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# OZEQUITIES NEWSLETTER

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## FEATURE

### Week's Special

**OEC: ORBITAL'S PATENTED PROPULSION SYSTEM FLEXIDI USED BY TEXTRON'S UAVs + DESIGN DELIVERED TO BOEING SUBSIDIARY INSITU PLACES OEC AT FOREFRONT OF ONE OF THE WORLD'S GREAT GROWTH INDUSTRIES + EXISTING PROJECTS , NEW OPPORTUNITIES. NTA 43C, NO INTANGIBLES ON AN IMPECCABLE BALANCE SHEET**

*Please note:* We have long been minute shareholders in OEC

Orbital Corporation Ltd an Australian engineering icon, founded in 1972 and listed in 1984, is now a world leader in the supply of propulsion systems for Unmanned Aerial Vehicles (Drones) via its patented FlexDI engine management system - one of the great growth industries of the world.

FlexDI is already used by Textron Unmanned Systems on its Aerosonde 4.7 Unmanned Aerial Vehicle. This week OEC announced its first purpose built ScanEagle Unmanned Aerial Vehicle propulsion system for Insitu Inc., a subsidiary of Boeing for in house testing and development, which won a very positive reception from Insitu's President and CEO.

Meanwhile, Orbital's CEO and managing director Terry Stinson, who joined Orbital as MD in 2008 from Siemens VDO, Europe's engineering conglomerate (purchased by Continental Corp in August 2007), said early this month that Orbital has committed to a new growth strategy, will seek new j/vs and potential acquisitions to grow the top line and increase profits and value for shareholders (more on the new strategy below "in snapshot").

### THE UAV (UNMANNED AERIAL VEHICLES ("DRONES") OPPORTUNITY

*FAA Aerospace Forecast Fiscal Years 2014-2034*

The Federal Aviation Administration (FAA), the national aviation authority of the United States, in a recent report on Unmanned Aircraft Systems (UAS) said it continues to be the most dynamic growth sector within the aviation industry. Once enabled, commercial UAS will have the potential to be a significant component of the national airspace system. Integration of Civil UAS in the National Airspace System-Roadmap Unlike the manned aircraft industry, the UAS community does not have a set of standardized design specifications for basic UAS design that ensures safe and reliable operation in typical civilian service applications. Ultimately, the pace of integration will be determined by the ability of industry, the user community, and the FAA to overcome technical, regulatory, and operational challenges.

The purpose of the Integration of Civil Unmanned Aircraft Systems in the National Airspace System Roadmap is to outline, within a broad timeline, the tasks and considerations needed to enable UAS integration in to the NAS for the planning purposes of the broader UAS community.

The Roadmap also aligns proposed Agency actions with the Congressional mandate in the 2012 FAA Reauthorization. The five-year Roadmap will be updated annually and is intended to guide aviation stakeholders in understanding operational goals and aviation safety and air traffic challenges when considering future investments.

*Unmanned Aircraft Systems Comprehensive Plan*

The UAS Comprehensive Plan details work that has been accomplished, along with future efforts needed to achieve safe integration of UAS into the National Airspace System (NAS). The perspectives and information available from these individual activities create a framework and reveal an evolving capability for the integration of UAS into the NAS.

The UAS Comprehensive Plan sets the overarching, inter agency goals, objectives, and approach to integrating UAS into the NAS. Each partner agency will work to achieve these national goals and may develop agency-specific plans that are aligned to the national goals and objectives.

*Unmanned Aircraft System Test Site Program*

On February 14, 2012, Congress had mandated the FAA to develop a test site program. These test sites will enable the development of a body of data and operational experiences to safely operate and integrate these aircraft into the NAS.

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The overall purpose of this test site program is to develop a body of data along with operational expertise to enable the safe operation of these aircraft in the NAS. FAA received 25 applications from 24 states.

#### *UAS Spending Forecast*

Teal Group's 2013 World Unmanned Aerial Vehicle Systems annual sector study forecasts U.S. and international Unmanned Aircraft market s. Teal Group creates a market profile along with a forecast for military and civil markets for both the U.S. and outside the U.S. As summarized in the chart below, Teal Group forecasts significant spending growth. Total procurement and R&D is expected to increase from \$5.2 billion to \$11.6 billion annually over the next decade. Teal Group's ten year forecast estimates total UAS spending worldwide at \$89.5 Billion.

#### **FSM AUSTRALIA COMMERCIAL UAV CONFERENCE, BRISBANE OCT 28-30**

FSM Australia said in its prelude to the Commercial UAVs conference, taking place in Brisbane from 28 – 30 October, "The importance of real time, or at the least more frequent updates of imaging and data, is becoming more fundamental to all organisations bottom-lines and competitiveness. Up to date geographical image data can help minimise errors, equipment failure, construction project faults and wastage or inefficiencies of operations".

FSM Australia said key professionals from mining, civil construction; defence & border security, energy transmission and distribution, water, agriculture, oil & gas, energy services, telecommunication and engineering firms will be represented at the meeting.

FSM Australia quoted experts from various industries:

\*Dan Geeves, Senior Surveyor – Land Infrastructure, Aurecon said, "Using UAVs to generate digital terrain models has allowed us to dramatically reduce health and safety risks. A lot of the terrain was too steep to walk on, and there was the danger of slips and rockfalls based on the physical characteristics."

\*Darryn Dow, Chief Mine Surveyor & UAV Controller, Territory Resources Matthew Brown, Senior Mine Surveyor, Peabody Energy said, "It delivers a lot more data than we previously could capture. We've seen efficiency gains, safety gains, data quality gains and improved turnaround times. A 15-minute flight would take a person on the ground almost a week in order to collect the same amount of information."

\*Matthew Brown, Senior Mine Surveyor, Peabody Energy said, ""Using UAVs will help us not only for surveying, but asset management as well. Instead of sending someone to walk around a paddock to survey a length of pipe, we'll photograph the area, stitch the model together through the photos and digitise that length of pipe."

\*Frank Courtney, Technology Improvement Specialist, Melbourne Water said, "We have a lot of high voltage and potentially explosive assets – hazardous areas. There are practices that we have to do as part of our day to day which are inherently dangerous. Where we can completely engineer out the requirement for someone to be put in harm's way, is a benefit that can't be overstated."

\*Will Glenn, Commander – Operations Communications, Melbourne Fire Brigade said, "The flexibility of the aircraft is really exciting. Most of the innovative tools introduced to the MFB have historically been for localised usage. We're currently moving to an 'all hazards/all services' approach; whether it's for a police job, CFA mission or other emergency service."

\* \* \*

#### **THE TEXTRONS AND BOEINGS OF THE WORLD WILL DOMINATE THE UAV FUTURE**

Orbital's alignment with two of the largest players in the UAV space, Boeing and Textron means it is a supplier to two of the most likely future players as the market grows exponentially, and legislation to enforce redundancy, track-and-avoid technologies forces the smaller players out of the market. These requirements are expected for commercial applications where these unmanned craft fly in commercial airspace and includes small (SUAS), medium (MALE) and large UAVs that fly at very high altitudes. The changes will raise costs and the degree of technical expertise needed beyond the reach of players without their deep pockets.

Orbital is one of the few companies with the technology and expertise that can simulate altitude and other requirements at its Balcatta propulsion development centre, which is one of few of its kind and considered to the largest and most extensive in the southern hemisphere.

Orbital sees the future for UAV's globally as huge - while the defence business is big and allows reasonable margins, the real opportunity is in commercial applications - e.g., oil and gas pipeline inspection as well as surveying - where a UAV will do what currently is undertaken by manned aircraft and boatloads of experts.

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Orbital also has royalty income from its FlexDI system supplied to various manufacturers around the world, and offers consultancy and engineering services.

Directors are knowledgeable and dedicated, and the management team varies from an employee with 35 years service to young graduates with highly qualified electronics, software and computer skills.

NTA is 43c, gearing is at 12% and there is no goodwill on the balance sheet. After several years, Orbital this year made a small profit.

Orbital's parent portfolio includes some 55 Patent Families, with 79 Granted Patents and 37 Pending Applications as of 15th September 2014. The portfolio retains key Orbital fuel, combustion and control systems in country of sale, or manufacture. Since March 2011, 17 provisional applications have been filed protecting Orbital's more recent developments in UAV, Dual Fuel LNG injection systems for heavy vehicle applications and Direct Injected CNG systems for light truck and passenger car applications.

### **ORBITAL CORPORATION LTD - A SNAPSHOT**

Orbital Engines was founded in 1972 and listed in 1984 as Sarich Technologies. In 1990 Ralph Sarich resigned and in 1993 the company changed its name to Orbital Engines. BHP had a 25% stake, which it sold down to 9.5% in July 1998, with BHP selling out completely in October that year.

Orbital Engines became the company we know today.

By 2001 Orbital had begun to make technical transfer and license agreements with majors in the m/v industry, including General Motors, and several European motorcycle/scooter manufacturers, including Piaggio, Europe's largest motorcycle producer for its air assisted direct fuel injection technology.

#### ***The evolution of Orbital Engines from royalties and one off revenue to recurring revenue***

It is important to realise that in early days Orbital, at one time a billion dollar company and the largest at the time in WA, had seen its future as *fundamentally a technology company*, earnings its money, like a Dolby, from licenses and royalties. But this meant that without a significant take up of their innovations, and a continuous stream of new patented technologies, income was insufficient to support the extensive facilities and labs and to maintain the expert staff required.

Orbital then moved from research and development into *an engineering consultancy services company*, like a Ricardo, which again meant that while they were providing technical innovations and engineering solutions to companies around the world, they were not creating a foundation for recurring revenue. The contracted innovations flowed to the customers for their new products while the revenue for Orbital stopped when the engineering project was delivered. While the customers' problems were solved, Orbital was not able to use the innovations to build a base to proceed to greater heights, OEC merely received a comparatively small one off payment - and had to look for the next consultancy. This type of business is difficult to forecast and plan for, and is highly susceptible to downturns in the market. Orbital experienced this in 2008, during the GFC, and posted significant losses due to the lack of available work from their worldwide customer base.

*Orbital's main focus today is on the manufacture of highly complex products in-house at Balcatta*

While Orbital continues to receive royalty revenue and consultancy services revenue today, this is down from about 100% in 2008 to 12% in 2013, and 23% last year. As Orbital group grows their top line in systems sales, this percentage will continue to decrease which also de-risks the company to overall and individual market fluctuations.. Instead, OEC now manufactures highly complex products in-house at Balcatta where it has the facilities and the expertise to compete at the highest level.

(While in due course an Asian component, and possibly a US component to manufacture will be added, the headquarters will remain Australia - which the company sees as excellently located to support continued R&D, and with the expertise and facilities to continue to manufacture small runs of very high value product, as well as sustaining manufacture of components and replacement parts). Orbital has also announced plans to use their WA HQ and engineering base to enter into the local resources segment with high value products and systems. This new initiative will focus on the growing push for improved productivity and efficiency from existing assets. Orbital's engineering expertise and experience in the highly competitive automotive and motorcycle segments will provide an excellent foundation for entry in to the resources segment.

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\*A key foundation technology and revenue generator is Orbital's *FlexDi* engine management system technology which has been commercialised, since 1996 in the marine market and subsequently in the motorcycle, recreational and most recently Unmanned Aerial Vehicle markets. FlexDi generates revenue in all four areas.

Orbital in its outlook for FlexDI said while it expects to receive royalties from existing licensed two stroke outboard engine manufacturers for a number of years as yet, when production of the current models of two stroke engines cease, they are not likely to be replaced by new models incorporating the FlexDi technology. FlexDI will continue in UAV's with Textron and Boeing as this is the enabling technology to improve range, reduce vibration, and allow the use of heavy fuels in the field. FlexDI returns are embedded in each of the EMS and Fuel Systems sold to Textron and in the future on the Insitu division of Boeing propulsion systems.

\**The Synerject joint venture* (OEC 30% with Continental AG, the acquirer of Siemens VDO) is the world's largest independent supplier of non-automotive engine management systems. Synerject operates engineering facilities in Europe, North America and Asia and also has production facilities in North America and China. The outlook for Synerject is for continued growth in the marine and recreational segment and in the low end 2 and 3 wheeler and utility markets in future years.

\*Orbital's *Autogas Systems* developed and supplies a *Liquid Phase Injection LPG system* to Ford Motor Company of Australia for use in their EcoLPi range of Falcon passenger cars and utilities. It is also an importer and wholesaler of LPG fuel systems for the Australian retrofit market, with the LPG related businesses holding an estimated combined domestic market share of more than 40%.

\*Orbital's *Sprint Gas Australia* (SGA) is a major nationwide distributor of LPG systems for the aftermarket. SGA offers a wide range of systems for the older generation "vapouriser" systems through to sequential injection systems and the Orbital Liquid LPG systems. This business also holds an approximately 40% market share

\**Orbital Consulting Services* provides engineering and testing facilities to domestic customers and engineering services for international customers in India, Japan, China, USA, South America and Europe. The company plans to expand consulting services in the Indian market through a proposed joint arrangement with UCAL Fuel Systems Ltd, a leading fuel system supplier in India.

\*Other high technology systems and consulting services are offered through OEC's various business segments. Orbital expects revenues from small unmanned aircraft systems will be higher in the next financial year as sales are resumed of EMS components to Textron and on progress in the Insitu, division of Boeing development contract. Due to the subdued LPG systems market at present, both OAS and SGA have undertaken restructures and have managed to increase market share albeit in a contracting market. Orbital is currently the largest player in the Australian LPG market.

Orbital's patent portfolio includes some 55 Patent Families, with 79 Granted Patents and 37 Pending Applications as of 15th September 2014. The portfolio retains key Orbital fuel, combustion and control systems in country of sale, or manufacture. Since March 2011, 17 provisional applications have been filed protecting Orbital's more recent developments in UAV, Dual Fuel LNG and Direct Injected CNG systems.

Orbital is one of the few companies with the technology and expertise that can simulate altitude and other requirements at its Balcatta propulsion development centre, which is one of few of its kind and considered to be the largest and most extensive in the southern hemisphere.

*Most recently:*

**On September 16** Orbital Corporation Ltd announced it has delivered the first purpose built ScanEagle Unmanned Aerial Vehicle (UAV) propulsion system to Insitu Inc, a subsidiary of the Boeing Company for in house testing and development. Designed specifically for Small Unmanned Aircraft Systems (SUAS) class UAVs it is the first reciprocating internal combustion propulsion system to be engineered from the ground up for unmanned aerospace applications.

CEO and MD Terry Stinson said in the report delivery of the first engine is a major milestone in the UAV propulsion engineering project. "Insitu is very satisfied with the program results to date and the team is already moving forward to achieve our next target".

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Insitu's President and CEO Mr Ryan Hartman said in the report, "Insitu is extremely pleased with the receipt of this first propulsion system and our collaboration with Orbital Corporation in Australia. "We conducted a rigorous selection process for our next generation propulsion supply partner and this event further proves that we made the right choice".

### September 2 - expansion plans

Following completion of Orbital's 4.98 million share buyback program since balance date (at an average price slightly over 15c) and the achievement of a \$1.7 million profit for 2014, CEO and managing director Terry Stinson said the company is pursuing new joint ventures including with UCAL Fuel Systems Ltd in the Indian automotive and motorcycle market, with the Indian defence business possibly also strategically significant in Orbital's growth plan for the future.

Orbital is also targeting opportunities with unique technology and exposure to the resources sector as well as synergies with the company's existing businesses.

Code: OEC  
Last Traded price 21c.  
Shares Issued 44.78m  
Market Cap 9.4m.

Year ended June 30, Values in \$m's

<b>INCOME</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
Op Revenue	18.16	26.49	22.12
Op Profit (loss)	1.20	2.09	(3.6)
Net profit (loss)	1.68	0.36	(3.05)
(Loss)PS (Cents)	3.39	0.74	(6.28)

<b>BALANCE SHEET</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
Current Assets	15.84	15.48	14.53
Non Current Assets..	21.83	20.65	25.67
Current Liabilities	7.53	7.29	10.89
Non Current Liabilities	9.09	9.34	11.88
Net Assets & Shareholders' Funds	21.05	19.50	17.43
Intangibles	-	0.15	2.26
Net Tangible Assets	21.05	19.35	15.17
Gearing (Net of Cash) %	12.1	6.2	27.8
NTA per share (cents)	42.3	39.2	31.1
Shares Issued (m's)	49.76	49.33	48.72

<b>Cash Flows:</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
Cash on hand (at open)	6.90	3.80	3.44
Operating Activities	(1.91)	(1.72)	(4.24)
Investing	0.86	7.68	2.96
Financing Activities	(0.43)	(2.86)	1.64
<b>Cash on hand at Year end</b>	<b>5.42</b>	<b>6.90</b>	<b>3.80</b>

4.98m. shares bought back since the balance date has raised the NTA per share from 42.3 to 45.3cents and raised the June 30 gearing from 12.1% to 15.3%.

### Directors:

**Dr Mervyn Thomas Jones** | B.Eng (Hons), Ph.D, DipBusStuds, CEng (UK), FIChemE (UK), MAICD, MIoD (NZ), Chairman - Independent Non-Executive Director. Joined the Board in March 2008, appointed Chairman on 3 September 2013. Dr Jones has more than 35 years experience as a consulting engineer and as a senior executive. He has specific expertise in the development and management of organic business growth in the Asia Pacific region, as well as acquisition experience in both Australia and China. Dr Jones is also a director of a number of non listed and private companies.

**Dr Vijoleta Braach-Maksvytis**, BSc (Hons), PhD, MAICD, Independent Non-Executive Director. Joined the Board in March 2008. Dr Braach-Maksvytis is a strategist working across the business, government and research sectors, at both the national and international level. Originally from the field of nanotechnology, her experience covers commercialisation of technology, management of intellectual property, organisational change, and innovation. Dr

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Braach-Maksvytis also serves as a non-executive director of AWE Limited.

**Mr Terry Stinson**, BBA (Magna Cum Laude), Chief Executive Officer and Managing Director.

Mr Stinson holds a degree in Business Administration and Operations Management from Marian University in Fond du Lac, Wisconsin. He commenced at Orbital in 2008 bringing over 30 years experience in R&D, engine development and manufacturing, and fuel systems design and manufacturing. His extensive commercialization and management experience was gained through senior executive positions with Siemens VDO, as the CEO of Synerject LLC and subsequent Board Directorship, and his role as VP Manufacturing for Outboard Marine Corporation. In 1995, Mr Stinson was appointed as President and CEO of METEOR, a JV company between Mercury Marine Division of Brunswick Corporation and Orbital. He moved to Perth from the USA and remained in that role for nearly five years, during which period METEOR became the Synerject LLC joint venture business.

**John Welborn**, Bcomm, Independent Non-Executive Director. Joined the Board in June 2014.

Mr Welborn is currently the Managing Director and Chief Executive Officer of Equatorial Resources Limited, and is a Chartered Accountant with a Bachelor of Commerce degree from the University of Western Australia and holds memberships of the Institute of Chartered Accountants in Australia, the Financial Services Institute of Australasia and the Australian Institute of Company Directors.

### **Management**

**Dr Geoff Cathcart**, PhD Mech Eng, Chief Technical Officer.

As Chief Technical Officer, Dr Cathcart is responsible for Orbital's Balcatta Perth facilities, and represents Orbital on a number of advisory panels. Dr Cathcart has led Orbital's technical developments, including the direct injection for both automotive and non-auto applications, since the early 2000's.

**Mr Ian Veitch**, B.Bus, GradDipACG, ACA, ACIS, Chief Financial Officer and Company Secretary, Mr Veitch is a Member of the Institute of Chartered Accountants and an Associate of Chartered Secretaries Australia. Mr Veitch has more than 18 years experience in corporate accounting and is responsible for the administration of the Group's Finance, Corporate Governance and Risk Management activities.

**Mr Quentin Fletcher**, General Manager of Orbital Autogas Systems. Mr Fletcher joined the Orbital Autogas business in 2006 in a Project Engineering role. Quentin led engineering and operation activities for supply of Ford Australia's EGAS vaporiser and now the Ford ECOLPI product. In 2014, Mr Fletcher was appointed Business Unit Manager of Orbital Autogas Systems. He brings to the role experience in supplier management, development and management of production systems and a focus on developing systems and people to meet customer requirements in the automotive sector.

**Mr Steven Ahern**, BEng (Hons), Director of Intellectual Property Management & Planning. Mr Ahern comes from an engineering background, involved with the early developments of Orbital's combustion, fuel and engine management systems. Subsequently Mr Ahern became more involved in the commercial aspects of Orbital's business and today has responsibility for Patent Management and Planning.

### **Major shareholders:**

SG Hiscock has 9.65%

Mulloway Pty Ltd as trustee for John Hartley Poynton has 5.19%.

The Top 20 hold 47.72% of OEC

Our previous **Week's Special** was on June 13 2008. OEC was trading at 12.5c.