sales of €2.6 billion in 2015.

Rheinmetall Defence offers an extensive array of weapons and munitions, ranging from medium- and large-calibre solutions and infantry products to pyrotechnic devices and warhead and propellant technology for missiles and torpedoes. Prominent examples include medium-calibre automatic cannon for the Eurofighter, naval patrol craft and infantry fighting vehicles as well as the main armament of the Leopard main battle tank. Rheinmetall supplies the accompanying ammunition for all of these systems.

For Further Information Click Here

Source: Epicos, Rheinmetall

Indira Gandhi International Airport selects Rockwell Collins to provide first mobile common use check-in platform in India

Passengers using Indira Gandhi International Airport (IGI) can now check in faster due to the implementation of Rockwell Collins' new ARINC vMUSE[™] mobile passenger processing solution. IGI, India's busiest airport and the largest in South Asia, is the first airport to implement ARINC vMUSE, which gives airlines the ability to check in travelers wherever and whenever needed.

"'Passenger delight' is a driving principle that has helped shape our company, services, goals and all that we stand for today," said Jeewan Khulbe, Head of IT at Delhi International Airport Ltd. "ARINC vMUSE mobile from Rockwell Collins is a way to improve the passenger experience and to provide our airports with cutting-edge solutions when traditional systems are not enough."

ARINC vMUSE mobile enables airline and ground handling agents to utilize a tablet-based application to check in passengers from anywhere in an airport. Key reasons IGI selected ARINC vMUSE mobile include:

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Providing the airport with a cost effective way to accommodate its rapid growth without additional infrastructure.

Enabling the airport to help airlines reduce queues during winter months when weather can cause irregular operations due to flight disruptions.

Providing a specialized check-in tool that enables airlines to offer an added level of service, like off airport check in or seat upgrades, for elite passengers.

"IGI understands the value that these new technologies will bring–especially improving operations," said Paul Hickox, head of Airport System Sales for Rockwell Collins. "It is one of the many reasons IGI has repeatedly been honored by industry groups as one of the world's leading airports for both quality and customer service."

Since 2009, IGI has benefitted from the implementation of Rockwell Collins' ARINC airport solutions. In addition to ARINC vMUSE mobile, the airport has deployed ARINC vMUSE[™], ARINC SelfServ[™] Kiosks, ARINC VeriPax[™] Passenger Reconciliation System and ARINC BagLink[™] for baggage messaging to facilitate passenger processing and reduce congestion.

About Rockwell Collins

Rockwell Collins is a pioneer in the development and deployment of innovative aviation and high-integrity solutions for both commercial and government applications. Our expertise in flight deck avionics, cabin electronics, mission communications, simulation and training, and information management is delivered by a global workforce, and a service and support network that crosses more than 150 countries. To find out more, please visit www.rockwellcollins.com.

Source: Epicos, Rockwell Collins

Orbital ATK and ECAPS Sign Agreement on Breakthrough Propulsion Technology

Orbital ATK, Inc, a global leader in aerospace and defense technologies, announced today that it has signed an agreement with leading European green propulsion technology firm ECAPS to fully develop, demonstrate and market a high performance green propulsion (HPGP) system. The HPGP system, which offers significant cost advantages and dramatically reduces the environmental risks associated with traditional monopropellants, is aimed at both attitude control and main propulsion.

"We are excited to be able to bring safer, more effective and affordable propulsion systems to the United States," said Pat Nolan, Vice President and General Manager of Orbital ATK's

Missile Products Division of the Defense Systems Group. "Greener propulsion is one of the keys to making access to space safer while lowering life cycle costs. We believe our partnership will go a long way toward developing innovative and practical solutions for public and private use."

Orbital ATK's team will leverage exclusive use of ECAPS' LMP-103S, a very-low toxicity monopropellant technology designed as a direct replacement for hydrazine-based systems. LMP-103S offers significantly higher specific impulse and density, meaning greater performance and lower volume. More importantly, it is a low-toxicity, environmentally-benign propellant, providing enhanced safety and health benefits over conventional hydrazine. It offers the promise of propellant loading prior to satellite transport and considerably lower logistics cost.

The partnership continues Orbital ATK's commitment to HPGP technology, which includes scaling up the blending of LMP-103S, successful tests of 5 and 22 Newton thrusters, and supporting several Small Business Innovation Research programs.

Orbital ATK's Defense Systems Group is an industry leader in providing innovative and affordable precision and strike weapons, advanced propulsion and hypersonics, missile components across air-, sea- and land-based systems, ammunition and related energetic products.

About ECAPS

Founded in 2000, ECAPS is an innovative company with focus on green propulsion-based products for space applications. ECAPS innovations will enable simplified access to space for satellite and launcher systems. ECAPS holds a number of patents worldwide for a family of ADN (ammonium dinitramide) -based propellants, catalyst, thruster design and manufacturing methods. ECAPS has its development and hardware manufacturing facilities in Solna in the greater Stockholm area.

About Orbital ATK

Orbital ATK is a global leader in aerospace and defense technologies. The company designs, builds and delivers space, defense and aviation systems for customers around the world, both as a prime contractor and merchant supplier. Its main products include launch vehicles and related propulsion systems; missile products, subsystems and defense electronics; precision weapons, armament systems and ammunition; satellites and associated space components and services; and advanced aerospace structures. Headquartered in Dulles, Virginia, Orbital ATK employs approximately 12,000 people in 18 states across the United States and in several international locations. For more information, visit www.orbitalatk.com.

Source: Epicos, Orbital ATK